ISO 9001

CATALOG 13

SPAENAUR

Advancing the Standard of Fastening

SPAENAUR

Advancing the Standard of Fastening

Spaenaur Inc. has been meeting the fastener needs of thousands of customers like you since 1936.

We are a leading North American distributor for industrial fasteners, hardware components and tools. We sell all types of fasteners, especially "hard-to-find" fasteners. We carry the inventory so that you don't have to.

Our commitment is to serve you -

Accurately,
On Time,
Every Time.

Spaenaur a répondu aux besoins d'attaches à un millier de clients comme vous-mêmes depuis 1936.

Nous sommes un distributeur majeur dans l'amérique du nord pour les attaches industrielles, pièces de quincaillerie et les outils. Nous vendons tous les genres d'attaches, surtout les pièces spécialisées. Nous vous offrons cet inventaire afin de répondre à tous vos besoins.

Notre engagement envers notre clientèle, c'est de bien vous servir -

Avec Précision,
Toujours en Temps,
En Tout Temps.

President/Président

BUY FROM THE FASTENER SPECIALIST,
WE SERVE OVER 10,000 INDUSTRIAL CUSTOMERS ANNUALLY, SO WE CAN SERVE YOU.

We save you money by carrying your inventory for you:

- 64,000 products in inventory, that's over 500 million pieces!

We save you time when you need it most:

- Same day guaranteed shipping for in-stock items ordered by 12 pm, EST.

We save you from the hassle of searching for products:

- We carry products from more than 600 suppliers worldwide.
- If we don't catalog it, we'll source it for you!

ACHETEZ DU SPÉCIALISTE D'ATTACHES,

NOUS RENDONS SERVICE À PLUS DE 10,000 CLIENTS INDUSTRIELS PAR AN, ALORS NOUS SOMMES EN MESURE DE BIEN VOUS RENDRE SERVICE.

Nous vous épargnons de l'argent en vous offrant cet inventaire:

- 64,000 produits en magasin, c'est au-delà de 500 millions de pièces.

Nous vous épargnons du temps précieux, quand vous en avez le plus de besoin:

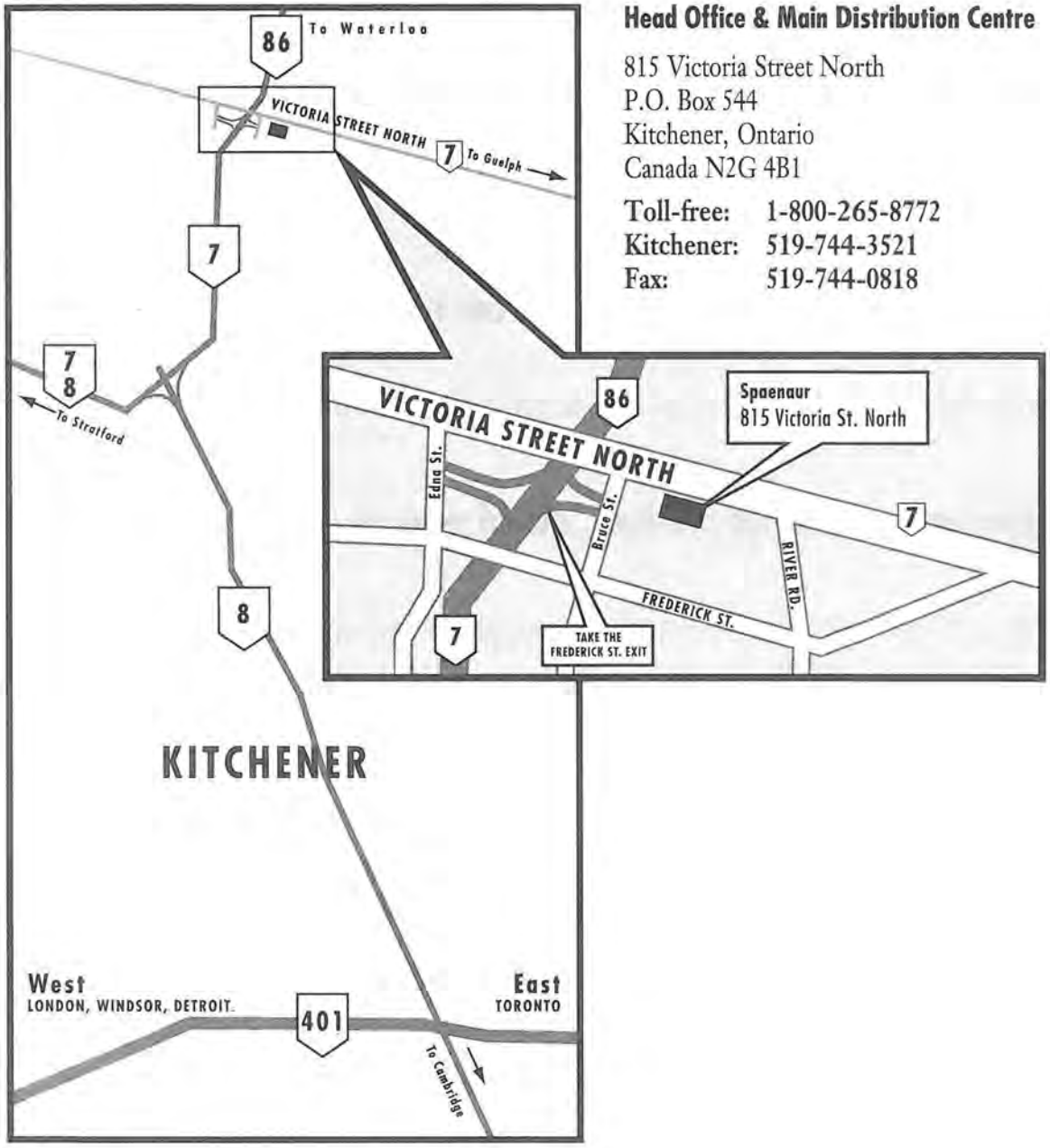
- Garantie de livraison, la journée même, pour les pièces en inventaire commandées par 12:00 (l'heure de l'est)

Nous vous épargnons les soucis d'être à la recherche de produits:

- Vous pouvez choisir des produits de plus de 600 fournisseurs à travers du monde entier.
- Si nous ne l'avons pas dans notre catalogue, nous allons le rechercher pour vous.

How to Reach Us

Comment nous trouver



Head Office & Main Distribution Centre

815 Victoria Street North
P.O. Box 544
Kitchener, Ontario
Canada N2G 4B1

Toll-free: 1-800-265-8772
Kitchener: 519-744-3521
Fax: 519-744-0818

DIRECTIONS:

1. From Hwy. 401 take Hwy. 8 West to Kitchener-Waterloo
2. From Hwy. 8 take Hwy. 86 East to Waterloo
3. From Hwy. 86 take Hwy. 7/Frederick and Wellington Street Exit
4. Take the Frederick Street Exit
5. At the stop light, make a left on to Bruce Street
6. At the stop light, make a right on to Victoria Street
7. Spaenaur is at 815 Victoria Street North (3rd building on the right)

SPAENAUR

It's Easy to Buy from Spaenaur

How to Order:

- Sales Desk open 8:30 am to 5:00 pm, EST.
- Toll-free: 1-800-265-8772
- Kitchener: 519-744-3521
- Fax: 519 744-0818

Helpful Hints:

- Each catalog section has its own Table of Contents.
- The Index and Reference tables are at the back of the catalog.
- The Terms and Conditions are at the back of the catalog.

Need a price?

- See our separate Price List.

Metric-sized products?

- Printed in BLUE in the catalog.

Inch-sized products?

- Printed in BLACK in the catalog.

Need something you can't find? Need a large quantity?

- Just call us for price and delivery.

C'est facile d'acheter de Spaenaur

Comment commander:

- De 8h30 à 17h (l'heure de l'est)
- Sans frais: 1-800-265-8772
- Kitchener: 519-744-3521
- Télécopieur: 519-744-0818

Conseils utiles:

- Chacune des sections du catalogue contient sa propre Table de Matières.
- L'index et les tables de références se classent au verso du catalogue.
- Les termes et conditions sont au verso du catalogue.

À la recherche d'un prix?

- Voyez notre liste de prix.

Produits aux dimensions métriques?

- Imprimées en BLEU dans le catalogue.

Produits aux dimensions en pouces?

- Imprimées en NOIR dans le catalogue.

À la recherche de quelque chose en particulier? À la recherche d'une quantité en masse?

- Tout simplement communiquez auprès de nous pour prix et livraison.

SPAENAUR

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Washers	Rondelles	D
Rivets, Pins, Rods, Keys & Retaining Rings	Rivets, goupilles, tiges, clés, bagues de retenue	E
Furniture & Builders Hardware	Quincaillerie pour meubles	F
Hose Tube & Wiring Components	Attaches de tuyauterie et de câblage	G
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SPAENAUR

REGULAR SIZE Assortments

13-3/8" x 9-1/4" x 2"

- All "REGULAR SIZE" Assortments are put up in durable, welded STEEL drawers with hinged lid, and are finished in Grey enamel.
- Inside lid label shows stock numbers and size data.
- All drawers have SCOOPED bins, for easy removal of contents.
- Individual refill items always available in Unit Packages, as catalogued.
- *SPAENAUR* Regular Size Assortments are ideal for garages, industrial plants, service trades, schools, etc.
- Matching empty drawers are also available. (See pages A30 and A31.)

Typical
"REGULAR SIZE" Assortment

(See page A3 for "Large Size" Assortments.)

STORAGE - SLIDE RACKS

For Organized Storage of Your
SPAENAUR
"REGULAR SIZE" Assortments

No. 814-406
15-1/4" W x 11-3/4" D x 16-3/8" H
Shipping weight 14.5 kg (32 lbs.)
Accommodates 6 Drawers - Regular size
13-3/8" W x 9-1/4" D x 2" H

No. 814-404
15-1/4" W x 11-3/4" D x 11-1/4" H
Shipping weight 10 kg (22 lbs.)
Accommodates 4 Drawers - Regular size
13-3/8" W x 9-1/4" D x 2" H

No. 814-751
15-1/4" W x 11-3/4" D x 6-1/4" H
Shipping weight 5.5 kg (12 lbs.)
Accommodates 2 Drawers - Regular size
13-3/8" W x 9-1/4" D x 2" H

Slide Rack 814-406 is shown.

SLIDE RACK

(Drawers not included)

- Heavy-duty Steel
- All Welded Construction
- Grey Enamel Finish

Packed Singly

SPAENAUR
REGULAR SIZE ASSORTMENTS are for YOU!

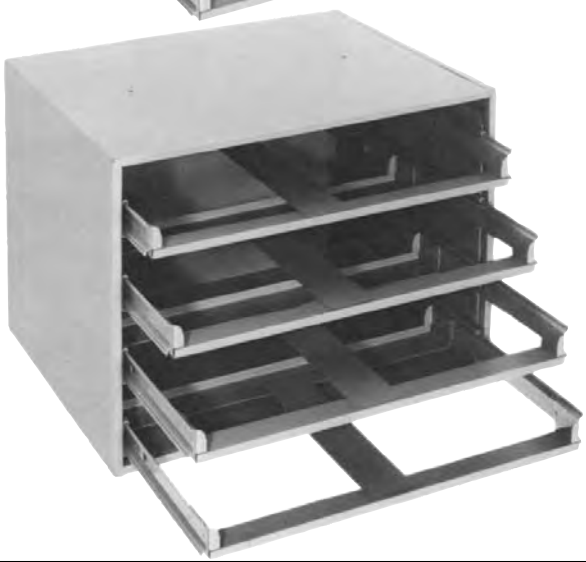
Typical
"LARGE SIZE" Assortment
Roomy compartments provide generous storage space.
(See also page A2 for "Regular Size" Assortments.)

SPAENAUR

LARGE SIZE Assortments

18" x 12" x 3"

- All "LARGE SIZE" Assortments are put up in welded STEEL drawers with hinged lid, and finished in Grey enamel.
- Inside lid label shows stock numbers and size data.
- All drawers have SCOOPED bins, for easy removal of contents.
- Individual refill items always available in Unit Packages, as catalogued.
- Matching empty drawers are also available. See pages A32 and A33.



STORAGE - SLIDE RACKS

(Drawers not included)

For Organized Storage of Your
SPAENAUR
"LARGE SIZE" Assortments.

No. 814-754
20" W x 15-3/4" D x 8-1/8" H
Shipping weight 9.07 kg (20 lbs.)
Accommodates 2 "LARGE SIZE" Drawers
18" W x 12" D x 3" H

No. 814-604
20" W x 15-3/4" D x 15" H
Shipping weight 16.8 kg (37 lbs.)
Accommodates 4 "LARGE SIZE" Drawers
18" W x 12" D x 3" H

STEEL SLIDE RACK ONLY (Drawers not included)
Priced Singly

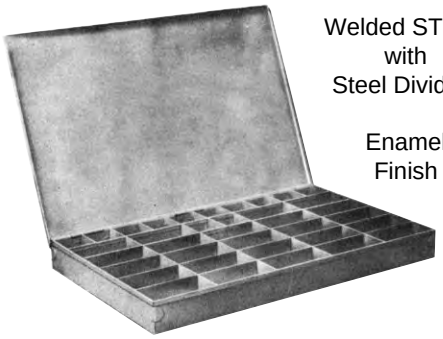
SPAENAUR
"SPECIAL" Assortments

This range of assortments (in STEEL containers) has been developed to provide…

- The most logical size and style of container to house the specialized items contained.
- Extremely broad ranges of items such as in Assortment No's. B-576, 1285R, etc.
- Inside lid label shows illustrations, *SPAENAUR* Numbers and size data.
- Individual refill items always available in "Unit Packages", as catalogued.

B-576

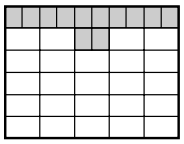
As used to assemble "SPECIAL"Assortment Kits



Welded STEEL with Steel Dividers

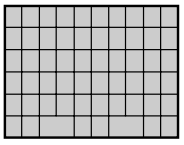
Enamel Finish

93-E
(RED)
12 Scooped Bins
24 Regular Bins



16-1/4" W. x 11-3/4" D. x 2" H.
Shipping Wt. 2.26 kg (5 lbs.)
Priced Singly

94-E
(RED)
48 Scooped Bins



16-1/4" W. x 11-3/4" D. x 1-7/8" H.
Shipping Wt. 2.60 kg (5-3/4 lbs.)
Priced Singly

B-570

1285-R

EMPTY PLASTIKITS

CLEAR PLASTIC CONTAINERS - Durable and practical. Hinged lids - all plastic - no metal pins to rust or break. Positive gripping clasp - no spilling of contents.

Visible stock. Easy storage of parts. Neat! Clean! Handy!

176-E

Size: 4-1/2" x 2-3/4" x 1"
Weight .042 kg

Priced Singly

181-E

Priced Singly

Size: 5-1/2" x 1-13/16" x 1/2"
Weight .028 kg

Our Assortments and Plastikits are organized in the same order as our Catalog sections.

Assortments appear on pages A6 to A25.

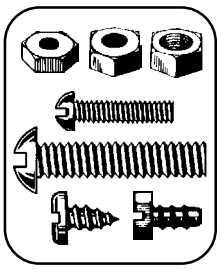
Plastikits appear on pages A26 to A29.

Assortments and Plastikits — A must for every shop!

Meeting your needs today and tomorrow!

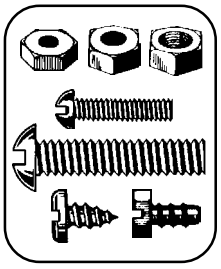
Our 55 person call centre is available to answer any questions that you may have pertaining to product, delivery or application. Our bilingual telesales staff is thoroughly trained to ISO 9002 standards and open from 7 a.m. to 7 p.m. to personally take your order. Call us today at **800-265-8772.**

B SECTION Assortments

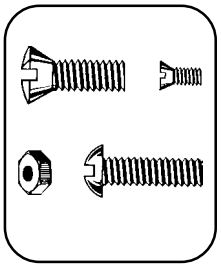


B-576
Steel, Plated
SLOTTED SCREWS & HEX NUTS
For Radio, Television & Electronics Shops
1775 Screws - 41 Sizes; 800 Nuts - 8 Sizes
Special Box 16-1/4" x 11-3/4" x 1-7/8"
Inch Sizes See page B12

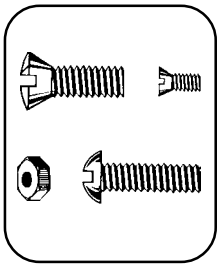
B-576



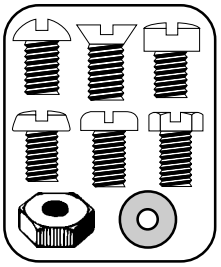
B-576-M
Steel, Plated
SLOTTED SCREWS & HEX NUTS
For smaller Radio, Television & Electronics Shops and Repair Trucks
902 Screws - 34 Sizes; 575 Nuts - 8 Sizes
Regular Box
Inch Sizes See page B12



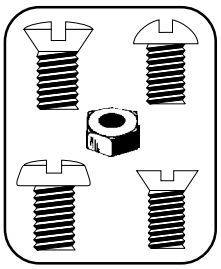
1285M
Steel, Plated
MACHINE SCREWS AND HEXAGON NUTS
Oval, Round, Flat Slot Head
72 Sizes - 1043 Pieces
Regular Box
Inch Sizes See page B14



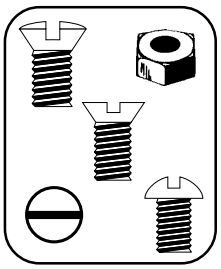
1285R
Steel, Plated
MACHINE SCREWS AND HEXAGON NUTS
Oval, Round, Flat Slot Head
73 Sizes - 1100 Pieces
Special Box 16-1/4" x 11-3/4" x 1-7/8"
Inch Sizes See page B14



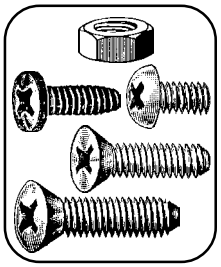
805-641
6/6 Nylon
MACHINE SCREWS, HEX NUTS AND FLAT WASHERS
Round, Flat, Fillister, Pan, Binding, Hex Slotted Head
71 Sizes - 3600 Pieces Large Box
Inch Sizes See page B15



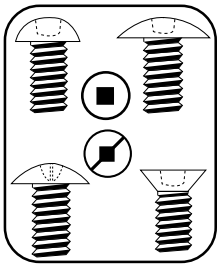
805-534
Brass, Unplated
SLOTTED MACHINE SCREWS AND HEX NUTS
945 Total Pieces; 66 varieties of Machine Screws, 10 varieties of Hex Nuts
Regular Box
Inch Sizes See page B17



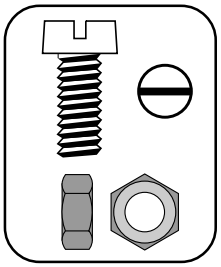
805-525
18-8 Stainless Steel
MACHINE SCREW AND HEX NUTS
1043 Total Pieces
65 Sizes of Oval, Round and Flat Head Slot Drive Screws, 7 Sizes of Hex Nuts
Regular Box
Inch Sizes See page B25



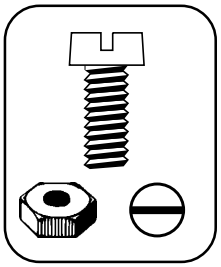
805-008
Steel, Plated
PHILLIPS DRIVE MACHINE SCREWS WITH HEX NUTS
48 Varieties - 1290 Pieces
Special Box 16-1/4" x 11-3/4" x 1-7/8"
Inch Sizes See page B32



805-535
Steel, Plated
MACHINE SCREWS Square Socket and Socket/Slot Drive
30 Sizes - 1080 Pieces
Regular Box
Inch Sizes See Page B37



805-539
Unplated, or Zinc Plated
SLOTTED CHEESE HEAD MACHINE SCREWS AND NUTS
24 Sizes - 1200 Pieces
Coarse Thread
Regular Box
Metric Sizes See page B48

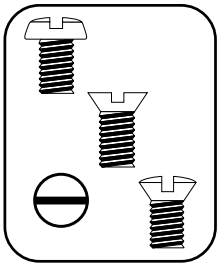


805-400
Steel, Zinc Plated
MACHINE SCREWS, DIN 84 SLOT HEAD STYLE WITH HEX NUTS
24 Sizes - 1385 Pieces
Regular Box
Metric Sizes See page B48

B SECTION Assortments

A

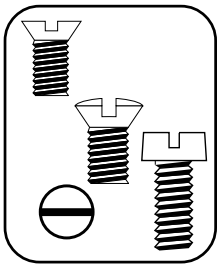
B SECTION Assortments



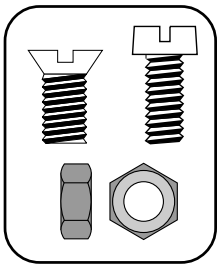
805-401
Steel, Zinc Plated
MACHINE SCREWS – Slotted Pan, Flat and Oval Heads
24 Sizes - 1100 Pieces
Regular Box
Metric Sizes See page B48

805-541

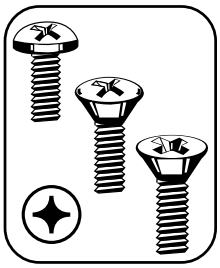
805-439
Steel, Zinc Plated
NORTH AMERICAN STYLE SLOTTED PAN HEAD MACHINE SCREWS
24 Sizes - 1000 Pieces, Coarse Thread
Regular Box
Metric Sizes See page B48



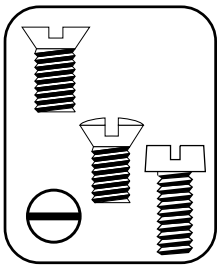
805-429
A2 Stainless Steel
MACHINE SCREWS - Slotted Cheese, Oval and Flat Heads
24 Sizes - 215 Pieces
Coarse Thread
Regular Box
Metric Sizes See page B55



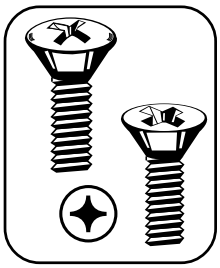
805-536
Brass, Unplated
MACHINE SCREWS AND HEX NUTS - Slotted Flat and Cheese Head
1245 Pieces, 26 Sizes - Slotted Flat Head; 28 Sizes Slotted Cheese Head, 8 Sizes Hex Nuts, Coarse Thread, Regular Box
Metric Sizes See page B60



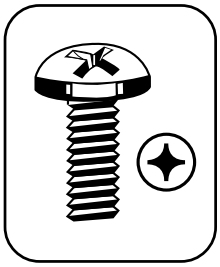
805-483
Low Carbon Steel, Plated
MACHINE SCREWS - (Phillips) Pan, Oval and Flat Heads
24 Sizes - 1000 Pieces
Coarse Thread
Regular Box
Metric Sizes See page B63



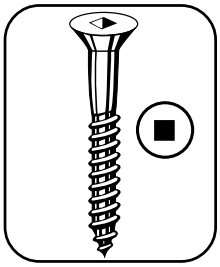
805-431
6/6 Nylon
MACHINE SCREWS - Cheese, Oval and Flat Slot Head
24 Sizes - 188 Pieces
Coarse Thread
Regular Box
Metric Sizes See page B64



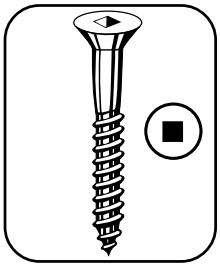
805-486
6/6 Nylon
MACHINE SCREWS - (Phillips) OVAL & FLAT HEADS
24 Sizes - 1500 Pieces
Coarse Thread
Regular Box
Metric Sizes See Page B64



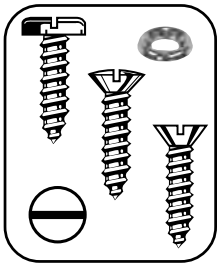
805-487
6/6 Nylon
MACHINE SCREWS - Phillips Drive Pan Head
Coarse Thread
Regular Box
Metric Sizes See Page B64



805-661
Steel, Zinc Plated
WOOD SCREWS Square Socket Drive
24 Sizes - 1150 Pieces
Large Box
Inch Sizes See page B80



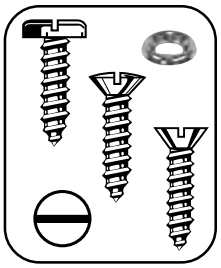
805-541
Brass
WOOD SCREWS - Square Socket Drive
24 Sizes - 1125 Pieces
Regular Box
Inch Sizes See page B80



1268R
Steel, Plated
TAPPING SCREWS (Type AB) Slotted Pan, Oval & Flat Head
36 Varieties - 1065 Pieces
Special Box 16-1/4" x 11-3/4" x 2"
Inch Sizes See page B95

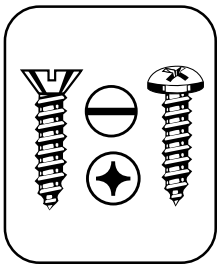
B SECTION Assortments

B SECTION Assortments

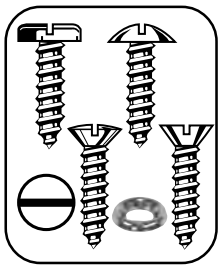


1268M
Steel, Plated
TAPPING SCREWS (Type AB)
Slotted Pan, Oval & Flat Head
36 Varieties - 1000 Pieces
Regular Box
Inch Sizes See page B95

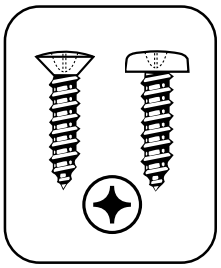
805-546



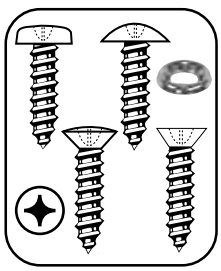
B-573
Steel, Plated
TAPPING SCREWS (Type AB)
Slotted & Phillips Pan Head
36 Varieties - 1000 Pieces
Special Box 16-1/4" x 11-3/4" x 2"
Inch Sizes See page B95



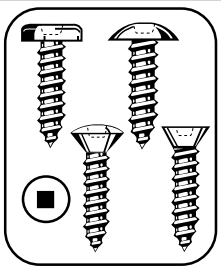
805-526
18-8 Stainless Steel
TAPPING SCREWS (Type AB)
Slotted Oval, Flat, Pan and Truss Head
34 Sizes of Screws, 2 Sizes of Countersunk
Finishing Washers – 1000 Pieces
Regular Box
Inch Sizes See page B95



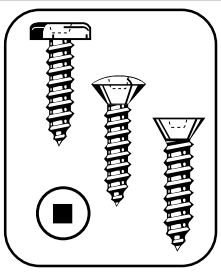
B-570
Steel, Plated
TAPPING SCREWS (Type AB)
Phillips Drive -
Oval and Pan Head
36 Sizes - 1095 Screws
Special Box 16-1/4" x 11-3/4" x 2"
Inch Sizes See page B101



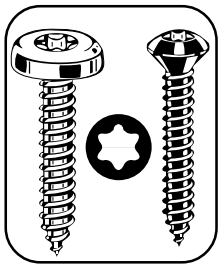
805-546
18-8 Stainless Steel
TAPPING SCREWS
(Type A – AB)
Phillips Oval, Flat, Pan, and Truss Head
34 Varieties - 900 Screws
2 Varieties - 100 Ctsk. Finishing Washers
Regular Box
Inch Sizes See page B102



805-531
Steel, Plated
TAPPING SCREWS (Type AB)
Square Socket Oval, Flat, Pan
and Truss Head
32 Varieties - 1000 Pieces
Regular Box
Inch Sizes See page B103



805-530
18-8 Stainless Steel
TAPPING SCREWS (Type AB)
Square Socket Oval, Flat,
Pan Head
30 Varieties - 690 Pieces
Regular Box
Inch Sizes See page B104



805-497
Stainless Steel
TAPPING SCREWS (Type AB)
Torx Drive, Oval and Pan Head
15 Sizes - 400 Pieces plus 1 Torx Driver
Regular Box
Metric Sizes See page B106

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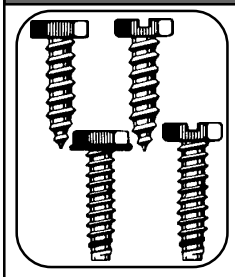
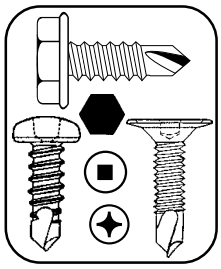
B SECTION Assortments

B SECTION Assortments

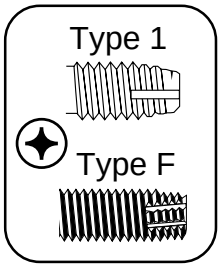


B-575
Steel, Plated
HEXAGON HEAD TAPPING SCREWS (Type AB, Type B)
36 Sizes - 716 Screws
Special Box 16-1/4" x 11-3/4" x 2"
Inch Sizes See page B107

805-540



805-532
Carbon Steel, Plated
"TEKS"® SELF-DRILLING SCREWS
Hex Washer Head, Square Socket Pan Head, Phillips Pan Head, Square Socket Wafer Head
27 Sizes - 625 Pieces, Regular Box
Inch Sizes See page B112



805-540
Steel, Plated
THREAD-CUTTING SCREWS
Fillister, Flat, Oval, Pan, Round, and Truss Head, Phillips Drive, Type 1 and F
24 Sizes, 1270 Pieces
Regular Box
Inch Sizes See page B117

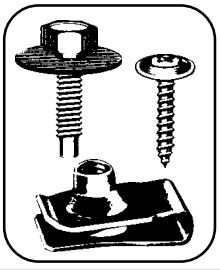
805-433
Steel, Plated
"TAMPRUF" SCREWS
237 Pieces - 21 Sizes plus Screw Driver and Bits
Regular Box
Inch Sizes See page B124

805-548
Alloy Steel, Plain
TORX® TAMPER-RESISTANT MACHINE SCREWS
507 Pieces - 27 Items
Button Head, Flat Head, Inserts Bits, Driver
Regular Box
Inch Sizes See page B135

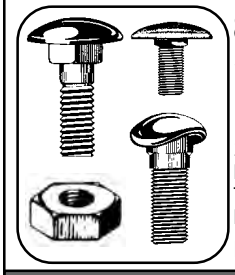
805-547
Alloy Steel, Plain
TORX® TAMPER-RESISTANT SHEET METAL SCREWS
507 Pieces - 27 Items
Button Head, Flat Head, Inserts Bits, Driver
Regular Box
Inch Sizes See page B135

805-542
18-8 Stainless Steel
TORX® TAMPER-RESISTANT MACHINE SCREWS
507 Pieces - 27 Items
Button Head, Flat Head, Inserts Bits, Driver
Regular Box
Inch Sizes See page B135

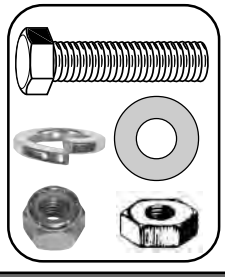
805-543
18-8 Stainless Steel
TORX® TAMPER-RESISTANT SHEET METAL SCREWS
507 Pieces - 27 Items
Button Head, Flat Head, Inserts Bits, Driver
Regular Box
Inch Sizes See page B135



805-513
Steel
AUTOMOTIVE SPECIAL SCREWS & NUTS
26 Sizes - 321 Pieces
Regular Box
Inch & Metric Sizes See pages B148 and C137



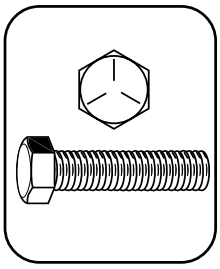
805-436
Steel, Plated
BUMPER BOLTS & LOCKING NUTS
17 Sizes of Bumper Bolts plus 7 Sizes of Locknuts
Total Contents - 233 Pieces
Regular Box
Inch Sizes See page B150



805-001
Steel, Zinc Plated
HEX CAP SCREWS, NUTS, SPLIT LOCK & FLAT WASHERS
Coarse Thread (UNC)
41 Sizes - 2950 Pieces
Bin with 40 compartments
33-3/4" W x 22-1/4" H x 8-3/4" D
Inch Sizes See page B169

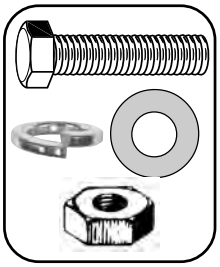
B SECTION Assortments

B SECTION Assortments

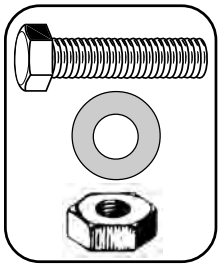


805-515
SAE Grade 5 Steel, Plated
HEXAGON CAP SCREWS
Coarse Thread
24 Sizes - 180 Pieces
Regular Box
Inch Sizes See page B174

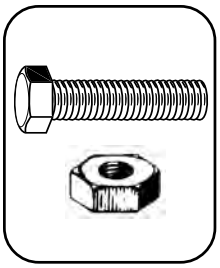
805-657



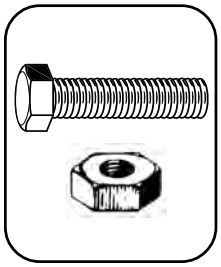
805-657
SAE Grade 5 Steel, Plated
HEX CAP SCREWS, NUTS, SPLIT LOCK & FLAT WASHERS
Coarse Thread (UNC)
23 Sizes - 1170 Pieces Large Box
Inch Sizes See page B174



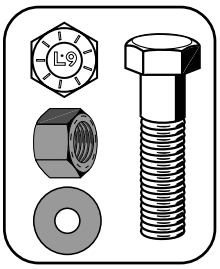
805-653
Brass
HEXAGON CAP SCREWS, NUTS & FLAT WASHERS
Coarse Thread (UNC)
24 Sizes - 1005 Pieces
Large Box
Inch Sizes See page B174



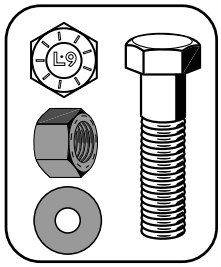
805-660
SAE Grade 8 Steel, Plated
HEX CAP SCREWS & NUTS
Coarse Thread
20 Sizes of Screws - 750 pieces, 4 Sizes of Nuts - 350 Pieces
Large Box
Inch Sizes See page B175



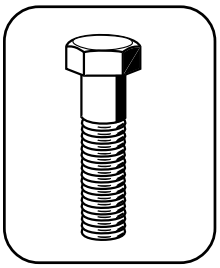
805-650
SAE Grade 8 Steel, Plated
HEX CAP SCREWS & NUTS
Fine Thread
20 Sizes of Screws - 750 pieces, 4 Sizes of Nuts - 350 Pieces
Large Box
Inch Sizes See page B175



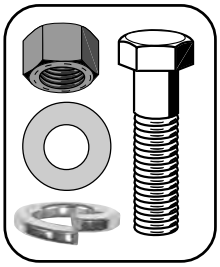
805-648
Steel, Plated
L9® FASTENING SYSTEM
Coarse Thread (UNC)
24 Sizes - 1115 Pieces
Large Box
Inch Sizes See page B180



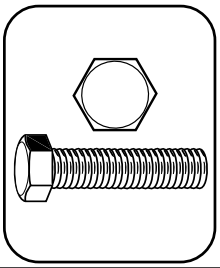
805-649
Steel, Plated
L9® FASTENING SYSTEM
Fine Thread (UNF)
24 Sizes - 1115 Pieces
Large Box
Inch Sizes See page B180



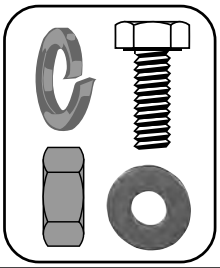
805-549
18-8 Stainless Steel
HEXAGON CAP SCREWS
Coarse Thread (UNC)
24 Sizes - 197 Pieces
Regular Box
Inch Sizes See page B184



805-608
18-8 Stainless Steel,
HEX CAP SCREWS, NUTS, SPLIT LOCK & FLAT WASHERS
Coarse Thread (UNC)
24 Sizes - 1430 Pieces Large Box
Inch Sizes See page B184



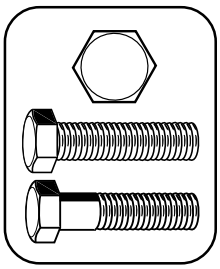
805-494
Nylon
HEXAGON CAP SCREWS
Coarse Thread
24 Sizes - 180 Pieces
Regular Box
Inch Sizes See page B188



805-612
Property Class 8.8 Carbon Steel, Plated
METRIC HEXAGON CAP SCREWS, NUTS & WASHERS
Coarse Thread DIN 933
32 Sizes - 1840 Pieces
Large Box
Metric Sizes See page B191

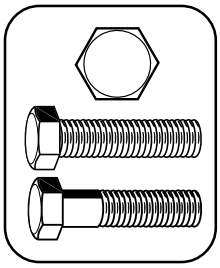
B SECTION Assortments

B SECTION Assortments

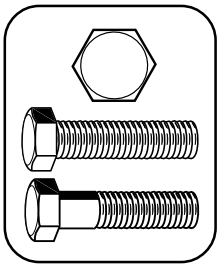


805-402
Property Class 8.8 Carbon Steel, Plated
METRIC HEXAGON HEAD CAP SCREWS
Coarse Thread
DIN 931 / DIN 933
24 Sizes - 636 Pieces
Regular Box
Metric Sizes See page B193

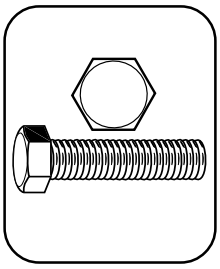
805-454



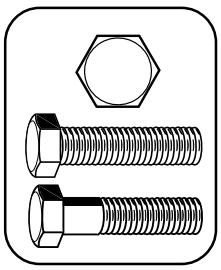
805-537
Property Class 8.8 Carbon Steel, Plated
METRIC HEXAGON HEAD CAP SCREWS
Fine Thread
DIN 960 / DIN 961
24 Sizes - 294 Pieces
Regular Box
Metric Sizes See page B199



805-472
Property Class 10.9 Carbon Steel, Plated
METRIC HEXAGON HEAD CAP SCREWS
Coarse Thread
DIN 933 / DIN 931
24 Sizes - 550 Pieces
Regular Box
Metric Sizes See page B202



805-434
A2 Stainless Steel
METRIC HEXAGON HEAD CAP SCREWS
Coarse Thread
DIN 933
24 Sizes - 180 Pieces
Regular Box
Metric Sizes See page B207



805-432
Nylon
METRIC HEXAGON HEAD CAP SCREWS
Coarse Thread
Full and Partial Thread
24 Sizes - 164 Pieces
Regular Box
Metric Sizes See page B209

805-550
Heat Treated Alloy Steel, Unplated
HEX SOCKET CAP SCREWS
Coarse and Fine Thread
24 Sizes - 460 Pieces
Regular Box
Inch Sizes See page B214-1

805-551
Heat Treated Alloy Steel, Unplated
HEX SOCKET FLAT HEAD CAP SCREWS
Coarse and Fine Thread
24 Sizes - 445 Pieces
Regular Box
Inch Sizes See page B214-1

805-454
Alloy Steel, Unplated
HEX SOCKET CAP SCREWS
Coarse Thread
22 Sizes - 600 Pieces
Regular Box
Inch Sizes See page B235

805-652
Alloy Steel, Black Satin Finish
"COUNTR-BOR" SCREWS
Flanged - 12 point
Coarse and Fine Thread
24 Sizes - 455 Pieces
Large Box
Inch Sizes See page B249

805-498
Property Class 8.8 Carbon Steel, Unplated
HEX SOCKET CAP SCREWS
Coarse Thread
DIN 912
24 Sizes - 500 Pieces
Regular Box
Metric Sizes See page B254

805-435
Property Class 8.8 Carbon Steel, Unplated
HEX SOCKET CAP SCREWS
Coarse Thread
Low (Cylinder) Head Style (DIN 7984)
22 Cap Screw Sizes, plus 6 Hex Key Sizes
Total Contents - 585 Pieces Regular Box
Metric Sizes See page B257

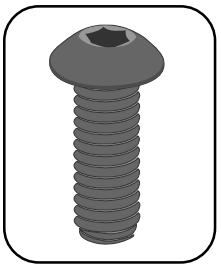
B SECTION Assortments

B SECTION Assortments

805-489

805-500
Property Class 12.9 Alloy Steel, Not Plated
HEX SOCKET CAP SCREWS
DIN 912 Metric Coarse Thread
24 Sizes - 500 Pieces
Regular Box
Metric Sizes See page B262

805-467
A2 (304) Stainless Steel
HEX SOCKET CAP SCREWS
(DIN 912) plus Alloy Steel Hex Keys
27 Varieties - 580 Pieces (incl. keys)
Regular Box
Metric Sizes See page B268

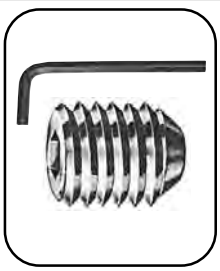


805-477
Property Class10.9 Steel, Unplated
BUTTON HEAD HEX SOCKET CAP SCREWS, ISO 7380
24 Sizes - 720 Pieces
Regular Box
Metric Sizes See page B270

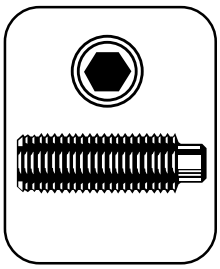
805-538
Property Class10.9 Plain Steel
HEX SOCKET CAP SCREWS COUNTERSUNK FLAT HEAD - DIN 7991
Coarse Thread
22 Sizes - 545 Pieces, Regular Box
Metric Sizes See page B272

805-489
Property Class 12.9 Plain Steel
HEX SOCKET SHOULDER SCREWS, ISO 7379
Coarse Thread
24 Sizes - 107 Pieces
Regular Box
Metric Sizes See page B274

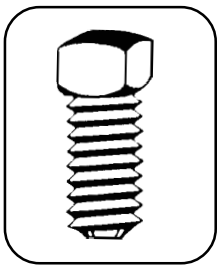
B-583
Alloy Steel, Unplated
HEX SOCKET SET SCREWS
Cup Point Style
905 Set Screws - 14 Sizes, 35 Hex Keys - 7 Sizes
Regular Box
Inch Sizes See page B285



805-517
18-8 Stainless Steel
HEX SOCKET SET SCREWS
Cup Point Style
905 Set Screws - 14 Sizes
35 Hex Keys - 7 Sizes
Regular Box
Inch Sizes See page B289



805-488
Alloy Steel, Unplated
HEX SOCKET SET SCREWS
with “Half-Dog” Point
500 Pieces - 24 Sizes
Regular Box
Inch Sizes See page B293



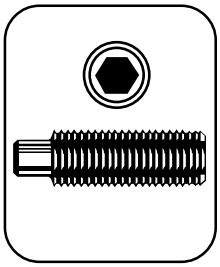
B-582
Steel, Unplated
SQUARE HEAD SET SCREWS
Cup Point / UNC
18 Varieties - 491 Pieces
Regular Box
Inch Sizes See page B294

805-468
A2 Stainless Steel
HEX SOCKET SET SCREWS
Cup Point - Coarse Thread
DIN 916
20 Sizes - 400 Pieces (plus Alloy Steel Hex Keys) Regular Box
Metric Sizes See page B299

805-405
Alloy Steel, Unplated
HEX SOCKET SET SCREWS
Cup Point - Coarse Thread
DIN 916
Total Contents - 464 Pieces, 20 Set Screw Sizes - 7 Hex Key Sizes Regular Box
Metric Sizes See page B299

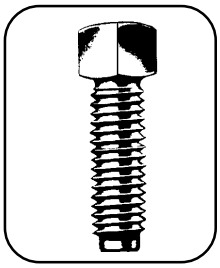
B SECTION Assortments

B SECTION Assortments

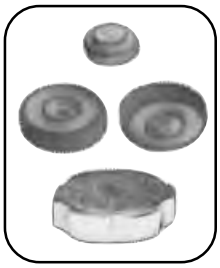


805-490
Alloy Steel, Unplated
HEX SOCKET SET SCREWS
with Dog Point, Coarse Thread
DIN 915
24 Sizes - 500 Pieces
Regular Box
Metric Sizes See page B302

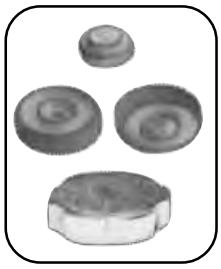
805-418



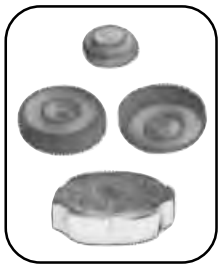
805-495
Property Class 8.8 Carbon Steel, Unplated
SQUARE HEAD SET SCREW
with Short Dog Point, DIN 479
Coarse Thread
24 Sizes - 500 Pieces
Regular Box
Metric Sizes See page B303



805-418
Delrin Plastic
SHEAR-LOC
THUMBSCREW KNOBS
24 Kinds - 507 Pieces
Regular Box
Inch Sizes See page B335



805-419
Delrin Plastic
SHEAR-LOC
THUMBSCREW KNOBS
22 Items - 456 Pieces
Regular Box
Metric Sizes See page B335

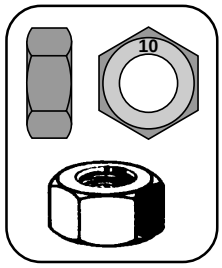


805-618
Delrin Plastic
SHEAR-LOC
THUMBSCREW KNOBS
24 Kinds - 1014 Pieces
Large Box
Inch Sizes See page B335

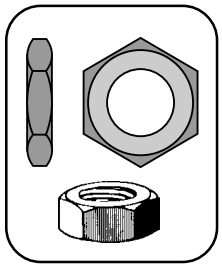
805-619
Delrin Plastic
SHEAR-LOC
THUMBSCREW KNOBS
22 Items - 912 Pieces
Large Box
Metric Sizes See page B335

805-445
Delrin Plastic
TEE STYLE
THUMBSCREW KNOBS
24 Items - 510 Pieces
Regular Size
Inch and Metric Sizes See page B335

C SECTION Assortments



805-407
Property Classes 5, 8 and 10 Steel
Plain and Plated
HEXAGON NUTS (Standard)
DIN 934, Coarse Thread
24 Sizes - 922 Pieces
Regular Box
Metric Sizes See page C10



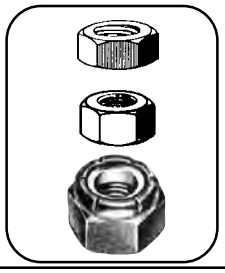
805-409
DIN 439B (Property Class 4),
DIN 936 (Property Class. 17H)
HEXAGON NUTS (Low Style)
Plain and Plated Steel
Coarse and Fine Thread
24 Sizes - 1108 Pieces
Regular Box
Metric Sizes See page C13

805-428
Low Carbon Steel, Plated
FUJILOK NUTS
ASA Threads
12 Sizes - 272 Pieces
Regular Box
Inch Sizes See page C26

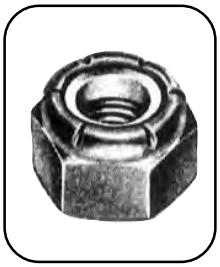
805-651
Grade 8 - Cadium Plated
NYLON INSERT
HEX LOCKNUTS
Coarse and Fine Thread
24 Sizes - 386 Pieces
Large Box
Inch Sizes See page C30

C SECTION Assortments

805-658

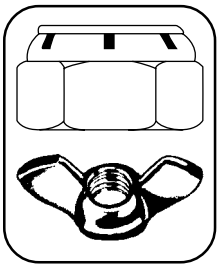


805-658
Steel, Plated
HEX NUTS & LOCKNUTS
Coarse (UNC) and
Fine (UNF) Thread
32 Sizes - 2140 Pieces
Large Box
Inch Sizes See page C31

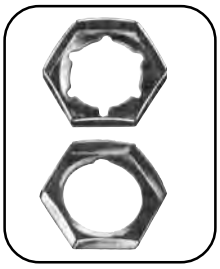


805-521
Steel, Plated
NYLON INSERT LOCKNUTS
Natural Nylon Locking Insert
(Zytel - 101), Coarse (UNC)
and Fine (UNF) Thread
24 Sizes - 979 Pieces, Regular Box
Inch Sizes See page C32

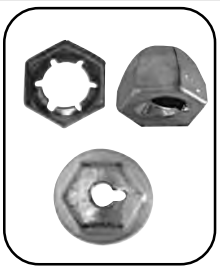
805-522
Stainless Steel 18-8
NYLON INSERT LOCKNUTS
Natural Nylon Locking Insert
(Zytel - 101), Coarse (UNC)
and Fine (UNF) Thread
16 Sizes - 805 Pieces, Regular Box
Inch Sizes See page C32



805-410
Cold Forged Steel, Plated
METRIC NYLON INSERT
LOCKNUTS & WING NUTS
14 Sizes of Nylon Insert Hex Locknuts
plus 6 Sizes of Wing Nuts
Total Contents - 300 Pieces
Regular Box
Metric Sizes See page C33

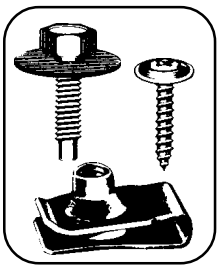


805-453
Plated Spring Steel
Self-Locking Counter LOCKNUTS
METRIC DIN 7967
Coarse Thread
16 Sizes - 490 Pieces
Regular Box
Metric Sizes See page C53

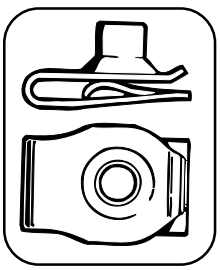


805-420
Plated Stamped Spring Steel
LOCKNUTS
"Regular" and "Washer" Types
24 Sizes - 590 Pieces
Regular Box
Inch Sizes See page C53

805-640
Spring Steel - Heat Treated
Tinnerman®
SPRING NUTS AND
TUBULAR STUD RETAINERS
Flat, U and J Type Spring Nuts and Tubular
Stud Retainers
65 Varieties - 875 Pieces, Large Box
Inch Sizes See page C134



805-513
Steel
AUTOMOTIVE SPECIAL
SCREWS & NUTS
26 Sizes - 321 Pieces
Regular Box
Inch &
Metric Sizes See pages
C137 and B148



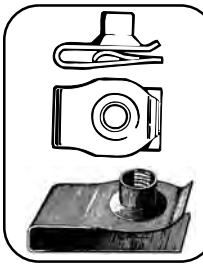
805-511
Spring Steel - Heat Treated
EXTRUDED PANEL NUTS
For automotive and industrial use.
15 Sizes - 205 Pieces
Regular Box
Metric Sizes See page C139

Sales Desk open 7 a.m. to 7 p.m. E.S.T., Monday to Friday.

Call (800) 265-8772 or (519) 744-3521.

C SECTION Assortments

C SECTION Assortments



805-512
Spring Steel - Heat Treated
EXTRUDED PANEL NUTS
& U-TYPE SPRING NUTS
For Automotive Service and Industrial use
7 Extruded Panel Nuts
17 U-Type Spring Nuts
Total Pieces - 650 Regular Box
Inch Sizes See page C139

805-665

805-544
Neoprene
WELL NUT ™
SCREW ANCHORS
16 Sizes - 140 Pieces
Regular Box
Inch Sizes See page C147

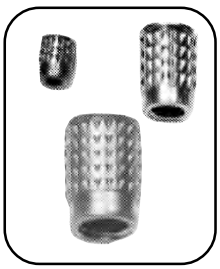
805-647
Carbon Steel, Plated
RED HEAD®
SLEEVE ANCHORS
Assorted Head Styles
26 Sizes - 120 Pieces
Large Box
Inch Sizes See page C158

805-663
Steel, Plated
AVK INDUSTRIAL PRODUCTS
A-K™ SERIES INSERTS
16 Sizes - 331 Pieces including
insert tool TAA170.
Large Box
Inch Sizes See page C170

805-664
Steel, Plated
AVK INDUSTRIAL PRODUCTS
A-L™ SERIES INSERTS
16 Sizes - 331 Pieces including
insert tool TAA170.
Large Box
Inch Sizes See page C170

805-665
Steel, Plated
AVK A-O, A-T &
A-W SERIES INSERTS
20 Sizes - 390 Pieces also contains 8
Conversion Kits and insert tool TAA170.
Large Box
Inch Sizes See page C175

805-492
Steel with Finish
ON-SERT® FASTENER
Ideal for Prototype Work
12 Sizes - 800 Pieces
Regular Box
Inch Sizes See page C198



805-493
Brass
BARB-SERT BRASS INSERTS
Ideal for Prototype Work
25 Sizes - 480 Pieces
Regular Box
Inch and Metric Sizes See page C202

805-425
Steel, Black Oxide
"E-Z LOK" THREAD INSERTS
Coarse and Fine Thread
21 Sizes - 60 Pieces
Regular Box
Inch Sizes See page C215

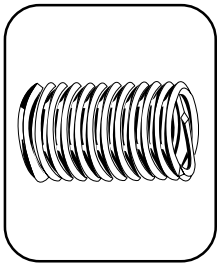
805-422
Steel, Black Oxide
"E-Z LOK" THREAD INSERTS
15 Sizes - 60 Pieces
Regular Box
Metric Sizes See page C215

805-423
303 Stainless Steel
"E-Z LOK" THREAD INSERTS
12 Sizes - 42 Pieces
Regular Box
Inch Sizes See page C215

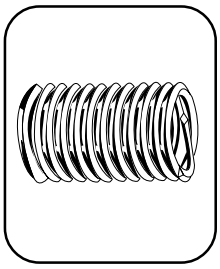
C SECTION Assortments

C SECTION Assortments

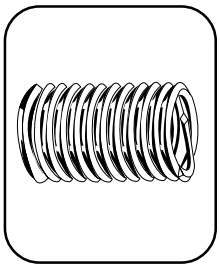
805-545



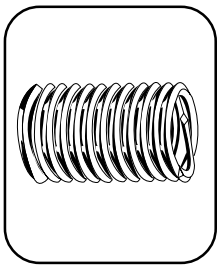
805-545
18-8 Stainless Steel
HELICOIL THREAD REPAIR INSERTS, Coarse (UNC) and Fine (UNF)
4 UNC Sizes - 87 Inserts, 4 UNF Sizes - 87 Inserts Plus 8 Taps and 8 Installation Tools
Regular Box
Inch Sizes See page C221



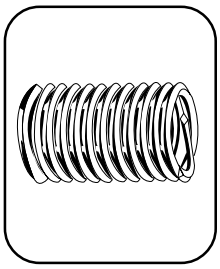
805-463
18-8 Stainless Steel
HELICOIL THREAD REPAIR INSERTS, Coarse Thread (UNC)
8 Sizes - 88 Inserts Plus 8 Taps and 8 Installation Tools Regular Box
Inch Sizes See page C223



805-464
18-8 Stainless Steel
HELICOIL THREAD REPAIR INSERTS, Fine Thread (UNF)
8 Sizes - 88 Inserts
Plus 8 Taps and 8 Installation Tools
Regular Box
Inch Sizes See page C223

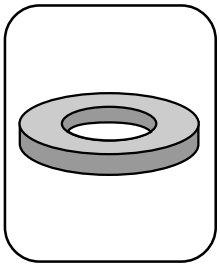


805-465
18-8 Stainless Steel
METRIC HELICOIL THREAD REPAIR INSERTS
8 Sizes - 94 Inserts
Plus 7 Taps and 7 Installation Tools
Regular Box
Metric Sizes See page C225

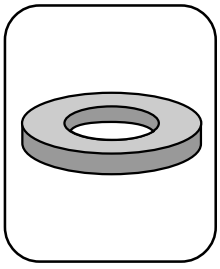


805-466
18-8 Stainless Steel
METRIC HELICOIL THREAD REPAIR INSERTS
10 Sizes - 60 Inserts
Plus 5 Taps and 5 Installation Tools
Regular Box
Metric Sizes See page C225

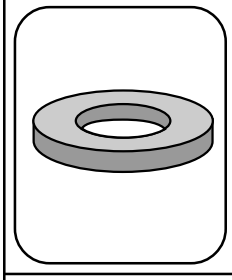
D SECTION Assortments



B-558
Steel, Plated
STEEL FLAT WASHERS
17 Sizes - 1190 Pieces
Regular Box
Inch Sizes See page D5

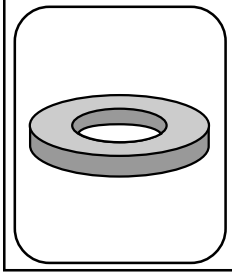


805-520
18-8 Stainless Steel
FLAT WASHERS
16 Sizes - 967 Pieces
Regular Box
Inch Sizes See page D6

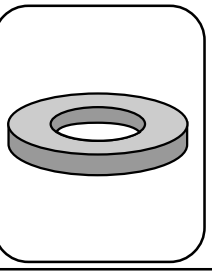


805-519
Brass
FLAT WASHERS
16 Sizes - 1315 Pieces
Regular Box
Inch Sizes See page D7

B-584
Red Vulcanized Fibre
FIBRE WASHERS
24 Sizes - 1000 Pieces
Regular Box
Inch Sizes See page D11

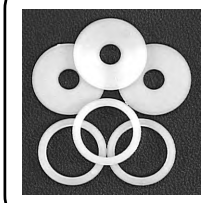


805-446
A2 Stainless Steel
METRIC FLAT WASHERS DIN 125A
20 Sizes - 893 Pieces
Regular Box
Metric Sizes See page D14



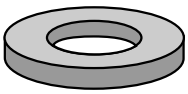
805-447
Brass
METRIC FLAT WASHERS DIN 125A
20 Sizes - 893 Pieces
Regular Box
Metric Sizes See page D14

D SECTION Assortments



805-448
6/6 Nylon
FLAT WASHERS
18 Sizes - 1000 Pieces
Regular Box
Inch and Metric
(DIN 125A)Sizes
See page D14

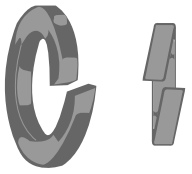
4640-S



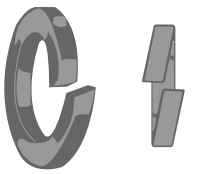
805-411
Steel, Plated
METRIC FLAT WASHERS
21 Sizes - 943 Pieces
Regular Box
Metric Sizes
See page D14

A-203
Steel, Plated
SPLIT LOCKWASHERS
Helical, “Regular” and “Light” Styles
14 Sizes - 582 Pieces
Regular Box
Inch Sizes
See page D22

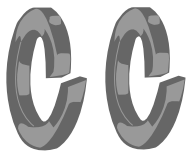
805-528
18-8 Stainless Steel
SPLIT LOCKWASHERS
Helical, “Regular” Styles
16 Sizes 1000 Pieces
Regular Box
Inch Sizes
See page D23



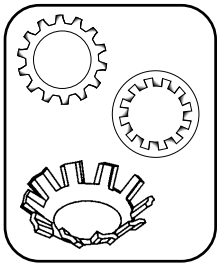
805-450
Silicon Bronze
METRIC SPLIT
LOCKWASHERS
DIN 127B
18 Sizes - 940 Pieces
Regular Box
Metric Sizes
See page D25



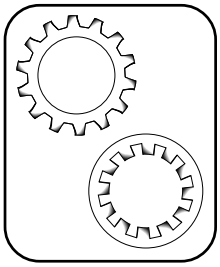
805-449
A2 Stainless Steel
SPLIT LOCKWASHERS
DIN 127B
20 Sizes - 950 Pieces
Regular Box
Metric Sizes
See page D26



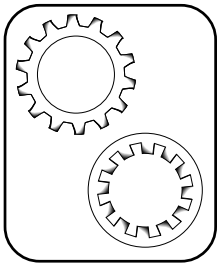
805-413
Steel, Plated
METRIC SPLIT
LOCKWASHERS
DIN 127B for use with Hex Head Cap Screws
DIN 7980 for use with Hex Socket Head Cap Screws
24 Sizes - 1381 Pieces Regular Box
Metric Sizes
See page D27



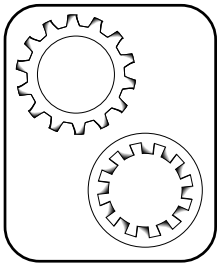
4640-S
Steel, Plated
TOOTH LOCKWASHERS
30 Varieties - 877 Pieces
12 Sizes of External Tooth Flat Lockwashers
9 Sizes of Internal Tooth Flat Lockwashers
9 Sizes of External Tooth 82°
Countersunk Lockwashers
Regular Box
Inch Sizes
See page D31



805-529
410 Stainless Steel
TOOTH LOCKWASHERS
18 Varieties - 1050 Pieces
9 Sizes of External Tooth Flat Lockwashers
9 Sizes of Internal Tooth Flat Lockwashers
Regular Box
Inch Sizes
See page D31



805-533
Phosphor Bronze
TOOTH LOCKWASHERS
16 Varieties - 1000 Pieces
11 Sizes of External Tooth Flat Lockwashers
5 Sizes of Internal Tooth Flat Lockwashers
Regular Box
Inch Sizes
See page D32

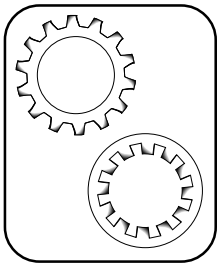


805-437
Steel, Plated
METRIC TOOTH
LOCKWASHERS - FLAT
24 Varieties - 850 Pieces
13 Sizes of External Tooth Lockwashers
DIN 6797A, 11 Sizes of Internal Tooth
Lockwashers DIN 6797J, Regular Box
Metric Sizes
See page D35

D SECTION Assortments

D SECTION Assortments

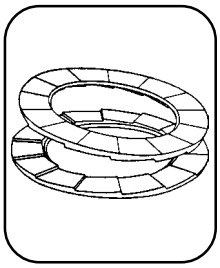
805-438



805-451
A2 Stainless Steel
METRIC TOOTH LOCKWASHERS - FLAT
24 Varieties - 850 Pieces, 12 Sizes of External Tooth Lockwashers DIN 6797A
12 Sizes of Internal Tooth Lockwashers DIN 6797J, Regular Box
Metric Sizes See page D35

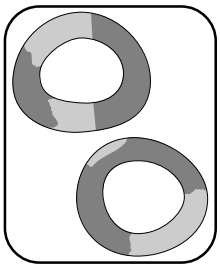
805-438
Spring Steel, Plated
METRIC OVERLAP TOOTH LOCKWASHERS - FLAT
24 Varieties - 730 Pieces
12 Sizes of External Tooth Lockwashers DIN 6798A, 12 Sizes of Internal Tooth Lockwashers DIN 6798J, Regular Box
Metric Sizes See page D36

805-470
A2 Stainless Steel
METRIC OVERLAP TOOTH LOCKWASHERS - FLAT
22 Varieties - 770 Pieces
11 Sizes of External Tooth Lockwashers DIN 6798A, 11 Sizes of Internal Tooth Lockwashers DIN 6798J, Regular Box
Metric Sizes See page D36

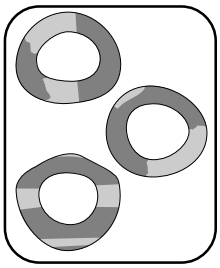


805-516
Steel, Plated
NORD-LOCK® VIBRATION PROOF FASTENERS
14 Sizes - 361 Pairs
Regular Box
Inch &
Metric Sizes See page D39

805-415
Heat Treated Steel
METRIC DISC SPRINGS
24 Sizes 353 Pieces
Regular Box
Metric Sizes See page D55

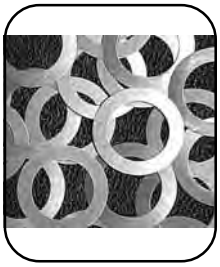


805-527
Steel, Plain
SPRING TENSION WASHERS
Bowed and Wave
29 Sizes - 1175 Washers
Regular Box
Inch Sizes See page D67



805-417
Metric *Spring Steel, Unplated*
SPRING TENSION WASHERS
Bowed Spring DIN 137A
Single Wave Spring DIN 137B
Flat-Face Bowed Spring Style C
24 Sizes - 1800 Pieces
Regular Box
Metric Sizes See page D69

B-598
Steel, Plated; Stainless Steel & Brass, Plated
FINISHING WASHERS - COUNTERSUNK
20 Sizes - 1700 Pieces
Regular Box
Inch Sizes See page D70



805-629
Steel, Unplated
SHIM RINGS (without Keyway)
73 Sizes - 730 Pieces
Large Box
Inch Sizes See page D78

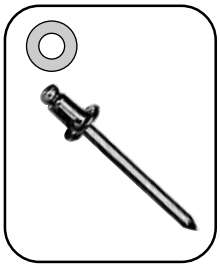
805-630
Steel, Unplated
SHIM RINGS (with Keyway)
64 Sizes - 490 Pieces
Large Size
Inch Sizes See page D79

D SECTION Assortments

E SECTION Assortments

805-638
Aluminum, Steel and Monel
'POP'® RIVETS &
BACK-UP WASHERS
21 Varieties - 2700 Pieces
Assortment includes the Heavy Duty Hand Riveter 876-400
Large Box
Inch Sizes See page E29

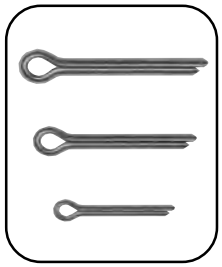
805-475



805-637
The same in all respects as the 805-638 Assortment (above) but **without the Hand Riveter.**
Inch Sizes See page E29

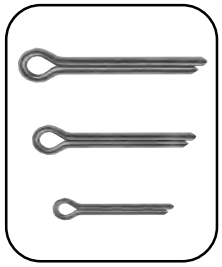
805-659
Aluminum & Steel Mandrels
OPEN END ALUMINUM
POP® RIVETS
20 Varieties - 1850 Pieces including #876-400 Heavy Duty Riveter
Large Box
Inch Sizes See page E29

805-662
Steel Mandrels
OPEN END PLATED STEEL
POP® RIVETS
20 Varieties - 1900 Pieces including #876-400 Heavy Duty Riveter
Large Box
Inch Sizes See page E29

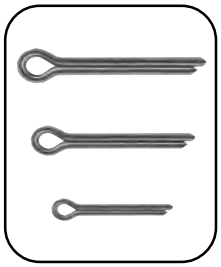


805-524
Brass, Plain
COTTER PINS
Round, Extended, Prong Type
16 Sizes - 1100 Pieces
Regular Box
Inch Sizes See page E48

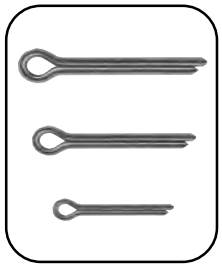
B-585
Steel, Plain
HAMMER-LOK COTTER PINS
14 Sizes - 1445 Pieces
Regular Box
Inch Sizes See page E48



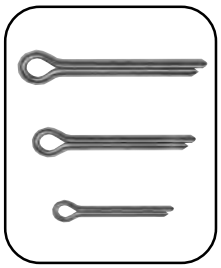
805-523
18-8 Stainless Steel
COTTER PINS
Round, Extended, Prong Type
20 Sizes - 1400 Pieces
Regular Box
Inch Sizes See page E48



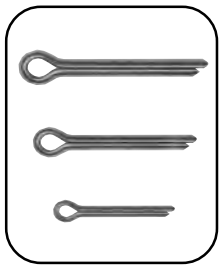
B-581
Steel, Plain
COTTER PINS
Round, Extended, Prong Type
14 Sizes - 1575 Pieces
Regular Box
Inch Sizes See page E48



805-475
Steel, Plain
METRIC COTTER PINS
DIN 94
24 Sizes - 1473 Pieces
Regular Box
Metric Sizes See page E52



805-507
Brass
METRIC COTTER PINS
DIN 94
24 Sizes - 1473 Pieces
Regular Box
Metric Sizes See page E54

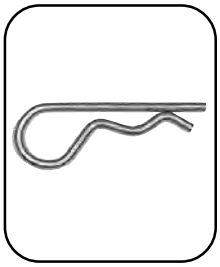


805-508
A2 Stainless Steel
METRIC COTTER PINS
DIN 94
24 Sizes - 1473 Pieces
Regular Box
Metric Sizes See page E55

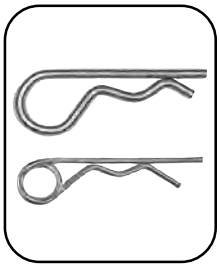
E SECTION Assortments

E SECTION Assortments

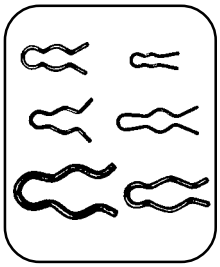
805-503



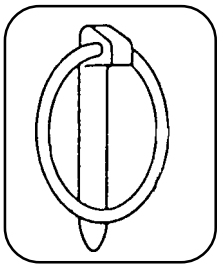
A-212
Steel, Plated
HITCH PIN CLIPS
Internal Type (Hairpin Cotters)
20 Sizes - 444 Pieces
Large Box
Inch Sizes See page E59



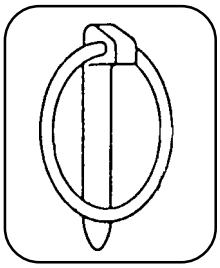
805-509
Steel, Plated
METRIC HITCH PIN CLIPS
Internal Type (Hairpin Cotters)
Single and Double Loop Style
14 Sizes 150 Pieces
Regular Box
Metric Sizes See page E60



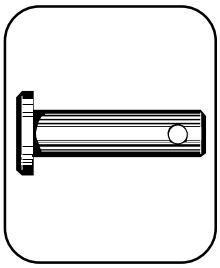
B-597
Steel, Plated
HAIR PIN COTTERS
External Type
12 Sizes - 1450 Pieces
Regular Box
Inch Sizes See page E67



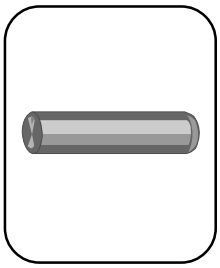
805-503
Steel, Plated
LYNCH PIN
11 Sizes - 70 Pieces
Regular Box
Inch Sizes See page E76



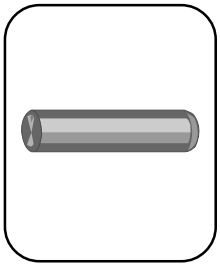
805-510
Steel, Plated
METRIC LYNCH PIN
10 Sizes - 110 Pieces
Regular Box
Metric Sizes See page E77



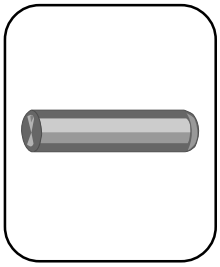
B-555
Steel, Plated
CLEVIS PINS
32 Sizes - 340 Pieces
Large Box
Inch Sizes See page E88



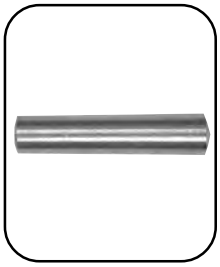
805-476
Alloy Steel, Unplated
DOWEL PINS
Precision ground - case hardened
24 Sizes - 410 Pieces
Regular Box
Inch Sizes See page E91



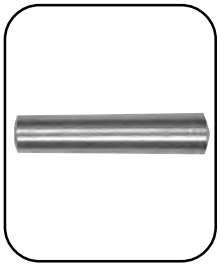
805-473
Steel, Unplated
METRIC DOWEL PINS - DIN 7
Tolerance m6 - Not Hardened
24 Sizes - 410 Pieces
Regular Box
Metric Sizes See page E91



805-484
Steel, Unplated
METRIC DOWEL PINS
DIN 6325
Precision ground - m6 -
Hardened HRC 60 ±2
24 Sizes - 410 Pieces Regular Box
Metric Sizes See page E91



A-218
Steel, Unplated
TAPER PINS
23 Sizes - 186 Pieces
Regular Box
Inch Sizes See page E97



805-474
Steel, Unplated
METRIC TAPER PINS - DIN 1B
24 Sizes - 200 Pieces
Regular Box
Metric Sizes See page E99

E SECTION Assortments

E SECTION Assortments

805-479
Stainless Steel
SLOTTED SPRING TENSION PINS – DIN 1481
24 Sizes - 350 Pieces
Regular Box
Metric Sizes See page E105

A-207

805-480
Spring Steel, Unplated
METRIC SLOTTED SPRING TENSION PINS – ISO 8752
24 Sizes - 350 Pieces
Regular Box
Metric Sizes See page E105

805-518
Chrome Stainless Steel
SLOTTED SPRING TENSION PINS
335 Tension Pins - 24 Sizes
Regular Box
Inch Sizes See page E106

A-211
Steel, Plain
TENSION PINS (Slotted Spring Pins)
24 Sizes - 335 Pieces
Regular Box
Inch Sizes See page E106

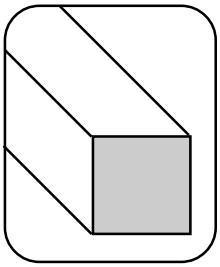
805-491
Carbon Steel, Plain
COILED SPRING PINS
24 Sizes - 350 Pieces
Regular Box
Inch Sizes See page E112

805-440
Carbon Steel - Plain
METRIC COILED SPRING PINS
24 Sizes - 350 Pieces
Regular Box
Metric Sizes See page E116

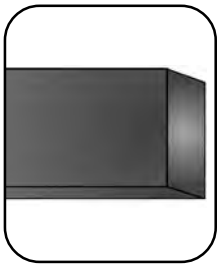
A-207
Carbon Steel, Unplated
WOODRUFF KEYS
16 Sizes - 210 Pieces
Regular Box
Inch Sizes See page E117

805-469
Carbon Steel, Unplated
METRIC WOODRUFF KEYS DIN 6888
21 Sizes - 280 Pieces
Regular Box
Metric Sizes See page E118

805-471
Steel, Unplated
METRIC SHAFT KEYS DIN 6885-A, Oblong - Rounded
24 Sizes - 345 Pieces
Regular Box
Metric Sizes See page E120



805-458 *Steel, Plated*
805-459 *Brass*
805-460 *303 Stainless Steel*
SQUARE MACHINE KEY BARS
7 Sizes - 31 Bars (12 inches long)
Regular Box
Inch Sizes See page E121



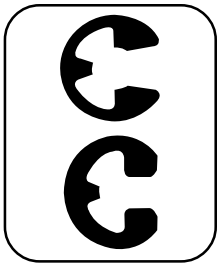
805-461
Steel, Plated
RECTANGULAR KEY STOCK
14 Sizes - 39 Bars (12 inches long)
Regular Box
Inch Sizes See page E122

E SECTION Assortments

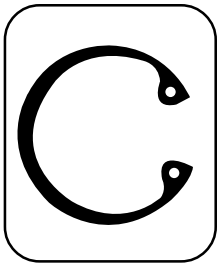
E SECTION Assortments

805-442

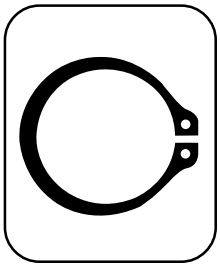
805-462
Steel, Plated
ROUND BAR STOCK
10 Sizes - 28 (12 inch) Bars
Regular Box
Inch Sizes See page E126



805-404
Carbon Spring Steel
RETAINING RINGS
External - Radial Assembly
795 Rings - 20 Sizes
Regular Box
Inch Sizes See page E131



805-406
Carbon Spring Steel
RETAINING RINGS
Internal - Axial Assembly
356 Rings - 16 Sizes
Regular Box
Inch Sizes See page E131



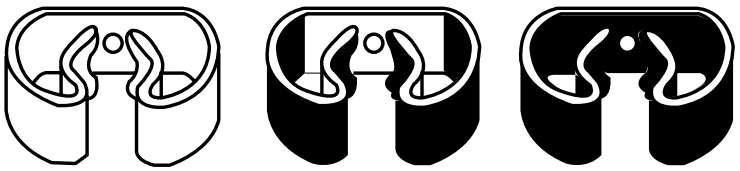
805-430
Carbon Spring Steel
RETAINING RINGS
External - Axial Assembly
225 Rings - 26 Sizes
Regular Box
Inch Sizes See page E131

805-441
Carbon Spring Steel, Plain
METRIC EXTERNAL
RETAINING RINGS - DIN 471
28 Sizes - 300 Pieces
Regular Box
Metric Sizes See page E150

805-442
Carbon Spring Steel, Plain
METRIC INTERNAL
RETAINING RINGS - DIN 472
28 Sizes - 300 Pieces
Regular Box
Metric Sizes See page E150

805-443
Carbon Spring Steel
METRIC EXTERNAL
RETAINING RINGS - DIN 6799
17 Sizes - 450 Pieces
Regular Box
Metric Sizes See page E150

F SECTION Assortment



805-505
Tempered Steel
GRIPPER CLIPS
9 Clip No's. 125 Pieces, plus 131 Mounting Screws
Regular Box
Inch Sizes See page F18

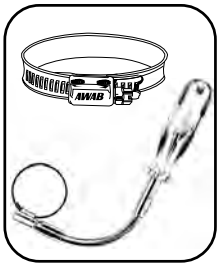
G SECTION Assortments

805-623 *Stainless Steel Band and Housing*
805-639 *All Stainless Steel*
GEAR-TYPE HOSE CLAMPS
10 Sizes - 58 Clamps
Large Box
Inch Sizes See page G2

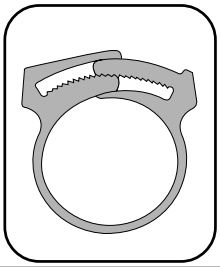
G SECTION Assortments

805-645
Stainless Steel Band and Housing Only
INNER SHIELD HOSE CLAMPS
Micro and Full Series
16 Sizes - 94 Clamps
Large Box
Inch Sizes See page G4

805-646
All 316 Stainless Steel
HOSE CLAMPS
Micro and Full Series
15 Sizes - 131 Clamps
Large Box
Inch Sizes See page G4

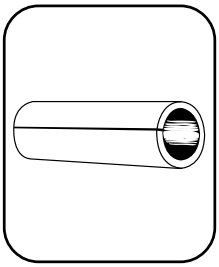


805-656
Stainless Steel
METRIC ACID-RESISTANT
WORM DRIVE HOSE CLAMPS
11 Sizes - 87 Clamps plus 1 Flexible Hex Socket Driver
Large Box
Metric Sizes See page G7

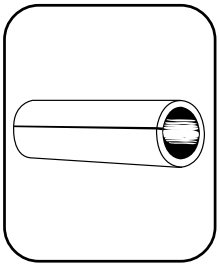


805-514
Nylon 6/6
HOSE CLAMPS
17 Sizes - 120 Clamps
Regular Box
Inch Sizes See page G9

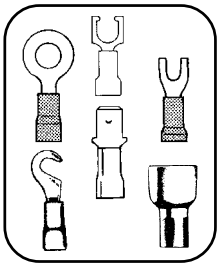
805-655 *Steel, Plated - 22 Sizes*
805-654 *Stainless Steel - 23 Sizes*
OETIKER 2-EAR CLAMPS
Each assortment contains 240
2-Ear Clamps plus Installation Tool
Large Box
Inch Sizes See page G11



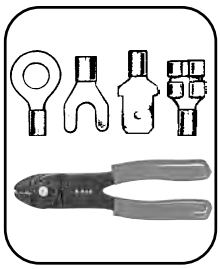
805-634
Metric *Steel, Plated*
"BUTTITE" ROLLED SPACERS
48 Sizes - 715 Pieces
For bolt size M3 x 6 mm to M6 x 85 mm
Large Box
Metric Sizes See page G39



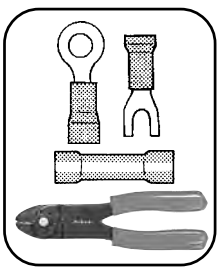
805-635
Metric *Steel, Plated*
"BUTTITE" ROLLED SPACERS
48 Sizes - 510 Pieces
For bolt size M6.3 x 10 mm to M16 x 75 mm
Large Box
Metric Sizes See page G39



805-628
Insulated Type
SOLDERLESS TERMINALS
67 Popular Items - Total: 1010 Terminals
Large Box
Inch Sizes See page G56



A-200
Non-Insulated Type
SOLDERLESS TERMINALS
24 Sizes - 497 Pieces plus Crimper Tool
Regular Box
Inch Sizes See page G58



A-215
Plastic Insulated
SOLDERLESS TERMINALS
20 Sizes - 540 Terminals plus Crimper Tool
Regular Box
Inch Sizes See page G58

Visit us on the web at . . .

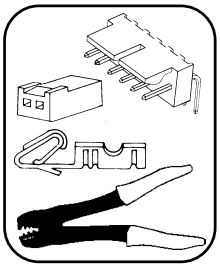
www.spaenaur.com

G SECTION Assortments

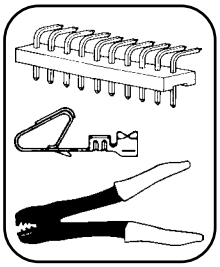
G SECTION Assortments

805-504
Nylon
MOLEX® 3191 SERIES .093" CONNECTOR HOUSINGS & TERMINALS
92 Housings, 800 Terminals, 1 Hand Crimper & 1 Extraction Tool, Regular Box
Inch Sizes See page G71

805-604
Nylon
MOLEX® 3191 SERIES .093" CONNECTOR HOUSING & TERMINALS
150 Housings, 1000 Terminals, 1 Hand Crimper & 1 Extraction Tool, Large Box
Inch Sizes See page G71

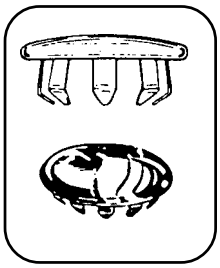


805-502
Nylon
MOLEX® KK® INTERCONNECTION SYSTEM .100" Centre Spacing
235 Connectors - 350 Terminals, 1 Hand Crimper & 1 Extraction Tool, Regular Box
Inch Sizes See page G74



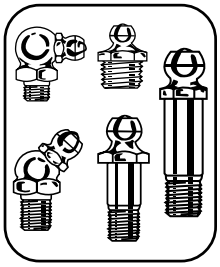
805-506
Nylon
MOLEX® KK® INTERCONNECTION SYSTEM .156" Centre Spacing
135 Connectors, 700 Terminals, 1 Hand Crimper & 1 Extraction Tool, Regular Box
Inch Sizes See page G76

H SECTION Assortments



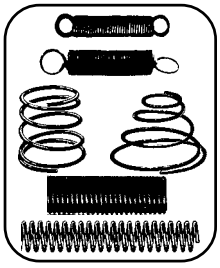
A-206
Brass and Steel, Plated
PLUG BUTTONS
14 Sizes - 312 Pieces
Regular Box
Inch Sizes See page H4

A-202
Low Carbon Steel, Plated
SELF-TAPPING DRAIN AND FILLER PLUGS
Each Drain Plug is supplied with a Fibre Gasket – Crankcase, Transmission and Differential, 7 Sizes - 17 Plugs
Special Polypropylene Box 7" x 3-1/2" x 1-1/4"
Inch Sizes See page H7

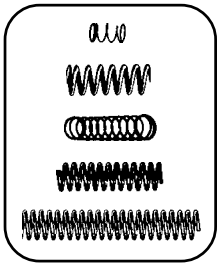


B-599
Steel, Plated
"INCH" GREASE FITTINGS
12 Sizes - 145 Fittings
Regular Box
Inch Sizes See page H12

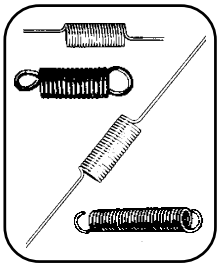
805-444
Steel, Plated
METRIC GREASE NIPPLES DIN 71412, Fine Thread
12 Sizes - 120 Pieces
Includes Conversion Fittings
Regular Box
Metric Sizes See page H15



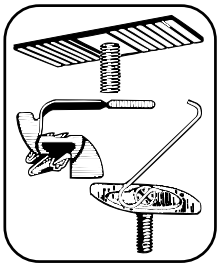
B-550-M
Steel, Plated
EXTENSION & COMPRESSION SPRINGS
58 Sizes - 262 Pieces
Large Adjusta-Bin Box
Inch Sizes See page H19



805-632
Steel, Plated
COMPRESSION SPRINGS
30 Sizes - 435 Pieces
Large Box
Inch Sizes See page H19

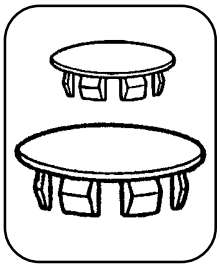


805-633
Steel, Plated
EXTENSION SPRINGS
30 Sizes - 268 Pieces
Large Box
Inch Sizes See page H19



805-622
AUTOMOTIVE UNIVERSAL MOULDING FASTENERS
24 Varieties - 350 Pieces
Large Box
Inch Sizes See page H22

J SECTION Assortments

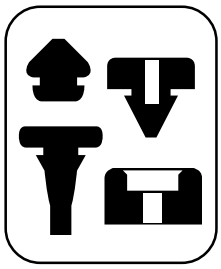


805-642
Nylon 6/6
HOLE PLUGS
Smooth or Matte Finish,
Black or White (Natural)
64 Items - 860 Pieces
Large Box
Inch Sizes See page J3

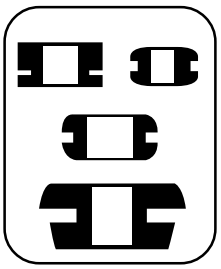
A-216

805-627
Nylon
HOLE & VENT PLUGS
22 Sizes - 475 Pieces
Large Box
Inch Sizes See page J38

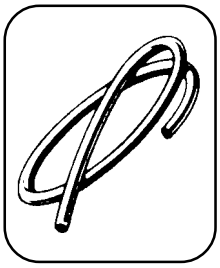
805-626
Black Nylon
SNAP BUSHINGS
32 Sizes - 693 Pieces
Large Box
Inch Sizes See page J38



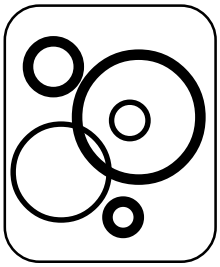
805-621
Rubber
GENERAL PURPOSE
RUBBER BUMPERS
32 Styles - 700 Pieces
Large Box
Inch Sizes See page J46



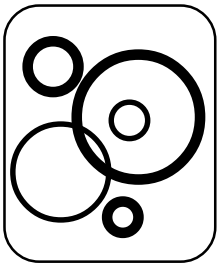
B-580
Rubber
GROMMETS & BUSHINGS
32 Sizes - 687 Pieces
Large Box
Inch Sizes See page J68



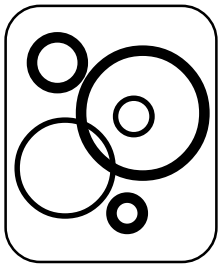
805-457
Nitrile Compound
INCH O-RING
SPLICING CORD
5 Diameters, 5 feet of each
Regular Box
Inch Sizes See page J91



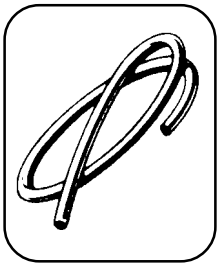
A-216
Nitrile Compound
O-RING SEALS
36 Varieties - 428 Pieces
Large Box
Inch Sizes See page J96



805-606
Viton Compound
O-RING SEALS
36 Varieties - 428 Pieces
Large Box
Inch Sizes See page J96



805-625
Nitrile Compound
METRIC O-RING SEALS
36 Sizes - 439 Pieces
Large Box
Metric Sizes See page J98



805-455 *German Metric O-Rings*
6 Diameters, 5 feet of each
805-456 *Swedish Metric O-Rings*
5 Diameters, 5 feet of each
METRIC O-RING
SPLICING CORD
Nitrile Compound Regular Box
Metric Sizes See page J98

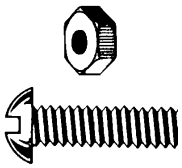
M SECTION Assortment

805-499
Anti-Corrosive
"MARINE" FASTENERS
16 Varieties - 633 Pieces plus 3 tools.
Large Box
Inch Sizes See page M38

B & C SECTION Plastikits

804-089

Clear Plastic Hinged Lid Container 1" x 2-3/4" x 4-1/2"



B Section

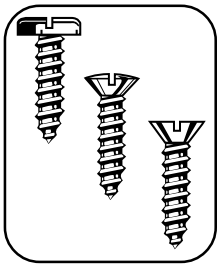
1140

Steel, Plated

MACHINE SCREWS
Slot Round Head
with Hexagon Nuts

27 Sizes - 175 Pieces

Inch Sizes See page B14



B Section

1143

Steel, Plated

TYPE AB TAPPING SCREWS
Flat, Oval and Pan Slot Head

20 Sizes - 160 Pieces

Inch Sizes See page B95

B Section

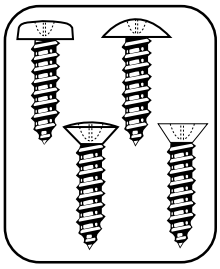
A-5

Steel, Plated

TYPE AB TAPPING SCREWS
Pan Slot Head

20 Sizes - 140 Pieces

Inch Sizes See page B95



B Section

804-080

18-8 Stainless Steel

TAPPING SCREWS Type A-AB
Phillips Drive - Oval, Flat, Pan
and Truss Heads

20 Varieties - 200 Pieces

Inch Sizes See page B102

B Section

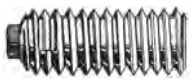
804-085

Alloy Steel, Unplated

HEX SOCKET SET SCREWS
Cup Point

10 Each of 15 Set Screw Sizes
1 Each of 5 Hex Key Sizes

Inch Sizes See page B286



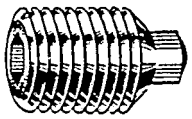
B Section

804-087

Alloy Steel with Brass Tip

HEX SOCKET SET SCREWS
10 Sizes - 50 Pieces

Inch Sizes See page B290



B Section

804-088

Alloy Steel with Nylon Tip

HEX SOCKET SET SCREWS

10 Sizes - 50 Pieces

Inch Sizes See page B291

B Section

804-086

45H Steel, Plain

DIN 916, METRIC HEX
SOCKET SET SCREWS

10 Each of 15 Set Screw Sizes
1 Each of 5 Hex Keys

Metric Sizes See page B299

B Section

804-089

Steel, Plated

THUMB SCREWS - Cold Forged

9 Sizes - 85 Thumb Screws

Inch Sizes See page B330

C Section

A-16

Cold Forged Steel, Plated

WING NUTS

9 Sizes - 62 Pieces

Inch Sizes See page C55

C Section

804-068

Stamped Steel, Plated

WING NUTS
Style 1 - Type D

7 Sizes - 70 Pieces

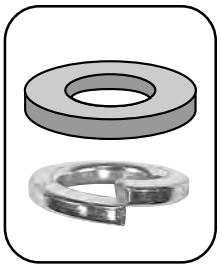
Inch Sizes See page C55

B & C SECTION Plastikits

D & E SECTION Plastikits

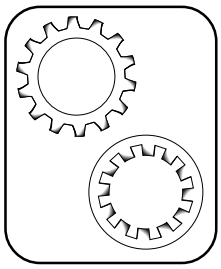
D Section

804-081
Steel, Plated
FLAT & HELICAL WASHERS
7 Sizes - 280 Pieces
Inch Sizes See page D5



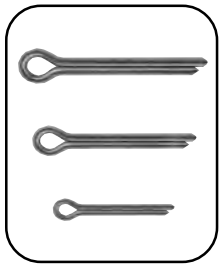
D Section

804-082
Steel, Plated
METRIC FLAT
& HELICAL WASHERS,
DIN 125A & DIN 127B
7 Sizes - 280 Pieces
Metric Sizes See page D13



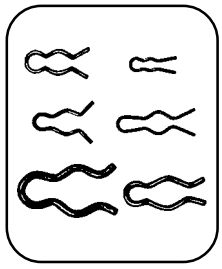
D Section

1706
Steel, Plated
TOOTH LOCKWASHERS
Internal & External
19 Varieties - 188 Pieces
Inch Sizes See page D32



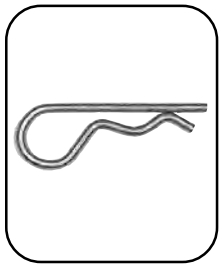
E Section

A-44
Steel, Plain
COTTER PINS
14 Sizes - 250 Pieces
Inch Sizes See page E48



E Section

A-45
Steel, Plated
HAIR PIN COTTERS
External Type
8 Sizes - 150 Pieces
Inch Sizes See page E67



E Section

A-62
Steel, Plated
HITCH PIN CLIPS
Internal Type
14 Sizes - 40 Pieces
Inch Sizes See page E67

E Section

A-61
Steel, Plain
TENSION PINS
(Slotted Spring Pins)
24 Sizes - 123 Pieces
Inch Sizes See page E106

E Section

804-002
Spring Steel, Plain
TENSION PINS
(Slotted Spring Pins)
24 Sizes - 180 Pieces
Metric Sizes See page E110

E Section

804-004
Carbon Steel, Plain
COILED SPRING PINS
25 Sizes - 210 Pieces
Inch Sizes See page E113

E Section

804-003
Carbon Steel, Plain
COILED SPRING PINS
25 Sizes - 205 Pieces
Metric Sizes See page E116

E Section

A-56
SAE 1035 Carbon Steel, Unplated
WOODRUFF KEYS
12 Sizes - 100 Keys
Inch Sizes See page E117

E Section

804-070
Carbon Steel, Unplated
METRIC WOODRUFF KEYS
DIN 6888
12 Sizes - 100 Keys
Metric Sizes See page E118

D & E SECTION Plastikits

E to G SECTION Plastikits

804-076

Clear Plastic Hinged Lid Container 1" x 2-3/4" x 4-1/2"

***E** Section*

A-58

Carbon Spring Steel
RETAINING RINGS - R1000 and R1200 Series External - Radial Assembly
169 Rings - 19 Sizes
Inch Sizes See page E132

***E** Section*

804-075

Stainless Steel
RETAINING RINGS - R1000 & R1200 Series External - Radial Assembly
90 Rings - 18 Sizes
Inch Sizes See page E132

***E** Section*

A-59

Carbon Spring Steel
RETAINING RINGS - R3000 Series Internal - Axial Assembly
88 Rings in 16 Sizes
Inch Sizes See page E132

***E** Section*

804-076

Stainless Steel
RETAINING RINGS - R3000 Series Internal Axial Assembly
43 Rings - 14 Sizes
Inch Sizes See page E132

***E** Section*

A-60

Carbon Spring Steel
RETAINING RINGS - R3100 Series External - Axial Assembly
100 Rings - 26 Sizes
Inch Sizes See page E132

***E** Section*

804-074

Stainless Steel
RETAINING RINGS - R3100 Series External - Axial Assembly
46 Rings - 23 Sizes
Inch Sizes See page E132

***E** Section*

804-077

Carbon Spring Steel
RETAINING RINGS R6100 Series Self-Seating
245 Rings - 16 Sizes
Inch Sizes See page E132

***F** Section*

804-072

Steel, Brass Plated
PICTURE HANGERS
8 Sizes - 156 Pieces
Inch Sizes See page F17

***F** Section*

804-073

Steel, Plated or Plain (our option)
HOOK AND NAIL
8 Sizes - 60 Pieces
Inch Sizes See page F17

***G** Section*

A-49

Non-Insulated
GENERAL PURPOSE SOLDERING WIRING TERMINALS Ring Type and Spade Type
14 Varieties - 100 Pieces
Inch Sizes See page G50

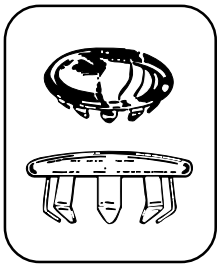
***G** Section*

804-083

Insulated
SOLDERLESS TERMINALS
16 Sizes - 160 Pieces
Put up in a translucent polypropylene container.
Special Size: 7" x 3-1-2" x 1-1/4"
Inch Sizes See page G55

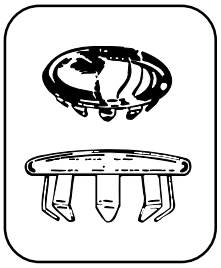
E to G SECTION Plastikits

H & J SECTION Plastikits



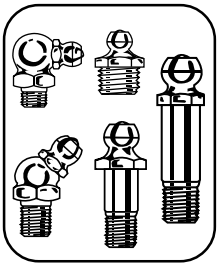
H Section

1708
Brass, Plated
PLUG BUTTONS
Standard Type
7 Sizes - 65 Plugs
Inch Sizes See page H4



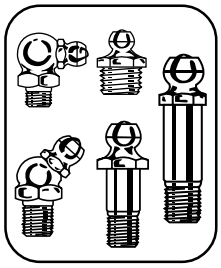
H Section

804-084
Steel, Plated
PLUG BUTTONS
Standard Type
7 Sizes - 56 Plugs
Inch Sizes See page H4



H Section

804-079
Stainless Steel
GREASE FITTINGS
7 Sizes - 19 Fittings
Inch Sizes See page H13

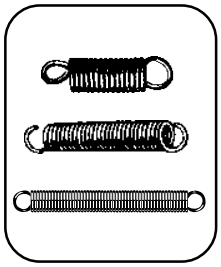


H Section

A-55
Steel, Plated
GREASE FITTINGS
9 Sizes - 52 Fittings
Inch Sizes See page H13

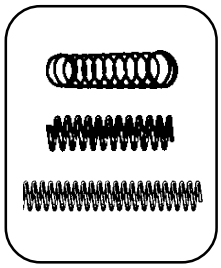
H Section

804-078
Steel, Plated
METRIC GREASE NIPPLES
DIN 71412 Styles H1, H2, & H3
Coarse & Fine Thread
11 Sizes - 77 Pieces
Metric Sizes See page H15



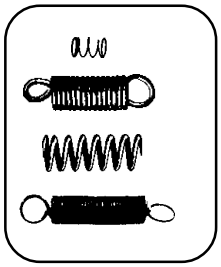
H Section

A-26
Steel, Plated
EXTENSION SPRINGS
10 Sizes - 45 Pieces
Inch Sizes See page H20



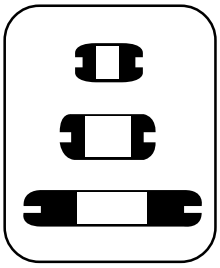
H Section

A-27
Steel, Plated
COMPRESSION SPRINGS
17 Sizes - 44 Pieces
Inch Sizes See page H20



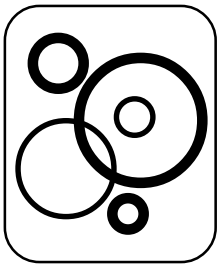
H Section

A-28
Steel, Plated
EXTENSION &
COMPRESSION SPRINGS
25 Sizes - 54 Pieces
Inch Sizes See page H20



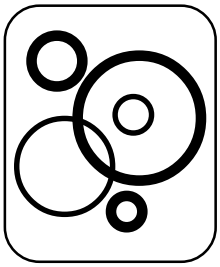
J Section

A-32
SBR
RUBBER GROMMETS
12 Sizes - 52 Pieces
Inch Sizes See page J71



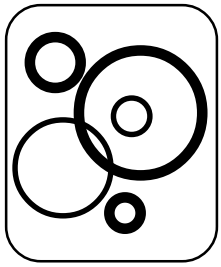
J Section

804-069
Nitrile
O-RING SEALS
19 Sizes - 78 Pieces
Inch Sizes See page J97



J Section

804-001
Viton
O-RING SEALS
19 Sizes - 78 Pieces
Inch Sizes See page J97



J Section

804-071
Nitrile
GERMAN METRIC
O-RING SEALS
23 Sizes - 112 Pieces
Metric Sizes See page J98

H & J SECTION Plastikits

Used to assemble our REGULAR SIZE ASSORTMENTS.

Drawer Size: 13-3/8" W x 9-1/4" D x 2" H

Fits #814-751, #814-404, and #814-406
Slide Racks shown on page A31.

814-408
8 Compartments
(*814-408T)

814-412
12 Compartments
(*814-412T)

Assortment Box
Heavy Duty Steel
All Welded Construction
Finish: Grey Enamel

814-416
16 Compartments
(*814-416T)

814-420
20 Compartments
(*814-420T)

Includes Interior Tray of High-Impact Styrene

(*Replacement Insert Trays are available. Use number with "T" suffix to order tray only.)

814-421
21 Compartments
(*814-421T)

814-425
4 Compartments
(*814-425T)

814-424
24 Compartments
(*814-424T)

814-426
Heavy duty steel
All welded construction
Non-scoop bins
4 Compartments

All drawers on this page,
Approx. Shipping Weight 1.8 kg (4 lbs.)

All drawers on this page have "SCOOPED" bins (except 814-426).

Priced Singly

ADJUSTA-BIN DRAWER Regular Size

814-498 With 9 Dividers
Weight: 1.7 kg (3-3/4 lbs.)

814-401 Extra Plastic Bin Dividers
Unit Package 25

Heavy Duty Steel - All Welded Construction
Includes Interiors of *High-Impact Styrene*

814-498

(*814-498T)
*Replacement Insert Tray available.

LOCKING HINGES

for slide racks with padlock attachment

814-020 for 814-406 Slide Racks

814-021 for 814-404 Slide Rack

814-020

DRAWER STORAGE SLEEVE BASE

814-772 BASE – raises front of Regular Size Assortment
Sleeve to keep drawers in place

814-772
(Drawer and sleeve not included)

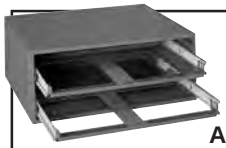
814-404
(Drawers not included)

STORAGE-SLIDE RACKS

For Organized Storage of Your
SPAENAUR
"REGULAR SIZE" Assortments

No. 814-406
15-1/4" W x 11-3/4" D x 16-3/8" H
Shipping weight 14.5 kg (32 lbs.)
Accommodates 6 Drawers - Regular size
13-3/8" W x 9-1/4" D x 2" H

No. 814-404
15-1/4" W x 11-3/4" D x 11-1/4" H
Shipping weight 10 kg (22 lbs.)
Accommodates 4 Drawers - Regular size
13-3/8" W x 9-1/4" D x 2" H



No. 814-751
15-1/4" W x 11-3/4" D x 6-1/4" H
Shipping weight 5.5 kg (12 lbs.)
Accommodates 2 Drawers - Regular size
13-3/8" W x 9-1/4" D x 2" H

- Heavy-duty steel
- All Welded Construction
- Grey Enamel Finish

Slide Rack BASE

814-720

Base will raise Slide Racks, shown at left, 15" from floor.

Weight
5.3 kg (11-3/4 lbs.).

814-720

Used to assemble our LARGE SIZE ASSORTMENTS.

Drawer Size: 18" W x 12" D x 3" H

Fits #814-754 and #814-604
Slide Racks shown on A33.

814-718
6 Vertical Compartments
(*814-718T)

814-719
6 Horizontal Compartments
(*814-719T)

Assortment Box
Heavy Duty Steel
All Welded Construction
Finish: Grey Enamel

814-715
12 Compartments
(*814-715T)

814-716
16 Compartments
(*814-716T)

Includes Interior tray of
High-Impact Styrene

(*Replacement Insert Trays are available. Use number with "T" suffix to order tray only.)

814-717
20 Compartments
(*814-717T)

814-621
21 Compartments
(*814-621T)

814-624
24 Compartments
(*814-624T)

814-632
32 Compartments
(*814-632T)

All drawers on this page,
Approx. Shipping Weight 3.4 kg (7-1/2 lbs.)

All drawers on this page have "SCOOPED" bins.

Priced Singly

ADJUSTA-BIN DRAWER
Large Size - Two styles

(*814-698T)
(*Replacement Insert Tray available.)

814-698
Drawer with 9 Dividers
Weight: 3.4 kg (7-1/2 lbs.)

814-601
Extra
Plastic Bin Dividers
Unit Package 25

814-778
Drawer with 12 Dividers
Weight: 3.3 kg (7-1/3 lbs.)

814-779
Extra
Plastic Bin Dividers
Unit Package 25

Heavy Duty Steel - All Welded Construction
Includes Interiors of *High-Impact Styrene*

(*814-778T)

LOCKING HINGES
for slide racks with padlock attachment
814-020
use with 814-604

814-020

814-753
LARGE SIZE EXPANDO-BOX
with movable dividers.

Shipping Weight
3.40 kg (7-1/2 lbs.)

(Drawer and Sleeve not included.)

(BASE only)

814-770 BASE only
for large storage sleeves
(Large Storage Sleeve no longer available)

Raises front of sleeve to keep drawers in place

Slide Rack BASE
814-721

Will raise Slide Racks 814-754 and 814-604 15" from floor.

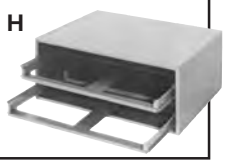
Weight
6.40 kg
(14 lbs.)

SLIDE RACK and BASE MATERIAL
- Heavy Duty Steel
- All Welded Construction
- Grey Enamel Finish

STORAGE - SLIDE RACKS

For Organized Storage of Your
SPAENAUR
"LARGE SIZE" Assortments.

No. 814-754 **20" W x 15-3/4" D x 8-1/8" H**
Shipping weight 9.07 kg (20 lbs.)
Accommodates 2 "LARGE SIZE" Drawers
18" W x 12" D x 3" H



No. 814-604 **20" W x 15-3/4" D x 15" H**
Shipping weight 16.8 kg (37 lbs.)
Accommodates 4 "LARGE SIZE" Drawers
18" W x 12" D x 3" H

Helpful organizers for your fasteners!

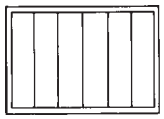
Small Plastic Compartment Boxes

(Contents not included)

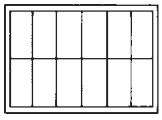
Dimensions 11" Width x 1-3/4" Height x 6-3/4" Depth

These boxes are ideal for organizing, storing and protecting a wide variety of small parts and tools. Three different configurations allow a wide selection of compartment sizes and shapes to fit just about every need. Manufactured from high strength, oil resistant polypropylene, these boxes are furnished with two heavy-duty reinforced hinges with a special "stop" feature, allowing the cover to remain in the open position.

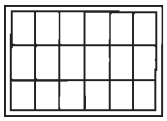
Spaenaur No.	Compart-ments	Compartments I.D. Size, W x H x D	Colour
814-057	6	1-3/4" x 1-9/16" x 6-1/4"	Clear
814-058	6	1-3/4" x 1-9/16" x 6-1/4"	Yellow
814-059	12	1-3/4" x 1-9/16" x 3-1/8"	Clear
814-060	12	1-3/4" x 1-9/16" x 3-1/8"	Yellow
814-061	18	1-3/4" x 1-9/16" x 2"	Clear
814-062	18	1-3/4" x 1-9/16" x 2"	Yellow
814-069	3 to 18	1-3/4" x 1-9/16" x 2" (adjustable)	Clear
814-070	3 to 18	1-3/4" x 1-9/16" x 2" (adjustable)	Yellow



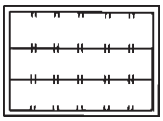
Six Compartment



Twelve Compartment



Eighteen Compartment



Adjustable Compartment

814-026

Dura-Hang™ Panel Hangers

Made of Steel and Nickel Plated these hangers are ideal to hang storage racks 814-043 and 814-044.

They are adjustable to fit up to 3-3/8" wide panels.

Priced per Set
(Includes 2 hangers and a wrench)

814-043

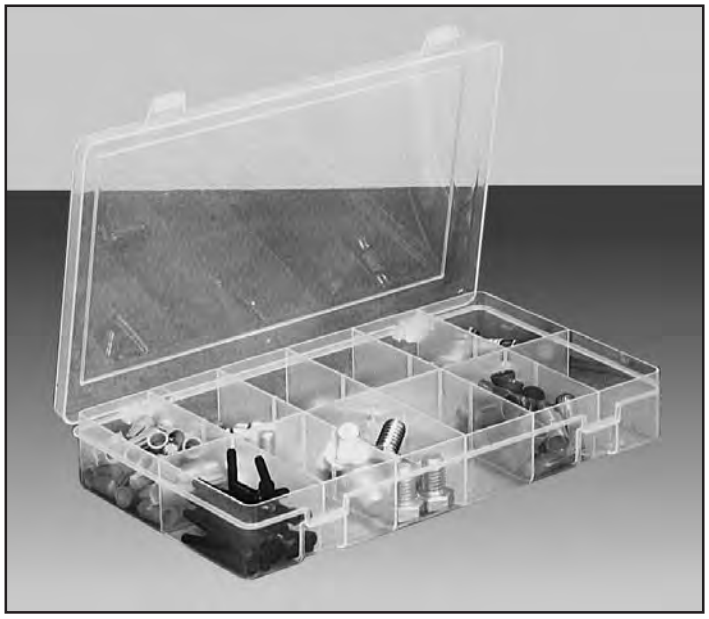
Storage Rack Holds 5 Regular Size Plastic Compartment Boxes

This versatile cold rolled steel rack with grey baked enamel finish has been designed for three way use. Keyhole slots are furnished for wall mounting. A handle is provided and bolt holes permit stacking.

(Plastic Boxes not included)

CATALOG 13

A must for any busy workshop!



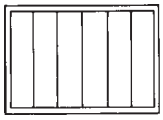
(Contents not included)

Large Plastic Compartment Boxes

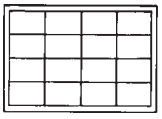
Dimensions 13-1/8" Width x 2-5/16" Height x 9" Depth

These larger boxes are ideal for organizing, storing and protecting a wide variety of small parts and tools. Five different configurations allow a wide selection of compartment sizes and shapes to fit just about every need. Manufactured from high strength, oil resisant clear polypropylene, these boxes are furnished with two heavy-duty reinforced hinges with a special "stop" feature, allowing the cover to remain in the open position.

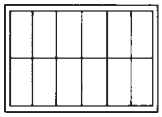
Spaenaur No.	Compart-ments	Compartments I.D. Size, W x H x D	Colour
814-063	6	2-1/16" x 2" x 8-1/2"	Clear
814-064	12	2-1/16" x 2" x 4-1/4"	Clear
814-065	16	3-1/8" x 2" x 2-1/16"	Clear
814-066	18	2-1/16" x 2" x 2-1/16", 4-1/4"	Clear
814-067	24	2-1/16" x 2" x 2-1/16"	Clear
814-068	4 to 24	2-1/16" x 2" x 2-1/16" (adjustable)	Clear



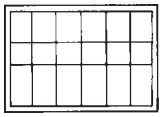
Six Compartment



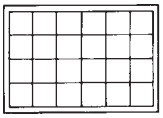
Sixteen Compartment



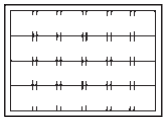
Twelve Compartment



Eighteen Compartment



Twenty Four Compartment



Adjustable Compartment

(Plastic Boxes not included)

814-044

Storage Rack Holds 5 Large Size Plastic Compartment Boxes

This versatile cold rolled steel rack with grey baked enamel finish has been designed for three way use. Keyhole slots are furnished for wall mounting. A handle is provided and bolt holes permit stacking.

814-021

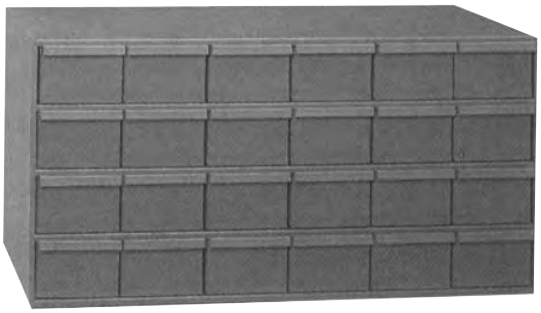
Locking Hinges

for Slide Racks 814-043 and 814-044 to hold boxes in place when being transported in a moving vehicle. Padlock not provided.

DRAWER CABINETS

Cold rolled steel finished in rust and acid resistant baked enamel is the fabricating material. The use of vertical supports in construction results in great strength and allows Durham Drawer Cabinets to be stacked, regardless of the weight involved. The no-drag drawers have two embossed runners for smooth easy travel. The possibility of the drawers slipping out of the cabinet has been eliminated by a positive stop mechanism. Drawers for all Durham Drawer Cabinets offer double interlocked design resulting in unequalled rigidity. Handles are the full width of the drawers and are raised above the drawer so that the full front is available for identification. The sides of each drawer are designed to hold dividers on one inch centres. Two dividers are provided with each drawer. They have a special snap-in feature which keeps them snugly in place yet easily removable.

814-739



814-740

814-741

814-744

814-743

814-742

CATALOG 13

... DRAWER CABINETS continued

814-708

More Drawer Cabinets on the following 2 pages.

DURHAM HEAVY DUTY WELDED STEEL DRAWER CABINETS

SPAENAUR No.	Width Inches	Height Inches	Depth Inches	No. of Drawers	Drawer Width Inches	Drawer Height Inches	Drawer Depth Inches	No. of Drawer Dividers	Weight kg (lbs.)
814-739	33-3/4	12-7/8	11-3/4	18	5-3/8	3-1/2	11-1/4	36	24.5 (54)
814-740	33-3/4	17	11-3/4	24	5-3/8	3-1/2	11-1/4	48	32.2 (71)
814-741	33-3/4	21-1/8	11-3/4	30	5-3/8	3-1/2	11-1/4	60	39.5 (87)
814-708	33-3/4	10-7/8	17-1/4	18	5-3/8	2-3/4	17	36	30.8 (68)
814-742	33-3/4	12-7/8	17-1/4	18	5-3/8	3-1/2	17	36	34.0 (75)
814-743	33-3/4	17	17-1/4	24	5-3/8	3-1/2	17	48	43.6 (96)
814-744	33-3/4	21-1/8	17-1/4	30	5-3/8	3-1/2	17	60	53.5 (118)
814-750	Base for Cabinets 34-1/8 W x 17-1/2 D x 5-3/4 H								7.7 (17)

All Cabinets and Drawers are finished in Grey Baked Enamel

Drawers feature sides slotted on one inch centres to hold high impact plastic dividers firmly in place.
They also have two easy glide runners and full width handles. Drawers come with two high impact plastic dividers.

Drawer Dividers are made of a high impact plastic, with special snap-in features to hold them in place.

814-037 Grey plastic **dividers** for 814-047 and 814-048 drawers. *Unit Pkg. Qty. 12*

814-035 Grey plastic **dividers** for 814-034 drawers (814-034 no longer available). *Unit Pkg. Qty. 12.*

814-047 Drawer will fit cabinet 814-742, 814-743 and 814-744.

814-048 Drawers will fit cabinet 814-739, 814-740 and 814-741.

Priced Singly.

Cabinets shown on page A36 and A37.

Cabinets and drawers are shipped with or without cardholders at our option.

814-750

Sturdy, all-steel base for cabinets 814-708, 814-742, 814-743 and 814-744. Shipped unassembled, fasteners provided.

DRAWER CABINETS

Cold rolled steel finished in rust and acid resistant baked enamel is the fabricating material. The use of vertical supports in construction results in great strength and allows Durham Drawer Cabinets to be stacked, regardless of the weight involved. The no-drag drawers have two embossed runners for smooth easy travel. The possibility of the drawers slipping out of the cabinet has been eliminated by a positive stop mechanism. Drawers for all Durham Drawer Cabinets offer double interlocked design resulting in unequalled rigidity. Handles are the full width of the drawers and are raised above the drawer so that the full front is available for identification. The sides of each drawer are designed to hold dividers on one inch centres. Two dividers are provided with each drawer. They have a special snap-in feature which keeps them snugly in place yet easily removable.

814-003

814-002

814-024

814-706

814-006

DURHAM HEAVY DUTY WELDED STEEL DRAWER CABINETS

SPAENAUR No.	Width Inches	Height Inches	Depth Inches	No. of Drawers	Drawer Width Inches	Drawer Height Inches	Drawer Depth Inches	No. of Drawer Dividers	Weight kg (lbs.)
814-007	11-3/4	10-7/8	11-5/8	6	5-3/8	2-3/4	11-1/4	12	7.7 (17)
814-009	17-1/4	10-7/8	11-5/8	9	5-3/8	2-3/4	11-1/4	18	12.7 (28)
814-003	17-1/4	21-1/4	11-5/8	18	5-3/8	2-3/4	11-1/4	36	22.7 (50)
814-705	22-3/4	7-3/8	11-5/8	8	5-3/8	2-3/4	11-1/4	16	10.4 (23)
814-006	33-3/4	4	11-5/8	6	5-3/8	2-3/4	11-1/4	12	8.2 (18)
814-706	33-3/4	7-3/8	11-5/8	12	5-3/8	2-3/4	11-1/4	24	15.4 (34)
814-002	33-3/4	10-7/8	11-5/8	18	5-3/8	2-3/4	11-1/4	36	22.7 (50)
814-024	33-3/4	14-3/8	11-5/8	24	5-3/8	2-3/4	11-1/4	48	28.1 (62)

All Cabinets and Drawers are finished in Grey Baked Enamel

More Drawer Cabinets shown on previous 2 pages.

All items on this page
Priced Singly.

... DRAWER CABINETS continued

814-007

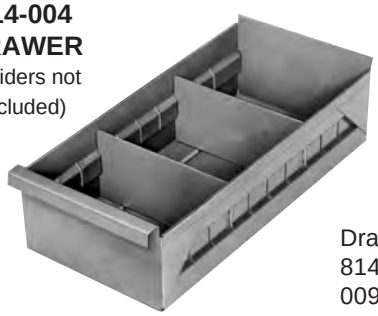
814-009

814-705

Priced Singly

Cabinets and drawers are shipped with or without cardholders at our option.

814-004
DRAWER
(dividers not included)



Priced Singly

5-3/8" W x 2-3/4" H x 11-1/4" D

Drawers feature sides slotted on one inch centres to hold high impact plastic dividers firmly in place. They also have two easy glide runners and full width handles.

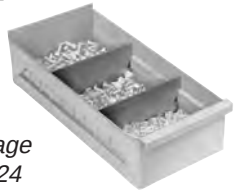
Drawer will fit cabinets 814-002, 814-003, 814-006, 814-007, 814-009, 814-024, 814-705, 814-706 814-780, 814-781 and 814-782 shown on page A38 and A39.

Shipping Weight: .56 kg (1-1/4 lbs.)

Drawer Dividers are made of a high impact plastic, with special snap-in features to hold them in place.

814-005
PLASTIC DRAWER DIVIDERS

Plastic dividers fit the 814-004 drawer.



Unit Package Quantity 24

STORAGE CABINETS

These all steel Drawer cabinet Systems come complete with their own rugged bases. They are manufactured on automated tooling to provide uniformity. Only prime cold rolled steel is used, and they are finished in rust and acid resistant baked enamel. Drawers feature a special interlocking design resulting in superior strength. Each drawer comes with two high impact plastic dividers. They also include full width handles, embossed runners for smooth, easy opening and positive stops to prevent spilling.

Not Stocked, Pricing on Request.

48 Drawer cabinet

72 Drawer cabinet

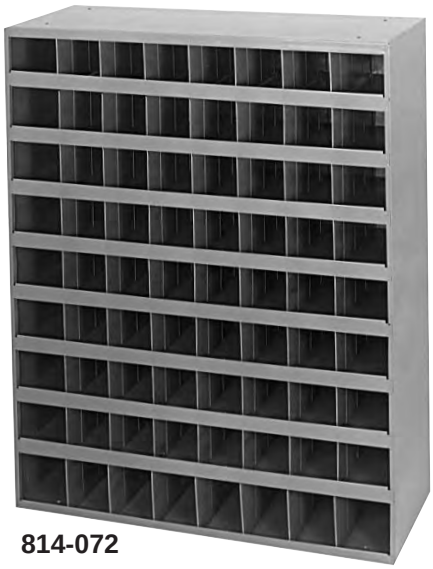
96 Drawer cabinet

SPAENAUR No.	Width Inches	Height Inches	Depth Inches	No. of Drawers	Drawer Width Inches	Drawer Height Inches	Drawer Depth Inches	No. of Drawer Dividers	Weight kg (lbs.)
814-780	34-1/8	33-3/4	12-1/2	48	5-3/8	2-3/4	11-1/4	96	73 (161)
814-781	34-1/8	48-1/8	12-1/4	72	5-3/8	2-3/4	11-1/4	144	98 (216)
814-782	34-1/8	62-1/2	12-1/4	96	5-3/8	2-3/4	11-1/4	192	136 (300)

STORAGE BINS
12" Deep

Designed as heavy duty units for storing a wide variety of parts, Durham Storage Bins are extremely sturdy as the result of being welded throughout on especially designed machines. Durham Storage Bins, produced of heavy gauge steel, finished in rust and acid resistant baked enamel, will not warp, twist or sag out of alignment. Fully hemmed lips on each bin keep parts securely in place and eliminate the possibility of spillage.

814-036



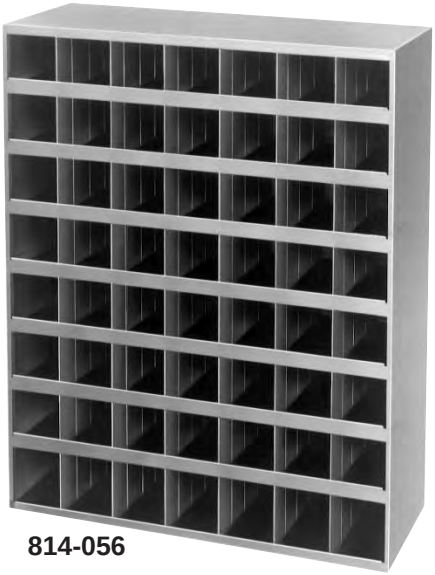
814-072

814-713

814-712

All Storage Bins come in GREY BAKED ENAMEL.

All items Priced Singly.



814-056

814-714

814-711

814-018

814-042

Note: Doors with padlock attachments for Storage Bins #814-042, 814-056, 814-072, 814-712, and 814-714 found on A42.

814-710

814-722

KEY STOCK RACK

Designed to hold material used in the manufacture of keyways which generally run from 1/8 inch square up to 3/4 inches square and approximately 12 inches long. Offers a total of 10 compartments for the convenient storage of stock of 10 different sizes. Keyhole slots permit wall mounting. Contents not included.

814-001

THREADED ROD CABINET

Separates and holds threaded rods, as tall as 36 inches (914.4 mm) and as short as 13 inches (330.2 mm), in 18 separate compartments, 2 inches (50.8 mm) in diameter.

814-709

No. 814-008

Special base for storage bins and cabinets

All items Priced Singly.

WELDING ROD CABINET

Holds standard welding rod up to 18 inches long. There are six openings, each 18-1/16 inches deep by 4 inches high by 5-1/4 inches wide.

814-723

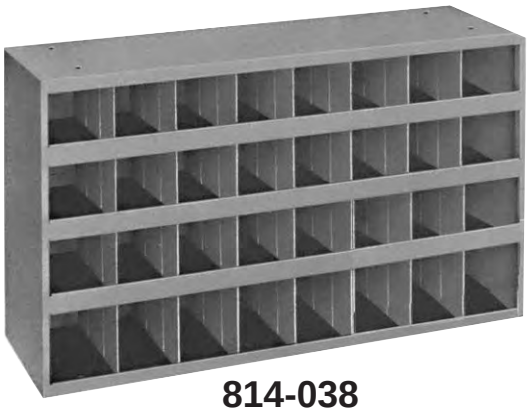
DURHAM STORAGE BIN INFORMATION

SPAENAUR No.	Width Inches	Height Inches	Depth Inches	No. of Bins/ Sections	Bin Width Inches	Bin Height Inches	Bin Depth Inches	Weight kg (lbs.)
814-722	12-1/4	12	6-1/4	10	VARIOUS	9	3	2.7 (6)
814-723	16-1/8	8-1/8	18-1/2	6	5-1/4	4	18	8.2 (18)
814-711	17-7/8	42	12	21	5-3/8	5-3/8	11-7/8	16.8 (37)
814-036	17-7/8	42	12	36	4	4-1/2	11-7/8	22.7 (50)
814-709	33-3/4	5-1/4	12	8	4	5-1/4	11-7/8	6.8 (15)
814-710	33-3/4	11-1/2	12	16	4	5-1/8	11-7/8	11.3 (25)
814-018	33-3/4	19-1/4	12	18	5-1/4	6-3/8	11-7/8	17.2 (38)
814-712	33-3/4	23-7/8	12	24	5-3/8	5-1/2	11-7/8	20.0 (44)
814-713	33-3/4	19-1/4	12	32	4	4-1/2	11-7/8	18.6 (41)
814-714	33-3/4	23-7/8	12	40	4	4-1/2	11-7/8	22.7 (50)
814-042	33-3/4	42	12	42	5-3/8	5-1/2	11-7/8	32.2 (71)
814-056	33-3/4	42	12	56	4-7/8	5-1/8	11-7/8	34.0 (75)
814-072	33-3/4	42	12	72	4	4-1/2	11-7/8	36.3 (80)
814-001	24-1/8	24	6-7/8	18	-	-	-	7.3 (16)
814-008	34-1/8	5-3/4	12-1/4	-	-	-	-	8.2 (18)

All Storage Bins come in GREY BAKED ENAMEL

STORAGE BINS
9" Deep

Durham's 9" deep Bins feature the same quality construction as the 12" deep models described on page A38. They are ideal for use when floor space is at a premium or the full 12" depth is not needed. All 9" deep Durham Bins are modular and easily combined to make larger units. Stock parts are accessible, and a 1-1/8" ledge on each shelf provides space to hold labels for content identification.



814-038

All items Priced Singly.

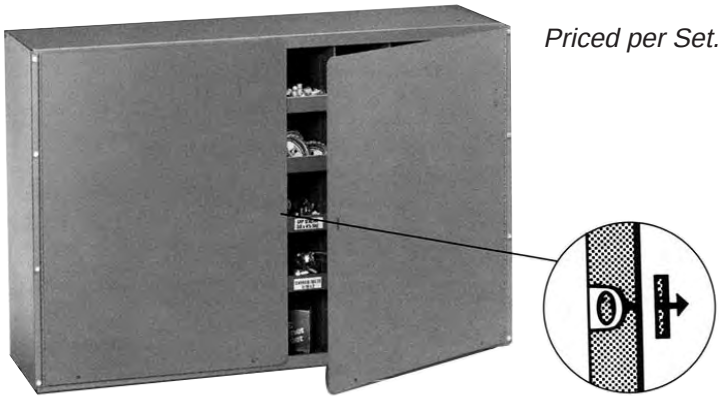
814-040
Sturdy, all steel Bin base.

814-039

DURHAM STORAGE BIN INFORMATION

SPAENAUR No.	Width Inches	Height Inches	Depth Inches	No. of Bins/ Sections	Bin Width Inches	Bin Height Inches	Bin Depth Inches	Weight kg (lbs.)
814-038	33-3/4	19-1/4	8-1/2	32	4	4-1/2	8-3/8	15.9 (35)
814-039	33-3/4	22-1/4	8-1/2	40	4	4	8-3/8	18.1 (40)
814-040	34	5-3/4	9	–	–	–	–	4.9 (11)

STORAGE BIN DOORS with padlock attachment.



Priced per Set.

814-022
Doors are for Storage Bins 814-042, 814-056 and 814-072 shown on A40.

814-023
Doors are for Storage Bins 814-712 and 814-714 shown on A40.

814-027
Doors are for Storage Bin 814-039 (shown above).

Doors are attached using sheet metal screws or pop rivets (Not supplied).

All Storage Bins and Door Sets are finished in GREY BAKED ENAMEL.

See page A34, A35, A43, A50 and A51 for plastic organizers and accessories.

Storage Units

In addition to a wide variety of bins, cabinets, racks and drawers designed for the storage of small parts, *SPAENAUR* also offers a number of units designed for specialized storage applications. Like all other *SPAENAUR* products, these special storage units are produced of prime cold rolled steel finished in rust and acid resistant baked enamel utilizing a specialized design technique which minimizes the possibility of warping, twisting or sagging out of alignment. Note possibility of combining storage cabinets and storage bins.

UTILITY CABINETS with PLASTIC DRAWERS

General purpose utility cabinets featuring break resistant, styrene, clear plastic drawers with lock-in dividers and scooped bottoms.

CABINETS are PRICED SINGLY

Prime cold rolled steel-interlocking and welded construction

Grey Baked Enamel

***SPAENAUR No.* 814-700**

20 Drawers - 40 Dividers

Cabinet Dimensions:
16-3/4" W x 12" H x 6-3/8" D

Shipping Weight 4.5 kg (10 lbs.)

Priced Singly

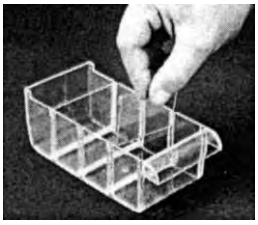
***SPAENAUR No.* 814-747**

64 Drawers – 128 Dividers

Cabinet Dimensions:
25-7/8" W x 21-3/8" H x 6-3/8" D

Shipping Weight
15 kg (33 lbs.)

Priced Singly



EXTRA PLASTIC DRAWERS
***SPAENAUR No.* 814-701**

2-1/8" W x 1-7/8" H x 5-1/2" D

Shipping Weight .11 kg (1/4 lb.)

Priced Singly

EXTRA PLASTIC DIVIDERS
***SPAENAUR No.* 814-702**

Unit Package 20

Meeting your needs today and tomorrow!

Our 55 person call centre is available to answer any questions that you may have pertaining to product, delivery or application. Our bilingual telesales staff is thoroughly trained to ISO 9002 standards and open from 7 a.m. to 7 p.m. to personally take your order. Call us today at **800-265-8772.**

814-757

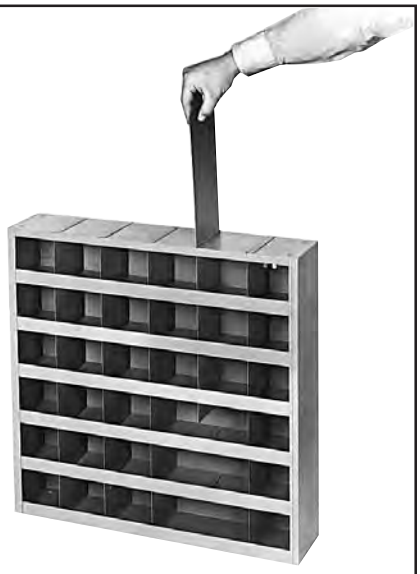
Hose Cabinet. Ideal for storage of a wide variety of hose. Four dividers on 1" centres move to create compartments of any desired width.

or

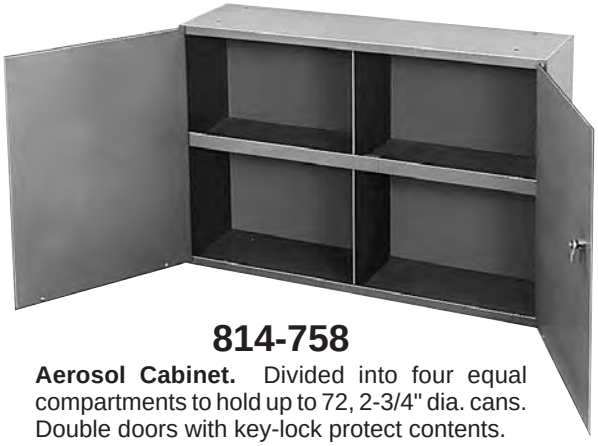
Perfect solution for low-cost filing and storage of bulky mechanicals, large layouts, and original art. Art files may be used singly, stacked vertically, arranged horizontally. They are finished with rust and acid-resistant baked enamel. Units are shipped knocked down, and are easily assembled. Extra dividers are available.

814-756

Multi-Purpose Bin. Removable vertical dividers allow the creation of double-width openings, each with scoops. Keyhole slots are provided for wall mounting.

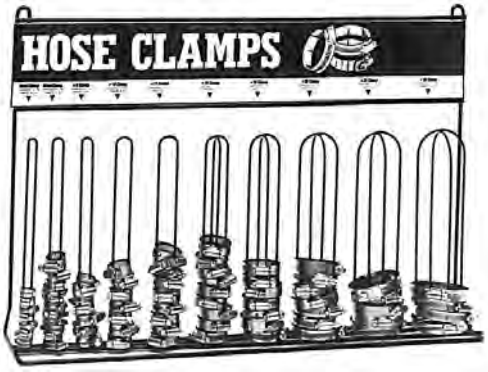


All items Priced Singly.



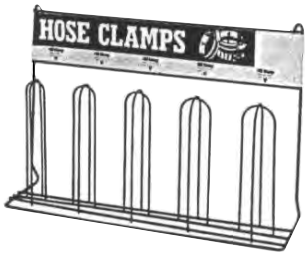
814-758

Aerosol Cabinet. Divided into four equal compartments to hold up to 72, 2-3/4" dia. cans. Double doors with key-lock protect contents.



814-703

Hose Clamp Rack. Ten-post rack allows easy access to adjustable hose clamps from the smallest mini-clamp up to the 2-3/4" nom. I.D., #36 clamp. May be countertop or wall-mounted; two built-in hanger loops provided. Sign panel lists clamp diameters. Contents not included.



814-783*

This 5 post model holds from the 2-1/16" diameter #40 to the 5" #72. For countertop use or may be wall-mounted using two built-in hanger loops provided. Sign panel lists clamp diameters.

*****Not Stocked - P.O.R.

Specifications	814-757	814-756	814-758	814-703	814-783*
Width (inches)	36	23-3/4	33-3/4	23-1/4	23-1/4
Height (inches)	27-3/4	23-3/4	22-1/4	15-3/4	16-1/8
Depth (inches)	20	4-3/4	8-1/2	5-3/8	5-3/8
No. of Sections	5	36	4	10	5
Material	Prime rolled steel - interlocking construction			Heavy Duty Wire	
Colour	Grey baked enamel			Black baked enamel	
Weight kg (lbs.)	30.8 (68)	11.3 (25)	20.4 (45)	2.3 (5)	2.3 (5)

Heavy Duty Welded Steel Storage Bins

- All welded steel construction
- Grey, powder coated, baked enamel finish
- No sharp edges
- Ribbed dividers add strength
- Fully hemmed shelves have 1/8" turn to hold labels
- Shipped assembled for immediate use

814-785

Contents not included.

814-786

Contents not included.

No. 814-008
Special base for storage bins and cabinets. Base information can be found on page A41.

SPAENAUR No.	Width Inches	Height Inches	Depth Inches	No. of Bins/ Sections	Bin Width Inches	Bin Height Inches	Bin Depth Inches	Weight kg (lbs.)
814-785	33-7/8	23-7/8	11-29/32	12	8	6-5/8	12	N/A
814-786	33-3/4	42	12	20	8	8-1/2	11-7/8	N/A

Aerosol/Utility Products

These cabinets are ideal for storage of aerosol cans and utility items of all kinds. Our two vertical models each feature two adjustable shelves, a hinged door with two friction catches, a plated door handle to make opening easy, and key hole slots for wall mounting. Interlocking, welded design provides these aerosol/utility cabinets with maximum strength.

The rugged, all steel aerosol can caddy offers convenient storage for up to six aerosol cans. It can be easily wall mounted using key holes provided.

All aerosol/utility products are prime cold-rolled steel and finished in an acid/rust resistant grey baked enamel.

Small Cabinet
***SPAENAUR No.* 814-773**
30" high x 13-3/4" wide x 12-3/4" depth

Large Cabinet
***SPAENAUR No.* 814-774**
32-3/4" high x 19-7/8" wide x 14-1/4" depth

All items priced singly.

Can Caddy
***SPAENAUR No.* 814-775**
21-1/2" wide x 5-1/4" high x 3-1/8" depth

Contents not included with any item on this page.

High quality, all steel storage cabinets and door trays are designed specifically for use in outfitting trucks and vans. For applications including fastener storage, public utility, service vehicle, electrical, plumbing, TV repair, mobile food service, or sign painting, these units are ready to install. Both cabinets and door trays are reinforced for rigidity, and designed to handle extra weight. Regardless of the parts, tools, or supplies to be stored, these truck/van storage products from SPAENAUR are the perfect solution.

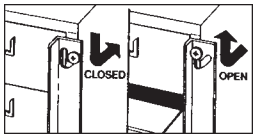
814-736

814-046
(with tray cover)

Easy-access **Durham Door Trays** are produced with horizontal sections; each rounded section has slots for adjustable dividers for the convenient creation of individual compartment sizes. Models **814-046** and **814-734** come with 9 dividers.

814-734
(with tray covers)

Durham Storage Cabinets with easy-glide drawers are equipped with unique locking bars to keep the drawers securely closed while the vehicle is in motion. The **814-736** has nine drawers with adjustable dividers for maximum flexibility, and all drawers offer convenient handles. The **814-737** has a single, fixed centre divider in each drawer.



Locking Bars (used on 814-736 and 814-737, keep storage cabinet drawers securely shut.

814-737

SPECIFICATIONS	814-046	814-734	814-736	814-737
Width (inches)	21	21	12-5/8	12-5/8
Height (inches)	8	21	24-1/2	24-1/2
Depth (inches)	4-3/4	4-3/4	12-1/8	12-1/8
No. Drawers/Trays	1	3	9	4
Drawer/Trays				
Width (inches)	18-1/4	18-1/4	11	11
Height (inches)	3-1/4	3-1/4	2	4-7/8
Depth (inches)	4-1/2	4-1/2	10-3/4	10-7/8
No. Removable Drawer/Tray Dividers	9	9	81	0
Material	Heavy duty steel - interlocked and welded construction.			
Colour	Grey baked enamel.			
Weight kg (lbs.)	3.6 (8)	8.2 (18)	20.9 (46)	14.5 (32)

Security Boxes - Keep your policies safe!

Durham Policy Boxes have been designed specifically for the storage and safekeeping of policies, as well as other valuable papers.

The fire resistant Durham Policy Boxes have been designed with safety and security in mind, and are sturdily constructed of heavy gauge prime steel, finished in durable rust and acid resistant baked enamel.

Colour: Grey

814-746

Here is a Policy Box ideal for larger policies or where greater capacity is required. This model features a card holder inside the cover for personalization and includes a combination lock. The unit is 9-1/4 inches wide by 12-1/4 inches long by 3 inches deep.

Shipping Weight 1.8 kg (4 lbs.)

Durham Literature Racks provide a convenient and compact way to store literature and still keep it readily accessible and visible, with the tops of literature exposed for easy identification. Keyhole slots are provided for wall mounting. Most models accommodate 150 standard 8-1/2" x 11" sheets, while others are wider, to hold magazines and special forms.
Three 360° rotating literature racks (814-762, -763 and -764) are capable of holding a wide assortment of standard size literature in minimum space.

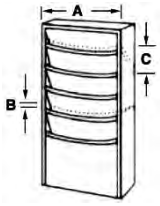
Literature and Rotating Literature Racks

Specifications	SPAENAUR No's. 814-724	814-725	814-762	814-763	814-764
Height (inches)	36	26	66-1/4	50-3/4	23
Width (inches)	9-3/4	13-1/8	14-1/8	14-1/8	14-1/8
Depth (inches)	4	2	14-1/8	14-1/8	14-1/8
Opening					
A. Width (inches)	8-13/16	12-1/2	8-11/16	8-11/16	8-11/16
B. Depth (inches)	3/4	5/16	1	1	1
C. Height (inches)	8-1/2	6	8-1/2	8-1/2	8-1/2
Paper Width (inches)	8-1/2	12	8-1/2	8-1/2	8-1/2
No. of Pockets	11	10	92	44	20
Weight kg (lbs.)	6.8 (15)	5.9 (13)	61.7 (136)	40 (88)	21.3 (47)

Construction is of sturdy heavy-gauge steel. Standard finish Desert Tan

All items Priced Singly.

814-725
Not a Con-Tur® Rack.



CON-TUR® Literature Racks

814-724

814-764

Contents not included.

814-763

814-762

Horizontal Racks

Durham sturdy all-steel horizontal racks, designed for floor or desk-top use, provide handy storage for computer printouts. They are rigid, will not warp or twist, and are shipped set up ready for use. These racks are modular, and may be arranged vertically or horizontally. Fasteners are provided to join individual units. Models with six or eight openings are available, and shelves have label holders to identify contents. All racks are finished in Desert Tan baked enamel. Horizontal printout racks may be combined with horizontal literature racks.

Printout Racks

Literature Racks

All items Priced Singly.

Horizontal Data Organizer

Data organizers are designed specifically for storing and organizing computer printouts and reports. These all steel units are finished in desert tan baked enamel and may be arranged horizontally or stacked vertically. Label holders for content identification are provided. Rubber feet are included to protect surfaces on desks and files.

Data Organizer

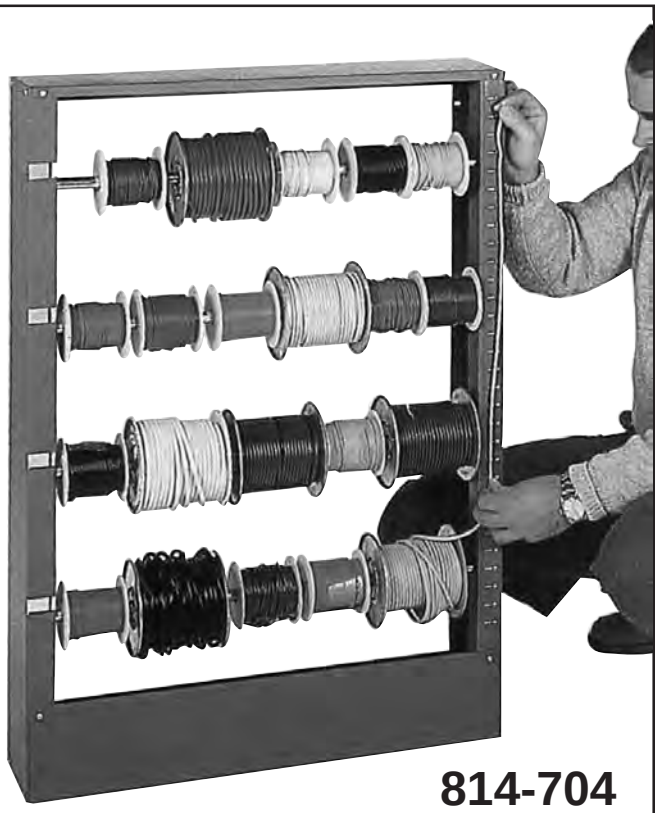
Specifications	Horizontal Printout Racks 814-728	814-729	Horizontal Literature Racks 814-732	814-733	Data Organizer 814-738
Height (inches)	10-3/4	14-1/4	10-7/8	14-1/4	10-7/8
Width (inches)	33-3/4	33-3/4	33-3/4	33-3/4	17-3/8
Depth (inches)	11-5/8	11-5/8	11-5/8	11-5/8	11-3/8
Opening Width (inches)	16-1/2	16-1/2	11	11	16-1/2
Opening Depth (inches)	11-1/2	11-1/2	11-1/2	11-1/2	11-1/4
Opening Height (inches)	3	3	3	3	3
Number of Openings	6	8	9	12	3
Paper Width (inches)	14	14	8-1/2	8-1/2	16
Weight kg (lbs.)	9.5 (21)	12.3 (27)	9.5 (21)	12.3 (27)	4.5 (10)

HOLD UP TO 10" DIAMETER SPOOLS.

All steel construction.

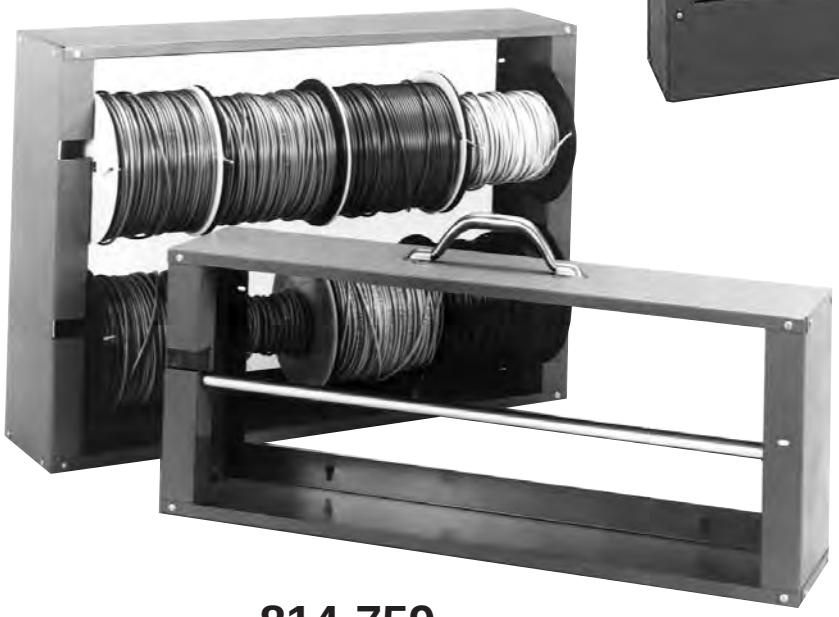
- **Plated steel rods for heavy spools.**
- **Grey baked enamel finish, rust and acid-resistant.**
- **Counter or wall mount with lag holes and keyhole slots.**
- **Convenient carrying handle on single rod model 814-759.**

All items Priced Singly.



814-704

814-760



814-759

To meet your needs... Durham industrial quality, portable wire spool racks are perfect for shop, job site, or vehicular use.

Specifications	814-759 (one rod)	814-760 (two rods)	814-704 (four rods)
Width (inches)	26-1/8	26-1/8	26-1/8
Height (inches)	10-3/8	17-7/8	37-1/8
Depth (inches)	6	6	6
No. of Sections	1	2	4
Material	Prime rolled steel - interlocking construction		
Colour	Grey baked enamel		
Weight kg (lbs.)	4.08 (9)	4.99 (11)	11.34 (25)

Contents not included with any item on this page.

Stanley/Beach Tool Storage Drawers

SPAENAUR No.	Description	Dimensions
814-179	2" (51 mm) Old Style Drawer. *Unit Pkg. Qty. 1 pair*	23-1/4" x 16-1/2" x 2" (591 x 419 x 51 mm)

814-179

Items on this page will be discontinued as present stock is sold.

PORT-A-TOTE

is no longer available. Plastic Insert Trays are available until current stock is depleted.

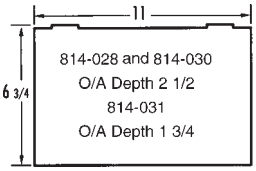
PLASTIC INSERT TRAYS
(Clear Plastic)

814-016 Single Tray
814-017 Divided Tray

Unit Package 10

Polypropylene Boxes

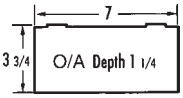
These extremely durable polypropylene boxes are moulded with heavy duty, heat-sealed hinges and resist solvents such as gasoline, oil and most common chemicals. They are excellent for organizing and carrying small items for the mechanic, plumber, electrician, or handyman.



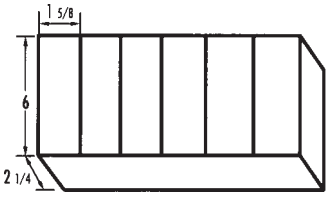
Overall Dimensions (814-028 to 814-031)

Natural Translucent Colour.

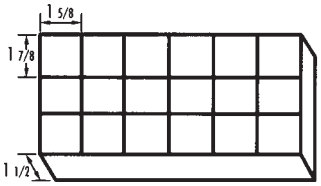
Priced singly



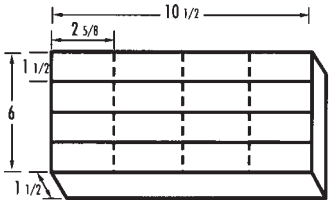
Overall Dimensions (814-032 only)



814-028



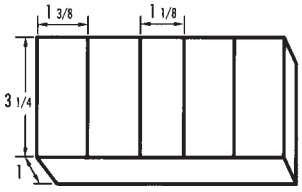
814-030



814-031

Tool Box with two Cantilever trays

These rugged plastic tool boxes make it easy to organize tools in a small space. The tool boxes are lightweight, rustproof, dentproof, scratch resistant and feature draw tight latches and tongue-and-groove construction for a secure seal. They are also ideal as repair kits, sample cases or sports supply boxes.



814-032

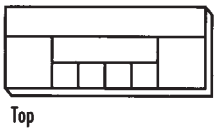
***SPAENAUR No.* 814-033**

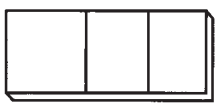
Overall Dimensions
16-3/8" x 8-5/8" x 7"

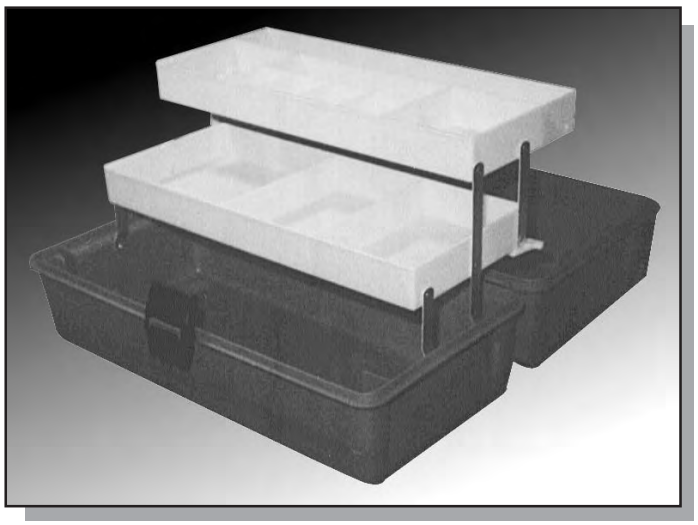
Two trays – 11 compartments

Grey colour – *Priced singly*

Tray Configurations:

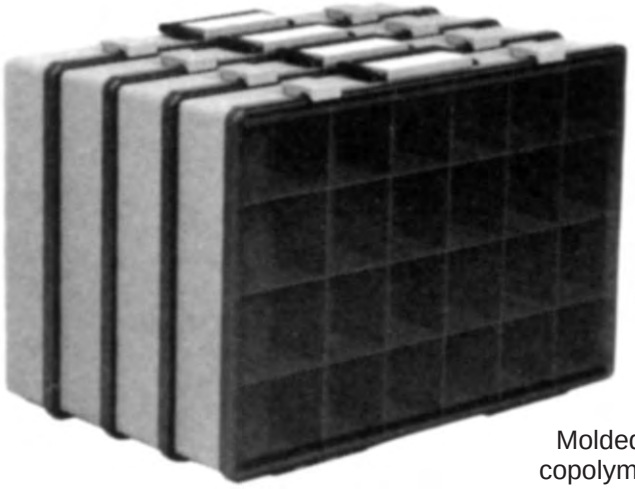






CATALOG 13

Super-Satchel Storage Cases



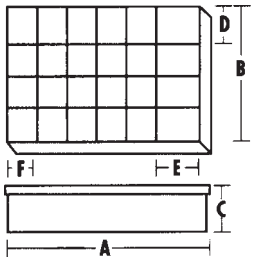
Molded in grey copolymer resins.

Storing and organizing materials in industrial environments takes on a new meaning with Super-Satchel Storage Cases. They offer lots of flexibility in storage and will out-perform Standard Industrial Slide Rack Boxes. Storing them flat or upright allows plenty of options for developing custom storage systems. With two draw-tight latches,a luggage style handle and lighter weight (3.5 lb. vs. 8 lb. in metal), Super-Satchel Cases are 100% portable.

814-776

Size: 18-1/2" x 13" x 3"
24 Compartments (fixed positions.)

A: 18-1/2" C: 3" E: 4"
B: 13" D: 3" F: 2-7/8"

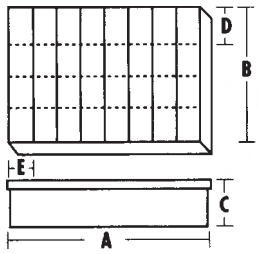


Features include . . .

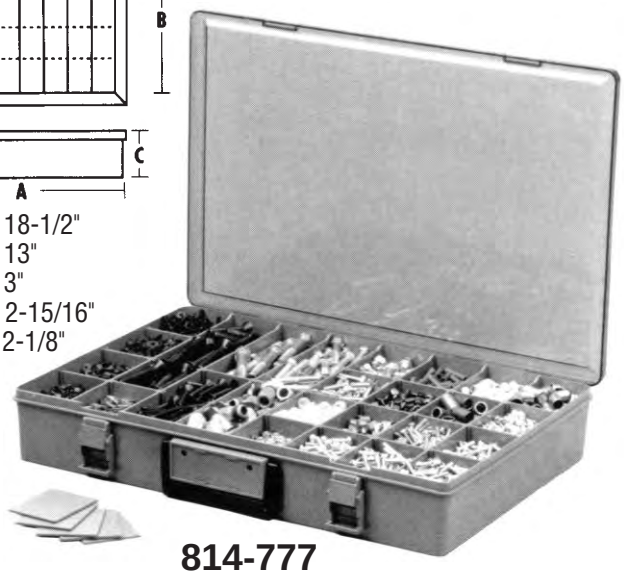
- See-through lid allows quick identification of contents.
- Molded in copolymer resins that will not dent. Super-Satchel Storage Cases resist common solvents and odors.
- Copolymer resins will not rust which means no corrosion carryover onto box contents.
- Brass pinned hinges for optimum strength and durabilty.
- Molded integral feet allow these containers to stand upright making ideal presentation cases.
- Rounded corners, no sharp edges and lightweight covers that won't slam on fingers make these cases "user friendly."
- Identification card holder for quick case selection.

Priced Singly

Contents of cases not included



A: 18-1/2"
B: 13"
C: 3"
D: 2-15/16"
E: 2-1/8"



814-777

Adjusts from 8 to 32 compartments.
8 fixed dividers (Solid lines.)
24 moveable dividers included.
(Dotted lines.)

Attache style tool cases to protect your valuable tools!

Standard ABS Tool Cases

These handy cases have a rigid black ABS thermoplastic exterior with a durable moulded ribbed shell. Other features include an extruded aluminum frame with chrome plated "presto" cast key locks, cushioned handle, interior divider, literature pocket, and two moulded pallets for holding your tools.

SPAENAUR No.	Size	No. of pallets
876-1149	18" x 13" x 6"	Two pallets
876-1152	18" x 13" x 7"	Two pallets
876-1154	18" x 13" x 5"	One pallet

Deluxe ABS Tool Case

This tough case has a rigid black ABS thermoplastic exterior with a durable moulded ribbed shell. Other features include an extruded aluminum frame with "Sudhaus" cast chrome bolts, combination lock, golf grip handle, interior divider, two moulded pallets and a literature pocket.

SPAENAUR No.	Size	No. of pallets
876-1150	18" x 13" x 6"	Two pallets

Deluxe Polypropylene Tool Case

This popular case has a black, chemical resistant finish with an extruded aluminum frame with "Sudhaus" cast chrome key locks, golf grip handle, interior divider, two moulded pallets and a literature pocket.

SPAENAUR No.	Size	No. of pallets
876-1153	18" x 13" x 6"	Two pallets

Deluxe Soft Moulded Tool Case

This convenient case features a patented construction utilizing an ABS thermoplastic shell interior, a quality brown vinyl exterior with an extruded aluminum frame for maximum strength. It also has "Sudhaus" cast chrome bolts, golf grip handle, interior divider, one moulded pallet and a literature pocket.

SPAENAUR No.	Size	No. of pallets
876-1151	18" x 13" x 6"	One pallet

All items priced singly. Contents of cases not included.

Also available: 814-025 Chicago Tool Case (not Platt) 18" x 13" x 6", with 2 inserts, combo lock and aluminum frame.

Tool Pallets to organize every selection!

These specially designed pallets are made not just to fit tool selections, but the needs of the people who use them! Our moulded urethane pallets are a pleasure to work with - tough, with just the right amount of give. Our sewn pallets have strong pockets and pouches to hold a wide range of tools and parts. Each pocket placement is carefully considered and the result of years of tool pallet design. All outer edges of our pallets are sewn through our heavy backing material to prevent the separation you might have experienced in pallets of lesser quality. All of our lid pallets come with two elastic straps on the back to hold small tools securely.

Injection Moulded Urethane Pallets

All purpose pallet with **27** pockets each.
876-1156 Top Pallet **876-1157** Bottom Pallet

All purpose pallet with **22** pockets each.
876-1158 Top Pallet **876-1159** Bottom Pallet

All pallets shown on this page will fit any of the cases shown on page A52.

Sewn and Riveted Pallets

Field service pallets designed primarily for the installation and maintenance of **office copiers and office machines**.
876-1160 Top Pallet **876-1161** Bottom Pallet

Field service pallets designed primarily for **computer and high technology** installation and maintenance.
876-1162 Top Pallet **876-1163** Bottom Pallet

All items priced singly

Machine Screws - Inch & Metric	Vis mécaniques - pouce & métrique	**B5**
Woodworking Fasteners	Attaches pour bois	**B69**
Tapcon® Concrete Fastening System	Système pour fixation à béton Tapcon®	**B90**
Thread Forming & Self Tapping Screws	Vis taraudeuses	**B95**
Tamper Resistant Fasteners	Fixations antivol	**B124**
Sems and Automotive Screws & Studs	Sems, vis d'automobile et goujons	**B138**
Weld Screws & Studs	Vis et goupilles à souder	**B155**
Hex Head Cap Screws	Boulons de précision hexagonaux	**B161**
Holo-Krome® Socket Screw Products	Produits 6 pans creux Holo-Krome®	**B211**
Holo-Krome® Set Screws	Vis de pression Holo-Krome®	**B228**
Hex Socket Cap Screws - Inch & Metric	Vis à tête cylindrique à 6 pans creux - pouce et métrique	**B234**
12 Pt Flange Screws	Vis à rebord à douze pointes	**B248**
Metric Blue® Fasteners	Attaches Metric Blue®	**B276**
Set Screws - Inch & Metric	Vis de pression - pouce et métrique	**B284**
British Threaded Fasteners	Attaches à filet britanniques	**B304**
Carriage, Lag, Elevator & Plow Bolts	Boulons style carrosserie, tire-fond, élévateur et charrue	**B307**
"U" & Eye Bolts - Turnbuckles & Fittings	Boulons à oeil et boulons en "U" - tendeurs et pièces forgées	**B316**
Thumbscrews	Vis à oreilles	**B330**
Threaded Rod & Studs	Tiges filetées et goujons	**B338**
Tool Room Necessities	Nécessités pour salle à outils	**B348**

B

SIZES

Items with *SPAENAUR* part numbers listed on the following pages are considered to be off-the-shelf sizes. Other special sizes and materials are available, usually in production quantities. Let us know your requirements, and we will gladly quote.

MATERIALS

Headings on each page indicate the materials we stock—steel, brass, stainless steel, nylon, etc. Other materials, i.e., special stainless, bronze, plastics, etc., are available on special order. Please ensure that the correct material is being ordered for your requirement.

FINISHES

Standard stocked finishes applying to each are indicated in the headings or footnotes on each page. Other finishes can be supplied special to order at additional cost. Due to environmental reasons and high costs, cadmium electroplate is being phased out by the fastener industry.

PACKING

All items can be supplied in standard unit packages or in bulk. Unit package quantities are shown in price list - usually 100, 50, or 25 pieces. When ordering very large quantities for manufacturing purposes, it will pay to specify bulk packing.

METRIC and INCH

Inch products are indicated in **BLACK** print. Metric products are indicated in **BLUE** print.

THREADS - MACHINE SCREW AND BOLT SIZES

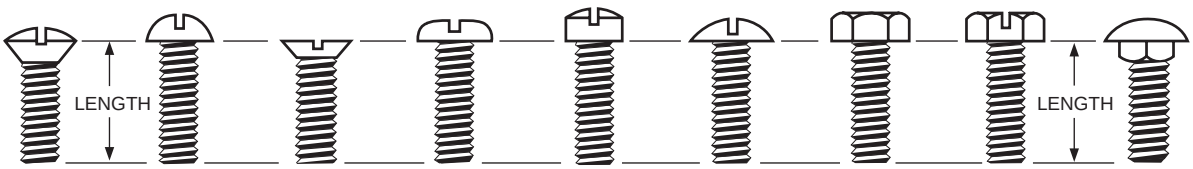
NUMBER OF THREADS PER INCH - UNIFIED STANDARD

DIAMETER OF BOLT (INCHES)	UNC COARSE THREAD SERIES	UNF FINE THREAD SERIES	DIAMETER OF BOLT (INCHES)	UNC COARSE THREAD SERIES	UNF FINE THREAD SERIES	DIAMETER OF BOLT (INCHES)	UNC COARSE THREAD SERIES	UNF FINE THREAD SERIES
No. 0	-	80	**1/4**	20	28	**1-1/8**	7	12
No. 1	64	72	**5/16**	18	24	**1-1/4**	7	12
No. 2	56	64	**3/8**	16	24	**1-3/8**	6	12
No. 3	48	56	**7/16**	14	20	**1-1/2**	6	12
No. 4	40	48	**1/2**	13	20	**1-3/4**	5	-
No. 5	40	44	**9/16**	12	18	**2**	4-1/2	-
No. 6	32	40	**5/8**	11	18	**2-1/4**	4-1/2	-
No. 8	32	36	**3/4**	10	16	**2-1/2**	4	-
No. 10	24	32	**7/8**	9	14	**2-3/4**	4	-
No. 12	24	28	**1**	8	14 (12)*	**3**	4	-

*Indicates number of threads per inch for Unified Fine (1"-12 thread is U.N.F. standard. However 1"-14 thread is popular demand and generally stocked in place of 1"-12.)

Coarse Thread Series, Class 2A Fit, recommended for general bolt use.

HOW TO MEASURE



The length of screws and bolts is measured from the largest diameter of the bearing surface to the extreme point.

CORROSION GUIDE - see Section R.

CATALOG 13

B

STEEL MACHINE SCREWS

SLOTTED DRIVE and Phillips RECESSED DRIVE

APPROXIMATE WEIGHT
IN KILOGRAMS PER 1,000 PIECES

Length	Diameter											
	2	3	4	5	6	8	10	12	1/4"	5/16"	3/8"	1/2"
1/8	.15	.21	.28	-	-	-	-	-	-	-	-	-
3/16	.19	.25	.33	-	-	-	-	-	-	-	-	-
1/4	.22	.29	.38	.52	.66	1.04	-	-	-	-	-	-
5/16	.25	.33	.43	.58	.74	1.16	1.71	-	-	-	-	-
3/8	.28	.37	.48	.64	.83	1.28	1.87	2.60	3.81	-	-	-
7/16	.31	.41	.53	.71	.91	1.40	2.03	2.81	4.10	-	-	-
1/2	.34	.45	.58	.77	.99	1.51	2.19	3.03	4.39	7.77	-	-
5/8	.41	.53	.69	.91	1.15	1.75	2.52	3.45	4.97	8.72	-	-
3/4	.47	.63	.80	1.04	1.31	1.99	2.85	3.88	5.55	9.66	-	-
7/8	.54	.72	.91	1.18	1.48	2.24	3.17	4.30	6.13	10.60	16.72	-
1	-	-	1.02	1.31	1.66	2.48	3.50	4.73	6.71	11.55	18.13	32.25
1-1/8	-	-	1.12	1.45	1.83	2.73	3.83	5.17	7.29	12.49	19.53	34.61
1-1/4	-	-	1.23	1.59	2.00	2.97	4.15	5.60	7.87	13.44	20.94	36.97
1-1/2	-	-	-	-	-	3.46	4.81	6.47	9.04	15.33	23.75	41.69
1-3/4	-	-	-	-	-	-	5.47	7.34	10.22	17.23	26.56	46.40
2	-	-	-	-	-	-	6.14	8.21	11.40	19.12	29.37	51.12
2-1/4	-	-	-	-	-	-	-	-	12.58	21.02	32.19	55.84
2-1/2	-	-	-	-	-	-	-	-	13.76	22.92	35.00	60.56
2-3/4	-	-	-	-	-	-	-	-	-	24.81	37.81	65.29
3	-	-	-	-	-	-	-	-	-	26.71	40.63	70.02

For approximate weight of Brass Machine Screws add 8 percent to above weights.

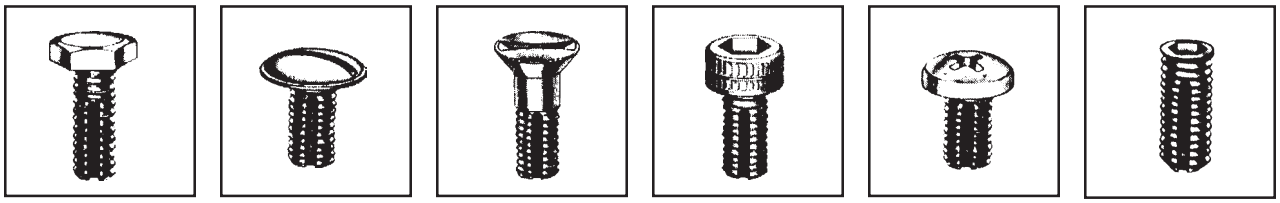
SPAENAUR

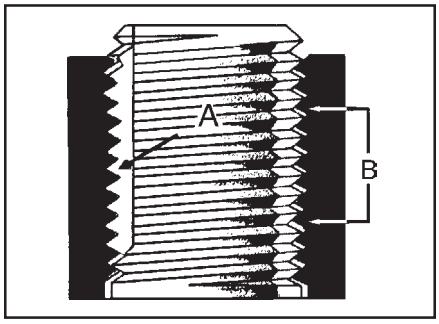
Your #1 Choice for Fasteners.

B

LOCKING INSERT

- installed in the *SPAENAUR* fastener of your choice -





REUSABLE - DEPENDABLE
"LONG-LOK"

HOW IT WORKS...

Long-Lok's specified locking torque results from the resilient insert (A) acting as a wedge between male and female threads. This forces tight metal-to-metal drag in a circumferential direction at (B), on the opposite side of the fastener. In addition, a drag in the axial direction is generated by the resistance to entry of the male thread into the female thread as the insert material is deformed upon installation.

Inserted parts can be plated, stripped or replated without damage to inserts.

Long-Lok inserts are of Polycap (green) nylon, with a temperature range of -85°C to +120°C. For -240°C to +200°C, specify Kel-F (blue). Price on application.

PIÉCE RAPPORTÉE DE BLOCAGE «LONG-LOK»

- installée sur l'attache *SPAENAUR* de votre choix -

Principe . . . .

Le couple de blocage spécifié avec Long-Lok est obtenu grâce à la pièce rapportée résiliente (A) qui agit comme une cale entre les filet mâles et femelles. Ceci force une bonne résistance métal sur métal dans le sens de la circonférence à (B) du côté opposé de l'attache. En outre, une résistance dans le sens axial est obtenue par la résistance à la pénétration du filet mâle dans le filet femelle puisque la pièce rapportée est déformée à l'installation.

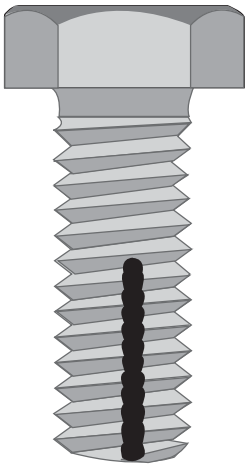
Les pièces insérées peuvent être plaquées, démunies de leurs filets ou replaquées sans dégâts aux pièces rapportées.

Les pièces rapportées Long-Lok sont en nylon (vert) Polycap et supportent des températures allant de -85°C à +120°C. Pour des températures de -240°C à +200°C, précisez Kel-F (bleu). Prix sur demande.

"LONG-LOK"

HOW TO ORDER

1. Select from catalog Section B the *SPAENAUR* fastener that will suit your purpose.
2. Specify the ***SPAENAUR Part No.*** plus "Long-Lok".
3. Contact our CUSTOMER SERVICE DEPARTMENT for competitive prices and minimum requirements.
4. Delivery approx. 3 to 4 weeks.



«LONG-LOK»

Pour commander

1. Choisissez, dans la section B du catalogue, l'attache *SPAENAUR* qui convient à l'utilisation prévue.
2. Précisez le ***n° de pièce SPAENAUR*** et ajoutez «Long-Lok».
3. Contactez nos Représentants à la clientèle concernant les prix et les quantitées minimum.
4. Délai de livraison: 3 à 4 semaines.

STEEL

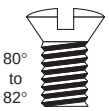
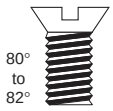
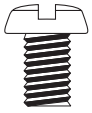
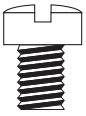
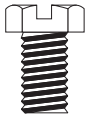
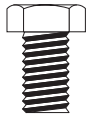
ASME/ANSI B18.6.3

INCH Sizes

U.N.F. (Fine Thread)
U.N.C. (Coarse Thread)

FINISHES: ALL OVAL HEADS - **NICKEL PLATED**
ALL OTHERS - **ZINC PLATED**

PACKING: For Unit Package Quantities, please refer to Price List.
ORDER: By ***SPAENAUR*** NUMBERS from the following Master Charts.

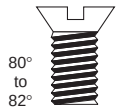
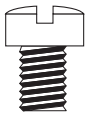
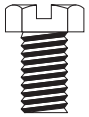
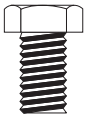
SIZE									
DIA.	**L.**	**OVAL**	**ROUND**	**FLAT**	**BINDING**	**FILLISTER**	**TRUSS**	**HEX. SLOT**	**UNSLOTTED HEXAGON**
0-80 UNF	1/16								
	1/8					**MS-292**			
	3/16								
	1/4								
	1/2		**MS-1013**	**MS-485**					
	3/4								
1-64 UNC	3/16					**MS-293**			
	1/4		**MS-457**			**380-761**			
	1/2		**MS-458**	**MS-460**					
1-72 UNF	1/8			**MS-1324**					
	3/16		**380-789**						
	1/4					**MS-294**			
	5/16								
	3/8								
	1/2					**MS-1003**			
	5/8								
2-56 UNC	1/8		**MS-35**		**MS-1212**	**MS-112**			
	3/16		**MS-36**	**MS-445**	**MS-1273**				
	1/4		**B-1515**	**MS-77**	**MS-1037**	**MS-113**			
	5/16		**MS-37**	**MS-1227**					
	3/8	**MS-17**	**B-1516**	**MS-493**	**MS-1047**	**MS-114**			
	1/2		**B-1517**	**MS-78**	**MS-1123**	**MS-115**			
	5/8		**MS-38**						
	3/4		**MS-39**	**MS-79**					
	1		**MS-40**	**MS-80**					
2-64 UNF	1/4			**MS-1226**					
	1/2			**MS-1071**					
3-48 UNC	3/16				**MS-286**				
	1/4		**MS-264**	**MS-437**	**380-751**	**MS-1236**			
	5/16				**MS-442**				
	3/8			**MS-1217**	**380-769**				
	1/2				**380-790**	**MS-400**			
	5/8		**MS-265**		***380-773**				
	3/4				***380-776**				
	1		**MS-359**						
P.C. 380					***Pan**			P.C. 391	

Machine Screws - Slot Drive

Vis mécanique à tête fendue

Inch

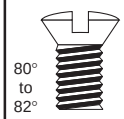
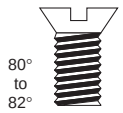
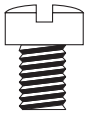
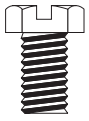
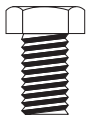
Pouces

STEEL Inch Sizes									
		NICKEL PLATED	ZINC PLATED						
DIA.	L.	OVAL	ROUND	FLAT	BINDING	FILLISTER	TRUSS	HEX. SLOT	UNSLOTTED HEXAGON
3-56 UNF	1/4		MS-266					3/16" A.F.	3/16"A.F.
	5/16				MS-223				
	3/8		MS-401						
	5/8								
	15/16		MS-1087						
4-36 NS									
	1/4		1060		MS-108				
	3/8		1025						
	7/16		380-775						
	1/2		MS-43	MS-361					
	5/8			MS-362					
	3/4								
	1		878	MS-379					
	1-1/4		B-1507						
	1-3/8		MS-1295						
	1-1/2								
	2		MS-23						
	3								
4-40 UNC	1/8		MS-44		MS-189				
	3/16		MS-45		MS-438	MS-116			
	3/16			380-803 (Undercut Hd.)					
	1/4		B-1511	▲B-1512	MS-109	MS-117	MS-1261		
	5/16	MS-18	MS-46	MS-375	MS-428				
	3/8	MS-19	MS-47	MS-82	MS-167			MS-462H	
	7/16	MS-20		MS-393	MS-395	MS-118			
	1/2	MS-21	B-411	MS-83	MS-168	MS-119		MS-463H	391-004
	19/32				*MS-1238				
	5/8		MS-48	MS-1354	MS-169				
	3/4		MS-49	MS-84	MS-170	MS-120	MS-1263		MS-464H
	7/8			MS-394	MS-171				
	1		B-410	MS-85	MS-172				
	1-1/4		MS-50		MS-1228				
	1-1/2		MS-51	MS-87					
	2								
4-48 UNF	1/4			MS-1038					
	3/8				*MS-1090	MS-297			
	1/2			MS-1072					
	3/4								
P.C. 380					*Pan			P.C. 391	

▲ **380-014** Undercut Head.

CATALOG 13

SPAENAUR

STEEL Inch Sizes									
		NICKEL PLATED	ZINC PLATED						
DIA.	L.	OVAL	ROUND	FLAT	BINDING	FILLISTER	TRUSS	HEX. SLOT	UNSLOTTED HEXAGON
								1/4" A.F.	1/4"A.F.
	3/16		MS-1307		MS-288				
	1/4		MS-268		MS-1017	MS-1237			
	5/16								
	3/8					MS-1143			
	7/16								
5-40 UNC	1/2		MS-269	MS-397		MS-299			
	5/8	MS-263	MS-1016	MS-1075	MS-289				
	3/4			MS-398		MS-1144			
	7/8				MS-311				
	1		MS-270	MS-396					
	1-1/4			MS-1249					
5-44 UNF	5/8								
	1-1/4								
	3/16		MS-52	MS-88	MS-431				*391-082
	1/4	B-1450	1024	MS-255	MS-209	MS-124	380-801	391-088	MS-346H
	5/16	MS-25	786	MS-376	MS-446		380-802		
	3/8	MS-26	B-1509	63	MS-110	MS-125	MS-1164		MS-465H
	7/16		MS-53		MS-290				
	1/2	R-1/2	B-396	MS-89	MS-186	MS-126	MS-363	MS-347H	MS-406H
	1/2	■R-1/2BP	MS-319 (Slotted Round Wshr. Hd.)						
	5/8		MS-54		MS-187		MS-1253		
	3/4	R-3/4	B-1499	63-A	MS-188	MS-1284	MS-1254	MS-348H	391-078
	7/8	MS-28	MS-271	380-772		MS-127	MS-1255		
6-32 UNC	1	R-1	786A	MS-90	MS-173		MS-1165	MS-349H	MS-408H
	1-1/8			MS-279					
	1-1/4	R-1-1/4	B-1513	MS-91	MS-1332	MS-128	MS-1256		
	1-1/2		B-1510	MS-92	MS-377				
	1-3/4		MS-55						
	2	MS-29	MS-3	MS-93	MS-378	MS-1146			
	2-1/4								
	2-1/2		MS-56						
	3		MS-7	MS-386			MS-1106		
	3-1/8		MS-1169						
	4		380-768	380-690	MS-1107				
	4-1/2								
	3/16				380-777				
	5/16		MS-272						
	3/8								
	1/2								
	5/8								
6-40 UNF	3/4								
	1								
	1-1/2								
	1-3/4								
P.C. 380	2							P.C. 391	

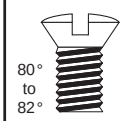
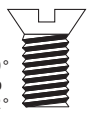
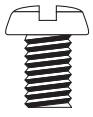
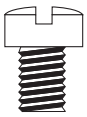
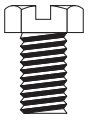
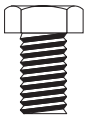
*Nickel Plated
■Brass Plated

Machine Screws - Slot Drive

Vis mécanique à tête fendue

Inch

Pouces

STEEL Inch Sizes		 80° to 82°		 80° to 82°					
		NICKEL PLATED	ZINC PLATED						
DIA.	L.	OVAL	ROUND	FLAT	BINDING	FILLISTER	TRUSS	HEX. SLOT	UNSLOTTED HEXAGON
8-32 UNC	3/16		MS-274		MS-1224			1/4" A.F.	1/4"A.F.
	1/4		MS-57	992	MS-429	MS-132	MS-1264		MS-466H
	5/16		785A		MS-424	MS-133			MS-1341H
	3/8	S-3/8	B-1514	MS-94	2114	MS-165	1789		MS-467H
	7/16				MS-1157				
	1/2		785	1468	MS-182	MS-134	1742	MS-350H	MS-409H
	5/8	S-5/8	MS-58		MS-152		MS-1265	MS-351H	MS-410H
	3/4	S-3/4	1042	1468-A	MS-174	MS-153	MS-448		MS-411H
	7/8		MS-1244		MS-175		MS-1266		
	1	S-1	B-1500	MS-95	MS-176	380-792	MS-121	MS-353H	MS-412H
	1		818 (Nickel Plated)						
	1-1/4	S-1-1/4	B-1501	MS-1371	MS-1328	MS-135	MS-1257		
	1-1/2	S-1-1/2	818-A	MS-96	MS-1153	MS-136	MS-122		MS-468H
	1-5/8				380-784 (Pan Head)				
	1-3/4		B-1502			MS-1213			
	2	MS-384	B-1503	MS-97		MS-137	▲MS-123		
	2-1/8		MS-1084						
	2-1/4		MS-59						
	2-1/2		MS-9	MS-98					
	2-3/4		MS-1223						
	3		MS-10	MS-1277			MS-202		
	3-1/2						MS-203		
	4		MS-11						
	5		MS-368						
8-36 UNF	5/16						380-015		
	3/4			380-016					
	2						380-017		
10-24 UNC	3/16		MS-1158					5/16" A.F.	5/16" A.F.
	1/4		MS-1080		MS-1275	MS-138			
	5/16	MS-1362	1484-A				MS-312		
	3/8		B-1467	1180	MS-225	MS-42	MS-231		MS-469H
	1/2	U-1/2	MS-192	797	MS-1278	B-1438	MS-1124		MS-354H
	5/8	MS-159	MS-180	1034 /*MS-259	MS-226	MS-41	MS-232		†MS-237H
	3/4	U-3/4	MS-60	886	MS-177	B-1439	◆MS-1125		MS-355H
	7/8	U-7/8	1484						T-51
	1	MS-160	MS-61	MS-1131 /*MS-261	MS-1276	MS-139	MS-233	391-080	MS-356H
	1-1/4		MS-62	887	MS-366	MS-140			
	1-3/8		MS-275						
	1-1/2		MS-63	MS-1122		MS-141			MS-470H
	1-3/4	U-1-3/4	MS-64				MS-380		
	2	MS-30	MS-65	MS-1108	MS-371	MS-142		MS-1199H	
	2-1/4		MS-1204						
	2-1/2		MS-1115	MS-456			380-780		
	3		MS-414	380-691					
	3-1/2								
	3-5/8								
	4		MS-1093	380-748			380-781		
	4-1/4		380-131						
	5		MS-1094						
	6		MS-1095				380-782		

P.C. 380

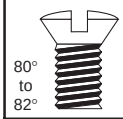
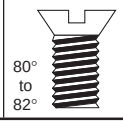
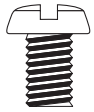
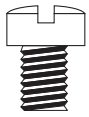
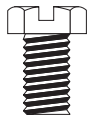
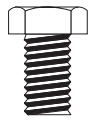
P.C. 391

*No. 8 Head

†MS-1234H (Ind. Hex. Wshr. Hd.)

▲380-764 - Unslotted

◆380-765 - Unslotted

STEEL Inch Sizes									
		NICKEL PLATED	ZINC PLATED					5/16" A.F.	5/16" A.F.
DIA.	L.	OVAL	ROUND	FLAT	BINDING	FILLISTER	TRUSS	HEX. SLOT	UNSLOTTED HEXAGON
10-32 UNF	1/4		MS-66	1075	MS-194	MS-143	MS-1267	391-083	MS-471H
	5/16	MS-1055	1028-A	MS-99	MS-1000	MS-144		◆MS-1215H	
	3/8	T-3/8	B-1504	MS-1368	MS-195		MS-498		MS-472H
	7/16					MS-306		391-003	
	1/2	T-1/2	1028	1108	MS-183	*MS-145	MS-314	MS-1132H	MS-236H
	9/16					B-977			
	5/8	T-5/8	MS-67		MS-111	MS-146	MS-1268		MS-1001H
	3/4	T-3/4	MS-68	1108-A	MS-184	B-870	MS-1258		MS-357H
	7/8	T-7/8	1027		MS-196	B-978	MS-1259		
	1	T-1	**B-1505	MS-100	MS-185		MS-166		MS-358H
	1-1/4	MS-31	MS-1005	MS-1046		B-979	MS-1025		
	1-1/2		▲B-1506	MS-101		MS-307	MS-315	391-002	†MS-473H
	1-3/4		MS-69	MS-280					
	2	T-2	MS-12	MS-102		MS-147	380-012		
	2-1/8								MS-1030H
	2-1/4			380-133					
	2-1/2		MS-13	MS-103					
	3		MS-14	MS-104					
	4		MS-15						391-079
	4-1/2		380-807						
	6								

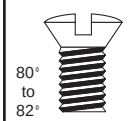
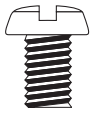
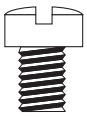
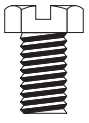
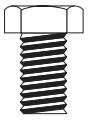
◆**391-100** Green Iridite Fin. ▲**801-A** Nickel Plated ****801** Nickel Plated ***380-788** with 1/16" cross-drilled hole thru head †**391-089** Hex Washer Hd.

12-24 UNC	3/8		1032-A						
	1/2	V-1/2	1032	380-798	MS-496	MS-148		5/16" A.F.	3/8" A.F.
	5/8	V-5/8	2077-A	1303		MS-149		MS-475H (Wshr. Hd.)	
	3/4		1153	380-799	B-771	MS-150			
	7/8		882						
	1	V-1	MS-244	MS-105		MS-1177			MS-476H
	1-1/4		380-796	MS-1092		MS-151			
	1-3/8			1283					
	1-1/2		380-797	380-800					
	1-3/4		MS-71						
	2		MS-72	MS-106					
	2-1/2								
	3								
	4								
12-28 UNF	1/2								
	1								
	1-1/2								
1/4"-20 UNC	5/16				MS-1185				
	3/8								■MS-1231H
	3/8		MS-73					391-085	MS-249H
	7/16				1859 (9/16" Dia. Hd.)				
	1/2	MS-32	775	MS-1057		B-1440	B-1544		
	1/2						B-1544-LL (With Long Lok)		
	1/2						MS-1360 (With Dog Point)		
Cont'd.		P.C. 380						P.C. 391	

■ Wshr. Hd. and 7/16" A.F.

Machine Screws - Slot Drive

Vis mécanique à tête fendue

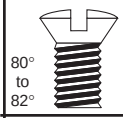
STEEL Inch Sizes									
		Nickel Plated	ZINC PLATED					3/8" A.F.	3/8" A.F.
DIA.	L.	OVAL	ROUND	FLAT	BINDING	FILLISTER	TRUSS	HEX. SLOT	UNSLOTTED HEXAGON
Cont'd.	5/8	W-5/8	MS-74	933	MS-254	MS-5	MS-1059		◆391-084
	3/4	W-3/4	1467	802	MS-415	B-1441	B-1545		
	7/8			1262	380-771	B-1442			
	1								◆391-087
	1	MS-33	871	MS-107	MS-1042	B-1443	MS-211	391-086	MS-416H
	1-3/16					MS-164			
	1-1/4	W-1-1/4	769	MS-1109	MS-216	B-1444	MS-212		
	1-1/2	MS-34	MS-75	MS-1110		B-1445	MS-213		
	1-3/4	W-1-3/4	MS-1116				380-795		
1/4"-20 UNC	2	W-2	MS-1117	MS-1111	380-805 (Pan Hd.)		MS-499		
	2-1/4		MS-1118						
	2-1/2	W-2-1/2	MS-1119	MS-1112		B-1448	380-013		
	3		MS-1096	MS-1113					
	3-1/4		380-779						
	3-1/2						380-783		
	4		MS-1097	MS-1114		MS-6			
	4-1/4								
	5		MS-1098	380-752					
	6		MS-1021	380-753					
	1/2								
	5/8								
	3/4		MS-390	717		MS-1010	MS-240		
1/4"-28 UNF	7/8								
	1				2232				
	1-1/4								◆MS-419H
	2					MS-1136			
	3								
	3/8		MS-1120						
	1/2		MS-387	■MS-420			380-001		
	5/8			*MS-421					
	3/4		MS-76	MS-281			380-002		
	7/8	702							
	1		MS-388	MS-282			MS-487		
	1-1/8								
	1-1/4		MS-1166	MS-1373			MS-317		
5/16"-18 UNC	1-1/2		MS-161	MS-389			380-003		
	2		MS-382	MS-1062					
	2-1/4		MS-1175						
	2-1/2		MS-383				380-005		
	3		MS-484	MS-1091			380-006		
	4		MS-1099	380-754					
	4-1/2			MS-1154					
	5		MS-1100	380-755					
	6		MS-1101	380-756			380-007		
P.C. 380								P.C. 391	

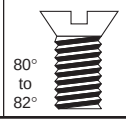
*100° Ctsk. Hd.

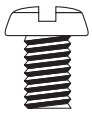
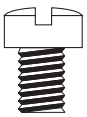
◆ 7/16" A.F.

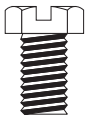
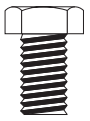
■ 380-018 Undercut Hd.

STEEL
Inch Sizes

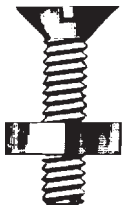




DIA.	L.	NICKEL PLATED OVAL	ZINC PLATED ROUND	ZINC PLATED FLAT	ZINC PLATED BINDING	ZINC PLATED FILLISTER	ZINC PLATED TRUSS	ZINC PLATED HEX. SLOT	ZINC PLATED UNSLOTTED HEXAGON
5/16"-24 UNF	1/2								
	5/8			MS-1333					
	3/4			MS-283					
	1								
	1-1/8			1238					
	1-1/4								
	1-1/2								
	1-3/4			▲1185					
	2-1/4								
		▲ Special small #12 Hd.							
3/8"-16 UNC	1/2		380-806						
	3/4						380-008		
	1		MS-365	MS-284			380-009		
	1-1/4						380-010		
	1-1/2		MS-385	MS-285					
	1-3/4		380-787						
	2		380-785	380-130					
	2-1/2		380-786			MS-310			
	3		MS-1102	MS-1155					
	4			380-757					
	5		MS-1104	380-758					
	6		MS-1105	380-759					
3/8"-24 UNF	3/4		MS-276						
	1			MS-447					
	1-1/4					MS-1167			
1/2"-13 UNC	1			MS-373					
5/8"-11 UNC	3/4		MS-1150						
		P.C. 380						P.C. 391	

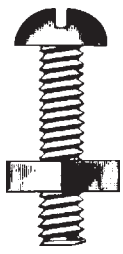


STEEL
STOVE BOLTS
With Square Nuts

ZINC PLATED

UNIT PACKAGE 100

P.C. 054



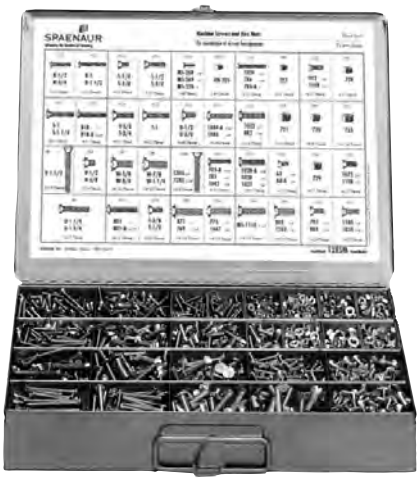
DIAMETER	L.	ROUND	FLAT	TRUSS
3/16" (10-24) (Includes N-28 Square Nut)	1/2	B-198	B-209	B-1428
	3/4	B-199	B-210	B-1429
	1	B-200	B-211	
	1-1/4	B-201	B-212	
	1-1/2	B-202	B-213	
	2	B-1014	B-1017	
	2-1/2	B-1015		

SLOT DRIVE

INCH SIZES

DIAMETER	L.	ROUND	FLAT	TRUSS
1/4" (1/4"-20) (Includes B-1548 Square Nut)	1/2	B-1044		
	3/4	B-203	B-214	
	1	B-204	B-215	
	1-1/4	B-205	B-216	
	1-1/2	B-206	B-217	
	1-3/4	B-1746		
	2	B-207	B-218	
	2-1/4	B-1747		
	2-1/2	B-208	B-219	
	3	B-1748	B-1749	
	4	B-1016		

B



P.C. 805 13-3/8" x 9-1/4" x 2"

REGULAR SIZE ASSORTMENT

ASSORTMENT / ASSORTIMENT 1285M

MACHINE SCREWS - STEEL - with Hexagon Nuts

Oval, Round, Flat Slot Head - All Nickel or Zinc Plated.

72 Varieties! 1043 Pieces! Regular drawer has 20 scooped compartments and is finished in grey enamel. Fits into our Slide Racks shown on page A27.

Shipping Weight 4.54 kg (10 lbs.)

SCREWS & NUTS FOR RADIO, TELEVISION & ELECTRONICS SHOPS, ETC.

P.C. 805 13-3/8" x 9-1/4" x 2"

REGULAR SIZE ASSORTMENT

ASSORTMENT / ASSORTIMENT B-576-M

Contents are Steel, Zinc and Nickel Plated.

Contains 902 Screws in 34 Sizes; 575 Nuts in 8 Sizes. Regular drawer has scooped compartments, and is finished in grey enamel. Fits into our Slide Racks shown on page A27.

Shipping weight 3.63 kg (8 lbs.)

— Contents of Assortment —

Round Head Mach. Screw

Ass't. Qty.	Size
50	2-56 x 1/4"
50	2-56 x 3/8"
40	2-56 x 1/2"
30	4-40 x 1/4"
30	4-40 x 1/2"
25	4-40 x 1"
30	5-40 x 1/4"
20	5-40 x 1"
30	6-32 x 1/4"
30	6-32 x 3/8"
30	6-32 x 1/2"
30	6-32 x 3/4"

Round Head cont'd.

15	6-32 x 1"
12	6-32 x 1-1/4"
20	6-32 x 1-1/2"
30	8-32 x 5/16"
30	8-32 x 1/2"
20	8-32 x 3/4"
15	8-32 x 1"
15	8-32 x 1-1/4"
15	8-32 x 1-3/4"
15	8-32 x 2"
25	10-32 x 5/16"
20	10-32 x 1/2"
15	10-32 x 1"

Flat Head Mach. Screw

20	4-40 x 1/4"

Hex Head Sheet Metal Screw

30	#4 x 1/4"
35	#6 x 1/4"
35	#6 x 3/8"
30	#6 x 1/2"
30	#8 x 5/16"
30	#8 x 1/2"
25	#10 x 3/8"
25	#10 x 1/2"

Hex Nuts

75	2-56 Thread
75	4-40 Thread
75	5-40 Thread
75	6-32 Thread (1/4" W.)
75	6-32 Thread (5/16" W.)
75	8-32 Thread (1/4" W.)
75	8-32 Thread (11/32" W.)
50	10-32 Thread

Plastikit «Plastikit» 1140

MACHINE SCREWS with Hexagon Nuts

Steel, Zinc Plated

P.C. 804

Handy Size
Hinged Lid
Positive Clasp

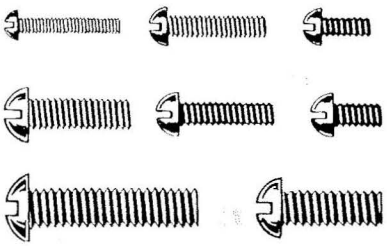
Size:
1" x 2-3/4" x 4-1/2"

Round Slot Head
27 Sizes - 175 Pieces

CATALOG 13

See opposite page for descriptions of assortments.

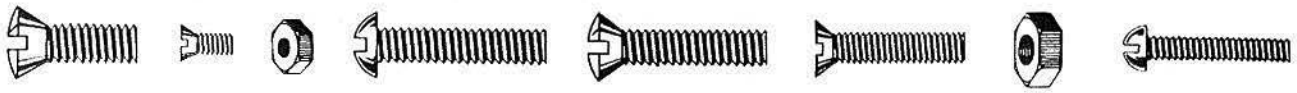
SCREWS & NUTS FOR RADIO, TV, ELECTRONICS SHOPS

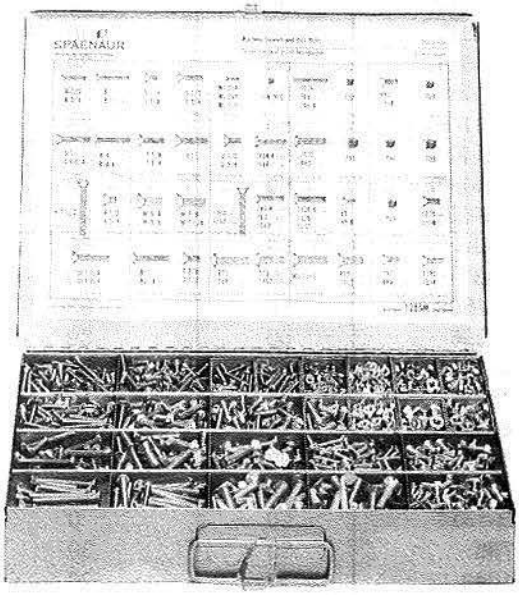
	SIZE Dia.	Length	SPAENAUR NUMBER	Quantity in Assortment No. B-576	B-576-M
 **Round Slot Head MACHINE SCREWS**	2-56	1/4"	B-1515	50	50
		3/8"	B-1516	50	50
		1/2"	B-1517	50	40
	4-40	1/4"	B-1511	50	30
		1/2"	B-411	50	30
		1"	B-410	50	25
	5-40	1/4"	MS-268	50	30
		1/2"	MS-269	50	0
		1"	MS-270	50	20
	6-32	1/4"	1024	50	30
		5/16"	786	50	0
		3/8"	B-1509	50	30
		1/2"	B-396	50	30
		3/4"	B-1499	50	30
		1"	786A	25	15
		1-1/4"	B-1513	25	12
		1-1/2"	B-1510	20	20
	8-32	5/16"	785A	50	30
		3/8"	B-1514	50	0
		1/2"	785	50	30
		3/4"	1042	50	20
		1"	B-1500	25	15
		1-1/4"	B-1501	25	15
		1-3/4"	B-1502	20	15
		2"	B-1503	25	15
	10-32	5/16"	1028-A	50	25
		3/8"	B-1504	40	0
		1/2"	1028	40	20
		1"	B-1505	20	15
Flat Slot Head MACHINE SCREWS	4-40	1/4"	B-1512	50	20
HEXAGON NUTS	2-56 Thread		B-1518	100	75
	4-40 Thread		B-753	100	75
	5-40 Thread		HN-205	100	75
	6-32 Thread **(1/4" W.)**		B-1521	100	75
	6-32 Thread **(5/16" W.)**		727	100	75
	8-32 Thread **(1/4" W.)**		B-1522	100	75
	8-32 Thread **(11/32" W.)**		728	100	75
	10-32 Thread		729	100	50
Hexagon Slot Head SHEET METAL SCREWS	#4	1/4"	ST-5H	0	30
	#6	1/4"	B-1098	40	35
	#6	3/8"	B-1519	40	35
	#6	1/2"	B-1520	40	30
	#8	5/16"	B-1097	40	30
	#8	1/2"	ST-6H	0	30
	#10	3/8"	ST-7H	0	25
	#10	1/2"	2011	0	25
Binding Slot Head SHEET METAL SCREWS	#6	1/4"	43-60	50	0
	#6	3/8"	43-61	50	0
	#8	1/4"	43-80	50	0
	#8	3/8"	43-81	50	0
	#8	1/2"	43-82	50	0
	#10	3/8"	43-101	50	0
	#10	1/2"	43-102	50	0
TOTAL PIECES				2575	1477

B

CATALOG 13

B





REGULAR SIZE ASSORTMENT
ASSORTIMENT NORMAL

ASSORTMENT / ASSORTIMENT 1285M

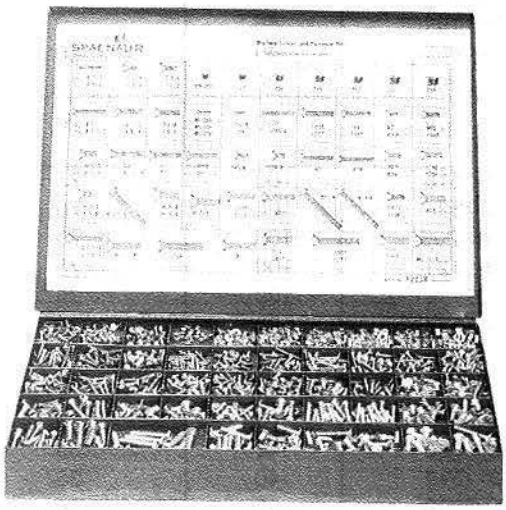
MACHINE SCREWS - STEEL - with Hexagon Nuts

Oval, Round, Flat Slot Head - All Nickel or Zinc Plated.

72 Varieties! 1043 Pieces! Steel Container has 20 "Scooped" compartments and is finished in Grey Enamel. Fits into our Slide Racks (see page A2).

13-3/8" x 9-1/4" x 2" *Priced Singly* Shipping Weight 4.54 kg (10 lbs.)

P.C. 805



SPECIAL ASSORTMENT
ASSORTIMENT SPÉCIAL

ASSORTMENT / ASSORTIMENT 1285R

MACHINE SCREWS - STEEL - with Hexagon Nuts

Oval, Round, Flat Slot Head - All Nickel or Zinc Plated.

73 Varieties! 1100 Pieces! Positively covers 99% of all small Machine Screw and Hexagon Nut sizes in daily demand, up to and including 1/4"-20 thread. Durable steel box - red enamelled - with strong fully hinged lid containing illustrated chart listing ***SPAENAUR*** numbers and sizes. Roomy, shallow metal bins with SCOOPED BOTTOMS - easy to pick out screws and nuts.

16-1/4" x 11-3/4" x 1-7/8" *Priced Singly* Shipping Weight 6.24 kg (13-3/4 lbs.)

P.C. 805

Plastikit / «Plastikit» 1140

MACHINE SCREWS with Hexagon Nuts

Steel, Zinc Plated

Handy Size
Hinged Lid
Positive Clasp

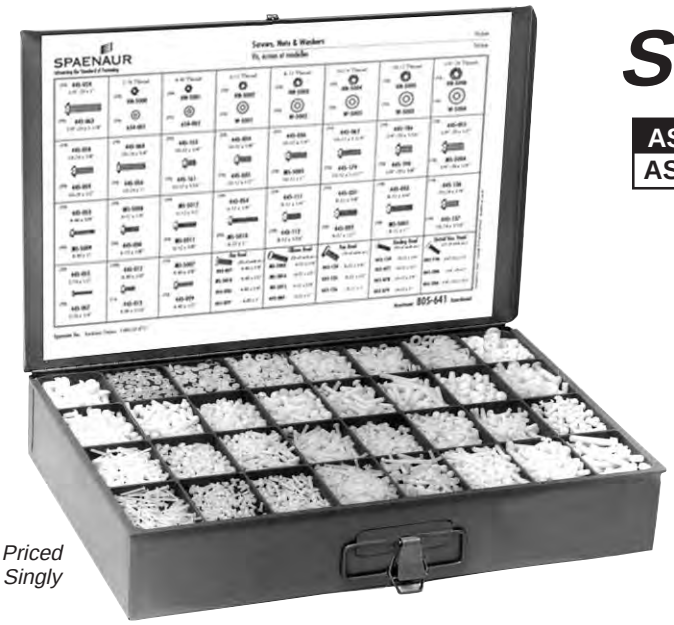
Size:
1" x 2-3/4" x 4-1/2"

Round Slot Head
27 Sizes - 175 Pieces

Priced Singly

P.C. 804

CATALOG 13



Priced Singly

SPAENAUR

ASSORTMENT / ASSORTIMENT 805-641 (Kit)

NYLON Fasteners from *SPAENAUR*

71 items - 3600 Pieces

Most popular sizes of Screws, Nuts and Washers in *6/6 NYLON*

Order a Kit *today* for your needs *tomorrow*!

See pages B26 and B27 for more Nylon Machine Screws.

Furnished in Large Size, Grey Enamelled STEEL Drawer, with scooped bins.

Shipping weight 4.6 kg (10-1/8 lbs.)

Drawer will fit into the Slide Racks shown on page A3.

18" x 12" x 3"

CONTENTS OF ASSORTMENT

Slotted Round Head Nylon Machine Screws	
SPAENAUR No.	**Thread**
445-052	2-56 x 1/2"
445-007	2-56 x 3/4"
445-012	4-40 x 1/4"
445-013	4-40 x 5/16"
MS-5007	4-40 x 3/8"
445-029	4-40 x 1/2"
445-053	4-40 x 3/4"
MS-5009	4-40 x 1"
MS-5008	6-32 x 1/4"
445-030	6-32 x 3/8"
MS-5012	6-32 x 1/2"
MS-5011	6-32 x 5/8"
445-054	6-32 x 3/4"
MS-5010	6-32 x 1"
445-111	8-32 x 1/4"
445-112	8-32 x 5/16"
445-031	8-32 x 3/8"
445-032	8-32 x 1/2"
445-033	8-32 x 3/4"
MS-5001	8-32 x 1"
445-136	10-24 x 1/4"
445-137	10-24 x 5/16"
445-058	10-24 x 3/8"
445-059	10-24 x 1/2"
445-060	10-24 x 3/4"
445-056	10-24 x 1"
445-155	10-32 x 1/4"
	continued, next column

Slotted Round Head Nylon Machine Screws	
SPAENAUR No.	**Thread**
445-161	10-32 x 5/16"
445-034	10-32 x 3/8"
445-035	10-32 x 1/2"
445-036	10-32 x 3/4"
MS-5005	10-32 x 1"
445-062	10-32 x 1-1/4"
445-179	10-32 x 1-1/2"
445-186	1/4"-20 x 5/16"
445-190	1/4"-20 x 3/8"
445-055	1/4"-20 x 1/2"
MS-5004	1/4"-20 x 3/4"
445-024	1/4"-20 x 1"
445-063	1/4"-20 x 1-1/4"
Slotted Flat Head Nylon Machine Screws	
445-037	4-40 x 1/4"
MS-5018	4-40 x 1/2"
445-038	4-40 x 3/4"
445-039	4-40 x 1"
Slotted Fillister Head Nylon Machine Screws	
MS-5003	6-32 x 1/4"
MS-5014	6-32 x 1/2"
MS-5015	6-32 x 3/4"
445-083	6-32 x 1"

Quantity of each item in Assortment is 50 pieces
**except W-5003 which is 100 pieces.*

Slotted Pan Head Nylon Machine Screws	
SPAENAUR No.	**Thread**
445-124	8-32 x 1/4"
445-125	8-32 x 1/2"
445-126	8-32 x 1"
Slotted Binding Head Nylon Machine Screws	
445-159	10-32 x 1/4"
445-077	10-32 x 1/2"
445-078	10-32 x 3/4"
445-079	10-32 x 1"
Slotted Hex Head Nylon Machine Screws	
445-196	1/4"-20 x 1/2"
445-200	1/4"-20 x 1"
445-204	1/4"-20 x 1-1/2"
Hex Nuts - Nylon	
HN-5000	2-56
HN-5001	4-40
HN-5002	6-32
HN-5003	8-32
HN-5004	10-24
HN-5005	10-32
HN-5006	1/4"-20
Flat Washers - Nylon	
654-001	#2
654-002	#4
W-5001	#6
W-5002	#8
***W-5003**	#10
W-5004	1/4"

Fits Bolt Size

B

SLOT DRIVE

BRASS

Unplated

Inch Sizes

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW

For Unit Package Quantities, please refer to price list.

Made to ASME/ANSI B18.6.3

DIAMETER	L.	OVAL	ROUND	FLAT	BINDING	FILLISTER	TRUSS
0000-160	1/16					400-018	
	1/8			400-014		400-007	
000-120	1/8			400-013		400-006	
	3/16						
	1/4		400-017	400-012		400-005	
00-96	3/16			400-011		400-004	
	1/4						
	3/8			400-010		400-003	
00-90	3/16			400-009		400-002	
	1/4		400-015				
	3/8			400-008		400-001	
	1/2		400-016				
0-80 UNF	3/32		MS-687	MS-925			
	1/8		MS-690	MS-705		MS-713	
	5/32				MS-927	MS-926	
	3/16		MS-691	MS-706		MS-714	
	7/32					MS-928	
	1/4		MS-692	MS-707	MS-929	MS-715	
	5/16		MS-890	MS-708		MS-716	
	3/8		MS-693	MS-670		MS-717	
	7/16						
	1/2		MS-694	MS-569		MS-719	
	5/8					MS-930	
	3/4					MS-932	
1-64 UNC	1/8		MS-695				
	3/16						
	1/4		MS-697				
	3/8						
	1/2						
	5/8					MS-721	
1-72 UNF	1/8		MS-677				
	3/16		MS-699	MS-709		MS-676	
	1/4		MS-700	MS-570		MS-902	
	5/16		MS-546	MS-710		MS-935	
	3/8		MS-701			MS-725	
	7/16		MS-702				
	1/2		MS-703	MS-712			
	5/8					MS-727	
2-56 UNC	1/8		MS-547	MS-671	MS-936		
	3/16		MS-548	MS-571			
	1/4		MS-549	MS-572			
	5/16		MS-550	MS-573		MS-596	

Cont'd next page.

CUT THREAD TAPS (Carbon Steel)

SIZE
000-120
875-252

PRECISION GROUND TAPS (H.S.S.)

SIZE
00-90
875-251

SIZE
000-120
875-253

SLOT DRIVE
BRASS
Unplated

Inch Sizes

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW
For Unit Package Quantities, please refer to price list.

DIAMETER	L.	OVAL	ROUND	FLAT	BINDING	FILLISTER	TRUSS
…Continued.	3/8		MS-551	MS-574			
	1/2		MS-552	MS-575	MS-840		
2-56 UNC	5/8		MS-553	MS-576			
	3/4		MS-807	MS-811			
	7/8		400-610				
	1		MS-793	MS-940			
	3/16		MS-895				
	1/4					MS-660	
3-48 UNC	5/16				MS-867		
	3/8					MS-661	
	7/16			MS-874			
	1/2		400-624			MS-664	
3-56 UNF	1/4		MS-842			MS-782	
	5/16				MS-946		
	3/8			MS-784	MS-947	MS-663	
	1/2				MS-948		
	1/4						MS-819
4-36	3/8		MS-883		MS-659		
	1/2		MS-785				
	1		MS-517				
	1/8		MS-943	MS-919	MS-511		
	3/16		MS-796	MS-505	*MS-500		
	1/4		MS-554	MS-577	MS-501		
	5/16		MS-555	MS-509	MS-512	MS-598	
	3/8		MS-556	MS-578	MS-789		
4-40 UNC	1/2	MS-518	MS-557	MS-510	MS-502	MS-722	
	5/8				MS-792		
	3/4		MS-558	MS-831			
	7/8				400-629		
	1		MS-520	MS-665	MS-513		
	1-1/4			MS-917			
	1-1/2		MS-560	MS-918	MS-816		
	2		MS-898				
	1/4		400-616			400-618	400-617
4-48 UNF	3/8	400-619					
	1/2						
	1						
5-40 UNC	3/16			MS-915	MS-882		
	1/4		MS-688	MS-893	MS-824		
Cont'd next page.	1/2		MS-786				
	5/8			MS-672			

Made to ASME/ANSI B18.6.3

ASSORTMENT / ASSORTIMENT 805-534

MACHINE SCREWS and HEX NUTS
Brass, Unplated

945 Total Pieces

Screws - 10 pieces of each size listed below. **Hex Nuts** - Sizes as listed below with quantities shown in brackets.

SLOTTED OVAL HEAD

6-32 x 3/4"	10-24 x 1/2"	10-32 x 1"
6-32 x 1"	10-24 x 1"	12-24 x 5/8"
6-32 x 1-1/2"	10-24 x 1-1/2"	12-24 x 1-3/4"
8-32 x 1/4"	10-32 x 1/2"	1/4"-20 x 1"

SLOTTED ROUND HEAD

4-36 x 1/2"	8-32 x 1-1/2"	10-32 x 1"
4-36 x 1"	8-32 x 2"	10-32 x 2"
4-40 x 3/4"	10-24 x 3/8"	12-24 x 3/4"
4-40 x 1"	10-24 x 1/2"	12-24 x 1"
6-32 x 1/4"	10-24 x 1"	12-24 x 1-1/2"
6-32 x 3/4"	10-24 x 1-1/2"	1/4"-20 x 1/2"
6-32 x 1-1/2"	10-24 x 2"	1/4"-20 x 1"
8-32 x 1/2"	10-32 x 1/4"	1/4"-20 x 1-1/2"
8-32 x 1"	10-32 x 1/2"	1/4"-20 x 2"

SLOTTED FLAT HEAD

4-40 x 1/4"	8-32 x 1/2"	10-32 x 1/4"
4-40 x 1/2"	8-32 x 1"	10-32 x 3/4"
4-40 x 1"	8-32 x 1-1/2"	10-32 x 1-1/2"
4-40 x 1-1/2"	8-32 x 2"	12-24 x 1/2"
6-32 x 1/4"	10-24 x 3/8"	12-24 x 1"
6-32 x 1/2"	10-24 x 3/4"	1/4"-20 x 1/2"

SLOTTED BINDING HEAD

4-40 x 1/4"	8-32 x 1/4"	10-32 x 1-1/2"
4-40 x 1/2"	8-32 x 3/4"	12-24 x 1/2"
6-32 x 1/2"	10-32 x 3/4"	
6-32 x 1"		

HEX NUTS

(25) **4-36**	(50) **8-32**	(25) **12-24**
(25) **4-40**	(50) **10-24**	(10) **1/4"-20**
(50) **6-32**	(50) **10-32**	

Regular Size welded steel drawer has hinged lid and is finished in grey enamel. Will fit into Slide Racks shown on Page A2.

Shipping Weight: 4.54 kg (10 lbs.)

Priced Singly

13-3/8" x 9-1/4" x 2"

*400-580 Slotted Pan Hd.

Machine Screws - Slot Drive

Vis mécanique à tête fendue

SLOT DRIVE

BRASS

Unplated

Inch Sizes

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW

For Unit Package Quantities, please refer to price list.

Made to ASME/ ANSI B18.6.3

DIAMETER	L.	OVAL (80° to 82°)	ROUND	FLAT (80° to 82°)	BINDING	FILLISTER	HEXAGON	Made to ASME/ ANSI B18.6.3
Cont'd…	3/4							
5-40 UNC	7/8					MS-833		
	1		MS-884	MS-945				
5-44 UNF	7/16		MS-853					
	1/2			MS-852				
6-32 UNC	1/8		MS-897				1/4" A.F.	
	5/32							
	3/16		MS-808	MS-798	MS-781	MS-896		ROUND WASHER HEAD
	1/4		MS-530	MS-582	MS-504	400-614		
	5/16		MS-790	MS-812	•MS-506			
	3/8		MS-561	MS-813	MS-593			
	7/16				MS-685			
	1/2		MS-562	MS-724	MS-686	■MS-723		
	5/8			MS-797	MS-654			
	3/4	MS-531	MS-521	400-613	MS-594			MS-804
	7/8					MS-832		
	1	MS-728	MS-522	MS-732	MS-795	MS-601		
	1-1/4	MS-729	MS-730	MS-733			CS-650	
	1-1/2	MS-532	MS-523	MS-583		400-581		TRUSS HEAD
	2		MS-731	MS-734				
	2-1/2							
6-40 UNF	1/4			400-606				
8-32 UNC	3/16		MS-563	MS-921	MS-595			MS-794
	1/4	MS-820		MS-658	MS-830			MS-683
	5/16				MS-920			
	3/8		MS-564	400-625	MS-507	MS-602		
	1/2		MS-524	MS-814	MS-514	MS-942		
	5/8		MS-809		MS-508			
	3/4		MS-537	MS-584	MS-944			
	7/8	MS-519			▲400-020			
	1	MS-735	MS-525	MS-585	MS-881			MS-846
	1-1/4		MS-737	MS-740				400-630
	1-1/2	MS-533	MS-526	MS-586				
	1-3/4							
	2		MS-738	MS-741				
	2-1/4							
	2-1/2		MS-565					
	3		MS-739	MS-872				
10-24 UNC	1/4		400-634					
	3/8	400-607	MS-788	400-628				
	1/2	MS-908	MS-801	400-622	MS-650			
	5/8		400-621		MS-822			
	3/4	MS-742	MS-745	MS-751				
Cont'd next page.	1	MS-678	MS-746	MS-752	MS-652	MS-844	P.C. 334	

■ **MS-723NP** Nickel Plated

▲ Pan Head

• **MS-506NP** Nickel Plated

SLOT DRIVE
BRASS
Unplated
Inch Sizes

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW
For Unit Package Quantities, please refer to price list.

Made to ASME/ANSI B18.6.3

DIAMETER	L.	OVAL (80° to 82°)	ROUND	FLAT (80° to 82°)	BINDING	FILLISTER	TRUSS	HEXAGON
Cont'd	1-1/4	MS-743	MS-566					
	1-1/2	MS-744	MS-747	MS-754		MS-823		
10-24 UNC	1-3/4	†MS-541		MS-843				
	2		MS-748	MS-755				
	2-1/2		MS-749	MS-756				
	3		MS-750					
	3/16					MS-854		5/16" A.F.
	1/4	MS-903	MS-912	MS-799	MS-909			
	3/8	MS-542	MS-787	MS-839				
	1/2	MS-904	MS-527	MS-841	MS-817	MS-780		
	5/8		MS-913	MS-815	MS-877			
	3/4	MS-534	MS-536	400-612	MS-516			CS-648
	7/8			MS-880				
10-32 UNF	1	MS-905	MS-528	MS-587	MS-899			CS-649
	1-1/4		400-632	MS-868				
	1-1/2	MS-535	MS-529	MS-588	MS-900	MS-818		
	1-3/4		MS-827		400-636			
	2		MS-847	MS-871				
	2-1/4		MS-885					
	2-1/2			400-637				
	3		400-627					
	3/8					MS-604		
	1/2		MS-567	MS-589	MS-655			
	5/8	MS-543						
12-24 UNC	3/4		MS-850	MS-590				
	1		▲MS-666	MS-826				
	1-1/4	*MS-544						
	1-1/2		MS-878					
	1-3/4	•MS-545						
	2		MS-856					
	3/8		400-021					
	1/2		MS-810	MS-591			MS-605	
	5/8		MS-829	400-638				
	3/4		MS-538	MS-765		MS-825		
	1	MS-758	MS-761	MS-766				
	1-1/4	MS-759	MS-762	MS-767				
1/4"-20 UNC	1-1/2	MS-760	MS-763	MS-768				
	1-3/4		400-623					
	2	MS-923	MS-653	MS-769				
	2-1/4	400-615						
	2-1/2	MS-760A	MS-764	MS-770	MS-922			
Cont'd. Next Page.	3		MS-568	MS-771				
	3-1/2		MS-849					P.C. 334

•**MS-541-NP** Nickel Pltd. *__MS-544-CH__ Chrome Pltd. •**MS-545-CH** Chrome Pltd. ▲**400-635** Round Wshr. Slot Head.

SLOT DRIVE
BRASS
Unplated
Inch Sizes

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW
For Unit Package Quantities, please refer to price list.

Made to ASME/ANSI B18.6.3

DIA.	L.	OVAL (80° to 82°)	ROUND	FLAT (80° to 82°)	BINDING	FILLISTER	TRUSS	
1/4"-28 UNF	1/4							
	1/2		MS-680		MS-862			
	3/4							
	7/8							
	1		MS-673					
	1-1/4		MS-803					
5/16"-18 UNC								
	1/2		MS-888	MS-869				
	3/4			400-611				
	1		MS-937					
	1-1/4							
	1-1/2		MS-772	MS-776				
	2		MS-773	MS-777				
	2-1/2		MS-774					
	3							
5/16"-24 UNF								
	7/8							
3/8"-16 UNC	1/2							
	1		400-639	400-633				
	1-1/4							
	1-1/2		MS-891	MS-934				
	1-3/4							
	2		400-609	400-608				
	2-1/2			400-631				
	3		MS-855					
3/8"-24 UNF								
1/2"-13 UNC	3/4			400-626				

See Section P - "Tools" - for METRIC and INCH Screw, Bolt, and Nut Gauges, also for the Larger UNI-DRIVER 876-975 and Bits.

SLOT DRIVE
18-8 STAINLESS STEEL
Inch Sizes

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW
UNIT PACKAGE 100 - ALL ITEMS

Made to ASME/ANSI B18.6.3

DIAMETER	L.	OVAL	ROUND	FLAT	BINDING	FILLISTER	TRUSS	UNSLOTTED HEXAGON
000-120	1/8							
	3/16			MS-2447				
	1/4							
00-96	3/16							
	1/4							
0-80 UNF	1/8			MS-2029	MS-2030			
	3/16			MS-2031	MS-2032			
	1/4			MS-2041		MS-2413		
	5/16			MS-2033	MS-2034			
	3/8							
	7/16			MS-2035				
	1/2				MS-2036	MS-2433		
1-72 UNF	1/8							
	3/16			MS-2039		MS-2040		
	1/4							
	5/16					MS-2042		
	3/8							
	7/16							
	1/2							
	3/4							
2-56 UNC	1/8		MS-2045	MS-2415		MS-2046		
	3/16		MS-2048	MS-2047	MS-2050	MS-2049		
	7/32							
	1/4		MS-2052	MS-2051	MS-2054	MS-2053		
	5/16		MS-2056	MS-2055	MS-2058	MS-2057		
	3/8		MS-2011	MS-2059	MS-2061	MS-2060		
	7/16		MS-2062					
	1/2		MS-2063	MS-2008	420-458	MS-2064		
	5/8		MS-2066	MS-2065		420-472		
	3/4		MS-2163					
	1		MS-2404	420-474				
	1-1/8							
3-48 UNC	1/8		MS-2067					
	3/16		MS-2070	MS-2069		MS-2071		
	1/4		MS-2073	MS-2072	MS-2075			
	5/16		MS-2077	MS-2076	MS-2078			
	3/8		MS-2080	MS-2079	MS-2081	MS-2429		
	7/16							
	1/2							
	9/16							
	5/8			MS-2082		420-459		
	3/4			420-466				
		Stainless Steel Assortment - Page B25						

B

SLOT DRIVE
18-8 STAINLESS STEEL
Inch Sizes

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW
UNIT PACKAGE 100 - ALL ITEMS

Made to ASME/ANSI B18.6.3

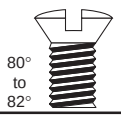
DIAMETER	L.	OVAL	ROUND	FLAT	BINDING	FILLISTER	TRUSS	UNSLOTTED HEXAGON
4-40 UNC	1/8		MS-2083	420-002				
	3/16		MS-2085	MS-2084	MS-2087	MS-2086		
	1/4	MS-2090	MS-2089	MS-2088	MS-2092	MS-2091		
	5/16	MS-2095	MS-2094	MS-2093	MS-2096			
	3/8	MS-2098	MS-2010	MS-2097	MS-2100	MS-2099		
	7/16		MS-2102	MS-2101				
	1/2	MS-2104	MS-2026	MS-2103	MS-2106	MS-2105		
	5/8		MS-2108	MS-2107	MS-2109	MS-2420		
	3/4		MS-2111	MS-2110				
	7/8		MS-2112					
	1		MS-2114	MS-2113	MS-2450			
	2				†*420-004			
4-48 UNF								
5-40 UNC	1/4				*420-475			
6-32 UNC	3/16		MS-2116	MS-2115	MS-2118			
	1/4	MS-2121	MS-2120	■MS-2119	MS-2123	MS-2122	MS-2124	
	5/16	MS-2127	MS-2126	MS-2125	▲MS-2128			
	3/8	MS-2131	MS-2130	MS-2129	MS-2133	MS-2132	MS-2134	
	7/16	MS-2136	MS-2135		MS-2137			
	1/2	MS-2140	MS-2139	MS-2138	MS-2141	MS-2020	MS-2142	
	5/8	MS-2144	420-460	MS-2143	MS-2145			
	3/4	MS-2148	MS-2147	MS-2146	MS-2009	MS-2149		
	7/8	MS-2151	MS-2150			MS-2152		
	1	MS-2155	MS-2154	MS-2153	MS-2156	420-473		
	1-1/4	MS-2159	MS-2158	MS-2157		MS-2160		
	1-1/2		MS-2162	MS-2161	MS-2422			
	1-3/4		MS-2164					
	2		MS-2166	MS-2165				
	3				*420-469			
6-40 UNF								
8-32 UNC	1/4	MS-2169	MS-2025	MS-2168	MS-2171	MS-2170		
	5/16		MS-2172		420-457	MS-2173		
	3/8	MS-2175	MS-2174	MS-2015	MS-2177	MS-2176	MS-2178	
	1/2	MS-2179	MS-2013	MS-2016	MS-2181	MS-2180	MS-2182	
	5/8	MS-2184	MS-2183	MS-2448	MS-2185			
	3/4	MS-2188	MS-2187	MS-2186	MS-2024	MS-2189	420-488	
	7/8	420-484	420-493		MS-2190			
	1	MS-2193	MS-2192	MS-2191	MS-2195	MS-2194	MS-2002	
	1-1/4	MS-2197	MS-2196		MS-2412	MS-2198		
	1-1/2	MS-2200	MS-2199	420-470	MS-2421			
	1-3/4		MS-2201					
	2		MS-2203	MS-2202	MS-2451			
		■ **420-492** 316 S.S.	†**420-003** Pan Hd., Partial Thrd.		*Pan Head	▲**420-001** Slotted Pan Head		

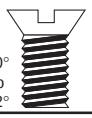
CATALOG 13

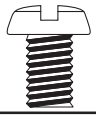
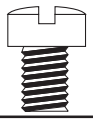
SLOT DRIVE
18-8 STAINLESS STEEL
Inch Sizes

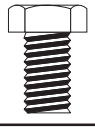
ORDER BY *SPAE-NAUR* NUMBERS LISTED BELOW
UNIT PACKAGE 100 - ALL ITEMS

Made to ASME/ANSI B18.6.3







DIAMETER	L.	OVAL	ROUND	FLAT	BINDING	FILLISTER	TRUSS	UNSLOTTED HEXAGON
10-24 UNC	1/4		420-494			MS-2436		5/16" A.F.
	3/8		MS-2204	MS-2017	MS-2206	MS-2205		
	3/8				420-455 (Pan Head)			
	1/2	MS-2209	MS-2208	MS-2207	420-467 (Pan Head)		MS-2210	MS-2022
	5/8	MS-2213	MS-2212	MS-2211	MS-2215	MS-2214	MS-2216	
	3/4	MS-2219	MS-2218	MS-2217	MS-2221	MS-2220	MS-2222	MS-2417
	7/8		MS-2223	420-497	MS-2225			
	1	MS-2227	MS-2226	MS-2453		MS-2228	MS-2229	▲428-003
	1-1/4	MS-2232	MS-2231	MS-2230		MS-2233	MS-2440	
	1-1/2		MS-2235	MS-2234		MS-2236		
	1-3/4		MS-2238	MS-2237				
	2		MS-2240	MS-2239	MS-2452			
	2-1/2		420-479					
	3			420-485				
10-32 UNF	1/4		MS-2242	MS-2241	MS-2244	MS-2243		
	5/16		MS-2246	MS-2245	420-461	MS-2247		
	3/8	MS-2249	MS-2248	MS-2027	MS-2250	MS-2401	MS-2251	
	1/2	MS-2253	MS-2252	MS-2018	MS-2012	MS-2254	MS-2255	428-004
	5/8		MS-2257	MS-2256	MS-2258	MS-2414	420-487	
	3/4	MS-2260	MS-2259	MS-2021	MS-2262	MS-2261	MS-2263	MS-2409
	7/8	MS-2265	MS-2264		MS-2267	MS-2266		
	1	MS-2270	MS-2269	MS-2268	MS-2271	MS-2437	MS-2443	428-001
	1-1/4	MS-2273	MS-2272			MS-2274		428-002
	1-1/2	MS-2277	MS-2276	MS-2275		MS-2278		
	1-3/4		MS-2279					428-007
	2		MS-2281	MS-2280				428-005
	2-1/2		MS-2425					†428-006
12-24 UNC	3/8		MS-2282					
	1/2		MS-2284	MS-2283				
	5/8		MS-2286	MS-2285				
	3/4		MS-2287					
	7/8		MS-2288					
	1		MS-2290	MS-2289				
	1-1/4		MS-2291					
	1-1/2		MS-2292					See Stainless Hex Cap Screws Page B183.
	2			MS-2293				
1/4"-20 UNC P.C. 428	3/8		MS-2294	MS-2398		MS-2296		
	7/16		MS-2297					
	1/2	MS-2299	MS-2298	420-465		MS-2300	MS-2301	
	5/8	MS-2304	MS-2303	MS-2302		MS-2305		
	3/4	MS-2306	MS-2005	MS-2003		MS-2307	MS-2308	
	7/8				MS-2309			

Cont'd
Next Page

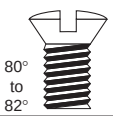
† Trim Head
▲ **428-008** Indented Head

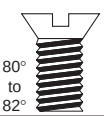
B

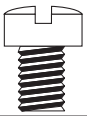
SLOT DRIVE
18-8 STAINLESS STEEL
Inch Sizes

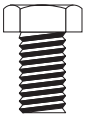
ORDER BY *SPAENAUR* NUMBERS LISTED BELOW
UNIT PACKAGE 100 - ALL ITEMS

Made to ASME/ANSI B18.6.3









DIA.	L.	OVAL	ROUND	FLAT	BINDING	FILLISTER	TRUSS	UNSLOTTED HEXAGON
…Continued.	1	**MS-2311**	**MS-2310**	**MS-2014**		**MS-2312**	**MS-2001**	
	1-1/4	**MS-2314**	**MS-2313**	**420-464**	**MS-2316**	**MS-2315**	**MS-2445**	
	1-1/2	**MS-2318**	**MS-2317**	**420-462**		**MS-2319**	**MS-2320**	
	1-3/4		**MS-2321**					
	2	**420-489**	**MS-2322**	**MS-2004**		**MS-2224**	**420-490**	
1/4"-20 UNC	2-1/4		**MS-2323**					
	2-1/2		**MS-2325**	**MS-2324**			**420-486**	
	3		**MS-2326**	**420-476**				
	3-1/2			**420-477**				
	4			**420-478**				
	4-1/2			**420-482**				
	5			**420-483** (Unit Pkg. 50)				
	1/2		**MS-2431**	**MS-2411**				
	3/4							
1/4"-28 UNF	1		**MS-2456**	**MS-2442**				
	1-1/4							
	1/2		**MS-2328**	**MS-2327**				
	3/4		**MS-2330**	**MS-2329**				
	7/8			**MS-2331**				
	1		**MS-2333**	**MS-2332**				
	1-1/4		**MS-2334**	**MS-2406**				
5/16"-18 UNC	1-1/2		**MS-2336**	**MS-2335**				
	1-3/4		**MS-2449**					
	2		**MS-2337**	**MS-2407**				
	2-1/4							
	2-1/2	**420-480**		**MS-2338**				
	3/4			**MS-2446**				
	1		**MS-2339**	**MS-2454**				
	1-1/4			**MS-2340**				
3/8"-16 UNC	1-1/2		**MS-2341**	**420-468**			**420-463**	
	2			**MS-2342**				
	2-1/2		**MS-2410**	**420-456**				
	3/4			**420-496** *(Unit Pkg. 25)*				
	1-1/4			**420-495** *(Unit Pkg. 25)*				
1/2"-13 UNC	1-1/2			**420-491** *(Unit Pkg. 25)*				
	3-1/2			**420-471** *(Unit Pkg. 25)*				

CATALOG 13

ASSORTMENT
ASSORTIMENT **805-525**

Inch Sizes

18-8 STAINLESS STEEL MACHINE SCREWS and HEX NUTS

65 Sizes of slot drive screws in 3 popular head styles.
7 Sizes of hex nuts to accommodate all screw sizes.

Total Pieces 1043

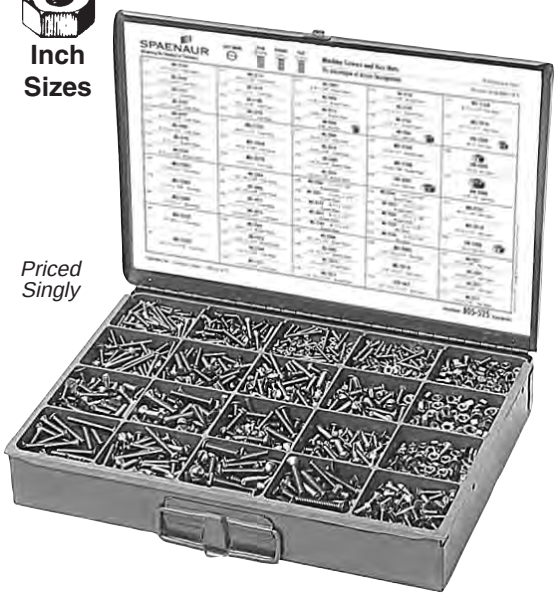
Oval Head Screws, 6-32 x 1/2" to 1/4"-20 x 1-1/4"
Round Head Screws, 4-40 x 1/4" to 1/4"-20 x 1-1/4"
Flat Head Screws, 6-32 x 3/8" to 1/4"-20 x 1-1/2"
Hex Nuts, 4-40 to 1/4"-20

Furnished in a regular size grey enamelled steel drawer, with hinged lid and scoop bins.

Drawer will fit Slide Racks shown on page A2.

Shipping Weight 4.19 kg (9-1/4 lbs.)

Priced Singly



UNIT PACKAGE 100

ALUMINUM SLOT DRIVE

GRADE 2024-T4

Made to ASME/ANSI B18.6.3

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW

Inch Sizes		80° to 82°		80° to 82°	
DIA.	L.	OVAL	ROUND	FLAT	TRUSS
6-32 UNC	1/4		MS-3012		
	3/8				
	1/2				
	5/8				
	3/4				
	1		436-035		
8-32 UNC	1/4				MS-3000■
	3/8				MS-3001■
	1/2		MS-3014		
	5/8		MS-3018		
	3/4				
	1		436-022		
10-24 UNC	1/4		436-027		
	3/8				
	1/2		436-028	MS-3008	
	5/8			▲436-029	
	3/4	MS-3006	436-023	MS-3009	
	7/8				
	1	MS-3019	MS-3021		
	1-1/4			MS-3011	
	1-1/2			MS-3007	
	2			MS-3010	

Inch Sizes		80° to 82°		80° to 82°
DIA.	L.	OVAL	ROUND	FLAT
10-32 UNF	3/8			
	1/2		MS-3002	
	5/8			
	1		436-036	
	1-1/2		436-026	
1/4"-20 UNC	1/2		436-031	
	3/4			436-024
	1		MS-3016	MS-3015
	1-1/4			436-034
	1-1/2		436-032	MS-3013
	2			
5/16"-18 UNC	1		436-037	
	1-1/2		436-033	
	2			
	2-1/2			
	3			
3/8"-16 UNC	1			
	1-1/2			
	2			

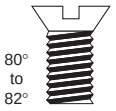
▲ or **436-030** Flat SOCKET Head
■ Binder Post Screws with Low Profile - not to standard Truss Head specifications.

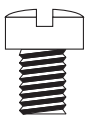
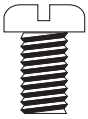
ALUMINUM HEX BOLTS See page B185.

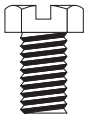
B

SLOT DRIVE
NYLON
6/6 Polyamide
(Natural Colour)
Inch Sizes

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW
Unit Package 100 - All items on this page.





DIAMETER	L.	ROUND	FLAT	FILLISTER	PAN	BINDING	SLOTTED HEXAGON	Hex Width
2-56 UNC	1/8				445-001			1/8"
	3/16				445-002			
	1/4			445-009	445-003	MS-5019	445-010	
	1/2	445-052			445-004			
	3/4	445-007			445-005		445-011	
	1	445-008			445-006			
4-40 UNC	1/4	445-012	445-037		445-016		445-085	3/16"
	5/16	445-013	445-014			445-021		
	3/8	MS-5007	445-015		445-017	445-028		
	1/2	445-029	MS-5018	445-051	445-018		445-086	
	3/4	445-053	445-038	445-050	445-019	445-069		
	1	MS-5009	445-039		445-020		445-087	
	1-1/8							
	1-1/4					445-022		
	1-1/2	445-091						
6-32 UNC	1/4	MS-5008	445-040	445-207▲	445-097		445-106	1/4"
	3/8	445-030	445-041			445-070		
	1/2	MS-5012	445-042	MS-5014	445-098		445-107	
	5/8	MS-5011				445-103		
	3/4	445-054	MS-5021	MS-5015	445-099	MS-5020	445-108	
	1	MS-5010	445-043	445-083		445-071		
	1-1/4	445-057	445-092		445-100			
	1-1/2	445-089				445-105	445-109	
	1-3/4	445-090						
	2							
8-32 UNC	3/16	445-110				445-129		1/4"
	1/4	445-111	445-118		445-124			
	5/16	445-112	445-119					
	3/8	445-031	445-044	MS-5017		MS-5023	445-132	
	1/2	445-032	MS-5002		445-125			
	3/4	445-033	445-045			445-072	445-133	
	1	MS-5001	445-046	MS-5013	445-126	445-073		
	1-1/4	445-113						
	1-1/2	445-114					445-134	
	1-3/4	445-115			445-127			
	2	445-116			445-128			
10-24 UNC	3/16	445-135					445-149	5/16"
	1/4	445-136		445-141	445-144	445-084*	445-150	
	5/16	445-137				445-147		
	3/8	445-058						
	1/2	445-059	445-025	445-142	445-145	445-074	445-151	
	3/4	445-060	445-065			445-075		
	1	445-056	445-066	445-143	445-146	445-076		
	1-1/4	445-061					445-152	

▲**MS-5003**, Black

*Black

SLOT DRIVE

NYLON

6/6 Polyamide
(Natural Colour)
Inch Sizes

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW

Unit Package 100 - All items on this page.

DIA.	L.	ROUND	FLAT	FILLISTER	PAN	BINDING	SLOTTED HEXAGON	Hex Width
10-32 UNF	3/16				445-154			5/16"
	1/4	445-155	445-156	445-157	445-158	445-159	445-160	
	5/16	445-161	445-162			445-163		
	3/8	445-034	445-047	445-164	445-165			
	1/2	445-035	MS-5022	445-166	445-167	445-077	445-169	
	3/4	445-036	445-048	445-170	445-171	445-078	445-173	
	1	MS-5005	445-049	445-174		445-079	445-176	
	1-1/4	445-062	445-177		445-178	445-027		
	1-1/2	445-179	445-180	445-181		445-182		
	2	445-183			445-185			
1/4"-20 UNC	5/16	445-186		445-188		445-189		3/8"
	3/8	445-190			445-192			
	1/2	*445-055	445-193	445-194		445-195	445-196	
	3/4	MS-5004	445-067	445-197	445-198	445-080		
	1	445-024	MS-5006	MS-5016		445-081	445-200	
	1-1/4	445-063	445-068			445-201		
	1-1/2	445-064		445-202	445-203	445-082	445-204	
	2	MS-5000				445-205	445-206	
5/16"-18 UNC	3/4			445-026				

***445-088** Black

NYLON fasteners - from *SPAENAUR*

Consider the advantages of moulded **NYLON** fasteners, particularly in the chemical and electronics trades. They're tough, insulative, corrosion & vibration resistant!

NYLON Fastener

ASSORTMENT ASSORTIMENT **805-641**

71 Items - 3600 Pieces

Most popular sizes of Screws, Nuts and Washers in

6/6 NYLON

Priced Singly

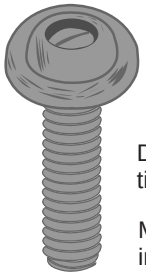
See page B15 for complete Assortment Listing.

Machine Screws: Slotted & Phillips (Inch & Metric) Pages B26, B27, B61-B64 & B68.
Nylon Metal-Core Screws: Page B28.
Cap Screws: Hex & Hex-Socket Head (Inch & Metric) Pages B188, B209 & B244.
Set and Grub Screws: Slotted & Hex-Socket (Inch & Metric) Pages B295 - B297.
Knurled Thumb Screws: (Inch & Metric) Page B334.
Nuts: Hex, Jam, Wing & Knurled (Inch & Metric) Pages C2, C8, C12, C56, C57 & C59.
Washers: Flat, and Ctsk-Finishing (Inch & Metric) Pages D10, D15 & D72.
Rivets: Drive Type & Circuit Board Posts (all in Inch) Pages E46 & G43.
Cable Clips & Clamps: Plug Buttons (all Inch) Pages J2 & G32.
Threaded Rod: (Inch & Metric) Pages B342 & B345.

Have a question?

Call (800) 265- 8772 or (519) 744-3521.

B

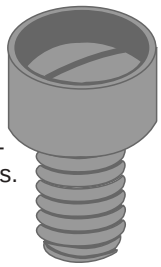


The shear strength of heat-treated steel and the dielectric insulation, corrosion resistance and vibration resistance of nylon.

These reinforced screws will provide up to 4 times the strength of standard nylon fasteners.

Due to the corrosion resistant nature of the nylon, the Metal Core Screws can, in certain applications, replace expensive Stainless Steel, Brass and Monel fasteners at a substantial cost savings.

Metal-Core Screws are recommended in applications requiring electrical, thermal and vibration insulation in shear or double shear connections. The reinforcing core incorporates a recessed metal head that permits tightening with high speed, high torque automatic drives.



ROUND HEAD

Thead Size	6-32	8-32	10-32	1/4-20
Head diameter	.255	.300	.350	.460
Head height	.095	.120	.130	.170

NYLON SHELL

Nylon 6/6 Natural
High dielectric resistance
Corrosion resistant
Vibration, abrasion resistant

FILLISTER HEAD

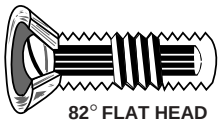
Thread Size	6-32	8-32	10-32	1/4-20
Head diameter	.215	.260	.300	.400
Head height	.100	.140	.160	.220

ROUND WASHER HEAD

Thread Size	6-32	8-32	10-32	1/4-20
Head diameter	.230	.265	.315	.460
Head height	.100	.110	.130	.175
Washer thick.	.025	.032	.036	.056
Washer dia.	.300	.370	.425	.550

REINFORCING CORE

High strength, high carbon C.H.Q. steel.
Precision cold formed and knurled.
Electro zinc or cadmium plated.



82° FLAT HEAD

Thread Size	6-32	8-32	10-32	1/4-20
Head diameter	.265	.305	.365	.480
Head height	.085	.100	.120	.155

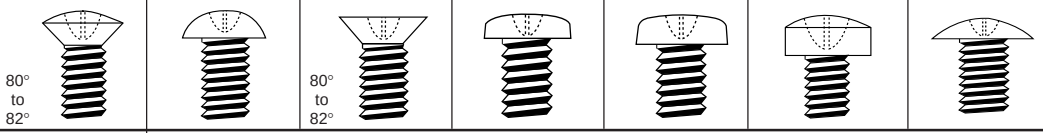
DIAMETER	LENGTH	Order by *SPAENAUR No's.* listed below. ROUND HEAD	ROUND WASHER HD.	FILLISTER HEAD	FLAT HEAD	UNIT PKG. QTY.
6-32 UNC	1/4"	**445-300**	**445-320**	**445-340**	**445-360**	100
	3/8"	**445-301**	**445-321**	**445-341**	**445-361**	100
	1/2"	**445-302**	**445-322**	**445-342**	**445-362**	100
	5/8"	**445-303**	**445-323**	—	—	100
	3/4"	—	—	—	**445-364**	100
8-32 UNC	3/8"	**445-305**	**445-325**	**445-345**	**445-365**	100
	1/2"	**445-306**	**445-326**	**445-346**	**445-366**	100
	3/4"	**445-307**	**445-327**	—	—	100
	1"	**445-308**	**445-328**	**445-348**	**445-368**	100
10-32 UNF	3/8"	**445-309**	**445-329**	**445-349**	**445-369**	100
	1/2"	**445-310**	**445-330**	**445-350**	**445-370**	100
	3/4"	**445-311**	—	**445-351**	**445-371**	100
	1"	—	**445-332**	**445-352**	**445-372**	100
1/4"-20 UNC	3/8"	**445-313**	**445-333**	**445-353**	**445-373**	100
	1/2"	**445-314**	**445-334**	**445-354**	**445-374**	100
	5/8"	**445-315**	**445-335**	**445-355**	**445-375**	100
	3/4"	**445-316**	**445-336**	**445-356**	**445-376**	100
	1"	**445-317**	**445-337**	**445-357**	**445-377**	50
	1-1/4"	**445-318**	**445-338**	**445-358**	**445-378**	50
	1-1/2"	—	**445-339**	**445-359**	**445-379**	50

SIZE	MAX TORQUE BEFORE DEFORMATION	ULTIMATE TORQUE	Tensile Test YIELD LBS.	Tensile Test BREAK LBS.	Double Shear YIELD LBS.	Double Shear BREAK LBS.
6-32	1 In. Lbs.	1.5 In. Lbs.	24	32	200	240
8-32	3 In. Lbs.	4 In. Lbs.	66	72	300	360
10-32	5 In. Lbs.	6 In. Lbs.	96	104	600	640
1/4-20	12 In. Lbs.	13 In. Lbs.	120	174	1400	1600

PHILLIPS DRIVE

STEEL

Inch Sizes



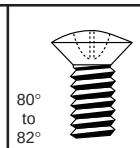
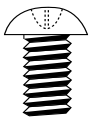
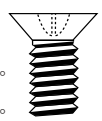
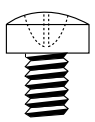
DIAMETER	L.	NICKEL PLATED OVAL	ZINC PLATED XROUND	FLAT	BINDING	PAN	FILLISTER	TRUSS
2-56 UNC	3/16			385-029		385-274		
	5/16			MS-1242P		385-073		
	3/8			MS-332P		385-275		
3-48 UNC	3/16					385-074		
	5/16			385-283		385-075		
4-40 UNC	3/16		385-005	MS-1241P		385-076	385-122	385-166
	3/16			❒385-204 (100° Ctsk. Hd.)				
	1/4		MS-327P	◗■1403		385-257	385-123	MS-1283P
	5/16					385-288		
	3/8	MS-1180P	385-006	385-030	MS-1272P	◆385-282	385-124	385-167
	1/2		385-007	385-031	MS-1340P	385-077	385-125	385-168
	5/8	B-344	385-008	385-032		385-078	385-126	385-169
	3/4		385-009	385-033		385-284	385-127	385-170
5-40 UNC	1-1/4					385-276		
6-32 UNC	3/16			385-034		385-278		
	1/4	MS-1181P	MS-247P	●MS-245P	MS-197P	385-079	385-128	385-171
	5/16	MS-325P	385-273	MS-246P		385-080	385-129	
	3/8	MS-1193P	1875	385-248	MS-370P	385-287	385-130	385-172
	7/16			385-035		385-286		
	1/2	B-416	MS-423P	MS-333P	♠MS-1297P	385-081		385-173
	9/16	2208				385-082		
	5/8	B-417	385-010	MS-334P		385-083	385-131	385-174
	3/4	1405	385-011	MS-1329P	MS-1298P	385-084	385-132	385-175
	7/8	1406	MS-179P	385-036	MS-1179P	385-085		
	1	385-258	MS-328P	385-037	MS-1299P	385-086	385-133	385-176
8-32 UNC	3/16				MS-1300P	385-087		
	1/4	MS-1182P	2029	385-038	MS-338P	385-088	385-134	385-177
	5/16		385-012	385-039	2209	385-089	385-135	MS-343P
	3/8	1407	MS-208P	MS-335P	1499	385-277	385-136	385-178
	7/16			2030	MS-206P	385-090		
	1/2	B-331	B-339	B-334		MS-1233P	385-137	385-179
	5/8	2031	385-013	1887		385-091	385-138	385-180
	5/8	⁎1881		▲1887PR				
	3/4	B-332	B-340	B-335	MS-1304P	385-092	385-139	385-181
	3/4			▲B-335PR				
	13/16	MS-204P						
	7/8	1808				385-093		385-182
	1	1809	385-014	385-040	†2377	385-094	385-140	385-183
	1							
	1-1/4	T-46	385-015	385-041		385-251	385-141	385-184
	1-1/4	⁎MS-230P						
	1-1/2		385-016	385-042		385-254	385-142	385-185
	1-3/4	⁎1931		385-043		385-255		
	2	MS-158P	385-017	385-044		385-096		385-186

Made to ASME/ANSI B18.6.3

⁎With #6 Trim Head ▲Parkerized ■**1403-BZ** Black Zinc Pltd. ●**MS-245PBO** Black Oxide Finish
◗**385-203** 100° Ctsk. Hd. †**2377NP** Nickel Pltd. and Undercut Head ◆**385-282YZ** Yellow Zinc Plated
❒**385-204BO** Black Oxide Finish and 100° Ctsk. Hd.
♠**385-211** Black Zinc Finish

X Slight Flattening of Head Crown may occur due to formation of Phillips socket recess.

For Unit Package Quantities, please refer to Price List.

PHILLIPS DRIVE **STEEL** Inch Sizes								
		NICKEL PLATED	ZINC PLATED					
DIAMETER	**L.**	**OVAL**	**XROUND**	**FLAT**	**BINDING**	**PAN**	**FILLISTER**	**TRUSS**
8-36 UNF	1/4							
	3/8							**385-002**
	1		**385-003**					
10-24 UNC	5/16			**MS-1044P**		**385-097**	**385-143**	
	3/8		**MS-1045P**	**†MS-178P**		**385-098**	**385-144**	**385-004**
	15/32							
	1/2		**1873**	**1876**	**MS-339P**	**385-099**	**385-145**	**MS-262P**
	5/8	**1870**	**MS-329P**	**385-045**	**MS-210P**	**385-100**	**385-146**	**385-187**
	5/8	***1870S**						
	3/4		**MS-1246P**	**385-046**	**MS-1308P**	**▲385-101**	**385-147**	**MS-1247P**
	7/8		**385-018**	**MS-422P**		**385-102**		**385-188**
	1	**B-1064**	**MS-330P**	**385-047**		**385-103**	**385-148**	**385-189**
	1-1/8							
	1-1/4		**385-019**	**MS-251P**	**MS-227P**	**385-104**	**385-149**	**385-190**
	1-1/2	**MS-404P**	**385-247**	**MS-336P**		**385-105**	**385-150**	**385-191**
	1-3/4		**MS-1004P**			**385-106**		
10-32 UNF	1/4		**MS-1239P**	**385-048**	**MS-1303P**	**385-107**	**385-151**	**385-192**
	5/16		**385-020**	**MS-1151P**	**MS-250P**	**385-108**	**385-152**	
	3/8	**MS-1184P**	**385-021**	**B-336**	**MS-1330P**	**385-109**	**385-153**	**385-193**
	7/16	**1882**				**385-110**		
	1/2		**B-341**	**B-337**	**MS-341P**	**385-111**	**385-154**	**MS-1214P**
	1/2			**385-280** (undercut)				
	5/8	**1810**	**385-022**	**385-049**	**MS-342P**	**385-112**	**MS-1281P**	**385-194**
	3/4	**1811**	**B-342**	**B-338**	**MS-1301P**	**385-113**	**385-155**	**MS-344P**
	7/8	**MS-238P**		**385-050**		**385-114**		
	7/8	***2033A**						
	1		**MS-1279P**	**385-051**	**MS-1302P**	**385-115**	**385-156**	**MS-1357P**
	1-1/4	**1415**	**MS-1280P**	**385-281**		**385-116**	**385-157**	**1414**
	1-1/2		**MS-1207P**	**385-052**		**385-117**	**MS-1190P**	**385-195**
	1-5/8							
	1-3/4					**385-118**		
	2		**MS-1206P**	**385-053**	**MS-1194P**	**385-119**	**385-158**	**385-196**
	2-1/2			**385-054**		**385-120**		
	3			**385-055**		**385-121**		
12-24 UNC	3/8	**385-270**		**385-260**		**385-261**	**385-269**	
	7/16							
	1/2			**MS-337P**	**1867**	**385-262**		
	5/8	**2034**		**385-056**		**385-263**		
	3/4		**2035-A**	**385-057**		**385-264**		
	7/8	**2211**				**385-265**		
	1			**385-058**		**385-266**		**385-271**
	1-1/4			**385-059**		**385-267**		
	1-1/2			**385-060**		**385-268**		
	1-7/8		**385-272**					
12-28 UNF								

*With #8 Trim Head. **▲385-101YZ** Yellow Zinc † Nickel Plated

X Slight Flattening of Head Crown may occur due to formation of Phillips socket recess.

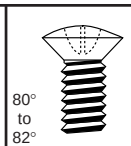
Made to ASME/ANSI B18.6.3

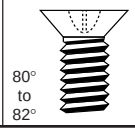
CATALOG 13

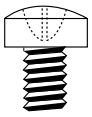
PHILLIPS DRIVE

STEEL

Inch Sizes







DIAMETER	L.	NICKEL PLATED OVAL	ZINC PLATED ✖ROUND	FLAT	BINDING	FILLISTER	TRUSS	PAN
1/4"-20 UNC	3/8		385-202				385-206	
	7/16		1872					
	1/2	B-922	MS-1210P	■385-279	MS-452P	385-159	385-197	385-210
	5/8		385-023	1814	MS-154P	385-160	385-259	
	3/4	MS-199P	1874	MS-426P	MS-155P	385-161	MS-1321P	
	3/4							
	7/8		2016					
	1	MS-439P	385-024	▲386-001	MS-156P	385-162	MS-1310P	385-209
	1-1/4	2036	385-025	385-061		385-163	MS-1311P	
	1-1/2	MS-405P	MS-391P	MS-454P		385-164	385-198	385-208
	2		385-026	385-252		385-165	385-199	385-212
	2-1/4	MS-326P	385-027	385-253				
	2-1/2		385-028	MS-453P	MS-1252P		385-200	
	2-3/4						MS-1208P	
	3		385-249	385-062			385-201	
	3-1/2							
	4		MS-449P					
1/4"-28 UNF	1/2							
	5/8						MS-1339P	
	3/4				MS-495P			
	7/8		MS-1356P				MS-1219P	
	1-5/16							
	1-5/8							
5/16"-18 UNC	1/2			385-063			MS-1243P	
	5/8			385-064				
	3/4	1815		MS-157P	MS-1064P		385-246	
	1			385-065			MS-1312P	385-207
	1-1/4			385-067	MS-234P		385-066	
	1-1/2			385-068			MS-1002P	
	1-3/4							
5/16"-24 UNF	5/8			1817			MS-235P	
	7/8	1420		B-1357				
	1-1/4							
	1-3/8							
	1-9/16							
3/8"-16 UNC	3/4			385-069			MS-1294P	
	1			385-070				
	1-1/2			385-071				
	2			385-072				
3/8"-24 UNF	5/8							
	3/4	T-43						
	1							
	1-3/16			MS-217P				

Made to ASME/ANSI B18.6.3

▲Pozidriv Head ■Undercut Head

✖ Slight Flattening of Head Crown may occur due to formation of Phillips socket recess.

B

ASSORTMENT / ASSORTIMENT 805-614

PHILLIPS DRIVE MACHINE SCREWS with Hexagon Nuts

STEEL - with Plated Finish

Inch Sizes

42 Varieties
1600 Pieces

Shipping Weight
8.17 kg (18 lbs.)

Put up in a large grey enamelled steel drawer, with hinged lid and catch. Contains a good supply of all the most popular sizes.

CONTENTS OF ASSORTMENT

OVAL

Ass't. Qty.	Size
50	6-32 x 1/2
50	6-32 x 3/4
50	8-32 x 3/8
25	*8-32 x 5/8
25	8-32 x 3/4
25	8-32 x 1
25	*10-24 x 5/8
25	10-24 x 1
25	10-32 x 7/16
25	10-32 x 5/8
25	10-32 x 3/4
25	12-24 x 5/8
25	1/4-20 x 1/2
25	1/4-20 x 1-1/4

*Small Head

ROUND

50	6-32 x 3/8
50	6-32 x 1/2
50	8-32 x 1/2
25	8-32 x 3/4
25	10-24 x 1/2
25	10-32 x 1/2
25	10-32 x 3/4
25	12-24 x 3/4
25	1/4-20 x 1/2
25	1/4-20 x 7/8

FLAT

25	8-32 x 5/8
25	8-32 x 1-3/4
25	10-24 x 1/2
25	10-24 x 3/4
25	10-32 x 1/2
25	10-32 x 1
25	1/4-20 x 5/8

BINDING

50	8-32 x 5/16
50	8-32 x 3/8
25	8-32 x 1
25	1/4-20 x 1

TRUSS

25	1/4-20 x 3/4

HEX NUTS

100	6-32
100	8-32
100	10-24
100	10-32
50	12-24
50	1/4-20

Looking for a product not listed?

Call us at (800) 265-8772.

SPAENAUR

PHILLIPS DRIVE

BRASS

Unplated

Inch Sizes

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW

For Unit Package Quantities, please refer to price list.

Made to ASME/ANSI B18.6.3

DIAMETER	L.	OVAL	ROUND	FLAT	PAN	BINDING	FILLISTER	TRUSS
2-56 UNC	5/16							
	3/8						**MS-636P**	
	1/2						**MS-637P**	
4-40 UNC	3/16							
	1/4				**MS-941P**			
	3/8	**MS-607P**		**404-004**				
	1/2			**MS-620P**				
	5/8		**MS-616P**					
	3/4							
	7/8							
	1		**MS-617P**	**MS-667P**				
	1-1/2							
6-32 UNC	1/4			**MS-621P**				
	5/16			**MS-622P**				
	3/8			**MS-623P**				
	7/16							
	1/2	**MS-610P**		**MS-624P**			**MS-642P**	
	5/8			**MS-625P**				
	3/4	**MS-611P**						
	1	**MS-612P**		**MS-627P**				
	1			**MS-627P-NP** (Nickel Plated)				
8-32 UNC	1/4							
	3/8		**404-003**					
	1/2	**MS-613P**		**MS-629P**			**MS-647P**	
	5/8	**MS-679P**						
	3/4	**MS-836P**		**MS-630P**				
	1							
	2	**MS-689P**						
10-24 UNC	1/2							
	1-1/4							
10-32 UNF	3/8	**MS-669P**		**MS-631P**				
	1/2			**MS-632P**				
	5/8						**MS-649P**	
	3/4			**404-002**				
	7/8			**MS-634P**				
	1			**MS-668P**				
12-24 UNC	1-1/4			**MS-887P**				
1/4"-20 UNC	1						**MS-837P**	
	2-1/4					**MS-805P**		
1/4"-28 UNF	1							

PHILLIPS DRIVE

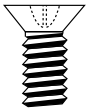
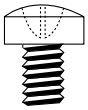
Made to ASME/ANSI B18.6.3

18-8 STAINLESS STEEL

UNIT PACKAGE 100—ALL ITEMS ON THIS PAGE.

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW

Inch Sizes

SIZE								
DIA.	**L.**	**OVAL**	**ROUND**	**FLAT**	**BINDING**	**PAN**	**FILLISTER**	**TRUSS**
0-80 UNF	1/8					**424-442**		
	3/8					**424-443**		
2-56 UNC	1/8					**424-455**		
	3/16					**424-479**		
	1/4			**MS-2423P**		**424-498**		
	3/8			**424-053**		**424-444**		
	1/2		**424-494**	**424-054**		**424-055**		
4-40 UNC	3/16			**424-504**		**424-461**		
	1/4		**424-096**	**MS-2343P**	**MS-2344P**	**424-457**		**424-101**
	5/16			**MS-2424P**		**424-482**		
	3/8		**424-097**	**MS-2345P**	**MS-2346P**	**MS-2427P**		**424-102**
	1/2		**424-098**	**MS-2347P**	**MS-2348P**	**424-480**		**424-103**
	5/8					**424-505**		
	3/4		**424-099**	**424-045**		**MS-2435P**		**424-104**
	1		**424-100**	**424-452**		**MS-2426P**		**424-105**
	1-1/4			**424-506**				
	1-1/2					**424-503**		
6-32 UNC	1/4			**MS-2349P**	**MS-2351P**	**424-056**		**424-453**
	5/16			**424-119**		**424-502**		
	3/8	**MS-2354P**	**MS-2353P**	**MS-2352P**		**MS-2428P**		**424-044**
	1/2	**MS-2356P**	**MS-2355P**	**MS-2006P**	**MS-2357P**	**424-057**		**424-049**
	5/8		**424-493**	**424-121**		**424-048**		
	3/4	**MS-2360P**	**MS-2359P**	**MS-2358P**		**424-058**		**424-061**
	7/8			**424-492**		**MS-2361P**		
	1		**424-501**	**424-059**		**424-462**		**424-062**
	1-1/4			**424-499**		**424-483**		
	1-1/2			**424-060**		**424-454**		
	2			**424-115**		**424-109**		
8-32 UNC	1/4		**MS-2362P**			**424-118**		
	3/8	**MS-2402P**	**MS-2364P**	**MS-2363P**	**MS-2365P**	**424-065**		***MS-2403P**
	1/2	**MS-2369P**	**MS-2368P**	**MS-2367P**	**MS-2370P**	**424-066**		**MS-2444P**
	5/8	**MS-2418P**		**MS-2430P**	**MS-2371P**	**424-500**		**424-042**
	3/4	**MS-2374P**	**MS-2373P**	**MS-2372P**		**424-472**		**424-456**
	1	**MS-2419P**	**424-497**	**424-063**		**MS-2375P**		**424-067**
	1-1/4		**424-496**	**424-463**				
	1-1/2		**424-491**	**424-064**		**424-106**		
	2			**424-116**		**424-112**		
10-24 UNC	3/8		**MS-2377P**	**MS-2376P**				**424-446**
	1/2		**MS-2379P**	**MS-2378P**		**MS-2380P**	**MS-2432P**	**424-447**
	3/4	**MS-2382P**	**MS-2381P**	**424-068**		**424-072**		**424-076**
	7/8			**424-459**				
Continued...	1	**MS-2384P**	**MS-2383P**	**MS-2028P**		**424-073**		**424-077**

*or **MS-2007P** (430 S.S.)

PHILLIPS DRIVE

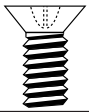
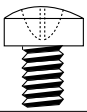
18-8 STAINLESS STEEL

UNIT PACKAGE 100—ALL ITEMS ON THIS PAGE.

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW

Inch Sizes

B

SIZE								
DIA.	**L.**	**OVAL**	**ROUND**	**FLAT**	**BINDING**	**PAN**	**FILLISTER**	**TRUSS**
…continued	1-1/4	**424-468**		**424-069**		**424-074**		**424-476**
10-24 UNC	1-1/2	**424-470**	**MS-2385P**	**424-070**		**424-075**		**424-477**
	2			**424-071**		**424-107**		
	2-1/2	**424-473**		**424-469**				
	3							**424-475**
	1/4		**424-117**					
	3/8	**424-448**		**MS-2386P**		**424-046**		**424-050**
	1/2		**MS-2388P**	**MS-2387P**		**424-471**		**424-051**
10-32 UNF	5/8					**424-449**		
	3/4	**424-460**	**MS-2390P**	**MS-2389P**		**424-047**		**424-083**
	7/8					**424-458**		
	1		**424-079**	**MS-2391P**		**424-081**		**424-084**
	1-1/4		**424-489**	**MS-2000P**		**424-478**		
	1-1/2		**424-080**	**424-465**		**424-082**		**424-085**
	2	**424-466**	**424-490**	**424-078**		**424-108**		
	2-1/4			**424-485**		**424-488**		
	2-1/2			**424-484**		**424-487**		
	3/8			**▲424-120**	**MS-2023P**			
	1/2	**MS-2392P**	**424-495**	**MS-2405P**		**424-090**		**424-093**
	5/8					**424-486**		
1/4"-20 UNC	3/4		**MS-2393P**	**424-043**		**424-091**		**424-094**
	1	**MS-2019P**	**424-088**	**MS-2167P**		**MS-2394P**		**424-451**
	1-1/4			**MS-2395P**		**424-113**		
	1-1/2	**MS-2397P**	**MS-2396P**	**424-052**		**424-092**		**424-467**
	1-3/4			**424-445**				
	2	**424-464**	**424-089**	**424-087**		**424-110**		**424-095**
	2-1/2	**424-474**						
	3			**424-111**		**424-114**		
1/4"-28 UNF	1					**424-450**		

▲Undercut Hd.

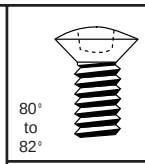
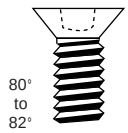
Sales Desk open 7 a.m. to 7 p.m. E.S.T., Monday to Friday.

Call (800) 265-8772 or (519) 744-3521.

B

Machine Screws Square Socket Drive

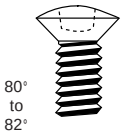
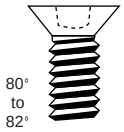
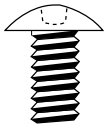
All items on this page
Unit Package 100.

Low Carbon STEEL Inch Sizes								
		NICKEL PLATED	ZINC PLATED					
DIA.	L.	OVAL	† ROUND	FLAT	BINDING	PAN	TRUSS	
4-40 UNC	1/4		**395-049**					
	3/8		**MS-1353**					
	3/4		**395-246**					
6-32 UNC	1/4		**395-119**	**395-003**				
	3/8		**395-050**	**MS-1367**			**395-117**	
	1/2		**MS-1335**	**395-063**				
	3/4		**395-082**	**395-004**				
	1		**395-051**	**395-064**				
	1-1/2		**MS-1336**	**395-065**				
	2		**MS-1337**	**395-066**				
8-32 UNC	1/4		**395-052**					
	3/8		**MS-455**	**395-005**				
	1/2		**MS-1334**	**MS-1020**				
	5/8							
	3/4		**MS-1126**	**395-067**			**MS-427**	
	7/8							
	1		**MS-1050**	**395-068**			**MS-1142**	
	1-1/8							
	1-1/4		**MS-1127**	**395-069**			**MS-1221**	
	1-1/2		**MS-1051**	**395-070**			**MS-1018**	
	2		**395-047**	**395-001**				
10-24 UNC	1/4			**▲395-235**			**395-002**	
	3/8						**395-053**	
	1/2		**395-054**	**MS-1366**			**MS-1290**	
	3/4		**395-055**	**395-071**			**MS-1293**	
	1		**395-056**	**MS-1342**			**MS-1291**	
	1-1/4		**395-006**	**395-086**				
	1-1/2		**MS-425**	**395-072**				
	1-3/4		**MS-1076**	**395-007**				
	2		**395-057**	**395-073**				
10-32 UNF	1/4		**395-058**					
	5/16							
	3/8		**395-059**					
	1/2		**395-043**	**395-074**				
	5/8		**395-085**	**395-013**				
	3/4		**MS-432**	**395-075**				
	7/8		**MS-433**					
	1		**MS-434**	**395-076**				

Continued…

▲Undercut Hd. † Slight Flattening of Head Crown may occur due to formation of square socket recess.

CATALOG 13

Low Carbon **STEEL** Inch Sizes								
		NICKEL PLATED	ZINC PLATED					
DIA.	L.	OVAL	† ROUND	FLAT	BINDING	PAN	TRUSS	
. . . continued.	1-1/4		MS-435	395-008				
10-32 UNF	1-1/2		MS-436	395-115				
	2		395-060	395-009			MS-1282	
	2-1/2		395-083					
1/4"-20 UNC	1/2		MS-1128	395-044				
	5/8		395-061				395-046	
	3/4		MS-1289	395-077				
	1		MS-1331	395-078				
	1-1/2		MS-490	395-079		395-045		
	1-3/4		395-099					
	2		395-062	395-080				
	3		395-084	395-010				
	3-1/2		MS-1288					
5/16"-18 UNC	3/4						395-048	

† Slight Flattening of Head Crown may occur due to formation of square socket recess.

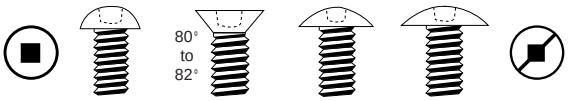
ALL SCREWS LISTED ABOVE UNIT PACKAGE 100

ASSORTMENT / ASSORTIMENT 805-535

MACHINE SCREWS PLATED STEEL

Inch Sizes

Square Socket and Socket/Slot Drive



CONTENTS OF ASSORTMENT

Ass't. Qty.	*SPAENAUR No.*	Size
SQUARE SOCKET ROUND HEAD		
15	**395-049**	4-40 x 1/4"
15	**MS-1335**	6-32 x 1/2"
30	**395-051**	6-32 x 1"
30	**MS-1337**	6-32 x 2"
50	**MS-1334**	8-32 x 1/2"
50	**MS-1050**	8-32 x 1"
50	**395-047**	8-32 x 2"
50	**395-054**	10-24 x 1/2"
40	**MS-425**	10-24 x 1-1/2"
50	**395-057**	10-24 x 2"
30	**395-043**	10-32 x 1/2"
30	**MS-434**	10-32 x 1"
25	**395-060**	10-32 x 2"
25	**MS-1128**	1/4"-20 x 1/2"
25	**MS-1331**	1/4"-20 x 1"
25	**395-062**	1/4"-20 x 2"
SQUARE SOCKET FLAT HEAD		
30	**395-063**	6-32 x 1/2"
30	**395-065**	6-32 x 1-1/2"
50	**395-067**	8-32 x 3/4"
50	**395-070**	8-32 x 1-1/2"
50	**395-071**	10-24 x 3/4"
50	**395-072**	10-24 x 1-1/2"
30	**395-075**	10-32 x 3/4"
50	**395-077**	1/4"-20 x 3/4"
SQUARE SOCKET TRUSS HEAD		
30	**395-081**	8-32 x 5/8"
30	**MS-1018**	8-32 x 1-1/2"
40	**MS-1293**	10-24 x 3/4"
40	**MS-1291**	10-24 x 1"
SOCKET/SLOT OVERSIZE TRUSS		
30	**395-103**	8-32 x 3/4"
30	**395-107**	8-32 x 1-1/4"

30 SIZES
1080 PIECES

Furnished in a REGULAR SIZE grey enamelled steel drawer. Drawer will fit slide racks shown on page A2.

Priced Singly

Shipping Weight 5.89 kg (13 lbs.)

See page B36 to B39 for more sizes.

SPAENAUR

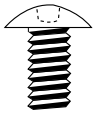
Canada's leading supplier of industrial fasteners and components.

B

STEEL
ZINC PLATED

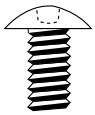
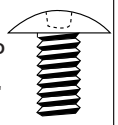
Combination Square Socket/Slot Drive

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW

Inch Sizes							Combination Sq. Socket/Slot Drive Machine Screws
DIA.	L.	PAN	TRUSS	OVERSIZE TRUSS	ROUND		
4-40 UNC	1/4	**395-120**			**395-243**		
	3/8	**395-121**					
	3/4				**395-198**		
6-32 UNC	1/4	**395-122**			**395-233**		Combination Sq. Socket/Slot Drive Screws over 2" long are partially threaded with a minimum thread of 2".
	3/8	**395-123**					
	1/2	**395-124**			**395-206**		
	3/4	**395-125**			**395-227**		
	1	**395-126**			**395-241**		
	1-1/4	**395-127**			**395-245**		
	1-1/2	**395-128**			**395-212**		
	2	**395-129**			**395-210**		
8-32 UNC	1/4	**395-130**			**395-226**		† **395-236** Green Iridite Finish
	3/8	†**395-114**		■**395-100**	**395-207**		
	1/2	**395-132**		**395-101**	**395-221**		■ **395-100BP** Brass Plated
	5/8	**395-133**	**395-081**	**395-102**			
	3/4	**395-134**		**395-103**	**395-213**		
	7/8						
	1	**395-135**	**395-173**		**395-214**		
	1-1/8		**395-174**	**395-106**			☐ **395-237** Sq. Skt/Phillips Drive
	1-1/4	**395-136**	**395-175**	**395-107**	**395-229**		
	1-3/8			**395-108**			
	1-1/2	**395-137**	☐**395-220**		**395-215**		
	1-5/8		**395-176**				
	1-3/4	**395-138**					
	2	**395-139**	**395-110**		**395-211**		▲7 or 8 locking nibs under head.
	2-1/2	**395-140**					
	3				**395-040**		
10-24 UNC	3/8	**395-141**					
	1/2	**395-142**	**395-177**		**395-222**		
	5/8				**395-219**		
	3/4	**395-143**			**395-234**		
	1	**395-144**			**395-216**		
	1-1/4	**395-145**			**395-225**		
	1-1/2	**395-146**			**395-217**		
	2	**395-147**			**395-147R**		
	2-1/2	**395-148**			**395-148R**		
	3	**395-149**			**395-244**		
10-32 UNF	1/4	**395-111**	▲**395-112**				*UNIT PKG. QUANTITIES Up to 2-1/2" Long - 100. 2-1/2" and over - 50.*
	5/16		▲**395-113**				
	3/8	**395-151**			**395-180**		
	1/2	**395-152**			**395-224**		
	5/8	**395-153**					
Continued. . .	3/4	**395-154**			**395-218**		

Continued. . .

CATALOG 13

Combination Sq. Socket/Slot Drive **Inch Sizes**		PAN	 TRUSS	 HEAD DIA. 7/16" OVERSIZE TRUSS	ROUND	
DIA.	**L.**					
. . . continued.	7/8		▲395-118			
10-32 UNF	1	**395-116**			**395-228**	
	1-1/4	**395-156**			**395-230**	
	1-1/2	**395-157**			**395-205**	
	2	**395-158**			**395-223**	
12-24 UNC	1/2	**395-159**				
	3/4	**395-160**				
	1					
1/4"-20 UNC	3/8	**395-162**			**395-232**	
	1/2	**395-163**				
	5/8	**395-164**	**395-178**		**395-242**	
	3/4	**395-165**	**395-179**		**395-231**	
	1	**395-166**			**395-240**	
	1-1/4	**395-167**			**395-239**	
	1-1/2	**395-168**			**395-208**	
	2	**395-169**			**395-209**	
	2-1/2	**395-170**				
	3	**395-171**				

STEEL

ZINC PLATED

▲7 or 8 locking nibs under head.

UNIT PKG. QUANTITIES
Up to 2-1/2" Long - 100.
2-1/2" and over - 50.

ASSORTMENT **805-535**
ASSORTIMENT

Priced Singly

MACHINE SCREWS PLATED STEEL
Square Socket and Socket/Slot Drive
30 SIZES — 1080 PIECES

(See page B37 for complete information.)

Looking for those "Hard to Find" products?
Call us at (800) 265-8772.

SPAENAUR

B

Metric
Métrique

Fasteners by *SPAENAUR*

Throughout this Section B, likewise in sections C, D and E, you will find extensive listings of Metric Fasteners to I.S.O. and D.I.N. Standards.

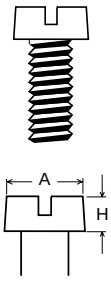
All are usually available for shipment from stock.

Slot Drive

4.8 STEEL

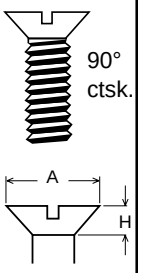
Finishes this page listed at top of each column.

Metric Coarse Thread Threaded to Head



DIN 84

Head Style **CHEESE**



DIN 963

Head Style **FLAT**

DIAMETER in mm	LGTH. mm	PLAIN	ZINC PLTD.	NICKEL PLTD.	ZINC PLTD.
M1 Pitch: 0.25 mm Tap Hole: .75 mm	2	**382-001**			
	3	**382-002**			
	4	**382-003**		**382-003NP**	
	5	**382-004**	**382-004ZP**		
	6				
M1.2 Pitch: 0.25 mm Tap Hole: .95 mm	2	**382-009**			
	3	**382-010**			
	4	**382-011**			
	5	**382-012**			
	6	**382-013**	**382-013ZP**		
M1.4 Pitch: 0.30 mm Tap Hole: 1.10 mm	2	**382-019**			
	3				
	4	**382-020**	**382-020ZP**		
	5				
	6	**382-022**		**382-022NP**	
	8				
M1.6 Pitch: 0.35 mm Tap Hole: 1.25 mm	2		**382-397ZP**		
	3		**382-398ZP**		**382-054ZP**
	4		**382-399ZP**		**382-055ZP**
	5		**382-400ZP**		**382-056ZP**
	6		**382-401ZP**		**382-057ZP**
	8		**382-402ZP**		**382-058ZP**
	10		**382-403ZP**		**382-006ZP**
	12		**382-404ZP**		**382-060ZP**
	16				
M1.7 Pitch: 0.35 mm Tap Hole: 1.35 mm	2	**382-029**		**382-029NP**	
	4	**382-030**	**382-030ZP**		
	6	**382-031**		**382-031NP**	
	10			**382-032NP**	

ORDER BY *SPAENAUR* NUMBERS LISTED ABOVE.

Unit Package Quantity -100

Following pages contain larger diameters.
For small diameter slot drive machine screws in **Property Class 5.8**, see page B49.
For Head Size Chart refer to Section R.

Slot Drive

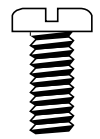
4.8 STEEL

(IFI 513, Grade 1018)

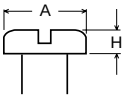
Zinc Plated

METRIC
Standard (Coarse) Thread

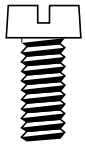
For Head Size Charts refer to Section R.

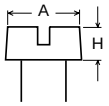


North American



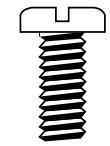
Head Style
IFI 513, 1982
PAN

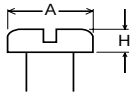




DIN 84

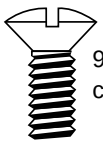
Head Style
CHEESE

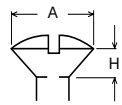




DIN 85

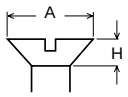
Head Style
PAN





DIN 964

Head Style
OVAL



DIN 963

Head Style
FLAT

DIAMETER in mm	LGTH. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW				
M2 Pitch: 0.40 mm Tap Hole: 1.60 mm	3	**382-300**	**382-039**			
	4		**382-405**		**382-610**	**382-721**
	5	**382-301**	**382-040**		**382-611**	**382-722**
	6		**382-406**		**382-612**	**382-723**
	8	**382-302**	**382-041**		**382-613**	**382-724**
	10		**382-407**		**382-614**	**382-725**
	12		**382-042**			**382-726**
	13	**382-303**				
	14		**382-007**			
	16		**382-408**			**382-727**
	18		**382-043**			**382-462**
	20		**382-409**			**382-728**
	22		**382-410**			
	25		**382-411**			**382-729**
	30		**382-412**			**382-730**
M2.3 Pitch: 0.40 mm Tap Hole: 1.90 mm	4		**382-049**			
	6		**382-050**			
	8		**382-051**			
	10		**382-052**			
	16		**382-053**			
	20					
M2.5 Pitch: 0.45 mm Tap Hole: 2.05 mm	3		**382-413**	**382-491**		
	4		**382-414**	**382-492**	**382-615**	**382-731**
	5		**382-415**	**382-493**	**382-616**	**382-732**
	6	**382-305**	**382-416**	**382-494**	**382-617**	**382-733**
	8		**382-417**	**382-495**	**382-618**	**382-734**
	10	***382-306**	**382-063**	**382-496**	**382-619**	**382-735**
	12		**382-064**	**382-497**	**382-620**	**382-736**
	14			**382-498**		
	16	**382-307**	**382-418**	**382-499**	**382-621**	**382-737**
	18			**382-468**		
	20	**382-308**	**382-067**	**382-500**	**382-622**	**382-738**
	22		**382-419**			
	25	**382-309**	**382-420**	**382-501**		**382-739**
	30		**382-421**	**382-502**		**382-740**
	35					
M2.6 Pitch: 0.45 mm Tap Hole: 2.15 mm	10					
	12		**382-422**			
	25		**382-423**			

***382-395** Round Hd.
Hd. Dia. 4.7 mm - Hd. Thk. 1.67 mm

B

Slot Drive

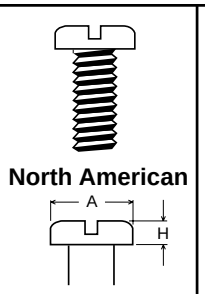
4.8 STEEL

(IFI 513, Grade 1018)

Zinc Plated

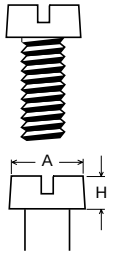
METRIC
Standard (Coarse) Thread

For Head Size Charts refer to Section R.



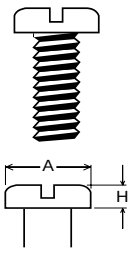
North American

Head Style
IFI 513, 1982
PAN



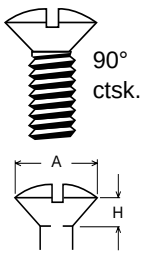
DIN 84

Head Style
CHEESE



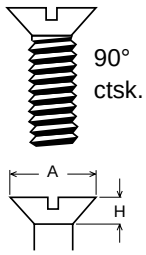
DIN 85

Head Style
PAN



DIN 964

Head Style
OVAL



DIN 963

Head Style
FLAT

DIAMETER in mm	LGTH. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW				
M3 Pitch: 0.50 mm Tap Hole: 2.50 mm	3		**382-424**			
	4	**382-310**	**382-073**	**382-503**	**382-623**	**382-741**
	5	**382-311**	**382-170**	**382-504**	**382-624**	**382-288**
	6		**382-074**	**382-078**	**382-625**	**382-082**
	8	**382-313**	**382-075**	**382-285**	**382-080**	**382-083**
	10		**382-076**	**382-079**	**382-626**	**382-084**
	12		**382-077**	**382-263**	**382-081**	**382-085**
	13	**382-315**				
	16	**382-316**	**382-289**	**382-505**	**382-627**	**382-742**
	18		**382-172**	**382-506**		**382-743**
	20	**382-317**	**382-173**	**382-507**	**382-628**	**382-239**
	22		**382-174**	**382-508**		
	25	**382-318**	**382-175**	**382-509**	**382-629**	**382-744**
	28		**382-176**			
	30	**382-319**	**382-177**	**382-510**	**382-630**	**382-240**
	35		**382-178**	**382-511**	**382-631**	**382-745**
	40		**382-179**	**382-512**	**382-632**	**382-241**
	45		**382-425**		**382-633**	**382-746**
	50		**382-426**	**382-513**	**382-634**	**382-747**
	55		**382-427**			
	60		**382-428**	**382-514**		**382-748**
M3.5 Pitch: 0.60 mm Tap Hole: 2.90 mm	4		**382-429**	**382-515**		
	5		**382-086**	**382-516**		**382-749**
	6	**382-321**	**382-087**	**382-264**		**382-750**
	8	**382-322**	**382-088**	**382-517**	**382-635**	**382-751**
	10		**382-089**	**382-518**	**382-636**	**382-752**
	12		**382-180**	**382-519**	**382-637**	**382-753**
	13	**382-324**				
	16	**382-325**	**382-430**	**382-520**	**382-638**	**382-754**
	18					
	20	**382-326**	**382-183**	**382-521**	**382-639**	**382-755**
	22		**382-184**			
	25	**382-327**	**382-185**	**382-522**		**382-756**
	28		**382-186**			
	30	**382-328**	**382-187**	**382-523**		**382-757**
	35	**382-329**	**382-188**	**382-524**		**382-758**
	40		**382-189**			**382-759**
	45		**382-431**			
	50		**382-432**			

Slot Drive

4.8 STEEL

(IFI 513, Grade 1018)

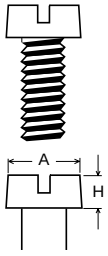
Zinc Plated

METRIC
Standard (Coarse) Thread

For Head Size Charts refer to Section R.

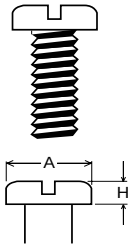
North American

Head Style
IFI 513, 1982
PAN



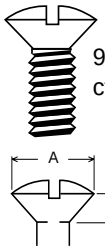
DIN 84

Head Style
CHEESE



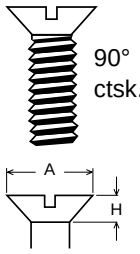
DIN 85

Head Style
PAN



DIN 964

Head Style
OVAL



DIN 963

Head Style
FLAT

DIAMETER in mm	LGTH. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW				
M4 Pitch: 0.70 mm Tap Hole: 3.30 mm	4		**382-433**	**382-525**		
	5		**382-101**	**382-526**	**382-640**	**382-760**
	6		**382-190**	**382-527**	**382-641**	**382-761**
	8	**382-332**	**382-102**	**382-106**	**382-108**	**382-110**
	10	**382-333**	**382-103**	**382-528**	**382-642**	**382-111**
	12		**382-104**	**382-107**	**382-109**	**382-112**
	13	**382-334**				
	16	**382-335**	**382-105**	**382-529**	**382-643**	**382-113**
	18		**382-191**		**382-682**	**382-762**
	20	**382-336**	**382-192**	**382-265**	**382-644**	**382-763**
	22		**382-193**			**382-242**
	25	**382-337**	**382-194**	**382-266**	**382-645**	**382-287**
	28		**382-195**			
	30	**382-338**	**382-196**	**382-530**	**382-646**	**382-243**
	35	**382-339**	**382-197**	**382-531**	**382-647**	**382-764**
	40	**382-340**	**382-198**	**382-532**	**382-648**	**382-244**
	45		**382-199**	**382-533**	**382-649**	**382-765**
	50		**382-200**	**382-534**	**382-650**	**382-245**
	55		**382-434**	**382-535**		**382-766**
	60		**382-286**	**382-536**	**382-651**	**382-767**
	65		**382-435**			**382-768**
	70		**382-436**	**382-537**		**382-769**
	75		**382-437**			**382-770**
	80		**382-438**	**382-538**		**382-771**
	90		**382-439**			
	100		**382-440**			
M5 Pitch: 0.80 mm Tap Hole: 4.20 mm	5		**382-441**			
	6	**382-341**	**382-114**	**382-120**	**382-652**	**382-772**
	8		**382-115**	**382-121**	**382-653**	**382-127**
	10	**382-343**	**382-116**	**382-122**	**382-124**	**382-773**
	12		**382-201**	**382-602**	**382-654**	**382-774**
	13	**382-344**				
	16	**382-345**	**382-117**	**382-267**	**382-655**	**382-128**
	18		**382-262**	**382-539**		**382-775**
	20	**382-346**	**382-118**	**382-123**	**382-125**	**382-776**
	22		**382-202**			
	25	**382-347**	**382-119**	**382-272**	**382-126**	**382-129**
	26					
	28		**382-203**			
continued…	30	**382-348**	**382-204**	**382-540**	**382-656**	**382-246**

B

Slot Drive

4.8 STEEL

(IFI 513, Grade 1018)

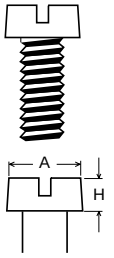
Zinc Plated

METRIC
Standard (Coarse) Thread

For Head Size Charts refer to Section R.

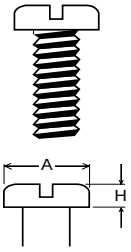
North American

Head Style
IFI 513, 1982
PAN



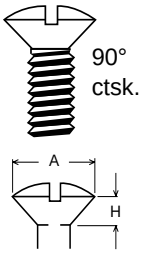
DIN 84

Head Style
CHEESE



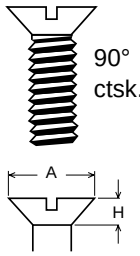
DIN 85

Head Style
PAN



DIN 964

Head Style
OVAL



DIN 963

Head Style
FLAT

DIAMETER in mm	LGTH. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW				
…continued	35	**382-349**	**382-205**	**382-541**	**382-657**	**382-777**
	40	**382-350**	**382-206**	**382-542**	**382-658**	**382-247**
	45	**382-351**	**382-207**	**382-543**	**382-659**	**382-778**
	50		**382-208**	**382-273**	**382-279**	**382-248**
	55		**382-442**	**382-545**		**382-779**
	60		**382-274**	**382-546**	**382-280**	**382-780**
M5	65		**382-443**			**382-781**
Pitch: 0.80 mm	70		**382-275**	**382-547**	**382-281**	**382-782**
Tap Hole: 4.20 mm	75		**382-444**			**382-783**
	80		**382-276**	**382-548**	**382-282**	**382-784**
	90		**382-277**	**382-549**	**382-283**	**382-785**
	100		**382-278**	**382-550**	**382-284**	**382-786**
	6		**382-445**			
	8	**382-383**	**382-130**	**382-551**	**382-660**	**382-788**
	10	**382-384**	**382-131**	**382-137**	**382-661**	**382-143**
	12		**382-132**	**382-552**	**382-140**	**382-144**
	13					
	16	**382-386**	**382-133**	**382-138**	**382-141**	**382-605**
	18		**382-209**			**382-789**
	20	**382-387**	**382-210**	**382-553**	**382-662**	**382-145**
	22		**382-134**			
	25	**382-388**	**382-135**	**382-139**	**382-142**	**382-146**
	28		**382-211**			
M6	30	**382-389**	**382-212**	**382-554**	**382-663**	**382-790**
Pitch: 1.00 mm	35	**382-390**	**382-213**	**382-603**	**382-664**	**382-249**
Tap Hole: 5.00 mm	40	**382-391**	**382-214**	**382-268**	**382-665**	**382-604**
	45	**382-392**	**382-215**	**382-556**	**382-666**	**382-791**
	50	**382-393**	**382-216**	**382-557**	**382-667**	**382-250**
	55		**382-217**	**382-558**		**382-792**
	60	**382-394**	**382-218**	**382-559**	**382-668**	**382-251**
	65		**382-446**			**382-793**
	70		**382-447**	**382-560**		**382-794**
	75		**382-448**			**382-795**
	80		**382-449**	**382-561**		**382-796**
	90		**382-450**	**382-562**		**382-797**
	100		**382-451**	**382-563**		**382-798**

Slot Drive

4.8 STEEL

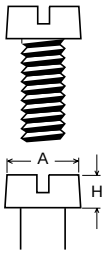
Zinc Plated

METRIC
Standard (Coarse) Thread

For Head Size Charts refer to Section R.

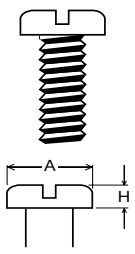
North American

Head Style
IFI 513, 1982
PAN



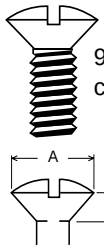
DIN 84

Head Style
CHEESE



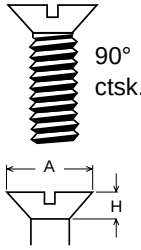
DIN 85

Head Style
PAN



DIN 964

Head Style
OVAL



DIN 963

Head Style
FLAT

DIAMETER in mm	LGTH. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW				
M6.3 Pitch: 1.00 mm Tap Hole: 5.30 mm (Metric equivalent to 1/4") **NOTE:** M6.3 diameter is furnished in Gold Colour, zinc dichromate finish.	8	**382-353**				
	10	**382-354**				
	13	**382-355**				
	16	**382-356**				
	20	**382-357**				
	25	**382-358**				
	30	**382-359**				
	35	**382-360**				
	40	**382-361**				
	45	**382-362**				
	50	**382-363**				
	55					
	60	**382-365**				
M8 Pitch: 1.25 mm Tap Hole: 6.75 mm	10	**382-366**	**382-219**	**382-564**	**382-816**	**382-252**
	12		**382-220**	**382-565**		**382-799**
	13	**382-367**				
	16	**382-368**	**382-148**	**382-153**	**382-669**	**382-158**
	18		**382-221**			
	20	**382-369**	**382-149**	**382-566**	**382-156**	**382-159**
	22		**382-222**			
	25	**382-370**	**382-150**	**382-155**	**382-670**	**382-271**
	28		**382-223**			
	30	**382-371**	**382-151**	**382-567**	**382-157**	**382-160**
	35	**382-372**	**382-152**	**382-568**	**382-671**	**382-800**
	40	**382-373**	**382-224**	**382-569**	**382-672**	**382-253**
	45		**382-225**	**382-269**	**382-673**	**382-801**
	50	**382-375**	**382-226**	**382-570**	**382-014**	**382-254**
	55		**382-227**	**382-270**		**382-802**
	60	**382-377**	**382-228**	**382-571**	**382-675**	**382-255**
	65		**382-452**			**382-803**
	70		**382-453**	**382-572**		**382-804**
	75					**382-805**
	80		**382-455**	**382-573**		**382-806**
	90		**382-456**	**382-574**		**382-807**
	100		**382-457**	**382-575**		**382-808**

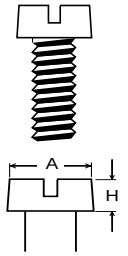
B

Slot Drive
4.8 STEEL
Zinc Plated

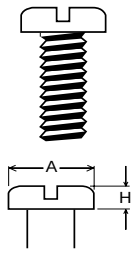
METRIC
Standard (Coarse) Thread

For Head Size Charts refer to Section R.

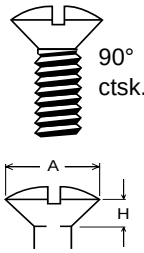
North American
Head Style
IFI 513, 1982
PAN



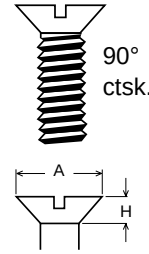
DIN 84
Head Style
CHEESE



DIN 85
Head Style
PAN



DIN 964
Head Style
OVAL



DIN 963
Head Style
FLAT

DIAMETER in mm	LGTH. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW				
M10 Pitch: 1.50 mm Tap Hole: 8.50 mm	12		**382-229**			
	15					
	16	**382-379**	**382-161**	**382-577**		**382-256**
	18		**382-230**			
	20		**382-231**	**382-578**		**382-257**
	22		**382-232**			
	25	**382-381**	**382-162**	**382-166**	**382-168**	**382-809**
	28		**382-233**			
	30		**382-234**	**382-579**	**382-678**	**382-258**
	35	**382-382**	**382-163**	**382-580**	**382-169**	**382-810**
	40		**382-235**	**382-581**	**382-679**	**382-259**
	45		**382-236**			**382-811**
	50		**382-164**		**382-680**	**382-260**
	55		**382-237**			
	60		**382-238**	**382-583**	**382-681**	**382-261**
	65					
	70		**382-458**	**382-584**		**382-814**
	80		**382-459**	**382-585**		**382-815**
	90		**382-460**			**382-817**
	100		**382-461**			**382-818**
M12 Pitch: 1.75 mm Tap Hole: 20 mm	20					**382-819**
	25					**382-820**
	30					**382-821**
	40					**382-822**
	50					**382-823**
	60					**382-824**

SPAENAUR

Your #1 Choice for Fasteners.

CATALOG 13

Slot Drive

4.8 STEEL

METRIC Standard (Coarse) Thread

For Head Size Chart refer to Section R.

YELLOW ZINC PLATED

DIN 84
Head Style **CHEESE**

DIN 85
Head Style **PAN**

DIN 964
Head Style **OVAL**

DIN 963
Head Style **FLAT**

DIAMETER in mm	LGTH. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW			
M2 Pitch: 0.40 mm Tap Hole: 1.60 mm	5	382-040YZ			
	6	382-406YZ			
	8	382-041YZ			
	12	382-042YZ			
M2.5 Pitch: 0.45 mm Tap Hole: 2.05 mm	6	382-416YZ			
	8		382-495YZ		
	10		382-496YZ		
	12				
	14		382-498YZ		
	16		382-499YZ		
M3 Pitch: 0.50 mm Tap Hole: 2.50 mm	4		382-503YZ		
	5		382-504YZ		
	6		382-078YZ		
	8		382-285YZ		382-083YZ
	10		382-079YZ		
	12	382-077YZ	382-263YZ		
	35	382-178YZ			
M3.5 Pitch: 0.60 mm Tap Hole: 2.90 mm	5		382-516YZ		
	10		382-518YZ		
	12		382-519YZ		
M4 Pitch: 0.70 mm Tap Hole: 3.30 mm	6		382-527YZ		
	8	382-102YZ	382-106YZ		
	10	382-103YZ	382-528YZ		
	12	382-104YZ	382-107YZ		
	16		382-529YZ		
	20	382-192YZ			
	25		382-266YZ		
	35		382-531YZ		
	60				
M5 Pitch: 0.80 mm Tap Hole: 4.20 mm	8		382-121YZ		
	10		382-122YZ	382-124YZ	
	12		382-602YZ		
	16		382-267YZ	382-655YZ	
	20	382-118YZ	382-123YZ		382-776YZ
M6 Pitch: 1.00 mm Tap Hole: 5.00 mm	10		382-137YZ		
	12				382-144YZ
	16			† 382-141CP	
	16			▲382-141NP	
	35				382-249YZ
M10 Pitch: 1.50 mm Tap Hole: 8.50 mm	16				382-256YZ

† Chrome plated
▲ Nickel plated

ASSORTMENT / ASSORTIMENT 805-539

DIN 84 - Screws
DIN 934 - Nuts

METRIC Coarse Thread
SLOTTED CHEESE HEAD SCREWS and NUTS
24 Sizes — 1,200 Pieces

Plain and Plated Finishes

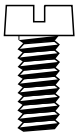
Furnished in Regular Size grey enamel steel drawer with hinged lid and catch.

Drawer will fit into Slide Racks shown on page A2.

Priced Singly

Shipping Weight: 2.18 kg (4.8 lbs.)

SPAENAUR No.	Description (Diameter x Length)	Ass't. Qty.
382-001	M1 x 2mm	50
382-004	M1 x 5mm	50
382-009	M1.2 x 2mm	50
382-011	M1.2 x 4mm	50
382-013	M1.2 x 6mm	50
382-019	M1.4 x 2mm	50
382-020	M1.4 x 4mm	50
382-022	M1.4 x 6mm	50
382-029	M1.7 x 2mm	50
382-032NP	M1.7 x 10mm	50
382-039	M2 x 3mm	50
382-042	M2 x 12mm	50
382-049	M2.3 x 4mm	50
382-051	M2.3 x 8mm	50
382-053	M2.3 x 16mm	50
382-063	M2.5 x 10mm	50
382-067	M2.5 x 20mm	50
156-001	M1 Hex Nut	50
156-002	M1.2 Hex Nut	50
156-003	M1.4 Hex Nut	50
156-005	M1.7 Hex Nut	50
156-006	M2 Hex Nut	50
156-007	M2.3 Hex Nut	50
156-008	M2.5 Hex Nut	50



ASSORTMENT / ASSORTIMENT 805-400

Contains Metric threaded, STEEL, Zinc Plated Machine Screws, DIN 84 slot head style, with Hex Nuts.

24 Sizes from M3 to M6 diameter. 1,385 Pieces

Shipping Weight: 4.54 kg (10 lbs.)

ASSORTMENT / ASSORTIMENT 805-401

As above, but contains 24 Metric machine screw sizes, 1,100 Pieces slotted PAN, FLAT and OVAL heads, diameters M3 to M8. (No Nuts.)

Shipping Weight: 4.1 kg (9 lbs.)

Priced Singly

Regular Size welded steel drawers have hinged lids and are finished in grey enamel. Drawers will fit into Slide Racks shown on page A2. (See also Assortment #805-439, below.)

ASSORTMENT / ASSORTIMENT 805-439

Priced Singly.

Shipping Wgt. 4.54 kg (10 lbs.)

REGULAR SIZE welded STEEL drawer has hinged lid, "Scooped" bins, and is finished in grey enamel.

Drawer will fit into slide racks shown on page A2.

Contains 24 Sizes - 1,000 Pieces

North American Style
Metric Slotted Pan Head Machine Screws

STEEL - Zinc Plated
(Conforming to IFI 513, 1982)

Ass't. Qty.	*SPAENAUR No.*	Description
50	**382-301**	M2 x 5mm
50	**382-302**	M2 x 8mm
50	**382-305**	M2.5 x 6mm
50	**382-306**	M2.5 x 10mm
50	**382-308**	M2.5 x 20mm
50	**382-311**	M3 x 5mm
50	**382-313**	M3 x 8mm
50	**382-316**	M3 x 16mm
50	**382-321**	M3.5 x 6mm
50	**382-324**	M3.5 x 13mm
50	**382-326**	M3.5 x 20mm
30	**382-329**	M3.5 x 35mm

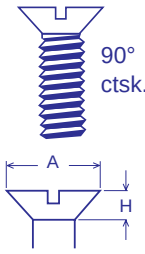
Ass't. Qty.	*SPAENAUR No.*	Description
50	**382-332**	M4 x 8mm
50	**382-334**	M4 x 13mm
40	**382-337**	M4 x 25mm
50	**382-343**	M5 x 10mm
40	**382-345**	M5 x 16mm
30	**382-347**	M5 x 25mm
40	**382-386**	M6 x 16mm
40	**382-387**	M6 x 20mm
30	**382-389**	M6 x 30mm
20	**382-392**	M6 x 45mm
20	**382-370**	M8 x 25mm
10	**382-372**	M8 x 35mm

For complete selection see pages B41 to B45.

Slot Drive 5.8 STEEL Plain Finish

METRIC
Standard (Coarse) Thread

DIN 84
Head Style **CHEESE**



DIN 963
Head Style **FLAT**

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW

DIAMETER in mm	LGTH. mm	DIN 84 CHEESE	DIN 963 FLAT
M1 Pitch: 0.25 mm Tap Hole: 0.75 mm	2		
	3	382-867	382-606
	4		382-607
	5	382-869	382-608
	6	382-464	382-609
	8	382-465	382-683
	10	382-466	382-825
	12	382-467	
	16		
M1.2 Pitch: 0.25 mm Tap Hole: 0.95 mm	2	382-870	
	3	382-871	
	4		
	5		382-686
	6		382-687
	8	382-469	382-688
	10		382-689
M1.4 Pitch: 0.30 mm Tap Hole: 1.10 mm	2	382-875	382-826
	3	382-471	382-690
	4	382-876	
	5	382-877	
	6	382-878	382-692
	8	382-879	382-693
	10	382-472	382-694
	12	382-473	382-695
	16	382-474	382-696
M1.6 Pitch: 0.35 mm Tap Hole: 1.25 mm	3		382-697
	4		382-698
	5		382-699
	6		382-700
	8		382-701
	10		382-702
	12		382-703
	16	382-475	382-704
	20	382-476	

Property Class 5.8 continued top of next column.

5.8 STEEL

For Head Size Chart refer to Section R.

DIN 84
Head Style **CHEESE**

DIN 963
Head Style **FLAT**

DIAMETER in mm	LGTH. mm	DIN 84 CHEESE	DIN 963 FLAT
M1.7 Pitch: 0.35 mm Tap Hole: 1.35 mm	2		382-705
	3	382-477	382-706
	4		382-707
	5	382-478	382-708
	6	382-882	
	8	382-479	382-710
	10	382-883	382-711
	12	382-480	382-712
	16	382-481	382-713
M1.8 Pitch: 0.35 mm Tap Hole: 1.45 mm	2	382-482	
	3	382-483	382-714
	4	382-484	
	5	382-485	
	6	382-486	
	8	382-487	
	10	382-488	
	12	382-489	
	16	382-490	

For small diameter slot drive metric machine screws in Property Class 4.8 see page B40.

Slot Drive 8.8 STEEL

Zinc Plated

DIN 84
Head Style **CHEESE**

DIN 85
Head Style **PAN**

DIAMETER in mm	LGTH. mm	DIN 84 CHEESE	DIN 85 PAN
M3	5		382-165
	16		
	30		
M4	5	382-364	
M5	10	382-865	
	12		382-396

Metric Standard (Coarse) Thread

B

Slot Drive

5.8 STEEL

Finishes as stated below.

METRIC Standard (Coarse) Thread.

For Head Size Chart refer to Section R.

DIN 84
Head Style
CHEESE

DIN 85
Head Style
PAN

DIN 964
Head Style
OVAL

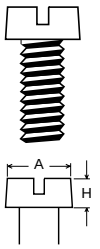
DIN 963
Head Style
FLAT

Finish	DIAMETER in mm	LGTH. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW			
Plain	M3.5	10				
	M5	50				
Zinc Plated	M2	5				
	M2.5	25	382-591			
		30				
	M3	5		382-167		
		8	382-092			
		16				
	M3.5	4				
		25		382-859		
		30				
	M4	4		382-861		
		8				
		16		382-298		
		25				
		35				
	M5	50				
	M6	10				
Yellow Zinc Plated	M2.5	12				
	M3	8				
		12				
		16				
		30				
		35				
	M4	6				
		8		382-854YZ		
		10				
		12				
		16				
		20				
		35		382-299YZ		
	M5	8				
		10				
		12				
		16			382-378YZ	
		20				
	M6	8				382-831YZ
		10				
		12				
		16				
		20				
		25				
	M8	16				
	M10	16				

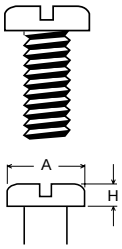
A2 & A4 STAINLESS STEEL

METRIC
Standard (Coarse) Thread

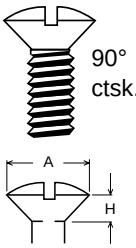
For Head Size Chart refer to Section R.



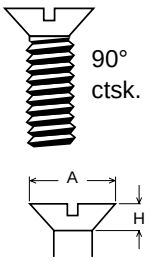
DIN 84
Head Style
CHEESE



DIN 85
Head Style
PAN



DIN 964
Head Style
OVAL



DIN 963
Head Style
FLAT

DIAMETER in mm	LGTH. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW							
AUSTENITIC TYPES		**A2**	**A4**	**A2**	**A4**	**A2**	**A4**	**A2**	**A4**
M1 Pitch: 0.25 mm Tap Hole: 0.75 mm	2	**421-211**							
	3	**421-138**							
	4	**421-185**							
	5	**421-186**							
	6	**421-187**							
M1.6 Pitch: 0.35 mm Tap Hole: 1.35 mm	2	**421-209**							
	3	**421-139**						**421-374**	
	4	**421-140**						**421-197**	
	5	**421-141**						**421-171**	
	6	**421-142**						**421-172**	
	8	**421-143**						**421-198**	
	10	**421-188**						**421-199**	
	12	**421-144**						**421-200**	
M2 Pitch: 0.40 mm Tap Hole: 1.60 mm	3	**421-212**	**421-500**	**421-271**				**421-375**	
	4	**421-145**	**421-501**	**421-272**				**421-376**	**421-541**
	5	**421-146**	**421-502**	**421-273**				**421-173**	**421-542**
	6	**421-147**	**421-503**	**421-274**				**421-174**	**421-543**
	8	**421-148**	**421-504**	**421-275**				**421-175**	**421-544**
	10	**421-149**		**421-276**				**421-176**	**421-545**
	12	**421-150**		**421-277**				**421-377**	**421-546**
	16	**421-151**		**421-278**				**421-378**	**421-547**
	20	**421-213**	**421-505**	**421-279**				**421-201**	
	25	**421-214**							
M2.5 Pitch: 0.45 mm Tap Hole: 2.05 mm	3	**421-215**		**421-280**					
	4	**421-152**	**421-506**	**421-164**				**421-379**	**421-548**
	5	**421-153**	**421-507**	**421-165**				**421-177**	**421-549**
	6	**421-154**	**421-508**	**421-166**				**421-380**	
	8	**421-155**	**421-509**	**421-167**				**421-178**	**421-550**
	10	**421-156**	**421-510**	**421-168**				**421-381**	**421-551**
	12	**421-157**	**421-511**	**421-169**				**421-179**	
	14	**421-158**							
	16	**421-159**	**421-512**	**421-281**				**421-180**	**421-552**
	20	**421-160**		**421-170**				**421-181**	
	25	**421-216**		**421-282**				**421-382**	
	30								

UNIT PACKAGE QUANTITIES *100 – up to 60 mm length (inclusive)* *50 – over 60 mm length*

For Stainless Steel Metric Machine Screw Assortment 805-429, see page B55.

B

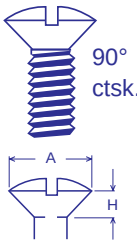
A2 & A4 STAINLESS STEEL

METRIC
Standard (Coarse) Thread

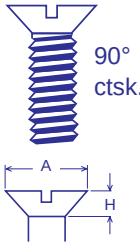
For Head Size Chart refer to Section R.

DIN 84
Head Style **CHEESE**

DIN 85
Head Style **PAN**



DIN 964
Head Style **OVAL**



DIN 963
Head Style **FLAT**

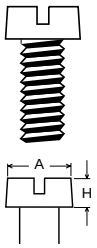
DIAMETER in mm	LGTH. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW							
AUSTENITIC TYPES		A2	A4	A2	A4	A2	A4	A2	A4
M2.6 Pitch: 0.45 mm Tap Hole: 2.15 mm	6	421-161	421-513						421-553
	8	421-162							421-554
	10								
	12								
	16	421-163							
M3 Pitch: 0.50 mm Tap Hole: 2.50 mm	3	421-217							
	4	421-218	421-514	421-226				421-368	
	5	421-219	421-515	421-041				421-182	
	6	421-001	421-516	421-137			421-555	421-092	
	8	421-002	421-517	421-042		421-064		421-093	
	10	421-003	421-518	421-284				421-384	421-569
	12	421-004		421-043		421-065		421-094	421-581
	16	421-005	421-577	421-285	421-040			421-095	
	18	421-220		421-358					
	20	421-221	421-520	421-286		421-066		421-096	
	22								
	25	421-205		421-287				421-202	
	28								
	30	421-222		421-288				421-385	
	35	421-223		421-289				421-386	
	40	421-206		421-210				421-387	
	45	421-224		421-290				421-388	
	50	421-225		421-291				421-389	
	55								
	60								
M3.5 Pitch: 0.60 mm Tap Hole: 2.90 mm	4								
	5								
	6	421-006		421-293					
	8	421-007		421-294					
	10	421-189		421-295					
	12	421-008		421-296					
	16	421-009		421-297					
	18								
	20	421-190		421-298					
	22								
	25	421-191							
	28								
	30	421-192							
	35								
	40								

UNIT PACKAGE QUANTITIES *100 – up to 60 mm length (inclusive)* *50 – over 60 mm length*

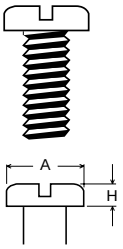
A2 & A4 STAINLESS STEEL

METRIC
Standard (Coarse) Thread

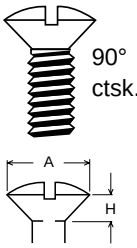
For Head Size Chart refer to Section R.



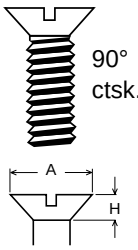
DIN 84
Head Style **CHEESE**



DIN 85
Head Style **PAN**



DIN 964
Head Style **OVAL**



DIN 963
Head Style **FLAT**

DIAMETER in mm	LGTH. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW							
AUSTENITIC TYPES		**A2**	**A4**	**A2**	**A4**	**A2**	**A4**	**A2**	**A4**
M4 Pitch: 0.70 mm Tap Hole: 3.30 mm	4	**421-228**		**421-299**					
	5	**421-229**		**421-300**					
	6	**421-010**		**421-047**	**421-532**		**421-556**	**421-203**	
	8	**421-230**	**421-371**	**421-301**		**421-184**	**421-557**	**421-101**	
	10	**421-011**	**421-372**	**421-048**	**421-533**	**421-070**		**421-390**	**421-579**
	12	**421-207**	**421-521**	**421-302**				**421-102**	
	14	**421-231**							
	16	**421-012**		**421-049**		**421-071**		**421-103**	**421-580**
	18	**421-232**							
	20	**421-013**	**421-522**	**421-303**	**421-534**	**421-072**	**421-558**	**421-104**	
	25	**421-014**		**421-304**		**421-073**	**421-559**	**421-391**	
	30	**421-015**	**421-523**	**421-305**		**421-074**	**421-560**	**421-105**	
	35	**421-233**		**421-306**				**421-392**	
	40	**421-208**		**421-307**				**421-393**	
	45	**421-234**		**421-308**				**421-394**	
	50	**421-235**		**421-309**				**421-437**	
	55	**421-236**		**421-310**					
	60	**421-237**		**421-311**				**421-395**	
	70	**421-044**							
	80								
M5 Pitch: 0.80 mm Tap Hole: 4.20 mm	5	**421-238**							
	6	**421-193**		**421-312**				**421-204**	
	8	**421-016**	**421-373**	**421-313**				**421-396**	
	10	**421-017**		**421-050**	**421-535**			**421-106**	
	12	**421-239**	**421-524**	**421-314**		**421-075**		**421-397**	
	16	**421-018**	**421-525**	**421-051**	**421-536**	**421-076**		**421-107**	
	18	**421-240**							
	20	**421-019**		**421-052**		**421-077**	**421-561**	**421-108**	
	25	**421-020**		**421-315**	**421-537**	**421-078**	**421-562**	**421-109**	
	30	**421-021**	**421-526**	**421-316**			**421-563**	**421-436**	
	35	**421-241**		**421-317**			**421-564**	**421-398**	
	40	**421-022**		**421-318**			**421-565**	**421-399**	
	45	**421-194**		**421-319**				**421-400**	
	50	**421-195**		**421-320**			**421-566**	**421-401**	**421-570**
	55			**421-321**					
	60	**421-242**		**421-322**				**421-402**	
	70	**421-243**		**421-323**				**421-403**	
	80	**421-244**		**421-324**				**421-404**	
	90	**421-245**		**421-325**				**421-405**	
	100	**421-246**		**421-326**				**421-406**	

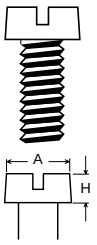
UNIT PACKAGE QUANTITIES *100 – up to 60 mm length (inclusive)* *50 – over 60 mm length*

B

A2 & A4 STAINLESS STEEL

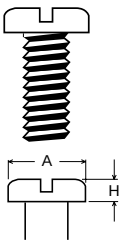
METRIC
Standard (Coarse) Thread

For Head Size Chart refer to Section R.



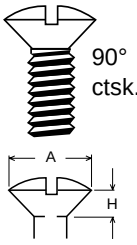
DIN 84

Head Style **CHEESE**



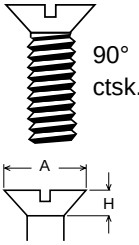
DIN 85

Head Style **PAN**



DIN 964

Head Style **OVAL**



DIN 963

Head Style **FLAT**

DIAMETER in mm	LGTH. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW							
AUSTENITIC TYPES		**A2**	**A4**	**A2**	**A4**	**A2**	**A4**	**A2**	**A4**
M6 Pitch: 1.00 mm Tap Hole: 5.00 mm	8	**421-247**		**421-327**				**421-407**	
	10	**421-023**		**421-053**	**421-538**	**421-079**		**421-135**	
	12	**421-248**		**421-054**				**421-110**	
	16	**421-024**	**421-527**	**421-055**	**421-539**	**421-080**		**421-111**	
	18								
	20	**421-025**		**421-056**	**421-540**	**421-081**		**421-112**	
	22								
	25	**421-026**		**421-328**		**421-082**		**421-113**	
	28								
	30	**421-027**	**421-528**	**421-329**		**421-083**		**421-121**	
	35	**421-249**		**421-330**				**421-408**	
	40	**421-028**		**421-331**		**421-084**		**421-409**	
	45	**421-196**		**421-332**				**421-410**	
	50	**421-029**		**421-333**			**421-567**	**421-411**	
	55								
	60	**421-250**	**421-529**	**421-335**				**421-413**	
	70	**421-251**		**421-336**				**421-414**	
	80	**421-252**		**421-337**				**421-415**	
	90	**421-253**						**421-416**	
	100	**421-254**		**421-339**				**421-417**	
M8 Pitch: 1.25 mm Tap Hole: 6.75 mm	10			**421-366**					
	12	**421-030**		**421-057**				**421-418**	
	16	**421-031**	**421-530**	**421-058**				**421-419**	
	18								
	20	**421-032**		**421-059**		**421-085**	**421-568**	**421-114**	
	22								
	25	**421-255**		**421-340**				**421-115**	
	28								
	30	**421-033**		**421-060**		**421-086**		**421-116**	
	35	**421-256**		**421-341**				**421-420**	
	40	**421-034**	**421-531**	**421-342**		**421-087**		**421-421**	
	45			**421-367**					
	50	**421-035**		**421-343**		**421-088**		**421-136**	
	55								
	60			**421-344**				**421-422**	
	70			**421-345**				**421-423**	
	80	**421-260**						**421-424**	
	90			**421-347**					
	100			**421-348**				**421-426**	

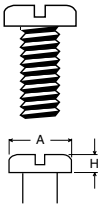
UNIT PACKAGE QUANTITIES *100 – up to 60 mm length (inclusive)* *50 – over 60 mm length*

CATALOG 13

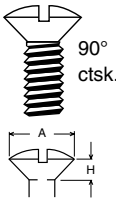
A2 & A4 STAINLESS STEEL

METRIC
Standard (Coarse) Thread
For Head Size Chart refer to Section R.

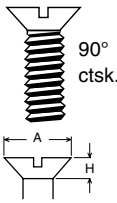
DIN 84
Head Style **CHEESE**



DIN 85
Head Style **PAN**



DIN 964
Head Style **OVAL**



DIN 963
Head Style **FLAT**

DIAMETER in mm	LGTH. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW							
AUSTENITIC TYPES		**A2**	**A4**	**A2**	**A4**	**A2**	**A4**	**A2**	**A4**
M10 Pitch: 1.50 mm Tap Hole: 8.50 mm	12								
	16			**421-349**				**421-117**	
	18								
	20	**421-036**		**421-061**				**421-118**	
	22								
	25	**421-264**		**421-062**		**421-089**		**421-119**	
	28								
	30	**421-037**		**421-350**				**421-120**	
	35	**421-265**		**421-063**		**421-090**		**421-427**	
	40	**421-038**						**421-428**	
	45								
	50	**421-039**		**421-134**				**421-429**	
	55								
	60	**421-370**		**421-352**				**421-430**	
	70								
	80							**421-432**	
	90								
	100							**421-434**	
M12 Pitch: 1.75 mm Tap Hole: 10.2 mm	10								
	30							**421-435**	
	45								
	UNIT PACKAGE QUANTITIES	*100 – up to 60 mm length (inclusive)*				*50 – over 60 mm length*			

ASSORTMENT / ASSORTIMENT 805-429

REGULAR SIZE grey enamelled STEEL Drawer has "scooped" bins. Will fit the Slide Racks shown on page A2.

Shipping Weight: 2.72 kg (6 lbs.)

Priced Singly

A2 STAINLESS STEEL MACHINE SCREWS

Metric

Standard (Coarse) Thread

24 SIZES – 215 PIECES

Contains slotted Cheese, Oval and Flat heads, in Metric diameters M3 to M10.

Ass't. QTY.	*SPAENAUR No.*	THREAD	HEAD	Ass't. QTY.	*SPAENAUR No.*	THREAD	HEAD	Ass't. QTY.	*SPAENAUR No.*	THREAD	HEAD
20	**421-093**	M3 x 8 mm	Flat	10	**421-012**	M4 x 16 mm	Cheese	6	**421-024**	M6 x 16 mm	Cheese
15	**421-003**	M3 x 10 mm	Cheese	10	**421-103**	M4 x 16 mm	Flat	6	**421-081**	M6 x 20 mm	Oval
15	**421-065**	M3 x 12 mm	Oval	10	**421-072**	M4 x 20 mm	Oval	6	**421-112**	M6 x 20 mm	Flat
15	**421-005**	M3 x 16 mm	Cheese	8	**421-014**	M4 x 25 mm	Cheese	5	**421-027**	M6 x 30 mm	Cheese
15	**421-096**	M3 x 20 mm	Flat	8	**421-018**	M5 x 16 mm	Cheese	4	**421-032**	M8 x 20 mm	Cheese
10	**421-008**	M3.5 x 12 mm	Cheese	8	**421-076**	M5 x 16 mm	Oval	4	**421-115**	M8 x 25 mm	Flat
10	**421-101**	M4 x 8 mm	Flat	8	**421-108**	M5 x 20 mm	Flat	3	**421-118**	M10 x 20 mm	Flat
10	**421-070**	M4 x 10 mm	Oval	6	**421-021**	M5 x 30 mm	Cheese	3	**421-037**	M10 x 30 mm	Cheese

B

BRASS

Unplated

METRIC
Standard (Coarse) Thread

For Head Size Charts refer to Section R.

DIAMETER in mm	LGTH. mm	North American Head Style IFI 513, 1982 **PAN**	**DIN 84** Head Style **CHEESE**	**DIN 85** Head Style **PAN**	**DIN 964** 90° ctsk. Head Style **OVAL**	**DIN 963** 90° ctsk. Head Style **FLAT**
		ORDER BY *SPAENAUR* NUMBERS LISTED BELOW				
M1 Pitch: 0.25 mm Tap Hole: 0.75 mm	2		401-001			
	3		401-002			401-028
	4		401-003			401-029
	5		401-004			401-030
M1.2 Pitch: 0.25 mm Tap Hole: 0.95 mm	2		401-005			
	3		401-006			401-031
	4		401-007			401-032
	5		401-008			401-033
	6		401-009			401-034
M1.4 Pitch: 0.30 mm Tap Hole: 1.10 mm	2		401-010			
	4		401-011			401-035
	5		401-012			401-036
	6		401-013			401-037
	8		401-014			401-038
M1.7 Pitch: 0.35 mm Tap Hole: 1.35 mm	2		401-015			
	4		401-016			401-039
	6		401-017			401-040
	10		401-018			401-041
	15					
M2 Pitch: 0.40 mm Tap Hole: 1.60 mm	2.5					
	3					401-042
	4		401-212			401-326
	5		401-019			401-043
	6		401-213			401-327
	8		401-214			401-044
	10		401-215			401-328
	12		401-020			401-045
	13					
	16		401-216			401-329
	18		401-021			401-046
	20		401-217			401-330
	25					401-331
M2.3 Pitch: 0.40 mm Tap Hole: 1.90 mm	4					401-047
	6					401-048
	8		401-022			401-049
	10		401-023			401-050
	15		401-024			401-051
	20					401-052

UNIT PACKAGE QUANTITIES *100 – up to 60 mm length (inclusive)* *50 – over 60 mm length*

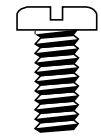
For Metric Brass Assortment see page B60.

BRASS

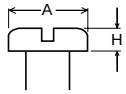
Unplated

METRIC
Standard (Coarse) Thread

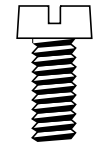
For Head Size Charts refer to Section R.

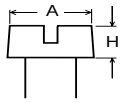


North American



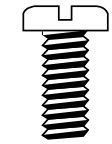
Head Style
IFI 513, 1982
PAN

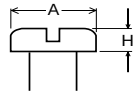




DIN 84

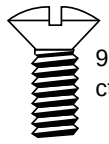
Head Style
CHEESE

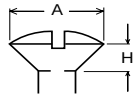




DIN 85

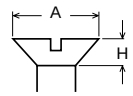
Head Style
PAN





DIN 964

Head Style
OVAL



DIN 963

Head Style
FLAT

DIAMETER in mm	LGTH. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW				
M2.5 Pitch: 0.45 mm Tap Hole: 2.05 mm	3					**401-332**
	4		**401-025**	**401-276**		**401-333**
	5			**401-277**		**401-334**
	6		**401-026**	**401-278**		**401-053**
	8		**401-219**	**401-279**		**401-335**
	10		**401-211**	**401-280**		**401-336**
	12		**401-220**	**401-281**		**401-054**
	16		**401-027**	**401-282**		**401-337**
	18					
	20			**401-283**		**401-338**
	25					**401-339**
M3 Pitch: 0.50 mm Tap Hole: 2.50 mm	3					**401-340**
	4		**401-182**	**401-284**		**401-197**
	5		**401-055**	**401-285**		**401-341**
	6		**401-056**	**401-091**	**401-107**	**401-135**
	8		**401-057**	**401-286**	**401-108**	**401-136**
	10		**401-058**	**401-092**	**401-109**	**401-137**
	12		**401-059**	**401-287**		**401-342**
	16		**401-060**	**401-093**	**401-110**	**401-138**
	18					
	20		**401-061**	**401-288**	**401-111**	**401-343**
	22					
	25		**401-062**	**401-289**		**401-139**
	28					
	30		**401-222**	**401-290**		**401-344**
	35		**401-223**	**401-291**		**401-345**
	40					**401-346**
	45					
	50					**401-389**
	60		**401-227**			
M3.5 Pitch: 0.60 mm Tap Hole: 2.90 mm	5					
	6				**401-112**	**401-140**
	8			**401-094**		
	10		**401-064**		**401-113**	**401-141**
	12			**401-095**		
	16		**401-065**		**401-114**	**401-142**
	18					
	20		**401-066**	***401-096**	**401-115**	
	22					
	25		**401-067**			**401-143**
	28					

UNIT PACKAGE QUANTITIES *100 – up to 60 mm length (inclusive)* *50 – over 60 mm length*

***401-096NP** Nickel Plated

B

BRASS

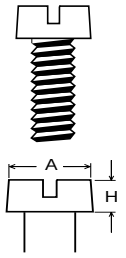
Unplated

METRIC
Standard (Coarse)
Thread

For Head Size Charts refer to Section R.

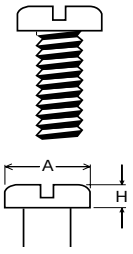
North American

Head Style
IFI 513, 1982
PAN



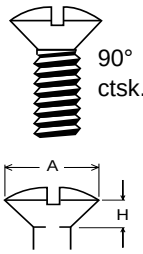
DIN 84

Head Style
CHEESE



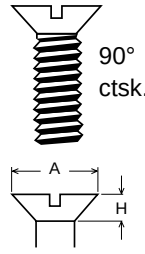
DIN 85

Head Style
PAN



DIN 964

Head Style
OVAL



DIN 963

Head Style
FLAT

DIAMETER in mm	LGTH. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW				
M4 Pitch: 0.70 mm Tap Hole: 3.30 mm	4					
	5		**401-183**	**401-292**		**401-198**
	6		**401-068**	**401-097**		**401-347**
	8		**401-229**	**401-293**	**401-116**	**401-144**
	10		**■401-069**	**401-098**	**401-117**	**401-199**
	12		**401-230**	**401-294**		**401-145**
	13					
	16		**401-070**	**401-099**	**401-118**	**401-200**
	18					
	20		**▲401-071**	**401-100**		**401-146**
	22					
	25		**401-072**	**401-295**	**401-119**	**401-201**
	28					
	30		**401-231**	**401-296**		**401-147**
	35		**401-232**	**401-297**		**401-348**
	40		***401-233**	**401-298**		**401-349**
	45		**401-234**			**401-350**
	50		**401-235**	**401-300**		**401-351**
	60		**401-236**			**401-352**
M5 Pitch: 0.80 mm Tap Hole: 4.20 mm	5					
	6		**401-184**	**401-301**		**401-202**
	8		**401-238**	**401-101**		**401-353**
	10		**401-073**	**401-302**		**401-148**
	12		**401-239**	**401-102**		**401-354**
	13					
	16		**401-074**	**401-303**	**401-121**	**401-149**
	18					
	20		**401-075**	**401-103**		**401-150**
	22					
	25		**401-076**	**401-304**	**401-122**	**401-355**
	28					
	30		**401-185**	**401-305**		**401-151**
	35		**401-077**	**401-306**		**401-356**
	40		**401-240**	**401-307**		**401-152**
	45		**401-241**	**401-308**		**401-357**
	50		**401-242**	**401-309**		**401-358**
	60			**401-310**		**401-359**
	70		**401-244**			**401-360**
	80			**401-312**		**401-361**
	90					**401-362**
	100					

***401-233NP** - Nickel Plated ■ **401-069NP** Nickel Plated ▲**401-071NP** Nickel Plated

UNIT PACKAGE QUANTITIES *100 – up to 60 mm length (inclusive)* *50 – over 60 mm length*

CATALOG 13

BRASS

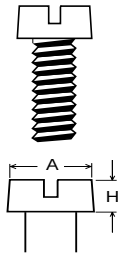
Unplated

METRIC
Standard (Coarse) Thread

For Head Size Charts refer to Section R.

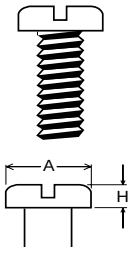
North American

Head Style
IFI 513, 1982
PAN



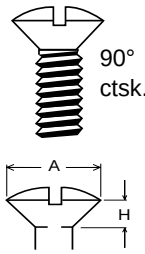
DIN 84

Head Style
CHEESE



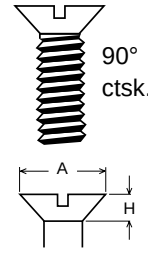
DIN 85

Head Style
PAN



DIN 964

Head Style
OVAL



DIN 963

Head Style
FLAT

DIAMETER in mm	LGTH. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW				
M6 Pitch: 1.00 mm Tap Hole: 5.00 mm	8		**401-186**	**401-313**		**401-203**
	10		**401-078**	**401-104**	**401-123**	**401-364**
	12		**401-248**	**401-314**		**401-365**
	13					
	16		**401-079**	**401-105**	**401-124**	**401-153**
	18					
	20		**401-080**	**401-106**	**401-125**	**401-154**
	22					
	25		**401-081**	**401-315**	**401-126**	**401-204**
	28					
	30		**401-249**	**401-316**		**401-155**
	35		**401-082**	**401-317**		**401-366**
	40		**401-187**	**401-318**		**401-205**
	45		**401-250**			**401-367**
	50		**401-083**	**401-319**		**401-368**
	55					
	60		**401-188**	**401-320**		**401-206**
	70			**401-321**		
	80					
	90					
	100					**401-372**
M8 Pitch: 1.25 mm Tap Hole: 6.75 mm	10		**401-255**			***401-373**
	12					**401-207**
	13					
	16		**401-084**		**401-127**	**401-156**
	18					
	20		**401-085**		**401-128**	**401-157**
	22					
	25		**401-256**		**401-129**	**401-158**
	28					
	30		**401-086**		**401-130**	**401-159**
	35		**401-257**			**401-374**
	40		**401-258**			**401-375**
	45		**401-259**			
	50		**401-087**			**401-377**
	55					
	60					**401-208**
	70					
	80					**401-379**
	90					**401-380**
	100					

***401-373NP** Nickel Plated

UNIT PACKAGE QUANTITIES *100 – up to 60 mm length (inclusive)* *50 – over 60 mm length*

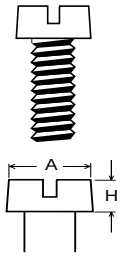
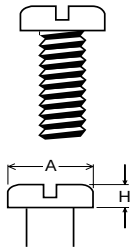
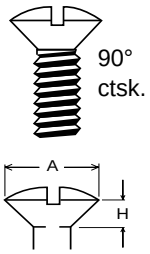
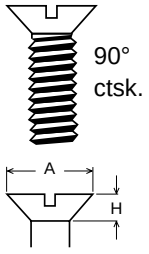
B

BRASS

Unplated

METRIC
Standard (Coarse)
Thread

For Head Size Charts refer to Section R.

	North American	DIN 84	DIN 85	DIN 964	DIN 963
					
Head Style	Head Style IFI 513, 1982	Head Style	Head Style	Head Style	Head Style
	PAN	**CHEESE**	**PAN**	**OVAL**	**FLAT**

DIAMETER in mm	LGTH. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW				
M10 Pitch: 1.50 mm Tap Hole: 8.50 mm	16					**401-209**
	18					
	20	**401-088**	**401-266**		**401-131**	**401-160**
	22					
	25	**401-089**	**401-267**		**401-132**	**401-161**
	28					
	30		**401-268**		**401-133**	**401-162**
	35	**401-090**	**401-269**			**401-382**
	40	**401-190**	**401-270**		**401-134**	**401-163**
	45		**401-271**			
	50		**401-272**			
	55					
	60	**401-191**				**401-210**
	70					
	80					**401-386**
	90					
	100					

UNIT PACKAGE QUANTITIES *100 – up to 60 mm length (inclusive)* *50 – over 60 mm length*

ASSORTMENT
ASSORTIMENT **805-536**

26 SIZES
Slotted Flat Head Screws
M2 x 3 mm to M6 x 60 mm

28 SIZES
Slotted Cheese Head Screws
M2 x 5 mm to M6 x 35 mm

8 SIZES
Hex Nuts M2 to M6

MACHINE SCREWS and HEX NUTS

Metric Standard Coarse Thread
BRASS - Unplated
1245 pieces

Furnished in a Regular Size grey enamelled steel drawer.

Shipping Weight
4.08 kg (9 lbs.)

Priced Singly

SPAENAUR

Quality fasteners -
inspected, tested and certified!

CATALOG 13

NYLON

(Polyamid 6/6)
NATURAL COLOUR

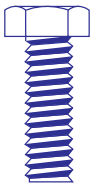
METRIC
Standard (Coarse) Thread

Head Style **CHEESE**

Head Style **PAN**

Head Style **OVAL**

Head Style **FLAT**


HEXAGON CAP SCREW
Full or Partial Thread Our Option
Head Style **UNSLOTTED**

DIAMETER in mm	LGTH. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW				
M2 Pitch: 0.40 mm Tap Hole: 1.60 mm	5		**446-131**			
	10	**446-103**				
	16		**446-132**			
M2.3 Pitch: 0.40 mm Tap Hole: 1.90 mm	4	**446-001**				
	6	**446-002**			**446-037**	
	8					
M2.5 Pitch: 0.45 mm Tap Hole: 2.15 mm	4					
	4.5		**446-133**			
	6					
	10	**446-104**				
	12					
	15					
M3 Pitch: 0.50 mm Tap Hole: 2.50 mm	4	**446-004**	**446-134**		**446-185**	**353-034**
	5	**446-005**	**446-021**			**353-001**
	6	**446-006**	**446-135**	**446-030**	**446-038**	**353-035**
	8	**446-007**	**446-022**		**446-039**	**353-002**
	10	**446-008**	**446-136**	**446-031**	**446-186**	**353-036**
	12	**446-105**	**446-023**		**446-040**	**353-003**
	15				**446-211**	
	16	**446-009**	**446-137**	**446-032**	**446-187**	**353-037**
	20	**446-107**	**446-138**		**446-188**	**353-038**
	25	**446-108**	**446-139**		**446-204**	**353-039**
	30	**446-109**	**446-140**			
M3.5 Pitch: 0.60 mm Tap Hole: 2.90 mm	5	**446-010**				
	6					
	8	**446-011**	**446-024**			
	10					
	12					
	15					
	18					
	20					

UNIT PACKAGE QUANTITIES *100 – up to 60 mm length (inclusive)* *50 – over 60 mm length*

Continued on following page.

B

NYLON

(Polyamid 6/6)
NATURAL COLOUR

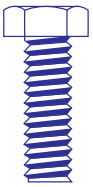
METRIC
Standard (Coarse) Thread

Head Style **CHEESE**

Head Style **PAN**

Head Style **OVAL**

Head Style **FLAT**


Head Style **HEXAGON**
Full or Partial Thread Our Option
Head Style **UNSLOTTED**

DIAMETER in mm	LGTH. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW				
M4 Pitch: 0.70 mm Tap Hole: 3.30 mm	5	**446-012**				
	6	**446-110**	**446-025**		**446-041**	**353-004**
	8	**446-013**	**446-141**		**446-189**	**353-040**
	10	**446-111**	**446-026**	**446-033**	**446-042**	**353-005**
	12	**446-014**	**446-142**		**446-190**	**353-041**
	15				**446-177**	
	16	**446-100**	**446-027**		**446-191**	**353-006**
	18	**446-015**				**353-087**
	20	**446-112**	**446-028**	**446-034**	**446-043**	**353-007**
	25	**446-016**	**446-143**	**446-035**	**446-192**	**353-042**
	30	**446-017**	**446-144**		**446-193**	**353-008**
	35		**446-145**	**446-036**	**446-044**	
	40	**446-018**	**446-146**		**446-194**	**353-009**
M5 Pitch: 0.80 mm Tap Hole: 4.20 mm ***446-213** Partial Thread	6	**446-113**	**446-147**			**353-043**
	8	**446-045**	**446-148**			**353-044**
	10	**446-046**	**446-068**		**446-088**	**353-045**
	12	**446-114**	**446-149**		**446-195**	**353-010**
	15				**446-175**	
	16	**446-047**	**446-102**	**446-079**	**446-089**	**353-046**
	20	**446-048**	**446-150**		**446-196**	**353-011**
	25	**446-049**	**446-069**	**446-080**	**446-090**	**353-047**
	30	**446-050**	**446-151**		**446-197**	**353-012**
	35		**446-070**			
	40	**446-051**	**446-152**		**446-198**	**353-048**
	50	**446-052**	***446-153**			**353-049**
M6 Pitch: 1.00 mm Tap Hole: 5.00 mm	6					**353-050**
	8	**446-115**	**446-154**		**446-199**	**353-052**
	10	**446-053**	**446-071**		**446-091**	**353-053**
	12	**446-054**	**446-155**			**353-054**
	15					
	16	**446-116**	**446-072**	**446-101**	**446-200**	**353-032**
	20	**446-055**	**446-157**		**446-092**	**353-055**
	25	**446-056**	**446-073**	**446-082**	**446-201**	**353-014**
	30	**446-117**	**446-158**		**446-202**	**353-056**
	35	**446-057**	**446-159**		**446-093**	**353-015**
	40	**446-118**	**446-160**	**446-083**	**446-203**	**353-057**
	45	**446-119**	**446-161**			
	50	**446-058**	**446-162**		**446-205**	**353-058**
	60	**446-120**	**446-163**		**446-094**	**353-059**
	65	**446-121**				
	70		**446-164**			
	80					**353-060**
	100	**446-123**				**353-061**

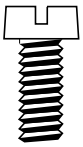
UNIT PACKAGE QUANTITIES *100 – up to 60 mm length (inclusive)* *50 – over 60 mm length*

CATALOG 13

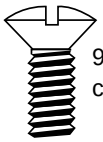
NYLON

(Polyamid 6/6)
NATURAL COLOUR

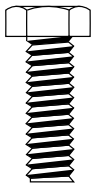
METRIC
Standard (Coarse)
Thread


Head Style
CHEESE

Head Style
PAN


90° ctsk.
Head Style
OVAL

90° ctsk.
Head Style
FLAT


Head Style
HEXAGON
Full or Partial Thread
Our Option
Head Style
UNSLOTTED

DIAMETER in mm	LGTH. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW				
M8 Pitch: 1.25 mm Tap Hole: 6.75 mm ■**446-212** Partial Thread	10	**446-124**	**446-165**			**353-062**
	16	**446-125**	**446-166**		**446-206**	**353-031**
	20	**446-060**	**446-074**		**446-095**	**353-016**
	25	**446-126**	**446-167**	**446-084**	**446-207**	**353-063**
	30	**446-061**	**446-168**		**446-096**	**353-017**
	35	**446-127**	**446-075**			**353-033**
	40	**446-128**	**446-169**	**446-085**	**446-097**	**353-018**
	50	**446-062**	**446-170**		**446-208**	**353-019**
	60	**446-063**	**446-171**		**446-209**	**353-064**
	70		■**446-172**		**446-210**	
	80	**446-064**	**446-173**			**353-066**
	100					**353-068**
	125					**353-069**
M10 Pitch: 1.50 mm Tap Hole: 8.50 mm ⋆**353-088** Slotted Head **For Larger Hex Cap Screw Sizes See Page B209.**	12					
	14					
	15	**446-129**				
	16					
	20	**446-130**	**446-174**			**353-071**
	25		**446-076**		**446-098**	**353-020**
	30	**446-065**	**446-176**	**446-086**		**353-072**
	35		**446-077**			**353-021**
	40		**446-178**			
	45	**446-066**	**446-078**			**353-022**
	50		**446-179**	**446-087**	**446-099**	**353-073**
	55					
	60	**446-067**	**446-180**			**353-023**
	70		**446-181**			**353-074**
	80					**353-075**
	125					
	150					⋆**353-077**

UNIT PACKAGE QUANTITIES ***100*** *– up to 60 mm length (inclusive)* ***50*** *– over 60 mm length*

STEEL

Priced Singly

Shipping Weight 4.76 kg (10-1/2 lbs.)

ASSORTMENT
ASSORTIMENT **805-483**

PAN (IFI 513)**, OVAL** (DIN 966)
AND FLAT (DIN 965) **Heads**

Low Carbon STEEL, Plated Finish

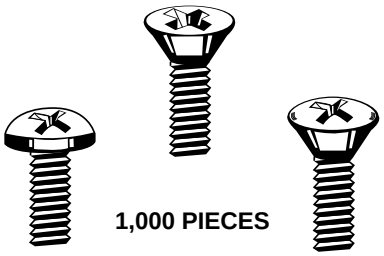
24 SIZES: M3 x 5 mm to M8 x 30 mm

Coarse Thread

(See Pages B65 and B66 for full line.)

Furnished in REGULAR SIZE grey enamelled steel drawer.

Phillips Drive **Metric**



1,000 PIECES

B

Nylon Metric Machine Screw Assortments

Drawer Size: 13-3/8" x 9-1/4" x 2"

Grey enamelled Steel Drawer, with “Scooped” bins. • Drawer fits Slide Racks shown on page A2.

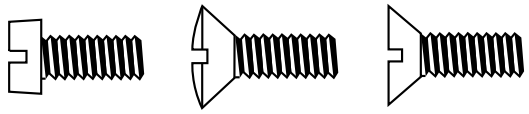
ASSORTMENT
ASSORTIMENT **805-431**

6/6 NYLON

NATURAL COLOUR

Metric Standard
Coarse Thread

Contains Cheese, Oval and Flat Slot Head Style Machine Screws as follows:



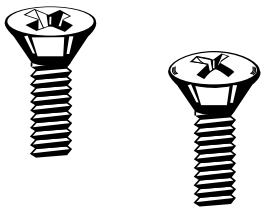
Sizes: M4 to M10 **M4 to M10** **M3 to M10**

24 SIZES – 188 PIECES

Priced Singly Shipping Weight 2.38 kg (5-1/4 lbs.)

Ideal for applications requiring light weight, chemical and temperature resistance, or dielectric and insulating properties.

Phillips Drive



1,500 PIECES

ASSORTMENT
ASSORTIMENT **805-486**

OVAL & FLAT Heads

NYLON (Polyamid 6/6) Natural Colour, Metric

24 SIZES: M2.5 x 4 mm to M8 x 30 mm

Coarse Thread

(See Page B68)

Priced Singly

Shipping Weight 2.38 kg (5-1/4 lbs.)

6/6 NYLON

NATURAL COLOUR

6/6 NYLON

NATURAL COLOUR

ASSORTMENT
ASSORTIMENT **805-487**

NYLON (Polyamid 6/6) Natural Colour, Metric

24 SIZES: M2 x 4 mm to M6 x 25 mm

Coarse Thread

(See Page B68)

Priced Singly

Shipping Weight 2.38 kg (5-1/4 lbs.)

Phillips Drive
Pan Head

1,500 PIECES

4.8 STEEL

PHILLIPS DRIVE

METRIC "REGULAR" (COARSE) THREAD
For Head Size Charts refer to Section R.

DIN 966

Phillips
OVAL HEAD
ZINC PLATED

Style	Lgth. mm	M2 Pitch 0.4	M2.5 Pitch 0.45	M3 Pitch 0.5	M3.5 Pitch 0.6	M4 Pitch 0.7	M5 Pitch 0.8	M6 Pitch 1.0	M8 Pitch 1.25	M10 Pitch 1.5
		ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
	4	**388-182**								
	5	**388-183**	**388-188**	**388-050**						
	6	**388-184**	**388-095**	**388-191**		**388-056**				
	8	**388-185**	**388-189**	**388-051**		**388-198**	**388-060**			
	10	**388-186**	**388-096**	**388-192**		**388-057**	***388-208**	**388-065**		
	12		**388-190**	**388-052**		**388-199**	**388-061**	**388-213**		
	16			**388-053**		**388-058**	**388-209**	**388-066**	**388-070**	
	18					**388-200**				
	20			**388-054**		**388-201**	**388-062**	**388-214**	**388-218**	
	22					†**388-344**				
	25			**388-055**		**388-059**	**388-113**	**388-067**	**388-219**	
	30			◆**388-193**		**388-203**	**388-063**	**388-215**	**388-071**	
	35			**388-194**		**388-204**	**388-210**	**388-068**	**388-220**	
	40			**388-195**		**388-205**	**388-064**	**388-216**	**388-221**	
	45			**388-196**		**388-206**	**388-211**	**388-069**	**388-222**	
	50			**388-197**		**388-207**	**388-212**	**388-217**	**388-223**	

Additional Finishes or Material Grades of DIN 966

***388-208YZ** 4.8 - Yellow Zinc Dicromate ◆**388-048** 5.8 - Zinc Plated †5.8 - Zinc Plated

DIN 965

Phillips
FLAT HEAD
ZINC PLATED

Style	Lgth. mm	M2 Pitch 0.4	M2.5 Pitch 0.45	M3 Pitch 0.5	M3.5 Pitch 0.6	M4 Pitch 0.7	M5 Pitch 0.8	M6 Pitch 1.0	M8 Pitch 1.25	M10 Pitch 1.5
		ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
	3									
	4	**388-129**		**388-140**						
	5	**388-130**	**388-137**	**388-073**						
	6	**388-131**	**388-072**	**388-141**	**388-101**	**388-078**				
	8	**388-132**	**388-138**	**388-074**	**388-148**	**388-226**	**388-082**			
	10	**388-133**	**388-097**	**388-142**	**388-102**	■**388-079**	**388-115**	**388-087**		
	12	**388-134**	**388-139**	**388-075**	**388-149**	**388-116**	**388-083**	**388-162**		
	16	**388-135**	**388-098**	**388-076**	**388-103**	**388-080**	**388-159**	**388-088**	**388-092**	
	18					**388-179**	**388-180**	**388-181**		
	20	**388-136**	**388-099**	**388-077**	**388-104**	**388-151**	**388-084**	**388-163**	**388-170**	
	25			**388-100**	**388-094**	•**388-081**	**388-114**	**388-089**	**388-171**	
	30			**388-143**	**388-150**	**388-152**	**388-085**	**388-164**	**388-093**	
	35			**388-144**		**388-153**	**388-160**	**388-090**	**388-172**	
	40			**388-145**		**388-225**	**388-086**	**388-165**	**388-173**	
	45			**388-146**		**388-154**	**388-161**	**388-091**	**388-174**	
	50			**388-147**		**388-155**	**388-105**	**388-166**	**388-175**	
	60					**388-156**	**388-106**	**388-167**	**388-176**	
	70					**388-157**	**388-107**	**388-168**	**388-177**	
	80					**388-158**	**388-108**	**388-169**	**388-178**	

■ **388-079YZ** 4.8 Yellow Zinc Dicromate •**388-041** Posidrive

UNIT PACKAGE QUANTITIES *100 – up to 50 mm length (inclusive)* *50 – over 50 mm length*

See page B63 for Assortment 805-483.

4.8 STEEL

PHILLIPS DRIVE

METRIC "REGULAR" (COARSE) THREAD

For Head Size Charts refer to Section R.

Style

DIN 7985

Phillips
RAISED CHEESE HEAD
ZINC PLATED

Lgth. mm	M2 Pitch 0.4	M2.5 Pitch 0.45	M3 Pitch 0.5	M3.5 Pitch 0.6	M4 Pitch 0.7	M5 Pitch 0.8	M6 Pitch 1.0	M8 Pitch 1.25	M10 Pitch 1.5
	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
3	388-230	388-238							
4	388-231	388-239	388-247						
5	388-232	388-240	†388-248		388-122				
6	388-233	388-038	388-119	388-260	388-123	388-278			
8	388-234	388-037	388-249	388-261	388-118	388-279	388-289		
10	388-235	388-241	388-250	388-262	388-124	388-280	388-290		
12	388-236	388-242	388-251	▲388-263	388-125	388-128	388-121	388-301	388-314
14			■388-044						
16	388-227	388-243	388-252	388-264	388-126	388-282	388-127	388-302	388-315
20	388-237	388-244	388-253	388-265	388-268	388-283	388-120	388-303	388-316
25		388-245	388-254	388-266	388-269	388-284	388-293	388-304	388-317
30		388-246	388-255	388-267	388-270	388-285	388-294	388-305	388-318
35			388-256		388-117	388-286	388-338	388-306	388-319
40			388-257		388-224	388-287	388-295	388-308	388-320
45			388-258		388-272	388-288	388-296	388-309	388-321
50			388-259		388-273	388-109	388-297	388-310	388-322
55					388-274				
60					388-275	388-110	388-298	388-311	388-323
70					388-276	388-111	388-299	388-312	
80					388-277	388-112	388-300	388-313	

Additional Finishes on Property Class 4.8 of DIN 7985.

Spaenaur No.	Size	Finish
388-243YZ	M2.5 x 0.45 x 16	Yellow Zinc
388-248YZ	M3 x 0.5 x 5	Yellow Zinc
388-119YZ	M3 x 0.5 x 6	Yellow Zinc
388-263YZ	M3.5 x 0.60 x 12	Yellow Zinc
388-124YZ	M4 x 0.70 x 10	Yellow Zinc
388-117YZ	M4 x 0.70 x 35	Yellow Zinc
388-127YZ	M6 x 1.0 x 16	Yellow Zinc
388-297YZ	M6 x 1.0 x 50	Yellow Zinc
388-280BO	M5 x 0.80 x 10	Black Oxide
388-285BO	M5 x 0.80 x 30	Black Oxide
388-290BO	M6 x 1.0 x 10	Black Oxide
388-308PH	M8 x 1.25 x 40	Phosph. & Oil

Drive Variation

Spaenaur No.	Size	Finish
388-040	Posidrive M3 x 15	Zinc Plated
†388-352	Posidrive	Zinc Plated
▲388-042YZ	Posidrive	Yellow Zinc
■388-044	Posidrive	Zinc Plated

Style

Conforming to IFI 513, 1982

Phillips
PAN HEAD
ZINC PLATED

Lgth. mm	M2 Pitch 0.4	M2.5 Pitch 0.45	M3 Pitch 0.5	M3.5 Pitch 0.6	M4 Pitch 0.7	M5 Pitch 0.8	M6 Pitch 1.0	M8 Pitch 1.25	M10 Pitch 1.5
	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
3									
4	388-001	388-007							
5	388-002		388-011	388-017					
6	388-003	388-008		388-018	388-022				
8			388-012						
10	388-004	388-009		388-019	388-023				
12	388-005		388-013						
16	388-006	388-010	388-014	388-020	388-024	*388-228	388-030	388-034	
20			388-015			388-027			
25			388-016	388-021			388-031		
30						388-028		388-035	
35							388-032		
40						388-029			
45							388-033		
50								388-036	
60						*Not to IFI Spec.			

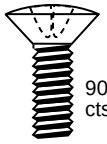
See page B63 for Assortment 805-483.

UNIT PACKAGE QUANTITIES *100 – up to 50 mm length (inclusive)* *50 – over 50 mm length*

STAINLESS STEEL A2

METRIC "REGULAR" (COARSE) THREAD
For DIN Head Size Chart refer to Section R.

DIN 966

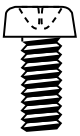


Phillips
OVAL HEAD

DIN 965

Phillips
FLAT HEAD

DIN 7985



Phillips
RAISED CHEESE HEAD

Lgth. in mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
	M2 Pitch 0.4	M2.5 Pitch 0.45	M3 Pitch 0.5	M3.5 Pitch 0.6	M4 Pitch 0.7	M5 Pitch 0.8	M6 Pitch 1.0	M8 Pitch 1.25	M10 Pitch 1.5
5									
6		425-001			425-006				
8			425-003			425-010			
10		425-002			425-007				
12			425-004			425-011			
16			425-005		425-008		425-014		
20						425-012			
25					425-009		425-015		
30						425-013			
3	425-064								
4	425-065	425-072	425-078						
5	425-066	425-073	425-079						
6	425-067	425-016	425-080		425-021				
8	425-068	425-074	425-018		425-084	425-025			
10	425-069	425-017	425-081		425-022	425-088	425-092		
12	425-070	425-075	425-019		425-085	425-026	425-093		
16	425-071	425-076	425-020		425-023	425-089	425-029		
20		425-077	425-082		425-086	425-027	425-094		
25			425-083		425-024	425-090	425-030		
30			425-099		425-087	425-028	425-095		
35						425-100	425-096		
40						425-091	425-097		
3	425-101								
4	425-031	425-035	■425-109						
5	425-032	425-106	425-041		425-115				
6	425-102	425-036	425-042		425-047	425-052			
8	425-033	425-037	425-043		425-048	425-053	425-125		
10	425-034	425-038	425-044		425-049	425-054	425-058		
12	425-103	425-039	*425-045		425-050	425-055	425-059		
16	425-104	425-040	▲425-046		425-051	▼425-056	425-060		
20	425-105	425-107	†425-110		425-116	425-057	425-061		
25		425-108	425-111		425-117	425-121	425-126		
30			425-112		425-118	425-122	425-127		
35			425-113		425-119	425-123	425-128		
40			425-114		425-120	425-124	425-129		

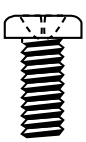
A4 S.S.
*425-062
▲425-063
■425-135
†425-136
▼425-137

BRASS

Unplated

METRIC "REGULAR" (COARSE) THREAD
(Conforming to IFI 513, 1982)

For IFI Head Size Chart refer to Section R.



Phillips
PAN HEAD

Lgth. in mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
	M2 Pitch 0.4	M2.5 Pitch 0.45	M3 Pitch 0.5	M3.5 Pitch 0.6	M4 Pitch 0.7	M5 Pitch 0.8	M6 Pitch 1.0	M8 Pitch 1.25	M10 Pitch 1.5
4	407-001	407-007							
5	407-002		407-011						
6	407-003	407-008							
8			407-012						
10	407-004	407-009							
12	407-005		407-013						
16	407-006	407-010	407-014						
20			407-015						
25			407-016						

All items on this page
Unit Package 100.

B

PHILLIPS DRIVE

NYLON

(Polyamid 6/6)

NATURAL COLOUR

METRIC "REGULAR" (COARSE) THREAD

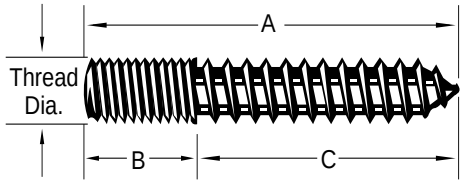
UNIT PACKAGE 100

Available diameters & lengths (in millimetres) - listed by *SPAENAUR* numbers.

Style	Lgth. mm	M2 Pitch 0.4	M2.5 Pitch 0.45	M3 Pitch 0.5	M3.5 Pitch 0.6	M4 Pitch 0.7	M5 Pitch 0.8	M6 Pitch 1.0	M8 Pitch 1.25	M10 Pitch 1.5
90° ctsk. *Phillips* OVAL HEAD	4		450-001							
	5			450-007	450-013					
	6		450-002		450-014	450-019				
	8			450-008			450-023			
	10		450-003		450-015	450-020		450-028		
	12			450-009			450-024			
	16		450-004	450-010	450-016	450-021		450-029	450-033	
	20		450-005	450-011			450-025			450-036
	25		450-006	450-012	450-017	450-022		450-030		
	30						450-026		450-034	
	35				450-018			450-031		450-037
	40						450-027			
	45							450-032		
	50								450-035	
	60									
90° ctsk. *Phillips* FLAT HEAD	3									
	4		450-038							
	5			450-044	450-050					
	6		450-039		450-051	450-056				
	8			450-045			450-060			
	10		450-040		450-052	450-057		450-065		
	12			450-046			450-061			
	16		450-041	450-047	450-053	450-058		450-066	450-070	
	20		450-042	450-048			450-062			450-073
	25		450-043	450-049	450-054	450-059		450-067		
	30						450-063		450-071	
	35				450-055			450-068		450-074
	40						450-064			
	45							450-069		
	50								450-072	
	60									
Phillips PAN HEAD	3									
	4	450-075	450-081							
	5	450-076		450-087	450-093					
	6	450-077	450-082		450-094	450-098				
	8			450-088			450-102			
	10	450-078	450-083		450-095	450-099		450-107		
	12	450-079		450-089			450-103			
	16	450-080	450-084	450-090	450-096	450-100		450-108	450-112	
	20		450-085	450-091			450-104			450-115
	25		450-086	450-092	450-097	450-101		450-109		
	30						450-105		450-113	
	35							450-110		450-116
	40						450-106			
	45							450-111		
	50								450-114	
	60									

STEEL

Nut end coarse thread
Class 2A
American Standard



For use with pre-drilled holes.

HANGER BOLTS

(TABLE BOLTS)

Fittings for the furniture industry
Raccords pour l'Industrie des meubles

Some Hanger Bolts have an unthreaded centre shoulder.

INCH

SPAENAUR No.	U.N.C. THREAD Dia.	A O/A Lgth. "Inch"	(Approx. Dimensions) B "Inch"	C "Inch"	Unit Pkg. Qty.
034-011	8-32	1	3/8	5/8	100
034-010		1-1/2	5/8	7/8	100
034-005	10-24	1-1/2	5/8	7/8	100
034-006		1-3/4	3/4	1	100
034-007		2	1	1	100
034-008		2-1/2	1	1-1/2	100
034-009		3	1-1/2	1-1/2	100
034-001	1/4"-20	1-1/2	3/4	3/4	100
034-002		2	1	1	100
HB-2		2-1/2	7/8	1-5/8	100
HB-3		3	1-3/8	1-5/8	100
HB-5	5/16"-18	1-3/4	3/4	1	100
HB-6		2	1	1	100
HB-7		2-1/2	1-1/4	1-1/4	100
HB-8		3	1-1/2	1-1/2	100
HB-9		3-1/2	1-3/4	1-3/4	50
HB-10		4	1-1/8	2	50
034-003		5	2-1/4	2-3/4	50
034-004	3/8"-16	2	1	1	100
HB-11		2-1/2	1-1/4	1-1/4	100
HB-12		3	1	1-1/2	100
HB-13		3-1/2	7/8	1-7/8	50
HB-14		4	1	2	50
HB-15		4-1/2	1-1/2	3	50

18-8 STAINLESS STEEL

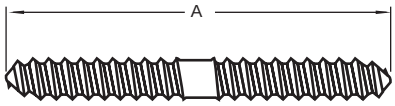
034-800	1/4"-20	2	1	1	100
034-801		2-1/2	1	1-1/2	100
034-802		3	1-1/2	1-1/2	100
034-803		3-1/2	1-1/2	2	50
034-804		4	2	2	50
034-805	5/16"-18	2	1	1	100
034-806		2-1/2	1	1-1/2	100
034-807		3	1-1/2	1-1/2	50
034-808		3-1/2	1-1/2	2	50
034-809		4	2	2	50
034-810	3/8"-16	3	1-1/2	1-1/2	50
034-811		3-1/2	1-1/2	2	25
034-812		4	2	2	25

METRIC

SPAENAUR No.	THREAD Dia.	A O/A Lgth. mm	(Approx. Dimensions) B mm	C mm	Unit Pkg. Qty.
035-001	M6 x 1.00	30	8	16	100
035-002		35	11	24	100
035-003		40	15	25	100
035-004		50	25	25	100
035-006	M8 x 1.25	40	12	28	100
035-007		50	20	30	100
035-008		60	25	35	100
035-009		70	35	35	100
035-010		80	30	50	100
035-011	M10 x 1.50	50	20	30	100
035-012		60	25	35	100
035-013		70	20	50	100
035-014		80	30	50	100

STEEL

Plain Finish



DOWEL SCREWS – for wood

Right-hand Thread (both ends)

For use with pre-drilled holes.

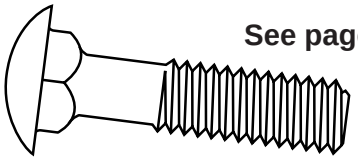
SPAENAUR No.	Diameter	A O/A Lgth.	Unit Pkg. Quantity
034-100	3/16"	1-1/2"	100
034-101		2"	100
034-102		2-1/2"	100
034-103	1/4"	2"	100
***034-109**		2"	100
034-104		2-1/2"	100
034-105	5/16"	2-1/2"	100
034-106		3"	100
034-107		3-1/2"	100
034-108		4"	50

* Zinc Plated

HEX HEAD LAG SCREW

See page B307.

ROUND HEAD CARRIAGE BOLTS



See pages B308 to B312.

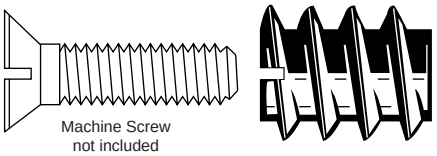
B

THREADED STEEL INSERTS (FOR WOOD)

Plain Finish

(▲Zinc Plated)

Outside: Wood thread
Inside: Machine screw thread



Machine Screw not included

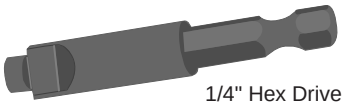
UNIT PACKAGE 100

Power Drive Tool

Plain Steel

876-805 will fit 1/4" (M6) Inside thread dia.
876-806 will fit 5/16" (M8) Inside thread dia.
876-808 will fit 3/8" (M10) Inside thread dia.

Unit Pkg. Qty. 1



1/4" Hex Drive

Inch Sizes

SPAENAUR No.	INSIDE THREAD	O/A DIA.	O/A LENGTH
WS-1000	1/4"-20	12 mm (15/32")	10 mm (25/64")
WS-1001	1/4"-20		12 mm (15/32")
WS-1002	1/4"-20		15 mm (19/32")
WS-1003	5/16"-18	14 mm (35/64")	15 mm (19/32")
WS-1004	5/16"-18		18 mm (45/64")
625-013	3/8"-16	18.5 mm (23/32")	18 mm (45/64")
WS-1008	3/8"-16		25 mm (29/32")

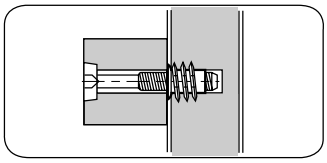
Metric Sizes (mm)

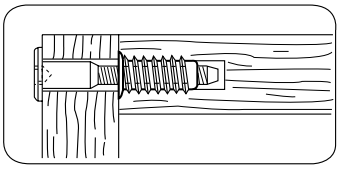
SPAENAUR No.	INSIDE THREAD	O/A DIAMETER	O/A LENGTH
625-050	M6 x 1.00	12 mm (15/32")	10 mm (25/64")
▲625-051			12 mm (15/32")
625-052			15 mm (19/32")
▲625-052ZP			15 mm (19/32")
625-053	M8 x 1.25	14 mm (35/64")	15 mm (19/32")
▲625-054ZP			18 mm (45/64")
625-055	M10 x 1.50	18 mm (45/64")	15 mm (19/32")
625-056			18 mm (45/64")

HEX DRIVE KNIFE THREAD INSERTS - (FOR WOOD)

Zinc Alloy Die Cast, Zinc Plated

Flanged

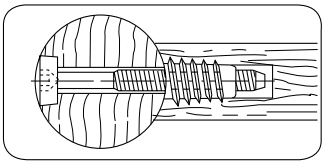




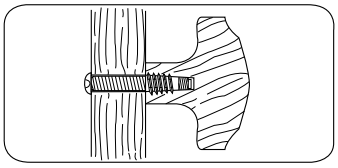
Application for Flanged Insert

This design can be used to bottom in hole, to be set below surface or on curved surfaces, or to join two components. The head allows user to control depth and to set the insert straight in the material.

Flush



Application for Flush Insert



The unique tapered external thread design with memory grooves assures positive locking resistance against pull out due to torsion or vibration. High retention values in blind, end and edge grain applications.

(Approximate Inch Measurement)

SPAENAUR No.	Inside Thread	Head Style	Length	Hole Size	Hex Dimensions	Drive Tool *SPAENAUR No.*
625-001	8-32	Flanged	11 mm (7/16")	6 mm (15/64")	4 mm (5/32")	**876-828**
625-002	1/4"-20	Flanged	13 mm (1/2")	9 mm (23/64")	6 mm (15/64")	**876-829**
625-004	1/4"-20	Flush	13 mm (1/2")	9 mm (23/64")	6 mm (15/64")	**876-829**
625-003	1/4"-20	Flanged	20 mm (3/4")	9 mm (23/64")	6 mm (15/64")	**876-829**
625-005	1/4"-20	Flush	20 mm (3/4")	9 mm (23/64")	6 mm (15/64")	**876-829**
625-006	1/4"-20	Flanged	25 mm (1")	9 mm (23/64")	6 mm (15/64")	**876-829**

Inserts - Unit Package Quantity 100

1/4" Hex Drive

Drive Tool

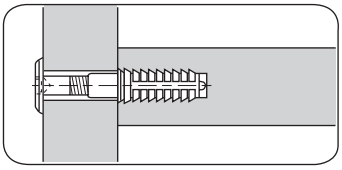
Unit Package Qty. 1

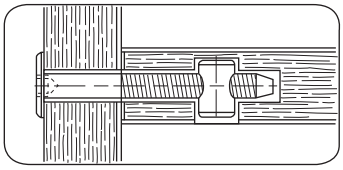
CATALOG 13

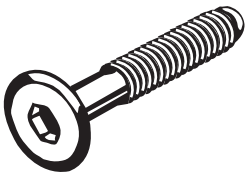
JOINT CONNECTOR BOLT

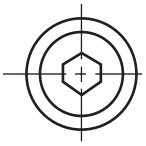
STEEL - Bronze Plated

Decorative Head





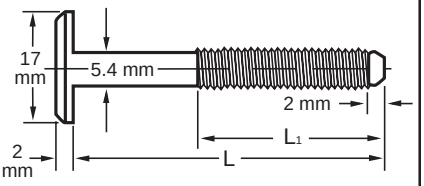




Hex Drive
M4

Low profile, high quality, decorative head bolt designed to connect components at right angles or parallel.

SPAENAUR No.	Thread Size	L	L1	Unit Pkg. Qty.
191-450	1/4"-20	1.969" (50 mm)	1.181" (30 mm)	50
191-451	1/4"-20	2.362" (60 mm)	1.575" (40 mm)	50
191-452	1/4"-20	2.756" (70 mm)	1.575" (40 mm)	50

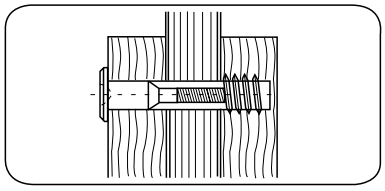


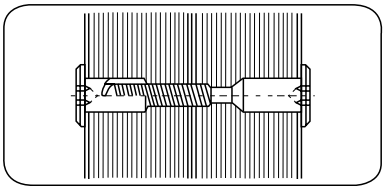
JOINT CONNECTOR BOLT

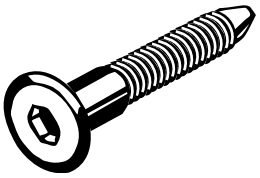
STEEL - Bronze Plated

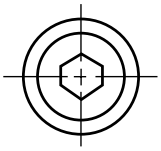
(*Black Oxide)

Decorative Head with Shoulder



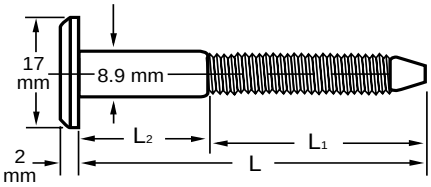






Hex Drive
M5

Low profile, high quality, decorative head bolt designed to connect components at right angles or parallel. Shoulder is the same diameter as the joint connector nut to allow through hole connection.



SPAENAUR No.	Thread Size	L	L1	L2	Unit Pkg. Qty.
***191-456**	1/4"-20	1.575" (40 mm)	Full Thread	.394" (10 mm)	50
191-453	1/4"-20	1.969" (50 mm)	Full Thread	.709" (18 mm)	50
191-454	1/4"-20	2.362" (60 mm)	1.378 (35 mm)	.709" (18 mm)	50
191-455	1/4"-20	2.756" (70 mm)	1.378" (35 mm)	.709" (18 mm)	50

See page B72 for Joint Connector Nuts.

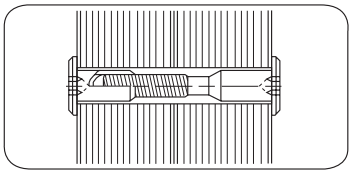
Many other styles, sizes and lengths available special to order. We welcome your inquiry.

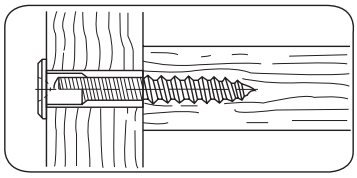
B

JOINT CONNECTOR NUT

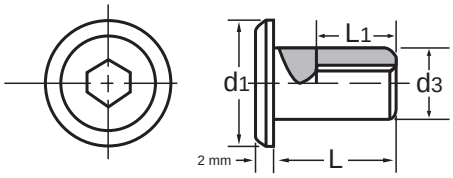
STEEL - Bronze Plated

Decorative Nut



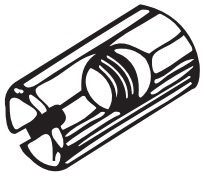


Low Profile, high quality, decorative, cold headed, steel cap. Matches finish and dimensions for use with Joint Connector Bolt.

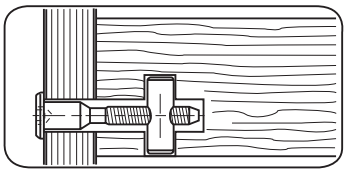


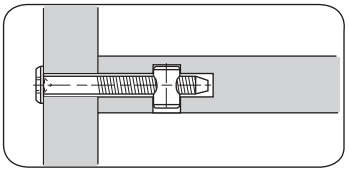
SPAENAUR No.	Thread Size	L	L1	d1	d3	Hex Drive	Unit Pkg. Qty.
191-400	1/4"-20	.472" (12 mm)	.315" (8 mm)	.669" (17 mm)	.350" (9 mm)	5 mm	100
191-401	1/4"-20	.669" (17 mm)	.512" (13 mm)	.669" (17 mm)	.350" (9 mm)	5 mm	100

Cross Dowel JOINT CONNECTOR NUT



STEEL - Plain Finish

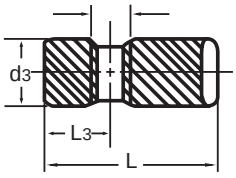




Slotted Drive

Cross Dowel is made of steel for strength. High torque values provide secure joint at right angle connection with bolt. A slot in outer surface eases alignment with the bolt. Dowel and bolt ideal for connections requiring high strength values.

Thread Size



SPAENAUR No.	Thread Size	L	L3	d3	Unit Pkg. Qty.
226-102	1/4"-20	.630" (16 mm)	.236" (6 mm)	.393" (10 mm)	100
226-103	1/4"-20	.787" (20 mm)	.394" (10 mm)	.393" (10 mm)	100
226-100	5/16"-18	.787" (20 mm)	.394" (10 mm)	.472" (12 mm)	100
226-101	5/16"-18	1.181" (30 mm)	.591" (15 mm)	.472" (12 mm)	100

N-100 SWIVEL NUT

5/8"-18 UNF

1-1/8" O.D. x 1-5/16" long

P.C. 226 *Unit Package 25*

See page B71 for Joint Connector Bolts.

Also see T-Nuts page C63-C66.

SPAENAUR

HEAD OFFICE & DISTRIBUTION CENTRE:

815 Victoria Street North, P.O. Box 544
Kitchener, Ontario, Canada N2G 4B1
Telephone **(519) 744-3521** Toll-Free **1-800-265-8772**
Fax **(519) 744-0818**

B

No More Shimming!

The adjustable screw and its ease of use.

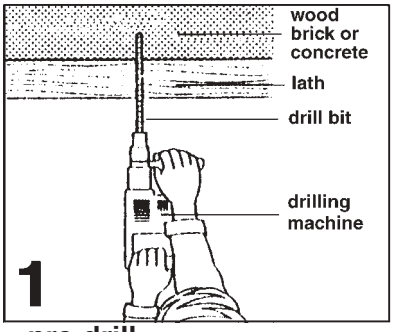
TOP STAR FASTENING SYSTEM

Easy Installation of:

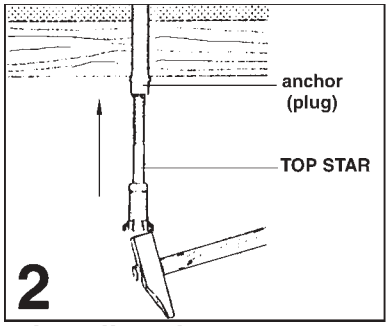
- **WINDOW AND DOOR FRAMES**
- **INSULATION AND PANELLING**
- **BUILT IN WALL UNITS/CABINETS**

This product is perfectly suited to meet professional as well as do-it-yourself needs.
Fine adjustments are possible since TOP STAR may be shifted in both directions.
TOP STAR reduces pre-work to a minimum and the job can be done easily by one person.

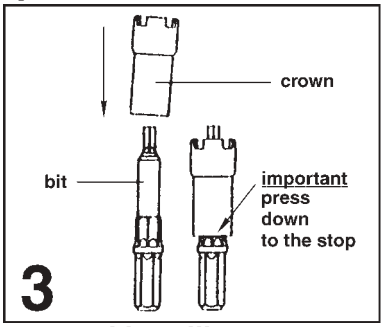
TOP STAR Easy Installation Tips:



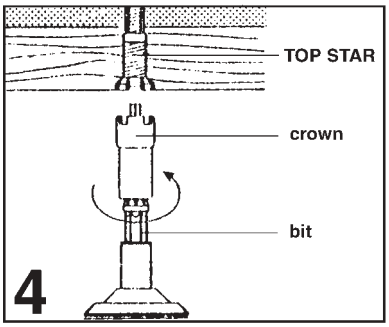
pre-drill



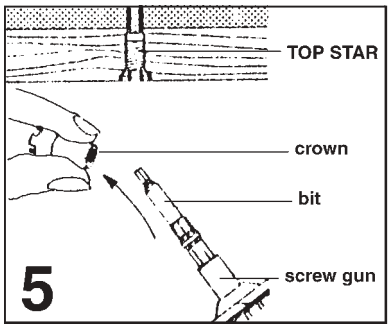
install anchor



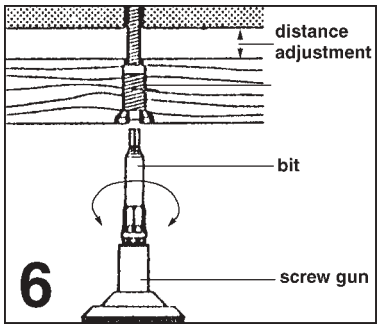
tool handling



install TOP STAR



remove crown



adjust for perfect fit

TOP STAR ADJUSTABLE DISTANCE SCREW

STEEL
Zinc-Plated
and lubricated,
with T-Star recess drive.

SPAENAUR No.	Dimensions U.S. Standard	Dimensions Metric	Unit Pkg. Qty.
038-200	1/4 x 3/8 x 2-1/2"	6.0 x 60	100
038-203	1/4 x 3/8 x 4-3/4"	6.0 x 120	50

Each Unit Package contains complete Fastening System - Adjusting Screws with insertion tool.

Replacement Parts for Insertion Tool

876-1565
Crown only

876-1566
Bit only

Priced Singly

CATALOG 13

Wood Screws - Slot Drive

Vis à bois à tête fendue

Inch

Pouces

Unit Package: 100 (All sizes)

Made to ASME/ANSI B18.6.1

Numbers with an asterisk (*) are not to ANSI specs, and Flat and Oval head have 90° countersunk.

Inch Sizes		STEEL			BRASS		
DIA.	**L.**	**FLAT** ZINC PLATED	**ROUND** ZINC PLATED	**OVAL** ZINC PLATED	**FLAT** PLAIN FINISH	**ROUND** PLAIN FINISH	**OVAL** NICKEL PLATED
1	1/2					**WS-668**	
2	3/8				**576-011***	**576-057**	
	1/2	**577-221**	**WS-189**		**WS-635**	**576-010**	
	5/8				**576-012***		
	3/4			**WS-71**	**576-009**		
3	3/8		**WS-199**		**WS-524**		
	1/2	**B-394**	**WS-31**	**B-346**	**576-013***	**WS-536**	
	5/8				**576-014***		
	3/4				**576-015***		
	1				**WS-671**		
4	3/8	**577-223**				**WS-637**	**WS-641**
	1/2	**WS-22**			**WS-525**	**WS-531**	**WS-502**
	5/8	**WS-23**				**WS-670**	**▲972-S**
	3/4	**WS-24**			**WS-636**	**WS-663**	
	1	**WS-25**			**576-008**	**WS-664**	
	1-1/4					**576-058**	
5	3/8			**577-224**	**576-016***		
	1/2				**576-017***	**576-059**	
	5/8			**WS-122**	**576-018***		**975-S**
	3/4	**WS-188**			**576-019***		
	7/8				**576-020***		
	1			**WS-114**	**576-021***		**977-S**
	1-1/4				**576-022***		
6	1/2	**WS-26**	**WS-101**		**WS-660**	**WS-638**	**WS-503**
	5/8	**WS-27**	**WS-78**		**576-023***	**576-005**	**980-S**
	3/4	**WS-28**	**WS-110**		**WS-661**	**WS-658**	**981-S**
	7/8				**576-024***	**WS-653**	
	1	**WS-4**	**WS-175**		**WS-662**	**WS-654**	**983-S**
	1-1/4	**WS-112**	**577-217**		**WS-626**	**WS-665**	**984-S**
	1-1/2	**WS-5**	**WS-9**		**WS-656**	**WS-666**	**985-S**
	1-3/4	**WS-82**					
	2		**WS-99**		**WS-672**		
7	3/4	**WS-13**				**WS-506**	
	1					**WS-507**	
8	1/2	**WS-184**	**WS-111**		**WS-643**		
	5/8				**576-025***		
	3/4	**942**	**WS-177**	**577-226**	**WS-500**	**WS-639**	**987-S**
	7/8	**943**			**WS-508**		
	1	**944**	**WS-109**		**WS-501**	**WS-659**	**989-S**
	1-1/4	**945**	**WS-185**	**WS-107**	**WS-509**		**990-S**
	1-1/2	**WS-29**	**WS-33**		**WS-624**	**WS-532**	**991-S**
	1-3/4	**WS-137**	**577-218**		**WS-526**	**WS-674**	
	2	**577-227**	**577-219**		**576-026***	**576-054***	
	2-1/2	**WS-3**			**576-027***	**576-001**	
	3				**576-028***		
	3-1/2	**577-228**					

▲576-064 Plain Finish

Made to ASME/ANSI B18.6.1 *No's. with asterisk (*) are not to ANSI specs, and Flat and Oval head have 90° countersunk.*

Inch Sizes (Continued)		STEEL			BRASS		
DIA.	**L.**	**FLAT** ZINC PLATED	**ROUND** ZINC PLATED	**OVAL** ZINC PLATED	**FLAT** PLAIN FINISH	**ROUND** PLAIN FINISH	**OVAL** NICKEL PLATED
9	3/4	**WS-88**			**576-029***		
	7/8				**576-030***		
	1	**WS-113**		**WS-7**	**576-031***		
	1-1/4	**WS-89**			**576-032***	**WS-675**	
	1-1/2	**WS-90**			**576-033***		
	1-3/4				**576-034***		
	2	**577-222**			**WS-527**		
10	3/4	**947**	**WS-186**	**577-225**	**576-035***	**576-004**	**WS-505**
	7/8				**576-036***		
	1	**948**	**WS-108**		**WS-629**	**576-055***	**993-S**
	1-1/4	**949**	**WS-10**		**576-037***	**576-056***	**994-S**
	1-1/2	**950**	**WS-174**		**WS-534**		**995-S**
	1-3/4	**951**			**WS-535**		
	2	**952**	**WS-187**		**576-038***		**WS-673**
	2-1/4	**WS-118**		**WS-149**			
	2-1/2	**WS-119**	**WS-105**	**WS-148**	**576-039***		
	2-3/4	**WS-21**					
	3	**WS-115**			**576-040***		
	3-1/2	**WS-138**			**576-041***		
	4				**576-042***		
12	5/8	**WS-15**			**WS-513**		
	3/4				**WS-513A**		
	7/8				**576-043***		
	1	**953-S**	**WS-147**		**576-044***	**576-061**	
	1-1/4	**954**			**576-045***		
	1-1/2	**955**	**WS-106**		**576-046***	**WS-640**	**▲997-S**
	1-3/4	**956**			**576-047***		
	2	**957**	**577-220**		**WS-642**	**576-062**	
	2-1/4				**576-063**	**WS-649**	
	2-1/2	**958**	**WS-183**		**WS-514**		
	3	**WS-16**	**WS-182**		**WS-529**		
	3-1/2				**576-048***		
	4				**576-049***		
14	3/4				**576-050***		
	1				**576-051***		
	1-1/4	**960**	**WS-97**		**WS-554**	**WS-651**	
	1-1/2	**961**	**WS-11**	**WS-8**	**576-052***		
	1-3/4	**WS-92**			**WS-633**		
	2	**WS-18**	**WS-6**		**576-006**		
	2-1/4		**1402**				
	2-1/2	**WS-32TF** (TF = Twin Fast Twin Thread)			**576-007**		
	3				**576-002**		
	3-1/2				**576-003**	**576-060**	
	4				**576-053***		
16	1-3/4						
	2-1/4		**1307**				
	2-1/2						
20 (5/16")	1-1/2		**WS-100**				
	2						

▲576-065 Plain Finish

B

SLOT DRIVE

Made to ASME/ANSI B18.6.1
Unit Package 100 (All Sizes)

ALUMINUM

Inch Sizes
SLOT DRIVE

DIAMETER	L.	FLAT	ROUND
4	1/2	575-017	575-018
	5/8		
	3/4	575-014	
6	1/2		575-019
	5/8	(Socket Drive)	591-004
	3/4		575-020
	1	575-015	575-021
	1-1/4	575-016	
	2-1/2		
8	1/2		
	3/4	575-022	575-006
	1	575-023	575-024
	1-1/4	575-025	575-007
	1-1/2	575-026	
	2		
	2-1/2		
10	3/4	575-027	575-028
	1	575-029	575-030
	1-1/4	575-011	
	1-1/2		575-031
	1-3/4		
	2		
	2-1/4		
	2-1/2		
	3		
12	3/4		
	1		
	1-1/4		
	1-1/2		
	1-3/4		
	2		
	2-1/4		
	2-1/2		
	3		
14	3/4		
	1		
	1-1/4		
	1-1/2		
	1-3/4		
	2		
	2-1/4		
	2-1/2		
	3		

TYPE 18-8

STAINLESS STEEL

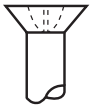
Inch Sizes
SLOT DRIVE

DIAMETER	L.	FLAT	ROUND
4	1/2	578-010	578-011
	3/4		
	1		
6	1/2		578-012
	3/4	578-006	578-013
	1		578-014
8	1/2	578-030	578-015
	3/4	578-016	
	1	578-017	578-008
	1-1/4	578-002	
	1-1/2	578-018	
	2	578-000	
	2-1/2		
10	3/4	578-019	578-020
	1		578-021
	1-1/4	578-005	
	1-1/2	578-009	578-022
	1-3/4		578-023
	2		578-024
	2-1/4		
	2-1/2		578-025
	3		
12	3/4		
	1	578-026	
	1-1/4		578-027
	1-1/2	578-028	578-029
	1-3/4		
	2	578-003	578-007
	2-1/4		
	2-1/2		
	3		
14	3/4		
	1		
	1-1/4		
	1-1/2		
	1-3/4		
	2		
	2-1/4		
	2-1/2		
	3		

CATALOG 13

Unit Package: 100 (All sizes)

Made to ASME/ANSI B18.6.1

Inch Sizes		STEEL			BRASS		
							
DIA.	**L.**	**FLAT** ZINC PLATED	**ROUND** ZINC PLATED	**OVAL** NICKEL PLATED	**FLAT** PLAIN FINISH	**ROUND** PLAIN FINISH	**OVAL** PLAIN FINISH
3	1/2			**B-388**			
4	1/4				**WS-647P**		
	3/8				**584-001**	**584-014**	
	1/2	**B-349**			**584-002**	**584-015**	
	3/4	**B-350**			**584-003**	**584-016**	
	1	**B-391**					
5	1/2						
6	1/2	**B-351**			**WS-516P**	**584-017**	
	5/8		**WS-1**		**WS-631P**	**584-018**	
	3/4	**585-004**	**585-014**	**▲585-010**	**584-004**	**584-019**	
	1	**B-353**	**585-015**				
	1-1/4				**584-033**		
7	1						
8	1/2	**B-354**			**584-005**	**584-020**	
	3/4	**B-355**	**585-003** (Brass Plated)		**WS-632P**	**584-021**	
	1	**B-356**	**585-016**	**585-011**	**WS-630P**	**WS-533P** (Round Washer Head)	
	1-1/8			**WS-19P**			
	1-1/4	**WS-191**	**585-017**		**WS-517P**	**584-022**	
	1-1/2	**B-357**	**WS-196**		**WS-518P**	**584-023**	
	1-3/4	**WS-192**			**WS-519P**		
	2	**WS-195**	**WS-194**				
	3	**WS-193**					
9	2						
10	3/4				**584-031**		
	1	**WS-34**		**585-012**	**584-006**	**584-024**	
	1		**585-018**				
	1-1/4	**WS-72**		**▲585-013**	**584-007**		
	1-1/4	***WS-38TF**					
	1-1/2	***WS-74TF**	**585-019**		**584-008**		
	1-3/4	**WS-75**			**584-009**		
	1-3/4	***WS-39TF**					
	2	**WS-76**			**584-010**		
	3	**585-020**					
12	1				**584-032**		
	1-1/2	**WS-35**			**584-011**	**584-029**	
	1-3/4				**584-012**	**WS-644P**	
	2	**585-002**			**584-013**	**584-030**	
	3	**585-005**					
	3-1/2	**585-006**					
14	1-1/2	**585-007**					
	1-3/4	**585-008**				**WS-645P**	
	2	**585-009**					
		*TF = Twin Fast Twin Thread		▲ Zinc Plated			

Wood Screws - Square Socket Drive

Vis à bois à prise carrée

Inch

Pouces

Unit Package: 100 (All sizes)

Inch Sizes		STEEL			BRASS		
		ZINC PLATED			PLAIN FINISH		
DIA.	L.	FLAT	† ROUND	OVAL	FLAT	† ROUND	OVAL
3	1/2						
4	1/4						
	3/8	WS-51					
	1/2	WS-52	WS-200		WS-555	WS-569	*WS-602
	5/8						
	3/4	WS-53	WS-178		WS-556	WS-570	
	1	WS-201					
5	1/2	WS-54			WS-557		
	3/4	WS-55	WS-134		WS-558		WS-605
	1	WS-202					
6	3/8		WS-142				
	1/2		WS-120		WS-537	WS-573	WS-606
	5/8	WS-180	WS-2		WS-559		WS-607
	3/4	WS-56	WS-132		WS-538	WS-575	WS-608
	1	WS-57	WS-133	WS-207	WS-539	592-003	WS-609
	1-1/4	WS-58	WS-151		WS-560	WS-577	
	1-1/2	593-005	WS-123		WS-646		
	1-3/4	593-006					
	2	WS-94					
7	1/2	WS-140	WS-77				
	3/4	WS-59	WS-152				
	7/8		WS-153				
	1	WS-60	WS-143				
	1-1/4	WS-61	WS-154		WS-561		
	1-1/2	WS-203					
8	5/8	WS-62	WS-124			WS-582	
	3/4	WS-63	WS-155		WS-543	WS-583	WS-614
	3/4	593-002 (No. 6 Head)					
	7/8	WS-64	WS-125		WS-544		WS-615
	1	WS-20	WS-150		WS-545	WS-585	WS-616
	1-1/8						
	1-1/4	WS-65	WS-126		WS-546	WS-586	WS-617
	1-1/2	WS-66	WS-156	WS-84	WS-547	592-002	WS-618
	1-3/4	WS-179	WS-127		WS-652		
	2	WS-80	WS-157		WS-627		
	2-1/2	WS-81	WS-158			592-001	
9	3/4	WS-204					
	7/8						
	1	WS-87			WS-562		
	1-1/4	WS-68			WS-563		
10	3/4	WS-69	WS-128		WS-564	WS-590	
	7/8	WS-146	WS-144				
Cont'd.	† Slight Flattening of Head Crown may occur due to formation of square socket recess.						

*Chrome Plated

Unit Package: 100 (All sizes)

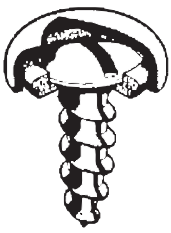
Inch Sizes		STEEL			BRASS		
		ZINC PLATED			PLAIN FINISH		
DIA.	**L.**	**FLAT**	**† ROUND**	**OVAL**	**FLAT**	**† ROUND**	**OVAL**
Cont'd	1	**WS-40**	**WS-129**		**WS-548**	**WS-591**	**WS-619**
	1-1/4	**WS-41**	**WS-159**		**WS-549**		
	1-1/2	**WS-42**	**WS-130**		**WS-550**	**WS-593**	**WS-621**
	1-3/4	**WS-43**	**WS-160**		**WS-565**		
10	2	**WS-44**	**WS-131**		**WS-566**		
	2-1/4	**WS-95**	**WS-161**	**WS-103**			
	2-1/2	**WS-136**	**WS-145**	**WS-104**			
	3	**WS-96**	**WS-162**	**WS-173**			
	3-1/2	**WS-139**					
	1	**WS-141**					
	1-1/4	**WS-45**	**WS-163**				
	1-1/2	**WS-46**	**WS-164**		**WS-552**		
	1-3/4	**WS-47**	**WS-165**		**WS-567**		
12	2	**WS-48**	**WS-166**		**WS-553**		
	2-1/4	**WS-49**	**WS-167**				
	2-1/2	**WS-50**	**WS-168**		**592-004**		
	3						
	3-1/2	**WS-102**					
	4						
	1-1/4	**593-004**					
	1-1/2		**WS-170**				
	1-3/4	**WS-91**	**WS-171**				
	2	**WS-70**	**WS-172**				
14	2-1/4						
	2-1/2	**WS-176**					
	3						
	3-1/2	**WS-181**					
	4	**593-003**					P.C. 592
P.C. 593	† Slight Flattening of Head Crown may occur due to formation of square socket recess.						

SPAENAUR

Square Socket Drive

STEEL and BRASS WOOD SCREW ASSORTMENTS

are shown on page B80.



See page J46 for...

Snapcaps

Decorative Plastic Caps

Made in colours, to match leather, vinyl, wood, and metals.

ASSORTMENT / ASSORTIMENT 805-661

STEEL Wood Screws

Zinc Plated

24 Sizes — 1150 Pieces

SQUARE SOCKET DRIVE

Furnished in Large Size grey enamel drawer with scooped bins for easy access.

Drawers will fit into Slide Racks shown on page A3.

Priced Singly

Shipping Weight: 7.71 kg (17 lbs)

Contents of Assortment

DIA. x LGTH.	HEAD	ASS'T QTY.
6 x 3/8"	Round	50
6 x 3/4"	Flat	50
6 x 1"	Flat	50
6 x 1-1/2"	Flat	50
6 x 2"	Flat	50
8 x 3/4"	Flat	50
8 x 1"	Flat	50
8 x 1-1/4"	Round	50
8 x 1-1/4"	Flat	50
8 x 1-1/2"	Flat	50
8 x 2"	Round	50
8 x 2"	Flat	50

DIA. x LGTH.	HEAD	ASS'T QTY.
8 x 2-1/2"	Flat	50
10 x 3/4"	Round	50
10 x 1"	Flat	50
10 x 1-1/4"	Flat	50
10 x 1-1/2"	Flat	50
10 x 2"	Flat	50
10 x 2-1/2"	Flat	50
10 x 3"	Flat	25
10 x 3-1/2"	Flat	25
12 x 1-1/2"	Flat	50
12 x 2"	Flat	50
12 x 2-1/2"	Flat	50

See pages B78 and B79 for full line of screws.

ASSORTMENT / ASSORTIMENT 805-541

BRASS Wood Screws

24 Sizes — 1125 Pieces

SQUARE SOCKET DRIVE

Furnished in Regular Size grey enamel drawer with scooped bins for easy access.

Drawers will fit into Slide Racks shown on page A2.

Priced Singly

Shipping Weight: 5.18 kg (11.42 lbs)

Contents of Assortment

DIA. x LGTH.	HEAD	ASS'T QTY.
4 x 1/2"	Flat	50
5 x 3/4"	Oval	50
6 x 3/4"	Round	50
6 x 3/4"	Oval	50
6 x 1"	Flat	50
6 x 1-1/4"	Round	50
6 x 1-1/2"	Flat	50
8 x 3/4"	Round	50
8 x 3/4"	Flat	50
8 x 1"	Oval	50
8 x 1-1/4"	Round	50
8 x 1-1/4"	Flat	50

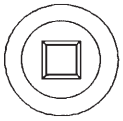
DIA. x LGTH.	HEAD	ASS'T QTY.
8 x 1-1/4"	Oval	50
8 x 1-1/2"	Flat	50
8 x 1-3/4"	Flat	50
8 x 2"	Flat	40
8 x 2-1/2"	Round	50
10 x 3/4"	Round	50
10 x 1-1/4"	Flat	50
10 x 1-1/2"	Flat	50
10 x 2"	Oval	30
12 x 1-1/2"	Flat	40
12 x 1-3/4"	Flat	30
12 x 2"	Flat	35

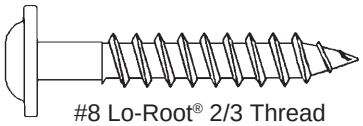
See pages B78 and B79 for full line of screws.

We're your complete source for all your fastener needs.

SPAENAUR

STEEL Round Washer Head Wood Screw Robertson® Drive





#8 Lo-Root® 2/3 Thread
Minor Dia. .103"/.108"

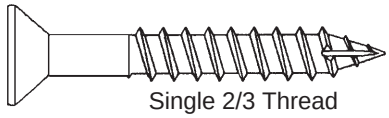
*Full Thread

SPAENAUR No.	Dia. x Length	Finish	Unit Pkg. Qty.
***593-015**	8 x 1"	Lubricized	100
***593-016**	8 x 1"	Zinc	100
593-017	8 x 1-1/8"	Lubricized	100
593-018	8 x 1-1/8"	Zinc	100
593-019	8 x 1-1/4"	Lubricized	100
593-020	8 x 1-1/4"	Zinc	100
593-021	8 x 1-1/2"	Lubricized	100
593-022	8 x 1-1/2"	Zinc	100
593-023	8 x 1-3/4"	Lubricized	100
593-024	8 x 1-3/4"	Zinc	100
593-025	8 x 2"	Lubricized	50
593-026	8 x 2"	Zinc	50
593-028	8 x 2-1/2"	Zinc	50
593-029	8 x 3"	Zinc	50
▲593-034	8 x 3"	Zinc	50

▲Not necessarily Scrulox® item.

STEEL Flat Head Wood Screw Robertson®/Phillips Drive

with Candril® W Point



Single 2/3 Thread

SPAENAUR No.	Dia. x Length	Finish	Unit Pkg. Qty.
585-030	8 x 1"	Lubricized	100
585-031	8 x 1"	Zinc	100
585-032	8 x 1-1/4"	Lubricized	100
585-033	8 x 1-1/4"	Zinc	100

Kwixin® 2/3 Thread

SPAENAUR No.	Dia. x Length	Finish	Unit Pkg. Qty.
585-034	8 x 1-1/2"	Lubricized	100

Note:

Robertson® is a square recess drive - also known as Scrulox®
Kwixin® is a dual thread wood screw.
Lo-Root® is a deep thread wood screw.
Candril® W is a self-drilling point.
Lubricize is a dry wax finish over plain heat treated parts.

Meeting your needs today and tomorrow!

Our 55 person call centre is available to answer any questions that you may have pertaining to product, delivery or application. Our bilingual telesales staff is thoroughly trained to ISO 9002 standards and open from 7 a.m. to 7 p.m. EST. to personally take your order. Call us today at **800-265-8772.**

B

Particleboard/Wood Screws

HARDENED STEEL - Yellow Zinc Plated and Wax Coated

FLAT HEAD (90° countersunk) *Torx Drive*

Torx® drive provides a superior positive drive eliminating drive breakout found in other types of drives. Its design requires less force to keep the tool tip engaged.

Sharp, knife-edge threads and sharp point bite instantly. Rough drilling is not necessary.

Secondary shoulder provides additional strength and eliminates the single stress point thus minimizing head "pop-off".

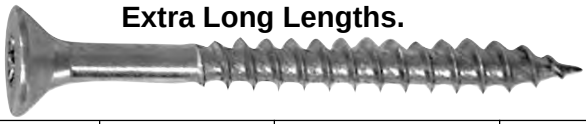
Case hardened material, Zinc di-chromate finish for higher corrosion resistance, and a wax coating for lubrication to enhance performance during insertion.

Ordering Bulk Quantity- See page B83.

SPAENAUR No.	Metric Size (mm)	Approx. Inch Equivalent	Qty. per Box
701-064	3.0 x 12	4 x 1/2"	100
701-065	3.0 x 16	4 x 5/8"	100
701-066	3.0 x 20	4 x 3/4"	100
701-067	3.0 x 25	4 x 1"	100
701-235	3.0 x 30	4 x 1-1/4"	100
701-068	3.5 x 12	6 x 1/2"	100
701-069	3.5 x 16	6 x 5/8"	100
701-070	3.5 x 20	6 x 3/4"	100
701-071	3.5 x 25	6 x 1"	100
701-072	3.5 x 30	6 x 1-1/4"	100
701-073	3.5 x 40	6 x 1-1/2"	100
701-055	3.5 x 45	6 x 1-3/4"	100
701-056	3.5 x 50	6 x 2"	100
701-074	4.0 x 16	8 x 5/8"	100
701-075	4.0 x 20	8 x 3/4"	100
701-076	4.0 x 25	8 x 1"	100
701-077	4.0 x 30	8 x 1-1/4"	100
701-078	4.0 x 40	8 x 1-1/2"	100
701-079	4.0 x 45	8 x 1-3/4"	100
701-057	4.0 x 50	8 x 2"	100
701-236	4.0 x 60	8 x 2-1/2"	100
701-058	4.0 x 70	8 x 2-3/4"	50
701-080	4.5 x 20	9 x 3/4"	100
701-081	4.5 x 25	9 x 1"	100
701-052	4.5 x 30	9 x 1-1/4"	100
701-060	4.5 x 40	9 x 1-1/2"	100
701-061	4.5 x 45	9 x 1-3/4"	100
701-062	4.5 x 50	9 x 2"	100
701-053	4.5 x 60	9 x 2-1/2"	100
701-059	4.5 x 70	9 x 2-3/4"	50
701-063	4.5 x 80	9 x 3-1/8"	50

SPAENAUR No.	Metric Size (mm)	Approx. Inch Equivalent	Qty. per Box
701-082	5.0 x 20	10 x 3/4"	100
701-083	5.0 x 25	10 x 1"	100
701-084	5.0 x 30	10 x 1-1/4"	100
701-085	5.0 x 40	10 x 1-1/2"	100
701-086	5.0 x 45	10 x 1-3/4"	100
701-087	5.0 x 50	10 x 2"	100
701-088	5.0 x 60	10 x 2-1/2"	100
701-089	5.0 x 70	10 x 2-3/4"	50
701-051	5.0 x 80	10 x 3-1/8"	50
701-054	5.0 x 90	10 x 3-1/2"	50
701-090	5.0 x 100	10 x 4"	50
701-091	6.0 x 50	12/14 x 2"	100
701-092	6.0 x 60	12/14 x 2-1/2"	100
701-093	6.0 x 70	12/14 x 2-3/4"	50
701-094	6.0 x 80	12/14 x 3-1/8"	50
701-095	6.0 x 90	12/14 x 3-1/2"	50
701-096	6.0 x 100	12/14 x 4"	50

Extra Long Lengths.



701-097	6.0 x 120	12/14 x 4-3/4"	50
701-098	6.0 x 140	12/14 x 5-5/8"	50
701-099	6.0 x 160	12/14 x 6-3/8"	25
701-228	6.0 x 180	12/14 x 7-1/4"	25
701-229	6.0 x 200	12/14 x 8"	25
701-230	6.0 x 220	12/14 x 8-3/4"	25
701-231	6.0 x 240	12/14 x 9-5/8"	25
701-232	6.0 x 260	12/14 x 10-3/8"	25
701-233	6.0 x 280	12/14 x 11-1/4"	25
701-234	6.0 x 300	12/14 x 12"	25

For Power Bits and Hand Bits see Tool Section 'P' for more information.

B

Particleboard/Wood Screws

HARDENED STEEL - Yellow Zinc Plated and Wax Coated

(Bulk Quantities)

FLAT HEAD *(90° countersunk)* ***Torx Drive***

Bulk quantities on this page ***sold in full cartons only.***

Torx® drive provides a superior positive drive eliminating drive breakout found in other types of drives. Its design requires less force to keep the tool tip engaged.

Sharp, knife-edge threads and sharp point bite instantly. Rough drilling is not necessary.

Secondary shoulder provides additional strength and eliminates the single stress point thus minimizing head "pop-off".

Case hardened material, Zinc di-chromate finish for higher corrosion resistance, and a wax coating for lubrication to enhance performance during insertion.

SPAENAUR No.	Metric Size (mm)	Approx. Inch Equivalent	Bulk Qty.
701-165	3.0 x 16	4 x 5/8"	34,000
701-166	3.0 x 20	4 x 3/4"	23,000
701-167	3.0 x 25	4 x 1"	20,000
701-169	3.5 x 16	6 x 5/8"	28,000
701-171	3.5 x 25	6 x 1"	16,000
701-172	3.5 x 30	6 x 1-1/4"	12,000
701-173	3.5 x 40	6 x 1-1/2"	8,000
701-155	3.5 x 45	6 x 1-3/4"	7,000
701-156	3.5 x 50	6 x 2"	5,400
701-174	4.0 x 16	8 x 5/8"	22,000
701-175	4.0 x 20	8 x 3/4"	15,000
701-177	4.0 x 30	8 x 1-1/4"	10,000
701-179	4.0 x 45	8 x 1-3/4"	5,000
701-336	4.0 x 60	8 x 2-1/2"	3,500
701-158	4.0 x 70	8 x 2-3/4"	2,500
701-180	4.5 x 20	9 x 3/4"	14,000
701-181	4.5 x 25	9 x 1"	10,000
701-152	4.5 x 30	9 x 1-1/4"	8,000
701-160	4.5 x 40	9 x 1-1/2"	5,200
701-161	4.5 x 45	9 x 1-3/4"	4,500
701-153	4.5 x 60	9 x 2-1/2"	2,900
701-163	4.5 x 80	9 x 3-1/8"	1,500
701-182	5.0 x 20	10 x 3/4"	10,000
701-183	5.0 x 25	10 x 1"	9,000
701-187	5.0 x 50	10 x 2"	3,200
701-189	5.0 x 70	10 x 2-3/4"	2,000
701-151	5.0 x 80	10 x 3-1/8"	1,500

SPAENAUR No.	Metric Size (mm)	Approx. Inch Equivalent	Bulk Qty.
701-191	6.0 x 50	12/14 x 2"	2,500
701-193	6.0 x 70	12/14 x 2-3/4"	1,500
701-194	6.0 x 80	12/14 x 3-1/8"	1,200
701-195	6.0 x 90	12/14 x 3-1/2"	950
701-196	6.0 x 100	12/14 x 4"	800
701-197	6.0 x 120	12/14 x 4-3/4"	800
701-198	6.0 x 140	12/14 x 5-5/8"	700

Use Torx Bit Size	With Metric Diameter	With Inch Diameter
#T-10	M3	#4
#T-15	M3.5 - M4	#6 - #8
#T-25	M4.5 - M6	#9 - #14

For Power Bits and Hand Bits see Tool Section 'P' for more information.

Particleboard/Wood Screws

HARDENED STEEL - Yellow Zinc Plated and Wax Coated

FLAT HEAD (90° countersunk) *Square Socket Drive*

Ordering Bulk Quantity- See page B85.

Screws on this page are being phased out as present stock is depleted.

SPAENAUR No.	Metric Size (mm)	Approx. Inch Equivalent	Qty. per Box
701-001	3.0 x 12	4 x 1/2"	100
701-002	3.0 x 16	4 x 5/8"	100
701-003	3.0 x 20	4 x 3/4"	100
701-004	3.0 x 25	4 x 1"	100
701-008	3.5 x 20	6 x 3/4"	100
701-009	3.5 x 25	6 x 1"	100
701-010	3.5 x 30	6 x 1-1/4"	100
701-011	3.5 x 35	6 x 1-3/8"	100
701-012	3.5 x 40	6 x 1-1/2"	100
701-013	3.5 x 45	6 x 1-3/4"	100
701-016	4.0 x 20	8 x 3/4"	100
701-017	4.0 x 25	8 x 1"	100
701-018	4.0 x 30	8 x 1-1/4"	100
701-020	4.0 x 40	8 x 1-1/2"	100
701-021	4.0 x 45	8 x 1-3/4"	100
701-022	4.0 x 50	8 x 2"	100
701-049	4.0 x 70	8 x 2-3/4"	50
701-024	4.5 x 20	9 x 3/4"	100
701-025	4.5 x 25	9 x 1"	100
701-026	4.5 x 30	9 x 1-1/4"	100
701-027	5.0 x 20	10 x 3/4"	100
701-028	5.0 x 30	10 x 1-1/4"	100
701-029	5.0 x 35	10 x 1-3/8"	100
701-031	5.0 x 45	10 x 1-3/4"	100
701-032	5.0 x 50	10 x 2"	100
701-033	5.0 x 60	10 x 2-1/2"	100
701-034	5.0 x 70	10 x 2-3/4"	50
701-035	5.0 x 80	10 x 3-1/8"	50
701-036	5.0 x 90	10 x 3-1/2"	50
701-037	5.0 x 100	10 x 4"	50
701-038	6.0 x 30	12/14 x 1-1/4"	100
701-039	6.0 x 40	12/14 x 1-1/2"	100
701-040	6.0 x 45	12/14 x 1-3/4"	100
701-041	6.0 x 50	12/14 x 2"	100
701-042	6.0 x 60	12/14 x 2-1/2"	100
701-043	6.0 x 70	12/14 x 2-3/4"	50
701-044	6.0 x 80	12/14 x 3-1/8"	50
701-045	6.0 x 90	12/14 x 3-1/2"	50
701-046	6.0 x 100	12/14 x 4"	50
***701-047**	6.0 x 120	12/14 x 4-3/4"	50
***701-048**	6.0 x 140	12/14 x 5-5/8"	50

* #2 Socket Drive

Use Square Socket Bit	With Metric Diameter	With Inch Diameter
#1	M3 - M3.5	#4 - #6
#2	M4 - M5	#8 - #10
#3	M6	#12- #14

For Power Bits and Hand Bits see Tool Section 'P' for more information.

B

Particleboard/Wood Screws

HARDENED STEEL - Yellow Zinc Plated and Wax Coated

FLAT HEAD (90° countersunk) Square Socket Drive

(Bulk Quantities)

Screws on this page are being phased out as present stock is depleted.

Bulk quantities** on this page **sold in full cartons only.

SPAENAUR No.	Metric Size (mm)	Approx. Inch Equivalent	Bulk Qty.	SPAENAUR No.	Metric Size (mm)	Approx. Inch Equivalent	Bulk Qty.
701-101	3.0 x 12	4 x 1/2"	46,000	**701-127**	5.0 x 20	10 x 3/4"	10,000
701-102	3.0 x 16	4 x 5/8"	34,000	**701-128**	5.0 x 30	10 x 1-1/4"	6,400
701-103	3.0 x 20	4 x 3/4"	23,000	**701-133**	5.0 x 60	10 x 2-1/2"	2,500
701-104	3.0 x 25	4 x 1"	20,000	**701-134**	5.0 x 70	10 x 2-3/4"	2,000
701-108	3.5 x 20	6 x 3/4"	21,000	**701-135**	5.0 x 80	10 x 3-1/8"	1,500
701-110	3.5 x 30	6 x 1-1/4"	12,000	**701-137**	5.0 x 100	10 x 4"	1,000
701-113	3.5 x 45	6 x 1-3/4"	7,000	**701-138**	6.0 x 30	12/14 x 1-1/4"	4,100
701-114	3.5 x 50	6 x 2"	5,400	**701-139**	6.0 x 40	12/14 x 1-1/2"	3,300
701-117	4.0 x 25	8 x 1"	12,000	**701-140**	6.0 x 45	12/14 x 1-3/4"	2,800
701-118	4.0 x 30	8 x 1-1/4"	10,000	**701-141**	6.0 x 50	12/14 x 2"	2,500
701-120	4.0 x 40	8 x 1-1/2"	6,500	**701-142**	6.0 x 60	12/14 x 2-1/2"	1,900
701-121	4.0 x 45	8 x 1-3/4"	5,000	**701-143**	6.0 x 70	12/14 x 2-3/4"	1,500
701-123	4.0 x 60	8 x 2-1/2"	3,500	**701-145**	6.0 x 90	12/14 x 3-1/2"	950
701-125	4.5 x 25	9 x 1"	10,000				
701-126	4.5 x 30	9 x 1-1/4"	8,000				

Use Square Socket Bit	With Metric Diameter	With Inch Diameter
#1	M3 - M3.5	#4 - #6
#2	M4 - M5	#8 - #10
#3	M6	#12- #14

For Power Bits and Hand Bits see Tool Section 'P' for more information.

CATALOG 13

B

Particleboard/Wood Screws

HARDENED STEEL - Yellow Zinc Plated and Wax Coated

PAN HEAD - Square Socket Drive

Screws on this page are being phased out as present stock is depleted.

SPAENAUR No.	Metric Size (mm)	Approx. Inch Equivalent	Qty. per Box
701-200	3.0 x 12	4 x 1/2"	100
701-201	3.0 x 20	4 x 3/4"	100
701-203	3.5 x 16	6 x 5/8"	100
701-204	3.5 x 20	6 x 3/4"	100
701-205	3.5 x 25	6 x 1"	100
701-206	3.5 x 30	6 x 1-1/4"	100
701-207	3.5 x 40	6 x 1-1/2"	100
701-209	4.0 x 20	8 x 3/4"	100
701-210	4.0 x 25	8 x 1"	100
701-211	4.0 x 30	8 x 1-1/4"	100
701-212	4.0 x 40	8 x 1-1/2"	100
701-213	4.0 x 45	8 x 1-3/4"	100
701-216	5.0 x 25	10 x 1"	100
701-218	5.0 x 40	10 x 1-1/2"	100
701-219	5.0 x 45	10 x 1-3/4"	100
701-220	5.0 x 50	10 x 2"	100
701-221	5.0 x 60	10 x 2-1/2"	100
701-222	5.0 x 70	10 x 2-3/4"	50
701-223	6.0 x 40	12/14 x 1-1/2"	100
701-225	6.0 x 50	12/14 x 2"	100
701-226	6.0 x 60	12/14 x 2-1/2"	100
701-227	6.0 x 70	12/14 x 2-3/4"	50

Use Square Socket Bit	With Metric Diameter	With Inch Diameter
#0	M3	#4
#1	M3.5	#6
#2	M4 - M5	#8 - #10
#3	M6	#12- #14

For Power Bits and Hand Bits see Tool Section 'P' for more information.

Visit us on the web at . . .

www.spaenaur.com

CATALOG 13

B

Particleboard/Wood Screws

302 STAINLESS STEEL - Wax Coated

FLAT HEAD (90° countersunk) *Square Socket Drive*

Screws on this page are being phased out as present stock is depleted.

SPAENAUR No.	Metric Size (mm)	Approx. Inch Equivalent	Qty. per Box
701-800	3.0 x 20	4 x 3/4"	100
701-801	3.0 x 25	4 x 1"	100
701-802	3.0 x 30	4 x 1-1/4"	100
701-803	3.5 x 20	6 x 3/4"	100
701-804	3.5 x 25	6 x 1"	100
701-805	3.5 x 30	6 x 1-1/4"	100
701-806	3.5 x 40	6 x 1-1/2"	100
701-833	4.0 x 35	8 x 1-3/8"	100
701-812	4.0 x 50	8 x 2"	100
701-814	4.5 x 25	9 x 1"	100
701-815	4.5 x 30	9 x 1-1/4"	100
701-817	4.5 x 50	9 x 2"	100
701-818	4.5 x 60	9 x 2-1/2"	100
701-819	5.0 x 30	10 x 1-1/4"	100
701-821	5.0 x 45	10 x 1-3/4"	100
701-822	5.0 x 50	10 x 2"	100
701-823	5.0 x 60	10 x 2-1/2"	100
701-824	5.0 x 70	10 x 2-3/4"	50
701-825	5.0 x 80	10 x 3-1/8"	50
701-826	6.0 x 40	12/14 x 1-1/2"	100
701-828	6.0 x 60	12/14 x 2-1/2"	100
701-829	6.0 x 70	12/14 x 2-3/4"	50
701-830	6.0 x 80	12/14 x 3-1/8"	50
701-831	6.0 x 100	12/14 x 4"	50

Use Square Socket Bit	With Metric Diameter	With Inch Diameter
#1	M3 - M3.5	#4 - #6
#2	M4 - M5	#8 - #10
#3	M6	#12- #14

For Power Bits and Hand Bits see Tool Section 'P' for more information.

Have a question?

Call (800) 265- 8772 or (519) 744-3521.

B

Wood Screws

BRASS - Wax Coated

FLAT HEAD (90° countersunk) *Square Socket Drive*

Screws on this page are being phased out as present stock is depleted.

SPAENAUR No.	Metric Size (mm)	Approx. Inch Equivalent	Qty. per Box	*SPAENAUR No.*	Metric Size (mm)	Approx. Inch Equivalent	Qty. per Box
701-500	3.0 x 12	4 x 1/2"	100	**701-519**	5.0 x 20	10 x 3/4"	100
701-501	3.0 x 16	4 x 5/8"	100	**701-520**	5.0 x 25	10 x 1"	100
701-502	3.0 x 20	4 x 3/4"	100	**701-521**	5.0 x 30	10 x 1-1/4"	100
701-503	3.5 x 16	6 x 5/8"	100	**701-522**	5.0 x 40	10 x 1-1/2"	100
701-504	3.5 x 20	6 x 3/4"	100	**701-523**	5.0 x 45	10 x 1-3/4"	100
701-505	3.5 x 25	6 x 1"	100	**701-524**	5.0 x 50	10 x 2"	100
701-506	3.5 x 30	6 x 1-1/4"	100	**701-525**	5.0 x 60	10 x 2-1/2"	100
701-507	3.5 x 40	6 x 1-1/2"	100	**701-526**	5.0 x 70	10 x 2-3/4"	50
701-508	4.0 x 20	8 x 3/4"	100	**701-527**	6.0 x 25	12/14 x 1"	100
701-509	4.0 x 25	8 x 1"	100	**701-528**	6.0 x 30	12/14 x 1-1/4"	100
701-510	4.0 x 30	8 x 1-1/4"	100	**701-529**	6.0 x 40	12/14 x 1-1/2"	100
701-511	4.0 x 40	8 x 1-1/2"	100	**701-530**	6.0 x 45	12/14 x 1-3/4"	100
701-512	4.0 x 45	8 x 1-3/4"	100	**701-531**	6.0 x 50	12/14 x 2"	100
701-513	4.5 x 25	9 x 1"	100	**701-532**	6.0 x 60	12/14 x 2-1/2"	100
701-514	4.5 x 30	9 x 1-1/4"	100	**701-533**	6.0 x 70	12/14 x 2-3/4"	50
701-516	4.5 x 45	9 x 1-3/4"	100	**701-534**	6.0 x 80	12/14 x 3-1/8"	50
701-517	4.5 x 50	9 x 2"	100	**701-535**	6.0 x 90	12/14 x 3-1/2"	50
701-518	4.5 x 60	9 x 2-1/2"	100	**701-536**	6.0 x 100	12/14 x 4"	50

Use Square Socket Bit	With Metric Diameter	With Inch Diameter
#0	M3	#4
#1	M3.5	#6
#2	M4 - M5	#8 - #10
#3	M6	#12- #14

For Power Bits and Hand Bits see Tool Section 'P' for more information.

CATALOG 13

B

RSS Lagscrew

Torx Drive

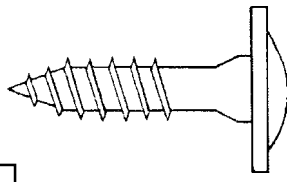
Low Carbon Steel - Case Hardened

Yellow Zinc Plated

T-Star Recess

SPAENAUR No.	Dimensions		Unit Pkg. Qty.
	Metric	U.S. Standard	
038-250	7.0 x 60 mm	5/16 x 2-1/2"	50
038-251	7.0 x 80 mm	5/16 x 3-1/8"	50
038-252	7.0 x 100 mm	5/16 x 4"	50
038-253	7.0 x 130 mm	5/16 x 5-1/8"	50
038-254	7.0 x 150 mm	5/16 x 6"	50
038-255	8.0 x 180 mm	3/8 x 7-1/4"	10
038-256	8.0 x 200 mm	3/8 x 8"	10

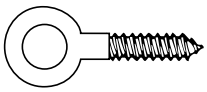
Light Type *SPAENAUR Nos.* are available but not stocked.



Torx
Washer Head

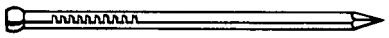
T30
Recess Drive

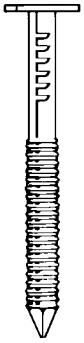
For Hex Head Lag Screws in plain and hot galvanized steel and stainless steel see pages B306 and B307.



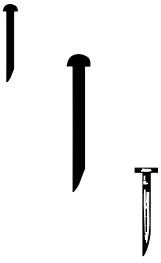
For Lag Screw Eye Bolts see page B324.

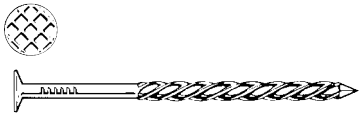
For Screw Eyes, Screw Hooks, Shoulder Hooks and Cup Hooks see pages B324-B326.

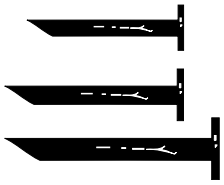




For
Stainless Steel Common Nails
Nails for Marine Service
Decking Nails for Pressure Treated Lumber
Finishing Nails
Roofing Nails (Slating Nails)
Gimp Tacks
Blued Sanitary Upholsterers' Tacks
See pages M60 and M61.

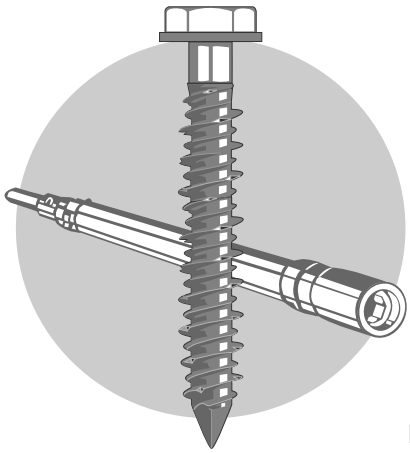




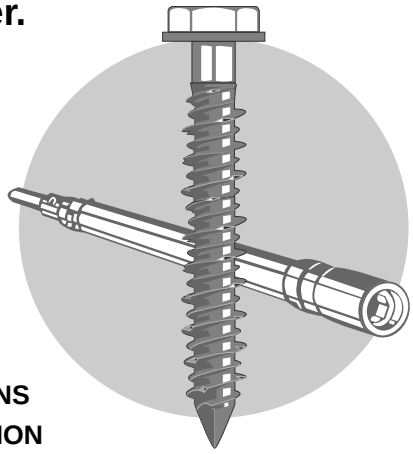


B

The anchor that literally taps threads into concrete - for exceptionally reliable holding power.

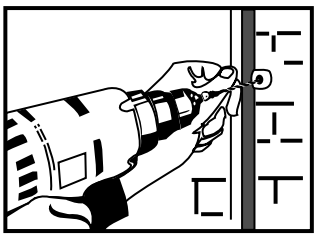


See facing page for CONDRIVE® TOOL components



INSTALLATION INSTRUCTIONS
INSTRUCTIONS D'INSTALLATION

makes fastening in concrete as easy as fastening in wood...



TO DRILL:

- Place drill adapter with drill bit into chuck of hammer drill or electric drill and drill pilot hole into concrete. Hole should be a minimum of 1/4" (6.3 mm) deeper than anchor will be embedded.

TO CHANGE DRILL BIT:

- Loosen set screw on side of drill adapter.
- Remove old drill bit and insert new one.
- Tighten set screw.

POUR PERCER:

- Placez l'adapteur et la mèche dans le mandrin du marteau-perforateur ou de la perceuse électrique. Percez un trou de guidage dans le béton. La profondeur de ce trou doit être supérieure de 1/4" de po (6.3 mm) au moins à celle de l'enfoncement de l'ancre.

POUR CHANGER LA MÈCHE:

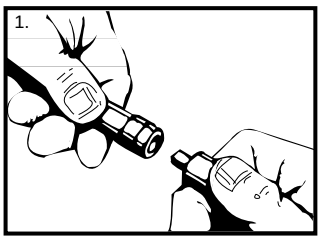
- Desserrez la vis de réglage sur le côté de l'adapteur.
- Enlevez la mèche usagée et insérez une mèche neuve.
- Resserrez la vis de réglage.

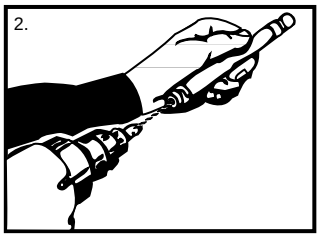
TO DRIVE:

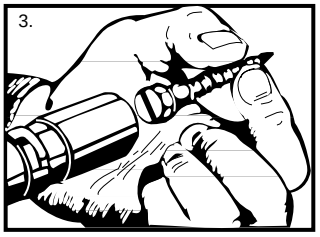
1. Snap appropriate hex or Phillips driver into small end of drive sleeve.
2. Slide end of drive sleeve over drill bit and snap onto drill adapter.
3. Insert head of Tapcon anchor into hex or Phillips driver.
4. Insert anchor into pre-drilled hole in concrete and drive until anchor is fully seated. Driver will automatically disengage from head of anchor to prevent over-driving.

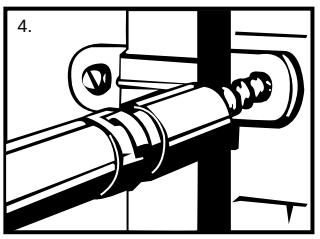
POUR ENFONCER:

1. Placez la douille à tête hexagonale ou à tête Phillips sur la plus petite extrémité du manchon.
2. Glissez le manchon par-dessus la mèche et fixez-le à l'adaptateur.
3. Insérez la tête de l'ancre TAPCON dans la douille hexagonale ou pour tête Phillips.
4. Positionnez l'ancre dans le trou déjà percé dans le béton et enfoncez jusqu'à ce qu'elle soit bien en place. La douille libérera automatiquement la tête de l'ancre pour empêcher un enfoncement excessif.









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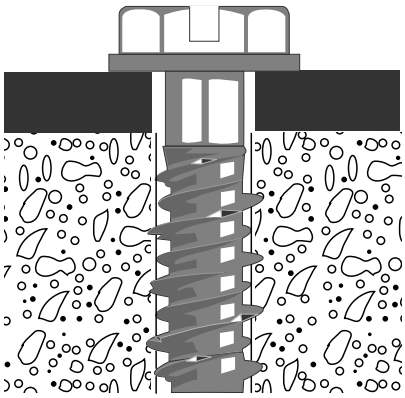
permet de placer des fixations dans le béton aussi facilement que dans du bois.

CATALOG 13

Components of Complete Tool
SPAENAUR No. 876-500

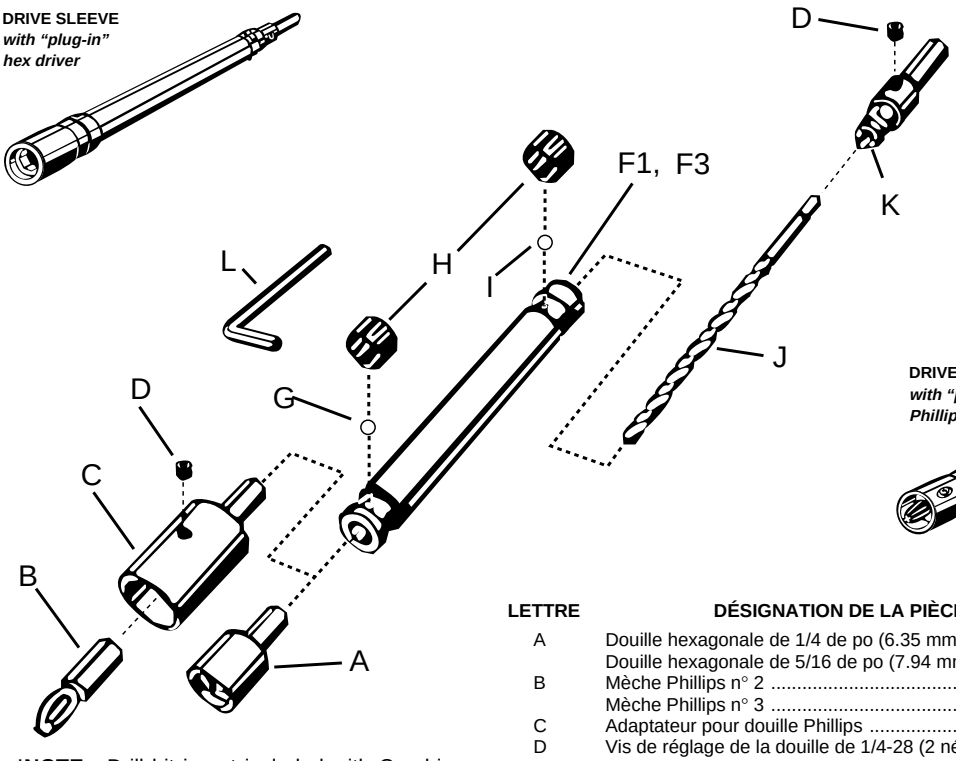
LETTER	PART DESCRIPTION	*SPAENAUR No.*	MFG. NO. PART NO.
A	1/4" (6.35 mm) Hex Driver	**876-352**	790-1006
	5/16" (7.94 mm) Hex Driver	**876-353**	790-1007
B	#2 Phillips Bit	**876-142**	790-1008
	#3 Phillips Bit	**876-143**	790-1009
C	Phillips Driver Adapter	**876-354**	790-1010
D	1/4-28 Socket Set Screw (2 required)	**SS-117**	790-2006
F1	Drive Sleeve (Std.) 5-7/8" (149.2 mm)	**876-356**	790-1002
F3	Drive Sleeve (Extra Long) 6-7/8" (174.6 mm)	**876-358**	790-1015
G	5/32" (3.97 mm) Ball Bearing	**876-359**	790-1004
H	Detent Spring (2 required)	**876-360**	790-1003
I	1/8" (3.18 mm) Ball Bearing	**876-361**	790-2008
J	Carbide Drill Bit* (see note)		
	5/32" x 3-1/2" (3.97 mm x 88.9 mm)	**875-159**	790-0814
	5/32" x 4-1/2" (3.97 mm x 114.3 mm)	**875-160**	790-0818
	5/32" x 5-1/2" (3.97 mm x 139.7 mm)	**875-161**	790-0822
	3/16" x 3-1/2" (4.76 mm x 88.9 mm)	**875-162**	790-1014
	3/16" x 4-1/2" (4.76 mm x 114.3 mm)	**875-163**	790-1018
	3/16" x 5-1/2" (4.76 mm x 139.7 mm)	**875-164**	790-1022
	3/16" x 6-1/2" (4.76 mm x 165.1 mm)	**875-165**	790-1026
K	Drill Adapter	**876-362**	790-1001
L	1/8" (3.18 mm) Hex Key	**SS-65K**	790-2010

CONDRIVE® 1000 COMPONENTS
PIÈCES DU CONDRIVE® 1000

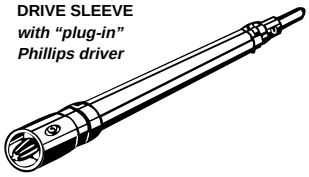


See pages B90 to B93 for TAPCON® CONCRETE FASTENING SYSTEM
DE FIXATION DANS LE BÉTON

DRIVE SLEEVE
with "plug-in" hex driver



DRIVE SLEEVE
with "plug-in" Phillips driver



***NOTE:** Drill bit is not included with Condrive 1000 Tool. One drill bit is included with each box of Tapcon Anchors.

The products on this page are covered by one or more of the following U.S. Patents: 3,937,199 and 3,965,510. Canadian and other patents pending.

***REMARQUE:** La mèche n'est pas livrée avec l'outil CONDRIVE 1000. Cependant, une mèche est jointe à chaque boîte d'ancres TAPCON.

Les produits illustrés sur cette page sont protégés par un ou plusieurs des brevets américains suivants: 3937119 et 3965510. Brevets canadiens et autres en attente.

LETTRE	DÉSIGNATION DE LA PIÈCE	*SPAENAUR No.*	MFR'S PIÈCE Nº
A	Douille hexagonale de 1/4 de po (6.35 mm)	**876-352**	790-1006
	Douille hexagonale de 5/16 de po (7.94 mm)	**876-353**	790-1007
B	Mèche Phillips n° 2	**876-142**	790-1008
	Mèche Phillips n° 3	**876-143**	790-1009
C	Adaptateur pour douille Phillips	**876-354**	790-1010
D	Vis de réglage de la douille de 1/4-28 (2 nécessaires)	**SS-117**	790-2006
F1	Manchon pour enfoncer (régulière) 5-7/8 po (149.2 mm)	**876-356**	790-1002
F3	Manchon pour enfoncer (extra long) 6-7/8 po (174.6 mm)	**876-358**	790-1015
G	Roulement à billes de 5/32 de po (3.97 mm)	**876-359**	790-1004
H	Ressort de détente (2 nécessaires)	**876-360**	790-1003
I	Roulement à billes de 1/8 de po (3.18 mm)	**876-361**	790-2008
J	Mèche au carbure* (voire remarque)		
	5/32 de po x 3-1/2 po (3.97 mm x 88.9 mm)	**875-159**	790-0814
	5/32 de po x 4-1/2 po (3.97 mm x 114.3 mm)	**875-160**	790-0818
	5/32 de po x 5-1/2 po (3.97 mm x 139.7 mm)	**875-161**	790-0822
	3/16 de po x 3-1/2 po (4.76 mm x 88.9 mm)	**875-162**	790-1014
	3/16 de po x 4-1/2 po (4.76 mm x 114.3 mm)	**875-163**	790-1018
	3/16 de po x 5-1/2 po (4.76 mm x 139.7 mm)	**875-164**	790-1022
	3/16 de po x 6-1/2 po (4.76 mm x 165.1 mm)	**875-165**	790-1026
K	Adaptateur pour percer	**876-362**	790-1001
L	Clé hexagonale de 1/8 de po (3.18 mm)	**SS-65K**	790-2010

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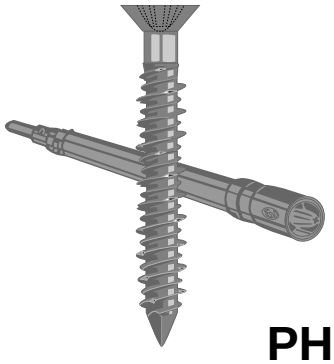
B

THE ALL-NEW MASONRY ANCHOR SYSTEM. EASIER, FASTER, STRONGER, ECONOMICAL.

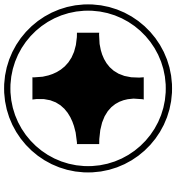


CONCRETE ANCHOR SYSTEM

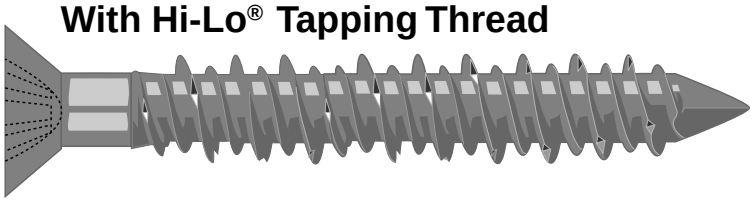
3/16" and 1/4" DIAMETER

(82° COUNTERSUNK)

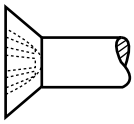
PHILLIPS FLAT HEAD



With Hi-Lo® Tapping Thread

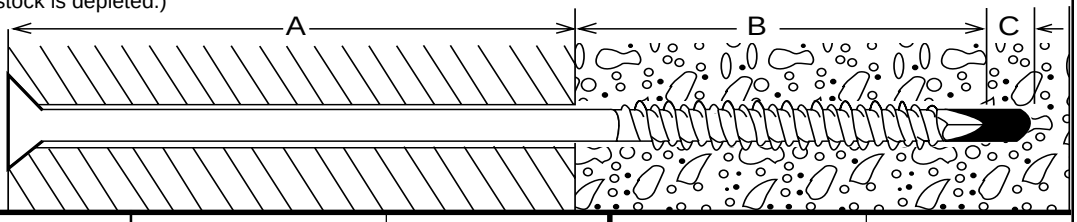


C-1022 STEEL
Case-hardened

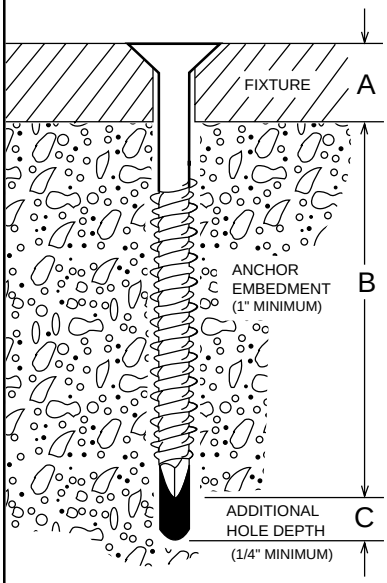


Finish: Blue CLIMASEAL® Organometallic Polymer Coating. (Some blue corrosion resistant zinc electroplated screws are still available and will be supplied until present stock is depleted.)

		Min.	Max.
B	Embedment in Concrete	1"	1-1/4"
C	Additional Hole depth	1/4"	

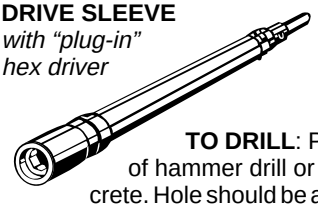


SELECTOR GUIDE



TAPCON SCREW ANCHOR SIZE A + B		UNIT PKG. 100 ANCHORS with 1 Drill Bit	A + B + C DRILL BIT SIZE		DRILL BIT PRICED SINGLY
Dia.	Length	SPAENAUR No.	Drill Bit Dia.	Length	SPAENAUR No.
3/16"	x 1-1/4"	506-051	5/32"	x 3-1/2"	875-159
	x 1-3/4"	506-052		x 4-1/2"	875-160
	x 2-1/4"	506-053		x 5-1/2"	875-161
	x 2-3/4"	506-054	3/16"	x 3-1/2"	875-162
	x 3-1/4"	506-055		x 4-1/2"	875-163
	x 4"	506-056		x 5-1/2"	875-164
1/4"	x 1-1/4"	506-057		x 6-1/2"	875-165
	x 1-3/4"	506-058			
	x 2-1/4"	506-059			
	x 2-3/4"	506-060			
	x 3-1/4"	506-061			
	x 4"	506-062			
	x 5"	506-063			

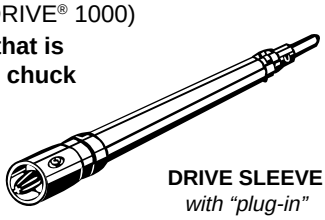
DRIVE SLEEVE
with "plug-in" hex driver



***SPAENAUR No.* 876-500 TOOL** (Mfrs. No. CONDRIVE® 1000)
The Condrive 1000 is a multi-purpose installation tool that is inserted into a 3/8 inch (9.53 mm) or 1/2 inch (12.7 mm) chuck of a standard hammer drill or electric drill.

TO DRILL: Place drill adapter with drill bit into chuck of hammer drill or electric drill and drill pilot hole into concrete. Hole should be a minimum of 1/4" deeper than anchor will be embedded.

TO DRIVE: Snap appropriate hex Phillips bit into small end of drive sleeve.



DRIVE SLEEVE
with "plug-in" Phillips driver

CATALOG 13

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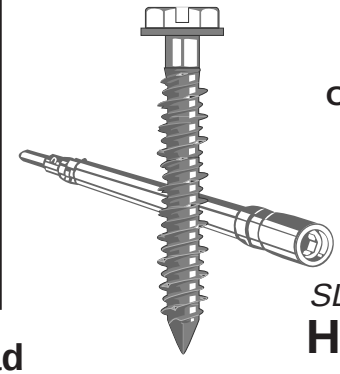
THE ALL-NEW MASONRY ANCHOR SYSTEM. EASIER, FASTER, STRONGER, ECONOMICAL.



CONCRETE ANCHOR SYSTEM

3/16" and 1/4" DIAMETER

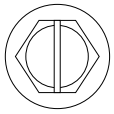
SLOTTED

HEX WASHER HEAD

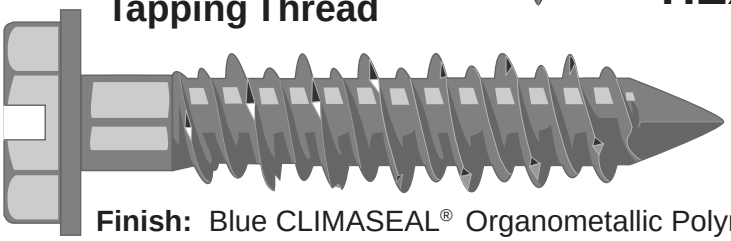
C-1022 STEEL

Case Hardened

With Hi-Lo®

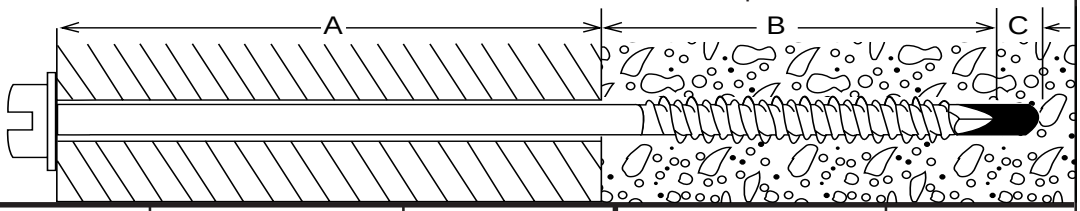


Tapping Thread

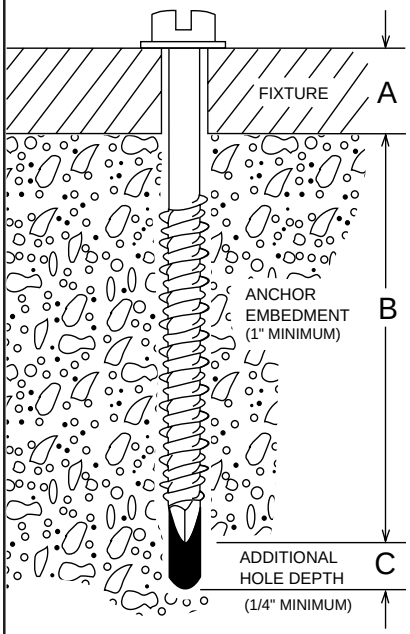


Finish: Blue CLIMASEAL® Organometallic Polymer Coating.
(Some blue corrosion resistant zinc electroplated screws are still available and will be supplied until present stock is depleted.)

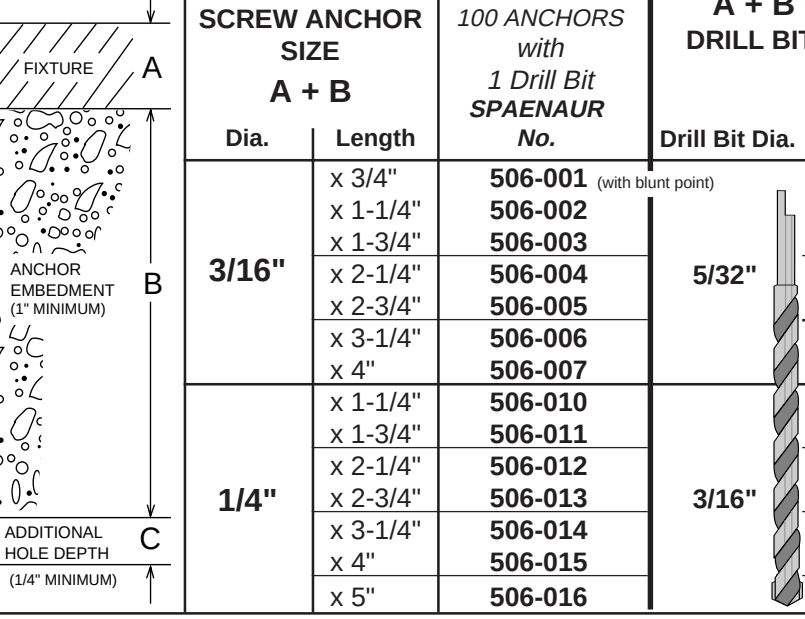
				min.	max.
Anchor Size	3/16" Dia. - 1/4" width across flats 1/4" Dia. - 5/16" width across flats	**B** **C**	Embedment in concrete Additional hole depth	1" 1/4"	1-1/4"



SELECTOR GUIDE



TAPCON SCREW ANCHOR SIZE A + B		*UNIT PKG. 100 ANCHORS with 1 Drill Bit* ***SPAENAUR No.***	A + B + C DRILL BIT SIZE		DRILL BIT *Priced singly* ***SPAENAUR No.***
Dia.	**Length**		**Drill Bit Dia.**	**Length**	
3/16"	x 3/4"	**506-001** (with blunt point)	**5/32"**	x 3-1/2"	**875-159**
	x 1-1/4"	**506-002**			
	x 1-3/4"	**506-003**		x 4-1/2"	**875-160**
	x 2-1/4"	**506-004**			
	x 2-3/4"	**506-005**		x 5-1/2"	**875-161**
	x 3-1/4"	**506-006**			
	x 4"	**506-007**			
1/4"	x 1-1/4"	**506-010**	**3/16"**	x 3-1/2"	**875-162**
	x 1-3/4"	**506-011**			
	x 2-1/4"	**506-012**		x 4-1/2"	**875-163**
	x 2-3/4"	**506-013**			
	x 3-1/4"	**506-014**		x 5-1/2"	**875-164**
	x 4"	**506-015**			
	x 5"	**506-016**		x 6-1/2"	**875-165**



TAPCON®

DRILL BITS

ONE DRILL BIT IS PROVIDED WITH EVERY BOX OF 100 TAPCON ANCHORS.

Use only TAPCON high-quality, carbide tipped MASONRY DRILL BITS for installation of all TAPCON Anchors.

Typical TAPCON Drill Bit. See above (right) for available sizes.
For max. life, use only in Hammer-type Drills. Rotary drills reduce bit life.

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SPECIAL ASSORTMENT

ASSORTMENT / ASSORTIMENT 1268R

Slotted Pan, Oval, & Flat Head TAPPING SCREWS (Type AB)

36 Varieties - 1065 Pieces
Includes sizes #4 to #14 ga.

ALL SCREWS NICKEL OR ZINC PLATED

16-1/4" x 11-3/4" x 2"

Excellent "Auto Body Shop" favourite.
Red enamelled STEEL box.
12 SCOOPED bins, 24 regular bins.

Shipping weight 5.22 kg (11-1/2 lbs.)

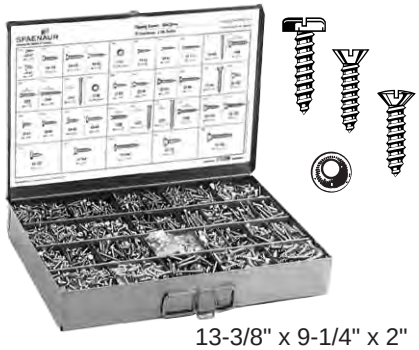
REGULAR SIZE ASSORTMENT

ASSORTMENT / ASSORTIMENT 1268M

Slotted Pan, Oval & Flat Head TAPPING SCREWS (Type AB)

Contains 1000 Pieces, in 36 Sizes,
ranging from #4 x 3/8" to #14 x 1-1/4"

ALL SCREWS NICKEL OR ZINC PLATED



13-3/8" x 9-1/4" x 2"

Grey enamelled metal box.
Hinged lid, SCOOPED bins & dividers.

Fits SPAENAUR Slide Racks
shown on page A2.

Shipping weight 4.08 kg (9 lbs.)

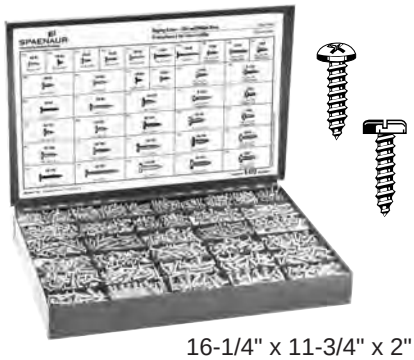
SPECIAL ASSORTMENT

ASSORTMENT / ASSORTIMENT B-573

Slotted & Phillips Pan Head TAPPING SCREWS (Type AB)

36 Varieties - 1000 Pieces
Sizes range from #4 to #14 ga.

ALL SCREWS ZINC PLATED



16-1/4" x 11-3/4" x 2"

Excellent "General Purpose" kit.
Red enamelled STEEL box.
12 SCOOPED bins, 24 regular bins.

Shipping weight 5.33 kg (11-3/4 lbs.)

INCH SIZE **ASSORTMENT / ASSORTIMENT 805-526** **TYPE "AB"**

18-8 Stainless Steel TAPPING SCREWS

34 Sizes of Screws and 2 Sizes of Countersunk Finishing Washers

1,000 PIECES - Furnished in a REGULAR SIZE grey enamelled steel drawer, with lid and scooped bins.

Priced Singly

Shipping Weight
3.40 kg (7-1/2 lbs.)

REGULAR SIZE drawer will fit the slide racks shown on Page A2.

Full range of 18-8 Stainless Steel Tapping Screws shown on page B98.

Sizes in Assortment 805-526

SLOTTED OVAL HD.	8 x 1"	8 x 1-1/4"
6 x 1/2"	10 x 3/4"	10 x 1/2"
6 x 3/4"	10 x 1"	10 x 3/4"
8 x 1/2"	**SLOTTED PAN HD.**	10 x 1"
8 x 5/8"	4 x 3/8"	12 x 3/4"
SLOTTED FLAT HD.	4 x 1/2"	12 x 1"
4 x 3/8"	6 x 3/8"	14 x 1"
6 x 3/8"	6 x 1/2"	**SLOTTED TRUSS HD.**
6 x 1/2"	6 x 3/4"	6 x 3/8"
6 x 5/8"	6 x 1"	8 x 1/2"
6 x 3/4"	8 x 1/2"	8 x 3/4"
8 x 5/8"	8 x 3/4"	8 x 1"
8 x 3/4"	8 x 1"	**#6 & #8 WASHERS**

Plastikits

1" x 2-3/4" x 4-1/2"

Clear PLASTIC BOXES - durable and practical. Hinged lids - all plastic - no metal pins to rust or break. Positive gripping clasp - no spilling of contents.

Plastikit «Plastikit» 1143

20 Sizes - 160 Pieces

Flat, Oval, and Pan Slot Head TYPE AB TAPPING SCREWS
STEEL, Plated

Plastikit «Plastikit» A-5

20 Sizes - 140 Pieces

Pan Slot Head TYPE AB TAPPING SCREWS
STEEL, Zinc Plated

B

Hardened
STEEL

Inch Sizes

FINISHES: ALL OVAL HEADS - **NICKEL PLATED**
ALL OTHERS **ZINC PLATED**

Made to ASME/ANSI B18.6.4

STYLE: **Type AB** ("B" fine thread with "A" sharp point) is now standard. We will furnish Type A as shown until all stock of same is exhausted.

PACKING: *For Unit Package Quantities, please refer to Price List.*

ORDER: By ***SPAENAUR*** NUMBERS from the following Master Charts.

Type AB thread

Inch Sizes (Approx. Metric mm equivalent shown in brackets.)		80° to 82° LENGTH	LENGTH	80° to 82° LENGTH	LENGTH	LENGTH
DIA.	**L.**	**OVAL**	**ROUND**	**FLAT**	**PAN**	**TRUSS**
2 (2.2)	3/16				**ST-139**	
	1/4				**ST-196**	
4 (2.9)	1/4	**ST-409**		**B-395**	**ST-24**	**B-345**
	3/8			**63-41**	**43-41**	**ST-110**
	1/2	**ST-113**	**ST-126**	**ST-134**	**43-42**	**ST-100**
	5/8	**ST-114**			**ST-140**	**ST-101**
	3/4				**ST-141**	**ST-147**
	7/8	**52-45**				
	1				**ST-142**	
5 (3.2)	5/16		**520-568** (Nickel Pltd.)			
	3/8		**520-569** (Nickel Pltd.)			
6 (3.5)	1/4	**▲ST-567**	**ST-670**	**ST-187**	**43-60**	**ST-102**
	3/8	**ST-115**		**63-61**	**43-61**	**ST-103**
	1/2	**52-62**		**63-62**	**43-62**	**B-1398**
	5/8	**52-63**		**63-63**	**43-63**	
	3/4	**52-64**		**ST-188**	**43-64**	**ST-193**
	7/8	**ST-117**		**63-65**	**ST-143**	
	1		**ST-128**	**520-571**	**43-66**	**ST-194**
	1-1/4	**52-68**	**ST-576**		**ST-135**	
	1-1/2	**52-69**		**ST-116**		
		▲Zinc Pltd. Undercut Hd.				
7 (3.9)	1/4				**ST-191**	
	3/8	**ST-118**			**43-71**	
	1/2	**52-72**		**ST-189**	**43-72**	
	5/8	**52-73**	**ST-560**		**43-73**	
	3/4	**52-74**			**43-74**	
	7/8	**52-75**			**43-75**	
	1	**52-76**			**43-76**	
	1-1/4				**ST-669**	
8 (4.2)	1/4		**ST-129**		**43-80**	
	5/16		**ST-58**			
	3/8			**ST-660**	**43-81**	**ST-104**
	1/2	**52-82**		**ST-35**	**43-82**	**B-1400**
	5/8	**52-83**	**ST-590**	**ST-92**	**43-83**	**ST-105**
	5/8					
	3/4	**52-84**	**83-84**		**43-84**	**B-1401**
	7/8	**52-85**			**43-85**	
	7/8	***1435**				
	1	**52-86**		**B-889**	**43-86**	**B-1433**
	1-1/8	**52-87**				
	1-1/8	***1246**				
	1-1/4	**52-88**	**ST-575**	**ST-136**	**43-88**	
	1-1/2				**43-89**	
	1-1/2	***1245**				
	1-3/4	**ST-121**				
	2	**ST-407**			**ST-144**	
		*With No. 6 Head				

Inch Sizes (Approx. Metric mm equivalent shown in brackets.)		80° to 82° LENGTH	LENGTH	80° to 82° LENGTH	LENGTH	LENGTH
DIA.	**L.**	**OVAL**	**ROUND**	**FLAT**	**PAN**	**TRUSS**
10 (4.8)	1/4					
	3/8		**ST-130**		**43-101**	
	1/2	**52-102**	**83-102**	**B-891**	**43-102**	**ST-106**
	5/8	**52-103**	**83-103**	**ST-137**	**43-103**	**ST-107**
	3/4	**52-104**	**83-104**	**63-104**	**43-104**	**B-1435**
	7/8	**52-105**		**63-105**	**43-105**	
	7/8	***1398**				
	1		**83-106**	**63-106**	**43-106**	**B-1434**
	1	****1442**				
	1-1/4	**52-108**	**83-108**		**43-108**	**ST-148**
	1-1/4	***1443**				
	1-1/2	**52-109**	**ST-131**		**43-109**	**B-1430**
	1-1/2	***1277**				
	1-3/4			**63-1064**	**43-1064**	
	2	**52-1066**			**43-1066**	
	2-1/2				**ST-461**	
		*With No. 6 Head **With No. 8 Head				
12 (5.5)	3/8					**ST-108**
	1/2				**43-122**	**ST-149**
	5/8	**ST-122**	**83-123**		**43-123**	
	3/4	**52-124**		**63-124**	**43-124**	**ST-109**
	7/8				**43-125**	
	1	**52-126**	**83-126**	**ST-190**	**43-126**	
	1	**520-001**				
	1-1/4	**52-128**	**ST-577**		**43-128**	
	1-1/4	***1449**				
	1-1/2	**52-129**		**ST-566**	**43-129**	
	1-1/2	***1451**				
	1-3/4	**ST-400**				
	2	**ST-401**			**ST-411**	
		*With No. 10 Head				
14 (6.3)						
	1/2	**ST-402**			**43-142**	
	5/8				**43-143**	
	3/4	**ST-124**			**43-144**	
	7/8	**52-145**			**43-145**	
	1	**52-146**		**ST-83**	**43-146**	**ST-208**
	1-1/4	**52-148**			**43-148**	
	1-1/2	**52-149**			**43-149**	
	1-3/4	**ST-405**			**ST-146**	
	2	**52-1466**		**ST-653**	**43-1466**	
	2-1/4	**ST-406** (Zinc Pltd.)				

CATALOG 13

See section R for Technical Information relating to Tapping Screws

Hardened
STEEL
Inch Sizes

TYPE B SLOT DRIVE

FINISHES: ALL OVAL HEADS - **NICKEL PLATED**
ALL OTHERS **ZINC PLATED**

PACKING: *For Unit Package Quantities, please refer to Price List.*

ORDER: By ***SPAENAUR*** NUMBERS from the following Master Chart.

Made to ASME/ANSI B18.6.4

Inch Sizes (Approx. Metric mm equivalent shown in brackets.)		80° to 82° LENGTH	LENGTH	80° to 82° LENGTH	LENGTH	LENGTH
DIA.	**L.**	**OVAL**	**ROUND**	**FLAT**	**PAN**	**TRUSS**
2 (2.2)	1/8				**ST-1B**	
	3/16		**ST-151B**			
	1/4				**ST-323B**	
	5/16			**ST-691B**		
	3/8			**ST-154B**		
	1/2				**520-570**	
4 (2.9)	3/16		**ST-331B**			
	1/4				**ST-466B**	
	5/16					
	3/8					**ST-160B**
	1/2					**ST-161B**
	5/8					
	3/4					
	1					
6 (3.5)	1/4				**ST-684B**	
	5/16				**ST-157B**	**520-567**
	3/8		**ST-332B**		**ST-651B**	**ST-162B**
	1/2				**ST-683B**	
	5/8					
	3/4					
	7/8					
	1					
	1-1/4					
	1-1/2					
7 (3.9)	1/4					
	3/8				**ST-158B**	
	1/2					
	5/8					
	3/4					
	7/8					
	1					
	1-1/4					
8 (4.2)	1/4					
	5/16					
	3/8		**ST-517B**	**ST-682B**	**ST-318B**	
	1/2				**520-565**	
	5/8					
	3/4			**ST-483B**		
	7/8					
	1			**ST-698B**	**520-572**	
	1-1/8					
	1-1/4					
	1-1/2					
	1-3/4					
	2					

Inch Sizes (Approx. Metric mm equivalent shown in brackets.)		80° to 82° LENGTH	LENGTH	80° to 82° LENGTH	LENGTH	LENGTH
DIA.	**L.**	**OVAL**	**ROUND**	**FLAT**	**PAN**	**TRUSS**
10 (4.8)	1/4					
	3/8				**ST-159B**	
	1/2		**ST-152B**	**ST-594B**		
	5/8					
	3/4		**ST-153B**	**ST-112B**		
	7/8					
	1			**ST-155B**	**520-566**	
	1-1/4			**ST-473B**		
	1-1/2					
	1-3/4					
	2					
12 (5.5)	3/8					
	1/2			**ST-536B**		
	5/8		**ST-512B**			
	3/4		**ST-519B**		**ST-511B**	
	7/8					
	1			**ST-509B**		
	1-1/4					
	1-1/2					
14 (6.3)	3/8		**ST-336B**			
	1/2		**ST-337B**		**ST-338B**	
	5/8					
	3/4		**ST-339B**	**ST-535B**		**2219**
	7/8		**ST-526B**		**2074**	
	1					
	1-1/4			**ST-156B**		
	1-1/2		**ST-600B**	**B-1528**		
	1-3/4			**B-1247**		
	2			**B-1107**		
	2-1/2			**B-1248**		
	3			**B-1249**		

18-8 STAINLESS STEEL

INCH Sizes

TYPE "AB"

Note: *Type AB will be supplied when Type A stocks are depleted.

Type "A" illustrated

***STYLE:** **Type AB** ("B" fine thread with "A" sharp point) is now standard. We will furnish Type A as shown until all stock of same is exhausted.

See Assortment 805-526 on page B95.

PACKING: *UNIT PACKAGE QUANTITY 100 ONLY (PER SIZE)*

Made to ASME/ANSI B18.6.4

Inch Sizes (Approx. Metric mm equivalent shown in Brackets)		80° to 82° LENGTH	LENGTH	80° to 82° LENGTH	LENGTH	LENGTH
DIA.	**L.**	**OVAL**	**ROUND**	**FLAT**	**PAN**	**TRUSS**
4 (2.9)	1/4				**ST-2030**	
	5/16					
	3/8	**ST-2034**		**ST-2032**	**ST-2033**	
	1/2	**ST-2036**			**ST-2035**	
	5/8					
	3/4				**ST-2038**	
6 (3.5)	1/4				**ST-2039**	
	3/8	**ST-2130**	**ST-2040**	**ST-2129**	**ST-2042**	**ST-2041**
	1/2	**ST-2131**		**ST-2043**	**ST-2045**	
	5/8			**ST-2132**	**ST-2046**	
	3/4	**ST-2059**	**ST-2047**	**ST-2133**	**ST-2048**	
	7/8					
	1			**521-059**	**ST-2049**	
	1-1/4					
	1-1/2				**521-062**	
7 (3.9)	3/8				**ST-2052**	
	1/2		**ST-2053**		**ST-2054**	
	5/8					
	3/4				**ST-2055**	
	7/8					
	1				**ST-2056**	
	1-1/4					
	1-1/2					
8 (4.2)	3/8		**ST-2057**		**ST-2058**	**ST-2016**
	1/2	**ST-2062**			**ST-2061**	**ST-2104**
	5/8	**ST-2065**	**ST-2063**	**ST-2089**	**ST-2064**	
	3/4	**521-061**		**ST-2066**	**ST-2068**	**ST-2014**
	7/8					
	1		**ST-2093**	**ST-2015**	**ST-2004**	**ST-2003**
	1-1/4			**521-063**	**ST-2098**	
	1-1/2					
	1-3/4					

Inch Sizes (Approx. Metric mm equivalent shown in Brackets)		80° to 82° LENGTH	LENGTH	80° to 82° LENGTH	LENGTH	LENGTH
DIA.	**L.**	**OVAL**	**ROUND**	**FLAT**	**PAN**	**TRUSS**
10 (4.8)	3/8				**ST-2070**	
	1/2		**ST-2071**	**521-058**	**ST-2072**	
	5/8				**ST-2074**	
	3/4		**ST-2075**	**ST-2090**	**ST-2076**	
	7/8					
	1			**ST-2077**	**ST-2079**	
	1-1/4	**521-060**	**ST-2096**	**ST-2095**	**521-056**	
	1-1/2	**521-064**		**ST-2100**	**521-057**	
	1-3/4					
	2					
12 (5.5)	1/2				**ST-2081**	
	5/8					
	3/4				**ST-2082**	
	7/8					
	1		**ST-2094**		**ST-2083**	
	1-1/4					
	1-1/2					
	1-3/4					
	2					
14 (6.3)	1/2					
	5/8					
	3/4		**ST-2092**		**ST-2084**	
	7/8					
	1				**ST-2099**	
	1-1/4					
	1-1/2					
	1-3/4					
	2					

CATALOG 13

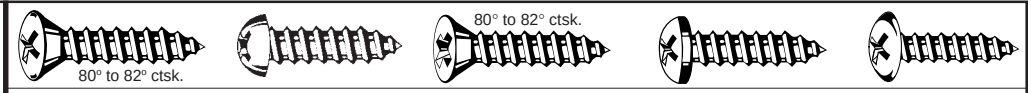
See section R for Technical Information relating to Tapping Screws

Hardened

STEEL

TAPPING SCREWS

INCH Sizes



TYPE AB
PHILLIPS DRIVE

Made to ASME/ANSI B18.6.4
ALL OVAL HEADS - NICKEL PLATED
ALL OTHERS - ZINC PLATED

NOTE: Type A, as shown, is being replaced by Type AB ("B" fine thread with "A" sharp point). Type A will be furnished until stock sold.

B

Inch Sizes (Approx. Metric mm equivalent shown in Brackets.)		80° to 82° LENGTH	LENGTH	80° to 82° LENGTH	LENGTH	LENGTH
DIA.	L.	OVAL	ROUND	FLAT	PAN	TRUSS
2 (2.2)	1/2				530-125	
4 (2.9)	1/4		B-1137	B-387	ST-200P	
	3/8	ST-525P		530-001	ST-344P	
	1/2	ST-65P		530-002	ST-606P	
	5/8			530-738	530-041	
	3/4	B-348	ST-164P	530-003	530-042	
	1			530-004	530-043	
6 (3.5)	1/4			ST-167P	1935	ST-702P
	5/16				ST-484P	
	3/8	B-1558		ST-168P	1936	530-062
	1/2	ST-63P		1946	1937	ST-495P
	5/8	1793		530-005	ST-41P	530-063
	3/4	1794		ST-170P	2364	530-064
	3/4			*ST-62P		
	7/8	1795		530-006		
	1	1796		530-007	ST-89P	
	1-1/4	1797		530-732	530-044	
	1-1/2			530-008	530-045	
	2			530-009	530-046	
	*With No. 4 Head					
7 (3.9)	1/2			ST-171P	ST-522P	
	5/8		ST-166P			
	1	ST-28P				
8 (4.2)	1/4				1938	
	5/16					
	3/8	*2024		530-010	1939	ST-176P
	7/16		▲ST-61P	ST-38P		
	1/2	2358		ST-611P	1940	530-065
	1/2	*2027		*1711		
	5/8	ST-13P		530-011	B-1120	530-742
	5/8	*1421				
	3/4	2359		530-012	B-1121	ST-348P
	3/4	*1798		*1712		
	7/8	ST-14P		530-013	530-047	
	7/8	*1800				
	1	2360	ST-646P	530-743	B-1260	530-066
	1	*1483				
	1-1/8	*1802			ST-346P	
	1-1/4	2361		*ST-659P	ST-631P	530-067
	1-1/4	*1803				
	1-3/8	ST-32P				
	1-3/8	*1803A				
	1-1/2	2362		530-014	ST-723P	
	1-1/2	*1932				
	1-3/4	ST-25P		530-015	2088	
	1-3/4	*1933				
	2	ST-26P		530-016	530-048	
	2	*ST-2P				
	*With No.6 Hd. ▲With Washer Hd.					

Inch Sizes (Approx. Metric mm equivalent shown in Brackets.)		80° to 82° LENGTH	LENGTH	80° to 82° LENGTH	LENGTH	LENGTH
DIA.	L.	OVAL	ROUND	FLAT	PAN	TRUSS
8 (4.2)	2-1/4	ST-27P				
	2-1/2	*ST-312P		530-017	530-049	
	3			530-018	530-050	
	*With No.6 Hd.					
10 (4.8)	3/8				1942	ST-494P
	1/2			530-019	1943	ST-695P
	1/2	**ST-77P		**ST-39P		
	9/16					
	5/8	530-739		ST-578P	1943A	530-068
	5/8	**ST-16P	▲2214			
	3/4	ST-18P		ST-43P	2366	ST-487P
	3/4	*1717				
	7/8	ST-37P				ST-488P
	1	ST-17P		530-020	ST-648P	ST-465P
	1	*1804				
	1	**ST-19P				
	1-1/8	1807				
	1-1/4	ST-20P		530-021	530-735	ST-524P
	1-3/8	ST-21P				
	1-3/8	530-126 Zinc Plated				
	1-1/2	ST-22P		530-022	1943B	ST-489P
	1-1/2	*2046				
	1-1/2	**ST-69P				
	1-3/4	ST-23P		530-023	530-051	
	1-3/4	*2047				
	2	ST-4P		530-024	530-052	
	2	*ST-71P				
	2	**ST-72P				
	2-1/4	ST-75P		530-025	530-128	
	2-1/4	**ST-74P				
	2-1/2			530-026	530-053	
	3			530-027	530-054	
	*With No. 6 Hd. **With No. 8 Hd. ▲With Washer Hd.					
12 (5.5)	1/2	ST-412P			ST-342P	530-069
	1/2	**ST-410P				
	5/8		2087		ST-343P	
	5/8	**ST-414P				
	3/4	ST-418P		530-028	2367	530-070
	7/8	*ST-419P				
	1	**ST-422P		ST-172P	ST-463P	530-071
cont'd	*With No. 8 Hd. **With No. 10 Hd.					

Hardened STEEL TAPPING SCREWS PHILLIPS DRIVE — TYPE AB

PLATING:
Oval Heads - Nickel Plated
Other Styles - Zinc Plated

Inch Sizes (Approx. Metric mm equivalent shown in brackets.)		OVAL (80° to 82°)	ROUND	FLAT (80° to 82°)	PAN	TRUSS
DIA.	L.					
cont'd	1-1/4	ST-426P		530-029	530-055	
	1-1/4	*ST-424P				
	1-1/2	*ST-427P	ST-673P		530-729	
12 (5.5)	1-3/4	ST-431P		530-030	530-056	
	1-3/4	*ST-429P				
	2	*ST-432P		530-031	ST-10P	
	2-1/2			530-032	530-057	
	3			530-033	530-058	
		*With No. 8 Head				
	1/2	ST-437P			ST-464P	
	1/2	*ST-435P				
	5/8	ST-440P			2216	
	5/8	*ST-438P				
	3/4	ST-443P	ST-530P	530-034	ST-198P	
	3/4	*ST-441P				
	7/8	ST-446P		ST-592P	ST-523P	
	7/8	*ST-444P				
	7/8	**ST-445P				
	1	ST-340P		530-035	ST-315P	
	1	*ST-447P				
	1-1/4	ST-341P		530-036	530-059	
14 (6.3)	1-1/2	ST-453P		530-037	ST-33P	
	1-1/2	*ST-451P				
	1-1/2					
	1-3/4	ST-456P			ST-34P	
	1-3/4	*ST-454P				
	1-3/4	**ST-455P				
	2			530-038	530-061	
	2-1/4				B-1336	
	2-1/2			530-039	ST-11P	
	3			530-040	ST-12P	
P.C. 530						
		*With No. 10 Head	**With No. 12 Head			

STAINLESS STEEL
SEE PAGE B102.

Made to ASME/ANSI B18.6.4

Hardened STEEL TAPPING SCREWS PHILLIPS DRIVE — TYPE B

FINISH:
ZINC PLATED

Inch Sizes (Approx. Metric mm equivalent shown in brackets.)		OVAL (80° to 82°)	ROUND	FLAT (80° to 82°)	PAN	TRUSS
DIA.	L.					
2 (2.2)	3/16				530-736	
	1/4			530-072	530-737	
	5/16			530-733	530-084	
	3/8			ST-605P	530-744	
	7/16				▲530-747	
4 (2.9)	1/4		ST-174PB		530-726	
	3/8			530-073	530-085	
	1/2			530-074	530-086	
6 (3.5)	1/4		ST-624P		530-087	
	5/16			530-730	ST-209PB	
	3/8	ST-598P		530-075	B-1436	530-117
	1/2			530-130		
	7/8				530-088	
	1			▲530-746	530-745	
8 (4.2)	1/4				ST-175PB	
	5/16				530-721	
	3/8				■530-728	ST-176PB
	1/2			ST-3P	ST-508P	530-118
	5/8			ST-532P	B-1408	530-119
	3/4			530-076	B-1412	530-120
	1			530-077	530-089	
	1-1/4			530-078	530-090	
10 (4.8)	3/8				ST-634P	530-121
	1/2			▲530-079	530-727	530-122
	5/8			530-080	B-1431	530-123
	3/4			530-081	530-091	530-124
	1			530-082	530-092	
	1-1/4			530-083	530-093	
12 (5.5)	1/2				530-094	ST-49P
	3/4				530-095	
	1		ST-520P		530-096	
14 (6.3)	1/2				530-097	ST-177PB
	5/8					B-1399
	1				530-098	530-734
	1-1/4			ST-320P	530-099	
	1-1/2			ST-212P	530-114	
	1-3/4			ST-213P	530-115	
	2			ST-214P	530-116	
	2-1/4			ST-215P		
	2-1/2			ST-216P		
	3			ST-217P		

For Unit Package Quantities please refer to the price list.

▲ Undercut Hd.
■ Phillips/Slot Comb. Drive

CATALOG 13

TYPE AB SELF-TAPPING SCREWS

UNIT PKG. QTY. 100

Phillips Rd. Washer Head
Low Profile

Head O.D. 3/8" (•9/32")

SPAENAUR No.	Size	Finish
530-740	8 x 3/8"	Black Zinc
•530-741	8 x 3/8"	
530-725	8 x 3/8"	Zinc Chromate Finish
530-685	8 x 1/2"	
530-060	8 x 5/8"	

Phillips Wafer Head

SPAENAUR No.	Size	Hd. Dia.	Finish
530-722	8 x 1/2"	7/16"	Z. Chr.
*531-008	4 x 3/8"	7/32"	—

Material: Case Hardened Steel, except *531-008 which is Stainless Steel.

ASSORTMENT / ASSORTIMENT B-570

TYPE AB TAPPING SCREWS
(Sheet Metal Screws)
PHILLIPS DRIVE
(Oval, Pan and Flat Head)
STEEL, Plated
Contains 1095 Screws in 36 Sizes
Red enamelled, all steel container
16-1/4" x 11-1/4" x 2"

Shipping Wt. - 5.90 kg (13 lbs.)

Contents of Assortment

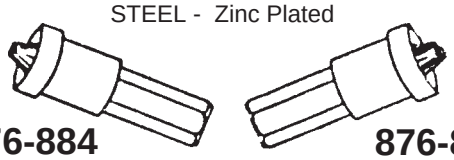
DIA. x LGTH.	HEAD	ASS'T. QTY.	DIA. x LGTH.	HEAD	ASS'T. QTY.
6 x 3/8"	Pan	30	*8 x 1-3/8"	Oval	25
6 x 5/8"	Pan	30	8 x 1-1/2"	Oval	30
6 x 3/4"	Oval	30	*8 x 1-3/4"	Oval	20
6 x 1/2"	Pan	30	8 x 1-3/4"	Pan	15
6 x 1"	Oval	20	10 x 3/8"	Pan	30
8 x 3/8"	Pan	30	10 x 1/2"	Pan	50
8 x 1/2"	Oval	30	10 x 5/8"	Pan	50
8 x 1/2"	Pan	50	10 x 3/4"	Pan	50
*8 x 1/2"	Flat	30	*10 x 3/4"	Oval	50
*8 x 5/8"	Oval	30	*10 x 1"	Oval	30
8 x 3/4"	Oval	30	10 x 1-1/8"	Oval	25
*8 x 3/4"	Oval	30	*10 x 1-1/2"	Oval	15
8 x 3/4"	Pan	50	■10 x 1-1/2"	Oval	20
*8 x 7/8"	Oval	50	*10 x 1-3/4"	Oval	15
8 x 1"	Flat	30	12 x 3/4"	Pan	30
*8 x 1"	Oval	30	14 x 2-1/4"	Pan	15
*8 x 1-1/8"	Oval	20	14 x 2-1/2"	Pan	15
8 x 1-1/4"	Oval	30			
*8 x 1-1/4"	Oval	30			

* No. 6 Head ■ No. 8 Head

THE INDENTER™

DRYWALL SCREW SETTER

STEEL - Zinc Plated



876-884 — #2 Phillips Drywall Screw Indenter

1" BITS

876-885 — R2 Square Recess Drywall Screw Indenter

Priced Singly

Trim Head Screw (Torx Drive)

Low Carbon Steel - Case Hardened
Yellow Zinc Plated - Teflon Coated

T10 Recess Drive

SPAENAUR No.	Dimensions Metric	Dimensions U.S. Standard	Pkg. Qty.
139-012	4.0 x 40 mm	8 x 1-1/2"	100

For all trim applications.

Hardened STEEL TAPPING SCREWS

ZINC PLATED

TYPE B

Inch Sizes

SOCKET DRIVE ■ **(Bold Face Type)**
SLOTTED/SOCKET DRIVE (Light Face Type)

DIA.	LGTH.	ROUND	FLAT	PAN	TRUSS
6 (Approx. 3.5 mm)	1/4"	**535-007**			**ST-689B**
	3/8"			**ST-319B**	
	1/2"				
	5/8"	**ST-687**			
	3/4"				
8 (Approx. 4.2 mm)	1/4"			535-022	
	5/16"			535-021	535-020ZP
	5/16"				▲535-020
	3/8"			**ST-307B**	**535-016**
	1/2"				
	3/4"	535-004			
10 (Approx. 4.8 mm)	3/8"				**535-009**
	3/8"			("Scrulox 8")	**535-400**
	3/4"		**ST-197**		
	7/8"				

▲ Green Aerodite Finish

See page B123 for larger sizes.
See page B103 for Tapping Screws, Square Socket, Type AB.

HI-LO® DRYWALL SCREWS

Unique Hi-Lo threads provide maximum engagement where high pullout strength is required.

Bugle

Trim

Hardened Steel - Phosphate Coated
Phillips Drive
Slotted Shank for Metal
BUGLE HEAD STYLE

SPAENAUR No's. Unit Pkg. 100	SPAENAUR No's. Bulk Pkg. 10 kg (Sold in full pkgs. only.)	Size
560-014	—	8 x 1"
560-015	—	8 x 1-1/4"
560-032 (with Climaseal coating)		8 x 1-5/8"
560-017	—	8 x 2-1/4"
560-018	**560-029**	8 x 2-5/8"
TRIM HEAD STYLE		
560-019	**560-030**	8 x 1-5/8"

For Truck and Trailer FLOOR BOARD and PLYWOOD LINING SCREWS - see page B123.

B

18-8 STAINLESS STEEL TAPPING SCREWS

TYPE A (or AB at our option) PHILLIPS DRIVE

Made to ASME/ANSI B18.6.4

Inch Sizes (Approx. mm equivalent shown in brackets.)		80° to 82° LENGTH	80° to 82° LENGTH	LENGTH	LENGTH
DIA.	L.	OVAL	FLAT	PAN	TRUSS
2 (2.2)	7/16			⌖526-004	
	1				
4 (2.9)	1/4			531-010	531-163
	3/8	531-161	531-089*	531-011*	
	1/2	531-020	531-016	531-012*	531-023
	5/8		531-017	531-013	
	3/4	531-021	531-018	531-014	
	1	531-022	531-019	531-015	
6 (3.5)	1/4			531-024	
	3/8	531-040	531-033*	•531-025*	ST-2086P*
	1/2	531-041*	531-034*	531-026*	531-047
	5/8	531-042	531-035*	531-027	531-048
	3/4	531-043*	531-036*	531-028*	531-049
	1	531-044	531-037	531-029*	531-050
	1-1/4	531-045	531-038	531-030	531-051
	1-1/2	531-046	531-039	531-031	
	2			531-032	
8 (4.2)	3/8		531-061	531-052	531-078
	1/2	531-070*	531-062	531-053*	531-001*
	5/8	531-071*	531-063*	531-054	531-079
	3/4	531-072	531-064*	531-055*	531-080*
	1	531-073	531-065*	531-056*	531-081*
	1-1/4	531-074	531-066	531-057*	531-082
	1-1/2	531-075	531-067	531-058	531-083
	1-3/4	531-076	531-068	531-059	
	2	531-077	531-069	531-060	531-084
10 (4.8)	3/8			531-085	531-117
	1/2	531-107	531-097	■531-086*	531-118
	5/8	531-108	531-098	531-087	531-119
	3/4	531-109	531-099*	531-088*	531-120
	1	531-110	531-100*	531-090*	531-121
	1-1/4	531-111	531-101	531-091	531-122
	1-1/2	531-112	531-102	531-092	531-123
	1-3/4	531-113	531-103	531-093	531-124
	2	531-114	531-104	531-094	531-125
	2-1/2	531-115	531-105	531-095	531-162
	3	531-116	531-106	531-096	

Inch Sizes (Approx. mm equivalent shown in brackets.)		80° to 82° LENGTH	80° to 82° LENGTH	LENGTH	LENGTH
DIA.	L.	OVAL	FLAT	PAN	TRUSS
12 (5.5)	1/2			531-126	
	5/8			531-127	
	3/4	531-138	531-133	531-128*	
	1	531-139	531-134	531-129*	
	1-1/4	531-140	531-135	531-130	
	1-1/2	531-141	531-136	531-131	
	2	531-142	531-137	531-132	
14 (6.3)	1/2	531-154		531-143	
	3/4	531-155	531-149	531-144	
	3/4	ST-2000P▼			
	1	531-156	531-150	531-145*	531-160
	1-1/4	531-157	531-151	531-146	
	1-1/2	531-158	531-152	531-147	
	2	531-159	531-153	531-148	
		▼ #12 Hd., 430 S.S.			

•**526-003** Type B ■**526-002** Type B ⌖Type B

⁎No's. this page followed by an asterisk (⁎) are items in the assortment.

ASSORTMENT / **ASSORTIMENT** **805-546**

18-8 STAINLESS STEEL TAPPING SCREWS

Shipping Wght: 3.60 kg (7.92 lbs.)

Contains 900 screws, in 34 sizes ranging from #4 x 3/8" to #14 x 1".

Quantities of each number in assortment vary from 20 to 30 pieces.

Also includes 50 each of W-2010 #6 & W-2011 #8 Countersunk Finishing Washers of Stainless Steel.

Furnished in Regular Size Steel drawer which will fit into Slide Racks shown on page A2.

Clear durable, plastic container 1" x 2-3/4" x 4-1/2"

Plastikit / **«Plastikit»** **804-080**

TAPPING SCREWS Type A-AB
18-8 Stainless Steel
20 Varieties — 200 Pieces
Phillips Drive
Oval, Flat, Pan and Truss Heads
Size Range: 6 x 1/4" to 10 x 1-1/2"

CATALOG 13

INCH Sizes **Hardened STEEL**

UNIT PACKAGE 100
ALL SCREWS ON THIS PAGE.

TYPE AB SOCKET DRIVE

Note: Type A, as shown, is being replaced by Type AB ("B" fine thread with "A" sharp point). We will furnish Type A until all stock of same is exhausted.

FINISH:
ZINC PLATED

Made to IFI Specifications.
(Type B on page B101.)

† Slight Flattening of Head Crown may occur due to formation of square socket recess.

ASSORTMENT / ASSORTIMENT 805-531

Assortment is assembled from a variety of sizes and quantities of screws listed on this page. **1,000 PIECES**

32 VARIETIES IN ASSORTMENT

Square Socket Oval Head

6 x 5/8"	8 x 1"	10 x 1"
8 x 5/8"	10 x 1/2"	

Square Socket Flat Head

6 x 3/8"	6 x 1-1/2"	10 x 3/4"
6 x 3/4"	8 x1/2"	10 x 1-1/2"
6 x 1"	8 x 1-1/2"	14 x 1"

Square Socket Pan Head

4 x 3/8"	8 x 1"	12 x 1"
6 x 1/4"	10 x 1/2"	14 x 3/4"
6 x 1/2"	10 x 1"	14 x 1-1/2"
6 x 2"	10 x 2"	
8 x 1/4"	12 x 1/2"	

Square Socket Truss Head

6 x 5/8"	8 x 2"	10 x 1-1/4"
8 x 3/4"	10 x 3/4"	

Regular Size grey enamelled steel drawer.

Priced Singly

Shipping Wt. 4.30 kg (9-1/2 lbs.)

STAINLESS STEEL ON FOLLOWING PAGE

Inch Sizes (Approx. metric mm equivalent shown in brackets.)		80° to 82° ctsk. OVAL	† ROUND	80° to 82° ctsk. FLAT	PAN	TRUSS
DIA.	**L.**					
4 (2.9)	1/4				ST-271	
	3/8			ST-255	ST-272	ST-294
	1/2				535-002	ST-295
	3/4		ST-314	535-010		ST-690
5 (3.2)	3/8					
	1/2			ST-694		
6 (3.5)	1/4				ST-273	
	5/16				535-001	ST-211▲
	3/8			ST-256	ST-274	535-013
	1/2			ST-257	ST-275■	ST-29
	5/8				ST-276	ST-296
	3/4			ST-258	ST-311	
	1			ST-259	ST-629	
	1-1/8					535-403
	1-1/4		535-401	ST-663		535-003
	1-1/2			ST-664		ST-467
	2				ST-630	
8 (4.2)	1/4				ST-277	
	3/8			ST-665	ST-278	535-006
	1/2			ST-260	ST-279	ST-297
	5/8	ST-228			ST-280	
	3/4	ST-229		ST-261•	ST-281	ST-298
	7/8	ST-230				
	1	ST-231		ST-262	ST-282	ST-299
	1-1/4	ST-232		ST-263	ST-313	
	1-1/2			ST-264	ST-503	ST-609
	2					ST-628
	2-1/2				535-025	
10 (4.8)	3/8				ST-283	
	1/2	ST-233			ST-284	535-012
	5/8				ST-285	ST-300
	3/4	ST-234		ST-95R	ST-286	ST-492
	7/8					ST-301
	1	ST-235		ST-266	ST-287	ST-627
	1-1/4	ST-236	535-005*	ST-729	ST-317	ST-302
	1-1/2			ST-267	ST-347	
	1-3/4				535-015	
	2			ST-505	ST-482	
12 (5.5)	1/2				ST-288	
	3/4		ST-251	ST-268	ST-289	ST-303
	1				ST-290	ST-304
	1-1/4			ST-269	ST-584	
	1-1/2	ST-238				
	2				535-023	
	3			535-026		
14 (6.3)	5/8				ST-680	
	3/4				ST-291	
	7/8				ST-292	
	1			ST-270	ST-293	
	1-1/4				ST-204	ST-586
	1-1/2			ST-501	ST-203	
P.C. 535	2				ST-202	

■**535-017** Slot/Socket
•**535-018** 60° CTSK.

*Scrulox 8 Drive
▲ Slot/Socket

B

18-8 STAINLESS STEEL
INCH Sizes

TYPE AB SOCKET DRIVE

Note: Type A, as shown, is being replaced by Type AB ("B" fine thread with "A" sharp point). We will furnish Type A until all stock of same is exhausted.

Made to IFI Specifications.

ASSORTMENT / ASSORTIMENT 805-530

Assortment is assembled from a variety of sizes and quantities of screws listed on this page. **690 PIECES**

30 Varieties in Assortment

Square Socket Oval Head

6 x 1/2"	8 x 3/4"	10 x 1"
6 x 3/4"	8 x 1"	10 x 1-1/2"
6 x 1"	8 x 1-1/4"	

Square Socket Flat Head

8 x 1/2"	10 x 1-1/4"	12 x 2"
8 x 1"	10 x 2"	14 x 1-1/2"
8 x 1-1/2"	12 x 1"	14 x 2"
10 x 3/4"	12 x 1-1/2"	

Square Socket Pan Head

6 x 1/2"	8 x 1-1/2"	14 x 3/4"
6 x 3/4"	10 x 3/4"	14 x 1"
8 x 1/2"	10 x 1-1/4"	14 x 1-1/2"
8 x 1"	10 x 2"	

Furnished in a Regular Size grey enamelled steel drawer, will fit slide racks shown on page A2.

Shipping Weight 4.08 kg (9 lbs.)

Priced Singly

Inch Sizes (Approx. mm equivalent shown in brackets.) DIA.	L.	80° to 82° ctsk. OVAL	ROUND	80° to 82° ctsk. FLAT	PAN	Unit Pkg. Qty.
6 (3.5)	1/4					100
	5/16					
	3/8				536-066	
	1/2	536-024		536-036	536-001	
	5/8					
	3/4	536-025		536-037	536-002	
	1	536-026		536-038	536-003	
	1-1/4					
	1-1/2					
8 (4.2)	3/8					
	1/2			536-039	❑536-004	
	5/8		†536-071			
	3/4	536-027		536-040	ST-2011-S	
	3/4				*ST-2001-S	
	1	536-028		536-041	536-005	50
	1-1/4	536-029		536-042	536-006	
	1-1/2	536-030		536-043	536-007	
	1-3/4			536-044		
	2			536-045	536-008	
10 (4.8)	3/8					100
	1/2			536-046	536-009	
	5/8					
	3/4	536-031		536-047	536-010	50
	1	536-032		536-048	536-011	
	1-1/4	536-033		536-049	536-012	
	1-1/2	536-034		536-050	536-013	
	1-3/4			536-051		25
	2	536-035		536-052	536-014	
	2-1/2			536-053	536-067	
	3			536-054		
12 (5.5)	1/2					50
	3/4				536-015	
	1			536-065	536-016	
	1-1/4			536-055	536-017	
	1-1/2			536-056	536-018	25
	1-3/4			536-057		
	2			536-058	536-019	
	2-1/2			536-059		
	3-1/2			536-069	536-068	
14 (6.3)	3/4				536-020	50
	1				536-021	25
	1-1/4			536-060		
	1-1/2			536-061	536-022	
	1-3/4					
	2			536-062	536-023	
	2-1/2			536-063		
	3			536-064		

*****430 Stainless Steel - Type A
†Round Washer Head 410H plain finish, Slot/Sq. Socket Drive
❑**536-072** Truss Head

CATALOG 13

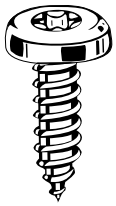
Hardened

STEEL

TAPPING SCREWS

- ***Faster installation***
- ***Stops cam-out***
- ***Bits last longer***

Metric Sizes



PAN HEAD

TORX®

STYLE: Type AB ("B" fine thread with "A" sharp point)
FINISH: ZINC PLATED

SPAENAUR No.	Size (mm) Dia. x Lgth.	Unit Pkg. Qty.	Bit Size	Use Driver No.
540-053	M2.9 x 6.5	100	T8	876-607
540-054	M2.9 x 9.5	100	T8	876-607
540-055	M2.9 x 13.0	100	T8	876-607
540-056	M2.9 x 16.0	100	T8	876-607
540-057	M2.9 x 19.0	100	T8	876-607
540-058	M2.9 x 25.0	100	T8	876-607
540-001	M3.5 x 6.5	100	T15	876-609
540-003	M3.5 x 13.0	100	T15	876-609
540-005	M3.9 x 19.0	100	T15	876-609
540-008	M4.2 x 16.0	100	T20	876-610
540-010	M4.8 x 9.5	100	T20	876-610
540-013	M4.8 x 19.0	100	T20	876-610
540-014	M5.5 x 13.0	100	T30	876-613
540-016	M6.3 x 16.0	100	T30	876-613
540-017	M6.3 x 22.0	100	T30	876-613

DIAMETER COMPARISONS		
Metric	**Inch Gauge**	**Inch Decimal**
M2.9	(#4)	0.1120
M3.5	(#6)	0.1380
M3.9	(#7)	0.1510
M4.2	(#8)	0.1640
M4.8	(#10)	0.1900
M5.5	(#12)	0.2160
M6.3	(#14)	0.2580

STAINLESS STEEL, Type 302

Auto Trim *Torx Drive*

METRIC TAPPING SCREWS

Type AB Thread

A "must" for Auto Body Shops

TORX®

Torx OVAL Head

TAPPING Screws

Torx PAN Head

4.2 mm Screw Dia. = #8 Inch Dia.

Torx
OVAL HEAD

SPAENAUR No.	Size (mm) Dia. x Lgth.	Finish	Pkg. Qty.	Driver
541-002	4.2 x 16	Chrome	50	Bit Size T15 Driver No. 876-609
541-003	4.2 x 20	Chrome	50	
541-004	4.2 x 20	Black	50	
541-005	4.2 x 30	Chrome	50	
541-006	4.2 x 30	Black	50	
541-007	4.2 x 55	Chrome	25	
541-008	4.2 x 70	Chrome	25	
541-009	4.2 x 70	Black	25	

Torx
PAN HEAD

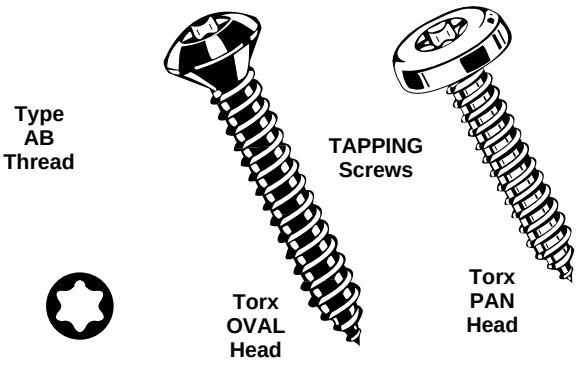
541-201	4.2 x 13	Plain	50	Bit Size T15 Driver No. 876-609
541-203	4.2 x 20	Chrome	50	
541-204	4.2 x 20	Black	50	
541-206	4.2 x 20	Plain	50	
541-205	4.2 x 25	Plain	50	
541-209	4.2 x 35	Chrome	25	
541-211	4.2 x 50	Black	25	

B

TORX®

STAINLESS STEEL
TYPE 302

TRIM SCREWS



4.2 mm Screw Dia. = #8 Inch Dia.

For Automotive service

Metric **STAINLESS STEEL** Type 302

Auto Trim *Torx Drive*

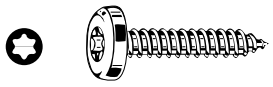
METRIC - TAPPING SCREWS

Style AB Thread

A "must" for Auto Body Shops

Torx
OVAL HEAD

SPAENAUR No.	Size (mm)	Finish	UNIT Pkg.	Driver
541-001	4.2 x 13	Chrome	50	
541-002	4.2 x 16	Chrome	50	Bit
541-003	4.2 x 20	Chrome	50	Size
541-004	4.2 x 20	Black	50	T15
541-005	4.2 x 30	Chrome	50	
541-006	4.2 x 30	Black	50	Driver
541-007	4.2 x 55	Chrome	25	No.
541-008	4.2 x 70	Chrome	25	**876-609**
541-009	4.2 x 70	Black	25	



Torx
PAN HEAD

541-201	4.2 x 13	Plain	50	Bit
541-203	4.2 x 20	Chrome	50	Size
541-204	4.2 x 20	Black	50	T15
541-206	4.2 x 20	Plain	50	
541-205	4.2 x 25	Plain	50	Driver
541-209	4.2 x 35	Chrome	25	No.
541-211	4.2 x 50	Black	25	**876-609**

Every Auto Body Shop needs one!

Metric **STAINLESS STEEL** Type 302

Auto Trim *Torx Drive*

METRIC - TAPPING SCREWS

Style AB Thread

A "must" for Auto Body Shops

Contents of Assortment 805-497

Torx
OVAL HEAD

SPAENAUR No.	Size (mm)	Qty. in Kit
541-001	4.2 x 13	30
541-002	4.2 x 16	30
541-003	4.2 x 20	30
541-004	4.2 x 20	30
541-005	4.2 x 30	30
541-006	4.2 x 30	30
541-007	4.2 x 55	20
541-008	4.2 x 70	15
541-009	4.2 x 70	15

Torx
PAN HEAD

SPAENAUR No.	Size (mm)	Qty. in Kit
541-201	4.2 x 13	30
541-203	4.2 x 20	30
541-204	4.2 x 20	30
541-205	4.2 x 25	30
541-209	4.2 x 35	30
541-211	4.2 x 50	20
876-609	Torx Bit T-15 Hand Driver	1

Priced Singly

SPAENAUR

ASSORTMENT / ASSORTIMENT **805-497**

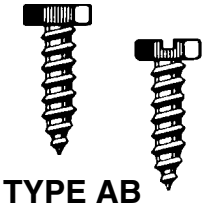
Assortment Contains

15 Sizes 400 Pieces
Plus 1 TORX Driver

Shipping weight (2.61 kg) 5-3/4 lbs.

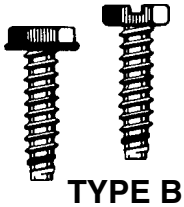
REGULAR SIZE Grey Enamelled Drawer fits the Slide Racks shown on page A2.

CATALOG 13



SPECIAL ASSORTMENT - ASSORTIMENT SPÉCIAL

ASSORTMENT / ASSORTIMENT B-575



TYPE AB **HEXAGON HEAD** **TAPPING SCREWS** **TYPE B**

Hardened
STEEL
Inch Sizes

Priced Singly

1-1/2" x 10-5/8" x 15-3/4"

Contains 36 sizes - 716 screws. All screws are zinc plated. Covers entire range of Hexagon Head Sheet Metal Screws from No. 6 to 3/8" dia. inclusive - lengths from 1/4" to 1-1/2". Red enamelled, all-steel box. Hinged lid with illustrated chart. Smaller screws are in SCOOPED bottom bins for easy removal. Refills always available in "Unit Packages."

Shipping weight 7.14 kg (15-3/4 lbs.)

See pages B108 and B109 for various items featured in this kit and our complete line.

Contents of Assortment B-575

ASS'T QTY.	*SPAENAUR No.*	SIZE
Regular Hexagon Head Type AB		
25	1247	7 x 3/8"
25	2368	8 x 3/8"
25	2389	8 x 1/2"
25	T-59	8 x 3/4"
20	2388	10 x 5/8"
25	1780	12 x 1/2"
25	2012	14 x 1/2"
25	2179	14 x 5/8"
25	1781	14 x 3/4"
20	2267	14 x 1-1/4"
15	B-1305	14 x 1-1/2"
15	ST-355H	5/16" x 5/8"
20	2110	5/16" x 3/4"
15	2268	5/16 x 1"
15	2269	5/16" x 1-1/4"
Regular Hexagon Head Type AB		
10	B-1136	3/8" x 1"
Slotted Hexagon Type AB		
25	ST-625H	12 x 3/4"
Hexagon Washer Head Type AB		
20	2369	10 x 1/2"
25	2370	14 x 5/8"
25	2330	14 x 3/4"
25	ST-365H	14 x 1"
Slotted Hex. Washer Head Type AB		
25	ST-326H	8 x 1/2"
Slotted Hexagon Head Type B		
25	B-1098	6 x 1/4"
25	B-1097	8 x 5/16"
20	2011	10 x 1/2"
Hexagon Washer Head Type B		
15	T-60	10 x 1"
25	ST-85H	14 x 9/16"
Indented Hexagon Washer Head Type 1		
15	ST-504H	10-24 x 5/8"
25	B-434	1/4"-20 x 1/2"
6	ST-735H	5/16"-18 x 5/8"
15	B-739	5/16"-18 x 1/2"
15	B-1063	3/8"-16 x 5/8"
Indented Hexagon Head Type 1		
15	2013	1/4"-20 x 3/4"
15	2014	5/16"-18 x 1"
10	B-865	3/8"-16 x 1"
Acme Thread		
15	1916	5/16"-10 x 7/8"

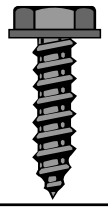
ALUMINUM

7075-T6 Alloy/Etched Finish

TAPPING SCREWS

UNSLOTTED HEX WASHER HEAD

TYPE AB



All sizes 1/4" Hex A/F.

SPAENAUR No.	SIZE
519-001	8 x 1/2"
519-002	8 x 3/4"
519-003	8 x 1"
519-004 (Slotted)	8 x 1-1/4"
519-005	8 x 1-1/2"
***519-006**	10 x 1/2"
***519-008**	10 x 1"

*No. 8 Head

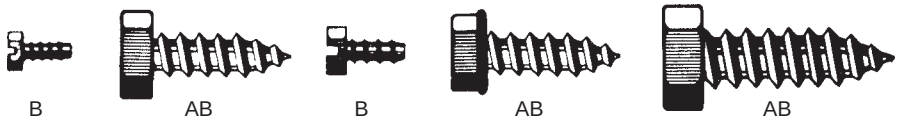
Use with Aluminum Products to avoid Galvanic Corrosion

ALUMINUM SELF-TAPPING SCREWS

SPAENAUR No.	Size	Head Style	Type	Plain Finish
ST-3000	8 x 3/8"	Round Slot	A	

B

Hardened
STEEL
TAPPING SCREWS



TYPE AB
TYPE B
INDENTED HEXAGON HEAD

TYPE AB

NOTE: Type AB replaces Type A. Most sizes are supplied Type AB but for some sizes, Type A will be furnished until stock is exhausted.

FINISHES: **ALL SCREWS - ZINC PLATED**
PACKING: *For Unit Package Quantities, please refer to Price List.*
ORDER: By ***SPAENAUR*** NUMBERS from the following master chart.

Made to ASME/ANSI B18.6.4

Inch Sizes (Approx. Metric mm equivalent shown in brackets.)													
SIZE		**REGULAR HEXAGON HEAD TYPE AB**		**SLOTTED HEXAGON HEAD TYPE AB**		**HEXAGON WASHER HEAD TYPE AB**		**SLOTTED HEX. WASHER HEAD TYPE AB**		**SLOTTED HEXAGON HEAD TYPE B**		**HEXAGON WASHER HEAD TYPE B**	
DIA.	**L.**	***SPAENAUR No.***	Hex Width	***SPAENAUR No.***	Hex Width	***SPAENAUR No.***	Hex Width	***SPAENAUR No.***	Hex Width	***SPAENAUR No.***	Hex Width	***SPAENAUR No.***	Hex Width
4 (2.9)	1/4							See page B114 for Type A Threads				†525-172	3/16
	3/8												
	7/16					**ST-601H**	3/16						
	1/2												
6 (3.5)	1/4	**ST-616H**	1/4							**B-1098**	1/4		
	3/8					**525-156**	1/4	**ST-372H**	1/4	**B-1519**	1/4		
	7/16												
	1/2					**525-157**	1/4	**ST-373H**	1/4	**B-1520**	1/4		
	5/8					**525-143**	1/4	**ST-374H**	1/4				
	3/4							**ST-375H**	1/4				
	7/8							**ST-376H**	1/4				
	1					**525-153**	1/4	**ST-377H**	1/4				
7 (3.9)	3/8	**1247**	1/4										
	7/16												
	1/2												
	9/16												
8 (4.2)	1/4									**ST-8H**	1/4		
	5/16	**ST-44H**	1/4							**B-1097**	1/4	**†ST-585H**	1/4
	3/8	**2368**	1/4			***525-146**	1/4	**ST-57H**	1/4			**525-002**	1/4
	7/16												
	1/2	**2389**	1/4			**▲525-151**	1/4	**ST-326H**	1/4	**ST-6H**	1/4	**ST-655H**	1/4
	5/8					***525-144**	1/4	**ST-379H**	1/4				
	3/4	**T-59**	1/4			**525-154**	1/4	**ST-380H**	1/4				
	7/8							**ST-381H**	1/4				
	1	**2487**	1/4			**525-158**	1/4	**ST-382H**	1/4				
	1-1/4					**ST-574H**	1/4	**ST-383H**	1/4				
	1-1/2			**ST-568H**	1/4	**525-145**	1/4	**ST-469H**	1/4				

SEE PAGE B107 FOR ASSORTMENT / ASSORTIMENT **B-575**

† Slotted Head
▲525 -116 0.42" Washer O.D.
*With Slotted Shank

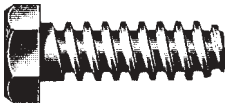
Hardened
STEEL

INDENTED HEXAGON HEAD TAPPING SCREWS TYPE AB TYPE B

NOTE: Type AB replaces Type A. Most sizes are supplied Type AB but for some sizes, Type A will be furnished until stock is exhausted.

ZINC PLATED

INCH SIZES (Approx. Metric mm equivalent shown in brackets.)		REGULAR HEXAGON HEAD TYPE AB		SLOTTED HEXAGON HEAD TYPE AB		HEXAGON WASHER HEAD TYPE AB		SLOTTED HEX. WASHER HEAD TYPE AB		SLOTTED HEXAGON HEAD TYPE B		HEXAGON WASHER HEAD TYPE B	
DIA.	**L.**	***SPAENAUR No.***	Hex Width	***SPAENAUR No.***	Hex Width	***SPAENAUR No.***	Hex Width	***SPAENAUR No.***	Hex Width	***SPAENAUR No.***	Hex Width	***SPAENAUR No.***	Hex Width
10 (4.8)	3/8					**ST-47H**	5/16	**ST-384H**	5/16	**ST-7H**	5/16	**ST-717H** (slotted)	5/16
	1/2					**2369**	5/16	***†ST-385H**	5/16	**2011**	5/16		
	5/8	**2388**	5/16			**ST-46H**	5/16	**ST-386H**	5/16				
	3/4	**ST-31H**	5/16	**525-165**	5/16	**525-159**	5/16	**ST-387H**	5/16				
	7/8					**ST-614H**	5/16	**ST-388H**	5/16				
	1					**ST-637H**	5/16	**ST-389H**	5/16			**T-60**	5/16
	1-1/4					**525-160**	5/16	**ST-390H**	5/16				
	1-1/2							**ST-391H**	5/16				
	2					**525-155**	5/16						
12 (5.5)	1/2	**1780**	5/16					**ST-392H**	5/16				
	5/8							**ST-393H**	5/16				
	3/4	**2107**	5/16	**ST-625H**	5/16			**ST-394H**	5/16				
	7/8							**ST-395H**	5/16				
	1	**ST-350H**	5/16					**ST-396H**	5/16				
	1-1/4							**ST-397H**	5/16				
	1-1/2			**ST-500H**	5/16			**ST-398H**	5/16				
	2	**525-166**	5/16					**525-167**	5/16				
14 (6.3)	1/2	**2012**	3/8			**ST-42H**	3/8	**525-173**	3/8			**2329**	3/8
	9/16											**ST-85H**	3/8
	5/8	**525-149**	3/8			**2370**	3/8					**ST-163H**	3/8
	5/8	**2179**	7/16			**ST-363H**	7/16						
	3/4	**ST-622H**	3/8			**2330**	3/8			**ST-478H** (unslotted)	3/8	**ST-474H**	3/8
	3/4	**1781**	7/16			**ST-364H**	7/16						
	7/8	**ST-351H**	7/16										
	1	**1781A**	7/16			**ST-365H**	7/16						
	1					**525-142**	3/8						
	1-1/4	**2267**	7/16			**525-163**	3/8						
	1-1/2	**B-1305**	7/16			**ST-367H**	7/16	**525-169**	3/8				
	1-1/2	**n525-152**	3/8			**525-164**	3/8						
	1-3/4	**ST-352H**	7/16										
	2	**ST-353H**	7/16										
	2	**525-150**	3/8			**525-161**	3/8						
	2-1/4												
5/16" (8.0)	5/8	**ST-355H**	1/2										
	3/4	**2110**	1/2			**ST-368H**	1/2	**525-001**	1/2				
	7/8	**ST-356H**	1/2										
	1	**2268**	1/2			**ST-369H**	1/2						
	1-1/4	**2269**	1/2			**ST-370H**	1/2						
	1-1/2					**525-141**	7/16						
	1-1/2	**ST-86H**	1/2			**ST-371H**	1/2						
	1-3/4	**ST-87H**	1/2										
	2	**ST-357H**	1/2										
	2-1/4	**ST-358H**	1/2										
3/8" (9.5)	3/4												
	1	**B-1136**	9/16										
	1-1/4												
	1-1/2	**ST-361H**	9/16										
	1-3/4	**•ST-362H**	9/16										



Acme Thread
1916 5/16"-10 x 7/8"

n526-001 Type 304 S.S. **•Type BP Thread** **†ST-385HBO** Black Oxide Finish ***525-171** 1/4" A.F., Double lead striker point.

See Section R for "DRILL and HOLE SIZE" CHART.

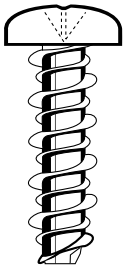
B

Type H-L (high-low) Self-Tapping Screws are double-lead, thread-forming fasteners with a unique high and low thread design. The thread design increases resistance to pull-out, and prevents workpiece damage. **For use in wood, particle board, and plastics.** (Do not use in steel.)

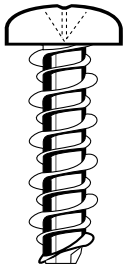
Self-Tapping Screws Type H-L

Hardened Steel Zinc Plated

Phillips Pan Head

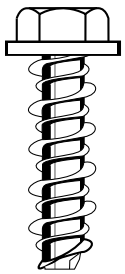


DIA.	4	6	8	10	
LENGTH	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW				
1/4"	**530-100**	**530-104**	**530-108**		
5/16"	**530-101**	***530-105**			
3/8"	**530-102**	**530-106**	**530-109**		
1/2"	**530-103**	**530-107**	**530-110**	**530-112**	
5/8"		**530-127**			
3/4"			**530-111**	**530-113**	
1"					

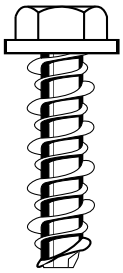


***530-131** Black Oxide Finish

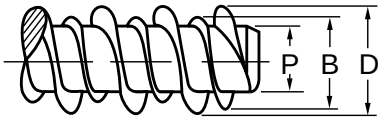
Unslotted Hex Washer Head



DIA.	4	6	8	10	
LENGTH	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW				
1/4"	**525-100**	**525-104**	**525-108**		
5/16"	**525-101**	**525-105**			
3/8"	**525-102**	**525-106**	**525-109**	**525-112**	
1/2"	**525-103**	**525-107**	**525-110**	**525-113**	
5/8"				**525-114**	
3/4"			**525-111**	**525-115**	
1"					

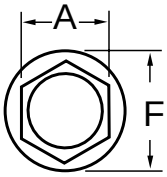


Specifications



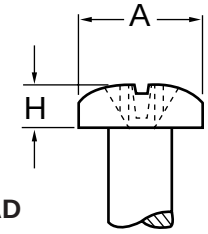
HIGH-LOW THREAD

Nominal Diameter and Thread	D High Thread Diameter	B Low Thread Diameter	P Point Diameter
4-24	.105-.115	.086	.061-.070
6-19	.135-.145	.108	.080-.090
8-18	.160-.170	.130	.095-.105
10-16	.185-.195	.145	.099-.110



UNSLOTTED HEX WASHER HEAD

Nom. Size	A Width Across Flats		F Diameter of Washer	
	Max.	Min.	Max.	Min.
4	.125	.120	.177	.163
6	.188	.181	.260	.240
8	.250	.244	.328	.302
10	.250	.244	.348	.322



PAN HEAD

A Diameter of Head		H Height of Head Recessed	
Max.	Min.	Max.	Min.
.193	.180	.071	.062
.254	.240	.097	.087
.270	.256	.097	.087
.322	.306	.115	.105

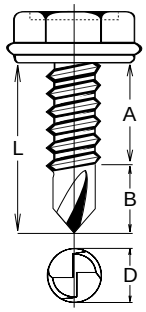
CATALOG 13

410 STAINLESS STEEL SELF-DRILLING FASTENERS

HARDENED

B

HEX WASHER HEAD



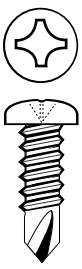
UNIT PACKAGE 100

SPAENAUR No.	NOMINAL SIZE	L Length Under Hd.	A Thread Length	B Pilot Length	D Point Dia.	Point Style	Hex Width	Material Penetration Range (Inches)
508-800	6-20 x 3/8"	3/8"	15/64"	9/64"	.107/.105"	2	1/4"	.035-.090
508-801	6-20 x 1/2"	1/2"	23/64"	9/64"		2		.035-.090
508-802	8-18 x 1/2"	1/2"	11/32"	5/32"		2		.035-.100
508-803	8-18 x 5/8"	5/8"	15/32"	5/32"	.126/.124"	2	1/4"	.035-.100
508-804	8-18 x 3/4"	3/4"	19/32"	5/32"		2		.035-.100
508-805	8-18 x 1"	1"	27/32"	5/32"		2		.035-.100
508-806	8-18 x 1-1/4"	1-1/4"	1-3/32"	5/32"	.126/.124"	2	1/4"	.035-.100
508-807	8-18 x 1-1/2"	1-1/2"	1-11/32"	5/32"		2		.035-.100
508-808	10-16 x 1/2"	1/2"	19/64"	13/64"		2		.035-.110
508-809	10-16 x 5/8"	5/8"	27/64"	13/64"	.145/.143"	2	5/16"	.035-.110
508-810	10-16 x 3/4"	3/4"	35/64"	13/64"		2		.035-.110
508-811	10-16 x 1"	1"	51/64"	13/64"		2		.035-.110
508-812	10-16 x 1-1/4"	1-1/4"	1-3/64"	13/64"	.145/.143"	2	5/16"	.035-.110
508-813	10-16 x 1-1/2"	1-1/2"	1-19/64"	13/64"		2		.035-.110
508-814	12-14 x 3/4"	3/4"	33/64"	15/64"	.179/.175"	3	5/16"	.110-.210
508-815	12-14 x 1"	1"	49/64"	15/64"		3		.110-.210
508-816	1/4"-14 x 3/4"	3/4"	29/64"	19/64"		3		.110-.250
508-817	1/4"-14 x 1"	1"	45/64"	19/64"	.207/.203"	3	3/8"	.110-.250
508-818	1/4"-14 x 1-1/4"	1-1/4"	61/64"	19/64"		3		.110-.250
508-819	1/4"-14 x 1-1/2"	1-1/2"	1-13/64"	19/64"	.207/.203"	3	3/8"	.110-.250
508-820	1/4"-14 x 2"	2"	1-45/64"	19/64"		3		.110-.250

18-8 Stainless Steel

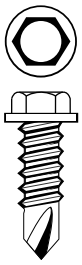
—WILL DRILL IN ALUMINUM ONLY.—

Phillips Pan Head



SPAENAUR No.	Nominal Size
508-834	8-18 x 1/2"
508-835	8-18 x 3/4"

Hex Washer Head

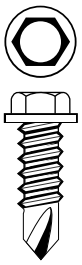


SPAENAUR No.	Nominal Size
508-836	6-20 x 1/2"
508-837	8-18 x 1/2"
508-838	8-18 x 3/4"
508-839	8-18 x 1"

Aluminum

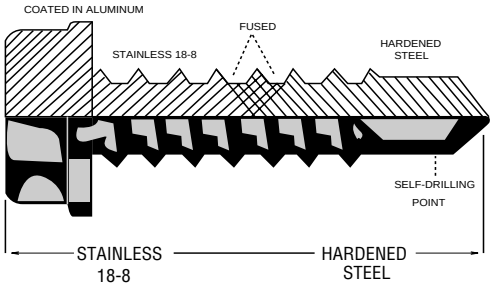
7075-T6 Alloy/Etched Finish

Hex Washer Head



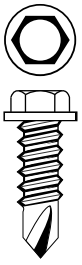
SPAENAUR No.	Nominal Size
508-300	8-18 x 1/2"
508-301	8-18 x 3/4"
508-302	8-18 x 1"
508-303	10-16 x 1/2"
508-305	10-16 x 3/4"

MULTI-METAL SELF-DRILLING SCREWS *Fusing the maximum corrosion resistance of a stainless 18-8 screw with the power of a hardened steel drill point.*



UNIT PKG. 100

Hex Washer Head



SPAENAUR No.	Nominal Size
508-821	8-18 x 1/2"
508-822	8-18 x 3/4"
508-823	8-18 x 1"
508-824	10-16 x 3/4"
508-825	10-16 x 1"
508-826	12-14 x 3/4"
508-827	1/4"-14 x 1"

Phillips Pan Head

SPAENAUR No.	Nominal Size
508-828	8-18 x 1/2"
508-829	8-18 x 3/4"
508-831	10-16 x 3/4"
508-832	10-16 x 1"

MULTI-METAL SELF-DRILLING SCREWS: Material Length & Drilling Capacity

SCREW SIZE	MINIMUM LENGTH UNDER HEAD	MINIMUM LENGTH STAINLESS 18-8 PART	MINIMUM LENGTH STEEL POINT AND ATTACHMENT AREA	MAXIMUM DRILLING CAPACITY
#8	1/2"	.275"	.236"	.091"
#10	3/4"	.335"	.413"	.126"
#12	3/4"	.394"	.354"	.126"
#14	1"	.413"	.571"	.177"

Multi-Metal Self-Drilling Screws have a remarkable steel point that can drill their own holes in hardened steel. The drilling capacity is dictated by the minimum length under the head of each screw size (see chart). They are also coated in aluminum offering superior corrosion resistance.

CATALOG 13

All items on this page
Unit Package 100

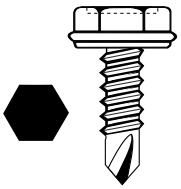
B

SPAENAUR

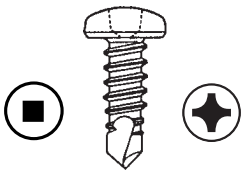
ASSORTMENT / ASSORTIMENT 805-532

TEKS® SELF-DRILLING SCREWS

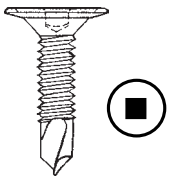
CARBON STEEL - HARDENED - PLATED



Hex Washer Hd.



Sq. Socket Pan Hd.
Phillips Pan Hd.



Sq. Socket Wafer Hd.

27 SIZES - 625 PIECES

Furnished in a REGULAR SIZE grey enamelled steel drawer that will fit slide racks shown on page A2.

Shipping Weight 4.08 kg (9 lbs.)

Priced Singly

Full range of
TEKS® Self-Drilling Screws on page B113.

CONTENTS OF ASSORTMENT

Qty.	SPAENAUR No.	Size
	Hex Washer Head	
25	**ST-668H**	8-18 x 1/2"
25	**508-013**	8-18 x 3/4"
25	**508-001**	10-16 x 1/2"
25	**508-014**	10-16 x 5/8"
25	**508-005**	10-16 x 3/4"
25	**508-006**	10-16 x 1"
25	**508-007**	12-14 x 3/4"
25	**508-018**	12-14 x 1"
25	**508-019**	12-14 x 1-1/2"
15	**508-020**	12-14 x 2"
15	**508-008**	1/4"-14 x 3/4"
15	**508-021**	1/4"-14 x 1"
15	**508-022**	1/4"-14 x 1-1/2"
15	**508-023**	1/4"-14 x 2"
	Square Socket Pan Head	
50	**508-101**	6-20 x 1/2"
25	**ST-727T**	8-18 x 1/2"
25	**508-102**	8-18 x 5/8"
25	**508-103**	8-18 x 3/4"
25	**508-104**	8-18 x 1"
20	**508-105**	10-16 x 1/2"
20	**508-106**	10-16 x 3/4"
15	**508-107**	10-16 x 1"
15	**508-108**	10-16 x 1-1/4"
	Phillips Pan Head	
50	**508-025**	6-20 x 7/16"
	Square Socket Wafer Head	
20	**508-010**	10-24 x 3/4"
20	**508-011**	10-24 x 1-1/4"
15	**508-009**	11-16 x 13/16"

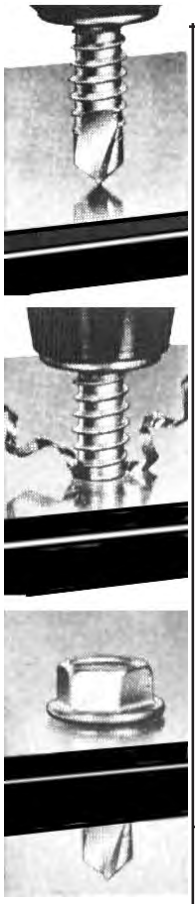
Looking for those "Hard to Find" products?

Call us at (800) 265-8772.

SPAENAUR

®A Reg. Trade Mark of ITW Canada Inc.

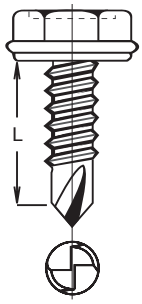
OF CARBON STEEL - HARDENED



HEX WASHER HEAD

ZINC PLATED (with clear chromate finish)
and CLIMASEAL® CORROSION RESISTANT COATING

Unit Package 100
All items on this page.



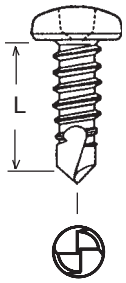
CLIMASEAL®

- Compatible with painted or metal surfaces.
- Attractive silver grey finish.
- Provides long-term corrosion protection.
- Outperforms existing mechanical and electro-platings.

	SPAENAUR No.	Nom. Size Dia. x Pitch x L (length under hd.)	TEKS Point	Drill & Tap Capacity	Max. Material Attachment	Hex. Width
Zinc Plated	**ST-668H**	8-18 x 1/2"	2	.036-.100"	.205"	1/4"
	508-026	8-18 x 5/8"	2	.036-.100"	.330"	1/4"
	508-013	8-18 x 3/4"	2	.036-.100"	.455"	1/4"
	508-001	10-16 x 1/2"	3	.036-.175"	.150"	5/16"
	508-014	10-16 x 5/8"	3	.036-.175"	.200"	5/16"
	***508-004**	10-16 x 5/8"	3	.036-.175"	—	5/16"
	508-006	10-16 x 1"	3	.036-.175"	.575"	5/16"
Climaseal®	**508-005**	10-16 x 3/4"	3	.036-.175"	.325"	5/16"
	508-007	12-14 x 3/4"	3	.036-.210"	.290"	5/16"
	508-024	12-24 x 7/8"	4	.125-.250"	.325"	5/16"
	508-018	12-14 x 1"	3	.036-.210"	.525"	5/16"
	508-019	12-14 x 1-1/2"	2	.036-.210"	.810"	5/16"
	508-020	12-14 x 2"	3	.036-.210"	1.525"	5/16"
	508-008	1/4"-14 x 3/4"	3	.036-.210"	.210"	3/8"
	508-021	1/4"-14 x 1"	3	.036-.210"	.460"	3/8"
	508-022	1/4"-14 x l-1/2"	3	.036-.210"	.960"	3/8"
	508-023	1/4"-14 x 2"	3	.036-.210"	1.460"	3/8"

SQUARE SOCKET PAN HEAD

Zinc Plated



Phillips PAN

PAN HEAD (SQUARE-RECESSED SOCKET)

					Driver
508-101	6-20 x 1/2"	2	.036-.100"	.225"	#2
***508-003**	6-20 x 1/2"	3	.090-.110"	—	#2
ST-727T	8-18 x 1/2"	2	.036-.100"	.205"	#2
***508-017**	8-18 x 1/2"	2	.035-.100"	—	#2
508-102	8-18 x 5/8"	2	.036-.100"	.330"	#2
508-103	8-18 x 3/4"	2	.036-.100"	.455"	#2
508-104	8-18 x 1"	2	.036-.100"	.705"	#2
508-105	10-16 x 1/2"	3	.036-.175"	.150"	#2
508-106	10-16 x 3/4"	3	.036-.175"	.325"	#2
508-107	10-16 x 1"	3	.036-.175"	.575"	#2
508-108	10-16 x 1-1/4"	3	.036-.175"	.825"	#2

PAN HEAD (PHILLIPS CROSS-RECESS) ▲508-025 Head Style

▲508-025	6-20 x 7/16"	2	.036-.100	.160"	#2
***508-200**	8-18 x 1/2"	2	.035-.100	.170"	#2
***508-201**	10-16 x 3/4"	3	.035-.110	.300"	#2

✥ Reamer Teks (see below)

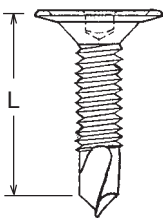
Use this style to fasten plywood to Low Carbon Steel or Aluminum.

Wings break off when the point pierces the metal.

See No's.
508-400
508-401
508-404

✥REAMER TEKS POINT

SQ. SOCKET WAFER HEAD
Zinc Plated



WAFER HEAD (SQUARE RECESSED SOCKET)

						Head Dia.
508-010	10-24 x 3/4"	3	.036-.175"	.350"	#2	15/32"
508-011	10-24 x 1-1/4"	3	.036-.175"	.750"	#2	15/32"
✥ 508-400	10-24 x 1-7/16"	3	.036-.175"	.750"	#2	15/32"
508-009	11-16 x 13/16"	3	.036-.175"	.430"	#2	15/32"
508-403	11-16 x 15/16"	3	.036-.175"	.430"	#2	15/32"
✥ 508-401	12-24 x 2"	4	.125-.250"	1.000"	#3	17/32"
✥ 508-404	12-24 x 2-5/8"	4	.125-.250"	1.500"	#3	17/32"

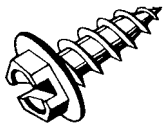
®A Reg. Trade Mark of ITW Canada Inc.
*(Not Teks® Screws)

B

SELF-TAPPING SCREWS

Indented Slotted Hex-Washer Head, Tapping Screws, Type A
Carbon Steel - Case Hardened, Bright Zinc Plated.

Needle-nose Point



SPAENAUR No.	Size	Hex Width	Pkg. Qty.
ST-324H	6 x 3/8"	1/4	100
ST-325H	7 x 1/2"	1/4	100
ST-326H	8 x 1/2"	1/4	100
ST-327H	8 x 3/4"	1/4	100
ST-328H	10 x 1/2"	1/4	100
525-162	10 x 1"	1/4	100

MAGNETIC DRIVER
Fits any standard 1/4" Electric Drill.

See page P32 for more drivers.

T-208A	For 1/4" A/F	(Drives all screws shown at left.)
T-208B	For 5/16" A/F	
876-198	For 3/8" A/F	
876-199	For 7/16" A/F	

Priced Singly

WEATHER SEAL FASTENERS

For attaching Metal Siding in Construction Trade
Carbon Steel Case Hardened - Bright Zinc Plated
Self-Tapping TYPE AB

HEX. HD. 3/8" A/F

Washer O.D. 5/8"
With Weatherseal Wshr.
(Galvanized steel and Neoprene)

SPAENAUR No.	SIZE	PKG.
***464-058**	14 x 5/8"	100
SE-59	14 x 3/4"	100
SE-73	14 x 1"	100
SE-60	14 x 1-1/4"	100
SE-61	14 x 1-1/2"	100
SE-63	14 x 2-1/2"	100
SE-64	14 x 3"	100
SE-108H	17 x 3/4"	100

***HEX. HD. 7/16" A/F**

More Sealing Washers on pages B115 and D74.

PANELGRIP FASTENERS

For STEEL SIDING & ROOFS

Carbon Steel - Hardened - Zinc Plated
(with 1/2" dia. - galv. Seal-tite Washers)

Special Type A Thread and Needle-nose Point

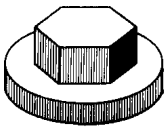
SPAENAUR No.	Size	Hex Width	Unit Pkg.
464-062	8 x 1-1/2"	1/4"	100
464-063	8 x 2"	1/4"	100

Note: Select proper length to ensure 1" min. penetration of wood structural supports.

SNAP-ON COLOUR CAP (vinyl)

For use on Weather Seal Fasteners

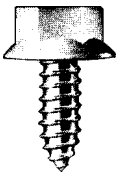
CAP will fit 3/8" Across Flat Hex. Head



SPAENAUR No.	COLOUR
RB-322	Brick Red

Unit Package 100

P.C. 315



ColorMate
SHEETING SCREWS

Unit Package 100

SIZE: 14 x 3/4"
SELF-TAPPING
TYPE "AB"

Shank and head-core:
Carbon Steel Case Hardened
Zinc Chromated

Head: 7/16" A/F, 5/8" O.D.

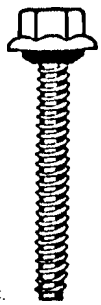
With integral, injection moulded NYLON HEXAGON HEAD, (steel cored) in fast colours, to match sheeting panels.

SPAENAUR No.	Colour	*SPAENAUR No.*	Colour
ST-671-09	Light Grey	**ST-671-112**	Turquoise
ST-671-13	Light Green	**ST-671-113**	Medium Brown
ST-671-15	White	**ST-671-117**	Medium Green
ST-671-16	Orange	**ST-671-151**	Dark Blue
ST-671-46	Yellow	**ST-671-152**	Medium Blue
ST-671-73	Dark Brown	**ST-671-157**	Medium Grey
ST-671-82	Off-White	**ST-671-159**	Dark Grey
ST-671-311	Gold		

Note: 1-1/2" Lgth. available. Request quotation.

P.C. 525

STRUCTURAL SCREWS



For attaching Metal Siding and Roofing

***SPAENAUR No.* SE-89H**

SIZE: 14 x 1-1/4"
Type B Self-Tapping
3/8" A/F 17/32" Head O.D.

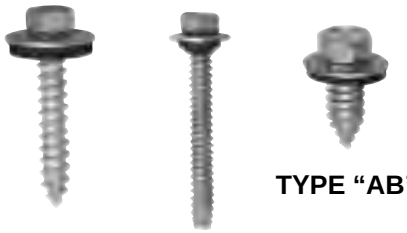
Carbon Steel (Cadmium or Zinc Plated)
Undercut Hex Washer Head
Assembled with Conical Neoprene Washers
Unit Package 100

P.C. 464

CATALOG 13

STAINLESS STEEL

TAPPING SCREW ASSEMBLIES



TYPE "A" **TYPE "B"** Fluted

TYPE "AB"

Neo-bond Washer

SPAENAUR No.	SIZE	SCREW TYPE	WASHER STYLE	WASHER O.D.	S.S. TYPE
SE-2000	14 x 3/4"	A	Neo-bond	5/8"	305-B
SE-2003	14 x 3/4"	B Fluted	Neo-bond	5/8"	18-8
SE-2001	14 x 1"	A	Neo-bond	5/8"	305-B
465-014	14 x 1"	B Fluted	Neo-bond	5/8"	18-8
SE-2002	14 x 1-1/2"	A	Neo-bond	5/8"	305-B
SE-2011	14 x 1-1/2"	A	Neo-bond	3/4"	305-B
***465-013**	14 x 2"	B Fluted	Neo-bond	5/8"	18-8
SE-2005	14 x 3"	B Fluted	Neo-bond	5/8"	18-8
SE-2006	14 x 3-1/2"	B Fluted	Neo-bond	3/4"	18-8
SE-2007	14 x 4"	B Fluted	Neo-bond	5/8"	18-8
SE-2009	14 x 5"	B Fluted	Neo-bond	5/8"	18-8
SE-2004	17 x 3/4"	AB	Neo-bond	5/8"	305-B

***Not plated**

All above fasteners have 3/8" width across flats.
Fasteners are cad. plated for extra protection.

UNIT PACKAGE 100

"TEKS" SELF-DRILLING **HEX WASHER HD.**

CONSTRUCTION FASTENERS

Carbon Steel - Case Hardened - Mechanical Zinc with Oxyseal Coating
Assembled with Neo-bond Sealer Washers
UNIT PACKAGE 100

SPAENAUR No.	A/F	Size	Grip
464-106	5/16"	12 x 1"	3/8"
464-110	5/16"	12 x 1-1/2"	1"

With special long point for overlap structural applications.

***464-112**	3/8"	14 x 1"	7/16"
***464-113**	3/8"	14 x 1-1/2"	7/8"

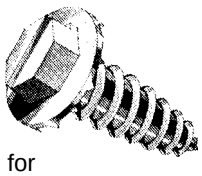
*TEKS No. 3 point

MASTER SEAL™ WASHERS

Used with Round, Pan, or Hex Head Screws - as a Weather Seal Fastener.

Shown on page D73.

More sealing washers, on same page.



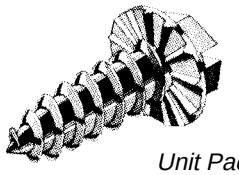
Used as tire studs for motorcycle ice racing.

SELF-DRILLING SCREWS

Slotted, Hex-Washer Head
"Lo-Root" style. Serrated.

525-148 **10 x 1/2" x 1/4" A.F.**

Hardened Steel - Zinc Plated



Unit Package 100

SPAENAUR

Canada's leading supplier of industrial fasteners and components.

B

Case-Hardened
STEEL

Zinc Plated

See Price List for Unit Package Quantities

See section R for SELECTOR GUIDE

VARIOUS TYPES & HEAD STYLES

SPAENAUR No.	Size	Drive and Head Style	Type
ST-714P	2-56 x 1/4"	Phillips Flat	F
492-004	2-56 x 1/4"	Phillips Pan	F
ST-59P	4-40 x 3/16"	Phillips Binding	F
492-076	4-40 x 1/4"	Phillips Pan	F
492-001	4-40 x 1/4"	Socket Pan	F
ST-621	4-40 x 1/4"	Slot Pan	F
ST-610	4-40 x 5/16"	Slot Pan	F
ST-676	#4 x 5/16"	Slot Pan	25
492-079	4-40 x 3/8"	Socket/Slot Round	F
492-070	4-40 x 5/8"	Phillips Pan	F
492-071	#5 x 5/8"	Phillips Flat (Black Zinc)	25
ST-477P	6-32 x 1/4"	Phillips Pan	1
492-081	6-32 x 1/4"	Phillips Pan	F
ST-308	6-32 x 1/4"	Socket Pan	F
ST-184P	6-32 x 3/8"	Phillips Truss	1
ST-184P-BZ	6-32 x 3/8"	Phillips Truss (Black Zinc)	1
ST-623	6-32 x 3/8"	Slot Pan	F
ST-667	#6 x 3/8"	Slot Pan	25
ST-688	#6 x 3/8"	Socket Pan	25
ST-639P	6-32 x 3/8"	Phillips Round	1
ST-678	6-32 x 3/8"	Socket Pan	1
ST-583	6-32 x 3/8"	Socket Flat	F
ST-399P	6-32 x 1/2"	Phillips Pan	F
ST-185P	6-32 x 1/2"	Phillips Truss	1
492-002	6-32 x 1/2"	Socket Fillister	1
ST-562P	6-32 x 5/8"	Phillips Pan	1
492-122	6-32 x 7/8"	Phillips Pan	F
ST-64P	8-32 x 1/4"	Phillips Round	1
492-121	8-32 x 5/16"	Phillips Truss	1
ST-593P	8-32 x 5/16"	Phillips Truss	F
ST-84P	#8 x 3/8"	Phillips Binding	25
ST-515P	8-32 x 3/8"	Phillips Pan	1
ST-493P	8-32 x 3/8"	Phillips Truss	1
ST-565P	8-32 x 7/16"	Phillips Flat	F
ST-90P	8-32 x 7/16"	Phillips Flat	23
ST-56P	8-32 x 1/2"	Phillips Oval	1
ST-657P	8-32 x 1/2"	Phillips Pan	1
ST-309	8-32 x 1/2"	Socket Pan	F
492-075	8-32 x 1/2"	Phillips Pan (Parkerize Finish)	1
492-074	8-32 x 3/4"	Phillips Flat	1

Continued…

SPAENAUR No.	Size	Drive and Head Style	Type
ST-619P	8-32 x 3/4"	Phillips Fillister	F
ST-728P	8-32 x 3/4"	Phillips Pan	F
ST-66P	8-32 x 7/8"	Phillips Round	1
492-082	8-32 x 1"	Socket Pan	F
ST-644	8-32 x 1-1/4"	Slot Pan	F
ST-608P	8-32 x 1-1/4"	Phillips Pan	1
ST-618P	8-32 x 1-1/4"	Phillips Fillister	F
ST-675	10-24 x 5/16"	Slot Pan	F
492-005	10-24 x 5/16"	Socket/Slot Pan (Black Phosph.)	F
ST-486P	10-24 x 3/8"	Phillips Truss	1
ST-330	10-24 x 1/2"	Socket Pan	1
ST-485	10-24 x 1/2"	Socket Pan	23
492-073	10-24 x 1/2"	Phillips Truss	23
492-077	10-24 x 1/2"	Socket Round	F
ST-265	10-24 x 3/4"	Socket Round	F
ST-471P	10-24 x 3/4"	Phillips Pan	F
ST-596P	10-32 x 1/2"	Phillips Oval	1
ST-207P	10-32 x 1/2"	Phillips Truss	1
492-083	10-32 x 1/2"	Phillips Truss	23
ST-305	10-32 x 1/2"	Socket Round	F
ST-595P	10-32 x 5/8"	Phillips Pan	1
ST-195	10-32 x 5/8"	Socket Flat	23
ST-476P	10-32 x 1"	Phillips Flat	F
ST-120	10-32 x 1"	Socket Pan	F
ST-507P	10-32 x 1-1/2"	Phillips Flat	F
492-080	12-24 x 1/2"	Phillips Flat (Undercut)	F
ST-681P	1/4"-20 x 5/8"	Phillips Flat	F
492-072	1/4"-20 x 5/8"	Socket Round	1
ST-182P	1/4"-20 x 3/4"	Phillips Round	1
ST-633P	1/4"-20 x 1"	Phillips Truss	F
B-435P	1/4"-20 x 1"	Phillips Oval	F
ST-472P	1/4"-20 x 1-1/4"	Phillips Pan	F
ST-220	1/4"-20 x 1-1/2"	Socket Flat	F
ST-638P	1/4"-20 x 1-1/2"	Phillips Round	23
ST-221	1/4"-20 x 2"	Socket Flat	F
ST-222	1/4"-20 x 2-1/4"	Socket Flat	F
ST-223	1/4"-20 x 2-1/2"	Socket Flat	F
ST-224	1/4"-20 x 3"	Socket Flat	F
ST-599	1/4"-28 x 1-1/4"	Slot Flat	F
ST-674P	5/16"-18 x 3/4"	Phillips Truss	1

P.C. 490, 492.

See Assortment 805-540 on facing page.

Visit us on the web at . . .

www.spaenaur.com

ASSORTMENT
ASSORTIMENT **805-540**

THREAD-CUTTING SCREW ASSORTMENT

24 Sizes — 1270 Pieces

Priced Singly

Shipping Weight: 4.83 kg (10.64 lbs.)

PHILLIPS DRIVE

Case-Hardened STEEL

Zinc Plated

Furnished in Regular Size grey enamel Steel drawer with scooped bins for easy access. Drawer will fit into Slide Racks shown on page A2.

Contents of Assortment
(Selections from previous page.)

Type F Type 1 Type 23

SPAENAUR No.	Size	Head Style	Thread Type	Ass't Qty.
ST-714P	2-56 x 1/4"	Flat	F	50
492-076	4-40 x 1/4"	Pan	F	50
ST-477P	6-32 x 1/4"	Pan	1	50
ST-184P	6-32 x 3/8"	Truss	1	60
ST-399P	6-32 x 1/2"	Pan	F	60
ST-185P	6-32 x 1/2"	Truss	1	60
ST-64P	8-32 x 1/4"	Round	1	50
ST-565P	8-32 x 7/16"	Flat	F	50
ST-56P	8-32 x 1/2"	Oval	1	60
ST-657P	8-32 x 1/2"	Pan	1	60
ST-728P	8-32 x 3/4"	Pan	F	60
ST-66P	8-32 x 7/8"	Round	1	60
ST-618P	8-32 x 1-1/4"	Fillister	F	40
492-073	10-24 x 1/2"	Truss	23	50
ST-486P	10-24 x 3/8"	Truss	1	50
ST-471P	10-24 x 3/4"	Pan	F	60
ST-596P	10-32 x 1/2"	Oval	1	50
ST-207P	10-32 x 1/2"	Truss	1	50
ST-595P	10-32x 5/8"	Pan	1	60
ST-507P	10-32 x 1-1/2"	Flat	F	40
ST-681P	1/4"-20 x 5/8"	Flat	F	50
ST-182P	1/4"-20 x 3/4"	Round	1	50
B-435P	1/4"-20 x 1"	Oval	F	50
492-080	12-24 x 1/2"	Flat	F	50

STAINLESS STEEL

Hardened Thread-Cutting Screws

Phillips Drive
Pan, Truss and Binding Heads

SPAENAUR No.	Size	Head Style	S.S. Alloy	Type
501-002	4-40 x 3/16"	Phillips Pan	410	F
501-003	4-40 x 1/4"	Phillips Pan	410	F
501-004	4-40 x 5/16"	Phillips Pan	410	F
501-005	4-40 x 3/8"	Phillips Pan	410	F
501-006	4-40 x 1/2"	Phillips Pan	410	F
501-007	4-40 x 3/4"	Phillips Pan	410	F
501-008	6-32 x 1/4"	Phillips Pan	410	F
501-009	6-32 x 3/8"	Phillips Pan	410	F
501-010	6-32 x 1/2"	Phillips Pan	410	F
501-011	6-32 x 5/8"	Phillips Pan	410	F
501-012	6-32 x 3/4"	Phillips Pan	410	F
501-013	8-32 x 3/8"	Phillips Pan	410	F
501-001	8-32 x 3/8"	Phillips Truss	410	1
501-028	8-32 x 1/2"	Phillips Flat	410	F
501-014	8-32 x 1/2"	Phillips Pan	410	F
ST-2012P	8-32 x 1/2"	Phillips Truss	410	1
501-015	8-32 x 5/8"	Phillips Pan	410	F
501-016	8-32 x 3/4"	Phillips Pan	410	F
501-017	8-32 x 1"	Phillips Pan	410	F
501-018	10-24 x 3/8"	Phillips Pan	410	F
501-019	10-24 x 1/2"	Phillips Pan	410	F
ST-2017	10-24 x 1/2"	Slot Binding	430	F
501-020	10-24 x 5/8"	Phillips Pan	410	F
501-021	10-24 x 3/4"	Phillips Pan	410	F
501-022	10-24 x 1"	Phillips Pan	410	F
501-023	10-32 x 3/8"	Phillips Pan	410	F
501-024	10-32 x 1/2"	Phillips Pan	410	F
501-025	10-32 x 5/8"	Phillips Pan	410	F
501-026	10-32 x 3/4"	Phillips Pan	410	F
501-027	10-32 x 1"	Phillips Pan	410	F

P.C. 500, 501

Unit Package Quantity - 100

Have a question?
Call (800) 265-8772 or (519) 744-3521.

B

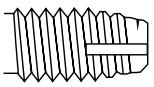
SLOT DRIVE

Case-Hardened

STEEL

ZINC PLATED

ASME/ANSI B 18.6



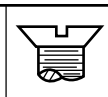
TYPE 1

Inch Sizes

ORDER BY *SPAENAUR* NUMBER FROM CHART

UNIT PACKAGE 100 OF A SIZE

SIZE					
DIA.	**L.**	**OVAL**	**ROUND**	**FLAT**	**PAN**
4-40	3/16		**ST-30**		**▲B-1060**
	1/4		**ST-205**		**ST-181**
	5/16				
	3/8		**ST-199**	**ST-180**	
	1/2			**B-433**	
6-32	1/4		**ST-201**	**B-895**	**B-725**
	5/16			**ST-570**	**490-002**
	7/16				
	1/2	**B-418**	**B-437**		**B-469**
	5/8				
	3/4	**B-419**	**B-438**	**B-452**	**B-470**
	1	**B-420**		**B-453**	**B-471**
8-32	1/4				**B-726**
	5/16				
	3/8				**ST-404**
	1/2	**B-421**	**B-440**	**B-454**	**B-472**
	5/8				**B-487**
	3/4	**B-422**	**B-413**	**B-455**	**B-473**
	1	**B-423**	**B-441**		**B-474**
10-24	3/8		**B-436**		**B-982**
	1/2	**B-428**	**B-414**	**B-460**	**B-478**
	5/8	**B-429**	**B-465**	**B-461**	**B-479**
	3/4	**B-483**	**B-444**	**ST-626**	**B-1058**
	1	**B-430**	**B-445**	**B-462**	**B-480**
	1-1/2				
10-32	3/8				**B-727**
	1/2	**B-424**	**B-442**	**B-457**	**B-728**
	5/8				**B-475**
	3/4	**B-425**	**B-415**	**B-458**	**B-1059**
	7/8		**B-426**		**B-476**
	1		**B-443**	**ST-490**	
	1-1/4	**B-427**		**B-459**	**B-477**
	1-3/4	**B-484**			

SIZE					
DIA.	**L.**	**OVAL**	**ROUND**	**FLAT**	**PAN**
12-20	3/4			**490-003**	
	1				
12-24	3/8		**ST-480**		
	1/2	**B-431**	**B-446**	**B-463**	**B-481**
	5/8				
	3/4	**B-432**	**B-447**	**B-464**	**B-482**
	1		**B-448**		**B-486**
	1-1/4	**ST-96**			
1/4-20	1/2	**ST-475**	**B-449**	**B-466**	
	5/8		**ST-178**		
	3/4		**ST-99**		
	7/8			**ST-186**	
	1		**B-412**	**B-467**	**B-485**
	1-1/4		**B-450**	**B-468**	
	1-1/2			**ST-206**	
	1-3/4			**2474**	
	2			**2475**	
	2-1/2			**2476**	
	3			**ST-82**	
1/4-28	1-1/4			**ST-599**	
3/8-24	1			**ST-640**	

P.C. 490

▲ Binding Head

Sales Desk open 7 a.m. to 7 p.m. E.S.T., Monday to Friday.

Call (800) 265-8772 or (519-744-3521.

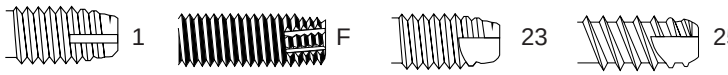
Case-Hardened

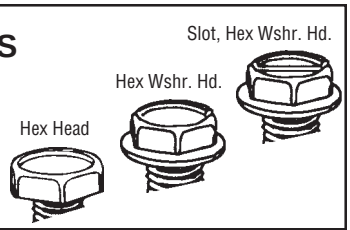
STEEL

ZINC PLATED

THREE INDENTED HEXAGON HEAD STYLES

Four Thread Cutting Types





B

SPAENAUR No.	SIZE	HEAD STYLE	TYPE	Hex A/F
491-050	#4 x 5/16"	Hex. Washer	25	3/16"
ST-602H	6-32 x 1/4"	Slot, Hex. Wshr.	F	1/4"
ST-579H	6-32 x 3/8"	Hexagon	F	1/4"
ST-726H	6-32 x 3/8"	Slot, Hex.	F	1/4"
491-048	8-32 x 5/16"	Hex. Washer	F	1/4"
ST-322H	8-32 x 5/16"	Hexagon	F	1/4"
ST-491H	8-18 x 1/2"	Slot, Hex.	F	1/4"
491-121	8-32 x 1/2"	Hex. Washer	25	1/4"
ST-529H	8-32 x 3/4"	Hex. Washer	1	1/4"
ST-529HZD	8-32 x 3/4"	Hex. Washer (Yellow Zinc Dichromate)	1	1/4"
491-003	8-32 x 3/4"	Hex. Washer	F	1/4"
ST-53H	#10 x 3/8"	Hexagon	25	5/16"
491-052	10-24 x 5/8"	Slot, Hex. Washer	F	5/16"
ST-54H	10-24 x 7/16"	Hexagon	1	5/16"
ST-55H	10-24 x 7/16"	Hex. Washer	1	5/16"
ST-607H	10-24 x 1/2"	Hexagon	1	5/16"
491-001	10-24 x 1/2"	Hex. Washer	F	5/16"
ST-51H	10-24 x 9/16"	Hexagon	1	5/16"
ST-504H	10-24 x 5/8"	Hex. Washer	1	5/16"
ST-573H	10-24 x 1-1/4"	Hexagon	1	5/16"
491-051	10-32 x 1/2"	Hexagon	23	5/16"
ST-613H	10-32 x 1/2"	Hexagon	F	5/16"
491-120	10-32 x 1"	Slot, Hex.Washer	23	5/16"
ST-538H	12-24 x 1/2"	Hex. Washer	1	5/16"
ST-516H	12-24 x 5/8"	Hex. Washer	1	5/16"
ST-732H	1/4"-20 x 3/8"	Hex. Washer	F	3/8"
ST-693H	1/4"-20 x 3/8"	Hexagon	F	3/8"

SPAENAUR No.	SIZE	HEAD STYLE	TYPE	Hex A/F
ST-88H	1/4"-20 x 3/8"	Hex. Washer	1	3/8"
ST-647H	1/4"-20 x 1/2"	Hex. Washer	23	3/8"
ST-534H	1/4"-20 x 1/2"	Hexagon	1	3/8"
B-434	1/4"-20 x 1/2"	Hex. Washer	1	3/8"
B-434A	1/4"-20 x 1/2"	Hex. Washer	1	7/16"
B-434S	1/4"-20 x 5/8"	Hex. Washer	1	3/8"
B-434-SL	1/4"-20 x 5/8"	Slot, Hex. Washer	1	3/8"
491-053	1/4"-20 x 3/4"	Hexagon	F	3/8"
ST-654H	1/4"-20 x 3/4"	Hex. Washer	F	3/8"
2013	1/4"-20 x 3/4"	Hexagon	1	7/16"
ST-50H	1/4"-20 x 1"	Hexagon	1	3/8"
ST-643H	1/4"-20 x 1"	Hex. Washer	1	3/8"
ST-498H	1/4"-20 x 1-1/4"	Hex. Washer	1	3/8"
ST-686H	5/16"-18 x 5/8"	Hex. Washer	F	1/2"
ST-735H	5/16"-18 x 5/8"	Hex. Washer	1	1/2"
B-739	5/16"-18 x 1/2"	Hex. Washer	1	1/2"
ST-9H	5/16"-18 x 5/8"	Hexagon	1	1/2"
B-1636	5/16"-18 x 3/4"	Hexagon	F	1/2"
2014	5/16"-18 x 1"	Hexagon	1	1/2"
ST-645H	5/16 -18 x 1"	Hex. Washer	1	1/2"
ST-48H	5/16"-24 x 1"	Hexagon	1	1/2"
491-047	3/8"-16 x 5/8"	Hexagon	1	9/16"
B-1063	3/8"-16 x 5/8"	Hex. Washer	1	1/2"
491-049	3/8"-16 x 5/8"	Hexagon	1	1/2"
B-865	3/8"-16 x 1"	Hexagon	1	9/16"
ST-666H	3/8"-16 x 1-3/4"	Hexagon	1	9/16"

See Price List for Unit Package Quantities

ASME/ANSI B18.6

SPAENAUR

Your #1 Choice for Fasteners.

B

High-Performance Thread-Rolling Screws roll-form a clean, strong thread, yet these screws do not cut metal, and leave no chips. Excellent for use in electrical assemblies where chips would cause shorts, or in deep blind holes where chips would prevent proper seating. May also be used in thin sheet metal where thread-cutting action would weaken the walls of punch-extruded holes.

High-Performance Thread-Rolling Screws drive easier than other thread-forming screws, and with uniform torque. You can drive them into tougher material, deeper holes, and faster, with less tool wear. They are self-locking and vibration-resistant along the entire length of the thread.

High-Performance Thread-Rolling Screws

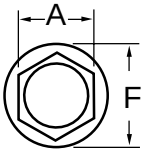
Case-Hardened Steel, Zinc Plated & Waxed

Phillips Pan Head

DIA.	4	6	8	10	1/4"	
THREAD	40	32	32	32	20	
LENGTH	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW					
1/4"	**492-100**	**492-104**		**492-111**		
5/16"	**492-101**					
3/8"	**492-102**	**492-105**	**492-107**	**492-112**	**492-116**	
1/2"	**492-103**	**492-106**	**492-108**	**492-113**	**492-117**	
5/8"			**492-109**	**492-114**	**492-118**	
3/4"			**492-110**	**492-115**	**492-119**	
1"					**492-120**	

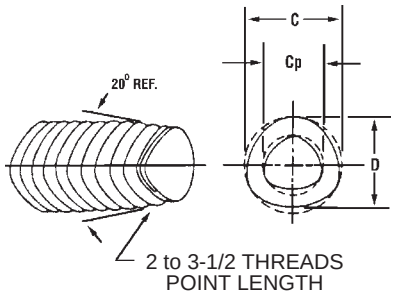
Indented Hex Washer Head

DIA.	4	6	8	10	1/4"	5/16"
THREAD	40	32	32	32	20	18
LENGTH	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW					
1/4"	**491-100**	**491-104**				
5/16"	**491-101**					
3/8"	**491-102**	**491-105**	**491-107**	**491-111**	**491-115**	
1/2"	**491-103**	**491-106**	**491-108**	**491-112**	**491-116**	**491-005**
5/8"			**491-109**	**491-113**	**491-117**	
3/4"			**491-110**	**491-114**	**491-118**	
1"					**491-119**	



Indented **Hex Washer Head**

Specifications: Thread and Point



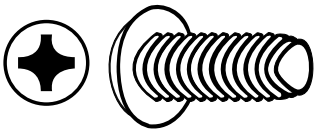
Nominal Screw Size	Threads Per Inch	Basic Screw Diameter	C Diameter of Circumscribing Centre Max.	C Diameter of Circumscribing Centre Min.	D Measurement Across Centre Max.	D Measurement Across Centre Min.	CP Circumscribing Circle (Point) Max.
4	40	0.1120	0.1145	0.1105	0.1095	0.1055	0.090
6	32	0.1380	0.1410	0.1350	0.1350	0.1290	0.111
8	32	0.1640	0.1670	0.1610	0.1610	0.1550	0.137
10	32	0.1900	0.1940	0.1880	0.1850	0.1790	0.153
1/4"	20	0.250	0.2550	0.2490	0.2460	0.2400	0.206

Nominal Size	A Width Across Flats Max.	A Width Across Flats Min.	F Diameter of Washer Max.	F Diameter of Washer Min.
4	.187	.181	.243	.225
6	.250	.244	.328	.302
8	.250	.244	.348	.322
10	.312	.305	.414	.384
1/4"	.375	.367	.520	.480

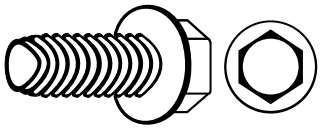
CATALOG 13

RECOMMENDED PILOT HOLE SIZES

for LOW CARBON STEEL and ALUMINUM SHEETS.



See facing page for Thread-Rolling Screws



and more specifications on Thread, Point, and Hex Washer Head.

		MATERIAL THICKNESS														
		.020" - .078"			.063" - .140"			.125" - .266"			.250" - .328"			.313" - .500"		
SCREW SIZE	MATERIAL	DRILL SIZE	DECI-MAL	% THRD. ENGAGE	DRILL SIZE	DECI-MAL	% THRD. ENGAGE	DRILL SIZE	DECI-MAL	% THRD. ENGAGE	DRILL SIZE	DECI-MAL	% THRD. ENGAGE	DRILL SIZE	DECI-MAL	% THRD. ENGAGE
4-40	Steel	40	.098	85	38	.120	65	37	.104	50						
	Aluminum	40	.098	85	39	.100	75	38	.102	65	38	.102	65			
5-40	Steel	34	.111	85	33	.113	75	32	.116	55						
	Aluminum	35	.110	90	34	.111	85	33	.113	75	33	.113	75	32	.116	55
6-32	Steel				31	.120	90	1/8	.125	65	30	.129	50			
	Aluminum	31	.120	90	31	.120	90	1/8	.125	65	1/8	.125	65	1/8	.125	65
8-32	Steel				26	.147	85	25	.150	70	23	.154	50			
	Aluminum				26	.147	85	25	.150	70	24	.152	60	24	.152	60
10-24	Steel				19	.166	90	11/64	.172	70	16	.177	50			
	Aluminum				19	.166	90	19	.166	90	18	.170	75	17	.173	65
10-32	Steel				17	.173	85	16	.177	65	15	.180	50			
	Aluminum				17	.173	85	17	.173	85	16	.177	65	15	.180	50
12-24	Steel				10	.194	80	8	.199	65	13/64	.203	50			
	Aluminum				11	.191	90	9	.196	75	8	.199	65	13/64	.203	50
1/4-20	Steel				7/32	.219	95	5.7M	.224	80	1	.228	70	A	.234	50
	Aluminum				7/32	.219	95	2	.221	90	5.7M	.224	80	1	.228	70
5/16-18	Steel				K	.281	85	K	.281	85	7.25M	.285	75	L	.290	60
	Aluminum				K	.281	85	K	.281	85	7.25M	.285	75	7.3M	.287	70
3/8-16	Steel							11/32	.344	75	S	.348	65	9M	.355	50
	Aluminum							R	.339	90	11/32	.344	75	S	.348	65

SPAENAUR

TELEPHONE:
24 hours a day, 365 days a year
(800) 265-8772
(519) 744-3521

FAX:
24 hours a day, 365 days a year
(519) 744-0818
(800) 252-6380

Counter Sales:
7 a.m. to 7 p.m. EST., Weekdays

B

STEEL TYPE "U" DRIVE SCREWS

ROUND HEAD
CASE-HARDENED STEEL
ZINC PLATED

Hammer-driven for making permanent fastenings to ferrous and non-ferrous castings, heavy gauge steel, plastics, etc.

P.C. 376

DIAMETER GA.	DIAMETER INCHES	DRILL SIZE	LENGTH 1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"
			ORDER BY *SPAENAUR* NUMBERS LISTED BELOW							
00	.058	55	**B-1569**	**B-1570**	**B-1571**					
0	.073	51	**B-1572**	**B-1573**	**B-1493**					
2	.098	44	**B-1122**	**B-1123**	**B-1124**					
4	.114	37		**B-1856**	**B-1124A**	**B-1768**	**B-1800**			
6	.138	31			**B-1857**	**B-1858**	**B-1125**			
7	.152	29				**B-1859**	**B-1860**	**B-1861**		
8	.164	27					**B-1126**	**B-1862**	**B-1863**	
10	.179	20			**B-1809**		**B-1864**	**B-1865**	**B-1866**	
12	.209	11						**B-1867**	**B-1868**	**B-1869**
14	.239	2						**B-1870**	**B-1871**	**B-1872**
14	.239	2							**376-001** (Sltd. Hd.)	

PACKAGING
Gauges 00 to 4, incl. - Unit Pkg. 1000 Gauges 6 to 10, incl. - Unit Pkg. 500 Gauges 12 and 14 - Unit Pkg. 250

18-8 STAINLESS STEEL TYPE "U" DRIVE SCREWS

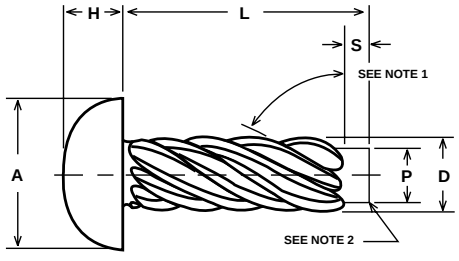
ROUND HEAD

Hammer-driven for making permanent fastenings to ferrous and non-ferrous castings, heavy gauge steel, plastics, etc.

DIAMETER GA.	DIAMETER INCHES	DRILL SIZE	LENGTH 1/8"	3/16"	1/4"	5/16"	3/8"	1/2"
00	.058	55	**376-800**	**376-801**				
0	.073	51	**376-802**	**376-803**	**376-804**			
2	.098	44	**376-805**	**376-806**	**376-807**			
4	.114	37		**376-808**	**376-809**	**376-810**	**376-811**	
6	.138	31			***376-812**	**376-813**	**376-814**	
8	.164	27			**376-815**		**376-816**	**376-817**
10	.179	20						**376-819**
			UNIT PACKAGE 100					

***376-822**
Round Head with Phillips Drive

DIMENSIONS OF METALLIC DRIVE SCREWS TYPE U



1. The lead angle of the Type U Metallic Drive Screw thread shall be 45 to 65 degrees.
2. The blunt end of the pilot may have a slight angle, as illustrated above, due to the natural flow of material in the cut-off process.

Nominal Screw Size	Number of Thread Starts	D Outside Diameter Max.	D Outside Diameter Min.	A Head Diameter Max.	A Head Diameter Min.	H Head Height Max.	H Head Height Min.	P Pilot Diameter Max.	P Pilot Diameter Min.	Recommended Hole Size Drill Size No.	Recommended Hole Size Hole Diameter
00	6	0.060	0.057	0.099	0.090	0.034	0.026	0.049	0.046	55	0.052
0	6	0.075	0.072	0.127	0.118	0.049	0.041	0.063	0.060	51	0.067
2	8	0.100	0.097	0.162	0.146	0.069	0.059	0.083	0.080	44	0.086
4	7	0.116	0.112	0.211	0.193	0.086	0.075	0.096	0.092	37	0.104
6	7	0.140	0.136	0.260	0.240	0.103	0.091	0.116	0.112	31	0.120
7	8	0.154	0.150	0.285	0.264	0.111	0.099	0.126	0.122	29	0.136
8	8	0.167	0.162	0.309	0.287	0.120	0.107	0.136	0.132	27	0.144
10	8	0.182	0.177	0.359	0.334	0.137	0.123	0.150	0.146	20	0.161
12	8	0.212	0.206	0.408	0.382	0.153	0.139	0.177	0.173	11	0.191
14	9	0.242	0.236	0.457	0.429	0.170	0.155	0.202	0.198	2	0.221
5/16"	11	0.315	0.309	0.590	0.557	0.216	0.198	0.272	0.267	M	0.295
3/8"	12	0.378	0.371	0.708	0.670	0.256	0.237	0.334	0.329	T	0.358

L	Nominal Screw Length	1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"	1 inch and over
S	Pilot Length	0.047	0.047	0.047	0.047	0.062	0.062	0.078	0.078	0.125

FLORTORX® SCREWS

TORX Drive

The unique thread-forming screw designed specifically for the truck trailer industry. Full line in stock!

Full Thread (F)
Partial Thread (P)

82° Ctsk. FLAT HEAD

CASE-HARDENED STEEL
Black Phosphate & Oil Finish

SPAENAUR No.	Size	Recess Size
537-501	1/4"-20 x 1-1/4" (F)	TORX T-30
537-502	1/4"-20 x 1-1/2" (F)	
537-503	1/4"-20 x 1-3/4" (F)	
537-504	1/4"-20 x 2" (P)	
537-505	1/4"-20 x 2-1/2" (P)	
537-506	1/4"-20 x 3" (P)	
537-511	1/4"-20 x 4" (P)	
537-507	5/16"-18 x 1-3/4" (F)	TORX T-40
537-508	5/16"-18 x 2" (P)	
537-509	5/16"-18 x 2-1/4" (P)	
537-510	5/16"-18 x 2-1/2" (P)	

UNIT PACKAGE 50

CAMTAINER® FRP FASTENERS

PATENTED

Specially designed for FRP trailers and containers. Camtainer fastens, seals, and secures.

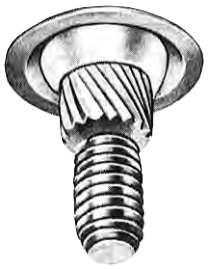
Grade 5.1 Steel

Cadmium Plated & Clear Chromate Finish

CAMTAINER STUD

Dome Head

SPAENAUR No.	Size and Length Under Head	Head Dia.	How Used
191-150	5/16"-18 x 3/4"	7/8"	For Metal Surfaces
191-151	5/16"-18 x 7/8"		
191-152	5/16"-18 x 1"		
191-153	5/16"-18 x 1-1/4"		
191-154	5/16"-18 x 7/8"	1-1/8"	For FRP Surfaces
191-155	5/16"-18 x 1"		



CAMTAINER T-NUTS

with Torx Recess

SPAENAUR No.	Size and Length Under Head	Head Dia.	Torx Recess
191-103	5/16"-18 x 1/2"	5/8"	T-50
191-102	5/16"-18 x 1/2"	1"	T-55

Barrel O.D. 25/64"

191-103

191-102

UNIT PACKAGE 25 (Separate parts)

FLOORBOARD SCREWS

Other Popular Styles

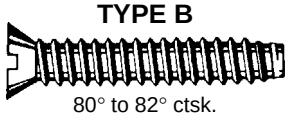
Case Hardened
STEEL
Zinc Plated

TYPE B

80° to 82° ctsk.
PHILLIPS FLAT HEAD

SPAENAUR No.	Size	Unit Pkg.
ST-320P	14 x 1-1/4"	50
ST-212P	14 x 1-1/2"	100
ST-213P	14 x 1-3/4"	100
ST-214P	14 x 2"	100
ST-215P	14 x 2-1/4"	100
ST-216P	14 x 2-1/2"	100
ST-217P	14 x 3"	100

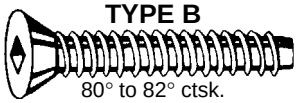
TYPE B



80° to 82° ctsk.
SLOT FLAT HEAD

ST-156B	14 x 1-1/4"	50
B-1528	14 X 1-1/2"	100
B-1247	14 x 1-3/4"	100
B-1107	14 x 2"	100
B-1248	14 x 2-1/2"	100
B-1249	14 x 3"	100

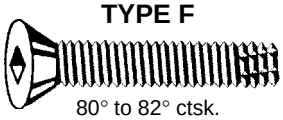
TYPE B



80° to 82° ctsk.
SQ. SOCKET FLAT HEAD

ST-218	14 x 1-1/2"	100
ST-219	14 x 2"	50

TYPE F



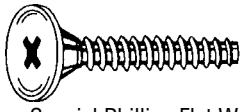
80° to 82° ctsk.
Square
SOCKET FLAT HEAD

SPAENAUR No.	Thread	L.	Unit Pkg.
ST-220	1/4-20 UNC	1-1/2"	100
ST-221		2"	100
ST-222		2-1/4"	100
ST-223		2-1/2"	100
ST-224		3"	100

TYPE 1

80° to 82° ctsk.
SLOT FLAT HEAD

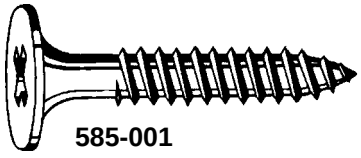
B-467	1/4-20 UNC	1"	100
B-468		1-1/4"	100
ST-206		1-1/2"	100
2474		1-3/4"	100
2475		2"	100
2476		2-1/2"	100
ST-82		3"	100



PLYWOOD LINING SCREWS
For Trucks and Trailers

530-210 10 x 1-1/16"

Special Phillips Flat Washer Head, Type B, Self-tapping Screw
Case Hardened Steel, Zinc Plated *Unit Package 100*



585-001
Phillips Wafer Hd.
Unit Package 100

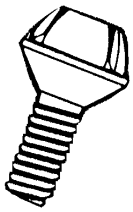
FOR TRUCKS AND TRAILERS

Size #18 x 2"

Case-hardened Steel Wood Screw
Zinc Chromate Plated

"TAMPRUF™" Fasteners

STEEL Zinc Plated



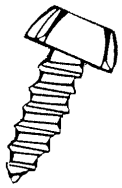
Standard Head

Countersunk Head

Tamper-Resistant MACHINE SCREWS

SPAENAUR No.	SIZE	HEAD STYLE
381-050★	4-40 x 1/2"	Std.
381-080	6-32 x 3/8"	Ctsk.
381-051★	6-32 x 5/8"	Std.
381-081	8-32 x 1/2"	Ctsk.
381-052★	8-32 x 3/4"	Std.
381-082	8-32 x 3/4"	Ctsk.
381-053★	8-32 x 1"	Std.
381-054★	8-32 x 1"	Ctsk.
381-055★	8-32 x 1-1/4"	Std.
381-094	8-32 x 1-1/2"	Std.
381-083	10-24 x 1/2"	Ctsk.
381-056★	10-24 x 5/8"	Std.
381-084	10-24 x 3/4"	Ctsk.
381-057★	10-24 x 1"	Std.
381-059★	10-24 x 1-1/2"	Std.
381-096	10-32 x 1"	Std.
381-085	10-32 x 1"	Ctsk.
381-073	10-32 x 1-1/2"	Std.
381-086★	1/4-20 x 1/2"	Ctsk.
381-060★	1/4-20 x 3/4"	Std.
381-087	1/4-20 x 3/4"	Ctsk.
381-061★	1/4-20 x 1"	Std.
381-088	1/4-20 x 1"	Ctsk.
381-062★	1/4-20 x 1-1/4"	Ctsk.
381-063★	1/4-20 x 1-1/2"	Std.
381-089	1/4-20 x 1-1/2"	Ctsk.
381-090	1/4-20 x 2"	Ctsk.

Unit Package 100



Standard Head

Countersunk Head

Tamper-Resistant WOOD/METAL SCREWS

Case-hardened

SPAENAUR No.	SIZE	HEAD STYLE
381-064★	6 x 1/2"	Std.
381-076	6 x 1/2"	Ctsk.
381-065★	6 x 3/4"	Std.
381-077	8 x 1/2"	Ctsk.
381-066★	8 x 3/4"	Std.
381-091	8 x 3/4"	Ctsk.
381-067★	8 x 1"	Ctsk.
381-071	8 x 1-1/2"	Std.
381-074	10 x 1/2"	Std.
381-095	10 x 3/4"	Std.
381-078	10 x 3/4"	Ctsk.
381-068★	10 x 1"	Std.
381-069★	10 x 1"	Ctsk.
381-079	10 x 1-1/4"	Ctsk.
381-075★	10 x 1-1/2"	Std.
381-072	10 x 2"	Std.

Unit Package 100

★For information relating to star - see Assortment 805-433 shown below.

"TAMPRUF" BITS

Bits require 1/4" square driver.

UNIT PACKAGE 1

SPAENAUR No.	Fits Standard Hd.	Fits Ctsk. Hd.	
876-533★	#4	#6	(Not for use with power driver.)
876-534★	#6 & #8	#8 & #10	
876-789★	#10, 12 & 1/4"	1/4"	

ASSORTMENT / ASSORTIMENT 805-433

"TAMPRUF" SCREWS

STEEL, Zinc Plated

237 PIECES 21 SIZES

Plus Screw Driver and Bits

Priced Singly.

Furnished in a REGULAR SIZE grey enamelled steel drawer which will fit Slide Racks shown on page A2. Items listed on this page with a star (★) behind the number are found in various quantities in this Assortment.

Shipping Wt. 2.95 kg (6-1/2 lbs.)

DRIVER HANDLE (Spinner) - use with "TAMPRUF" Bits.

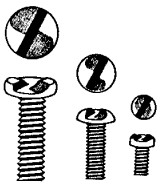
1/4" Square Drive

Overall length 7"

***SPAENAUR No.* 876-536★**

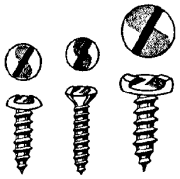
UNIT PACKAGE 1

See page C68 for "TAMPRUF" Nuts.



ONE-WAY SLOT DRIVE

Easy to insert - with slot screwdriver
Very difficult to remove



B

STEEL — *ONE WAY SLOT* MACHINE SCREWS

SPAENAUR No.	Screw Size	Head Style	Finish
381-021	8-32 x 5/8"	Round	Zinc
381-013	8-32 x 3/4"	Round	Zinc
381-002	8-32 x 3/4"	Oval	Nickel
381-003	8-32 x 1"	Oval	Nickel
381-004	8-32 x 1"	Round	Nickel
381-005	8-32 x 1-1/8"	Oval	Nickel
381-006	8-32 x 1-3/8"	Oval	Nickel
381-012	10-24 x 3/8"	Round	Zinc Ch.
381-009	10-32 x 1/2"	Round	Zinc Ch.
381-019	10-32 x 1"	Round	Plain
381-010	10-32 x 3/4"	Round	Nickel
381-011	1/4"-20 x 5/8"	Round	Zinc Ch.
381-020	1/4"-20 x 1"	Round	Plain

BRASS

381-500	1/4"-20 x 3/4"	Pan	Chrome

STEEL — *ONE WAY SLOT* TAPPING SCREWS

SPAENAUR No.	Screw Size	Head Style	Finish
516-001	6 x 3/4"	Round	Nickel
516-003	10 x 5/8"	Round	Nickel
516-004	10 x 5/8"	Oval	Nickel
516-005	10 x 3/4"	Round	Nickel
516-013	10 x 1"	Round	Zinc
516-006	12 x 1-1/2"	Pan	Nickel
516-007	14 x 5/8"	Pan	Nickel
516-008	14 x 3/4"	Pan	Nickel
516-012	14 x 1"	Round	Plain
516-009	14 x 1-1/4"	Pan	Nickel
516-010	14 x 2-1/2"	Pan	Nickel

Unit Package 100
All Fasteners this page

ONE-WAY ROUND HEAD MACHINE SCREWS, 18-8 STAINLESS STEEL

Lgth.	1/4"	3/8"	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
Dia.	**ORDER BY *SPAENAUR* NUMBERS LISTED BELOW**							
4-40			**381-964**	**381-965**	**381-966**			
6-32	**381-967**	**381-968**	**381-969**	**381-970**	**381-971**			
8-32	**381-972**	**381-973**	**381-974**	**381-975**	**381-976**	**381-977**	**381-978**	
10-24		**381-979**	**381-980**	**381-981**	**381-982**	**381-983**	**381-984**	
10-32	**381-985**		**381-986**	**381-987**	**381-988**	**381-989**	**381-990**	
12-24								
1/4"-20			**381-991**	**381-992**	**381-993**	**381-994**	**381-995**	**381-996**
5/16"-18				**381-997**	**381-998**		**381-999**	

ONE-WAY ROUND HEAD SHEET METAL SCREWS, 18-8 STAINLESS STEEL

6A			**516-889**	**516-890**	**516-891**	**516-892**		
8A			**516-893**	**516-894**	**516-895**	**516-896**	**516-897**	
10A			**516-898**	**516-899**	**516-900**	**516-901**	**516-902**	
12A		(*Pan Head)	***516-903**	***516-904**	***516-905**	***516-906**	***516-907**	
14A			**516-909**	**516-910**	**516-911**	**516-912**	**516-913**	**516-914**

ONE-WAY OVAL HEAD SHEET METAL SCREWS, 18-8 STAINLESS STEEL

8A			**516-915**	**516-916**	**516-917**			
10A			**516-918**	**516-919**	**516-920**			

Priced Singly.

Extremely hard points.

WARNING: "Un-Do-It" Screw Drivers are **NOT GUARANTEED** against breakage or wear because of their extremely hard points.

UN-DO-IT SCREW TOOL

Needed for removing "ONE-WAY SLOT" Machine Screws Only

SPAENAUR Driver No.	876-804	876-807	876-810
For Screw Sizes	4 to 8 ga.	10-12 ga.	14 ga. (1/4" & 5/16")
Points C. to C.	5/32"	7/32"	15/64"

One-Way Slotted Drive Shoulder Screws and Barrel Nuts shown on page C72.

B

SPANNER FLAT HEAD MACHINE SCREWS, STEEL, Zinc Plated

(82° Ctsk. Hd.)

Lgth. / Dia.	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"
	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
6-32			**381-100**		**381-101**				**381-110**	
8-32			**381-102**		**381-103**	**381-104**				
10-24					**381-106**					
10-32						**381-107**				
1/4"-20					**381-108**		**381-109**			

SPANNER OVAL HEAD MACHINE SCREWS, 18-8 STAINLESS STEEL

(82° Ctsk. Hd.)

6-32		**381-800**	**381-802**		**381-803**	**381-804**	**381-805**	**381-806**		
8-32			**381-807**		**381-808**	**381-809**	**381-801**	**381-810**	**381-798**	**381-797** (Partial Thread)
10-24			**381-811**	**381-812**	**381-813**	**381-814**	**381-815**	**381-816**		
10-32			**381-817**	**381-818**	**381-819**	**381-820**	**381-821**	**381-822**	**381-799**	

SPANNER FLAT HEAD MACHINE SCREWS, 18-8 STAINLESS STEEL

(82° Ctsk. Hd.)

4-40	**381-859**		**381-860**							
6-32	**381-861**		**381-862**		**381-863**	**381-864**		**381-865**	**381-866**	
8-32	**381-867**		**381-868**	**381-758**	**381-869**	**381-870**	**381-871**	**381-872**	**381-873**	
10-24	**381-874**		**381-875**		**381-876**	**381-877**		**381-878**	**381-879**	
10-32	**381-880**		**381-881**		**381-882**	**381-883**	**381-884**	**381-885**	**381-886**	
12-24			**381-887**		**381-888**	**381-889**		**381-890**		
1/4"-20		**381-891**	**381-892**	**381-893**	**381-894**	**381-895**	**381-896**	**381-897**	**381-898**	
5/16"-18					**381-899**	**381-900**		**381-901**	**381-902**	
3/8"-16					**381-903**	**381-904**		**381-905**		

SPANNER PAN HEAD MACHINE SCREWS, 18-8 STAINLESS STEEL

4-40	**381-906**	**381-907**	**381-908**							
6-32	**381-909**	**381-910**	**381-911**	**381-912**	**381-913**	**381-914**	**381-915**	**381-916**	**381-917**	
8-32	**381-918**	**381-919**	**381-920**	**381-921**	**381-922**	**381-923**	**381-924**	**381-925**	**381-926**	
10-24	**381-927**	**381-928**	**381-929**	**381-930**	**381-931**	**381-932**	**381-933**	**381-934**	**381-935**	**381-1000** (10-24 x 3" Partial Thread *U.P.Q. 50*)
10-32	**381-936**	**381-937**	**381-938**	**381-939**	**381-940**	**381-941**	**381-942**	**381-943**	**381-944**	
12-24			**381-945**		**381-946**	**381-947**		**381-948**		
1/4"-20		**381-949**	**381-950**	**381-951**	**381-952**	**381-953**	**381-954**	**381-955**	**381-956**	
5/16"-18								**381-959**		
3/8"-16										

SPANNER TRUSS HEAD MACHINE SCREWS, 18-8 STAINLESS STEEL

***381-857** 3" Long
***381-858** 3-1/2" Long

6-32		**381-823**	**381-824**		**381-825**	**381-826**				
8-32			**381-827**	**381-828**	**381-829**	**381-830**	**381-831**	**381-832**		**381-796**
10-24			**381-837**		**381-838**	**381-839**				
10-32			**381-833**	**381-834**	**381-835**	**381-836**				
1/4"-20		**381-841**	**381-842**		**381-843**	**381-844**	**381-845**	**381-846**	**381-847**	
5/16"-18					**381-848**	**381-849**	**381-850**	**381-851**		
*3/8"-16					**381-852**	**381-853**	**381-854**	**381-855**	**381-856**	

SPANNER OVAL HEAD MACHINE SCREWS, BRASS Plain Finish

(82° Ctsk. Hd.)

6-32		**381-516**	**381-517**		**381-518**	**381-519**		**381-520**		
8-32			**381-521**		**381-522**	**381-523**	**381-524**	**381-525**	**381-526**	
10-24		**381-533**	**381-534**		**381-535**	**381-536**		**381-537**		
10-32			**381-527**	**381-528**	**381-529**	**381-530**		**381-531**	**381-532**	

SPANNER FLAT HEAD MACHINE SCREWS, BRASS Plain Finish

(82° Ctsk. Hd.)

6-32	**381-502** (3/16" Lgth.)		**381-503**		**381-504**	**381-505**				
8-32			**381-506**		**381-507**	**381-508**		**381-509**		
10-24		**381-510**	**381-511**		**381-512**	**381-513**		**381-514**	**381-515**	

CATALOG 13

SPANNER FLAT HEAD SHEET METAL SCREWS, STEEL, Case-Hardened Zinc Plated

(82° Ctsk. Hd.)

Lgth.	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"
Dia.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
6A/AB			381-150						
8A/AB					381-151				
10A/AB			381-176		381-152			381-153	

SPANNER OVAL HEAD SHEET METAL SCREWS, 18-8 STAINLESS STEEL

(82° Ctsk. Hd.)

6A/AB			516-876		516-877	516-878	516-879	516-880	
8A/AB			516-881		516-882	516-883	516-884		
10A/AB			516-885		516-886	516-887	516-888		

SPANNER FLAT HEAD SHEET METAL SCREWS, 18-8 STAINLESS STEEL

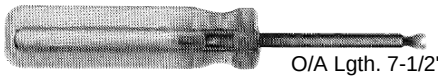
(82° Ctsk. Hd.)

4A/AB	516-800	516-801	516-802		516-803				
6A/AB		516-804	516-805	516-806	516-807	516-808	516-809	516-810	516-811
8A/AB		516-812	516-813		516-814	516-815	516-816	516-817	516-818
10A/AB			516-819	516-820	516-821	516-822	516-823	516-824	516-825
12A/AB			516-826		516-827	516-828	516-829	516-830	516-831
14A/AB			516-832		516-833	516-834	516-835	516-836	516-837

SPANNER PAN HEAD SHEET METAL SCREWS, 18-8 STAINLESS STEEL

4A/AB	516-838	516-839	516-840		516-841				
6A/AB		516-842	516-843	516-844	516-845	516-846	516-847	516-848	516-849
8A/AB		516-850	516-851		516-852	516-853	516-854	516-855	516-856
10A/AB			516-857	516-858	516-859	516-860	516-861	516-862	516-863
12A/AB			516-864		516-865	516-866	516-867	516-868	516-869
14A/AB			516-870		516-871	516-872	516-873	516-874	516-875

DRIVERS FOR SPANNER (drilled head) SCREWS


O/A Lgth. 7-1/2"

SPAENAUR No.	For Screw Size	Points C. to C.
876-993	No. 4	3/32"
876-186	No. 6	1/8"
876-187	No. 8	5/32"
876-188	No. 10	3/16"
876-994	No. 12	7/32"
876-189	1/4", 5/16" & 3/8"	1/4"

INSERT BITS FOR SPANNER SCREWS (drilled head)

Do **NOT** use Bit with Power Driver

SPAENAUR No.	For Screw Size	Bit Size	Points C. to C.
876-991	No. 4	5/16" Hex x 1-1/2" Lgth.	3/32"
876-190	No. 6	1/4" Hex x 1" Lgth.	1/8"
876-191	No. 8	1/4" Hex x 1" Lgth.	5/32"
876-999	No. 8	5/16" Hex x 1-1/2" Lgth.	5/32"
876-192	No. 10	1/4" Hex x 1" Lgth.	3/16"
876-992	No. 12	5/16" Hex x 1-1/2" Lgth.	7/32"
876-193	1/4", 5/16", 3/8"	5/16" Hex x 1-1/2" Lgth.	1/4"

Magnetic Screwdrivers - **Hollow Handle** (without Bits)

Bits can be stored in hollow handle

For 1/4" Hex, use Driver **876-129**
For 5/16" Hex, use Driver **876-130.**

WARNING: "Spanner" Screw Drivers and Insert Bits are **NOT GUARANTEED** against breakage or wear because of their extremely hard points.

SPANNER NUTS AND BITS

on page C68.

SPANNER FLAT HEAD (Metric Coarse Thread) MACHINE SCREWS, 18-8 STAINLESS STEEL

DIAMETER	Lgth. ▶	10 mm	12 mm	16 mm	20 mm	22 mm	25 mm	30 mm
	M3	381-313	381-314	381-315				
	M4	381-316	381-317	381-318	381-319		381-320	
	M5		381-321	381-322	381-323		381-324	381-325

SPANNER PAN HEAD (Metric Coarse Thread) MACHINE SCREWS, 18-8 STAINLESS STEEL

DIAMETER								
	M3	381-300	381-301	381-302				
	M4	381-303	381-304	381-305	381-306		381-307	
	M5		381-308	381-309	381-310		381-311	381-312
	M6						381-326 (use bit 876-189)	

All Screws this page - Pkg. 100
All Tools and Bits - Pkg. 1 only

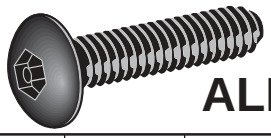
SPANNER BITS
METRIC - Heat Treated

877-689
for M3 screws
(5/16" Hex.)

Use with Magnetic Driver No. 876-130 (See above.)

877-691
for M5 screws
(5/16" Hex.)

SECURITY HEX SOCKET BUTTON HEAD CAP SCREWS



Plain Finish
ALLOY STEEL

LENGTH	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	1-3/4"	2"
DIA.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
4-40	▲381-177	381-212	381-213		381-214	381-215				
6-32	381-216	381-217	381-218	381-219	381-220	381-221		381-222		
8-32	381-223	381-224	381-225	381-226	381-227	381-228	381-229	381-230		
10-24	381-231	381-232	381-233	381-234	381-235	381-236	381-237	381-238		
10-32	381-239	381-240	381-241	381-242	381-243	381-244	381-245	381-246		
1/4"-20	381-247	381-248	381-249	381-250	381-251	381-252	381-253	†381-254	381-255	381-256
1/4"-28										
5/16"-18			381-257		381-258	381-259		381-260		
3/8"-16			381-261		381-262	381-263	381-264	381-265		381-266

▲**381-177ZP** Zinc Plated
†**381-254ZP** Zinc Plated

18-8 STAINLESS STEEL

4-40	381-759	381-760	381-761		381-762	381-763				
6-32	381-350	381-351	381-352	381-764	381-353	381-354		381-765		
8-32	381-766	*381-355	381-356	381-767	381-357	381-358	381-768	381-359		
10-24	381-368	381-369	381-370	381-769	381-371	381-372	381-770	381-373		381-374
10-32	381-360	381-361	381-362	381-773	381-363	381-364	381-365	381-366		381-367
1/4"-20	381-771	381-772	381-375	381-376	381-377	381-378	381-379	381-380		381-381
1/4"-28			381-382			381-383				
5/16"-18			381-384		381-385	381-386	381-387	381-388		381-389
3/8"-16			381-390		381-391	381-392		381-393		

*381-199 Use with 1/8" A/F Security Driver.

SECURITY HEX SOCKET FLAT HEAD CAP SCREWS

82° Ctsk. Hd.

Plain Finish
ALLOY STEEL

LENGTH	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	1-3/4"	2"
DIA.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
4-40		381-267	381-268		381-269	381-270				
6-32	381-271	381-272	381-273	381-274	381-275	381-276		381-277		
8-32	381-278	381-279	381-280	381-281	381-282	381-283	381-284	381-285		
10-24		381-287	381-288	381-289	381-290	381-291	381-292	381-293		
10-32	381-294	381-295	381-296	381-297	381-298	■381-299	381-154	381-155		
1/4"-20	381-156	381-157	381-158	381-159	381-160	381-161	381-162	381-163	381-164	381-165
5/16"-18			381-166		381-167	381-168		381-169		
3/8"-16			381-170		381-171	381-172	381-173	381-174		381-175

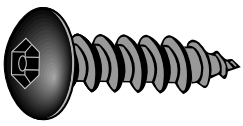
■**381-299ZP** Zinc Plated

18-8 STAINLESS STEEL

6-32	381-774	381-394	381-395	381-775	381-396	381-776		381-777		
8-32	381-778	381-397	381-398	381-779	381-399	381-400	381-780	381-781		
10-24		381-405	381-406	381-783	381-407	381-408	381-784	381-785		
10-32	381-786	381-787	381-401	381-788	381-402	381-403	381-789	381-404		
12-24			381-409							
1/4"-20	381-790	381-791	381-410	381-792	381-411	381-412	381-413	381-414		381-793
5/16"-18			381-415		381-416	381-417	381-794	381-418		
3/8"-16					381-419	381-420	381-421	381-422		

Unit Package Quantity #6 to 1/4" Dia. - 100
5/16" and 3/8" Dia. - 50

SECURITY HEX SOCKET BUTTON HEAD, Type A or AB (our option) SHEET METAL SCREWS



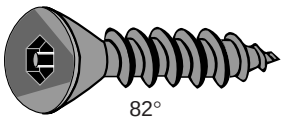
STEEL
Case-Hardened
Zinc Plated

LENGTH	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"		
DIA.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
6 (3.5 mm)	**516-050**	**516-051**	**516-052**	**516-053**	**516-054**		**516-055**			
8 (4.2 mm)	**516-056**	**516-057**	**516-058**	**516-059**	**516-060**	**516-061**	**516-062**	**516-063**		
10 (4.8 mm)		**516-064**	**516-065**	**516-066**	**516-067**	**516-068**	**516-069**	**516-070**		
14 (6.3 mm)		**516-071**	**516-072**	**516-073**	**516-074**	**516-075**	**516-076**	**516-077**		

18-8 STAINLESS STEEL

6 (3.5 mm)	**516-748**	**516-749**	**516-750**	**516-751**	**516-752**		**516-753**			
8 (4.2 mm)	**516-754**	**516-755**	**516-756**	**516-757**	**516-758**	**516-759**	**516-760**	**516-761**		
10 (4.8 mm)		**516-762**	**516-763**	**516-764**	**516-765**	**516-766**	**516-767**	**516-768**		
14 (6.3 mm)		**516-769**		**516-770**	**516-771**	**516-772**	**516-773**	**516-774**		

SECURITY HEX SOCKET FLAT HEAD, Type A or AB (our option) SHEET METAL SCREWS



82°
Ctsk. Hd.

STEEL
Case-Hardened
Zinc Plated

LENGTH	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"	†516-093P Plain Finish	▲516-088BK Oil Black Phosphate Fin. ■516-099BK Oil Black Phosphate Fin.
DIA.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
6 (3.5 mm)	**516-078**	**516-079**	**516-080**	**516-081**	**516-082**		**516-083**			
8 (4.2 mm)		**516-084**	**516-085**	**516-086**	**516-087**	**▲516-088**	**516-089**	**516-090**		
10 (4.8 mm)		**516-091**	**516-092**	**†516-093**	**516-094**	**516-095**	**516-096**	**516-097**		
14 (6.3 mm)			**516-098**	**■516-099**	**516-100**	**516-101**	**516-102**	**516-103**		

18-8 STAINLESS STEEL

6 (3.5 mm)	**516-775**	**516-776**	**516-777**	**516-778**	**516-779**		**516-780**			
8 (4.2 mm)		**516-781**	**516-782**	**516-783**	**516-784**	**516-785**	**516-786**	**516-787**		
10 (4.8 mm)		**516-788**	**516-789**	**516-790**	**516-791**	**516-792**	**516-793**	**516-794**		
14 (6.3 mm)				**516-795**	**516-796**	**516-797**	**516-798**	**516-799**		

SECURITY BITS & TOOLS ARE NOT GUARANTEED AGAINST OVERTORQUE, BREAKAGE OR WEAR.

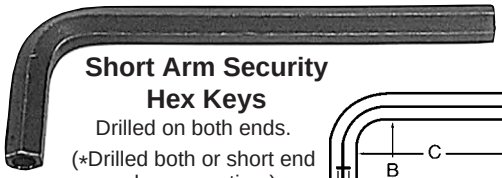
HEX SOCKET SECURITY BITS

1/4" Hex

SPAENAUR No.	ACROSS FLATS	FITS BUTTON HEAD	FITS FLAT HEAD
876-835	3/32"	#4	#4
876-769	1/8"	#6	#6
876-770	5/32"	#8, #10, #14, and 1/4"	#8, #10, #14, and 1/4"
876-771	3/16"	5/16"	5/16"
876-772	7/32"	3/8"	3/8"

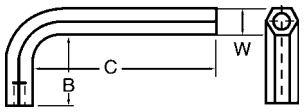
*Please refer to above chart when selecting security Hex Keys by Screw Diameter(s).

For MAGNETIC DRIVERS - Solid Handle
See page P37.



Alloy Steel

Short Arm Security Hex Keys
Drilled on both ends.
(*Drilled both or short end only - our option.)



SPAENAUR No.	*NOM. KEY SIZE OR ACROSS FLATS	W WIDTH ACROSS FLATS Max.	B LENGTH OF SHORT ARM Max.	C LENGTH OF LONG ARM Max.	HOLE SIZE +.005
130-100	3/32"(0.094)"	0.0937"	0.750"	2.094"	.050"
130-093	1/8" (0.125)"	0.1250"	0.844"	2.344"	.075"
130-094	9/64"(0.141)"	0.1406"	0.891"	2.469"	.084"
130-095	5/32"(0.156)"	0.1562"	0.938"	2.594"	.097"
130-096	3/16"(0.188)"	0.1875"	1.031"	2.844"	.102"
130-097	7/32"(0.219)"	0.2187"	1.125"	3.094"	.123"
***130-098**	1/4" (0.250)"	0.2500"	1.219"	3.344"	.123"
***130-099**	5/16"(0.312)"	0.3125"	1.344"	3.844"	.201"

All Security Bits Unit Package 1.
All screws this page Unit Pkg. 100.

Tel: **1-800-265-8772** Fax: **519-744-0818**

B

SECURITY PHILLIPS DRIVE PAN HEAD MACHINE SCREWS

18-8 STAINLESS STEEL

DIA. THREAD	6 32 UNC	8 32 UNC	10 24 UNC	10 32 UNF	12 24 UNC	1/4" 20 UNC	1/4" 28 UNF
DRIVER SIZE	P2	P2	P2	P2	P3	P3	P3
LENGTH	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW						
1/4"							
3/8"		381-433					
1/2"	381-427	381-434	381-446	381-440	381-452	381-456	
5/8"							
3/4"	381-428		381-447	381-441	381-453	381-457	
1"	381-429	381-436	381-448	381-442	381-454	381-458	
1-1/4"	381-430	381-437	381-449	381-443		381-459	
1-1/2"	381-431	381-438	381-450	381-444	381-455	381-460	
1-3/4"							
2"	381-432	381-439	381-451	381-445		381-461	

SECURITY PHILLIPS DRIVE FLAT HEAD MACHINE SCREWS

18-8 STAINLESS STEEL

1/4"	381-462						
3/8"	381-463	381-470					
1/2"	381-464	381-471	381-483	381-477	381-489	381-493	
5/8"							
3/4"	381-465	381-472	381-484	381-478	381-490	381-494	
1"	381-466	381-473	381-485	381-479	381-491	381-495	
1-1/4"	381-467	381-474	381-486	381-480		381-496	
1-1/2"	381-468	381-475	381-487	381-481	381-492	381-497	
1-3/4"							
2"	381-469	381-476	381-488	381-482		381-498	

All Screws This Page - Unit Package Quantity 100.

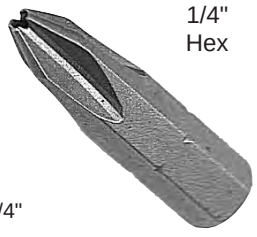
PHILLIPS SECURITY BIT

SPAENAUR No.
876-773

Phillips #2 Pin-Head Bits fit sizes #6 to #10 screws.

SPAENAUR No.
876-1573

Phillips #3 Pin-Head Bits fit sizes #12 to 1/4" screws.



1/4" Hex

For MAGNETIC DRIVERS - Solid and Hollow Handle
See page P37.

PHILLIPS SECURITY SCREW DRIVER

O/A Length 8"

Plastic Handle

SPAENAUR No.
876-851

Screw Driver fits #6 to #10 Dia. Phillips Drive Security Screws.

CATALOG 13

SECURITY PHILLIPS DRIVE PAN HEAD SHEET METAL SCREWS TYPE A or AB (our option)

18-8 STAINLESS STEEL

DIA.	#6	#8	#10	#12	#14
DRIVER SIZE	P2	P2	P2	P3	P3
LENGTH	**ORDER BY *SPAENAUR* NUMBERS LISTED BELOW**				
3/8"		**516-967**			
1/2"		**516-968**	**516-977**	**516-986**	**516-994**
5/8"					
3/4"			**516-978**	**516-987**	**516-995**
1"	**516-963**		**516-979**	**516-988**	**516-996**
1-1/4"	**516-964**	**516-971**	**516-980**	**516-989**	**516-997**
1-1/2"		**516-972**	**516-981**	**516-990**	**516-998**
2"	**516-966**	**516-973**	**516-982**	**516-991**	**516-999**
2-1/2"			**516-983**	**516-992**	**516-1000**
3"			**516-984**	**516-993**	**516-1001**
3-1/2"			**516-985**		
4"					

SECURITY PHILLIPS DRIVE FLAT HEAD SHEET METAL SCREWS TYPE A or AB (our option)

18-8 STAINLESS STEEL

DIA.	#6	#8	#10	#12	#14
DRIVER SIZE	P2	P2	P2	P3	P3
LENGTH	**ORDER BY *SPAENAUR* NUMBERS LISTED BELOW**				
1/2"	**516-1002**	**516-1008**	**516-1017**	**516-1025**	
5/8"					
3/4"	**516-1003**	**516-1009**	**516-1018**	**516-1026**	**516-1034**
1"	**516-1004**		**516-1019**	**516-1027**	**516-1035**
1-1/4"			**516-1020**	**516-1028**	**516-1036**
1-1/2"	**516-1006**	**516-1012**	**516-1021**	**516-1029**	**516-1037**
2"	**516-1007**	**516-1013**	**516-1022**	**516-1030**	**516-1038**
2-1/2"			**516-1023**	**516-1031**	**516-1039**
3"			**516-1024**	**516-1032**	**516-1040**
3-1/2"					
4"					

All Screws This Page - Unit Package Quantity 50.

TORX® TAMPER-RESISTANT BUTTON HEAD MACHINE SCREWS

Plain Finish
ALLOY STEEL

LENGTH	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	1-3/4"	Torx Recess Size
DIA.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
4-40										TR8
6-32		**381-600**	**381-601**		**381-602**	**381-603**	**381-598**	**381-604**		TR10
8-32		**381-605**	**381-606**		**381-607**	**381-608**	**381-609**	**381-610**		TR15
10-24			**381-611**		**381-612**	**381-613**	**381-614**	**381-615**		TR25
10-32			**381-616**		**381-617**	**381-618**	**381-619**	**381-620**		TR25
1/4"-20		**381-621**	**381-622**		**381-623**	**381-624**	**381-625**	**381-626**		TR27
1/4"-28										

18-8 STAINLESS STEEL

4-40										TR8
6-32		**381-654**	**381-655**		**381-656**	**381-657**		**381-658**		TR10
8-32		**381-659**	**381-660**		**381-661**	**381-662**	**381-663**	**381-664**		TR15
10-24		**381-665**	**381-666**		**381-667**	**381-668**	**381-669**	**381-670**		TR25
10-32		**381-671**	**381-672**		**381-673**	**381-674**	**381-675**	**381-676**		TR25
1/4"-20		**381-677**	**381-678**	**381-679**	**381-680**	**381-681**	**381-682**	**381-683**		TR27
1/4"-28										

TORX® TAMPER-RESISTANT FLAT HEAD MACHINE SCREWS

82°
Ctsk. Hd.

Plain Finish
ALLOY STEEL

LENGTH	1/4"	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	1-3/4"	Torx Recess Size
DIA.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
4-40										TR8
6-32		**381-627**	**381-628†**		**381-629**	**381-630**		**381-631**		TR15
8-32		**381-632**	**381-633**		**381-634**	**381-635**	**381-636**	**381-637**		TR20
10-24			**381-638**		**381-639**	**381-640**	**381-641**	**381-642**		TR25
10-32			**381-643**		**381-644**	**381-645**	**381-646**	**381-647**		TR25
1/4"-20		**381-648***	**381-649***	**381-599**	**381-650**	**381-651**	**381-652**	**381-653**		TR30

18-8 STAINLESS STEEL

6-32		**381-684**	**381-685**		**381-686**	**381-687**		**381-688**		TR15
8-32		**381-689**	**381-690**		**381-691**	**381-692**	**381-693**	**381-694**		TR20
10-24		**381-695**	**381-696**		**381-697**	**381-698•**	**381-699**	**381-700**		TR25
10-32		**381-701**	**381-702**		**381-703**	**381-704**	**381-705**	**381-706**		TR25
12-24			**381-707▲**		**381-708**	**381-709**				TR25
1/4"-20		**381-710■**	**381-711■**							TR27
1/4"-20		**381-718**		**381-712**	**381-713**	**381-714**	**381-715**	**381-716**		TR30

*Undercut Head - TR27 Drive ▲ Undercut Head - TR20 Drive ■ Undercut Head

†**381-628ZP** Zinc Plated •**381-717** TR20 Drive

All Screws This Page - Unit Package Quantity 100.

For Torx® Tamper-Resistant Bits and Drivers see page B134.

TORX® TAMPER-RESISTANT BUTTON HEAD, Type A or AB (our option) SHEET METAL SCREWS

STEEL
Plain Finish
C-1018/C-1022
Case-Hardened

LENGTH	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"		Torx Recess Size
DIA.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
6 (3.5 mm)		**516-200**		**516-201**	**516-202**		**516-203**			TR10
8 (4.2 mm)		**516-204**		**516-205**	**516-206**	**516-207**	**516-208**			TR15
10 (4.8 mm)		**516-209**		**516-210**	**516-211**	**516-212**	**516-213**			TR25
14 (6.3 mm)		**516-214**		**516-215**	**516-216**	**516-217**	**516-218**			TR27

18-8 STAINLESS STEEL

6 (3.5 mm)		**516-921**		**516-922**	**516-923**		**516-924**			TR10
8 (4.2 mm)		**516-925**		**516-926**	**516-927**	**516-928**	**516-929**			TR15
10 (4.8 mm)		**516-930**		**516-931**	**516-932**	**516-933**	**516-934**			TR25
14 (6.3 mm)		**516-935**		**516-936**	**516-937**	**516-938**	**516-939**			TR27

TORX® TAMPER-RESISTANT FLAT HEAD, Type A or AB (our option) SHEET METAL SCREWS

82°
Ctsk. Hd.

STEEL
Plain Finish
C-1018/C-1022
Case-Hardened

LENGTH	3/8"	1/2"	5/8"	3/4"	1"	1-1/4"	1-1/2"	2"		Torx Recess Size
DIA.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
6 (3.5 mm)					**516-221**					TR10
6 (3.5 mm)		**516-026**		**516-220**			**516-222**			TR15
8 (4.2 mm)							**516-227**			TR15
8 (4.2 mm)		**516-237**		**516-239**	**516-240**	**516-238**	**516-242**			TR20
10 (4.8 mm)				**516-229**						TR20
10 (4.8 mm)		**516-228**			**516-230**	**516-231**	**516-232**			TR25
14 (6.3 mm)							**516-241**			TR25
14 (6.3 mm)				**516-233**	**516-234**	**516-235**	**516-236**			TR30

18-8 STAINLESS STEEL

6 (3.5 mm)		**516-940**		**516-941**	**516-942**		**516-943**			TR15
8 (4.2 mm)		**516-944**		**516-945**	**516-946**	**516-947**	**516-948**			TR20
10 (4.8 mm)		**516-949**		**516-950**	**516-951**	**516-952**	**516-953**			TR25
14 (6.3 mm)			**516-954**	**516-955**	**516-956**	**516-957**	**516-958**			TR30

All Screws This Page - Unit Package Quantity 100.

Torx® Pan Head, Tamper-Resistant Self-Drilling, Tapping Screw

SPAENAUR No.
516-199

#8 x 3/4" long

#2 Point Style
410 Stainless Steel-Hardened

(Use TR20 Torx Bit)

For additional Torx Tamper-Resistant items see pages B132 & B134 to B136.

TORX TAMPER-RESISTANT

BUTTON HEAD

Type F

Case-Hardened STEEL

Zinc Plated

THREAD-CUTTING SCREWS

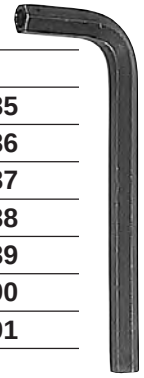
Also suitable for use as machine screws in pre-threaded holes.

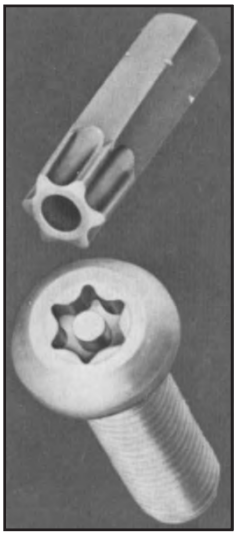
SPAENAUR No.	Type F Screw Size	Head Style	Torx Recess Size	Unit Pkg.
381-201	8-32 x 3/4"	Button Head TORX Tamper-Resistant		100
381-202	8-32 x 1"		TR15	100
381-206	10-24 x 3/8"			100
381-207	10-24 x 5/8"			100
381-208	10-24 x 1"		TR25	100
381-204	10-32 x 1/2"			100
381-205	10-32 x 3/4"			100
381-209	1/4"-20 x 3/4"			100
381-210	1/4"-20 x 1"		TR27	100
381-211	1/4"-20 x 1-1/2"			100

TORX® TAMPER-RESISTANT BITS and DRIVERS for Recessed Tamper-Resistant Screws

The tamper-resistant TORX drive has a post in the centre of its recess which requires a specially mated driver to remove the fastener. Unauthorized removal is prevented.

	SPAENAUR NUMBERS LISTED BELOW			
Torx Recess Size	**HAND DRIVER** **Approx. O/A Lgth.**	with integral Bit and plastic handle	***INSERT BIT** 1/4" Hex - 1" long ▲5/16" Hex - 1-1/4" long	**KEY WRENCH** Short Arm drilled both ends Alloy Steel
TR7	5-7/8"	**876-1704**	—	—
TR8	5-7/8"	**876-1705**	**876-890**	—
TR9	5-7/8"	**876-1706**	**876-891**	—
TR10	5-7/8"	**876-1707**	**876-348**	**876-1785**
TR15	6-7/8"	**876-345**	**876-349**	**876-1786**
TR20	6-7/8"	**876-1708**	**876-823**	**876-1787**
TR25	7-3/4"	**876-346**	**876-350**	**876-1788**
TR27	8"	**876-347**	**876-351**	**876-1789**
TR30	8-1/2"	**876-1709**	**876-892**	**876-1790**
TR40	8-1/2"	**876-1710**	**876-893**	**876-1791**
TR45	8-1/2"	**876-1711**	▲**876-1792**	—
TR50	8-1/2"	—	▲**876-1793**	—





See pages B132 and B133 for screws.

*Not for use with power driver.

(Hollow handle for storing bits.)

(Bits not included.)

NOTE: SPANNER and TORX "Tamper Resistant" tools, are NOT guaranteed against overtorque, misuse, breakage or wear.

All Bits and Tools Priced Singly.

Spaenaur No.	Magnetic Driver Handles
876-129	for 1/4" hex bits shown in chart.
876-130	for 5/16" hex bits shown in chart.

Visit us on the web at . . .

www.spaenaur.com

Machine Screws

ASSORTMENT / ASSORTIMENT 805-548

Alloy Steel

27 Items - 507 Pieces

Spaenaur No.	Size	Qty.
Button Head		
381-600	6-32 x 3/8"	25
381-601	6-32 x 1/2"	25
381-602	6-32 x 3/4"	25
381-606	8-32 x 1/2"	25
381-608	8-32 x 1"	25
381-612	10-24 x 3/4"	25
381-613	10-24 x 1"	25
381-617	10-32 x 3/4"	25
381-618	10-32 x 1"	25
381-624	1/4"-20 x 1"	25
381-626	1/4"-20 x 1-1/2	25
Flat Head		
381-627	6-32 x 3/8"	25
381-633	8-32 x 1/2"	25
381-634	8-32 x 3/4"	25
381-638	10-24 x 1/2"	25
381-639	10-24 x 3/4"	25
381-640	10-24 x 1"	25
381-645	10-32 x 1"	25
381-650	1/4"-20 x 3/4"	25
381-651	1/4"-20 x 1"	25
Insert Bits		
876-348	TR10	1
876-349	TR15	1
876-823	TR20	1
876-350	TR25	1
876-351	TR27	1
876-892	TR30	1
Driver		
876-124	—	1

Priced Singly.

13-3/8" W x 9-1/4" D x 2" H

805-547 Shipping weights 3-1/4 kg (7 lbs.)
805-548 Shipping weights 3-1/4 kg (7 lbs.)

Furnished in a REGULAR SIZE grey enamelled steel drawer. Drawer will fit into Slide Racks shown on page A2.

Sheet Metal Screws

ASSORTMENT / ASSORTIMENT 805-547

Spaenaur No.	Size	Qty.
Button Head		
516-200	#6 x 1/2"	25
516-202	#6 x 1"	25
516-204	#8 x 1/2"	25
516-206	#8 x 1"	25
516-208	#8 x 1-1/2"	25
516-209	#10 x 1/2"	25
516-211	#10 x 1"	25
516-213	#10 x 1-1/2"	25
516-216	#14 x 1"	25
516-218	#14 x 1-1/2"	25
Flat Head		
516-026	#6 x 1/2"	25
516-221	#6 x 1"	25
516-237	#8 x 1/2"	25
516-240	#8 x 1"	25
516-227	#8 x 1-1/2"	25
516-228	#10 x 1/2"	25
516-230	#10 x 1"	25
516-232	#10 x 1-1/2"	25
516-234	#14 x 1"	25
516-236	#14 x 1-1/2"	25
Insert Bits		
876-348	TR10	1
876-349	TR15	1
876-823	TR20	1
876-350	TR25	1
876-351	TR27	1
876-892	TR30	1
Driver		
876-124	—	1

Machine Screws

ASSORTMENT / ASSORTIMENT 805-542

18-8 Stainless Steel

27 Items - 507 Pieces

Spaenaur No.	Size	Qty.
Button Head		
381-654	6-32 x 3/8"	25
381-655	6-32 x 1/2"	25
381-656	6-32 x 3/4"	25
381-660	8-32 x 1/2"	25
381-662	8-32 x 1"	25
381-667	10-24 x 3/4"	25
381-668	10-24 x 1"	25
381-673	10-32 x 3/4"	25
381-674	10-32 x 1"	25
381-681	1/4"-20 x 1"	25
381-683	1/4"-20 x 1-1/2"	25
Flat Head		
381-684	6-32 x 3/8"	25
381-690	8-32 x 1/2"	25
381-691	8-32 x 3/4"	25
381-696	10-24 x 1/2"	25
381-697	10-24 x 3/4"	25
381-698	10-24 x 1"	25
381-704	10-32 x 1"	25
381-713	1/4"-20 x 3/4"	25
381-714	1/4"-20 x 1"	25
Insert Bits		
876-348	TR10	1
876-349	TR15	1
876-823	TR20	1
876-350	TR25	1
876-351	TR27	1
876-892	TR30	1
Driver		
876-124	—	1

Priced Singly.

13-3/8" W x 9-1/4" D x 2" H

805-542 Shipping weights 3-1/4 kg (7 lbs.)
805-543 Shipping weights 3-1/2 kg (7-3/4 lbs.)

Furnished in a REGULAR SIZE grey enamelled steel drawer. Drawer will fit into Slide Racks shown on page A2.

Sheet Metal Screws

ASSORTMENT / ASSORTIMENT 805-543

Spaenaur No.	Size	Qty.
Button Head		
516-921	#6 x 1/2"	25
516-923	#6 x 1"	25
516-925	#8 x 1/2"	25
516-927	#8 x 1"	25
516-929	#8 x 1-1/2"	25
516-930	#10 x 1/2"	25
516-932	#10 x 1"	25
516-934	#10 x 1-1/2"	25
516-937	#14 x 1"	25
516-939	#14 x 1-1/2"	25
Flat Head		
516-940	#6 x 1/2"	25
516-942	#6 x 1"	25
516-944	#8 x 1/2"	25
516-946	#8 x 1"	25
516-948	#8 x 1-1/2"	25
516-949	#10 x 1/2"	25
516-951	#10 x 1"	25
516-953	#10 x 1-1/2"	25
516-956	#14 x 1"	25
516-958	#14 x 1-1/2"	25
Insert Bits		
876-348	TR10	1
876-349	TR15	1
876-823	TR20	1
876-350	TR25	1
876-351	TR27	1
876-892	TR30	1
Driver		
876-124	—	1

Torx® Tamper-Resistant Button Head Machine Screws

A2 Stainless Steel

	M4	M5	M6	M8	M10
	Pitch 0.70	Pitch 0.80	Pitch 1.00	Pitch 1.25	Pitch 1.50
Torx Recess Size	TR20	TR25	TR30	TR40	TR45
Length mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW				
8	**381-1057**	**381-1066**			
10	**381-1058**	**381-1067**	**381-1076**		
12	**381-1059**	**381-1068**	**381-1077**		
16	**381-1060**	**381-1069**	**381-1078**		
20	**381-1061**	**381-1070**	**381-1079**		
25	**381-1062**	**381-1071**	**381-1080**		
30	**381-1063**	**381-1072**	**381-1081**		
40	**381-1064**	**381-1073**	**381-1082**		
50	**381-1065**	**381-1074**	**381-1083**		
60		**381-1075**	**381-1084**		

Torx® Tamper-Resistant Flat Head Machine Screws

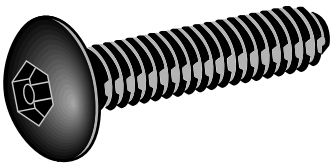
A2 Stainless Steel

90° Ctsk. Hd.

8	**381-1085**	**381-1094**			
10	**381-1086**	**381-1095**	**381-1105**		
12	**381-1087**	**381-1096**	**381-1106**		
16	**381-1088**	**381-1097**	**381-1107**		
20	**381-1089**	**381-1098**	**381-1108**		
25	**381-1090**	**381-1099**	**381-1109**		
30	**381-1091**	**381-1100**	**381-1110**		
40	**381-1092**	**381-1101**	**381-1111**		
50	**381-1093**	**381-1102**	**381-1113**		
60		**381-1103**	**381-1112**		
70		**381-1104**			

Security Hex Socket Button Head Machine Screws

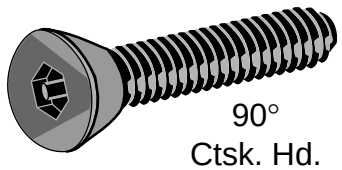
A2 Stainless Steel



	M4	M5	M6	M8	M10
	Pitch 0.70	Pitch 0.80	Pitch 1.00	Pitch 1.25	Pitch 1.50
Bit/Tool Size	2.5 mm	3 mm	4 mm	5 mm	6 mm
Length mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW				
8	**381-1001**				
10	**381-1002**	**381-1008**	**381-1015**		
12	**381-1003**	**381-1009**	**381-1016**	**381-1023**	
16	**381-1004**	**381-1010**	**381-1017**	**381-1024**	
20	**381-1005**	**381-1011**	**381-1018**	**381-1025**	**381-1030**
25	**381-1006**	**381-1012**	**381-1019**	**381-1026**	**381-1031**
30	**381-1007**	**381-1013**	**381-1020**	**381-1027**	**381-1032**
40		**381-1014**	**381-1021**	**381-1028**	**381-1033**
50			**381-1022**	**381-1029**	**381-1034**

Security Hex Socket Flat Head Machine Screws

A2 Stainless Steel



90° Ctsk. Hd.

8	**381-1035**				
10	**381-1036**	**381-1042**	**381-1049**		
12	**381-1037**	**381-1043**	**381-1050**		
16	**381-1038**	**381-1044**	**381-1051**		
20	**381-1039**	**381-1045**	**381-1052**		
25	**381-1040**	**381-1046**	**381-1053**		
30	**381-1041**	**381-1047**	**381-1054**		
40		**381-1048**	**381-1055**		
50			**381-1056**		

Unit Package Quantity M4 to M8 - 50
M10 - 25

OPSIT™

A New Twist In Tamper-Resistant Screws

Type A

18-8 STAINLESS STEEL

The Opsit has a Tri-Wing® drive and low-profile Truss Head with a left-hand thread that tightens the screw with each **counter-clockwise** turn!

SPAENAUR No.	Type A Screw Size	Bit Size	Unit Pkg.
516-1041	#8 x 1/2"	4	50
516-1042	#8 x 3/4"	4	50
516-1043	#8 x 1"	4	50
516-1044	#8 x 1-1/4"	4	50
516-1045	#8 x 1-1/2"	4	50
516-1046	#10 x 1/2"	5	50
516-1047	#10 x 3/4"	5	50
516-1048	#10 x 1"	5	50
516-1049	#10 x 1-1/4"	5	50
516-1050	#10 x 1-1/2"	5	50

Insert Bits for use with Tri-Wing® Screws above.

Not for use with power drivers.

Tri-Wing

Alloy Steel
Top Quality, extra hard (Grey)

1/4" hex shanks, 1" long.

See page P37 for Bit Driver Handles.

Bit Point Size	*SPAENAUR No.*
0	**876-1631**
1	**876-218**
2	**876-1634**
3	**876-1635**
4	**876-1636**
5	**876-1637**
6	**876-1638**

All Bits Priced Singly.

Metric Hex Socket Security Bits and Keys

All Bits & Keys Priced Singly.

Bit Size Across Flats	Insert Bits *SPAENAUR No.*	Insert Bits Length and Hex Size	Hex Keys *SPAENAUR No.*	Hex Keys Lengths
2.5 mm	**877-535**	25 x 6.3 mm	**877-540**	16 x 51 mm
3 mm	**877-536**	25 x 6.3 mm	**877-541**	21 x 55 mm
4 mm	**877-537**	25 x 6.3 mm	**877-542**	21 x 64 mm
5 mm	**877-538**	25 x 6.3 mm	**877-543**	25 x 68 mm
6 mm	**877-539**	25 x 6.3 mm	**877-544**	32 x 90 mm

Hex keys have a hole in both ends.

Tel: **1-800-265-8772** Fax: **519-744-0818**

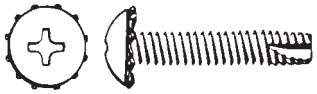
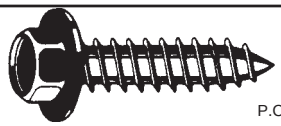
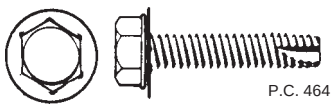
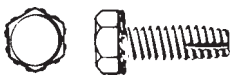
B

Hardened
STEEL

"SEMS" TYPE TAPPING SCREWS

HEXAGON & PHILLIPS DRIVE

TYPES
A, B, 1, 23, 25

ILLUSTRATION	*SPAENAUR No.*	SIZE	DESCRIPTION	PKG. QTY.
	464-109	#6 x 1/2" (1/4" AF)	Indented Hexagon Head, Steel, Zinc Plated Type 25 - with 1/4" O.D. External Tooth Lockwasher.	100
	**SE-27**	8-32 x 1/2"	Phillips Truss Head, Steel, Zinc Plated Type 23 - with 3/8" O.D. External Tooth Lockwasher.	100
P.C. 460	**2357**	#8 x 7/16"	Phillips Round Washer Head, Steel, Nickel Plated Type A - with 3/8" O.D. External Tooth Lockwasher.	100
P.C. 464	**SE-29** **SE-30** **SE-31** **SE-32**	#8 x 5/8" #8 x 3/4" #8 x 1" #8 x 1-1/4"	Phillips Oval Head, Steel, Nickel Plated Type A - with Nickel Plated Finishing Washer. Screws have No. 6 Head. ***Auto Trim* TAPPING Screws**	100 100 100 100
P.C. 464	**SE-34**	#8 x 5/8"	Phillips Oval Head, Steel, Nickel Plated Type A - with Countersunk Nickel Plated Finishing Washer. Screws have No. 6 Head.	100
 P.C. 525	**ST-78H**	#14A x 3/4"	Indented Hexagon Head (7/16" AF), Steel, Zinc Plated Type AB - with 5/8" O.D. x 3/64" Thick Flat Washer.	50
 P.C. 464	**SE-77H**	5/16"-18 x 1-5/8" (1/2" AF)	Indented Hexagon Head, Steel, Cadmium Plated Type 23 - with 3/4" O.D. Flat Washer. Indented Hexagon Head, Steel, Zinc Plated	100
	**460-015**	5/16"-18 x 1/2" (1/2" AF)	Type 1 - with 9/16" O.D. External Tooth Lockwasher.	100

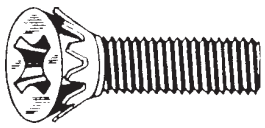
Have a question?
Call (800) 265-8772 or (519) 744-3521.

STEEL

PHILLIPS DRIVE
(Cross Recess)

CLUTCH

B

ILLUSTRATION	*SPAENAUR No.*	SIZE	DESCRIPTION	PKG. QTY.
	SE-54P **SE-14**	5/16"-18 UNC x 1-5/16" 5/16"-24 UNF x 1-5/16"	Phillips Flat Trim Head, Plated Steel, Sems Screw - with External Tooth Shakeproof Lock-washer.	50 50
	**SE-5** **SE-1** **SE-55** **2506** **SE-2** **SE-9** **SE-93P**	12-24 UNC x 3/4" 5/16"-24 UNF x 3/4" 5/16"-18 UNC x 1" 5/16"-24 UNF x 1" 5/16"-24 UNF x 1-1/4" 5/16"-24 UNF x 1-3/4" 3/8"-16 UNC x 5/8"	Phillips Regular Flat Head, Plated Steel, Sems Screw - with External Tooth Shakeproof Lock-washer.	50 50 50 50 50 50 100
	SE-50P **460-016**	8-32 UNC x 1/2" 1/4"-20 UNC x 9/16"	Phillips Binding Head, Zinc Plated Steel, Sems Screw - with External Tooth Lockwasher.	100 100
	SE-8 (Ford No. 354488-S8)	5/16"-24 UNF x 1-1/4"	Clutch Flat Head, Cadmium Plated Steel, Sems Screw - with External Tooth Shakeproof Lockwasher.	50
		To be installled with Clutch Head Screwdriver — ***SPAENAUR No.* B-908**, 5/16" regular.		

See Pages B140 and B141
for more "SEMS" Machine Screws

B

STEEL
Inch Sizes

SLOT

"SEMS" TYPE MACHINE SCREWS

PLATING: Zinc or Cadmium at our option.

PHILLIPS

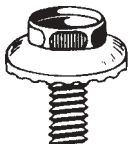
ILLUSTRATION	*SPAENAUR No.*	SIZE	DESCRIPTION	PKG. QTY.
	2378	1/4"-20 UNC x 1"	Slot Oval No. 10 Head, Steel, Plated, Sems Screw - with External Tooth Shakeproof Lockwasher.	50
	SE-42 **SE-96** **SE-41**	10-32 UNF x 3/8" 1/4"-20 UNC x 3/8" 1/4"-20 UNC x 3/4"	Slot Round Head, Steel, Plated, Sems Screw - with External Tooth Shakeproof Lockwasher.	100 100 100
	2355 **2206** **B-950** **2021-B**	12-24 UNC x 3/8" 12-24 UNC x 1/2" 1/4"-20 UNC x 7/16" 1/4"-20 UNC x 3/4"	Slot Binding Head, Steel, Plated, Sems Screw - with External Tooth Shakeproof Lockwasher.	100 100 100 100
	SE-7 (Ford #50697-S13) **SE-43**	10-32 UNF x 1/2" 10-32 UNF x 7/8"	Phillips Oval Head, Steel, Plated, Sems Screw - with External Tooth Lockwasher.	50 100
	SE-36 (GM #4644902)	1/4"-20 UNC x 1-1/4"	Phillips Oval Trim Head, Steel, Plated, Sems Screw - with External Tooth Shakeproof Lockwasher.	50
	SE-21 (GM #455981)	5/16"-24 UNF x 1-1/2"	Phillips Oval Head, Steel, Plain Finish, Sems Screw - with External Tooth Shakeproof Lockwasher. Used as Door Hinge Screw.	50
	460-020 **460-001** **460-021** **460-019** **SE-84P** **460-022**	4-40 UNC x 1/4" 4-40 UNC x 1/2" 6-32 UNC x 1/4" 6-32 UNC x 3/8" 10-24 UNC x 7/8" 10-32 UNF x 1"	Phillips Pan Head, Steel, Plated, Sems Screw- with External Tooth Shakeproof Lockwasher.	100 100 100 100 100 100
	460-023	8-32 UNC x 3/8"	Phillips Pan Head, Steel, Nickel Plated, Sems Screw- with Internal Tooth Lockwasher.	100

See Pages B139 and B141
for more "SEMS" Machine Screws

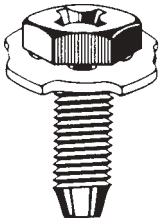
B

STEEL

Inch Sizes



SE-20



SE-17

SE-18

SPAENAUR No.	Screw Size	Head Style	Width Across Flat	Washer Type	Washer O.D.	Finish	Unit Pkg.
SE-53H	10-32 x 1/4"	Ind. Hex. Wshr.	5/16"	Ext. Tooth	25/64"	Cadmium	100
SE-44	10-32 x 3/8"	Phillips Binding		Flat, Sealer	19/32"	Cadmium	50
SE-20	12-24 x 7/16"	Indented Hex.	3/8"	Convex	5/8"	Cadmium	50
SE-18	1/4"-20 x 5/8"	Indented Hex.	7/16"	Ext. Tooth	1/2"	Cadmium	50
***SE-77H**	5/16"-18 x 1-5/8"	Indented Hex.	1/2"	Flat	3/4"	Zinc Chr.	100
SE-24	5/16"-24 x 3/8"	Indented Hex.	1/2"	Ext. Tooth	21/32"	Cadmium	50
SE-6	5/16"-24 x 1/2"	Indented Hex.	1/2"	Ext. Tooth	9/16"	Cadmium	100
SE-16	5/16"-24 x 7/8"	Thin Hex.	9/16"	Conv. Square	3/4" x 3/4"	Cadmium	50
SE-17	5/16"-24 x 7/8"	Phillips Hex.	9/16"	Conv. Square	3/4" x 3/4"	Cadmium	50
SE-104H	3/8"-16 x 1-1/2"	Hexagon	9/16"	Flat	3/4"	Zinc Chr.	100

***Type 23 Thread-Cutting.

DECORATIVE HEAD MACHINE SCREWS

SPAENAUR No.	Size	Steel Screws	Unit Pkg.
383-001	3-48 x 1/4"	Zinc Pltd.	100
383-002	4-36 x 3/8"	Nickel Pltd.	100
383-005	10-24 x 3/4"	Brass Pltd.	100

386-001
1/4"-20 x 1"

Pozi-Drive Flat Ctsk.
Steel Mach. Screw
Zinc Di-chromate
UNIT PACKAGE 100

535-005

10 x 1-1/4" Round Hd.
"SCRULOX 8" Drive
(use Robertson Square Soc. Driver)
Type AB
Tapping Screws
Zinc Chromate Plated
UNIT PACKAGE 100

KNURLED HEAD MACHINE SCREWS

Steel - Nickel Plated

599-025	8-32 x 3/8"	Zinc Pltd.	100
MS-443	8-32 x 1/2"	Nic. Pltd.	100

Hardened Screw-in Stud. Stainless steel replaces weld on stud used for attaching moulding clips to body.
UNIT PACKAGE 100

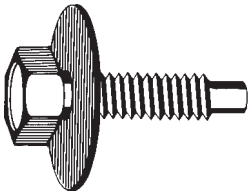
599-015
SIZE:
#4B x 5/8"

CATALOG 13

B

STEEL

Hex Head



Dog Point

Ford Products '77/.

SPAENAUR No.	Screw Size	Hex Width	Washer O.D.	Finish	Unit Pkg.
460-002	1/4"-20 x 3/4"	7/16"	3/4"	Phosphate and Oil	50
460-003	1/4"-20 x 15/16"	7/16"	3/4"	Black Phosphate	50
460-004	1/4"-20 x 15/16"	7/16"	3/4"	Dichromate	50
460-005	1/4"-20 x 1-1/8"	7/16"	3/4"	Dichromate	50
460-006	5/16"-18 x 15/16"	1/2"	7/8"	Dichromate	50
460-007	5/16"-18 x 15/16"	1/2"	7/8"	Phosphate and Oil	50
460-008	5/16"-18 x 1-1/16"	1/2"	7/8"	Dichromate	50
460-009	5/16"-18 x 1-3/16"	1/2"	7/8"	Dichromate	50
460-011	5/16"-18 x 1-3/16"	1/2"	7/8"	Phosphate and Oil	50
460-012	5/16"-18 x 1-7/16"	1/2"	7/8"	Dichromate	50
460-013	3/8"-16 x 1-3/16"	9/16"	1"	Phosphate and Oil	50

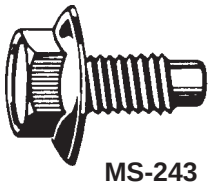
See Page B144 and B145 for Metric sizes.

Automotive and Special Screws
Vis d'automobile et vis spéciales

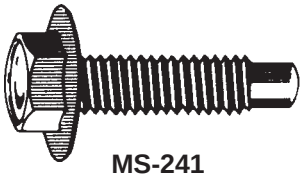
STEEL

INCH SIZES

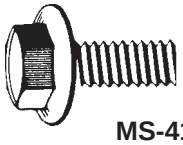
MS-477H



MS-243

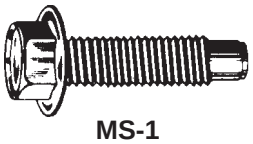


MS-241



MS-413H

391-001



MS-1

P.C. 391 & 599

SPAENAUR No.	Screw Size	Head Style, Etc.	Hex. Width	Head O.D.	Point Style	Finish
MS-413H	1/4"-20 x 5/8"	Indented Hex. Washer "Spin-Lok"	3/8"	33/64"	Regular	Cadmium
MS-243	5/16"-18 x 3/4"	Indented Hex. Washer "Spin-Lok"	1/2"	13/16"	Dog	Cadmium
MS-477H	5/16"-18 x 1"	Indented Hex. Washer "Spin-Lok"	1/2"	13/16"	Dog	Zinc
MS-241	5/16"-24 x 1"	Indented Hex. Washer "Spin-Lok"	1/2"	13/16"	Dog	Parkerized
MS-1	5/16"-24 x 1-1/8"	Indented Hex. Washer "Spin-Lok"	1/2"	21/32"	Dog	Cadmium

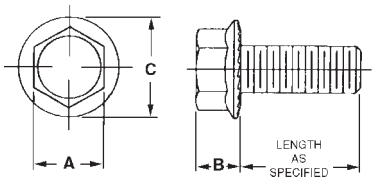
For Unit Package Quantities, please refer to price list.

STEEL

Case-hardened to RC 40

HEX FLANGE (Serrated) SCREW

Zinc Plated



B

Bold Type *SPAENAUR No's.* - Regular stock sizes. Light Type *SPAENAUR No's.* - Min. order 10,000 per size, delivery 10-12 wks.

Thread Size	*SPAENAUR No.*	Length Under Head	A Min. Width A/F	B Flange Head Thick.	C Flange Dia. Min.	Unit Pkg. Qty.
6-32 UNC	**328-048**	1/4"	.181"	.132"	.254"	100
	328-049	3/8"				100
	328-001	1/2"				100
	328-041	5/8"				100
	328-002	3/4"				100
	328-003	1"				100
8-32 UNC	**328-050**	5/16"	.241"	.161"	.341"	100
	328-004	1/2"				100
	328-025	5/8"				100
	328-005	3/4"				100
	328-006	1"				100
10-24 UNC	**328-007**	1/2"	.305"	.185"	.425"	100
	328-008	3/4"				100
	328-027	1-1/4"				100
10-32 UNF	**328-010**	1/2"	.305"	.185"	.425"	100
	328-011	3/4"				100
	328-012	1"				100
	328-028	1-1/4"				100
1/4"-20 UNC	**328-013**	1/2"	.367"	.216"	.513"	100
	328-029	5/8"				100
	328-014	3/4"				100
	328-030	7/8"				100
	328-015	1"				100
	328-016	1-1/4"				100
	328-017	1-1/2"				100
	328-023	2"				100

Thread Size	*SPAENAUR No.*	Length Under Head	A Min. Width A/F	B Flange Head Thick.	C Flange Dia. Min.	Unit Pkg. Qty.
1/4"-28 UNF	**328-042**	1/2"	.367"	.216"	.513"	100
	328-031	3/4"				100
	328-032	1-1/4"				100
5/16"-18 UNC	**328-018**	5/8"	.491"	.274"	.686"	100
	328-033	3/4"				100
	328-034	7/8"				100
	328-019	1"				100
	328-020	1-1/4"				100
	328-035	1-1/2"				100
5/16"-24 UNF	—	—	.491"	.274"	.686"	—
	—	—				—
3/8"-16 UNC	**328-021**	3/4"	.552"	.307"	.771"	50
	328-022	1"				50
	328-036	1-1/4"				50
	328-037	1-1/2"				50
3/8"-24 UNF	—	—	.552"	.307"	.771"	—
	—	—				—
7/16"-14 UNC	—	—	.612"	.365"	.856"	—
	328-038	1-1/4"				50
	—	—				—
7/16"-20 UNF	—	—	.612"	.365"	.856"	—
	—	—				—
1/2"-13 UNC	**328-045**	3/4"	.736"	.430"	1.027"	25
	328-039	1"				25
	328-046	1-1/4"				25
	328-040	1-1/2"				25
	328-047	2"				25
1/2"-20 UNF	—	—	.736"	.430"	1.027"	—
	—	—				—

Advantages:

Fully Reusable

One Piece Construction — Eliminates lockwashers and multiple piece assemblies.

Flange Base — Distributes load over greater area, higher strength.

Excellent Locking Features — 30% more torque to remove than to apply.

Excellent Electrical Contact — Positive bearing surface to bearing surface contact.

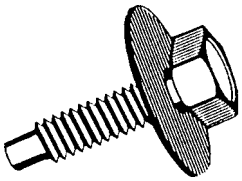
Lower Cost than Preassembled Fasteners — 1. Increases product reliability.
2. Reduces assembly time.

See page C25 for -
FLANGE WHIZ-LOCK NUTS

B

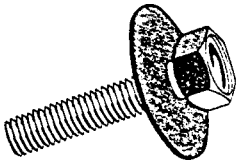
STEEL

Hex Head
Dog Point

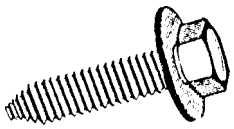


Ford Products '79/.

SPAENAUR No.	Screw Size	Hex Width	Washer O.D.	Finish	Unit Pkg.
461-018	M6 x 1.00 x 18 mm	8 mm	19 mm	Zinc, Yellow Dichromate	50
461-019	M6 x 1.00 x 23 mm	8 mm	19 mm	Zinc, Yellow Dichromate	50



†Regular Point

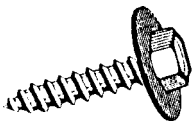


*with Starter Point

Substance & FINISH:
Usually to O.E.M. Specifications

General Motors '77/'79

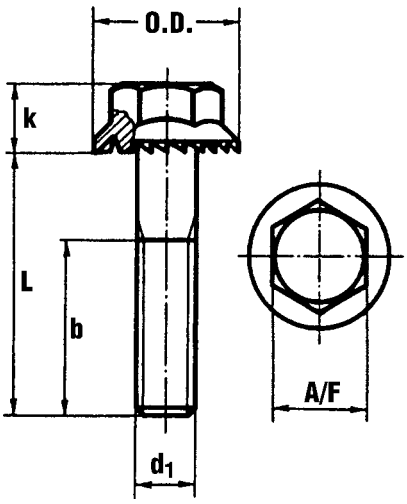
†461-006	M6 x 1.00 x 25 mm	10 mm	17 mm	Phosphate (Black)	25
†461-004	M6.3 x 1.00 x 20 mm	10 mm	17 mm	Phosphate (Black)	25
***461-001**	M6.3 x 1.00 x 20 mm	10 mm	20 mm	Phosphate (Blue)	25
***461-002**	M6.3 x 1.00 x 25 mm	10 mm	23.8 mm	Phosphate (Black)	25
***461-005**	M10 x 1.50 x 40 mm	15 mm	28.6 mm	Phosphate (Black)	25



466-001	M6.3 x 20 mm	10 mm	23.8 mm	Phosphate (Black)	25

Tensilok®

One Piece Construction



Hex Flange (serrated) Screws

Steel — Black Finish

d1=Dia.	M5	M6	M8	M10	M12	M16
Pitch mm	0.8	1	1.25	1.5	1.75	2
b max.	16	18	22	26	30	38
O.D. max.	11.20	14.25	18.25	21	24	31
k max.	4.3	5.5	7	7.9	8.7	11.2
A/F	8	10	13	15	17	22
Lgth. mm	**ORDER BY *SPAENAUR* NUMBERS LISTED BELOW**					
8	**328-210**					
10	**328-211**	**328-215**				*U.P.*
12	**328-212**	**328-216**	**328-222**			*25*
16	**328-213**	**328-217**	**328-223**	**328-231**		
18		**328-218**	**328-224**	**328-232**		
20	**328-214**	**328-219**	**328-225**	**328-233**	**328-239**	
22			**328-226**	**328-234**		
25		**328-220**	**328-227**	**328-235**	**328-240**	**328-246**
30		**328-221**	**328-228**	**328-236**	**328-241**	**328-247**
35			**328-229**	**328-237**	**328-242**	**328-248**
40			**328-230**	**328-238**	**328-243**	**328-249**
45					**328-244**	**328-250**
50					**328-245**	**328-251**
55		*Unit Package 50*				**328-252**
60						**328-253**
70						**328-254**

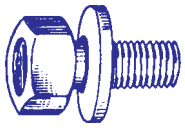
Tensile strength R_m:
- for M5 - M10 dia. min. 900-1100 MPa (approx. 130500-159500 psi)
- for M12 - M16 dia. min. 1000-1200 MPa (approx. 145000-174000 psi)

CATALOG 13

B

STEEL

Substance and FINISH: Usually to O.E.M. Specifications



461-008

8 mm x 1.25 x 16 mm Prop. Class 9.8

(13 mm across flats)

Indented Hex Head Bolt with 23 mm Conical Washer.

General Motors '77/.

UNIT PACKAGE 50

461-014

10 mm x 22 mm

(15 mm across flats)

Blue
Prop. Class 9.8
Indented Hex Head Bolt with 20 mm Washer.

General Motors '77/.

UNIT PACKAGE 50

461-013

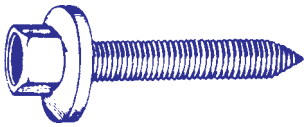
10 mm x 35 mm

(15 mm across flats)

Prop. Class 9.8
Black
Indented Hex Head Bolt with 20 mm Washer.

General Motors '77/.

UNIT PACKAGE 50



461-016

6.3 mm x 40 mm

(10 mm across flats)

Indented Hex Head Bolt with 17 mm Washer.

General Motors '77/.

UNIT PACKAGE 50

461-012

8 mm x 1.25 x 25 mm Grade 9.8

(13 mm across flats)

Indented Hex Head Bolt Type CA with 23 mm Conical Washer.

General Motors '77/.

UNIT PACKAGE 50

461-015

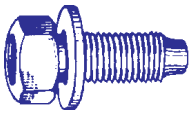
10 mm x 40 mm

(15 mm across flats)

Screw Indented Hex Head with Loose 30 mm Washer, CA Point

General Motors Cars '76/.

UNIT PACKAGE 50



461-009

8 mm x 1.25 x 25 mm

(13 mm across flats)

Metric Taptite Thread-forming
Indented Hex Head Pilot Point Bolt, 4037 Steel Case Hardened with 16 mm Conical Washer.

General Motors '77/.

UNIT PACKAGE 50

461-017

4 mm x 0.7 x 16 mm Black

(7 mm across flats)

Hex Head Screw with 12 mm Washer.

General Motors '77/.

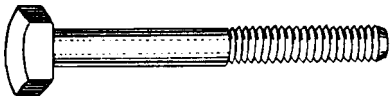
UNIT PACKAGE 100

Sales Desk open 7 a.m. to 7 p.m. E.S.T., Monday to Friday.

Call (800) 265-8772 or (519-744-3521.

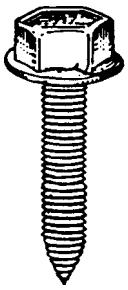
B

392-014
M4 x 0.70 x 42 mm
6.3 mm (1/4") across flats
Slotted Hex Washer Head Machine Screw
Black Zinc Plated
UNIT PACKAGE 50



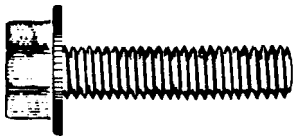
392-006
Replaces 11500039
M6 x 45 mm
10 mm across flats
Hex Head Bolt, Metric
General Motors '79/.
UNIT PACKAGE 50

392-007
Replaces 11504023
M6 x 65 mm
10 mm across flats
Hex Head Bolt, Metric
General Motors '79/.
UNIT PACKAGE 50



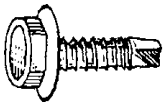
Screw, Hex Washer Head
General Motors '76/'79
392-004
Replaces 11503616
M6.3 x 25 mm
10 mm across flats
UNIT PACKAGE 50

392-002
(362029)
M8 x 1.25 Pitch x 30 mm
13 mm across flats
UNIT PACKAGE 25

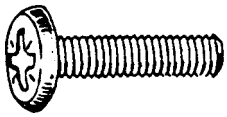


392-011
Replaces 11504499
M8 x 1.25 x 30 mm
13 mm across flats
16 mm washer hd. O.D.
Bolt, Indented Hex Washer Head:
General Motors '79/.
UNIT PACKAGE 50

Substance and FINISH:
Usually to OEM specifications

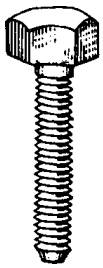


491-002
M4.2 x 12 mm
(8-18 x 1/2")
6.3 mm (1/4") across flats
Screw, Indented Hex Head, for use in Plastic Grills, etc.
General purpose, all cars, trucks, etc.
UNIT PACKAGE 100

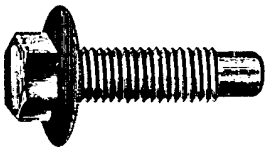


389-001
M6 x 20 mm (Pozi-Drive)
Screw, Rear License Plate Attaching
Ford Fiesta '78/.
UNIT PACKAGE 50

392-008
Replaces 11500001
M6 x 20 mm
10 mm across flats
Hex Head Bolt, Metric
General Motors '79/.
UNIT PACKAGE 50

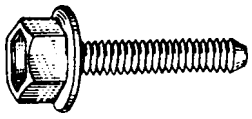


392-009
Replaces 11503948
M6 x 25 mm
10 mm across flats
Hex Head Bolt, Metric
General Motors '79/.
UNIT PACKAGE 50



O.D. of head 18.25 mm

Metric Spin Lock Bolt with Dog Point
General Motors '77/'79.
392-012
M8 x 1.25 Pitch x 22 mm
13 mm across flats
(362029)
UNIT PKG. 25



Metric Hex Flange Head Screw
General Motors '77/'79.
392-001
(11504499)
(11504501)
M8 x 1.25 Pitch x 25 mm
13 mm across flats
15 mm washer hd. O.D.
UNIT PACKAGE 25

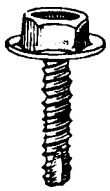
392-005
Replaces 11503785
M6 x 25 mm
10 mm across flats
UNIT PACKAGE 50

With six nibs under head.

512-001
M4.2 x 16.5 mm
(8-18 x 5/8")
Black Zinc Plated
(Teks No. 2 Point)
Round Washer Pozi-Drive Teks Self-drilling Screw
for 1979-80 Models: G.M., Ford, Chrysler & Other Cars,
(Interior trim) *UNIT PACKAGE 100*

HEX MACHINE SCREW
(serrated washer head)
392-013
M10 x 1.50 x 20 mm
Alloy Steel
Black Oxide Finish
UNIT PACKAGE 25

389-002
Replaces 11502623
M4 x 0.7 x 20 mm Blue
Metric, Philips Flat Head Machine Screw
Pozi-Drive
General Motors '77/.
UNIT PACKAGE 100



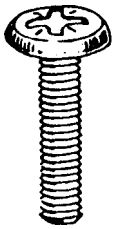
496-001
Replaces 11501917
M7.9 x 1.59 x 20 mm
10 mm across flats
Oldsmobile '77/.
Hex, Washer Head Bolt, Hi-Lo Thread
Grill and Fiberglass Front End Members.
UNIT PACKAGE 50

CATALOG 13

STEEL

Substance and FINISH: Usually to O.E.M. Specifications

542-003
(GM #11502833)
M4.2 x 1.41 x 10 mm
Indented Hex-Washer Head
(7 mm across flats)
Type AB
TAPPING SCREW
Phosphate & Oil Finish
UNIT PACKAGE 100



389-001
M6 x 20 mm
(Pozidrive)

Screw, Rear License Plate Attaching
Ford Fiesta 78/.

STEEL, Zinc Dichromate Plated

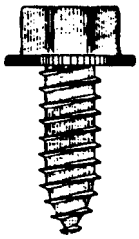
UNIT PACKAGE 50

546-003
GM #11501164
M4.2 x 1.41 Pitch x 13 mm
Chrome Plated

546-001
GM #11503277
M4.2 x 1.41 Pitch x 15 mm
Chrome Plated

Special Small Oval
Pozidrive Head
Type AB Tapping Screw

UNIT PACKAGE 100
(one size)



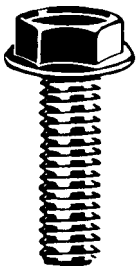
542-002
(GM #11500086)
M8 x 2.12 x 20 mm

Indented Hex-Washer Head
(13 mm across flats)

Type AB
TAPPING SCREW

Phosphate & Oil Finish

UNIT PACKAGE 100



542-004
M8 x 1.25 x 25 mm
Indented
Hex-Washer Head
(13 mm across flats)

Hardened - Machine Screw
Phosphate & Oil Finish
UNIT PACKAGE 50

SPAENAUR

Quality fasteners - inspected, tested and certified!

B

Priced Singly.

SPAENAUR

ASSORTMENT / ASSORTIMENT 805-513 (Kit)

Automotive Special Screws & Nuts
Vis et écrous d'automobile spéciales

26 Sizes — 321 Pieces

Black Nos. INCH ◀ ▶ METRIC Blue Nos.

Size: 13-3/8" x 9-1/4" x 2"

Most popular screws & nuts.

Furnished in Regular Size, Grey enamelled STEEL Drawer with scooped bins.

Shipping Wt. 4.88 kg (10-3/4 lbs.)

Drawer will fit into Slide Racks shown on page A2.

Order a Kit today for Your Body Shop!

Contents of Assortment 805-513

(5) **461-005** M10 x1.50 x 40 mm Use Nut 202-514	(6) **461-012** M8 x 1.25 x 25 mm Use Nut 202-513	(10) **542-004** M8 x 1.25 x 25 mm Use Nut 202-513	(20) **SE-31** 8 x 1" TRIM SCREW	(15) **461-018** M6 x 1.00 x 18 mm Use Nut 202-505	(10) **542-002** M8 x 2.12 x 20 mm (10) **TN-186** Nut
(10) **392-002** M8 x 1.25 x 30 mm Use Nut 202-513	(10) **MS-477H** 5/16"-18 x 1" Use Nut N-256U	(10) **461-002** M6.3 x 1.00 x 25 mm Use Nut 202-504	(20) **SE-30** 8 x 3/4" TRIM SCREW	(10) **461-006** M6 x 1.00 x 25 mm Use Nut 202-505	(10) **466-001** M6.3 x 1.00 x 20 mm (10) **B-1166** Nut
(20) **MS-413H** 1/4"-20 x 5/8" Use Nut 202-387	(10) **MS-243** 5/16"-18 x 3/4" Use Nut N-256U or 202-140	(15) **328-019** 5/16"-18 x 1" Use Nut 202-140	(25) **SE-29** 8 x 5/8" TRIM SCREW	(10) **460-009** 5/16"-18 x 1-3/16" Use Nut N-256U or 202-140	(10) **TN-142R** 5/16"-18 Fits Screw No. 328-019 or 460-009
(10) **202-387** 1/4"-20 Fits MS-413H Screw	(20) **202-505** M6 x 1.00 mm Fits Screw No's. 461-006 & 461-018	(10) **202-504** M6.3 x 1.00 mm Fits 461-002 Screw	(20) **N-256U** 5/16"-18 Fits Screw No's. MS-243, MS-477H, 460-009	(10) **202-513** M8 x 1.25 mm Fits Screw No's. 392-002, 461-012, 542-004	(5) **202-514** M10 x 1.50 mm Fits 461-005 Screw

CATALOG 13

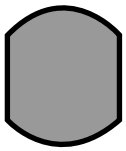
B

ASSORTMENT / ASSORTIMENT 805-436

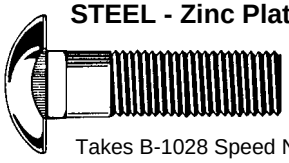
BUMPER BOLTS & LOCKING NUTS

Contains 17 popular sizes of Bumper Bolts
(1/4" to 1/2" Dia.)
Plus 7 sizes of Locknuts
Total Contents - 233 Pieces
REGULAR SIZE grey enamelled STEEL Drawer has "scooped" bins.
Will fit the Slide Racks shown on page A2.
Shipping Wt. 7.37 kg (16-1/4 lbs.)

OTHER TYPES (NO NUTS)



STEEL - Zinc Plated



UNCAPPED

Takes B-1028 Speed Nut

(General Motors Cars)

SPAENAUR No.	SIZE	YEARS
B-1088	1/2"-13 x 1-7/8"	1949-50
B-1532	1/2"-13 x 3"	1951-54

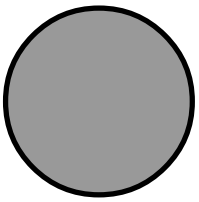
UNIT PACKAGE 10

CATALOG 13

STEEL

ZINC PLATED
with
POLISHED STAINLESS STEEL CAPPED HEADS

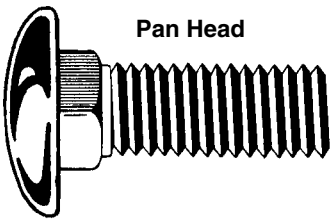
"Capped" ROUND HEAD TYPES



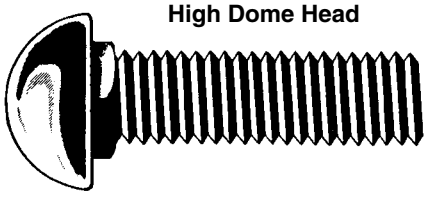
Regular Round Head

Inch Sizes

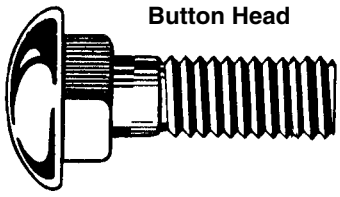
Pan Head



High Dome Head



Button Head



See Price List for Unit Pkg. Qty. **(NO NUTS)** ***IMPORTANT: Please check head dimensions.***

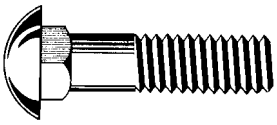
SPAENAUR No.	SIZE	HEAD DIMENSIONS and STYLE
010-073	5/16"-18 x 3/4"	3/4" x 5/32" Pan Hd.
010-068	3/8"-16 x 1"	7/8" x 3/16" Pan Hd.
010-069	3/8"-16 x 1"	27/32" x 5/32" Pan Hd.
B-1731	3/8"-16 x 1"	13/16" x 1/4" Regular Rd. Hd.
B-1599	3/8"-16 x 1-1/4"	13/16" x 1/4" Regular Rd. Hd.
B-1920	7/16"-14 x 7/8"	7/8" x 7/32" Regular Rd. Hd.
B-1686	7/16"-14 x 1"	15/16" x 3/16" Pan Hd.
B-1851	7/16"-14 x 1"	31/32" x 3/16" Pan Hd.
010-072	7/16"-14 x 1"	29/32" x 1/8" Pan Hd.
1867-A	7/16"-14 x 1-1/4"	15/16" x 3/16" Pan Hd.
B-1701	7/16"-14 x 1-1/2"	15/16" x 3/16" Pan Hd.
B-1702	7/16"-14 x 1-3/4"	15/16" x 3/16" Pan Hd.

SPAENAUR No.	SIZE	HEAD DIMENSIONS and STYLE
B-1494	7/16"-14 x 2"	15/16" x 9/32" Regular Rd. Hd.
B-843	7/16"-14 x 2-1/2"	1" x 1/4" Regular Rd. Hd.
B-1181	7/16"-20 x 1-1/4"	1" x 1/4" Pan Hd.
B-1628	7/16"-20 x 1-7/16"	1" x 1/4" Regular Rd. Hd.
B-1652	1/2"-13 x 1-3/8"	1-1/8" x 9/32" Regular Rd. Hd.
B-1698	1/2"-13 x 1-1/2"	1-3/16" x 5/16" Regular Rd. Hd.
B-1653	1/2"-13 x 1-3/4"	1" x 9/32" Button Hd.
1774	1/2"-13 x 1-3/4"	1-3/32" x 5/16" Regular Rd. Hd.
B-1194	1/2"-20 x 1-5/16"	1-3/32" x 1/4" Button Hd.
B-1492	1/2"-20 x 1-3/8"	1-3/32" x 1/4" Regular Rd. Hd.
B-1629	1/2"-20 x 1-3/4"	1" x 9/32" Button Hd.

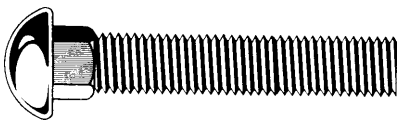
P.C. 010

"Uncapped" ROUND HEAD TYPES (NO NUTS)

STEEL



HEAVY ZINC PLATING



Inch Sizes

SPAENAUR No.	SIZE	HEAD DIMENSIONS
010-043	1/4"-20 x 3/4"	19/32" x 1/8"
***B-1932**	1/4"-20 x 3/4"	19/32" x 1/8"
▲B-1798	1/4"-28 x 1"	1/2" x 3/16"
B-1729	5/16"-18 x 1-3/16"	9/16" x 5/32"
▲B-1743	5/16"-24 x 1"	9/16" x 7/32"
▲B-1744	5/16"-24 x 1-3/4"	9/16" x 7/32"
B-1951	7/16"-14 x 1"	15/16" x 7/32"
B-842	7/16"-14 x 3-1/2"	1" x 1/4"

Metric Sizes

SPAENAUR No.	SIZE	HEAD DIMENSIONS
011-001	M6.3 x 1.00 x 20 mm	13 mm x 3 mm
	CHROME PLATED	
011-002	M8 x 1.25 x 15 mm	15 mm x 5 mm
011-003	M8 x 1.25 x 20 mm	15 mm x 5 mm
011-004	M8 x 1.25 x 30 mm	15 mm x 5 mm

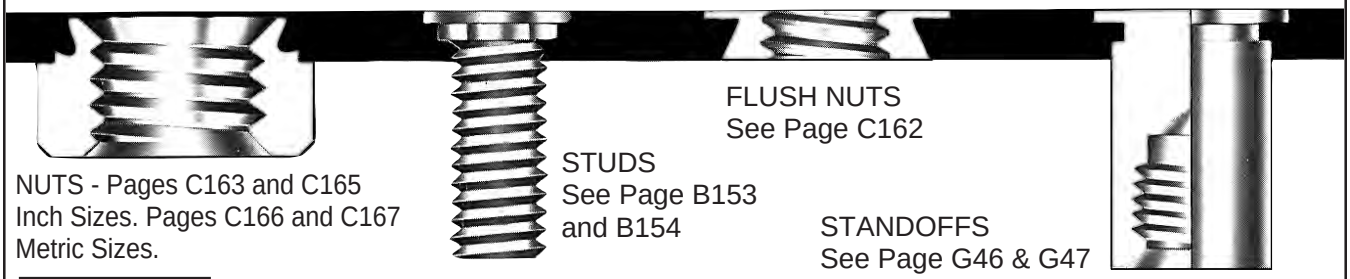
*Stainless Steel *See Price List for Unit Pkg. Qty.*

All bolts this page have square shoulders except ones with a triangle (▲) prefix are round with 2 parallel sides.

B

SELF-CLINCHING FASTENERS

Self-Clinching Fasteners add strong threads in thin metal sections - available in carbon steel, stainless steel, and aluminum



NUTS - Pages C163 and C165
Inch Sizes. Pages C166 and C167
Metric Sizes.

STUDS
See Page B153
and B154

FLUSH NUTS
See Page C162

STANDOFFS
See Page G46 & G47

Self-Clinching fasteners are used in a multitude of applications: aircraft and spacecraft componentry, automobiles, off-the-road vehicles, other transportation equipment, agriculture machinery, electronic and electrical equipment, business machines, industrial and consumer appliances, recreational devices, vending machines, metal furniture - wherever load-bearing threads must be designed into ductile metal sheet too thin to thread.

Simple, quick, low-cost installation

Self-Clinching fasteners are installed in punched or drilled holes simply by squeezing them in with any adjustable force, parallel-acting mechanical, hydraulic, or pneumatic press. The shanks of *Self-Clinching* fasteners are round, and act as their own pilots. No indexing is required. Several fasteners may be installed with a single squeeze, effecting notable economies in assembly.

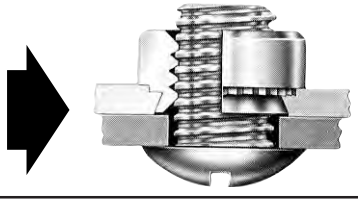
No secondary operations or refinishing required

Self-Clinching fasteners maintain thread integrity while being squeezed in. Neither retapping or reclinching is necessary. No grinding or burnishing is needed either, since the anvil side of the sheet remains flush. *Self-Clinching* fasteners may be installed before or after surfaces are finished. They will not distort or discolour painted or lacquered panels.

High torque-out and push-out resistance

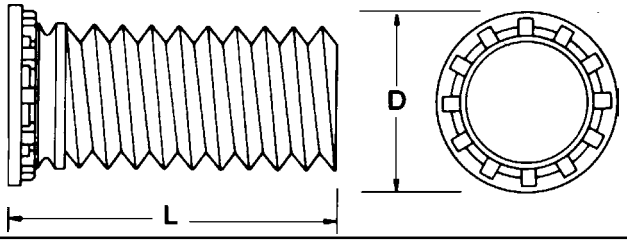
When *Self-Clinching* fasteners are squeezed into thin sheet, the steel, aluminum, copper, brass, or other ductile matrix metal flows into undercut, knurled, or lugged surfaces, giving them the push-out and torque-out strengths the fasteners need to stay in place all down the production line and under conditions of end use.

Note: The correct assembly of machine screws to Self-Clinching nuts (Page C162), is from the anvil side.



CATALOG 13

Steel
Stainless Steel
Aluminum



Unit Package 100

▲Minimum Quantities may apply.

B

Inch Sizes — DIMENSIONS & SPECIFICATIONS:

THREAD SIZE	D. Head Dia. ±1/64	Hole in Sheet +.003 -.000	Min. Edge Distance to center of Hole in Panel	Kind of Metal	(L) Length in inches									
					1/4	5/16	3/8	1/2	5/8	3/4	7/8	1	1-1/4	1-1/2
					ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
2-56	9/64	.085	.19	STEEL S.S. ALUM.	**614-001** **614-808**	**614-002** **614-809**	**614-003** **614-810** **614-309▲**	**614-004** **614-811**	**614-005** **614-812**					
4-40	3/16	.111	.22	STEEL S.S. ALUM.	**614-006** **614-813**	**614-007** **614-814**	**614-008** **614-800** **614-300**	**614-009** **614-801** **614-301**	**614-010** **614-815** **614-310▲**	**614-011** **614-816** **614-311**				
6-32	13/64	.137	.25	STEEL S.S. ALUM.	**614-057**	**614-012** **614-817**	**614-013** **614-802** **614-302**	**614-014** **614-803** **614-303**	**614-015** **614-818** **614-312**	**614-016** **614-819** **614-313**	**614-017** **614-820**	**614-018** **614-821** **614-314▲**	**614-019**	
8-32	15/64	.163	.28	STEEL S.S. ALUM.			**614-020** **614-822**	**614-021** **614-804** **614-304**	**614-022** **614-805**	**614-023** **614-823** **614-315**	**614-024** **614-824**	**614-025** **614-825** **614-316▲**	**614-026**	**614-027**
10-24	1/4	.189	.28	STEEL S.S. ALUM.			**614-028** **614-826**	**614-029** **614-827** **614-318▲**	**614-030** **614-828** **614-305**	**614-031** **614-829**	**614-032** **614-830**	**614-033** **614-831** **614-319**	**614-034**	**614-035**
10-32	1/4	.189	.28	STEEL S.S. ALUM.			**614-036** **614-832**	**614-037** **614-806** **614-306**	**614-038** **614-807**	**614-039** **614-833** **614-320▲**	**614-040**	**614-041** **614-834** **614-321**	**614-042**	**614-043**
1/4"-20	21/64	.249	.31	STEEL S.S. ALUM.				**614-044** **614-835** **614-322▲**	**614-045** **614-841**	**614-046** **614-836** **614-307**	**614-047**	**614-048** **614-837** **614-323**	**614-049**	**614-050**
5/16"-18	25/64	.311	.38	STEEL S.S. ALUM.	**THREAD Class 2A (MIL-S-7742)**				**614-051**	**614-052** **614-838** **614-324▲**	**614-053**	**614-054** **614-839**	**614-055**	**614-056** **614-840** **614-325▲**

MATERIAL AND FINISHES

STEEL
Carbon Steel, Heat Treated, Zinc or Cadmium Plated, QQ-P-416, Type 1, Class 3, Plus Clear Chromate Dip

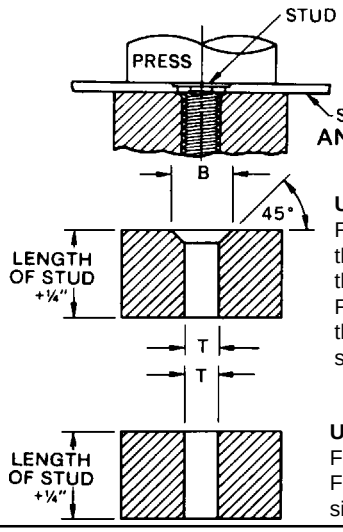
STAINLESS STEEL (S.S.)
300 Series Stainless Steel (Passivated, QQ-P-35, Type I)

ALUMINUM (ALUM.)
2024-T4 Aluminum

ANVIL DIMENSIONS

THREAD SIZE	ANVIL B	ANVIL T
2-56	.110 .114	.087 .090
4-40	.136 .140	.113 .116
6-32	.162 .166	.139 .142
8-32	.188 .192	.165 .168
10-24	.216 .220	.191 .194
1/4-20	.295 .300	.250 .253
5/16-18		.3125 .3155

INSTALLATION NOTE: Apply only sufficient squeezing pressure to embed head of stud flush with panel. Do not use more pressure than necessary. Amount of pressure varies with panel metal and size of stud. Studs install flush in sheets .040" or thicker, but will project up to .020" in thinner sheets.



INSTALLATION

GENERAL TOOLING SETUP

USE THIS ANVIL
For panels less than .060" in thickness, with #2 thru #10 thread sizes.
For panels less than .093" in thickness, with 1/4" thread size.

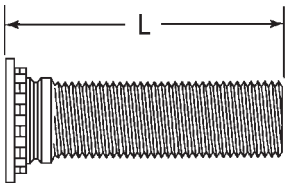
USE THIS ANVIL
For panels .060" and more in thickness, with #2 thru #10 thread sizes.
For panels .093" and more in thickness, with 1/4" and 5/16" thread sizes.

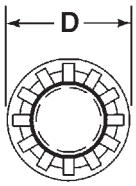
Note: These values are for general reference only.
*Maximum nut tightening values

THREAD SIZE	Torque* (IN-LB)	Installation (LB) STEEL	Installation (LB) ALUM
2-56	2-1/2	3000	2000
4-40	5	4000	3000
6-32	10	4500	3500
8-32	20	5000	4000
10-24	25	6000	4500
10-32	35	6000	4500
1/4-20	80	7000	5000
5/16-18	140	8000	6000

See WELDING SCREWS on following pages.

Steel
Stainless Steel
Aluminum





THREAD
Class 2A (MIL-S-7742)

Unit Package 100

Self-clinching fasteners are pressed into holes in sheet metal by applying a steady squeezing force. This results in the cold-flow of sheet material, which is displaced by the knurl, into the undercut area on the shank of the fastener.

THREAD SIZE	Dimensions in inches: D. Head Dia.			Kind of Metal	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW — (L) Length in inches: 1/4 (.250)	5/16 (.3125)	3/8 (.375)	1/2 (.500)	5/8 (.625)	3/4 (.750)	7/8 (.875)	1 (1.00)	1-1/4 (1.25)	1-1/2 (1.50)
2-56	.144 ±.015	.085 +.003 -.000	.187	STEEL										
				S.S.										
				ALUM.										
4-40	.176 ±.015	.111 +.003 -.000	.219	STEEL										
				S.S.										
				ALUM.										
6-32	.206 ±.015	.137 +.003 -.000	.250	STEEL										
				S.S.										
				ALUM.										
8-32	.237 ±.015	.163 +.003 -.000	.281	STEEL										
				S.S.										
				ALUM.										
10-24	.256 ±.015	.189 +.003 -.000	.281	STEEL										
				S.S.										
				ALUM.										
10-32	.256 ±.015	.189 +.003 -.000	.281	STEEL										
				S.S.										
				ALUM.										
1/4-20	.337 ±.015	.249 +.003 -.000	.312	STEEL										
				S.S.										
				ALUM.										
5/16-18	.376 ±.015	.311 +.003 -.000	.375	STEEL										
				S.S.										
				ALUM.										

MATERIAL AND FINISHES

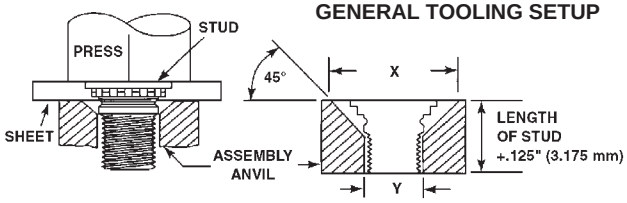
STEEL	STAINLESS STEEL (S.S.)	ALUMINUM (ALUM.)
Carbon Steel, Heat Treated, Zinc Plated	300 Series Passivated	2024-T4 Aluminum

ANVIL DIMENSIONS

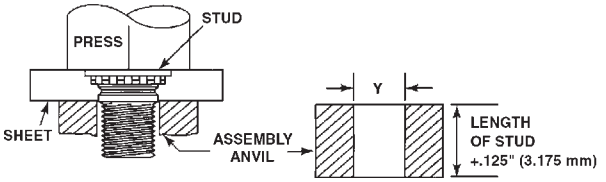
THREAD SIZE	ANVIL X	ANVIL Y
2-56	.110 .114	.087 .090
4-40	.136 .140	.113 .116
6-32	.162 .166	.139 .142
8-32	.188 .192	.165 .168
10-24	.216 .220	.191 .194
1/4-20	.295 .300	.250 .253
5/16-18		.3125 .3155

INSTALLATION

GENERAL TOOLING SETUP



Tooling for sheet thickness .059" and less with #2 thru #10 thread sizes and less than .093" for 1/4" threads.



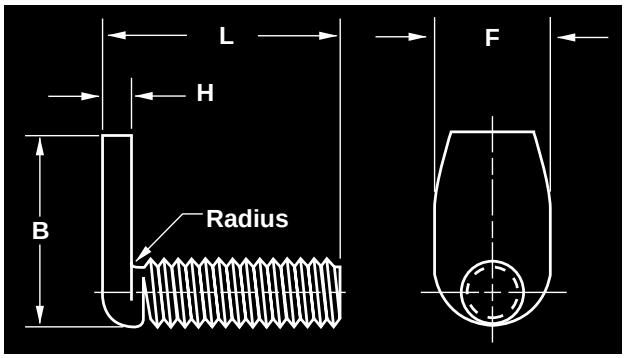
Tooling for sheet thickness .060" minimum and greater with #2 thru #10 thread sizes and .092" minimum and greater for 1/4" and 5/16" threads.

Note: These values are for general reference only.
*Maximum nut tightening values

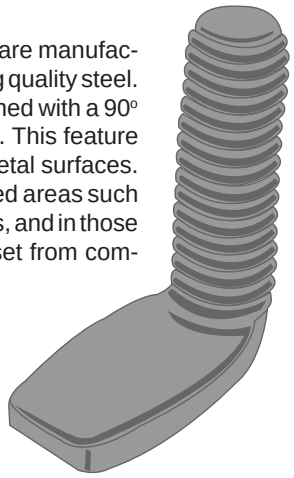
THREAD SIZE	Torque* (in.-lbs.) STEEL	Torque* (in.-lbs.) ALUM.	Installation (lbs.) STEEL	Installation (lbs.) ALUM.
2-56	5	5	2500	2000
4-40	10	10	4700	3200
6-32	19	19	5000	3500
8-32	35	30	5500	4500
10-24	50	38	6800	5500
10-32	50	38	6800	5500
1/4-20	120	90	6500	6500
5/16-18	200	110	11000	6700

B

SPOT WELD SCREWS "LJ" SERIES



The LJ Series, Spot Weld Screws are manufactured from low carbon, high welding quality steel. These spot weld screws are designed with a 90° plain spade head for spot welding. This feature allows for welding to or through metal surfaces. The product can be used in confined areas such as narrow channels, walled corners, and in those applications requiring threads offset from component surfaces.



Not Plated

Grey area on chart below indicates the available size range of LJ Spot Weld Screws.

Can be manufactured to meet specific requirements in production run. Prices available upon request.

SPAENAUR Numbers listed below can usually be shipped immediately from stock.

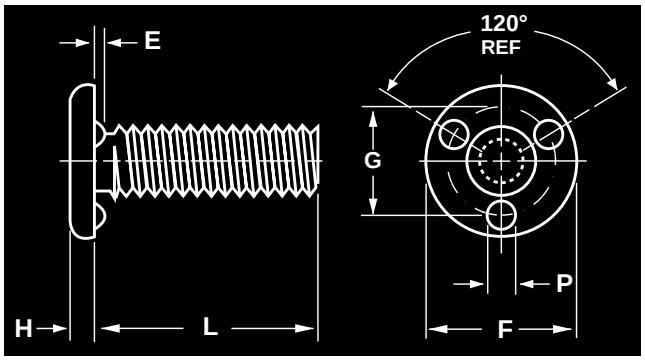
Unit Package 100

Size	#6	#8	#10	#10	1/4"	1/4"	5/16"	5/16"	3/8"	3/8"
Head Width (F)	.218"	.250"	.312"	.343"	.375"	.406"	.437"	.500"	.531"	.593"
Head Thickness (H)	.047"	.062"	.062"	.062"	.094"	.094"	.125"	.125"	.156"	.156"
Head Length (B)	.562"	.625"	.687"	.687"	.750"	.750"	.875"	.875"	1.000"	1.000"
Threads Per Inch	32	32	24	32	20	28	18	24	16	24
Overall Length (L)	**ORDER BY *SPAENAUR* NUMBERS LISTED BELOW**									
3/8"		**573-111**	**573-112**							
1/2"		**573-100**	**573-113**	**573-103**	**573-104**				***LN Series**	
9/16"									**with single projection under head.**	
5/8"		**573-101**			**573-105**		**573-109**			
3/4"		**573-120**	**573-110**		**573-106**		**573-115**		**573-127***	
7/8"					**573-114**					
1"		**573-102**		**573-117**	**573-107**		**573-119**			
1-1/8"										
1-1/4"					**573-108**					
1-3/8"										
1-1/2"		**▲573-061**							**573-116**	
1-3/4"										
2"					**573-118**		**▲573-121**			
2-1/4"										
2-1/2"										
2-3/4"										
3"										
		▲ SS Series (Not Gripco)								

Typical weld settings for use with C-1010 steel only. Thickness range of steel sheets, 24 gauge to 6 gauge. Steel sheets must be free from scale, rust and dirt and be uncoated.

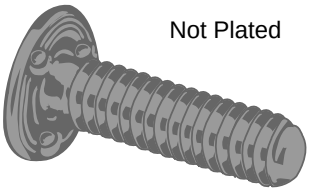
SIZE	WELD TIME IN CYCLES	WELD PRESSURE IN POUNDS	WELD CURRENT IN AMPS
#6	4 to 10	300 to 700	8,000 to 14,000
#8	5 to 10	300 to 700	8,000 to 14,000
#10	5 to 10	400 to 800	9,000 to 15,000
1/4"	6 to 12	500 to 900	12,000 to 18,000
5/16"	8 to 14	800 to 14,000	14,000 to 20,000
3/8"	10 to 25	1,000 to 2,000	15,000 to 24,000

B



PROJECTION WELD SCREWS "MN" SERIES

The MN Series, Projection Weld Screws are manufactured from low carbon, high welding quality steel. These projection weld screws are designed with 3 weld projections under the head. This feature allows for flush mounting in through-hole applications.



Not Plated

SPAENAUR Numbers listed below can usually be shipped immediately from stock.

Unit Package 100

Grey area on chart below indicates the available size range of MN Projection Weld Screws.

Can be manufactured to meet specific requirements in production run. Prices are available upon request.

Size	#6	#8	#10		1/4"		5/16"		3/8"	
Head Diameter (F)	.312"	.375"	.437"		.562"		.750"		.875"	
Head Thickness (H)	.047"	.062"	.062"		.078"		.094"		.109"	
Projection Height (E)	.020"	.024"	.028"		.038"		.043"		.048"	
Projection Width (P)	.058"	.072"	.086"		.104"		.119"		.133"	
Locating Circle (G)	.225"	.266"	.312"		.406"		.531"		.625"	
Threads Per Inch	32	32	24	32	20	28	18	24	16	24
Length Under Head (L)	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
3/16"										
1/4"										
3/8"		573-017	573-040	573-042	573-041					
1/2"			573-002	573-019	573-020■		573-021			
9/16"										
5/8"			573-003		573-004		573-006			
3/4"				573-001	573-005				573-008	
7/8"			573-039						573-009†	
1"		573-014		573-016†	573-012		573-015		573-024	573-010
1-1/8"										
1-1/4"				573-063†	573-013		573-022†		573-011	
1-1/2"		573-026					573-023		573-025	
1-3/4"										
2"							573-043		573-044	

■**573-801** Stainless Steel (Not Gripco.)
†Not Gripco

SIZE	WELD TIME IN CYCLES	WELD PRESSURE IN POUNDS	WELD CURRENT IN AMPS
#6	3 to 6	300 to 900	4,000 to 12,000
#8	3 to 7	300 to 900	4,000 to 13,000
#10	3 to 8	400 to 900	6,000 to 14,000
1/4"	3 to 12	600 to 1,000	10,000 to 15,000
5/16"	4 to 16	700 to 1,100	12,000 to 18,000
3/8"	6 to 18	800 to 1,200	13,000 to 20,000

Typical weld settings for use with C-1010 steel only. Thickness range of steel sheets, 24 gauge to 6 gauge. Steel sheets must be free from scale, rust and dirt and be uncoated.

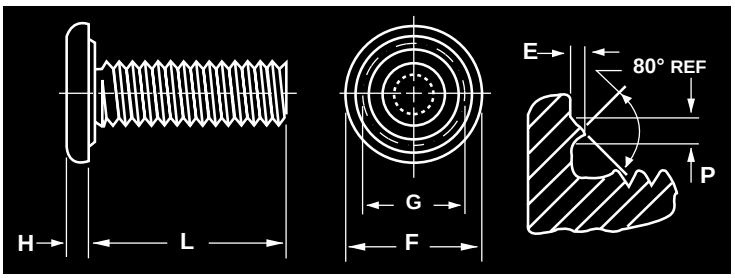
PROJECTION WELD SCREW "MNM" METRIC SERIES

SPAENAUR No.
573-300

Nom. Size x Pitch x Length
M6 x 1 x 20 mm

E = 1.07-0.97 mm H = 2.03-1.77 mm
F = 14.3-13.7 mm P = 2.67-2.41 mm
G = 10.3 mm See illustration top left.

CATALOG 13

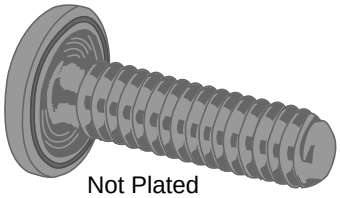


PROJECTION WELD SCREWS "UN" SERIES

The UN Series, Projection Weld Screws are manufactured from low carbon, high welding quality steel. These projection weld screws are designed with a continuous weld ring projection under the head. This feature allows for flush mounting in hermetically sealed applications.

Grey area on chart below indicates the available size range of UN Projection Weld Screws.

Can be manufactured to meet specific requirements in production run. Prices are available upon request.


Not Plated

SPAENAUR Numbers listed below can usually be shipped immediately from stock.

Unit Package 100

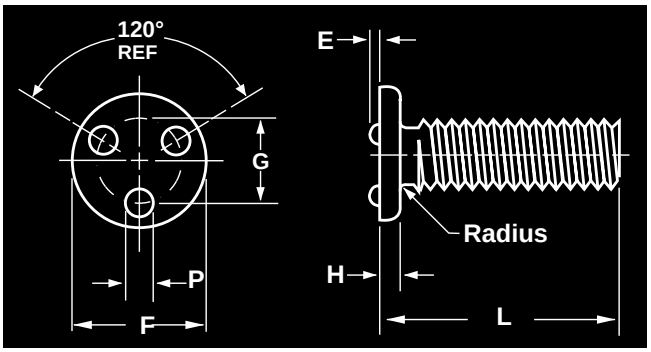
Size	#6	#8	#10		1/4"		5/16"		3/8"	
Head Diameter (F)	.312"	.375"	.437"		.562"		.750"		.875"	
Head Thickness (H)	.047"	.062"	.062"		.078"		.094"		.109"	
Projection Height (E)	.013"	.015"	.017"		.025"		.030"		.034"	
Projection Width (P)	.026"	.030"	.033"		.049"		.058"		.067"	
Locating Circle (G)	.219"	.281"	.328"		.422"		.547"		.641"	
Threads Per Inch	32	32	24	32	20	28	18	24	16	24
Length Under Head (L)	**ORDER BY *SPAENAUR* NUMBERS LISTED BELOW**									
3/16"										
1/4"										
3/8"										
1/2"					**573-050**					
9/16"										
5/8"					**573-053***					
3/4"							**573-057**			
7/8"										
1"					**573-051**		**573-052**			
1-1/8"										
1-1/4"									**573-062***	
1-1/2"										
1-3/4"							**573-055**			
2"							**573-056**			
2-1/4"										
2-1/2"										
2-3/4"										
3"										

Typical weld settings for use with C-1010 steel only. Thickness range of steel sheets, 24 gauge to 6 gauge. Steel sheets must be free from scale, rust and dirt and be uncoated.

SIZE	WELD TIME IN CYCLES	WELD PRESSURE IN POUNDS	WELD CURRENT IN AMPS
#6	3 to 8	300 to 900	9,000 to 18,000
#8	4 to 9	400 to 1,000	10,000 to 19,000
#10	5 to 10	700 to 1,000	13,000 to 20,000
1/4"	5 to 14	900 to 1,500	18,000 to 24,000
5/16"	8 to 19	1,200 to 2,000	22,000 to 42,000
3/8"	10 to 24	1,500 to 2,500	28,000 to 50,000

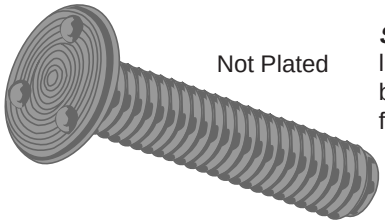
*RW SERIES (Not Gripco)

B



PROJECTION WELD SCREWS "NN" SERIES

The NN Series, Projection Weld Screws are manufactured from low carbon, high welding quality steel. These projection weld screws are designed with 3 weld projections on top of the head. This feature eliminates the need for prepared holes and is ideal in those applications where product appearance is a prime consideration.



SPAENAUR Numbers listed below can usually be shipped immediately from stock.

Unit Package 100

Grey area on chart below indicates the available size range of NN Projection Weld Screws.

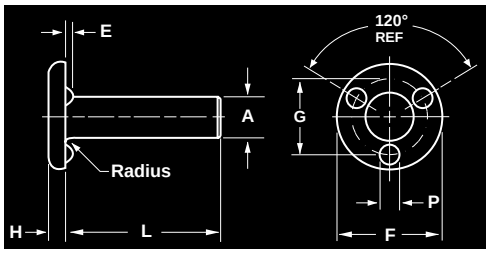
Can be manufactured to meet specific requirements in production run. Prices are available upon request.

Size	#6	#8	#10		1/4"		5/16"		3/8"	
Head Diameter (F)	.250"	.312"	.375"		.500"		.625"		.750"	
Head Thickness (H)	.031"	.047"	.062"		.078"		.094"		.109"	
Projection Height (E)	.020"	.024"	.024"		.038"		.043"		.048"	
Projection Width (P)	.058"	.060"	.082"		.104"		.119"		.133"	
Locating Circle (G)	.152"	.203"	.234"		.312"		.391"		.484"	
Threads Per Inch	32	32	24	32	20	28	18	24	16	24
Total Length (L)	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
3/16"										
1/4"										
5/16"		**573-035**								
3/8"	**573-058***			**573-029**						
1/2"	**573-059***		**573-027▲**	**573-047***						
9/16"										
5/8"				**573-031**						
3/4"				**573-030**	**573-048***		**573-032**			
7/8"	**573-034***									
1"		**573-033**							**573-060***	
1-1/8"										
1-1/4"										
1-1/2"										
1-3/4"										
2"					**573-046***					
2-1/4"										
2-1/2"										
2-3/4"										
3"										

▲573-028 Copper Plated

***GW SERIES** (Not Gripco.)

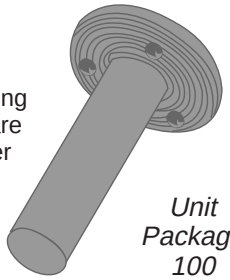
CATALOG 13



Can be manufactured to meet specific requirements in production run. Prices are available upon request.

PROJECTION WELD PINS "MP" SERIES

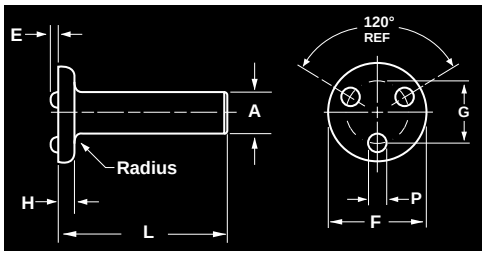
The MP Series, Projection Weld Pins are manufactured from low carbon, high welding quality steel. These projection weld pins are designed with three weld projections under the head. This feature allows for flush mounting and centering for through-hole applications.



▲ "PH" SERIES (Not Gripco) Not Plated

Unit Package 100

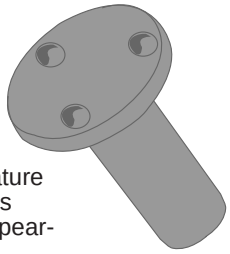
Pin (A) Body Dia.	.117"	.144"	.163"	.190"	.218"	.250"	.277"	.335"	.375"
Head Diameter (F)	.312"	.375"	.437"	.500"	.562"	.625"	.750"	.875"	.875"
Head Thickness (H)	.047"	.062"	.062"	.078"	.078"	.078"	.094"	.109"	.109"
Proj. Height (E)	.020"	.024"	.028"	.033"	.038"	.038"	.043"	.048"	.048"
Proj. Width (P)	.058"	.072"	.086"	.090"	.104"	.104"	.119"	.133"	.133"
Locating Circle (G)	.225"	.266"	.312"	.359"	.406"	.437"	.531"	.625"	.625"
Length Under Head (L)	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
5/16"						**▲573-049**			
3/8"						**573-038**			
1/2"						**573-045**			



Can be manufactured to meet specific requirements in production run. Prices are available upon request.

PROJECTION WELD PINS "NP" SERIES

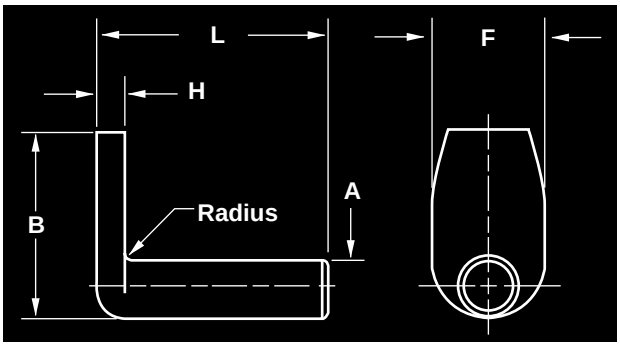
The NP Series, Projection Weld Pins are manufactured from low carbon, high welding quality steel. These projection weld pins are designed with three weld projections on top of the head. This feature eliminates the need for prepared holes and is ideal in those applications where product appearance is a prime consideration.



Unit Package 100 Not Plated

Pin (A) Body Dia.	.117"	.144"	.163"	.190"	.218"	.250"	.277"	.335"	.375"
Head Diameter (F)	.250"	.312"	.375"	.437"	.500"	.500"	.625"	.750"	.750"
Head Thickness (H)	.031"	.047"	.062"	.062"	.078"	.078""	.094"	.109"	.109"
Proj. Height (E)	.020"	.024"	.024"	.033"	.038"	.038"	.043"	.048"	.048"
Proj. Width (P)	.058"	.060"	.082"	.090"	.104"	.104"	.119"	.133"	.133"
Locating Circle (G)	.152"	.203"	.234"	.277"	.312"	.312"	.391"	.484"	.484"
Total Length (L)	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
1/2"						**573-037**			
1-3/4"									**573-036**
2"									

B



Can be manufactured to meet specific requirements in production run. Prices available upon request.

SPOT WELD PINS "LU" SERIES

The LU Series, Spot Weld Pins are manufactured from low carbon, high welding quality steel. These spot weld pins are designed with a 90° plain spade head. This feature allows for welding to go through metal surfaces.

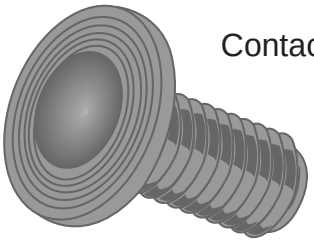
SPAENAUR Numbers listed below can usually be shipped immediately from stock.

Not Plated

Unit Package 100

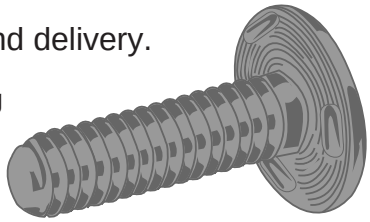
Pin (A) Body Dia.	.117"	.144"	.163"	.190"	.218"	.250"	.277"	.335"	.375"
Head Width (F)	.219"	.250"	.312"	.406"	.375"	.375"	.437"	.531"	.562"
Head Thickness (H)	.047"	.062"	.062"	.062"	.094"	.125"	.125"	.156"	.187"
Head Length Overall (B)	.562"	.625"	.687"	.687"	.750"	.750"	.875"	.750"	1.000"
Overall Length (L)	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
3/8"				**573-125**					
1/2"	**573-122**								
9/16"									
5/8"		**573-123**		**573-124**					
3/4"				**573-126**					
7/8"									
1"									

Fasteners shown below are special and are subject to minimum production runs.



Contact ***SPAENAUR*** for prices and delivery.

See Section C of our catalog for Weld Nuts.



PROJECTION WELD SCREWS "NA" SERIES

These projection weld screws are designed with a single button projection on the top of the head. This feature permits welding to tubing and curved surfaces.

PROJECTION WELD SCREWS "AA" SERIES

These projection weld screws are designed with three sausage-shaped weld projections under the head. This feature provides greater weld area.

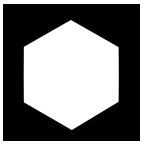
SPAENAUR

Canada's leading supplier of industrial fasteners and components.

C1020

LOW CARBON

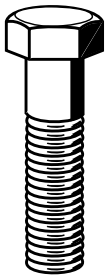
STEEL



HEAT TREATED

STRESS RELIEVED

ZINC PLATED



Length shown is under head to end in inches.

MINIMUM THREAD LENGTH
Up to 6" long: (2D + 1/4)
Twice diameter plus 1/4 inch.
Over 6" long: (2D + 1/2)
Twice diameter plus 1/2 inch.

COARSE THREAD

UNIFIED STANDARD
CLASS 2A FIT

SAE GRADE 2

ZINC PLATED

The standard grade for all general applications where extreme strength is not required.

Material Spec. ASTM A 307

MINIMUM TENSILE STRENGTH (PSI)
Up to 1/2" dia. inclusive - 69,000 PSI
Over 1/2" to 3/4" inclusive - 64,000 PSI
Over 3/4" to 1-1/2" inclusive 55,000 PSI

ASME/ANSI B18.2.1

COARSE THREAD (U.N.C.) (U.S.S.)

DIA.	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"
THD.	20	18	16	14	13	12
LG. ▼	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW					
3/8	**B-41**			*UNIT PACKAGE*		
1/2	**325-168**			*50*		
5/8						
3/4	**325-144**	**325-162**	**325-169**			
7/8						
1	**325-146**	***325-164**	**325-152**	**325-177**	**325-153**	
1-1/4		**325-166**	**325-145**		**325-030**	
1-1/2	**B-47Z**	**325-161**	**325-181**	**325-188**	**325-154**	
1-3/4	**325-182**				**325-178**	
2	**325-156**	**325-173**	**325-157**	**325-186**	**325-165**	
2-1/4		**325-163**				
2-1/2	**325-183**	**325-185**	**B-64Z**	**325-189**	**325-167**	
2-3/4						
3	**325-148**	**325-147**	**325-180**		**325-155**	
3-1/4	**325-172**					
3-1/2		**325-149**				
4	**S-71Z**	**325-187**	**325-184**		**325-158**	
4-1/2						
5			*UNIT PACKAGE 25*			*UNIT PKG. 20*
6						
6-1/2						
7						
7-1/2						
8			*PRICED SINGLY*			

DIA.	5/8"	3/4"	7/8"	1"	1-1/8"	1-1/4"
THD.	11	10	9	8	7	7
LG.▼	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW					
3/4	*UNIT PACKAGE 25*		*UNIT PACKAGE 20*			
7/8						
1	**325-174**					
1-1/4	**325-175**					
1-1/2						
1-3/4						
2	**325-190**					
2-1/4						
2-1/2	**325-150**	**325-170**				
2-3/4	**325-099**					
3	**325-179**	**325-171**				
3-1/4			*UNIT PKG. 15*			
3-1/2		**325-159**				
4	**325-151**	**325-160**				
4-1/2						
5						
6						
6-1/2						
7						
7-1/2						
8						
9						
10						
11						
12		*PRICED SINGLY*				

***325-176** 5/16"-24 UNF X1"

C1020

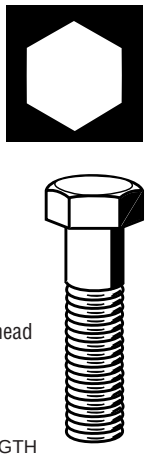
LOW CARBON

STEEL

HEAT TREATED

STRESS RELIEVED

PLAIN FINISH



Length shown is under head to end in inches.

MINIMUM THREAD LENGTH
Up to 6" long: (2D + 1/4)
Twice diameter plus 1/4 inch.
Over 6" long: (2D + 1/2)
Twice diameter plus 1/2 inch.

COARSE THREAD

UNIFIED STANDARD
CLASS 2A FIT

SAE GRADE 2

The standard grade for all general applications where extreme strength is not required.

Material Spec. ASTM A 307

MINIMUM TENSILE STRENGTH (PSI)
Up to 1/2" dia. inclusive - 69,000 PSI
Over 1/2" to 3/4" inclusive - 64,000 PSI
Over 3/4" to 1-1/2" inclusive 55,000 PSI

ASME/ANSI B18.2.1

COARSE THREAD (U.N.C.) (U.S.S.)

DIA.	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"
THD.	20	18	16	14	13	12
LG.▼	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW					
3/8				*UNIT PACKAGE*		
1/2	**B-42**	**B-49**	**B-56**	*50*		
5/8	**B-43**	**CS-9**				
3/4	**B-44**	**B-50**	**B-57**	**B-66**	**B-72**	
7/8			**B-58**			
1	**B-45**	**B-51**	**B-59**	**B-67**	**B-73**	**S-51**
1-1/4	**B-46**	**B-52**	**B-60**	**B-68**	**B-74**	
1-1/2	**B-47**	**B-53**	**B-61**	**B-69**	**B-75**	**B-80**
1-3/4		**B-54**	**B-62**	**S-48**	**B-76**	**S-52**
2	**B-48**	**B-55**	**B-63**	**B-70**	**B-77**	**B-81**
2-1/4		**S-75**	**S-8**	**S-49**	**S-50**	**S-53**
2-1/2	**S-4**	**S-6**	**B-64**	**B-71**	**B-78**	**S-12**
2-3/4			**CS-13**		**B-79**	
3	**S-5**	**S-7**	**B-65**	**S-9**	**S-11**	**S-54**
3-1/4	**CS-3**					
3-1/2				**S-58**		**325-026**
4	**S-71**	**S-65**	**S-60**	**S-10**	**S-57**	**S-59**
4-1/2						
5	**325-016**	**CS-5**	*UNIT PACKAGE 25*			*UNIT PKG. 20*
6	**325-027**				**325-029**	
6-1/2						
7			**S-66**			
7-1/2						
8			*PRICED SINGLY*			

DIA.	5/8"	3/4"	7/8"	1"	1-1/8"	1-1/4"
THD.	11	10	9	8	7	7
LG.▼	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW					
3/4	*UNIT PACKAGE 25*		*UNIT PACKAGE 20*			
7/8						
1	**B-82**	**S-56**				
1-1/4						
1-1/2	**B-83**	**325-010**				
1-3/4	**B-84**	**325-011**	**325-012**			
2	**B-85**	**B-88**	**325-013**			
2-1/4	**CS-11**		**325-014**	**325-015**		
2-1/2	**B-86**	**B-89**	**CS-8**	**325-005**		**325-001**
2-3/4						
3	**B-87**	**B-90**		**325-006**		
3-1/4			*UNIT PKG. 15*			
3-1/2	**325-003**	**325-025**	**325-004**	**325-007**		
4	**S-55**	**S-61**	**325-019**	**325-008**		
4-1/2	**325-002**	**325-017**		**325-009**	**325-024**	
5		**325-018**		**325-020**		**325-022**
6		**S-62**	**325-028**	**S-68**	**325-021**	
6-1/2						
7			**CS-2**			**325-023**
7-1/2						
8	**S-39**			**S-69**		
9						
10						
11				**S-70**		
12		*PRICED SINGLY*				

B

FINE THREAD (U.N.F.) (S.A.E.)

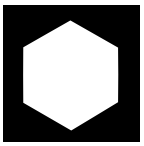
DIA.	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"
THD.	28	24	24	20	20	18
LG.▼	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW					
3/8				*UNIT PACKAGE*		
1/2	**B-1**	**S-14**		*50*		
5/8	**S-43**		**CS-10**			
3/4	**B-2**	**B-7**	**B-14**		**S-20**	
7/8			**S-35**			
1	**B-3**	**B-8**	**B-15**	**B-22**	**B-28**	
1-1/4	**B-4**	**B-9**	**B-16**	**B-23**	**B-29**	**S-23**
1-1/2	**B-5**	**B-10**	**B-17**	**B-24**	**B-30**	**S-36**
1-3/4			**B-18**	**B-25**	**B-31**	
2	**B-6**	**B-11**	**B-19**	**B-26**	**B-32**	**B-35**
2-1/4			**S-16**		**S-46**	**S-24**
2-1/2		**B-12**	**B-20**	**B-27**	**B-33**	**S-37**
2-3/4						
3		**B-13**	**B-21**	**S-18**	**B-34**	**S-25**
3-1/4					**S-47**	
3-1/2	**S-63**	**S-15**	**S-17**	**S-19**	**S-21**	**S-38**
4			**S-64**	**S-42**	**S-22**	**S-26**
4-1/2					**CS-12**	
5	**CS-1**			*UNIT PKG.*	*UNIT PACKAGE 20*	
6			**S-45**	*25*		
6-1/2						
7						
7-1/2						
8			*PRICED SINGLY*			

DIA.	5/8"	3/4"	7/8"	1"	1-1/8"	1-1/4"
THD.	18	16	14	14	12	12
LG.▼	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW					
3/4	*UNIT PACKAGE 25*		*UNIT PACKAGE 20*			
7/8						
1	**S-27**					
1-1/4						
1-1/2	**B-36**					
1-3/4						
2	**B-37**	**B-39**				
2-1/4	**S-28**					
2-1/2	**B-38**					
2-3/4						
3	**S-29**	**S-33**	**CS-7**			
3-1/4	**S-30**					
3-1/2	**S-31**	**CS-6**				
4	**CS-4**					
4-1/2	**S-32**	**S-34**				
5						
6						
6-1/2						
7						
7-1/2						
8						
9						
10		**S-72**				
11		**S-74**		**S-73**		
12				*PRICED SINGLY*		

C1020

LOW CARBON

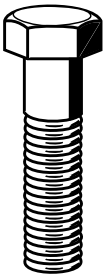
STEEL



HEAT TREATED

STRESS RELIEVED

PLAIN FINISH



Length shown is under head to end in inches.

MINIMUM THREAD LENGTH
Up to 6" long: (2D + 1/4)
Twice diameter plus 1/4 inch.
Over 6" long: (2D + 1/2)
Twice diameter plus 1/2 inch.

FINE THREAD

UNIFIED STANDARD
CLASS 2A FIT

SAE GRADE 2

The standard grade for all general applications where extreme strength is not required.

Material Spec. ASTM A 307

MINIMUM TENSILE STRENGTH (PSI)
Up to 1/2" dia. inclusive - 69,000 PSI
Over 1/2" to 3/4" inclusive - 64,000 PSI
Over 3/4" to 1-1/2" inclusive 55,000 PSI

ASME/ANSI B18.2.1

CATALOG 13

B

C1020 LOW CARBON STEEL
HEAT TREATED STRESS RELIEVED

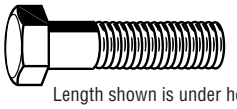
HOT GALVANIZED

SAE GRADE 2

The standard grade for all general applications where extreme strength is not required.

Material Spec. ASTM A 307

ASME/ANSI B18.2.1



Length shown is under head to end in inches.

MINIMUM TENSILE STRENGTH (PSI)

Up to 1/2" dia. inclusive	**69,000 psi**
Over 1/2" to 3/4" inclusive	**64,000 psi**
Over 3/4" to 1-1/2" inclusive	**55,000 psi**

MINIMUM THREAD LENGTH
Up to 6" long: (2D + 1/4) Twice diameter plus 1/4 inch.
Over 6" long: (2D + 1/2) Twice diameter plus 1/2 inch.

COARSE THREAD (U.N.C.) (U.S.S.) UNIFIED STANDARD CLASS 2A FIT

DIA.	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	3/4"	7/8"	1"
THD.	20	18	16	14	13	12	11	10	9	8
LG.▼	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
7/8		*UNIT PACKAGE 50*				*UNIT PACKAGE 25*			*UNIT PACKAGE 20*	
1	**325-100**		**325-116**							
1-1/4	**325-101**	**325-108**			**325-125**					
1-1/2	**325-102**	**325-109**	**325-117**		**325-126**		**325-136**			
1-3/4										
2	**325-103**	**325-110**	**325-118**		**325-127**		**325-137**			
2-1/4										
2-1/2	**325-104**	**325-111**	**325-119**		**325-128**		**325-138**			
2-3/4										
3	**325-105**	**325-112**	**325-120**		**325-129**		**325-143**			
3-1/4										
3-1/2			**325-121**		**325-130**		**325-139**		*UNIT PACKAGE 15*	
3-3/4										
4	**325-106**	**325-113**	**325-122**		**325-131**		**325-140**			
4-1/2										
5	**325-107**	**325-114**	**325-123**		**325-132**		**325-141**			
5-1/2										
6		**325-115**	**325-124**		**325-133**		**325-142**			
6-1/2										
7					**325-134**					
7-1/2										
8					**325-135**					
9										
10					*PRICED SINGLY*					
11										

Note: Tapped oversize Nuts must be used with Hot Galvanized Hex Cap Screws.
For Hot Galvanized Hexagon Nuts, see page C6.

SPAENAUR

HEAD OFFICE & DISTRIBUTION CENTRE:

815 Victoria Street North, P.O. Box 544
Kitchener, Ontario, Canada N2G 4B1
Telephone **(519) 744-3521** Toll-Free **1-800-265-8772**
Fax **(519) 744-0818**

STEEL

FOR EXTRA STRENGTH

SAE GRADE 5
Material Spec. ASTM A 449

FULLY THREADED

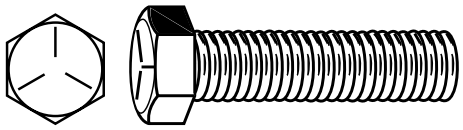
C1035-1041 MEDIUM CARBON STEEL
QUENCHED and TEMPERED
BRIGHT ZINC CHROMATE PLATED

Note the SAE Grade 5 marking on head. (3 radial lines 120° apart)

For applications requiring a high tensile Cap Screw fully threaded to head.

MINIMUM TENSILE STRENGTH (PSI)
Up to 1" dia. inclusive 120,000 PSI

ASME/ANSI B18.2.1



FULLY THREADED TO HEAD

May or may not have a washer face under the head.

Length shown is under head to end in inches.

COARSE THREAD (U.N.C.) (U.S.S.) — UNIFIED STANDARD — CLASS 2A FIT

DIA.	1/4	5/16	3/8	7/16	1/2	9/16	5/8	3/4
THD.	20	18	16	14	13	12	11	10
LENGTH▼	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW							
1/2	HC-8	HC-23	HC-39					
5/8	HC-9	HC-24	HC-40					
3/4	HC-10	HC-25	HC-41	HC-56	HC-71	*UNIT PACKAGE 25*		
7/8	HC-11	HC-26	HC-42	HC-57	326-340			
1	HC-12	HC-27	HC-43	HC-58	HC-73	HC-87	HC-101	HC-112
1-1/8		326-349	326-354		326-360			
1-1/4	FT-3	HC-28	HC-44	HC-5	HC-74	HC-88	HC-102	HC-256
1-3/8			326-355		326-361			
1-1/2	326-334	FT-7	FT-9	HC-59	HC-75		HC-103	HC-113
1-3/4	326-335	326-337	326-339		HC-76		326-342	326-345
2	326-336	326-338	FT-10	FT-13	FT-15		HC-105	
2-1/4	326-348	326-350	326-356		326-362		326-367	326-372
2-1/2		326-351	326-357		326-363		326-368	326-373
2-3/4		326-352						
3	326-413	326-353	326-358		326-364		326-369	326-374
3-1/2			326-359		326-365		326-370	326-375
4					326-366		326-371	326-376
	UNIT PACKAGE 50				*UNIT PACKAGE 20*			

FINE THREAD (U.N.F.) (S.A.E.) — UNIFIED STANDARD — CLASS 2A FIT

DIA.	1/4	5/16	3/8	7/16	1/2	9/16	5/8	3/4
THD.	28	24	24	20	20	18	18	16
LENGTH▼	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW							
1/2	HC-121	HC-136						
5/8	HC-122	HC-137						
3/4	HC-123	HC-138	HC-150					
7/8	FT-16	HC-139	HC-151					
1	HC-125	FT-20	HC-152	HC-163	HC-174	HC-186	HC-198	
1-1/4			HC-153	FT-26	HC-175	HC-187		
1-1/2		FT-22	FT-24	FT-27	FT-29		HC-199	HC-207
1-3/4								
2			FT-25	FT-28				
P.C. 326	*UNIT PACKAGE 50*				*UNIT PACKAGE 25*			

For SAE Grade 5 Hexagon Cap Screw, Coarse, Partially and Fully Threaded Assortment 805-515 see page B174.

For SAE Grade 5 Hexagon Cap Screws in Standard Thread Lengths:
Coarse Thread - see page B166.
Fine Thread - see page B167.

B

STEEL

FOR EXTRA STRENGTH

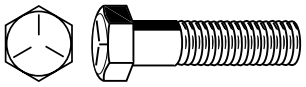
SAE GRADE 5

Material Spec. ASTM A 449
Length shown is under head to end in inches

C1035-1041
MEDIUM CARBON STEEL FINISHED HEXAGON BOLTS
BRIGHT ZINC CHROMATE PLATED
QUENCHED AND TEMPERED

MINIMUM TENSILE STRENGTH (PSI)
Up to 1" dia. inclusive 120,000 PSI
Over 1" to 1-1/2" inclusive 105,000 PSI

ASME/ANSI B18.2.1



MINIMUM THREAD LENGTH (Standard)
Up to 6" long: (2D + 1/4) Twice diameter plus 1/4 inch.
Over 6" long: (2D + 1/2) Twice diameter plus 1/2 inch.

NOTE: See listing on page B165 for Grade 5 Cap Screws with full thread length.

COARSE THREAD (U.N.C.) (U.S.S.)

UNIFIED STANDARD **CLASS 2A FIT**

DIA.	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	3/4"
THD.	20	18	16	14	13	12	11	10
LENGTH▼	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW							
3/8	326-412			*UNIT PACKAGE 50*			*UNIT PACKAGE 25*	
1/2	HC-8	HC-23	HC-39					
5/8	HC-9	HC-24	HC-40					
3/4	HC-10	HC-25	HC-41	HC-56	HC-71			
7/8	HC-11	HC-26	HC-42	HC-57				
1	HC-12	HC-27	HC-43	HC-58	HC-73	HC-87	HC-101	HC-112
1-1/4	HC-13	HC-28	HC-44	HC-5	HC-74	HC-88	HC-102	HC-256
1-1/2	HC-14	HC-29	HC-45	HC-59	HC-75	HC-89	HC-103	HC-113
1-3/4	HC-15	HC-30	HC-46	HC-60	HC-76	HC-90	HC-104	
2	HC-16	HC-31	HC-47	HC-61	HC-77	HC-91	HC-105	HC-114
2-1/4	HC-17	HC-32	HC-48	HC-62	HC-78	HC-92	326-012	326-313
2-1/2	HC-18	HC-33	HC-49	HC-63	HC-79	HC-93	HC-106	HC-115
2-3/4	HC-19	HC-34	HC-50	HC-64	HC-80	HC-94	326-013	
3	HC-20	HC-35	HC-51	HC-65	HC-81	HC-95	HC-107	HC-116
3-1/4					326-007		326-347	
3-1/2	HC-21	HC-36	HC-52	HC-66	HC-82	HC-96	HC-108	326-319
4	HC-22	HC-37	HC-53	HC-67	HC-83	HC-97	HC-109	HC-117
4-1/2	326-312	326-318	HC-54	HC-68	HC-84	HC-98	HC-110	HC-245
5	326-329	HC-38	HC-55	HC-69	HC-85	HC-99	HC-110A	HC-118
5-1/2					326-014	*UNIT PACKAGE 20*		
6	326-326	HC-241	HC-242	HC-70	HC-86	HC-100	HC-111	HC-119
6-1/2					326-002		HC-251	326-001
7	326-327		326-316		326-004			326-010
7-1/2								326-328
8			326-323		HC-258		HC-259	
8-1/2					326-325			326-315
9-1/2				*PRICED SINGLY*				326-320
10							326-322	
11								HC-253

DIA.	7/8"	1"	1-1/8"	1-1/4"	1-1/2"	1-3/4"	2"	
THD.	9	8	7	7	6	5	4-1/2	
1-1/2	HC-214	326-003						
1-3/4	*UNIT PKG. 20*							
2	HC-215	HC-222						
2-1/4		*UNIT PKG. 15*						
2-1/2	HC-216	HC-223						
2-3/4								
3	HC-217	HC-224				For ASSORTMENT SEE PAGE B174.		
3-1/2	326-310	HC-267						
4	HC-218	HC-225						
4-1/2	326-331	*UNIT PKG. 10*		HC-268				
5	HC-219	HC-226	HC-261	326-330				
6	HC-220	HC-227						
6-1/2								
7				326-321	HC-264			
7-1/2		326-314		HC-269				
8			HC-262	HC-263				
9	HC-260							
10	326-377						*HC-266	
11		HC-254		*PRICED SINGLY*				
12		326-317						

CATALOG 13

* B7 Alloy Steel, Zinc Chromate Finish

STEEL

FOR EXTRA STRENGTH

SAE GRADE 5

Material Spec. ASTM A 449

Length shown is under head to end in inches

C1035-1041
MEDIUM CARBON STEEL

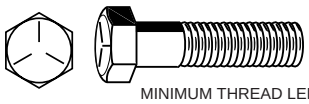
BRIGHT ZINC CHROMATE PLATED

QUENCHED AND TEMPERED

MINIMUM TENSILE STRENGTH (PSI)
Up to 1" dia. inclusive 120,000 PSI
Over 1" to 1-1/2" inclusive 105,000 PSI

ASME/ANSI B18.2.1

FINISHED HEXAGON BOLTS



MINIMUM THREAD LENGTH (Standard)
Up to 6" long: (2D + 1/4) Twice diameter plus 1/4 inch.
Over 6" long: (2D + 1/2) Twice diameter plus 1/2 inch.

NOTE: See page B165 for Grade 5 Cap Screws with full thread length.

FINE THREAD (U.N.F.) (S.A.E.)

UNIFIED STANDARD CLASS 2A FIT

DIA.	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"
THD.	28	24	24	20	20	18
LENGTH ▼	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW					
1/2	HC-121	HC-136	HC-244	*UNIT PACKAGE 50*		*UNIT PACKAGE 25*
5/8	HC-122	HC-137				
3/4	HC-123	HC-138	HC-150	HC-270		
7/8	HC-124	HC-139	HC-151			
1	HC-125	HC-140	HC-152	HC-163	HC-174	HC-186
1-1/4	HC-126	HC-3	HC-153	HC-164	HC-175	HC-187
1-1/2	HC-127	HC-141	HC-154	HC-165	HC-6	HC-188
1-3/4	HC-128	HC-4	HC-155	HC-166	HC-176	HC-189
2	HC-129	HC-142	HC-156	HC-167	HC-177	HC-190
2-1/4	HC-130	HC-143	HC-157	HC-167A	HC-178	HC-191
2-1/2	HC-131	HC-144	HC-158	HC-168	HC-179	HC-192
2-3/4	HC-132	HC-145				*UNIT PKG. 20*
3	HC-133	HC-146	HC-159	HC-168A	HC-180	HC-193
3-1/4			326-393			
3-1/2	HC-134	HC-147	HC-160	HC-169	HC-181	HC-194
4	HC-135	HC-148	HC-161	HC-170	HC-182	HC-195
4-1/2				HC-171	HC-183	
5		HC-149	HC-162	HC-172	HC-184	HC-196
6				HC-173	HC-185	HC-197
6-1/2						
8-1/2		*PRICED SINGLY*		326-332		

DIA.	5/8"	3/4"	7/8"	1"	1-1/8"	1-1/4"
THD.	18	16	14	14	12	12
	UNIT PACKAGE 25		*UNIT PACKAGE 20*			
1	HC-198	HC-252				
1-1/4						
1-1/2	HC-199	HC-207	HC-228			
1-3/4	HC-246					
2	HC-200	HC-208	HC-229	HC-236		
2-1/4				*UNIT PKG 15*		
2-1/2	HC-201	HC-209	HC-230	HC-237		
2-3/4						
3	HC-202	HC-210	HC-231	HC-238		
3-1/2	HC-203	HC-243	HC-247	*UNIT PKG 10*		
4	HC-204	HC-211	HC-232	HC-239		
4-1/2	HC-205		HC-248			
5	HC-1	HC-212	HC-233	HC-240		
6	HC-206	HC-213	HC-234	HC-2		326-311
6-1/2		326-308	326-309			
7	HC-250					
7-1/2						
8				326-324		
9						
10		HC-257				
11				HC-255		
12	P.C. 326		*PRICED SINGLY*			

B

STEEL

FOR EXTRA STRENGTH

SAE GRADE 5

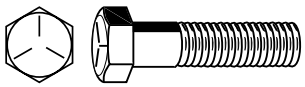
Material Spec. ASTM A 449
Length shown is under head to end in inches

C1035-1041
MEDIUM CARBON STEEL FINISHED HEXAGON BOLTS

PLAIN FINISH
QUENCHED AND TEMPERED

MINIMUM TENSILE STRENGTH (PSI)
Up to 1" dia. inclusive 120,000 PSI
Over 1" to 1-1/2" inclusive 105,000 PSI

ASME/ANSI B18.2.1



MINIMUM THREAD LENGTH (Standard)
Up to 6" long: (2D + 1/4) Twice diameter plus 1/4 inch.
Over 6" long: (2D + 1/2) Twice diameter plus 1/2 inch.

NOTE: See listing on page B165 & B166 for Grade 5 Cap Screws bright zinc chromate plated.

COARSE THREAD (U.N.C.) (U.S.S.)

UNIFIED STANDARD **CLASS 2A FIT**

DIA.	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	3/4"
THD.	20	18	16	14	13	12	11	10
LENGTH▼	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW							
1/2	**326-406**			*UNIT PACKAGE 50*			*UNIT PACKAGE 25*	
5/8								
3/4								
7/8								
1	**326-395**				**326-006**			
1-1/4	**326-383**		**326-399**		**326-005**		**326-398**	
1-1/2		**326-396**		**HC-59B**	**326-384**		***326-390**	
1-3/4								**326-400**
2		**326-397**		**HC-61B**				**326-379**
2-1/4								**326-394**
2-1/2					**326-385**			**326-401**
2-3/4							**326-388**	**326-404**
3				**HC-65B**	**326-386**			**326-380**
3-1/4								
3-1/2							**HC-108B**	**326-403**
4		**326-408**	**326-407**		**HC-83B**			**326-381**
4-1/2					**HC-84B**			**326-382**
5					**326-391**	*UNIT PACKAGE 20*		
5-1/2					**326-387**			**326-008**
6					**326-409**			
6-1/2								
7					**326-405**			
8								
8-1/2								
9-1/2				*PRICED SINGLY*				
10								
11								**326-410**

DIA.	7/8"	1"	1-1/8"	1-1/4"	1-1/2"	1-3/4"	2"	
THD.	9	8	7	7	6	5	4-1/2	
1-1/2	*UNIT PKG. 20*							
1-3/4								
2								
2-1/4								
2-1/2		*UNIT PKG. 15*						
2-3/4								
3		**HC-224B**						
3-1/2	**326-310B**							
4	**326-402**	**HC-225B**						
4-1/2		**326-009**	**326-389**					
5								
5-1/2	**326-378**	*UNIT PKG. 10*						
6	**HC-220B**							
6-1/2								
7								
7-1/2								
8								
9								
10								
11				*PRICED SINGLY*				
12								

CATALOG 13

***326-411** 5/8"-18 UNF X 1-1/2"

B

ASSORTMENT IN A STORAGE BIN

SPAENAUR No. 805-001

Priced Singly.

. . . the perfect choice for easily accessible storage in parts departments, tool crib areas, maintenance and repair shops, garages, and for the handyman.

Here's What You Get!

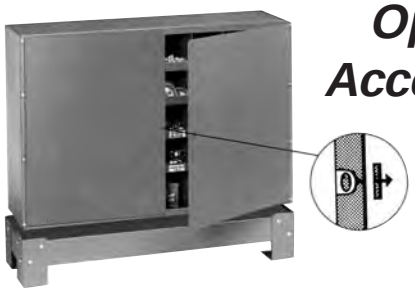
- **HEX CAP SCREWS** - 1/4", 5/16", 3/8" and 7/16" dia. coarse thread in lengths from 1/2" to 3-1/2".
- **HEX NUTS** and **HEX NYLON INSERT LOCKNUTS** matching screw diameters.
- **FLAT WASHERS** and **SPLIT LOCKWASHERS** matching screw diameters.
- All items are **Steel with Zinc Chromate Plating.** Hex Cap Screws are Grade 5.
- **40 COMPARTMENT BIN** with **LABELS** to identify bin contents. Suggested sample layout will also be included.

TOTAL CONTENTS 2,950 PIECES.

About the Storage Bin!

The grey baked enamel Durham bin is extremely sturdy. Produced from prime cold rolled steel - interlocked and welded construction, it will not warp, twist or sag. Each shelf has a fully hemmed 1-1/8" turn on the front providing space for labelling contents. It has 32 compartments for assortment contents and 8 compartments for additional storage for your use. Overall bin measurements are width 33-3/4", height 22-1/4", depth 8-3/4", minimizing premium floor space requirements.

Optional Accessories!



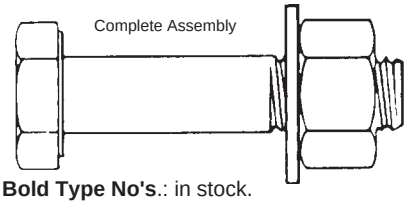
***SPAENAUR No.* 814-027**
HINGED DOOR SET with padlock attachment (padlock not included). Doors are attached using sheet metal screws or pop rivets.

***SPAENAUR No.* 814-040**
BASE STAND, sturdy all-steel construction. Overall measurements: height 5-3/4", width 34", depth 9".

Reordering Stock - EASY!

When stock items are getting low, simply call our Order Desk, identify the items you require by ***SPAENAUR Number*** and we'll send you the unit package quantities to refill your bin.

All SPAENAUR No's. this page
Priced Singly.



Bold Type No's.: in stock.
Light Type No's.: 2-3 weeks delivery.

One Heavy Hex Bolt, one Heavy Hex Nut and one Hardened Washer Assembled.

Spec. ASTM A-325 Type 1 Plain.

Bulk quantities sold in full cartons only.

1/2" Diameter UNC

Length Under Head Inches	A-325 TYPE-1 Plain	Unit Pkg. Qty.	Bulk A-325 TYPE-1 Plain	Bulk Qty. (Approx.)
1-1/4	**333-001**	25	-	-
1-1/2	**333-002**	25	-	-
1-3/4	**333-003**	25	**333-403**	750
2	**333-004**	25	**333-404**	700
2-1/4	**333-005**	25	**333-405**	650
2-1/2	**333-006**	25	**333-406**	600
2-3/4	**333-007**	25	**333-407**	550
3	**333-008**	25	**333-408**	525
3-1/4	333-009	25	-	-
3-1/2	**333-010**	25	**333-410**	475

5/8" Diameter UNC

1-1/4	**333-011**	10	**333-411**	500
1-1/2	**333-012**	10	**333-412**	500
1-3/4	**333-013**	10	-	-
2	**333-014**	10	**333-414**	450
2-1/4	**333-015**	10	**333-415**	400
2-1/2	**333-016**	10	**333-416**	400
2-3/4	**333-017**	10	-	-
3	**333-018**	10	**333-418**	330
3-1/4	**333-019**	10	-	-
3-1/2	**333-020**	10	-	-
3-3/4	**333-021**	10	**333-421**	260
4	333-022	10	-	-
4-1/2	**333-023**	10	-	-

3/4" Diameter UNC

1-1/2	**333-024**	10	-	-
1-3/4	**333-025**	10	-	-
2	**333-026**	10	-	-
2-1/4	**333-027**	10	-	-
2-1/2	**333-028**	10	-	-
2-3/4	**333-029**	10	-	-
3	**333-030**	10	-	-
3-1/4	**333-031**	10	-	-
3-1/2	**333-032**	10	-	-

continued ...

...Cont'd 3/4" Diameter UNC

Length Under Head Inches	A-325 TYPE-1 Plain	Unit Pkg. Qty.	Bulk A-325 TYPE-1 Plain	Bulk Qty. (Approx.)
3-3/4	**333-033**	10		
4	**333-034**	10		
4-1/4	**333-035**	10	**333-435**	170
4-1/2	**333-036**	10	**333-436**	170
4-3/4	**333-037**	10	**333-437**	150
5	**333-038**	10	-	-
5-1/4	**333-039**	10	-	-
5-1/2	**333-040**	10	**333-440**	130
5-3/4	**333-041**	10	-	-
6	**333-042**	10	-	-
6-1/2	**333-043**	1	**333-443**	120
7	**333-044**	1	-	-
8	333-045	1	-	-

7/8" Diameter UNC

1-3/4	333-046	10	-	-
2	**333-047**	10	**333-447**	200
2-1/4	**333-048**	10	**333-448**	190
2-1/2	**333-049**	10	**333-449**	180
2-3/4	**333-050**	10	**333-450**	170
3	**333-051**	10	-	-
3-1/4	333-052	10	-	-
3-1/2	**333-053**	10	**333-453**	150
3-3/4	333-054	10	-	-
4	**333-055**	10	-	-
4-1/4	333-056	10	-	-
4-1/2	333-057	10	-	-
4-3/4	333-058	10	-	-
5	**333-059**	10	**333-459**	110
5-1/4	333-060	10	-	-
5-1/2	333-061	10	-	-
5-3/4	333-062	10	-	-
6	**333-063**	10	-	-
6-1/2	333-065	1	-	-
7	**333-066**	1	-	-
8	333-067	1	-	-

1" Diameter UNC

Length Under Head Inches	A-325 TYPE-1 Plain	Unit Pkg. Qty.	Bulk A-325 TYPE-1 Plain	Bulk Qty. (Approx.)
2-1/4	**333-068**	1	**333-468**	140
2-1/2	**333-069**	1	**333-469**	140
2-3/4	**333-070**	1	**333-470**	130
3	**333-071**	1	-	-
3-1/4	333-072	1	-	-
3-1/2	**333-073**	1	**333-473**	110
3-3/4	333-074	1	-	-
4	**333-075**	1	**333-475**	100
4-1/4	333-076	1	-	-
4-1/2	**333-077**	1	-	-
4-3/4	333-078	1	-	-
5	333-079	1	-	-
5-1/4	333-080	1	-	-
5-1/2	333-081	1	-	-
5-3/4	333-082	1	**333-482**	70
6	333-083	1	-	-
6-1/2	333-085	1	-	-
7	**333-086**	1	**333-486**	60
8	**333-087**	1	-	-

1-1/8" Diameter UNC

3	**333-088**	1	**333-488**	90
3-1/2	**333-089**	1	**333-489**	85
4	**333-090**	1	**333-490**	80
4-1/2	**333-091**	1	-	-
5	333-092	1	-	-
5-1/2	333-093	1	-	-
6	**333-094**	1	**333-494**	60

1-1/4" Diameter UNC

3-1/2	**333-095**	1	**333-495**	65
4	**333-096**	1	-	-
4-1/2	**333-097**	1	-	-
5	333-098	1	-	-
5-1/2	333-099	1	-	-
6	**333-100**	1	**333-500**	40

Spec. ASTM A-325 Type 1 Hot Galvanized and Type 3 Weathering Steel available but not stocked.

See page D3 for ASTM F436 Structural Flat Washers.

See page C4 for ASTM A194-2H Structural Hex Nuts.

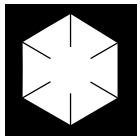
B

SPAENAUR

Proudly serving you since 1936.
Thank you for your business.

Tel: **1-800-265-8772** Fax: **519-744-0818**

Alloy STEEL



Length shown is under head to end in inches.

MINIMUM THREAD LENGTH
Up to 6" long: Twice diameter plus 1/4 inch.
Over 6" long: Twice diameter plus 1/2 inch.

SAE GRADE 8

QUENCHED AND TEMPERED

COARSE THREAD

MINIMUM TENSILE STRENGTH (PSI)
1/4" through 1-1/2" - 150,000 PSI

ZINC PLATED & DICHROMATE DIPPED GOLDEN ALLOY FINISH

UNIFIED STANDARD CLASS 2A FIT

ASME/ANSI B18.2.1

FOR COARSE THREAD ASSORTMENT SEE PAGE B175.

■**SA-279ZP** Zinc Plated
▲**SA-283ZP** Zinc Plated
†**SA-285ZP** Zinc Plated

COARSE THREAD (U.N.C.) (U.S.S.)

DIA.	1/4	5/16	3/8	7/16	1/2	9/16	5/8
THD.	20	18	16	14	13	12	11
LG▼	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW						
1/2	**SA-1**	**SA-25**	**SA-53**				*Unit Pkg. 25*
5/8	**SA-3**	**SA-27**	**SA-55**				
3/4	**SA-5**	**SA-29**	**SA-57**	**SA-95**			
7/8			**SA-59**				
1	**SA-7**	**SA-31**	**SA-61**	**SA-97**	**SA-121**		**SA-153**
1-1/4	**SA-9**	**SA-33**	**SA-63**	**SA-99**	**SA-123**		**SA-155**
1-1/2	**SA-11**	**SA-35**	**SA-65**	**SA-101**	**SA-125**		**SA-157**
1-3/4	**SA-13**	**SA-37**	**SA-67**	**SA-103**	**SA-127**		**SA-159**
2	**SA-15**	**SA-39**	**SA-69**	**SA-105**	**SA-129**	**327-312**	**SA-161**
2-1/4	**SA-17**	**SA-41**	**SA-71**	**SA-107**	**SA-131**		**SA-163**
2-1/2	**SA-19**	**SA-43**	**SA-73**	**SA-109**	**SA-133**		**SA-165**
2-3/4	**SA-21**	**SA-45**	**SA-75**	**SA-111**	**SA-135**	***327-315**	**SA-167**
3	**SA-23**	**SA-47**	**SA-77**	**SA-113**	**SA-137**	**327-321**	**SA-169**
3-1/4			**SA-79**		**SA-139**		
3-1/2		**SA-49**	**SA-81**	**SA-115**	**SA-141**		**SA-171**
3-3/4				**327-297**			
4		**SA-51**	**SA-85**	**SA-117**	**SA-143**		**SA-173**
4-1/2		*Unit Pkg. 50*	**SA-87**	**327-307**	**SA-145**		**SA-175**
5	*Unit Pkg. 100*		**SA-89**		**SA-147**		**SA-177**
5-1/2			**SA-91**		**SA-149**		**SA-179**
6		**327-001**	**SA-93**		**SA-151**		**SA-181**
6-1/2			**327-326**		**SA-257**		
7			**327-306**		**327-295**		**SA-261**
8	*PRICED SINGLY*			❑**327-298**			
8-1/2					**327-319**		

❑**327-322** Plain Finish *Zinc Plated

DIA.	3/4	7/8	1	1-1/8	1-1/4	1-3/8	1-1/2
THD.	10	9	8	7	7	6	6
LG▼	*Unit Pkg. 20*	*Unit Pkg. 15*	*Unit Pkg. 10*				
1-1/2	**SA-183**						
1-3/4	**SA-185**			*PRICED SINGLY*			
2	**SA-187**	**SA-211**	**SA-237**				
2-1/4	**SA-189**	**SA-213**					
2-1/2	**SA-191**	**SA-215**	**SA-239**				
2-3/4	**SA-193**	**SA-217**					
3	**SA-195**	**SA-219**	**SA-241**		**SA-258**		**327-296**
3-1/4	**SA-197**	**SA-221**					
3-1/2	**SA-199**	**SA-223**	**SA-243**				
3-3/4		**SA-225**					
4	**SA-201**	**SA-227**	**SA-245**		**327-002**		
4-1/2	**SA-203**	**SA-229**	**SA-247**	**327-288**			
5	**SA-205**	**SA-231**	**SA-249**		**327-287**		
5-1/2	**SA-207**	**SA-233**	**SA-251**		**327-300**		
6	**SA-209**	**SA-235**	**SA-253**	**SA-263**	**SA-273**	**327-318**	■**SA-279**
6-1/2			**SA-259**				
7		**327-293**	**327-290**	**SA-255**	**327-262**		
7-1/2	**327-313**	**SA-267**			**SA-275**		**SA-281**
8	**SA-265**		**327-291**				**327-292**
9							
10			**SA-271**	**327-286**	**SA-277**		▲**SA-283**
11							
12	**327-303**		**327-304**				†**SA-285**

FINE THREAD (U.N.F.) (S.A.E.)

DIA.	1/4	5/16	3/8	7/16	1/2	9/16
THD.	28	24	24	20	20	18
LG▼	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW					
1/2	**SA-2**	**SA-26**	**SA-54**			*Unit Pkg. 25*
5/8	**SA-4**					
3/4	**SA-6**	**SA-30**	**SA-58**	**SA-96**	**SA-120**	
7/8			**SA-60**			
1	**SA-8**	**SA-32**	**SA-62**	**SA-98**	**SA-122**	
1-1/4	**SA-10**	**SA-34**	**SA-64**	**SA-100**	**SA-124**	
1-1/2	**SA-12**	**SA-36**	**SA-66**	**SA-102**	**SA-126**	
1-3/4	**SA-14**	**SA-38**	**SA-68**	**SA-104**	**SA-128**	**327-294**
2	**SA-16**	**SA-40**	**SA-70**	**SA-106**	**SA-130**	**327-311**
2-1/4	**SA-18**	**SA-42**	**SA-72**	**SA-108**	**SA-132**	
2-1/2	**SA-20**	**SA-44**	**SA-74**	**SA-110**	**SA-134**	
2-3/4	**SA-22**	**SA-46**	**SA-76**	**SA-112**	**SA-136**	
3	**▲SA-24**	**SA-48**	**SA-78**	**SA-114**	**SA-138**	**327-310**
3-1/4			**SA-80**		**SA-140**	
3-1/2		**SA-50**	**SA-82**	**SA-116**	**SA-142**	
3-3/4			**327-003**			
4		**SA-52**	**SA-86**	**SA-118**	**SA-144**	
4-1/2			**SA-88**		**SA-146**	
5	**327-308**		**SA-90**		**SA-148**	
5-1/2	*Unit Pkg. 100*	*Unit Pkg. 50*			**SA-150**	
6			**SA-94**		**SA-152**	
6-1/2		**327-317**	*PRICED SINGLY*			
7					**327-299**	

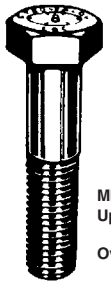
▲327-323 Plain Finish

DIA.	5/8	3/4	7/8	1		
THD.	18	16	14	14		
LG▼	*Unit Pkg. 25*	*Unit Pkg. 20*	*Unit Pkg. 15*	*Unit Pkg. 10*		
1	**SA-154**					
1-1/4	**SA-156**				*PRICED SINGLY*	
1-1/2	**■SA-158**	**SA-184**				
1-3/4	**SA-160**	**SA-186**				
2	**SA-162**	**SA-188**	**SA-212**	**SA-238**		
2-1/4	**SA-164**	**SA-190**	**SA-214**			
2-1/2	**SA-166**	**SA-192**	**SA-216**	**SA-240**		
2-3/4	**SA-168**	**SA-194**	**SA-218**			
3	**SA-170**	**SA-196**	**SA-220**	**SA-242**		
3-1/4		**SA-198**	**SA-222**			
3-1/2	**SA-172**	**SA-200**	**SA-224**	**SA-244**		
3-3/4			**SA-226**			
4	**SA-174**	**SA-202**	**SA-228**	**SA-246**		
4-1/2	**SA-176**	**SA-204**	**SA-230**	**SA-248**		
5	**SA-178**	**SA-206**	**SA-232**	**SA-250**		
5-1/2				**SA-252**		
6	**SA-182**	**SA-210**	**SA-236**	**SA-254**		
6-1/2	**327-314**	**327-316**		**SA-260**		
7		**327-289**	**327-309**	**327-301**		
7-1/2	**327-305**					
8		**SA-266**				
9						
12-1/2				**327-302**		

■327-324 Plain Finish

Alloy STEEL

B



Length shown is under head to end in inches.

MINIMUM THREAD LENGTH
Up to 6" long:
Twice diameter plus 1/4 inch.
Over 6" long:
Twice diameter plus 1/2 inch.

SAE GRADE 8

QUENCHED AND TEMPERED

FINE THREAD

MINIMUM TENSILE STRENGTH (PSI)
1/4" through 1-1/2" - 150,000 PSI

ZINC PLATED & DICHROMATE DIPPED GOLDEN ALLOY FINISH

UNIFIED STANDARD CLASS 2A FIT

ASME/ANSI B18.2.1

FOR FINE THREAD ASSORTMENT SEE PAGE B175.

P.C. 327

B

ASSORTMENT
ASSORTIMENT
805-515

Priced Singly

Shipping Wt: 5.78 kg (12-3/4 lbs.)

Hexagon CAP SCREWS

24 SIZES — 180 PIECES

SAE GRADE 5 STEEL - For Extra Strength
Bright Zinc Chromate Plated

ALL COARSE THREAD INCH SIZES

Regular Size grey enamelled drawer fits the Slide Racks shown on page A2.

See page B166 & B167 for full line.

Contents of Assortment

ASS'T. QTY.	SIZE	ASS'T. QTY.	SIZE
▲15	1/4"-20 x 1/2"	4	3/8"-16 x 2-1/4"
▲15	1/4"-20 x 3/4"	5	3/8"-16 x 2-1/2"
▲10	1/4"-20 x 1"	▲5	7/16"-14 x 1"
10	1/4"-20 x 1-1/2"	5	7/16"-14 x 1-1/2"
10	1/4"-20 x 2"	5	7/16"-14 x 1-3/4"
▲10	5/16"-18 x 5/8"	4	7/16"-14 x 2"
▲10	5/16"-18 x 3/4"	5	7/16"-14 x 2-1/2"
▲10	5/16"-18 x 1"	▲5	1/2"-13 x 1"
10	5/16"-18 x 1-1/4"	▲5	1/2"-13 x 1-1/4"
▲10	3/8"-16 x 1"	▲5	1/2"-13 x 1-1/2"
10	3/8"-16 x 1-1/2"	3	1/2"-13 x 2"
4	3/8"-16 x 2"	5	1/2"-13 x 2-1/2"

13 sizes PARTIALLY THREADED
11 sizes ▲ FULLY THREADED

ASSORTMENT
ASSORTIMENT
805-657

Priced Singly

Hexagon CAP SCREWS NUTS & WASHERS - Zinc Plated

Shipping Wt: 15 kg (34 lbs.)

23 Sizes — 1170 Pieces
Coarse Thread (UNC)

SAE GR. 5 STEEL
For Extra Strength

Furnished in a Large Size welded metal drawer with hinged lid and catch.

Drawer will fit into Slide Racks shown on page A3.

See page B166 for full line of Cap Screws.

SPAENAUR No.	UNC THREAD	LENGTH (Inches)	ASS'T. QTY.
HC-8	1/4"-20	1/2"	30
HC-10	1/4"-20	3/4"	30
HC-12	1/4"-20	1"	30
HC-13	1/4"-20	1-1/4"	30
HC-14	1/4"-20	1-1/2"	30
HC-43	3/8"-16	1"	30
HC-44	3/8"-16	1-1/4"	30
HC-45	3/8"-16	1-1/2"	30
HC-47	3/8"-16	2"	20
HC-49	3/8"-16	2-1/2"	20
HC-74	1/2"-13	1-1/4"	20
HC-75	1/2"-13	1-1/2"	15
HC-77	1/2"-13	2"	15
HC-81	1/2"-13	3"	15
B-91	1/4"-20	Hex Nut	100
B-93	3/8"-16	Hex Nut	100
B-95	1/2"-13	Hex Nut	75
16-SN	For 1/4" Screw	Split Lockwasher	100
18-SN	For 3/8" Screw	Split Lockwasher	100
20-SN	For 1/2" Screw	Split Lockwasher	75
656-044	For 1/4" Screw	Flat Washer	100
656-046	For 3/8" Screw	Flat Washer	100
656-048	For 1/2" Screw	Flat Washer	75

ASSORTMENT
ASSORTIMENT
805-653

Priced Singly

Assortment contents at right.

Hexagon CAP SCREWS NUTS & WASHERS

Shipping Weight: 14.52 kg (32 lbs.)

24 SIZES — 1005 PIECES
Coarse Thread (UNC)

BRASS

Furnished in Large Size metal drawer with hinged lid and catch.

Drawer will fit into Slide Racks shown on page A3.

See page B185 for full line of Brass Cap Screws.

SPAENAUR No.	UNC THREAD	LENGTH (Inches)	ASS'T. QTY.
334-027	1/4"-20	1/2"	25
334-020	1/4"-20	1"	25
334-022	1/4"-20	1-1/2"	25
334-019	1/4"-20	2"	25
334-034	5/16"-18	5/8"	25
334-035	5/16"-18	3/4"	25
334-023	5/16"-18	1"	25
334-038	5/16"-18	2"	25
334-042	3/8"-16	1"	40
334-025	3/8"-16	1-1/2"	30
334-005	3/8"-16	2"	15
334-006	3/8"-16	2-1/2"	15
334-046	1/2"-13	1"	15
334-026	1/2"-13	1-1/2"	10
334-048	1/2"-13	2"	5
334-050	1/2"-13	2-1/2"	5
HN-38B	1/4"-20	Hex Nut	100
HN-40B	5/16"-18	Hex Nut	100
HN-26B	3/8"-16	Hex Nut	100
HN-30B	1/2"-13	Hex Nut	35
W-507	For 1/4" Screw	Flat Washer	100
W-513	For 5/16" Screw	Flat Washer	100
W-540	For 3/8" Screw	Flat Washer	100
W-518	For 1/2" Screw	Flat Washer	35

HEX CAP SCREW & NUT ASSORTMENTS

SAE GR. 8

Each assortment contains:
20 Sizes — 750 Pieces Hex Cap Screws
4 Sizes — 350 Pieces Hex Nuts

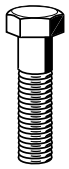
ASSORTMENT / ASSORTIMENT 805-660

COARSE (UNC) THREAD
Shipping Weight: 20.05 kg (44.2 lbs.)

ASSORTMENT / ASSORTIMENT 805-650

FINE (UNF) THREAD
Shipping Weight : 19.40 kg (42.8 lbs.)

Priced Singly



Zinc Plated & Dichromate Dipped Golden Alloy Finish

SPAENAUR ASSORTMENTS 805-660 COARSE UNC	805-650 FINE UNF	Thread Size	Length (Inches)	Ass't. Qty.
SA-1	**SA-2**	1/4"	1/2"	50
SA-5	**SA-6**	1/4"	3/4"	50
SA-7	**SA-8**	1/4"	1"	50
SA-11	**SA-12**	1/4"	1-1/2"	50
SA-15	**SA-16**	1/4"	2"	50
—	**SA-26**	5/16"	1/2"	50
SA-27	—	5/16"	5/8"	50
SA-29	**SA-30**	5/16"	3/4"	50
SA-31	**SA-32**	5/16"	1"	50
SA-33	**SA-34**	5/16"	1-1/4"	50
SA-39	**SA-40**	5/16"	2"	50
SA-61	**SA-62**	3/8"	1"	40
SA-65	**SA-66**	3/8"	1-1/2"	40
SA-69	**SA-70**	3/8"	2"	25
SA-71	**SA-72**	3/8"	2-1/4"	20
SA-73	**SA-74**	3/8"	2-1/2"	30
SA-121	**SA-122**	1/2"	1"	25
SA-123	**SA-124**	1/2"	1-1/4"	20
SA-125	**SA-126**	1/2"	1-1/2"	20
SA-129	**SA-130**	1/2"	2"	15
SA-133	**SA-134**	1/2"	2-1/2"	15
SAN-1	**SAN-2**	For 1/4" Screw	Hex Nut	100
SAN-3	**SAN-4**	For 5/16"Screw	Hex Nut	100
SAN-5	**SAN-6**	For 3/8" Screw	Hex Nut	100
SAN-9	**SAN-10**	For 1/2" Screw	Hex Nut	50

Each Assortment is furnished in a Large Size grey enamel steel drawer with hinged lid and catch.

Drawers have scooped bins for easy access and will fit into Slide Racks shown on page A3.

SPAENAUR

Our Mission

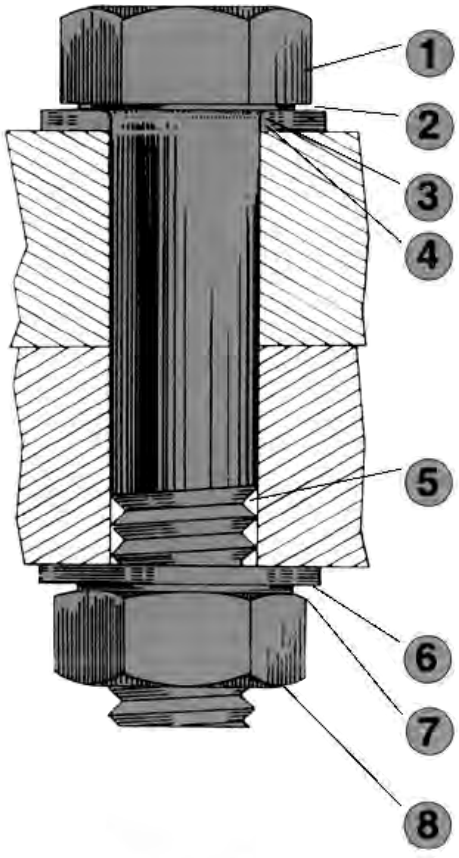
- We are a Team of Professionals
- We Listen to our Customers
- We Grow Ourselves

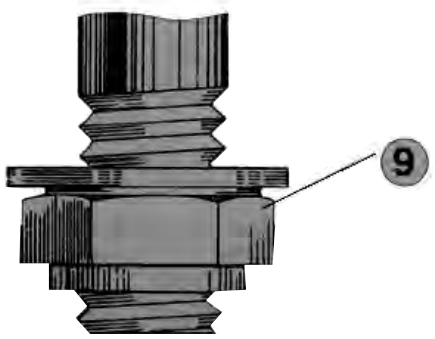
Proudly serving you since 1936.

B

L•9® FASTENING SYSTEM

"The Fastening System of the 21st Century"



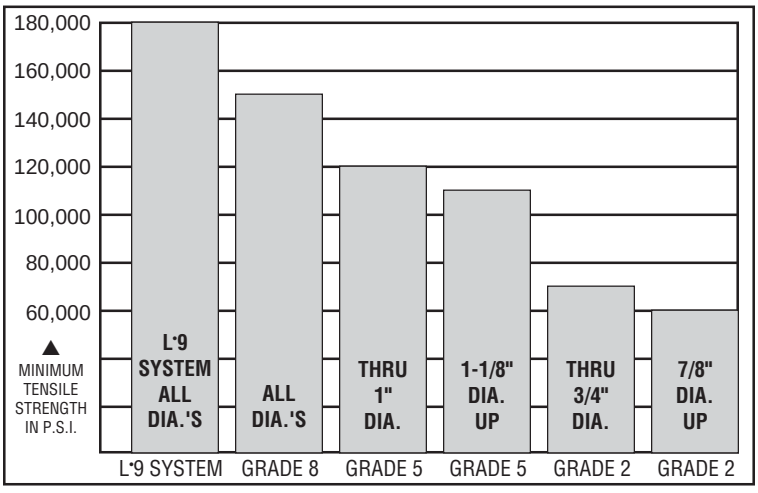


A HIGH STRENGTH SYSTEM OF HIGHLY ENGINEERED COMPONENTS

The L•9® FASTENING SYSTEM is designed for use in high stress, severe service environments. The highest mechanical strength off-the-shelf fastening system available, its special features control torque-tension characteristics to develop high clamp loads when using properly controlled tightening methods.

1. Thicker than standard bolt head adds wrenching surface.
2. Washer face eliminates corner drag.
3. Radius under bolt head adds strength.
4. Countersunk washers I.D. centres the washer against the bolt head bearing surface during tightening
5. UNR radiused root bolt thread increases fatigue resistance by reducing the notch effect of conventional UN threads. The UNR thread radius is maintained into the thread runout at the junction of thread to shank.
6. Smooth washer bearing surfaces distribute loads uniformly and reduce brinneling. Plated finish assists torquing.
7. Chamfers eliminate corner drag.
8. Thicker than standard nut side walls facilitate wrenching. Heat treating helps prevent splitting and stripping.
9. Collared L•9® prevailing torque metal locknut for assemblies subject to vibration.

L•9® components are fabricated from high-grade alloy steel #AISI 8640H on state-of-the-art equipment. All screws are mechanically tested to meet ASTM F606 standards for hardness, classification fit and elongation. Plating for bolts and washers are ZINC .0002" thick minimum to ASTM B633 Type II Class 5 SCI, Hex nuts and Stover locknuts are CAD plated and waxed to ASTM A165-80 Type TS.



For L•9 Fastening System...

Assortments - UNC and UNF - page B180.
Hexagon Cap Screws UNC - page B178.
Hexagon Cap Screws UNF - page B179.
Hex Nuts - page B181.
Stover Locknuts - page B181.
Washers - page B181.
Technical Info. - pages B177 & B182.

B

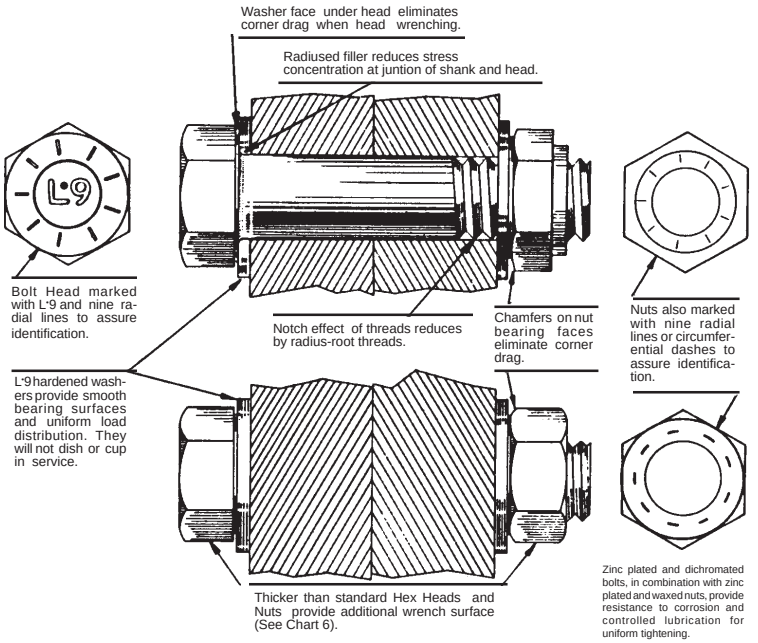
CHART 1 - GUIDE FOR ASSEMBLY TORQUE

Based on using one L•9 hex bolt and one L•9 hex nut with two L•9 washers (one under the bolt head, one under the nut) with "as supplied" finishes.

NOMINAL SIZE INCHES	CLAMP LOAD LBS.	TORQUE BY BOLT HD.* (FT-LBS)	TORQUE BY NUT* FT-LBS)
1/4-20	3,450	10	11
1/4-28	3,950	12	13
5/16-18	5,700	19	21
5/16-24	6,300	20	23
3/8-16	8,450	30	33
3/8-24	9,550	35	38
7/16-14	11,550	55	60
7/16-20	12,900	60	65
1/2-13	15,450	85	95
1/2-20	17,400	95	105
9/16-12	19,800	120	140
9/16-18	22,100	135	150
5/8-11	24,550	170	185
5/8-18	27,800	190	205
3/4-10	36,350	265	290
3/4-16	40,600	330	355
7/8-9	50,300	475	505
7/8-14	55,400	520	585
1-8	65,900	550	775
1-14	73,800	700	900
1-1/8-7	83,000	1,025	1,150
1-1/8-12	93,100	1,150	1,325
1-1/4-7	105,400	1,400	1,600
1-1/4-12	116,700	1,600	1,750
1-1/2-6	152,800	2,900	3,250
1-1/2-12	171,900	3,300	3,650

*Nut and bolt assembly - **NOT** tapped hole

CHART 2 - L•9 DESIGN DETAILS



***IMPORTANT:** Torque values do not apply when L•9 washers are omitted, or if any of the L•9 system components are substituted, or if finish, as supplied, is altered in any way (including addition of lubricant). These torque values are average values established under laboratory test conditions. Actual results in individual applications may vary by ±15%. This variation is in accordance with accepted industry standards. When L•9 hex screws with tension washers are used in tapped holes, above torque values may require adjustment to compensate for variables, such as joint material hardness, depth of thread engagement, internal thread condition, etc.

The L•9 system must be used as a complete system, with no substitutes or alterations of components or finishes (including lubrication). Substituting or altering any component, or altering the "as supplied" finishes can cause fastener or joint failure.

HARDNESS SPECIFICATIONS CHART

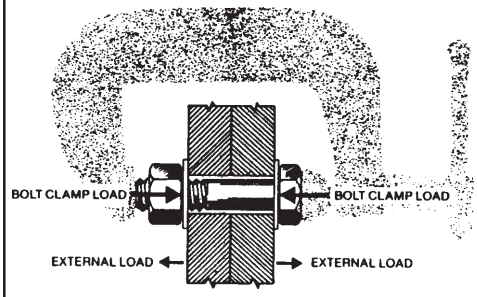
Bolts	All diameters	Rockwell C38-42
Nuts	1/4 thru 5/8	Rockwell C28-34
	3/4 thru 1-1/2	Rockwell C32-38
Washers		Rockwell 15N 82-85

PLATING SPECIFICATIONS CHART

PRODUCT	TYPE PLATE	THICK. OF PLATE-INCHES	BAKE	FINISH
Bolts	Zinc	.0002-.0004	6 Hours @ 375-425°F	Yellow Dichromate
Nuts & Washers	Zinc	.0002-.0004	6 Hours @ 375-425°F	Yellow Dichromate

NOTE: These specifications exceed the requirements of ASTM B633 Fe/Zn 5, Type II (Zinc) and B766, Class 5, Type II (Cadmium).These finishes will meet a 96-hour salt spray test as specified by ASTM B117.

CLAMP LOAD EXCEEDS EXTERNAL LOAD CHART



To reduce possibility of fatigue failure, make sure bolt tension exceeds the known or estimated maximum dynamic load. In this way, the bolt's life under dynamic loading will approach its life under static loading.

L•9 BOLT STRENGTH SPECIFICATIONS CHART

NOMINAL DIAMETER-IN.	UNRC - 2A COARSE THREAD			UNRF - 2A FINE THREAD		
	THREADS PER INCH	TENSILE STRENGTH-LBS.	PROOF LOAD-LBS.	THREADS PER INCH	TENSILE STRENGTH-LBS.	PROOF LOAD-LBS.
1/4	20	5,720	4,610	28	6,550	5,270
5/16	18	9,430	7,590	24	10,440	8,410
3/8	16	13,950	11,230	24	15,800	12,730
7/16	14	19,130	15,410	20	21,360	17,210
1/2	13	25,540	20,570	20	28,780	23,180
9/16	12	32,760	26,390	18	36,540	29,430
5/8	11	40,680	32,770	18	46,080	37,120
3/4	10	60,120	48,430	16	67,140	54,080
7/8	9	83,160	66,990	14	91,620	73,800
1	8	109,080	87,870	14	122,220	98,450
1-1/8	7	137,340	110,630	12	154,080	124,120
1-1/4	7	174,420	140,500	12	193,140	155,580
1-1/2	6	252,900	203,720	12	284,580	229,240

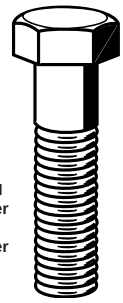
Tensile Strength Values - based on 180,000 psi minimum. Yield Strength - 155,000 psi minimum. Proofload Strength Values - based on 145,000 psi minimum.

See additional L•9® information - page B182.

Tel: 1-800-265-8772 Fax: 519-744-0818

B

Alloy STEEL
Heat Treated



Length shown is under head to end in inches.

MINIMUM THREAD LENGTH
Up to 6" long: Twice diameter plus 1/4 inch.
Over 6" long: Twice diameter plus 1/2 inch.

L·9® HEXAGON Bolts

20% stronger than SAE Grade 8

IMPORTANT NOTE:
To obtain optimum strength values, use only L·9 fasteners.

ZINC PLATED
Yellow Dichromate Finish

Rockwell Hardness
C38-42

UNIFIED STANDARD
CLASS 2A FIT

MINIMUM
TENSILE STRENGTH
180,000 PSI

Bolt Head Specifications

DIA.	WIDTH ACROSS FLATS MAX	WIDTH ACROSS FLATS MIN	HEAD HEIGHT MAX	HEAD HEIGHT MIN
1/4	.437	.428	.194	.181
5/16	.500	.489	.242	.227
3/8	.562	.551	.290	.273
7/16	.625	.612	.338	.319
1/2	.750	.736	.386	.364
9/16	.812	.798	.433	.410
5/8	.937	.922	.481	.456
3/4	1.125	1.110	.577	.548
7/8	1.312	1.285	.672	.640
1	1.500	1.469	.706	.670
1-1/8	1.687	1.631	.806	.756
1-1/4	1.875	1.812	.886	.832
1-1/2	2.250	2.175	1.062	1.000

COARSE THREAD (U.N.R.C.)

DIA.	1/4	5/16	3/8	7/16	1/2	9/16	5/8
THD.	20	18	16	14	13	12	11
LG.▼	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW						
1/2	329-001	329-011	329-022			*Unit Pkg. 25*	
5/8							
3/4	329-002	329-012	329-023	329-037	329-049		
7/8							
1	329-003	329-013	329-024	329-038	329-050	329-065	329-073
1-1/4	329-004	329-014	329-025	329-039	329-051		329-074
1-1/2	329-005	329-015	329-026	329-040	329-052	329-066	329-075
1-3/4	329-006	329-016	329-027	329-041	329-053		329-076
2	329-007	329-017	329-028	329-042	329-054	329-067	329-077
2-1/4			329-029		329-055		329-078
2-1/2	329-008	329-018	329-030	329-043	329-056	329-068	329-079
2-3/4							329-080
3	329-009	329-019	329-031	329-044	329-057	329-069	329-081
3-1/4							
3-1/2		329-020	329-032	329-045	329-058	329-070	329-082
3-3/4							
4	329-010	329-021	329-033	329-046	329-059	329-071	329-083
4-1/2			329-034		329-060		329-084
5	*Unit Pkg. 100*	*Unit Pkg. 50*	329-035	329-047	329-061	329-072	329-085
5-1/2							329-086
6			329-036	329-048	329-062		329-087
7					329-063		329-088
8					329-064		329-089
9							329-090
10							329-091
11							329-092
12							329-093
	All lengths over 6" PRICED SINGLY						

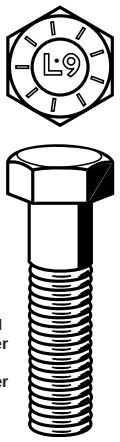
DIA.	3/4	7/8	1	1-1/8	1-1/4	1-1/2	
THD.	10	9	8	7	7	6	
LG.▼	*U.P. 20*	*U.P. 15*	*U.P. 10*	*PRICED SINGLY*			
1-1/2	329-094						
1-3/4	329-095						
2	329-096	329-113	329-128				
2-1/4	329-097						
2-1/2	329-098	329-114	329-129				
2-3/4	329-099						
3	329-100	329-115	329-130	329-143	329-151		
3-1/4							
3-1/2	329-101	329-116	329-131	329-144	329-152		
3-3/4							
4	329-102	◆329-117	329-132	329-145	329-153	329-164	
4-1/2	329-103	329-118	329-133	329-146	329-154		
5	329-104	329-119	329-134	329-147	329-155	329-165	
5-1/2	329-105	329-120	329-135		329-156		
6	329-106	329-121	329-136	329-148	329-157	329-166	
7	329-107	329-122	329-137	329-149	329-158	329-167	
8	329-108	329-123	329-138		329-159	329-168	
9	329-109	329-124	329-139		329-160		
10	329-110	329-125	329-140	329-150	329-161	329-169	
11	329-111	329-126	329-141		329-162		
12	329-112	329-127	329-142		329-163	329-170	
	◆ *U.P.Q. 5*		*All lengths over 6" PRICED SINGLY*				

FINE THREAD (U.N.R.F.)

DIA.	1/4	5/16	3/8	7/16	1/2	9/16	5/8
THD.	28	24	24	20	20	18	18
LG.▼	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW						
1/2	329-171					*Unit Pkg. 25*	
5/8							
3/4	329-172	329-179	329-187				
7/8							
1	329-173	329-180	329-188	329-198	329-207		329-227
1-1/4	329-174	329-181	329-189	329-199	329-208		
1-1/2	329-175	329-182	329-190	329-200	329-209	329-221	329-228
1-3/4		329-183	329-191	329-201	329-210		329-229
2	329-176	329-184	329-192	329-202	329-211	329-222	329-230
2-1/4			329-193		329-212		329-231
2-1/2	329-177	329-185	329-194	329-203	*329-213	329-223	329-232
2-3/4							329-233
3	329-178	329-186	329-195	329-204	329-214	329-224	329-234
3-1/4							
3-1/2			329-196	329-205	329-215	329-225	329-235
3-3/4							
4			329-197	329-206	329-216	329-226	329-236
4-1/2							329-237
5	*Unit Pkg. 100*	*Unit Pkg. 50*			329-217		329-238
5-1/2							329-239
6					329-218		329-240
7					329-219		329-241
8					329-220		329-242
9							329-243
	All lengths over 6" PRICED SINGLY *U.P.Q. 25						

DIA.	3/4	7/8	1	1-1/8	1-1/4	1-1/2	
THD.	16	14	14	12	12	12	
LG.▼	*U.P. 20*	*U.P. 15*	*U.P. 10*	*PRICED SINGLY*			
1-1/2	329-244						
1-3/4	329-245						
2	329-246	329-262					
2-1/4	329-247						
2-1/2	329-248	329-263	329-274				
2-3/4	329-249						
3	329-250	329-264	329-275	329-288	329-296		
3-1/4							
3-1/2	329-251	329-265	329-276	329-289	329-297		
3-3/4							
4	329-252	◆329-266	329-277	329-290	329-298	329-309	
4-1/2	329-253	329-267	329-278	329-291	329-299		
5	329-254	329-268	329-279	329-292	329-300	329-310	
5-1/2	329-255	329-269	329-280		329-301		
6	329-256	329-270	329-281	329-293	329-302	329-311	
7	329-257	329-271	329-282	329-294	329-303	329-312	
8	329-258	329-272	329-283	329-295	329-304		
9	329-259	329-273	329-284		329-305		
10	329-260		329-285		329-306		
11	329-261		329-286		329-307		
12			329-287		329-308		
	All lengths over 6" PRICED SINGLY ◆ U.P.Q. 5						

Alloy STEEL
Heat Treated



Length shown is under head to end in inches.

MINIMUM THREAD LENGTH
Up to 6" long: Twice diameter plus 1/4 inch.
Over 6" long: Twice diameter plus 1/2 inch.

L•9® HEXAGON Bolts

20% stronger than SAE Grade 8

IMPORTANT NOTE:
To obtain optimum strength values, use only L•9 fasteners.

ZINC PLATED
Yellow Dichromate Finish

Rockwell Hardness
C38-42

UNIFIED STANDARD
CLASS 2A FIT

MINIMUM
TENSILE STRENGTH
180,000 PSI

See opposite page for Bolt Head Specifications.

L•9® Fastening System

ASSORTMENT / ASSORTIMENT 805-648

Coarse (UNC) Thread

Zinc Plated
Yellow Dichromate Finish

Contents of Assortment

SPAENAUR No.	SIZE	ASS'T. QTY.
329-002	1/4"-20 x 3/4"	35
329-003	1/4"-20 x 1"	35
329-005	1/4"-20 x 1-1/2"	35
329-007	1/4"-20 x 2"	35
329-012	5/16"-18 x 3/4"	35
329-013	5/16"-18 x 1"	35
329-015	5/16"-18 x 1-1/2"	35
329-017	5/16"-18 x 2"	35
329-024	3/8"-16 x 1"	25
329-026	3/8"-16 x 1-1/2"	25
329-028	3/8"-16 x 2"	25
329-030	3/8"-16 x 2-1/2"	25
329-050	1/2"-13 x 1"	15
329-052	1/2"-13 x 1-1/2"	10
329-054	1/2"-13 x 2"	10
329-056	1/2"-13 x 2-1/2"	10
155-400	1/4"-20 Hex Nut	100
155-401	5/16"-18 Hex Nut	100
155-402	3/8"-16 Hex Nut	100
155-404	1/2"-13 Hex Nut	100
656-400	1/4" Flat Washer	100
656-401	5/16" Flat Washer	100
656-402	3/8" Flat Washer	100
656-404	1/2" Flat Washer	45

See previous page B178 for full range of Coarse Thread sizes.

24 Sizes — 1,115 Pieces

Priced Singly.

Shipping Weight: 18.82 kg (41.5 lbs.)

Furnished in LARGE SIZE grey enamel drawer with hinged lid and catch.

Drawer will fit into Slide Racks shown on A3.

L•9® Fastening System

ASSORTMENT / ASSORTIMENT 805-649

Fine (UNF) Thread

Zinc Plated
Yellow Dichromate Finish

Contents of Assortment

SPAENAUR No.	SIZE	ASS'T. QTY.
329-172	1/4"-28 x 3/4"	35
329-173	1/4"-28 x 1"	35
329-175	1/4"-28 x 1-1/2"	35
329-176	1/4"-28 x 2"	35
329-179	5/16"-24 x 3/4"	35
329-180	5/16"-24 x 1"	35
329-182	5/16"-24 x 1-1/2"	35
329-184	5/16"-24 x 2"	35
329-188	3/8"-24 x 1"	25
329-190	3/8"-24 x 1-1/2"	25
329-192	3/8"-24 x 2"	25
329-194	3/8"-24 x 2-1/2"	25
329-207	1/2"-20 x 1"	15
329-209	1/2"-20 x 1-1/2"	10
329-211	1/2"-20 x 2"	10
329-213	1/2"-20 x 2-1/2"	10
155-413	1/4"-28 Hex Nut	100
155-414	5/16"-24 Hex Nut	100
155-415	3/8"-24 Hex Nut	100
155-417	1/2"-20 Hex Nut	100
656-400	1/4" Flat Washer	100
656-401	5/16" Flat Washer	100
656-402	3/8" Flat Washer	100
656-404	1/2" Flat Washer	45

See previous page B179 for full range of Fine Thread sizes.

24 Sizes — 1,115 Pieces

Priced Singly.

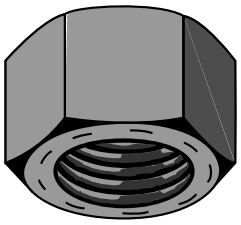
Shipping Weight: 15.79 kg (34.8 lbs.)

Furnished in LARGE SIZE grey enamel drawer with hinged lid and catch.

Drawer will fit into Slide Racks shown on A3.

Recommended for use with L•9® Hex Bolts

STEEL Alloy
L•9 HEX NUT

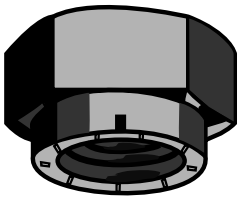


Cadmium Plated and Waxed Yellow Dichromate Finish

Rockwell Hardness
1/4"-5/8" Dia. C28-34
3/4"-1 " Dia. C32-38

NOMINAL SIZE	COARSE THREAD (U.N.C.) *SPAENAUR No.*	COARSE THREAD (U.N.C.) THD.	FINE THREAD (U.N.F.) *SPAENAUR No.*	FINE THREAD (U.N.F.) THD.	WIDTH ACROSS FLAT MAX./MIN.	THICKNESS MAX./MIN.	UNIT PKG. QTY.
1/4	**155-400**	20	**155-413**	28	.437/.428	.264/.250	100
5/16	**155-401**	18	**155-414**	24	.500/.489	.309/.293	50
3/8	**155-402**	16	**155-415**	24	.562/.551	.377/.360	50
7/16	**155-403**	14	**155-416**	20	.687/.675	.445/.426	25
1/2	**155-404**	13	**155-417**	20	.750/.736	.511/.490	25
9/16	**155-405**	12	**155-418**	18	.875/.861	.575/.552	25
5/8	**155-406**	11	**155-419**	18	.937/.922	.655/.630	25
3/4	**155-407**	10	**155-420**	16	1.125/1.088	.762/.733	20
7/8	**155-408**	9	**155-421**	14	1.312/1.269	.882/.850	15
1	**155-409**	8	**155-422**	14	1.500/1.450	1.018/.982	10
1-1/8	**155-410**	7	**155-423**	12	1.687/1.631	1.176/1.136	10
1-1/4	**155-411**	7	**155-424**	12	1.875/1.812	1.272/1.228	10
1-1/2	**155-412**	6	**155-425**	12	2.250/2.175	1.526/1.474	10

STEEL Alloy
L•9 STOVER® LOCKNUT



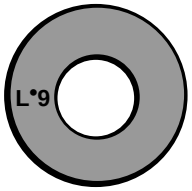
Cadmium Plated and Waxed Yellow Dichromate Finish

Rockwell Hardness
1/4"-5/8" Dia. C28-34
3/4"-1 " Dia. C32-38

NOMINAL SIZE	COARSE THREAD (U.N.C.) *SPAENAUR No.*	COARSE THREAD (U.N.C.) THD.	FINE THREAD (U.N.F.) *SPAENAUR No.*	FINE THREAD (U.N.F.) THD.	WIDTH ACROSS FLAT MAX./MIN.	THICKNESS MAX./MIN.	UNIT PKG. QTY.
1/4	**172-001**	20	**172-014**	28	.437/.428	.301/.281	100
5/16	**172-002**	18	**172-015**	24	.500/.489	.336/.316	50
3/8	**172-003**	16	**172-016**	24	.562/.551	.400/.380	50
7/16	**172-004**	14	**172-017**	20	.687/.675	.449/.429	25
1/2	**172-005**	13	**172-018**	20	.750/.736	.516/.496	25
9/16	**172-006**	12	**172-019**	18	.875/.861	.580/.560	25
5/8	**172-007**	11	**172-020**	18	.937/.922	.660/.640	25
3/4	**172-008**	10	**172-021**	16	1.125/1.088	.767/.747	20
7/8	**172-009**	9	**172-022**	14	1.312/1.269	.887/.867	15
1	**172-010**	8	**172-023**	14	1.500/1.450	1.023/1.003	10
1-1/8	**172-011**	7	**172-024**	12	1.687/1.631	1.181/1.161	10
1-1/4	**172-012**	7	**172-025**	12	1.875/1.812	1.277/1.257	10
1-1/2	**172-013**	6	**172-026**	12	2.250/2.175	1.531/1.511	10

C1050 - 1060 STEEL
L•9 WASHERS

Quenched and Tempered



Cadmium Plated Yellow Dichromate Finish

Rockwell Hardness
15N 82-85

SPAENAUR No.	BOLT SIZE	INSIDE DIAMETER MAX./MIN.	OUTSIDE DIAMETER MAX./MIN.	THICKNESS MAX./MIN.	UNIT PKG.
656-400	1/4	.286/.276	.640/.620	.071/.056	100
656-401	5/16	.349/.339	.703/.681	.071/.056	100
656-402	3/8	.411/.401	.827/.805	.112/.090	100
656-403	7/16	.474/.464	.937/.915	.112/.090	50
656-404	1/2	.536/.526	1.092/1.055	.112/.090	50
656-405	9/16	.599/.589	1.186/1.149	.112/.090	50
656-406	5/8	.663/.649	1.342/1.305	.174/.146	50
656-407	3/4	.819/.805	1.499/1.462	.174/.146	50
656-408	7/8	.945/.931	1.780/1.743	.174/.146	50
656-409	1	1.069/1.055	2.030/1.993	.174/.146	25
656-410	1-1/8	1.195/1.181	2.030/1.993	.174/.146	25
656-411	1-1/4	1.319/1.305	2.280/2.243	.266/.234	25
656-412	1-1/2	1.572/1.552	2.780/2.743	.266/.234	25

BOLT CLAMP LOADS - SUGGESTED ASSEMBLY TORQUE VALUES

DIA. & THDS. PER IN.	STRESS AREA SQ. IN.	SAE GRADE 2 THRU 6" LONG					SAE GRADE 5					SAE GRADE 8					L•9® FASTENING SYSTEM				
		TENSILE Strength MIN. KSI.	PROOF LOAD LBS.	CLAMP LOAD LBS.	TORQUE DRY FT.LB.	TORQUE LUB. FT.LB.	TENSILE Strength MIN. KSI.	PROOF LOAD LBS.	CLAMP LOAD LBS.	TORQUE DRY FT.LB.	TORQUE LUB. FT.LB.	TENSILE Strength MIN. KS.I	PROOF LOAD LBS.	CLAMP LOAD LBS.	TORQUE DRY FT.LB.	TORQUE LUB. FT.LB.	TENSILE Strength MIN. KSI.	PROOF LOAD LBS.	CLAMP LOAD LBS.	TORQUE BY HEAD FT.LB.	TORQUE BY NUT FT.LB.
1/4-20	.0318	74	1750	1310	5.5	4.2	120	2700	2020	8	6.3	150	3800	2850	12	9	180	4610	3450	10	11
28	.0364	74	2000	1500	6.3	4.7	120	3100	2320	10	7.2	150	4350	3250	14	10	180	5270	3950	12	13
5/16-18	.0524	74	2900	2160	11	8	120	4450	3340	17	13	150	6300	4700	24	18	180	7590	5700	19	21
24	.0580	74	3200	2400	12	9	120	4900	3700	19	14	150	6950	5200	27	20	180	8410	6300	20	23
3/8-16	.0775	74	4250	3200	20	15	120	6600	4950	30	23	150	9300	6980	45	35	180	11230	8450	30	33
24	.0878	74	4800	3620	23	17	120	7450	5600	35	25	150	10500	7900	50	35	180	12730	9550	35	38
7/16-14	.1063	74	5850	4380	32	24	120	9050	6780	50	35	150	12800	9550	70	50	180	15410	11550	55	60
20	.1187	74	6550	4900	36	27	120	10100	7570	55	40	150	14200	10650	80	60	180	17210	12900	60	65
1/2-13	.1419	74	7800	5850	50	35	120	12100	9050	75	55	150	17000	12750	110	80	180	20570	15450	85	95
20	.1599	74	8800	6600	55	40	120	13600	10200	85	65	150	19200	14400	120	90	180	23180	17400	95	105
9/16-12	.1820	74	10000	7500	70	55	120	15500	11600	110	80	150	21800	16350	150	110	180	26390	19800	120	140
18	.2030	74	11200	8400	80	60	120	17300	12950	120	90	150	24400	18250	170	130	180	29430	22100	135	150
5/8-11	.226	74	12400	9320	100	75	120	19200	14400	150	110	150	27100	20350	210	160	180	32770	24550	170	185
18	.256	74	14100	10560	110	85	120	21800	16350	170	130	150	30700	23000	240	180	180	37120	27800	190	205
3/4-10	.334	74	18400	13800	175	130	120	28400	21300	260	200	150	40100	30100	380	280	180	48430	36350	265	290
16	.373	74	20500	15390	200	140	120	31700	23780	300	220	150	44800	33500	420	310	180	54080	40600	330	355
7/8- 9	.462	60	15200	11430	170	125	120	39300	29450	430	320	150	55400	41600	600	450	180	66990	50300	475	505
14	.509	60	16800	12600	180	140	120	43300	32450	470	350	150	61100	45800	670	500	180	73800	55400	520	585
1- 8	.606	60	20000	15000	250	190	120	51500	38600	640	480	150	72700	54500	910	680	180	87870	65900	550	775
14	.679	60	22400	16800	280	210	120	57700	43300	720	540	150	81500	61100	1020	760	180	98450	73800	700	900
1-1/8- 7	.763	60	25200	18900	350	270	105	56500	42300	790	590	150	91600	68700	1290	970	180	110630	83000	1025	1150
12	.856	60	28200	21200	400	300	105	63300	47500	890	670	150	102700	77000	1440	1080	180	124120	93100	1150	1325
1-1/4- 7	.969	60	32000	24000	500	380	105	71700	53800	1120	840	150	116300	87200	1820	1360	180	140500	105400	1400	1600
12	1.073	60	35400	26550	550	420	105	79400	59600	1240	930	150	128800	96600	2010	1510	180	155580	116700	1600	1750
1-1/2- 6	1.405	60	46400	34800	870	650	105	104000	78000	1950	1460	150	168600	126500	3160	2370	180	203720	152800	2900	3250
12	1.581	60	52200	39150	980	730	105	117000	87700	2200	1640	150	189700	142200	3560	2670	180	229240	171900	3300	3650

NOTES:

The above recommended assembly torques are offered as a guide only. Torque specifications, especially for critical joints, should be determined under actual assembly conditions due to the many variables involved which are difficult to predict and do affect the torque-tension relationship.

The above recommended clamp loads are based on 75% of the minimum specified proof loads for each grade and size.

Strength Grade	Applicable Sizes	Proof Load Stress (psi)	Yield Strength Min. Stress (psi)	Tensile Strength Min. Stress (psi)
SAE Gr. 2	1/4" thru 3/4" dia.	55,000	57,000	74,000
	over 3/4" thru 1-1/2" dia.	33,000	36,000	60,000
	over 6" long	33,000	36,000	60,000
SAE Gr. 5	1/4" thru 1" dia.	85,000	92,000	120,000
	over 1" thru 1-1/2" dia.	74,000	81,000	105,000
SAE Gr. 8	1/4" thru 1-1/2" dia.	120,000	130,000	150,000
L•9®	1/4" thru 1-1/2" dia.	145,000	155,000	180,000

Torques for Grades 2, 5, and 8 were calculated based on the following relationship:

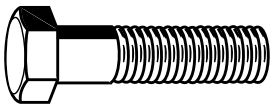
T = RDP

Where: T = Torque (in.-lbs.)
D = Nominal Diameter (in.)
P = Clamp Load (lbs.)
R = Tightening Coefficient

Torque Wrenches Available - Special to Order.

The value of R is assumed to be equal to .20 for dry unplated conditions, and equal to .15 for lubricated, including plated, conditions. Actual values of R can vary between .05 and .35 for commonly encountered conditions.

L•9® Fastening System torque values are for a nut, bolt, and two-washer assembly, not for screws used in tapped holes and were developed through laboratory testing of representative samples. As such, they are average values which, when used under actual assembly conditions can be expected to produce clamp loads within ±15% of the recommended values. When L•9® hex screws with L•9® tension control washers are used in tapped holes, assembly torque values should be determined experimentally under actual conditions.



ASME/ANSI B18.2.1

18-8 STAINLESS STEEL

UNIFIED STANDARD CLASS 2A FIT

†343-067
Full Thread

■ 343-029
Full Thread

▲*Unit Pkg. 50*
** Unit Pkg. 10*
◆*Unit Pkg. 1*

COARSE THREAD (U.N.C.) (U.S.S.)

DIA.	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1
THD.	20	18	16	14	13	11	10	9	8
LG.▼	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
1/2	CS-2002	CS-2013	CS-2093						
5/8	CS-2003	343-023	343-068						343-016 1-1/4-7 x 4" *U.P.Q. 1*
3/4	CS-2004	CS-2014	CS-2022	CS-2034	CS-2040				
7/8									
1	CS-2001	CS-2015	CS-2023	CS-2035	CS-2041	CS-2053			
1-1/4	CS-2005	CS-2016	CS-2024		CS-2042	CS-2054			
1-1/2	CS-2006	CS-2017	CS-2025	CS-2036	CS-2043	CS-2055	343-017		
1-3/4	CS-2007	CS-2018	CS-2026		CS-2044	CS-2056			
2	CS-2008	CS-2019	CS-2027	CS-2037	■CS-2045	CS-2057	CS-2063		
2-1/4	CS-2009	343-024	CS-2028		343-005				
2-1/2	CS-2010	CS-2020	†CS-2029	CS-2038	CS-2046	CS-2058	343-035		
2-3/4	CS-2011	343-011	CS-2030		CS-2047	CS-2059	343-001		
3	CS-2012	CS-2021	CS-2031	CS-2039	CS-2048	CS-2000	CS-2064		
3-1/2	343-004	343-013	CS-2032		CS-2049	CS-2060	343-003		
4	343-006	CS-2094	CS-2033	343-015	CS-2050	CS-2061	CS-2065		343-032
4-1/2	CS-2092		CS-2091		*CS-2051	CS-2062			
5	▲343-022	343-009			CS-2052	343-066			
5-1/2					343-034		343-010		
6		343-031	CS-2095		343-025				343-008
6-1/2						◆343-014			
7					◆343-021				
8							◆343-012		

COARSE THREAD (U.N.C.) (U.S.S.)

316 STAINLESS STEEL

UNIFIED STANDARD CLASS 2A FIT

1/2	CS-2305								
5/8	CS-2306	346-001							
3/4	CS-2307	CS-2314	CS-2319						
7/8	CS-2308								
1	CS-2304	CS-2315	CS-2320	CS-2324	CS-2326				
1-1/4	CS-2309		CS-2344	346-061	CS-2349				
1-1/2	CS-2310	CS-2316	CS-2321	CS-2346	CS-2327	346-060	346-062		
1-3/4	CS-2311		CS-2341		CS-2301				
2	CS-2312	CS-2317	CS-2300	CS-2325	CS-2328	CS-2332	CS-2334		
2-1/4	346-058		346-052		346-065				
2-1/2	346-059	346-064	CS-2322	CS-2347	CS-2329	CS-2302	CS-2335		
2-3/4									
3	CS-2313	CS-2318	CS-2323	346-057	CS-2330	CS-2303	CS-2336	CS-2339	
3-1/4			346-053						
3-1/2	346-063		CS-2345		CS-2331	CS-2333	CS-2337		
4			346-056		346-002		CS-2338	CS-2343	
4-1/2			CS-2342		346-003		346-050	346-066	CS-2340
5			346-051		346-055				

FINE THREAD (U.N.F.) (S.A.E.)

18-8 STAINLESS STEEL

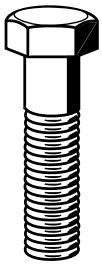
UNIFIED STANDARD CLASS 2A FIT

DIA.	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1
THD.	28	24	24	20	20	18	16	14	14
1/2	CS-2066								
5/8									
3/4	CS-2067	CS-2071	CS-2076						
7/8									
1	CS-2068	CS-2072	CS-2077		CS-2082				
1-1/4	343-033	343-002	CS-2078		CS-2089				
1-1/2	CS-2069	CS-2073	CS-2079	343-019	CS-2083	CS-2087			
1-3/4					CS-2090				
2	CS-2070	CS-2074	CS-2080		CS-2084	CS-2088	343-018		
2-1/4		343-030							
2-1/2	343-026	CS-2075	CS-2081		CS-2085				
2-3/4									
3	343-027	343-028	343-007		CS-2086				
4			343-020						
	Unit Pkg. 100	*Unit Pkg. 50*				*Unit Pkg. 25*		*Unit Pkg. 1*	

ASSORTMENT
ASSORTIMENT
805-549

Hexagon Head Cap Screws
Coarse (UNC) Thread
18-8 Stainless Steel

Contents of Assortment



SPAENAUR No.	SIZE	ASS'T. QTY.
CS-2002	1/4"-20 x 1/2"	15
CS-2004	1/4"-20 x 3/4"	15
CS-2001	1/4"-20 x 1"	10
CS-2006	1/4"-20 x 1-1/2"	10
CS-2008	1/4"-20 x 2"	10
CS-2010	1/4"-20 x 2-1/2"	10
343-023	5/16"-18 x 5/8"	10
CS-2014	5/16"-18 x 3/4"	10
CS-2015	5/16"-18 x 1"	10
CS-2017	5/16"-18 x 1-1/2"	10
CS-2019	5/16"-18 x 2"	10
CS-2020	5/16"-18 x 2-1/2"	10
CS-2023	3/8"-16 x 1"	10
CS-2025	3/8"-16 x 1-1/2"	10
CS-2026	3/8"-16 x 1-3/4"	5
CS-2027	3/8"-16 x 2"	5
CS-2028	3/8"-16 x 2-1/4"	5
CS-2029	3/8"-16 x 2-1/2"	5
CS-2041	1/2"-13 x 1"	5
CS-2042	1/2"-13 x 1-1/4"	5
CS-2043	1/2"-13 x 1-1/2"	5
CS-2044	1/2"-13 x 1-3/4"	4
CS-2045	1/2"-13 x 2"	4
CS-2046	1/2"-13 x 2-1/2"	4

See page B183 for full range of Coarse Thread sizes.

24 Sizes — 197 Pieces

Priced Singly.

Shipping Weight: 5-3/4 kg (13 lbs.)

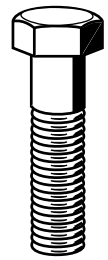
Furnished in REGULAR SIZE grey enamel drawer with hinged lid and catch.

Drawer will fit into Slide Racks shown on A2.

ASSORTMENT
ASSORTIMENT
805-608

Hex Head Cap Screws, Hex Nuts, Flat Washers and Split Lockwashers
Coarse (UNC) Thread
18-8 Stainless Steel

Contents of Assortment



SPAENAUR No.	SIZE	ASS'T. QTY.
CS-2002	1/4"-20 x 1/2"	30
CS-2001	1/4"-20 x 1"	30
CS-2006	1/4"-20 x 1-1/2"	30
CS-2015	5/16"-18 x 1"	30
CS-2017	5/16"-18 x 1-1/2"	30
CS-2019	5/16"-18 x 2"	30
CS-2023	3/8"-16 x 1"	30
CS-2025	3/8"-16 x 1-1/2"	30
CS-2029	3/8"-16 x 2-1/2"	20
CS-2043	1/2"-13 x 1-1/2"	15
CS-2045	1/2"-13 x 2"	15
CS-2048	1/2"-13 x 3"	15
HN-2010	1/4"-20 Hex Nut	100
HN-2011	5/16"-18 Hex Nut	100
HN-2012	3/8"-16 Hex Nut	100
HN-2014	1/2"-13 Hex Nut	75
658-015	1/4" Flat Washer	100
658-009	5/16" Flat Washer	100
W-2039	3/8" Flat Washer	100
W-2041	1/2" Flat Washer	75
W-2028	1/4" Split Lockwasher	100
W-2029	5/16" Split Lockwasher	100
W-2030	3/8" Split Lockwasher	100
W-2032	1/2" Split Lockwasher	75

See page B183 for full range of Coarse Thread sizes.

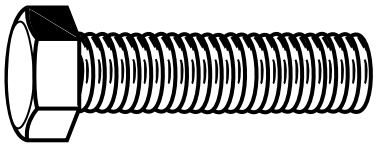
24 Sizes — 1,430 Pieces

Priced Singly.

Shipping Weight: 15-1/2 kg (34 lbs.)

Furnished in LARGE SIZE grey enamel drawer with hinged lid and catch.

Drawer will fit into Slide Racks shown on A3.

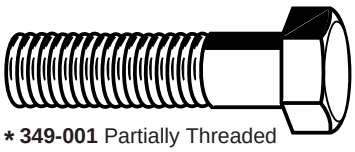


All Aluminum Cap Screws listed below are Fully Threaded except as noted.

ALUMINUM

INCH SIZES

♠ **349-030** Partially Threaded



∗ **349-001** Partially Threaded
▲ **349-002** Partially Threaded
† Partially Threaded

B

COARSE THREAD (U.N.C. - U.S.S.)

UNIFIED STANDARD **CLASS 2A FIT**

DIA.	1/4	5/16	3/8	7/16	1/2	9/16	5/8	3/4	7/8	1
THD.	20	18	16	14	13	12	11	10	9	8
LENGTH	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
3/8										
1/2										
5/8										
3/4	**CS-3001**		**349-008**							
7/8										
1	**CS-3004**	**CS-3007**	**CS-3003**		**349-021**					
1-1/4		**349-014**			**349-025**					
1-1/2		**CS-3006**	**349-009**		**349-022**		**349-015**	**349-016**		
1-3/4	**349-010**				**349-026**					
2	**349-012**	**349-019**	**∗CS-3002**		**349-017**		**349-027**			
2-1/4										
2-1/2		**349-020**	**♠CS-3000**		**†349-024**					
2-3/4										
3	**†349-013**		**▲349-011**		**349-018**					
3-1/2										
4			**†349-003**							
4-1/2							**†349-029**			
4-3/4							**†349-031**			
	UNIT PACKAGE 50					*UNIT PACKAGE 5*				

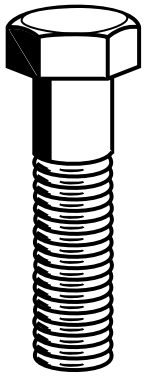
BRASS HEXAGON Cap Screws

INCH SIZES

ASME/ANSI B18.2.1

COARSE THREAD (U.N.C.)

DIA.	1/4	5/16	3/8	7/16	1/2	5/8	3/4
THD.	20	18	16	14	13	11	10
LENGTH	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW						
1/2	**334-027**	**334-033**	**334-040**			*UNIT PKG. 25*	
5/8	**334-028**	**334-034**					
3/4	**334-029**	**334-035**	**334-041**		**334-008**		
1	**334-020**	**334-023**	**334-042**	**334-007**	**334-046**		**334-018**
1-1/4	**334-021**	**334-036**	**334-043**		**334-047**	**334-011**	
1-1/2	**334-022**	**334-024**	**334-025**		**334-026**		
1-3/4	**334-030**	**334-037**	**334-004**		**334-009**	**334-012**	**334-013**
2	**334-019**	**334-038**	**334-005**		**334-048**		
2-1/4	**334-031**		**334-044**		**334-049**		
2-1/2	**334-032**	**334-002**	**334-006**		**334-050**		
3	**334-001**	**334-039**	**334-045**				**334-014**
3-1/2			**334-015**		**334-010**	**334-052**	
4							
	U.P. 100	*UNIT PACKAGE 50*				*UNIT PKG. 5*	

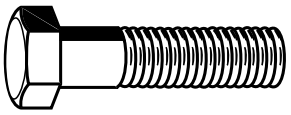


See page B174 for BRASS Cap Screw, Nut and Washer Assortment.

B

SILICON BRONZE

ASME/ANSI B18.2.1



Coarse and Fine Thread

FOR SILICON BRONZE HEX NUTS, SEE PAGE C6.
FOR SILICON BRONZE FLAT WASHERS, SEE PAGE D9.
FOR SILICON BRONZE LOCK-WASHERS, SEE PAGE D23.

COARSE THREAD (U.N.C. - U.S.S.)

UNIFIED STANDARD CLASS 2A FIT

DIA.	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8
THD.	20	18	16	14	13	11	10	9
LENGTH	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW							
3/8	CS-500	CS-516						
1/2	CS-501	CS-517	CS-534					
5/8	CS-502	CS-518	CS-535		CS-564			
3/4	CS-503	CS-519	CS-536		CS-565			
7/8	CS-504	CS-520	CS-537		CS-566			
1	CS-505	CS-521	CS-538	CS-556	CS-567	CS-584		
1-1/8		CS-522	CS-539					
1-1/4	CS-506	CS-523	CS-540		CS-568	CS-585	CS-600	
1-3/8			CS-541					
1-1/2	CS-507	CS-525	CS-542	CS-558	CS-569	CS-586	CS-601	
1-3/4	CS-508	CS-526	CS-543	CS-559	CS-570	CS-587		
2	CS-509	CS-527	CS-544	CS-560	CS-571	CS-588	CS-603	
2-1/4	CS-510	CS-528	CS-545	CS-561	CS-572	CS-589	CS-604	
2-1/2	CS-511	CS-529	CS-546	CS-562	CS-573	CS-590	CS-605	
2-3/4	CS-512	CS-530	CS-547			CS-591	CS-606	
3	CS-513	CS-531	CS-548	CS-563	CS-575	CS-592	CS-607	
3-1/4			CS-549		CS-576	CS-593	CS-608	
3-1/2	CS-514	CS-532	CS-550		CS-577	CS-594	CS-609	
3-3/4			CS-551		CS-578			
4	CS-515	CS-533	CS-552		CS-579	CS-595	CS-610	
4-1/2			CS-553		CS-580	CS-596	CS-611	
5			CS-554		CS-581			
5-1/2					CS-582	CS-598	CS-613	
6			CS-555		CS-583	CS-599	CS-614	

FINE THREAD (U.N.F. - S.A.E.)

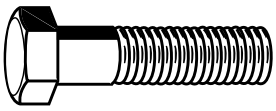
UNIFIED STANDARD CLASS 2A FIT

DIA.	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8
THD.	28	24	24	20	20	18	16	14
1/2	CS-625							
5/8								
3/4	CS-626							
7/8								
1	CS-627	CS-631	CS-636					
1-1/4	CS-628		CS-637					
1-1/2	CS-629	CS-633	CS-638					
1-3/4		CS-634	CS-639					
2			CS-640					
2-1/4								
2-1/2					CS-647			
2-3/4								
3								
3-1/4								
3-1/2								
3-3/4								
	Unit Pkg. 100	*Unit Package 50*				*Unit Package 25*		

CATALOG 13

NAVAL BRONZE

ASME/ANSI B18.2.1



UNC COARSE THREAD ONLY.
FOR NAVAL BRONZE HEX NUTS, SEE PAGE C6.
FOR BRASS WASHERS, SEE PAGE D8.

B

DIA.	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8
THD.	20	18	16	14	13	11	10	9
LENGTH	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW							
3/8								
1/2	CS-701	CS-714	CS-728					
5/8	CS-702	CS-715	CS-729					
3/4	CS-703	CS-716	CS-730	CS-749	CS-761			
7/8	CS-704	CS-717	CS-731					
1	CS-705	CS-718	CS-732		CS-762	CS-779		
1-1/4		CS-719	CS-733			CS-780		
1-1/2	CS-707	CS-720	CS-734		CS-764	CS-781	CS-794	
1-3/4	CS-708	CS-721	CS-735		CS-765		CS-795	
2	CS-709	CS-722	CS-736	CS-754	CS-766	CS-783	CS-796	
2-1/4	CS-710		CS-737		CS-767	CS-784	CS-797	
2-1/2	CS-711	CS-724	CS-738	CS-756	CS-768	CS-785		CS-809
2-3/4	CS-712		CS-739		CS-769	CS-786	CS-799	
3		CS-725	CS-740	CS-758	CS-770	CS-787	CS-800	
3-1/4			CS-741					
3-1/2			CS-742	CS-759	CS-772	CS-788	CS-802	CS-811
3-3/4			CS-743		CS-773			
4			CS-744		CS-774	CS-789	CS-803	CS-812
4-1/2			CS-745		CS-775	CS-790	CS-804	CS-813
5			CS-746			CS-791	CS-805	CS-814
5-1/2			CS-747		CS-777	CS-792	CS-806	
6			CS-748		CS-778	CS-793	CS-807	CS-815
P.C. 340	*Unit Pkg. 100*	*Unit Package 50*				*Unit Package 25*		*Unit Pkg. 10*

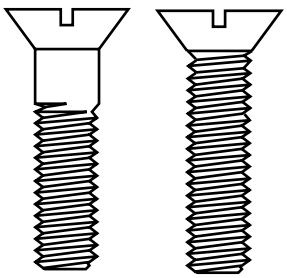
Note: Naval Bronze Cap Screws are being phased out as present stock is depleted.

STEEL

FLAT HEAD CAP SCREWS

(No Nuts)

Slotted



Orders will be supplied Full or Partial Thread at our option.

Coarse Thread (UNC)

LOW CARBON STEEL
BRIGHT ZINC PLATED
(with clear chromate finish)

Overall Length	1/2"-13	5/8"-11	3/4"-10	7/8"-9	1"-8
3/4	354-000				
1-1/4	MS-417				
1-1/2	■MS-1065	354-004			
1-3/4	MS-1066	354-005			
2	▲MS-1067	354-006	354-012	354-019	
2-1/4	354-001	354-007	354-013		
2-1/2	MS-1068	354-008	354-014		354-024
3	354-029	354-009	354-015	354-021	354-025
3-1/2	354-003	354-010	354-016		
4	MS-1069	354-011	354-017	354-023	
5			354-018		

▲354-028 Partially Threaded

■354-030 Plain Finish

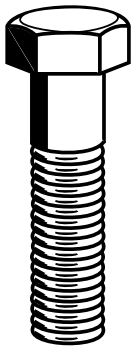
See Price List for Unit Pkg. Qty.

B

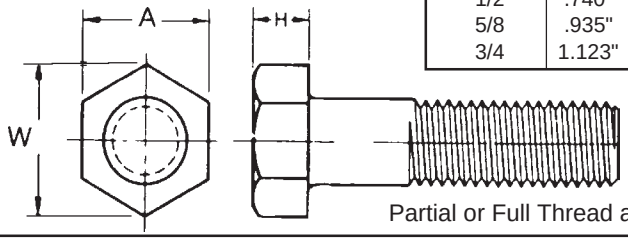
NYLON

HEXAGON Cap Screws

Stocked in
Nylon Zytel 101 UL 94V2



Inch Sizes



THREAD SIZE	Head Dimensions A	W	H
1/4	.425"	.500"	.175"
5/16	.485"	.555"	.215"
3/8	.565"	.625"	.250"
1/2	.740"	.850"	.320"
5/8	.935"	1.100"	.390"
3/4	1.123"	1.290"	.520"

Partial or Full Thread at our option.

COARSE THREAD (U.N.C.) (U.S.S.)

UNIFIED STANDARD CLASS 2A FIT

DIA.	1/4	5/16	3/8	1/2	5/8	3/4
THD.	20	18	16	13	11	10
LENGTH	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW					
1/2"	**352-008**	***352-016**		*U.P. 50*		
3/4"	**352-006**	**352-002**	**352-022**		*UNIT PACKAGE 25*	
1"	**352-003**	**352-004**	**352-005**	**352-029**		
1-1/4"	**352-011**	**352-017**	**352-023**			
1-1/2"	**352-012**	**352-018**	**352-024**	**352-030**	**352-033**	
2"	**352-013**	**352-019**	**352-025**	**352-007**		
2-1/2"	**352-014**	**352-020**	**352-026**	**352-001**	**352-034**	
3"	**352-015**	**352-021**	**352-027**	**352-031**	**352-035**	
4"	*UNIT PACKAGE 100*		**352-028**	**352-032**		**352-038**
5"			**352-036**			
6"			*UNIT PACKAGE 25*			

***352-037**
5/16-24 UNF
x 1/2"

ASSORTMENT
ASSORTIMENT **805-494**

NYLON

(Zytel 101 UL 94V2)

INCH SIZES
COARSE THREAD

Priced Singly

HEXAGON Cap Screws

24 sizes - 180 pieces

Contains most popular sizes,
from 1/4"-20 x 1/2" to 1/2"-13 x 2-1/2".

REGULAR SIZE grey enamelled drawer fits the Slide Racks shown on page A2.

Shipping Weight: 2.61 kg (5-3/4 lbs.)

CATALOG 13

Glass Filled Ultem® (Polyetherimide) ... you won't believe it's plastic.

- **Non-corrosive**
  Completely resistant to the full range of metal finishing solutions.
- **Non-conductive**
  Electrically inert - will not thieve electricity.
- **Metal-like strength**
  Extensive testing proves these fasteners can stand up to your toughest jobs.
- **High Heat Resistance**
  No breakdown up to 200°C (410°F).
- **Tensile Strength**
  Ultimate load - 768 lbs.
- **Torque Capacity**
  100 in. lbs.
- **Shear Strength**
  Ultimate load - 844 lbs.

ULTEM ® - (Polyetherimide) keeps its hardness, and mechanical properties from -40°C (-40°F) up to temperatures of 200°C (410°F). It is radiation-resistant, microwave transparent and naturally flame retardant. Because of its unequalled properties, ULTEM is the ideal replacement for steel and other metals. It also has a wide range of electronic and medical applications.

Characteristics:
High strength-to-weight ratio; Strong dimensional stability; Excellent retention of properties in aggressive environments (chemical resistance); Excellent creep resistance; Maintains properties at high temperatures.

Bolt	*SPAENAUR No.*	Size	Pkg. Qty.
UNC Coarse Thread	**352-039**	1/4"-20 x 1/2"	10
	352-040	1/4"-20 x 3/4"	10
	352-041	1/4"-20 x 1"	10
	352-042	1/4"-20 x 1-1/2"	10
	352-043	5/16"-18 x 1-1/2"	10
	352-044	5/16"-18 x 2"	10
	352-045	3/8"-16 x 1-1/2"	10
	352-046	3/8"-16 x 2"	10
	352-047	3/8"-16 x 2-1/2"	10
	352-048	3/8"-16 x 3"	10
	352-049	1/2"-13 x 1-1/2"	10

Washer	*SPAENAUR No.*	Size	Pkg. Qty.
	654-024	1/4" flat	10
	654-025	5/16" flat	10
	654-026	3/8" flat	10
	654-027	1/2" flat	10
Hex Nut	**163-011**	1/4"-20 Hex Nut	10
	163-012	5/16"-18 Hex Nut	10
	163-013	3/8"-16 Hex Nut	10
	163-014	1/2"-13 Hex Nut	10

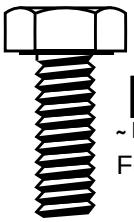
For more inch nylon hex nuts and washers see pages C8 and D10.

Looking for a product not listed?

Call us at (800) 265-8772.

SPAENAUR

B



DIN 933
~ DIN EN ISO 4017
Fully Threaded

Property Class 8.8 – Plain Finish

Regular COARSE Metric Thread

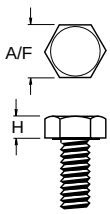
to DIN 13 (ISO Metric Spec.)

Carbon Steel, Quenched & Tempered

Dia. M3 - M16 Tensile Strength 800 N/mm² min. (Approx. 116,000 PSI - For Reference Only.)
Above M16 Tensile Strength 830 N/mm² min. (Approx. 120,000 PSI - For Reference Only.)

DIA. in mm	M2.5	M3	M4	M5	M6	M7	M8	M10	M12	M14
Pitch	0.45	0.50	0.70	0.80	1.00	1.00	1.25	1.50	1.75	2.00
Lgth. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
3	**330-345**							**Continued on next page…**		
4	**330-346**									
5	**330-347**									
6	**330-348**	**330-355**	**330-359**	**330-366**	**330-369**		*Unit Package – 50*			
7										
8	**330-349**	**330-008**	**330-020**	**330-030**	**330-043**		**330-383**			*U.P. – 25*
10		**330-009**	**330-021**	**330-031**	**330-044**	**330-061**	**330-070**	**330-390**		
12		**330-010**	**330-022**	**330-032**	**330-045**	**330-379**	**330-071**	**330-391**	**330-397**	
14		**330-239**			**330-370**					
16		**330-238**	**330-023**	**330-033**	**330-046**	**330-062**	**330-234**	**330-092**	**330-116**	**330-404**
18		**330-356**	**330-361**	**330-034**	**330-047**		**330-072**	**330-093**	**330-117**	
20	**330-353**	**330-011**	**330-024**	**330-035**	**330-048**	**330-063**	**330-073**	**330-094**	**330-118**	**330-140**
22			**330-362**	**330-036**	**330-049**		**330-074**	**330-095**	**330-119**	**330-405**
25	**330-354**	**330-357**	**330-342**	**330-037**	**330-050**	**330-064**	**330-075**	**330-096**	**330-120**	**330-141**
28							**330-076**	**330-097**		
30		**330-358**	**330-363**	**330-038**	**330-052**	**330-065**	**330-077**	**330-098**	**330-122**	**330-142**
35				**330-039**	**330-053**	**330-381**	**330-078**	**330-099**	**330-123**	**330-143**
40			**330-364**	**330-040**	**330-054**	**330-066**	**330-079**	**330-100**	**330-124**	**330-144**
45					**330-055**	**330-380**	**330-080**	▲**330-101**	**330-125**	**330-145**
50			**330-365**	**330-367**	**330-056**	**330-067**	**330-081**	**330-102**	**330-126**	**330-146**
55					**330-371**		**330-082**	**330-103**	**330-127**	**330-147**
60				**330-368**	**330-372**		**330-384**	**330-104**	**330-128**	**330-148**
65					**330-373**		**330-121**	**330-153**	**330-398**	
70					**330-374**		**330-385**	**330-493**	**330-399**	**330-406**
75					**330-375**			**330-392**	**330-492**	
80	*Unit Package – 100*				**330-376**		**330-386**	**330-393**	**330-400**	**330-407**
90					**330-377**		**330-387**			**330-788**
100					**330-378**		**330-388**	**330-394**	**330-401**	**330-408**
110								**330-395**		
120							**330-389**	**330-247**	**330-402**	**330-409**
130									**330-208**	
150								**330-396**	**330-403**	
160				*Priced Singly*						
180									**330-209**	

▲**330-775** Property Class 5.6

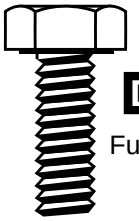


HEAD DIMENSION CHART

DIMENSIONS IN MILLIMETRES

DIA.	A/F	H	DIA.	A/F	H	DIA.	A/F	H	DIA.	A/F	H
M2.5	5	1.7	**M6**	10	4	**M14**	21	8.8	**M24**	36	15
M3	5.5	2	**M7**	11	4.8	**M16**	24	10	**M27**	41	17
M3.5	6	2.4	**M8**	13	5.3	**M18**	27	11.5	**M30**	46	18.7
M4	7	2.8	**M10**	16	6.4	**M20**	30	12.7	**M33**	50	21
M5	8	3.5	**M12**	18	7.5	**M22**	34	14	**M36**	55	22.5

CATALOG 13



DIN 933
Fully Threaded

Property Class 8.8 – Plain Finish

Regular COARSE Metric Thread

to DIN 13 (ISO Metric Spec.)

Medium Carbon Steel, Quenched & Tempered

Dia. M3 - M16 Tensile Strength 800 N/mm² min. (Approx. 116,000 PSI - For Reference Only.)
Above M16 Tensile Strength 830 N/mm² min. (Approx. 120,000 PSI - For Reference Only.)

DIA. in mm	M16	M18	M20	M22	M24	M27	M30	M33	M36	Larger Diameters
Pitch	2.00	2.50	2.50	2.50	3.00	3.00	3.50	3.50	4.00	
Lgth. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
16	330-410	*Unit Package – 25*								
20	330-160									**330-487**
25	330-161		330-426	*Unit Package – 10*						**M42** x 4.50
30	330-162	330-419	330-427							x 100 mm
35	330-163	330-420	330-428		330-444					
40	330-164	330-180	330-193	330-438	330-445		330-463			
45	330-165	330-181	330-194	330-439	330-446					**330-488**
50	330-166	330-182	330-195	330-210	330-216		330-464			**M56** x 5.50
55	330-167	330-183	330-196		330-447					x 120 mm
60	330-168	330-184	330-197	330-211	330-217	330-456	330-465	330-472	330-479	
65			330-429	330-440	330-448			330-473		
70	330-411	330-421	330-430	330-441	330-218	330-457	330-466	330-474	330-480	
75	330-768		330-431		330-449			330-771		
80	330-249	330-422	330-432	330-442	330-450	330-458	330-467	330-475	330-481	
85					330-770					
90	330-412		330-433		330-451	330-459	330-468	330-476	330-482	
100	330-413	330-423	330-434	330-443	330-452	330-460	330-469	330-477	330-483	
110	330-772								330-484	
120	330-414	330-424	330-435		330-453	330-461	330-470	330-478	330-485	
130	330-415		330-248			330-462				
150	330-416		330-436		330-454		330-471		330-486	
180	330-417				330-776		*Priced Singly*			
200	330-418		330-437		330-455					

Furnished in a LARGE SIZE grey enamelled steel drawer, with hinged lid and scooped bins. Drawer will fit Slide Racks shown on page A3.

ASSORTMENT / **ASSORTIMENT** **805-612**

HEXAGON CAP SCREWS, NUTS and WASHERS

Property Class 8.8, Zinc Plated

REGULAR COARSE METRIC THREAD

DIN 933

32 SIZES • 1840 PIECES

Assortment contains Screws, Nuts, Flat Washers and Lockwashers for sizes:

M4, M5, M6, M8 and M10.

Shipping Weight: 8.85 kg (19.5 lbs.)

B

DIN 933

Fully Threaded

Property Class 8.8 – Zinc Plated

Regular COARSE Metric Thread

to DIN 13 (ISO Metric Spec.)

Medium Carbon Steel, Quenched & Tempered

Dia. M3 - M16 Tensile Strength 800 N/mm² min. (Approx. 116,000 PSI - For Reference Only.)
Above M16 Tensile Strength 830 N/mm² min. (Approx. 120,000 PSI - For Reference Only.)

DIA. in mm	M2.5	M3	M4	M5	M6	M7	M8	M10	M12	M14
Pitch	0.45	0.50	0.70	0.80	1.00	1.00	1.25	1.50	1.75	2.00
Lgth. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
6		330-355ZP	330-359ZP							
8		330-008ZP	330-020ZP	330-030ZP	330-043ZP					
10		330-009ZP	330-021ZP	330-031ZP	330-044ZP	330-061ZP	330-070ZP			
12		330-010ZP	330-022ZP	330-032ZP	330-045ZP		330-071ZP	330-391ZP	330-397ZP	
14		330-239ZP			330-370ZP					
16		330-238ZP	330-023ZP	330-033ZP	330-046ZP	330-062ZP	330-234ZP	330-092ZP	330-116ZP	
18				330-034ZP	330-047ZP		330-072ZP	330-093ZP	330-117ZP	
20		330-011ZP	330-024ZP	330-035ZP	330-048ZP	330-063ZP	330-073ZP	330-094ZP	330-118ZP	330-140ZP
22				330-036ZP	330-049ZP		330-074ZP	330-095ZP	330-119ZP	
25			330-342ZP	330-037ZP	330-050ZP	330-064ZP	330-075ZP	330-096ZP	330-120ZP	330-141ZP
28							330-076ZP	330-097ZP		
30		330-358ZP		330-038ZP	330-052ZP	330-065ZP	330-077ZP	330-098ZP	330-122ZP	330-142ZP
35				330-039ZP	330-053ZP		330-078ZP	330-099ZP	330-123ZP	330-143ZP
40			330-364ZP	330-040ZP	330-054ZP	330-066ZP	330-079ZP	330-100ZP	330-124ZP	330-144ZP
45					330-055ZP		330-080ZP	330-101ZP	330-125ZP	330-145ZP
50			330-365ZP		330-056ZP	330-067ZP	330-081ZP	330-102ZP	330-126ZP	330-146ZP
55							330-082ZP	330-103ZP	330-127ZP	330-147ZP
60								330-104ZP	330-128ZP	330-148ZP
65									330-398ZP	
100								330-394ZP		
120								330-247ZP	330-402ZP	
130									330-208ZP	
	Unit Package – 100					*Unit Package – 50*				*U.P. – 25*

DIA. in mm	M16	M18	M20	M22	M24	M30	M36
Pitch	2.00	2.50	2.50	2.50	3.00	3.50	4.00
Lgth. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW						
20	330-160ZP						
25	330-161ZP						
30	330-162ZP						
35	330-163ZP	330-420ZP	330-428ZP				
40	330-164ZP	330-180ZP	330-193ZP				
45	330-165ZP	330-181ZP	330-194ZP		330-446ZP		
50	330-166ZP	330-182ZP	330-195ZP	330-210ZP	330-216ZP		
55	330-167ZP	330-183ZP	330-196ZP				
60	330-168ZP	330-184ZP	330-197ZP	330-211ZP	330-217ZP		
70					330-218ZP	330-466ZP	
80	330-249ZP					330-467ZP	
100							330-483ZP
110							330-484ZP
130			330-248ZP				
	Unit Package – 25			*Unit Package – 10*		*Unit Package – 1*	

Diameters M2.6 and M3.5 are furnished only in Property Class 5-S
(Comparable to SAE Grade 2)

Unit Package – 100

DIA. in mm	M2.6	M3.5
Pitch	0.45	0.60
Lgth. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW	
5		330-012ZP
6	330-001ZP	330-013ZP
8	330-002ZP	330-014ZP
10	330-003ZP	330-015ZP
12	330-004ZP	330-016ZP
16	330-005ZP	
18	330-006ZP	
20	330-007ZP	
25		330-019ZP

CATALOG 13

DIN 933

Fully Threaded

Property Class 8.8 – Yellow Zinc Plated

Regular COARSE Metric Thread

to DIN 13 (ISO Metric Spec.)

Medium Carbon Steel, Quenched & Tempered

Dia. M3 - M16 Tensile Strength 800 N/mm² min. (Approx. 116,000 PSI - For Reference Only.)
Above M16 Tensile Strength 830 N/mm² min. (Approx. 120,000 PSI - For Reference Only.)

DIA. in mm	M3	M4	M5	M6	M8	M10	M12	M14	M16	M20	M24
Pitch	0.50	0.70	0.80	1.00	1.25	1.50	1.75	2.00	2.00	2.50	3.00
Lgth. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW										
7											
8		330-020YZ	330-030YZ	330-043YZ	330-383YZ						
10	330-009YZ	330-021YZ	330-031YZ	330-044YZ	*330-070BZ						
12		330-022YZ	330-032YZ	330-045YZ	330-071YZ	330-391YZ	330-397YZ				
15											
16		330-023YZ	330-033YZ	330-046YZ	330-234YZ	330-092YZ	330-116YZ				
18					330-072YZ	330-093YZ					
20			330-035YZ	330-048YZ	330-073YZ	330-094YZ	330-118YZ	330-140YZ			
22						330-095YZ					
25			330-037YZ	330-050YZ	330-075YZ	330-096YZ	330-120YZ				
30				330-052YZ	330-077YZ	330-098YZ	330-122YZ		330-162YZ		
35					330-078YZ		330-123YZ	330-143YZ			
40			330-040YZ	330-054YZ	330-079YZ	330-100YZ	330-124YZ				
45				330-055YZ	330-080YZ	330-101YZ	330-125YZ	330-145YZ	330-165YZ		
50				330-056YZ		330-102YZ	330-126YZ	330-146YZ		330-195YZ	
55									330-167YZ		
60				330-372YZ			330-128YZ	330-148YZ			
70							330-399YZ	330-406YZ			330-218YZ
75							330-492YZ				
100						330-394YZ			330-413YZ		
120						330-247YZ					
	Unit Package – 100				*Unit Package – 50*			*Unit Package – 25*			*U.P. – 10*

*Black Zinc Pltd.

Priced Singly

ASSORTMENT ASSORTIMENT 805-402

HEXAGON HEAD CAP SCREWS

Metric - Property Class 8.8

REGULAR COARSE THREAD

DIN 931 / DIN 933

Medium Carbon Steel, Quenched & Tempered

Zinc Plated

24 SIZES • 636 PIECES

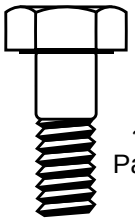
Sizes: M4 x 16 mm to M12 x 60 mm

Shipping Weight: 7.48 kg (16-1/2 lbs.)

Furnished in a REGULAR SIZE grey enamelled steel drawer, with hinged lid and scoop bins. Drawer will fit Slide Racks shown on page A2.

See page B192 and B196 for full line.

B



DIN 931
~ DIN EN ISO 4014
Partially Threaded

Property Class 8.8 – Plain Finish

Regular COARSE Metric Thread

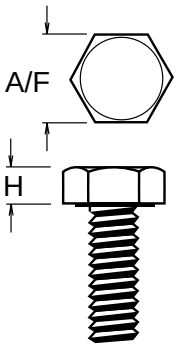
to DIN 13 (ISO Metric Spec.)

Carbon Steel, Quenched & Tempered

Dia. M3 - M16 Tensile Strength 800 N/mm² min. (Approx. 116,000 PSI - For Reference Only.)
Above M16 Tensile Strength 830 N/mm² min. (Approx. 120,000 PSI - For Reference Only.)

DIA. in mm	M2.5	M3	M4	M5	M6	M7	M8	M10	M12	M14
Pitch	0.45	0.50	0.70	0.80	1.00	1.00	1.25	1.50	1.75	2.00
Lgth. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
25			330-025							
30			330-026	330-591	330-598	330-605		*Unit Package – 50*		
35			330-027	330-592	330-599	330-606	330-245			
40			330-028	330-593	330-600	330-337	330-246	330-621		*U.P. – 25*
45			▲330-029	330-041	330-601	330-607	330-338	330-622	330-634	
48							330-611			
50			330-590	330-042	330-602	330-608	330-339	330-623	330-635	330-645
55				330-594	330-057	330-609	330-612	330-624	330-636	330-646
60				330-595	330-058	330-068	330-083	330-340	330-341	330-647
65				330-596	330-059		330-084	330-105	330-129	330-149
70				330-343	330-060	330-069	330-085	330-106	330-130	330-150
75					330-237		330-086	330-107	330-131	330-151
80				330-597	330-241		330-087	330-108	330-132	330-152
85							330-088	330-109	330-133	330-648
90					330-242		330-089	330-110	330-134	330-154
100	*Unit Package – 100*				330-243		330-090	330-111	330-135	330-155
110					330-603		330-613	330-625	330-637	330-649
120					330-604		330-091	330-112	330-136	330-156
130							330-614	330-626	330-638	330-650
140							330-615	330-113	330-137	330-157
150							330-616	330-627	330-639	330-651
160							330-617	330-114	330-138	330-158
180							330-618	330-628	330-336	330-652
200							330-619	330-115	330-139	330-159
220		*Priced Singly*						330-629	330-640	330-653
240									330-641	330-654
260								330-631	330-642	330-655
280								330-632	330-643	330-656
300								330-633	330-644	330-657

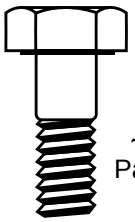
▲**330-233** Grade 5.6



HEAD DIMENSION CHART

DIMENSIONS
IN MILLIMETRES

DIA.	A/F	H	DIA.	A/F	H
M2.5	5	1.7	M14	21	8.8
M3	5.5	2	M16	24	10
M3.5	6	2.4	M18	27	11.5
M4	7	2.8	M20	30	12.5
M5	8	3.5	M22	34	14
M6	10	4	M24	36	15
M7	11	4.8	M27	41	17
M8	13	5.3	M30	46	18.7
M10	16	6.4	M33	50	21
M12	18	7.5	M36	55	22.5



DIN 931
~ DIN EN ISO 4014
Partially Threaded

Property Class 8.8 – Plain Finish

Regular COARSE Metric Thread

to DIN 13 (ISO Metric Spec.)

Carbon Steel, Quenched & Tempered

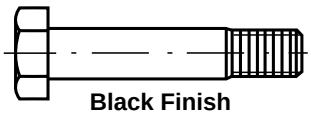
Dia. M3 - M16 Tensile Strength 800 N/mm² min. (Approx. 116,000 PSI - For Reference Only.)
Above M16 Tensile Strength 830 N/mm² min. (Approx. 120,000 PSI - For Reference Only.)

DIA. in mm	M16	M18	M20	M22	M24	M27	M30	M33	M36	Larger Diameters
Pitch	2.00	2.50	2.50	2.50	3.00	3.00	3.50	3.50	4.00	
Lgth. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
55	**330-658**	*Unit Package – 25*								
60	**330-659**			*Unit Package – 10*						
65	**330-169**	**330-344**	**330-198**				*Priced Singly*			
70	**330-170**	**330-185**	**330-199**	**330-212**						
75	**330-171**	**330-669**	**330-200**	**330-686**	**330-699**					
80	**330-172**	**330-186**	**330-201**	**330-213**	**330-219**	**330-224**				
85					**330-700**					**330-764**
90	**330-174**	**330-187**	**330-202**	**330-235**	**330-220**	**330-225**				**M42** x 4.50
100	**330-175**	**330-188**	**330-203**	**330-214**	**330-221**	**330-712**	**330-230**	**330-734**		x 120 mm
110	**330-660**	**330-670**	**330-679**	**330-687**	**330-701**	**330-713**	**330-723**	**330-735**	**330-748**	
120	**330-176**	**330-189**	**330-204**	**330-688**	**330-702**	**330-226**	**330-724**	**330-736**	**330-749**	
130	**330-661**	**330-671**	**330-680**	**330-689**	**330-703**	**330-714**	**330-725**	**330-737**	**330-750**	**330-765**
140	**330-177**	**330-190**	**330-205**	**330-215**	**330-222**	**330-227**	**330-231**	**330-738**	**330-751**	**M45** x 4.50
150	**330-662**	**330-672**	**330-236**	**330-244**	**330-704**	**330-715**	**330-726**	**330-739**	**330-752**	x 280 mm
160	**330-178**	**330-191**	**330-206**	**330-690**	**330-705**	**330-716**	**330-727**	**330-740**	**330-753**	
180	**330-663**	**330-673**	**330-681**	**330-691**	**330-706**	**330-717**	**330-728**	**330-741**	**330-754**	
200	**330-179**	**330-192**	**330-207**	**330-692**	**330-223**	**330-228**	**330-232**	**330-742**	**330-755**	**330-766**
220	**330-664**	**330-674**	**330-240**	**330-693**	**330-707**	**330-718**	**330-729**	**330-743**	**330-756**	**M48** x 5.00
240	**330-665**	**330-675**	**330-682**	**330-694**	**330-708**	**330-719**	**330-730**	**330-744**	**330-757**	x 160 mm
260	**330-666**	**330-676**	**330-683**	**330-695**	**330-709**	**330-720**	**330-731**	**330-745**	**330-758**	
280	**330-667**	**330-677**	**330-684**	**330-696**	**330-710**	**330-721**	**330-732**	**330-746**	**330-759**	
300	**330-668**	**330-678**	**330-685**	**330-697**	**330-711**	**330-722**	**330-733**	**330-747**	**330-760**	
320							**330-620**		**330-761**	
360									**330-762**	

DIN 7968

Hexagon Head Fitting Bolt

Property Class 10.9 Steel

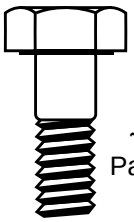


Black Finish

Priced Singly

SPAENAUR No.	Bolt Size	*SPAENAUR No.*	Bolt Size
332-308	M16 x 2.00 x 45 mm	**332-313**	M20 x 2.50 x 65 mm
332-307	M16 x 2.00 x 50 mm	**332-316**	M20 x 2.50 x 95 mm
332-311	M16 x 2.00 x 150 mm	**332-329**	M24 x 3.00 x 65 mm
332-312	M20 x 2.50 x 45 mm	**332-314**	M24 x 3.00 x 80 mm

B



DIN 931
~ DIN EN ISO 4014
Partially Threaded

Property Class 8.8 – Zinc Plated

Regular COARSE Metric Thread

to DIN 13 (ISO Metric Spec.)

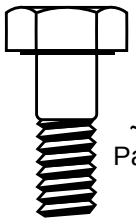
Carbon Steel, Quenched & Tempered

Dia. M3 - M16 Tensile Strength 800 N/mm² min. (Approx. 116,000 PSI - For Reference Only.)
Above M16 Tensile Strength 830 N/mm² min. (Approx. 120,000 PSI - For Reference Only.)

DIA. in mm	M2.5	M3	M4	M5	M6	M7	M8	M10	M12	M14
Pitch	0.45	0.50	0.70	0.80	1.00	1.00	1.25	1.50	1.75	2.00
Lgth. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
25			330-025ZP				*Unit Package – 50*			
30			330-026ZP							
35			330-027ZP	330-592ZP	330-599ZP		330-245ZP			*U.P. – 25*
40			330-028ZP	330-593ZP		330-337ZP	330-246ZP	330-621ZP		
45			330-029ZP	330-041ZP	330-601ZP	330-607ZP	330-338ZP	330-622ZP	330-634ZP	
50				330-042ZP		330-608ZP	330-339ZP	330-623ZP	330-635ZP	330-645ZP
55				330-594ZP	330-057ZP		330-612ZP	330-624ZP	330-636ZP	330-646ZP
60					330-058ZP	330-068ZP	330-083ZP	330-340ZP	330-341ZP	330-647ZP
65					330-059ZP		330-084ZP	330-105ZP	330-129ZP	330-149ZP
70				330-343ZP	330-060ZP	330-069ZP	330-085ZP	330-106ZP	330-130ZP	330-150ZP
75					330-237ZP		330-086ZP	330-107ZP	330-131ZP	330-151ZP
80	*Unit Package – 100*				330-241ZP		330-087ZP	330-108ZP	330-132ZP	330-152ZP
85							330-088ZP	330-109ZP	330-133ZP	330-648ZP
90					330-242ZP		330-089ZP	330-110ZP	330-134ZP	330-154ZP
100					330-243ZP		330-090ZP	330-111ZP	330-135ZP	330-155ZP
110								330-625ZP	330-637ZP	330-649ZP
120					330-604ZP		330-091ZP	330-112ZP	330-136ZP	330-156ZP
140								330-113ZP	330-137ZP	330-157ZP
150								330-627ZP		
160							330-617ZP	330-114ZP	330-138ZP	330-158ZP
180					*Priced Singly*				330-336ZP	
200							330-619ZP	330-115ZP	330-139ZP	330-159ZP

DIA. in mm	M16	M18	M20	M22	M24	M27	M30	M33	M36	
Pitch	2.00	2.50	2.50	2.50	3.00	3.00	3.50	3.50	4.00	
Lgth. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
60	330-659ZP	*Unit Package – 25*		*Unit Package – 10*						
65	330-169ZP		330-198ZP							
70	330-170ZP	330-185ZP	330-199ZP	330-212ZP						
75	330-171ZP	330-669ZP	330-200ZP							
80	330-172ZP	330-186ZP	330-201ZP	330-213ZP	330-219ZP	330-224ZP	330-229ZP			
90	330-174ZP	330-187ZP	330-202ZP	330-235ZP	330-220ZP	330-225ZP				
100	330-175ZP	330-188ZP	330-203ZP	330-214ZP	330-221ZP		330-230ZP			
110	330-660ZP		330-679ZP				330-723ZP			
120	330-176ZP	330-189ZP	330-204ZP			330-226ZP		*Priced Singly*		
130	330-661ZP									
140	330-177ZP	330-190ZP	330-205ZP	330-215ZP	330-222ZP	330-227ZP	330-231ZP			
150		330-672ZP	330-236ZP	330-244ZP	330-704ZP					
160	330-178ZP	330-191ZP	330-206ZP							
180	330-663ZP	330-673ZP	330-681ZP							
200	330-179ZP	330-192ZP	330-207ZP		330-223ZP	330-228ZP	330-232ZP			
220			330-240ZP							

CATALOG 13



Property Class 8.8 – Yellow Zinc Plated

DIN 931
~ DIN EN ISO 4014
Partially Threaded

Regular COARSE Metric Thread

to DIN 13 (ISO Metric Spec.)

Carbon Steel, Quenched & Tempered

Dia. M3 - M16 Tensile Strength 800 N/mm² min. (Approx. 116,000 PSI - For Reference Only.)
Above M16 Tensile Strength 830 N/mm² min. (Approx. 120,000 PSI - For Reference Only.)

DIA. in mm	M4	M5	M6	M7	M8	M10	M12	M14	M16	M20
Pitch	0.70	0.80	1.00	1.00	1.25	1.50	1.75	2.00	2.00	2.50
Lgth. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
35					330-245YZ					
45					330-338YZ		330-634YZ		*U.P. – 25*	
48					330-611YZ					
50		330-042YZ			330-339YZ	330-623YZ		330-645YZ		
55					330-612YZ	330-624YZ	330-636YZ		330-658YZ	
60					330-083YZ	330-340YZ		330-647YZ	330-659YZ	
65										330-198YZ
70		*Unit Package – 100*			330-085YZ	330-106YZ				330-199YZ
75					330-086YZ		330-131YZ			330-200YZ
80					330-087YZ		330-132YZ			
85					330-088YZ	*Unit Package – 50*				
90					330-089YZ				330-174YZ	
110						330-625YZ				
120					330-091YZ					
130									330-661YZ	
140							330-137YZ			
150							330-639YZ			330-236YZ
160			*Priced Singly*			330-114YZ			330-178YZ	
200										330-207YZ

B

DIN 961

Fully Threaded

Property Class 8.8 – Plain Finish

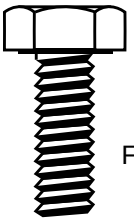
Metric FINE Thread

Medium Carbon Steel, Quenched & Tempered

Dia. M3 - M16 Tensile Strength 800 N/mm² min. (Approx. 116,000 PSI - For Reference Only.)
Above M16 Tensile Strength 830 N/mm² min. (Approx. 120,000 PSI - For Reference Only.)

DIA. in mm		M8	M10	M12	M14	M16	M18	M20	M22	M24
Lgth. mm	Pitch	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
10	1.00	330-555								
	1.25									
12	1.00	330-778								
16	1.00	330-250	330-558							
	1.25		330-563							
18	1.25		330-255							
20	1.00	330-251	330-559							
	1.25		330-256	330-261						
	1.50			330-566		330-572				
22	1.00	330-252								
	1.25		330-257							
25	1.00	330-253	330-560							
	1.25		330-258	330-262						
	1.50			330-567	330-266	330-573				
30	1.00	330-254	330-561							
	1.25		330-259	330-263						
	1.50			330-568	330-267	330-271	330-575	330-581		
35	1.00	330-556	330-562							
	1.25		330-260	330-264						
	1.50			330-569	330-268	330-272				
40	1.00	330-557	330-779							
	1.25		330-787	330-265						
	1.50			330-570	330-269	330-273	330-276	330-278		
45	1.25			330-565						
	1.50				330-270	330-274		330-279		
50	1.00		330-780							
	1.25		330-564	330-786						
	1.50			330-789	330-173	330-275	330-277	330-280	330-282	
	2.00							330-584		330-284
55	1.50					330-574	330-578	330-582		
60	1.50				330-785		330-579	330-281	330-283	
	2.00							330-585		330-285
65	1.50							330-583		
70	1.50						330-580			
	2.00									330-286
120	1.50				330-781					
		Unit Package – 50			*Unit Package – 25*					*U.P. – 10*

CATALOG 13



DIN 961

Fully Threaded

Property Class 8.8 – Zinc Plated

Metric FINE Thread

Medium Carbon Steel, Quenched & Tempered

Dia. M3 - M16 Tensile Strength 800 N/mm² min. (Approx. 116,000 PSI - For Reference Only.)
Above M16 Tensile Strength 830 N/mm² min. (Approx. 120,000 PSI - For Reference Only.)

DIA. in mm		M8	M10	M12	M14	M16	M18	M20	M22	M24
Lgth. mm	Pitch	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
16	1.00	**330-250ZP**								
	1.25		**330-563ZP**							
18	1.25		**330-255ZP**							
20	1.00	**330-251ZP**								
	1.25		**330-256ZP**	**330-261ZP**						
22	1.00	**330-252ZP**								
	1.25		**330-257ZP**							
25	1.00	**330-253ZP**								
	1.25		**330-258ZP**	**330-262ZP**						
	1.50				**330-266ZP**					
30	1.00	**330-254ZP**								
	1.25		**330-259ZP**	**330-263ZP**						
	1.50			**330-568ZP**	**330-267ZP**	**330-271ZP**		**■330-581YZ**		
35	1.00	**330-556ZP**								
	1.25		**330-260ZP**	**▲330-264ZP**						
	1.50				***330-268ZP**	**•330-272ZP**				
40	1.00	**330-557ZP**								
	1.25			**330-265ZP**						
	1.50				**330-269ZP**	**330-273ZP**	**330-276ZP**	**330-278ZP**		
45	1.50				**330-270ZP**	**330-274ZP**		**330-279ZP**		
50	1.25		**330-564ZP**							
	1.50				**■330-173YZ**	**330-275ZP**	**330-277ZP**	**330-280ZP**	**330-282ZP**	
	2.00									**330-284ZP**
60	1.50							**330-281ZP**	**330-283ZP**	
	2.00									**330-285ZP**
65	1.50									
70	2.00									**330-286ZP**
		Unit Package – 50			*Unit Package – 25*					*U.P. – 10*

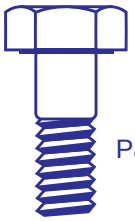
Priced Singly

*Priced Singly

*Priced Singly

*Priced Singly

B



DIN 960

Partially Threaded

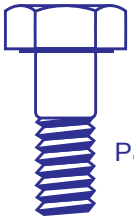
Property Class 8.8 – Plain Finish

Metric FINE Thread

Medium Carbon Steel, Quenched & Tempered

Dia. M3 - M16 Tensile Strength 800 N/mm² min. (Approx. 116,000 PSI - For Reference Only.)
Above M16 Tensile Strength 830 N/mm² min. (Approx. 120,000 PSI - For Reference Only.)

DIA. in mm		M8	M10	M12	M14	M16	M18	M20	M22	M24
Lgth. mm	Pitch	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
35	1.00	330-287								
40	1.00	330-288	330-498							
	1.25		330-295							
	1.50			330-782						
45	1.00	330-289	330-499							
	1.25		330-296	330-303			*Unit Package – 25*			
	1.50			330-516	330-783					
50	1.00	330-290	330-500							
	1.25		330-297	330-304						
	1.50			330-517	330-311				*Unit Package – 10*	
55	1.00	330-291	330-501							
	1.25		330-298	330-305						
	1.50			330-518	330-312	330-318				
60	1.00	330-292	330-502							
	1.25		330-299	330-306						
	1.50			330-519	330-313	330-319	330-324			
65	1.00	330-494	330-503							
	1.25		330-509	330-512						
	1.50			330-520	330-527	330-530	330-537	330-541		
70	1.00	330-293	330-504							
	1.25		330-300	330-307						
	1.50			330-521	330-314	330-320	330-325	330-329		
	2.00									
75	1.00	330-495	330-505							
	1.25		330-510	330-513						
	1.50			330-522	330-528	330-531	330-538	330-542		
80	1.00	330-294	330-506							
	1.25		330-301	330-308						
	1.50			330-523	330-315	330-321	330-326	330-330		
	2.00									330-333
90	1.00	330-496	330-507							
	1.25		330-511	330-514						
	1.50			330-524	330-529	330-532	330-539	330-543		
	2.00									330-553
100	1.00		330-508							
	1.25		330-302	330-309						
	1.50			330-526	330-316	330-322	330-327	330-331	330-550	
	2.00									330-334
110	1.25			330-515						
	1.50					330-533	330-540	330-544	330-551	
120	1.25			330-310						
	1.50				330-317	330-323	330-328	330-332		
	2.00	*Unit Package – 50*								330-335
130	1.50					330-534		330-545		
140	1.50					330-535		330-546		
150	1.50					330-536		330-547		
160	2.00			*Priced Singly*						330-824
180	1.50									
200	1.50									



DIN 960

Partially Threaded

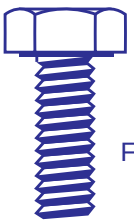
Property Class 8.8 – Zinc Plated

Metric FINE Thread

Medium Carbon Steel, Quenched & Tempered

Dia. M3 - M16 Tensile Strength 800 N/mm² min. (Approx. 116,000 PSI - For Reference Only.)
Above M16 Tensile Strength 830 N/mm² min. (Approx. 120,000 PSI - For Reference Only.)

DIA. in mm		M8	M10	M12	M14	M16	M18	M20	M22	M24
Lgth. mm	Pitch	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
16	1.00									
35	1.00	▲330-287ZP								
40	1.00	330-288ZP								
	1.25		330-295ZP							
	1.50									
45	1.00	330-289ZP						*Yellow Zinc		
	1.25		330-296ZP	330-303ZP				▲330-287YZ Yellow Zinc		
50	1.00	330-290ZP								
	1.25		330-297ZP	330-304ZP						
	1.50				330-311ZP					
55	1.00	330-291ZP								
	1.25		330-298ZP	330-305ZP						
	1.50				330-312ZP	330-318ZP				
60	1.00	330-292ZP								
	1.25		330-299ZP	330-306ZP						
	1.50				330-313ZP	330-319ZP	330-324ZP			
65	1.50					330-530ZP				
70	1.00	330-293ZP								
	1.25		330-300ZP	330-307ZP						
	1.50			*330-521YZ	330-314ZP	330-320ZP	330-325ZP	330-329ZP		
72	1.50			*330-382YZ						
75	1.00	330-495ZP	330-505ZP							
	1.25		330-510ZP							
	1.50			330-522ZP						
80	1.00	330-294ZP								
	1.25		330-301ZP	330-308ZP						
	1.50				330-315ZP	330-321ZP	330-326ZP	330-330ZP		
	2.00									330-333ZP
90	1.50				330-529ZP					
100	1.25		330-302ZP	330-309ZP						
	1.50				330-316ZP	330-322ZP	330-327ZP	330-331ZP		
	2.00									330-334ZP
120	1.25			330-310ZP						
	1.50				330-317ZP	330-323ZP	330-328ZP	330-332ZP		
	2.00									330-335ZP
		Unit Package – 50			*Unit Package – 25*				*Unit Package – 10*	



DIN 933

Fully Threaded to Head

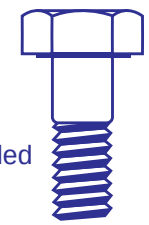
Property Class 9.8 – Plain Finish

Regular COARSE Metric Thread

to DIN 13 (ISO Metric Spec.)
Medium Carbon Steel, Quenched & Tempered
Tensile Strength 900 N/mm² min.
(Approx. 130,000 PSI - For Reference Only.)

DIN 931

Partially Threaded



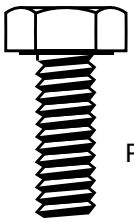
DIN 933

331-003	M8 x 1.25 x 12 mm
331-004	M8 x 1.25 x 20 mm
331-010	M10 x 1.50 x 35 mm

DIN 931

331-001	M6.3 x 1.00 x 40 mm	**331-007**	M8 x 1.25 x 45 mm
331-002	M6.3 x 1.00 x 45 mm	**331-008**	M10 x 1.50 x 25 mm
331-005	M8 x 1.25 x 22 mm	**331-009**	M10 x 1.50 x 45 mm
331-006	M8 x 1.25 x 35 mm		

Unit Package 50 (one number).



DIN 933
Fully Threaded

Property Class 10.9 – Plain Finish

Regular COARSE Metric Thread

to DIN 13 (ISO Metric Spec.)

Medium Carbon Steel, Quenched & Tempered

Tensile Strength 1040 N/mm² min. (Approx. 150,000 PSI - For Reference Only.)

Rockwell Hardness – Min. C32 Max. C39

DIA. in mm	M5	M6	M8	M10	M12	M14	M16	M20	M24	M30
Pitch	0.80	1.00	1.25	1.50	1.75	2.00	2.00	2.50	3.00	3.50
Length	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
10 mm		332-001								
12		332-002								
16		332-003	332-014	332-202						
18			332-302							
20		332-004	332-015	332-029	332-045					
23										
24										
25		332-005	332-016	332-030	332-046	332-061				
30		332-006	332-017	332-031	332-047	332-062	332-075			
35		332-007	332-205	332-032	332-048	332-063	332-076	332-211		
40		332-128	332-158	332-328	332-049	332-064	332-077	332-093		
45			332-206			332-065	332-078	332-094		
50			332-207	332-203		332-066	332-079	332-095	332-215	
55					332-226	332-067	332-080	332-096	332-216	
60						332-209		332-212	332-106	332-219
65							332-201	332-213	332-217	332-220
70									332-107	332-221
75									332-108	332-222
80								332-214	332-218	332-223
90										332-224
100										
110									332-126	
120									332-127	
	Unit Package – 100		*Unit Package – 50*			*Unit Package – 25*			*U.P. – 10*	*U.P. – 1*

DIN 933 Fully Threaded to Head

Property Class 10.9 – Zinc Plated

Regular COARSE Metric Thread

SPAENAUR No.	Dia. x Pitch x Length	U.P.Q.	*SPAENAUR No.*	Dia. x Pitch x Length	U.P.Q.
332-003ZP	M6 x 1.00 x 16 mm	100	**332-077ZP**	M16 x 2.00 x 40 mm	25
332-005ZP	M6 x 1.00 x 25 mm	100	**332-225ZP**	M16 x 2.00 x 70 mm	25
332-015ZP	M8 x 1.25 x 20 mm	50	**332-212ZP**	M20 x 2.50 x 60 mm	25
332-017ZP	M8 x 1.25 x 30 mm	50	**332-215ZP**	M24 x 3.00 x 50 mm	10
332-031ZP	M10 x 1.50 x 30 mm	50	**332-107ZP**	M24 x 3.00 x 70 mm	10
332-045ZP	M12 x 1.75 x 20 mm	50			
332-210ZP	M16 x 2.00 x 25 mm	25			

ASSORTMENT
ASSORTIMENT
805-472

Priced Singly

Metric HEXAGON HEAD CAP SCREWS

Property Class 10.9 Regular COARSE Thread

DIN 933 / DIN 931

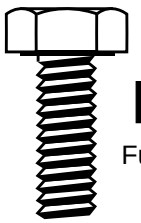
Medium Carbon Steel, Quenched & Tempered
Zinc Plated and Dichromate Dipped (Gold Colour)

24 SIZES — 550 PIECES

Diameters M6 to M12

Furnished in a regular size grey enamelled steel drawer, with hinged lid and scoop bins.
Drawer will fit slide racks shown on page A2.
See pages B203 and B205 for full line. Shipping Weight: 10.2 kg (22-1/2 lbs.)

CATALOG 13



DIN 933

Fully Threaded

Property Class 10.9 – Yellow Zinc Plated

Regular COARSE Metric Thread

to DIN 13 (ISO Metric Spec.)

Medium Carbon Steel, Quenched & Tempered

Tensile Strength 1040 N/mm² min. (Approx. 150,000 PSI - For Reference Only.)

Rockwell Hardness – Min. C32 Max. C39

DIA. in mm	M5	M6	M8	M10	M12	M14	M16	M20	M24	M30
Pitch	0.80	1.00	1.25	1.50	1.75	2.00	2.00	2.50	3.00	3.50
Length	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
10 mm		332-001YZ								
12		332-002YZ								
16		332-003YZ	332-014YZ							
18			332-302YZ							
20		332-004YZ	332-015YZ	332-029YZ	332-045YZ					
24				332-122YZ						
25		332-005YZ	332-016YZ	332-030YZ	332-046YZ	332-061YZ				
30		332-006YZ	332-017YZ	332-031YZ	332-047YZ		332-075YZ			
35		332-007YZ	332-205YZ	332-032YZ	332-048YZ	332-063YZ	332-076YZ			
40					332-049YZ	332-064YZ	332-077YZ	332-093YZ		
45			332-206YZ			332-065YZ	332-078YZ	332-094YZ		
50			332-207YZ			332-066YZ	332-079YZ	332-095YZ		
55					332-226YZ	332-067YZ	332-080YZ	332-096YZ		
60								332-212YZ	332-106YZ	
65							332-201YZ			
70									332-107YZ	
	Unit Package – 100		*Unit Package – 50*			*Unit Package – 25*			*U.P. – 10*	*U.P. – 1*

High-strength Hex Head Bolts

DIN 6914

Partially Threaded

with large width across flats for structural steel bolting

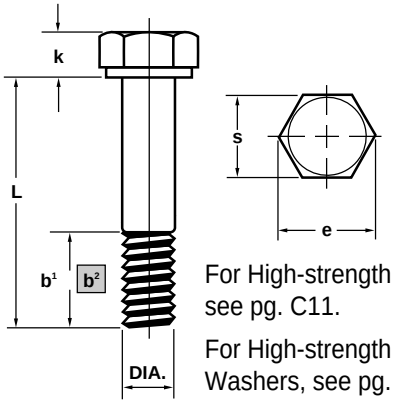
Property Class 10.9

Plain Finish

Regular COARSE Metric Thread

Tensile Strength 1040 N/mm² min.

(Approx. 150,000 PSI - For Reference Only.)

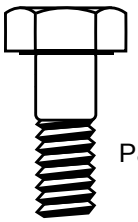


For High-strength Nuts, see pg. C11.

For High-strength Washers, see pg. D18.

DIA. in mm	M16	M20	M22	M24	M27	M30
Pitch	2.00	2.50	2.50	3.00	3.00	3.50
b¹	26	31	32	34	37	40
b²	28	33	34	37	39	42
e min.	29.56	35.03	39.55	45.2	50.85	55.37
k	10	13	14	15	17	19
s	27	32	36	41	46	50
Proof Load (N)	130,000	203,000	252,000	293,000	381,000	466,000
Length	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW					
45 mm	332-125		*Unit Package – 10*			
50	332-130	332-136				
55		332-137				
60		332-138		332-147		
70	332-131	332-139				
75		332-140				
80	332-132				332-152	
85		332-141				
90	332-133				*Priced Singly*	
95		332-142				
100		332-143				332-153
120		332-144		332-148		
140		332-145		332-149		332-154
150	*Unit Package – 25*			332-150		
160	332-134					
180	332-135					
200			332-146			
250				332-151		

B



DIN 931

Partially Threaded

Property Class 10.9 – Plain Finish

Regular COARSE Metric Thread

to DIN 13 (ISO Metric Spec.)

Medium Carbon Steel, Quenched & Tempered

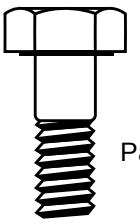
Tensile Strength 1040 N/mm² min. (Approx. 150,000 PSI - For Reference Only.)

Rockwell Hardness Min. C32 Max. C39

DIA. in mm	M6	M8	M10	M12	M14	M16	M20	M24	M30	M33
Pitch	1.00	1.25	1.50	1.75	2.00	2.00	2.50	3.00	3.50	3.50
Lgth. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
27										
30	332-228		*Unit Package – 50*		*Unit Package – 25*			*U.P.– 10*		
35	332-229	332-018								
40	332-008	332-019	332-033							
45	332-009	332-020	332-034	332-050						
50	332-010	332-021	332-035	332-051	332-246					
55	332-011	332-022	332-036	332-052	332-247	332-256				
60	332-012	332-023	332-037	332-053	332-068	332-081	332-097			
65		332-231	332-123	332-239	332-069	332-082	332-098			
70	332-013	332-024	332-038	332-054	332-070	332-083	332-099			
75		332-232	332-235	332-240	332-071	332-084	332-100	332-269		
80	332-230	332-025	332-039	332-055	332-072	332-085	332-112	332-270		
90		332-026	332-040	332-056	332-073	332-086	332-101	332-109	332-113	
100		332-027	332-041	332-057	332-074	332-087	332-102	332-204	332-114	
110	*Unit Package 100*	332-300	332-236	332-241	332-248	332-257	332-263	332-272	332-284	
120		332-233	332-042	332-058	332-249	332-088	332-103	332-273	332-115	332-290
125										
130			332-238	332-242	332-250	332-258	332-264	332-274	332-299	
140		332-234	332-043	332-059	332-251	332-089	332-104	332-275	332-285	
150			332-044	332-060	332-252	332-090	332-105	332-276	332-116	
160				332-243	332-253	332-227	332-265	332-277	332-286	
180				332-244	332-254	332-260	332-266	332-278	332-287	
200				332-245	332-255	332-118	332-119	332-120	332-117	
220						332-261	332-267	332-279	332-288	332-291
230										332-292
240						332-262	332-268	332-280	332-289	
260							332-318	332-281		
280							332-319			
300							332-315	332-282		
320										332-293
480					*Priced Singly*					332-294
500										332-295
540										332-317

Additional sizes available of DIN 931

332-296	M36 x 4.00 x 110 mm
332-297	M36 x 4.00 x 200 mm
332-298	M42 x 4.50 x 160 mm



DIN 931

Partially Threaded

Property Class 10.9 – Zinc Plated

Regular COARSE Metric Thread

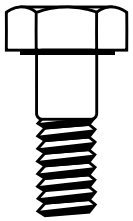
to DIN 13 (ISO Metric Spec.)

Medium Carbon Steel, Quenched & Tempered

Tensile Strength 1040 N/mm² min. (Approx. 150,000 PSI - For Reference Only.)

Rockwell Hardness Min. C32 Max. C39

SPAENAUR No.	Dia. x Pitch x Length	U.P.Q.	*SPAENAUR No.*	Dia. x Pitch x Length	U.P.Q.
332-020ZP	M8 x 1.25 x 45 mm	100	**332-053ZP**	M12 x 1.75 x 60 mm	50
332-021ZP	M8 x 1.25 x 50 mm	100	**332-239ZP**	M12 x 1.75 x 65 mm	50
332-234ZP	M8 x 1.25 x 140 mm	50	**332-098ZP**	M20 x 2.50 x 65 mm	25
332-040ZP	M10 x 1.50 x 90 mm	50	**332-204ZP**	M24 x 3.00 x 100 mm	10
332-042ZP	M10 x 1.50 x 120 mm	50	**332-275ZP**	M24 x 3.00 x 140 mm	10
332-238ZP	M10 x 1.50 x 130 mm	50	**332-117ZP**	M30 x 3.50 x 200 mm	1
332-051ZP	M12 x 1.75 x 50 mm	50			
332-052ZP	M12 x 1.75 x 55 mm	50			



Property Class 10.9 – Yellow Zinc Plated

DIN 931

Partially Threaded

Regular COARSE Metric Thread

to DIN 13 (ISO Metric Spec.)

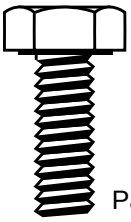
Medium Carbon Steel, Quenched & Tempered

Tensile Strength 1040 N/mm² min. (Approx. 150,000 PSI - For Reference Only.)

Rockwell Hardness Min. C32 Max. C39

DIA. in mm	M5	M6	M8	M10	M12	M14	M16	M20	M24	M30
Pitch	0.80	1.00	1.25	1.50	1.75	2.00	2.00	2.50	3.00	3.50
Lgth. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
35			332-018YZ	Unit Package – 50		Unit Package – 25				
40		332-008YZ	332-019YZ	332-033YZ					U.P. – 10	
45		332-009YZ	332-020YZ	332-034YZ	332-050YZ					
50		332-010YZ	332-021YZ	332-035YZ	332-051YZ					
55		332-011YZ	332-022YZ	332-036YZ	332-052YZ					Priced Singly
60		332-012YZ	332-023YZ	332-037YZ	332-053YZ	332-068YZ	332-081YZ	332-097YZ		
65				332-123YZ		332-069YZ	332-082YZ	332-098YZ		
70		332-013YZ	332-024YZ	332-038YZ	332-054YZ	332-070YZ	332-083YZ	332-099YZ		
75	Unit Package –100					332-071YZ	332-084YZ	332-100YZ		332-121YZ
80			332-025YZ	332-039YZ	332-055YZ	332-072YZ	332-085YZ	332-112YZ		
90			332-026YZ	332-040YZ	332-056YZ	332-073YZ	332-086YZ	332-101YZ	332-109YZ	332-113YZ
100			332-027YZ	332-041YZ	332-057YZ	332-074YZ	332-087YZ	332-102YZ		332-114YZ
110										
120				332-042YZ	†332-058YZ		332-088YZ	332-103YZ		332-115YZ
140				332-043YZ	▲332-059YZ		332-089YZ	332-104YZ		
150				332-044YZ	332-060YZ		332-090YZ	332-105YZ		332-116YZ
200							332-118YZ	332-119YZ	332-120YZ	332-117YZ

†**332-159YZ** Property Class 12.9 ▲ Head height not to DIN



DIN 961

Fully Threaded

*** DIN 960**

Partially Threaded

Property Class 10.9

Available Finishes: Plain, Zinc Plated, & Yellow Zinc Plated

Metric FINE Thread

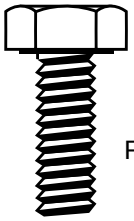
Medium Carbon Steel, Quenched & Tempered

Rockwell Hardness Min. C32 Max. C39

SPAENAUR No.	Dia. x Pitch x Length	U.P.Q.
	PLAIN FINISH	
332-306	M10 x 1.00 x 25 mm	25
332-303	M12 x 1.50 x 25 mm	50
332-259	M12 x 1.50 x 30 mm	50
332-200	M12 x 1.50 x 35 mm	50
***332-111**	M12 x 1.50 x 80 mm	50
332-304	M14 x 1.50 x 30 mm	25
332-301	M14 x 1.50 x 40 mm	25
332-305	M14 x 1.50 x 50 mm	25
***332-309**	M16 x 1.50 x 100 mm	25
***332-124**	M20 x 1.50 x 100 mm	25

SPAENAUR No.	Dia. x Pitch x Length	U.P.Q.
	ZINC PLATED	
332-303ZP	M12 x 1.50 x 25 mm	50
	YELLOW ZINC PLATED	
332-303YZ	M12 x 1.50 x 25 mm	50
332-200YZ	M12 x 1.50 x 35 mm	50

B



DIN 933

Fully Threaded

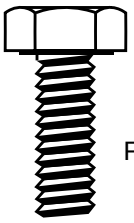
A2 Stainless Steel

Regular COARSE Metric Thread

to DIN 13 (ISO Metric Spec.)

DIA. in mm	M3	M4	M5	M6	M8	M10	M12	M14	M16	M20
Pitch	0.50	0.70	0.80	1.00	1.25	1.50	1.75	2.00	2.00	2.50
Lgth. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
5	344-118									
6	344-284	344-125	344-131							
8	344-114	344-126	344-007	344-132						
10	344-119	344-001	344-008	344-014	344-024					
12	344-120	344-002	344-009	344-015	344-025					
16	344-121	344-003	344-010	344-016	344-026	344-035				
18		344-127								
20	344-122	344-004	344-011	344-017	344-027	344-036	344-045	344-155	344-139	
25	344-123	344-005	344-012	344-018	344-028	344-037	344-046	344-055	344-059	
30	344-124	344-006	344-013	344-019	344-029	344-038	344-047	344-056	344-060	344-068
35	344-152	344-128	344-151	344-020	344-030	344-039	344-048	344-136	344-061	344-069
40	344-153	344-129	344-282	344-021	344-031	344-040	344-049	344-057	344-062	344-070
45		344-130		344-022	344-032	344-041	344-050	344-156	344-063	344-071
50		344-154	344-283	344-023	344-033	344-042	344-051	344-058	344-064	344-072
55								344-137	344-157	344-142
60			344-321	344-133	344-034	344-043	344-052	344-138	344-065	344-073
65										344-143
70					344-117		344-053		344-066	344-074
80						344-044	344-054		344-067	344-075
85										344-287
90						344-134	344-323		344-140	344-144
100						344-135			344-141	344-145
120										344-324
	Unit Package – 50						*Unit Package – 20*			*U.P. – 10*

DIA. in mm	M24	M30
Pitch	3.00	3.50
Lgth. mm	*SPAENAUR No.*	
50	344-076	
55	344-158	
60	344-077	344-159
65	344-146	
70	344-078	344-280
80	344-079	344-148
90	344-147	344-149
100		344-281
110	344-288	344-150
	U.P. – 10	*U.P. – 1*



DIN 933

Fully Threaded to Head

A4 Stainless Steel

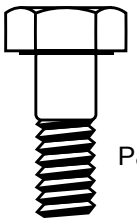
Regular COARSE Metric Thread

to DIN 13 (ISO Metric Spec.)

344-289	M4 x 0.70 x 12 mm	**344-167**	M10 x 1.50 x 25 mm	**344-313**	M14 x 2.00 x 40 mm
344-160	M6 x 1.00 x 16 mm	**344-168**	M10 x 1.50 x 30 mm	**344-312**	M14 x 2.00 x 50 mm
344-161	M6 x 1.00 x 20 mm	**344-169**	M10 x 1.50 x 35 mm	**344-315**	M16 x 2.00 x 20 mm
344-292	M6 x 1.00 x 30 mm	**344-170**	M10 x 1.50 x 40 mm	**344-173**	M16 x 2.00 x 30 mm
344-162	M8 x 1.25 x 16 mm	**344-171**	M10 x 1.50 x 65 mm	**344-174**	M16 x 2.00 x 40 mm
344-295	M8 x 1.25 x 20 mm	**344-307**	M12 x 1.75 x 20 mm	**344-175**	M16 x 2.00 x 45 mm
344-291	M8 x 1.25 x 25 mm	**344-308**	M12 x 1.75 x 25 mm	**344-316**	M16 x 2.00 x 55 mm
344-163	M8 x 1.25 x 30 mm	**344-172**	M12 x 1.75 x 35 mm	**344-317**	M16 x 2.00 x 60 mm
344-164	M8 x 1.25 x 40 mm	**344-290**	M12 x 1.75 x 40 mm	**344-298**	M20 x 2.00 x 100 mm
344-165	M8 x 1.25 x 60 mm	**344-309**	M12 x 1.75 x 55 mm	**344-318**	M24 x 3.00 x 50 mm
344-320	M8 x 1.25 x 70 mm	**344-311**	M14 x 2.00 x 20 mm	**344-176**	M24 x 3.00 x 55 mm
344-166	M8 x 1.25 x 80 mm	**344-310**	M14 x 2.00 x 30 mm	**344-177**	M24 x 3.00 x 65 mm
344-297	M10 x 1.50 x 20 mm	**344-314**	M14 x 2.00 x 35 mm		

M4 to M10 – Unit Package 50 M12 to M16 – Unit Package 20 M20 to M24 – Unit Package 10

CATALOG 13



DIN 931

Partially Threaded

A2 Stainless Steel

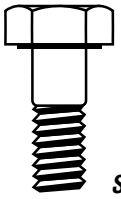
Regular COARSE Metric Thread

to DIN 13 (ISO Metric Spec.)

DIA. in mm	M5	M6	M8	M10	M12	M14	M16	M20	M24	M30
Pitch	0.80	1.00	1.25	1.50	1.75	2.00	2.00	2.50	3.00	3.50
Lgth. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
30			*Unit Package – 50*							
35	344-181	344-185			*Unit Package – 20*					
40	344-080	344-186	344-201	344-214						
45	344-182	344-081	344-202	344-215						
50	344-183	344-082	344-084	344-216	344-228	344-240				
55	344-184	344-187	344-203	344-217	344-229	344-241	344-285	*Unit Package – 10*		
60	344-116	344-083	344-085	344-089	344-230	344-242	344-250			
65		344-188	344-204	344-218	344-231	344-243	344-251			
70		344-189	344-205	344-090	344-094	344-244	344-099	344-258		
75		344-190	344-206	344-219	344-232			344-286		
80		344-191	344-086	344-091	344-095	344-245	344-100	344-105	344-110	
90		344-115	344-087	344-092	344-096	344-246	344-101	344-106	344-111	
100		344-192	344-088	344-093	344-097	344-247	344-102	344-107	344-112	
110		344-193	344-207	344-220	344-233	344-248	344-103	344-108	344-265	344-272
120		344-194	344-208	344-221	344-098	344-249	344-104	344-109	344-113	344-273
130		344-195	344-209	344-222	344-234		344-252	344-259	344-266	
140		344-196	344-210	344-223	344-235		344-253	344-260	344-267	344-274
150		344-197	344-211	344-224	344-236		344-254	344-261	344-268	344-276
160		344-198	344-212	344-225	344-237		344-255	344-262	344-269	344-277
180		344-199	344-213	344-226	344-238		344-256	344-263	344-270	344-278
200		344-200	344-275	344-227	344-239		344-257	344-264	344-271	344-279
					Priced Singly					

Additional Sizes available of DIN 931

344-178 M4 x 0.70 x 30 mm *(U.P.Q.50)*
344-179 M4 x 0.70 x 50 mm *(U.P.Q. 50)*
344-180 M4 x 0.70 x 60 mm *(U.P.Q. 50)*



DIN 931

Partially Threaded

A4 Stainless Steel

Regular COARSE Metric Thread

to DIN 13 (ISO Metric Spec.)

SPAENAUR No.	Dia. x Pitch x Length	U.P.Q.	*SPAENAUR No.*	Dia. x Pitch x Length	U.P.Q.
344-294	M6 x 1.00 x 40 mm	50	344-319	M12 x 1.75 x 100 mm	20
344-293	M6 x 1.00 x 80 mm	50	344-322	M12 x 1.75 x 180 mm	1
344-300	M6 x 1.00 x 100 mm	50	344-303	M14 x 2.00 x 60 mm	20
344-299	M8 x 1.25 x 80 mm	50	344-304	M14 x 2.00 x 80 mm	20
344-296	M8 x 1.25 x 100 mm	50	344-305	M14 x 2.00 x 120 mm	20
344-306	M10 x 1.50 x 80 mm	50	344-301	M20 x 2.50 x 100 mm	10
344-302	M10 x 1.50 x 100 mm	50	344-325	M36 x 4.00 x 160 mm	1

Priced Singly

Furnished in Regular Size grey enamelled steel drawer.

Shipping Wt: 4.31kg (9-1/2 lbs.)

ASSORTMENT / ASSORTIMENT 805-434

HEXAGON HEAD CAP SCREWS

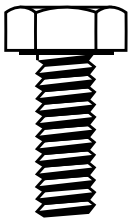
A2 STAINLESS STEEL

Regular COARSE Metric Thread

DIN 933 (Fully Threaded) Diameters M4 to M16

24 SIZES — 180 PIECES

B



BRASS – Plain

DIN 933

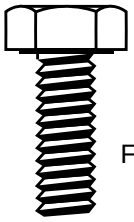
Fully Threaded

Regular COARSE Metric Thread

to DIN 13 (ISO Metric Spec.)

* **335-010NP** Nickel Plated
▲**335-039NP** Nickel Plated
■**335-040NP** Nickel Plated
• **335-108** DIN 931 Partial Thread

DIA. in mm	M3	M4	M5	M6	M8	M10	M12	M14	M16	M20
Pitch	0.50	0.70	0.80	1.00	1.25	1.50	1.75	2.00	2.00	2.50
Lgth. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
5	335-085									
6	335-086	335-094								
8	335-087	335-095	335-105							
10	335-088	335-096	335-001	335-009	335-044					
12	335-089	335-097	335-002	*335-010	335-019					
16	335-090	335-098	335-003	335-011	335-021	335-028	335-050			
20	335-091	335-099	335-004	335-012	335-022	335-029	335-051		335-059	
25	335-092	335-100	335-005	335-013	335-023	335-030	335-052	▲335-039	335-060	
30	335-093	335-101	335-006	335-014	335-024	335-031	335-036		335-061	335-072
35		335-102	335-007	335-015	335-025	335-048	335-053		335-062	335-073
40		335-103	335-008	335-016	335-026	335-032	335-054	■335-040	335-063	335-074
45			335-106	335-017					335-064	335-075
50		335-104	335-107	335-018	335-027	335-033	335-037		335-041	335-076
55									335-065	335-077
60				335-043	335-045	335-034	335-038		335-042	335-078
65									335-066	335-079
70					335-046	335-035	335-055		335-067	335-080
75									335-068	335-081
80					335-047	335-049	335-056		•335-069	335-082
90							335-057		335-070	335-083
100							335-058		335-071	335-084
	Unit Package – 100				*Unit Package – 50*			*Unit Package – 25*		*U.P. – 10*



ALUMINUM

DIN 933

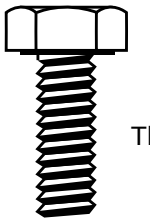
Fully Threaded

Regular COARSE Metric Thread

to DIN 13 (ISO Metric Spec.)

DIA. in mm	M2.5	M3	M4	M5	M6	M7	M8	M10	M12	M14
Pitch	0.45	0.50	0.70	0.80	1.00	1.00	1.25	1.50	1.75	2.00
Lgth. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
12					350-001					
16					350-002		350-006			
20					350-003		350-013	350-009		
25					350-012	*Unit Pkg. 50*	350-007			
30					350-004		350-014		*Unit Pkg. – 5*	
35							350-008	350-010		
40	*Unit Package – 100*				350-005					
50							350-015	350-011		
60									350-016	

CATALOG 13



Fully Threaded

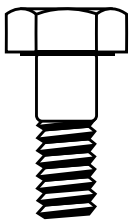
NYLON (Polyamid 6/6)

Regular COARSE Metric Thread

Natural Colour

Note: We reserve the option to ship either fully or partially threaded, as available at time of shipment.

Partially Threaded



B

DIA. in mm	M3	M4	M5	M6	M7	M8	M10	M12	M14	M16
Pitch	0.50	0.70	0.80	1.00	1.00	1.25	1.50	1.75	2.00	2.00
Lgth. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
4	353-034									
5	353-001			*Unit Package – 100*						
6	353-035	353-004	353-043	353-050						
6.5										
8	353-002	353-040	353-044	353-052						
10	353-036	353-005	353-045	353-053		353-062				
12	353-003	353-041	353-010	353-054						
15										
16	353-037	353-006	353-046	353-032		353-031				353-083
18		353-087								
20	353-038	353-007	353-011	353-055		353-016	353-071			
25	353-039	353-042	353-047	353-014		353-063	353-020	353-024		
30		353-008	353-012	353-056		353-017	353-072	353-025		353-084
35				353-015		353-033	353-021			
40		*353-009	353-048	353-057		353-018		353-078		
45							353-022			
50			353-049	353-058		353-019	353-073	353-026		353-028
60				353-059		353-064	353-023	353-079		353-029
65										
70							353-074	353-027		353-030
80				353-060		353-066	353-075	353-080		
85										
90								353-081		
100				353-061		353-068				
125						353-069		353-082		
150							▲353-077			
	Unit Package – 50									*U.P. – 25*

***353-086 DIN 933**

▲**353-088** Slotted Head

Priced Singly

Furnished in REGULAR SIZE grey enamelled steel drawer.

Drawer will fit into Slide Racks shown on page A2.

Shipping Weight: 2.2 kg (4.85 lbs.)

ASSORTMENT **805-432**
ASSORTIMENT

HEXAGON HEAD CAP SCREWS

NYLON (Polyamid 6.6)

Regular COARSE Metric Thread

Full and Partial Thread Diameters M3 to M16

24 SIZES • 164 PIECES

SOCKET HEAD CAP SCREWS - TORQUE DATA - 1960 SERIES

B

TORQUE-TENSION — TIGHTENING TORQUE DATA

NOMINAL SIZE	BASIC SCREW DIAMETER	TENSION INDUCED IN SCREWS TORQUED AS RECOMMENDED (LBS.)		RECOMMENDED TIGHTENING TORQUE (INCH/LBS.)*	
		UNRC	**UNRF**	**UNRC**	**UNRF**
0	0.0600	–	190	–	2.6
1	0.0730	280	290	4.5	4.8
2	0.0860	390	410	7.5	8.0
3	0.0990	510	550	11.0	12.0
4	0.1120	630	690	16.0	18.0
5	0.1250	830	870	24.0	24.0
6	0.1380	950	1,070	30.0	34.0
8	0.1640	1,460	1,550	55.0	58.0
10	0.1900	1,840	2,100	79.0	90.0
1/4"	0.2500	3,530	4,040	200.0	230.0
5/16"	0.3125	5,820	6,450	415.0	460.0
3/8"	0.3750	8,620	9,770	740.0	845.0
7/16"	0.4375	11,830	13,180	1,190.0	1,305.0
1/2"	0.500	15,760	17,800	1,800.0	2,065.0
5/8"	0.6250	23,740	26,890	3,400.0	3,800.0
3/4"	0.7500	35,080	39,150	6,000.0	6,750.0
7/8"	0.8750	41,590	45,830	8,250.0	9,200.0
1"	1.0000	54,350	59,662	12,500.0	13,000.0
1-1/4"	1.2500	87,225	96,600	25,000.0	27,750.0
1-1/2"	1.5000	126,450	142,280	45,500.0	49,000.0

*These tightening torque values are 75% of the torque required to yield the screw, and apply only for the conditions listed below.
Different percentages of torque-to-yield values are also commonly used for special conditions.

NOTES FOR CHART

These are average values for standard Holo-Krome 1960 Series Alloy Steel Socket Cap Screws with black finish, tested with hardened steel plates, and hardened nuts with the threads and bearing areas lubricated with plain, medium viscosity machine oil.

The relationship between the torque and the induced tension (preload) can be expressed by the empirical formula T= KDP, in which T is the tightening torque in inch pounds; D is the nominal diameter of the screw; P is the tension (in pounds) induced in the screw; and K is the torque coefficient. The torque coefficient is not constant but varies with the material, surface finish and lubricity of the threads and head bearing area of the screws and parts fastened.

For the conditions shown above (standard alloy steel black finished screws clamping hardened steel parts), K will range from 0.19 to 0.25. For cadmium plated screws with steel parts, K will usually fall between 0.13 and 0.17. For zinc plated screws K may fall between 0.30 and 0.34. When the thread and head bearing surfaces are covered with certain types of lubricants, or with anti-seize compounds, K can drop as low as 0.05. At the other extreme, combinations of certain materials, such as austenitic stainless steel screws and parts not lubricated or coated, can result in K values as high as 0.35, or more.

Because the induced tension can vary considerably from one type of assembly to another for any given torque, the above data should be used with caution – particularly in applications where the control of preload is critical and must be obtained by the torque wrench method. For such applications, the relationship between torque and induced tension should be determined experimentally for the actual parts and lubrication practice involved.

TIGHTENING TORQUES. At the tightening torques listed standard Holo-Krome alloy steel 1960 Series screws, used under the conditions described, will be preloaded to approximately 75% of the tension induced at yield. The bearing stress under the head at these preloads will be approximately 80,000 psi, so indentation should not occur when the parts clamped are of steel or cast iron with a hardness equal to or in excess of Rockwell B 85. With softer materials, washers may be required under the heads of the screws to avoid indentation.

In applications where screws are subject to fatigue from dynamic loading, the importance of proper preloading during assembly cannot be overemphasized. The proper preload is especially important for rigid-type (metal-to-metal) joints, where it has been found that the use of a preload greater than the external load will usually eliminate the possibility of fatigue failure. For this reason, the preferred practice for such assemblies is to preload to 75% of the induced tension at yield.

FOR FLEXIBLE TYPE JOINTS, HOWEVER, AND FOR ASSEMBLIES EXPOSED TO ELEVATED TEMPERATURES, MUCH LOWER PRELOADS MAY BE REQUIRED. No general recommendations are possible for such assemblies or service conditions. Each application must be analysed individually, because the preload requirements may vary considerably from one application to another. Users who desire suggestions for the preload or tightening torque to be used for a specific application are invited to contact your Spaenaur Sales Representative.

B

Socket Head Cap Screws

UNRC COARSE THREAD SERIES - 1960 SERIES

HEAT TREATED ALLOY STEEL • UNIFIED 3A THREAD FIT
MEETS ASME/ANSI B18.3 AND ASTM A574

For Thread Lengths see chart on page B218.

Sold in full packages only.

DIA., Threads per Inch and Key Size	LGTH. Under Head	*SPAENAUR No.*	Unit Pkg. Qty.
#2 - 56	3/16"	**HK358-001**	100
	1/4"	**HK358-002**	100
	3/8"	**HK358-003**	100
5/64" Key	1/2"	**HK358-004**	100
#3 - 48	3/16"	**HK358-005**	100
	1/4"	**HK358-006**	100
	3/8"	**HK358-007**	100
5/64" Key	1/2"	**HK358-008**	100
#4 - 40	3/16"	**HK358-632**	100
	1/4"	**HK358-009**	100
	5/16"	**HK358-633**	100
3/32" Key	3/8"	**HK358-010**	100
	1/2"	**HK358-011**	100
	5/8"	**HK358-012**	100
	3/4"	**HK358-013**	100
	7/8"	**HK358-634**	100
	1"	**HK358-014**	100
	1-1/4"	**HK358-635**	100
#5 - 40	1/4"	**HK358-015**	100
	5/16"	**HK358-636**	100
	3/8"	**HK358-016**	100
3/32" Key	1/2"	**HK358-017**	100
	5/8"	**HK358-018**	100
	3/4"	**HK358-019**	100
	1"	**HK358-637**	100
#6 - 32	1/4"	**HK358-020**	100
	5/16"	**HK358-638**	100
	3/8"	**HK358-021**	100
7/64" Key	1/2"	**HK358-022**	100
	5/8"	**HK358-023**	100
	3/4"	**HK358-024**	100
	7/8"	**HK358-025**	100
	1"	**HK358-026**	100
	1-1/4"	**HK358-027**	100
	1-1/2"	**HK358-028**	100
	1-3/4"	**HK358-639**	100
	2"	**HK358-640**	100
#8 - 32	1/4"	**HK358-029**	100
	5/16"	**HK358-641**	100
	3/8"	**HK358-030**	100
9/64" Key	1/2"	**HK358-031**	100
	5/8"	**HK358-032**	100
	3/4"	**HK358-033**	100
	7/8"	**HK358-034**	100
	1"	**HK358-035**	100
	1-1/4"	**HK358-036**	100
	1-1/2"	**HK358-037**	100
	1-3/4"	**HK358-642**	100
	2"	**HK358-643**	100
	2-1/2"	**HK358-644**	100
#10 - 24	1/4"	**HK358-645**	100
	3/8"	**HK358-038**	100
	1/2"	**HK358-039**	100
5/32" Key	5/8"	**HK358-040**	100
	3/4"	**HK358-041**	100
	7/8"	**HK358-042**	100
	1"	**HK358-043**	100
	1-1/4"	**HK358-044**	100
	1-1/2"	**HK358-045**	100
	1-3/4"	**HK358-046**	100
	2"	**HK358-047**	100
	2-1/4"	**HK358-048**	100
	2-1/2"	**HK358-049**	100
	2-3/4"	**HK358-646**	100
	3"	**HK358-647**	100
1/4"- 20	1/4"	**HK358-648**	100
	3/8"	**HK358-050**	100
	1/2"	**HK358-051**	100
3/16" Key	5/8"	**HK358-052**	100
	3/4"	**HK358-053**	100
	7/8"	**HK358-054**	100
	1"	**HK358-055**	100
	1-1/4"	**HK358-056**	100
	1-1/2"	**HK358-057**	100
	1-3/4"	**HK358-058**	100
	2"	**HK358-059**	100
	2-1/4"	**HK358-060**	100
	2-1/2"	**HK358-061**	100
Cont'd…	2-3/4"	**HK358-062**	100
1/4"- 20	3"	**HK358-063**	100
	3-1/4"	**HK358-649**	100
3/16" Key	3-1/2"	**HK358-064**	100
	3-3/4"	**HK358-650**	100
	4"	**HK358-065**	100
	4-1/2"	**HK358-651**	50
5/16"-18	3/8"	**HK358-066**	100
	1/2"	**HK358-067**	100
	5/8"	**HK358-068**	100
1/4" Key	3/4"	**HK358-069**	100
	7/8"	**HK358-070**	100
	1"	**HK358-071**	100
	1-1/4"	**HK358-072**	100
	1-1/2"	**HK358-073**	100
	1-3/4"	**HK358-074**	100
	2"	**HK358-075**	100
	2-1/4"	**HK358-076**	100
	2-1/2"	**HK358-077**	100
	2-3/4"	**HK358-078**	100
	3"	**HK358-079**	100
	3-1/4"	**HK358-080**	50
	3-1/2"	**HK358-081**	50
	3-3/4"	**HK358-652**	50
	4"	**HK358-082**	50
3/8"- 16	1/2"	**HK358-083**	100
	5/8"	**HK358-084**	100
	3/4"	**HK358-085**	100
5/16" Key	7/8"	**HK358-086**	100
	1"	**HK358-087**	100
	1-1/4"	**HK358-088**	100
	1-1/2"	**HK358-089**	100
	1-3/4"	**HK358-090**	50
	2"	**HK358-091**	50
	2-1/4"	**HK358-092**	50
	2-1/2"	**HK358-093**	50
	2-3/4"	**HK358-094**	50
	3"	**HK358-095**	50
	3-1/4"	**HK358-096**	50
Cont'd…	3-1/2"	**HK358-097**	50

For Hex Keys see pages P2-P12 .

continued… **HOLO-KROME, UNRC COARSE THREAD, 1960 SERIES**

DIA., Threads per Inch and Key Size	LGTH. Under Head	*SPAENAUR No.*	Unit Pkg. Qty.
…Cont'd.	3-3/4"	**HK358-653**	50
3/8"- 16	4"	**HK358-098**	50
	4-1/2"	**HK358-099**	50
5/16" Key	5"	**HK358-100**	50
	5-1/2"	**HK358-654**	50
	6"	**HK358-101**	50
7/16"- 14	1/2"	**HK358-102**	100
	5/8"	**HK358-103**	100
	3/4"	**HK358-104**	100
3/8" Key	7/8"	**HK358-105**	100
	1"	**HK358-106**	100
	1-1/4"	**HK358-107**	50
	1-1/2"	**HK358-108**	50
	1-3/4"	**HK358-109**	50
	2"	**HK358-110**	50
	2-1/4"	**HK358-111**	50
	2-1/2"	**HK358-112**	50
	2-3/4"	**HK358-113**	25
	3"	**HK358-114**	25
	3-1/2"	**HK358-116**	25
	4"	**HK358-117**	25
	4-1/2"	**HK358-655**	25
	5"	**HK358-656**	25
1/2"- 13	1/2"	**HK358-118**	50
	5/8"	**HK358-119**	50
	3/4"	**HK358-120**	50
3/8" Key	7/8"	**HK358-121**	50
	1"	**HK358-122**	50
	1-1/4"	**HK358-123**	50
	1-1/2"	**HK358-124**	50
	1-3/4"	**HK358-125**	50
	2"	**HK358-126**	50
	2-1/4"	**HK358-127**	25
	2-1/2"	**HK358-128**	25
	2-3/4"	**HK358-129**	25
	3"	**HK358-130**	25
	3-1/4"	**HK358-131**	25
	3-1/2"	**HK358-132**	25
	3-3/4"	**HK358-657**	25
	4"	**HK358-133**	25
	4-1/2"	**HK358-134**	25
	5"	**HK358-135**	25
	5-1/2"	**HK358-136**	25
	6"	**HK358-137**	25
	6-1/2"	**HK358-138**	10
	7"	**HK358-139**	10
	7-1/2"	**HK358-658**	10
	8"	**HK358-140**	10
5/8"- 11	1"	**HK358-141**	25
	1-1/4"	**HK358-142**	25
	1-1/2"	**HK358-143**	25
1/2" Key	1-3/4"	**HK358-144**	25
	2"	**HK358-145**	25
	2-1/4"	**HK358-146**	25
	2-1/2"	**HK358-147**	25
	2-3/4"	**HK358-148**	25
	3"	**HK358-149**	25
	3-1/4"	**HK358-150**	25
	3-1/2"	**HK358-151**	25
	4"	**HK358-152**	25
	4-1/2"	**HK358-153**	20
	5"	**HK358-154**	20
	5-1/2"	**HK358-155**	10
	6"	**HK358-156**	10
	6-1/2"	**HK358-157**	10
	7"	**HK358-158**	10
	7-1/2"	**HK358-659**	10
	8"	**HK358-159**	10
3/4"- 10	1-1/4"	**HK358-160**	25
	1-1/2"	**HK358-161**	25
	1-3/4"	**HK358-162**	25
5/8" Key	2"	**HK358-163**	25
	2-1/4"	**HK358-164**	25
	2-1/2"	**HK358-165**	25
	2-3/4"	**HK358-166**	25
	3"	**HK358-167**	25
	3-1/4"	**HK358-168**	25
	3-1/2"	**HK358-169**	25
	3-3/4"	**HK358-660**	25
	4"	**HK358-170**	25
	4-1/2"	**HK358-171**	20
	5"	**HK358-172**	20
	5-1/2"	**HK358-173**	10
	6"	**HK358-174**	10
	6-1/2"	**HK358-175**	10
	7"	**HK358-176**	10
	7-1/2"	**HK358-661**	10
	8"	**HK358-177**	10
7/8"- 9	2"	**HK358-178**	10
	2-1/4"	**HK358-179**	10
	2-1/2"	**HK358-180**	10
3/4" Key	2-3/4"	**HK358-181**	10
	3"	**HK358-182**	10
	3-1/4"	**HK358-183**	10
	3-1/2"	**HK358-184**	10
	4"	**HK358-185**	10
7/8"- 9	4-1/2"	**HK358-186**	10
	5"	**HK358-187**	10
3/4" Key	5-1/2"	**HK358-188**	10
	6"	**HK358-189**	10
	7"	**HK358-191**	10
	8"	**HK358-192**	10
1"- 8	1-3/4"	**HK358-662**	10
	2"	**HK358-193**	10
	2-1/4"	**HK358-194**	10
3/4" Key	2-1/2"	**HK358-195**	10
	2-3/4"	**HK358-196**	10
	3"	**HK358-197**	10
	3-1/4"	**HK358-198**	10
	3-1/2"	**HK358-199**	10
	3-3/4"	**HK358-663**	10
	4"	**HK358-200**	10
	4-1/2"	**HK358-201**	10
	5"	**HK358-202**	10
	5-1/2"	**HK358-203**	10
	6"	**HK358-204**	10
	6-1/2"	**HK358-205**	10
	7"	**HK358-206**	10
	7-1/2"	**HK358-664**	10
	8"	**HK358-207**	10
1-1/4"- 7	3"	**HK358-209**	1
	3-1/2"	**HK358-210**	1
	4"	**HK358-211**	1
	4-1/2"	**HK358-212**	1
	5"	**HK358-213**	1
	5-1/2"	**HK358-214**	1
Class	6"	**HK358-215**	1
2A	6-1/2"	**HK358-216**	1
Threads	7"	**HK358-217**	1
	8"	**HK358-218**	1
7/8" Key	9"	**HK358-219**	1
	10"	**HK358-220**	1
	11"	**HK358-665**	1
1-1/2"- 6	3-1/2"	**HK358-223**	1
	4"	**HK358-224**	1
	4-1/2"	**HK358-225**	1
	5"	**HK358-226**	1
	5-1/2"	**HK358-227**	1
Class	6"	**HK358-228**	1
2A	6-1/2"	**HK358-229**	1
Threads	7"	**HK358-230**	1
1" Key	8"	**HK358-231**	1

Cont'd...

B

Socket Head Cap Screws

UNRF FINE THREAD SERIES • 1960 SERIES

HEAT TREATED ALLOY STEEL • UNIFIED 3A THREAD FIT
MEETS ASME/ANSI B18.3 AND ASTM A574

For Thread Lengths see chart on page B218.

Sold in full packages only.

DIA., Threads per Inch and Key Size	LGTH. Under Head	*SPAENAUR No.*	Unit Pkg. Qty.
#0 - 80	1/8"	**HK358-235**	100
	3/16"	**HK358-236**	100
	1/4"	**HK358-237**	100
.050" Key	3/8"	**HK358-238**	100
#1 - 72			
	1/4"	**HK358-241**	100
	3/8"	**HK358-242**	100
1/16" Key			
#6 - 40	1/4"	**HK358-243**	100
	3/8"	**HK358-244**	100
	1/2"	**HK358-245**	100
7/64" Key	5/8"	**HK358-246**	100
	3/4"	**HK358-247**	100
#8 - 36	3/8"	**HK358-248**	100
	1/2"	**HK358-249**	100
	3/4"	**HK358-250**	100
9/64" Key			
#10 - 32	1/4"	**HK358-666**	100
	3/8"	**HK358-251**	100
	5/16"	**HK358-667**	100
5/32" Key	1/2"	**HK358-252**	100
	5/8"	**HK358-253**	100
	3/4"	**HK358-254**	100
	7/8"	**HK358-255**	100
	1"	**HK358-256**	100
	1-1/4"	**HK358-257**	100
	1-1/2"	**HK358-258**	100
	1-3/4"	**HK358-259**	100
	2"	**HK358-260**	100
	2-1/4"	**HK358-261**	100
	2-1/2"	**HK358-262**	100
	2-3/4"	**HK358-668**	100
	3"	**HK358-263**	100
1/4"- 28	1/4"	**HK358-669**	100
	3/8"	**HK358-264**	100
	1/2"	**HK358-265**	100
3/16" Key	5/8"	**HK358-266**	100
	3/4"	**HK358-267**	100
	7/8"	**HK358-268**	100
	1"	**HK358-269**	100
	1-1/4"	**HK358-270**	100
	1-1/2"	**HK358-271**	100
	1-3/4"	**HK358-272**	100
	2"	**HK358-273**	100
	2-1/4"	**HK358-274**	100

DIA., Threads per Inch and Key Size	LGTH. Under Head	*SPAENAUR No.*	Unit Pkg. Qty.
…Cont'd.	2-1/2"	**HK358-670**	100
1/4"-28	3"	**HK358-671**	100
	4"	**HK358-672**	100
5/16"- 24	1/2"	**HK358-275**	100
	5/8"	**HK358-276**	100
	3/4"	**HK358-277**	100
1/4" Key	7/8"	**HK358-278**	100
	1"	**HK358-279**	100
	1-1/4"	**HK358-280**	100
	1-1/2"	**HK358-281**	100
	1-3/4"	**HK358-282**	100
	2"	**HK358-283**	100
	2-1/4"	**HK358-284**	100
	2-1/2"	**HK358-285**	100
	3"	**HK358-673**	100
	3-1/2"	**HK358-674**	50
	4"	**HK358-675**	50
3/8"- 24	1/2"	**HK358-286**	100
	5/8"	**HK358-287**	100
	3/4"	**HK358-288**	100
5/16" Key	7/8"	**HK358-289**	100
	1"	**HK358-290**	100
	1-1/4"	**HK358-291**	100
	1-1/2"	**HK358-292**	100
	1-3/4"	**HK358-293**	50
	2"	**HK358-294**	50
	2-1/4"	**HK358-295**	50
	2-1/2"	**HK358-296**	50
	2-3/4"	**HK358-676**	50
	3"	**HK358-297**	50
	3-1/2"	**HK358-677**	50
	4"	**HK358-678**	50
	4-1/2"	**HK358-679**	50
	5"	**HK358-680**	50
	5-1/2"	**HK358-681**	50
	6"	**HK358-682**	50
7/16"- 20	1"	**HK358-298**	100
	1-1/4"	**HK358-299**	50
	1-1/2"	**HK358-300**	50
3/8" Key	2"	**HK358-301**	50
	2-1/2"	**HK358-683**	50
	3"	**HK358-684**	25
	3-1/2"	**HK358-685**	25
1/2"- 20	3/4"	**HK358-686**	50
	1"	**HK358-302**	50
	1-1/4"	**HK358-303**	50
3/8" Key	1-1/2"	**HK358-304**	50

DIA., Threads per Inch and Key Size	LGTH. Under Head	*SPAENAUR No.*	Unit Pkg. Qty.
…Cont'd.	1-3/4"	**HK358-305**	50
1/2"- 20	2"	**HK358-306**	50
	2-1/4"	**HK358-307**	25
3/8" Key	2-1/2"	**HK358-308**	25
	2-3/4"	**HK358-687**	25
	3"	**HK358-309**	25
	3-1/2"	**HK358-688**	25
	4"	**HK358-689**	25
	4-1/2"	**HK358-690**	25
	5"	**HK358-691**	25
	5-1/2"	**HK358-692**	25
	6"	**HK358-693**	25
5/8"- 18	1"	**HK358-310**	25
	1-1/4"	**HK358-311**	25
	1-1/2"	**HK358-312**	25
1/2" Key	1-3/4"	**HK358-313**	25
	2"	**HK358-314**	25
	2-1/4"	**HK358-694**	25
	2-1/2"	**HK358-315**	25
	2-3/4"	**HK358-695**	25
	3"	**HK358-696**	25
	3-1/2"	**HK358-697**	25
	4"	**HK358-698**	25
	4-1/2"	**HK358-699**	20
	5"	**HK358-784**	20
3/4"- 16	1-1/4"	**HK358-785**	25
	1-1/2"	**HK358-786**	25
	1-3/4"	**HK358-787**	25
5/8" Key	2"	**HK358-788**	25
	2-1/4"	**HK358-789**	25
	2-1/2"	**HK358-790**	25
	2-3/4"	**HK358-791**	25
	3"	**HK358-792**	25
	3-1/2"	**HK358-793**	25
	3-3/4"	**HK358-1633**	25
	4"	**HK358-794**	25
	4-1/2"	**HK358-795**	25
	5"	**HK358-796**	25
	5-1/2"	**HK358-797**	10
	6"	**HK358-798**	10
	7"	**HK358-799**	10
	8"	**HK358-800**	10

For Hex Keys see pages P2-P12 .

ASSORTMENT
ASSORTIMENT
805-550

Hex Socket Cap Screws (1960 Series)

U.N.R.C Coarse and U.N.R.F. Fine Thread

Heat Treated Alloy Steel

Class 3A Threads
Conforms to
ASME B18.3 / ASTM A574

24 Sizes - 460 Pieces

Furnished in a regular size grey enamelled steel drawer which will fit into Slide Racks shown on page A2.

Shipping Weight 8.5 kg (18 lbs.)

Contents of Assortment

Dia. x Thread	Qty.	Dia. x Thread	Qty.
10-24 x 1/2"	40	3/8"-16 x 3/4"	20
10-24 x 3/4"	40	3/8"-16 x 1"	20
10-24 x 1"	40	3/8"-16 x 1-1/4"	10
*10-32 x 1/2"	40	7/16"-14 x 3/4"	10
*10-32 x 3/4"	40	7/16"-14 x 1"	20
1/4"-20 x 1/2"	20	7/16"-14 x 1-1/2"	10
1/4"-20 x 3/4"	20	1/2"-13 x 1"	5
1/4"-20 x 1"	20	1/2"-13 x 1-1/4"	5
1/4"-20 x 1-1/2"	20	1/2"-13 x 1-1/2"	5
5/16"-18 x 3/4"	20	5/8"-11 x 1"	5
5/16"-18 x 1"	20	5/8" x 1-1/4"	5
5/16"-18 x 1-1/2"	20	5/8" x 1-1/2"	5

*Fine Thread

ASSORTMENT
ASSORTIMENT
805-551

Hex Socket FLAT HEAD Cap Screws

U.N.R.C Coarse and U.N.R.F. Fine Thread

Heat Treated Alloy Steel

Class 3A Threads
Conforms to
ASME B18.3 / ASTM F835

24 Sizes - 445 Pieces

Furnished in a regular size grey enamelled steel drawer which will fit into Slide Racks shown on page A2.

Shipping Weight 5.5 kg (12 lbs.)

Contents of Assortment

Dia. x Thread	Qty.	Dia. x Thread	Qty.
4-40 x 3/8"	20	1/4"-20 x 1/2"	20
4-40 x 1/2"	20	1/4"-20 x 3/4"	20
6-32 x 3/8"	20	*1/4"-28 x 3/4"	20
6-32 x 1/2"	20	5/16"-18 x 3/4"	20
8-32 x 3/8"	20	5/16"-18 x 1"	20
8-32 x 1/2"	20	*5/16"-24 x 3/4"	20
8-32 x 5/8"	20	3/8"-16 x 3/4"	20
10-24 x 1/2"	20	3/8"-16 x 1"	20
10-24 x 3/4"	20	*3/8"-24 x 1"	20
*10-32 x 1/2"	20	1/2"-13 x 1"	10
*10-32 x 5/8"	20	1/2"-13 x 1-1/2"	10
*10-32 x 1"	20	5/8"-11 x 1-1/4"	5

*Fine Thread

SPAENAUR

TELEPHONE:
24 hours a day, 365 days a year
(800) 265-8772
(519) 744-3521

FAX:
24 hours a day, 365 days a year
(519) 744-0818
(800) 252-6380

Counter Sales:
7 a.m. to 6 p.m. EST., Weekdays

Standard Holo-Krome Alloy Steel Socket Head Cap Screws are manufactured from Holo-Krome analysis high grade alloy steel hardened and tempered to provide the following mechanical properties.

NOMINAL SIZES	TENSILE STRENGTH psi MIN.	YIELD STRENGTH psi MIN.	ELONGATION* IN 2 INCHES PERCENT MIN.	REDUCTION OF AREA* PERCENT MIN.	MINIMUM HARDNESS ROCKWELL C
0 to 1/2	180,000	162,000	8	35	39
Over 1/2	170,000	153,000	10	40	37

* The values for elongation and reduction of area apply only to cylindrical test specimens.
Values are based on ASTM A-574

CAUTION: IMPROPER LOADING OF THESE FASTENERS WILL CAUSE FAILURES

TENSILE, YIELD AND SHEAR STRENGTH

NOMINAL SIZE	BASIC SCREW DIAMETER	THREAD STRESS AREA		STRAIGHT TENSILE STRENGTH (POUNDS MIN.)		STRAIGHT YIELD STRENGTH (POUNDS MIN.)		SINGLE SHEAR STRENGTH (POUNDS MIN.)		
								BODY	THREAD SECTION	
		UNRC	UNRF	UNRC	UNRF	UNRC	UNRF	SECTION	UNRC	UNRF
0	0.0600	–	0.00180	–	320	–	290	305	–	205
1	0.0730	0.00263	0.00278	475	500	425	450	450	290	315
2	0.0860	0.00370	0.00394	665	710	600	635	625	405	445
3	0.0990	0.00487	0.00523	875	940	790	845	830	535	595
4	0.1120	0.00604	0.00661	1,090	1,190	975	1,070	1,060	665	750
5	0.1250	0.00796	0.00830	1,430	1,490	1,290	1,345	1,325	875	940
6	0.1380	0.00909	0.01015	1,640	1,825	1,470	1,645	1,615	1,000	1,150
8	0.1640	0.0140	0.01474	2,520	2,650	2,270	2,385	2,280	1,535	1,670
10	0.1900	0.0175	0.0200	3,150	3,600	2,835	3,240	3,060	1,920	2,270
1/4	0.2500	0.0318	0.0364	5,725	6,550	5,150	5,900	5,295	3,495	4,130
5/16	0.3125	0.0524	0.0580	9,430	10,440	8,490	9,395	8,285	5,750	6,575
3/8	0.3750	0.0775	0.0878	13,950	15,805	12,555	14,225	11,910	8,510	9,950
7/16	0.4375	0.1063	0.1187	19,135	21,365	17,220	19,230	16,200	11,650	13,445
1/2	0.5000	0.1419	0.1599	25,540	28,780	22,990	25,905	21,175	15,656	18,105
5/8	0.6250	0.226	0.256	38,400	43,500	34,550	39,150	31,300	23,450	27,400
3/4	0.7500	0.334	0.373	56,750	63,400	51,100	57,050	45,050	34,650	39,650
7/8	0.8750	0.462	0.509	78,500	86,500	70,700	77,850	61,350	47,900	54,500
1	1.0000	0.606	0.663	103,000	112,700	92,700	101,450	80,100	62,850	71,000
1-1/4	1.2500	0.969	1.073	164,700	182,400	148,250	164,150	125,100	100,500	114,900
1-1/2	1.5000	1.405	1.581	238,800	268,800	214,950	241,900	180,200	145,700	169,300

NOTES FOR CHART

The mechanical properties listed are for standard screws tested at normal room temperatures. In applications where the temperatures are considerably above or below room temperature the effect of the temperature on the screw strength must be considered. Short time tensile, creep and stress relaxation should be considered for applications where the temperature exceeds 400°F (204°C). Lower ductility, impact strength and fatigue life must be considered for screws subject to temperatures below -20°F (-29°C).

The materials and heat treatment used for standard Holo-Krome Alloy Socket Head Cap Screws were selected to provide products that would have optimum tensile strength, impact strength and fatigue life. For specific applications, screws can be supplied to higher hardness levels so that their tensile strength will exceed values listed. However, such screws will have lower ductility, impact strength and fatigue life at higher stress levels than will standard screws.

B

Socket Head Cap Screws
Zinc and Clear Chromate - UNRC

For Thread Lengths see chart on page B218.

HEAT TREATED ALLOY STEEL
Meets ASME/ANSI B18.3 and ASTM A574 Before Plating
Sold in full packages only.

DIA., Threads per Inch and Key Size	LGTH. Under Head	*SPAENAUR No.*	Unit Pkg. Qty.
#4 - 40	1/4"	**HK358-700**	100
	3/8"	**HK358-701**	100
	1/2"	**HK358-702**	100
3/32" Key	5/8"	**HK358-703**	100
	3/4"	**HK358-704**	100
#5 - 40	1/4"	**HK358-705**	100
	3/8"	**HK358-706**	100
	1/2"	**HK358-707**	100
3/32" Key	5/8"	**HK358-708**	100
	3/4"	**HK358-709**	100
#6 - 32	1/4"	**HK358-710**	100
	3/8"	**HK358-711**	100
	1/2"	**HK358-712**	100
7/64" Key	5/8"	**HK358-713**	100
	3/4"	**HK358-714**	100
	7/8"	**HK358-715**	100
	1"	**HK358-801**	100
#8 - 32	1/4"	**HK358-716**	100
	3/8"	**HK358-717**	100
	1/2"	**HK358-718**	100
9/64" Key	5/8"	**HK358-719**	100
	3/4"	**HK358-720**	100
	7/8"	**HK358-721**	100
	1"	**HK358-722**	100
	1-1/4"	**HK358-802**	100
	1-1/2"	**HK358-803**	100
#10 - 24	3/8"	**HK358-723**	100
	1/2"	**HK358-724**	100
	5/8"	**HK358-725**	100
5/32" Key	3/4"	**HK358-726**	100
	7/8"	**HK358-727**	100
	1"	**HK358-728**	100
	1-1/4"	**HK358-729**	100
	1-1/2"	**HK358-730**	100
	1-3/4"	**HK358-731**	100
	2"	**HK358-732**	100
1/4"- 20	1/4"	**HK358-804**	100
	3/8"	**HK358-746**	100
	1/2"	**HK358-747**	100
3/16" Key	5/8"	**HK358-748**	100
	3/4"	**HK358-749**	100
	7/8"	**HK358-750**	100
	1"	**HK358-751**	100
	1-1/4"	**HK358-752**	100
	1-1/2"	**HK358-753**	100
	1-3/4"	**HK358-754**	100
	2"	**HK358-755**	100
	2-1/4"	**HK358-756**	100
	2-1/2"	**HK358-757**	100
	2-3/4"	**HK358-805**	100
	3"	**HK358-758**	100
	3-1/2"	**HK358-806**	100
	4"	**HK358-807**	100
5/16"- 18	3/8"	**HK358-759**	100
	1/2"	**HK358-760**	100
	5/8"	**HK358-761**	100
1/4" Key	3/4"	**HK358-762**	100
	7/8"	**HK358-808**	100
	1"	**HK358-763**	100
	1-1/4"	**HK358-764**	100
	1-1/2"	**HK358-765**	100
	1-3/4"	**HK358-766**	100
	2"	**HK358-767**	100
	2-1/4"	**HK358-768**	100
	2-1/2"	**HK358-769**	100
	2-3/4"	**HK358-809**	100
	3"	**HK358-770**	100
	3-1/4"	**HK358-810**	50
	3-1/2"	**HK358-771**	50
3/8"- 16	1/2"	**HK358-772**	100
	5/8"	**HK358-773**	100
	3/4"	**HK358-774**	100
5/16" Key	7/8"	**HK358-811**	100
	1"	**HK358-775**	100
	1-1/4"	**HK358-776**	100
	1-1/2"	**HK358-777**	100
	1-3/4"	**HK358-778**	50
	2"	**HK358-779**	50
	2-1/4"	**HK358-780**	50
	2-1/2"	**HK358-781**	50
	2-3/4"	**HK358-812**	50
	3"	**HK358-782**	50
	3-1/4"	**HK358-813**	50
	3-1/2"	**HK358-783**	50
	4"	**HK358-814**	50
	4-1/2"	**HK358-815**	50
	5"	**HK358-816**	50
	5-1/2"	**HK358-817**	50
	6"	**HK358-818**	50
7/16"- 14	3/4"	**HK358-819**	100
	7/8"	**HK358-820**	100
	1"	**HK358-821**	100
3/8" Key	1-1/4"	**HK358-822**	50
	1-1/2"	**HK358-823**	50
	1-3/4"	**HK358-824**	50
	2"	**HK358-825**	50
	2-1/4"	**HK358-826**	50
	2-1/2"	**HK358-827**	50
	2-3/4"	**HK358-828**	25
	3"	**HK358-829**	25
	3-1/2"	**HK358-830**	25
	4"	**HK358-831**	25
1/2"- 13	1/2"	**HK358-832**	50
	5/8"	**HK358-833**	50
	3/4"	**HK358-834**	50
3/8" Key	7/8"	**HK358-835**	50
	1"	**HK358-836**	50
Cont'd...	1-1/4"	**HK358-837**	50
1/2"- 13	1-1/2"	**HK358-838**	50
	1-3/4"	**HK358-839**	50
3/8" Key	2"	**HK358-840**	50
	2-1/4"	**HK358-841**	25
	2-1/2"	**HK358-842**	25
	2-3/4"	**HK358-843**	25
	3"	**HK358-844**	25
	3-1/4"	**HK358-845**	25
	3-1/2"	**HK358-846**	25
	4"	**HK358-847**	25
	4-1/2"	**HK358-848**	25
	5"	**HK358-849**	25
	5-1/2"	**HK358-850**	25
	6"	**HK358-851**	25
	6-1/2"	**HK358-852**	10
	7"	**HK358-853**	10
	8"	**HK358-854**	10
5/8"- 11	1"	**HK358-855**	25
	1-1/4"	**HK358-856**	25
	1-1/2"	**HK358-857**	25
1/2" Key	1-3/4"	**HK358-858**	25
	2"	**HK358-859**	25
	2-1/4"	**HK358-860**	25
	2-1/2"	**HK358-861**	25
	2-3/4"	**HK358-862**	25
	3"	**HK358-863**	25
	3-1/4"	**HK358-864**	25
	3-1/2"	**HK358-865**	25
	4"	**HK358-866**	25
	4-1/2"	**HK358-867**	25
	5"	**HK358-868**	25
	5-1/2"	**HK358-869**	10
	6"	**HK358-870**	10
	6-1/2"	**HK358-871**	10
	7"	**HK358-872**	10
	8"	**HK358-873**	10
3/4"- 10	1-1/4"	**HK358-874**	25
	1-1/2"	**HK358-875**	25
	1-3/4"	**HK358-876**	25
5/8" Key	2"	**HK358-877**	25
	2-1/4"	**HK358-878**	25
	2-1/2"	**HK358-879**	25
	2-3/4"	**HK358-880**	25
	3"	**HK358-881**	25
	3-1/4"	**HK358-882**	25
	3-1/2"	**HK358-883**	25
	4"	**HK358-884**	25
	4-1/2"	**HK358-885**	20
	5"	**HK358-886**	20
	5-1/2"	**HK358-887**	10
	6"	**HK358-888**	10
	6-1/2"	**HK358-889**	10
	7"	**HK358-890**	10
	8"	**HK358-891**	10

For Hex Keys see pages P2-P12.

B

Socket Head Cap Screws
Zinc and Clear Chromate - UNRC

HEAT TREATED ALLOY STEEL
Meets ASME/ANSI B18.3 and
ASTM A574 Before Plating

Sold in full packages only.

DIA., Threads per Inch and Key Size	LGTH. Under Head	*SPAENAUR No.*	Unit Pkg. Qty.	DIA., Threads per Inch and Key Size	LGTH. Under Head	*SPAENAUR No.*	Unit Pkg. Qty.
7/8"- 9	2"	**HK358-892**	10	**1"- 8**	2"	**HK358-902**	10
	2-1/2"	**HK358-893**	10		2-1/2"	**HK358-903**	10
	3"	**HK358-894**	10		3"	**HK358-904**	10
3/4" Key	3-1/2"	**HK358-895**	10	3/4" Key	3-1/2"	**HK358-905**	10
	4"	**HK358-896**	10		4"	**HK358-906**	10
	4-1/2"	**HK358-897**	10		4-1/2"	**HK358-907**	10
	5"	**HK358-898**	10		5"	**HK358-908**	10
	6"	**HK358-899**	10		6"	**HK358-909**	10
	7"	**HK358-900**	10		7"	**HK358-910**	10
	8"	**HK358-901**	10		8"	**HK358-911**	10

Socket Head Cap Screws
Zinc and Clear Chromate - UNRF

HEAT TREATED ALLOY STEEL
Meets ASME/ANSI B18.3 and
ASTM A574 Before Plating

Sold in full packages only.

DIA., Threads per Inch and Key Size	LGTH. Under Head	*SPAENAUR No.*	Unit Pkg. Qty.	DIA., Threads per Inch and Key Size	LGTH. Under Head	*SPAENAUR No.*	Unit Pkg. Qty.	DIA., Threads per Inch and Key Size	LGTH. Under Head	*SPAENAUR No.*	Unit Pkg. Qty.
#10 - 32	1/4"	**HK358-1634**	100	**5/16"- 24**	1/2"	**HK358-923**	100	**7/16"- 20**	1"	**HK358-946**	100
	3/8"	**HK358-733**	100		5/8"	**HK358-924**	100		1-1/4"	**HK358-947**	50
	1/2"	**HK358-734**	100		3/4"	**HK358-925**	100		1-1/2"	**HK358-948**	50
5/32" Key	5/8"	**HK358-735**	100	1/4" Key	7/8"	**HK358-926**	100	3/8" Key	2"	**HK358-949**	50
	3/4"	**HK358-736**	100		1"	**HK358-927**	100	**1/2"- 20**	1"	**HK358-950**	50
	7/8"	**HK358-737**	100		1-1/4"	**HK358-928**	100		1-1/4"	**HK358-951**	50
	1"	**HK358-738**	100		1-1/2"	**HK358-929**	100		1-1/2"	**HK358-952**	50
	1-1/4"	**HK358-739**	100		1-3/4"	**HK358-930**	100	3/8" Key	1-3/4"	**HK358-953**	50
	1-1/2"	**HK358-740**	100		2"	**HK358-931**	100		2"	**HK358-954**	50
	1-3/4"	**HK358-741**	100		2-1/4"	**HK358-932**	100		2-1/4"	**HK358-955**	25
	2"	**HK358-742**	100		2-1/2"	**HK358-933**	100		2-1/2"	**HK358-956**	25
1/4"- 28	3/8"	**HK358-912**	100	**3/8"- 24**	1/2"	**HK358-934**	100		2-3/4"	**HK358-957**	25
	1/2"	**HK358-913**	100		5/8"	**HK358-935**	100		3"	**HK358-958**	25
	5/8"	**HK358-914**	100		3/4"	**HK358-936**	100	**5/8"- 18**	1"	**HK358-959**	25
3/16" Key	3/4"	**HK358-915**	100	5/16" Key	7/8"	**HK358-937**	100		1-1/4"	**HK358-960**	25
	7/8"	**HK358-916**	100		1"	**HK358-938**	100		1-1/2"	**HK358-961**	25
	1"	**HK358-917**	100		1-1/4"	**HK358-939**	100	1/2" Key	1-3/4"	**HK358-962**	25
	1-1/4"	**HK358-918**	100		1-1/2"	**HK358-940**	100		2"	**HK358-963**	25
	1-1/2"	**HK358-919**	100		1-3/4"	**HK358-941**	50		2-1/2"	**HK358-964**	25
	1-3/4"	**HK358-920**	100		2"	**HK358-942**	50				
	2"	**HK358-921**	100		2-1/4"	**HK358-943**	50				
	2-1/4"	**HK358-922**	100		2-1/2"	**HK358-944**	50				
					3"	**HK358-945**	50				

Flat Head Cap Screws

UNRC COARSE THREAD

Screw Dia.	Thread Lengths Min.	Max.
#2	0.62	0.80
#3	0.62	0.83
#4	0.75	0.99
#5	0.75	1.00
#6	0.75	1.05
#8	0.88	1.19
#10	0.88	1.27
1/4"	1.00	1.50
5/16"	1.12	1.71
3/8"	1.25	1.94

Screw Dia.	Thread Lengths Min.	Max.
7/16"	1.38	2.17
1/2"	1.50	2.38
5/8"	1.75	2.82
3/4"	2.00	3.25
7/8"	2.25	3.69
1"	2.50	4.12
1-1/8"	2.82	4.65
1-1/4"	3.12	5.09
1-3/8"	3.44	5.65
1-1/2"	3.75	6.08

HEAT TREATED ALLOY STEEL • UNIFIED 3A THREAD FIT
MEETS ASME/ANSI B18.3 AND ASTM F835

Sold in full packages only.

DIA., Threads per Inch and Key Size	Overall LENGTH	*SPAENAUR No.*	Unit Pkg. Qty.
#4 - 40	1/4"	**HK358-348**	100
	3/8"	**HK358-349**	100
	1/2"	**HK358-350**	100
1/16" Key	5/8"	**HK358-351**	100
	3/4"	**HK358-352**	100
#5 - 40	1/4"	**HK358-353**	100
	3/8"	**HK358-354**	100
	1/2"	**HK358-355**	100
5/64" Key	5/8"	**HK358-356**	100
	3/4"	**HK358-357**	100
#6 - 32	1/4"	**HK358-358**	100
	3/8"	**HK358-359**	100
	1/2"	**HK358-360**	100
5/64" Key	5/8"	**HK358-361**	100
	3/4"	**HK358-362**	100
#8 - 32	3/8"	**HK358-363**	100
	1/2"	**HK358-364**	100
	5/8"	**HK358-365**	100
3/32" Key	3/4"	**HK358-366**	100
	1"	**HK358-367**	100
#10 - 24	3/8"	**HK358-368**	100
	1/2"	**HK358-369**	100
	5/8"	**HK358-370**	100
1/8" Key	3/4"	**HK358-371**	100
	1"	**HK358-372**	100
	1-1/4"	**HK358-373**	100
	1-1/2"	**HK358-374**	100

DIA., Threads per Inch and Key Size	Overall LENGTH	*SPAENAUR No.*	Unit Pkg. Qty.
1/4"- 20	3/8"	**HK358-375**	100
	1/2"	**HK358-376**	100
	5/8"	**HK358-377**	100
5/32" Key	3/4"	**HK358-378**	100
	1"	**HK358-379**	100
	1-1/4"	**HK358-380**	100
	1-1/2"	**HK358-381**	100
	1-3/4"	**HK358-382**	100
	2"	**HK358-383**	100
5/16" - 18	1/2"	**HK358-384**	100
	5/8"	**HK358-385**	100
	3/4"	**HK358-386**	100
3/16" Key	1"	**HK358-387**	100
	1-1/4"	**HK358-388**	100
	1-1/2"	**HK358-389**	100
	1-3/4"	**HK358-390**	100
	2"	**HK358-391**	100
	2-1/4"	**HK358-392**	100
	2-1/2"	**HK358-393**	100
3/8"- 16	1/2"	**HK358-394**	100
	5/8"	**HK358-395**	100
	3/4"	**HK358-396**	100
7/32" Key	1"	**HK358-397**	100
	1-1/4"	**HK358-398**	100
	1-1/2"	**HK358-399**	100
	1-3/4"	**HK358-400**	50
	2"	**HK358-401**	50
	2-1/4"	**HK358-402**	50
	2-1/2"	**HK358-403**	50
	3"	**HK358-404**	50

DIA., Threads per Inch and Key Size	Overall LENGTH	*SPAENAUR No.*	Unit Pkg. Qty.
7/16"- 14	3/4"	**HK358-405**	100
	1"	**HK358-406**	100
	1-1/4"	**HK358-407**	50
1/4" Key	1-1/2"	**HK358-408**	50
1/2"- 13	3/4"	**HK358-409**	50
	1"	**HK358-410**	50
	1-1/4"	**HK358-411**	50
5/16" Key	1-1/2"	**HK358-412**	50
	1-3/4"	**HK358-413**	50
	2"	**HK358-414**	50
	2-1/4"	**HK358-415**	25
	2-1/2"	**HK358-416**	25
	3"	**HK358-417**	25
5/8"- 11	1-1/4"	**HK358-418**	25
	1-1/2"	**HK358-419**	25
	1-3/4"	**HK358-420**	25
3/8" Key	2"	**HK358-421**	25
	2-1/4"	**HK358-422**	25
	2-1/2"	**HK358-423**	25
	3"	**HK358-424**	25
3/4"- 10	1-1/2"	**HK358-426**	25
	1-3/4"	**HK358-427**	25
	2"	**HK358-428**	25
1/2" Key	2-1/2"	**HK358-430**	25
	3"	**HK358-431**	25

For Hex Keys see pages P2-P12.

Flat Head Cap Screws

UNRF FINE THREAD

Sold in full packages only.

DIA., Threads per Inch and Key Size	Over-all LGTH.	SPAENAUR No.	Unit Pkg. Qty.
#10 - 32	3/8"	**HK358-432**	100
	1/2"	**HK358-433**	100
	5/8"	**HK358-434**	100
1/8" Key	3/4"	**HK358-435**	100
	1"	**HK358-436**	100
	1-1/4"	**HK358-437**	100
	1-1/2"	**HK358-438**	100
1/4"- 28	3/8"	**HK358-439**	100
	1/2"	**HK358-440**	100
	5/8"	**HK358-441**	100
5/32" Key	3/4"	**HK358-442**	100
Cont'd…			

DIA., Threads per Inch and Key Size	Over-all LGTH.	SPAENAUR No.	Unit Pkg. Qty.
…Cont'd.	1"	**HK358-443**	100
1/4"- 28	1-1/4"	**HK358-444**	100
	1-1/2"	**HK358-445**	100
5/16"- 24	1/2"	**HK358-446**	100
	5/8"	**HK358-447**	100
	3/4"	**HK358-448**	100
3/16" Key	1"	**HK358-449**	100
	1-1/4"	**HK358-450**	100

DIA., Threads per Inch and Key Size	Over-all LGTH.	SPAENAUR No.	Unit Pkg. Qty.
3/8"- 24	5/8"	**HK358-451**	100
	3/4"	**HK358-452**	100
	1"	**HK358-453**	100
7/32" Key	1-1/4"	**HK358-454**	100
	1-1/2"	**HK358-455**	100
1/2"- 20	3/4"	**HK358-456**	50
	1"	**HK358-457**	50
	1-1/4"	**HK358-458**	50
5/16" Key	1-1/2"	**HK358-459**	50
	1-3/4"	**HK358-460**	50
	2"	**HK358-461**	50

Button Head Cap Screws

COARSE THREAD and FINE THREAD SERIES

HEAT TREATED ALLOY STEEL
UNIFIED 3A THREAD FIT
MEETS ASME/ANSI B18.3 and ASTM F835

For Thread Lengths see chart on page B218.

UNRC COARSE THREADS

Sold in full packages only.

DIA., Threads per Inch and Key Size	LGTH. Under Head	SPAENAUR No.	Unit Pkg. Qty.
#4 - 40	1/4"	**HK358-462**	100
	3/8"	**HK358-463**	100
	1/2"	**HK358-464**	100
1/16" Key			
#6 - 32	1/4"	**HK358-465**	100
	3/8"	**HK358-466**	100
	1/2"	**HK358-467**	100
5/64" Key	5/8"	**HK358-468**	100
#8 - 32	1/4"	**HK358-469**	100
	3/8"	**HK358-470**	100
	1/2"	**HK358-471**	100
3/32" Key	5/8"	**HK358-472**	100
	3/4"	**HK358-473**	100
	1"	**HK358-1635**	
#10 - 24	1/4"	**HK358-474**	100
	3/8"	**HK358-475**	100
	1/2"	**HK358-476**	100
1/8" Key	5/8"	**HK358-477**	100
	3/4"	**HK358-478**	100
	7/8"	**HK358-479**	50
	1"	**HK358-480**	50

DIA., Threads per Inch and Key Size	LGTH. Under Head	SPAENAUR No.	Unit Pkg. Qty.
1/4"- 20	3/8"	**HK358-481**	100
	1/2"	**HK358-482**	100
	5/8"	**HK358-483**	100
5/32" Key	3/4"	**HK358-484**	100
	7/8"	**HK358-485**	50
	1"	**HK358-486**	50
5/16"- 18	3/8"	**HK358-487**	100
	1/2"	**HK358-488**	100
	5/8"	**HK358-489**	100
3/16" Key	3/4"	**HK358-490**	100
	7/8"	**HK358-491**	50
	1"	**HK358-492**	50
3/8"- 16	1/2"	**HK358-493**	50
	5/8"	**HK358-494**	50
	3/4"	**HK358-495**	50
7/32" Key	7/8"	**HK358-496**	50
	1"	**HK358-497**	50
	1-1/4"	**HK358-498**	50

DIA., Threads per Inch and Key Size	LGTH. Under Head	SPAENAUR No.	Unit Pkg. Qty.
1/2"- 13	1"	**HK358-499**	25
	1-1/4"	**HK358-500**	25
	1-1/2"	**HK358-501**	25
5/16" Key	2"	**HK358-502**	25
5/8"- 11	1"	**HK358-503**	25
	1-1/4"	**HK358-504**	25
	1-1/2"	**HK358-505**	25
3/8" Key	2"	**HK358-506**	25

UNRF FINE THREADS

DIA., Threads per Inch and Key Size	LGTH. Under Head	SPAENAUR No.	Unit Pkg. Qty.
#10 - 32	1/4"	**HK358-507**	100
	3/8"	**HK358-508**	100
	1/2"	**HK358-509**	100
1/8" Key	5/8"	**HK358-510**	100
	3/4"	**HK358-511**	100
	7/8"	**HK358-512**	50
	1"	**HK358-513**	50
1/4"- 28	3/8"	**HK358-514**	100
	1/2"	**HK358-515**	100
	5/8"	**HK358-516**	100
5/32" Key	3/4"	**HK358-517**	100
	1"	**HK358-518**	50
5/16"- 24	3/8"	**HK358-519**	100
	1/2"	**HK358-520**	100
	5/8"	**HK358-521**	100
3/16" Key	3/4"	**HK358-522**	100
	1"	**HK358-523**	50
3/8"- 24	1/2"	**HK358-524**	50
	3/4"	**HK358-1626**	50
	1"	**HK358-525**	50
7/32" Key			

B

Low Head Cap Screws

UNRC COARSE AND UNRF FINE THREADS

HEAT TREATED ALLOY STEEL • UNIFIED 3A THREAD FIT

For Thread Lengths see chart on page B218.

Sold in full packages only.

UNRC COARSE THREADS								UNRF FINE THREAD			
DIA., Threads per Inch and Key Size	LGTH. Under Head	*SPAENAUR No.*	Qty. Per Box	DIA., Threads per Inch and Key Size	LGTH. Under Head	*SPAENAUR No.*	Qty. Per Box	DIA., Threads per Inch and Key Size	LGTH. Under Head	*SPAENAUR No.*	Qty. Per Box
#8 - 32	3/8"	**HK358-316**	100	**5/16"- 18**	1/2"	**HK358-331**	100	**#10 - 32**	3/8"	**HK358-344**	100
	1/2"	**HK358-317**	100		3/4"	**HK358-332**	100		1/2"	**HK358-345**	100
	3/4"	**HK358-319**	100		1"	**HK358-333**	100		5/8"	**HK358-346**	100
5/64" Key	1"	**HK358-320**	100	5/32" Key	1-1/4"	**HK358-334**	100	3/32" Key	3/4"	**HK358-347**	100
					1-1/2"	**HK358-335**	100				
#10 - 24	3/8"	**HK358-321**	100	**3/8"- 16**	1/2"	**HK358-336**	100				
	1/2"	**HK358-322**	100		3/4"	**HK358-337**	100				
	3/4"	**HK358-324**	100		1"	**HK358-338**	100				
3/32" Key				3/16" Key	1-1/4"	**HK358-339**	100				
					1-1/2"	**HK358-340**	100				
1/4"- 20	3/8"	**HK358-326**	100	**1/2"- 13**	1"	**HK358-341**	50				
	1/2"	**HK358-327**	100		1-1/4"	**HK358-342**	50				
	5/8"	**HK358-328**	100		1-1/2"	**HK358-343**	50				
1/8" Key	3/4"	**HK358-329**	100	1/4" Key							
	1"	**HK358-330**	100								

Technical Information chart for Hex Socket Shoulder Screw on page B221.

Nom. Size or Basic Shoulder Dia.		D Shoulder Diameter Max	D Shoulder Diameter Min	A Head Diameter Max.	A Head Diameter Min.	H Head Height Max.	H Head Height Min.	D1 Nom. Thread Size or Basic Thread Dia.		Threads Per Inch	E Thread Length Basic	K Thread Neck Wdth. Max.	J Hexagon Socket Size Nom.	
1/4"	0.250	0.2480	0.2460	0.375	0.357	0.188	0.177	10	0.1900	24	0.375	0.062	1/8	0.125
5/16"	0.312	0.3105	0.3085	0.438	0.419	0.219	0.209	1/4	0.2500	20	0.438	0.075	5/32	0.156
3/8"	0.375	0.3730	0.3710	0.562	0.543	0.250	0.240	5/16	0.3125	18	0.500	0.083	3/16	0.188
1/2"	0.500	0.4980	0.4960	0.750	0.729	0.312	0.302	3/8	0.3750	16	0.625	0.093	1/4	0.250
5/8"	0.625	0.6230	0.6210	0.875	0.853	0.375	0.365	1/2	0.5000	13	0.750	0.115	5/16	0.312
3/4"	0.750	0.7480	0.7460	1.000	0.977	0.500	0.490	5/8	0.6250	11	0.875	0.136	3/8	0.375
1"	1.000	0.9980	0.9960	1.312	1.287	0.625	0.610	3/4	0.7500	10	1.000	0.150	1/2	0.500
1-1/4"	1.250	1.2480	1.2460	1.750	1.723	0.750	0.735	7/8	0.8750	9	1.125	0.222	5/8	0.625

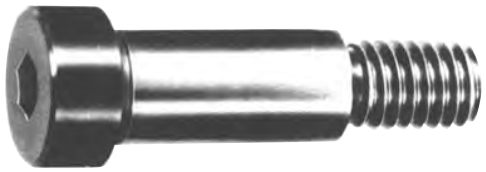
B

Hex Socket Shoulder Screws

UNRC COARSE THREADS

HEAT TREATED ALLOY STEEL

UNIFIED 3A THREAD FIT
MEETS ASME/ANSI B18.3



Sold in full packages only.

For Technical Information chart see previous page.

Shoulder Dia.	Shoulder Length	UNRC Thread	*SPAENAUR No.*	Unit Pkg. Qty.
1/4"	3/8"	**10-24**	**HK358-551**	25
	1/2"		**HK358-526**	25
	5/8"		**HK358-552**	25
1/8" Key	3/4"		**HK358-553**	25
	1"		**HK358-554**	25
	1-1/4"		**HK358-555**	25
	1-1/2"		**HK358-556**	25
5/16"	3/8"	**1/4"-20**	**HK358-557**	25
	1/2"		**HK358-558**	25
	5/8"		**HK358-559**	25
	3/4"		**HK358-560**	25
5/32" Key	1"		**HK358-561**	25
	1-1/4"		**HK358-562**	25
	1-1/2"		**HK358-563**	25
	1-3/4"		**HK358-564**	25
	2"		**HK358-565**	25
3/8"	3/8"	**5/16"-18**	**HK358-566**	25
	1/2"		**HK358-567**	25
	5/8"		**HK358-568**	25
3/16" Key	3/4"		**HK358-569**	25
	1"		**HK358-570**	25
	1-1/4"		**HK358-571**	25
	1-1/2"		**HK358-572**	25
	1-3/4"		**HK358-573**	25
	2"		**HK358-574**	25
	2-1/4"		**HK358-575**	25
	2-1/2"		**HK358-576**	25
	2-3/4"		**HK358-577**	25
	3"		**HK358-578**	25
	3-1/4"		**HK358-579**	25
	3-1/2"		**HK358-580**	25
	4"		**HK358-582**	25
1/2"	1/2"	**3/8"-16**	**HK358-583**	25
	5/8"		**HK358-584**	25
	3/4"		**HK358-585**	25
1/4" Key	1"		**HK358-586**	25
	1-1/4"		**HK358-587**	25
	1-1/2"		**HK358-588**	25
	1-3/4"		**HK358-589**	25
	2"		**HK358-590**	25
	2-1/4"		**HK358-591**	25
	2-1/2"		**HK358-592**	25
	2-3/4"		**HK358-593**	25
Cont'd…	3"		**HK358-594**	25

Shoulder Dia.	Shoulder Length	UNRC Thread	*SPAENAUR No.*	Unit Pkg. Qty.
…Cont'd.				
1/2"	3-1/4"	**3/8"-16**	**HK358-595**	25
	3-1/2"		**HK358-596**	25
	3-3/4"		**HK358-597**	25
1/4" Key	4"		**HK358-598**	25
	4-1/4"		**HK358-1627**	25
	4-1/2"		**HK358-599**	10
	4-3/4"		**HK358-1628**	10
	5"		**HK358-600**	10
5/8"	1-1/4"	**1/2"-13**	**HK358-601**	25
	1-1/2"		**HK358-602**	25
	1-3/4"		**HK358-603**	25
5/16" Key	2"		**HK358-604**	25
	2-1/4"		**HK358-605**	25
	2-1/2"		**HK358-606**	25
	2-3/4"		**HK358-607**	25
	3"		**HK358-608**	25
	3-1/4"		**HK358-609**	25
	3-1/2"		**HK358-610**	25
	3-3/4"		**HK358-611**	25
	4"		**HK358-612**	10
	4-1/4"		**HK358-1629**	10
	4-1/2"		**HK358-613**	10
	4-3/4"		**HK358-1630**	10
	5"		**HK358-614**	10
	5-1/2"		**HK358-615**	10
	6"		**HK358-616**	10
3/4"	1-1/2"	**5/8"-11**	**HK358-617**	10
	1-3/4"		**HK358-618**	10
	2"		**HK358-619**	10
3/8" Key	2-1/4"		**HK358-620**	10
	2-1/2"		**HK358-621**	10
	2-3/4"		**HK358-622**	10
	3"		**HK358-623**	10
	3-1/4"		**HK358-624**	10
	3-1/2"		**HK358-625**	10
	3-3/4"		**HK358-626**	10
	4"		**HK358-627**	10
	4-1/4"		**HK358-1631**	10
	4-1/2"		**HK358-628**	10
	4-3/4"		**HK358-1632**	10
	5"		**HK358-629**	10
	5-1/2"		**HK358-630**	10
	6"		**HK358-631**	10

B

Socket Head Cap Screws

UNRC COARSE THREAD SERIES STAINLESS STEEL

NON-HEAT TREATED • UNIFIED 3A THREAD FIT
MEETS ASME/ANSI B18.3

For Thread Lengths see chart on page B218.

Sold in full packages only.

DIA., Threads per Inch and Key Size	LGTH. Under Head	*SPAENAUR No.*	Unit Pkg. Qty.
#2 - 56	1/4"	**HK358-965**	100
	3/8"	**HK358-966**	100
5/64" Key			
#4 - 40	1/4"	**HK358-967**	100
	3/8"	**HK358-968**	100
	1/2"	**HK358-969**	100
3/32" Key			
#6 - 32	1/4"	**HK358-970**	100
	3/8"	**HK358-971**	100
	1/2"	**HK358-972**	100
7/64" Key	5/8"	**HK358-973**	100
	3/4"	**HK358-974**	100
#8 - 32	3/8"	**HK358-975**	100
	1/2"	**HK358-976**	100
	5/8"	**HK358-977**	100
9/64" Key	3/4"	**HK358-978**	100
	1"	**HK358-979**	100
#10 - 24	3/8"	**HK358-980**	100
	1/2"	**HK358-981**	100
	5/8"	**HK358-982**	100
5/32" Key	3/4"	**HK358-983**	100
	7/8"	**HK358-984**	100
1/4"- 20	3/8"	**HK358-985**	100
	1/2"	**HK358-986**	100
	5/8"	**HK358-987**	100
3/16" Key	3/4"	**HK358-988**	100
	7/8"	**HK358-989**	100
	1"	**HK358-990**	100
	1-1/4"	**HK358-991**	100
	1-1/2"	**HK358-992**	100
	1-3/4"	**HK358-993**	100
	2"	**HK358-994**	100
5/16"- 18	1/2"	**HK358-995**	100
	3/4"	**HK358-996**	100
	7/8"	**HK358-997**	100
1/4" Key	1"	**HK358-998**	100
Cont'd…	1-1/4"	**HK358-999**	100
5/16"-18	1-1/2"	**HK358-1600**	100
	2"	**HK358-1601**	100
3/8"- 16	1/2"	**HK358-1602**	100
	5/8"	**HK358-1603**	100
	3/4"	**HK358-1604**	100
5/16" Key	1"	**HK358-1605**	100
	1-1/4"	**HK358-1606**	100
	1-1/2"	**HK358-1607**	100
	1-3/4"	**HK358-1608**	50
	2"	**HK358-1609**	50
	2-1/2"	**HK358-1610**	50
1/2"- 13	1"	**HK358-1611**	50
	1-1/4"	**HK358-1612**	50
	1-1/2"	**HK358-1613**	50
3/8" Key	1-3/4"	**HK358-1614**	50
	2"	**HK358-1615**	50

Socket Head Cap Screws

UNRF FINE THREAD SERIES STAINLESS STEEL

NON-HEAT TREATED • UNIFIED 3A THREAD FIT • MEETS ASME/ANSI B18.3

Sold in full packages only.

DIA., Threads per Inch and Key Size	LGTH. Under Head	*SPAENAUR No.*	Unit Pkg. Qty.
#10 - 32	3/8"	**HK358-1616**	100
	1/2"	**HK358-1617**	100
	5/8"	**HK358-1618**	100
5/32" Key	3/4"	**HK358-1619**	100
	1"	**HK358-1620**	100
	1-1/4"	**HK358-1621**	100
	1-1/2"	**HK358-1622**	100
1/4"- 28	5/8"	**HK358-1623**	100
	3/4"	**HK358-1624**	100
	1"	**HK358-1625**	100
3/16" Key			

CATALOG 13

Metric Socket Head Cap Screws

HEAT TREATED ALLOY STEEL TO GRADE 12.9

ISO METRIC THREADS TO ANSI B1.13M

Sold in full packages only.

*Denotes Non-ANSI Standard

B

DIA., Threads per Inch and Key Size	LGTH. Under Head	*SPAENAUR No.*	Unit Pkg. Qty.
M2 Pitch .4 1.5 mm Key	4	**HK358-2000**	100
	5	**HK358-2001**	100
	6	**HK358-2002**	100
	8	**HK358-2003**	100
	10	**HK358-2004**	100
	12	**HK358-2005**	100
M2.5 Pitch .45 2.0 mm Key	5	**HK358-2006**	100
	6	**HK358-2007**	100
	8	**HK358-2008**	100
	10	**HK358-2009**	100
	12	**HK358-2010**	100
M3 Pitch .50 2.5 mm Key	5	**HK358-2011**	100
	6	**HK358-2012**	100
	8	**HK358-2013**	100
	10	**HK358-2014**	100
	12	**HK358-2015**	100
	15*	**HK358-2016**	100
	16	**HK358-2017**	100
	20	**HK358-2018**	100
	25	**HK358-2019**	100
	30	**HK358-2020**	100
	35	**HK358-2021**	100
M4 Pitch 0.70 3 mm Key	5	**HK358-2022**	100
	6	**HK358-2023**	100
	8	**HK358-2024**	100
	10	**HK358-2025**	100
	12	**HK358-2026**	100
	14*	**HK358-2027**	100
	15*	**HK358-2028**	100
	16	**HK358-2029**	100
	20	**HK358-2030**	100
	25	**HK358-2031**	100
	30	**HK358-2032**	100
	35	**HK358-2033**	100
	40	**HK358-2034**	100
	45	**HK358-2035**	100
	50	**HK358-2036**	100

DIA., Threads per Inch and Key Size	LGTH. Under Head	*SPAENAUR No.*	Unit Pkg. Qty.
M5 Pitch 0.80 4 mm Key	6	**HK358-2037**	100
	8	**HK358-2038**	100
	10	**HK358-2039**	100
	12	**HK358-2040**	100
	14*	**HK358-2041**	100
	15*	**HK358-2042**	100
	16	**HK358-2043**	100
	18*	**HK358-2044**	100
	20	**HK358-2045**	100
	22*	**HK358-2046**	100
	25	**HK358-2047**	100
	30	**HK358-2048**	100
	35	**HK358-2049**	100
	40	**HK358-2050**	100
	45	**HK358-2051**	100
	50	**HK358-2052**	100
	55	**HK358-2053**	100
	60	**HK358-2054**	100
	65	**HK358-2055**	100
	70	**HK358-2056**	100
M6 Pitch 1.00 5 mm Key	8	**HK358-2057**	100
	10	**HK358-2058**	100
	12	**HK358-2059**	100
	14*	**HK358-2060**	100
	15*	**HK358-2061**	100
	16	**HK358-2062**	100
	18*	**HK358-2063**	100
	20	**HK358-2064**	100
	22*	**HK358-2065**	100
	25	**HK358-2066**	100
	30	**HK358-2067**	100
	35	**HK358-2068**	100
	40	**HK358-2069**	100
	45	**HK358-2070**	100
	50	**HK358-2071**	100
	55	**HK358-2072**	100
	60	**HK358-2073**	100
	65	**HK358-2074**	100

DIA., Threads per Inch and Key Size	LGTH. Under Head	*SPAENAUR No.*	Unit Pkg. Qty.
Cont'd… **M6**	70	**HK358-2075**	100
	75	**HK358-2076**	100
	80	**HK358-2077**	100
	90	**HK358-2078**	100
	100	**HK358-2079**	100
	110	**HK358-2080**	100
M8 Pitch 1.25 6 mm Key	10	**HK358-2081**	100
	12	**HK358-2082**	100
	14*	**HK358-2083**	100
	15*	**HK358-2084**	100
	16	**HK358-2085**	100
	18*	**HK358-2086**	100
	20	**HK358-2087**	100
	22*	**HK358-2088**	100
	25	**HK358-2089**	100
	30	**HK358-2090**	100
	35	**HK358-2091**	100
	40	**HK358-2092**	100
	45	**HK358-2093**	100
	50	**HK358-2094**	100
	55	**HK358-2095**	100
	60	**HK358-2096**	100
	65	**HK358-2097**	100
	70	**HK358-2098**	100
	75	**HK358-2099**	100
	80	**HK358-2100**	100
	90	**HK358-2101**	100
	100	**HK358-2102**	100
	110	**HK358-2103**	100
	120	**HK358-2104**	100
	130	**HK358-2105**	100
	140	**HK358-2106**	100
	150	**HK358-2107**	100
M10 Pitch 1.50 8 mm Key	10	**HK358-2108**	100
	12	**HK358-2109**	100
	15*	**HK358-2110**	100
	16	**HK358-2111**	100
Cont'd…			

For Hex Keys see pages P2-P12 .

Tel: **1-800-265-8772** Fax: **519-744-0818**

continued… **HOLO-KROME, HEAT TREATED ALLOY STEEL TO GRADE 12.9. METRIC**

DIA., Threads per Inch and Key Size	LGTH. Under Head	*SPAENAUR No.*	Unit Pkg. Qty.
Cont'd…	18*	HK358-2112	100
M10	20	HK358-2113	100
	22*	HK358-2114	100
	25	HK358-2115	100
	30	HK358-2116	100
	35	HK358-2117	100
	40	HK358-2118	100
	45	HK358-2119	100
	50	HK358-2120	100
	55	HK358-2121	100
	60	HK358-2122	50
	65	HK358-2123	50
	70	HK358-2124	50
	75	HK358-2125	50
	80	HK358-2126	50
	90	HK358-2127	50
	100	HK358-2128	50
	110	HK358-2129	50
	130	HK358-2130	50
	150	HK358-2131	50
M12 Pitch 1.75 10 mm Key	12	HK358-2132	100
	15*	HK358-2133	100
	16	HK358-2134	100
	20	HK358-2135	100
	25	HK358-2136	100
	30	HK358-2137	100
	35	HK358-2138	100
	40	HK358-2139	50
	45	HK358-2140	50
	50	HK358-2141	50
	55	HK358-2142	50
	60	HK358-2143	50
	65	HK358-2144	50
	70	HK358-2145	50
	75	HK358-2146	50
	80	HK358-2147	25
	90	HK358-2148	25
	100	HK358-2149	25
	110	HK358-2150	25
	120	HK358-2151	25
	130	HK358-2152	25
	150	HK358-2153	10
M16 Pitch 2.00 14 mm Key	25	HK358-2154	25
	30	HK358-2155	25
	35	HK358-2156	25
	40	HK358-2157	25
	45	HK358-2158	25
	50	HK358-2159	25
	55	HK358-2160	25
Cont'd…	60	HK358-2161	25
M16	65	HK358-2162	25
	70	HK358-2163	25
	75	HK358-2164	25
	80	HK358-2165	25
	90	HK358-2166	25
	100	HK358-2167	10
	110	HK358-2168	10
	120	HK358-2169	10
	130	HK358-2170	10
	140	HK358-2171	10
	150	HK358-2172	10
	160	HK358-2173	10
	180	HK358-2174	10
M20 Pitch 2.50 17 mm Key	30	HK358-2175	50
	35	HK358-2176	10
	40	HK358-2177	10
	45	HK358-2178	10
	50	HK358-2179	10
	55	HK358-2180	10
	60	HK358-2181	10
	65	HK358-2182	10
	70	HK358-2183	10
	75	HK358-2184	10
	80	HK358-2185	10
	90	HK358-2186	10
	100	HK358-2187	10
	110	HK358-2188	10
	120	HK358-2189	10
	130	HK358-2190	10
	140	HK358-2191	10
	150	HK358-2192	10
	160	HK358-2193	10
	180	HK358-2194	10
	200	HK358-2195	10
M24 Pitch 3.00 19 mm Key	40	HK358-2196	25
	50	HK358-2197	10
	55	HK358-2198	10
	60	HK358-2199	10
	65	HK358-2200	10
	70	HK358-2201	10
	80	HK358-2202	10
	90	HK358-2203	10
	100	HK358-2204	10
	110	HK358-2205	10
	120	HK358-2206	10
	130	HK358-2207	10
	140	HK358-2208	10
	150	HK358-2209	5
Cont'd…	160	HK358-2210	5
M24	180	HK358-2211	5
	200	HK358-2212	5
	220	HK358-2213	5
	240	HK358-2214	1
	260	HK358-2215	1
M30 Pitch 3.5 22 mm Key	80	HK358-2216	10
	90	HK358-2217	10
	100	HK358-2218	10
	110	HK358-2219	5
	120	HK358-2220	5
	130	HK358-2221	5
	140	HK358-2222	5
	150	HK358-2223	1
	160	HK358-2224	1
	180	HK358-2225	1
	200	HK358-2226	1
	220	HK358-2227	1
	240	HK358-2228	1
	300	HK358-2229	1
M36 Pitch 4 27 mm Key	80	HK358-2230	5
	90	HK358-2231	1
	100	HK358-2232	1
	110	HK358-2233	1
	120	HK358-2234	1
	130	HK358-2235	1
	140	HK358-2236	1
	150	HK358-2237	1
	160	HK358-2238	1
	170	HK358-2239	1
	180	HK358-2240	1
	200	HK358-2241	1
	240	HK358-2242	1
	260	HK358-2243	1

*Denotes Non-ANSI Standard

Metric Socket Head Cap Screws - Zinc Plated

Heat Treated Alloy Steel • ISO Metric Threads • Grade 12.9
Specifications: Dimensions: ISO 4762
Thread gauging before plating

Zinc Plate and Clear Chromate

Sold in full packages only.

B

DIA., Threads per Inch and Key Size	LGTH. Under Head	*SPAENAUR No.*	Unit Pkg. Qty.
M3 Pitch .50 2.5 mm Key	6	**HK358-2244**	100
	8	**HK358-2245**	100
	10	**HK358-2246**	100
	12	**HK358-2247**	100
	15	**HK358-2248**	100
	16	**HK358-2249**	100
	20	**HK358-2250**	100
	25	**HK358-2251**	100
	30	**HK358-2252**	100
	35	**HK358-2253**	100
M4 Pitch 0.70 3 mm Key	6	**HK358-2254**	100
	8	**HK358-2255**	100
	10	**HK358-2256**	100
	12	**HK358-2257**	100
	16	**HK358-2258**	100
	20	**HK358-2259**	100
	25	**HK358-2260**	100
	30	**HK358-2261**	100
	35	**HK358-2262**	100
	40	**HK358-2263**	100
	50	**HK358-2264**	100
M5 Pitch 0.80 4 mm Key	8	**HK358-2265**	100
	10	**HK358-2266**	100
	12	**HK358-2267**	100
	16	**HK358-2268**	100
	20	**HK358-2269**	100
	25	**HK358-2270**	100
	30	**HK358-2271**	100
	35	**HK358-2272**	100
	40	**HK358-2273**	100
	45	**HK358-2274**	100
	50	**HK358-2275**	100
	70	**HK358-2276**	100
M6 Pitch 1.00 5 mm Key	8	**HK358-2277**	100
	10	**HK358-2278**	100
	12	**HK358-2279**	100
	16	**HK358-2280**	100
	20	**HK358-2281**	100
Cont'd… **M6**	25	**HK358-2282**	100
	30	**HK358-2283**	100
	35	**HK358-2284**	100
	40	**HK358-2285**	100
	45	**HK358-2286**	100
	50	**HK358-2287**	100
	55	**HK358-2288**	100
	60	**HK358-2289**	100
	70	**HK358-2290**	100
M8 Pitch 1.25 6 mm Key	10	**HK358-2291**	100
	12	**HK358-2292**	100
	16	**HK358-2293**	100
	20	**HK358-2294**	100
	25	**HK358-2295**	100
	30	**HK358-2296**	100
	35	**HK358-2297**	100
	40	**HK358-2298**	100
	45	**HK358-2299**	100
	50	**HK358-2300**	100
	55	**HK358-2301**	100
	60	**HK358-2302**	100
	65	**HK358-2303**	100
	70	**HK358-2304**	100
M10 Pitch 1.50 8 mm Key	12	**HK358-2305**	100
	16	**HK358-2306**	100
	20	**HK358-2307**	100
	25	**HK358-2308**	100
	30	**HK358-2309**	100
	35	**HK358-2310**	100
	40	**HK358-2311**	100
	45	**HK358-2312**	100
	50	**HK358-2313**	100
	55	**HK358-2314**	100
	60	**HK358-2315**	50
	65	**HK358-2316**	50
	70	**HK358-2317**	50
	75	**HK358-2318**	50
	80	**HK358-2319**	50
M12 Pitch 1.75 10 mm Key	20	**HK358-2320**	100
	25	**HK358-2321**	100
	30	**HK358-2322**	100
	35	**HK358-2323**	100
	40	**HK358-2324**	50
	45	**HK358-2325**	50
	50	**HK358-2326**	50
	55	**HK358-2327**	50
	60	**HK358-2328**	50
	65	**HK358-2329**	50
	70	**HK358-2330**	50
	75	**HK358-2331**	50
	80	**HK358-2332**	25
	90	**HK358-2333**	25
	100	**HK358-2334**	25
	110	**HK358-2335**	25
	120	**HK358-2336**	25
M16 Pitch 2.00 14 mm Key	30	**HK358-2337**	25
	35	**HK358-2338**	25
	40	**HK358-2339**	25
	45	**HK358-2340**	25
	50	**HK358-2341**	25
	55	**HK358-2342**	25
	60	**HK358-2343**	25
	65	**HK358-2344**	25
	70	**HK358-2345**	25
	75	**HK358-2346**	25
	80	**HK358-2347**	25
	90	**HK358-2348**	25
	100	**HK358-2349**	10
	110	**HK358-2350**	10
	120	**HK358-2351**	10

B

Metric Flat Head Cap Screws

HEAT TREATED ALLOY STEEL
ISO METRIC THREADS TO ANSI B1.13

Sold in full packages only.

DIA., Threads per Inch and Key Size	LGTH. Under Head	*SPAENAUR No.*	Unit Pkg. Qty.
M3 Pitch .50 2.0 mm Key	6	**HK358-2352**	100
	8	**HK358-2353**	100
	10	**HK358-2354**	100
	12	**HK358-2355**	100
	16	**HK358-2356**	100
	20	**HK358-2357**	100
	25	**HK358-2358**	100
M4 Pitch 0.70 2.55 mm Key	8	**HK358-2359**	100
	10	**HK358-2360**	100
	12	**HK358-2361**	100
	16	**HK358-2362**	100
	20	**HK358-2363**	100
	25	**HK358-2364**	100
	30	**HK358-2365**	100
	35	**HK358-2366**	100
	40	**HK358-2367**	100
M5 Pitch 0.80 3 mm Key	8	**HK358-2368**	100
	10	**HK358-2369**	100
	12	**HK358-2370**	100
	16	**HK358-2371**	100
	20	**HK358-2372**	100
	25	**HK358-2373**	100
	30	**HK358-2374**	100
	35	**HK358-2375**	100
	40	**HK358-2376**	100
	50	**HK358-2377**	100

DIA., Threads per Inch and Key Size	LGTH. Under Head	*SPAENAUR No.*	Unit Pkg. Qty.
M6 Pitch 1.00 4 mm Key	10	**HK358-2378**	100
	12	**HK358-2379**	100
	16	**HK358-2380**	100
	20	**HK358-2381**	100
	25	**HK358-2382**	100
	30	**HK358-2383**	100
	35	**HK358-2384**	100
	40	**HK358-2385**	100
	45	**HK358-2386**	100
	50	**HK358-2387**	100
M8 Pitch 1.25 5 mm Key	12	**HK358-2388**	100
	16	**HK358-2389**	100
	20	**HK358-2390**	100
	25	**HK358-2391**	100
	30	**HK358-2392**	100
	35	**HK358-2393**	100
	40	**HK358-2394**	100
	45	**HK358-2395**	100
	50	**HK358-2396**	100
	60	**HK358-2397**	100
	70	**HK358-2398**	100
M10 Pitch 1.50 6 mm Key Cont'd…	16	**HK358-2399**	100
	20	**HK358-2400**	100
	25	**HK358-2401**	100
	30	**HK358-2402**	100

DIA., Threads per Inch and Key Size	LGTH. Under Head	*SPAENAUR No.*	Unit Pkg. Qty.
Cont'd… **M10**	35	**HK358-2403**	100
	40	**HK358-2404**	100
	45	**HK358-2405**	100
	50	**HK358-2406**	100
	60	**HK358-2407**	100
	70	**HK358-2408**	50
M12 Pitch 1.75 8 mm Key	20	**HK358-2409**	100
	25	**HK358-2410**	100
	30	**HK358-2411**	100
	35	**HK358-2412**	100
	40	**HK358-2413**	100
	45	**HK358-2414**	50
	50	**HK358-2415**	50
	55	**HK358-2416**	50
	60	**HK358-2417**	50
M16 Pitch 2.00 10 mm Key	30	**HK358-2418**	50
	35	**HK358-2419**	50
	40	**HK358-2420**	25
	45	**HK358-2421**	25
	50	**HK358-2422**	25
	60	**HK358-2423**	25
	70	**HK358-2424**	25

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SPAENAUR

Metric Button Head Socket Cap Screws

HEAT TREATED ALLOY STEEL
ISO METRIC THREADS TO ANSI B1.13

Sold in full packages only.

DIA., Threads per Inch and Key Size	LGTH. Under Head	*SPAENAUR No.*	Unit Pkg. Qty.
M3 Pitch .50 2 mm Key	8	**HK358-2425**	100
	10	**HK358-2426**	100
	12	**HK358-2427**	100
	16	**HK358-2428**	100
M4 Pitch 0.70 2.55 mm Key	8	**HK358-2429**	100
	10	**HK358-2430**	100
	12	**HK358-2431**	100
	16	**HK358-2432**	100
M5 Pitch 0.80 3 mm Key	10	**HK358-2433**	100
	12	**HK358-2434**	100
	16	**HK358-2435**	100
	20	**HK358-2436**	100
	25	**HK358-2437**	100
	30	**HK358-2438**	100
M6 Pitch 1.00 4 mm Key	10	**HK358-2439**	100
	12	**HK358-2440**	100
	16	**HK358-2441**	100
	20	**HK358-2442**	100
	25	**HK358-2443**	100
	30	**HK358-2444**	100
M8 Pitch 1.25 5 mm Key	10	**HK358-2445**	100
	12	**HK358-2446**	100
	16	**HK358-2447**	100
	20	**HK358-2448**	100
	25	**HK358-2449**	100
	30	**HK358-2450**	100
	35	**HK358-2451**	100
	40	**HK358-2452**	100
M10 Pitch 1.50 6 mm Key	16	**HK358-2453**	100
	20	**HK358-2454**	100
	25	**HK358-2455**	100
	30	**HK358-2456**	100
	40	**HK358-2457**	100
M12 Pitch 1.75 8 mm Key	20	**HK358-2458**	100
	25	**HK358-2459**	100

Hex Socket Shoulder Screws

HEAT TREATED ALLOY STEEL
ISO METRIC THREADS TO ANSI B1.13

Sold in full packages only.

Shoulder Dia., Thrd./Pitch and Key Size	Shldr. Lgth.	*SPAENAUR No.*	Unit Pkg. Qty.
6 mm (5.987-5.951) M5 x 0.8 p 3 mm Key	10	**HK358-2460**	25
	12	**HK358-2461**	25
	16	**HK358-2462**	25
	20	**HK358-2463**	25
8 mm (7.987-7.951) M6 x 1.0 p 4 mm Key	12	**HK358-2464**	25
	16	**HK358-2465**	25
	20	**HK358-2466**	25
	25	**HK358-2467**	25
	30	**HK358-2468**	25
	40	**HK358-2469**	25
10 mm (9.987-9.951) M8 x 1.25 p 5 mm Key	16	**HK358-2470**	25
	20	**HK358-2471**	25
	25	**HK358-2472**	25
	30	**HK358-2473**	25
	40	**HK358-2474**	25
	50	**HK358-2475**	25
	60	**HK358-2476**	25
	70	**HK358-2477**	25
	80	**HK358-2478**	25
12 mm (11.984-11.941) M10 x 1.5 p 6 mm Key	16	**HK358-2479**	25
	20	**HK358-2480**	25
	25	**HK358-2481**	25
	30	**HK358-2482**	25
	40	**HK358-2483**	25
	50	**HK358-2484**	25
	60	**HK358-2485**	25
	70	**HK358-2486**	25
16 mm (15.984-15.941) M12 x 1.75 p 8 mm Key	30	**HK358-2487**	25
	50	**HK358-2488**	25
	70	**HK358-2489**	25
	90	**HK358-2490**	10

B

Hex Socket Set Screws - Cup Point

HEAT TREATED ALLOY STEEL • UNIFIED 3A THREAD FIT
MEETS ASME/ANSI B18.3
COARSE AND FINE THREAD SERIES

Sold in full packages only.

DIA., Threads per Inch and Key Size	Over-all Lgth.	*SPAENAUR No.* UNC	UNF	Unit Pkg. Qty.
#2 (.086") 56 UNC .035" Key	1/16"	**HK358-1000**	-	100
	3/32"	**HK358-1001**	-	
	1/8"	**HK358-1002**	-	
	3/16"	**HK358-1003**	-	
	1/4"	**HK358-1004**	-	
#3 (.099") 48 UNC .050" Key	3/32"	**HK358-1005**	-	100
	1/8"	**HK358-1006**	-	
	1/4"	**HK358-1007**	-	
#4 (.112") 40 UNC 48 UNF .050" Key	1/8"	**HK358-1008**	**HK358-1142**	100
	3/16"	**HK358-1009**	**HK358-1143**	
	1/4"	**HK358-1010**	**HK358-1144**	
	5/16"	**HK358-1011**	-	
	3/8"	**HK358-1012**	-	
	1/2"	**HK358-1013**	-	
	5/8"	**HK358-1014**	-	
#5 (.125") 40 UNC 44 UNF 1/16" Key	1/8"	**HK358-1015**	**HK358-1145**	100
	3/16"	**HK358-1016**	-	
	1/4"	**HK358-1017**	-	
	5/16"	**HK358-1018**	-	
	3/8"	**HK358-1019**	-	
	1/2"	**HK358-1020**	-	
	5/8"	**HK358-1021**	-	
	3/4"	**HK358-1022**	-	
#6 (.138") 32 UNC 40 UNF 1/16" Key	1/8"	**HK358-1023**	**HK358-1146**	100
	3/16"	**HK358-1024**	**HK358-1147**	
	1/4"	**HK358-1025**	**HK358-1148**	
	5/16"	**HK358-1026**	-	
	3/8"	**HK358-1027**	**HK358-1149**	
	1/2"	**HK358-1028**	-	
	5/8"	**HK358-1029**	-	
	3/4"	**HK358-1030**	-	
	7/8"	**HK358-1031**	-	
	1"	**HK358-1032**	-	
#8 (.164") 32 UNC 36 UNF 5/64" Key	1/8"	**HK358-1033**	**HK358-1150**	100
	3/16"	**HK358-1034**	**HK358-1151**	
	1/4"	**HK358-1035**	**HK358-1152**	
	5/16"	**HK358-1036**	-	
	3/8"	**HK358-1037**	**HK358-1153**	
	7/16"	**HK358-1038**	-	
	1/2"	**HK358-1039**	-	
	5/8"	**HK358-1040**	-	
	3/4"	**HK358-1041**	-	
	7/8"	**HK358-1042**	-	
	1"	**HK358-1043**	-	

DIA., Threads per Inch and Key Size	Over-all Lgth.	*SPAENAUR No.* UNC	UNF	Unit Pkg. Qty.
#10 (.190") 24 UNC 32 UNF 3/32" Key	3/16"	**HK358-1044**	**HK358-1154**	100
	1/4"	**HK358-1045**	**HK358-1155**	
	5/16"	**HK358-1046**	**HK358-1156**	
	3/8"	**HK358-1047**	**HK358-1157**	
	1/2"	**HK358-1048**	**HK358-1158**	
	5/8"	**HK358-1049**	**HK358-1159**	
	3/4"	**HK358-1050**	**HK358-1160**	
	7/8"	**HK358-1051**	-	
	1"	**HK358-1052**	**HK358-1161**	
	1-1/4"	**HK358-1053**	**HK358-1162**	
1/4" (.250") 20 UNC 28 UNF 1/8" Key	3/16"	**HK358-1054**	**HK358-1163**	100
	1/4"	**HK358-1055**	**HK358-1164**	
	5/16"	**HK358-1056**	**HK358-1165**	
	3/8"	**HK358-1057**	**HK358-1166**	
	1/2"	**HK358-1058**	**HK358-1167**	
	5/8"	**HK358-1059**	**HK358-1168**	
	3/4"	**HK358-1060**	**HK358-1169**	
	7/8"	**HK358-1061**	-	
	1"	**HK358-1062**	**HK358-1170**	
	1-1/4"	**HK358-1063**	**HK358-1171**	
	1-1/2"	**HK358-1064**	-	
	1-3/4"	**HK358-1065**	-	50
	2"	**HK358-1066**	-	
5/16" (.312") 18 UNC 24 UNF 5/32" Key	1/4"	**HK358-1067**	**HK358-1172**	100
	5/16"	**HK358-1068**	**HK358-1173**	
	3/8"	**HK358-1069**	**HK358-1174**	
	7/16"	**HK358-1070**	-	
	1/2"	**HK358-1071**	**HK358-1175**	
	5/8"	**HK358-1072**	**HK358-1176**	
	3/4"	**HK358-1073**	**HK358-1177**	
	7/8"	**HK358-1074**	-	
	1"	**HK358-1075**	**HK358-1178**	
	1-1/4"	**HK358-1076**	-	
	1-1/2"	**HK358-1077**	-	50
	1-3/4"	**HK358-1078**	-	
	2"	**HK358-1079**	-	
3/8" (.375") 16 UNC 24 UNF 3/16" Key	1/4"	**HK358-1080**	**HK358-1179**	100
	5/16"	**HK358-1081**	-	
	3/8"	**HK358-1082**	**HK358-1180**	
	7/16"	**HK358-1083**	-	
	1/2"	**HK358-1084**	**HK358-1181**	
	5/8"	**HK358-1085**	**HK358-1182**	
	3/4"	**HK358-1086**	**HK358-1183**	
	7/8"	**HK358-1087**	-	
	1"	**HK358-1088**	**HK358-1184**	
	Cont'd.			

See Page B232 for HOLO-KROME® Point Set Screws - Inch and Metric.

Hex Socket Set Screws - Cup Point

(Continued from previous page.)

DIA., Threads per Inch and Key Size	Over-all Lgth.	SPAENAUR No. UNC	SPAENAUR No. UNF	Unit Pkg. Qty.
3/8" (.375") 16 UNC 24 UNF 3/16" Key	1-1/4"	**HK358-1089**	**HK358-1185**	100
	1-1/2"	**HK358-1090**	**HK358-1186**	
	1-3/4"	**HK358-1091**	-	50
	2"	**HK358-1092**	-	
	2-1/2"	**HK358-1093**	-	
7/16" (.437") 14 UNC 20 UNF 7/32" Key	3/8"	**HK358-1094**	**HK358-1187**	100
	7/16"	**HK358-1095**	**HK358-1188**	
	1/2"	**HK358-1096**	**HK358-1189**	
	5/8"	**HK358-1097**	-	
	3/4"	**HK358-1098**	-	
	7/8"	**HK358-1099**	-	50
	1"	**HK358-1100**	-	
	1-1/4"	**HK358-1101**	-	
	1-1/2"	**HK358-1102**	-	
	2"	**HK358-1103**	-	
1/2" (.500") 13 UNC 20 UNF 1/4" Key	3/8"	**HK358-1104**	**-**	100
	1/2"	**HK358-1105**	**HK358-1190**	
	5/8"	**HK358-1106**	-	
	3/4"	**HK358-1107**	**HK358-1191**	
	7/8"	**HK358-1108**	-	50
	1"	**HK358-1109**	**HK358-1192**	
	1-1/4"	**HK358-1110**	-	
	1-1/2"	**HK358-1111**	-	
	1-3/4"	**HK358-1112**	-	25
	2"	**HK358-1113**	-	
	2-1/2"	**HK358-1114**	-	
	3"	**HK358-1115**	-	

DIA., Threads per Inch and Key Size	Over-all Lgth.	SPAENAUR No. UNC	SPAENAUR No. UNF	Unit Pkg. Qty.
5/8" (.625") 11 UNC 18 UNF 5/16" Key	1/2"	**HK358-1116**	-	100
	5/8"	**HK358-1117**	**HK358-1193**	50
	3/4"	**HK358-1118**	-	
	1"	**HK358-1119**	**HK358-1194**	
	1-1/4"	**HK358-1120**	-	25
	1-1/2"	**HK358-1121**	-	
	1-3/4"	**HK358-1122**	-	
	2"	**HK358-1123**	-	
	2-1/2"	**HK358-1124**	-	10
	3"	**HK358-1125**	-	
3/4" (.750") 10 UNC 3/8" Key	5/8"	**HK358-1126**	**-**	50
	3/4"	**HK358-1127**	-	
	1"	**HK358-1128**	-	
	1-1/4"	**HK358-1129**	-	25
	1-1/2"	**HK358-1130**	-	
	1-3/4"	**HK358-1131**	-	10
	2"	**HK358-1132**	-	
	2-1/2"	**HK358-1133**	-	
	3"	**HK358-1134**	-	
7/8" (.875") 9 UNC 1/2" Key	7/8"	**HK358-1135**	**-**	10
	1"	**HK358-1136**	-	
	2-1/2"	**HK358-1137**	-	
1" (1.000") 8 UNC 9/16" Key	1"	**HK358-1138**	**-**	10
	1-1/2"	**HK358-1139**	-	
	2"	**HK358-1140**	-	
	3"	**HK358-1141**	-	

Hex Socket Set Screws, HALF-DOG Point, with NYLON PATCH

HEAT TREATED ALLOY STEEL TO 45/53 HRC
MEETS ASME/ANSI B18.3 **COARSE AND FINE THREAD SERIES** Sold in full packages only.

DIA., Threads per Inch and Key Size	Overall Length	SPAENAUR No.	Unit Pkg. Qty.
#8 32 UNC 9/64" Key	1/4"	**HK358-1195**	100
#10 24 UNC 5/32" Key	1/4"	**HK358-1196**	100
#10 32 UNF 5/32" Key	1/4"	**HK358-1197**	100

DIA., Threads per Inch and Key Size	Overall Length	SPAENAUR No.	Unit Pkg. Qty.
1/4" 20 UNC 3/16" Key	5/16	**HK358-1198**	100
	3/8"	**HK358-1199**	
	1/2"	**HK358-1200**	
	5/8"	**HK358-1201**	
5/16" 18 UNC 1/4" Key	3/8"	**HK358-1202**	100
	5/8"	**HK358-1203**	
	3/4"	**HK358-1204**	
3/8" 16 UNC 5/16" Key	1/2"	**HK358-1205**	100
	5/8"	**HK358-1206**	
	3/4"	**HK358-1207**	
	1"	**HK358-1208**	

See page B231 for Flat, Cone, Oval and Half-Dog Point set screws without nylon patch.

B

Hex Socket Set Screws - Cup Point

Sold in full packages only.

NON-HEAT TREATED STAINLESS STEEL • UNIFIED 3A THREAD FIT
MEETS ASME/ANSI B18.3 **COARSE AND FINE THREAD SERIES**

DIA., Threads per Inch and Key Size	Over-all Lgth.	*SPAENAUR No.* UNC	UNF	Unit Pkg. Qty.
#4 (.112") 40 UNC 48 UNF .050" Key	1/8"	**HK358-1209**	-	100
	3/16"	**HK358-1210**	-	
	1/4"	**HK358-1211**	-	
			-	
#6 (.138") 32 UNC 40 UNF 1/16" Key	1/8"	**HK358-1212**	-	100
	3/16"	**HK358-1213**	-	
	1/4"	**HK358-1214**	-	
	3/8"	**HK358-1215**	-	
	1/2"	**HK358-1216**	-	
#8 (.164") 32 UNC 36 UNF 5/64" Key	1/8"	**HK358-1217**	-	100
	3/16"	**HK358-1218**	-	
	1/4"	**HK358-1219**	-	
	5/16"	**HK358-1220**	-	
	3/8"	**HK358-1221**	-	
	1/2"	**HK358-1222**	-	
#10 (.190") 24 UNC 32 UNF 3/32" Key	3/16"	**HK358-1223**	**HK358-1246**	100
	1/4"	**HK358-1224**	**HK358-1247**	
	5/16"	-	**HK358-1248**	
	3/8"	**HK358-1225**	**HK358-1249**	
	1/2"	**HK358-1226**	**HK358-1250**	
	5/8"	-	**HK358-1251**	

DIA., Threads per Inch and Key Size	Over-all Lgth.	*SPAENAUR No.* UNC	UNF	Unit Pkg. Qty.
1/4" 20 UNC 28 UNF 1/8" Key	3/16"	**HK358-1227**	-	100
	1/4"	**HK358-1228**	**HK358-1252**	
	5/16"	**HK358-1229**	-	
	3/8"	**HK358-1230**	-	
	1/2"	**HK358-1231**	-	
	5/8"	**HK358-1232**	-	
	3/4"	**HK358-1233**	-	
5/16" 18 UNC 24 UNF 5/32" Key	1/4"	**HK358-1234**	-	100
	5/16"	**HK358-1235**	-	
	3/8"	**HK358-1236**	-	
	1/2"	**HK358-1237**	-	
3/8" 16 UNC 24 UNF 3/16" Key	3/8"	**HK358-1238**	-	100
	1/2"	**HK358-1239**	-	
	5/8"	**HK358-1240**	-	
	3/4"	**HK358-1241**	-	
	1"	**HK358-1242**	-	
1/2" 13 UNC 20 UNF 1/4" Key	1/2"	**HK358-1243**	-	100
	5/8"	**HK358-1244**	-	
	3/4"	**HK358-1245**	-	

Hex Socket Set Screws, Cup Point, with NYLON PATCH

Sold in full packages only.

NON-HEAT TREATED STAINLESS STEEL • UNIFIED 3A THREAD FIT
MEETS ASME/ANSI B18.3 **COARSE AND FINE THREAD SERIES**

DIA., Threads per Inch and Key Size	Over-all Lgth.	*SPAENAUR No.* UNC	UNF	Unit Pkg. Qty.
#4 (.112") 40 UNC 48 UNF 3/32" Key	3/16"	**HK358-1253**	-	100
	1/4"	**HK358-1254**	-	
#6 (.138") 32 UNC 40 UNF 7/64" Key	3/16"	**HK358-1255**	-	100
	1/4"	**HK358-1256**	-	
	3/8"	**HK358-1257**	-	
	1/2"	**HK358-1258**	-	
#8 (.164") 32 UNC 36 UNF 9/64" Key	3/16"	**HK358-1259**	-	100
	1/4"	**HK358-1260**	-	
	5/16"	**HK358-1261**	-	
	3/8"	**HK358-1262**	-	
	1/2"	**HK358-1263**	-	
#10 (.190") 24 UNC 32 UNF 5/32" Key	3/16"	**HK358-1264**	**HK358-1281**	100
	1/4"	**HK358-1265**	**HK358-1282**	
	5/16"	-	**HK358-1283**	
	3/8"	**HK358-1266**	**HK358-1284**	
	1/2"	**HK358-1267**	**HK358-1285**	
	5/8"	-	**HK358-1286**	

DIA., Threads per Inch and Key Size	Over-all Lgth.	*SPAENAUR No.* UNC	UNF	Unit Pkg. Qty.
1/4" 20 UNC 28 UNF 3/16" Key	1/4"	**HK358-1268**	**HK358-1287**	100
	5/16"	**HK358-1269**	-	
	3/8"	**HK358-1270**	-	
	1/2"	**HK358-1271**	-	
	5/8"	**HK358-1272**	-	
	3/4"	**HK358-1273**	-	
5/16" 18 UNC 24 UNF 1/4" Key	5/16"	**HK358-1274**	-	100
	3/8"	**HK358-1275**	-	
	1/2"	**HK358-1276**	-	
3/8" 16 UNC 24 UNF 5/16" Key	3/8"	**HK358-1277**	-	100
	1/2"	**HK358-1278**	-	
	5/8"	**HK358-1279**	-	
	3/4"	**HK358-1280**	-	

CATALOG 13

Hex Socket Set Screws - COARSE AND FINE THREAD SERIES

HEAT TREATED ALLOY STEEL • UNIFIED 3A THREAD FIT MEETS ASME/ANSI B18.3

Sold in full packages only.

DIA., Threads per Inch, Key Size	Over-all Lgth.	FLAT POINT *SPAENAUR No's.* UNC	FLAT POINT *SPAENAUR No's.* UNF	CONE POINT *SPAENAUR No's.* UNC	CONE POINT *SPAENAUR No's.* UNF	OVAL POINT *SPAENAUR No's.* UNC	OVAL POINT *SPAENAUR No's.* UNF	HALF DOG *SPAENAUR No's.* UNC	HALF DOG *SPAENAUR No's.* UNF	Unit Pkg. Qty.
#4 40 UNC 48 UNF .050" Key	1/8"	HK358-1288	-	-	-	-	-	-	-	100
	3/16"	HK358-1289	-	-	-	-	-	-	-	
	1/4"	HK358-1290	-	-	-	-	-	-	-	
	-									
#5 40 UNC 44 UNF 1/16" Key	1/8"	HK358-1291	-	-	-	-	-	-	-	100
	-									
	-									
	-									
#6 32 UNC 40 UNF 1/16" Key	1/8"	HK358-1292	-	HK358-1335	-	-	-	-	-	100
	3/16"	HK358-1293	-	HK358-1336	-	-	-	-	-	
	1/4"	HK358-1294	-	HK358-1337	-	-	-	-	-	
	3/8"	HK358-1295	-	-	-	-	-	-	-	
#8 32 UNC 36 UNF 5/64" Key	1/8"	HK358-1296	-	-	-	-	-	-	-	100
	3/16"	HK358-1297	-	-	-	-	-	-	-	
	1/4"	HK358-1298	-	HK358-1338	-	HK358-1354	-	HK358-1361	-	
	3/8"	HK358-1299	-	HK358-1339	-	-	-	HK358-1362	-	
	1/2"	HK358-1300	-	-	-	-	-	HK358-1363	-	
#10 24 UNC 32 UNF 3/32" Key	3/16"	HK358-1301	HK358-1327	-	HK358-1351	-	HK358-1359	-	HK358-1391	100
	1/4"	HK358-1302	HK358-1328	HK358-1340	HK358-1352	-	-	HK358-1364	HK358-1392	
	5/16"	HK358-1303	-	-	-	-	-	-	-	
	3/8"	HK358-1304	-	HK358-1341	-	-	-	HK358-1365	-	
1/4" 20 UNC 28 UNF 1/8" Key	3/16"	HK358-1305	-	-	-	-	-	-	-	100
	1/4"	HK358-1306	HK358-1329	HK358-1342	HK358-1353	-	HK358-1360	HK358-1366	HK358-1393	
	5/16"	HK358-1307	-	-	-	-	-	HK358-1367	-	
	3/8"	HK358-1308	HK358-1330	HK358-1343	-	HK358-1355	-	HK358-1368	HK358-1394	
	1/2"	HK358-1309	-	HK358-1344	-	HK358-1356	-	HK358-1369	-	
	5/8"	HK358-1310	-	-	-	-	-	HK358-1370	-	
	3/4"	HK358-1311	-	HK358-1345	-	-	-	HK358-1371	-	
	1"	HK358-1312	-	HK358-1346	-	-	-	HK358-1372	-	
5/16" 18 UNC 24 UNF 5/32" Key	1/4"	HK358-1313	-	-	-	-	-	-	-	100
	5/16"	HK358-1314	-	-	-	-	-	HK358-1373	-	
	3/8"	HK358-1315	HK358-1331	HK358-1347	-	-	-	HK358-1374	HK358-1395	
	1/2"	HK358-1316	-	HK358-1348	-	-	-	HK358-1375	-	
	5/8"	-	-	-	-	-	-	HK358-1376	-	
	3/4"	-	-	-	-	-	-	HK358-1377	-	
	1"	HK358-1317	-	-				HK358-1378		
3/8" 16 UNC 24 UNF 3/16" Key	1/4"	HK358-1318	-	-	-	-	-	-	-	100
	3/8"	HK358-1319	HK358-1332	HK358-1349	-	-	-	HK358-1379	-	
	1/2"	HK358-1320	HK358-1333	HK358-1350	-	-	-	HK358-1380	HK358-1396	
	5/8"	-	-	-	-	HK358-1357	-	HK358-1381	-	
	3/4"	HK358-1321	-	-	-	-	-	HK358-1382	-	
	1"	HK358-1322	-	-	-	-	-	HK358-1383	-	
	1-1/4"	-	-	-	-	-	-	HK358-1384	-	
1/2" 13 UNC 20 UNF 1/4" Key	3/8"	HK358-1323	-	-	-	-	-	-	-	100
	1/2"	HK358-1324	HK358-1334	-	-	-	-	HK358-1385	-	
	5/8"	-	-	-	-	-	-	HK358-1386	-	
	3/4"	HK358-1325	-	-	-	-	-	HK358-1387	-	
	1"	-	-	-	-	HK358-1358	-	HK358-1388	-	50
	1-1/4"	-	-	-	-	-	-	HK358-1389	-	
5/8" 11 UNC 18 UNF 5/16" Key	5/8"	HK358-1326	-	-	-	-	-	-	-	50
	1"	-	-	-	-	-	-	HK358-1390	-	

B

Hex Socket Set Screws - HOLO-KNURL® Point

COARSE AND FINE THREAD SERIES
HEAT TREATED ALLOY STEEL • UNIFIED 3A THREAD FIT
MEETS ASME/ANSI B18.3

Sold in full packages only.

HOLO-KNURL® POINT

Internal Knurl Point Socket Set Screws feature:
- Ratchet Locking Action
- Thermo-Forged® Point and Socket
- Superior Holding Power
- Precision Ground or Rolled Threads

DIA., Threads per Inch and Key Size	Over-all Lgth.	*SPAENAUR No.* UNC	*SPAENAUR No.* UNF	Unit Pkg. Qty.
#4 (.112") 40 UNC 48 UNF .050" Key	1/8"	**HK358-1397**	-	100
#6 (.138") 32 UNC 40 UNF 1/16" Key	1/8"	**HK358-1398**	**HK358-1427**	100
	3/16"	**HK358-1399**	-	
	1/4"	**HK358-1400**	-	
#8 (.164") 32 UNC 36 UNF 5/64" Key	1/8"	**HK358-1401**	-	100
	3/16"	**HK358-1402**	-	
	1/4"	**HK358-1403**	-	
	3/8"	**HK358-1404**	-	
#10 (.190") 24 UNC 32 UNF 3/32" Key	3/16"	-	**HK358-1428**	100
	1/4"	**HK358-1405**	**HK358-1429**	
	3/8"	-	**HK358-1430**	
	1/2"	-	**HK358-1431**	

DIA., Threads per Inch and Key Size	Over-all Lgth.	*SPAENAUR No.* UNC	*SPAENAUR No.* UNF	Unit Pkg. Qty.
1/4" (.250") 20 UNC 28 UNF 1/8" Key	3/16"	**HK358-1406**	**HK358-1432**	100
	1/4"	**HK358-1407**	**HK358-1433**	
	5/16"	**HK358-1408**	**HK358-1434**	
	3/8"	**HK358-1409**	**HK358-1435**	
	1/2"	**HK358-1410**	-	
	3/4"	**HK358-1411**	-	
5/16" (.312") 18 UNC 24 UNF 5/32" Key	1/4"	**HK358-1412**	**HK358-1436**	100
	5/16"	**HK358-1413**	**HK358-1437**	
	3/8"	**HK358-1414**	**HK358-1438**	
	1/2"	**HK358-1415**	**HK358-1439**	
	5/8"	**HK358-1416**	-	
	3/4"	**HK358-1417**	-	
	1	**HK358-1418**	-	
3/8" (.375") 16 UNC 24 UNF 3/16" Key	3/8"	**HK358-1419**	**HK358-1440**	100
	1/2"	**HK358-1420**	**HK358-1441**	
	3/4"	**HK358-1421**	-	
	1"	**HK358-1422**	-	
1/2" (.500") 13 UNC 20 UNF 1/4" Key	1/2"	**HK358-1423**	**-**	100
	5/8"	**HK358-1424**	-	
	3/4"	**HK358-1425**	-	50
	1"	**HK358-1426**	-	

Metric Hex Socket Set Screws - HOLO-KNURL® Point

HEAT TREATED ALLOY STEEL TO 45-53 HRC
ISO Metric Threads to ASME/ANSI B18.13M • Meets ASTM F912M

Sold in full packages only.

DIA., Pitch & Key Size	Overall Length	*SPAENAUR No.*	Unit Pkg. Qty.
M3 Pitch .50 1.5 mm Key	3 mm	**HK358-1442**	100
	4 mm	**HK358-1443**	
	5 mm	**HK358-1444**	
	6 mm	**HK358-1445**	
M4 Pitch .70 2 mm Key	4 mm	**HK358-1446**	100
	5 mm	**HK358-1447**	
	6 mm	**HK358-1448**	
	8 mm	**HK358-1449**	
M5 Pitch .80 2.5 mm Key	5 mm	**HK358-1450**	100
	6 mm	**HK358-1451**	
	8 mm	**HK358-1452**	
	10 mm	**HK358-1453**	

DIA., Pitch & Key Size	Overall Length	*SPAENAUR No.*	Unit Pkg. Qty.
M6 Pitch 1.00 3 mm Key	6 mm	**HK358-1454**	100
	8 mm	**HK358-1455**	
	10 mm	**HK358-1456**	
	12 mm	**HK358-1457**	
M8 Pitch 1.25 4 mm Key	8 mm	**HK358-1458**	100
	10 mm	**HK358-1459**	
	12 mm	**HK358-1460**	
	16 mm	**HK358-1461**	

Metric Hex Socket Set Screws - Cup Point

HEAT TREATED ALLOY STEEL TO ROCKWELL C45 MIN.
ISO METRIC THREADS TO ANSI B1.13M

Sold in full packages only.

DIA., Pitch & Key Size	Overall Length	*SPAENAUR No.*	Unit Pkg. Qty.
M3 Pitch 0.50 1.5 mm Key	3 mm	**HK358-1462**	100
	4 mm	**HK358-1463**	
	5 mm	**HK358-1464**	
	6 mm	**HK358-1465**	
	8 mm	**HK358-1466**	
	10 mm	**HK358-1467**	
	12 mm	**HK358-1468**	
M4 Pitch 0.70 2 mm Key	4 mm	**HK358-1469**	100
	5 mm	**HK358-1470**	
	6 mm	**HK358-1471**	
	8 mm	**HK358-1472**	
	10 mm	**HK358-1473**	
	12 mm	**HK358-1474**	
	16 mm	**HK358-1475**	
	20 mm	**HK358-1476**	
	25 mm	**HK358-1477**	
M5 Pitch 0.80 2.5 mm Key	5 mm	**HK358-1478**	100
	6 mm	**HK358-1479**	
	8 mm	**HK358-1480**	
	10 mm	**HK358-1481**	
	12 mm	**HK358-1482**	
	16 mm	**HK358-1483**	
	20 mm	**HK358-1484**	
	25 mm	**HK358-1485**	
M6 Pitch 1.00 3 mm Key	6 mm	**HK358-1486**	100
	8 mm	**HK358-1487**	
	10 mm	**HK358-1488**	
	12 mm	**HK358-1489**	
	16 mm	**HK358-1490**	
	20 mm	**HK358-1491**	
	25 mm	**HK358-1492**	
	30 mm	**HK358-1493**	
	35 mm	**HK358-1494**	
	40 mm	**HK358-1495**	
M8 Pitch 1.25 4 mm Key	8 mm	**HK358-1496**	100
	10 mm	**HK358-1497**	
	12 mm	**HK358-1498**	
	16 mm	**HK358-1499**	
	20 mm	**HK358-1500**	
	25 mm	**HK358-1501**	
	30 mm	**HK358-1502**	
	35 mm	**HK358-1503**	
	40 mm	**HK358-1504**	
	45 mm	**HK358-1505**	
	50 mm	**HK358-1506**	

DIA., Pitch & Key Size	Overall Length	*SPAENAUR No.*	Unit Pkg. Qty.
M10 Pitch 1.50 5 mm Key	10 mm	**HK358-1507**	100
	12 mm	**HK358-1508**	
	16 mm	**HK358-1509**	
	20 mm	**HK358-1510**	
	25 mm	**HK358-1511**	
	30 mm	**HK358-1512**	
	35 mm	**HK358-1513**	
	40 mm	**HK358-1514**	
	45 mm	**HK358-1515**	
	50 mm	**HK358-1516**	
M12 Pitch 1.75 6 mm Key	12 mm	**HK358-1517**	50
	16 mm	**HK358-1518**	
	20 mm	**HK358-1519**	
	25 mm	**HK358-1520**	
	30 mm	**HK358-1521**	
	35 mm	**HK358-1522**	
	40 mm	**HK358-1523**	25
	45 mm	**HK358-1524**	
	50 mm	**HK358-1525**	
M16 Pitch 2.00 8 mm Key	16 mm	**HK358-1526**	50
	20 mm	**HK358-1527**	
	25 mm	**HK358-1528**	
	30 mm	**HK358-1529**	
	35 mm	**HK358-1530**	
	40 mm	**HK358-1531**	
	45 mm	**HK358-1532**	
	50 mm	**HK358-1533**	25
	55 mm	**HK358-1534**	
	60 mm	**HK358-1535**	
M20 Pitch 2.50 10 mm Key	20 mm	**HK358-1536**	50
	25 mm	**HK358-1537**	
	30 mm	**HK358-1538**	
	35 mm	**HK358-1539**	25
	40 mm	**HK358-1540**	
	50 mm	**HK358-1541**	
	60 mm	**HK358-1542**	

ALLOY STEEL

Not Plated

1960 Series

Quenched and tempered to hardness Rockwell C39-45 at the surface to #10 dia. incl.; C37-45 over #10 dia.

Threads Class 3A up to 1" dia.;

Class 2A over 1" dia.

For Hex Keys see Section 'P'.

Thread Length Chart

Screw Dia.	Thread Lengths Min.	Max.
#2	0.62	0.80
#3	0.62	0.83
#4	0.75	0.99
#5	0.75	1.00
#6	0.75	1.05
#8	0.88	1.19
#10	0.88	1.27
1/4"	1.00	1.50
5/16"	1.12	1.71
3/8"	1.25	1.94

Screw Dia.	Thread Lengths Min.	Max.
7/16"	1.38	2.17
1/2"	1.50	2.38
5/8"	1.75	2.82
3/4"	2.00	3.25
7/8"	2.25	3.69
1"	2.50	4.12
1-1/8"	2.82	4.65
1-1/4"	3.12	5.09
1-3/8"	3.44	5.65
1-1/2"	3.75	6.08

ASME/ANSI B18.3

COARSE THREAD (U.N.C.) (U.S.S.)

Chart Continues on facing page.

DIA.	1	2	3	4	5	6	8	10	12	1/4"
THD.	64	56	48	40	40	32	32	24	24	20
LGTH.	ORDER BY *SPAENAUR* NUMBER LISTED BELOW									
3/16	**363-465**	**HX-55**	**HX-59**	**363-323**						
1/4	**363-454**	**HX-56**	**HX-60**	**HX-63**	**HX-66**	**HX-71**	**HX-6**	**363-473**		**363-398**
5/16		**363-326**								
3/8		**HX-57**	**HX-61**	**HX-64**	**HX-67**	**HX-3**	**HX-7**	**HX-32**		**HX-81**
1/2		**HX-58**	**HX-62**	**HX-1**	**HX-68**	**HX-4**	**HX-8**	**HX-11**		**HX-82**
5/8		**363-383**		**HX-65**	**HX-69**	**HX-72**	**HX-73**	**HX-74**		**HX-83**
3/4				**HX-2**	**HX-70**	**HX-5**	**HX-9**	**HX-12**		**HX-15**
7/8						**HX-194**	**HX-196**	**HX-198**		**HX-46**
1		**363-432**		**363-399**	**363-497**	**HX-195**	**HX-10**	**HX-13**		**HX-16**
1-1/4							**HX-197**	**HX-41**	**363-444**	**HX-17**
1-1/2							**HX-45**	**HX-42**		**HX-18**
1-3/4								**HX-43**		**HX-18A**
2						**363-400**	**363-390**	**HX-44**		**HX-84**
2-1/4										**HX-301**
2-1/2								**363-395**		**HX-85**
2-3/4										**HX-302**
3								**363-321**		**HX-86**
3-1/4										**363-452**
3-1/2				*UNIT PACKAGE 50*				**363-322**		**363-462**
3-3/4										**363-472**
4								**363-404**		**363-484**
4-1/2								**363-412**		**363-389**
5										
5-1/2										
6								**363-529**		**363-439**
6-1/2				*PRICED SINGLY*						
7										
8										**363-531**
9										
10										
11										
12										

For Hex Socket Cap Screws, Alloy Steel, FINE THREAD
See Pages B236 and B237.
For Holo-Krome® Hex Socket Cap Screws, Zinc Plated Alloy Steel, see pages B216 and B217.

ALLOY STEEL

Not Plated

ASME/ANSI B18.3

Hex Socket Head Cap Screws can be used with SHEAR-LOC® knobs to quickly assemble your particular requirements of Thumb Screws. (See pages B335 and B336.)

ASSORTMENT / ASSORTIMENT 805-454

Inch Sizes

HEX SOCKET CAP SCREWS

Alloy Steel, Not Plated

22 SIZES - 600 PIECES

Coarse Thread - 1960 Series
10-24 to 1/2"-13

(Includes Hex Keys)

Priced Singly

Shipping weight 9 kg (20 lbs.)

Grey Enamelled Drawer 13-3/8" x 9-1/4" x 2" fits the Slide Racks shown on page A2.

COARSE THREAD (U.N.C.) (U.S.S.)

Continued from previous page.

DIA.	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	7/8"	1"	1-1/8"	1-1/4"
THD.	18	16	14	13	11	10	9	8	7	7
LGTH.	ORDER BY *SPAENAUR* NUMBER LISTED BELOW									
3/16	*UNIT PACKAGE 50*				*UNIT PACKAGE 20*		*UNIT PKG.10*			
1/4										
3/8	**HX-303**									
1/2	**HX-93**	**HX-110**								
5/8	**HX-94**	**HX-111**								
3/4	**HX-19**	**HX-30**	**HX-249**	**HX-126**						
7/8	**HX-95**	**HX-306**								
1	**HX-20**	**HX-22**	**HX-276**	**HX-127**	**HX-139**					
1-1/4	**HX-34**	**HX-112**	**HX-248**	**HX-128**	**HX-140**	**HX-155**				
1-1/2	**HX-21**	**HX-23**	**HX-277**	**HX-25**	**HX-141**	**HX-156**				
1-3/4	**HX-96**	**HX-113**	**HX-278**	**HX-129**	**HX-142**	**HX-157**				
2	**HX-97**	**HX-24**	**HX-279**	**HX-26**	**HX-143**	**HX-158**	**HX-170**	**HX-182**		
2-1/4	**HX-98**	**HX-114**	*UNIT PKG. 25*	**HX-130**	**HX-144**	**HX-159**	**HX-171**	**HX-183**		
2-1/2	**HX-99**	**HX-39**		**HX-27**	**HX-145**	**HX-160**	**HX-172**	**HX-184**		
2-3/4	**HX-304**	**HX-115**		**HX-131**	**HX-146**	**HX-161**	**HX-173**	**HX-185**		
3	**HX-100**	**HX-37**		**HX-132**	**HX-147**	**HX-162**	**HX-174**	**HX-186**		
3-1/4	**HX-305**	**HX-116**			**HX-148**	**HX-163**	**HX-175**	**HX-187**		
3-1/2	**HX-101**	**HX-38**		**HX-133**	**HX-149**	**HX-164**	**HX-176**	**HX-188**		**363-520**
4	**363-458**	**HX-117**	**363-420**	**HX-134**	**HX-150**	**HX-165**	**HX-177**	**HX-189**		**363-356**
4-1/2	**363-459**	**HX-307**		**HX-135**	**HX-151**	**HX-166**	**HX-178**	**HX-190**		
5	**363-418**	**HX-308**		**HX-136**	**HX-152**	**HX-167**	**HX-179**	**HX-191**		**363-457**
5-1/2	**363-518**			**HX-137**	**HX-153**	**HX-168**	**HX-180**	**HX-192**		
6		**363-507**		**HX-138**	**HX-154**	**HX-169**	**HX-181**	**HX-193**		**363-387**
6-1/2	**363-519**			**363-393**	**363-488**	**363-363**				
7				**363-494**	**363-489**		**363-499**	**363-471**		
8	*PRICED SINGLY*				**363-388**	**363-437**	**363-500**	**363-485**		**363-401**
9				**363-325**		**363-431**			**363-512**	
9-1/2								**363-515**		
10				**363-511**		**363-501**		**363-526**		
12						**363-419**				

DIA.	1-3/8"	1-1/2"
THD.	6	6
LGTH.		
3-1/2		**363-367**
5		**363-434**
6	**363-509**	**363-521**
7		**363-435**
	PRICED SINGLY	

For Hex Socket Cap Screws, Alloy Steel, FLAT HEAD
See Pages B238.

For Holo-Krome® Hex Socket Cap Screws,
Zinc Plated Alloy Steel, see pages B216 and B217.

B

ALLOY STEEL

Not Plated

1960 Series

Quenched and tempered to hardness Rockwell C39-45 at the surface to #10 dia. incl.; C37-45 over #10 dia.

Threads Class 3A up to 1" dia.;

Class 2A over 1" dia.

For Hex Keys see Section 'P'.

Thread Length Chart

Screw Dia.	Thread Lengths Min.	Max.
#2	0.62	0.80
#3	0.62	0.83
#4	0.75	0.99
#5	0.75	1.00
#6	0.75	1.05
#8	0.88	1.19
#10	0.88	1.27
1/4"	1.00	1.50
5/16"	1.12	1.71
3/8"	1.25	1.94

Screw Dia.	Thread Lengths Min.	Max.
7/16"	1.38	2.17
1/2"	1.50	2.38
5/8"	1.75	2.82
3/4"	2.00	3.25
7/8"	2.25	3.69
1"	2.50	4.12
1-1/8"	2.82	4.65
1-1/4"	3.12	5.09
1-3/8"	3.44	5.65
1-1/2"	3.75	6.08

ASME/ANSI B18.3

FINE THREAD (U.N.F.) (S.A.E.)

Chart Continues on facing page.

DIA.	0	1	4	6	8	10	1/4"	5/16"	3/8"
THD.	80	72	48	40	36	32	28	24	24
LGTH.	ORDER BY *SPAENAUR* NUMBER LISTED BELOW								
1/8	**HX-47**	**HX-51**							
3/16	**HX-48**	**HX-52**							
1/4	**HX-49**	**HX-53**				**363-503**	**363-376**		
3/8	**HX-50**	**HX-54**			**363-403**	**HX-75**	**363-487**	**363-410**	
1/2		**363-522**	**363-505**		**363-498**	**HX-76**	**HX-87**	**363-396**	
5/8				**HX-288**		**HX-77**	**HX-88**	**HX-102**	
3/4				**363-464**	**HX-321**	**HX-78**	**HX-89**	**HX-103**	**HX-118**
7/8						**HX-79**	**HX-90**	**HX-104**	**HX-340**
1						**HX-14**	**HX-28**	**HX-105**	**HX-119**
1-1/4						**HX-80**	**HX-29**	**HX-106**	**HX-120**
1-1/2						**HX-31**	**HX-91**	**HX-107**	**HX-121**
1-3/4						**HX-199**	**HX-35**	**HX-108**	**HX-122**
2						**HX-318**	**HX-92**	**HX-109**	**HX-123**
2-1/4							**HX-329**	**HX-295**	**HX-124**
2-1/2						**363-433**	**363-427**	**363-482**	**HX-125**
2-3/4									
3							**363-486**		**HX-314**
3-1/2									**363-460**
3-3/4									
4									**363-430**
4-1/2									
5								**363-492**	
5-1/2			*UNIT PACKAGE 50*						*UNIT PKG. 25*
6									
6-1/2									
7									
8									
9			*PRICED SINGLY*						
10									
11									
12									

For Hex Socket Cap Screws, Alloy Steel, COARSE THREAD
See Pages B234 and B235.

For Holo-Krome® Hex Socket Cap Screws, Zinc Plated Alloy Steel, see pages B216 and B217.

ALLOY STEEL

Not Plated

1960 Series

ASME/ANSI B18.3

Hex Socket Head Cap Screws can be used with SHEAR-LOC® knobs to quickly assemble your particular requirements of Thumb Screws. (See pages B335 and B336.)

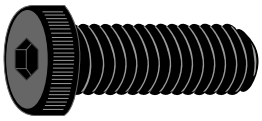
FINE THREAD (U.N.F.) (S.A.E.)

Continued from previous page.

DIA.	7/16"	1/2"	9/16"	5/8"	3/4"	7/8"	1"	1-1/4"	1-1/2"
THD.	20	20	18	18	16	14	14	12	12
LGTH.	ORDER BY *SPAENAUR* NUMBER LISTED BELOW								
3/4 7/8 1	*UNIT PKG. 50* **HX-280**	*UNIT PKG. 25* **HX-324**	*UNIT PACKAGE 10*				*PRICED SINGLY*		
1-1/4 1-1/2 1-3/4	**HX-281** **HX-282**	**363-297** **363-357** **HX-325**		**363-402**	**363-475**				
2 2-1/4 2-1/2	**HX-283** **363-413**	**HX-336** **HX-316**	**363-426**		**363-455**				
2-3/4 3 3-1/4	**363-411**	**363-450** **HX-326** **363-495**		**363-384**	**363-451**				
3-1/2 3-3/4 4	*UNIT PKG. 25*	*UNIT PKG. 20*		**363-425**		**363-483**	**363-453**		**363-466**
4-1/2 5 5-1/2					**363-476**		**363-525**	**363-514**	
6 6-1/2 7					**363-477** **363-478** **363-479**				**363-443**
7-1/2 8 9 10	*PRICED SINGLY*				**363-480** **363-481**				

HEX SOCKET CAP SCREWS LOW HEAD

Thread Class Fit 3A Hardness RC 38-43



ALLOY STEEL

Not Plated

INCH Sizes

Head Dia.	.270/.265"	.312/.307"	.312/.307"	.375/.369"	.437/.431"	.562/.556"	.750/.743"
Head Height	.082/.079"	.095/.092"	.095/.092"	.125/.121"	.156/.152"	.187/.182"	.250/.244"
SCREW DIA.	**8**	**10**	**10**	**1/4"**	**5/16"**	**3/8"**	**1/2"**
Threads	32 UNC	24 UNC	32 UNF	20 UNC	18 UNC	16 UNC	13 UNC
Hex Size A/F	5/64"	3/32"	3/32"	1/8"	5/32"	3/16"	1/4"
Length	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW						
3/8" 1/2" 5/8"	**363-001** **363-002** **363-003**	**363-006** **363-007** **363-008**	**363-011** **363-012** **363-013**	**363-016** **363-017** **363-018**	**363-022** **363-023**	**363-028** **363-029**	*UNIT PKG. 25*
3/4" 1"	**363-004** **363-005**	**363-009** **363-010**	**363-014** **363-015**	**363-019** **363-020**	**363-024** **363-025**	**363-030** **363-031**	**363-034** **363-035**
1-1/4" 1-1/2"	*UNIT PACKAGE 50*			**363-021**	**363-026** **363-027**	**363-032** **363-033**	**363-036** **363-037**

B

ALLOY STEEL

Not Plated

FLAT HEAD

82° Head Angle.

FOR HIGH-STRENGTH, FLUSH-SURFACE FASTENING WITH MAXIMUM HEAD CONTACT.

ASME/ANSI B18.3

Quenched and tempered to hardness Rockwell C36-45 at the surface for sizes up to and including 1-1/2" dia.

Threads Class 3A.

THREAD LENGTHS CHART

Screw Dia.	Min.	Max.
#2	0.62	0.80
#3	0.62	0.83
#4	0.75	0.99
#5	0.75	1.00
#6	0.75	1.05
#8	0.88	1.19
#10	0.88	1.27
1/4"	1.00	1.50
5/16"	1.12	1.71
3/8"	1.25	1.94
7/16"	1.38	2.17
1/2"	1.50	2.38
5/8"	1.75	2.82
3/4"	2.00	3.25
7/8"	2.25	3.69
1"	2.50	4.12
1-1/8"	2.82	4.65
1-1/4"	3.12	5.09
1-3/8"	3.44	5.65
1-1/2"	3.75	6.08

FINE (UNF) AND COARSE (UNC) THREADS

DIA.	2	4	5	6	8	10	10	1/4"	1/4"
THD.	56 UNC	40 UNC	40 UNC	32 UNC	32 UNC	24 UNC	32 UNF	20 UNC	28 UNF
LGTH.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
3/16	**363-358**	**363-422**							
1/4	**363-362**	**HX-200**	**HX-338**	**HX-203**	**363-313**	**363-315**	**363-314**		
5/16		**363-324**							
3/8	**363-382**	**HX-201**	**HX-343**	**HX-204**	**HX-337**		**HX-215**	**HX-220**	
1/2	**363-370**	**HX-202**	**363-309**	**HX-205**	**HX-208**	**HX-211**	**HX-216**	**HX-221**	**363-344**
5/8			**HX-339**	**HX-206**	**HX-209**		**HX-217**	**HX-222**	**HX-319**
3/4		**HX-341**	**363-310**	**HX-207**	**HX-210**	**HX-212**	**HX-218**	**HX-223**	
1		**363-445**	**363-311**	**363-312**	**HX-313**	**HX-213**	**HX-219**	**HX-224**	**HX-320**
1-1/4					**363-414**	**HX-214**	**363-351**	**HX-225**	
1-1/2						**363-392**	**363-397**	**HX-226**	
1-3/4	*Unit Pkg. 100*					**363-470**		**HX-227**	**363-508**
2								**HX-228**	**363-532**
2-1/4									
2-1/2							**363-463**	**363-523**	
3								**363-524**	
		Unit Package 50							

DIA.	5/16"	5/16"	3/8"	3/8"	7/16"	1/2"	1/2"	5/8"	5/8"	3/4"
THD.	18 UNC	24 UNF	16 UNC	24 UNF	14 UNC	13 UNC	20 UNF	11 UNC	18 UNF	10 UNC
3/8	**363-421**									
1/2	**HX-229**	**HX-290**	**363-320**			*Unit Package 50*				
5/8	**HX-230**									
3/4	**HX-231**	**HX-291**	**HX-235**	**363-380**	**363-299**		**363-394**			
1	**HX-232**	**HX-292**	**HX-236**	**HX-327**		**HX-241**	**HX-342**	**363-506**		
1-1/4	**HX-233**	**HX-293**	**HX-237**		**363-381**	**HX-242**	**363-296**	**363-352**		**363-354**
1-1/2	**HX-234**		**HX-238**	**HX-284**		**HX-243**	**363-440**	**HX-322**		**363-360**
1-3/4			**HX-239**			**363-416**		**363-361**		
2	**363-391**		**HX-240**		**363-298**	**HX-244**	**HX-335**	**363-353**	**363-319**	**363-375**
2-1/4	**363-341**					**363-355**		**363-371**		
2-1/2	**363-415**		**363-348**		**363-343**	**HX-245**	**363-504**	**363-372**		**363-456**
2-3/4	**363-528**		*Unit Package 25*					**363-316**		
3			**363-516**			**HX-246**		**363-417**		**363-405**
3-1/2			**363-474**			**363-491**		*Unit Package 20*		
4			**363-510**			**363-490**				**363-467**
5			**363-517**							
5-1/2								**363-447**		
6						**363-318**				
6-1/2				*Priced Singly*				**363-448**		**363-468**
7										**363-496**
8										**363-530**

Larger Diameters — 363-513 1"-8 UNC x 3" Long *U.P.Q. 10*

CATALOG 13

FINE (UNF) AND COARSE (UNC) THREADS

DIA.	2	4	5	6	8	10	10	1/4"	1/4"
THD.	56 UNC	40 UNC	40 UNC	32 UNC	32 UNC	24 UNC	32 UNF	20 UNC	28 UNF
LGTH.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
3/16	**363-359**								
1/4	**363-342**	**HX-250**		**HX-253**	**HX-287**	**363-327**	**363-386**	**363-408**	
5/16								**363-317**	
3/8		**HX-251**		**HX-254**	**HX-256**	**HX-294**	**HX-261**	**HX-265**	**363-369**
1/2	**363-373**	**HX-252**	**363-302**	**HX-255**	**HX-257**	**HX-258**	**HX-262**	**HX-266**	**363-438**
5/8			**363-502**	**363-345**	**363-436**	**363-446**	**HX-296**	**HX-267**	
3/4		**363-300**	**363-303**	**363-441**	**363-366**	**HX-259**	**HX-263**	**HX-268**	**363-527**
7/8						**363-424**			
1		**363-301**	**363-304**	**363-407**	**363-368**	**HX-260**	**HX-264**	**HX-269**	**363-378**
1-1/4					**363-305**	**363-461**	**363-307**	**363-449**	
1-1/2					**363-306**		**363-308**		
	UNIT PACKAGE 50								

DIA.	5/16"	5/16"	3/8"	3/8"	1/2"	1/2"	5/8"	3/4"
THD.	18 UNC	24 UNF	16 UNC	24 UNF	13 UNC	20 UNF	11 UNC	10 UNC
1/4								
3/8	**363-346**	**363-377**						
1/2	**HX-270**		**363-385**					
5/8			**363-347**					
3/4	**HX-271**	**HX-317**	**HX-273**	**HX-315**				
1	**HX-272**	**363-349**	**HX-274**	**363-409**	**HX-299**	**363-469**		
1-1/4	**363-442**		**HX-275**	**HX-328**	**HX-309**			
1-3/8								
1-1/2	**363-379**		**363-374**		**363-429**			
1-3/4	**363-423**							
2	**363-364**		**363-365**		**363-406**			
3	*UNIT PACKAGE 50*				**363-428**	*UNIT PACKAGE 25*		

ALLOY STEEL

Not Plated

BUTTON HEAD

FOR SECURELY AND NEATLY FASTENING ALL THIN METAL PARTS.

ASME/ANSI B18.3.
Quenched and tempered to hardness Rockwell C36-45 at the surface to 1/2" dia. incl.; C36-43 over 1/2" dia.

Threads Class 3A.

Thread Lengths
The minimum thread length is twice screw diameter, plus 0.50", or up to within 2 threads of the head, at the option of the manufacturer.

Hex Socket Cap Screws

Fully threaded

BUTTON HEAD

STAINLESS STEEL 18-8

Thread Class 2A or 3A Fit - Our Option.

DIA.	2	4	5	6	8	10	10	1/4"	1/4"	5/16"	3/8"	1/2"
THD.	56 UNC	40 UNC	40 UNC	32 UNC	32 UNC	24 UNC	32 UNF	20 UNC	28 UNF	18 UNC	16 UNC	13 UNC
LGTH.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW											
1/4		**370-400**		**370-426**	**370-404**		**370-425**					
3/8		**370-401**		**370-433**	**370-405**	**370-407**	**370-410**	**370-415**				
1/2		**370-402**	**370-440**	**370-403**	**370-406**	**370-408**	**370-411**	**370-416**			**370-428**	
5/8		**370-427**					**370-412**	**370-436**				
3/4					**370-424**	**370-409**	**370-413**	**370-417**		**370-419**	**370-421**	
1					**370-432**	**370-452**	**370-414**	**370-418**		**370-420**	**370-422**	**370-451**
1-1/4								**370-429**			**370-423**	**370-441**
1-1/2					**370-434**	**370-435**		**370-430**		**370-448**	**370-454**	
2								**370-431**				
	UNIT PACKAGE 50										*UNIT PACKAGE 25*	

Hex Socket Cap Screws
18-8 STAINLESS STEEL

For Thread Length Chart, see page B236.

ASME/ANSI B18.3

Min. tensile strength (up to 5/8" dia.) 80,000 psi.
1960 Series. Threads Class 2A or 3A Fit - our option.

FINE (UNF) AND COARSE (UNC) THREADS

Diameter	0	1	2	3	4	5	6	6	8	8	10
Thread	80 UNF	72 UNF	56 UNC	48 UNC	40 UNC	40 UNC	32 UNC	40 UNF	32 UNC	36 UNF	24 UNC
Length	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW										
1/8					370-446						
3/16	370-001		370-082		370-353						
1/4	370-443	370-444	370-049	370-003	HX-2002	370-087	HX-2005		370-004		
3/8	370-442		370-050		HX-2003	370-052	HX-2006		HX-2009	370-047	HX-2013
1/2			370-084		HX-2004		HX-2007	370-398	HX-2010		HX-2014
5/8					370-085		370-054	370-399	370-106		HX-2047
3/4					370-081		HX-2008		HX-2011		HX-2001
7/8"							370-457				
1					370-083		370-072		HX-2012		HX-2015
1-1/4							370-069		†370-065		HX-2016
1-3/8			*Unit Package 50*								370-080
1-1/2							370-074		370-066		370-051
1-3/4							370-075		▲370-044		
2							370-076		370-088		370-071
2-1/4									370-101		
2-1/2							370-077				
3							370-078				

Diameter	10	1/4"	1/4"	5/16"	5/16"	3/8"	3/8"	7/16"	1/2"	5/8"	
Thread	32 UNF	20 UNC	28 UNF	18 UNC	24 UNF	16 UNC	24 UNF	14 UNC	13 UNC	11 UNC	
Length	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW										
1/4	370-067										
5/16			370-097								
3/8	HX-2017	HX-2022						*Unit Package 25*			
1/2	HX-2018	HX-2023	HX-2028	370-060							
5/8	370-053	HX-2044		370-091	370-438	370-086					
3/4	HX-2019	HX-2024	370-056	HX-2030		HX-2036	370-103		370-055		
7/8		370-042		370-061		370-002					
1	HX-2020	HX-2025	370-057	HX-2000	370-073	HX-2037	370-104		HX-2043		
1-1/4	HX-2021	HX-2026	370-445	HX-2031	370-096	*HX-2038			370-070		
1-1/2	370-058	HX-2027	370-098	HX-2032		HX-2039	370-059		370-063	370-105	
1-3/4	370-062	370-048		HX-2033		HX-2040			370-045		
2		HX-2029		HX-2034		HX-2041	370-079	370-089	370-092	370-095	
2-1/4					370-099						
2-1/2		370-064		HX-2035		HX-2042			370-093		
2-3/4									370-005		
3		370-068	■370-450					370-090			
4									370-094	370-447	
5			*Unit Package 50*						370-100 *(U.P. 10)*		

■316 Stainless Steel (U.P. 10) ***370-449** 316 Stainless Steel **†370-455** Full Thread **▲370-456** Full Thread

CATALOG 13

STAINLESS STEEL 18-8

FLAT HEAD

82° Head Angle

Threads Class 2A or 3A Fit - our option.

Coarse and Fine Thread

For Thread Length see Chart on B238.

DIA.	2	4	5	6	8	10	10	12	12
THD.	56 UNC	40 UNC	40 UNC	32 UNC	32 UNC	24 UNC	32 UNF	24 UNC	28 UNF
3/16 Lgth.		**370-354**							
1/4	**370-332**	**370-335**	**370-397**	**370-301**	**370-331**		**370-339**		
3/8		**370-439**		**370-352**	**370-304**		**370-329**		
1/2		**370-300**		**370-302**	**370-305**	**370-308**	**370-310**		
5/8				**370-437**	**370-306**	**370-350**	**370-311**		
3/4				**370-303**	**370-307**	**370-309**	**370-312**		
7/8							**370-046**		
1				**370-351**		**HX-2046**	**370-313**		
1-1/4									
1-1/2							**370-040**		
1-3/4			*UNIT PACKAGE 50*						
2									

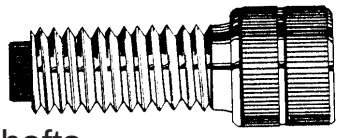
DIA.	1/4"	1/4"	5/16"	5/16"	3/8"	3/8"	1/2"		
THD.	20 UNC	28 UNF	18 UNC	24 UNF	16 UNC	24 UNF	13 UNC		
1/4 Lgth.									
3/8		**370-340**							
1/2	**370-314**	**370-341**	**370-356**			**370-102**			
5/8	**370-315**	**370-342**	**370-328**						
3/4	**370-316**	**370-337**	**370-317**		**370-319**		**370-349**		
7/8	**370-043**								
1	**370-330**	**370-334**	**370-318**	**370-338**	**370-320**		**370-324**		
1-1/4			**370-327**		**370-321**		**370-325**		
1-1/2	**370-336**	**370-333**	**370-344**		**370-322**		**370-326**		
1-3/4			**370-345**						
2	**370-348**		**370-343**		**370-323**		**370-355**		
2-1/2	*UNIT PACKAGE 50*		**370-347**		*UNIT PACKAGE 25*				
3							**370-346**		

Hex Socket Cap Screws

ALLOY STEEL

Not Plated

BRASS AND NYLON TIPPED



LOCK: Collars / Pulleys / Bearings / Cams...to Shafts

PROTECT: Finished surfaces and threads

Unit Pkg. Qty. 10

	Order by ***SPAENAUR No's.*** Listed Below					
Thread	**10-32 UNF**		**1/4"-20 UNC**		**5/16"-18 UNC**	
Tip Material	**BRASS**	**NYLON**	**BRASS**	**NYLON**	**BRASS**	**NYLON**
Length 1/2"	**359-167**	**359-176**	**359-170**	**359-179**	**359-173**	**359-182**
3/4"	**359-168**	**359-177**	**359-171**	**359-180**	**359-174**	**359-183**
1"	**359-169**	**359-178**	**359-172**	**359-181**	**359-175**	**359-184**

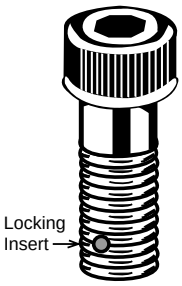
B

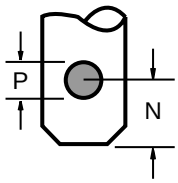
ALLOY STEEL

Not Plated

with PELLETIZED

NYLON LOCKING INSERT





The Pellet Material is:

TYPE 6/6 NYLON

(N) Pellet Location:

Tolerance: ±1/2 of Thread Pitch

MATERIAL: #2 thru #8 Alloy Steel Heat Treated RC-28-32
#10 thru 1-1/2" Alloy Heat Treated RC-38-42
Screw Spec. to ASME/ANSI 18.3.
Class 3A Thread Fit Standard

For pellet location (N) - See data below.

SELF-LOCKING threaded parts with nylon pellet or strip are self-locking; nylon is resilient, reusable; causes positive locking action (plus metal-to-metal engagement of the mating threads). Nylon inserts act as a wedge, creating a counter-thrust when deformed. Plastic memory strives to regain original shape, causing positive locking.

ADJUSTABLE threaded parts with nylon pellet or strip are fully adjustable, vibration-proof, and easy to use for accurate minimal adjustments (regardless of whether fastener is seated or not). Screws cannot back off or loosen, due to the plastic memory of nylon, which causes a counter-thrust on the mating threads.

Nylon 6/6 is unaffected by commercial solvents, alcohols, gasoline, oil, or water. It retains its high strength and low absorption at -57°C (-70°F); withstands continuous heat up to 121°C (250°F); is an ideal pressure seat.

Thread Size	#4	#5	#6	#8	#10	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"
P - Pellet Diameter	.062"	.062"	.078"	.093"	.093"	.109"	.125"	.141"	.156"	.156"	.188"	.219"
N - Pellet Location	7/64"	7/64"	1/8"	1/8"	5/32"	3/16"	13/64"	7/32"	15/64"	1/4"	5/16"	23/64"

COARSE THREAD

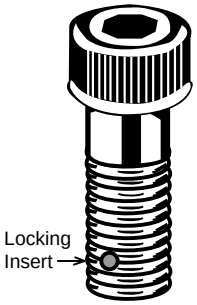
ORDER BY *SPAENAUR* NUMBERS LISTED BELOW

Length	2-56	3-48	4-40	5-40	6-32	8-32
3/16	PRICES ON REQUEST					
1/4			**359-001**	**359-006**	**359-007**	**359-014**
3/8			**359-002**		**359-008**	**359-015**
1/2			**359-003**	**359-161**	**359-009**	**359-016**
5/8			**359-004**		**359-010**	**359-017**
3/4			**359-005**		**359-011**	**359-019**
7/8					**359-012**	
1					**359-013**	**359-020**
1-1/4			*Unlisted No's. (Sizes 4-40 to 8-32)*			**359-021**
1-1/2			*Min. Order 300 - P.O.R. Del. approx. 5 wks.*			

Length	10-24	1/4"-20	5/16"-18	3/8"-16	7/16"-14	1/2"-13
3/8	**359-022**	**359-028**	**359-036**			
1/2	**359-023**	**359-029**	**359-037**	**359-045**		
5/8		**359-030**	**359-038**			
3/4	**359-024**	**359-031**	**359-039**	**359-046**		**359-052**
7/8		**359-032**				
1	**359-025**	**359-033**	**359-040**	**359-047**	**359-051**	**359-053**
1-1/4	**359-026**	**359-034**	**359-041**	**359-048**		
1-1/2	**359-027**	**359-035**	**359-042**	**359-049**		**359-164**
1-3/4			**359-043**			
2			**359-044**	**359-050**		**359-165**
2-1/4						
2-1/2						
2-3/4						
3	*Unlisted No's. (Sizes 10-24 to 1/2"-13)*		*Min. Order 100 - P.O.R. Del. approx. 5 wks.*			**359-166**

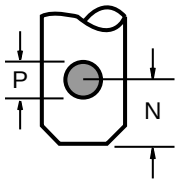
ALLOY STEEL with PELLETIZED NYLON LOCKING INSERT

Not Plated



MATERIAL: #2 thru #8 Alloy Steel Heat Treated RC-38-32
#10 thru 1-1/2" Alloy Heat Treated RC-38-42
Screw spec. to ASME/ANSI B18.3.
Class 3A Thread Fit Standard

The Pellet Material is:
TYPE 6/6 NYLON



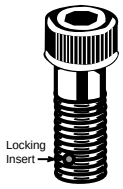
For pellet location (N) and additional data see preceding page B242.

FINE THREAD

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW

Length	10-32	1/4"-28	5/16"-24	3/8"-24	7/16"-20	1/2"-20	5/8"-18
3/8	**359-054**	**359-060**					
1/2	**359-055**	**359-061**	**359-064**		*Unlisted No's. 10-32 to 1/2"-20*		
5/8	**359-056**	**359-160**		**359-067**	*Min. Order 200 - P.O.R.*		
3/4	**359-057**	**359-062**	**359-065**	**359-068**	*Del. approx. 5 weeks*		
7/8		**359-158**					
1	**359-058**	**359-063**	**359-066**	**359-069**	**359-157**	**359-070**	
1-1/4	**359-059**			**359-153**			**359-163**
1-1/2		**359-151**	**359-185**				
2						**359-071**	
2-1/4			**359-162**				

18-8 STAINLESS STEEL



Inch Sizes
PELLETIZED

For pellet location (N) and additional data see preceding page B242.

Thread Class 2A or 3A Fit our option

Screw spec. to ASME/ANSI B18.3.
Vertical knurled heads from 6-32 up.
Min. tensile strength (up to 5/8" dia.) 80,000 psi.

COARSE THREAD (U.N.C.)

Length	4-40	6-32	8-32	10-24	1/4"-20	5/16"-18	3/8"-16
1/4	**361-001**	**361-004**					
3/8	**361-002**	**361-005**	**361-008**	**361-012**	**361-015**		
1/2	**361-003**	**361-006**	**361-009**	**361-013**	**361-016**	**361-020**	
5/8							
3/4		**361-007**	**361-010**		**361-017**	**361-021**	**361-023**
1			**361-011**	**361-014**	**361-018**	**361-022**	**361-024**
1-1/4					**361-019**		**361-025**
1-1/2				*Unlisted No's. Sizes 4-40 to 3/8"-16*			
1-3/4				*Min. Order 200 - P.O.R. Del. approx. 5 weeks*			

FINE THREAD (U.N.F.)

Length	10-32	1/4"-28	5/16"-24	3/8"-24	7/16"-20	1/2"-20	
3/8	**361-026**						
1/2	**361-027**	**361-031**			*Unlisted No's. Sizes 10-32 to 1/2"-20*		
5/8					*Min. Order 100 - P.O.R.*		
3/4	**361-028**	**361-032**			*Del. approx. 5 weeks*		
7/8							
1	**361-029**	**361-034**					
1-1/4	**361-030**						
1-1/2							
1-3/4							

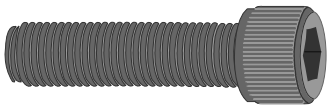
For pellet location (N) and additional data see preceding page B242.

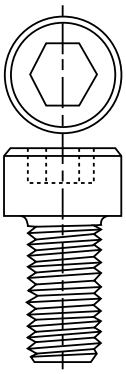
For Package Quantity See PRICE LIST.

B

MOULDED 6/6 NYLON

(Natural Colour) **HEX SOCKET CAP SCREW**





COARSE and FINE THREADS										UNC & UNF
DIA.	**4**	**6**	**8**	**10**	**10**	**1/4"**	**1/4"**	**5/16"**	**3/8"**	**1/2"**
THD.	40 UNC	32 UNC	32 UNC	24 UNC	32 UNF	20 UNC	28 UNF	18 UNC	16 UNC	13 UNC
LENGTH	**ORDER BY *SPAENAUR* NUMBERS LISTED BELOW**									
1/2"			**374-005**		**374-012**	**374-013**		**374-017**		
5/8"										
3/4"	**374-006**	**374-007**	**374-008**	**374-009**		**374-011**			**374-014**	
7/8"										
1"		**374-001**	**374-003**	**374-010**	**374-002**	**374-004**				
1-1/4"										**374-019**
1-1/2"								**374-018**	**374-016**	
2"						**374-015**				
	UNIT PACKAGE 100					*UNIT PACKAGE 50*				*U.P.Q. 25*

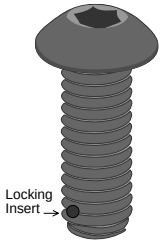
PELLETIZED BUTTON HEAD HEX SOCKET

Boulons de précision à tête creuse *«pelletized»*

ALLOY STEEL
(Not Plated)

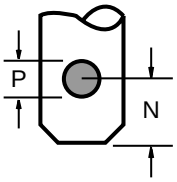
with PELLETIZED

NYLON LOCKING INSERT



Hex-Socket BUTTON HEAD

Inch Sizes



Screw spec. to ASME/ANSI B18.3.

MATERIAL: #2 thru #8 Alloy Steel Heat Treated RC-28-32
#10 thru 5/8" Alloy Heat Treated RC-38-42

Class 3A Thread Fit Standard

For pellet location (N) and additional info and chart see page B242.

The Pellet Material is:
TYPE 6/6 NYLON

Unaffected by commercial solvents, alcohols, gasoline, oil, or water. It retains its high strength and low absorption at -57°C (-70°F); withstands continuous heat up to 121°C (250°F); is an ideal pressure seat.

(N) Pellet Location:

Tolerance: ±1/2 of Thread Pitch

	COARSE THREAD								FINE THREAD		
Length	**4-40**	**6-32**	**8-32**	**10-24**	**1/4"-20**	**5/16"-18**	**3/8"-16**	**1/2"-13**	**10-32**	**1/4"-28**	**5/16"-24**
1/4"	**359-120**	**359-123**	**359-127**	**359-130**					**359-147**		
3/8"	**359-121**	**359-124**	**359-128**	**359-131**	**359-135**	**359-140**			**359-148**		
1/2"	**359-122**	**359-125**	**359-129**	**359-132**	**359-136**	**359-141**	**359-142**		**359-149**		
5/8"		**359-126**			**359-137**		**359-152**				
3/4"				**359-133**	**359-138**		**359-143**		**359-150**		
7/8"											
1"				**359-134**	**359-139**		**359-144**	**359-146**			
1-1/4"						**359-156**	**359-145**				
1-1/2"											
2"			*Unlisted No's. Min. Order 100 - P.O.R. Del. approx. 5 weeks*								

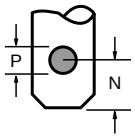
CATALOG 13

B

ALLOY STEEL WITH PELLETIZED NYLON LOCKING INSERT

NOT PLATED

Socket
FLAT HEAD



Screw spec to ASME/ANSI B18.3.
MATERIAL: #2 thru #8 Alloy Steel Heat Treated RC- 28-32
#10 thru 3/4" Alloy Heat Treated RC-38-42
Class 3A Thread Fit Standard

For pellet location (N) and general information see data below and chart on page B242.

The Pellet Material is:
TYPE 6/6 NYLON

-unaffected by commercial solvents, alcohols, gasoline, oil, or water. It retains its high strength and low absorption at -57°C (-70°F); withstands continuous heat up to 121°C (250°F); is an ideal pressure seat.

For PACKAGE QUANTITY
See PRICE LIST

COARSE THREAD

Length	4-40	5-40	6-32	8-32	10-24	1/4"-20
1/4	**359-072**					
3/8	**359-073**		**359-075**	**359-079**	**359-084**	**359-088**
1/2	**359-074**		**359-076**	**359-080**	**359-085**	**359-089**
5/8			**359-077**	**359-081**		**359-090**
3/4	*Unlisted No's. N.C. Thread (Sizes 4-40 to 1/4"-20) Min. Order 200 - P.O.R. Del. approx. 5 wks.*		**359-078**	**359-082**	***359-086**	**359-091**
1				**359-083**	**▲359-087**	**359-092**
1-1/4						**359-093**
1-3/4						**359-094**
1-3/4						(18-8 SS) **361-037**
2						(18-8 SS) **361-038**

***361-035** 18-8 SS **▲361-036** 18-8 SS

Length	5/16"-18	3/8"-16	7/16"-14	1/2"-13	5/8"-11	3/4"-10
5/8	**359-095**	**359-099**				
3/4	**359-096**	**359-100**		**359-104**	*Unlisted No's. N.C. Thread (Sizes 5/16"-18 to 3/4"-10) Min. Order 100 - P.O.R. Del. approx. 5 wks.*	
1	**359-097**	**359-101**		**359-105**		
1-1/4		**359-102**		**359-106**		
1-1/2	**359-098**	**359-103**		**359-107**		
1-3/4						
2				**359-108**		

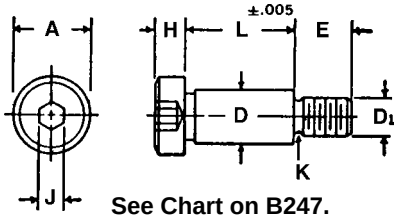
FINE THREAD

Length	10-32	1/4"-28	5/16"-24	3/8"-24	1/2"-20	
3/8	**359-109**	**359-114**	*Unlisted No's. N.F. Thread (Sizes 10-32 to 1/2"-20), Min. Oder 100 - P.O.R. Del. approx. 5 wks.*			
1/2	**359-110**	**359-115**				
5/8	**359-111**	**359-116**				
3/4	**359-112**				**359-118**	
1	**359-113**	**359-117**	**359-159**	**359-154**		
2					**359-119**	

See page B247 for Pelletized Hex Socket Shoulder Screws in Inch Sizes.

B

NOTE: Plain or knurled head furnished at our option as available.



See Chart on B247.

"ALLOY" STEEL

Heat treated
Not Plated

Rockwell "C" hardness of 32-43 at the surface.

Threads:
Unified standard, Class 3A, UNC Series, to American National Standard, ANSI, B1.1.

18-8 STAINLESS STEEL

Threads:
Class 3A or 2A our option.

"STRIPPER BOLTS"

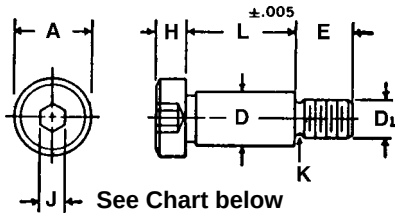
Shoulder Dia.	Shoulder Length	U.N.C. Thread	*SPAENAUR Nos.* STEEL	STAINLESS
1/4" 1/8" Key	1/4"	10-24	**364-074**	—
	3/8"	10-24	**364-022**	**364-800**
	1/2"	10-24	**HX-289SB**	**364-801**
	5/8"	10-24	**HX-312SB**	**364-802**
	3/4"	10-24	**HX-330SB**	**364-803**
	1"	10-24	**364-013**	**364-804**
	1-1/4"	10-24	**364-014**	**364-805**
	1-1/2"	10-24	**364-015**	**364-806**
	1-3/4"	10-24	**364-086**	—
	2"	10-24	**364-084**	—
	2-1/2"	10-24	**364-090**	—
5/16" 5/32" Key	5/16"	1/4-20	**364-093**	—
	3/8"	1/4-20	**364-023**	**364-807**
	1/2"	1/4-20	**HX-297SB**	**364-808**
	5/8"	1/4-20	**HX-331SB**	**364-809**
	3/4"	1/4-20	**HX-298SB**	**364-810**
	7/8"	1/4-20	—	**364-811**
	1"	1/4-20	**HX-286SB**	**364-812**
	1-1/4"	1/4-20	**HX-332SB**	**364-813**
	1-1/2"	1/4-20	**364-024**	**364-814**
	1-3/4"	1/4-20	**364-025**	**364-815**
	2"	1/4-20	**364-026**	**364-816**
3/8" 3/16" Key	1/4"	5/16-18	**364-092**	—
	3/8"	5/16-18	**364-018**	**364-817**
	1/2"	5/16-18	**364-012**	**364-818**
	5/8"	5/16-18	**HX-311SB**	**364-819**
	3/4"	5/16-18	**HX-333SB**	**364-820**
	1"	5/16-18	**HX-334SB**	**364-821**
	1-1/4"	5/16-18	**364-027**	**364-822**
	1-1/2"	5/16-18	**364-028**	**364-823**
	1-3/4"	5/16-18	**364-029**	**364-824**
	2"	5/16-18	**364-030**	**364-825**
	2-1/4"	5/16-18	**364-031**	—
	2-1/2"	5/16-18	**364-032**	—
	2-3/4"	5/16-18	**364-033**	—
	3"	5/16-18	**364-034**	—
	3-1/4"	5/16-18	**364-035**	—
	3-1/2"	5/16-18	**364-036**	—
	4"	5/16-18	**364-037**	—
1/2" 1/4" Key	1/2"	3/8-16	**364-021**	**364-826**
	5/8"	3/8-16	**364-019**	**364-827**
	3/4"	3/8-16	**364-017**	**364-828**
	1"	3/8-16	**364-038**	**364-829**
	1-1/4"	3/8-16	**364-039**	**364-830**
	1-1/2"	3/8-16	**364-020**	**364-831**
	1-3/4"	3/8-16	**364-040**	**364-832**
	2"	3/8-16	**364-016**	**364-833**
	2-1/4"	3/8-16	**364-041**	—
	2-1/2"	3/8-16	**364-042**	—
	2-3/4"	3/8-16	**364-043**	—
	3"	3/8-16	**364-044**	—
	3-1/4"	3/8-16	**364-045**	—
	3-1/2"	3/8-16	**364-046**	—
	4"	3/8-16	**364-047**	—
	4-1/2"	3/8-16	**364-048**	—
	5"	3/8-16	**364-049**	—
5/8" 5/16" Key	3/4"	1/2-13	**364-076**	—
	1"	1/2-13	**364-077**	—
	1-1/4"	1/2-13	**364-050**	—
	1-1/2"	1/2-13	**364-051**	—
	1-3/4"	1/2-13	**364-052**	—
	2"	1/2-13	**364-053**	—
	2-1/4"	1/2-13	**364-054**	—
	2-1/2"	1/2-13	**364-055**	—
	2-3/4"	1/2-13	**364-056**	—
	3"	1/2-13	**364-057**	—
	3-1/4"	1/2-13	**364-058**	—
	3-1/2"	1/2-13	**364-059**	—
	4"	1/2-13	**364-060**	—
	4-1/2"	1/2-13	**364-061**	—
	5"	1/2-13	**364-062**	—

Continued on facing page...

See B247 for larger shoulder diameters and technical information on Inch Hex Socket Shoulder Screws.

B

NOTE: Plain or knurled head furnished at our option as available.



See Chart below

"ALLOY" STEEL
Heat treated
Not Plated
Rockwell "C" hardness of 32-43 at the surface.

Threads:
Unified standard, Class 3A, UNC Series, to American National Standard, ASME/ANSI, B18.3.

18-8 STAINLESS STEEL
Threads:
Class 3A or 2A our option.

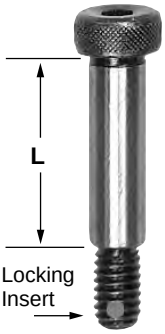
…Continued from previous page.

"STRIPPER BOLTS"

Shoulder Dia.	Shoulder Length	U.N.C. Thread	*SPAENAUR Nos.* STEEL	STAINLESS
3/4" 3/8" Key	3/4"	5/8-11	**364-079**	—
	1"	5/8-11	**364-088**	—
	1-1/4"	5/8-11	**364-080**	—
	1-1/2"	5/8-11	**364-063**	—
	1-3/4"	5/8-11	**364-064**	—
	2"	5/8-11	**364-065**	—
	2-1/4"	5/8-11	**364-066**	—
	2-1/2"	5/8-11	**364-067**	—
	2-3/4"	5/8-11	**364-068**	—
	3"	5/8-11	**364-069**	—
	3-1/2"	5/8-11	**364-070**	—
Cont'd.... **3/4"** 3/8" Key	4"	5/8-11	**364-071**	—
	4-1/2"	5/8-11	**364-072**	—
	5"	5/8-11	**364-073**	—
1" 1/2" Key	1-1/2"	3/4-10	**364-082**	—
	2"	3/4-10	**364-085**	—
	2-1/2"	3/4-10	**364-075**	—
	3"	3/4-10	**364-087**	—
	3-1/2"	3/4-10	**364-083**	—
	4"	3/4-10	**364-078**	—
1 1/4" 5/8" Key	2-1/4"	7/8-9	**364-091**	
	3"	7/8-9	**364-081**	—

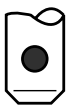
Hex Socket Shoulder Screw Technical Information

Nom. Size or Basic Shoulder Dia.		D Shoulder Diameter Max	D Shoulder Diameter Min	A Head Diameter Max.	A Head Diameter Min.	H Head Height Max.	H Head Height Min.	D1 Nom. Thread Size or Basic Thread Dia.		Threads Per Inch	E Thread Length Basic	K Thread Neck Wdth. Max.	J Hexagon Socket Size Nom.	
1/4"	0.250	0.2480	0.2460	0.375	0.357	0.188	0.177	10	0.1900	24	0.375	0.062	1/8	0.125
5/16"	0.312	0.3105	0.3085	0.438	0.419	0.219	0.209	1/4	0.2500	20	0.438	0.075	5/32	0.156
3/8"	0.375	0.3730	0.3710	0.562	0.543	0.250	0.240	5/16	0.3125	18	0.500	0.083	3/16	0.188
1/2"	0.500	0.4980	0.4960	0.750	0.729	0.312	0.302	3/8	0.3750	16	0.625	0.093	1/4	0.250
5/8"	0.625	0.6230	0.6210	0.875	0.853	0.375	0.365	1/2	0.5000	13	0.750	0.115	5/16	0.312
3/4"	0.750	0.7480	0.7460	1.000	0.977	0.500	0.490	5/8	0.6250	11	0.875	0.136	3/8	0.375
1"	1.000	0.9980	0.9960	1.312	1.287	0.625	0.610	3/4	0.7500	10	1.000	0.150	1/2	0.500
1-1/4"	1.250	1.2480	1.2460	1.750	1.723	0.750	0.735	7/8	0.8750	9	1.125	0.222	5/8	0.625



PELLETIZED Hex Socket SHOULDER SCREWS (STRIPPER BOLTS)

Alloy Steel Heat Treated
Not Plated
with Type 6/6 Nylon Pellet



For Pellet Location and additonal info. see page B242.

Shoulder DIA.		1/4"	5/16"	3/8"	1/2"
U.N.C. Thread		10-24	1/4"-20	5/16"-18	3/8"-16
Shoulder Length	L	ORDER BY *SPAENAUR* NUMBER			
	3/8	**359-200**		**359-207**	
	1/2		**359-204**	**359-208**	
	5/8	**359-201**	**359-205**	**359-209**	**359-211**
	3/4	**359-202**	**359-206**	**359-210**	
	1	**359-203**			**359-212**
	1-1/4				
		UNIT PACKAGE 25			

B

ALLOY STEEL

DOUBLE HEAT TREATED BLACK SATIN FINISH

IFI - 115 1986

12 point Flanged Head

COUNTR-BOR SCREWS

- Wrenches Tighter!
- Wrenches Faster!
- Smooth Appearance!
- And Saves You Money on Assembly Time!

MATERIAL - Alloy Steel. HEAT TREATMENT - Rockwell C-36-43. TENSILE STRENGTH - 170,000 PSI Min. YIELD STRENGTH - 158,000 PSI Min. PROOF LOAD 135,000 PSI Min.

COARSE THREAD UNRC-3A

DIA.	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8	1
THD.	20	18	16	14	13	11	10	9	8
Lgth.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
3/8	CS-150	*UNIT PACKAGE 100*							
1/2	CS-151	CS-164		CS-195	CS-210				
5/8	CS-152	CS-165	CS-179	CS-196	CS-211				
3/4	CS-153	CS-166	CS-180	CS-197	CS-212				
7/8	CS-154	CS-167	CS-181	CS-198	CS-213				
1	CS-155	CS-168	CS-182	CS-199	CS-214	CS-232			
1-1/4	CS-156	CS-169	CS-183	CS-200	CS-215	CS-233	CS-250		
1-1/2	CS-157	CS-170	CS-184	CS-201	CS-216	CS-234	CS-251		
1-3/4	CS-158	CS-171	CS-185	CS-202	CS-217	CS-235	CS-252		
2	CS-159	CS-172	CS-186	CS-203	CS-218	CS-236	CS-253	CS-267	CS-281
2-1/4	CS-160	CS-173	CS-187	CS-204	CS-219	CS-237	CS-254	CS-268	CS-282
2-1/2	CS-161	CS-174	CS-188	CS-205	CS-220	CS-238	CS-255	CS-269	CS-283
2-3/4	CS-162	CS-175	CS-189	CS-206	CS-221	CS-239	CS-256	CS-270	CS-284
3	CS-163	CS-176	CS-190	CS-207	CS-222	CS-240	CS-257	CS-271	CS-285
3-1/2		CS-177	CS-191	CS-208	CS-223	CS-241	CS-258	CS-272	CS-286
4			CS-192	CS-209	CS-224	CS-242	CS-259	CS-273	CS-287
4-1/2			CS-193		CS-225	CS-243	CS-260	CS-274	CS-288
5	*UNIT PACKAGE 50*		CS-194		CS-226	CS-244	CS-261	CS-275	CS-289
5-1/2					CS-227	CS-245	CS-262	CS-276	CS-290
6					CS-228	CS-246	CS-263	CS-277	CS-291
6-1/2					CS-229	CS-247	CS-264	CS-278	CS-292
7					CS-230	CS-248	CS-265	CS-279	CS-293
8						CS-249			
	UNIT PACKAGE 25		*UNIT PACKAGE 10*			*UNIT PACKAGE 1*			

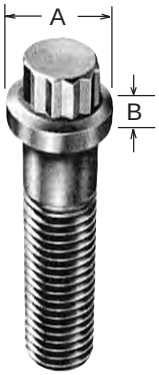
FINE THREAD UNRF-3A

DIA.	1/4	5/16	3/8	7/16	1/2	5/8	3/4	7/8
THD.	28	24	24	20	20	18	16	14
Lgth.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW							
3/8	CS-295							
1/2	CS-296	CS-306	CS-317					
5/8	CS-297	CS-307	CS-318					
3/4	CS-298	CS-308	CS-319					
7/8	CS-299	CS-309	CS-320					
1	CS-300	CS-310	CS-321	CS-328	CS-332	CS-339		
1-1/4	CS-301	CS-311	CS-322	CS-329	CS-333	CS-340		
1-1/2	CS-302	CS-312	CS-323	CS-330	CS-334	CS-341		
1-3/4	CS-303	CS-313	CS-324	357-001	CS-335	CS-342		
2	CS-304	CS-314	CS-325	CS-331	CS-336	CS-343	357-006	
2-1/4	CS-305	CS-315	CS-326	357-009	CS-337			
2-1/2		CS-316	CS-327	357-002	CS-338	CS-344		
3			357-007		357-004			357-003
3-1/2							357-005	
4-1/2								357-008
	UNIT PACKAGE 100		*UNIT PACKAGE 50*		*UNIT PACKAGE 25*		*UNIT PACKAGE 10*	

RECOMMENDED TIGHTENING TORQUES

Size	Ft. Lbs.
1/4-20 UNC	15
1/4-28 UNF	17
5/16-18 UNC	31
5/16-24 UNF	34
3/8-16 UNC	58
3/8-24 UNF	65
7/16-14 UNC	92
7/16-20 UNF	102
1/2-13 UNC	133
1/2-20 UNF	150
5/8-11 UNC	266
5/8-18 UNF	301
3/4-10 UNC	480
3/4-16 UNF	536
7/8-9 UNC	746
7/8-14 UNF	881
1-8 UNC	1,044
1-14 UNF	1,255

Torque ratings are a general guideline only. Actual conditions may effect these ratings.



See page B249 for Assortment 805-652.

Dia. of Thread	"A" Flange Dia. Max.	"A" Flange Dia. Min.	"B" Flange Thickness Min.	12 Pt. Socket or Wrench Size
1/4"	0.375	0.365	0.058	1/4"
5/16"	0.469	0.457	0.074	5/16"
3/8"	0.562	0.550	0.095	3/8"
7/16"	0.656	0.642	0.109	7/16"
1/2"	0.750	0.735	0.129	1/2"
9/16"	0.844	0.828	0.145	9/16"
5/8"	0.938	0.921	0.166	5/8"
3/4"	1.125	1.107	0.200	3/4"
7/8"	1.312	1.293	0.234	7/8"
1"	1.500	1.479	0.268	1"

P.C. 357

CATALOG 13

ASSORTMENT
ASSORTIMENT
805-652

ALLOY STEEL

12 point Flanged Head

COUNTR-BOR SCREW ASSORTMENT
24 Sizes — 455 Pieces

Coarse and Fine Thread

Priced Singly

Furnished in Large Size grey enamelled steel drawer with hinged lid and catch.

Drawer will fit into Slide Racks shown on page A3.

Shipping Weight: 13.47 kg (29.7 lbs.)

Contents of Assortment

SPAENAUR No.	Thread Size	Length	Ass't. Qty.
CS-153	1/4"-20 UNC	3/4"	30
CS-154	1/4"-20 UNC	7/8"	30
CS-155	1/4"-20 UNC	1"	30
CS-304	1/4"-28 UNF	2"	30
CS-309	5/16"-24 UNF	7/8"	30
CS-168	5/16"-18 UNC	1"	30
CS-170	5/16"-18 UNC	1-1/2"	25
CS-311	5/16"-24 UNF	1-1/4"	25
CS-312	5/16"-24 UNF	1-1/2"	20
CS-172	5/16"-18 UNC	2"	20
CS-182	3/8"-16 UNC	1"	20
CS-183	3/8"-16 UNC	1-1/4"	20
CS-184	3/8"-16 UNC	1-1/2"	20
CS-321	3/8"-24 UNF	1"	20
CS-200	7/16"-14 UNC	1-1/4"	15
CS-329	7/16"-20 UNF	1-1/4"	15
CS-203	7/16"-14 UNC	2"	10
CS-205	7/16"-14 UNC	2-1/2"	10
CS-212	1/2"-13 UNC	3/4"	10
CS-215	1/2"-13 UNC	1-1/4"	10
CS-216	1/2"-13 UNC	1-1/2"	10
CS-334	1/2"-20 UNF	1-1/2"	10
CS-218	1/2"-13 UNC	2"	10
CS-338	1/2"-20 UNF	2-1/2"	5

See facing page for complete selection of Countr-Bor Screws in Inch Sizes.

SPAENAUR

We're your complete source for all your fastener needs.

DIN 912
FULLY THREADED

Property Class 8.8 – Plain Finish

ISO Regular COARSE Metric Thread

Medium Carbon Steel, Quenched & Tempered

Dia. M3 - M16 Tensile Strength 800 N/mm^2 min. (Approx. 116,000 PSI - For Reference Only.)
Above M16 Tensile Strength 830 N/mm^2 min. (Approx. 120,000 PSI - For Reference Only.)

DIA.	M3	M4	M5	M6	M8	M10	M12	M14
Pitch	0.50	0.70	0.80	1.00	1.25	1.50	1.75	2.00
Key	2.5 mm	3 mm	4 mm	5 mm	6 mm	8 mm	10 mm	12 mm
Length	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW							
4	**367-369**					Continued on facing page…		
5	**367-007**	**367-278**						
6	**367-008**	**367-016**	**367-033**	**367-285**				
8	**367-009**	**367-017**	**367-034**	**367-054**	**367-289**			
10	**367-010**	**367-018**	**367-035**	**367-055**	**367-074**			
12	**367-011**	***367-019**	**367-036**	**367-056**	**367-075**	**367-099**	**367-128**	
14		**367-279**	**367-282**	**367-371**				
16	**367-012**	**367-020**	**367-037**	**367-057**	**367-076**	**367-100**	**367-129**	
18	**367-271**	**367-280**	**367-283**	**367-286**	**367-290**	**367-293**	**367-296**	
20	**367-013**	**367-021**	**367-038**	**367-058**	**367-077**	**367-101**	**367-130**	**367-299**
22	**367-367**	**367-281**	**367-284**	**367-287**	**367-291**	**367-294**	**367-297**	
25	**367-393**	**367-022**	**367-039**	**367-059**	**367-078**	**367-102**	**367-131**	**367-300**
30				**367-060**	**367-079**	**367-103**	**367-132**	**367-301**
35					**367-080**	**367-104**	**367-133**	**367-302**
40	**367-378**			**367-361**	**367-363**	**367-105**	**367-134**	**367-303**
45							**367-135**	**367-304**
50	*Unit Package 100*						**367-136**	**367-305**
55								**367-306**
60			*Unit Package 50*		**367-364**			
65								
70		**367-375**						
75							*Unit Package 25*	
80								
90								
100				**367-362**				
110								

***367-325** Zinc Plated and Locking Patch.

See Page B254 for Assortment 805-498.

Sizes available in FINE THREAD – Fully Threaded

367-347	M10 x 1.25 x 20 mm	(U.P.Q. 50)
367-352	M12 x 1.25 x 30 mm	(U.P.Q. 25)
367-353	M12 x 1.25 x 35 mm	(U.P.Q. 25)

DIN 912
FULLY THREADED

Property Class 8.8 – Plain Finish

ISO Regular COARSE Metric Thread

Medium Carbon Steel, Quenched & Tempered

Dia. M3 - M16 Tensile Strength 800 N/mm^2 min. (Approx. 116,000 PSI - For Reference Only.)
Above M16 Tensile Strength 830 N/mm^2 min. (Approx. 120,000 PSI - For Reference Only.)

DIA.	M16	M18	M20	M22	M24	M27	M30	M36
Pitch	2.00	2.50	2.50	2.50	3.00	3.00	3.50	4.00
Key	14 mm	14 mm	17 mm	17 mm	19 mm	19 mm	22 mm	27 mm
Length	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW							
4	Continued from facing page…							
5								
6								
8								
10								
12	*Unit Package 25*							
14								
16								
18								
20	**367-158**		*Unit Package 10*					
22								
25	**367-159**							
30	**367-160**		**367-186**					
35	**367-161**	**367-319**	**367-187**					
40	**367-162**	**367-320**	**367-188**	**367-334**	**367-213**		*Priced Singly*	
45	**367-163**	**367-321**	**367-189**	**367-335**	**367-214**			
50	**367-164**	**367-322**	**367-190**	**367-336**	**367-215**			
55	**367-365**	**367-323**	**367-191**	**367-337**	**367-216**			
60	**367-392**	**367-324**	**367-192**	**367-338**	**367-217**		**367-238**	
65			**367-193**	**367-339**	**367-218**			
70			**367-356**	**367-373**	**367-219**		**367-239**	
75			**367-345**		**367-344**			
80							**367-240**	**367-256**
90						**367-315**	**367-348**	**367-257**
100							**367-316**	**367-370**
110								

See Page B254 for Assortment 805-498.

SPAENAUR

Your #1 Choice for Fasteners.

B

DIN 912
PARTIALLY THREADED

Property Class 8.8 – Plain Finish

ISO Regular COARSE Metric Thread

Medium Carbon Steel, Quenched & Tempered

Dia. M3 - M16 Tensile Strength 800 N/mm² min. (Approx. 116,000 PSI - For Reference Only.)
Above M16 Tensile Strength 830 N/mm² min. (Approx. 120,000 PSI - For Reference Only.)

DIA.	M3	M4	M5	M6	M8	M10	M12	M14
Pitch	0.50	0.70	0.80	1.00	1.25	1.50	1.75	2.00
Key	2.5 mm	3 mm	4 mm	5 mm	6 mm	8 mm	10 mm	12 mm
Length	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW							
20						Continued on facing page…		
22	**367-273**			*Unit Package 50*				
25	**367-014**							
30	**367-015**	**367-023**	**367-040**					
35	**367-274**	**367-024**	**367-041**	**367-061**			*Unit Package 25*	
40	**367-270**	**367-025**	**367-042**	**367-062**	**367-081**			
45	**367-276**	**367-026**	**367-043**	**367-063**	**367-082**	**367-106**		
50	**367-277**	**367-027**	**367-044**	**367-064**	**367-083**	**367-107**		
55		**367-028**	**367-045**	**367-065**	**367-084**	**367-108**	**367-137**	
60		**367-029**	**367-046**	**367-066**	**367-085**	**367-109**	**367-138**	**367-308**
65		**367-030**	**367-047**	**367-067**	**367-086**	**367-110**	**367-139**	**367-309**
70		**367-031**	**367-048**	**367-068**	**367-087**	**367-111**	**367-140**	**367-310**
75				**367-288**	**367-272**	**367-295**	**367-298**	**367-311**
80		**367-032**	**367-049**	**367-069**	**367-088**	**367-112**	**367-141**	**367-312**
90			**367-050**	**367-070**	**367-089**	**367-113**	**367-142**	**367-313**
100			**367-051**	**367-071**	**367-090**	**367-114**	**367-143**	**367-314**
110	*Unit Package 100*		**367-052**	**367-072**	**367-091**	**367-115**	**367-144**	**367-372**
120			**367-053**	**367-073**	**367-092**	**367-116**	**367-145**	**367-317**
130					**367-093**	**367-117**	**367-146**	*Unit Package 10*
140			*Unit Package 50*		**367-094**	**367-118**	**367-147**	
150					**367-095**	**367-119**	**367-148**	
160					**367-096**	**367-120**	**367-149**	
170					**367-097**	**367-121**	**367-150**	
180					**367-098**	**367-122**	**367-151**	
200						**367-123**	**367-152**	
220						**367-124**	**367-153**	
240						**367-125**	**367-154**	
260						**367-126**	**367-155**	
280							**367-156**	
300						**367-127**	**367-157**	
400						*Priced Singly*		

Sizes available in FINE THREAD - Partially Threaded

367-346	M8 x 1.00 x 100 mm	(U.P.Q. 25)
367-350	M10 x 1.25 x 80 mm	(U.P.Q. 25)
367-351	M10 x 1.25 x 100 mm	(U.P.Q. 25)
367-354	M12 x 1.25 x 70 mm	(U.P.Q. 25)
367-355	M12 x 1.25 x 90 mm	(U.P.Q. 25)
367-358	M16 x 1.50 x 90 mm	(U.P.Q. 25)
367-359	M16 x 1.50 x 100 mm	(U.P.Q. 25)

See Page B254 for Assortment 805-498.

DIN 912
PARTIALLY THREADED

Property Class 8.8 – Plain Finish

ISO Regular COARSE Metric Thread

Medium Carbon Steel, Quenched & Tempered

Dia. M3 - M16 Tensile Strength 800 N/mm^2 min. (Approx. 116,000 PSI - For Reference Only.)
Above M16 Tensile Strength 830 N/mm^2 min. (Approx. 120,000 PSI - For Reference Only.)

DIA.	M16	M18	M20	M22	M24	M27	M30	M36
Pitch	2.00	2.50	2.50	2.50	3.00	3.00	3.50	4.00
Key	14 mm	14 mm	17 mm	17 mm	19 mm	19 mm	22 mm	27 mm
Length	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW							
20	Continued from facing page…							
22								
25								
30								
35								
40	*Unit Package 25*							
45								
50								
55	**367-165**		*Unit Package 10*				*Priced Singly*	
60								
65	**367-167**							
70	**367-168**	**367-326**						
75	**367-318**	**367-327**	**367-333**					
80	**367-169**	**367-328**	**367-195**		**367-220**			
90	**367-170**	**367-329**	**367-196**	**367-340**	**367-221**			
100	**367-171**	**367-330**	**367-197**	**367-341**	**367-222**		**367-242**	**367-258**
110	**367-172**	**367-331**	**367-198**	**367-342**	**367-223**		**367-243**	
120	**367-173**	**367-332**	**367-199**	**367-343**	**367-224**		**367-244**	**367-259**
130	**367-174**		**367-200**		**367-225**		**367-245**	
140	**367-175**		**367-201**		**367-226**		**367-246**	**367-260**
150	**367-176**		**367-202**		**367-227**			
160	**367-177**		**367-203**		**367-228**		**367-247**	**367-261**
170	**367-178**		**367-204**		**367-229**			
180	**367-179**		**367-205**		**367-230**		**367-248**	**367-262**
200	**367-180**		**367-206**	*Priced Singly*	**367-231**		**367-249**	**367-263**
220	**367-181**		**367-207**		**367-232**		**367-250**	**367-264**
240	**367-182**		**367-208**		**367-233**		**367-251**	**367-265**
260	**367-183**		**367-209**		**367-234**		**367-252**	**367-266**
280	**367-184**		**367-210**		**367-235**		**367-253**	**367-267**
300	**367-185**		**367-211**		**367-236**		**367-254**	**367-268**
400			**367-212**		**367-237**		**367-255**	**367-269**

See Page B254 for Assortment 805-498.

B

Priced Singly

Shipping Weight: 5.44 kg (12 lbs.)

ASSORTMENT / ASSORTIMENT 805-498

METRIC
Hex Socket Cap Screws

Regular (Coarse) Thread

24 Sizes — 500 Pieces

Sizes: M3 x 10 mm to M12 x 40 mm

***Property Class 8.8** Med. Carbon Steel*

Not Plated

Put up in REGULAR SIZE grey enamelled STEEL drawer.
Drawer will fit the Slide Racks on page A2

DIN 912

FULL Cylinder Head

Note:
The light-face No's. are fully threaded.

The bold-face No's. are partially threaded.

Contents of Assortment

SPAENAUR No.	Size	Ass't. Qty.	*SPAENAUR No.*	Size	Ass't. Qty.
367-010	M3 x 10 mm	30	367-055	M6 x 10 mm	20
367-012	M3 x 16 mm	30	367-057	M6 x 16 mm	20
367-014	M3 x 25 mm	30	367-059	M6 x 25 mm	20
367-019	M4 x 12 mm	30	**367-061**	M6 x 35 mm	20
367-021	M4 x 20 mm	30	367-075	M8 x 12 mm	15
367-023	M4 x 30 mm	25	367-077	M8 x 20 mm	15
367-025	M4 x 40 mm	30	367-079	M8 x 30 mm	10
367-034	M5 x 8 mm	25	**367-081**	M8 x 40 mm	10
367-036	M5 x 12 mm	25	367-100	M10 x 16 mm	10
367-038	M5 x 20 mm	25	367-102	M10 x 25 mm	10
367-039	M5 x 25 mm	25	367-132	M12 x 20 mm	10
367-040	M5 x 30 mm	25	367-134	M12 x 40 mm	10

SPAENAUR

Our Quality Policy

To satisfy our commitments to our Customer for both Product and Service -

Accurately,

On Time,

Every Time.

DIN 912

LIGHT
Face Numbers are Fully Threaded

Property Class 8.8 Zinc and Yellow Zinc Plated

ISO Regular COARSE Metric Thread

DIN 912

BOLD
Face Numbers are Partially Threaded

Medium Carbon Steel, Quenched & Tempered

Dia. M3 - M16 Tensile Strength 800 N/mm² min. (Approx. 116,000 PSI - For Reference Only.)
Above M16 Tensile Strength 830 N/mm² min. (Approx. 120,000 PSI - For Reference Only.)

DIA.	M3	M4	M5	M6	M8	M10	M12	M14	M16	M20	M24	M36
Pitch	0.50	0.70	0.80	1.00	1.25	1.50	1.75	2.00	2.00	2.50	3.00	4.00
Key	2.5 mm	3 mm	4 mm	5 mm	6 mm	8 mm	10 mm	10 mm	14 mm	17 mm	19 mm	27 mm
Length	**ORDER BY *SPAENAUR* NUMBERS LISTED BELOW** **ZP** after no. = **ZINC PLATED** **YZ** after no. = **YELLOW ZINC PLATED**											
8				367-054YZ								
10	367-010ZP		367-035ZP									
12	*Unit Package 100*			367-056ZP	*Unit Package 50*		*Unit Package 25*					
				367-056YZ								
15												
16		367-020YZ			367-076YZ	367-100ZP						
18					367-290YZ					*Unit Package 10*		
					367-290ZP							
20		367-021ZP				367-101ZP						
						367-101YZ						
22			367-284ZP		367-291ZP		367-297ZP					
25		367-022YZ		367-059ZP	367-078ZP	367-102YZ	367-131ZP					
				367-059YZ								
30		**367-023ZP**		367-060ZP			367-132ZP		367-160ZP	367-186ZP		
				367-060YZ								
35				**367-061ZP**		367-104YZ						
40				**367-062ZP**			367-134ZP	367-303YZ	367-162ZP			
45					**367-082ZP**		367-135ZP					
50				**367-064YZ**	**367-083ZP**	**367-107ZP**	367-136ZP					
55		**367-028ZP**			**367-084YZ**							
60				**367-066ZP**					**367-166ZP**			
65			**367-047ZP**							367-193ZP		
75					**367-272ZP**				**367-318ZP**			
80							**367-141ZP**					
90												
100									**367-171ZP**			
110				**367-072ZP**								

B

DIN 7984

Thread length will vary with diameter and length of screw.

Property Class 8.8 – Plain Finish

Regular COARSE Metric Thread

LOW HEAD STYLE

Medium Carbon Steel, Quenched & Tempered

Tensile Strength 800 N/mm² min. (Approx. 116,000 PSI - For Reference Only.)

DIA.	M3	M4	M5	M6	M8	M10	M12	M14	M16	M20	M24	M36
Pitch	0.50	0.70	0.80	1.00	1.25	1.50	1.75	2.00	2.00	2.50	3.00	4.00
Key	2 mm	2.5 mm	3 mm	4 mm	5 mm	7 mm	8 mm	10 mm	12 mm	14 mm	17 mm	
Nom. Hd Height	2 mm	2.8 mm	3.5 mm	4 mm	5 mm	6 mm	7 mm	8 mm	9 mm	11 mm	13 mm	
Length	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW											
5	366-1071			*Unit Package 50*								
6	366-1072	366-1080	366-1086					*Unit Package 25*				
8	366-1073	366-1081	366-1087	366-1095								
10	366-1074	366-451	366-400	366-408	366-1102							
12	366-1075	366-452	366-401	366-409	366-1103					*Unit Package 10*		
16	366-1076	366-453	366-403	366-411	366-418	366-1110						
18		366-454		366-412	366-419							
20	366-1077	366-455	366-405	366-413	366-420	366-426	366-1117					
22			366-406	366-414	366-421	366-427						
25	366-1078	366-1082	366-407	366-415	366-422	366-428	366-433					*Priced Singly*
30	366-1079	366-1083	366-1088	366-416	366-423	366-429	366-434		366-438	366-1132		
35		366-1084	366-1089	366-1096	366-424	366-430	366-435		366-439	366-447		
40		366-1085	366-1090	366-1097	366-425	366-431	366-436	366-1127	366-440	366-448	366-1139	
45			366-1091	366-1098	366-1104	366-432	366-437		366-441	366-1133		
50			366-1092	366-1099	366-1105	366-1111	366-1118		366-442	366-449	366-1140	
55			366-1093	366-1100	366-1106		366-1356		366-443			
60			366-1094	366-1101	366-1107	366-1112	366-1119		366-444	366-450	366-1142	
65									366-445			
70						366-1113	366-1120		366-446	366-1134	366-1143	
75						366-1335						
80				366-1229	366-1108	366-1114	366-1121		366-1128	366-1135	366-1144	
90					366-1109	366-1115			366-1129	366-1136	366-1145	
100						366-1116	366-1123			366-1137	366-1146	
110												
120						366-1336			366-1131	366-1138	366-1147	

Additional Sizes and Finishes of DIN 7984

366-1081YZ	M4 x 0.70 x 8 mm, Yellow Zinc Plated	**366-413ZP**	M6 x 1.00 x 20 mm, Zinc Plated
366-401YZ	M5 x 0.80 x 12 mm, Yellow Zinc Plated	**366-1110YZ**	M10 x 1.50 x 16 mm, Yellow Zinc Plated
366-407ZP	M5 x 0.80 x 25 mm, Zinc Plated	**366-1117YZ**	M12 x 1.75 x 20 mm, Yellow Zinc Plated

See facing page for Metric Property Class 8.8 Low Cylindrical Head Style Hex Socket Cap Screw Assortment 805-435.

ASSORTMENT / ASSORTIMENT 805-435

METRIC
Hex Socket Cap Screws

LOW Cylinder Head Style DIN 7984

Med. Carbon Steel, Metric **Property Class 8.8**

Not Plated

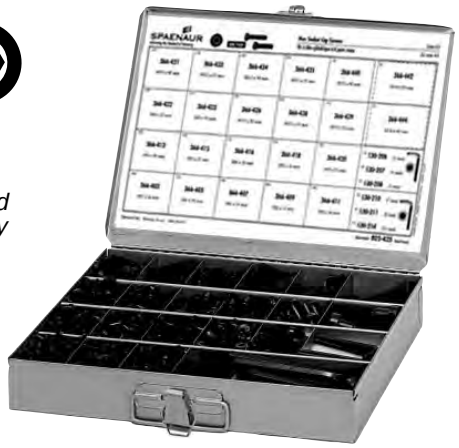
ISO Regular COARSE Metric Thread

Contains Metric thread diameters M5 to M16.
Has 22 cap screw sizes, plus 6 hex key sizes.

Total Contents: 585 Pieces

Drawer fits the Slide Racks shown on Page A2.
Shipping Weight 9.41 kg (20-3/4 lbs.)

Priced Singly



REGULAR SIZE welded STEEL drawer with Hinged Lid & Scooped Bins.

METRIC
Property Class 8.8
XZN (12-Point) Low Head Socket Cap Screws

ISO Regular COARSE Metric Thread

(We reserve the right to ship fully or partially threaded at our option.)

SPAENAUR No.	Dia. x Pitch x Length	U.P.Q.	*SPAENAUR No.*	Dia. x Pitch x Length	U.P.Q.
366-1148	M5 x 0.80 x 15 mm	50	**366-1154**	M6 x 1.00 x 30 mm	50
366-1150	M5 x 0.80 x 30 mm	50	**366-1156**	M8 x 1.25 x 50 mm	50
366-1151	M5 x 0.80 x 40 mm	50	**366-1157**	M8 x 1.25 x 70 mm	50
366-1153	M6 x 1.00 x 25 mm	50	**366-1160**	M10 x 1.50 x 70 mm	50

See Page N29 for 12PT Sockets.

Visit us on the web at . . .

www.spaenaur.com

Tel: 1-800-265-8772 Fax: 519-744-0818

B

DIN 6912

Thread length will vary with diameter and length of screw.

Property Class 8.8 Plain Finish

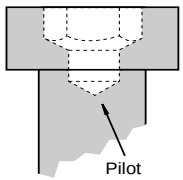
ISO Regular COARSE Metric Thread

LOW HEAD STYLE with pilot recess for wrench key

Medium Carbon Steel, Quenched & Tempered

Dia. M3 - M16 Tensile Strength 800 N/mm² min. (Approx. 116,000 PSI - For Reference Only.)
Above M16 Tensile Strength 830 N/mm² min. (Approx. 120,000 PSI - For Reference Only.)

DIA.	M4	M5	M6	M8	M10	M12	M14	M16	M20	M24	M30	M36
Pitch	0.70	0.80	1.00	1.25	1.50	1.75	2.00	2.00	2.50	3.00	3.50	4.00
Key	3 mm	4 mm	5 mm	6 mm	8 mm	10 mm	12 mm	14 mm	17 mm	19 mm	22 mm	27 mm
Nom. Hd Height	2.8 mm	3.5 mm	4 mm	5 mm	6.5 mm	7.5 mm	8.5 mm	10 mm	12 mm	14 mm	17.5 mm	21.5 mm
Length	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW											
6	**366-1165**			*Unit Package 50*		***366-1191YZ** Yellow Zinc Plated			**†366-1207YZ** Yellow Zinc Plated			
8	**■366-1162**	**366-1176**	**366-1189**			**■366-1162YZ** Yellow Zinc Plated			**▼366-1234YZ** Yellow Zinc Plated			
10	**366-1167**	**366-1177**	**366-1190**	**366-1206**		**❑366-1178YZ** Yellow Zinc Plated			**◆366-1181YZ** Yellow Zinc Plated			
12	**366-1168**	**❑366-1178**	***366-1191**	**†366-1207**	**366-1224**							
16	**366-1169**	**366-1179**	**366-1192**	**366-1208**	**366-1225**	**366-1244**	*Unit Package 25*					
18	**366-1170**	**366-1180**	**366-1193**	**366-1209**	**366-1226**							
20	**366-1171**	**◆366-1181**	**366-1194**	**366-1210**	**366-1227**	**366-1001**			*Unit Package 10*			
22		**366-1182**		**366-1211**								
25	**366-1172**	**366-1183**	**366-1196**	**366-1212**	**366-1161**	**366-1000**		**366-1261**				
30	**366-1173**	**366-1184**	**366-1197**	**366-1213**	**366-1230**	**366-1248**	**366-1285**	**366-1262**				
35	**366-1174**	**366-1185**	**366-1198**	**366-1214**	**366-1231**	**366-1249**		**366-1263**				
40	**366-1175**	**366-1186**	**366-1199**	**366-1215**	**366-1232**	**366-1250**		**366-1264**	**366-1274**		*Priced Singly*	
45		**366-1187**	**366-1200**	**366-1216**	**366-1233**	**366-1251**		**366-1265**	**366-1275**			
50		**366-1420**	**366-1201**	**366-1217**	**▼366-1234**	**366-1252**		**366-1266**	**366-1276**			
55			**366-1202**		**366-1235**	**366-1253**						
60		**366-1188**	**366-1203**	**366-1218**	**366-1236**	**366-1254**		**366-1267**	**366-1277**			
65					**366-1237**							
70			**366-1204**	**366-1219**	**366-1238**	**366-1255**		**366-1268**	**366-1278**			
80			**366-1205**	**366-1220**	**366-1239**	**366-1256**		**366-1269**	**366-1279**			
90				**366-1221**	**366-1240**	**366-1257**		**366-1270**	**366-1280**			
100				**366-1222**	**366-1241**	**366-1258**		**366-1271**	**366-1281**	**366-1286**		
110					**366-1242**	**366-1259**		**366-1272**	**366-1282**			
120				**366-1223**	**366-1243**	**366-1002**		**366-1273**	**366-1283**		**366-1284**	



DIN 6912

A2 STAINLESS STEEL

10	**373-425**	**373-430**	**373-436**		*Unit Package 50*							
12	**373-426**	**373-431**	**373-437**									
16	**373-427**	**373-432**	**373-438**	**373-443**								
20	**373-428**	**373-433**	**373-439**	**373-444**	**373-450**	**373-456**						
25		**373-434**	**373-440**	**373-445**	**373-451**	**373-457**						
30		**373-435**	**373-441**	**373-446**	**373-452**	**373-458**		**373-024**				
35			**373-442**	**373-447**	**373-453**	**373-459**		**373-463**				
40			**373-468**	**373-448**	**373-454**	**373-460**	*Unit Package 25*					
50				**373-449**	**373-455**	**373-461**						
60						**373-462**						

Sizes available in A4 STAINLESS STEEL

373-467	M4 x 0.70 x 30 mm	(U.P.Q. 50)
373-464	M5 x 0.80 x 8 mm	(U.P.Q. 50)
373-465	M16 x 2.00 x 30 mm	(U.P.Q. 10)
373-466	M16 x 2.00 x 80 mm	(U.P.Q. 10)

B

DIN 912

LIGHT
Face Numbers are Fully Threaded

Property Class 10.9 Plain Finish

ISO Regular COARSE Metric Thread

Alloy Steel, Heat-treated

Tensile Strength 1040 N/mm² min. (Approx. 150,000 PSI - For Reference Only.)

DIN 912

BOLD
Face Numbers are Partially Threaded

Diameter	M2	M2.3	M2.5	M3	M4	M5	M6	M8	M10	M12
Pitch	0.40	0.40	0.45	0.50	0.70	0.80	1.00	1.25	1.50	1.75
Key	1.5 mm	2.0 mm	2.0 mm	2.5 mm	3 mm	4 mm	5 mm	6 mm	8 mm	10 mm
Length	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
3								Continued on facing page…		
4		366-007	366-014							
5	366-002		366-015	366-021	366-034		*Unit Package 50*			
6	366-003									
8						366-049				
10				366-024					366-113	
12								366-088		366-140
16		**366-013**							366-115	366-141
18					366-040	366-053	366-068	366-090	366-116	366-142
20	*Unit Package 100*					366-054		366-091	366-117	366-143
22					**366-042**	**366-055**	366-070	366-092	366-118	366-144
25				**366-030**					366-119	366-145
30				**366-031**					366-120	366-146
35					**366-045**				366-121	366-147
40										366-148
45					**366-047**		**366-075**	**366-097**		
50					**366-048**		**366-076**			366-150
55									**366-125**	
60									**366-126**	**366-152**
65										**366-153**
70									**366-128**	**366-154**
75										
80							**366-082**			
90										
100								*Unit Package 25*		**366-158**
110							**366-085**			
120								**366-108**	**366-134**	**366-160**
130								**366-109**		
140								**366-110**	**366-136**	
150								**366-111**	**366-137**	**366-163**
160					*Priced Singly*			**366-112**		
180										

CATALOG 13

DIN 912

LIGHT
Face Numbers are Fully Threaded

Property Class 10.9 Plain Finish

ISO Regular COARSE Metric Thread

Alloy Steel, Heat-treated

DIN 912

BOLD
Face Numbers are Partially Threaded

Tensile Strength 1040 N/mm^2 min. (Approx. 150,000 PSI - For Reference Only.)

Diameter	M14	M16	M18	M20	M22	M24	M27	M30	M33	M36
Pitch	2.00	2.00	2.50	2.50	2.50	3.00	3.00	3.50	3.50	4.00
Key	12 mm	14 mm	14 mm	17 mm	17 mm	19 mm	19 mm	22 mm	24 mm	27 mm
Length	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
3	…Continued from facing page									
4										
5										
6	*Unit Package 25*									
8										
10										
12										
16										
18	366-166			*Unit Package 10*						
20		366-189								
22		366-190								
25		366-191								
30		366-192	366-211	366-226			*Priced Singly*			
35		366-193	366-212	366-227						
40		366-194	366-213	366-228	366-245	366-258				
45			366-214	366-229	366-246	366-259				
50			366-215	366-230	366-247	366-260	366-276	366-292		
55	**366-175**	366-275	366-216		366-248	366-261				
60				366-232	366-249		366-278	366-294		
65			**366-218**			366-263				
70				**†366-234**	366-251		366-280	366-296		
75				***366-235**		366-265				
80		**366-202**	**366-221**		**366-253**		**366-282**	366-298		
90		**366-203**	**366-222**		**366-254**		**366-283**			
100			**366-223**		**366-255**		**366-284**	**366-300**		
110	**366-183**		**366-224**		**366-256**		**366-285**	**366-301**		
120	**366-184**		**366-225**		**366-257**		**366-286**			
130		**366-207**					**366-287**	**366-303**		
140		**366-208**		**366-242**			**366-288**	**366-304**		
150				**366-243**			**366-289**	**366-305**		
160		**366-210**		**366-244**			**366-1313**			
180						**366-185**				

†366-1426 Fully Threaded
***366-1331 Fully Threaded**

B

DIN 912
FULLY THREADED

Property Class 12.9 – Plain Finish

ISO Regular COARSE Metric Thread

Alloy Steel, Heat-treated

Tensile Strength 1220 N/mm² min. (Approx. 180,000 PSI - For Reference Only.)

See page B266 for Zinc and Yellow Zinc Plated.

Diameter	M2	M2.3	M2.5	M3	M4	M5	M6	M8	M10	M12
Pitch	0.40	0.40	0.45	0.50	0.70	0.80	1.00	1.25	1.50	1.75
Key	1.5 mm	2.0 mm	2.0 mm	2.5 mm	3 mm	4 mm	5 mm	6 mm	8 mm	10 mm
Length	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
3	**366-660**		**366-320**					Continued on facing page…		
4	**366-661**	**366-667**	**366-321**	**366-325**			*Unit Package 50*			
5	**366-662**	**366-668**	**366-322**	**366-326**	**366-393**					
6	**366-663**		**366-700**	**366-705**	**366-713**	**366-332**	**366-336**			
8	**366-664**	**366-670**	**366-701**	**366-706**	**366-714**	**366-725**	**366-736**			
10	**366-665**		**366-702**	**366-707**	**366-715**	**366-726**	**366-737**	**366-752**	**366-350**	
12	**366-666**		**366-703**	**366-708**	**366-716**	**366-727**	**366-738**	**366-753**	**366-770**	**366-792**
14				**366-392**	**366-391**					
16		**366-673**	**366-704**	**366-709**	**366-717**	**366-728**	**366-739**	**366-754**	**366-771**	**366-793**
18				**366-327**	**366-357**	**366-333**	**366-337**	**366-342**	**366-351**	**366-353**
20			**366-323**	**366-1328**	**366-718**	**366-729**	**366-740**	**366-755**	**366-772**	**366-794**
22					**366-331**	**366-334**	**366-338**	**366-343**	**366-352**	**366-354**
25			**366-324**	**366-1003**	**366-719**	**366-730**	**366-741**	**366-756**	**366-773**	**366-795**
30				**366-1004**	**366-1005**	**366-1009**	**366-742**	**366-757**	**366-774**	**366-796**
35						**366-1346**		**366-1352**	**366-775**	**366-797**
40					**366-1006**	**366-1010**		**366-1019**	**366-776**	**366-798**
45										**366-799**
50		*Unit Package 100*			**366-1007**	**366-1011**	**366-1015**	**366-1020**	**366-1026**	**366-1032**
60					**366-1008**	**366-1012**	**366-1016**	**366-1021**	**366-1027**	**366-1033**
70						**366-1013**	**366-1017**	**366-1022**	**366-1028**	**366-1034**
75									**366-1348**	
80							**366-1018**	**366-1023**	**366-1029**	**366-1035**
90							**366-1306**	**366-1024**	**366-1030**	**366-1036**
100							**366-1307**	**366-1025**	**366-1031**	**366-1037**
								Unit Package 25		

ASSORTMENT
ASSORTIMENT **805-500**

Shipping Weight: 5.44 kg (12 lbs.)

DIN 912 METRIC Hex Socket Cap Screws Property Class 12.9

Alloy Steel Not Plated

Contains Full and Partial Metric Regular Coarse Threads

24 Sizes — 500 Pieces

M3 x 10 mm to M12 x 40 mm

Put up in Grey Enamelled Steel Drawer. Drawer will fit into Slide Racks shown on page A2.

Priced Singly

Contents of Assortment

SPAENAUR No.	Ass't. Qty.	*SPAENAUR No.*	Ass't. Qty.
366-707	30	366-737	20
366-709	30	366-739	20
366-711	30	366-741	20
366-716	30	**366-743**	20
366-718	30	366-753	15
366-720	25	366-755	10
366-722	30	366-757	10
366-725	25	**366-759**	15
366-727	25	366-771	10
366-729	25	366-773	10
366-730	25	366-794	10
366-731	25	366-798	10

Re: Above chart
Light Face Nos. – Fully Threaded
Bold Face Nos. – Partially Threaded

DIN 912
FULLY THREADED

Property Class 12.9 – Plain Finish

ISO Regular COARSE Metric Thread

Alloy Steel, Heat-treated

Tensile Strength 1220 N/mm² min. (Approx. 180,000 PSI - For Reference Only.)

Diameter	M14	M16	M18	M20	M22	M24	M27	M30	M33	M36
Pitch	2.00	2.00	2.50	2.50	2.50	3.00	3.00	3.50	3.50	4.00
Key	12 mm	14 mm	14 mm	17 mm	17 mm	19 mm	19 mm	22 mm	24 mm	27 mm
Length	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
3	Continued from facing page…									
4										
5										
6										
8	*Unit Package 25*			*Unit Package 10*				*Priced Singly*		
10										
12										
14										
16										
18										
20	**366-674**	**366-924**								
22										
25	**366-675**	**366-925**								
30	**366-676**	**366-815**	**366-697**	**366-933**						
35	**366-677**	**366-816**	**366-698**	**366-834**						
40	**366-678**	**366-817**	**366-699**	**366-835**	**366-974**	**366-941**				
45	**366-679**	**366-818**	**366-961**	**366-836**	**366-975**	**366-942**				
50	**366-680**	**366-819**	**366-962**	**366-837**	**366-976**	**366-852**	**366-385**	**366-330**		
55	**366-681**	**366-820**	**366-963**	**366-838**		**366-853**				
60		**366-1038**	**366-1333**	**366-839**	**366-977**	**366-854**		**366-873**		
65		**366-1350**		**366-1325**		**366-855**	**366-383**			
70		**366-1039**		**366-1041**	**366-978**	**366-856**	**366-985**	**366-867**	**366-362**	**366-378**
75				**366-386**		**366-1337**				
80							**366-986**	**366-868**	**366-363**	**366-950**
90				**366-387**				**366-1323**	**366-364**	**366-951**
100									**366-365**	**366-952**
110										**366-373**
140			**366-1040**							

See page B267 for ISO FINE Metric Thread

Have a question?
Call (800) 265-8772 or (519) 744-3521.

B

DIN 912
PARTIALLY THREADED

Property Class 12.9 – Plain Finish

ISO Regular COARSE Metric Thread

Alloy Steel, Heat-treated

Tensile Strength 1220 N/mm² min. (Approx. 180,000 PSI - For Reference Only.)

See Page B266 for Zinc and Yellow Zinc Plated

Diameter	M2	M2.3	M2.5	M3	M4	M5	M6	M8	M10	M12
Pitch	0.40	0.40	0.45	0.50	0.70	0.80	1.00	1.25	1.50	1.75
Key	1.5 mm	2.0 mm	2.0 mm	2.5 mm	3 mm	4 mm	5 mm	6 mm	8 mm	10 mm
Length	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
20								Continued on facing page…		
22				**366-328**			*Unit Package 50*			
25				**366-711**						
30				**366-712**	**366-720**	**366-731**				*Unit Pkg. 25*
35				**366-397**	**366-721**	**366-732**	**366-743**	**366-758**		
40				**366-398**	**366-722**	**366-733**	**366-744**	**366-759**		
45				**366-399**	**366-723**	**366-734**	**366-745**	**366-760**	**366-777**	
50				**366-329**	**366-724**	**366-735**	**366-746**	**366-761**	**366-778**	
55					**366-882**	**366-335**	**366-747**	**366-762**	**366-779**	**366-801**
60		*Unit Package 100*			**366-883**	**366-887**	**366-748**	**366-763**	**366-780**	**366-802**
65					**366-884**	**366-888**	**366-749**	**366-764**	**366-781**	**366-803**
70					**366-885**	**366-889**	**366-750**	**366-765**	**366-782**	**366-804**
75						**366-890**	**366-751**	**366-766**	**366-783**	**366-805**
80					**366-886**	**366-891**	**366-896**	**366-767**	**366-784**	**366-806**
90						**366-892**	**366-897**	**366-768**	**366-785**	**366-807**
100					**366-1329**	**366-893**	**366-898**	**366-769**	**366-786**	**366-808**
110						**366-894**	**366-899**	**366-901**	**366-787**	**366-809**
120						**366-895**	**366-900**	**366-902**	**366-788**	**366-810**
130							**366-339**	**366-903**	**366-789**	**366-811**
140							**366-340**	**366-904**	**366-790**	**366-812**
150							**366-341**	**366-905**	**366-791**	**366-813**
160								**366-906**	**366-909**	**366-814**
170								**366-344**		
180								**366-907**	**366-910**	**366-917**
200				*Priced Singly*				**366-908**	**366-911**	**366-918**
220								**366-345**	**366-912**	**366-919**
240								**366-346**	**366-913**	**366-920**
260								**366-347**	**366-914**	**366-921**
280								**366-348**	**366-915**	**366-922**
300								**366-349**	**366-916**	**366-923**

U.P.10

See page B267 for ISO FINE Metric Thread.

Sales Desk open 7 a.m. to 7 p.m. E.S.T., Monday to Friday.

Call (800) 265-8772 or (519-744-3521.

DIN 912
~DIN EN ISO 4762

PARTIALLY THREADED

Property Class 12.9 – Plain Finish

ISO Regular COARSE Metric Thread

Alloy Steel, Heat-treated

Tensile Strength 1220 N/mm² min. (Approx. 180,000 PSI - For Reference Only.)

Diameter	M14	M16	M18	M20	M22	M24	M27	M30	M33	M36
Pitch	2.00	2.00	2.50	2.50	2.50	3.00	3.00	3.50	3.50	4.00
Key	12 mm	14 mm	14 mm	17 mm	17 mm	19 mm	19 mm	22 mm	24 mm	27 mm
Length	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
55	Continued from facing page…									
60	**366-682**				*Unit Package 10*			*Priced Singly*		
65	**366-683**	**366-822**								
70	**366-684**	**366-823**	**366-998**							
75	**366-685**	**366-824**	**366-999**	**366-842**						
80	**366-686**	**366-825**	**366-965**	**366-843**	**366-979**	**366-858**				
85	*Unit Package 25*									
90	**366-687**	**366-826**	**366-966**	**366-844**	**366-980**	**366-859**	**366-987**			
100	**366-688**	**366-827**	**366-967**	**366-845**	**366-981**	**366-860**	**366-988**	**366-869**		
110	**366-689**	**366-828**	**366-968**	**366-846**	**366-982**	**366-861**	**366-382**	**366-358**		
120	**366-690**	**366-829**	**366-969**	**366-847**	**366-983**	**366-862**	**366-989**	**366-870**	**366-366**	**366-953**
130	**366-691**	**366-830**	**366-970**	**366-848**		**366-863**		**366-359**		**366-374**
140	**366-692**	**366-831**	**366-971**	**366-849**		**366-864**	**366-990**	**366-871**	**366-367**	**366-954**
150	**366-693**	**366-832**	**366-356**	**366-850**		**366-865**		**366-360**		**366-375**
160	**366-694**	**366-833**	**366-972**	**366-851**		**366-866**	**366-991**	**366-872**	**366-368**	**366-955**
180	**366-695**	**366-926**	**366-973**	**366-934**		**366-943**	**366-992**	**366-875**	**366-369**	**366-956**
200	**366-696**	**366-927**	**366-187**	**366-935**	**366-984**	**366-944**	**366-993**	**366-876**	**366-370**	**366-957**
220		**366-928**		**366-936**		**366-945**	**366-381**	**366-877**		**366-376**
240		**366-929**		**366-937**		**366-946**	**366-994**	**366-878**	**366-371**	**366-958**
250								**366-297**		
260		**366-930**		**366-938**		**366-947**	**366-995**	**366-879**		**366-959**
280		**366-931**		**366-939**		**366-948**	**366-380**	**366-361**		**366-377**
300		**366-932**		**366-940**		**366-949**	**366-996**	**366-880**	**366-372**	**366-960**
320				**366-188**						
400							**366-997**	**366-881**		
420		*Priced Singly*								
440						**366-645**				

Diameter	M42	M45	M48	
Pitch	4.50	4.50	5.00	
Key	32 mm	32 mm	36 mm	
Length	*SPAENAUR* No's.			
160			**366-1321**	
200		**366-1326**		
220				
240	**366-1314**			
280		*Priced Singly*		

SPAENAUR

B

DIN 912
~ DIN EN ISO 4762

LIGHT
Face Numbers
are
Fully Threaded

Property Class 12.9
Zinc and Yellow Zinc Plated

ISO Regular
COARSE Metric Thread

DIN 912

BOLD
Face Numbers
are
Partially Threaded

Alloy Steel, Heat-treated, Tensile Strength 1220 N/mm² min. (Approx. 180,000 PSI - For Reference Only.)

DIA.	M2	M2.5	M3	M4	M5	M6	M8	M10	M12	M14	M16	M20
Pitch	0.40	0.45	0.50	0.70	0.80	1.00	1.25	1.50	1.75	2.00	2.00	2.50
Key	1.5 mm	2 mm	2.5 mm	3 mm	4 mm	5 mm	6 mm	8 mm	10 mm	10 mm	14 mm	17 mm
Length	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW. **ZP** = ZINC PLATED **YZ** = YELLOW ZINC PLATED											
5		366-322YZ	366-326YZ	366-393YZ								
			366-326ZP									
6			366-705YZ	366-713ZP	366-332YZ							
				366-713YZ					*Unit Package 25*			
8		366-701YZ	366-706YZ		366-725YZ							
				366-714YZ								*Unit Pkg. 10*
10		366-702YZ	366-707YZ		366-726YZ	366-737YZ						
				366-715YZ								
12			366-708YZ	366-716ZP		366-738ZP						
				366-716YZ	366-727YZ	366-738YZ						
14			366-392YZ	366-391YZ								
16			366-709YZ			366-739ZP	366-754ZP					
				366-717YZ	366-728YZ	366-739YZ						
20				366-718YZ	366-729YZ		366-755ZP		366-794ZP			
				366-718ZP					366-794YZ			
22												
25			**366-711YZ**			366-741ZP						
				366-719YZ								
30					**366-731YZ**				366-796ZP			
						366-742YZ		366-774YZ				
35				**366-721YZ**								
45				**366-723YZ**								
				366-1338YZ								
50				**366-724YZ**				**366-778ZP**				
				366-1007YZ								
55	*Unit Package 100*			**366-882ZP**	*Unit Package 50*						366-820ZP	
60									**366-802ZP**			366-839ZP
65									**366-803ZP**			
70					366-1013YZ			**366-782ZP**	**366-804ZP**			
80												
130												
220					*Priced Singly*							**366-936ZP**

Visit us on the web at . . .

www.spaenaur.com

DIN 912
~ DIN EN ISO 4762

LIGHT
Face Numbers
are
Fully Threaded

Property Class 12.9
Plain Finish

ISO FINE Metric Thread

DIN 912

BOLD
Face Numbers
are
Partially Threaded

Alloy Steel, Heat-treated, Tensile Strength 1220 N/mm^2 min. (Approx. 180,000 PSI - For Reference Only.)

DIA.	M8	M10	M10	M12	M16	M20
Pitch	1.00	1.00	1.25	1.50	1.50	1.50
Key	6 mm	8 mm	8 mm	10 mm	14 mm	17 mm
Length	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW.					
16	366-012			*Unit Package 25*		
20	366-139	366-1302	366-1300			
25	366-165	366-616	366-1163	366-1288		*Unit Package 10*
30	366-186	366-1014	366-1164	366-1289	366-1295	
35			366-1166	366-1290		
40	**366-355**	366-1048	366-1245	366-1291	366-1296	
45				366-1292		
50	**366-384**	**366-1149**	**366-1260**	366-1293	366-1297	
55						366-388
60	366-477	**366-1159**	**366-1287**	**366-1294**	366-1298	
70					**366-1299**	
80	*Unit Package 50*				**366-1301**	
100					**366-1303**	

Looking for a product not listed?

Call us at (800) 265-8772.

SPAENAUR

DIN 912

LIGHT
Face Numbers are Fully Threaded

A2 Stainless Steel

ISO Regular
COARSE
Metric Thread

DIN 912

BOLD
Face Numbers are Partially Threaded

DIA.	M2	M2.5	M3	M4	M5	M6	M8	M10	M12	M16	M20	M24
Pitch	0.40	0.45	0.50	0.70	0.80	1.00	1.25	1.50	1.75	2.00	2.50	3.00
Key	1.5 mm	2 mm	2.5 mm	3 mm	4 mm	5 mm	6 mm	8 mm	10 mm	14 mm	17 mm	19 mm
Length	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW											
3	373-108											
4	373-109	373-114	373-122									
5	373-110	373-115	373-123	373-129			*Unit Package 20*					
6	373-091	373-116	373-124	373-130	373-135							
8	373-111	373-117	373-001	373-131	373-136	373-143						
10	373-092	373-118	373-002	373-006	373-015	373-144	373-155		*Unit Package 10*			
12	373-112	373-119	373-003	373-007	373-016	373-026	373-156					
16	373-113	373-120	373-004	373-008	373-017	373-027	373-038	373-169			*Priced Singly*	
18				373-132	373-137	373-145	373-157					
20		373-121	373-005	373-009	373-018	373-028	373-039	373-053	373-066			
22					373-138	373-146	373-158					
25			**373-093**	373-010	373-019	373-029	373-040	373-054	373-067	373-186		
30			**373-126**	**†373-011**	**373-020**	373-030	373-041	373-055	373-068	373-079		
35			**373-127**	**373-012**	**373-021**	▲373-478	373-042	373-056	373-069	373-187		
40			**373-128**	**373-013**	**373-022**	**373-032**	**373-043**	373-057	373-070	373-080	373-086	
45				***373-133**	**373-090**	**373-033**	**373-044**	**373-058**	373-071	373-105	373-197	
50				**373-134**	**373-094**	**373-034**	**373-045**	**373-059**	373-072	373-081	373-087	373-102
55				373-477	**373-139**	**373-095**	**373-159**	**373-170**	**373-178**	373-188	373-198	373-103
60					**373-140**	**373-096**	**373-046**	**373-060**	**373-073**	373-106	373-199	373-248
										373-107		
65						**373-147**	**373-160**	**373-171**	**373-179**	**373-189**		
70		*Unit Package 50*			**373-141**	**373-097**	**373-161**	**373-061**	**373-074**	**373-082**	**373-088**	373-249
75						**373-148**	**373-162**	**373-172**	**373-180**	**373-190**	**373-237**	
80					**373-142**	**373-098**	**373-100**	**373-062**	**373-075**	**373-191**	**373-238**	**373-250**
90						**373-149**	**373-101**	**373-063**	**373-104**	**373-083**	**373-239**	**373-251**
100						**373-099**	**373-163**	**373-064**	**373-076**	**373-084**	**373-089**	**373-252**
110						**373-150**	**373-164**	**373-173**	**373-181**	**373-192**	**373-240**	**373-253**
120						**373-151**	**373-165**	**373-174**	**373-182**	**373-193**	**373-241**	**373-254**
130						**373-152**	**373-166**	**373-175**	**373-183**	**373-194**	**373-242**	
140						**373-153**	**373-167**	**373-176**	**373-184**	**373-195**	**373-243**	
150						**373-154**	**373-168**	**373-177**	**373-185**	**373-196**	**373-244**	**373-255**
160											**373-245**	
180											**373-246**	
200											**373-247**	

†373-474 Full Thread *373-025 Full Thread ▲373-031 Partial Thread

ASSORTMENT
ASSORTIMENT **805-467**

REGULAR SIZE grey enamelled steel drawer will fit Slide Racks shown page A2.
Shipping weight: 9.75 kg (21-1/2 lbs.)

Priced Singly

HEX SOCKET CAP SCREWS
A2 Stainless Steel
(with Alloy Steel Keys)

Metric, Type DIN 912
Diameters M5 to M12 Coarse Thr. (+ Keys)
27 KINDS - 580 PIECES (incl. Keys)

CATALOG 13

DIN 912

LIGHT
Face Numbers are Fully Threaded

A4 Stainless Steel

ISO Regular

COARSE

Metric Thread

DIN 912

BOLD
Face Numbers are Partially Threaded

DIA.	M2	M2.5	M3	M4	M5	M6	M8	M10	M12	M16	M20	M24
Pitch	0.40	0.45	0.50	0.70	0.80	1.00	1.25	1.50	1.75	2.00	2.50	3.00
Key	1.5 mm	2 mm	2.5 mm	3 mm	4 mm	5 mm	6 mm	8 mm	10 mm	14 mm	17 mm	19 mm
Length	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW											
8					373-400		*Unit Package 25*					
10						373-422	373-403					
12					373-401		373-404					
16						373-402	373-405	373-409	*Unit Package 10*			
20						373-476	373-406	373-410				
25								373-411	373-417			
30								373-412	373-418		*Priced Singly*	
35		*Unit Package 50*						373-413		373-420		
40						**373-429**			373-419			
45								**373-414**	373-423			
50									373-469			
55							**373-407**		**373-470**			
60											373-421	
80									**373-424**			
90							**373-408**	**373-415**				
110								**373-416**				

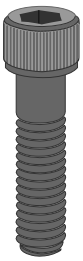
Nylon 6/6

LIGHT
Face Numbers are Fully Threaded

ISO Regular
COARSE Metric Thread

Natural Finish

BOLD
Face Numbers are Partially Threaded



DIA.	M2	M2.5	M3	M4	M5	M6	M8	M10	M12			
Pitch	0.40	0.45	0.50	0.70	0.80	1.00	1.25	1.50	1.75			
Key	1.5 mm	2 mm	2.5 mm	3 mm	4 mm	5 mm	6 mm	8 mm	10 mm			
Length	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW											
15								375-007	375-013			
16							375-002	375-008				
30							375-003	375-009	375-015			
50							**375-004**	**375-010**	375-016			
60							**375-005**	**375-011**	**375-017**			
80							**375-006**	**375-012**	**375-018**			
90												
		Unit Package 50							*Unit Package 25*			

B

ISO 7380

Property Class 10.9 – Plain Finish
BUTTON HEAD
ISO Regular COARSE Metric Thread

Medium Carbon Alloy - Not Plated **Product Hardness (Rockwell) Min. C32 Max. C39**
Tensile Strength 1040 N/mm² min. (Approx. 150,000 PSI - For Reference Only.)

DIA.	M2	M2.5	M3	M4	M5	M6	M8	M10	M12	M14	M16	M20	M24
Pitch	0.40	0.45	0.50	0.70	0.80	1.00	1.25	1.50	1.75	2.00	2.00	2.50	3.00
Key	0.9 mm	1.3 mm	2 mm	2.5 mm	3 mm	4 mm	5 mm	6 mm	8 mm	10 mm	10 mm	12 mm	14 mm
Length	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW												
5			366-654										
6			366-653	366-309	366-379	366-010							
8			366-656	366-310	366-623	366-1247							
10			366-657	366-311	366-600	366-612	366-624						
12			366-658	366-312	366-601	366-613	366-625						
14					366-602	366-614	366-626	366-635					
16			366-659	366-313	366-603	366-615	366-627	366-636					
18					366-604	366-277	366-628	366-291					
20			366-307	366-314	366-605	366-617	366-629	366-638	366-646				
22					366-637	366-279							
25			366-308	366-315	366-606	366-618	366-630	366-639	366-647				
30				366-316	366-607	366-619	366-631	366-640	366-648				
35						366-620	366-632	366-641	366-649				
40		*Unit Package 50*				366-621	366-633	366-642	366-650				
45						366-622	366-634		366-651				
50						366-655		366-644	366-652				

Additional finishes available of ISO 7380

Zinc Plated

366-656ZP M3 x 0.50 x 8
366-312ZP M4 x 0.70 x 12
366-613ZP M6 x 1.00 x 12

Yellow Zinc Plated

366-653YZ M3 x 0.50 x 6
366-656YZ M3 x 0.50 x 8
366-657YZ M3 x 0.50 x 10
366-659YZ M3 x 0.50 x 16
366-309YZ M4 x 0.70 x 6
366-310YZ M4 x 0.70 x 8
366-311YZ M4 x 0.70 x 10
366-312YZ M4 x 0.70 x 12
366-606YZ M5 x 0.80 x 25
366-613YZ M6 x 1.00 x 12
366-619YZ M6 x 1.00 x 30
366-629YZ M8 x 1.25 x 20

A2 Stainless Steel

6			373-300										
8			373-317	373-302	373-306	373-321							
10			373-301	373-303	373-307	373-023	373-323						
12			373-318	373-304	373-308	373-312	373-324						
16			373-319	373-305	373-309	373-322	373-325	373-329					
20					373-310	373-313	373-326	373-330					
25		*Unit Package 50*			373-311	373-314	373-327	373-331					
30					373-320	373-315	373-328	373-332					
45							373-316						

Priced Singly

ASSORTMENT
ASSORTIMENT
805-477

ISO 7380

METRIC BUTTON HEAD
Hex Socket Cap Screws
Property Class 10.9 Steel

Not Plated

24 Sizes - 720 Pieces

Select sizes from M5 x 10 mm to M10 x 50 mm
Regular Coarse Thread

REGULAR SIZE grey enamelled drawer will fit
Slide Racks shown on Page A2.

Shipping weight: 6.90 kg (15-1/2 lbs.)

CATALOG 13

DIN 7991

Fully Threaded

Property Class 10.9 – Plain Finish

ISO Regular COARSE Metric Thread

90° COUNTERSUNK FLAT HEAD

(60° Countersunk Flat Head on sizes above M20)

Alloy Steel, Heat-treated

Tensile Strength 1040 N/mm² min. (Approx. 150,000 PSI - For Reference Only.)

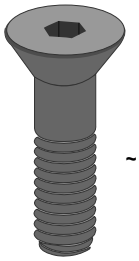
DIA.	M2	M2.5	M3	M4	M5	M6	M8	M10	M12	M14	M16	M20	M24
Pitch	0.40	0.45	0.50	0.70	0.80	1.00	1.25	1.50	1.75	2.00	2.00	2.50	3.00
Key	0.9 mm	1.3 mm	2 mm	2.5 mm	3 mm	4 mm	5 mm	6 mm	8 mm	10 mm	10 mm	12 mm	14 mm
Length	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW												
4	366-394												
5	366-395	366-458	366-463			*Unit Package 50*							
6	366-317	366-459	366-464	366-466	366-582								
8	366-396	366-460	*366-319	366-318	366-583	366-584							
10	366-456	366-461	*366-566	*366-573	*366-500	366-509	366-610			*Unit Package 25*			
12	366-457	366-462	*366-567	*366-574	*366-501	366-510	366-474	366-478					
14			366-608			366-609							
16		366-479	*366-568	366-575	366-503	*366-512	366-519	*366-526				*Unit Package 10*	
18			366-569	366-576	366-504	366-513	366-520	366-527	366-611				
20			366-570	366-577	366-505	*366-514	366-521	366-528	366-536				
22			366-465	366-467	366-470	366-473	366-475	366-480	366-482				
25			366-571	366-578	366-506	366-515	366-522	366-529	366-537		366-1049		
30			366-572	366-579	*366-507	*366-516	366-523	366-499	366-538	366-483	366-545		
35				366-580	366-508	366-517	366-524	366-530	*366-539	366-484	366-546	366-554	
40				366-581	366-586	366-589	366-595	*366-531	366-540	366-485	366-547	366-555	366-1056
45				366-1324	*366-587	366-590	366-596	366-532	366-541	366-486	366-548	366-556	366-1057
50					366-588	366-591	366-597		366-542	366-487	366-549	366-557	366-1058
55						366-592	366-598	366-1304	366-543	366-1042	366-550	366-1051	366-1059
60					366-1341	366-593	366-599				366-551	366-558	366-1060
65							366-1330	366-1322	366-1332				
70						366-594		366-1310				366-559	366-1061
72							366-1360						
80						366-1327	366-1361	366-1345					366-1062
90							366-1305	366-1344					366-1063
100								366-1427	366-1424	366-1339			
140													366-1342

See following page for longer lengths, partially threaded

Additional Property Class and Finishes of DIN 7991 – Fully Threaded

366-464YZ	M3 x 0.50 x 6 mm, Yellow Zinc Plated
366-319YZ	M3 x 0.50 x 8 mm, Yellow Zinc Plated
366-566YZ	M3 x 0.50 x 10 mm, Yellow Zinc Plated
366-567YZ	M3 x 0.50 x 12 mm, Yellow Zinc Plated
366-568YZ	M3 x 0.50 x 16 mm, Yellow Zinc Plated
366-466YZ	M4 x 0.70 x 6 mm, Yellow Zinc Plated
366-318YZ	M4 x 0.70 x 8 mm, Yellow Zinc Plated
366-573YZ	M4 x 0.70 x 10 mm, Yellow Zinc Plated
366-574YZ	M4 x 0.70 x 12 mm, Yellow Zinc Plated
366-575YZ	M4 x 0.70 x 16 mm, Yellow Zinc Plated
366-500YZ	M5 x 0.80 x 10 mm, Yellow Zinc Plated
366-501ZP	M5 x 0.80 x 12 mm, Zinc Plated
366-501YZ	M5 x 0.80 x 12 mm, Yellow Zinc Plated
366-507ZP	M5 x 0.80 x 30 mm, Zinc Plated
366-512ZP	M6 x 1.00 x 16 mm, Zinc Plated
366-514ZP	M6 x 1.00 x 20 mm, Zinc Plated
366-526ZP	M10 x 1.50 x 16 mm, Zinc Plated
366-531ZP	M10 x 1.50 x 40 mm, Zinc Plated
366-539ZP	M12 x 1.75 x 35 mm, Zinc Plated
367-390	M20 x 2.50 x 50 mm, Property Class 8.8, Plain

B



DIN 7991
~ DIN EN ISO 10642

Partially Threaded

Property Class 10.9 – Plain Finish

ISO Regular COARSE Metric Thread

90° COUNTERSUNK FLAT HEAD

(60° Countersunk Flat Head on sizes above M20)

Alloy Steel, Heat-treated

Tensile Strength 1040 N/mm² min. (Approx. 150,000 PSI - For Reference Only.)

DIA.	M2	M2.5	M3	M4	M5	M6	M8	M10	M12	M14	M16	M20	M24
Pitch	0.40	0.45	0.50	0.70	0.80	1.00	1.25	1.50	1.75	2.00	2.00	2.50	3.00
Key	0.9 mm	1.3 mm	2 mm	2.5 mm	3 mm	4 mm	5 mm	6 mm	8 mm	10 mm	10 mm	12 mm	14 mm
Length	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW												
45				366-468	366-643								
50				366-469	366-1334			366-533		Unit Package 25			
55					366-471			366-534					
60					366-472			366-535	366-544	366-1043		Unit Package 10	
65							366-476	366-481	366-390				
70						366-295	366-564	366-490	366-585	366-1044	366-552		
75													
80			Unit Package 50			366-563	366-565	366-491	366-494	366-1045	366-553	366-560	
90							366-488	366-492	366-495	366-1046	366-497	366-561	
100							366-489	366-493	366-496	366-1047	366-498	*366-562	366-1064
110													366-1065
120								366-1425			366-1050	366-1052	366-1066
140												366-1053	
160						Priced Singly						366-1054	
200													
240													

***366-562ZP -** Zinc Plated

ASSORTMENT 805-538
ASSORTIMENT

Property Class 10.9 Steel Hex Socket Flat Head Cap Screws

22 Sizes — 545 Pieces

Priced Singly

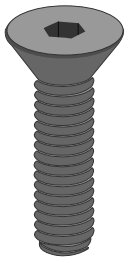
Furnished in Regular Size grey enamel steel drawer with hinged lid and catch.

Drawer will fit into Slide Racks shown on page A2.

DIN 7991
~ DIN EN ISO 10642

Fully Threaded
Metric Coarse Thread

Not Plated

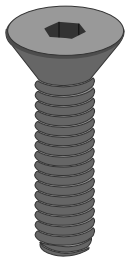


See page B271 for full line of Property Class 10.9 Hex Socket Ctsk. Flat Head Cap Screws, Fully Threaded.

Shipping Weight: 4.15 kg (9.14 lbs.)

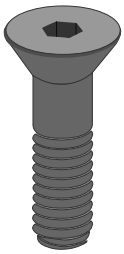
Contents of Assortment

SPAENAUR No.	Size (Dia. x Pitch x Lgth.)	Ass't Qty.
366-566	M3 x 0.50 x 10 mm	50
366-568	M3 x 0.50 x 16 mm	50
366-571	M3 x 0.50 x 25 mm	25
366-574	M4 x 0.70 x 12 mm	25
366-577	M4 x 0.70 x 20 mm	25
366-579	M4 x 0.70 x 30 mm	25
366-581	M4 x 0.70 x 40 mm	20
366-583	M5 x 0.80 x 8 mm	25
366-501	M5 x 0.80 x 12 mm	25
366-505	M5 x 0.80 x 20 mm	25
366-506	M5 x 0.80 x 25 mm	25
366-507	M5 x 0.80 x 30 mm	20
366-509	M6 x 1.00 x 10 mm	25
366-512	M6 x 1.00 x 16 mm	25
366-515	M6 x 1.00 x 25 mm	20
366-517	M6 x 1.00 x 35 mm	20
366-519	M8 x 1.25 x 16 mm	20
366-520	M8 x 1.25 x 18 mm	20
366-521	M8 x 1.25 x 20 mm	20
366-523	M8 x 1.25 x 30 mm	20
366-526	M10 x 1.50 x 16 mm	20
366-529	M10 x 1.50 x 25 mm	15



DIN 7991

Fully or Partially Threaded our option.



A2 Stainless Steel

ISO Regular COARSE Metric Thread

90° COUNTERSUNK FLAT HEAD

(60° Countersunk Flat Head on sizes above M20)

B

DIA.	M2	M2.5	M3	M4	M5	M6	M8	M10	M12	M14	M16	M20	M24
Pitch	0.40	0.45	0.50	0.70	0.80	1.00	1.25	1.50	1.75	2.00	2.00	2.50	3.00
Key	0.9 mm	1.3 mm	2 mm	2.5 mm	3 mm	4 mm	5 mm	6 mm	8 mm	10 mm	10 mm	12 mm	14 mm
Length	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW												
6			373-256	373-263									
8			373-257	373-200	373-266	373-272							
10			373-235	373-201	373-205	373-211							
12			373-258	373-202	373-206	373-212	373-279				*Unit Pkg. 10*		
16			373-259	373-203	373-207	373-213	373-217	373-285					
20			373-260	373-204	373-208	373-214	373-218	373-222	373-226			*Priced Singly*	
25			•373-261	373-231	373-209	373-215	373-219	373-223	373-227		373-343		
30			373-262	373-264	373-210	373-216	373-220	373-224	373-228		373-344		
			†373-359	†373-473									
35		*Unit Package 20*		373-265	373-267	373-273	373-280	373-014	373-293		373-345		
								*373-340					
40				373-233	373-268	373-230	373-221	373-225	373-229		373-346	373-354	
45					373-269	373-274	373-281	373-286	373-294		373-347	373-355	
50					373-270	373-275	373-282	373-287	373-295		373-348	373-356	
60					373-271	■373-276	†373-232	373-288	373-296	*373-342	373-349	373-333	
70						373-277	373-283	373-289	373-297		†373-350	373-334	
							†373-278	†373-357				*373-234	
80							▲373-284	373-290	373-298				
90								373-291	373-299				
100								373-292	373-341				
								†373-358					
110													†373-338

•**373-480** Partially Threaded ■**373-556** Partially Threaded ▲**373-555** Partially Threaded †Partially Threaded *A4

Looking for those "Hard to Find" products?

Call us at (800) 265-8772.

SPAENAUR

ASSORTMENT / **ASSORTIMENT** **805-489**

ISO 7379

Metric Hex Socket Shoulder Screws

Property Class 12.9

Alloy Steel - Plain Finish

Metric Regular (Coarse) Thread

(See page B275 for our complete listing of Property Class 12.9 Hex Socket Shoulder Screws)

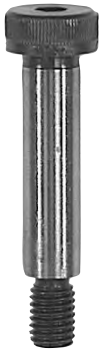
24 Sizes — 107 Pieces

Shipping Weight: 4.19 kg (9-1/4 lbs.)

Priced Singly

Furnished in Regular Size grey enamelled steel drawer with hinged lid and catch.

Drawer will fit into Slide Racks shown on page A2.



All dimensions in chart are in millimetres.

Contents of Assortment

SHOULDER **DIA.** x LGTH.	THREAD **DIA.** x LGTH.	ASS'T QTY.
6 x 10	**M5** x 9.5	5
6 x 12	**M5** x 9.5	5
6 x 16	**M5** x 9.5	5
6 x 20	**M5** x 9.5	5
6 x 25	**M5** x 9.5	5
6 x 30	**M5** x 9.5	5
6 x 40	**M5** x 9.5	5
8 x 12	**M6** x 11	5
8 x 16	**M6** x 11	5
8 x 20	**M6** x 11	5
8 x 25	**M6** x 11	5
8 x 30	**M6** x 11	5
8 x 40	**M6** x 11	5
10 x 16	**M8** x 13	5
10 x 20	**M8** x 13	5
10 x 25	**M8** x 13	5
10 x 30	**M8** x 13	5
10 x 40	**M8** x 13	5
10 x 50	**M8** x 13	3
12 x 16	**M10** x 16	3
12 x 20	**M10** x 16	3
12 x 25	**M10** x 16	3
12 x 30	**M10** x 16	3
12 x 40	**M10** x 16	2

ALLOY STEEL Plain Finish

Heat treated

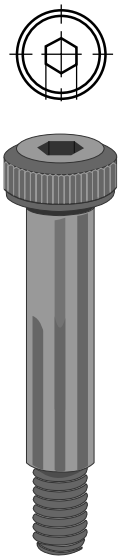
Made to ISO 7379

Metric SHOULDER SCREWS

Property Class 8.8

Metric Regular (Coarse) Thread

(Shown in millimetres) SHOULDER DIAMETER	SHOULDER LENGTH	Thread Length	*SPAENAUR No.*
10 (5 mm Key) Thread M8 x 1.25 mm	30	11	–
	40		–
	50		–
	60		–
	70		**365-101**
	80		–
13 (6 mm Key) Thread M10 x 1.5 mm	30	16	–
	35		–
	45		**365-082**
	50		–
	60		–
	70		–
	80		**365-100**
16 (8 mm Key) Thread M12 x 1.75 mm	35	18	**365-111**
	45		**365-106**
	70		**365-107**
	80		**365-108**
	90		**365-109**
	100		**365-110**



Note: Plain or Knurled Head furnished at our option, as available.

See following page for information relating to dimensions.

UNIT PACKAGE.
10
All Sizes

Visit us on the web at . . .

www.spaenaur.com

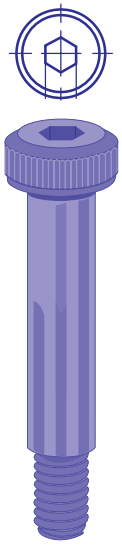
ALLOY STEEL Plain Finish
Heat treated

Metric SHOULDER SCREWS

Made to ISO 7379

Metric Regular (Coarse) Thread

Property Class 12.9



UNIT PKG. 10
All Sizes Except 24 mm Shoulder Dia. Unit Pkg. 1

Note: Plain or Knurled Head furnished at our option, as available.

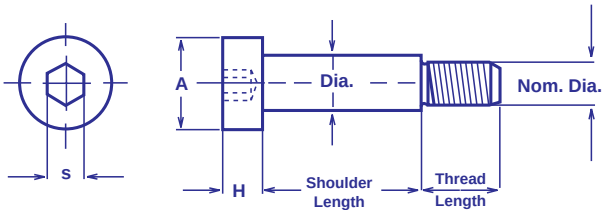
(Shown in millimetres)

SHOULDER DIAMETER	SHOULDER LENGTH	Thread Length	SPAENAUR No.
*6 (3 mm Key) Thread M5 x .8 mm	10	9.5	365-001
	12		365-002
	16		365-003
	20		365-004
	25		365-005
	30		365-006
	40		365-007
	50		365-008
8 (4 mm Key) Thread M6 x 1.0 mm	12	11	365-009
	16		365-010
	20		365-011
	25		365-012
	30		365-013
	35		365-064
	40		365-014
	45		365-065
	50		365-015
	55		365-066
	60		365-054
	80		365-067
10 (5 mm Key) Thread M8 x 1.25 mm	16	13	365-017
	20		365-018
	25		365-019
	30		365-020
	40		365-021
	50		365-022
	60		365-023
	70		365-024
	80		365-025
*12 (6 mm Key) Thread M10 x 1.5 mm	16	16	365-026
	20		365-027
	25		365-028
	30		365-029
	40		365-030
	50		365-031
	60		365-032
	70		365-033
	80		365-034
	90		365-035
	100		365-036

(Shown in millimetres)

SHOULDER DIAMETER	SHOULDER LENGTH	Thread Length	SPAENAUR No.
16 (8 mm Key) Thread M12 x 1.75 mm	30	18	365-037
	35		365-068
	40		365-038
	45		365-069
	50		365-039
	60		365-040
	70		365-041
	80		365-042
	90		365-043
	100		365-044
	120		365-045
20 (10 mm Key) Thread M16 x 2.0 mm	40	22	365-046
	50		365-047
	60		365-048
	70		365-049
	80		365-050
	90		365-051
	100		365-052
	120		365-053
*24 (12 mm Key) Thread M20 x 2.5 mm	50	27	365-070
	60		365-071
	70		365-072
	80		365-073
	90		365-074
	100		365-075
	120		365-076

For Assortment 805-489, Metric Property Class 12.9 Hex Socket Shoulder Screws and more Metric Hex Socket Shoulder Screws Property Class 8.8; see facing page.



*Not to ISO 7379 specifications.

NOMINAL SHOULDER DIA.			*6	8	10	*12	13	16	20	*24
	Max.	mm	5.990	7.987	9.987	11.984	12.984	15.984	19.980	23.980
	Min.	mm	5.960	7.951	9.951	11.941	12.941	15.941	19.928	23.928
HEAD A		mm	10	13	16	18	18	24	30	36
HEAD H		mm	4.5	5.5	7	8	9	10	14	16
NOMINAL THREAD DIA.		mm	M5	M6	M8	M10	M10	M12	M16	M20
PITCH		mm	.8	1	1.25	1.5	1.5	1.75	2	2.5
THREAD LENGTH		mm	9.5	11	13	16	16.40	18	22	27
S (Hex Key Size)		mm	3	4	5	6	6	8	10	12

B

METRIC BLUE® fasteners are coated with a high performance blue coating. This coating provides superior corrosion resistance, enhanced durability, and a consistent torque "K" factor — in addition, of course, to FAST metric identification. Differentiating metric fasteners with the "blue" coating eliminates the risk of failure or accidents due to mismatched components.

METRIC BLUE® products are manufactured in the U.S. to ANSI, ISO, and ASTM standards, using high-quality, fully traceable steel.

METRIC BLUE®
HIGH STRENGTH Hex Head Cap Screw

Property Class 12.9 Alloy Steel

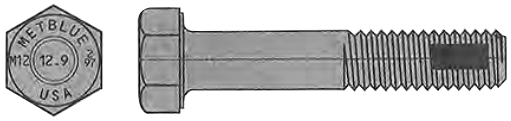
FEATURES
- Coated with exclusive MB2000™ Fastener Coating for exceptional corrosion resistance and easy metric identification
- MB2000™ Coating improves the torque-tension relationship and reduces the risk of hydrogen embrittlement often associated with electroplating
- Diameter markings on every screw for visual identification control
- MET-LOT™ Event Code on head of every screw for lifetime traceability
- Features exclusive Mini-Cert™ label on package
- 20% greater head height for easier wrenching
- Meets ASTM F568M, ANSI B18.2.3.1M, except head height
- Approved Standard at General Motors NAO and NAAMS

Nominal Screw Dia. and Thread Pitch	LENGTH Under Head (mm)	*SPAENAUR No.*
M6 x 1.00	16	**MET197936**
M6 x 1.00	20	**MET197945**
M10 x 1.50	45	**MET197976**
M16 x 2.00	55	**MET219360**
M20 x 2.50	80	**MET198073**
M20 x 2.50	150	***MET216973**
M20 x 2.00	150	**▲MET215050**
M24 x 3.00	70	**MET198096**
M24 x 3.00	80	**MET198097**
M24 x 3.00	150	**MET198104**
M24 x 3.00	150	***MET216958**

▲ Prop. Cl. 10.9 Fully Threaded Leveling screw

***Full Thread**

METRIC BLUE®
HIGH STRENGTH Hex Head Cap Screw with Nylon Patch



Property Class 12.9 Alloy Steel

FEATURES
- Coated with exclusive MB2000™ Fastener Coating for exceptional corrosion resistance and easy metric identification
- MB2000™ Coating improves the torque-tension relationship and reduces the risk of hydrogen embrittlement often associated with electroplating
- Diameter markings on every screw for visual identification control
- MET-LOT™ Event Code on head of every screw for lifetime traceability
- Exclusive Mini-Cert™ label on package
- 20% greater head height for easier wrenching
- Meets ASTM F568M, ANSI B18.2.3.1M, except head height
- Nylon Locking Patch meets IFI-524
- Approved by GM, Ford and Chrysler for metric tooling builds

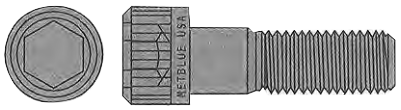
Nylon Patch products are a means of preventing loosening

Nominal Screw Dia. and Thread Pitch	LENGTH Under Head (mm)	*SPAENAUR No.*
M6 x 1.00	20	**MET216092**
M10 x 1.50	25	**MET216111**
M10 x 1.50	50	**MET216117**
M10 x 1.50	60	**MET216119**
M12 x 1.75	55	**MET216135**
M12 x 1.75	65	**MET216137**
M16 x 2.00	50	**MET216145**
M16 x 2.00	70	**MET216147**
M20 x 2.50	50	**MET216159**
M20 x 2.50	60	**MET216160**
M20 x 2.50	70	**MET216161**

B

METRIC BLUE®

HIGH STRENGTH Socket Head Cap Screw



"4g6g" Threads
(Before Coating)

Property Class 12.9 Alloy Steel

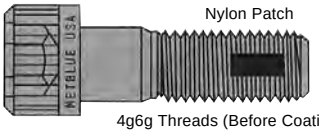
FEATURES

- Exclusive MB2000™ Fastener Coating offers increased corrosion resistance and easy metric identification
- MB2000™ Coating reduces the risk of hydrogen embrittlement often associated with electroplating
- MET-LOT™ Event Code on every head for lifetime traceability
- Diameter markings on the head of every screw for visual identification control
- Features exclusive Mini-Cert™ label on packaging
- Precision rolled threads and controlled heat treatment for greater consistency
- Meets ASTM A574M, ANSI B18.3.1M, specifications
- Approved by GM, Ford, Chrysler and NAAMS for all facilities

Nominal Screw Dia. and Thread Pitch	LENGTH Under Head (mm)	*SPAENAUR No.*	Nominal Screw Dia. and Thread Pitch	LENGTH Under Head (mm)	*SPAENAUR No.*	Nominal Screw Dia. and Thread Pitch	LENGTH Under Head (mm)	*SPAENAUR No.*
M4 x 0.70	25	**MET176216**	**M8 x 1.25**	50	**MET176257**	**M12 x 1.75**	60	**MET176284**
M5 x 0.80	10	**MET176220**	**M8 x 1.25**	60	**MET178029**	**M12 x 1.75**	65	**MET176285**
M5 x 0.80	12	**MET179705**	**M8 x 1.25**	80	**MET179775**	**M12 x 1.75**	70	**MET176286**
M5 x 0.80	16	**MET176221**	**M8 x 1.25**	90	**MET179776**	**M12 x 1.75**	80	**MET179369**
M5 x 0.80	20	**MET176222**	**M10 x 1.50**	20	**MET176264**	**M12 x 1.75**	100	**MET176289**
M5 x 0.80	25	**MET176223**	**M10 x 1.50**	25	**MET176265**	**M12 x 1.75**	120	**MET176291**
M5 x 0.80	35	**MET176224**	**M10 x 1.50**	30	**MET176266**	**M12 x 1.75**	140	**MET179805**
M5 x 0.80	40	**MET179707**	**M10 x 1.50**	35	**MET176267**	**M16 x 2.00**	36	**MET176296**
M5 x 0.80	50	**MET179708**	**M10 x 1.50**	40	**MET176268**	**M16 x 2.00**	40	**MET176297**
M5 x 0.80	55	**MET179709**	**M10 x 1.50**	45	**MET177917**	**M16 x 2.00**	45	**MET176298**
M6 x 1.00	10	**MET176226**	**M10 x 1.50**	50	**MET176269**	**M16 x 2.00**	50	**MET176299**
M6 x 1.00	12	**MET176227**	**M10 x 1.50**	55	**MET176270**	**M16 x 2.00**	55	**MET176300**
M6 x 1.00	16	**MET176228**	**M10 x 1.50**	60	**MET179450**	**M16 x 2.00**	60	**MET177964**
M6 x 1.00	20	**MET176240**	**M10 x 1.50**	70	**MET176272**	**M16 x 2.00**	65	**MET176301**
M6 x 1.00	25	**MET176241**	**M10 x 1.50**	80	**MET179782**	**M16 x 2.00**	70	**MET176303**
M6 x 1.00	30	**MET176242**	**M10 x 1.50**	90	**MET179432**	**M16 x 2.00**	80	**MET176304**
M6 x 1.00	35	**MET176243**	**M10 x 1.50**	110	**MET193657**	**M16 x 2.00**	90	**MET176305**
M6 x 1.00	40	**MET176244**	**M10 x 1.50**	120	**MET179783**	**M16 x 2.00**	100	**MET176306**
M6 x 1.00	45	**MET176245**	**M10 x 1.50**	130	**MET182840**	**M16 x 2.00**	110	**MET176307**
M6 x 1.00	50	**MET176246**	**M10 x 1.50**	140	**MET179105**	**M16 x 2.00**	120	**MET179807**
M6 x 1.00	60	**MET176247**	**M10 x 1.50**	150	**MET179784**	**M20 x 2.50**	60	**MET176313**
M8 x 1.25	16	**MET176251**	**M12 x 1.75**	20	**MET176276**	**M20 x 2.50**	100	**MET176318**
M8 x 1.25	20	**MET176252**	**M12 x 1.75**	25	**MET176277**	**M20 x 2.50**	140	**MET176320**
M8 x 1.25	25	**MET176253**	**M12 x 1.75**	30	**MET176278**	**M24 x 3.00**	60	**MET176325**
M8 x 1.25	30	**MET176254**	**M12 x 1.75**	35	**MET176279**	**M24 x 3.00**	80	**MET176327**
M8 x 1.25	35	**MET176255**	**M12 x 1.75**	40	**MET176280**			
M8 x 1.25	40	**MET176256**	**M12 x 1.75**	45	**MET176281**			
M8 x 1.25	45	**MET177916**	**M12 x 1.75**	50	**MET176282**			

B

METRIC BLUE®
HIGH STRENGTH
Nylon Patch Socket Head Cap Screw



4g6g Threads (Before Coating)

Property Class 12.9 Alloy Steel

FEATURES
- Exclusive MB2000™ Fastener Coating offers exceptional corrosion resistance and easy metric identification
- MB2000™ Coating improves the torque-tension relationship and reduces the risk of hydrogen embrittlement often associated with electroplating
- MET-LOT™ event code on every head for lifetime traceability
- Diameter markings on every screw for visual identification control
- Features exclusive Mini-Cert™ label on packaging
- Prevailing torque patch meets strict performance specifications of IFI-524
- Approved by GM, Ford, Chrysler Metric Tooling Programs
- Meets ASTM A574M, ANSI B18.3.1M

Nylon Thread Locking Elements are a useful method of resisting loosening caused by vibration

Nominal Screw Dia. and Thread Pitch	LENGTH Under Head (mm)	*SPAENAUR No.*
M6 x 1.00	10	**MET215693**
M6 x 1.00	12	**MET215694**
M6 x 1.00	16	**MET215696**
M6 x 1.00	20	**MET217211**
M6 x 1.00	25	**MET217212**
M6 x 1.00	30	**MET217213**
M6 x 1.00	35	**MET217214**
M6 x 1.00	40	**MET217215**
M6 x 1.00	45	**MET217216**
M6 x 1.00	50	**MET215582**
M6 x 1.00	60	**MET215584**
M8 x 1.25	12	**MET215594**
M8 x 1.25	16	**MET217294**
M8 x 1.25	20	**MET217217**
M8 x 1.25	25	**MET217218**
M8 x 1.25	30	**MET200148**
M8 x 1.25	35	**MET217219**
M8 x 1.25	40	**MET217220**
M8 x 1.25	45	**MET217221**
M8 x 1.25	50	**MET215733**
M8 x 1.25	70	**MET215599**
M8 x 1.25	80	**MET215601**
M10 x 1.50	20	**MET215614**
M10 x 1.50	25	**MET217222**
M10 x 1.50	30	**MET217223**
M10 x 1.50	35	**MET217224**
M10 x 1.50	40	**MET217225**
M10 x 1.50	45	**MET217226**
M10 x 1.50	50	**MET217227**
M10 x 1.50	55	**MET217292**
M10 x 1.50	60	**MET215616**
M10 x 1.50	65	**MET217293**
M10 x 1.50	70	**MET215618**
M10 x 1.50	80	**MET215620**
M10 x 1.50	90	**MET215621**

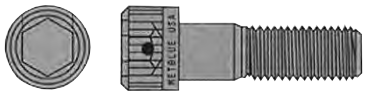
Nominal Screw Dia. and Thread Pitch	LENGTH Under Head (mm)	*SPAENAUR No.*
M12 x 1.75	20	**MET217675**
M12 x 1.75	25	**MET217676**
M12 x 1.75	30	**MET217673**
M12 x 1.75	35	**MET217233**
M12 x 1.75	40	**MET217234**
M12 x 1.75	45	**MET217235**
M12 x 1.75	50	**MET217236**
M12 x 1.75	55	**MET217674**
M12 x 1.75	60	**MET217671**
M12 x 1.75	65	**MET217672**
M12 x 1.75	70	**MET217677**
M12 x 1.75	80	**MET215638**
M12 x 1.75	90	**MET215639**
M12 x 1.75	100	**MET215640**
M12 x 1.75	120	**MET215642**
M16 x 2.00	30	**MET215649**
M16 x 2.00	35	**MET215650**
M16 x 2.00	40	**MET215651**
M16 x 2.00	45	**MET215652**
M16 x 2.00	50	**MET215653**
M16 x 2.00	55	**MET215654**
M16 x 2.00	60	**MET215655**
M16 x 2.00	65	**MET215656**
M16 x 2.00	70	**MET215657**
M16 x 2.00	75	**MET215658**
M16 x 2.00	80	**MET215659**
M16 x 2.00	90	**MET215660**
M16 x 2.00	100	**MET215661**
M16 x 2.00	120	**MET215663**
M16 x 2.00	140	**MET215665**
M20 x 2.50	50	**MET215674**
M20 x 2.50	60	**MET215676**
M20 x 2.50	70	**MET215678**
M20 x 2.50	80	**MET215680**
M20 x 2.50	100	**MET215682**

B

METRIC BLUE®

HIGH STRENGTH Cross-Drilled Socket Head Cap Screw

Property Class 12.9 Alloy Steel



FEATURES

- Exclusive MB2000™ Fastener Coating offers exceptional corrosion resistance and easy metric identification
- MB2000™ Coating improves the torque-tension relationship and reduces the risk of hydrogen embrittlement often associated with electroplating
- MET-LOT™ event code on every head for lifetime traceability
- Features exclusive Mini-Cert™ label on packaging
- Diameter markings on the head of every screw for visual identification control
- Cross-Drilled before heat treatment for greater head strength and reliability
- Approved by GM, Ford, Chrysler and NAAMS for all facilities
- Meets ASTM A574M, ANSI B18.3.1M

Safety Wired product should be used in applications in which failed product could damage equipment or pose a safety risk. Safety wiring is not a means of preventing loosening.

Nominal Screw Dia. and Thread Pitch	LENGTH Under Head (mm)	*SPAENAUR No.*
M6 x 1.00	10	**MET215438**
M6 x 1.00	12	**MET215439**
M6 x 1.00	16	**MET215440**
M6 x 1.00	20	**MET216975**
M6 x 1.00	25	**MET216976**
M6 x 1.00	30	**MET216977**
M6 x 1.00	35	**MET216978**
M6 x 1.00	40	**MET216979**
M6 x 1.00	45	**MET216980**
M6 x 1.00	50	**MET216981**
M8 x 1.25	20	**MET216982**
M8 x 1.25	25	**MET216983**
M8 x 1.25	30	**MET216984**
M8 x 1.25	35	**MET205422**
M8 x 1.25	40	**MET216985**
M8 x 1.25	45	**MET216986**
M8 x 1.25	50	**MET216987**
M10 x 1.50	20	**MET215489**
M10 x 1.50	25	**MET216988**
M10 x 1.50	30	**MET216989**
M10 x 1.50	35	**MET216990**
M10 x 1.50	40	**MET216991**
M10 x 1.50	45	**MET180954**
M10 x 1.50	50	**MET216992**
M10 x 1.50	60	**MET215497**
M10 x 1.50	70	**MET215499**
M10 x 1.50	80	**MET215501**

Nominal Screw Dia. and Thread Pitch	LENGTH Under Head (mm)	*SPAENAUR No.*
M12 x 1.75	20	**MET215513**
M12 x 1.75	25	**MET216993**
M12 x 1.75	30	**MET216994**
M12 x 1.75	35	**MET216995**
M12 x 1.75	40	**MET216996**
M12 x 1.75	45	**MET216997**
M12 x 1.75	50	**MET216998**
M12 x 1.75	60	**MET216999**
M12 x 1.75	70	**MET217000**
M12 x 1.75	80	**MET217001**
M16 x 2.00	40	**MET217002**
M16 x 2.00	45	**MET217003**
M16 x 2.00	50	**MET217004**
M16 x 2.00	55	**MET217005**
M16 x 2.00	60	**MET215542**
M16 x 2.00	65	**MET215543**
M16 x 2.00	70	**MET215544**
M16 x 2.00	80	**MET215546**
M16 x 2.00	90	**MET215547**
M16 x 2.00	100	**MET215548**
M16 x 2.00	120	**MET215550**
M16 x 2.00	140	**MET215552**

METRIC BLUE®

HIGH STRENGTH
Button Head Socket Cap Screws

Property Class 12.9 Alloy Steel

Nominal Screw Dia. and Thread Pitch	LENGTH Under Head (mm)	*SPAENAUR No.*
M5 x 0.80	10	**MET187482**
M6 x 1.00	25	**MET187489**
M8 x 1.25	12	**MET187526**
M8 x 1.25	25	**MET187494**
M10 x 1.50	16	**MET187529**
M10 x 1.50	25	**MET187531**

- Coated with exclusive MB2000™ Fastener Coating for exceptional corrosion resistance and easy metric identification
- MB2000™ Coating improves torque-tension relationship and reduces the risk of hydrogen embrittlement often associated with electroplating
- Diameter markings on every screw for visual identification control
- Exclusive Mini-Cert™ label on every package
- Low profile rounded head for design flexibility
- Meets ANSI B18.3.4M and ASTM F835M specifications

METRIC BLUE®

HIGH STRENGTH
Flat Head Socket Head Cap Screw

Property Class 12.9 Alloy Steel

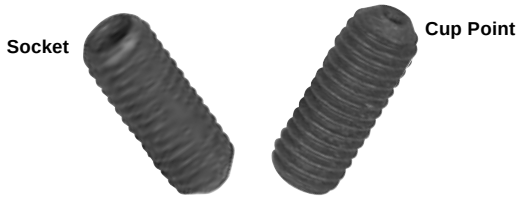
Nominal Screw Dia. and Thread Pitch	LENGTH (mm)	*SPAENAUR No.*
M5 x 0.80	10	**MET187460**
M5 x 0.80	16	**MET184021**
M6 x 1.00	10	**MET184031**
M6 x 1.00	16	**MET187535**
M6 x 1.00	20	**MET181928**

- Coated with exclusive MB2000™ Fastener Coating for exceptional corrosion resistance and easy metric identification
- MB2000™ Coating improves torque tension relationship and reduces the risk of hydrogen embrittlement often associated with electroplating
- Diameter Marking on every screw for visual identification control
- Exclusive Mini-Cert™ Label on every package
- Use in countersunk, low load applications
- Meets ANSI B18.3.5M, and ASTM F835M

METRIC BLUE®

Socket Set Screw Cup Point

Class 45H Hardened Alloy Steel



Nominal Screw Dia. and Thread Pitch	LENGTH (mm)	*SPAENAUR No.*
M6 x 1.00	16	**MET194448**
M10 x 1.50	40	**MET194488**

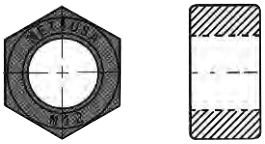
CATALOG 13

B

METRIC BLUE®

HIGH STRENGTH Thick Hex Nuts

Property Class 12 Carbon Steel



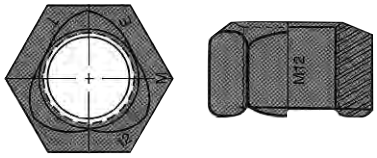
Nominal Thread Dia. and Pitch	Thickness Max.-Min.	*SPAENAUR No.*
M6 x 1.00	5.70-5.40	**MET201735**
M8 x 1.25	7.50-7.14	**MET201736**
M10 x 1.50	9.39-8.94	**MET201738**
M12 x 1.75	12.00-11.57	**MET201739**
M16 x 2.00	16.40-15.70	**MET201740**
M20 x 2.50	20.30-19.00	**MET201741**

- Coated with exclusive MB2000™ fastener coating for exceptional corrosion resistance and easy metric identification
- MB2000™ coating improves torque-tension and reduces the risk of hydrogen embrittlement often associated with electroplating
- Features exclusive Mini-Cert™ label on every package
- Diameter marking on every nut for visual identification control
- Highest strength metric nut available
- Thick pattern allows for greater thread engagement and greater load carrying capacity
- Meets ASTM A563M and ANSI B18.2.4.2M
- Approved NAAMS Standard

METRIC BLUE®

HIGH STRENGTH All Metal Locknut

Property Class 12 Carbon Steel



Nominal Thread Dia. and Pitch	Thickness Max.-Min.	*SPAENAUR No.*
M6 x 1.00	5.90-5.40	**MET202387**
M8 x 1.25	7.10-6.44	**MET202388**
M10 x 1.50	9.00-8.04	**MET202389**
M12 x 1.75	11.60-10.37	**MET202390**
M16 x 2.00	15.20-14.10	**MET202391**
M20 x 2.50	19.00-16.90	**MET202393**
M24 x 3.00	23.00-20.20	**MET202395**

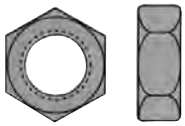
- Coated with exclusive MB2000™ fastener coating offers increased corrosion resistance and easy metric identification
- MB2000™ coating improves torque-tension relationship and reduces the risk of hydrogen embrittlement often associated with electroplating
- Features exclusive Mini-Cert™ label on every package
- Diameter marking on every nut for visual identification control
- Highest strength metric locknut available
- Reusability not found in nylon insert nuts
- Allows use in higher temperature applications
- Approved for use in GM, Ford and Chrysler Metric Tooling
- Meets ASTM A563M and ANSI B18.16.3M specifications

METRIC BLUE®

Hex Jam Nut

Property Class 04 Carbon Steel

***** Fine Thread

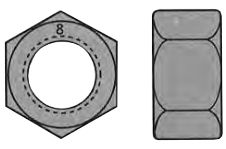


Nominal Thread Dia. and Pitch	*SPAENAUR No.*
M20 x 1.50	**MET185165***
M20 x 2.50	**MET194573**
M24 x 2.00	**MET204046**
M24 x 3.00	**MET194575**

METRIC BLUE®

Finished Hex Nut

Property Class 10 Alloy Steel



M5 x 0.80	**MET186075**

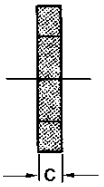
CATALOG 13

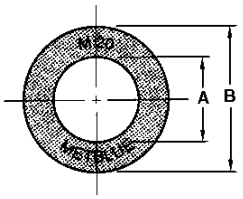
B

METRIC BLUE®

HIGH STRENGTH Heavy Pattern Flat Washers

Case Hardened Carbon Steel





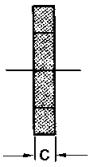
Nominal Bolt Size	*SPAENAUR No.*	All Dimensions in Millimetres A Inside Dia. Max.-Min.	B Outside Dia. Max.-Min.	C Thickness Max.-Min.
M6	MET201995	6.9-6.6	19.2-18.9	3.6-3.3
M8	MET201996	9.9-9.7	22.1-21.8	4.2-3.6
M10	MET201997	10.9-10.7	24.0-23.6	5.0-4.2
M12	MET201998	13.6-13.3	32.0-31.5	6.7-5.7
M16	MET201999	17.6-17.3	38.3-37.8	8.1-7.2
M20	MET202000	22.8-22.5	45.5-45.0	8.1-7.2
M24	MET202001	26.3-25.0	63.8-63.2	8.2-7.6

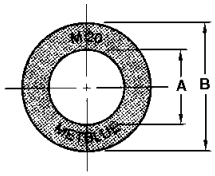
FEATURES
- Coated with exclusive MB2000™ Fastener Coating for exceptional corrosion resistance and easy metric identification
- MB2000™ Coating reduces the risk of hydrogen embrittlement often associated with electroplating
- Each washer features identification markings for lifetime traceability
- Features exclusive Mini-Cert™ label on package
- Case hardened to Rc 69-73 to resist embedment
- Thick pattern accommodates greater bearing loads
- For use with screws of Property Class 10.9 or higher

METRIC BLUE®

HIGH STRENGTH Flat Washers

Heat Treated Carbon Steel





Nominal Bolt Size	*SPAENAUR No.*	All Dimensions in Millimetres A Inside Dia. Max.-Min.	B Outside Dia. Max.-Min.	C Thickness Max.-Min.
M5	MET217931	5.4-5.8	10.5-9.5	2.5-1.2
M6	MET202003	7.4-7.0	12.0-11.0	3.0-2.0
M8	MET202005	9.6-9.0	17.0-16.0	3.5-2.5
M10	MET202006	12.0-11.0	21.5-20.0	4.5-3.0
M12	MET202007	15.0-14.4	27.0-25.7	4.6-3.1
M16	MET202009	18.4-18.0	34.0-32.4	4.6-3.1
M20	MET202010	22.5-22.0	42.5-40.0	4.6-3.1
M24	MET202011	26.5-26.0	50.0-48.4	4.6-3.4

FEATURES
- Coated with exclusive MB2000™ Fastener Coating for exceptional corrosion resistance and easy metric identification
- MB2000™ Coating reduces the risk of hydrogen embrittlement often associated with electroplating
- Features Mini-Cert™ label on every package
- Size and identification markings on every washer
- Resists embedment from hardened screws
- Permits greater load distribution by providing greater bearing surface
- For use with screws of Property Class 10.9, 12.9 A325M and A490M
- Diameters M12 and larger meet ASTM F436M. All sizes meet NAAMS specifications

METRIC BLUE®

Heavy Helical Spring Lockwasher

Case Hardened Spring Steel

Nominal Bolt Size	*SPAENAUR No.*
M8	MET217667
M10	MET217666
M12	MET217665
M16	MET217664

* HI Collar Spring Lockwasher

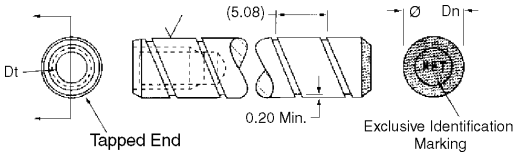
Hardened Spring Steel

M20	MET187447*

CATALOG 13

B

METRIC BLUE® HIGH STRENGTH
Spiral Relief Pull Dowel Pins
Hardened Ground Alloy Steel



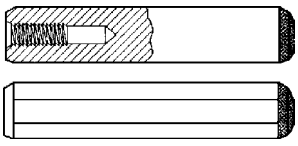
FEATURES
- Non-Tapped end of pin coated with exclusive MB2000™ Fastener Coating for easy metric identification
- Each pin features identification marking for lifetime traceability
- Features exclusive Mini-Cert™ label on package
- Precision rolled spiral groove provides consistent air relief in blind hole applications
- Controlled chamfer for easier insertion into hole
- Core hardness Rc 50-58, Case hardness Rc 60 min.
- Meets ANSI B18.8.5M specification, except tapped hole meets ISO 8735
- Approved by GM, Ford, Chrysler and NAAMS for all facilities

Nominal Pin Diameter	LENGTH (mm)	*SPAENAUR No.*
M6	16	**MET182851**
M6	20	**MET182852**
M6	24	**MET182853**
M6	30	**MET182854**
M6	40	**MET182855**
M6	50	**MET182856**
M8	20	**MET182858**
M8	25	**MET224193**
M8	30	**MET182861**
M8	32	**MET196064**
M8	35	**MET224194**
M8	40	**MET182860**
M8	50	**MET182862**

Nominal Pin Diameter	LENGTH (mm)	*SPAENAUR No.*
M10	20	**MET182865**
M10	24	**MET182866**
M10	30	**MET182867**
M10	32	**MET212208**
M10	40	**MET182868**
M10	50	**MET182869**
M10	60	**MET182870**
M12	30	**MET184870**
M12	32	**MET182874**
M12	40	**MET182875**
M12	50	**MET182876**
M12	60	**MET182877**
M16	40	**MET182882**
M16	50	**MET182883**
M16	60	**MET182884**

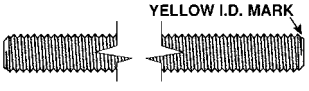
METRIC BLUE® HIGH STRENGTH
Pull Out Dowel Pins w/Flat
Precision Ground Hardened Steel

- Closely held concentricity for accurate installation
- Machined flat for air relief in blind applications
- Surface hardness of Rc 60, Core hardness of Rc 50-58
- Meets DIN 7979 specifications
- 1050 MPa shear strength



Nominal Pin Diameter	LENGTH (mm)	*SPAENAUR No.*
M8	30	**MET015297**
M8	35	**MET197618**
M10	30	**MET204929**
M20	40	**MET182891**
M20	50	**MET182892**
M20	60	**MET182893**

METRIC BLUE®
Threaded Rod
Property Class 4.6 Alloy Carbon Steel



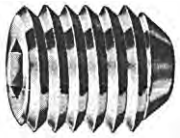
Nominal Diameter and Thread Pitch	LENGTH	*SPAENAUR No.*
M12 x 1.75	1 metre	**MET195329**

B

ALLOY STEEL

Heat Treated
Not Plated

CUP POINT
UNC & UNF



ASME/ANSI B18.3

Threads Class 3A, UNC & UNF as shown, in accordance with ANSI B1.1

DIA.	0	1	2	3	4	4	5	5	6	6	8	8
THD.	80 UNF	72 UNF	56 UNC	48 UNC	40 UNC	48 UNF	40 UNC	44 UNF	32 UNC	40 UNF	32 UNC	36 UNF
LGTH.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW											
1/16	SS-129	SS-134	SS-139									
3/32	SS-130	SS-135	SS-140	SS-144								
1/8	SS-131	SS-136	SS-141	SS-145	SS-28		SS-151		SS-33	478-022	SS-38	SS-170
5/32	SS-263	SS-264	SS-265	SS-266								
3/16	SS-132	SS-137	SS-142	SS-146	SS-29		SS-152		SS-34	478-038	SS-39	SS-171
1/4	SS-133	SS-138	SS-143	SS-147	SS-30		SS-153		SS-35		SS-40	SS-124
5/16					SS-31		SS-154		SS-36		SS-41	SS-172
3/8					SS-32		SS-155		SS-37		SS-42	SS-125
7/16					SS-148		SS-156		SS-160		SS-165	
1/2					SS-149		SS-157		SS-84		SS-85	SS-173
5/8					SS-150		SS-158		SS-161		SS-166	
3/4					478-008		SS-159		SS-162		SS-167	
7/8									SS-163		SS-168	
1					478-009		478-021		SS-164		SS-169	
1-1/4												
1-1/2												
1-3/4									478-025			
2												

UNIT PACKAGE 50

DIA.	10	10	12	12	1/4"	1/4"	5/16"	5/16"	3/8"	3/8"	7/16"	7/16"
THD.	24 UNC	32 UNF	24 UNC	28 UNF	20 UNC	28 UNF	18 UNC	24 UNF	16 UNC	24 UNF	14 UNC	20 UNF
LGTH.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW											
3/16	SS-43	SS-47			SS-188	SS-117						
1/4	SS-44	SS-48		478-039	SS-50	SS-116	SS-87	SS-208	SS-214	SS-223		
5/16	SS-45	SS-49	478-020		SS-189	SS-197	SS-53	SS-209	SS-215	SS-224		
3/8	SS-46	SS-181			SS-51	SS-198	SS-54	SS-100	SS-56	SS-225	SS-232	478-035
7/16	SS-174	SS-182			SS-190	SS-82	SS-203	SS-210	SS-216	SS-226	SS-233	
1/2	SS-175	SS-183			SS-52	SS-118	SS-55	SS-211	SS-57	SS-227	SS-234	
5/8	SS-176	SS-184			SS-191	SS-199	SS-115	SS-212	SS-217	SS-228	SS-235	
3/4	SS-177	SS-185			SS-121	SS-200	SS-107	SS-122	SS-128	SS-123	SS-113	
7/8	SS-178	2005			SS-192		SS-204		SS-218		SS-236	
1	SS-179	SS-186			SS-86	SS-201	SS-88	SS-126	SS-89	SS-229	SS-109	
1-1/4	SS-180	SS-187			SS-193	SS-202	SS-205		SS-219	SS-230	SS-110	
1-1/2					SS-194		SS-206		SS-90	SS-231	SS-111	
1-3/4					SS-195		SS-207		SS-220		SS-237	
2					SS-196		478-004		SS-221	478-158	SS-238	
2-1/2									SS-222	478-011	SS-239	478-024
3												

continued on next page…

UNIT PACKAGE 25

UNIT PACKAGE 50

UNIT PACKAGE 10

For STAINLESS STEEL
See page B288.

ALLOY STEEL

Heat Treated
Not Plated

CUP POINT
UNC & UNF

ASME/ANSI B18.3

Threads Class 3A, UNC & UNF as shown, in accordance with ANSI B1.1

...Continued from previous page.

DIA.	1/2"	1/2"	5/8"	5/8"	3/4"	3/4"	7/8"	7/8"	1"	1"	1-1/2"	1-1/2"	
THD.	13 UNC	20 UNF	11 UNC	18 UNF	10 UNC	16 UNF	9 UNC	14 UNF	8 UNC	14 UNF	6 UNC	12 UNF	
LGTH.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW												
1/4		*UNIT PACKAGE 25*											
5/16													
3/8	**478-036**												
7/16	**SS-240**					*UNIT PACKAGE 10*							
1/2	**SS-58**	**478-001**	**SS-244**										
5/8	**SS-59**	**478-002**	**SS-60**	**478-003**	**SS-253**								
3/4	**SS-119**		**SS-245**		●**SS-254**	**478-007**					*UNIT PACKAGE 1*		
7/8	**SS-241**		**SS-246**		**SS-255**								
1	**SS-92**	**SS-275**	**SS-95**		**SS-256**	**478-013**	**478-010**						
1-1/4	**SS-120**		**SS-247**		**SS-257**								
1-1/2	**SS-93**		**SS-248**		**SS-258**						**478-016**		
1-3/4	**SS-242**	**478-015**	**SS-249**		**SS-259**				**478-005**				
2	**SS-94**		**SS-250**		**SS-260**				**SS-274**				
2-1/2	**SS-243**		**SS-251**		**SS-261**								
3			**SS-252**		**SS-262**	**478-028**							
3-1/2			**478-034**										

●**SS-254-LL** (Long-Lok) *U.P. 10*

ASSORTMENT
ASSORTIMENT
B-583

CUP POINT

Hex Socket Set Screws

This assortment contains...

905 SET SCREWS in 14 sizes
35 HEX KEYS in 7 sizes

Thread sizes from 6-32 to 1/2"-13

Regular Size welded Steel Drawer has hinged lid and is finished in grey enamel.
Will fit into the Slide Racks, shown on page A2.

Contents of Assortment B-583.

HEX SOCKET SET SCREWS

SIZE	Ass't. Qty.
6-32 x 3/16"	100
6-32 x 1/4"	100
8-32 x 1/4"	60
8-32 x 3/8"	75
10-24 x 3/16"	100
10-24 x 5/16"	100
10-32 x 1/4"	100
1/4"-20 x 1/4"	50
1/4"-20 x 3/8"	50
5/16"-18 x 5/16"	40
5/16"-18 x 3/8"	40
3/8"-16 x 3/8"	35
3/8"-16 x 1/2"	30
1/2"-13 x 1/2"	25

HEX KEYS

HEX SIZE A/F	FITS SET SCREWS	Ass't. Qty.
1/16"	#5, #6	6
5/64"	#8	6
3/32"	#10, #12	6
1/8"	1/4"	6
5/32"	5/16"	4
3/16"	3/8"	4
1/4"	1/2"	3

Shipping Weight: 3.18 kg (7 lbs.)

Priced Singly

SPAENAUR

Canada's leading supplier of industrial fasteners and components.

B

ALLOY STEEL

KNURLED POINT
UNC & UNF

ASME/ANSI B18.3

Heat Treated
Not Plated

Threads Class 3A, UNC & UNF as shown, in accordance with ANSI B1.1

DIA.	4	6	8	10	10	1/4"	1/4"	5/16"	5/16"	3/8"	7/16"	1/2"	1/2"
THD.	40 UNC	32 UNC	32 UNC	24 UNC	32 UNF	20 UNC	28 UNF	18 UNC	24 UNF	16 UNC	20 UNF	13 UNC	20 UNF
LGTH.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW												
1/8	**478-042**	**478-045**											
3/16			**478-049**							*UNIT PACKAGE 25*			
1/4	**478-043**	**478-046**	**478-050**	**478-052**	**478-055**	**478-030**	**478-029**						
3/8	**478-044**	**478-047**	**478-051**	**478-053**	**478-056**	**478-058**	**478-063**	**478-066**		**478-070**	**478-072**		
7/16									**478-033**				
1/2		**478-048**		**478-054**	**478-057**	**478-059**	**478-064**	**478-067**		**478-071**			
5/8						**478-060**	**478-065**	**478-068**					
3/4					**478-032**	**478-061**		**478-069**				**478-037**	
7/8													
1			**478-026**							**478-040**	*UNIT PACKAGE 10*		
1-1/2			*UNIT PACKAGE 50*							**478-041**			
1-3/4													**478-019**

Also stocked — **CONE POINT**

478-018	4-40 UNC x 3/16" *U.P. 50*	**478-006**	5/16"-18 UNC x 3/8" *U.P. 25*
478-023	4-48 UNF x 1/4" *U.P. 100*	**SS-112**	5/16"-18 UNC x 1/2" *U.P. 25*
478-017	6-32 UNC x 1/2" *U.P. 50*	**478-027**	1/2"-13 UNC x 1/2" *U.P. 25*
478-012	1/4"-28 UNF x 3/8" *U.P. 50*		

OVAL POINT

478-014
4-40 UNC x 3/8"
Unit Pkg. 50

Plastikit «Plastikit» 804-085

CUP POINT

Priced Singly

HEX SOCKET SET SCREWS

ALLOY STEEL - NOT PLATED

SET SCREW DIMENSIONS

4-40 x 1/8"	8-32 x 1/2"	1/4"-20 x 1/4"
6-32 x 1/4"	10-24 x 3/16"	1/4"-20 x 5/16"
8-32 x 3/16"	10-32 x 3/16"	1/4"-20 x 3/8"
8-32 x 1/4"	10-32 x 1/4"	1/4"-20 x 1/2"
8-32 x 3/8"	10-32 x 3/8"	1/4"-20 x 1"

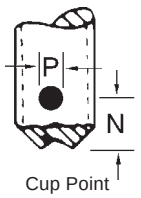
HEX KEY SIZE
(Width Across Flats)

Regular	.050"
Short	1/16"
Arm	5/64"
Series	3/32"
	1/8"

Put up in a clear, durable plasitic container with hinged lid. Size: 1" x 2-3/4" x 4-1/2"

10 Each of 15 Set Screw Sizes.
1 Each of 5 Hex Key Sizes.

Hex Socket Set Screw
Pelletized Insert Size and Location.



Cup Point shown

Cup/Oval/Flat

Thread Size	6-32 6-40	8-32 8-36	10-24 10-32	1/4-20 1/4-28	5/16-18 5/16-24	3/8-16 3/8-24	7/16-14 7/16-20	1/2-13 1/2-20	9/16	5/8	3/4
Pellet Dia. (P)	5/64"	3/32"	3/32"	7/64"	1/8"	9/64"	5/32"	5/32"	5/32"	3/16"	3/16"
Pellet Location (N) ±1/2 Pitch	1/8"	9/64"	5/32"	3/16"	7/32"	1/4"	17/64"	9/32"	9/32"	11/32"	3/8"

CATALOG 13

STEEL

Not Plated

CUP POINT

Threads Class 2A or 3A(our option), UNC & UNF as shown

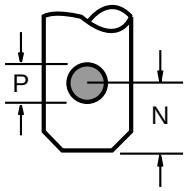
with PELLETIZED

NYLON LOCKING INSERT

The Pellet Material is:

TYPE 6/6 NYLON

- unaffected by commercial solvents, alcohols, gasoline, oil, or water. It retains its high strength and low absorption at -57°C (-70°F); withstands continuous heat up to 121°C (250°F); is an ideal pressure seat.



See page B286 for general data and specific info. re:

(N) Pellet Location:
Tolerance: ± 1/2 of Thread Pitch

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW

DIA.	4	5	5	6	8	10	10	1/4"	1/4"	5/16"	5/16"
THD.	40 UNC	40 UNC	44 UNF	32 UNC	32 UNC	24 UNC	32 UNF	20 UNC	28 UNF	18 UNC	24 UNF
3/16	**476-001**	**476-056**		**476-005**	**476-011**	**476-016**					
1/4	**476-002**	**476-057**		**476-006**	**476-012**	**476-017**	**476-022**	**476-026**	**476-033**		
5/16						**476-018**				**476-038**	
3/8	**476-003**			**476-007**	**476-013**	**476-019**	**476-023**	**476-027**	**476-034**	**476-039**	**476-042**
7/16						**476-066**					
1/2	**476-004**	**476-058**		**476-008**	**476-014**	**476-020**	**476-024**	**476-028**	**476-035**	**476-040**	**476-043**
5/8											
3/4				**476-009**		**476-059**	**476-025**	**476-029**	**476-036**	**476-041**	
7/8				**476-010**							
1					**476-015**			**476-030**	**476-037**		
1-1/4	*Unlisted Nos. (Sizes #4 to 1/4")*							**476-031**			
1-1/2	*Min. Order 300 - P.O.A. Del. app. 4 wks.*							**476-032**			

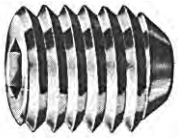
DIA.	3/8"	3/8"	7/16"	7/16"	1/2"	1/2"	5/8"	5/8"	3/4"		
THD.	16 UNC	24 UNF	14 UNC	20 UNF	13 UNC	20 UNF	11 UNC	18 UNF	10 UNC		
1/4											
5/16							*Unlisted Nos. (Sizes 5/16" to 3/4")*				
3/8	**476-044**	**476-047**					*Min. Order 100 - P.O.A. Del. app. 4 wks.*				
7/16											
1/2	**476-045**	**476-048**		**476-060**	**476-051**	**476-054**		**476-067**			
5/8	**476-061**	**476-049**				**476-064**					
3/4	**476-046**	**476-050**			**476-052**						
7/8											
1					**476-053**	**476-055**			**476-065**		
1-1/4											
1-1/2					**476-062**		**476-063**				
1-3/4											
2											
2-1/2											

B

18-8 STAINLESS STEEL

CUP POINT UNC & UNF

ASME/ANSI B18.3



Threads Class 3A or 2A (at our option), UNC & UNF as shown, in accordance with ANSI B1.1.

DIA.	0	1	2	3	4	4	6	6	8	8	10	10
THD.	80 UNF	72 UNF	56 UNC	56 UNF	40 UNC	48 UNF	32 UNC	40 UNF	32 UNC	36 UNF	24 UNC	32 UNF
LGTH.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW											
3/32												
1/8	**SS-2005**	**SS-2007**	**SS-2009**		**SS-2013**		**SS-2000**		**SS-2022**			**479-024**
3/16	**SS-2006**	**SS-2008**	**SS-2010**		**SS-2014**		**SS-2019**		**SS-2003**		**SS-2027**	**SS-2032**
1/4	**479-034**		**SS-2011**	**479-022**	**SS-2015**		**SS-2001**	**479-005**	**SS-2023**		**†SS-2028**	**SS-2033**
5/16							**SS-2002**					**SS-2034**
3/8					**SS-2016**		**SS-2020**		**SS-2024**		**SS-2029**	**479-001**
1/2					**479-007**		**SS-2021**		**SS-2025**		**■SS-2030**	**SS-2035**
5/8											**SS-2031**	**479-040**
3/4					**479-013**		**479-032**		**479-003**			**SS-2036**
7/8												
1												**479-039**
	UNIT PACKAGE 50											

†479-035 Flat Point **■479-036** Flat Point

DIA.	1/4"	1/4"	5/16"	5/16"	3/8"	3/8"	1/2"	5/8"	3/4"
THD.	20 UNC	28 UNF	18 UNC	24 UNF	16 UNC	24 UNF	13 UNC	11 UNC	10 UNC
LGTH.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
1/16									
3/32									
1/8									
3/16	**479-002**								
1/4	**SS-2037**	**SS-2042**	**SS-2045**						
5/16	**SS-2012**	**SS-2043**	**SS-2046**						
3/8	**SS-2038**	**SS-2044**	**SS-2047**	**SS-2050**	**SS-2051**		**SS-2055**		
7/16				**479-021**					
1/2	**SS-2039**	**479-026**	***SS-2048**		**SS-2052**	**479-019**	**SS-2056**		
5/8	**SS-2040**						**479-009**	**479-006**	
3/4	**SS-2041**	**479-010**	**▲SS-2049**		**SS-2053**		**SS-2057**	**SS-2059**	
7/8		**479-011**							
1	**479-004**				**SS-2054**	**479-030**	**SS-2058**	**479-012**	**SS-2060**
1-1/4			**479-020**	**479-038**	**479-017**	**479-031**			
1/-1/2	**479-028**								
1-3/4					**479-025**				
	UNIT PACKAGE 50							*UNIT PKG. 25*	

***479-027** Cone Point **▲479-033** "Half-dog Point"

See facing page for Assortment 805-517.

Also Stocked in **316 Stainless Steel**

479-016
10-32 x 3/8"

SS-2004
1/4"-20 x 1/4"

SS-2061
1/4"-20 x 5/16"

479-015
1/4"-20 x 3/8"

479-037
5/16"-18 x 3/8"

479-008
5/16"-18 x 5/8"

479-014
3/8"-16 x 1/2"

479-018
1/2"-13 x 3/4"

ALL ABOVE UNIT PKG. 50

479-029
7/8"-9 x 2"

UNIT PKG. 5

CATALOG 13

ASSORTMENT / ASSORTIMENT 805-517

Hex Socket Set Screws

Cup Point

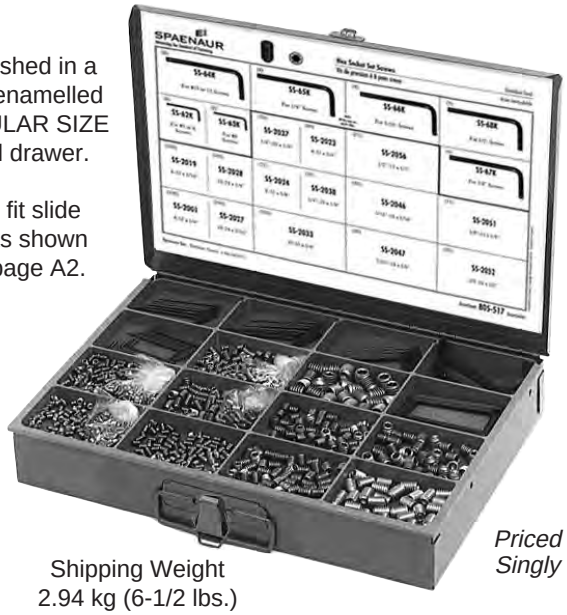
18-8 Stainless Steel

905 SET SCREWS - 14 SIZES

Plus **7 Sizes** (35 pieces) **Hex Keys** of Alloy Steel

Furnished in a grey enamelled REGULAR SIZE steel drawer.

Will fit slide racks shown on page A2.



Contents of Assortment 805-517

Hex Socket Set Screws - 18-8 SS			**Hex Socket Set Screws Cont'd.**		
100	**SS-2019**	6-32 x 3/16"	35	**SS-2051**	3/8"-16 x 3/8"
100	**SS-2001**	6-32 x 1/4"	30	**SS-2052**	3/8"-16 x 1/2"
60	**SS-2023**	8-32 x 1/4"	25	**SS-2056**	1/2"-13 x 1/2"
75	**SS-2024**	8-32 x 3/8"		**Alloy Steel Hex Keys**	
100	**SS-2027**	10-24 x 3/16"	6	**SS-62K**	#5, 6 Screws
100	**SS-2028**	10-24 x 1/4"	6	**SS-63K**	#8 Screws
100	**SS-2033**	10-32 x 1/4"	6	**SS-64K**	#10, 12 Screws
50	**SS-2037**	1/4"-20 x 1/4"	6	**SS-65K**	1/4" Screws
50	**SS-2038**	1/4"-20 x 3/8"	4	**SS-66K**	5/16" Screws
40	**SS-2046**	5/16"-18 x 5/16"	4	**SS-67K**	3/8" Screws
40	**SS-2047**	5/16"-18 x 3/8"	3	**SS-68K**	1/2" Screws

Shipping Weight
2.94 kg (6-1/2 lbs.)

Priced Singly

BRASS

(Not Plated)

Hex Socket Set Screws

CUP POINT

ASME/ANSI B18.3
Threads Class 3A or 2A (at our option), UNC in accordance with ANSI B1.1.

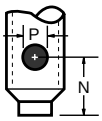
UNIT PACKAGE QUANTITIES SHOWN IN PRICE LIST

DIA.	6	8	10	1/4"	5/16"	3/8"	1/2"
THD.	32 UNC	32 UNC	24 UNC	20 UNC	18 UNC	16 UNC	13 UNC
LGTH.	**ORDER BY *SPAENAUR* NUMBERS LISTED BELOW**						
1/8							
1/4	**480-001**	**480-007**	**480-002**	**480-012**			
5/16				**480-003**	**480-004**		
3/8						**480-005**	
1/2			**480-013**	**SS-500**	**480-008**	**480-006**	**480-009**
5/8							
3/4						**480-010**	
1				**480-011**			

Hex Socket Set Screws

Alloy Steel - Not Plated

Hardness - Rc-28-34



BRASS TIP

Class 3A Thread Fit

and NYLON LOCKING PELLETIZED INSERT

SPAENAUR No.	Thread Size x Length	P	N ±1/2 Pitch	Pkg. Qty.	*SPAENAUR No.*	Thread Size x Length	P	N ±1/2 Pitch	Pkg. Qty.
488-100	10-32 UNF x 1/4"	3/32"	3/16"	50	**488-107**	5/16"-18 UNC x 1/4"	1/8"	19/64"	25
488-101	10-32 UNF x 3/8"	3/32"	3/16"	50	**488-108**	5/16"-18 UNC x 5/16"	1/8"	19/64"	25
488-102	10-32 UNF x 1/2"	3/32"	3/16"	50	**488-109**	5/16"-18 UNC x 3/8"	1/8"	19/64"	25
488-103	1/4"-20 UNC x 1/4"	7/64"	1/4"	50	**488-110**	5/16"-18 UNC x 1/2"	1/8"	19/64"	25
488-104	1/4"-20 UNC x 5/16"	7/64"	1/4"	50	**488-111**	3/8"-16 UNC x 3/8"	9/64"	5/16"	25
488-105	1/4"-20 UNC x 3/8"	7/64"	1/4"	50	**488-112**	3/8"-16 UNC x 1/2"	9/64"	5/16"	25
488-106	1/4"-20 UNC x 1/2"	7/64"	1/4"	50	**488-113**	3/8"-16 UNC x 3/4"	9/64"	5/16"	25
					488-114	3/8"-16 UNC x 1"	9/64"	5/16"	25

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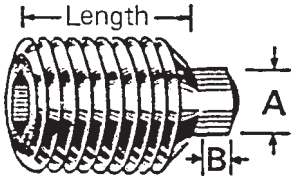


BRASS TIP - BOUT DE LAITON

SET SCREW - Alloy Steel
ASME/ANSI B18.3, Not Plated, RC 28-34 Hardness

BRASS TIP - Half Hard Brass

Class 3A Thread Fit UNC & UNF as shown.

More BRASS TIPS on page B289.

DIA.	2	4	6	8	10	10	1/4"	1/4"	5/16"
THD.	56 UNC	40 UNC	32 UNC	32 UNC	24 UNC	32 UNF	20 UNC	28 UNF	18 UNC
A	1/32"	1/16"	1/16"	3/32"	3/32"	3/32"	1/8"	1/8"	3/16"
B	1/32"	1/32"	1/32"	3/64"	3/64"	3/64"	1/16"	1/16"	3/32"
Lgth.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
1/8"	488-001	488-004	488-009	488-015					
3/16"	488-002	488-005	488-010	488-016	488-022	488-029	488-036	488-044	
1/4"	488-003	488-006	488-011	488-017	488-023	488-030	488-037	488-045	488-052
5/16"		488-007	488-012	488-018	488-024	488-031	488-038	488-046	488-053
3/8"		488-008	488-013	488-019	488-025	488-032	488-039	488-047	488-054
1/2"			488-014	488-020	488-026	488-033	488-040	488-048	488-055
5/8"				488-021	488-027	488-034	488-041	488-049	488-056
3/4"					488-028	488-035	488-042	488-050	488-057
1"							488-043	488-051	488-058
1-1/4"									
1-1/2"									
	UNIT PACKAGE 50								U.P. 25

DIA.	5/16"	3/8"	3/8"	1/2"	1/2"	5/8"	3/4"	1"	
THD.	24 UNF	16 UNC	24 UNF	13 UNC	20 UNF	11 UNC	10 UNC	8 UNC	
A	3/16"	3/16"	3/16"	1/4"	1/4"	5/16"	1/2"	1/2"	
B	3/32"	3/32"	3/32"	1/8"	1/8"	3/32"	1/8"	1/8"	
Lgth.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
1/4"	488-059	488-066	488-073						
5/16"	488-060	488-067	488-074						
3/8"	488-061	488-068	488-075	488-080	488-085				
1/2"	488-062	488-069	488-076	488-081	488-086	488-090			
5/8"	488-063	488-070	488-077	488-082	488-087				
3/4"	488-064	488-071	488-078	488-083	488-088	488-091	488-093		
1"	488-065	488-072	488-079	488-084	488-089			488-097	
1-1/4"						488-092	488-094		
1-1/2"							488-095	488-098	
1-3/4"									
2"							488-096	488-099	
	UNIT PACKAGE 25			UNIT PACKAGE 10					

Put up in a clear, durable plastic container with hinged lid. Size: 1" x 2-3/4" x 4-1/2".

Priced Singly

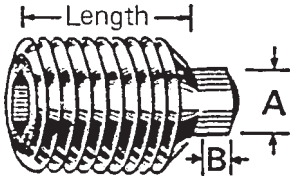
Plastikit «Plastikit» 804-087

Hex Socket Set Screws
Alloy Steel with Brass Tip
10 Sizes - 50 Pieces
(as shown at right)

SPAENAUR No.	SIZE	ASS'T. QTY.
488-011	6-32 x 1/4"	5
488-016	8-32 x 3/16"	5
488-017	8-32 x 1/4"	5
488-020	8-32 x 1/2"	5
488-022	10-24 x 3/16"	5
488-029	10-32 x 3/16"	5
488-030	10-32 x 1/4"	5
488-432	10-32 x 3/8"	5
488-037	1/4"-20 x 1/4"	5
488-038	1/4"-20 x 5/16"	5

CATALOG 13

See page B289 for Nylon Locking Pellet Insert.



NYLON TIP - BOUT DE NYLON

SET SCREW - Alloy Steel

ASME/ANSI B18.3, Not Plated, RC 28-34 Hardness

NYLON TIP

Class 3A Thread Fit UNC & UNF as shown.

DIA.	2	4	6	8	10	10	1/4"	1/4"	5/16"
THD.	56 UNC	40 UNC	32 UNC	32 UNC	24 UNC	32 UNF	20 UNC	28 UNF	18 UNC
A	1/32"	1/16"	1/16"	3/32"	3/32"	3/32"	1/8"	1/8"	3/16"
B	1/32"	1/32"	1/32"	3/64"	3/64"	3/64"	1/16"	1/16"	3/32"
Lgth.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
1/8"	**488-200**	**488-203**	**488-208**	**488-214**					
3/16"	**488-201**	**488-204**	**488-209**	**488-215**	**488-221**	**488-228**	**488-235**	**488-243**	
1/4"	**488-202**	**488-205**	**488-210**	**488-216**	**488-222**	**488-229**	**488-236**	**488-244**	**488-251**
5/16"		**488-206**	**488-211**	**488-217**	**488-223**	**488-230**	**488-237**	**488-245**	**488-252**
3/8"		**488-207**	**488-212**	**488-218**	**488-224**	**488-231**	**488-238**	**488-246**	**488-253**
1/2"			**488-213**	**488-219**	**488-225**	**488-232**	**488-239**	**488-247**	**488-254**
5/8"				**488-220**	**488-226**	**488-233**	**488-240**	**488-248**	**488-255**
3/4"					**488-227**	**488-234**	**488-241**	**488-249**	**488-256**
1"							**488-242**	**488-250**	**488-257**
1-1/4"									
1-1/2"									**488-289**
	UNIT PACKAGE 50								*U.P. 25*

DIA.	5/16"	3/8"	3/8"	1/2"	1/2"				
THD.	24 UNF	16 UNC	24 UNF	13 UNC	20 UNF				
A	3/16"	3/16"	3/16"	1/4"	1/4"				
B	3/32"	3/32"	3/32"	1/8"	1/8"				
Lgth.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
1/4"	**488-258**	**488-265**	**488-272**						
5/16"	**488-259**	**488-266**	**488-273**						
3/8"	**488-260**	**488-267**	**488-274**	**488-279**	**488-284**				
1/2"	**488-261**	**488-268**	**488-275**	**488-280**	**488-285**				
5/8"	**488-262**	**488-269**	**488-276**	**488-281**	**488-286**				
3/4"	**488-263**	**488-270**	**488-277**	**488-282**	**488-287**				
1"	**488-264**	**488-271**	**488-278**	**488-283**	**488-288**				
1-1/4"									
1-1/2"									
1-3/4"									
2"									
	UNIT PACKAGE 25			*UNIT PACKAGE 10*					

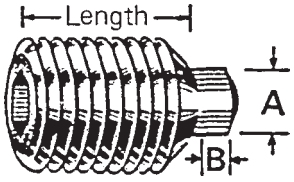
Put up in a clear, durable plastic container with hinged lid. Size: 1" x 2-3/4" x 4-1/2".

Priced Singly

Plastikit «Plastikit» 804-088

Hex Socket Set Screws
Alloy Steel with Nylon Tip
10 Sizes - 50 Pieces
(as shown at right)

SPAENAUR No.	SIZE	ASS'T. QTY.
488-210	6-32 x 1/4"	5
488-215	8-32 x 3/16"	5
488-216	8-32 x 1/4"	5
488-219	8-32 x 1/2"	5
488-221	10-24 x 3/16"	5
488-228	10-32 x 3/16"	5
488-229	10-32 x 1/4"	5
488-231	10-32 x 3/8"	5
488-236	1/4"-20 x 1/4"	5
488-237	1/4"-20 x 5/16"	5



NYLON TIP - BOUT DE NYLON

SET SCREW - 303 STAINLESS STEEL

NYLON TIP

Class 2A or 3A Thread Fit - our option.

Also available on request - STAINLESS STEEL SET SCREWS with BRASS TIPS.

DIA.	2	4	6	8	10	10	1/4"	1/4"	5/16"
THD.	56 UNC	40 UNC	32 UNC	32 UNC	24 UNC	32 UNF	20 UNC	28 UNF	18 UNC
A	1/32"	1/16"	1/16"	3/32"	3/32"	3/32"	1/8"	1/8"	3/16"
B	1/32"	1/32"	1/32"	3/64"	3/64"	3/64"	1/16"	1/16"	3/32"
Lgth.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
1/8"			**488-852**						
3/16"	**488-805**								
1/4"	**488-806**	**488-807**	**488-809**	**488-812**	**488-816**	■**488-851**	▲**488-848**	***488-850**	**488-829**
5/16"		**488-808**				**488-801**	**488-821**	**488-825**	**488-830**
3/8"							***488-853**		
3/8"		**488-803**	**488-810**	**488-813**	**488-817**	**488-802**	▲**488-849**		
1/2"			**488-811**	**488-814**	**488-804**	**488-819**	**488-822**	**488-826**	**488-831**
5/8"				**488-815**					
3/4"					**488-818**	**488-820**	**488-823**	**488-827**	
1"							**488-824**	**488-828**	**488-832**
1-1/4"									
1-1/2"									
1-3/4"				*UNIT PACKAGE 50*					*U.P. 25*
2"									

■ **488-847** with Brass Tip ▲ also with pelletized nylon locking insert ***Brass Tip**

DIA.	5/16"	3/8"	3/8"	1/2"	1/2"				
THD.	24 UNF	16 UNC	24 UNF	13 UNC	20 UNF				
A	3/16"	3/16"	3/16"	1/4"	1/4"				
B	3/32"	3/32"	3/32"	1/8"	1/8"				
Lgth.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
1/8"									
3/16"									
1/4"	**488-833**	**488-836**	**488-840**						
5/16"									
3/8"		**488-837**		**488-843**	**488-845**				
1/2"	**488-834**	**488-838**	**488-841**	**488-844**	**488-846**				
5/8"									
3/4"		**488-839**	**488-842**						
1"	**488-835**			**488-800**					
1-1/4"									
1-1/2"									
1-3/4"									
2"									
	UNIT PACKAGE 25			*UNIT PACKAGE 10*					

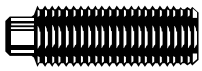
ALLOY STEEL

Heat-Treated **Not Plated**

Inch Sizes

HEX SOCKET SET SCREWS

with "Half-Dog" Point



UNC & UNF
ASME/ANSI B18.3

Thread — Class 3A Fit.

DIA.	1	2	4	6	8	10	10	1/4"	1/4"	5/16"
THD.	72 UNF	56 UNC	40 UNC	32 UNC	32 UNC	24 UNC	32 UNF	20 UNC	28 UNF	18 UNC
KEY	.035"	.035"	.050"	1/16"	5/64"	3/32"	3/32"	1/8"	1/8"	5/32"
OVERALL LENGTH	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
3/32"					*UNIT PACKAGE 100*					
1/8"										
3/16"					**478-105**	**478-111**	**478-117**			
1/4"			**478-100**	**478-102**	**478-106**	**478-112**	**478-118**	**478-122**	**478-129**	**478-132**
5/16"			**478-101**	**478-103**	**478-107**	**478-113**	**478-119**	**478-123**	**478-130**	**478-133**
3/8"				**478-104**	**478-108**	**478-114**	**478-120**	**478-124**	**478-131**	**478-134**
1/2"					**478-109**	**478-115**	**478-121**	**478-125**		**478-135**
5/8"					**478-110**	**478-116**		**478-126**		**478-136**
3/4"								**478-127**		**478-137**
1"								**478-128**		**478-138**
1-1/2"										
2"										

(Continued below - at left)

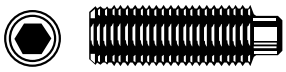
DIA.	5/16"	3/8"	3/8"	1/2"	1/2"
THD.	24 UNF	16 UNC	24 UNF	13 UNC	20 UNF
KEY	5/32"	3/16"	3/16"	1/4"	1/4"
OVERALL LENGTH	ORDER BY *SPAENAUR* NUMBERS				
1/4"				*UNIT PACKAGE 25*	
5/16"	**478-139**				
3/8"	**478-140**	**478-142**	**478-148**		
1/2"	**478-141**	**478-143**	**478-149**	**478-150**	**478-155**
5/8"		**478-144**		**478-151**	
3/4"		**478-145**		**478-152**	
1"	**478-156**	**478-146**		**478-153**	
1-1/4"		**478-147**		**478-154**	
1-1/2"					
1-3/4"		**478-157**			
2"					
2-1/2"	*UNIT PACKAGE 50*				
3"					

ASSORTMENT
ASSORTIMENT
805-488

24 SIZES
500 PIECES

ALLOY STEEL - NOT PLATED - INCH SIZES

HEX SOCKET SET SCREWS



with "Half-Dog" Point

Shipping Weight 2.72 kg. (6 lbs.) *Priced Singly*

Put up in a REGULAR SIZE grey enamelled STEEL drawer, which fits slide racks shown on page A2.

Contents of Assortment 805-488

Size	Ass't. Qty.	Size	Ass't. Qty.	Size	Ass't. Qty.
4-40 UNC x 1/4"	40	10-24 UNC x 5/8"	20	1/4"-28 UNF x 5/16"	15
6-32 UNC x 1/4"	40	10-32 UNF x 3/16"	20	5/16"-18 UNC x 1/4"	15
6-32 UNC x 3/8"	40	10 -32 UNF x 5/16"	20	5/16"-18 UNC x 3/8"	10
8-32 UNC x 3/16"	40	10-32 UNF x 1/2"	20	5/16"-18 UNC x 5/8"	10
8-32 UNC x 5/16"	30	1/4"-20 UNC x 1/4"	15	5/16"-18 UNC x 1"	10
8-32 UNC x 1/2"	30	1/4"-20 UNC x 3/8"	15	5/16"-24 UNF x 3/8"	10
10-24 UNC x 1/4"	30	1/4"-20 UNC x 5/8"	15	3/8"-16 UNC x 1/2"	5
10-24 UNC x 3/8"	30	1/4"-20 UNC x 1"	15	3/8"-16 UNC x 3/4"	5

B

SQUARE HEAD SET SCREWS

STEEL

CASE HARDENED - Not Plated

CUP POINT / UNC

ASME/ANSI B18.6.2

UNC

UNIFIED STANDARD THREAD - CLASS 2A FIT

DIA.	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	7/8"	1"
THD.	20 UNC	18 UNC	16 UNC	14 UNC	13 UNC	11 UNC	10 UNC	9 UNC	8 UNC
LENGTH	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
3/8	SS-1								
1/2	SS-2	SS-7	SS-12						
5/8	486-040								
3/4	SS-3	SS-8	SS-13	SS-18	SS-23				
1	SS-4	SS-9	SS-14	SS-19	SS-24				
1-1/4	SS-5	SS-10	SS-15	SS-20	SS-25				
1-1/2	SS-6	SS-11	SS-16	SS-21	SS-26				
1-3/4					SS-96				
2	SS-127		SS-17	SS-22	SS-27	SS-270	486-030		
2-1/2	486-041				SS-268	SS-273	486-047		
3	486-033	486-042	486-036		SS-97	486-028	486-031		
3-1/2						486-029	486-045		
4				486-037	SS-269		486-044		486-046
4-1/2						486-034			
5							486-035	486-027	
6					486-038	486-043	486-032		486-048
7							486-039		
	Unit Pkg. 100	*Unit Pkg. 50*	*Unit Pkg. 25*		*Unit Pkg. 10*		*Unit Pkg. 1*		

18-8 Stainless Steel

486-802	5/16"-18 UNC x 1"	*Unit Pkg. 50*
486-801	5/16"-18 UNC x 1-1/2"	*Unit Pkg. 50*
486-803	3/8"-16 UNC x 2"	*Unit Pkg. 25*
486-800	5/8"-11 UNC x 3"	*Unit Pkg. 10*

ASSORTMENT
ASSORTIMENT
B-582

SQUARE HEAD SET SCREWS

CUP POINT / UNC

STEEL - Case Hardened - Not Plated

Contains Square Head Set Screws in thread diameters from 1/4"-20 to 1/2"-13.

18 Varieties - 491 pieces.

Assortment B-582 contains these Square Head Set Screws from the listing at the top of this page.

SS-2	SS-7	SS-12	SS-18	SS-24
SS-3	SS-8	SS-13	SS-19	SS-27
SS-4	SS-9	SS-14	SS-21	
SS-6	SS-11	SS-16	SS-23	

Furnished in Regular Size Steel drawer which will fit into Slide Racks shown on page A2.

Shipping Weight 7.37 kg (16-1/4 lbs.)

Priced Singly

CATALOG 13

NYLON

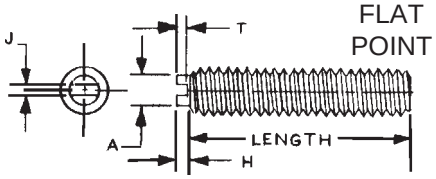
(Natural Colour)

Type 6/6
UL94V2

Moulded NYLON Components

They're TOUGH, resist corrosion, dampen vibration

Thread Size	Dimensions in Inches A	H	J	T
2	.055	.035	.018	.020
4	.075	.045	.020	.025
6	.100	.055	.025	.030
8	.120	.055	.028	.035
10	.150	.060	.035	.050
1/4"	.175	.080	.040	.060



NYLON SLOTTED SET SCREWS

GOOD ELECTRICAL INSULATORS

UNIT PACKAGE 100

SPAENAUR No.	Thread	Length
477-001	2-56	3/32"
477-002	2-56	1/8"
477-003	2-56	5/32"
477-004	2-56	3/16"
477-005	2-56	1/4"
477-006	2-56	9/32"
477-007	2-56	5/16"
477-008	2-56	3/8"
477-009	2-56	7/16"
477-010	2-56	1/2"
477-011	4-40	1/8"
477-012	4-40	5/32"
477-013	4-40	3/16"
477-014	4-40	1/4"
477-015	4-40	9/32"
477-016	4-40	5/16"
477-017	4-40	3/8"
477-018	4-40	7/16"
477-019	4-40	1/2"
477-020	6-32	3/32"
477-021	6-32	1/8"
477-022	6-32	3/16"
477-023	6-32	1/4"
477-024	6-32	5/16"
477-025	6-32	3/8"
477-026	6-32	7/16"
477-027	6-32	1/2"
477-028	8-32	1/8"
477-029	8-32	3/16"
477-030	8-32	1/4"
477-031	8-32	5/16"
477-032	8-32	3/8"
477-033	8-32	7/16"
477-034	8-32	1/2"
477-035	8-32	5/8"
477-036	8-32	3/4"
477-037	10-24	1/8"
477-038	10-24	3/16"
477-039	10-24	1/4"
477-040	10-24	5/16"
477-041	10-24	3/8"
477-042	10-24	1/2"
477-043	10-24	5/8"
477-044	10-24	3/4"
477-045	10-32	1/8"
477-046	10-32	3/16"
477-047	10-32	1/4"
477-048	10-32	5/16"
477-049	10-32	3/8"
477-050	10-32	1/2"
477-051	10-32	5/8"
477-052	10-32	3/4"
477-053	1/4-20	1/4"
477-054	1/4-20	5/16"
477-055	1/4-20	3/8"
477-056	1/4-20	1/2"
477-057	1/4-20	5/8"
477-058	1/4-20	3/4"
477-059	1/4-20	7/8"
477-060	1/4-20	1"

HEADLESS SLOTTED SET SCREWS

CARBON STEEL

CASE HARDENED - Not Plated
UNC & UNF THREAD - CLASS 2A FIT

ASME/ANSI B18.6.2

P.C. 470 (Steel) P.C. 472 (Brass)	DIA.	4	6	8	10	10	1/4"	5/16"	UNIT PKG. QTY.
	THD.	40 UNC	32 UNC	32 UNC	24 UNC	32 UNF	20 UNC	24 UNF	
	LENGTH	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW							
CUP POINT	1/8"		**SS-70**						50
	3/16"		**SS-71**	**SS-74**	**SS-83**	**SS-78**			50
	1/4"	***SS-501**	**SS-72**	**SS-75**		**SS-79**	**SS-108**		50
	5/16"			**SS-76**					50
*****Brass *Unit Pkg. 100*	3/8"	**SS-271**		**SS-114**					50
	1/2"		**470-001**	**SS-77**					50
	5/8"			**SS-267**					50
	3/16"				**SS-102**				50
	5/16"			**SS-99**					50
CONE POINT	3/8"						**725**		50
	1/2"				**SS-272**				50
	5/8"					**1073**	**790**		50
	7/8"					**1074**			50
FLAT POINT	5/8"				**1179**				50
	7/8"				**SS-80**				50
OVAL POINT	5/16"							**▲470-003**	50

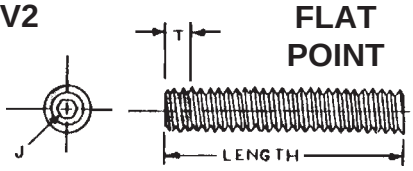
▲470-004 Zinc Plated

B

NYLON HEX SOCKET SET SCREWS
Moulded NYLON Components

NYLON
(Natural Colour)

Type 6/6
UL 94V2



FLAT POINT

Tough, Corrosion/Vibration Resistant
Dielectric Strength: 600 v/mil 10^{14} OHM-CM

Inch Sizes

Thread Size	J	T
4	.050"	.070"
6	.062"	.080"
8	.078"	.090"
10	.094"	.100"
1/4"	.125"	.125"
5/16"	.156"	.156"
3/8"	.188"	.188"
1/2"	.250"	.250"
5/8"	.312"	.312"

SPAENAUR No.	Thread Size x Lgth.	U.P.
477-200	4-40 x 1/8"	100
477-201	4-40 x 9/64"	100
477-202	4-40 x 5/32"	100
477-203	4-40 x 3/16"	100
477-204	4-40 x 1/4"	100
477-205	4-40 x 9/32"	100
477-206	4-40 x 5/16"	100
477-207	4-40 x 3/8"	100
477-208	4-40 x 7/16"	100
477-209	4-40 x 1/2"	100
477-210	6-32 x 3/32"	100
477-211	6-32 x 1/8"	100
477-212	6-32 x 3/16"	100
477-213	6-32 x 1/4"	100
477-214	6-32 x 5/16"	100
477-215	6-32 x 3/8"	100
477-216	6-32 x 7/16"	100
477-217	6-32 x 1/2"	100
477-218	8-32 x 3/16"	100
477-219	8-32 x 1/4"	100
477-220	8-32 x 5/16"	100
477-221	8-32 x 3/8"	100

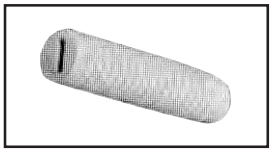
SPAENAUR No.	Thread Size x Lgth.	U.P.
477-222	8-32 x 7/16"	100
477-223	8-32 x 1/2"	100
477-224	8-32 x 5/8"	100
477-225	8-32 x 3/4"	100
477-226	10-24 x 1/8"	100
477-227	10-24 x 3/16"	100
477-228	10-24 x 1/4"	100
477-229	10-24 x 5/16"	100
477-230	10-24 x 3/8"	100
477-231	10-24 x 1/2"	100
477-232	10-24 x 5/8"	100
477-233	10-24 x 3/4"	100
477-234	10-32 x 1/8"	100
477-235	10-32 x 3/16"	100
477-236	10-32 x 1/4"	100
477-237	10-32 x 5/16"	100
477-238	10-32 x 3/8"	100
477-239	10-32 x 1/2"	100
477-240	10-32 x 5/8"	100
477-241	10-32 x 3/4"	100
477-242	1/4-20 x 1/4"	100

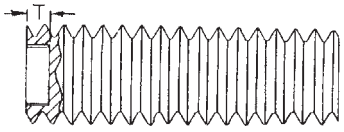
SPAENAUR No.	Thread Size x Lgth.	U.P.
477-243	1/4-20 x 5/16"	100
477-244	1/4-20 x 3/8"	100
477-245	1/4-20 x 1/2"	100
477-246	1/4-20 x 5/8"	100
477-247	1/4-20 x 3/4"	100
477-248	1/4-20 x 7/8"	100
477-249	1/4-20 x 1"	100
477-250	5/16-18 x 1/2"	100
477-251	5/16-18 x 3/4"	100
477-252	5/16-18 x 1"	100
477-253	3/8-16 x 1/2"	100
477-254	3/8-16 x 3/4"	100
477-255	3/8-16 x 1"	100
477-256	1/2-13 x 1/2"	50
477-257	1/2-13 x 3/4"	50
477-258	1/2-13 x 1"	50
477-259	1/2-13 x 1-1/4"	50
477-260	5/8-11 x 1/2"	25
477-261	5/8-11 x 3/4"	25
477-262	5/8-11 x 1"	25
477-263	5/8-11 x 1-1/2"	25

SLOTTED NYLON GRUB SCREWS

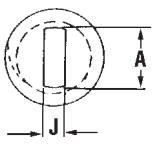
NYLON

Type 6/6 **UL 94V2**
(NATURAL COLOUR)





FLAT POINT

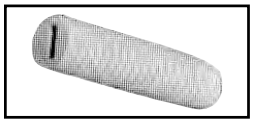


NOMINAL SCREW SIZE	T	A	J
6-32	.030"	.080"	.025"
8-32	.035"	.100"	.028"
10-32	.050"	.130"	.035"
1/4"-20	.060"	.160"	.040"

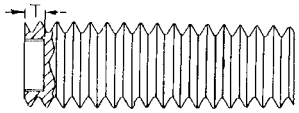
SPAENAUR No.	Thread Size x Length	*SPAENAUR No.*	Thread Size x Length	*SPAENAUR No.*	Thread Size x Length
477-100	6-32 x 1/8"	**477-113**	8-32 x 5/8"	**477-126**	10-32 x 5/16"
477-101	6-32 x 3/16"	**477-114**	8-32 x 3/4"	**477-127**	10-32 x 3/8"
477-102	6-32 x 1/4"	**477-115**	10-24 x 1/8"	**477-128**	10-32 x 1/2"
477-103	6-32 x 5/16"	**477-116**	10-24 x 3/16"	**477-129**	10-32 x 5/8"
477-104	6-32 x 3/8"	**477-117**	10-24 x 1/4"	**477-130**	10-32 x 3/4"
477-105	6-32 x 7/16"	**477-118**	10-24 x 5/16"	**477-131**	1/4-20 x 1/4"
477-106	6-32 x 1/2"	**477-119**	10-24 x 3/8"	**477-132**	1/4-20 x 5/16"
477-107	8-32 x 3/16"	**477-120**	10-24 x 1/2"	**477-133**	1/4-20 x 3/8"
477-108	8-32 x 1/4"	**477-121**	10-24 x 5/8"	**477-134**	1/4-20 x 1/2"
477-109	8-32 x 5/16"	**477-122**	10-24 x 3/4"	**477-135**	1/4-20 x 5/8"
477-110	8-32 x 3/8"	**477-123**	10-32 x 1/8"	**477-136**	1/4-20 x 3/4"
477-111	8-32 x 7/16"	**477-124**	10-32 x 3/16"	**477-137**	1/4-20 x 7/8"
477-112	8-32 x 1/2"	**477-125**	10-32 x 1/4"	**477-138**	1/4-20 x 1"

UNIT PACKAGE 100

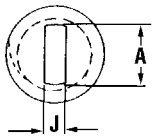
METRIC
SLOTTED GRUB SCREWS



NYLON
UL 94V2
(Natural Colour)



FLAT POINT



THREAD SIZE	A	J	T
M4 x 0.7	2.0	.64	.76
M5 x 0.8	3.3	.89	1.3
M6 x 1.0	4.1	1.0	1.5
M8 x 1.25	5.2	1.6	2.4
M10 x 1.5	6.6	2.3	2.8

Regular (COARSE) Metric Thread

Dimensions in Millimetres

SPAENAUR No.	Thread Dia. x Pitch x Lgth.	*SPAENAUR No.*	Thread Dia. x Pitch x Lgth.
477-150	M4 x .7 x 6 mm	**477-166**	M6 x 1.00 x 8 mm
477-151	M4 x .7 x 8 mm	**477-167**	M6 x 1.00 x 10 mm
477-152	M4 x .7 x 10 mm	**477-168**	M6 x 1.00 x 12 mm
477-153	M4 x .7 x 12 mm	**477-169**	M6 x 1.00 x 16 mm
477-154	M4 x .7 x 16 mm	**477-170**	M6 x 1.00 x 20 mm
477-155	M4 x .7 x 20 mm	**477-171**	M6 x 1.00 x 25 mm
477-156	M4 x .7 x 25 mm	**477-172**	M6 x 1.00 x 30 mm
477-157	M5 x .8 x 6 mm	**477-173**	M6 x 1.00 x 35 mm
477-158	M5 x .8 x 8 mm	**477-174**	M6 x 1.00 x 45 mm
477-159	M5 x .8 x 10 mm	**477-175**	M8 x 1.25 x 10 mm
477-160	M5 x .8 x 12 mm	**477-176**	M8 x 1.25 x 16 mm
477-161	M5 x .8 x 16 mm	**477-177**	M8 x 1.25 x 20 mm
477-162	M5 x .8 x 20 mm	**477-178**	M8 x 1.25 x 25 mm
477-163	M5 x .8 x 25 mm	**477-179**	M8 x 1.25 x 30 mm
477-164	M5 x .8 x 30 mm	**477-180**	M8 x 1.25 x 50 mm
477-165	M5 x .8 x 40 mm	**477-181**	M10 x 1.50 x 16 mm
		477-182	M10 x 1.50 x 20 mm
		477-183	M10 x 1.50 x 25 mm

UNIT PACKAGE 100

Consider the advantages of moulded **NYLON** Fasteners

NYLON Fasteners - from SPAENAUR **(See page B27)**

DIN 553 ~ ISO 7434

Metric
SLOTTED HEAD SET SCREW

with CONE POINT

Material: 14H STEEL, *Plain Finish*

SPAENAUR No.	Regular (COARSE) Metric Thread Dia. x Pitch x Length	Unit Pkg. Quantity
481-495	M2 x 0.4 x 3 mm	100
481-496	M2 x 0.4 x 4 mm	100
481-496ZP Zinc Plated	M2 x 0.4 x 4 mm	100
481-472	M5 x 0.8 x 10 mm	50
481-474	M6 x 1.0 x 10 mm	50
481-475	M8 x 1.25 x 30 mm	50

Metric
SLOTTED HEAD SET SCREW

with FLAT POINT

DIN 551
~ ISO 4766

Material: A2 STAINLESS STEEL
(*Class 5.8 Steel - not to DIN)

SPAENAUR No.	Regular (COARSE) Metric Thread Dia. x Pitch x Length	Unit Pkg. Quantity
***477-061**	M1.4 x 0.3 x 3 mm	100
477-801	M3 x 0.5 x 6 mm	50
477-800	M4 x 0.7 x 5 mm	50

The following pages, B298 - B303, show many more Metric Set Screws.

B

Heat-Treated Alloy

Not Plated

45H STEEL

METRIC

DIN 916

CUP POINT

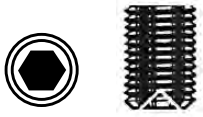
METRIC "REGULAR" (COARSE) THREAD

DIAMETER in mm	M1.4	M2	M2.5	M3	M4	M5	M6	M8	M10	M12
PITCH in mm	0.30	0.40	0.45	0.50	0.70	0.80	1.00	1.25	1.50	1.75
KEY SIZE in mm	0.71	0.89	1.3	1.5	2	2.5	3	4	5	6
LENGTH in mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
2	**481-001**					*Unit Package 50*			***481-900** with pelletized Nylon Insert	
3	**481-002**	**481-006**		**481-011**						
4	**481-003**	**481-007**		**481-012**	**481-019**					
5	**481-004**	**481-008**	**481-126**	**481-013**	**481-020**	**481-028**			*Unit Package 25*	
6		**481-009**	**481-497**	**481-014**	**481-021**	**481-029**	**481-038**			
8		**481-010**		**481-015**	**481-022**	**481-030**	**481-039**	**481-048**		
10				**481-016**	**481-023**	**481-031**	**481-040**	**481-049**	**481-056**	
12				**481-017**	**481-024**	**481-032**	**481-041**	**481-050**	**481-128**	**481-061**
15					**481-025**			**481-051**		
16				**481-123**	**481-026**	**481-034**	**481-043**	**481-052**	***481-081**	**481-062**
18					**481-431**	**481-436**				
20				**481-132**	**481-027**	**481-035**	**481-044**	**481-442**	**481-058**	**481-127**
25				**481-430**	**481-432**	**481-036**	**481-045**	**481-053**	**481-446**	**481-063**
30					**481-433**	**481-037**	**481-440**	**481-443**	**481-059**	**481-129**
35					**481-434**	**481-437**	**481-046**	**481-054**	**481-082**	**481-064**
40					**481-435**	**481-438**	**481-441**	**481-444**	**481-447**	**481-450**
45						**481-439**	**481-047**	**481-445**	**481-060**	**481-451**
50		*Unit Package 100*				**481-085**	**481-488**	**481-055**	**481-448**	**481-065**
55										
60							**481-802**	**481-084**	**481-449**	**481-066**
70									**481-494**	**481-484**
80									**481-483**	**481-452**
100										**481-089**

DIAMETER in mm	M14	M16	M20	M24
PITCH in mm	2.00	2.00	2.50	3.00
KEY SIZE in mm	6	8	10	12
LENGTH in mm	Order by *SPAENAUR* No's. below.			
16	**481-453**	**481-067**	*Unit Package 10*	
18				
20	**481-133**	**481-083**	**481-072**	
25	**481-455**	**481-068**	**481-464**	**481-077**
30	**481-456**	**481-459**	**481-073**	**481-468**
35		**481-069**	**481-465**	**481-078**
40	**481-134**	**481-470**	**481-074**	**481-469**
45		**481-070**	**481-466**	
50	**481-458**	**481-460**	**481-075**	**481-079**
55		**481-071**	**481-467**	
60		**481-135**	**481-076**	**481-080**
70		**481-462**	**481-485**	**481-489**
80	*Unit Pkg. 25*	**481-463**	**481-486**	**481-490**
100		**481-422**	**481-487**	**481-491**

DIN 916 Hex Socket Set Screws - PLATED

Yellow Zinc	Dia. x Length	Zinc Plated	Dia. x Length
481-011YZ	M3 x 3 mm	**481-012ZP**	M3 x 4 mm
481-013YZ	M3 x 5 mm	**481-014ZP**	M3 x 6 mm
481-020YZ	M4 x 5 mm	**481-039ZP**	M6 x 8 mm
481-022YZ	M4 x 8 mm	**481-043ZP**	M6 x 16 mm
481-024YZ	M4 x 12 mm	**481-048ZP**	M8 x 8 mm
481-026YZ	M4 x 16 mm	**481-056ZP**	M10 x 10 mm
481-441YZ	M6 x 40 mm	**481-451ZP**	M12 x 45 mm
481-048YZ	M8 x 8 mm	**481-065ZP**	M12 x 50 mm
481-081YZ	M10 x 16 mm		



A2 STAINLESS STEEL

METRIC "REGULAR" (COARSE) THREAD

DIN 916
~ ISO 4029

CUP POINT

DIAMETER in mm	M2	M2.5	M3	M4	M5	M6	M8	M10	M12	M16	M20
PITCH in mm	0.40	0.45	0.50	0.70	0.80	1.00	1.25	1.50	1.75	2.00	2.50
KEY SIZE in mm	0.89	1.3	1.5	2	2.5	3	4	5	6	8	10
LENGTH in mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW										
3			**482-058**								
4			**482-059**	**482-066**							
5		**482-027**	**482-060**	**482-067**	**482-070**						
6	**482-036**		**482-061**	**482-004**	**482-071**	**482-076**					
8			**482-062**	**482-005**	**482-010**	**482-016**	**482-054**				
10			**482-063**	**482-006**	**482-011**	**482-017**	**482-055**	**482-086**			
12			**482-064**	**482-007**	**482-012**	**482-018**	**482-022**	**482-087**	**482-096**		
16			**482-003**	**482-008**	**482-013**	**482-019**	**482-023**	**482-088**	**482-097**		
20			**482-065**	**482-068**	**482-014**	**482-020**	**482-024**	**482-089**	**482-098**	**482-105**	
25				**482-069**	**482-072**	**482-021**	**482-025**	**482-090**	**482-099**	**482-106**	
30				**482-042**	**482-073**	**482-077**	**482-026**	**482-091**	**482-100**	**482-107**	
35					**482-074**	**482-078**	**482-082**	**482-092**	**482-101**	**482-108**	
40					**482-075**	**482-079**	**482-083**	**482-093**	**482-102**	**482-109**	
45						**482-080**	**482-084**	**482-094**	**482-103**	**482-110**	
50						**482-081**	**482-085**	**482-095**	**482-104**	**482-111**	
	Unit Pkg. 50							*Unit Pkg. 25*		*Unit Pkg.10*	

Plastikit ‹‹Plastikit›› 804-086

DIN 916

45H STEEL, Not Plated

Priced Singly

1 Each HEX KEY (Width Across Flats)

Regular	1.5 mm
Short	2.0 mm
Arm	2.5 mm
Series	3.0 mm
	4.0 mm

10 Each of 15 Set Screw Sizes.

M3 x 0.5 x 3 mm	M4 x 0.7 x 6 mm	M6 x 1.0 x 8 mm
M3 x 0.5 x 5 mm	M4 x 0.7 x 12 mm	M6 x 1.0 x 10 mm
M3 x 0.5 x 6 mm	M5 x 0.8 x 5 mm	M6 x 1.0 x 12 mm
M4 x 0.7 x 4 mm	M5 x 0.8 x 6 mm	M8 x 1.25 x 8 mm
M4 x 0.7 x 5 mm	M6 x 1.0 x 6 mm	M8 x 1.25 x 10 mm

Refer to page B298 for full line.

Size: 1" x 2-3/4" x 4-1/2"

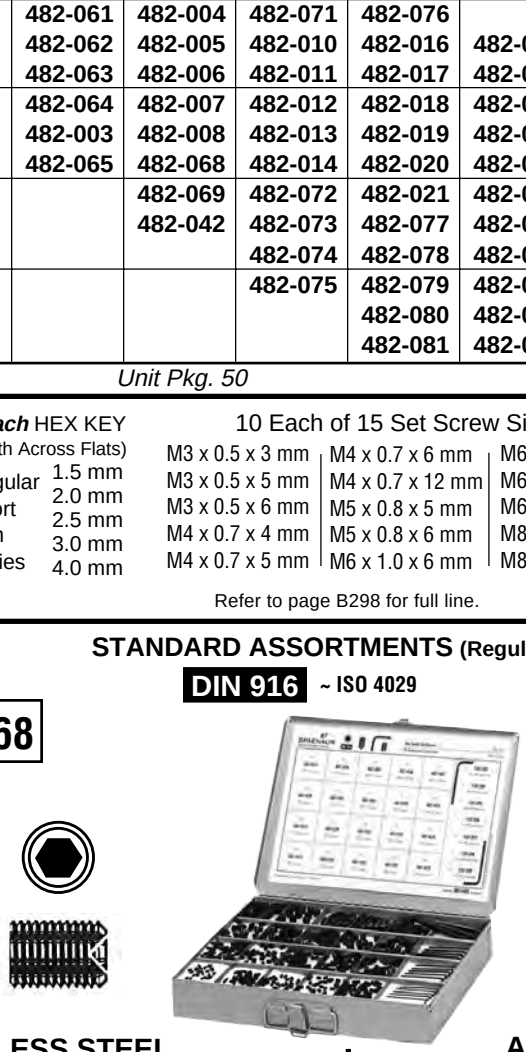
STANDARD ASSORTMENTS (Regular Size)

DIN 916 **~ ISO 4029**

ASSORTMENT ASSORTIMENT 805-468

METRIC
Hex Socket Set Screws

CUP POINT



ASSORTMENT ASSORTIMENT 805-405

METRIC
Hex Socket Set Screws

CUP POINT

A2 STAINLESS STEEL
20 Sizes - 400 Pieces
(Plus Alloy Steel Hex Keys)
Diameters M4 to M8
Regular Coarse Thread

ALLOY STEEL - Not Plated
Total Contents - 464 Pieces
Has 20 Set Screw sizes, plus 7 Hex Key sizes.
Contains Metric Coarse Thread
- M3 to M12 diameters -

Priced Singly

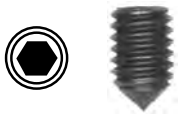
Shipping Weight: 2.72 kg (6 lbs.)

REGULAR SIZE welded steel drawer with hinged lid and scooped bins, finished in grey enamel. Fits the Slide Racks shown on page A2.

Shipping Weight: 3.06 kg (6-3/4 lbs.)

B

DIN 914



CONE POINT

45H STEEL

Heat-Treated Alloy
Not Plated

METRIC "REGULAR" (COARSE) THREAD

DIAMETER in mm	M1.4	M2	M3	M4	M5	M6	M8	M10	M12	M14
PITCH in mm	0.30	0.40	0.50	0.70	0.80	1.00	1.25	1.50	1.75	2.00
KEY SIZE in mm	0.71	0.89	1.5	2	2.5	3	4	5	6	6
LENGTH in mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
2										
3			481-241							
4			481-242	481-248						
5		481-101	481-103	481-106	481-256					
6			481-243	481-124	481-109	481-264				
8		481-102	481-244	481-249	481-257	481-112	481-273			
10			481-104	481-250	481-258	481-130	481-115	481-281		
12			481-245	481-107	481-110	481-265	481-274	481-282	481-294	
15						481-113				
16			481-105	481-251	481-259	481-266	481-116	481-125	481-119	481-307
18									481-295	
20			481-246	481-108	481-260	481-267	481-131	481-283	481-296	481-308
22				481-252						
25			481-247	481-253	481-111	481-268	481-275	481-284	481-297	481-309
30				481-254	481-261	481-114	481-276	481-285	481-298	481-310
35				481-482	481-262	481-269	481-117	481-286	481-299	481-311
40				481-255	481-263	481-270	481-277	481-287	481-300	481-312
45						481-271	481-278	481-288	481-301	
50						481-272	481-279	481-289	481-302	481-313
55								481-290	481-303	
60							481-280	481-291	481-304	481-314
70								481-292	481-305	481-315
80								481-293	481-306	
	UNIT PACKAGE 100				*UNIT PACKAGE 50*			*UNIT PACKAGE 25*		

DIAMETER in mm	M16	M20	M24
PITCH in mm	2.00	2.50	3.00
KEY SIZE in mm	8	10	12
LENGTH in mm	Order by *SPAENAUR* No's. below.		
16	481-120		
18			
20	481-316	481-121	
22			
25	481-317	481-327	481-122
30	481-318	481-328	481-479
35	481-319	481-329	
40	481-320	481-330	
45	481-321	481-331	
50	481-322	481-332	
55	481-323		
60	481-324	481-333	
70	481-325	481-334	
80	481-326	481-335	481-481
	UNIT PACKAGE 10		

DIN 914 45H STEEL - Set Screws - Plated

Yellow Zinc	Dia. x Length	Pkg. Qty.	Yellow Zinc	Dia. x Length	Pkg. Qty.
481-104YZ	M3 x 10 mm	100	481-258YZ	M5 x 10 mm	50
481-249YZ	M4 x 8 mm	100	481-115YZ	M8 x 10 mm	50
481-107YZ	M4 x 12 mm	100	Zinc Plated		
481-251YZ	M4 x 16 mm	100	481-107ZP	M4 x 12 mm	100
481-257YZ	M5 x 8 mm	50			

DIN 914 A2 STAINLESS STEEL

DIAMETER in mm	M4	M5	M6	M8	M12
PITCH in mm	0.70	0.80	1.00	1.25	1.75
KEY SIZE in mm	2	2.5	3	4	6
LENGTH in mm	*SPAENAUR* NUMBERS LISTED BELOW				
6	482-031	482-028			
8	482-032	482-037	482-043	482-056	
10	482-033	482-038	482-044	482-057	
12	482-034	482-039	482-045	482-049	482-029
14			482-030		
16	482-035	482-040	482-046	482-050	
20		482-041	482-047	482-051	
25	*UNIT PACKAGE 50*		482-048	482-052	*U.P. 25*
30				482-053	

CATALOG 13

FLAT POINT

45H STEEL

Heat-Treated Alloy
Not Plated

DIN 913

METRIC "REGULAR" (COARSE) THREAD

DIAMETER in mm	M3	M4	M5	M6	M8	M10	M12	M14	M16
PITCH in mm	0.50	0.70	0.80	1.00	1.25	1.50	1.75	2.00	2.00
KEY SIZE in mm	1.5	2	2.5	3	4	5	6	6	8
LENGTH in mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW.								
3	**481-336**								
4	**481-411**	**481-345**							
5	**481-337**	**481-346**	**481-357**						
6	**481-338**	**481-347**	**481-358**	**481-368**					
8	**481-339**	**481-348**	**481-359**	**481-369**	**481-380**				
10	**481-340**	**481-349**	**481-360**	**481-370**	**481-381**	**481-392**			
12	**481-341**	**481-350**	**481-361**	**481-371**	**481-382**	**481-393**	**481-405**		
16	**481-342**	**481-351**	**481-362**	**481-372**	**481-383**	**481-394**	**481-406**		**481-418**
20	**481-343**	**481-352**	**481-363**	**481-373**	**481-384**	**481-395**	**481-407**		**481-419**
25	**481-344**	**481-353**	**481-364**	**481-374**	**481-385**	**481-396**	**481-408**		**481-420**
30		**481-354**	**481-365**	**481-375**	**481-386**	**481-397**	**481-409**	**481-492**	**481-421**
35		**481-355**	**481-366**	**481-376**	**481-387**	**481-398**	**481-410**		**481-423**
40		**481-356**	**481-367**	**481-377**	**481-388**	**481-399**	**481-412**		**481-424**
45				**481-378**	**481-389**	**481-400**	**481-413**		**481-425**
50				**481-379**	**481-390**	**481-401**	**481-414**	**481-493**	**481-426**
60					**481-391**	**481-402**	**481-415**		**481-427**
70						**481-403**	**481-416**		**481-428**
80						**481-404**	**481-417**		**481-429**
	UNIT PACKAGE100		*UNIT PACKAGE 50*			*UNIT PACKAGE 25*			*U.P. 10*

Zinc Plated
481-349ZP M4 x 10 mm

Yellow Zinc Plated
481-336YZ M3 x 3 mm
481-337YZ M3 x 5 mm
481-394YZ M10 x 16 mm
481-409YZ M12 x 30 mm

A2 Stainless Steel
482-112 M8 x 30 mm

Hex Socket Set Screws Alloy Steel Not Plated

Hardness of Socket Set Screws - Rc-28-34

BRASS AND NYLON TIPPED

METRIC "REGULAR" (COARSE) THREAD

Thread Dia.	M4		M6		M8		M10	
Tip Material	BRASS	NYLON	BRASS	NYLON	BRASS	NYLON	BRASS	NYLON
Length in mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW.							
4 mm	**488-400**	**488-416**						
6 mm	**488-401**	**488-417**	**488-404**	**488-420**	*UNIT PACKAGE QUANTITY 25*			
8 mm	**488-402**	**488-418**	**488-405**	**488-421**	**488-408**	**488-424**		
10 mm	**488-403**	**488-419**	**488-406**	**488-422**	**488-409**	**488-425**	**488-412**	**488-428**
12 mm			**488-407**	**488-423**	**488-410**	**488-426**	**488-413**	**488-429**
16 mm					**488-411**	**488-427**	**488-414**	**488-430**
25 mm	*UNIT PACKAGE QUANTITY 50*						**488-415**	**488-431**

Metric Hex Socket Set Screw

Regular Coarse Thread

SPAENAUR No.
482-114
M5 x 0.80 x 6 mm

A2 Stainless Steel (Non-Passivated) with NYLON TIP

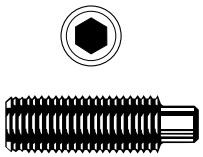
Unit Pkg. Quantity 50

B

Heat-Treated Not Plated

ALLOY STEEL

Metric Grade 45H



DIN 915

HEX SOCKET SET SCREWS
with DOG POINT

Metric Sizes

ISO Standard Threads

Metric "Regular" (Coarse) Thread

DIAMETER in mm	M3	M4	M5	M6	M8	M10	M12	M16	M20	M24
PITCH in mm	0.50	0.70	0.80	1.00	1.25	1.50	1.75	2.00	2.50	3.00
KEY SIZE in mm	1.5	2	2.5	3	4	5	6	8	10	12
LENGTH in mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
2										
3										
4	**481-136**	**481-184**								
5	**481-137**	***481-142**								
6	**481-138**	**481-143**	**481-148**	**481-154**						
8	**481-139**	**481-144**	**481-149**	**481-155**	**481-161**					
10	**481-140**	**481-145**	**481-150**	**481-156**	**481-162**	**481-168**				
12	**481-141**	**481-146**	**481-151**	**481-157**	**481-163**	**481-169**	**481-174**			
16	**481-181**	**481-147**	**481-152**	**481-158**	**481-164**	**481-170**	**481-175**	**481-179**		
20	**481-182**	**481-185**	**481-153**	**481-159**	**481-165**	**481-205**	**481-176**	**481-220**	**481-229**	
25	**481-183**	**481-186**	**481-190**	**481-160**	**481-166**	**481-171**	**481-177**	**481-180**	**481-230**	**481-240**
30		**481-187**	**481-191**	**481-195**	**▲481-167**	**481-206**	**481-178**	**481-221**	**481-231**	**481-476**
35		**481-188**	**481-192**	**481-196**	**481-200**	**481-172**	**481-213**	**481-222**	**481-232**	
40		**481-189**	**481-193**	**481-197**	**481-201**	**481-207**	**481-214**	**481-223**	**481-233**	**481-477**
45				**481-198**	**481-202**	**481-208**	**481-215**	**481-224**	**481-234**	
50				**481-199**	**481-203**	**481-173**	**481-216**	**481-225**	**481-235**	**481-478**
55										
60					**481-204**	**481-209**	**481-217**	**481-226**	**481-236**	
70						**481-210**	**481-218**	**481-227**	**481-237**	
80						**481-211**	**481-219**	**481-228**	**481-238**	
100						**481-212**	**481-454**	**481-498**	**481-239**	
	UNIT PACKAGE 100				*UNIT PACKAGE 50*				*UNIT PACKAGE 10*	

***481-142YZ** Yellow Zinc Plated **▲481-800** A2 Stainless Steel

Shipping weight: 2.72 kg. (6 lbs.)
Priced Singly

ASSORTMENT / ASSORTIMENT 805-490

Grade 45H
ALLOY STEEL - Not Plated

METRIC "REGULAR" (COARSE) THREAD

HEX SOCKET SET SCREWS

with DOG POINT

Style
DIN 915

24 Sizes — 500 Pieces
From M3 x 4 mm to M10 x 16 mm

REGULAR SIZE grey enamelled STEEL Drawer has "Scooped" bins.
Drawer fits Slide Racks shown on page A2.

CATALOG 13

B

STEEL
Not Plated

METRIC

SQUARE HEAD SET SCREWS
with Short Dog Point

Property Class 8.8

DIN 479

Regular (COARSE) Metric Thread

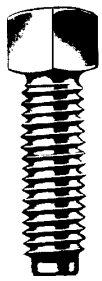
DIAMETER in mm	M5	M6	M8	M10	M12	M16	M20	M24	M27
PITCH in mm	0.80	1.00	1.25	1.50	1.75	2.00	2.50	3.00	3.00
LENGTH in mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
8	487-028								
10	487-001	487-009	487-050						
12		487-010	487-019						
15									
16	487-003	487-011	487-020	487-051					
20	487-004	487-012	487-021	487-032	487-060				
25	487-005	487-013	487-022	487-033	487-041				
30	487-006	487-014	487-023	487-034	487-061				
35	487-007	487-015	487-024	487-035	487-042				
40	487-008	487-016	487-025	487-036	487-062	487-046	487-077		
45		487-093	487-026	487-056	487-043	487-068			
50		487-017	487-027	487-037	487-063	487-047	487-078	487-086	
55			487-052				487-079		
60		487-018	487-029	487-038	487-044	487-048	487-080		
70			487-053	487-039	487-045	487-071	487-081	487-088	
80			487-030	487-058	487-064	487-072	487-082	487-089	
90			487-054	487-040	487-065	487-073	487-083		
100			487-031	487-059	487-066	487-074	487-084	487-091	
110						487-075			
120					487-067	487-076	487-085		
140								487-092	
	UNIT PACKAGE 100		*UNIT PACKAGE 50*		*UNIT PACKAGE 25*		*UNIT PACKAGE 10*		*UNIT PKG. 1*

ASSORTMENT ASSORTIMENT 805-495

Shipping weight 7.26 kg. (16 lbs.)

Metric

SQUARE HEAD SET SCREWS
with Short Dog Point



STEEL Property Class 8.8
Not Plated

24 Popular Sizes — 500 Pieces
M5 x 10 mm to M16 x 40 mm

Regular (COARSE) Metric Thread

DIN 479

REGULAR SIZE Steel Drawer is finished in Grey enamel and has “scooped” bins.

Drawer fits Slide Racks shown on page A2.

CATALOG 13

B

BRITISH THREADS PER INCH

BOLT DIA (BSW, BSF)	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"	3/4"	7/8"	1"
BSW Thread/Inch	24	20	18	16	14	12	12	11	10	9	8
BSF Thread/Inch	32	26	22	20	18	16	16	14	12	11	10

HIGH TENSILE STEEL - HEAT TREATED - PLAIN FINISH

Full or Partial Thread, our option.

Threads

BA - British Association (Standard)
BSW - British Standard Whitworth (Coarse)
BSF - British Standard Fine

Full or Partial Thread, our option.

BRITISH HEXAGON HEAD CAP SCREWS

ORDER BY *SPAENAUR NUMBERS* LISTED BELOW

SIZE		*SPAENAUR No.*	
DIA.	LENGTH	BSW	BSF
1/4"	1/2"	371-100	371-134
	5/8"	371-102	—
	3/4"	371-103	371-135
	1"	371-104	371-136
	1-1/4"	371-105	371-137
	1-1/2"	371-106	371-138
	2"	371-107	371-139
	2-1/2"	371-173	—
	3"	371-101	—
5/16"	1/2"	371-108	371-140
	3/4"	371-189	371-141
	1"	371-109	371-142
	1-1/4"	—	371-143
	1-1/2"	371-110	371-144
	1-3/4"	—	371-145
	2"	371-111	371-146
	2-1/2"	371-171	—
	3"	371-174	371-147
3/8"	1"	371-113	371-149
	1-1/4"	371-114	371-150
	1-1/2"	371-115	371-151
	1-3/4"	—	371-152
	2"	371-116	371-153
	2-1/2"	371-117	—
	3"	371-118	371-154
7/16"	1"	371-119	371-155
	1-1/4"	—	371-156
	1-1/2"	371-120	371-157
	2"	371-121	371-158
1/2"	3/4"	371-122	371-159
	1"	371-169	371-160
	1-1/4"	371-175	371-161
	1-1/2"	371-112	371-162
	1-3/4"	371-123	—
	2"	371-124	371-170
	2-1/2"	371-125	371-163
	3"	371-126	371-164
9/16"	1"	371-127	371-165
	1-1/2"	371-133	—
	2"	371-191	—
	3"	371-128	—
5/8"	1-1/4"	371-129	—
	1-1/2"	371-172	371-177
	2"	371-130	371-176
	2-1/2"	371-131	—
	3"	371-132	371-168

BRITISH HEX SOCKET CAP SCREWS

ORDER BY *SPAENAUR NUMBERS* LISTED BELOW

SIZE		*SPAENAUR No.*		
DIA.	LENGTH	BA	BSW	BSF
#2	1/4"	371-018	—	—
	3/8"	371-019	—	—
	1/2"	371-020	—	—
#4	1/2"	†371-186	—	—
1/4"	1/2"	—	—	371-022
	5/8"	—	—	—
	3/4"	—	371-004	371-023
	1"	—	371-005	371-024
	1-1/4"	—	371-180	—
	1-1/2"	—	371-006	371-025
	1-3/4"	—	371-179	—
	2"	—	371-007	371-403
5/16"	3/4"	—	371-001	—
	1"	—	371-008	371-026
	1-1/2"	—	•371-009	371-027
	2"	—	371-010	371-028
	2-1/2"	—	—	371-029
3/8"	1"	—	371-011	371-030
	1-1/4"	—	371-181	—
	1-1/2"	—	371-012	371-031
	1-3/4"	—	371-183	—
	2"	—	371-002	371-032
	2-1/2"	—	371-190	371-033
	3"	—	371-003	—
1/2"	1"	—	371-184	371-034
	1-1/2"	—	■371-182	371-035
	1-3/4"	—	371-013	—
	2"	—	371-014	371-036
	2-1/2"	—	371-015	371-037
	3"	—	371-016	371-038
5/8"	3"	—	371-017	—

†Slotted Flat Ctsk. Machine Screw, Low Carbon Steel Plain Finish
■**371-039** Flat Head Hex Socket Cap Screw, Prop. Cl. 12.9, Plain Finish
•**371-041** Flat Head Hex Socket Cap Screw Prop. Cl. 12.9, Plain Finish

BRITISH HEX KEY SIZES

SCREW DIA (BSW, BSF)	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"
HEX KEY SIZE	5/32"	3/16"	7/32"	5/16"	5/16"	3/8"	1/2"	9/16"

BRITISH ASSOCIATION WASHERS

STEEL ZINC PLATED

SPAENAUR No.	DESCRIPTION	FOR SCREW SIZE
371-304	Flat Washer	8 BA
371-303	Flat Washer	6 BA
371-302	Flat Washer	5 BA
371-306	Internal Tooth Lockwasher	4 BA
371-305	Internal Tooth Lockwasher	2 BA
371-300	Split Lockwasher	2 BA

CATALOG 13

Threads

BA - British Association (Standard)
BSW - British Standard Whitworth (Coarse)
BSF - British Standard Fine

BRITISH HEX NUTS AND JAM NUTS

ORDER BY *SPAENAUR NUMBERS* LISTED BELOW

FOR SCREW SIZE	HEX NUTS PLAIN	HEX NUTS ZINC PLTD.	HEX JAM NUTS ZINC PLTD.
5 BA	—	**371-200ZP**	—
2 BA	—	—	**371-213ZP**
3/16" BSW	**371-402**	—	—
3/16" BSF	**371-201**	—	—
1/4" BSW	**371-214**	—	—
1/4" BSF	**371-202**	—	—
5/16" BSW	**371-215**	—	—
5/16" BSF	**371-203**	—	—
3/8" BSW	**371-216**	—	—
3/8" BSF	**371-204**	—	—
7/16" BSW	**371-217**	—	—
7/16" BSF	**371-206**	**371-206ZP**	—
1/2" BSW	**371-187**	—	—
1/2" BSF	**371-208**	**371-208ZP**	—
9/16" BSW	**371-218**	—	—
9/16" BSF	**371-207**	—	—
5/8" BSW	**371-219**	—	—
5/8" BSF	**371-205**	—	—
1" BSW	**371-210**	—	—
1-1/4" BSW	**371-220**	—	—
1-1/4" BSF	**371-209**	—	—

BRITISH SOCKET DRIVERS

1/4" DRIVE 6 POINT SOCKETS

Chrome Plated
Vanadium Steel

SPAENAUR No.	WHITWORTH SIZE
876-1093	7 BA
876-1092	6 BA
876-1091	5 BA
876-1090	4 BA
876-1089	3 BA
876-1087	1 BA
876-1086	0 BA

1/2" DRIVE 12 POINT BRITISH SOCKETS

Chrome Plated
Vanadium Steel

SPAENAUR No.	WHITWORTH SIZE
876-1095	3/16"
876-1096	1/4"
876-1097	5/16"
876-1098	3/8"
876-1099	7/16"
876-1100	1/2"
876-1101	9/16"
876-1102	5/8"
876-1103	11/16"
876-1104	3/4"

BRITISH TAPS AND DIES

HIGH SPEED STEEL (HSS)

See pages P76 to P100 for more Taps & Dies.

STRAIGHT FLUTE TAP

No. 1 STARTING TAP
No. 2 MIDDLE TAP
No. 3 FINISHING TAP

TAPS - HAND OR MACHINE

CLASS 2

SPIRAL FLUTE TAP

SPLIT ROUND DIES

Note: Taps No. 1, No. 2 & No. 3 are commonly referred to as TAPER, PLUG AND BOTTOMING TAPS

ORDER BY *SPAENAUR NUMBERS* LISTED BELOW

NOMINAL DIAMETER	THREADS BSW	THREADS BSF	#1 STARTING TAP	#2 MIDDLE TAP	#3 FINISHING TAP	SPIRAL TAP	SQUARE A/F	LENGTH OF THREAD	OVERALL LENGTH	DIES	DIE O.D.
1/8"	40	—	**874-297**	—	**874-298**	**874-1590**	2.50 mm	11 mm	48 mm	**878-006**	13/16"
5/32"	32	—	—	—	—	**874-1591**	3.15 mm	13 mm	53 mm	—	—
3/16"	24	—	**874-095**	**874-096**	**874-097**	**874-1592**	4.00 mm	16 mm	58 mm	**878-007**	13/16"
1/4"	—	26	**874-383**	—	**874-284**	—	5.00 mm	19 mm	66 mm	**878-001**	1"
1/4"	20	—	**874-390**	**874-399**	**874-391**	**874-1593**	5.00 mm	19 mm	66 mm	**878-008**	1"
5/16"	—	22	**874-385**	—	**874-286**	—	6.30 mm	22 mm	72 mm	**878-002**	1"
5/16"	18	—	**874-392**	**874-389**	**874-393**	**874-1594**	6.30 mm	22 mm	72 mm	**878-009**	1"
3/8"	—	20	**874-384**	—	**874-288**	—	8.00 mm	24 mm	80 mm	**878-003**	1"
3/8"	16	—	**874-394**	**874-388**	**874-395**	**874-1595**	8.00 mm	24 mm	80 mm	**878-010**	1"
7/16"	—	18	**874-289**	—	**874-290**	—	6.30 mm	25 mm	85 mm	**878-004**	1-5/16"
7/16"	14	—	**874-396**	**874-379**	**874-397**	—	6.30 mm	25 mm	85 mm	**878-011**	1-5/16"
1/2"	—	16	**874-381**	—	**874-382**	—	7.50 mm	29 mm	89 mm	**878-005**	1-5/16"
1/2"	12	—	**874-398**	**874-299**	**874-006**	**874-1596**	7.50 mm	29 mm	89 mm	**878-012**	1-5/16"
5/8"	11	—	**874-453**	**874-461**	**874-454**	**874-1597**	10.00 mm	32 mm	102 mm	**878-013**	2"
3/4"	10	—	**874-455**	**874-462**	**874-456**	**874-1598**	11.20 mm	37 mm	112 mm	**878-014**	2"
7/8"	9	—	**874-457**	**874-463**	**874-458**	—	12.50 mm	38 mm	118 mm	**878-015**	2"
1"	8	—	**874-459**	**874-464**	**874-460**	**874-1599**	14.00 mm	45 mm	130 mm	**878-016**	2"

DOUBLE BOX BRITISH WRENCH

with deep offset

SPAENAUR No.	WHITWORTH SIZE	LENGTH (mm)
876-1071	1/8" x 3/16"	195
876-1072	3/16" x 1/4"	210
876-1073	1/4" x 5/16"	225
876-1074	3/8" x 7/16"	285
876-1075	7/16" x 1/2"	305
876-1076	1/2" x 9/16"	325
876-1078	9/16" x 5/8"	345
876-1079	5/8" x 3/4"	370
876-1080	11/16" x 13/16"	400
876-1081	7/8" x 1"	440
876-1082	1-1/8" x 1-1/4"	535

All Wrenches Priced Singly.

DOUBLE OPEN-END WRENCH

SPAENAUR No.	WHITWORTH SIZE	LENGTH (mm)
876-1034	1/16" x 3/32"	121
876-1035	3/32" x 1/8"	138
876-1036	1/8" x 3/16"	157
876-1037	3/16" x 1/4"	172
876-1038	1/4" x 5/16"	190
876-1039	5/16" x 3/8"	205
876-1040	3/8" x 7/16"	236
876-1041	7/16" x 1/2"	250
876-1042	1/2" x 9/16"	266
876-1043	9/16" x 5/8"	280
876-1044	5/8" x 3/4"	302
876-1046	11/16" x 13/16"	328
876-1045	3/4" x 7/8"	328
876-1047	7/8" x 1"	360
876-1111	1" x 1-1/8"	400
876-1105	1-1/8" x 1-1/4"	450

COMBINATION BOX AND OPEN-END BRITISH WRENCH

SPAENAUR No.	WHITWORTH SIZE	LENGTH (mm)
876-1049	1/8"	138
876-1050	3/16"	158
876-1051	1/4"	185
876-1052	5/16"	210
876-1053	3/8"	245
876-1054	7/16"	280

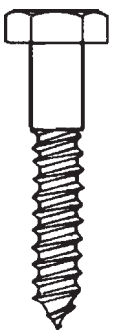
SPAENAUR No.	WHITWORTH SIZE	LENGTH (mm)
876-1055	1/2"	305
876-1056	9/16"	340
876-1057	5/8"	370
876-1058	11/16"	390
876-1059	3/4"	412

18-8 STAINLESS STEEL

(Passivated)

LAG SCREWS

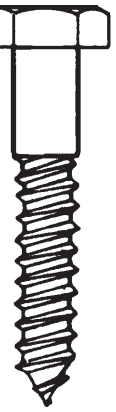
HEXAGON HEAD



DIA.	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"
LENGTH	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW					
1"	**038-800**	*UNIT PKG. 100*		*UNIT PKG. 25*	*UNIT PACKAGE 10*	
1-1/4"	**038-801**					
1-1/2"	**038-802**	**038-807**	**038-812**			
2"	**038-803**	**038-808**	**038-813**	**038-820**		
2-1/2"	**038-804**	**038-809**	**038-814**	**038-821**		
3"	**038-805**	**038-810**	**038-815**	**038-822**		
3-1/2"	*UNIT PKG. 50*		**038-816**	**038-823**		
4"	**038-806**	**038-811**	**038-817**	**038-824**		
5"			**038-818**			
6"			**038-819**			
7"						
8"						

CATALOG 13

STEEL
LAG SCREWS
***HEXAGON HEAD**



NOT PLATED

P.C. 038

*Hexagon head replaces square head. We reserve the option to substitute square head, until stock is depleted.

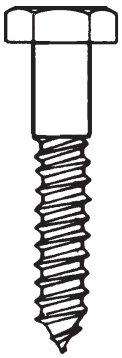
DIA.	1/4"	5/16"	3/8"	1/2"	5/8"	3/4"
LENGTH	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW					
1"	LB-1		*UNIT PKG. 100*	*UNIT PKG. 50*	*UNIT PACKAGE 25*	
1-1/4"	LB-2	LB-11				
1-1/2"	LB-3	LB-12	LB-22			
1-3/4"	LB-4	LB-13				
2"	LB-5	LB-14	LB-23	LB-32		
2-1/2"	LB-6	LB-15	LB-24	LB-33	LB-43	
3"	LB-7	LB-16	LB-25	LB-34	LB-44	
3-1/2"	LB-8	LB-17	LB-26	LB-35	LB-45	
4"	LB-9	LB-18	LB-27	LB-36	LB-46	LB-52
4-1/2"		LB-19	LB-28	LB-37		
5"		LB-20	LB-29	LB-38	LB-47	LB-53
5-1/2"						
6"		LB-21	LB-30	LB-39	LB-48	LB-54
7"			LB-31	LB-40	LB-49	LB-55
8"			LB-58	LB-41	LB-50	LB-56
9"						
10"				LB-42	LB-51	LB-57
11"					*UNIT PACKAGE 1*	
12"				038-001		

STEEL
LAG SCREWS
HEXAGON HEAD

ZINC PLATED

1"			*UNIT PKG. 100*	*UNIT PKG. 50*	*UNIT PACKAGE 25*	
1-1/4"						
1-1/2"	038-148					
1-3/4"						
2"			038-147	038-151		
2-1/2"			038-002			
3"	038-149			038-150		
3-1/2"						
4"	038-145					
4-1/2"						
5"	038-146					
6"						
7"						

STEEL
LAG SCREWS
HEXAGON HEAD



HOT GALVANIZED Finish

For maximum protection

1"	038-100	*UNIT PACKAGE 100*		*UNIT PKG. 50*	*UNIT PKG. 25*	*UNIT PKG. 5*
1-1/4"	038-101					
1-1/2"	038-102	038-108	038-116			
1-3/4"						
2"	038-103	038-109	038-117	038-125		
2-1/2"	038-104	038-110	038-118	038-126		
3"	038-105	038-111	038-119	038-127	038-134	
3-1/2"	038-106	038-112	038-120	038-128		
4"	038-107	038-113	038-121	038-129	038-135	038-139
4-1/2"		038-143	038-144			
5"		038-114	038-122	038-130	038-136	038-140
5-1/2"						
6"		038-115	038-123	038-131	038-137	038-141
7"						
8"			038-124	038-132	038-138	038-142
9"						
10"				038-133		
12"					*UNIT PKG. 1*	

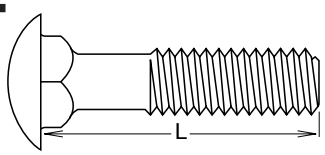
See page B89 for RSS Lags screws.

See page C160 for Lag Screw Expansion Shields.

B

STEEL

LOW CARBON
NOT PLATED



ROUND HEAD SQUARE NECK CARRIAGE BOLTS

MINIMUM THREAD LENGTH
Up to 6" long: Twice dia. plus 1/4"
Over 6" long: Twice dia. plus 1/2"

ASME/ANSI B18.5

THREAD CLASS 2A FIT

LENGTH IS MEASURED UNDER HEAD TO END

DIA.	8	10	10	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"
THD.	32	24	32	20	18	16	14	13	11	10
LGTH.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
7/16					*UNIT PACKAGE 100*			*UNIT PKG. 50*		
1/2				**CB-53**						
5/8										
3/4		**CB-1**		**CB-4**	**CB-59**		**CB-61**			
7/8										
1		**CB-2**		**CB-5**	**CB-12**	**CB-20**	**CB-56**			
1-1/4		**CB-2A**		**CB-50**	**014-079**		**CB-40**			
1-1/2		**CB-3**		**■CB-6**	**CB-13**	**CB-21**	**CB-41**	**CB-30**	**CB-57**	
1-3/4		**014-072**								
2		**CB-3A**		**CB-7**	**CB-14**	**CB-22**	**CB-42**	**CB-31**	**CB-60**	
2-1/4				**014-150**						
2-1/2		**014-080**		**CB-8**	**CB-15**	**CB-23**	**CB-43**	**CB-32**	**014-068**	
3				**CB-9**	**CB-16**	**CB-24**	**CB-44**	**CB-33**		
3-1/2					**CB-51**	**CB-54**			**014-069**	**014-078**
4				**▲CB-10**	**CB-17**	**CB-25**	**CB-45**	**CB-34**		
4-1/2						**014-082**		**014-065**		
5				**CB-11**	**CB-18**	**CB-26**	**CB-46**	**CB-35**		
5-1/2					**CB-52**					
6		*UNIT PACKAGE 100*		**CB-62**	**CB-19**	**CB-27**	**CB-47**	**014-036**		
6-1/2				**014-066**				*UNIT PACKAGE 25*		
7						**CB-28**	**014-075**	**CB-37**	**014-071**	
8						**CB-29**	**014-076**	**CB-38**	**CB-58**	
10		*UNIT PACKAGE 50*						**CB-39**		
11						**014-083**				
14							*UNIT PACKAGE 1*		**014-073**	

■014-651 Naval Bronze *(U.P. 25)* **▲014-650** Naval Bronze *(U.P. 25)*

STEEL - Zinc Plated

3/8	**014-001**									
1/2				**014-168**						
5/8	**014-081**									
3/4		**CB-1ZP**		*UNIT PACKAGE 100*						
7/8		**B-1050**								
1				**014-154**	**014-165**	**014-159**				
1-1/4				**014-157**				**014-002**		
1-1/2				**014-152**	**014-164**	**014-163**			**014-037**	
1-3/4				**014-035**		**014-162**				
2				**014-155**		**014-149**				
2-1/4					**014-153**					
2-1/2				**014-166**						
3				**014-158**						
3-1/2				**014-156**	**†014-151**					
4				**CB-10ZP**						
4-1/2						*UNIT PACKAGE 50*			*UNIT PACKAGE 25*	
5										
5-1/2					**CB-52ZP**					
6					**014-167**					
7										

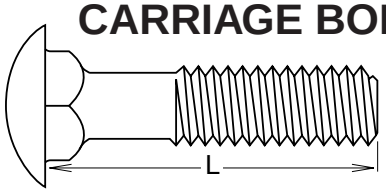
†Fully Threaded

CATALOG 13

STEEL
GRADE 5
NOT PLATED

BOLT LENGTH IS MEASURED UNDER HEAD TO END.

ROUND HEAD SQUARE NECK CARRIAGE BOLTS



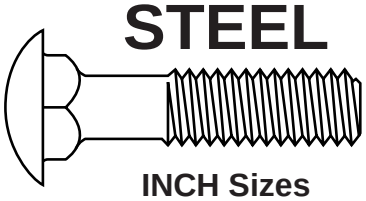
ASME/ANSI B18.5

THREAD CLASS 2A FIT

Minimum Thread Length
Up to 6" long: Twice dia. plus 1/4"
Over 6" long: Twice dia. plus 1/2"

DIAMETER	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"
THREAD	20	18	16	14	13	11	10
LENGTH	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW						
	UNIT PACKAGE 100			*UNIT PACKAGE 50*		*UNIT PACKAGE 25*	
1/2"							
5/8"		014-209					
3/4"	014-200	014-210	014-221				
7/8"		014-211	014-222				
1"	014-201	014-212	014-223	014-235	014-244		
1-1/4"	014-202	014-213	014-224	014-236	014-245		
1-1/2"	014-203	014-214	014-225	014-237	014-246	014-278	
1-3/4"	014-204	014-215	014-226	014-238	014-247	014-253	*UNIT PACKAGE 10*
2"	014-205	014-216	014-227	014-239	014-248	014-254	
2-1/4"	014-206	014-217	014-228	014-240	014-249	014-255	
2-1/2"	014-207	014-218	014-229	014-241	014-250	014-256	014-269
2-3/4"		014-219	014-230	014-242	014-251	014-257	
3"		014-220	014-231	014-243	014-252	014-258	014-270
3-1/4"			014-232			014-259	
3-1/2"			014-233			014-260	
4"			014-234			014-261	014-271
4-1/2"						014-262	014-272
5"						014-263	014-273
5-1/2"						014-264	
6"						014-265	014-274
7"						014-266	
8"			*UNIT PACKAGE 1*			014-267	014-276
9"						014-268	
10"							

Hot Galvanized STEEL



INCH Sizes

CARRIAGE BOLTS

MINIMUM THREAD LENGTH
Up to 6" long: Twice dia. plus 1/4"
Over 6" long: Twice dia. plus 1/2"

ASME/ANSI B18.5

For Galvanized Nuts, see page C6.

(Tapped oversize nuts must be used with galvanized Carriage Bolts.)

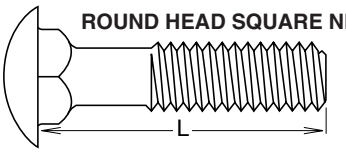
DIA.	1/4"	5/16"	3/8"	1/2"	5/8"
THD.	20	18	16	13	11
LENGTH	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW				
	UNIT PACKAGE 100		*UNIT PACKAGE 50*		*UNIT PKG. 25*
1	014-100	014-110			
1-1/4	014-101	014-111			
1-1/2	014-102	014-112	014-120		
1-3/4			014-148		
2	014-103	014-113	014-121	014-132	
2-1/2	014-104	014-114	014-122	014-133	
3	014-105	014-115	014-123	014-134	014-142
3-1/2	014-106	014-116	014-124	014-135	
4	014-107	014-117	014-125	014-136	014-143
5	014-108	014-118	014-126	014-137	014-144
6	014-109	014-119	014-127	014-138	014-145
6-1/2			014-128	*UNIT PACKAGE 10*	
7			014-129	014-139	
8			014-130	014-140	014-146
10			014-131	014-141	014-147

B

STAINLESS STEEL 18-8

Carriage Bolt

ROUND HEAD SQUARE NECK



THREAD CLASS 2A FIT

MINIMUM THREAD LENGTH:
Up to 6" long: Twice dia. plus 1/4"
Over 6" long: Twice dia. plus 1/2"

Length shown is under head to end in inches.

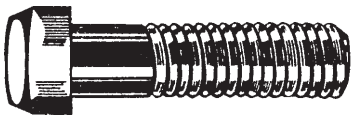
DIA.	8	10	10	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"
THD.	32	24	32	20	18	16	14	13	11
LGTH.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
1/2				014-800					
5/8							*UNIT PACKAGE 50*		*UNIT PACKAGE 10*
3/4				014-801	014-811	014-821			
7/8									
1				014-802	014-812	014-822		014-833	
1-1/4	*UNIT PACKAGE 100*			014-803	014-813	014-823			
1-1/2				014-804	014-814	014-824		014-834	
1-3/4				014-805	014-815	014-825			
2				014-806	014-816	014-826		014-835	
2-1/4					014-817				
2-1/2				014-807	014-818	014-827		014-836	014-843
3				014-808	014-819	014-828		014-837	
3-1/2				014-809	014-820	014-829		014-838	
4				014-810		014-830		014-839	014-842
4-1/2									014-844
5						014-831		014-840	
5-1/2									
6						014-832		014-841	
6-1/2									
7			*UNIT PACKAGE 50*				*UNIT PACKAGE 25*		

STEEL Square Head Bolt

ASME/ANSI B18.2.1

LOW CARBON / HEAT TREATED / STRESS RELIEVED

MINIMUM TENSILE STRENGTH (PSI)
All sizes 55,000 PSI.



NOT PLATED

MINIMUM THREAD LENGTH:
Up to 6" long: Twice dia. plus 1/4"
Over 6" long: Twice dia. plus 1/2"

Length shown is under head to end in inches.

P.C. 042

COARSE THREAD (U.N.C. - U.S.S.)

UNIFIED STANDARD CLASS 2A FIT
(NOT AVAILABLE IN FINE THREAD)

DIA.	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	7/8"	1"
THD.	20	18	16	14	13	11	10	9	8
LGTH.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
1/2	MB-818			*UNIT PACKAGE 50*		*UNIT PACKAGE 25*		*UNIT PACKAGE 20*	
5/8									
3/4	MB-819	MB-826	MB-831						
7/8									
1		MB-827	MB-832	MB-838	MB-841				
1-1/4			MB-833	MB-839					
1-1/2		MB-805	MB-807	MB-809	MB-801	MB-843			
1-3/4									
2	MB-823	MB-829	MB-800	MB-810	MB-802	MB-814	MB-844		
2-1/4			MB-835						
2-1/2	MB-824	MB-806			MB-842	MB-853	042-002		
2-3/4									
3		MB-830	MB-808	MB-811	MB-803	MB-815	MB-845	MB-847	
3-1/2		MB-851	MB-852		042-006				
4				MB-812	MB-804	MB-816	MB-846	MB-848	
4-1/2			042-003		042-005				
5					MB-813	MB-817		MB-849	MB-850
5-1/2					042-004			*U.P. 15*	*U.P. 10*

CATALOG 13

For Nuts See Pages C2 to C4.

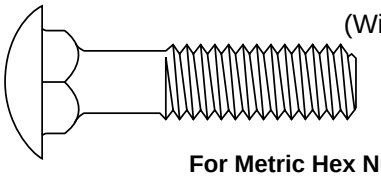
METRIC
Carriage Bolts

DIN 603

LOW CARBON
STEEL
Not Plated

Regular (Coarse)
METRIC THREAD

ROUND HEAD SQUARE NECK
(Without Nuts)



For Metric Hex Nuts, see pages C9 to C11.

Dia. mm	M6	M8	M10	M12	M14	M16	M20
Pitch mm	1.00	1.25	1.50	1.75	2.00	2.00	2.50
Lgth. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW						
25	**015-000**			*UNIT PACKAGE 25*		*UNIT PACKAGE 10*	
30	**015-001**	**015-007**					
40	**015-002**	**015-008**	**015-013**				
50	**015-003**	**015-009**	**015-014**	**015-020**			
60	**015-004**	**015-010**	**015-015**				
70	**015-005**	**015-011**	**015-016**	**015-022**			
80	**015-006**	**015-012**	**015-017**		**015-031**	**015-034**	
90			**015-018**	**015-024**			
100			**015-019**		**015-032**	**015-035**	
120	*UNIT PACKAGE 50*			**015-027**	**015-033**	**015-036**	

DIN 603-Mu

ROUND HEAD SQUARE NECK
Metric Carriage Bolt
with Hex Nut

Bolt **DIN 603**
Nut **DIN 555**

Property Class 3.6 or 4.6 Steel
(Our Option)
Plain Finish

Regular (Coarse)
METRIC THREAD

Tensile strength Rm: min. 400 N/mm² 58000 psi

Dia. mm	M5	M6	M8	M10	M12	M16	M20
Pitch mm	0.8	1.00	1.25	1.50	1.75	2.00	2.50
Lgth. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW						
16	**015-050**	**015-063**	**015-079**		*U.P. 25*		
20	**015-051**	**015-064**	**015-080**	**015-095**		*UNIT PACKAGE 10*	
25	**015-052**	**015-065**	**015-081**	**015-096**			
30	**015-053**	**015-066**	**015-082**	**015-097**	**015-112**	**015-135**	
35	**015-054**	**015-067**	**015-083**	♠**015-098**	**015-113**		
40	***015-055**	**015-068**	**015-084**	**015-099**	**015-114**	**015-137**	
45	**015-056**	**015-069**	**015-085**	**015-100**	**015-115**	**015-138**	
50	**015-057**	**015-070**	**015-086**	**015-101**	**015-116**	**015-139**	
55	**015-058**	■**015-071**	**015-087**	**015-102**	**015-117**	**015-140**	
60	**015-059**	**015-072**	**015-088**	**015-103**	**015-118**	**015-141**	
65	**015-060**	**015-073**	**015-089**	**015-104**	**015-119**	**015-142**	
70	**015-061**	**015-074**	**015-090**	**015-105**	**015-120**	**015-143**	
75				**015-106**	**015-121**	**015-144**	
80	†**015-062**	**015-076**	**015-092**	**015-107**	**015-122**	◆**015-145**	
90		**015-077**	**015-093**	**015-108**	**015-123**	**015-146**	**015-158**
100		**015-078**	**015-094**	**015-109**	**015-124**	**015-147**	
110				**015-110**	**015-125**	**015-148**	
120				**015-111**	**015-126**	**015-149**	
130					**015-127**	**015-150**	
140	*UNIT PACKAGE 50*				**015-128**	**015-151**	
150					**015-129**	**015-152**	
160					**015-130**	**015-153**	
170					•**015-131ZP**	**015-154**	
180		*PRICED SINGLY*			**015-132**	**015-155**	
190					**015-133**	**015-156**	
200					**015-134**	**015-157**	

∗**015-055ZP** Zinc Pltd. †**015-062ZP** Zinc Pltd. ■**015-071ZP** Zinc. Pltd. ♠**015-098ZP** Zinc. Pltd.
•Zinc Pltd. ◆**015-145ZP** Zinc Pltd.

More Metric Carriage Bolts on following page.

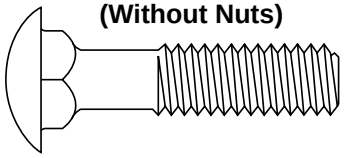
B

METRIC
Carriage Bolts

DIN 603

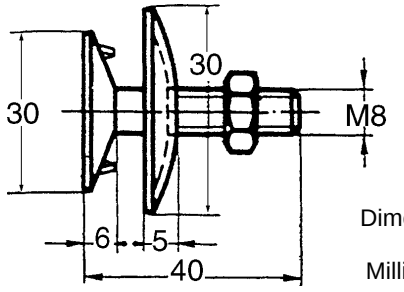
Regular (Coarse)
METRIC THREAD

ROUND HEAD SQUARE NECK
(Without Nuts)



For Metric Hex Nuts, see pages C9 to C11.

Dia. mm	M6	M8	M10	M12	M14	M16	M20
Pitch mm	1.00	1.25	1.50	1.75	2.00	2.00	2.50
Lgth. mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW						
18-8 STAINLESS STEEL							
25	**015-800**			*UNIT PACKAGE 10*			
30	**015-801**	**015-807**					
40	**015-802**	**015-808**	**015-813**				
50	**015-803**	**015-809**	**015-814**	**015-820**		**015-828**	
60	**015-804**	**015-810**	**015-815**	**015-821**		**015-829**	
70	**015-805**	**015-811**	**015-816**	**015-822**		**015-830**	
80	**015-806**	**015-812**	**015-817**	**015-823**		**015-831**	
90			**015-818**	**015-824**			
100			**015-819**	**015-826**		**015-832**	
120	*UNIT PACKAGE 20*			**015-827**		**015-833**	
BRASS							
25	**015-500**				*UNIT PACKAGE 10*		
30	**015-501**	**015-507**					
40	**015-502**						
50	**015-503**	**015-509**		**015-520**			
60	**015-504**		**015-515**				
70	**015-505**	**015-511**	**015-528**	**015-522**			
80	**015-506**	**015-512**	**015-517**				
90				**015-524**			
100			**015-519**				
120	*UNIT PACKAGE 20*			**015-527**			



All Dimensions in Millimetres

Unit Package Quantity 50

***SPAENAUR No.* 018-100**

Metric
Elevator Bolt with Domed Washer and Hex Nut

Property Class 4.6 Steel, Zinc Plated

Regular (COARSE) Metric Thread M8 x 1.25 mm Pitch

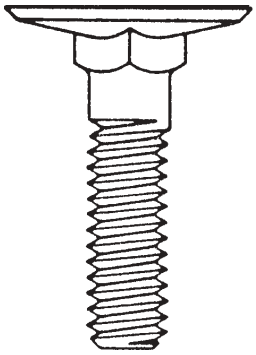
Consider the advantages of moulded NYLON Fasteners particularly in the Chemical and Electronics trades.
They're tough, Insulative, Corrosion & Vibration resistant!

NYLON Fasteners - from SPAENAUR

(See Page B27)

CATALOG 13

Steel

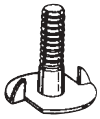


ELEVATOR BOLTS
Not Plated

LARGE HEAD
COARSE THREAD (UNC)—2A

ASME/ANSI B18.5

†**018-007** Zinc Plated



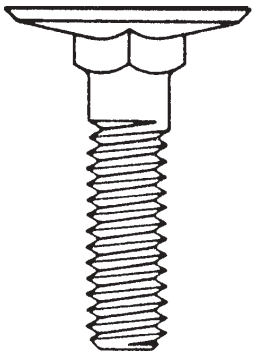
▲018-101
Fanged
Black Finish

INCH SIZES

DIA.	10	1/4"	5/16"	3/8"	1/2"	UNIT PKG. QTY.
THD.	24 UNC	20 UNC	18 UNC	16 UNC	13 UNC	
Minimum Head Dia.	0.750"	0.969"	1.188"	1.312"	1.562"	
LGTH.	ORDER BY *SPAENAUR* NUMBERS BELOW					
3/4"			**018-006** (zinc pltd.)			
1"		**B-1890**				100
1"		**▲018-101**				100
1-1/4"		**018-005**		**018-003**		100
1-1/2"		**762**	**B-793**	**†B-1284**		50
2"		**B-792**	**B-794**	**B-1285**		50
2-1/4"				**018-002**		50
2-1/2"				**018-004**		50

18-8 Stainless Steel

ELEVATOR BOLTS

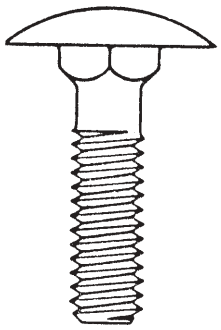


LARGE HEAD
COARSE THREAD (UNC)—2A

ASME/ANSI B18.5

3/4"		**EB-2001**				100
1"		**019-006**	**EB-2009**	**EB-2018**		50
1-1/8"			**EB-2010**			50
1-1/4"		**019-007**	**EB-2011**	**EB-2020**		50
1-1/2"		**EB-2006**	**EB-2012**	**EB-2021**		50
1-1/2"			****019-005**			50
1-3/4"				**EB-2022**		50
2"			**EB-2014**	**EB-2023**		50
2-1/4"			**EB-2015**	**EB-2024**		50
2-1/2"			**019-001**			50
			****1" head dia.**			

Steel



STEP BOLTS
Not Plated

COARSE THREAD (UNC)—2A

ASME/ANSI B18.5

DIA.	10	1/4"	5/16"	3/8"	1/2"	UNIT PKG. QTY.
THD.	24 UNC	20 UNC	18 UNC	16 UNC	13 UNC	
Minimum Head Dia.	0.625"	0.813"	1.000"	1.188"	1.563"	
3/4"						100
1-1/4"			**018-001**			50
1-1/2"		**761**	**B-499**			50
2"			**B-700**			50
3-1/2"			**B-701**			50
4-1/2"					**B-702**	25

B

STEEL Not Plated

ASME/ANSI B18.9

SAE GRADE 2

PLOW BOLTS are for use in a countersunk hole so that the heads will fit flush with the surface.

The heads are so designed to prevent the bolts from turning when the nut is applied.

No. 3 head is the most popular Plow Bolt. Its square neck gives it a perfect fit on the face of the plow share.

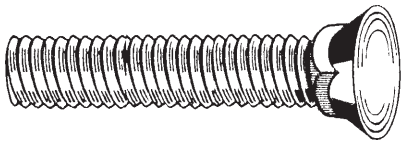
U.N.C. COARSE THREAD - CLASS 2A FIT

LENGTH IS MEASURED OVERALL

MINIMUM THREAD LENGTH: Twice diameter plus 1/4 inch.

P.C. 050

DIA.	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	3/8"
THD.	18	16	14	13	11	10	16
LGTH.▼	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW						

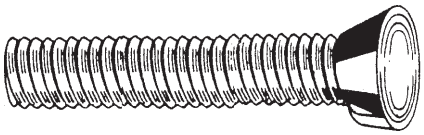


No. 3 REGULAR HEAD

80-deg. Round, Countersunk, Square Neck

***No. 3 REPAIR HEAD**

	UNIT PACKAGE 100		*UNIT PACKAGE 50*		*UNIT PACKAGE 25*		*UNIT PKG. 100*
1"							**PB-34**
1-1/4"				**PB-16**			**PB-35**
1-1/2"							**PB-36**
1-3/4"		**PB-4**		**PB-18**			**PB-37**
2"						**PB-31**	**PB-38**
2-1/4"			**PB-13**				
2-1/2"			**PB-14**				
3"			**PB-15**				
3-1/2"							



No. 7 REGULAR HEAD

60-deg. Round, Countersunk, Reverse Key

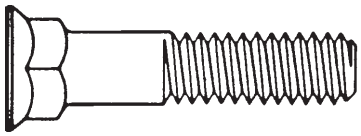
***No. 7 REPAIR HEAD**

	UNIT PACKAGE 100		*UNIT PACKAGE 50*		*UNIT PACKAGE 25*		*UNIT PKG. 100*
1"							**PB-57**
1-1/4"							**PB-58**
1-1/2"			**PB-47**				**PB-59**
1-3/4"			**PB-48**				
2"			**PB-49**				
2-1/4"							
2-1/2"			**PB-50**				
3"							

See page C2 - Square Nuts, C3 - Hex Nuts for use with Plow Bolts.

***REPAIR HEADS** are smaller than Regular Heads to compensate for the wear of the plow share.
Letter "R" is shown on top of all Repair Head Plow Bolts.

STEEL Plow Bolts



ASME/ANSI B18.9

U.N.C. COARSE THREAD

B

No. 3 REGULAR HEAD

NOT PLATED

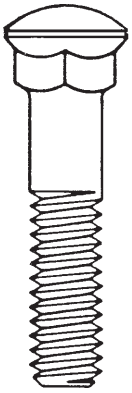
80-deg. Round, Countersunk, Square Neck

S.A.E. GRADE 5 C1035-1041 MEDIUM CARBON STEEL					S.A.E. GRADE 8 ALLOY STEEL HEAT TREATED
DIA.	**3/8"**	**7/16"**	**1/2"**	**5/8"**	**5/8"**
THD.	16	14	13	11	11
LENGTH	**ORDER BY *SPAENAUR* NUMBERS LISTED BELOW**				
1"	**050-143**				
1-1/4"	**050-144**	**050-146**	**050-150**		
1-1/2"	**050-145**	**050-147**	**050-151**		
1-3/4"		**050-148**	**050-152**		
2"	**050-161**	**050-149**	**050-153**	**PB-65**	**050-155**
2-1/4"				**PB-66**	**050-156**
2-1/2"			**050-154**	**PB-67**	**050-157**
3"			**050-159**	**050-160**	**050-158**
3-1/2"					
	UNIT PKG. 100	*UNIT PACKAGE 50*		*UNIT PKG. 25*	*UNIT PACKAGE 25*

High Strength

STEEL

SCRAPER (BLADE) BOLTS



No. 3D DOME HEAD

Tensile strength 160,000 lbs. per sq. in.

U.N.C. COARSE THREAD

NOT PLATED

P.C. 050

DIA.	5/8"	3/4"	7/8"	1"
THD.	11	10	9	8
LENGTH	**ORDER BY *SPAENAUR* NUMBERS LISTED BELOW**			
2"	**PB-100**	**PB-110**		
2-1/4"	**PB-101**	**PB-111**	**PB-121**	
2-1/2"	**PB-102**	**PB-112**	**PB-122**	
2-3/4"		**PB-113**	**PB-123**	**PB-131**
3"	**PB-104**	**PB-114**	**PB-124**	**PB-132**
3-1/4"		**PB-115**	**PB-125**	**PB-133**
3-1/2"	**PB-106**	**PB-116**	**PB-126**	**PB-134**
3-3/4"		**PB-117**	**PB-127**	**PB-135**
4"		**PB-118**	**PB-128**	**PB-136**
4-1/2"		**PB-119**	**PB-129**	**PB-137**
5"		**PB-120**	**PB-130**	**PB-138**
5-1/2"				**PB-139**
6"				**PB-140**
6-1/2"				
	UNIT PACKAGE 25		*UNIT PACKAGE 10*	

Spring Centre Bolts

Unit Package Quantity 25

STEEL

Special Steel
Heat Treated
Black Finish

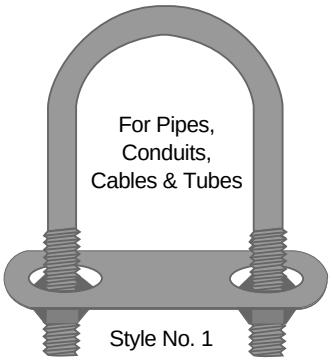
FILLISTER UNSLOTTED HEAD

FINE THREAD
(U.N.F. - S.A.E.)

SPAENAUR No.	Dia. & Thread	Length	Thread Length
SCB-13	7/16"-20	5"	1-1/4"

P.C. 062

CATALOG 13

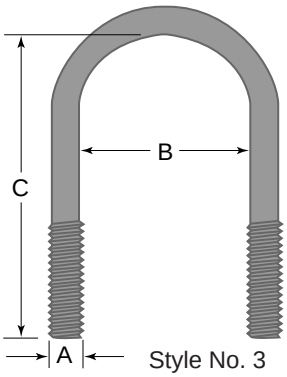


U-BOLTS

WITH HEX NUTS & STRAP PLATES

Low Carbon STEEL

BRIGHT ZINC CHROMATE PLATED



A Thread Size	B Width Inside	C Length Inside	Width Centre to Centre	For Nominal Pipe Size	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW			
					Style No. 1 With Plate & Hex. Nuts	Style No. 3 Bolt Only	Strap Plate Only	Hex. Nut Only
1/4"-20	3/4"	2-1/4"	1"	3/8"	**030-003**	**030-001**	**030-002**	**B-91**
1/4"-20	1-1/8"	2"	1-3/8"	3/4"	**UB-1X**	**UB-1**	**UB-1P**	**B-91**
1/4"-20	1-1/8"	2-1/4"	1-3/8"	3/4"	**030-005**	**030-004**	**UB-1P**	**B-91**
5/16"-18	1-3/8"	2-1/4"	1-11/16"	1"	**UB-2X**	**UB-2**	**UB-2P**	**B-92**
5/16"-18	1-1/2"	2-1/4"	1-13/16"	1"	**030-018**	**UB-3**	**UB-2P**	**B-92**
5/16"-18	1-3/4"	2-3/4"	2-1/16"	1-1/4"	**UB-4X**	**UB-4**	**UB-4P**	**B-92**
5/16"-18	1-3/4"	3-1/2"	2-1/16"	1-1/4"	**UB-5X**	**UB-5**	**UB-4P**	**B-92**
5/16"-18	2-1/32"	2-3/4"	2-5/16"	1-1/2"	**UB-6X**	**UB-6**	**UB-6P**	**B-92**
5/16"-18	2-5/8"	3-1/4"	2-7/8"	2"	**UB-7X**	**UB-7**	**UB-7P**	**B-92**
3/8"-16	3-1/2"	4-1/8"	3-13/16"	3"	**030-008**	**030-006**	**030-007**	**B-93**
1/2"-13	3-1/2"	5"	4"	3"	**030-011**	**030-009**	**030-010**	**B-95**
1/2"-13	4"	5-1/2"	4-1/2"	3-1/2"	**030-014**	**030-012**	**030-013**	**B-95**
1/2"-13	4-1/2"	6"	5"	4"	**030-017**	**030-015**	**030-016**	**B-95**
P.C. 030 and 155				*UNIT PACKAGE*	*10*	*10*	*10*	*100*

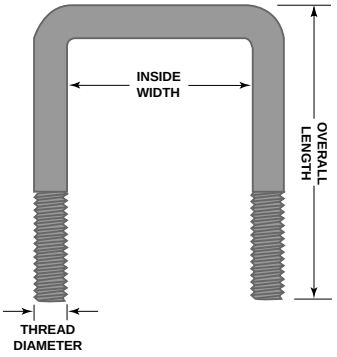
SQUARE BEND U-BOLTS Only

Low Carbon

Steel

Zinc Plated

UNIT PACKAGE 10



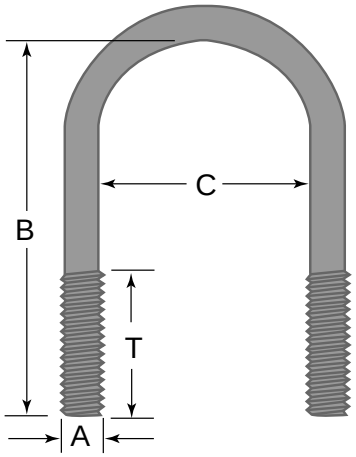
SPAENAUR No.	Thread Dia.	Inside Width	O/A Lgth.
030-050	3/8"-16	2"	3"
030-051	3/8"-16	2"	5"
030-052	3/8"-16	2"	7"
030-053	3/8"-16	4"	3"
030-054	3/8"-16	4"	5"
030-055	3/8"-16	4"	7"
030-056	3/8"-16	6"	5"
030-057	3/8"-16	6"	7"
030-058	3/8"-16	6"	9"

—For Reference Only—
Dimensions of Welded and Seamless Steel Pipe

Nominal Pipe Size	Outside Diameter
1/4"	.540"
3/8"	.675"
1/2"	.840"
3/4"	1.05"
1"	1.315"
1-1/4"	1.66"

Nominal Pipe Size	Outside Diameter
1-1/2"	1.90"
2"	2.375"
2-1/2"	2.875"
3"	3.500"
3-1/2"	4.000"
4"	4.500"

B



U-BOLTS & STRAP PLATES

18-8

STAINLESS STEEL

Plain Finish

U-Bolt and Strap Plate must be ordered separately.

UNIT PACKAGE 10 except 030-817 to 030-820 Priced Singly.

U-BOLTS						STRAP PLATES
Bolt Only *SPAENAUR No.*	**A Thread Size**	**C Width Inside**	**B Length Inside**	**T Approx. Thread Lgth.**	**For Nominal Pipe Size**	**Strap Only *SPAENAUR No.***
—	1/4-20	9/16"	1-1/4"	3/4"	1/4"	**030-850**
030-800	1/4-20	3/4"	1-1/4"	5/8"	3/8"	**030-851**
030-801	1/4-20	3/4"	2-1/4"	1-1/2"	3/8"	**030-851**
030-802	1/4-20	1"	1-3/4"	1"	1/2"	**030-853**
030-803	1/4-20	1-1/8"	2"	1"	3/4"	**030-854**
030-804	1/4-20	1-1/4"	2-1/4"	1-1/4"	3/4"	**030-855**
—	1/4-20	1-1/2"	2-3/4"	1-3/8"	1"	**030-856**
030-805	1/4-20	1-3/4"	3"	1-3/8"	1-1/4"	**030-857**
030-806	1/4-20	2"	3-1/4"	1-3/8"	1-1/2"	**030-858**
—	5/16-18	1"	2-3/16"	1-3/8"	1/2"	**030-859**
030-807	5/16-18	1-3/8"	2-3/16"	1"	1"	**030-860**
—	5/16-18	1-1/2"	2-3/16"	1"	1"	**030-861**
030-808	5/16-18	1-3/4"	2-11/16"	1-1/8"	1-1/4"	**030-862**
030-809	5/16-18	2"	2-11/16"	1"	1-1/2"	**030-863**
030-810	5/16-18	2-1/2"	3-3/16"	1"	2"	**030-864**
—	5/16-18	3"	3-11/16"	1"	2-1/2"	**030-865**
030-811	3/8-16	1"	2-1/4"	1-1/4"	1/2"	**030-866**
—	3/8-16	1-1/4"	2-1/4"	1-1/4"	3/4"	**030-867**
030-812	3/8-16	1-1/2"	2-1/2"	1-1/4"	1"	**030-868**
—	3/8-16	1-3/4"	2-3/4"	1-1/8"	1-1/4"	**030-869**
030-813	3/8-16	2"	2-5/8"	1-1/4"	1-1/2"	**030-870**
030-814	3/8-16	2-1/2"	3-1/8"	1-1/4"	2"	**030-871**
030-815	3/8-16	3"	3-5/8"	1-1/4"	2-1/2"	**030-872**
030-821	3/8-16	3"	3-11/16"	1-1/4"	2-1/2"	**030-872**
030-816	3/8-16	3-1/2"	4-1/8"	1-1/4"	3"	**030-873**
030-817	1/2-13	3"	4-1/2"	1-5/8"	2-1/2"	**030-874**
030-818	1/2-13	3-1/2	5"	1-1/2"	3"	**030-875**
030-819	1/2-13	4"	5-1/2"	1-1/2"	3-1/2"	**030-876**
030-820	1/2-13	4-1/2"	6"	1-1/2"	4"	**030-877**

Hex Nuts not included.

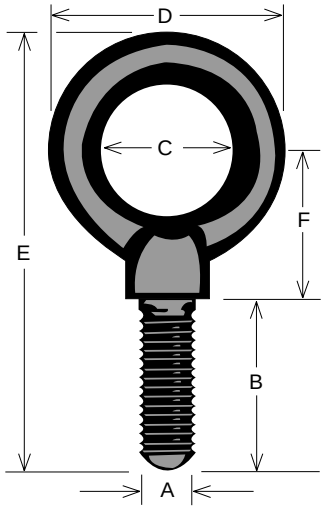
For Stainless Steel Hex Nuts see page C7.

SHOULDER TYPE

FORGED / 1030 STEEL / HEAT TREATED
Self-Coloured

B

EYE BOLTS

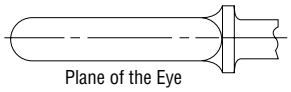


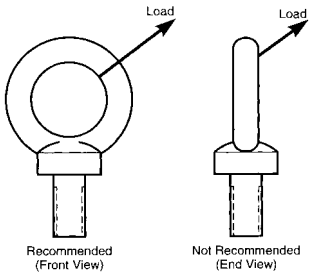
SHANKS FULL THREADED TO WITHIN 1/8" - 3/8" OF SHOULDER.

Class 2A (UNC-2A)
(COARSE THREAD)

WARNING:
APPLIES TO
EYE BOLTS & EYE NUTS

Safe working load is drastically reduced when loading at an angle. Loading must never be made at an angle greater than 45° from bolt or nut centreline.





(In Inches)

SPAENAUR No.	(A) Thread Size	(B) Shank Length	(C) Eye I.D.	(D) Nom Eye O.D.	(E) Overall Length	(F) Centre Of Eye To Shoulder	Unit Pkg. Qty.
EYB-3	1/4-20	1.00	0.50	0.94	2.20	0.70	10
EYB-4	1/4-20	1.00-1.06	0.69-0.81	1.19	2.22-2.53	0.69-0.81	10
EYB-5	5/16-18	1.125	.625	1.19	2.50	0.875	10
EYB-6	5/16-18	1.12-1.19	0.81-0.94	1.44	2.66-2.97	0.88-1.00	10
EYB-7	3/8-16	0.75	1.00	1.69	2.81	1.20	10
EYB-8	3/8-16	1.25	0.75	1.44	2.97	1.00	10
EYB-9	3/8-16	1.25-1.38	0.94-1.06	1.69	3.09-3.47	1.06-1.19	10
EYB-10	7/16-14	1.38-1.50	1.00-1.12	1.81	3.41-3.78	1.19-1.31	10
EYB-11	1/2-13	1.50	1.00	1.94	3.75	1.28	5
EYB-12	1/2-13	1.50-1.62	1.12-1.25	2.12	3.81-4.19	1.31-1.44	5
EYB-13	9/16-12	1.75-1.88	1.31-1.44	2.56	4.56-4.94	1.59-1.72	5
EYB-14	5/8-11	1.75-1.88	1.31-1.44	2.56	4.56-4.94	1.59-1.72	5
EYB-15	3/4-10	2.00-2.12	1.44-1.56	2.81	5.06-5.50	1.72-1.91	5
EYB-16	7/8-9	2.25-2.38	1.56-1.69	3.19	5.75-6.19	2.03-2.22	1
EYB-17	1-8	2.50-2.62	1.69-1.81	3.56	6.44-6.88	2.22-2.41	1
EYB-18	1-1/8-7	2.75-2.88	1.94-2.06	4.06	7.31-7.75	2.59-2.78	1
EYB-19	1-1/4-7	3.00-3.12	2.12-2.25	4.44	8.00-8.44	2.84-3.03	1
EYB-20	1-1/2-6	3.50-3.62	2.44-2.56	5.19	9.22-9.72	3.19-3.44	1
EYB-40	1-3/4-5	3.75-3.88	2.75-3.00	6.00	10.50-11.12	3.88-4.12	1
EYB-41	2-4-1/2	4.00-4.12	3.06-3.44	6.88	11.53-12.22	4.25-4.50	1

-Special Stock Sizes -

024-044=	1/4-20	2.00	0.50	0.94	3.19	0.75	10
024-022●	1/2-13	6.00	1.00	1.938	8.00	1.25	5
024-002†	1/2" dia.	3.25	1.00	1.88	5.19	—	5
EYB-22*	1/2" dia.	6.00	1.00	1.88	8.31	1.38	5
EYB-21*	5/8" dia.	1.63	1.41	2.50	4.63	1.70	5

Self-coloured finish except:

= No. 024-044 Hot Galvanized Finish. 1" Thread Length.

• Hot Galvanized Finish. 2" Thread Length.

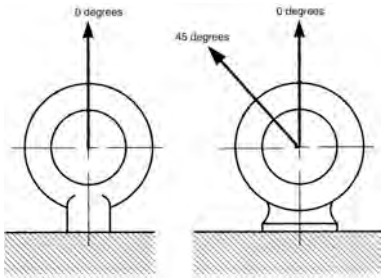
† 024-002 Unthreaded & No Shoulder

* No. EYB-21 & EYB-22 Unthreaded

Plain Pattern (Straight Shank) Eyebolt

Showing Rated Capacity in lbs. at 0° (for ref. only)

Nominal Size	Rated Cap. in lbs. 0 degrees
1/4	400
5/16	680
3/8	1,000
7/16	1,380
1/2	1,840
9/16	2,370
5/8	2,940
3/4	4,340
7/8	6,000
1	7,880
1-1/8	9,920
1-1/4	12,600
1-1/2	18,260
1-3/4	24,700
2	32,500
2-1/2	52,000



Shoulder Pattern Eyebolt

Showing Rated Capacity in lbs. at 0° and 45° (for ref. only)

Nominal Size	Rated Capacity in lbs. 0 degrees	45 degrees
1/4	400	NR
5/16	680	NR
3/8	1,000	220
7/16	1,380	330
1/2	1,840	520
9/16	2,370	700
5/8	2,940	890
3/4	4,340	1,310
7/8	6,000	1,910
1	7,880	2,630
1-1/8	9,920	3,840
1-1/4	12,600	4,125
1-1/2	18,260	6,040
1-3/4	24,700	8,250
2	32,500	10,910

NR - no rating

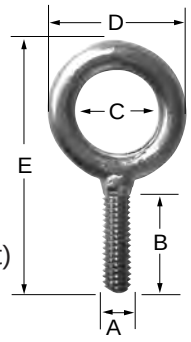
Note: All Eye Bolts and Eye Nuts, whether in blanks or fully machined, as shown on pages B318 to B320, are covered by our standard warranty. The warranty becomes VOID whenever modifications are made or further machining is done by the buyer, also in cases where these items are subject to an angular lift or pull.

304 STAINLESS STEEL EYE BOLTS, Forged

Plain Type

SPAENAUR No. PLAIN TYPE	A Thread Size UNC-2A	B Length of Shank	C Eye I.D.	D Eye O.D.	E Overall Length	Approx. Lbs. per 100 Pcs.	Rated Capacity Lbs.	Unit Pkg. Qty.
024-890	**1"-8**	2-1/2"	1-13/16"	3-9/16"	6-3/16"	226.0	9370	1

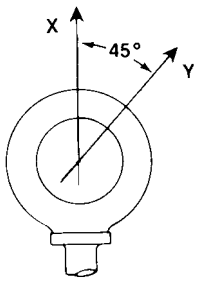
(without nut)



316 STAINLESS FORGED EYE BOLTS

Drop Forged - Plain Finish
Shoulder Type

Maximum load rating for eyebolts are based on a straight vertical lift (x) in a gradually increasing manner. Angular lifts will significantly lower maximum loads and should be avoided whenever possible. If an angular lift is required (y), a properly seated Shoulder eyebolt must be used. Loads should always be applied to eyebolts in the plane of the eye, not at some angle to this plane. Angular lifts must never be more than a 45° pull.



SHOULDER EYEBOLT

Vertical loads are based on safety factor of 5 to 1.

SPAENAUR No.	Thread Size UNC	Length of Shank	Eye I.D.	Eye O.D.	Overall Length Min./Max.	Max. Safe Working Load Lbs.	Unit Pkg. Qty.
024-832	**1/4"-20**	1"	3/4"	1-1/4"	2-7/32/2-17/32"	500	1
024-833	**5/16"-18**	1-1/8"	7/8"	1-1/2"	2-21/32/2-31/32"	900	1
024-834	**3/8"-16**	1-1/4"	1"	1-21/32"	3-3/32/3-15/32"	1400	1
024-835	**1/2"-13**	1-1/2"	1-3/16"	2-1/16"	3-13/16/4-3/16"	2600	1
024-836	**5/8"-11**	1-3/4"	1-3/8"	2-1/2"	4-9/16/4-15/16"	4000	1
024-837	**3/4"-10**	2"	1-1/2"	2-13/16"	5/5-1/2"	6000	1

Angular lifts should be avoided whenever possible.

Note: All Eye Bolts and Eye Nuts, whether in blanks or fully machined, as shown on pages B318 to B320, are covered by our standard warranty. The warranty becomes VOID whenever modifications are made or further machining is done by the buyer, also in cases where these items are subject to an angular lift or pull.

SPAENAUR

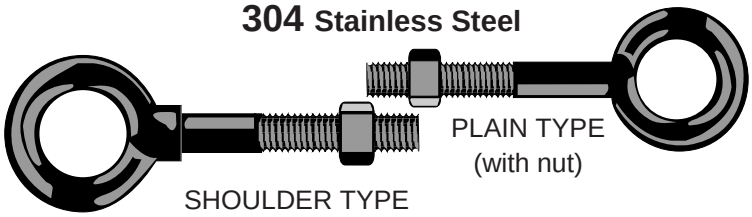
Quality fasteners - inspected, tested and certified!

B

STAINLESS FORGED EYE BOLTS

PLAIN & SHOULDER STYLE

304 Stainless Steel



Applications in the following industries:

- Food Processing
- Chemical
- Pulp & Paper
- Nuclear
- Marine
- Sewage Disposal
- Petroleum
- Aircraft

Eye Bolts are manufactured in accordance with Federal Specification QQS-763, in addition to being Zyglo inspected to insure forging integrity.

Supplied with standard UNC-2A threads and heavy hex nuts.

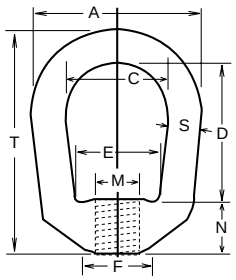
SPAENAUR No. PLAIN TYPE (with nut)	SHOULDER TYPE (with nut)	Diameter & Length of Shank	Eye I.D.	Eye O.D.	Min. Thread Length	Approx. Lbs. per 100 Pcs.	Rated Capacity Lbs.	INCH Sizes
024-800	024-810	3/8" x 4-1/2"	3/4"	1-1/2"	1-1/2"	25	1160	
024-801	*024-811	1/2" x 4-1/2"	1"	1-15/16"	2"	41	2150	
024-802	024-812	1/2" x 6"	1"	1-15/16"	2"	42	2150	*All*
024-803	—	5/8" x 4"	1-3/8"	2-1/2"	2-1/4"	82	3440	
024-804	024-814	5/8" x 6"	1-3/8"	2-1/2"	2-1/4"	98	3440	*Priced*
024-805	—	3/4" x 4-1/2"	1-1/2"	2-13/16"	2-1/2"	128	5140	
024-806	024-816	3/4" x 6"	1-1/2"	2-13/16"	2-1/2"	138	5140	*Singly*
024-807	—	7/8" x 6"	1-11/16"	3-1/4"	2-1/2"	214	7000	
024-808	024-817	1" x 6"	1-13/16"	3-9/16"	3"	280	9370	

***316 Stainless Steel,** 1-1/2" Thread Lgth.

Drop-forged Eye Nuts

1035 Steel Self-coloured Finish and 316 Stainless Steel Plain Finish

SPAENAUR No's. 1035 Steel	Stainless Steel 316	TAP SIZES STD. M	N	SPECIFICATION IN INCHES A	C	D	E	F	S	T	MAX. LOAD TONS
024-047	024-850	1/4"-20	3/8"	1-1/4"	3/4"	1-1/16"	19/32"	1/2"	1/4"	1-11/16"	.26
024-048	024-851	5/16"-18	3/8"	1-1/4"	3/4"	1-1/16"	19/32"	1/2"	1/4"	1-11/16"	.42
024-049	—	3/8"-16	7/16"	1-5/8"	1"	1-1/4"	3/4"	9/16"	5/16"	2-1/16"	.62
—	024-852	3/8"-16	1/2"	2"	1-1/4"	1-1/2"	1"	13/16"	3/8"	2-1/2"	1.12
024-050	—	7/16"-14	5/8"	2"	1-1/4"	1-1/2"	1"	13/16"	3/8"	2-1/2"	.85
024-051	024-849	1/2"-13	5/8"	2"	1-1/4"	1-1/2"	1"	13/16"	3/8"	2-1/2"	1.12
024-052	024-853	5/8"-11	3/4"	2-1/2"	1-1/2"	2"	1-3/16"	1"	1/2"	3-3/16"	1.8
024-053	024-854	3/4"-10	7/8"	3"	1-3/4"	2-3/8"	1-3/8"	1-1/8"	5/8"	3-7/8"	2.6
024-054	—	7/8"-9	1"	3-1/2"	2"	2-5/8"	1-5/8"	1-5/16"	3/4"	4-5/16"	3.6
024-055	—	1"-8	1"	3-1/2"	2"	2-5/8"	1-5/8"	1-5/16"	3/4"	4-5/16"	3.6



Drilled and Tapped UNC-2B

For Unit Pkg. Qty. See Price List.

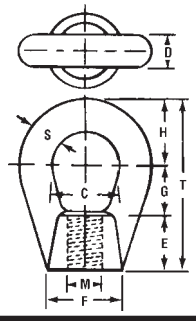
HEAVY DUTY Drop Forged Eye Nuts

C1035 Steel

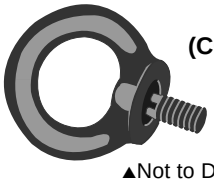
Self-coloured Finish

SPAENAUR No.	SPECIFICATIONS IN INCHES C	S	D	M	F	E	G	H	T	MAX. LOAD TONS
024-056	1-3/4"	1"	1"	1-1/8"-7	2-1/4"	1-5/8"	1-1/4"	1-7/8"	4-3/4"	9.4
024-057	2"	1-1/4"	1-1/4"	1-1/4"-7	2-7/8"	1-7/8"	1-3/8"	2-1/4"	5-1/2"	14.7
024-058	2-1/2"	1-3/8"	1-3/8"	1-1/2"-6	3-1/8"	2-1/8"	1-3/4"	2-5/8"	6-1/2"	17.8

Priced Singly.



Note: All Eye Bolts and Eye Nuts, whether in blanks or fully machined, as shown on pages B318 to B320, are covered by our standard warranty. The warranty becomes VOID whenever modifications are made or further machining is done by the buyer, also in cases where these items are subject to an angular lift or pull.

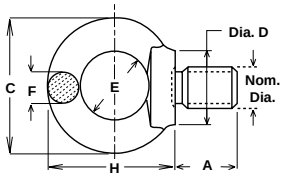


Regular (COARSE) Metric Thread

Drop Forged Eye Bolts

CONFORMING TO DIN 580

C15 Carbon Steel - Heat Treated Plain Finish



▲Not to DIN †Calculated Pull Capacity

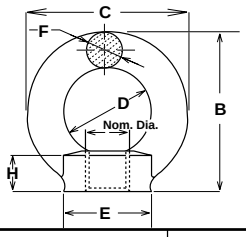
SPAENAUR No.	NOMINAL DIAMETER mm	PITCH mm	*Max. Pull capacity in kg for 1 Bolt	*Max. Pull capacity in kg total for 2 Bolts	DATA IN mm A	C	D	E	F	H	UNIT PKG.
†026-021	M6	1.00	70	50	13	36	20	20	—	—	10
†026-021ZP (Zinc Pltd.)	M6	1.00	70	50	13	36	20	20	—	—	10
026-001	M8	1.25	140	95	13	36	20	20	8	36	10
026-002	M10	1.50	230	170	17	45	25	25	10	45	10
026-003	M12	1.75	340	240	20.5	54	30	30	12	53	10
026-004	M16	2.00	700	500	27	63	35	35	14	62	5
026-005	M20	2.50	1200	830	30	72	40	40	16	71	5
026-006	M24	3.00	1800	1270	36	90	50	50	20	90	5
†▲026-022ZP (Zinc Pltd.)	M27	3.00	2180	1500	38	90	50	50	20	90	1
026-007	M30	3.50	3600	2600	45	108	65	60	24	109	1
026-008	M36	4.00	5100	3700	54	126	75	70	28	128	1
026-009	M42	4.50	7000	5000	63	144	85	80	32	147	1
026-010	M48	5.00	8600	6100	68	166	100	90	38	168	1
026-023	M56	5.50	11500	8300	78	184	110	100	42	187	1
026-024	M64	6.00	16000	11000	90	206	120	110	48	208	1

Regular (COARSE) Metric Thread

Drop Forged Eye Nuts

CONFORMING TO DIN 582

C15 Carbon Steel - Heat Treated Plain Finish



†Calculated Pull Capacity

SPAENAUR No.	NOMINAL DIAMETER mm	PITCH mm	*Max. Pull Capacity in kg for 1 Nut	*Max. Pull Capacity in kg total for 2 Nuts	DATA IN mm B	C	D	E	F	H	UNIT PKG.
†026-028	M6	1.00	70	50	18	36	20	20	8	8.5	10
026-011	M8	1.25	140	95	36	36	20	20	8	8.5	10
026-011ZP (Zinc Pltd.)	M8	1.25	140	95	36	36	20	20	8	8.5	10
026-012	M10	1.50	230	170	45	45	25	25	10	10	10
026-013	M12	1.75	340	240	53	54	30	30	12	11	10
026-014	M16	2.00	700	500	62	63	35	35	14	13	5
026-015	M20	2.50	1200	830	71	72	40	40	16	16	5
026-016	M24	3.00	1800	1270	90	90	50	50	20	20	5
026-016ZP (Zinc Pltd.)	M24	3.00	1800	1270	90	90	50	50	20	20	5
026-017	M30	3.50	3600	2600	109	108	60	65	24	25	1
026-018	M36	4.00	5100	3700	128	126	70	75	28	30	1
026-019	M42	4.50	7000	5000	147	144	80	85	32	35	1
026-020	M48	5.00	8600	6100	168	166	90	100	38	40	1
026-030	M56	5.50	11500	8300	187	184	100	110	42	45	1

***WARNING:** Lifting eye nuts and bolts must always be tightened so that they bear solidly on the surface they contact. Loads at right angles to the plane of the eye are prohibited. When a specified position in relation to an axis, edge or the like is specified for the lifting eye nut/bolt when screwed in/on, shims should be used if necessary in order to rule out unacceptable loading. The loading values specified apply solely to the use of lifting eye bolts/nuts according to the present Standard on workpieces made of steel, cast steel or grey cast iron. When the lifting eye nuts are used on a metric bolt thread of medium tolerance class, the thread length must be no less than 0.8 nom. dia. and the tensile strength of the bolt not in excess of 500 N/mm^2.

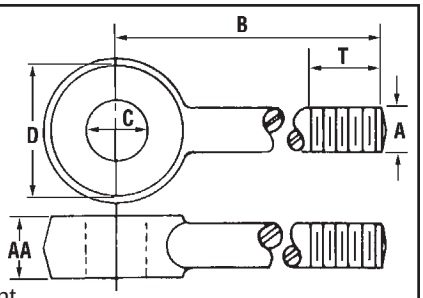
B

ROD END EYEBOLTS

Threaded and drilled
or
Furnished in 'Blanks'

Sizes to meet your needs!

Finish: Self-colour



SUGGESTED APPLICATIONS
■ Space adjustment in machinery ■ Tie-downs
■ Swing bolts for heavy covers ■ Linkage adjustment

C1030-C1035 Steel Forged

SPAENAUR No.	A U.N.C. Thread Size	B Ctr. of Eye to End	T Approx. Thread Length	C Hole Size	D Head Dia.	AA Head Thick.
With Threaded Shank and Drilled Head						
024-401	1/4"-20	1-1/4	1"	1/4"	.535"	9/32"
024-402		1-3/4"	1-1/4"		.535"	9/32"
024-403		2-1/2"	2-1/4"		.535"	9/32"
024-404		2-7/8"	2-5/8"		.535"	9/32"
024-406	5/16"-18	1-3/4"	1-3/8"	5/16"	11/16"	5/16"
024-407		4"	3-5/8"		5/8"	5/16"
024-411	3/8"-16	1-1/2"	1-1/8"	3/8"	.750"	7/16"
024-412		3"	2-1/2"		.750"	7/16"
024-413		4-1/2"	4-1/8"		.750"	7/16"
024-419	1/2"-13	1-5/16"	7/8"	1/2"	15/16"	9/16"
024-420		1-3/4"	1-5/16"		15/16"	9/16"
024-421		3-1/8"	2-9/16"		15/16"	9/16"
024-422		6"	3"		15/16"	9/16"
024-423		12"	6"	1/2"	15/16"	9/16"
024-424		3-3/4"	3"		1-1/8"	1/2"
024-425		4-13/16"	4-1/4"		1-1/8"	1/2"
024-429	5/8"-11	2"	1-7/16"	5/8"	1-3/16"	11/16"
024-430		6"	3"			11/16"
024-431		12"	6"			11/16"
024-436	3/4"-10	2"	1-5/16"	3/4"	1-7/16"	13/16"
024-437		4-3/4"	4"			13/16"
024-438		6"	3"			13/16"
024-453		8"	6-1/2"			13/16"
024-439		12"	6"			13/16"
024-443	7/8"-9	2"	1-3/16"	7/8"	1-11/16"	15/16"
024-444		6"	3"			15/16"
024-445		12"	6"			15/16"
024-449	1"-8	3"	2"	1"	2"	1"
024-450		6"	3"			1"
024-451		12"	6"			1"

C1030-C1035 Steel Forged-Blanks

SPAENAUR No.	A Shank Dia.	D Head Dia.	AA Head Thick.	App. Wgt. in lbs. per 100. Blanks Only	App. Wgt. in lbs. per 100. Fully Mach.	UNIT PKG.
BLANKS: Shanks Not Threaded Heads Not Drilled						
024-400	1/4"	1/2"	9/32"	5	4.7	10
024-452	5/16"	11/16"	5/16"	7	6.7	10
024-405		5/8"		11	10.7	5
024-408	3/8"	11/16"	7/16"	8	7.7	5
024-409				13	12.7	5
024-410				16	15.7	5
024-414	1/2"	15/16"	9/16"	19	18.6	5
024-415				28	27.6	1
024-416				40	39.4	1
024-417	1/2"	15/16"	9/16"	80	79.5	1
024-418		1-1/8"	1/2"	31	30.5	1
024-426	5/8"	1-3/16"	11/16"	40	38.5	1
024-427			11/16"	76	75.4	1
024-428			11/16"	127	125	1
024-432	3/4"	1-7/16"	13/16"	60	58.5	1
024-433			13/16"	100	98.5	1
024-434			13/16"	110	108.5	1
			13/16"		109.5	1
024-435			13/16"	187	185.5	1
024-440	7/8"	1-11/16"	15/16"	120	118	1
024-441			15/16"	156	154	1
024-442			15/16"	256	253	1
024-446	1"	2"	1"	300	297	1
024-447			1"	352	349	1
024-448			1"	424	421	1

Standard Forging Tolerances.
Also available 4140 and 8620 Alloy Steel special order.

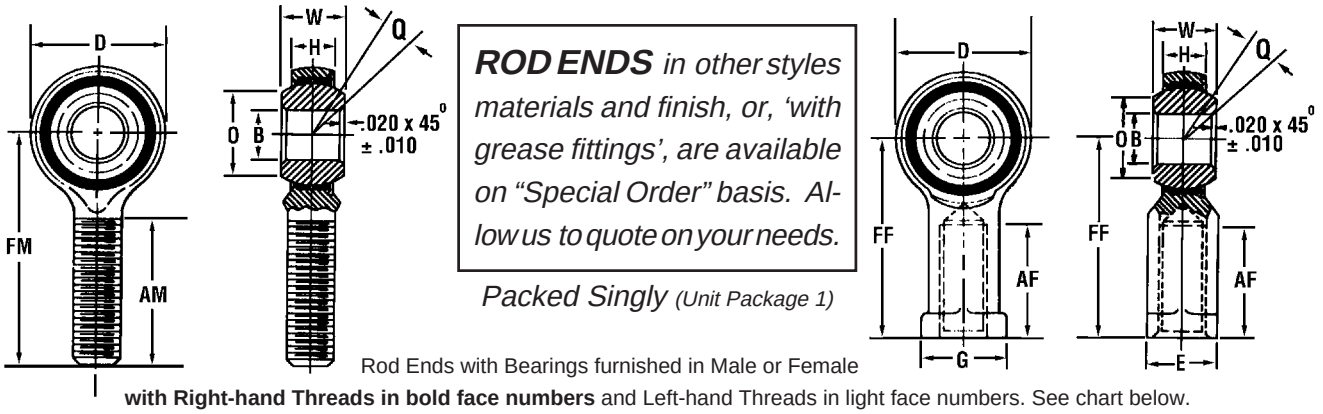
Note: All Rod End Eyebolts, whether in Blanks or fully machined, as detailed above, are covered by our standard warranty which appears in the front of this book. The warranty becomes **VOID** whenever modifications are made or further machining is done by the buyer, also in all cases where these items are subjected to an angular lift or pull.

More Rod Ends on pages B323 & E89.

V SERIES • MAINTENANCE-FREE CONSTRUCTION • SELF LUBRICATING • PLATED STEEL HOUSING • PHOSPHOR BRONZE RACE • HARDENED PLATED STEEL BALL

Alinabal V Series rod ends combine a plated case hardened steel ball with self-lubricated sintered phosphor bronze race secured permanently in a mild steel, plated housing. This combination assures reduced frictional wear for longer life and superior resistance to corrosion.

V Series rod ends have been found to fulfill the widest range of applications and are an excellent general purpose rod end.



***ROD ENDS** in other styles materials and finish, or, 'with grease fittings', are available on "Special Order" basis. Allow us to quote on your needs.*

Packed Singly (Unit Package 1)

Rod Ends with Bearings furnished in Male or Female **with Right-hand Threads in bold face numbers** and Left-hand Threads in light face numbers. See chart below.

SPAENAUR No Right-hand Thrd. BOLD / Left-hand Thread LIGHT		Thread	DIMENSIONS IN INCHES															Ultimate (Radial) Static Load Rating (lbs.)	
MALE	**FEMALE**	Class UNF-2	**B** +.0025 -.0005	**W** ±.005	**H** (Ref)	**AM** ±.060	**FM** ±.030	**AF** ±.060	**FF** ±.030	**D** ±.010	**G** (Ref)	**E** (Ref)	**O** (Ref)	**Ball Dia.** (Ref)	**Q** (Ref)	**Approx. Wt.** (lbs.)	**Male**	**Female**
023-103 023-119	**023-303** 023-317	10-32	.1900	.312	.250	.750	1.250	.562	1.062	.750	.406	.312	.296	.430	±11°	.04	1,600	1,800
023-104 023-117	**023-304** 023-314	1/4"-28	.2500	.375	.281	1.000	1.562	.750	1.312	.750	.468	.375	.346	.510	±13°	.05	2,250	2,300
023-105 023-120	**023-305** 023-313	5/16"-24	.3125	.437	.344	1.250	1.875	.750	1.375	.875	.500	.437	.438	.618	±11°	.08	2,850	2,900
023-106 023-114	**023-306** 023-316	3/8"-24	.3750	.500	.406	1.250	1.938	.937	1.625	1.000	.687	.562	.508	.713	±10°	.12	3,900	4,300
023-107 023-115	**023-307** 023-318	7/16"-20	.4375	.562	.437	1.375	2.125	1.062	1.812	1.250	.750	.625	.578	.806	±12°	.17	5,300	5,350
023-108 023-116	**023-308** 023-319	1/2"-20	.5000	.625	.500	1.500	2.438	1.187	2.125	1.312	.875	.750	.690	.931	±10°	.27	7,400	8,400
023-110 023-118	**023-310** 023-320	5/8"-18	.6250	.750	.562	1.625	2.625	1.500	2.500	1.500	1.000	.875	.801	1.098	±12°	.40	9,350	9,550
023-112 023-121	**023-312** 023-315	3/4"-16	.7500	.875	.687	1.750	2.875	1.750	2.875	1.750	1.125	1.000	1.010	1.336	±10°	.62	10,450	10,500

MATERIALS

Housing - Low carbon steel - plated for corrosion resistance.
Race - Sintered bronze - oil impregnated.
Ball - Low carbon steel - case hardened - plated for corrosion resistance and wear

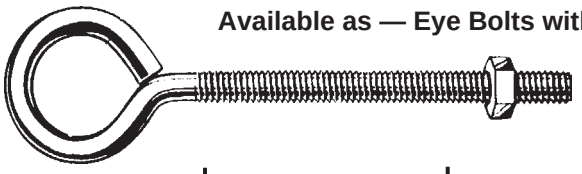
Temperature Range: -35°C to +150°C (-30°F to +300°F)

More Rod Ends on pages B322 & E89.

STEEL — Bent Eye Bolts

ZINC PLATED
(Clear Chromate Finish)

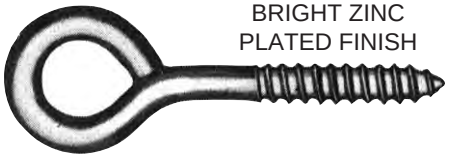
Available as — Eye Bolts with Nuts, Eye Bolts only and Nuts only.



EYE BOLTS with NUTS		EYE BOLTS ONLY		EYE BOLT DIMENSIONAL DATA					NUTS ONLY	
					Dimensions are approximate.					
SPAENAUR No. (Bolt with Nut)	Unit Pkg.	*SPAENAUR No.* (Bolt Only)	Unit Pkg.	Thread	Shank Length	Thread Length	Overall Length	I.D. Eye	*SPAENAUR No.* (Nut Only)	Unit Pkg.
EYB-1	10	**024-001**	50	**10-24**	2"	2"	2-3/4"	3/8"	**730**	100
EYB-23	10	**024-023**	50		1-1/4"	1-1/8"	2"	3/8"	**730**	100
EYB-43	10	**024-043**	50		2-1/4"	2"	3"	3/8"	**730**	100
024-046	10	**024-045**	50	**1/4"-20**	1-1/2"	1-3/8"	2-1/2"	9/16"	**733**	100
EYB-24	10	**024-024**	50		1-5/8"	1-3/8"	2-1/2"	3/8"	**733**	100
EYB-42	10	**024-042**	50		2-1/8"	2"	3"	3/8"	**733**	100
EYB-25	10	**024-025**	50		3-1/8"	2-1/2"	4"	3/8"	**733**	100
EYB-26	10	**024-026**	25	**5/16"-18**	2-1/8"	2"	3-1/4"	1/2"	**B-92**	100
EYB-27	10	**024-027**	25		2-7/8"	2-3/4"	4"	1/2"	**B-92**	100
EYB-28	10	**024-028**	25		3-7/8"	3"	5"	1/2"	**B-92**	100
—		**024-033**	25		3-3/4"	2-7/8"	5"	3/4"	**B-92**	100
EYB-29	10	**024-029**	25	**3/8"-16**	2-1/4"	2"	4"	1"	**B-93**	100
EYB-30	10	**024-030**	20		3-1/4"	2-7/8"	5"	13/16"	**B-93**	100
EYB-31	10	**024-031**	20		4-1/4"	2-3/4"	6"	1"	**B-93**	100
EYB-32	10	**024-032**	10		6-1/4"	3"	8"	1"	**B-93**	100

STEEL — Lag Screw Eyes

BRIGHT ZINC
PLATED FINISH



SPAENAUR No.	Thread Diameter	Thread Length	Overall Length	Shank Length	I.D. Eye	Unit Package
EYB-38	5/16"	2"	3-7/8"	2-3/4"	5/8"	10
EYB-39	3/8"	2-1/2"	4-3/8"	3"	3/4"	10

Dim. Tol. ± 1/16"

STEEL — Drop-forged Eye Bolts

Hot Galvanized

SCREW EYE BOLTS

SPAENAUR No.	Shank Dia. and Length	I.D. Eye
EYB-33	1/4" x 2"	1/2"
EYB-34	5/16" x 2-1/4"	5/8"
EYB-35	3/8" x 2-1/2"	3/4"
EYB-36	1/2" x 3-1/4"	1"
EYB-37	5/8" x 4"	1-1/4"

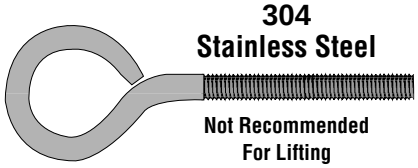
Unit Package 10

P.C. 024

CATALOG 13

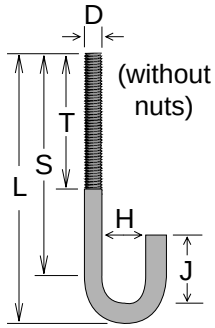
STAINLESS STEEL WROUGHT EYE BOLTS

(without nuts)



SPAENAUR No.	Thread Dia.	Overall Length	Shank Length	Thread Length	Eye I. D.	Unit Pkg. Quantity
024-820	1/4"-20	2"	1"	7/8"	1/2"	50
024-821	1/4"-20	2-5/8"	1-13/16"	1-1/2"	3/8"	50
024-822	1/4"-20	3-1/2"	2-1/2"	1-1/2"	9/16"	50
024-823	1/4"-20	4"	3"	1-1/2"	9/16"	50
024-824	5/16"-18	3-1/8"	2"	1-1/4"	5/8"	25
024-825	5/16"-18	4"	2-5/8"	2"	3/4"	25
024-826	3/8"-16	4"	2-1/2"	1-1/2"	3/4"	10
024-827	3/8"-16	6"	4-1/4"	2-1/2"	1"	10
024-828	3/8"-16	8"	6-1/4"	2-1/2"	1"	10
024-829	1/2"-13	4"	2"	1-1/2"	1"	10
024-830	1/2"-13	6"	4"	2-1/2"	1"	10
024-831	1/2"-13	8"	6"	4"	1"	1

J-Bolts

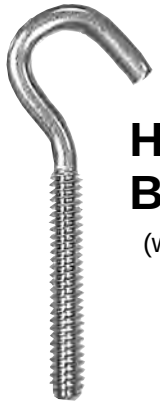


(without nuts)

Material: STEEL, Bright Zinc Plated

SPAENAUR No.	Thd. Dia. (D)	Thd. Lg. (T)	Hook Opg. (H)	O.A. Lg. (L)	Ins. Dpth. (J)	Unit Pkg. Qty.
030-020	10-24	1-1/4"	5/16"	1-7/8"	5/16"	50
030-021	12-24	1-1/4"	3/8"	2-1/8"	3/8"	50
030-022	1/4"-20	1-1/2"	7/16"	2-5/16"	7/16"	25
030-023	1/4"-20	2"	1/2"	4"	1/2"	25
030-024	1/4"-20	2-1/2"	1/2"	5"	1/2"	25
030-025	1/4"-20	2-1/2"	5/8"	6"	7/8"	25
030-026	5/16"-18	2"	1/2"	3"	1/2"	10
030-027	5/16"-18	2"	5/8"	4"	5/8"	10

SPAENAUR No.	Thd. Dia. (D)	Thd. Lg. (T)	Hook Opg. (H)	O.A. Lg. (L)	Ins. Dpth. (J)	Unit Pkg. Qty.
030-028	5/16"-18	2-1/2"	5/8"	5"	5/8"	10
030-029	5/16"-18	2-1/2"	5/8"	6"	5/8"	10
030-030	5/16"-18	3-7/8"	5/8"	7"	7/8"	10
030-031	3/8"-16	2-1/4"	5/8"	3-3/4"	5/8"	10
030-032	3/8"-16	2-1/4"	5/8"	5"	7/8"	10
030-033	3/8"-16	2-1/4"	5/8"	7"	7/8"	10
030-034	1/2"-13	3"	1"	6"	1-1/2"	10



Hook Bolts

(without nuts)

Material: STEEL, Zinc Plated

SPAENAUR No.	Thread Dia.	Thread Length	Hook Opening	Overall Length	Shank Length	Unit Pkg. Quantity
024-003	8-32	7/8"	13/32"	1-5/8"	1-1/8"	50
024-004	10-24	1-1/4"	13/32"	2"	1-5/16"	50
024-005	12-24	1-3/8"	1/2"	2-3/16"	1-1/2"	50
024-006	1/4"-20	1-1/2"	1/2"	2-5/8"	1-7/8"	25
024-007	5/16"-18	2"	7/16"	3-1/2"	2-1/4"	10
024-008	3/8"- 16	2-1/8"	5/8"	4"	2-3/8"	10
024-009	3/8"-16	3-1/4"	5/8"	4-3/4"	3-3/8"	10

Gate Hooks

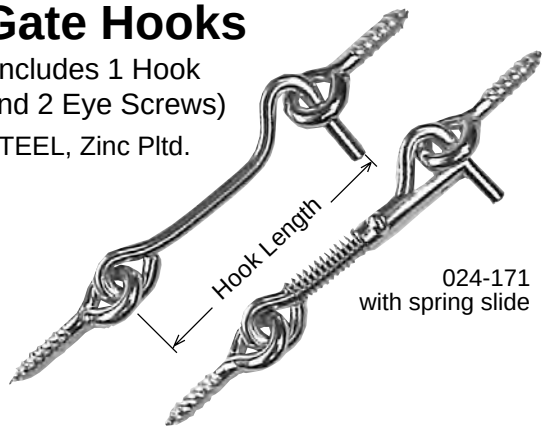
(Includes 1 Hook and 2 Eye Screws)

STEEL, Zinc Pltd.

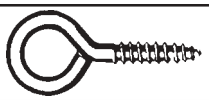
SPAENAUR No.	Screw Gauge	Hook Length	Wire Dia.	Unit Pkg. Quantity
024-165	#6	1-1/2"	.128"	50
024-166	#8	2"	.155"	50
024-167	#8	2-1/2"	.155"	25
024-168	#10	3"	.176"	25
024-169	#12	4"	.176"	10
024-170	#14	6"	.232"	10

Safety Gate Hook with spring slide.

024-171	#6	2-1/2"	.155"	25

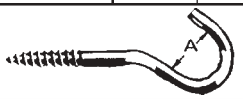


STEEL



Steel - Zinc Plated SCREW EYES

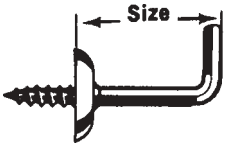
SPAENAUR No.	Screw Gauge	Approx. Lgth. Overall	Wire Dia.	Eye I.D.	Shank Length	Unit Pkg.
024-144	1	7/16	.053	1/8	7/32	100
024-145	2	5/8	.070	1/8	3/8	100
024-146	2	13/16	.070	7/32	1/2	100
024-147	3	7/8	.083	15/64	1/2	100
024-148	5	1	.106	9/32	9/16	100
024-149	8	1-1/8	.128	5/16	5/8	100
024-150	10	1-5/16	.158	11/32	3/4	100
024-151	12	1-9/16	.182	3/8	7/8	100
024-152	14	1-7/8	.205	15/32	1-1/8	100
024-153	16	2-1/8	.238	1/2	1-3/16	100
024-154	18	2-3/8	.260	17/32	1-3/8	50



Steel - Zinc Plated SCREW HOOKS

SPAENAUR No.	Screw Gauge	Approx. Lgth. Overall	Wire Dia.	A	Unit Pkg.
024-155	3	1-3/8	.083	1/4	100
024-156	5	1-5/8	.106	5/16	100
024-157	8	1-7/8	.128	3/8	100
024-158	10	2-1/4	.158	1/2	100
024-159	12	2-3/4	.182	9/16	100
024-160	14	3-3/8	.192	3/4	100
024-161	16	3-3/4	.232	7/8	50
024-162	18	4-1/4	.270	15/16	50
024-163	20	4-1/2	.292	1-1/32	50
024-164	24	4-1/2	.320	1-1/8	25

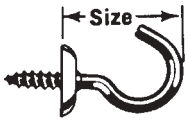
BRASS



Solid Brass SHOULDER HOOKS

Base Firmly Attached

SPAENAUR No.	Size	Wire Dia.	Approx. Lgth. Overall	Unit Pkg.
025-100	1/2"	.072"	7/8"	100
025-101	3/4"	.092"	1-1/8"	100
025-102	1"	.120"	1-1/2"	100
025-103	1-1/2"	.150"	2-1/8"	100



Solid Brass CUP HOOKS

Base Firmly Attached

SPAENAUR No.	Size	Wire Dia.	Approx. Lgth. Overall	Unit Pkg.
025-104	1/2"	.072"	7/8"	100
025-105	5/8"	.080"	1"	100
025-106	3/4"	.092"	1-1/8"	100
025-107	7/8"	.105"	1-5/16"	100
025-108	1"	.120"	1-1/2"	100
025-109	1-1/4"	.135"	1-3/4"	50
025-110	1-1/2"	.150"	2-1/8"	50

Larger size "Screw Eyes" also "Eye Bolts" shown on pages B318-B325, B327 & B328.

TURNBUCKLES

See page B328 for **Drop Forged Steel TURNBUCKLES**

Made with ZINC ALLOY TURNBUCKLE BODY
STEEL HOOKS and EYES - zinc chromate plated

024-511
EYE & EYE

024-521
HOOK & EYE

024-531
HOOK & HOOK

(See chart below for size data)

SPAENAUR No. Turnbuckle Body Only	*SPAENAUR No.* and Style: Eye & Eye	Hook & Eye	Hook & Hook	Thread (in inches)	Closed (in inches)	Open (in inches)	Body Length (in inches)	I.D. Eye (in inches)	Unit Pkg.
024-194	**024-511**	**024-521**	**024-531**	#8-32	3-5/8	4-7/8	1-7/8	7/32	10
024-195	**024-512**	**024-522**	**024-532**	#10-24	3-3/4	5-3/8	2-1/4	1/4	10
024-196	**024-513**	**024-523**	**024-533**	#12-24	4-3/4	6-3/4	2-3/4	5/16	10
024-197	**024-514**	**024-524**	**024-534**	1/4-20	5-1/2	7-5/8	3	5/16	10
024-198	**024-515**	**024-525**	**024-535**	5/16-18	7	9-3/4	3-3/4	3/8	10
024-199	**024-516**	**024-526**	**024-536**	3/8-16	7-1/2	10-1/2	4-1/4	1/2	10
	Above Nos. Include Turnbuckle Body.								

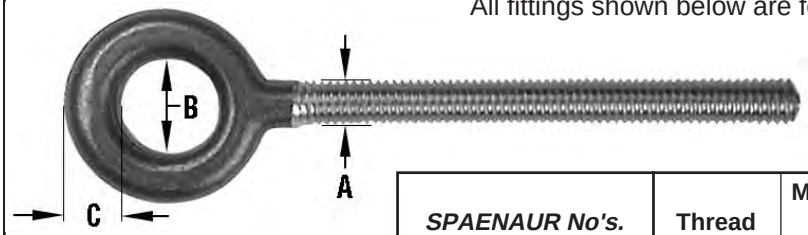
STAINLESS STEEL Type 304-Forged

SPAENAUR No.	Thread Dia.	Take-Up Length	Overall Length
024-856	3/8"-16	6"	7"
024-857	1/2"-13	6"	7-1/4"
024-858	5/8"-11	6"	7-1/2"
024-859	3/4"-10	6"	8"

TURNBUCKLE BODY

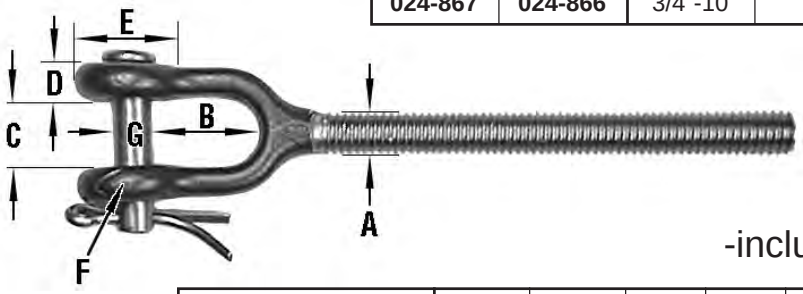
with 1 right hand (RH) thread
and 1 left hand (LH) thread.

N.B. Be sure to order both Right and Left fittings to go with each Turnbuckle ordered.
All fittings shown below are for 6" take-up length turnbuckle body.



ROUND EYE

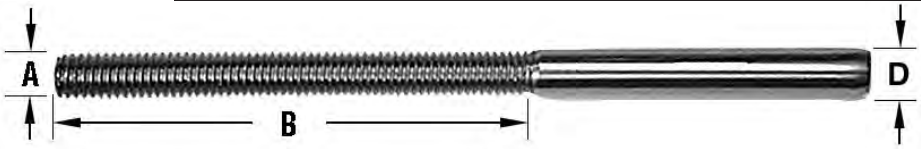
SPAENAUR No's. L.H. Thread	R.H. Thread	Thread Dia. A	Minimum Shank Length	B	C	Rated Capacity
024-861	**024-860**	3/8"-16	4"	3/4"	3/8"	1200 lbs.
024-863	**024-862**	1/2"-13	4"	1"	7/16"	2100 lbs.
024-865	**024-864**	5/8"-11	5"	1-3/8"	9/16"	3200 lbs.
024-867	**024-866**	3/4"-10	5"	1-1/2"	21/32"	5000 lbs.



JAW

-includes Clevis and Cotter Pin.

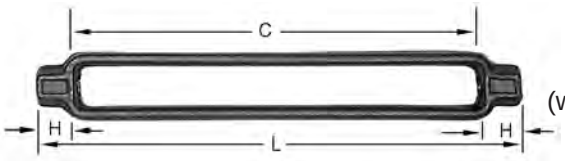
SPAENAUR No's. L.H. Thread	R.H. Thread	Thread Dia. A	Min. Shank Length	B	C	D	E	O/A Dia. F	Pin Dia. G	Rated Capacity
024-869	**024-868**	3/8"-16	4"	13/16"	9/16"	5/16"	9/16"	13/16"	5/16"	1200 lbs.
024-871	**024-870**	1/2"-13	4"	1"	3/4"	3/8"	3/4"	1"	7/16"	2100 lbs.
024-873	**024-872**	5/8"-11	5"	1-5/16"	3/4"	7/16"	1"	1-5/16"	1/2"	3200 lbs.
024-875	**024-874**	3/4"-10	5"	1-1/2"	15/16"	7/16"	1-3/16"	1-5/8"	5/8"	5000 lbs.



STUB END

SPAENAUR No's. L.H. Thread	R.H. Thread	Thread Dia. A	Minimum Thread Length B	Diameter D	Overall Length	Rated Capacity
024-877	**024-876**	3/8"-16	3-5/8"	3/8"	6-1/2"	1200 lbs.
024-879	**024-878**	1/2"-13	3-3/4"	1/2"	7"	2200 lbs.
024-881	**024-880**	5/8"-11	4"	5/8"	7-1/2"	3500 lbs.
024-883	**024-882**	3/4"-10	4-1/8"	3/4"	8"	5200 lbs.

Drop Forged 1030 Steel Heat Treated



Turnbuckle BODY

(with 1 right hand & 1 left hand thread)

Class 2B UNC Coarse Thread (Right & Left)

HOT GALVANIZED Finish

SPAENAUR No.	Thread Size	▲C Take-Up	H Head Length	L O/A Length	(Rated capacity is figured with safety factor to 5 to 1) Rated Capacity kg	Rated Capacity lbs.	Approx. Weight per 100 pieces kg	Approx. Weight per 100 pieces lbs.
024-200	1/4"-20	4"	13/32"	4-13/16"	227	500	6.0	14
024-201	5/16"-18	4-1/2"	17/32"	5-9/16"	363	800	9.5	21
024-202	3/8"-16	6"	9/16"	7-1/8"	544	1,200	17.2	38
024-204	1/2"-13	6"	3/4"	7-1/2"	998	2,200	30.0	66
024-205		9"		10-1/2"			38.6	85
024-206		12"		13-1/2"			46.2	102
024-207	5/8"-11	3"	7/8"	4-3/4"	1,588	3,500	22.7	50
024-208		6"	15/16"	7-7/8"			41.3	91
024-209		9"	15/16"	10-7/8"			59.4	131
024-210		12"	15/16"	13-7/8"			78.5	173
024-211	3/4"-10	6"	1-1/8"	8-1/4"	2,359	5,200	58.5	129
024-212		9"		11-1/4"			86.6	191
024-213		12"		14-1/4"			110.2	243
024-214		18"		20-1/4"			152.9	337
024-215	7/8"-9	6"	1-5/16"	8-5/8"	3,266	7,200	88.9	196
024-216		12"		14-5/8"			140.6	310
024-217		18"		20-5/8"			264.9	584
024-218	1"-8	6"	1-1/2"	9"	4,536	9,800	126.2	279
024-219		12"		15"			173.7	383
024-220		18"		21"			265.7	566

Turnbuckle bodies, as listed at left, are for use with TURNBUCKLE FITTINGS as listed below, and on page B329.

Be sure to **order both Right and Left fittings** to go with each Turnbuckle ordered.

▲ Take-up length of turnbuckle fittings are referenced to total inside length of turnbuckle bodies when assembled.

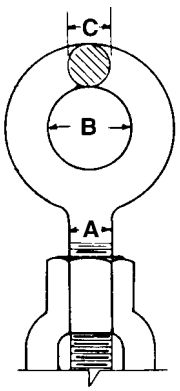
Note: All TURNBUCKLE COMPONENTS on this page are Priced Singly.

Drop Forged 1030 Steel

Turnbuckle EYE Fittings

HOT GALVANIZED Finish

Eye Fittings are threaded **RIGHT Hand or LEFT Hand**



(Turnbuckle Body not included)

SPAENAUR No. LEFT HAND Thread	*SPAENAUR No.* RIGHT HAND Thread	A Thread Size	▲ Take-Up	B I.D. of Eye	C Stock Dia.	(Rated capacity is figured with safety factor of 5 to 1) Rated Capacity kg	Rated Capacity lbs.	Approx. Weight per 100 pieces kg	Approx. Weight per 100 pieces lbs.
***024-221**	-	1/4"-20	4"	1/2"	7/32"	227	500	3.2	7
024-172	**024-335**	1/4"-20	4"	1/2"	7/32"	227	500	3.2	7
024-223	**024-224**	5/16"-18	4-1/2"	5/8"	9/32"	363	800	5.4	12
024-225	**024-226**	3/8"-16	6"	3/4"	11/32"	544	1,200	10.4	23
024-227	**024-228**	1/2"-13	6"	1"	7/16"	998	2,200	21.8	48
024-229	**024-230**		9"					25.4	56
024-231	**024-232**		12"					26.3	58
024-233	**024-234**	5/8"-11	6"	1-1/4"	17/32"	1,588	3,500	37.7	83
024-235	**024-236**		9"					43.5	96
024-237	**024-238**		12"					49.0	108
024-239	**024-240**	3/4"-10	6"	1-1/2"	5/8"	2,359	5,200	56.7	125
024-241	**024-242**		9"					62.1	137
024-243	**024-244**		12"					72.6	160
024-245	**024-246**		18"					90.7	200
024-249	**024-250**	7/8"-9	12"	1-3/4"	7/8"	3,266	7,200	110.7	244
024-251	**024-252**		18"					129.7	286
024-253	**024-254**	1"-8	6"	2"	7/8"	4,536	10,000	120.7	266
024-255	**024-256**		12"					145.6	321
024-257	**024-258**		18"					170.6	376

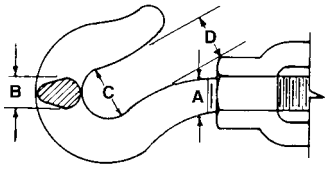
*These Spaenaur No's. come with Electro-Zinc Finish (after threading).

HOOK Fitting

Drop Forged

1030 Steel Heat Treated

HOT GALVANIZED Finish



▲ Take-up length of turnbuckle fittings are referenced to total inside length of turnbuckle bodies when assembled.

Class 2B UNC Coarse Thread
Right Hand and Left Hand

† Rated capacity figured with safety factor of 5 to 1.

*Electro-Zinc Finish (after threading)

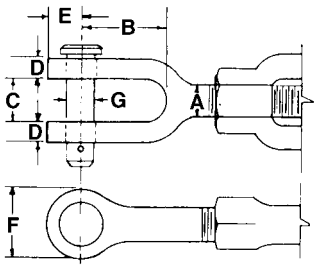
SPAENAUR No. Threaded LEFT Hand	RIGHT Hand	A Thread Size	▲ Take-up	B	C Nominal Size	D Throat Size	† Rated Capacity kg	lbs.	Approx. Weight per 100 pieces kg	lbs.
*024-259	*024-260	1/4"-20	4"	7/32"	5/16"	9/32"	136	300	3.2	7
—	024-173	1/4"-20	4"	7/32"	5/16"	9/32"	136	300	3.2	7
024-261	024-262	5/16"-18	4-1/2"	5/16"	1/2"	1/2"	227	500	5.4	12
024-263	024-264	3/8"-16	6"	3/8"	1/2"	1/2"	318	700	10.4	23
024-265	024-266	1/2"-13	6"	17/32"	7/8"	13/16"	472	1,040	21.8	48
024-267	024-268		9"						25.4	56
024-269	024-270		12"						26.3	58
024-271	024-272	5/8"-11	6"	5/8"	29/32"	27/32"	726	1,600	37.7	83
024-273	024-274		9"						43.5	96
024-275	024-276		12"						49.0	108
024-277	024-278	3/4"-10	6"	11/16"	1-1/8"	29/32"	907	2,000	56.7	125
024-279	024-280		9"						62.1	137
024-281	024-282		12"						72.6	160
024-283	024-284		18"						93.4	200
024-287	024-288	7/8"-9	12"	13/16"	1-3/16"	1-1/16"	1,089	2,400	110.7	244
024-289	024-290		18"						129.7	286
024-291	024-292	1"-8	6"	7/8"	1-3/8"	1-1/4"	1,315	2,900	120.7	266
024-293	024-294		12"						145.6	321
024-295	024-296		18"						170.6	376

JAW Fitting

Drop Forged

1030 Steel Heat Treated

HOT GALVANIZED Finish



▲ Take-up length of turnbuckle fittings are referenced to total inside length of turnbuckle bodies when assembled.

Class 2B UNC Coarse Thread
Right Hand and Left Hand

■ **Note: Clevis and Cotter Pins ARE included.**

† Rated capacity figured with safety factor of 5 to 1.

***Electro-Zinc Finish (after threading)

SPAENAUR No. Threaded LEFT Hand	RIGHT Hand	A Thread Size	▲ Take-up	B	C Jaw Space	D	E	F Over-all	■ G Pin Dia.	† Rated Capacity kg	lbs.	Approx. Weight per 100 pieces kg	lbs.
*024-297	-	1/4"-20	4"	25/32"	3/8"	7/32"	5/16"	5/8"	1/4"	227	500	4.1	9
024-174	024-175	1/4"-20	4"	25/32"	3/8"	7/32"	5/16"	5/8"	1/4"	227	500	4.1	9
024-299	024-300	5/16"-18	4-1/2"	7/8"	15/32"	1/4"	5/16"	5/8"	1/4"	363	800	6.8	15
024-301	024-302	3/8"-16	6"	1"	1/2"	9/32"	13/32"	13/16"	5/16"	544	1,200	11.8	26
024-303	024-304	1/2"-13	6"	1-9/32"	5/8"	5/16"	1/2"	1"	7/16"	998	2,200	24.5	54
024-305	024-306		9"									28.6	63
024-307	024-308		12"									30.8	68
024-309	024-310	5/8"-11	6"	1-21/32"	7/8"	3/8"	21/32"	1-5/16"	1/2"	1,588	3,500	43.1	95
024-311	024-312		9"									49.4	109
024-313	024-314		12"									58.1	128
024-315	024-316	3/4"-10	6"	1-27/32"	15/16"	1/2"	13/16"	1-5/8"	5/8"	2,359	5,200	76.3	155
024-317	024-318		9"									70.8	156
024-319	024-320		12"									83.5	184
024-321	024-322		18"									99.8	220
024-325	024-326	7/8"-9	12"	1-31/32"	1-5/32"	9/16"	29/32"	1-7/8"	3/4"	3,266	7,200	137.0	302
024-327	024-328		18"									149.2	329
024-329	024-330	1"-8	6"	2-13/32"	1-3/16"	11/16"	1-1/16"	2"	7/8"	4,536	10,000	159.2	351
024-331	•024-332		12"									193.2	426
024-333	024-334		18"									215.5	475

•024-336 similar to 024-332 except B=1.875, E=1-5/32" and G=1".

All turnbuckle fittings on this page are Priced Singly.

For Forged Shackles see page E82.

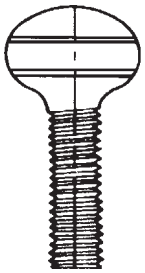
B

THUMBSCREWS

COLD FORGED
LOW CARBON STEEL
ZINC PLATED

UNIT PACKAGE QUANTITY 100

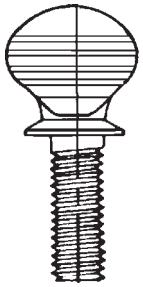
See page B332 for WING SCREWS



Without Shoulder

DIA.	6-32	8-32	10-24	10-32	1/4"-20	5/16"-18	3/8"-16
Thrd. Lgth.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW						
3/8"		TS-500	TS-510				
1/2"		TS-502	TS-512		565-034		
5/8"	TS-1000		565-030				
3/4"		TS-504	TS-514	565-049	TS-524	*TS-534	TS-542
1"		TS-506	TS-516		TS-526	TS-536	▲TS-544
1-1/4"			TS-518		TS-528		
1-1/2"		TS-508	TS-520		TS-530	TS-538	TS-546
2"			TS-522	TS-1001	TS-532	TS-540	TS-548
2-3/4"							565-050

▲**TS-544YZ** Yellow Zinc Pltd. *__565-063__ with Cup Point



With Shoulder

DIA.	6-32	8-32	10-24	10-32	1/4"-20	5/16"-18	3/8"-16
Thrd. Lgth.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW						
3/8"		TS-501					
1/2"	565-051	565-054	565-057	565-059	565-031		
5/8"							
3/4"	565-052	565-055	565-033	565-060	TS-525	TS-535	
1"	565-053	565-056	TS-517	565-061	TS-527		
1-1/4"							
1-1/2"			565-058				
2"					565-032	TS-541	TS-549
2-1/2"							

Without Shoulder

With Nylon Tip

DIA.	6-32	8-32	10-24	10-32	1/4"-20	5/16"-18	3/8"-16
Thrd. Lgth.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW						
1/2"	565-035	565-036		565-038	565-041	565-044	
3/4"		565-037		565-039	565-042	565-045	
1"				565-040	565-043	565-046	565-047
1-1/2"							565-048

Unit Package Quantity 10 of Nylon Tip Thumbscrews only.

Size: 1" x 2-3/4" x 4-1/2"

Priced Singly

Plastikit «Plastikit» 804-089

85 THUMBSCREWS
Cold Forged Steel
Zinc Plated

Contents of Plastikit

(10)	TS-512	(10)	TS-526
(10)	TS-516	(10)	TS-530
(10)	TS-518	(5)	TS-536
(10)	TS-524	(10)	TS-1000
(10)	TS-525		

CATALOG 13

18-8 STAINLESS STEEL
THUMBSCREWS

"A"

WITH SHOULDER

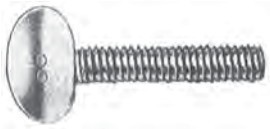
"B"

WITHOUT SHOULDER

DIA.	A 10-24	A 10-32	B 10-24	B 10-32	B 1/4"-20	B 5/16"-18	B 3/8"-16
Thread Length	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW						
1/2"	567-809	567-807		567-819			
3/4"	TS-2004	567-808			TS-2009	567-815	TS-2014
1"	TS-2005	567-811			TS-2010	TS-2012	TS-2015
1-1/4"	567-810	567-812	567-814			567-816	567-817
1-1/2"	TS-2006	567-813	567-818		TS-2011	TS-2013	TS-2016
	UNIT PACKAGE QUANTITY 100						*U.P.Q. 50*

BRASS
THUMBSCREWS

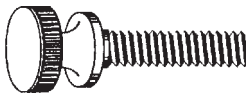
Without Shoulder



COARSE THREAD

DIA.	1/4"-20	5/16"-18	3/8"-16
Thread Length	ORDER BY *SPAENAUR* NUMBERS		
1/2"	TS-575	TS-580	TS-586
3/4"	TS-576	TS-581	TS-587
1"	TS-577	TS-582	TS-588
1-1/4"	566-001	TS-583	566-002
1-1/2"	TS-578	TS-584	TS-590
2"	TS-579	TS-585	TS-591
	UNIT PKG. QTY. 100		*U.P.Q. 10*

BRASS
KNURLED THUMBSCREWS



Plain Brass only stocked.
Plated finishes
available to order at extra cost.

P.C. 566

DIA.	4-36	4-40	6-32	8-32	10-24	10-32	12-24	1/4"-20
Thread Lgth.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW							
1/4"	TS-550	TS-592	TS-554					
3/8"	TS-551		TS-555	TS-559				
1/2"	TS-552		TS-556	TS-560	TS-563	TS-566	TS-569	TS-572
3/4"	TS-553		TS-557	TS-561	TS-564	TS-567	TS-570	TS-573
1"			TS-558	TS-562	TS-565	TS-568	TS-571	TS-574
	UNIT PACKAGE QUANTITY 100							

More Wing and Thumb Screws on B332 - B336.

STEEL COLD FORGED WING SCREWS

YELLOW ZINC CHROMATE PLATED

Unit Package: 100 (all sizes)

with SHOULDER or BEARING FACE (our option).

***Riveted-on* Head**

Other Styles
on page B330

Dia./Thread	8-32	10-24	1/4"-20	5/16"-18	3/8"-16
WING SPREAD	27/32"	1-1/16"	1-7/32"	1-7/32"	1-13/32"
Thread Length	**ORDER BY *SPAENAUR* NUMBERS LISTED BELOW**				
3/8"	**565-001**	**565-008**			
1/2"	**565-002**	**565-009**			
3/4"	**565-003**	**565-010**	**565-015**	**565-020**	**565-025**
1"	**565-004**	**565-011**	**565-016**	***565-021**	**565-026**
1-1/4"	**565-005**	**565-012**	**565-017**	**565-022**	**565-027**
1-1/2"	**565-006**	**565-013**	**565-018**	**565-023**	**565-028**
2"	**565-007**	**565-014**	**565-019**	**565-024**	**565-029**

*1-13/32" Wing Spread

18-8 STAINLESS STEEL

Dia.: #8 to 5/16" *U.P.Q. 50*
3/8" *U.P.Q. 25*

3/8"		**565-811**	**565-817**	**565-822**	
1/2"			**565-800**		
5/8"		**565-812**	**565-801**	**565-823**	**565-828**
3/4"		**565-813**	**565-802**	**565-804**	**565-806**
1"		**565-814**	**565-803**	**565-805**	**565-807**
1-1/4"		**565-815**	**565-818**	**565-824**	**565-829**
1-3/8"					**565-808**
1-1/2"		**565-816**	**565-819**	**565-825**	**565-809**
1-3/4"			**565-820**	**565-826**	**565-830**
2"			**565-821**	**565-827**	**565-810**

WING SCREWS

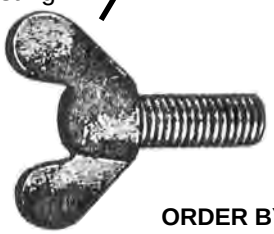
With Shoulder

(This Style is being replaced by Styles shown above.)

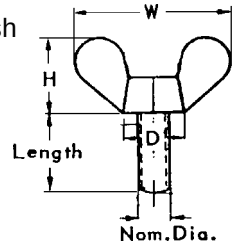
DIA.	6-32	8-32	10-24	10-32	1/4"-20	5/16"-18	3/8"-16
Thrd. Lgth.	**ORDER BY *SPAENAUR* NUMBERS LISTED BELOW**						
3/4"		**TS-505**					
1-1/4"							
1-1/2"		**TS-509**	**TS-521**				

MALLEABLE IRON / CAST BRASS

WING - Malleable Casting
SCREW - Steel
FINISH - Zinc Plated



Plain Finish



ISO Metric
Regular (coarse) Thread
6g or 8g Thread Fit - FULLY THREADED

SIZE	THDS. PER INCH	DIA. D mm	Height H mm	Width W mm
M4	36-1/4	8	10	20
M5	31-3/4	10	12	25
M6	25-1/2	12	16	32
M8	20-1/4	16	20	40
M10	17	20	25	50
M12	14-1/2	23	32	64

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW

Length in mm	MALLEABLE IRON - Zinc Plated				
	M4	M5	M6	M8	M10
8					
10	570-002	570-006	570-012		
12	570-003			570-020	
16	570-004	570-008	570-014	570-021	570-031
20		570-010	570-016	570-023	570-032
25			570-042	570-025	570-034
30			570-018	570-040	570-041
35					
40					570-036
45				570-028	
50					570-038
60				570-030	570-039
	UNIT PACKAGE 100			*UNIT PKG. 50*	

BRASS - Plain Finish				
M4	M5	M6	M8	M10
571-050	571-054			
571-051	571-055	571-060		
		571-061	571-066	
571-052	571-056	571-062	571-067	
571-053	571-057	571-063	571-068	571-071
	571-058	571-064		
	571-059	571-065	571-069	571-072
			571-070	571-073
				571-074
UNIT PACKAGE 100			*UNIT PKG. 50*	

BRASS

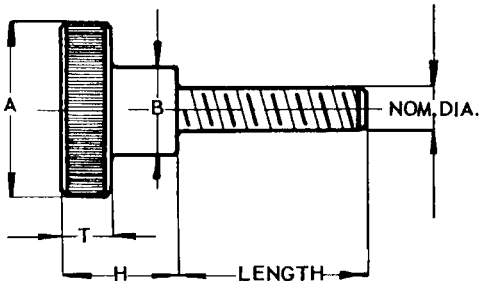
Knurled Thumbscrews
Vis à tête moletée

ISO
Regular (coarse)
Thread

ISO METRIC

RAISED KNURLED HEAD SCREWS

CONFORMING TO **DIN 464** REGULAR PITCH



Length in mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW — NOMINAL DIAMETER					
	M3	M4	M5	M6	M8	M10
5	571-001	571-007				
6			571-013			
8	571-002	571-009				
10			571-015	571-020		
12	571-005	571-011			571-025	
16	571-006	571-012	571-017	571-022		
20			571-018		571-027	
25				571-024	571-028	
30						
35						
40						
	UNIT PACKAGE 100			*UNIT PKG. 25*		

DATA IN mm

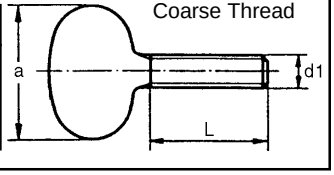
SIZE	NOMINAL DIAMETER					
	M3	M4	M5	M6	M8	M10
A	12	16	20	24	30	36
B	6	8	10	12	16	20
T	2.5	3.5	4	5	6	8
H	7.5	9.5	11.5	15	18	23

METRIC THUMBSCREWS

Malleable Casting
Zinc Plated

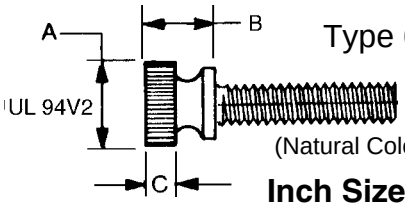
Unit Pkg. Qty. 50

SPAENAUR No.	d1	L	a
570-050	M5	10 mm	21 mm
570-051	M5	16 mm	21 mm
570-052	M6	25 mm	24 mm



B

Thumbscrews

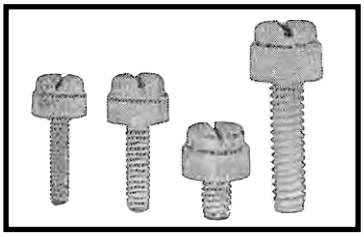


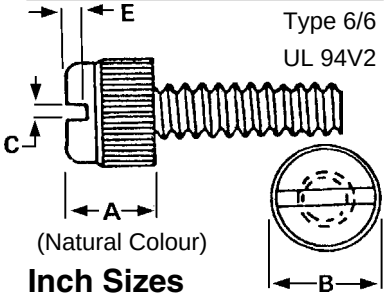
Inch Sizes

Thread Size	A	B	C
4-40	.300	.280	.120
6-32	.360	.275	.125
8-32	.425	.305	.140
10-24	.425	.325	.140
10-32	.425	.325	.140
1/4-20	.540	.365	.155
5/16-18	.625	.406	.171
3/8-16	.687	.437	.187
1/2-13	.750	.468	.203

SPAENAUR No.	Thread Size	Length	Unit Pkg.
568-001	4-40	1/4	100
568-002	4-40	3/8	100
568-003	4-40	1/2	100
568-004	4-40	3/4	100
568-005	6-32	1/4	100
568-006	6-32	3/8	100
568-007	6-32	1/2	100
568-008	6-32	3/4	100
568-009	6-32	1	100
568-010	8-32	3/16	100
568-011	8-32	3/8	100
568-012	8-32	1/2	100
568-013	8-32	3/4	100
568-014	8-32	1	100
568-016	10-24	1/2	100
568-017	10-24	3/4	100
568-018	10-24	1	100
568-019	10-24	1-1/4	100
568-020	10-24	2	100
568-021	10-32	3/8	100
568-022	10-32	1/2	100
568-023	10-32	3/4	100
568-024	10-32	1	100
568-026	10-32	2	100
568-029	1/4-20	1/2	100
568-030	1/4-20	3/4	100
568-031	1/4-20	1	100
568-032	1/4-20	1-1/4	100
568-033	1/4-20	1-1/2	100
568-067	5/16-18	1/2	100
568-068	5/16-18	1	50
568-069	5/16-18	1-1/2	50
568-070	5/16-18	2	50
568-071	3/8-16	1/2	100
568-072	3/8-16	1	50
568-073	3/8-16	1-1/2	50
568-074	3/8-16	2	50
568-075	1/2-13	1/2	50
568-076	1/2-13	1	50
568-077	1/2-13	1-1/2	25
568-078	1/2-13	2	25

CORROSION-RESISTANT NYLON 6/6 Thumbscrews



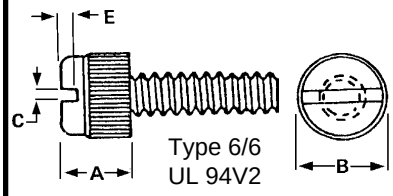


Inch Sizes

Thread Size	A	B	C	E
4-40	.216	.317	.039	.045
6-32	.250	.348	.042	.051
8-32	.280	.381	.049	.059
10-24	.317	.412	.056	.068
10-32	.317	.412	.056	.068
1/4-20	.326	.492	.070	.088

SPAENAUR No.	Thread Size	Length	Unit Pkg.
568-034	4-40	1/4	100
568-035	4-40	3/8	100
568-036	4-40	1/2	100
568-037	4-40	3/4	100
568-038	6-32	1/4	100
568-039	6-32	3/8	100
568-040	6-32	1/2	100
568-041	6-32	3/4	100
568-042	6-32	1	100
568-043	8-32	1/4	100
568-044	8-32	3/8	100
568-045	8-32	1/2	100
568-046	8-32	3/4	100
568-047	8-32	1	100
568-053	10-24	1/4	100
568-048	10-24	3/8	100
568-049	10-24	1/2	100
568-050	10-24	3/4	100
568-051	10-24	1	100
568-052	10-24	1-1/4	100
568-059	10-32	1/4	100
568-054	10-32	3/8	100
568-055	10-32	1/2	100
568-056	10-32	3/4	100
568-057	10-32	1	100
568-058	10-32	1-1/4	100
568-060	1/4-20	1/4	100
568-061	1/4-20	3/8	100
568-062	1/4-20	1/2	100
568-063	1/4-20	3/4	100
568-064	1/4-20	1	100
568-065	1/4-20	1-1/4	100
568-066	1/4-20	1-1/2	100

METRIC MOLDED NYLON 6/6



Slotted Thumbscrew

(Natural Colour)

Metric (COARSE) Thread

ALL DIMENSIONS IN MILLIMETRES

THREAD SIZE	A	B	C	E
M3 x .5	5.2	7.6	1.0	1.1
M3.5 x .6	6.1	8.5	1.1	1.3
M4 x .7	7.1	9.4	1.2	1.5
M5 x .8	7.7	10.0	1.3	1.5
M6 x 1.0	7.75	12.21	1.14	1.53

SPAENAUR No.	Thread Size & Length	Unit Pkg.
568-100	M3 x .5 x 5 mm	100
568-101	M3 x .5 x 6 mm	100
568-102	M3 x .5 x 8 mm	100
568-103	M3 x .5 x 10 mm	100
568-104	M3 x .5 x 12 mm	100
568-105	M3 x .5 x 16 mm	100
568-106	M3 x .5 x 20 mm	100
568-107	M3 x .5 x 25 mm	100
568-108	M3 x .5 x 30 mm	100
568-109	M3.5 x .6 x 5 mm	100
568-110	M3.5 x .6 x 6 mm	100
568-111	M3.5 x .6 x 8 mm	100
568-112	M3.5 x .6 x 10 mm	100
568-113	M3.5 x .6 x 12 mm	100
568-114	M3.5 x .6 x 16 mm	100
568-115	M3.5 x .6 x 20 mm	100
568-116	M3.5 x .6 x 25 mm	100
568-117	M3.5 x .6 x 35 mm	100
568-118	M4 x .7 x 6 mm	100
568-119	M4 x .7 x 8 mm	100
568-120	M4 x .7 x 10 mm	100
568-121	M4 x .7 x 12 mm	100
568-122	M4 x .7 x 16 mm	100
568-123	M4 x .7 x 20 mm	100
568-124	M4 x .7 x 25 mm	100
568-125	M5 x .8 x 6 mm	100
568-126	M5 x .8 x 8 mm	100
568-127	M5 x .8 x 10 mm	100
568-128	M5 x .8 x 12 mm	100
568-129	M5 x .8 x 16 mm	100
568-130	M5 x .8 x 20 mm	100
568-131	M5 x .8 x 25 mm	100
568-132	M5 x .8 x 30 mm	100
568-133	M5 x .8 x 40 mm	100
568-134	M6 x 1.00 x 8 mm	50
568-135	M6 x 1.00 x 10 mm	50
568-136	M6 x 1.00 x 12 mm	50
568-137	M6 x 1.00 x 16 mm	50
568-138	M6 x 1.00 x 20 mm	50
568-139	M6 x 1.00 x 25 mm	50
568-140	M6 x 1.00 x 35 mm	50
568-141	M6 x 1.00 x 45 mm	50

shear-Loc® THUMB SCREW KNOBS

Use Shear-Loc KNOBS, plus 1960 Series Socket Head Cap Screws.

U.S.A. PATENT NO. 3,529,508
PATENT PENDING IN OTHER COUNTRIES

Make any quantity -any size - as needed.

Make your own Thumbscrews... instantly.

1 **Select a standard hex socket head cap screw**

2 **Select a standard Shear-Loc Knob**

3 **Select a way to press and cold-form together**

4 **YOUR INSTANT THUMBSCREW**

Shear-Loc Knobs are made of tough “DELRIN 500”.

SHEAR-LOC TEE STYLE THUMBSCREW KNOBS

Priced Singly

Assortment No. 805-445

Inch and Metric

Contains 24 Items
510 Total Pieces

Delrin Plastic

REGULAR SIZE grey enamelled drawer.

Assortment features the full range of Thumbscrew Knob sizes as listed at top of page B336 both “Inch” and “Metric” series, in colours Black, Grey and Red.

SPAENAUR REGULAR and LARGE Size Thumbscrew Knob Assortments

Priced Singly

REGULAR SIZE Drawer: 13-5/16" x 9-1/4" x 2"

Inch

SHEAR-LOC THUMBSCREW KNOBS
805-418
Contains 24 Varieties - 507 Pieces
For use with Hex Socket Cap Screws in inch sizes #4 to 3/8" dia.
Delrin Plastic - Black, Grey, Red

Metric

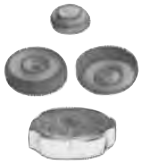
SHEAR-LOC THUMBSCREW KNOBS
805-419
Contains 22 Varieties - 456 Pieces
For use with Metric Hex Socket Cap Screws in diameters M3 to M10.
Delrin Plastic - Black, Grey, Red

LARGE SIZE Drawer: 18" x 12" x 3"

Inch

SHEAR-LOC THUMBSCREW KNOBS
805-618
Contains 24 Varieties - 1014 Pieces
For use with Hex Socket Cap Screws in “Inch” sizes #4 to 3/8" dia.
Delrin Plastic - Black, Grey, Red

Metric

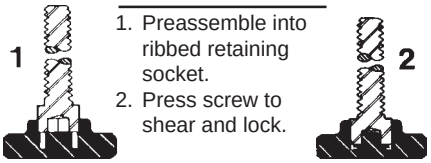


SHEAR-LOC THUMBSCREW KNOBS
805-619
Contains 22 Varieties - 912 Pieces
For use with Metric Hex Socket Cap Screws in diameters M3 to M10.
Delrin Plastic - Black, Grey, Red

B

shear-Loc® THUMB SCREW KNOBS

See page B335 for more information



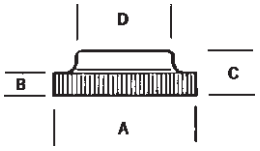
1. Preassemble into ribbed retaining socket.
2. Press screw to shear and lock.

Shear-Loc Knobs are made of DuPont "Delrin 500." They are tough, and will endure all normal thumbscrew applications.

INCH SIZES

SPAENAUR NUMBERS BLACK	GRAY	RED	KNOB STYLE	USE WITH SCREW	Measurements in inches A	B	C	D	UNIT PKG.
134-074	134-075	134-076	FR	#4	5/16"	9/64"	11/64"	9/32"	100
134-077	134-078	134-079		#6	3/8"	5/32"	13/64"	21/64"	100
134-080	134-081	134-082		#8	1/2"	5/32"	7/32"	3/8"	100
134-083	134-084	134-085		#10	5/8"	11/64"	1/4"	27/64"	100
134-086	134-087	134-088		1/4"	3/4"	11/64"	5/16"	31/64"	100
134-089	134-090	134-091		1/4"	1"	17/64"	5/16"	1/2"	100
134-092	134-093	134-094		5/16"	1"	17/64"	3/8"	19/32"	100
134-095	134-096	–	K	5/16"	1-1/2"	3/8"	13/32"	19/32"	50
134-097	134-098	–		3/8"	1-1/2"	3/8"	15/32"	43/64"	50

THUMBSCREW KNOBS



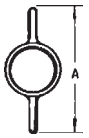
Knob Style **FR** (Fine Ribbed)

Knob Style **K**

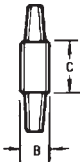
METRIC SIZES

SPAENAUR NUMBERS BLACK	GRAY	RED	KNOB STYLE	USE WITH SCREW	Measurements in mm A	B	C	D	UNIT PKG.
134-500	134-501	134-502	FR	M3	9.5	4.0	4.8	8.1	100
134-503	134-504	134-505		M4	13.0	4.0	5.5	10.0	100
134-506	134-507	134-508		M5	16.0	4.5	6.9	11.5	100
134-509	134-510	134-511		M6	19.0	4.5	7.8	13.1	100
134-512	134-513	134-514		M6	26.0	8.0	8.0	13.1	100
134-515	134-516	134-517		M8	26.0	7.7	10.0	16.0	100
134-518	134-519	–	K	M8	38.0	10.0	10.0	16.0	50
134-520	134-521	–		M10	38.0	10.0	12.5	19.8	50

TEE KNOBS



TEE KNOB



INCH SIZES

USE ON 1960 SERIES HEX SOCKET HEAD CAP SCREWS

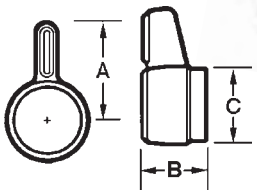
SPAENAUR NUMBERS BLACK	GRAY	RED	KNOB STYLE	FITS SCREW	Measurements in inches A	B	C	UNIT PKG.
134-099	134-100	134-107	TEE	#10	1"	1/4"	7/16"	100
134-101	134-102	134-108		1/4"	1-1/4"	5/16"	33/64"	100
134-103	134-104	134-109		5/16"	1-1/2"	13/32"	5/8"	50
134-105	134-106	134-110		3/8"	1-3/4"	15/32"	23/32"	50

METRIC SIZES

USE ON DIN 912 - JAPAN J.I.S. - BRITISH METRIC SERIES

SPAENAUR NUMBERS BLACK	GRAY	RED	KNOB STYLE	FITS SCREW	Measurements in mm A	B	C	UNIT PKG.
134-522	134-523	134-530	TEE	M5	26	6.6	12	100
134-524	134-525	134-531		M6	30	7.8	13.5	100
134-526	134-527	134-532		M8	38	10	16.5	50
134-528	134-529	134-533		M10	45	12.5	20	50

"L" KNOBS



INCH SIZES

USE ON 1960 SERIES HEX SOCKET HEAD CAP SCREWS

SPAENAUR NUMBERS BLACK	GRAY	RED	KNOB STYLE	FITS SCREW	Measurements in inches A	B	C	UNIT PKG.
134-111	134-114	134-117	L	#10	9/16"	11/32"	29/64"	100
134-112	134-115	134-118		1/4"	11/16"	7/16"	33/64"	100
134-113	134-116	134-119		5/16"	27/32"	17/32"	41/64"	50

Thumbscrew Assortments are found on page B335.
Yellow Colour also available on Special Order.

CATALOG 13

B

STEEL THREADED RODS

Right-hand Threads
THREADED FULL LENGTH

Inch Sizes

Grade: C1010 (or better)
ASTM spec A-307
Minimum tensile strength
50,000 to 60,000 psi

The versatile do-it-yourself rod for making U-bolts, eye-bolts, hangers, ladder rungs, and many types of special items. Cold-drawn steel bends easily without heating. Just cut to desired length and use.

Finishes: Plain and Zinc Plated

All Threaded Rods shown below are priced singly.

THREAD SIZE	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
	Plain 24" Lgth.	Zinc Pltd. 24" Lgth.	Plain 36" Lgth.	Zinc Pltd. 36" Lgth.	Plain 72" Lgth.	Zinc Pltd. 72" Lgth.	Plain 120" Lgth.	Zinc Pltd. 120" Lgth.	Plain 144" Lgth.	Zinc Pltd. 144" Lgth.
4-40	TR-44		866-055	866-055ZP						
5-40			866-012	886-012ZP						
6-32	TR-46	TR-46ZP	866-056	866-056ZP						
8-32	TR-48	TR-48ZP	866-057	866-057ZP						
10-24	TR-50	TR-50ZP	866-058	866-058ZP						
10-32	TR-52	TR-52ZP	866-059	866-059ZP						
12-24	TR-54	TR-54ZP	866-060	866-060ZP						
1/4"-20	866-146	866-146ZP	TR-4	TR-4ZP	866-013	866-013ZP	866-061	866-061ZP	866-130	866-130ZP
1/4"-28	866-145	866-145ZP	866-001	866-001ZP						
5/16"-18	866-142	866-142ZP	TR-5	TR-5ZP	866-014	866-014ZP	866-062	866-062ZP	866-131	866-131ZP
5/16"-24			866-002	866-002ZP						
3/8"-16			TR-6	TR-6ZP	866-015	866-015ZP	866-063	866-063ZP	866-079	866-079ZP
3/8"-24			866-003	866-003ZP					866-054	
7/16"-14	866-143	866-143ZP	TR-7	TR-7ZP	866-016	866-016ZP	866-064	866-064ZP	866-132	866-132ZP
7/16"-20			866-004	866-004ZP						
1/2"-13			TR-8	TR-8ZP	866-017	866-017ZP	866-065	866-065ZP	866-081	866-081ZP
1/2"-20			866-005	866-005ZP						
9/16"-12			866-125	866-125ZP	866-127	866-127ZP	866-128	866-128ZP	866-129	866-129ZP
9/16"-18			866-126	866-126ZP						
5/8"-11			TR-10	TR-10ZP	866-018	866-018ZP	866-066	866-066ZP	866-082	866-082ZP
5/8"-18			866-006	866-006ZP						
3/4"-10			TR-12	TR-12ZP	866-019	866-019ZP	866-067	866-067ZP	866-083	866-083ZP
3/4"-16			866-007	866-007ZP						
7/8"-9	866-144	866-144ZP	TR-14	TR-14ZP	866-020	866-020ZP	866-068	866-068ZP	866-084	866-084ZP
7/8"-14			866-008	866-008ZP						
1"-8			TR-16	TR-16ZP	866-021	866-021ZP	866-124	866-124ZP	866-069	866-069ZP
1"-14			866-009	866-009ZP						
1-1/8"-7			TR-18	TR-18ZP					866-070	866-070ZP
1-1/8"-12			866-010	866-010ZP						
1-1/4"-7			TR-20	TR-20ZP					866-071	866-071ZP
1-1/4"-12			866-011	866-011ZP						
1-3/8"-6			TR-22	TR-22ZP					866-072	866-072ZP
1-3/8"-12			866-120	866-120ZP						
1-1/2"-6			TR-24	TR-24ZP					866-073	866-073ZP
1-1/2"-12			866-121	866-121ZP						
1-5/8"-5-1/2			TR-26	TR-26ZP						
1-3/4"-5			TR-28	TR-28ZP					866-075	866-075ZP
2"-4-1/2			TR-32	TR-32ZP					866-076	866-076ZP

Weight Chart for Steel Threaded Rod

Approximate Weight in Lbs. per Foot

Thread Size	Weight per Foot
4-40	.024 lbs.
5-40	.032 lbs.
6-32	.036 lbs.
8-32	.054 lbs.
10-24	.070 lbs.
12-24	.100 lbs.
1/4"-20	.120 lbs.
5/16"-18	.200 lbs.

Thread Size	Weight per Foot
3/8"-16	.290 lbs.
7/16"-14	.400 lbs.
1/2"-13	.540 lbs.
9/16"-12	.667 lbs.
5/8"-11	.834 lbs.
3/4"-10	1.240 lbs.
7/8"-9	1.667 lbs.
1"-8	2.223 lbs.

Thread Size	Weight per Foot
1-1/8"-7	2.667 lbs.
1-1/4" 7	3.334 lbs.
1-3/8"-6	4.112 lbs.
1-1/2"-6	4.667 lbs.
1-5/8"-5-1/2	6.334 lbs.
1-3/4"-5	7.000 lbs.
2"-4-1/2	9.112 lbs.

CATALOG 13

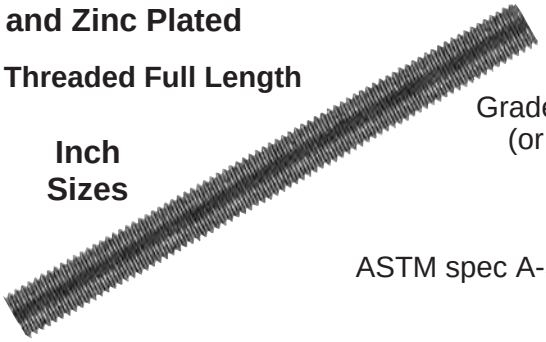
For Non-ferrous Threaded Rods see page B342.
For Acme Threaded Rods see page B340.

STEEL Threaded Rods

Self-Colour - Plain Finish and Zinc Plated

Threaded Full Length

Inch Sizes



Grade: C1010 (or better)

ASTM spec A-307

Minimum tensile strength 50,000 to 60,000 psi

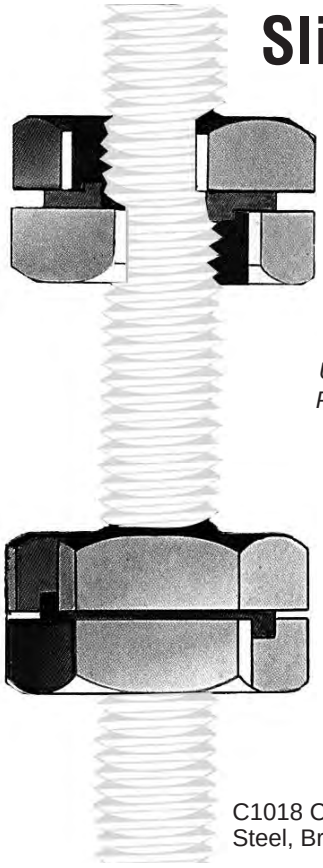
Continuous LEFT-HAND Threads

Thread Size	36" Length *SPAENAUR No.* Plain	Zinc Pltd.	Lgths. in Pkg.
1/4"-20 UNC	**866-300**	**866-300ZP**	1
1/4"-28 UNF	**866-309**	—	1
5/16"-18 UNC	**866-301**	**866-301ZP**	1
5/16"-24 UNF	**866-311**	—	1
3/8"-16 UNC	**866-302**	**866-302ZP**	1
3/8"-24 UNF	**866-313**	—	1
7/16"-14 UNC	**866-303**	**866-303ZP**	1
1/2"-13 UNC	**866-304**	**866-304ZP**	1
1/2"-20 UNF	**866-307**	**866-307ZP**	1
5/8"-11 UNC	**866-305**	**866-305ZP**	1
3/4"-10 UNC	**866-306**	**866-306ZP**	1
3/4"-16 UNF	**866-308**	**866-308ZP**	1
1-1/8"-12 UNF	**866-312**	—	1
1-1/4"-7 UNC	**866-310**	—	1

See Page C5 for STEEL Hex. Nuts **with LEFT-HAND Threads**
See page B343 for STEEL Coupling Nuts with **LEFT-HAND Threads**

Slip-on® Lock Nut

Position at any desired location without threading
A nut that does not have to be "threaded on."



Unit Pkg. 10

C1018 Cold Rolled Steel, Bright Zinc Pltd.

A must for electricians, mechanical contractors, plumbers, steamfitters, sprinkler installers, general contractors, mining contractors, telecommunication industry, television industry, plant maintenance, original equipment manufacturers—and the list goes on. The Slip-On Lock Nut can be used on pipe racks, clevis hangers, cable trays, all-thread rod, anchor bolts that are rusted or bent, and in high vibratory situations. The list of applications is endless.

- **Saves time**
- **Saves money**
- **Solves rod and retrofit problems**

SPAENAUR No.	Thread Size	Width A\F	Approx. Thick.	Recommended Loads	Recommended Torque
165-199	1/4"-20 UNC	5/8"	3/8"	650 lbs.	6-8 ft. lbs.
165-200	3/8"-16 UNC	7/8"	15/32"	2,000 lbs.	19-25 ft. lbs.
165-201	1/2"-13 UNC	1-1/16"	5/8"	4,000 lbs.	50-60 ft. lbs.
165-206	5/8"-11 UNC	1-5/16"	13/16"	5,000 lbs.	100-120 ft. lbs.
165-207	3/4"-10 UNC	1-5/8"	1"	8,000 lbs.	180-200 ft. lbs.

MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURE FOR RIGHT-HAND THREADED SLIP-ON LOCK NUTS

STEP 1. Line up slot on both halves and position at desired location, placing threads of rod/bolt all the way back into the base of the slot.

STEP 2. Turn half of the nut, following the direction of the arrows, until both halves tighten down against one another.

STEP 3. Put wrench on the half of the Slip-On Lock Nut that is farthest away from your fixed structure and tighten, following the direction of the arrows, until slots of both halves are opposite one another (180°).

NOTE: In order to adjust or torque the nut as a unit, turn half of the Slip-On Lock Nut until slot is 120° (2 flats). Then put wrench on entire nut to adjust or torque as you would a conventional nut with compatible materials. Next, follow STEP 3, putting slots at 180° of each other to complete installation.

B

Threaded
Full Length

"ACME" Threaded Rods

C1018 STEEL, Plain Finish
29° ACME THREAD
Fully Threaded in 36" Lengths

SPAENAUR No.	Diameter and T.P.I.	Lgths. in Package
866-133	3/8"-12	1
866-134	1/2"-10	1
866-135	5/8"-8	1
866-136	3/4"-6	1
866-137	7/8"-6	1
866-138	1"-5	1
866-139	1-1/8"-5	1
866-140	1-1/4"-5	1
866-141	1-1/2"-4	1
866-147	2"-4	1

"ACME" Hexagon Nuts

C1018 STEEL, Plain Finish
ACME THREADS-Right Hand

SPAENAUR No.	Diameter and T.P.I.	Width A/F	Thickness	Type of Nut	Unit Pkg. Quantity
155-013	3/8"-12	11/16"	3/8"	Heavy	10
155-014	1/2"-10	7/8"	31/64"	Heavy	10
155-015	5/8"-8	1-1/16"	39/64"	Heavy	10
155-016	3/4"-6	1-1/8"	41/64"	Finished	10
155-017	7/8"-6	1-7/16"	55/64"	Heavy	5
155-018	1"-5	1-1/2"	55/64"	Finished	5
155-019	1-1/8"-5	1-13/16"	1-7/64"	Heavy	5
155-020	1-1/4"-5	1-7/8"	1-1/16"	Finished	5
155-021	1-1/2"-4	2-1/4"	1-9/32"	Finished	5
155-022	2"-4	3"	1-3/4"	Finished	1

B7 Alloy Steel Studs

Full Right Hand Threaded

Heat Treated
Chromium - Molybdenum Alloy Steel
Quench and Tempered
For High Temperature Service

Inch Sizes - UNC Coarse Thread*

*Sizes up to 1" nominal size UNC Class 2A fit.
1" and over nominal size 8-UN Class 2A fit.

Plain Finish

Conforms to ASTM A193 - Grade B7
Minimum Tensile Strength: 125,000 PSI (860 MPa.)

Length	*Spaenaur No.*	U.P.Q.
1/2"-13 Dia.		
1-3/4"	**616-130**	25
2"	**616-131**	25
2-1/2"	**616-132**	25
3"	**616-133**	25
3-1/2"	**616-134**	25
4"	**616-135**	25
4-1/2"	**616-136**	25
5"	**616-137**	25
6"	**616-138**	25
5/8"-11 Dia.		
2"	**616-139**	20
2-1/2"	**616-140**	20
3"	**616-141**	20
3-1/2"	**616-142**	20
4"	**616-143**	20

Length	*Spaenaur No.*	U.P.Q.
5/8-11 cont'd.		
4-1/2"	**616-144**	20
5"	**616-145**	20
6"	**616-146**	20
8"	**616-147**	1
3/4"-10 Dia.		
2"	**616-148**	20
3"	**616-149**	20
3-1/2"	**616-150**	20
4"	**616-151**	20
4-1/2"	**616-152**	20
5"	**616-153**	20
6"	**616-154**	20
7"	**616-155**	1
8"	**616-156**	1
10"	**616-157**	1

Length	*Spaenaur No.*	U.P.Q.
7/8"-9 Dia.		
3"	**616-158**	10
4"	**616-159**	10
4-1/2"	**616-160**	**10**
5"	**616-161**	10
6"	**616-162**	10
7"	**616-163**	1
8"	**616-164**	1
9"	**616-165**	1
10"	**616-166**	1

Length	*Spaenaur No.*	U.P.Q.
1"-8 Dia.		
4"	**616-167**	10
4-1/2"	**616-168**	10
5"	**616-169**	10
6"	**616-170**	10
7"	**616-171**	1
8"	**616-172**	1
10"	**616-173**	1
1-1/8"-8 Dia.		
5"	**616-174**	1
6"	**616-175**	1
8"	**616-176**	1

Length	*Spaenaur No.*	U.P.Q.
1-1/4"-8 Dia.		
6"	**616-177**	1
8"	**616-178**	1
10"	**616-179**	1
1-3/8"-8 Dia.		
10"	**616-180**	1
1-1/2"-8 Dia.		
9"	**616-181**	1
10"	**616-182**	1

Use with 2H Nuts page B341 and ASTM F436 Hardened Structural Washers page D3.

B7 Full Threaded Rod, 6 and 12 foot lengths - see following page.

CATALOG 13

B7 ALLOY STEEL

High Strength - High Temperature

Heat Treated

To ASTM A-193 B7

Minimum Tensile Strength - 125,000 psi.
Temperature range, from -101°C to +454°C

-For use in mining, petroleum, chemical, automotive, and other industries.

-For high pressure, high temperature applications.

D = nominal diameter
L = length from first to last thread

Continuous RIGHT-HAND Thread

B7 Alloy Steel Threaded Rods and 2H Hex Nuts

*Sizes up to 1" nominal size UNC Class 2A and 2B fit, 1" and over nominal size 8 UN Class 2A and 2B fit.

Inch Sizes - UNC Coarse thread*

PLAIN FINISH

D Dia. & Thread	*SPAENAUR No.'s* 72" Length	144" Length
1/4"-20	**866-200**	–
5/16"-18	**866-201**	–
3/8"-16	**866-202**	–
7/16"-14	**866-203**	–
1/2"-13	**866-204**	**866-216**
5/8"-11	**866-205**	**866-217**
3/4"-10	**866-206**	**866-218**
7/8"-9	**866-207**	**866-219**
1"-8	**866-208**	**866-220**
1-1/8"-8	**866-210**	**866-234**
1-1/4"-8	**866-211**	**866-235**
1-3/8"-8	**866-212**	**866-236**
1-1/2"-8	**866-213**	**866-237**
1-5/8"-8	**866-214**	**866-238**
1-3/4"-8	**866-209**	**866-239**
2"-8	**866-215**	**866-240**

All Threaded Rods listed above Priced Singly.

2H Nuts

PLAIN
and
YELLOW ZINC FINISH

(▲Yellow Zinc Finish being phased out as stock is depleted.)

For use with B7 Studs & Rods

2H Nuts are used for high temperature, high pressure applications such as pipelines, pressure vessels, valves and controls used in the transmission and storage of oil, gasoline, natural gas, steam and many other chemicals.

PHYSICAL PROPERTIES

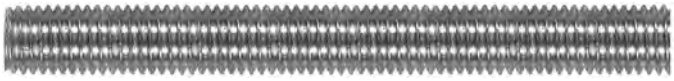
Specification: ASTM A 194-2H
Grade: AISI 1045 or 1050
Heat Treatment: Oil Quench & Temper
Hardness: 248 to 352 Brinell No.

SPAENAUR No's. PLAIN	▲YELLOW ZINC	UNC THREAD	ACROSS FLATS	THICKNESS	UNIT PKG.
155-200	—	1/4"-20	1/2"	15/64"	50
155-201	**155-201YZ**	5/16"-18	9/16"	19/64"	25
155-202	—	3/8"-16	11/16"	23/64"	25
155-203	**155-203YZ**	7/16"-14	3/4"	27/64"	25
155-204	**155-204YZ**	1/2"-13	7/8"	31/64"	25
155-205	**155-205YZ**	5/8"-11	1-1/16"	39/64"	20
155-206	—	3/4"-10	1-1/4"	47/64"	10
155-207	—	7/8"-9	1-7/16"	55/64"	10
155-208	—	1"-8	1-5/8"	63/64"	10
155-211	**155-211YZ**	1-1/8"-8	1-13/16"	1-7/64"	10
155-210	—	1-1/4"-8	2"	1-7/32"	10
155-209	**155-209YZ**	1-3/8"-8	2-3/16"	1-11/32"	10
155-212	—	1-1/2"-8	2-3/8"	1-15/32"	10
155-213	—	1-5/8"-8	2-9/16"	1-19/32"	10
155-214	**155-214YZ**	1-3/4"-8	2-3/4"	1-23/32"	10
155-215	**155-215YZ**	2"-8	3-1/8"	1-31/32"	5

See previous page for B7 ALLOY STEEL STUDS.
See page D3 for ASTM F436 STRUCTURAL WASHERS.

B

THREADED RODS



Right-Hand Threads
Threaded Full Length

BRASS

Self-Colour — Plain Finish

Thread Size	SPAENAUR No. 24" Lgth.	SPAENAUR No. 36" Lgth.	Lgths. in Package
4-40	**TR-500**	**868-525**	25
5-40	**TR-501**	**868-526**	25
6-32	**TR-502**	**868-518**	25
8-32	**TR-503**	**868-527**	25
10-24	**TR-504**	**868-528**	25
10-32	**TR-505**	**868-521**	25
12-24	**TR-506**	**868-529**	25
1/4"-20	**TR-507**	**868-530**	10
1/4"-28	**TR-508**	**868-524**	10
5/16"-18	**TR-509**	**868-531**	10
3/8"-16	**TR-510**	**868-532**	10
3/8"-24		**868-538**	1
7/16"-14		**868-539**	1
1/2"-13	**TR-511**	**868-533**	1
5/8"-11	**TR-512**	**868-534**	1
3/4"-10	**TR-513**	**868-535**	1
7/8"-9	**TR-514**	**868-536**	1
1"-8	**TR-515**	**868-537**	1

ALUMINUM

Alloy Grade 6061-T6 (ASTM)

THREADED RODS

Full Length Right-Hand Threads

INCH SIZES

Thread Size	SPAENAUR No. 36" Lgth.	SPAENAUR No. 72" Lgth.	Lgths. in Package
6-32	**863-001**	**863-020**	10
8-32	**863-002**	**863-021**	10
10-24	**863-003**	**863-022**	10
10-32	**863-004**	**863-023**	10
1/4"-20	**863-005**	**863-024**	1
5/16"-18	**863-006**	**863-025**	1
3/8"-16	**863-007**	**863-026**	1
1/2"-13	**863-008**	**863-027**	1
5/8"-11	**863-009**	**863-028**	1
3/4"-10	**863-010**	**863-029**	1
7/8"-9	**863-011**	**863-030**	1
1"-8	**863-012**	**863-031**	1

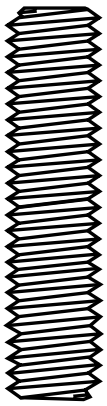
18-8 and 316 STAINLESS STEEL

Thread Size	18-8 STAINLESS STEEL 12" Lgth.	24" Lgth.	36" Lgth.	72" Lgth.	316 S.S. 36" Lgth.	Lgths. in Package
0000-160	**870-001**					1
000-120	**870-002**					1
00-96	**870-003**					1
00-90	**870-004**					1
0-80	**870-005**					1
1-72	**870-006**					1
2-56		**870-009**				1
4-40		**TR-2000**	**870-824**			25
6-32		**TR-2001**	**870-825**		**870-902**	25
8-32		**TR-2002**	**870-826**		**870-903**	25
10-24		**TR-2003**	**870-827**		**870-904**	1
10-32		**TR-2004**	**870-828**		**870-905**	1
1/4"-20		**TR-2005**	**870-829**		**870-906**	1
1/4"-28		**TR-2006**	**870-830**			1
5/16"-18		**TR-2007**	**870-831**		**870-901**	1
5/16"-24		**TR-2008**	**870-832**			1
3/8"-16		**TR-2009**	**870-833**	**TR-2016**	**870-900**	1
3/8"-24		**TR-2010**	**870-834**	**870-840**		1
7/16"-14		**TR-2011**	**870-835**	**870-841**	**870-907**	1
1/2"-13		**TR-2012**	**870-836**	**TR-2017**	**870-908**	1
1/2"-20		**TR-2013**	**870-837**	**870-842**		1
5/8"-11		**TR-2014**	**870-838**	**TR-2018**	**870-909**	1
3/4"-10		**TR-2015**	**870-839**	**TR-2019**	**870-910**	1
7/8"-9			**870-843**	**TR-2020**		1
1"-8				**TR-2021**	**870-911**	1
1-1/8"-7				**TR-2022**	**870-912**	1
1-1/4"-7				**TR-2023**	**870-913**	1
1-1/2"-6					**870-914**	1

NYLON

(Polyamid 6/6)

INCH SIZES



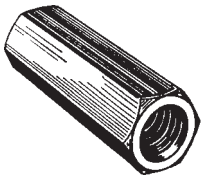
Full Length THREADED RODS

RIGHT-HAND THREADS in 48" Lengths

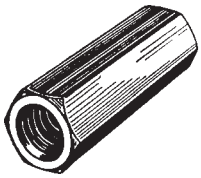
Thread Size	48" Lgth. SPAENAUR No.	Lengths in Package
4-40	■ **872-012**	1
4-40	**872-001**	1
6-32	**872-002**	1
8-32	**872-003**	1
10-24	**872-004**	1
10-32	**872-005**	1
1/4"-20	**872-006**	1
5/16"-18	**872-007**	1
3/8"-16	**872-008**	1
1/2"-13	**872-010**	1
5/8"-11	**872-011**	1
3/4"-10	**872-013**	1
7/8"-9	**872-014**	1
1"-8	**872-015**	1

■ 24" Length

CATALOG 13



COUPLING NUTS



For joining lengths of threaded rod end to end.

Right-hand and Left-hand Threads
Coarse and Fine Threads

Used by plumbers, electricians, contractors, to join lengths of *SPAENAUR* threaded rod, end to end.

For mounting heaters, fans, lighting fixtures; for stringing pipe, conduit, raceways. Solves unusual fastening problems when used with versatile *SPAENAUR* threaded rods.

INCH SIZES

Zinc Plated Steel - RIGHT-HAND Threads

SPAENAUR No.	Size & Threads Per Inch	Width Across Flats	Length	Unit Pkg. Qty.
155-301	10-24 UNC	5/16"	3/4"	50
155-300	10-32 UNF	5/16"	3/4"	50
155-302	1/4"-20 UNC	7/16"	7/8"	50
155-359	1/4"-28 UNF	3/8"	7/8"	50
155-303	5/16"-18 UNC	1/2"	1-3/4"	25
155-376	5/16"-18 UNC	5/8"	1-3/4"	25
155-360	5/16"-24 UNF	7/16"	7/8"	25
155-304	3/8"-16 UNC	9/16"	1-3/4"	25
155-361	3/8"-24 UNF	1/2"	1-1/8"	25
155-362	3/8"-24 UNF	5/8"	1-3/4"	25
155-305	7/16"-14 UNC	5/8"	1-3/4"	25
155-363	7/16"-20 UNF	5/8"	1-1/4"	25
155-381	1/2"-13 UNC	11/16"	1-3/4"	25
155-306	1/2"-13 UNC	3/4"	1-3/4"	25
155-364	1/2"-20 UNF	5/8"	1-1/4"	25
155-365	1/2"-20 UNF	11/16"	1-3/4"	25
155-377	5/8"-11 UNC	13/16"	2-1/8"	15
155-307	5/8"-11 UNC	15/16"	2-1/8"	15
155-366	5/8"-18 UNF	13/16"	2-1/8"	15
155-024	3/4"-10 UNC	1"	2-1/4"	15
155-308	3/4"-10 UNC	1-1/8"	2-1/4"	15
155-367	3/4"-16 UNF	1"	2-1/4"	15
155-309	7/8"-9 UNC	1-1/4"	2-1/2"	10
155-368	7/8"-14 UNF	1-1/4"	2-1/2"	10
155-310	1"-8 UNC	1-1/4"	2-1/2"	10
155-369	1"-14 UNF	1-3/8"	2-3/4"	10
155-355	1-1/8"-7 UNC	1-1/2"	3"	10
155-311	1-1/8"-7 UNC	1-5/8"	3"	10
—	1-1/8"-12 UNF	—	—	—
155-312	1-1/4"-7 UNC	1-5/8"	3"	1
155-370	1-1/4"-12 UNF	1-5/8"	3"	1
155-341	1-1/2"-6 UNC	2"	4"	1
155-371	1-1/2"-12 UNF	2"	3-1/2"	1

18-8 STAINLESS STEEL - Right-hand Threads

SPAENAUR No.	Size & Threads Per Inch	Width Across Flats	Length	Unit Pkg. Qty.
155-800	1/4"-20 UNC	3/8"	7/8"	50
155-801	5/16"-18 UNC	7/16"	1"	25
155-802	3/8"-16 UNC	1/2"	1-1/8"	25
155-803	1/2"-13 UNC	5/8"	1-1/4"	25
155-804	5/8"-11 UNC	7/8"	1-3/4"	10
155-805	3/4"-10 UNC	1"	2-1/4"	10

Zinc Plated Steel - LEFT-HAND Threads

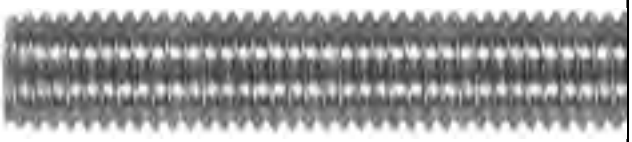
SPAENAUR No.	Size & Threads Per Inch	Width Across Flats	Length	Unit Pkg. Qty.
155-351	3/8"-16 UNC	5/8"	1-3/4"	25
155-352	1/2"-13 UNC	11/16"	1-3/4"	25
155-353	5/8"-11 UNC	13/16"	2-1/8"	15
155-354	3/4"-10 UNC	1"	2-1/4"	15

Inch Size Coupling Nuts are used with Threaded Rods on pages B338, B339 and B342.

Metric Coupling Nuts are found on pages B345 and C21.

B

DIN 975 Standard Coarse Thread
Right Hand Threads - Full Length



Property Class 4.6 and 8.8 Steel Plain and Zinc Plated

Size Dia. x Pitch mm	CLASS 4.6 PLAIN 1 Metre Lengths	2 Metre Lengths	3 Metre Lengths	CLASS 4.6 ZINC PLATED 1 Metre Lengths	2 Metre Lengths	CLASS 8.8 1 Metre Lengths Plain	Zinc Plated
M2 x 0.40	**867-001**			**867-001ZP**			
M2.2 x 0.45							
M2.5 x 0.45	**867-026**			**867-026ZP**			
M2.6 x 0.45	**867-003**			**867-003ZP**			
M3 x 0.50	**867-004**	**867-032**	**867-042**	**867-004ZP**			
M3.5 x 0.60	**867-028**			**867-028ZP**			
M4 x 0.70	**867-005**	**867-033**	**867-043**	**867-005ZP**		**867-102**	**867-102ZP**
M5 x 0.80	**867-006**	**867-034**	**867-044**	**867-006ZP**		**867-103**	**867-103ZP**
M6 x 1.00	**867-007**	**867-035**	**867-045**	**867-007ZP**	**867-035ZP**	**867-104**	**867-104ZP**
M7 x 1.00	**867-027**			**867-027ZP**			
M8 x 1.25	**867-008**	**867-036**	**867-046**	**867-008ZP**	**867-036ZP**	**867-105**	**867-105ZP**
M10 x 1.50	**867-009**	**867-037**	**867-047**	**867-009ZP**	**867-037ZP**	**867-106**	**867-106ZP**
M12 x 1.75	**867-010**	**867-038**	**867-048**	**867-010ZP**	**867-038ZP**	**867-107**	**867-107ZP**
M14 x 2.00	**867-011**	**867-068**	**867-049**	**867-011ZP**		**867-101**	**867-101ZP**
M16 x 2.00	**867-012**	**867-039**	**867-050**	**867-012ZP**	**867-039ZP**	**867-109**	**867-109ZP**
M18 x 2.50	**867-013**		**867-051**	**867-013ZP**		**867-100**	**867-100ZP**
M20 x 2.50	**867-014**	**867-040**	**867-052**	**867-014ZP**	**867-040ZP**	**867-111**	**867-111ZP**
M22 x 2.50	**867-015**		**867-053**	**867-015ZP**		**867-112**	**867-112ZP**
M24 x 3.00	**867-016**	**867-041**	**867-054**	**867-016ZP**		**867-113**	**867-113ZP**
M27 x 3.00	**867-017**			**867-017ZP**		**867-114**	**867-114ZP**
M30 x 3.50	**867-018**			**867-018ZP**		**867-115**	**867-115ZP**
M33 x 3.50	**867-019**			**867-019ZP**		**867-116**	
M36 x 4.00	**867-020**			**867-020ZP**		**867-117**	**867-117ZP**
M39 x 4.00	**867-021**			**867-021ZP**			
M42 x 4.50	**867-022**			**867-022ZP**			
M45 x 4.50	**867-023**			**867-023ZP**			
M48 x 5.00	**867-024**			**867-024ZP**			
M52 x 5.00	**867-025**			**867-025ZP**			

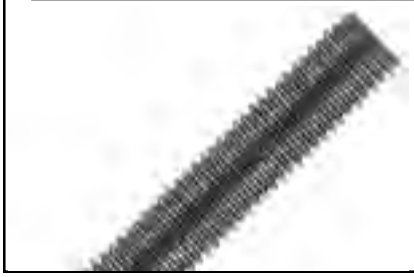
DIN 975

METRIC FINE THREAD

Right Hand Thread - Full Length

Property Class 4.6 Steel, Plain
1 Metre Lengths

SPAENAUR No.	Dia. x Pitch	*SPAENAUR No.*	Dia. x Pitch
867-069	M4 x 0.50	**867-075**	M12 x 1.25
867-070	M5 x 0.50	**867-076**	M12 x 1.50
867-071	M6 x 0.75	**867-077**	M14 x 1.50
867-072	M8 x 1.00	**867-078**	M16 x 1.50
867-073	M10 x 1.00	**867-079**	M18 x 1.50
867-074	M10 x 1.25	**867-080**	M20 x 1.50



METRIC LEFT-HAND THREAD

Standard Coarse Thread - Full Length

Property Class 4.6 Steel, Plain
1 Metre Lengths

SPAENAUR No.	Dia. x Pitch	*SPAENAUR No.*	Dia. x Pitch
867-055	M4 x 0.70	**867-061**	M14 x 2.00
867-056	M5 x 0.80	**867-062**	M16 x 2.00
867-057	M6 x 1.00	**867-063**	M18 x 2.50
867-058	M8 x 1.25	**867-064**	M20 x 2.50
867-059	M10 x 1.50	**867-065**	M24 x 3.00
867-060	M12 x 1.75		

CATALOG 13

For Lengths per Pkg. Qty. see Price List.

DIN 975 Metric Standard Coarse Thread
Right-Hand - Full Length

Brass, A2 & A4 Stainless Steel, Aluminum and Nylon

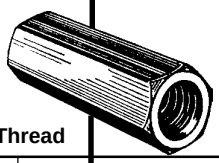
For Lengths per Pkg. Qty. see Price List.

Size Dia. x Pitch mm	BRASS 1 Metre Lengths	A2 STAINLESS STEEL 1 Metre Lengths	A2 STAINLESS STEEL 2 Metre Lengths	A2 STAINLESS STEEL 3 Metre Lengths	A4 STAINLESS STEEL 1 Metre Lengths	A4 STAINLESS STEEL 3 Metre Lengths	ALUMINUM 1 Metre Lengths	6/6 NYLON 1 Metre Lengths
M2 x 0.40	**869-001**	**871-030**			**871-050**			
M2.3 x 0.40	**869-002**							
M2.5 x 0.45	**869-013**	**871-031**			**871-051**			
M2.6 x 0.45	**869-003**							
M3 x 0.50	**869-004**	**871-004**			**871-017**		**863-100**	**873-004**
M3.5 x 0.70		**871-032**						
M4 x 0.70	**869-005**	**871-005**			**871-018**		**863-101**	**873-005**
M5 x 0.80	**869-006**	**871-006**	**871-038**		**871-019**		**863-102**	**873-006**
M6 x 1.00	**869-007**	**871-007**	**871-039**	**871-043**	**871-020**	**871-056**	**863-103**	**873-007**
M7 x 1.00		**871-033**						
M8 x 1.25	**869-008**	**871-008**	**871-040**	**871-044**	**871-021**	**871-057**	**863-104**	**873-008**
M10 x 1.50	**869-009**	**871-009**	**871-041**	**871-045**	**871-022**	**871-058**	**863-105**	**873-009**
M12 x 1.75	**869-010**	**871-010**	**871-042**	**871-046**	**871-023**	**871-059**	**863-106**	**873-010**
M14 x 2.00	**869-011**	**871-011**			**871-024**			**873-011**
M16 x 2.00	**869-012**	**871-012**		**871-047**	**871-025**	**871-060**	**863-107**	**873-012**
M18 x 2.50	**869-015**	**871-013**			**871-026**			**873-013**
M20 x 2.50	**869-016**	**871-014**		**871-048**	**871-027**	**871-061**		**873-014**
M22 x 2.50	**869-017**	**871-015**			**871-028**			
M24 x 3.00	**869-018**	**871-016**		**871-049**	**871-029**	**871-062**		
M27 x 3.00	**869-019**	**871-034**			**871-052**			
M30 x 3.50	**869-020**	**871-035**			**871-053**			
M33 x 3.50	**869-021**	**871-036**			**871-054**			
M36 x 4.00	**869-022**	**871-037**			**871-055**			

Metric Sizes

COUPLING NUTS

ZINC PLATED STEEL **Regular (Coarse) Thread**



COUPLING NUTS **DIN 6334**

Regular (Coarse) Thread

STEEL, PLAIN and ZINC PLATED

SPAENAUR No.	Dimensions in Millimeters Thread Size Diameter	Pitch	Width A/F	Length	Unit Pkg.
156-202	M8	1.25	15	44	50
156-203	M10	1.50	15	44	25
156-204	M12	1.75	15	44	25
156-205	M14	2.00	17	44	25
156-209	M22	2.50	32	63	10
156-211	M27	3.00	41	76	10
156-212	M30	3.50	41	76	10

SPAENAUR No. Plain	Zinc Plated	Dimensions in Millimeters Thread Size Diameter	Pitch	Width A/F	Length	Unit Pkg.
156-344	**156-344ZP**	M6	1.00	10	18	50
156-345	**156-345ZP**	M8	1.25	13	24	50
156-352	**156-352ZP**	M10	1.50	17	30	25
156-346	**156-346ZP**	M12	1.75	19	36	25
156-347	**156-347ZP**	M16	2.00	24	48	25
156-348	**156-348ZP**	M20	2.50	30	60	10
156-349	**156-349ZP**	M24	3.00	36	72	10
156-350	**156-350ZP**	M30	3.50	46	90	5
156-351	**156-351ZP**	M36	4.00	55	108	5

B

B7 Alloy Steel Studs

Full Right Hand Threaded

Heat Treated
Chromium - Molybdenum Alloy Steel
Quench and Tempered
For High Temperature Service

Conforms to ASTM A193 - Grade B7
Minimum Tensile Strength: 125,000 PSI (860 MPa.)

Inch Sizes - UNC Coarse Thread*

*Sizes up to 1" nominal size UNC Class 2A fit.
Over 1" nominal size 8 UN Class 2A fit.

Plain Finish

Use with 2H Nuts page B341 and ASTM F436 Hardened Structural Washers page D3.

Diameter	1/2"-13	5/8"-11	3/4"-10	7/8"-9	1"-8	1-1/8"-8	1-1/4"-8	1-3/8"-8	1-1/2"-8
Length	**ORDER BY *SPAENAUR* NUMBERS LISTED BELOW**								
1-3/4"	**616-130**								
2"	**616-131**	**616-139**	**616-148**						
2-1/4"	*Unit Pkg. 25*	*Unit Pkg. 20*							
2-1/2"	**616-132**	**616-140**							
2-3/4"									
3"	**616-133**	**616-141**	**616-149**	**616-158**					
3-1/4"									
3-1/2"	**616-134**	**616-142**	**616-150**	*Unit Pkg. 10*					
3-3/4"									
4"	**616-135**	**616-143**	**616-151**	**616-159**	**616-167**				
4-1/4"									
4-1/2"	**616-136**	**616-144**	**616-152**	**616-160**	**616-168**	*Priced Singly*			
4-3/4"									
5"	**616-137**	**616-145**	**616-153**	**616-161**	**616-169**	**616-174**			
5-1/2"									
6"	**616-138**	**616-146**	**616-154**	**616-162**	**616-170**	**616-175**	**616-177**		
6-1/2"									
7"			**616-155**	**616-163**	**616-171**				
7-1/2"									
8"		**616-147**	**616-156**	**616-164**	**616-172**	**616-176**	**616-178**		
8-1/2"									
9"	*Priced Singly*			**616-165**					**616-181**
9-1/2"									
10"			**616-157**	**616-166**	**616-173**		**616-179**	**616-180**	**616-182**
11"									
12"									

MILL TEST REPORTS ARE AVAILABLE AT NOMINAL CHARGE.

B7 Full Threaded Rod, 6 Foot lengths - see page B341.

CATALOG 13

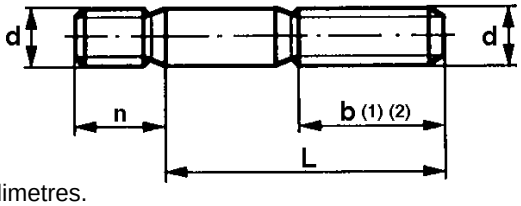
B

DIN 939

Metric

Property Class 5.8 Steel
Plain Finish

End "n" approximately 1.25 x diameter.
Overall length = "L" plus "n".



All dimensions in millimetres.

d	M6	M8	M10	M12	M16	M18	M20	M24
PITCH	1.00	1.25	1.50	1.75	2.00	2.50	2.50	3.00
Note below. **b**(1)	18	22	26	30	38	42	46	54
b(2)	24	28	32	36	44	48	52	60
n	7.5	10	12	15	20	22	25	30
x1	2.5	3.2	3.8	4.3	5.0	6.3	6.3	7.5
(L) 16 Length	**616-013**	**616-026**						
18		**616-027**						
20	**616-014**	**616-028**	**616-040**	**616-061**				
25	**616-015**	**616-029**	**616-039**	**616-062**				
30	**616-016**	**616-008**	**616-038**	**616-063**	**616-077**	**616-090**		
35	**616-017**	**616-030**	**616-037**	**616-064**	**616-078**			
40	**616-018**	**616-031**	**616-036**	**616-065**	**616-009**			
45	**616-019**	**616-032**	**616-048**	**616-066**	**616-079**		**616-010**	
50	**616-020**	**616-033**	**616-049**	**616-067**	**616-080**		**616-091**	**616-102**
55		**616-034**	**616-050**	**616-068**	**616-081**		**616-092**	**616-103**
60	**616-021**	**616-035**	**616-051**	**616-069**	**616-012**		**616-093**	**616-104**
65		**616-046**	**616-052**	**616-070**	**616-082**		**616-094**	**616-105**
70	**616-022**	**616-045**	**616-053**	**616-071**	**616-083**		**616-095**	**616-106**
75		**616-044**						
80	**616-023**	**616-043**	**616-054**	**616-072**	**616-084**		**616-011**	**616-107**
90	**616-024**	**616-042**	**616-055**	**616-073**	**616-085**		**616-096**	**616-108**
100	**616-025**	**616-041**	**616-056**	**616-074**	**616-086**		**616-097**	**616-109**
110			**616-057**	**616-075**	**616-087**		**616-098**	
120			**616-058**	**616-076**	**616-088**		**616-099**	**616-110**
130			**616-059**					
140			**616-060**		**616-089**		**616-100**	
150							**616-101**	**616-111**

Note: b(1) For lengths (L) up to 125mm
b(2) For lengths (L) from 125 to 200mm

Studs of sizes above the heavy line in chart cannot be manufactured with a nut end thread length, b, as specified in the table. In such cases, b will be approximately equal to L- (x1 + 3).

DIN 939

Metric
Property Class 8.8 Steel
Plain Finish

SPAENAUR No.	Dia. x Pitch	(L) Lgth.
616-112	M8 x 1.25	45mm
616-113	M8 x 1.25	50mm
616-006YZ†	M10 x 1.50	100mm
616-114	M12 x 1.75	25mm
616-114YZ†	M12 x 1.75	25mm

Metric
A2 Stainless Steel

616-805	M8 x 1.25	35mm
616-800	M8 x 1.25	50mm

DIN 938

Metric
Steel - Plain Finishes
End "n" approximately 1 x diameter

616-115	M8 x 1.25	30mm
616-116	M12 x 1.75	120mm
616-117ZP*	M16 x 2.00	40mm
616-118YZ†	M10 x 1.50	100mm
616-119YZ†	M20 x 2.50	60mm
616-120YZ†	M20 x 2.50	65mm

*Zinc Plated †Yellow Zinc

DIN 835

Metric Property Class 8.8 Steel
Plain Finish
End "n" approximately 2 x diameter

SPAENAUR No.	Dia. x Pitch	(L) Lgth.	O/A Length
616-002	M10 x 1.50	130mm	150mm
616-003	M12 x 1.75	70mm	94mm
616-005YZ†	M8 x 1.25	130mm	146mm
616-002YZ†	M10 x 1.50	130mm	150mm
616-001YZ†	M10 x 1.50	210mm	230mm
616-127▲	M14 x 2.00	90mm	118mm

†Yellow Zinc ▲ Property Class 5.8

DIN 976-2

Metric Threaded Pins
Free-cutting Steel

Threaded full Length

Coarse Thread

Chamfered both ends.

SPAENAUR No.	Dia. x Pitch	Length	Finish
616-121	M10 x 1.50	25mm	Plain
616-121YZ	M10 x 1.50	25mm	Yellow Zinc
616-121ZP	M10 x 1.50	25mm	Zinc Plated
616-804ZP	M10 x 1.50	40mm	Zinc Plated

CATALOG 13

For Unit Package Quantity
See Price List.

B

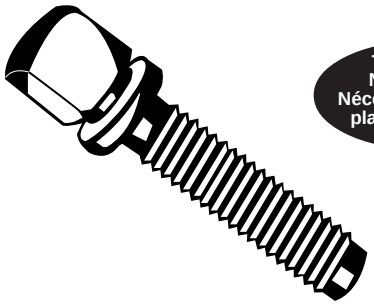
Heat-treated Alloy

STEEL

NOT PLATED

Half-dog Point

Polished **Square Head**



Tool Room Necessities
Nécessités pour la place aux outils

TOOL POST SCREWS

Preferred by Machinists and Tool and Die Makers everywhere.

Diameter and Thread	Length under Collar	*SPAENAUR No.*	Unit Package
1/4" (.250) **20 UNC**	3/4"	**486-200**	5
	1"	**486-201**	5
	1-1/4"	**486-202**	5
	1-1/2"	**486-203**	5
5/16" (.3125) **18 UNC**	3/4"	**486-204**	5
	1"	**486-205**	5
	1-1/4"	**486-206**	5
	1-1/2"	**486-207**	5
	1-3/4"	**486-208**	5
	2"	**486-209**	5
3/8" (.375) **16 UNC**	3/4"	**486-210**	5
	1"	**486-211**	5
	1-1/4"	**486-212**	5
	1-1/2"	**486-213**	5
	1-3/4"	**486-214**	5
	2"	**486-215**	5
	2-1/4"	**486-216**	5
	2-1/2"	**486-217**	5
7/16" (.4375) **14 UNC**	1"	**486-218**	5
	1-1/4"	**486-219**	5
	1-1/2"	**486-220**	5
	1-3/4"	**486-221**	5
	2"	**486-222**	5
1/2" (.500) **13 UNC**	1"	**486-223**	5
	1-1/4"	**486-224**	5
	1-1/2"	**486-225**	5
	1-3/4"	**486-226**	5
	2"	**486-227**	5
	2-1/4"	**486-228**	5
	2-1/2"	**486-229**	5
	2-3/4"	**486-230**	5
	3"	**486-231**	5

Diameter and Thread	Length under Collar	*SPAENAUR No.*	Unit Package
9/16" (.5625) **12 UNC**	1-1/2"	**486-232**	5
	2-1/2"	**486-234**	5
	3"	**486-235**	5
5/8" (.625) **11 UNC**	1-1/2"	**486-236**	5
	1-3/4"	**486-237**	5
	2"	**486-238**	5
	2-1/4"	**486-239**	5
	2-1/2"	**486-240**	5
	2-3/4"	**486-241**	5
	3"	**486-242**	5
	3-1/4"	**486-243**	5
	3-1/2"	**486-244**	5
	4"	**486-245**	5
3/4" (.750) **10 UNC**	1-1/2"	**486-246**	5
	1-3/4"	**486-247**	5
	2"	**486-248**	5
	2-1/4"	**486-249**	5
	2-1/2"	**486-250**	5
	2-3/4"	486-251	5
	3"	**486-252**	5
	3-1/4"	**486-253**	5
	3-1/2"	**486-254**	5
	4"	**486-255**	5

See also...

Inch Square Head Set Screws, Cup Point, UNC - see page B294.

12 Point, "Countr-Bor" Screws, with Shoulder, UNC - see page B248.

Note: *Numbers shown in* ***Bold Type*** *are normally available from stock. Light-type numbers are available in minimum lots of 3 packages per item, with delivery of 10 days to 2 weeks.*

B

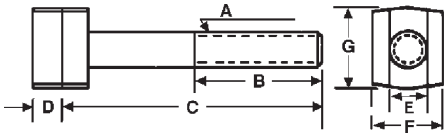
Tool Room Necessities
Nécessités pour la place aux outils

T-Slot Bolts

Steel – Black oxide finish

INCH Sizes

Used for setting up work on planers, shapers, milling machines or similar applications. Heads are sized to fit in table slot giving more bearing surface and to prevent twisting or jamming. Upset forged from AISI 1045 for strength.



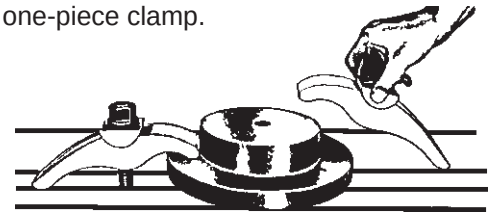
SPAENAUR No.	Thread A	All Dimensions Stated in Inches B	C	D	E	F	G	Unit Pkg.
070-001	3/8-16	5/8	1	13/64	3/8	5/8	3/4	1
070-002	3/8-16	1	1-1/2	13/64	3/8	5/8	3/4	1
070-003	3/8-16	1-1/4	2	13/64	3/8	5/8	3/4	1
070-004	1/2-13	1	1-1/2	1/4	1/2	13/16	1	1
070-005	1/2-13	1-1/4	2	1/4	1/2	13/16	1	1
070-006	1/2-13	1-1/2	2-1/2	1/4	1/2	13/16	1	1
070-007	5/8-11	1-1/4	2	5/16	5/8	1-1/64	1-1/8	1
070-008	5/8-11	1-1/2	3	5/16	5/8	1-1/64	1-1/8	1
070-009	5/8-11	1-1/2	4	5/16	5/8	1-1/64	1-1/8	1
070-010	3/4-10	1-1/2	4	3/8	3/4	1-1/4	1-3/8	1
070-011	3/4-10	1-1/2	5	3/8	3/4	1-1/4	1-3/8	1
070-012	3/4-10	2	6	3/8	3/4	1-1/4	1-3/8	1
070-013	1"-8	2	5	1/2	1	1-21/32	1-7/8	1
070-014	1"-8	2	6	1/2	1	1-21/32	1-7/8	1
070-015	1"-8	3	8	1/2	1	1-21/32	1-7/8	1

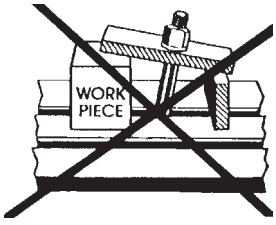
RITE HITE

Self-positioning Hold-down Clamps

You Can't Set Up Quicker

Rugged fully adjustable one-piece clamp.





PRICED SINGLY

MODEL S - Shorter for Closer Set-ups

SPAENAUR No.	MAX. BOLT SIZE	NOMINAL CLAMPING RANGE	NOMINAL DIMENSIONS	WEIGHT
086-020	3/8"	0" to 1"	1-1/8" x 3"	1/2 lb.
086-021	1/2"	0" to 1-3/4"	1-3/8" x 4-1/4"	1 lb.
086-022	5/8"	0" to 2-3/4"	1-7/8" x 5-1/2"	2 lbs.
086-023	3/4"	0" to 3-1/2"	2" x 7"	4 lbs.
086-024	1"	0" to 3"	2-7/8" x 9"	10 lbs.

MODEL L - Longer Reach

SPAENAUR No.	MAX. BOLT SIZE	NOMINAL CLAMPING RANGE	NOMINAL DIMENSIONS	WEIGHT
086-025	3/8"	0" to 1-1/4"	1-1/8" x 3-1/2"	1/2 lb.
086-026	1/2"	0" to 2-1/2"	1-7/16" x 5-3/4"	1-1/4 lbs.
086-027	5/8"	0" to 3-1/2"	1-7/8" x 6-3/4"	2-1/2 lbs.
086-028	3/4"	0" to 5"	2-1/8" x 9"	4-3/4 lbs.
086-029	1"	0" to 5"	2-7/8" x 11-1/8"	12 lbs.

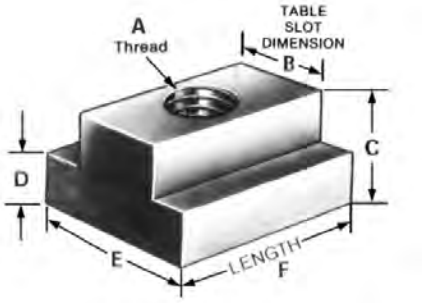
B

Tool Room Necessities
Nécessités pour la place aux outils

T-SLOT NUTS

Hardened Steel
Black Oxide Finish

Inch Sizes



Made to fit all standard machine tables. An imperfect thread is left in the T-Nut base to eliminate any danger of screwing the stud through the T-Nut and damaging the table slot. Also, hardened machine surfaces will not damage underside of T-slot.

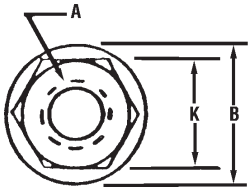
All T-Slot Nuts Priced Singly.

T-SLOT NUTS and RITE HITE Clamps
Use them with
B7 ALLOY STEEL THREADED RODS
see page B341.

SPAENAUR No.	A THREAD	B SLOT	C	D	E	F LENGTH
226-319	1/4-20	5/16	1/4	3/16	9/16	9/16
226-320	1/4-20	3/8	3/8	15/64	9/16	9/16
226-009	5/16-18	3/8	1/2	3/16	5/8	7/8
226-321	5/16-18	3/8	3/8	1/4	5/8	7/8
226-310	3/8-16	7/16	1/2	7/32	11/16	7/8
226-311	3/8-16	1/2	1/2	9/32	7/8	7/8
226-322	3/8-16	9/16	5/8	11/32	7/8	1-1/8
226-324	7/16-14	1/2	3/8	7/32	3/4	7/8
226-312	1/2-13	9/16	5/8	11/32	7/8	1-1/8
226-313	1/2-13	5/8	5/8	11/32	1	1-1/8
226-325	1/2-13	5/8	3/4	3/8	1-1/8	1-1/8
226-326	1/2-13	11/16	3/4	7/16	1-1/8	1-1/4
226-327	1/2-13	3/4	3/4	15/32	1-1/4	1-1/4
226-314	5/8-11	11/16	3/4	7/16	1-1/8	1-1/4
226-315	5/8-11	3/4	3/4	15/32	1-1/4	1-1/4
226-328	5/8-11	13/16	1	9/16	1-1/4	1-1/2
226-316	3/4-10	13/16	1	9/16	1-1/4	1-1/2
226-317	3/4-10	7/8	1	9/16	1-1/2	1-1/2
226-318	3/4-10	1	1	5/8	1-5/8	1-3/4
226-329	3/4-10	1	1-1/2	3/4	1-3/4	1-3/4
226-330	3/4-10	1-1/16	1-1/8	11/16	1-5/8	2
226-331	7/8-9	1	1	5/8	1-5/8	1-3/4
226-332	7/8-9	1-1/16	1-1/8	11/16	1-5/8	2
226-333	7/8-9	1-1/8	1-1/2	3/4	1-3/4	2
226-337	7/8-9	1-5/16	1-1/4	15/16	2	2
226-334	1-8	1-1/16	1-1/8	11/16	1-5/8	2
226-335	1-8	1-1/8	1-1/2	3/4	1-3/4	2
226-336	1-8	1-1/4	1-1/4	7/8	2	2
226-338	1-8	1-5/16	1-1/4	15/16	2	2

FLANGE NUTS

Hardened Steel
Black Oxide Finish



Unit Package Quantity
6

Inch Sizes

SPAENAUR No.	A THREAD	B O/A Dia.	C O/A Thick.	K Across Flats
155-230	1/4"-20	5/8	5/16	1/2
155-231	5/16"-18	3/4	3/8	9/16
155-232	3/8"-16	7/8	1/2	11/16
155-241	7/16"-14	1	9/16	3/4
155-234	1/2"-13	1-1/8	11/16	7/8
155-235	5/8"-11	1-3/8	13/16	1-1/16
155-236	3/4"-10	1-5/8	1	1-1/4
155-237	7/8"-9	1-3/4	1-1/8	1-7/16
155-238	1"-8	2	1-1/4	1-5/8
155-240	1-1/4"-7	2-1/4	1-1/4	1-7/8

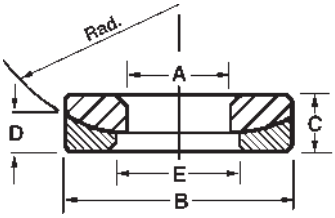
More Flange Nuts - see pages C39 and C40.

Self-Aligning Washers (Spherical)

Tool Room Necessities
Nécessités pour la place aux outils

Heat Treated Steel.
Black Oxide Finish.
Tops and bottoms available separately.
Bottom half works with Spherical Flanged Nuts (see below).

Spherical Washers for bolts larger than 2" available.
Ask for price and delivery.

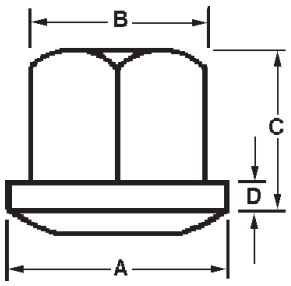


SPAENAUR No. Top	Bottom	Bolt Size	A	B	C	D	E	R	Pkg. Qty.
656-250	**656-259**	1/4"	9/32"	5/8"	3/16"	1/8"	5/16"	3/4"	10
656-251	**656-260**	5/16"	11/32"	3/4"	1/4"	5/32"	3/8"	1"	10
656-252	**656-261**	3/8"	13/32"	7/8"	1/4"	5/32"	7/16"	1-1/4"	10
656-253	**656-262**	7/16"	15/32"	1"	5/16"	7/32"	1/2"	1-3/4"	10
656-254	**656-263**	1/2"	17/32"	1-1/8"	5/16"	7/32"	9/16"	1-1/2"	10
656-255	**656-264**	5/8"	21/32"	1-3/8"	5/16"	7/32"	11/16"	1-3/4"	10
656-256	**656-265**	3/4"	25/32"	1-5/8"	3/8"	9/32"	13/16"	2-1/4"	5
656-257	**656-266**	7/8"	15/16"	1-3/4"	3/8"	1/4"	1"	2-1/2"	5
656-258	**656-267**	1"	1-1/16"	2"	1/2"	5/16"	1-1/8"	2-3/4"	5

Spherical Flanged Nut

Heat Treated Steel.
Black Oxide Finish.

Spherical Flanged Nut works with bottom Self-Aligning Washer shown above.



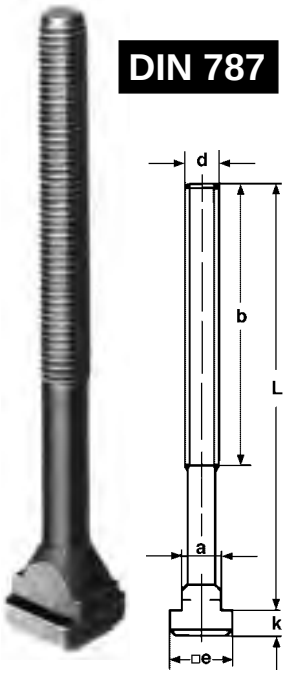
SPAENAUR No.	Thread Size	A	B	C	D	Pkg. Qty.
155-216	1/4"-20	5/8"	1/2"	5/16"	3/32"	10
155-217	5/16"-18	3/4"	9/16"	3/8"	3/32"	10
155-218	3/8"-16	7/8"	11/16"	1/2"	1/8"	10
155-219	7/16"-14	1"	3/4"	9/16"	5/32"	10
155-220	1/2"-13	1-1/8"	7/8"	11/16"	5/32"	10
155-221	5/8"-11	1-3/8"	1-1/16"	13/16"	3/16"	10
155-222	3/4"-10	1-5/8"	1-1/4"	1"	1/4"	5
155-223	7/8"-9	1-3/4"	1-7/16"	1-1/8"	1/4"	5
155-224	1"-8	2"	1-5/8"	1-1/4"	1/4"	5

B

Tool Room Necessities
Nécessités pour la place aux outils

METRIC T-Slot Bolts

DIN 787



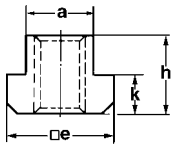
Used for setting up work on planers, shapers, milling machines or similiar applications.
Forged, with milled T-slot guide-faces, rolled thread.
(M6-M12 heat-treated to strength class 10.9, M14-M42 to class 8.8)

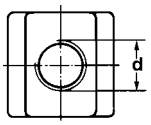
Black Oxide Finish

SPAENAUR No.	All Dimensions Stated in Millimetres **Thread Dia. x a** (nom.) **x L**	**b**	**a**	**e**	**k**	**Pkg. Qty.**
070-100	M6 x 6 x 25	15	5.7	10	4	1
070-101	M6 x 6 x 40	28	5.7	10	4	1
070-102	M8 x 8 x 32	22	7.7	13	6	1
070-103	M8 x 8 x 50	35	7.7	13	6	1
070-104	M10 x 10 x 40	30	9.7	15	6	1
070-105	M12 x 12 x 50	35	11.7	18	7	1
070-106	M12 x 12 x 80	55	11.7	18	7	1
070-107	M12 x 14 x 50	35	13.7	22	8	1
070-108	M12 x 14 x 80	55	13.7	22	8	1
070-109	*M14 x 16 x 63	45	15.7	25	9	1
070-110	*M14 x 16 x 100	65	15.7	25	9	1
070-111	M16 x 18 x 80	55	17.7	28	10	1
070-112	M16 x 18 x 160	100	17.7	28	10	1
070-113	*M20 x 20 x 160	110	19.7	32	12	1
070-114	*M20 x 22 x 160	110	21.7	35	14	1
070-115	*M24 x 24 x 200	125	23.7	40	16	1
070-116	M24 x 28 x 250	150	27.7	44	18	1

DIN 508

METRIC T-Slot Nuts





Tempered to tensile strength class 10.
The max. load capacity is allowed with the total thread reach of the nut.

SPAENAUR No.	All Dimensions Stated in Millimetres **Thread Dia. x a** (nom.)	**a**	**e**	**h**	**k**	**Pkg. Qty.**
226-400	M6 x 8	7.7	13	10	6	1
226-401	M8 x 10	9.7	15	12	6	1
226-402	M10 x 12	11.7	18	14	7	1
226-403	M12 x 14	13.7	22	16	8	1
226-404	*M14 x 16	15.7	25	18	9	1
226-405	M16 x 18	17.7	28	20	10	1
226-406	M20 x 22	21.7	35	28	14	1
226-407	M24 x 28	27.7	44	36	18	1
226-408	M30 x 36	35.6	54	44	22	1

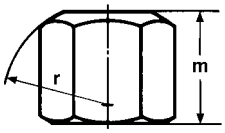
*Sizes not included in DIN Standard.

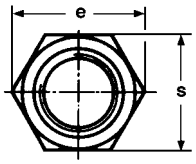
CATALOG 13

Tool Room Necessities
Nécessités pour la place aux outils

METRIC Fixture Nut

DIN 6330-B





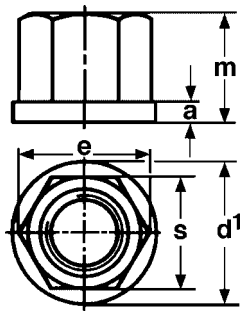
GRADE A STEEL (May contain some lead)
Tensile strength class 8 or 10.
With one spherical bearing face.
Flat end matching hardened washers DIN 6340.

Note: Light Type Spaenaur numbers are available but not stocked.

SPAENAUR No.	All Dimensions Stated in Millimetres					Pkg. Qty.
	Thread	**s**	**e**	**m** (1.5d)	**r**	
156-383	M6	10	11.5	9	9	25
156-384	M8	13	15.0	12	11	25
156-385	M10	16	18.2	15	15	25
156-386	M12	18	20.4	18	17	25
156-387	M14	21	23.8	21	20	25
156-388	M16	24	27.7	24	22	25
156-389	M18	27	31.2	27	24	25
156-353	M20	30	34.6	30	27	25
156-390	M22	34	38.6	33	30	10
156-391	M24	36	41.6	36	32	10
156-392	M27	41	47.3	40	36	10
156-393	M30	46	53.1	45	41	10
156-394	M36	55	63.5	54	50	1
156-395	M42	65	75.0	63	58	1
156-396	M48	75	86.5	72	67	1

METRIC Collar Nut

DIN 6331



GRADE A STEEL (may contain some lead)
Turned and milled.
Tensile strength class 8 or 10.

SPAENAUR No.	All Dimensions Stated in Millimetres						Pkg. Qty.
	Thread	**s**	**e**	**m** (1.5d)	**a**	**d^1**	
156-397	M6	10	11.5	9	3	14	10
156-398	M8	13	15.0	12	3.5	18	10
156-399	M10	16	19.6	15	4	22	10
156-400	M12	18	21.9	18	4	25	10
156-401	M14	22	25.4	21	4.5	28	10
156-402	M16	24	27.7	24	5	31	10
156-403	M18	27	31.2	27	5	34	5
156-404	M20	30	34.6	30	6	37	5
156-405	M22	32	36.9	33	6	40	1
156-406	M24	36	41.6	36	6	45	1
156-407	M27	41	47.3	40	7	50	1
156-408	M30	46	53.1	45	8	58	1
156-411	M48	75	86.5	72	14	92	1

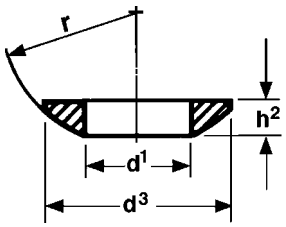
B

METRIC Spherical Seat Washer

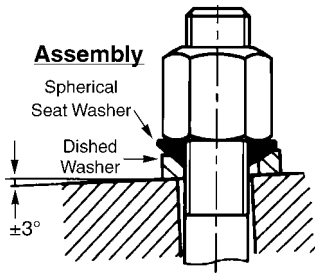
Case Hardened Steel - Black

DIN 6319C

Tool Room Necessities
Nécessités pour la place aux outils



SPAENAUR No.	Nominal Size	All Dimensions in Millimetres d^1	d^3	h^2	r	Pkg. Qty.
657-320	M6	6.4	12	2.3	9	50
657-321	M8	8.4	17	3.2	12	50
657-322	M10	10.5	21	4.0	15	50
657-323	M12	13.0	24	4.6	17	25
657-324	M14	15.0	28	5.0	22	25
657-325	M16	17.0	30	5.3	22	25
657-326	M20	21.0	36	6.3	27	10
657-327	M24	25.0	44	8.2	32	5
657-285	M30	31.0	56	11.2	41	1
657-328	M36	37.0	68	14.0	50	1
657-329	M42	43.0	78	17.0	58	1
657-330	M48	50.0	92	21.0	67	1

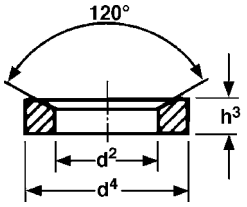


Note: Light Type Spaenaur numbers are available but not stocked.

DIN 6319D

METRIC Dished Washer

Case Hardened Steel - Black



SPAENAUR No.	Nominal Size	All Dimensions in Millimetres d^2	d^4	h^3	Pkg. Qty.
657-331	M6	7.1	12	2.8	50
657-332	M8	9.6	17	3.5	50
657-333	M10	12.0	21	4.2	50
657-334	M12	14.2	24	5.0	25
657-335	M14	16.5	28	5.6	25
657-336	M16	19.0	30	6.2	25
657-337	M20	23.2	36	7.5	10
657-338	M24	28.0	44	9.5	5
657-283	M30	35.0	56	12.0	1
657-339	M36	42.0	68	15.0	1
657-340	M42	49.0	78	18.0	1
657-341	M48	56.0	92	22.0	1

These washers serve to transmit clamping forces in cases where the clamping elements have to compensate uneven surfaces. The combined application of spherical seat washer with respective nuts DIN 6330 with dished washers allows a 3° deviation from squareness of bolt and work.

DIN 6319G

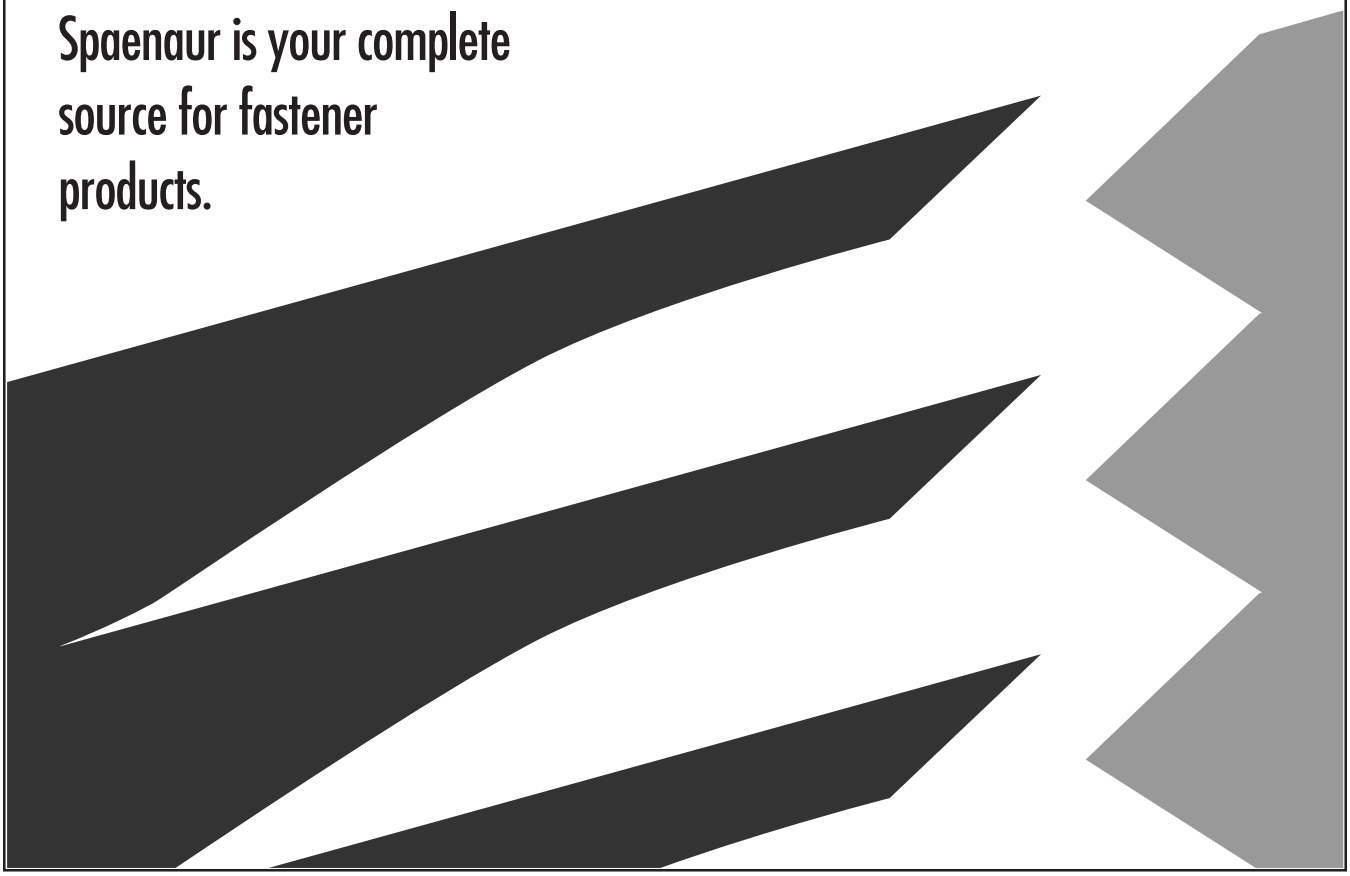
Dished Washer with larger diameter to bridge the slots of clamps, available upon request.

SPAENAUR

With over...

- 64,000 products
- 800 lines
- 500 million pieces in stock
- 98% of all orders shipped in 24 hours

Spaenaur is your complete source for fastener products.



Tel: 1-800-265-8772 Fax: 519-744-0818

Hexagon & Square Nuts	Écrous hexagonaux et carrés	**C2**
Various Locknuts	Écrous indésserrables divers	**C22**
Weld Nuts	Écrous à souder	**C48**
Wing Nuts	Écrous à oreilles	**C55**
Cap (Acorn) & Knurled Nuts	Écrous borgnes et moletés	**C59**
Binder Posts & Sleeve Nuts	Poteaux à reliage et manchons filetés	**C70**
Tinnerman® Brand Fasteners (Speednuts)	Attaches genre Tinnerman® «écrous rapides»	**C73**
Pushnuts	«Pushnuts»	**C142**
Concrete & Drywall Anchoring Products	Tampons divers pour béton et gypsum	**C147**
Self-Clinching Nuts	Écrous auto-crampons	**C162**
AVK Industrial Inserts	Produits industriels «AVK»	**C168**
Inserts For Plastics	Douilles filetées pour plastiques	**C198**
"E-Z Lok" Threaded Inserts	Douilles filetées «E-Z Lok»	**C214**
HeliCoil Products	Produits «HeliCoil»	**C217**

Hex Machine Screw Nuts

Inch

Écrous six pans pour vis de mécanique

Pouces

ASME/ANSI B18.6.3

THREAD	WIDTH ACROSS FLATS	THICK-NESS	STEEL Zinc Plated	BRASS Plain	STAINLESS STEEL 18-8 Plain	ALUMINUM (Alloy 6061-T6)
			ORDER BY *SPAENAUR* NUMBERS LISTED BELOW			
0000-160	3/64"	.033"		▲HN-553		
000-120	5/64"	.033"		▲HN-554		
00-96	5/64"	.040"		▲HN-165B		
00-90	5/64"	.040"		▲HN-555		
0-80	5/32"	3/64"	HN-105	HN-105B	HN-2034	
1-64	5/32"	3/64"		HN-106B	HN-2028	
1-72	5/32"	3/64"	HN-107	HN-107B	HN-2027	
*2-56	5/32"	1/16"			159-025	
2-56	3/16"	1/16"	B-1518	HN-1B	HN-2000	
2-64	3/16"	1/16"	HN-230	HN-2B		
3-48	3/16"	1/16"	HN-3	HN-3B	HN-2001	
3-56	3/16"	1/16"	HN-4	HN-4B		
4-36	1/4"	3/32"		HN-5B		
*4-40	3/16"	1/16"	HN-201	HN-20B		
*4-40	3/16"	3/32"		157-002		
4-40	1/4"	3/32"	B-753	HN-6B	HN-2002	HN-3002
4-48	1/4"	3/32"	HN-7	HN-7B		
*5-40	1/4"	3/32"		HN-8B		
5-40	5/16"	7/64"	HN-205	HN-556	159-001	HN-3003
5-44	5/16"	7/64"	HN-204	HN-526		
*6-32	1/4"	3/32"	B-1521	HN-9B		
6-32	5/16"	7/64"	727	HN-10B	HN-2003	HN-3004
6-40	5/16"	7/64"	HN-11	HN-11B		
*8-32	1/4"	3/32"	B-1522	HN-12B		
*8-32	5/16"	7/64"	155-007	HN-19B		
8-32	11/32"	1/8"	728	HN-13B	HN-2004	HN-3005
8-36	11/32"	1/8"		HN-14B	HN-2036	
10-24	3/8"	1/8"	730	HN-15B	■HN-2005	HN-3001
10-32	3/8"	1/8"	729	HN-16B	HN-2006	HN-3017
12-24	7/16"	5/32"	731	HN-17B	HN-2007	HN-3006
12-28	7/16"	5/32"	B-1092			
1/4-20	7/16"	3/16"	733	HN-18B	HN-2008	HN-3018
1/4-28	7/16"	3/16"	734	HN-23B		
5/16-18	9/16"	7/32"	735	HN-24B		HN-3019
5/16-24	9/16"	7/32"	736	HN-25B		
3/8-16	5/8"	1/4"		157-001		
*Non-standard size			P.C. 155	P.C. 157	P.C. 159	P.C. 161

UNIT PACKAGE 100
All Above Listed No's.

See page C8 for complete listing of Nylon Hex Nuts.

Note: All sizes **0-80 to 5/16"** are double chamfer and double ctsk.

▲ASTM B16-58 (Brass Specs.)

Note: Mini Sizes **0000 to 1-72** not chamfered, not ctsk.

Sizes: **2-56 to 1/4"** are double chamfer, double ctsk.

■159-022 316 S.S.

Note: Mini Sizes **0-80 to 1-72** are not chamfered, not ctsk.

Sizes: **2-56 to 1/4"-20** are double chamfer and double ctsk.

Stainless Steel Nut and Screw Asst. 805-525 on page B25.

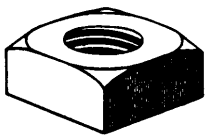
Note: **HN-3003** single chamfer only.

HN-3019 is single chamfer and double ctsk.

Other sizes: **4-40 to 5/16"** are double chamfer, double ctsk.

STEEL

NOT PLATED



CLASS 2B THREAD

•**N-104ZP** Zinc Plated

P.C. 205

SQUARE NUTS

ASME/ANSI B18.2.2

SPAENAUR No.	THREAD SIZE	NUT WIDTH A.F.	NUT THICK-NESS	UNIT PKG. QTY.
N-103	1/4"-20	7/16"	7/32"	100
•N-104	5/16"-18	9/16"	17/64"	100
N-105	3/8"-16	5/8"	21/64"	100
N-106	7/16"-14	3/4"	3/8"	50
N-107	1/2"-13	13/16"	7/16"	50
N-109	5/8"-11	1"	35/64"	50
N-110	3/4"-10	1-1/8"	21/32"	50
N-111	7/8"-9	1-5/16"	49/64"	25
N-112	1"-8	1-1/2"	7/8"	25

SQUARE Machine Screw Nuts

ASME/ANSI B18.6.3

ZINC PLATED *UNIT PACKAGE 100*

SPAENAUR No.	THREAD SIZE	ACROSS FLAT	THICKNESS
N-25	4-40	1/4"	3/32"
N-82	5-40	5/16"	7/64"
N-26	6-32	5/16"	7/64"
N-27	8-32	11/32"	1/8"
N-28	10-24	3/8"	1/8"
N-29	10-32	3/8"	1/8"
B-1548	1/4"-20	7/16"	3/16"
N-183	1/4"-28	7/16"	3/16"

P.C. 205

STEEL HEX NUTS
Finished Full
SAE Grade 2

THREADS are Unified Standard Class 2B Thread Fit

Available in Plain or Zinc Chromate Plated
ASME/ANSI B18.2.2

INCH CAP SCREW SIZES

NOMINAL SIZE (Inches)	COARSE THREAD *SPAENAUR No.* Plain	Zinc Plated	Thread	FINE THREAD *SPAENAUR No.* Plain	Zinc Plated	Thread	WIDTH ACROSS FLAT	THICKNESS	UNIT PKG. QTY.
1/4	**155-380**	**155-379**	20	–	–	28	7/16"	7/32"	100
5/16	**155-027**	–	18	–	–	24	1/2"	17/64"	100
3/8	**155-029**	–	16	–	–	24	9/16"	21/64"	100
1/2	**155-226**	–	13	–	–	20	3/4"	7/16"	50
3/4	**155-199**	–	10	–	–	16	1-1/8"	41/64"	50
1	–	–		**155-003**	–	12	1-1/2"	55/64"	25
1-3/8	–	–		**155-023**	–	12	2-1/16"	1-11/64"	5
1-5/8	–	**155-316**	5-1/2	–	–		2-7/16"	1-25/64"	1
1-3/4	–	–		–	–	12	2-5/8"	1-1/2"	1
2-1/4	–	**155-322**	4-1/2	–	–		3-3/8"	1-59/64"	1

STEEL HEX NUTS
Finished Full
SAE Grade 5

THREADS are Unified Standard Class 2B Thread Fit

Available in Plain or Zinc Chromate Plated
ASME/ANSI B18.2.2

NOMINAL SIZE (Inches)	COARSE THREAD *SPAENAUR No.* Plain	Zinc Plated	Thread	FINE THREAD *SPAENAUR No.* Plain	Zinc Plated	Thread	WIDTH ACROSS FLAT	THICKNESS	UNIT PKG. QTY.
1/4	–	**B-91**	20	–	**B-101**	28	7/16"	7/32"	100
5/16	**155-025**	**B-92**	18	–	**B-102**	24	1/2"	17/64"	100
3/8	**155-028**	**B-93**	16	–	**B-103**	24	9/16"	21/64"	100
7/16	–	**B-94**	14	–	**B-104**	20	11/16"	3/8"	50
1/2	**155-225**	**B-95**	13	–	**B-105**	20	3/4"	7/16"	50
9/16	–	**B-96**	12	–	**B-106**	18	7/8"	31/64"	50
5/8	–	**B-97**	11	–	**B-107**	18	15/16"	35/64"	50
3/4	**155-428**	**B-98**	10	–	**B-108**	16	1-1/8"	41/64"	50
7/8	–	**B-99**	9	–	**B-109**	14	1-5/16"	3/4"	25
1	–	**B-100**	8	–	**B-110**	14	1-1/2"	55/64"	25
1-1/8	–	**155-348**	7	–	**155-372**	12	1-11/16"	31/32"	5
1-1/4	–	**155-346**	7	–	**155-343**	12	1-7/8"	1-1/16"	5
1-1/2	–	**155-356**	6	–	**155-357**	12	2-1/4"	1-9/32"	5

HIGH TENSILE HEX NUTS
Finished
SAE GRADE 8

Heat Treated Class 2B Thread Fit

Plain Finish or Zinc Plated with Yellow Dichromate Dipped

SIZES 1/4" THROUGH 3/4" ARE COLD FORMED, ROCKWELL C30-32.
7/8" THROUGH 1-1/2" ARE HOT FORMED, ROCKWELL C28-34.

NOMINAL SIZE (Inches)	COARSE THREAD *SPAENAUR No.* Plain	Zinc Plated	Thread	FINE THREAD *SPAENAUR No.* Plain	Zinc Plated	Thread	WIDTH ACROSS FLAT	THICKNESS	UNIT PKG. QTY.
1/4	–	**SAN-1**	20	–	**SAN-2**	28	7/16"	7/32"	100
5/16	–	**SAN-3**	18	–	**SAN-4**	24	1/2"	17/64"	50
3/8	**SAN-5B**	**SAN-5**	16	–	**SAN-6**	24	9/16"	21/64"	50
7/16	–	**SAN-7**	14	–	**SAN-8**	20	11/16"	3/8"	25
1/2	**SAN-9B**	**SAN-9**	13	–	**SAN-10**	20	3/4"	7/16"	25
5/8	–	**SAN-11**	11	–	**SAN-12**	18	15/16"	35/64"	25
3/4	**SAN-13B**	**SAN-13**	10	–	**SAN-14**	16	1-1/8"	41/64"	20
7/8	–	**SAN-15**	9	–	**SAN-16**	14	1-5/16"	3/4"	15
1	–	**SAN-17**	8	–	**SAN-18**	14	1-1/2"	55/64"	10
1-1/8	–	**SAN-19**	7				1-11/16"	31/32"	5
1-1/4	–	**SAN-21**	7				1-7/8"	1-1/16"	5
1-1/2	–	**SAN-22**	6				2-1/4"	1-9/32"	5

C

HEX JAM NUTS
Finished

Class 2B Thread Fit

Not Plated

*Zinc Plated

†**HN-50ZP** Zinc Plated

NOMINAL SIZE (Inches)	COARSE THREAD *SPAENAUR No.*	COARSE THREAD THD.	FINE THREAD *SPAENAUR No.*	FINE THREAD THD.	WIDTH ACROSS FLAT	THICKNESS	UNIT PKG. QTY.
1/4	**HN-49**	20	**HN-59**	28	7/16"	5/32"	100
5/16	**†HN-50**	18	**HN-60**	24	1/2"	3/16"	100
3/8	**HN-51**	16	**HN-61**	24	9/16"	7/32"	100
7/16	**HN-52**	14	**HN-62**	20	11/16"	1/4"	50
7/16	**—**	14	***155-378**	20	11/16"	1/4"	50
1/2	**HN-53**	13	**HN-63**	20	3/4"	5/16"	50
1/2	***HN-53ZP**	13	–	20	3/4"	5/16"	50
9/16	**HN-54**	12	**HN-64**	18	7/8"	5/16"	50
5/8	**HN-55**	11	**HN-65**	18	15/16"	3/8"	50
3/4	**HN-56**	10	**HN-66**	16	1-1/8"	27/64"	50
7/8	**HN-57**	9	**HN-67**	14	1-5/16"	31/64"	25
1	**HN-58**	8	**HN-68**	14	1-1/2"	35/64"	25
2-1/4	**155-323**	4-1/2			3-3/8"	1-13/64"	1

HEAVY HEX NUTS

Class 2B Thread Fit

Not Plated

1/4	**B-121**	20			1/2"	15/64"	100
5/16	**B-122**	18			9/16"	19/64"	100
3/8	**B-123**	16			11/16"	23/64"	100
7/16	**B-124**	14			3/4"	27/64"	50
1/2	**B-125**	13			7/8"	31/64"	50
9/16	**B-126**	12			15/16"	35/64"	50
5/8	**B-127**	11			1-1/16"	39/64"	50
3/4	**B-128**	10			1-1/4"	47/64"	50
7/8	**B-129**	9			1-7/16"	55/64"	25
1	**B-130**	8			1-5/8"	63/64"	25
1-1/8	**HN-43**	7			1-13/16"	1-7/64"	25
1-1/4	**HN-42**	7			2"	1-7/32"	25
1-3/8	**HN-245**	6			2-3/16"	1-11/32"	15
1-1/2	**HN-167**	6			2-3/8"	1-15/32"	10
1-3/4	**HN-246**	5			2-3/4"	1-23/32"	10
2	**HN-247**	4-1/2			3-1/8"	1-31/64"	10

2H Nuts

PLAIN
and
YELLOW ZINC FINISH

(▲Yellow Zinc Finish being phased out as stock is depleted.)

For use with B7 Studs & Rods

2H Nuts are used for high temperature, high pressure applications such as pipelines, pressure vessels, valves and controls used in the transmission and storage of oil, gasoline, natural gas, steam and many other chemicals.

PHYSICAL PROPERTIES

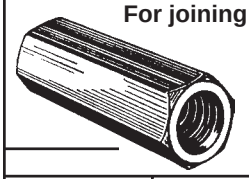
Specification: ASTM A 194-2H
Grade: AISI 1045 or 1050
Heat Treatment: Oil Quench & Temper
Hardness: 248 to 352 Brinell No.

See page D3 for ASTM F436 STRUCTURAL WASHERS.
See page B341 for B7 Threaded Rod.

SPAENAUR No's. PLAIN	▲YELLOW ZINC	UNC THREAD	ACROSS FLATS	THICKNESS	UNIT PKG.
155-200	—	1/4"-20	1/2"	15/64"	50
155-201	**155-201YZ**	5/16"-18	9/16"	19/64"	25
155-202	—	3/8"-16	11/16"	23/64"	25
155-203	**155-203YZ**	7/16"-14	3/4"	27/64"	25
155-204	**155-204YZ**	1/2"-13	7/8"	31/64"	25
155-205	**155-205YZ**	5/8"-11	1-1/16"	39/64"	20
155-206	—	3/4"-10	1-1/4"	47/64"	10
155-207	—	7/8"-9	1-7/16"	55/64"	10
155-208	—	1"-8	1-5/8"	63/64"	10
155-211	**155-211YZ**	1-1/8"-8	1-13/16"	1-7/64"	10
155-210	—	1-1/4"-8	2"	1-7/32"	10
155-209	**155-209YZ**	1-3/8"-8	2-3/16"	1-11/32"	10
155-212	—	1-1/2"-8	2-3/8"	1-15/32"	10
155-213	—	1-5/8"-8	2-9/16"	1-19/32"	10
155-214	**155-214YZ**	1-3/4"-8	2-3/4"	1-23/32"	10
155-215	**155-215YZ**	2"-8	3-1/8"	1-31/32"	5

For Hexagon Nuts with **LEFT HAND THREADS**, see facing page.
For **HOT GALVANIZED STEEL NUTS**, see page C6.
For **L9 HEX NUTS** and **L9 FASTENING SYSTEM**, see pages B176 to B182.

COUPLING NUTS



For joining lengths of threaded rod end-to-end. Right-hand Threads.

To be used with THREADED RODS - see pages B338, B339 & B342.

ZINC PLATED STEEL

SPAENAUR No.	Size & Threads Per Inch	Width Across Flats	Length	Unit Pkg.
155-301	10-24 UNC	5/16"	3/4"	50
155-300	10-32 UNF	5/16"	3/4"	50
155-302	1/4"-20 UNC	7/16"	7/8"	50
155-359	1/4"-28 UNF	3/8"	7/8"	50
155-303	5/16"-18 UNC	1/2"	1-3/4"	25
155-376	5/16"-18 UNC	5/8"	1-3/4"	25
155-360	5/16"-24 UNF	7/16"	7/8"	25
155-304	3/8"-16 UNC	9/16"	1-3/4"	25
155-361	3/8"-24 UNF	1/2"	1-1/8"	25
155-362	3/8"-24 UNF	5/8"	1-3/4"	25
155-305	7/16"-14 UNC	5/8"	1-3/4"	25
155-363	7/16"-20 UNF	5/8"	1-1/4"	25
155-381	1/2"-13 UNC	11/16"	1-3/4"	25
155-306	1/2"-13 UNC	3/4"	1-3/4"	25
155-364	1/2"-20 UNF	5/8"	1-1/4"	25
155-365	1/2"-20 UNF	11/16"	1-3/4"	25
155-377	5/8"-11 UNC	13/16"	2-1/8"	15
155-307	5/8"-11 UNC	15/16"	2-1/8"	15
155-366	5/8"-18 UNF	13/16"	2-1/8"	15
155-024	3/4"-10 UNC	1"	2-1/4"	15
155-308	3/4"-10 UNC	1-1/8"	2-1/4"	15
155-367	3/4"-16 UNF	1"	2-1/4"	15
155-309	7/8"-9 UNC	1-1/4"	2-1/2"	10
155-368	7/8"-14 UNF	1-1/4"	2-1/2"	10
155-310	1"-8 UNC	1-1/4"	2-1/2"	10
155-369	1"-14 UNF	1-3/8"	2-3/4"	5
155-355	1-1/8"-7 UNC	1-1/2"	3"	5
155-311	1-1/8"-7 UNC	1-5/8"	3"	5
155-312	1-1/4"-7 UNC	1-5/8"	3"	1
155-370	1-1/4"-12 UNF	1-5/8"	3"	1
155-341	1-1/2"-6 UNC	2"	4"	1
155-371	1-1/2"-12 UNF	2"	3-1/2"	1

Zinc Plated Steel - LEFT-HAND Threads

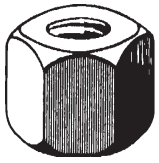
155-351	3/8"-16 UNC	5/8"	1-3/4"	25
155-352	1/2"-13 UNC	11/16"	1-3/4"	25
155-353	5/8"-11 UNC	13/16"	2-1/8"	15
155-354	3/4"-10 UNC	1"	2-1/4"	15

18-8 Stainless Steel - RIGHT-HAND Threads

155-800	1/4"-20 UNC	3/8"	7/8"	50
155-801	5/16"-18 UNC	7/16"	1"	25
155-802	3/8"-16 UNC	1/2"	1-1/8"	25
155-803	1/2"-13 UNC	5/8"	1-1/4"	25
155-804	5/8"-11 UNC	7/8"	1-3/4"	10
155-805	3/4"-10 UNC	1"	2-1/4"	10

STEEL

Not Plated



DOUBLE THICKNESS NUTS (U.N.F.) **FINE THREAD**

(FINISHED HIGH HEXAGON NUTS)

THREADS are Unified Standard, Class 2B Fit

SPAENAUR No.	Nominal Size	Thread	Width Across Flats	Thick-ness	Grade	Unit Pkg. Qty.
HN-249	1/4"	28	7/16"	3/8"	2	100
HN-250	5/16"	24	1/2"	29/64"	2	100
HN-70	3/8"	24	9/16"	17/32"	5	25
HN-71	7/16"	20	5/8"	39/64"	2	25
HN-72	1/2"	20	3/4"	11/16"	8	25
HN-73	9/16"	18	7/8"	49/64"	8	25
HN-74	5/8"	18	15/16"	27/32"	8	25
155-010	3/4"	16	1-1/16"	1"	8	25
155-009	7/8"	14	1-1/4"	1-5/32"	8	15
HN-77	1"	14	1-7/16"	1-5/16"	8	15
HN-78	1-1/4"	12	1-7/8"	1-11/16"	2	15

GRADE 2 STEEL - Not plated

LEFT-HAND THREAD

SPAENAUR No.	Thread	Width A.F.	Thickness	Unit Pkg.
155-324	1/4"-20	7/16"	7/32"	100
155-321▲	1/4"-28	7/16"	5/32"	100
155-325	5/16"-18	1/2"	17/64"	100
155-328*	5/16"-24	1/2"	17/64"	100
155-326*	3/8"-16	9/16"	21/64"	100
155-329*	3/8"-24	9/16"	21/64"	100
155-327	7/16"-14	11/16"	3/8"	100
155-340	7/16"-20	11/16"	3/8"	100
155-320	1/2"-13	3/4"	7/16"	50
155-026*▲	1/2"-20	3/4"	5/16"	50
HN-241*■	5/8"-11	1-1/16"	39/64"	50
155-314	5/8"-18	15/16"	35/64"	50
HN-242	3/4"-10	1-1/8"	41/64"	50
155-347*■	3/4"-10	1-1/4"	47/64"	50
155-358*▲	3/4"-16	1-1/8"	27/64"	50
155-429*	3/4"-16	1-1/8"	41/64"	50
HN-232	7/8"-9	1-5/16"	3/4"	25
155-349	7/8"-14	1-5/16"	3/4"	25
155-317	1"-8	1-1/2"	55/64"	25
155-318	1-1/8"-7	1-11/16"	31/32"	25
155-313*■	1-1/4"-7	2"	1-7/32"	25
155-319	1-1/2"-6	2-1/4"	1-9/32"	10
155-344	1-3/4"-5	2-5/8"	1-1/2"	5

*Grade 5 ▲ Hex Jam Nut ■Heavy Hex Nut

For Metric Coupling Nuts See page C21.

C

HEX NUTS — INCH CAP SCREW SIZES — ASME/ANSI B18.2.2

Bronze & Brass

Full HEXAGON NUTS

NOMINAL SIZE (Inches)	THREAD	DIMENSIONS WIDTH A/F	DIMENSIONS THICKNESS	SILICON BRONZE	NAVAL BRONZE	BRASS	UNIT PKG. QTY.
				SPAENAUR NUMBERS			
1/4	20 UNC	7/16"	7/32"	HN-501	HN-517	HN-38B	100
	28 UNF			HN-509		HN-39B	100
5/16	18 UNC	1/2"	17/64"	HN-502		HN-40B	100
	24 UNF			HN-510		HN-41B	100
3/8	16 UNC	9/16"	21/64"	HN-503		HN-26B	100
	24 UNF			HN-511		HN-27B	100
7/16	14 UNC	11/16"	3/8"		HN-520	*HN-28B	50
	20 UNF			HN-512		HN-29B	50
1/2	13 UNC	3/4"	7/16"	HN-504	HN-521	HN-30B	50
	20 UNF			HN-513		HN-31B	50
1/2	13 UNC	7/8"	31/64"	157-008			50
5/8	11 UNC	15/16"	35/64"	HN-505	HN-522	▲HN-34B	50
	18 UNF			HN-514		HN-35B	50
3/4	10 UNC	1-1/8"	41/64"	HN-506	HN-523	HN-36B	50
	16 UNF			HN-515		HN-37B	50
7/8	9 UNC	1-5/16"	3/4"	HN-507		157-006	25
	14 UNF			HN-516		HN-500	25
1	8 UNC	1-1/2"	55/64"	HN-508		157-007	25
	14 UNF					HN-169B	25

▲**157-009** (1-1/16" A.F. x 39/64" thick.) *__HN-560__ (3/4" A.F., 23/64" thick.)

Brass

Finished Jam HEXAGON NUTS Special Jam

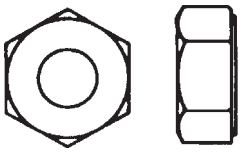
1/4	20 UNC	7/16"	5/32"			HN-530	100
	28 UNF					HN-531	100
5/16	18 UNC	1/2"	3/16"			HN-532	100
	24 UNF					HN-533	100
3/8	16 UNC	9/16"	7/32"			HN-534	100
	24 UNF					HN-535	100
7/16	14 UNC	11/16"	1/4"			HN-536	50
	20 UNF						
1/2	13 UNC	3/4"	5/16"			HN-538	50
	20 UNF					HN-539	50
5/8	11 UNC	15/16"	3/8"			HN-542	50
	18 UNF					HN-543	50
3/4	10 UNC	1-1/8"	27/64"			HN-544	50
	16 UNF					157-003	50
7/8	9 UNC	1-5/16"	31/64"			HN-546	25
	14 UNF					HN-559	25
1	8 UNC	1-1/2"	35/64"			HN-547	25
1-1/2	6 UNC	2-1/4"	27/32"				
	12 UNF					157-004	25

STEEL

Hot Galvanized Nuts

FINISHED HEXAGON

TAPPED OVERSIZE

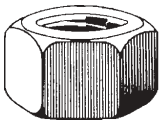


UNC COARSE THREAD

SPAENAUR No.	Thread Size	Across Flats	Thick-ness	Unit Pkg.
155-330	1/4"-20	7/16"	7/32"	100
155-331	5/16"-18	1/2"	17/64"	100
155-332	3/8"-16	9/16"	21/64"	100
155-333	7/16"-14	11/16"	3/8"	50
155-334	1/2"-13	3/4"	7/16"	50
155-336	5/8"-11	15/16"	35/64"	50
155-337	3/4"-10	1-1/8"	41/64"	50
155-338	7/8"-9	1-5/16"	3/4"	25
155-339	1"-8	1-1/2"	55/64"	25

See page B309 for Galvanized Steel Carriage Bolts.

ASME/ANSI B18.2.2



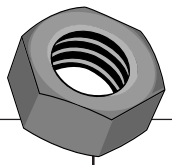
CORROSION-RESISTANT

ALUMINUM, 18-8 and 316 STAINLESS STEEL HEX NUTS FINISHED FULL

Inch Sizes

C

NOMINAL SIZES (Inches)	THREAD	DIMENSIONS		18-8 STAINLESS STEEL	316 STAINLESS STEEL	ALUMINUM (Alloy 6061-T6)	UNIT PKG. QTY.
		WIDTH ACROSS FLATS	THICKNESS	*SPAENAUR* NUMBERS LISTED BELOW			
1/4	20 UNC 28 UNF	7/16"	7/32"	**HN-2010** **HN-2018**	**HN-2301**	**HN-3000** **161-001**	100 100
5/16	18 UNC 24 UNF	1/2"	17/64"	**HN-2011** **HN-2019**	**HN-2302** **159-023**	**HN-3008**	100 100
3/8	16 UNC 24 UNF	9/16"	21/64"	**HN-2012** **HN-2020**	**HN-2303**	**HN-3009**	100 100
7/16	14 UNC 20 UNF	11/16"	3/8"	**HN-2013** **HN-2021**	**HN-2304**		50 50
1/2	13 UNC 20 UNF	3/4"	7/16"	**HN-2014** **HN-2022**	**HN-2305**	**HN-3011** **HN-3016**	50 50
1/2	13 UNC	7/8"	19/64"	**159-021**			50
1/2	13 UNC	7/8"	31/64"		**159-024**		50
9/16	12 UNC 18 UNF	7/8"	31/64"	**159-002**			50 50
5/8	11 UNC 18 UNF	15/16"	35/64"	**HN-2009** **HN-2023**	**HN-2300**	**HN-3012**	50 50
3/4	10 UNC 16 UNF	1-1/8"	41/64"	**HN-2015** **HN-2024**	**HN-2306**	**HN-3013**	50 50
7/8	9 UNC 14 UNF	1-5/16"	3/4"	**HN-2016** **HN-2025**	**HN-2307**	**HN-3014**	25 25
1	8 UNC 14 UNS	1-1/2"	55/64"	**HN-2017** **HN-2026**	**HN-2308**		25 25
1-1/8	7 UNC 12 UNF	1-11/16"	31/32"	**HN-2029**			20 20
1-1/4	7 UNC 12 UNF	1-7/8"	1-1/16"	**HN-2030**			20 20
1-3/8	6 UNC 12 UNF	2-1/16"	1-11/64"				10 10
1-1/2	6 UNC 12 UNF	2-1/4"	1-9/32"	**HN-2032**			10 10
				P.C. 159	P.C. 159	P.C. 161	



FINISHED JAM HEXAGON NUTS

18-8 Stainless Steel - Plain Finish

SPAENAUR No. UNC COARSE THREAD		*SPAENAUR No.* UNF FINE THREAD		Width Across Flat	Thick-ness	Unit Pkg. Quantity
159-004	1/4"-20	**159-005**	1/4"-28	7/16"	5/32"	100
159-006	5/16"-18	**159-007**	5/16"-24	1/2"	3/16"	100
159-008	3/8"-16	**159-009**	3/8"-24	9/16"	7/32"	100
159-010	7/16"-14	**159-011**	7/16"-20	11/16"	1/4"	50
159-003	1/2"-13	**159-012**	1/2"-20	3/4"	5/16"	50
159-013	5/8"-11	**159-014**	5/8"-18	15/16"	3/8"	50
159-015	3/4"-10	**159-016**	3/4"-16	1-1/8"	27/64"	50
159-017	7/8"-9	**159-018**	7/8"-14	1-5/16"	31/64"	25
159-019	1"-8	**159-020**	1"-14	1-1/2"	35/64"	25

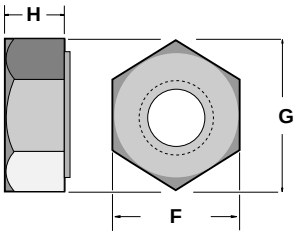
C

Standard
HEX NUTS
for MACHINE SCREWS also CAP SCREW SIZES
Molded NYLON
Type 6/6 UL94V2

CORROSION-RESISTANT

They resist vibration. Preferred for use on ceramic, glass or enamel surfaces.

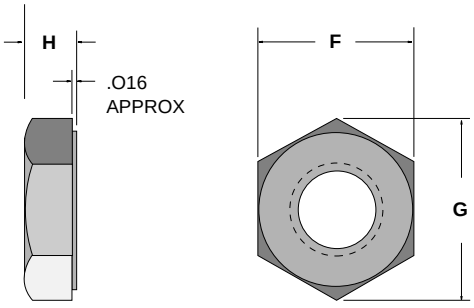
Natural Colour



WASHER FACED, SINGLE CHAMFERED AND DOUBLE COUNTERSUNK. Use with plastic or metal screws in assemblies where nylon's many outstanding properties can be used to advantage.

SPAENAUR No.	Thread	Dimensions F	G	H	Unit Pkg.
HN-5000	**2-56**	.180"	.205"	.070"	100
163-002	**3-48**	.180"	.205"	.070"	100
HN-5001	**4-40**	.250"	.275"	.100"	100
HN-5002	**6-32**	.305"	.350"	.120"	100
163-003	**6-40**	.305"	.350"	.120"	100
HN-5003	**8-32**	.335"	.380"	.130"	100
HN-5004	**10-24**	.365"	.420"	.135"	100
HN-5005	**10-32**	.365"	.420"	.135"	100
HN-5006	**1/4"-20**	.433"	.510"	.235"	100
HN-5007	**1/4"-28**	.425"	.510"	.200"	100
HN-5012	**5/16"-18**	.500"	.575"	.270"	100
HN-5008	**3/8"-16**	.560"	.630"	.330"	100
163-004	**7/16"-14**	.685"	.780"	.380"	50
163-005	**7/16"-20**	.685"	.780"	.380"	50
HN-5009	**1/2"-13**	.750"	.860"	.430"	50
163-008	**1/2"-20**	.750"	.860"	.430"	50
163-001	**5/8"-11**	.925"	1.062"	.550"	50
163-010	**5/8"-18**	.925"	1.05"	.550"	50
163-006	**3/4"-10**	1.093"	1.260"	.640"	50
163-007	**7/8"-9**	1.275"	1.469"	.750"	25
163-009	**1"-8**	1.47	1.70"	.870"	25

MOLDED 6/6
NYLON
HEX JAM NUTS



Natural Colour

Molded Hex Jam Nuts are used in combination with standard nuts or in pairs for locking action in critical or high vibration areas.

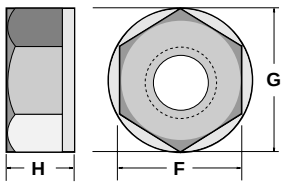
*Non-Standard Thread

SPAENAUR No.	Thread	Dimensions F	G	H	Unit Pkg.
163-050	**5/16"-18**	.500"	.575"	.190"	100
163-051	**5/16"-24**	.500"	.575"	.190"	100
163-049	**3/8"-16**	.500"	.575"	.125"	100
163-052	**3/8"-16**	.670"	.760"	.219"	100
163-053	**3/8"-24**	.500"	.575"	.125"	100
163-054	**3/8"-32**	.500"	.575"	.125"	100
163-055	**1/2"-13**	.687"	.780"	.220"	50
163-056	**1/2"-24***	.687"	.780"	.220"	50
163-057	**3/4"-10**	1.125"	1.260"	.250"	50
163-058	**3/4"-27***	1.000"	1.040"	.125"	50
N.P.T. THREADS					
163-059	**1/4"-18**	.740"	.850"	.187"	100
163-060	**3/8"-18**	1.000"	1.150"	.280"	100
163-061	**1/2"-14**	1.250"	1.430"	.340"	50
163-062	**3/4"-14**	1.500"	1.730"	.405"	50

Hexagon Locknuts

MOLDED **NYLON**
Type 6/6 UL94V2

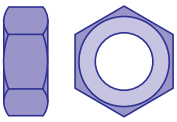
(Natural Colour)



Locking Hex

Designed with washer base to ensure correct placement and positioning of hexagon locknut, while tapered thread provides positive locking action.

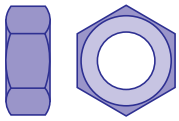
SPAENAUR No.	Thread	Dimensions F	G	H	Unit Pkg.
163-100	**2-56**	.180"	.205"	.140"	100
163-101	**4-40**	.250"	.275"	.180"	100
163-102	**6-32**	.305"	.350"	.200"	100
163-103	**8-32**	.335"	.380"	.230"	100
163-104	**10-24**	.365"	.420"	.250"	100
163-105	**10-32**	.365"	.420"	.250"	100
163-106	**1/4"-20**	.425"	.510"	.275"	100
163-107	Same as 163-106 except black				100



ISO Metric
Property Class 6 STEEL
COARSE AND FINE THREADS

DIN 934
STANDARD TYPE

DIA. in mm	Width across Flats mm	Thick-ness in mm	Unit Pkg. Qty.	PLAIN FINISH "REGULAR" (Coarse) THREAD SPAENAUR No.	Pitch mm	PLAIN FINISH "FINE" THREAD SPAENAUR No.	Pitch mm	PLAIN FINISH "FINE" THREAD SPAENAUR No.	Pitch mm	ZINC PLATED "REGULAR" (Coarse) THREAD SPAENAUR No.	Pitch mm	ZINC PLATED "FINE" THREAD SPAENAUR No.	Pitch mm	ZINC PLATED "FINE" THREAD SPAENAUR No.	Pitch mm	YELLOW ZINC "REGULAR" (Coarse) THREAD SPAENAUR No.	Pitch mm	YELLOW ZINC "FINE" THREAD SPAENAUR No.	Pitch mm
M1	2.5	0.8	100	156-001	0.25					156-001ZP	0.25								
M1.2	3	1	100	156-002	0.25					156-002ZP	0.25								
M1.4	3	1.2	100	156-003	0.30					156-003ZP	0.30								
M1.6	3.2	1.3	100	156-004	0.35					156-004ZP	0.35								
M1.7	3.5	1.4	100	156-005	0.35					156-005ZP	0.35								
M1.8	3.5	1.4	100		0.35					156-271ZP	0.35								
M2	4	1.6	100	156-006	0.40					156-006ZP	0.40					156-006YZ	0.40		
M2.2	4.5	1.8	100	156-272	0.45														
M2.3	4.5	1.8	100	156-007	0.40					156-007ZP	0.40								
M2.5	5	2	100	156-008	0.45					156-008ZP	0.45					156-008YZ	0.45		
M2.6	5	2	100	156-009	0.45					156-009ZP	0.45								
M3	5.5	2.4	100	156-010	0.50	156-048	0.35			156-010ZP	0.50	156-048ZP	0.35						
M3.5	6	2.8	100	156-087	0.60						0.80								
M4	7	3.2	100	156-012	0.70	156-049	0.50			156-012ZP	0.70	156-049ZP	0.50						
M5	8	4	100		0.80						0.80	156-050ZP	0.50						
M6	10	5	100		1.00	156-051	0.75				1.00	156-051ZP	0.75						
M8	13	6.5	100		1.25						1.25								
M10	17	8	100									156-135ZP	1.25						
M12	19	10	100	156-128	1.75					156-128ZP	1.75								
M14	22	11	100		2.00						2.00								



ISO Metric
Property Class 6 Steel
LEFT HAND THREADS
COARSE AND FINE

DIN 934
STANDARD TYPE

DIA. in mm	Width across Flats mm	Thick-ness in mm	Unit Pkg. Qty.	PLAIN FINISH "REGULAR" (Coarse) THREAD SPAENAUR No.	Pitch mm	PLAIN FINISH "FINE" THREAD SPAENAUR No.	Pitch mm	PLAIN FINISH "FINE" THREAD SPAENAUR No.	Pitch mm	ZINC PLATED "REGULAR" (Coarse) THREAD SPAENAUR No.	Pitch mm	ZINC PLATED "FINE" THREAD SPAENAUR No.	Pitch mm	ZINC PLATED "FINE" THREAD SPAENAUR No.	Pitch mm	YELLOW ZINC "REGULAR" (Coarse) THREAD SPAENAUR No.	Pitch mm	YELLOW ZINC "FINE" THREAD SPAENAUR No.	Pitch mm
M8L	13	6.5	100	156-223	1.25														

ISO Metric
Property Class 8
LEFT HAND THREADS

STEEL
ZINC PLATED

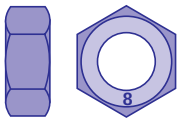
DIN 934
STANDARD TYPE

SIZE DIA. mm	SPAENAUR No.	PITCH mm	WIDTH ACROSS FLATS mm	THICK-NESS mm	UNIT PKG. QTY.	SIZE DIA. mm	SPAENAUR No.	PITCH mm	WIDTH ACROSS FLATS mm	THICK-NESS mm	UNIT PKG. QTY.
M3L	156-300	0.50	5.5	2.4	100	M14L	156-307	2.00	22	11	50
M4L	156-301	0.70	7	3.2	100	M16L	156-308	2.00	24	13	50
M5L	156-302	0.80	8	4	100	M18L	156-309	2.50	27	15	25
M6L	156-303	1.00	10	5	100	M20L	156-310	2.50	30	16	25
M8L	156-304	1.25	13	6.5	100	M22L	156-311	2.50	32	18	25
M10L	*156-305	1.50	17	8	100	M24L	156-312	3.00	36	19	25
M12L	156-306	1.75	19	10	100	M30L	156-313	3.50	46	24	25

*160-102 A2 Stainless Steel

See following page for Property Class 8 STANDARD RIGHT HAND THREAD.

C



ISO Metric

Property Class 8 Steel

Coarse and Fine Threads

DIN 934 STANDARD TYPE
High tensile HEAT TREATED
Proof Load: 800 N/mm² (=115,000 PSI.)

DIA. in mm	Width across Flats mm	Thick-ness in mm	Unit Pkg. Qty.	PLAIN FINISH "REGULAR" (Coarse) THREAD SPAENAUR No.	Pitch mm	PLAIN FINISH "FINE" THREAD SPAENAUR No.	Pitch mm	PLAIN FINISH "FINE" THREAD SPAENAUR No.	Pitch mm	ZINC PLATED "REGULAR" (Coarse) THREAD SPAENAUR No.	Pitch mm	ZINC PLATED "FINE" THREAD SPAENAUR No.	Pitch mm	ZINC PLATED "FINE" THREAD SPAENAUR No.	Pitch mm	YELLOW ZINC "REGULAR" (Coarse) THREAD SPAENAUR No.	Pitch mm	YELLOW ZINC "FINE" THREAD SPAENAUR No.	Pitch mm
M1	2.5	0.8	100																
M1.7	3.5	1.4	100																
M1.8	3.5	1.4	100							156-827ZP	0.35								
M2	4	1.6	100	156-273	0.40					156-273ZP	0.40					156-273YZ	0.40		
M2.5	5	2	100	156-274	0.45					156-274ZP	0.45					156-274YZ	0.45		
M3	5.5	2.4	100	156-275	0.50					156-275ZP	0.50					156-275YZ	0.50		
M3.5	6	2.8	100	156-011	0.60					156-011ZP	0.60					156-011YZ	0.60		
M4	7	3.2	100	156-136	0.70					156-136ZP	0.70					156-136YZ	0.70		
M5	8	4	100	156-013	0.80					156-013ZP	0.80					156-013YZ	0.80		
M6	10	5	100	156-014	1.00					156-014ZP	1.00					156-014YZ	1.00		
M7	11	5.5	100	156-015	1.00					156-015ZP	1.00					156-015YZ	1.00		
M8	13	6.5	100	156-016	1.25	156-039	1.00			156-016ZP	1.25	156-039ZP	1.00			156-016YZ	1.25	156-039YZ	1.00
M10	17	8	100	156-017	1.50	156-052	1.25	156-040	1.00	156-017ZP	1.50	156-052ZP	1.25	156-040ZP	1.00	156-017YZ	1.50		
M12	19	10	100	156-018	1.75	156-053	1.25	156-041	1.00	156-018ZP	1.75	156-053ZP	1.25	156-041ZP	1.00	156-018YZ	1.75		
			100			156-133	1.50					156-133ZP	1.50					156-133YZ	1.50
M14	22	11	100	156-019	2.00	156-042	1.50			156-019ZP	2.00	156-042ZP	1.50			156-019YZ	2.00		
M16	24	13	100	156-020	2.00	156-043	1.50	156-278	1.00	156-020ZP	2.00	156-043ZP	1.50			156-020YZ	2.00		
M18	27	15	50	156-021	2.50	156-279	2.00	156-044	1.50	156-021ZP	2.50	156-044ZP	1.50						
M20	30	16	50	156-022	2.50	156-280	2.00	156-045	1.50	156-022ZP	2.50	156-045ZP	1.50			156-022YZ	2.50		
M22	32	18	50	156-023	2.50	156-281	2.00	156-046	1.50	156-023ZP	2.50	156-046ZP	1.50						
M24	36	19	50	156-024	3.00	156-054	2.00	156-047	1.50	156-024ZP	3.00	156-054ZP	2.00	156-047ZP	1.50	156-024YZ	3.00		
M27	41	22	25	156-025	3.00	156-102	2.00	156-282	1.50	156-025ZP	3.00	156-102ZP	2.00						
M30	46	24	25	156-026	3.50	156-103	2.00	156-283	1.50	156-026ZP	3.50	156-103ZP	2.00			156-026YZ	3.50		
M33	50	26	15	156-027	3.50	156-285	2.00	156-284	1.50	156-027ZP	3.50								
M35	55	29	10	156-322	4.00														
M36	55	29	10	156-028	4.00	156-104	3.00	156-286	1.50	156-028ZP	4.00	156-104ZP	3.00					156-104YZ	3.00
			10			156-325	2.00												
M39	60	31	10	156-029	4.00	156-287	3.00			156-029ZP	4.00								
M42	65	34	10	156-030	4.50			156-105	3.00	156-030ZP	4.50			156-105ZP	3.00				
M45	70	36	10	156-031	4.50					156-031ZP	4.50								
M48	75	38	10	156-032	5.00			156-106	3.00	156-032ZP	5.00			156-106ZP	3.00				
M52	80	42	10	156-033	5.00					156-033ZP	5.00								
M56	85	45	1	156-295	5.50														
M60	90	48	1	156-288	5.50														
M64	95	51	1	156-289	6.00					156-289ZP	6.00								
M68	100	54	1	156-290	6.00														
M72	105	58	1	156-291	6.00														
M76	110	61	1	156-292	6.00														
M80	115	64	1	156-293	6.00														

See previous page for Property Class 8 Hex Nuts - Left Hand Threads.

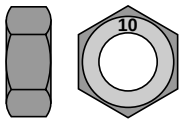
ASSORTMENT 805-407
ASSORTIMENT

Furnished in REGULAR SIZE grey enamelled drawer.
Drawer will fit into Slide Racks shown on A2.

HEXAGON NUTS (Standard)
DIN 934, Coarse Thread
24 Sizes - 922 Pieces Regular Box

Property Classes 5, 8 and 10 Steel Plain and Plated

SPAENAUR



ISO Metric
Property Class 10
Steel

DIN 934 STANDARD TYPE
High tensile DOUBLE HEAT TREATED
Proof Load: 1000 N/mm² (=150,000 PSI.)

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DIA. in mm	Width across Flats mm	Thick-ness in mm	Unit Pkg. Qty.	PLAIN FINISH "REGULAR" (Coarse) THREAD *SPAENAUR* No.	Pitch mm	PLAIN FINISH "FINE" THREAD *SPAENAUR* No.	Pitch mm	PLAIN FINISH "FINE" THREAD *SPAENAUR* No.	Pitch mm	ZINC PLATED "REGULAR" (Coarse) THREAD *SPAENAUR* No.	Pitch mm	ZINC PLATED "FINE" THREAD *SPAENAUR* No.	Pitch mm	ZINC PLATED "FINE" THREAD *SPAENAUR* No.	Pitch mm	YELLOW ZINC "REGULAR" (Coarse) THREAD *SPAENAUR* No.	Pitch mm	YELLOW ZINC "FINE" THREAD *SPAENAUR* No.	Pitch mm
M3	5.5	2.4	100	***156-110**	0.50											**156-110YZ**	0.50		
M3.5	6	2.8	100		0.60											**156-111YZ**	0.60		
M4	7	3.2	100	**156-112**	0.70											**156-112YZ**	0.70		
M5	8	4	100	**156-113**	0.80					**156-113ZP**	0.80					**156-113YZ**	0.80		
M6	10	5	100	**156-114**	1.00											**156-114YZ**	1.00		
M7	11	5.5	100	**156-237**	1.00														
M8	13	6.5	100	**156-116**	1.25	**156-238**	1.00			**156-116ZP**	1.25					**156-116YZ**	1.25		
M10	17	8	100	**156-117**	1.50	**156-239**	1.00			**156-117ZP**	1.50					**156-117YZ**	1.50		
M12	19	10	100	**156-118**	1.75	**156-241**	1.25	**156-240**	1.00							**156-118YZ**	1.75		
	19	10	100			**156-242**	1.50												
	18	10.5	100		1.75											**156-127YZ**	1.75		
M14	22	11	100	**156-119**	2.00	**156-243**	1.50									**156-119YZ**	2.00		
M16	24	13	100	**156-120**	2.00	**156-244**	1.50			**156-120ZP**	2.00					**156-120YZ**	2.00		
M18	27	15	50	**156-121**	2.50	**156-246**	2.00	**156-245**	1.50							**156-121YZ**	2.50		
M20	30	16	50	†**156-122**	2.50	**156-248**	2.00	**156-247**	1.50			**156-247ZP**	1.50			**156-122YZ**	2.50		
M22	32	18	50	**156-123**	2.50	**156-250**	2.00	**156-249**	1.50							**156-123YZ**	2.50		
M24	36	19	50	**156-124**	3.00	**156-358**	2.00	**156-251**	1.50							**156-124YZ**	3.00		
M27	41	22	25	**156-125**	3.00	**156-253**	2.00	**156-252**	1.50							**156-125YZ**	3.00		
M30	46	24	25	**156-126**	3.50	**156-255**	2.00	**156-254**	1.50							**156-126YZ**	3.50		
M33	50	26	10	**156-256**	3.50	**156-258**	2.00	**156-257**	1.50										
M36	55	29	10	**156-259**	4.00	**156-359**	3.00	**156-260**	1.50										
M39	60	31	10	**156-262**	4.00	**156-360**	3.00												
M42	65	34	5	**156-263**	4.50	**156-357**	3.00												
M45	70	36	5	**156-264**	4.50	**156-265**	3.00												
M48	75	38	5	**156-267**	5.00														
M52	80	42	1	**156-266**	5.00														

For High-strength Hex Head Bolts, see pg. B203
For High-strength Washers, see pg. D18.

***156-110NP** Nickel Plated †**156-412** Prop. Cl. 12, Plain Finish

DIN 555

ISO Metric

Hexagon Nut Property Class 5

Plain Steel
Regular (Coarse) Thread

SPAENAUR No.	THREAD SIZE Dia.	THREAD SIZE Pitch	WIDTH ACROSS FLATS	OVERALL THICKNESS	UNIT PACKAGE QUANTITY
156-830	M5	0.80	8 mm	4 mm	100
156-831	M8	1.25	13 mm	6,5 mm	100
156-832	M10	1.50	17 mm	8 mm	100
156-833	M12	1.75	19 mm	10 mm	100
156-834	M16	2.00	24 mm	13 mm	100
156-835	M36	4.00	55 mm	29 mm	10

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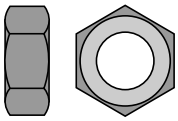


BRASS NYLON STAINLESS STEEL

STANDARD TYPE **DIN 934** ~ **EN ISO 4032** Coarse Thread ~ **EN ISO 8673** Fine Thread

DIA. in / mm	Width A/F mm	Thick-ness mm	Unit Pkg. Qty.	COARSE THREAD Pitch mm	BRASS	NYLON Polyamid 6/6	STAINLESS STEEL A2	STAINLESS STEEL A4	FINE THREAD Pitch mm	STAINLESS STEEL A2	STAINLESS STEEL A4
M1	2.5	0.9	25	0.25	**158-018**		**160-001**				
M1.2	3	1	25	0.25	**158-019**		**160-002**				
M1.4	3	1.2	25	0.30	**158-020**		**160-003**				
M1.6	3.5	1.3	100	0.35	**158-021**		**160-004**	**160-078**			
M1.7	3.5	1.4	100	0.35	**158-022**						
M2	4	1.6	100	0.40	**158-001**	**164-005**	**160-005**	**160-079**			
M2.3	4.5	1.6	100	0.40	**158-023**		**160-006**				
M2.5	5	2	100	0.45	**158-002**	**164-007**	**160-007**	**160-080**			
M2.6	5	2	100	0.45	**158-024**		**160-008**				
M3	5.5	2.4	100	0.50	**158-003**	**164-010**	**160-010**	**160-050**			
M3.5	6	2.8	100	0.60	**158-004**	***164-019**	**160-009**	**160-060**			
M4	7	3.2	100	0.70	▲**158-005**	**164-011**	**160-011**	**160-051**			
M4.5	8	4	100	0.75							
M5	8	4	100	0.80	**158-006**	**164-012**	**160-012**	**160-052**			
M6	10	5.2	100	1.00	■**158-007**	**164-013**	**160-013**	**160-053**			
M6.3	10	5	100	1.00	**158-008**						
M8	13	6.8	100	1.25	**158-009**	**164-015**	**160-014**	**160-054**	1.00	**160-064**	**160-081**
M10	14.8	9.8	100	1.50		●**164-020**					
M10	16	8.4	100	1.50	**158-010**		**160-015**	**160-055**	1.00	**160-065**	**160-082**
			100						1.25	**160-066**	**160-083**
M12	18	10.8	100	1.75	**158-011**	**164-017**	**160-016**	**160-056**	1.50	**160-067**	**160-084**
M14	21	12.8	See price list for pkg. qtys.	2.00	**158-012**		**160-017**	**160-057**	1.50	**160-048**	
M16	24	14.8		2.00	**158-013**	**164-018**	**160-018**	**160-058**	1.50	**160-068**	**160-085**
M18	27	15.8		2.50	**158-014**		**160-019**	**160-059**			
M20	30	18		2.50	**158-015**	**164-023**	**160-020**	**160-061**	1.50	**160-069**	**160-086**
M22	34	19.4		2.50	**158-016**		**160-021**	**160-062**			
M24	36	21.5		3.00	**158-017**	□**164-024**	**160-022**	**160-063**	1.50	**160-049**	
M27	41	23.8		3.00	**158-026**		**160-023**	**160-087**			
M30	46	25.6		3.50	**158-027**		**160-024**				
M33	50	28.7		3.50				**160-089**			
M36	55	31		4.00							
M39	60	33.4		4.00				**160-091**			
M42	65	34		4.50			**160-073**				
M45	70	36		4.50				**160-093**			
M48	75	38		5.00				**160-094**			
M52	80	42		5.00				**160-095**			

□**164-025** DIN 439 12 mm Thick. ●Not to DIN Spec. ▲**158-005NP** Nickel Plated ■**158-007NP** Nickel Plated *Delrin

DIN 934 METRIC HEX NUTS

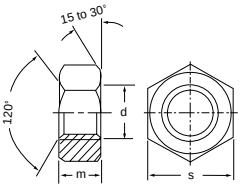
ALUMINUM - Plain Finish

Dia.	Width A/F	Thick-ness	Pitch	*SPAENAUR No.*	Unit Pkg.
M6	10	5.2	1.00	**162-301**	100
M8	13	6.8	1.25	**162-300**	100
M10	16	8.4	1.50	**162-302**	100
M12	18	10.8	1.75	**162-303**	100

All dimensions in millimetres.

DIN 70615 HEXAGON NUTS small across flat

METRIC
PROPERTY CLASS 8
STEEL - Plain Finish



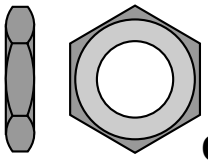
Dia.	Width A/F	Thick-ness	Pitch	*SPAENAUR No.*	Unit Pkg.
M10	15	8.0	1.00	**156-377**	100
M10	15	8.0	1.25	**156-379**	100
M10	15	8.0	1.50	**156-378**	100

Items listed below are similar to DIN 70615

M10	14	8.0	1.25	**156-381**	100
M10	14	8.0	1.50	**156-382**	100

All dimensions in millimetres.

CATALOG 13



HEXAGON LOW NUTS
COARSE THREAD

ISO Metric PROPERTY CLASSES 4 & 5 Steel

(CLASS 5 Steel will be discontinued when present stock expires.)

DIN 439B ~ DIN EN 24036 ~ DIN ISO 4036

A2 STAINLESS STEEL and BRASS

C

(See page C14 for FINE THREAD)

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW

DIA. in mm	Width A/F mm	Thick -ness mm	Pitch in mm	Unit Pkg. Qty.	Metric CLASS 4 PLAIN	Metric CLASS 4 ZINC PLATED	Metric CLASS 4 NICKEL PLATED	Metric CLASS 5 PLAIN	STAINLESS STEEL A2	BRASS
M2	4	1.2	0.40	100	**156-055**	**156-055ZP**			**160-028**	**158-028**
M2.3	4.5	1.2	0.40	100		**156-056ZP**				**158-039**
M2.5	5	1.6	0.45	100	**156-057**	**156-057ZP**			**160-029**	**158-029**
M2.6	5	1.6	0.45	100		**156-058ZP**	**156-058NP**			
M3	5.5	1.8	0.50	100	**156-059**	**156-059ZP**	**156-059NP**		**160-030**	**158-030**
M3.5	6	2	0.60	100	**156-060**	**156-060ZP**			**160-031**	
M4	7	2.2	0.70	100	**156-061**	**156-061ZP**	**156-061NP**		**160-032**	**158-031**
M5	8	2.7	0.80	100	**156-062**	**156-062ZP**	**156-062NP**		**160-033**	**158-032**
M6	10	3.2	1.00	100	**156-063**	**156-063ZP**	**156-063NP**		**160-034**	**▲158-033**
M7	11	3.5	1.00	100		**156-064ZP**				
M8	13	4	1.25	100	**156-137**	**156-137ZP**			**160-035**	**158-034**
M10	16	5	1.50	100	**156-140**	**156-140ZP**			**■ 160-036**	**158-035**
M12	18	6	1.75	100	**156-143**	**156-143ZP**		***156-161YZ**	**160-037**	**158-036**
M14	21	7	2.00	100	**156-145**	**156-145ZP**		**156-163**	**160-038**	
M16	24	8	2.00	50	**156-146**	**156-146ZP**			**160-039**	**158-037**
M18	27	9	2.50	50	**156-149**					
M20	30	10	2.50	50	**156-152**	**156-152ZP**		**156-169**	**160-040**	**158-038**
M22	34	11	2.50	50	**156-196**					
M24	36	12	3.00	25	**156-155**	**156-155ZP**			**160-041**	
M27	41	13.5	3.00	25						
M30	46	15	3.50	25					**160-042**	
M33	50	16.5	3.50	10	**156-156**					
M36	55	18	4.00	10						
M39	60	19.5	4.00	10	**156-159**					
M42	65	21	4.50	10	**156-158**					
M45	70	22.5	4.50	10				**156-189**		
M48	75	24	5.00	10						
M52	80	26	5.00	10				**156-191**		

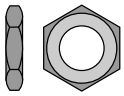
*Yellow Zinc

SEE NEXT PAGE FOR FINE THREAD SIZES

Additional Finishes or Metric Property Classes of DIN 439B Coarse Thread

▲ 158-033NP M6 x 1.00, Brass, Nickel Plated *(U.P. 100)*
■ 160-046 M10 x 1.50, A4 Stainless Steel *(U.P. 100)*
156-843YZ M20 x 2.50, Class 6, Yellow Zinc Plated *(U.P. 50)*
156-844YZ M20 x 2.50, Class 22H, Yellow Zinc Plated *(U.P.50)*

ASSORTMENT / ASSORTIMENT 805-409



Metric
HEXAGON NUTS (Low Style)
DIN 439 (Property Class 4), DIN 936 (Property Class 17H)

Coarse and Fine Thread
Plain and Plated Steel
24 Sizes - 1108 Pieces
Furnished in REGULAR SIZE grey enamelled drawer.
Drawer will fit into Slide Racks shown on A2.
Shipping Weight: 4.98 kg (10.95 lbs.)
Priced Singly

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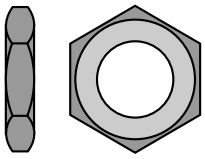


HEXAGON LOW NUTS DIN 439B FINE THREAD

ISO Metric PROPERTY CLASSES 4, 5 & 6 STEEL

(Property Class 5 will be discontinued when present stock expires.)

and A2 STAINLESS STEEL

(See page C13 for COARSE THREAD)

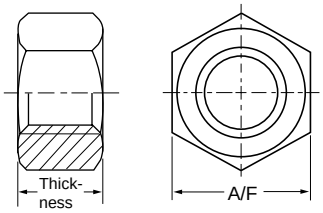
ORDER BY *SPAENAUR* NUMBERS LISTED BELOW

DIA. in mm	Width A/F mm	Thick-ness mm	Pitch in mm	Unit Pkg. Qty.	Metric CLASS 4 PLAIN	Metric CLASS 4 ZINC PLATED	Metric CLASS 5 PLAIN	Metric CLASS 5 YELLOW ZINC PLATED	Metric Cl. 6 YELLOW ZINC PLATED	STAINLESS STEEL A2
M8	13	4	1.00	100	**156-134**	**156-134ZP**				**160-096**
M10	16	5	1.25	100	**156-139**	**156-139ZP**				**▲160-098**
			1.00	100	**156-138**	**156-138ZP**				**160-097**
M12	18	6	1.25	100	**156-141**					
			1.50	100	**156-142**					**160-099**
M14	21	7	1.50	100	**156-144**					
M16	24	8	1.50	50	**156-193**				**156-842YZ**	**160-100**
M18	27	9	1.50	50	**156-147**					
			2.00	50						
M20	30	10	1.50	50	**156-150**					**160-026**
			2.00	50	**156-151**					
M22	32	11	1.50	50	**156-194**					
			2.00	50	**156-195**					
M24	36	12	1.50	25	**156-153**					**160-101**
			2.00	25	**156-154**					
M27	41	13.5	1.50	25						
			2.00	25						
M30	46	15	1.50	25			**156-179**	**156-179YZ**		
			2.00	25						
M33	50	16.5	2.00	10	**156-157**		**156-197**			
			1.50	10			**156-182**	**156-182YZ**	**156-838YZ**	
M36	55	18	1.50	10						
			3.00	10						
M42	65	21	1.50	10			**156-187**			

▲ **160-103** A4 Stainless Steel

SEE PAGE C13 FOR COARSE THREAD SIZES

HEX THICK NUTS Metric Coarse Thread



UNI 5587

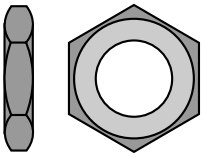
Property Class 6 and 8
Steel, Zinc Plated

PROPERTY CLASS 6

SPAENAUR No.	Dia. in mm	Width A/F mm	Thick-ness mm	Pitch in mm	Unit Pkg. Qty.
156-354	M3	5.5	3	0.5	100
156-355	M4	7	4	0.7	100

PROPERTY CLASS 8

SPAENAUR No.	Dia. in mm	Width A/F mm	Thick-ness mm	Pitch in mm	Unit Pkg. Qty.
156-336	M6	10	6	1.0	100
156-337	M8	13	8	1.25	100
156-338	M10	17.16	10	1.5	100
156-339	M12	19.18	12	1.75	100
156-340	M16	24	16	2.0	100
156-341	M20	30	20	2.5	50
156-343	M30	46	30	3.5	25



HEXAGON LOW NUTS

COARSE THREAD

DIN 936

ISO Metric PROPERTY CLASSES 17H (04) & 22H (06) STEEL and A2 STAINLESS STEEL

C

DIA. in mm	Width A/F mm	Thick-ness mm	Pitch in mm	Unit Pkg. Qty.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW Metric CLASS 17H (04) PLAIN	Metric CLASS 17H (04) ZINC PLATED	Metric CLASS 22H (06) PLAIN	Metric CLASS 22H (06) ZINC PLATED	STAINLESS STEEL A2	
M8	13	5	1.25	100	**156-065**	**156-065ZP**	**156-316**		**160-800**	
M10	17	6	1.50	100	**156-066**	**156-066ZP**	**156-317**		**160-801**	
M12	19	7	1.75	100	**156-067**	**156-067ZP**	**156-335**			
M14	22	8	2.00	100	**156-068**	**156-068ZP**	**156-319**			
M16	24	8	2.00	100	**156-069**	**156-069ZP**	**156-320**			
M18	27	9	2.50	50	**156-070**	**156-070ZP**	**156-321**			
M20	30	9	2.50	50	**156-071**	**156-071ZP**	**156-323**		**160-802** *(U.P. 25)*	
M22	32	10	2.50	50	**156-072**	**156-072ZP**	**156-368**			
M24	36	10	3.00	50	**156-073**	**156-073ZP**	**156-314**			
M27	41	12	3.00	25	**156-074**	**156-074ZP**	**156-328**			
M30	46	12	3.50	25	**156-075**	**156-075ZP**	**156-165**			
M33	50	14	3.50	10	**156-330**		**156-199**			
M36	55	14	4.00	10	**156-207**		**156-332**			
M42	65	16	4.50	10	**156-297**					
M45	70	18	4.50	10						
M48	75	18	5.00	10						
M52	80	20	5.00	10						

FINE THREAD

DIA. in mm	Width A/F mm	Thick-ness mm	Pitch in mm	Unit Pkg. Qty.	Metric CLASS 17H (04) PLAIN	Metric CLASS 17H (04) ZINC PLATED	Metric CLASS 22H (06) PLAIN	Metric CLASS 22H (06) ZINC PLATED	STAINLESS STEEL A2	
M8	13	5	1.00	100	**156-035**		**156-090**	**156-090ZP**		
M10	17	6	1.00	100	▲**156-361**	**156-361ZP**	**156-091**	**156-091ZP**		
M12	19	7	1.50	100	**156-038**		**156-318**			
			1.25	100	**156-036**		**156-084**			
			1.00	100	**156-037**		**156-092**	**156-092ZP**		
M14	22	8	1.50	100	**156-085**		**156-093**	**156-093ZP**		
M16	24	8	1.50	100			**156-094**	**156-094ZP**		
M18	27	9	2.00	50			**156-100**	**156-100ZP**		
			1.50	50			**156-095**	**156-095ZP**		
M20	30	9	1.50	50	**156-034**		**156-324**			
			2.00	50			**156-096**	**156-096ZP**		
M22	32	10	1.50	50	**156-088**		**156-101**	**156-101ZP**		
			2.00	50			**156-097**	**156-097ZP**		
M24	36	10	2.00	50	**156-089**		**156-098**	**156-098ZP**		
			1.50	50	**156-108**		**156-327**			
M27	41	12	2.00	25	**156-115**		**156-107**	**156-107ZP**		
			1.50	25	**156-109**					
M30	46	12	2.00	25	**156-200**		**156-099**	**156-099ZP**		
			1.50	25	**156-201**		■**156-329**			
M33	50	14	1.50	10			**156-331**			
M36	55	14	2.00	10	**156-269**					
			1.50	10	**156-268**		**156-333**			
M42	65	16	1.50	10	**156-298**		**156-841**			

▲**156-361YZ** Yellow Zinc ■**156-329YZ** Yellow Zinc

C

STEEL
Inch Sizes

ASME/ANSI B18.2.2

THREADS are Unified Standard, Class 2B Fit

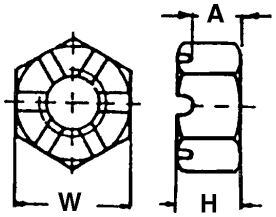
For Steel Cotter Pins see page E49.

TYPE	NOMINAL SIZE	COARSE THREAD (U.N.C. - U.S.S.) *SPAENAUR No.*	COARSE THD.	FINE THREAD (U.N.F. - S.A.E.) *SPAENAUR No.*	FINE THD.	WIDTH ACROSS FLATS	THICKNESS	UNIT PKG. QTY.
FINISHED - FULL HEX SLOTTED NUTS Not Plated P.C. 155	**1/4"**	**HN-147**	20	**HN-111**	28	7/16"	7/32"	100
	5/16"	**HN-148**	18	**HN-112**	24	1/2"	17/64"	100
	3/8"	**HN-149**	16	**HN-113**	24	9/16"	21/64"	100
	7/16"	**HN-150**	14	**HN-114**	20	11/16"	3/8"	50
	1/2"	**HN-151**	13	**HN-115**	20	3/4"	7/16"	50
	9/16"	**HN-152**	12	—	—	7/8"	31/64"	50
	5/8"	**HN-153**	11	**HN-117**	18	15/16"	35/64"	50
	3/4"	**HN-154**	10	**HN-118**	16	1-1/8"	41/64"	50
	7/8"	**HN-155**	9	**HN-119**	14	1-5/16"	3/4"	25
	1"	**HN-156**	8	**HN-120**	14	1-1/2"	55/64"	25
	1-1/8"	**HN-157**	7	**HN-121**	12	1-11/16"	31/32"	25
	1-1/4"	**HN-158**	7	**HN-122**	12	1-7/8"	1-1/16"	25
	1-3/8"	**HN-159**	6	**HN-123**	12	2-1/16"	1-11/64"	20
	1-1/2"	**HN-160**	6	**HN-124**	12	2-1/4"	1-9/32"	20
	2"	—	—	**155-011**	12	3"	1-23/32"	10
FINISHED - THICK HEX SLOTTED NUTS Not Plated (except *) P.C. 155	**1/4"**	—	20	***B-111**	28	7/16"	9/32"	100
	5/16"	—	—	**155-002**	24	1/2"	21/64"	100
	3/8"	—	—	***B-113**	24	9/16"	13/32"	100
	7/16"	—	—	***B-114**	20	11/16"	29/64"	50
	1/2"	**HN-21**	13	—	—	3/4"	9/16"	50
	5/8"	—	—	**B-117**	18	15/16"	23/32"	50
	3/4"	—	—	**B-118**	16	1-1/8"	13/16"	50
	7/8"	—	—	**B-119**	14	1-5/16"	29/32"	25
	1"	—	—	***B-120**	14	1-1/2"	1"	25

*Bright Zinc Chromate Plated

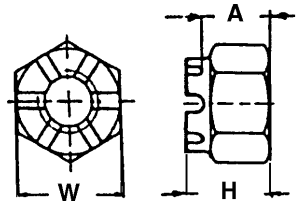
Meeting your needs today and tomorrow!

Our 55 person call centre is available to answer any questions that you may have pertaining to product, delivery or application. Our bilingual telesales staff is thoroughly trained to ISO 9002 standards and open from 7 a.m. to 7 p.m. E.S.T. to personally take your order. Call us today at **800-265-8772.**



SLOTTED HEX NUTS DIN 935-1

	Size (Dia.) in mm	COARSE THREAD SPAENAUR No.	COARSE THREAD Pitch mm	FINE THREAD SPAENAUR No.	FINE THREAD Pitch mm	Dimensions (in mm) W	H	A (Max.)	Unit Pkg. Qty.
Metric Property Class 6 Plain Steel	**M4**	**166-100**	0.70	—	—	7	5	3.2	100
	M5	**166-101**	0.80	—	—	8	6	4	100
	M6	**166-102**	1.00	—	—	10	7.5	5	100
	M8	—	—	**166-115**	1.00	13	9.5	6.5	100
	M10	—	—	**166-116**	1.25	16	12	8	100
Metric Property Class 8 Plain Steel	**M4**	**166-135**	0.70	—	—	7	5	3.2	100
	M6	**166-128**	1.00	—	—	10	7.5	5	100
	M8	**166-104**	1.25	—	—	13	9.5	6.5	100
Metric Property Class 8 Zinc Plated	**M4**	**166-135ZP**	0.70	—	—	7	5	3.2	100
	M10	**166-105ZP**	1.50	—	—	16	12	8	100
Metric Prop. Class 5 AU▲ ▲AU = Free-cutting steel Prop. Cl. not in Standard	**M8**	—	—	**166-023**	1.00	13	9.5	6.5	100
	M10	—	—	**166-027**	1.00	16	12	8	100



CASTELLATED HEX NUTS DIN 935-1

Metric Property Class 8 Plain Steel (*Property Class 6)	**M12**	**166-106**	1.75	**166-117***	1.25	18	15	10	100
	M14	**166-107**	2.00	**166-118***	1.50	21	16	11	50
	M16	**166-108**	2.00	**166-119***	1.50	24	19	13	50
	M18	**166-109**	2.50	**166-120***	1.50	27	21	15	50
	M20	**166-110**	2.50	**166-121***	1.50	30	22	16	50
	M22	**166-111**	2.50	**166-122***	1.50	34	26	18	50
	M24	**166-112**	3.00	**166-123***	2.00	36	27	19	25
	M30	**166-114**	3.50	**166-124***	2.00	46	33	24	25
	M36	**166-137**	4.00	—	—	55	38	29	10
Metric Property Class 8 Zinc Plated († Property Class 6 Zinc Plated)	**M12**	**166-106ZP**	1.75	†**166-117ZP**	1.25	18	15	10	100
	M14	**166-107ZP**	2.00	†**166-118ZP**	1.50	21	16	11	50
	M16	**166-108ZP**	2.00	—	1.50	24	19	13	50
	M18	—	—	†**166-120ZP**	1.50	27	21	15	50
	M20	**166-110ZP**	2.50	†**166-121ZP**	1.50	30	22	16	50
	M22	—	—	†**166-122ZP**	1.50	34	26	18	50
	M24	**166-112ZP**	3.00	—	—	36	27	19	25
	M27	**166-140ZP**	3.00	—	—	41	30	22	25
	M30	**166-114ZP**	3.50	†**166-124ZP**	2.00	46	33	24	25
Metric Prop. Class 5 AU▲ ▲AU = Free-cutting steel Prop. Cl. not in Standard	**M12**	**166-136**	1.75	**166-028**	1.50	18	15	10	100
	M12	—	—	**166-029**	1.25	18	15	10	100
	M14	—	—	**166-141**	1.50	21	16	11	50
	M16	—	—	**166-142**	1.50	24	19	13	50
	M18	**166-126**	2.50	**166-103**	1.50	27	21	15	50
	M24	—	—	**166-125**	1.50	36	27	19	25
	M36	**166-127**	4.00	—	2.00	55	38	29	10
Stainless Steel A2	**M16**	**166-818**	2.00	—	—	24	19	13	25
	M20	**166-819**	2.50	—	—	30	22	16	25

For Steel Cotter Pins see pages E52 and E53.

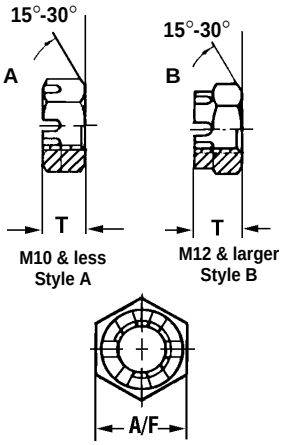
C

DIN 937

THIN SLOTTED & CASTELLATED NUTS

(OLD STYLE)

Up to and including M10 are Thin Slotted Nuts.
M12 and over are Castellated Nuts.



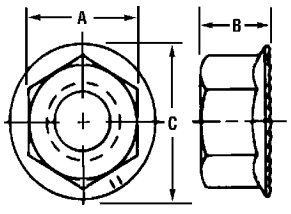
All Dimensions in Millimetres

Size (Dia.) in mm	COARSE THREAD *SPAENAUR No.*	COARSE THREAD Pitch	FINE THREAD *SPAENAUR No.*	FINE THREAD Pitch	Width Across Flats	MAX T Thickness	Unit Pkg. Qty.
DIN 937/14H Steel - Plain							
M8	**166-041**	1.25	**166-042**	1.00	13	8	100
M10	**166-043**	1.50	**166-044**	1.00	17	9	100
M12	**166-045**	1.75	**166-046**	1.50	19	10	100
M16	**166-047**	2.00	**166-048**	1.50	24	12	50
M18	—	—	**166-049**	1.50	27	13	50
M20	**166-050**	2.50	**166-051**	1.50	30	13	50
M22	—	—	**166-052**	1.50	32	15	50
M24	**166-053**	3.00	**166-054**	2.00	36	15	25
M30	—	—	**166-055**	2.00	46	18	25
M33	—	—	**166-057**	2.00	50	20	10
M36	—	—	**166-823**	3.00	55	20	10
DIN 937/14H Zinc Plated							
M12	—	—	**166-046ZP**	1.50	19	10	100
DIN 937/14H Yellow Zinc							
M12	—	—	**166-046YZ**	1.50	19	10	100
M20	—	—	**166-051YZ**	1.50	30	13	50
DIN 937/22H Steel - Plain							
M22	—	—	**166-164**	1.50	32	15	50
DIN 937/22H Yellow Zinc							
M16	**166-165YZ**	2.00	—	—	24	12	50
DIN 937 Stainless Steel A2							
M10	**166-816**	1.50	—	—	17	9	100
M24	**166-817**	3.00	—	—	36	15	25

FLANGE NUT

***SPAENAUR No.* 224-200**

Size: M6.3 x 1.00 pitch
Metric Property Class 9 Steel
A: 10 mm; B: 6 mm;
C: 14 mm
Phosphate & Oil Finish



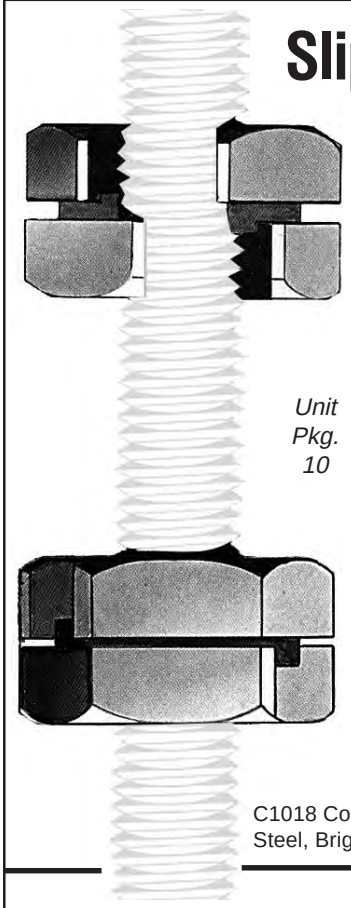
Unit Package 100

CATALOG 13

C

Slip-on® Lock Nut

Position at any desired location without threading.
A nut that does not have to be "threaded on."



A must for electricians, mechanical contractors, plumbers, steamfitters, sprinkler installers, general contractors, mining contractors, telecommunication industry, television industry, plant maintenance, original equipment manufacturers—and the list goes on. The Slip-On Lock Nut can be used on pipe racks, clevis hangers, cable trays, all-thread rod, anchor bolts that are rusted or bent, and in high vibratory situations. The list of applications is endless.

- **Saves time**
- **Saves money**
- **Solves rod and retrofit problems**

SPAENAUR No.	Thread Size	Width A\F	Approx. Thick.	Recommended Loads	Recommended Torque
165-199	1/4"-20 UNC	5/8"	3/8"	650 lbs.	6-8 ft. lbs.
165-200	3/8"-16 UNC	7/8"	15/32"	2,000 lbs.	19-25 ft. lbs.
165-201	1/2"-13 UNC	1-1/16"	5/8"	4,000 lbs.	50-60 ft. lbs.
165-206	5/8"-11 UNC	1-5/16"	13/16"	5,000 lbs.	100-120 ft. lbs.
165-207	3/4"-10 UNC	1-5/8"	1"	8,000 lbs.	180-200 ft. lbs.

Unit Pkg. 10

C1018 Cold Rolled Steel, Bright Zinc Pltd.

MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURE FOR RIGHT-HAND THREADED SLIP-ON LOCK NUTS

STEP 1. Line up slot on both halves and position at desired location, placing threads of rod/bolt all the way back into the base of the slot.

STEP 2. Turn half of the nut, following the direction of the arrows, until both halves tighten down against one another.

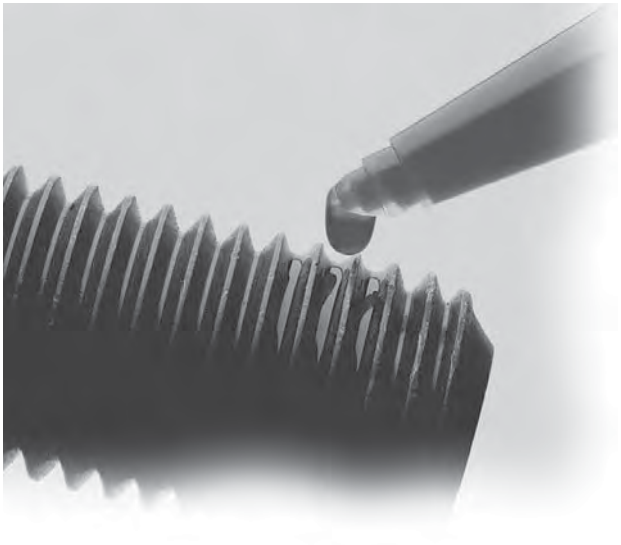
STEP 3. Put wrench on the half of the Slip-On Lock Nut that is farthest away from your fixed structure and tighten, following the direction of the arrows, until slots of both halves are opposite one another (180°).

NOTE: In order to adjust or torque the nut as a unit, turn half of the Slip-On Lock Nut until slot is 120° (2 flats). Then put wrench on entire nut to adjust or torque as you would a conventional nut with compatible materials. Next, follow STEP 3, putting slots at 180° of each other to complete installation.

Need a product not listed?

Just call us 1-800-265-8772

SPAENAUR
Advancing the Standard of Fastening



THREADLOCKING

Laboratory trials have shown that threaded fasteners locked with the correct grade of Loctite Threadlocking compound maintain correct clamp load more reliable than any form of mechanical threadlocking device. One drop applied to any size threaded metal fastener will prevent loosening from shock and vibration, while stopping rust and corrosion, allowing for ease of disassembly if required. Loctite offers removable to permanent strength threadlockers to fit a variety size and conditions.

222MS Threadlocker Low Strength/Small Screw
Ideal for fastener diameters of 1/4” (6 mm) and smaller. Controlled lubricity for accurate clamp loads. Parts can be separated using hand tools.

242® Threadlocker Medium Strength
A general-purpose, removable threadlocker for fasteners between 1/4" and 3/4" (6 to 20 mm) diameters. Controlled lubricity for accurate clamp loads. Parts can be separated using hand tools.

262 Threadlocker Medium to High Strength
A permanent locking threadlocker for fasteners up to 3/4” (20 mm) diameter. High lubrication for easy assembly. Excellent for preventing rust and corrosion in extreme chemical/environmental conditions.

277 Threadlocker High Strength
Locks fasteners up to 1-1/2" (36 mm). Protects threads from rust and corrosion. Removable with heat and hand tools.

290 Threadlocker Wicking Grade
A medium-strength threadlocker for pre-assembled bolts up to 1/2" (12 mm). Penetrates threads by capillary action. Secures set screws and other assemblies after settings are completed. Seals welds and porous metal parts. Protects threads from rust and corrosion. Localized heating and hand tools are needed for disassembly.

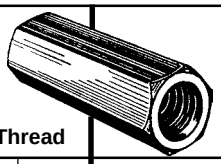
425 Assure™ Threadlocker Surface Curing
Low strength, fast curing threadlocker for plastic fasteners. Can be applied before or after assembly.

See Section 'Q' for a more extensive listing of Loctite® Products.

C

Metric Sizes

COUPLING NUTS



ZINC PLATED STEEL — Regular (Coarse) Thread

SPAENAUR No.	Dimensions in Millimeters Thread Size Diameter	Pitch	Width A/F	Length	Unit Pkg.
156-202	M8	1.25	15	44	50
156-203	M10	1.50	15	44	25
156-204	M12	1.75	15	44	25
156-205	M14	2.00	17	44	25
156-209	M22	2.50	32	63	10
156-211	M27	3.00	41	76	10
156-212	M30	3.50	41	76	10

COUPLING NUTS DIN 6334

Regular (Coarse) Thread

STEEL, PLAIN and ZINC PLATED

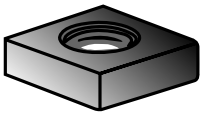
SPAENAUR No. Plain	Zinc Plated	Dimensions in Millimeters Thread Size Diameter	Pitch	Width A/F	Length	Unit Pkg.
156-344	156-344ZP	M6	1.00	10	18	50
156-345	156-345ZP	M8	1.25	13	24	50
156-352	156-352ZP	M10	1.50	17	30	25
156-346	156-346ZP	M12	1.75	19	36	25
156-347	156-347ZP	M16	2.00	24	48	25
156-348	156-348ZP	M20	2.50	30	60	10
156-349	156-349ZP	M24	3.00	36	72	10
156-350	156-350ZP	M30	3.50	46	90	5
156-351	156-351ZP	M36	4.00	55	108	5

SQUARE THIN NUT

Regular (COARSE) Thread

DIN 562
Property Class 4 Steel

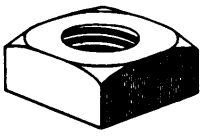
SPAENAUR No.	Finish	Thread Size Dia.	Pitch	Width A/F	Overall Thickness	Unit Pkg.
156-276	Zinc	M3	0.50	5.5 mm	1.8 mm	100
156-270	Plain	M4	0.70	7.0 mm	2.2 mm	100
156-270ZP	Zinc	M4	0.70	7.0 mm	2.2 mm	100



SQUARE NUT

DIN 557
Property Class 5 Steel

156-826	Zinc	M6	1.00	10 mm	5 mm	100
156-824	Zinc	M8	1.25	13 mm	6.5 mm	100
156-823	Zinc	M10	1.50	17 mm	8 mm	100



HEAVY HEX NUTS

For Structural Bolts

DIN 6915
Property Class 10 Steel

156-076	Plain	M12	1.75	22 mm	10 mm	100
156-077	Plain	M16	2.00	27 mm	13 mm	100
156-078	Plain	M20	2.50	32 mm	16 mm	50
156-079	Plain	M22	2.50	36 mm	18 mm	50
156-080	Plain	M24	3.00	41 mm	19 mm	50
156-081	Plain	M27	3.00	46 mm	22 mm	25
156-082	Plain	M30	3.50	50 mm	24 mm	25
156-083	Plain	M33	3.50	—	—	10

For Thick Hex Nuts
See Page B353
DIN 6330B Metric Fixture Nut

C

STEEL

Inch Sizes

Assembled
"K-LOK" Locknuts
STEEL, Zinc Plated

PRE-ASSEMBLED NUTS AND EXTERNAL LOCKWASHERS.
LOCKWASHERS FREE TO TURN BUT CANNOT DROP OFF.

UNC and UNF Threads

SPAENAUR No.	THREAD SIZE	WIDTH ACROSS FLATS	OVERALL THICKNESS	O.D. OF LOCKWASHER	SERIES	
N-180K	4-40	1/4"	1/8"	17/64"	AMERICAN STANDARD HEXAGON MACHINE SCREW NUT SERIES	*UNIT PKG. 100*
N-206K	5-40	5/16"	9/64"	11/32"		
N-1K	6-32	5/16"	9/64"	11/32"		
N-2K	8-32	11/32"	5/32"	3/8"		
N-3K	10-24	3/8"	5/32"	13/32"		
N-4K	10-32					
N-295K	12-24	7/16"	7/32"	1/2"		
N-5K	1/4-20	7/16"	15/64"	1/2"		
N-6K	1/4-28					
N-7K	1/4-20	7/16"	17/64"	1/2"	▲AMERICAN STANDARD HEXAGON (FINISHED-FULL) NUT SERIES	
N-8K	1/4-28					
N-9K	5/16-18	1/2"	21/64"	37/64"		
N-10K	5/16-24					
N-11K	3/8-16	9/16"	25/64"	5/8"		
N-12K	3/8-24					

P.C. 175

STAINLESS STEEL

Assembled
"K-LOK" Locknuts

Inch Sizes

PRE-ASSEMBLED NUTS AND EXTERNAL LOCKWASHERS.
LOCKWASHERS FREE TO TURN BUT CANNOT DROP OFF.

SPAENAUR No.	18-8 STAINLESS STEEL (For Hex. Nut part of Assembly) THREAD SIZE	WIDTH ACROSS FLATS	OVERALL THICKNESS	AISI-410-420 STAINLESS STEEL (For Toothed Lockwasher of Assembly) O.D. OF LOCKWASHER	SERIES	
175-800	4-40	1/4"	7/64"	17/64"	STANDARD MACHINE SCREW NUT SERIES *UNIT*	*PKG. 100*
175-801	5-40	5/16"	9/64"	11/32"		
175-802	6-32	5/16"	9/64"	11/32"		
175-803	8-32	11/32"	5/32"	3/8"		
175-804	10-24	3/8"	5/32"	13/32"		
175-805	10-32					
175-806	1/4-20	7/16"	15/64"	1/2"		
175-807	1/4-28					
175-808	3/8-16	9/16"	25/64"	21/32"	▲See above.	

CATALOG 13

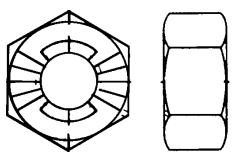
UNI-TORQUE LOCKNUT

***SPAENAUR No.* 165-100**

Steel - Cad. Plated

7/16"-14 Thread

11/16" A.F. 23/64" Thick.



Unit Package 100

STEEL

Metric Sizes

Assembled

"K-LOK" Locknuts

STEEL, Zinc Plated

PRE-ASSEMBLED NUTS AND EXTERNAL LOCKWASHERS.
LOCKWASHERS FREE TO TURN BUT CANNOT DROP OFF.

C

ISO METRIC THREADS

SPAENAUR No.	THREAD SIZE Dia.	Pitch	WIDTH ACROSS FLATS	OVERALL THICKNESS	O.D. OF LOCKWASHER	SERIES	
175-100	M3	0.50	5.5 mm	3.4 mm	6.8 mm	ISO METRIC Standard (Coarse) THREAD	*UNIT PKG. 100*
175-101	M4	0.70	7.0 mm	4.0 mm	8.0 mm		
175-102	M5	0.80	8.0 mm	5.1 mm	9.2 mm		
175-103	M6	1.00	10.0 mm	6.1 mm	11.0 mm		
175-104	M8	1.25	13.0 mm	7.9 mm	14.9 mm		
175-105	M10	1.50	17.0 mm	9.6 mm	19.5 mm		
175-106	M12	1.75	19.0 mm	12.0 mm	21.0 mm		

STAINLESS STEEL

Metric Sizes

ISO METRIC THREADS

Assembled

"K-LOK" Locknuts

PRE-ASSEMBLED NUTS AND EXTERNAL LOCKWASHERS.
LOCKWASHERS FREE TO TURN BUT CANNOT DROP OFF.

	A2 STAINLESS STEEL (For Hex. Nut part of Assembly)			AISI 420 STAINLESS STEEL (For Toothed Lockwasher of Assembly)			
SPAENAUR No.	THREAD SIZE Dia.	Pitch	WIDTH ACROSS FLATS	OVERALL THICKNESS	O.D. OF LOCKWASHER	SERIES	
175-854	M8	1.25	13.0 mm	7.05 mm	14.9 mm	ISO METRIC Standard (Coarse) THREAD	*UNIT PKG. 100*

WASHER IS FREE TO TURN BUT CANNOT DROP OFF.
Washer Thickness 2.0 mm

METRIC NUT and WASHER ASSEMBLY

M8 x 1.25 mm Standard Coarse Thread
HEX NUT: SAE 1010-1020 Steel, Zinc Chromate Finish
WASHER: SAE 1050 Spring Steel, Zinc Chromate Finish

SPAENAUR No.
175-113

Unit Package 100

METRIC THERMAG NUT

***SPAENAUR No.* 166-132**

Standard Coarse Thread
Steel, Copper Plated

Thread: M8 x 1.25 mm Overall Height: 8.5 mm
Across Flat: 12 mm Collar O.D: 11.5 mm

This nut has a special slot in the collar for locking

Unit Package 100

Hex Nut

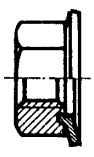
with conical spring washer

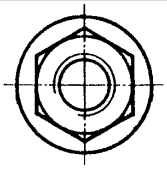
STEEL
Zinc Plated

***SPAENAUR No.* 175-107**

Thread: M12 x 1.75 mm O/A Height: 13.2 mm
Across Flat: 19 mm Washer O.D.: 25.5 mm

Unit Package 100





CATALOG 13

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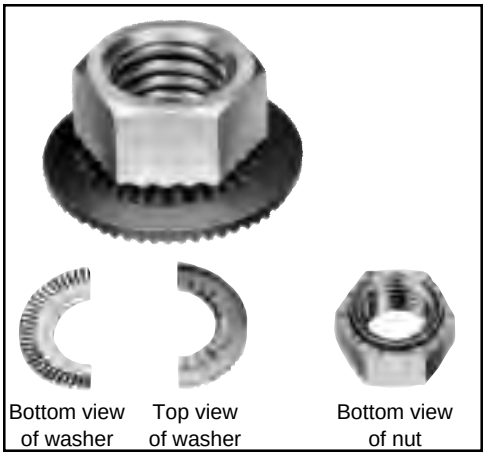


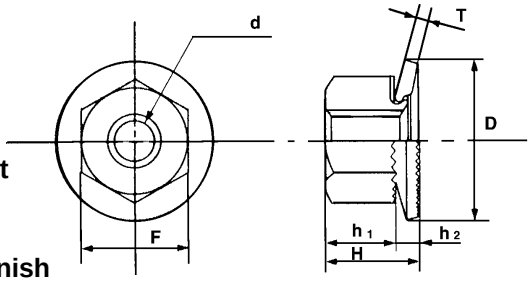
HEXAGONAL SERRATED NUT WITH DOUBLE SERRATED WASHER

ONE UNIT WITH 3 SELF-LOCKING FUNCTIONS

1 Self-locking function by an elastic effect of washer.

2 Self-locking function by serration of washer surface against joint material.

3 Self-locking function by mating of nut's bearing surface with washer surface respectively serrated.



MILD

STEEL

ZINC PLATED

THREADS: Class 2B Fit

Clear Chromate Finish

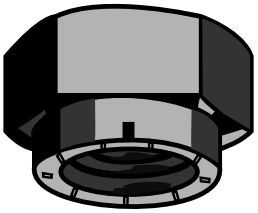
	SPAENAUR No.	d	Pitch	F	h_1	D	T	h_2	H	W kg/M
INCH	**175-002**	5/16"	18	1/2" 0.500	17/64" 0.273	45/64" ± 0.005	0.055"	0.086"	11/32"	6.6
INCH	**175-003**	3/8"	16	9/16" 0.562	21/64" 0.337	55/64" ± 0.005	0.062"	0.098"	27/64"	10.6

Yellow Chromate Finish

METRIC	**175-110**	M6	1.0	$10.0^{\ 0}_{-0.2}$	$5.0^{+0.3}_{-0.15}$	$14.0^{\ 0}_{-0.4}$	1.0 ± 0.08	1.6	6.60 ± 0.3	3.1
METRIC	**175-111**	M8	1.25	$12.0^{\ 0}_{-0.2}$	6.5 ± 0.2	$18.0^{\ 0}_{-0.4}$	1.4 ± 0.12	2.2	8.70 ± 0.3	6.0
METRIC										

Unit Package: 100 (All sizes)

STEEL Alloy L•9 STOVER® LOCKNUT



Cadmium Plated and Waxed Yellow Dichromate Finish

Rockwell Hardness
1/4"-5/8" Dia. C28-34
3/4"-1-1/2" Dia. C32-38

NOMINAL SIZE	COARSE THREAD (U.N.C.) *SPAENAUR No.*	THD.	FINE THREAD (U.N.F.) *SPAENAUR No.*	THD.	WIDTH ACROSS FLAT MAX./MIN.	THICKNESS MAX./MIN.	UNIT PKG. QTY.
1/4	**172-001**	20	**172-014**	28	.437/.428"	.301/.281"	100
5/16	**172-002**	18	**172-015**	24	.500/.489"	.336/.316"	50
3/8	**172-003**	16	**172-016**	24	.562/.551"	.400/.380"	50
7/16	**172-004**	14	**172-017**	20	.687/.675"	.449/.429"	25
1/2	**172-005**	13	**172-018**	20	.750/.736"	.516/.496"	25
9/16	**172-006**	12	**172-019**	18	.875/.861"	.580/.560"	25
5/8	**172-007**	11	**172-020**	18	.937/.922"	.660/.640"	25
3/4	**172-008**	10	**172-021**	16	1.125/1.088"	.767/.747"	20
7/8	**172-009**	9	**172-022**	14	1.312/1.269"	.887/.867"	15
1	**172-010**	8	**172-023**	14	1.500/1.450"	1.023/1.003"	10
1-1/8	**172-011**	7	**172-024**	12	1.687/1.631"	1.181/1.161"	10
1-1/4	**172-012**	7	**172-025**	12	1.875/1.812"	1.277/1.257"	10
1-1/2	**172-013**	6	**172-026**	12	2.250/2.175"	1.531/1.511"	10

NOTE: L•9 STOVER® LOCKNUTS are recommended for use exclusively with L•9 Bolts and L•9 Washers.

The complete L•9® FASTENING SYSTEM appears on pages B176 to B182.

STEEL Cadmium Plated

HUGLOCK FINISHED FULL SELF-LOCKING NUTS

P.C. 172

Standard Thread Fit Class 2B

NOMINAL SIZE	FINE THREAD *SPAENAUR No.*	THD.	WIDTH ACROSS FLATS	THICK-NESS	UNIT PKG QTY.
7/16"	**N-40**	20	11/16"	3/8"	100

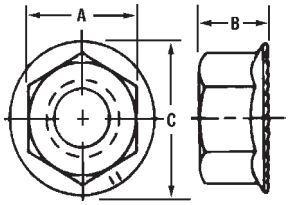
See also PREVAILING-TORQUE LOCKNUTS - Pages C37-C38.

C

WHIZ-LOCK NUTS One Piece

Zinc or Yellow Zinc Plated - Our Option.

Low Carbon Steel
Case Hardened to RC-40



Meet requirements of SAE Grade 5 for proof load.

NOMINAL SIZE	COARSE THREAD (U.N.C. - U.S.S.) *SPAENAUR No.*	THD.	FINE THREAD (U.N.F. - S.A.E.) *SPAENAUR No.*	THD.	WIDTH ACROSS FLATS A	THICK-NESS B	FLANGE DIA. C	UNIT PKG. QTY.
10-24	**224-015**	24	—	—	3/8"	7/32"	1/2"	100
1/4"	**N-49**	20	**N-73**	28	7/16"	15/64"	19/32"	100
5/16"	**N-51**	18	**N-50**	24	.500/.489"	.297/.268"	.687/.641"	100
3/8"	**N-70**	16	**HN-195**	24	.562/.551"	.359/.330"	.750/.703"	100
7/16"	**HN-196**	14	**HN-198**	20	43/64"	.395"	15/16"	100
1/2"	**224-016**	13	**HN-145**	20	3/4"	.458"	1"	50

See page B143 for Hex Flange (Serrated) Screws

Advantages of WHIZ-LOCK NUTS:

One Piece Construction — Eliminates lockwashers and multiple piece assemblies.

Flange Base — Distributes load over greater area, higher strength.

Excellent Locking Features — 30% more torque to remove than to apply.

Excellent Electrical Contact — Positive bearing surface to bearing surface contact.

Lower Cost than Preassembled Fasteners — 1. Increases product reliability.
2. Reduces assembly time.

STEEL WHEEL NUTS

Will fit nearly all North American CARS and TRUCKS

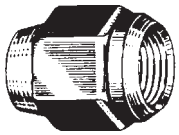
Zinc, clear or yellow dichromate or Cadmium plated finish (at mfgr's. option)

SPAENAUR No.	THREAD	HEX DIMENSION (across flats)	HEIGHT	UNIT PKG. QTY.
167-001	7/16"-20 Rt. Hand	3/4"	9/16"	50
167-002	7/16"-20 Left Hand	3/4"	9/16"	50
167-003	1/2"-20 Rt. Hand	3/4"	9/16"	50
167-004	1/2"-20 Left Hand	3/4"	9/16"	50
167-005	1/2"-20 Rt. Hand	13/16"	5/8"	25
167-006	1/2"-20 Left Hand	13/16"	5/8"	25
167-007	3/4"-16 Rt. Hand	1-1/2"	7/8"	10
167-008	3/4"-16 Left Hand	1-1/2"	7/8"	10

Wheel Nut - Stainless Steel Capped

(Zinc Plated with Stainless Steel Cap)

GENERAL MOTOR PRODUCTS

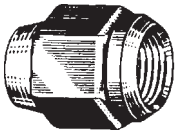


Right Hand Thread

167-012

Thread Size 1/2"-20
(414187)

UNIT PKG.
5



Right Hand Thread

167-013

Thread Size 7/16"-20
(414188)

UNIT PKG.
10

C

With the Stainless Steel Locking Insert

FUJILOK Nuts: Use them with confidence under demanding conditions, including high vibration applications.

FUJILOK Nuts: Reusable over and over, without loss of locking ability.

FUJILOK Nuts: **Have wide temperature range** for applications—
Low Carbon Steel: -30°C to +250°C
High Carbon Steel: -50°C to +350°C
Stainless Steel: -100°C to +350°C

FUJILOK Nuts: The AISI-301 Stainless Steel inserts are not affected by alcohol, gasoline, oil or commercial solvents.

FUJILOK Nuts: Seating of nut is not necessary for locking action. Nut will lock on bolt when a minimum of one bolt thread extends above nut.

See following page C27 for list of stock sizes of FUJILOK Nuts.

SUGGESTED TIGHTENING TORQUE VALUES FOR FUJILOK LOCKNUT

ISO METRIC THREADS

Bolt & Nut Materials		Low Carbon Steel	High Carbon Steel	Stainless Steel
		TS 40 Kgf/mm²	TS 70 Kgf/mm²	TS 53 Kgf/mm²
Size	Prevailing Torque	YS 32 Kgf/mm²	YS 50 Kgf/mm²	YS 21 Kgf/mm²
mm	Kgf/cm	Kgf/cm	Kgf/cm	Kgf/cm
M3	0.1-0.5	6.29		
M4	0.4-0.8	14.29		10.5
M5	0.9-2.3	29.6		20.2
M6	1-3	39.4	76	33.4
M8	3-6	119	182	80
M10	4-8	231	356	154
M12	5-13	402	620	268
M14	7-25	644	991	431
M16	14-34	999	1,550	667
M18	20-40	1,370	2,120	911
M20	30-50	1,940	2,990	1,290
M22	40-60	2,620	4,060	1,740
M24	55-75	3,330	5,160	2,210
M27	60-100	4,860	7,540	3,230
M30	75-115	6,580	10,200	4,360
M33	80-130	8,930	13,900	5,900
M36	105-165	11,500	17,800	7,580
M39	110-170	15,000	23,200	9,760
M42	180-300	18,400	28,600	12,160

ASA INCH THREADS

Bolt & Nut Materials		Low Carbon Steel	High Carbon Steel	Stainless Steel
		TS 57,000 psi	TS 100,000 psi	TS 75,000 psi
Size	Prevailing Torque	YS 46,000 psi	YS 71,000 psi	YS 30,000 psi
Inch	In. - Lb.	In. - Lb.	In. - Lb.	In. - Lb.
#10	0.8 - 2	21		
#12	0.8 - 2	31		
1/4	0.8 - 2	47	72	31
5/16	2.5 - 4.5	96	147	65
3/8	3 - 5	166	257	111
7/16	3.5 - 7	265	410	176
1/2	4 - 11	404	624	269
9/16	5 - 15	581	900	387
5/8	12 - 29	810	1,250	542
3/4	18 - 35	1,419	2,198	908
7/8	35 - 52	2,282	3,484	1,515
1	50 - 70	3,414	5,295	2,264
1-1/8	60 - 80	4,823	7,491	3,193
1-1/4	65 - 100	6,777	10,533	4,482
1-3/8	70 - 115	8,880	13,811	5,867
1-1/2	90 - 145	11,767	18,303	7,770

TS = TENSILE STRENGTH OF BOLT, MINIMUM
YS = YIELD STRENGTH OF BOLT, MINIMUM

The torque figures in this chart when used as recommended above should result in a fastener tension which is equal to 60% of the ultimate yield strength of the fastener material, and the coefficient is 0.2. They are computed using the following formula:

$T = 0.2(0.6 \times \acute{o}y) \times As \times d + RT$

Where T = Torque figures, $\acute{o}y$ = Ultimate tensile strength, As = Tensile stress area, d = Nominal size, RT = Run-down torque

The torque figures are suggested to be increased for a given job as much as 80% or more for stainless steel above those figures in the chart, as the material is stressed less than those fasteners made of steel.

FUJILOK NUT ASSORTMENT

Fits into the Slide Racks, shown on page A2.

Priced Singly

ASSORTMENT / ASSORTIMENT 805-428

12 Sizes

ASA INCH THREADS

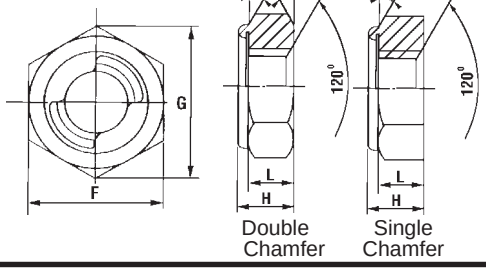
Zinc Plated

Contains 272 Pieces

Sizes 10-24 to 1"-8 Low Carbon Steel

Grey, Steel, "Regular Size Drawer" with scooped bins

13-3/8" W. x 9-1/4" D. x 2" H.



Sizes listed below are all

HEXAGON FINISHED FULL Style

Also available "to order"—Jam-style and Closed-end Cap (Acorn) Styles, in brass, low carbon steel, hi-carbon steel, and stainless steel.

C

ISO METRIC THREADS

Zinc Chromate Finish on all Carbon Steel items.

Size mm Coarse Thread		Low Carbon STEEL	Hi-Carbon STEEL	Grade 304 STAINLESS STEEL	Width Across Flats (F)	Thickness (H)	Thread Length (L)	Unit Package Quantity
DIA.	Pitch	ORDER BY *SPAENAUR* NUMBERS			Basic	Basic	Basic	
M3	0.5	**166-001**			5.5	3.0	2.4	100
M3.5	0.6			**166-800**	6.0	3.4	2.8	100
M4	0.7	**166-003**		**166-801**	7	3.8	3	100
M5	0.8	**166-004**		**166-802**	8	4.6	3.8	100
M6	1.0	**166-005**		**166-803**	10	5.3	4.4	100
M6.3	1.0	**166-006**		**166-804**	11.1	6.5	5.5	100
M8	1.25	**166-007**	**166-030**	**166-805**	13	7.3	6.3	100
M10	1.5	**166-008**	**166-031**	**166-806**	17	8.3	7.1	100
M12	1.75	**166-009**	**166-032**	**166-807**	19	10.5	9.0	100
M14	2.0	**166-010**	**166-033**	**166-808**	22	12.5	10.8	100
M16	2.0	**166-011**	**166-034**	**166-809**	24	14.5	13.0	100
M18	2.5	**166-012**	**166-035**	**166-810**	27	16.0	14.0	50
M20	2.5	**166-013**	**166-036**	**166-811**	30	17.5	15.2	50
M22	2.5	**▲166-014**	**166-037**	**166-812**	32	19.5	17.2	50
M24	3.0	**166-015**	**166-038**	**166-813**	36	21.5	19.2	50
M27	3.0	**166-016**	**166-039**	**166-814**	41	24.0	21.0	25
M30	3.5	**166-017**	**166-040**	**166-815**	46	27.0	24.0	25
M33	3.5	**166-018**			50	29.5	26.0	10
M36	4.0	**166-019**			55	32.5	29.0	10
M39	4.0	**166-020**			60	35.0	31.0	10
M42	4.5	**166-021**			65	38.0	34.0	10
M45	4.5	**166-022**			70	40.0	36.0	5
M48	5.0	**166-024**			75	42.0	38.0	5
M56	5.5	**166-025**			85	49.0	45.0	5
M64	6.0	**166-026**			95	54.0	50.0	5

Nuts in ISO "Metric" sizes up to M12 in low carbon steel, along with all sizes in hi-carbon steel, are double chamfered. Sizes above M12 in low carbon steel, and all sizes in stainless steel, are single chamfered. **▲166-166** 1.5mm Fine Thread

ASA INCH THREADS

Zinc Chromate Finish on all Carbon Steel items.

All Inch sizes are double chamfered.

U.N.C. Coarse Thread	Low Carbon STEEL	Grade 304 STAINLESS STEEL	U.N.F. FINE Thread	Low Carbon STEEL	Grade 304 STAINLESS STEEL	Width Across Flats (F)	Thickness (H)	Thread Length (L)	Unit Package Quantity
Inch	*SPAENAUR No's.*		Inch	*SPAENAUR No's.*		Basic	Basic	Basic	
10-24	**165-000**	**165-800**	10-32	**165-016**	**165-809**	3/8	0.156	0.125	100
12-24	**165-001**	**165-801**	-	-	-	7/16	0.191	0.156	100
1/4-20	**165-002**	**165-802**	1/4-28	**165-017**	**165-810**	7/16	0.254	0.219	100
5/16-18	**165-003**	**165-803**	5/16-24	**165-018**	**165-811**	1/2	0.305	0.266	100
3/8-16	**165-004**	**165-804**	3/8-24	**165-019**	**165-812**	9/16	0.371	0.328	100
7/16-14	**165-005**	**165-805**	7/16-20	**165-020**	**165-813**	11/16	0.422	0.375	50
1/2-13	**165-006**	**165-806**	1/2-20	**165-021**	**165-814**	3/4	0.497	0.438	50
9/16-12	**165-007**			-	-	7/8	0.551	0.484	50
5/8-11	**165-008**	**165-807**	5/8-18	**165-022**	**165-815**	15/16	0.614	0.547	50
3/4-10	**165-009**	**165-808**	3/4-16	**165-023**	**165-816**	1-1/8	0.719	0.641	50
7/8-9	**165-010**		7/8-14			1-5/16	0.841	0.750	25
1-8	**165-011**		1-14			1-1/2	0.950	0.859	25
1-1/8-7	**165-012**		1-1/8-12			1-11/16	1.087	0.969	10
1-1/4-7	**165-013**		1-1/4-12			1-7/8	1.181	1.063	10
1-3/8-6	**165-014**		-			2-1/16	1.310	1.172	10
1-1/2-6	**165-015**		-			2-1/4	1.439	1.281	5

C

Steel Zinc or Cad Plated (our option) & Stainless Steel Grade 18-8

LOCKING INSERT: Natural Nylon (Zytel-101) TEMPERATURE RANGE TO 121°C. (250°F)

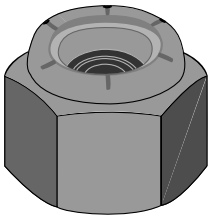
TYPE	THREAD	WIDTH A.F. (In Inches)	HEIGHT O.A. (In Inches)	STEEL *SPAENAUR No.*	STEEL REF. No.	STEEL PKG. QTY.	STAINLESS STEEL *SPAENAUR No.*	STAINLESS STEEL REF. No.	STAINLESS STEEL PKG. QTY.
MACHINE SCREW SIZES REGULAR HEX THIN HEIGHT	**4-40** UNC	.251-.243	.094-.124	**178-009**	21NTM-40	100			
	5-40 UNC	.251-.243	.094-.124	**178-011**	21NTM-50	100			
	6-32 UNC	.313-.305	.110-.140	**178-012**	21NTM-62	100			
	8-32 UNC	.345-.336	.157-.187	**178-013**	21NTM-82	100			
	10-24 UNC	.376-.367	.157-.187	**178-014**	21NTM-04	100			
	10-32 UNF	.376-.367	.157-.187	**178-015**	21NTM-02	100			
	12-24 UNC	.439-.430	.188-.218	**178-006**	21NTM-124	100			
MACHINE SCREW SIZES REGULAR HEX STANDARD HEIGHT	**2-56** UNC	.251-.243	.133-.153	**HN-248**	21NM-26	100	**179-005**	79NM-26	100
	4-40 UNC	.251-.243	.133-.153	**HN-251**	21NM-40	100	**179-006**	79NM-40	100
	4-48 UNF	.251-.243	.133-.153	**HN-244**	21NM-48	100			
	5-40 UNC	.251-.243	.133-.153	**178-004**	21NM-50	100			
	5-44 UNF	.250	.133-.153	**178-005**	21NM-54	100			
	6-32 UNC	.313-.305	.168-.188	**HN-170**	21NM-62	100	**179-001**	79NM-62	100
	8-32 UNC	.345-.336	.219-.239	**HN-171**	21NM-82	100	**179-002**	79NM-82	100
	10-24 UNC	.376-.367	.229-.249	**HN-172**	21NM-04	100	**179-004**	78NM-04	100
	10-32 UNF	.376-.367	.229-.249	**HN-173**	21NM-02	100	**179-003**	79NM-02	100
	10-32 UNF	.376-.367	.229-.249	■**180-003**	99NM-02	100			
	12-24 UNC	.439-.430	.298-.328	**HN-174**	21NM-124	100			
CAP SCREW SIZES REGULAR HEX THIN HEIGHT	**1/4-20** UNC	.439-.430	.188-.218	**178-016**	21NTE-040	100			
	1/4-28 UNF	.439-.430	.188-.218	**178-017**	21NTE-048	100			
	5/16-18 UNC	.502-.492	.235-.265	**178-053**	21NTE-058	100			
	5/16-24 UNF	.502-.492	.235-.265	**178-003**	21NTE-054	100			
	3/8-24 UNF	.564-.553	.251-.281	**178-002**	21NTE-064	100			
	7/16-20 UNF	.627-.615	.313	**178-043**	21NTE-070	100			
	1/2-13 UNC	.752-.741	.298-.328	**178-048**	21NTE-083	50			
	1/2-20 UNF	.752-.741	.298-.328	**178-039**	21NTE-080	50			
	5/8-11 UNC	.940-.928	.376-.406	**178-041**	21NTE-101	50			
	5/8-18 UNF	.940-.928	.376-406	**178-056**	21NTE-108	50			
CAP SCREW SIZES REGULAR HEX STANDARD HEIGHT	**1/4-20** UNC	.439-.430	.298-.328	**HN-175**	21NE-040	100	**HN-2037**	79NE-040	100
	1/4-28 UNF	.439-.430	.298-.328	**HN-176**	21NE-048	100	**179-010**	79NE-048	100
	5/16-18 UNC	.502-.492	.329-.359	**HN-177**	21NE-058	100	**HN-2041**	79NE-058	100
	5/16-24 UNF	.502-.492	.329-.359	**HN-178**	21NE-054	100			
	3/8-16 UNC	.564-.553	.438-.468	**HN-179**	21NE-066	100	**HN-2033**	79NE-066	50
	3/8-24 UNF	.564-.553	.438-.468	**HN-180**	21NE-064	100	**179-007**	79NE-064	50
	7/16-14 UNC	.627-.616	.438-.468	**HN-181**	21NE-074	100	**HN-2038**	79NE-074	100
	7/16-20 UNF	.627-.616	.438-.468	**HN-182**	21NE-070	100	**179-009**	79NE-070	100
	1/2-13 UNC	.751-.741	.579-.609	**HN-183**	21NE-083	50	**HN-2035**	79NE-083	50
	1/2-13 UNC	.751-.741	.579-.609	■**180-002**	99NE-083	50			
	1/2-20 UNF	.751-.741	.579-.609	**HN-184**	21NE-080	50			
	9/16-12 UNC	.877-.865	.626-.656	**HN-185**	21NE-092	50			
	9/16-18 UNF	.877-.865	.626-.656	**HN-186**	21NE-098	50			
	5/8-11 UNC	.940-.928	.735-.765	**HN-187**	21NE-101	25	**HN-2039**	79NE-101	25
	5/8-18 UNF	.940-.928	.735-.765	**HN-188**	21NE-108	25	**179-008**	79NE-108	25
	3/4-10 UNC	1.064-1.052	.860-.890	**HN-189**	41NE-120	25	**HN-2040**	79NE-120	25
	3/4-16 UNF	1.064-1.052	.860-.890	**HN-190**	41NE-126	25	**HN-2043**	79NE-126	25
	7/8-9 UNC	1.252-1.239	.969-.999	**HN-191**	41NE-149	10			
	7/8-14 UNF	1.252-1.239	.969-.999	**HN-192**	41NE-144	10			
	1-8 UNC	1.440-1.428	1.016-1.078	**178-018**	41NE-168	10	**HN-2042**	79NE-168	10
	1-14 UNF	1.440-1.428	1.016-1.078	**178-019**	41NE-164	10			
	1-1/8-7 UNC	1.627-1.615	1.141-1.203	**178-020**	41NE-187	10			
	1-1/8-12 UNF	1.627-1.615	1.141-1.203	**178-021**	41NE-182	10			
	1-1/4-7 UNC	1.815-1.803	1.360-1.422	**178-022**	41NE-207	10			
	1-1/4-12 UNF	1.815-1.803	1.360-1.422	**178-023**	41NE-202	10			
	1-3/8-6 UNC	2.008-1.973	1.547-1.609	**178-024**	41NE-226	5			
	1-3/8-12 UNF	2.009-1.973	1.547-1.609	**178-025**	41NE-222	5			
	1-1/2-6 UNC	2.197-2.159	1.578-1.640	**178-026**	41NE-246	5			
	1-1/2-12 UNF	2.197-2.159	1.578-1.640	**178-007**	41NE-242	5			

■ Plain Brass

P.C. 178 P.C. 179

Steel Zinc or Cad Plated (our option) & Stainless Steel Grade 18-8

LOCKING INSERT: Natural Nylon (Zytel-101) TEMPERATURE RANGE TO 121°C.

TYPE	THREAD	WIDTH A.F. (In Inches)	HEIGHT O.A. (In Inches)	STEEL SPAENAUR No.	STEEL REF. No.	STEEL PKG. QTY.	STAINLESS STEEL SPAENAUR No.	STAINLESS STEEL REF. No.	STAINLESS STEEL PKG. QTY.
HEX - HEAVY THIN	**3/8-16** UNC	.688	.406	**178-042**	21NTU-066	100			
HEX - HEAVY 	**1/4-20** UNC	.503-.489	.375	**178-054**	21NU-040	100			
	5/16-18 UNC	.566-.551	.438	**178-055**	21NU-058	100			
	3/8-16 UNC	.691-.675	.532-.562	**178-001**	21NU-066	50			
	1/2-13 UNC	.879-.861	.688-.718	**178-027**	21NU-083	50			
	5/8-11 UNC	1.067-1.045	.844-.874	**178-028**	21NU-101	25			
	5/8-18 UNF	1.067-1.045	.844-.874	**178-040**	21NU-108	25			
	3/4-10 UNC	1.255-1.231	.985-1.015	**178-029**	41NU-120	25			
	7/8-9 UNC	1.444-1.417	1.110-1.140	**178-030**	41NU-149	10			
	1-8 UNC	1.632-1.602	1.250-1.312	**HN-193**	41NU-168	10			
	1-14 UNF	1.632-1.602	1.250-1.312	**HN-194**	41NU-164	10			
	1-1/8-7 UNC	1.820-1.788	1.407-1.469	**HN-233**	41NU-187	10			
	1-1/8-12 UNF	1.820-1.788	1.407-1.469	**HN-234**	41NU-182	10			
	1-1/4-7 UNC	2.008-1.973	1.610-1.672	**HN-235**	41NU-207	10			
	1-1/4-12 UNF	2.008-1.973	1.610-1.672	**HN-236**	41NU-202	10			
	1-3/8-6 UNC	2.197-2.159	1.766-1.828	**HN-237**	41NU-226	5			
	1-3/8-12 UNF	2.197-2.159	1.766-1.828	**HN-238**	41NU-222	5			
	1-1/2-6 UNC	2.384-2.344	1.891-1.953	**HN-239**	41NU-246	5			
	1-1/2-12 UNF	2.384-2.344	1.891-1.953	**HN-240**	41NU-242	5			
	1-3/4-5 UNC	2.762-2.715	2.250-2.376	**178-035**	41NU-285	1			
	1-3/4-12 UNF	2.762-2.715	2.250-2.376	**178-031**	41NU-2812	1			
	2-4-1/2 UNC	3.137-3.086	2.343-2.469	**178-036**	41NU-324	1			
	2-12 UNF	3.137-3.086	2.343-2.469	**178-032**	41NU-3212	1			
	2-1/4-4-1/2 UNC	3.514-3.457	2.750-2.876	**178-037**	41NU-364	1			
	2-1/4-12 UNF	3.514-3.457	2.750-2.876	**178-033**	41NU-3612	1			
	2-1/2-4 UNC	4.015-3.875	3.078-3.204	**178-038**	41NU-404	1			
	2-1/2-12 UNF	4.015-3.875	3.078-3.204	**178-034**	41NU-4012	1			
	2-3/4-12 UNF	4	3.141	**178-051**	49NU-4412	1			
				P.C. 178			P.C. 179		

INCH SIZE

Steel and Stainless Steel Nylon Insert Locknut Assortments are shown on page C30 to C32.

METRIC SIZE

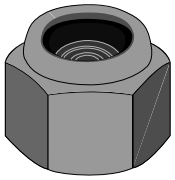
Steel with Nylon Insert Locknuts and Assortment 805-410 are shown on page C33.

NYLON INSERT

Nylon Insert Wing Locknuts are shown on page C56.

Grade 8 Nylon Insert Hex Locknuts on page C30.

C



NYLON INSERT HEX LOCKNUTS
SAE GRADE 8

Zinc, Yellow Zinc or Cad Plated Finish (our option)

Nylon Insert resists temperatures up to 121°C (250°F).

Minimum 15-times reuseability.

(Ref: NE8 Series)

SPAENAUR No. UNC COARSE THREAD		***SPAENAUR No.*** UNF FINE THREAD		**Width Across Flat**	**Thick-ness**	**Unit Pkg. Quantity**
178-100	1/4"-20	**178-114**	1/4"-28	.438"	.313"	100
178-101	5/16"-18	**178-115**	5/16"-24	.500"	.344"	100
178-102	3/8"-16	**178-116**	3/8"-24	.562"	.453"	100
178-103	7/16"-14	**178-117**	7/16"-20	.625"	.453"	100
178-104	1/2"-13	**178-118**	1/2"-20	.750"	.594"	50
178-105	9/16"-12	**178-119**	9/16"-18	.875"	.641"	50
178-106	5/8"-11	**178-120**	5/8"-18	.938"	.750"	25
178-107	3/4"-10	**178-121**	3/4"-16	1.062"	.875"	25
178-108	7/8"-9	**178-122**	7/8"-14	1.250"	.984"	10
178-109	1"-8	**178-123**	1"-14	1.438"	1.047"	10
178-110	1-1/8"-7	**178-124**	1-1/8"-12	1.625"	1.172"	10
178-111	1-1/4"-7	**178-125**	1-1/4"-12	1.812"	1.391"	10
178-112	1-3/8"-6	**178-126**	1-3/8"-12	2.000"	1.578"	5
178-113	1-1/2"-6	**178-127**	1-1/2"-12	2.188"	1.609"	5
—	—	**178-128**	1-3/4"-12	2.715"	2.313"	1

ASSORTMENT
ASSORTIMENT **805-651**

SAE GRADE 8

Zinc, Yellow Zinc or Cad. Plated Finish (our option)

NYLON INSERT HEX LOCKNUTS

24 Sizes — 386 Pieces
Coarse and Fine Thread

Contents of Assortment

SPAENAUR No. UNC COARSE THREAD		***SPAENAUR No.*** UNF FINE THREAD		**ASS'T. QTY.**
178-100	1/4"-20	**178-114**	1/4"-28	50
178-101	5/16"-18	**178-115**	5/16"-24	25
178-102	3/8"-16	**178-116**	3/8"-24	25
178-103	7/16"-14	**178-117**	7/16"-20	25
178-104	1/2"-13	**178-118**	1/2"-20	20
178-105	9/16"-12	**178-119**	9/16"-18	15
178-106	5/8"-11	**178-120**	5/8"-18	10
178-107	3/4"-10	**178-121**	3/4"-16	10
178-108	7/8"-9	**178-122**	7/8"-14	5
178-109	1"-8	**178-123**	1"-14	4
178-110	1-1/8"-7	**178-124**	1-1/8"-12	2
178-111	1-1/4"-7	**178-125**	1-1/4"-12	2

See above for full line of Gr. 8 Nylon Insert Locknuts.

Nylon Insert resists temperatures up to 121°C (250°F).

Priced Singly

Shipping Weight: 11.98 kg (26.4 lbs.)

Furnished in Large Size grey enamel drawer with hinged lid and catch.

Drawer will fit into Slide Racks shown on page A3.

CATALOG 13

C

ASSORTMENT / ASSORTIMENT 805-658

HEX NUTS & LOCKNUTS

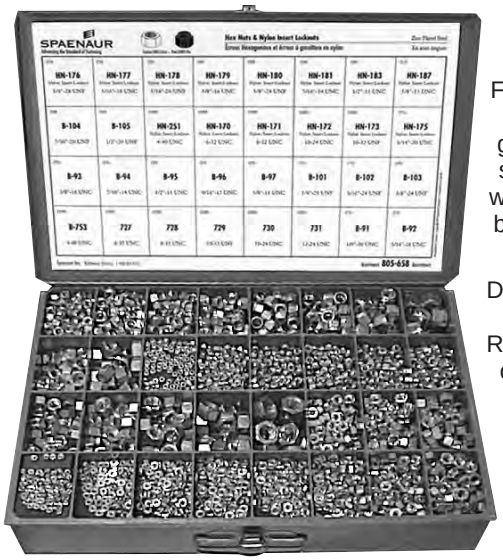
STEEL, ZINC PLATED

COARSE (UNC) and FINE (UNF)

All Inch Sizes

32 Sizes — 2,140 Pieces

Contents of Assortment in chart at right.



Furnished in Large Size grey enamel steel drawer with scooped bins for easy access.

Drawer will fit into Slide Racks shown on page A3.

Priced Singly

Shipping Weight: 13.52 kg (29.8 lbs.)

SPAENAUR No.	DESCRIPTION	THREAD SIZE	ASS'T. QTY.
B-91	**HEX NUTS** (Full Finish)	1/4"-20 UNC	75
B-101		1/4"-28 UNF	75
B-92		5/16"-18 UNC	75
B-102		5/16"-24 UNF	75
B-93		3/8"-16 UNC	50
B-103		3/8"-24 UNF	50
B-94		7/16"-14 UNC	30
B-104		7/16"-20 UNF	30
B-95		1/2"-13 UNC	30
B-105		1/2"-20 UNF	30
B-96		9/16"-12 UNC	25
B-97		5/8"-11 UNC	20
B-753	**MACHINE SCREW NUTS**	4-40 UNC	100
727		6-32 UNC	100
728		8-32 UNC	100
729		10-32 UNF	100
730		10-24 UNC	100
731		12-24 UNC	100
HN-251	**NYLON INSERT LOCKNUTS** Zinc or Cad Plated (our option)	4-40 UNC	100
HN-170		6-32 UNC	100
HN-171		8-32 UNC	100
HN-172		10-24 UNC	100
HN-173		10-32 UNF	100
HN-175		1/4-20 UNC	75
HN-176		1/4-28 UNF	75
HN-177		5/16"-18 UNC	75
HN-178		5/16"-24 UNF	75
HN-179		3/8"-16 UNC	50
HN-180		3/8"-24 UNF	50
HN-181		7/16"-14 UNC	30
HN-183		1/2"-13 UNC	30
HN-187		5/8"-11 UNC	15

SPAENAUR

Your #1 Choice for Fasteners.

C

ASSORTMENT / ASSORTIMENT 805-521

See pages C28 & C29 for the full range of Nylon Insert Locknuts, Steel, Zinc Plated.

Steel, Zinc Plated

NYLON INSERT LOCKNUTS

Natural Nylon Locking Insert (Zytel-101)

24 SIZES - 979 PIECES

UNC Thread Sizes in Assortment (Quantity in Brackets)

(100) 2-56 UNC	(100) 4-40 UNC	(100) 5-40 UNC	(100) 6-32 UNC
(100) 8-32 UNC	(100) 10-24 UNC	(50) 12-24 UNC	(50) 1/4"-20 UNC
(25) 5/16"-18 UNC	(25) 3/8"-16 UNC	(10) 7/16"-14 UNC	(10) 1/2"-13 UNC
(5) 9/16"-12 UNC	(5) 5/8"-11 UNC	(5) 3/4"-10 UNC	(2) 7/8"-9 UNC
(2) 1"-8 UNC			

UNF Thread Sizes in Assortment

(100) 10-32 UNF	(25) 1/4"-28 UNF	(25) 5/16"-24 UNF	(20) 3/8"-24 UNF
(10) 1/2"-20 UNF	(5) 5/8"-18 UNF	(5) 3/4"-16 UNF	

Furnished in regular size grey enamelled steel drawer, with hinged lid and scoop bins.
Drawer will fit Slide Racks shown on page A2.
Shipping Weight 5.90 kg (13 lbs.) *Priced Singly*

ASSORTMENT / ASSORTIMENT 805-522

See page C28 for the full range of Nylon Insert Locknuts in Stainless Steel.

Stainless Steel 18-8

NYLON INSERT LOCKNUTS

Natural Nylon Locking Insert (Zytel-101)

16 SIZES - 805 PIECES

UNC Thread Sizes in Assortment

(100) 2-56 UNC	(100) 4-40 UNC	(100) 6-32 UNC	(100) 8-32 UNC
(100) 10-24 UNC	(50) 1/4"-20 UNC	(50) 5/16"-18 UNC	(25) 3/8"-16 UNC
(25) 7/16"-14 UNC	(10) 1/2"-13 UNC	(5) 5/8"-11 UNC	(5) 3/4"-10 UNC

UNF Thread Sizes in Assortment

(100) 10-32 UNF	(25) 3/8"-24 UNF		
(5) 5/8"-18 UNF	(5) 3/4"-16 UNF		

Furnished in regular size grey enamelled steel drawer with hinged lid and scoop bins.
Drawer will fit Slide Racks shown on page A2.
Shipping Weight 4.99 kg (11 lbs.)

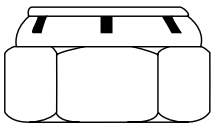
Priced Singly

C

NYLON INSERT HEX LOCKNUTS

Regular Type
Property Class 6
STEEL - Zinc Plated

METRIC

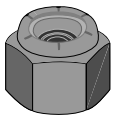


DIN 985
~ DIN EN ISO 10511

Metric "Regular" Coarse Thread (*Fine Thread)

SPAENAUR No.	THREAD SIZE	PITCH (mm)	WIDTH A.F.	HEIGHT O.A.	UNIT PKG.
178-566	**M2**	0.40	—	—	100
178-523	**M2.5**	0.45	5	3.8	100
178-508	**M2.6**	0.45	5	3.35	100
178-509	**M3**	0.50	5.5	4	100
178-510	**M4**	0.70	7	5	100
178-511	**M5**	0.80	8	5	100
178-512	**M6**	1.00	10	6	100
178-513	**M7**	1.00	11	7.5	100
178-514	**M8**	1.25	13	8	100
178-516	**M12**	1.75	19	12	50
178-517	**M14**	2.00	22	14	50
178-518	**M16**	2.00	24	16	50
178-524*	**M16**	1.50	24	16	50
178-519	**M18**	2.50	27	18.5	50
178-520	**M20**	2.50	30	20	25
178-521	**M22**	2.50	32	22	25
178-522	**M24**	3.00	36	24	25

ASSORTMENT 805-410
ASSORTIMENT



NYLON INSERT LOCKNUTS

...contains quantities of all 13 METRIC SIZES shown in chart at left (except 178-513, 178-523, 178-524 and 178-566) plus 178-534.

- plus -
6 sizes of

METRIC WING NUTS
Cold Forged Steel
Bright Zinc Plated
Style 220 Medium Pattern
Dia. Range M4-M12
Regular Thread

Total Pieces in Assortment
300

Priced Singly

Regular Size Welded Steel Drawer, will fit into Slide Racks shown on page A2.
Shipping Wt. 4.31 kg (9-1/2 lbs.)

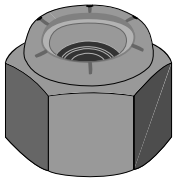
NYLON INSERT HEX LOCKNUTS

REGULAR TYPE

DIN 985
~ DIN EN ISO 10511

Metric

Property Class 8 Steel



All Dimensions in millimetres

Plain

Thread Size	COARSE THREAD *SPAENAUR No.*	Pitch	FINE THREAD *SPAENAUR No.*	Pitch	Width Across Flats	Thick-ness	Pkg. Qty.
M6	**178-599**	1.00	—	—	10	6	100

Yellow Zinc

M6	**178-530YZ**	1.00	—	—	10	6	100
M8	**178-532YZ**	1.25	—	—	13	8	100
M10	**178-534YZ**	1.50	—	—	17	10	100
M12	**178-537YZ**	1.75	**178-540YZ**	1.50	19	12	50

Zinc Plated

Thread Size	COARSE THREAD *SPAENAUR No.*	Pitch	FINE THREAD *SPAENAUR No.*	Pitch	Width Across Flats	Thick-ness	Pkg. Qty.
M3	**178-527**	0.50			5.5	4	100
M4	**178-528**	0.70			7	5	100
M5	**178-529**	0.80			8	5	100
M6	**178-530**	1.00			10	6	100
M7	**178-531**	1.00			11	7.5	100
M8	**178-532**	1.25	**178-533**	1.00	13	8	100
M10	**178-534**	1.50	**178-535**	1.00	17	10	100
			178-536	1.25	17	10	100
M12	**178-537**	1.75	**178-538**	1.00	19	12	50
			178-539	1.25	19	12	50
			178-540	1.50	19	12	50
M14	**178-541**	2.00	**178-542**	1.50	22	14	50
M16	**178-543**	2.00	**178-556**	1.50	24	16	50
M18	**178-544**	2.50	**178-545**	1.50	27	18.5	50
			178-546	2.00	27	18.5	50
M20	**178-526**	2.50	**178-547**	1.50	30	20	25
			178-548	2.00	30	20	25
M22	**178-549**	2.50	**178-550**	2.00	32	22	25
M24	**178-551**	3.00	**178-552**	1.50	36	24	25
			178-553	2.00	36	24	25
M27	**178-554**	3.00	**178-555**	1.50	41	27	25
M30	**178-525**	3.50	**178-557**	1.50	46	30	10
			178-558	2.00	46	30	10
M33	**178-559**	3.50	**178-560**	1.50	50	33	10
M36	**178-561**	4.00	**178-562**	1.50	55	36	10
M42	**178-563**	4.50			65	42	10
M45	**178-564**	4.50			70	45	5

See page C34 for Regular Type Property Class 10 Steel & C35 for Property Class 8 & 10 Heavy Type.

C

DIN 985

Metric

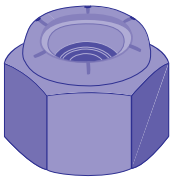
Property Class 10

STEEL

Finishes

NYLON INSERT HEX LOCKNUTS - Regular Type

All Dimensions in Millimetres

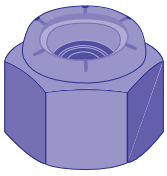
Thread Size	COARSE THREAD SPAENAUR No.	COARSE THREAD Pitch	FINE THREAD SPAENAUR No.	FINE THREAD Pitch	Width Across Flats	Thick-ness	Pkg. Qty.
Plain	M12			**178-602**	1.50	19	12	50
Yellow Zinc Plated	M10	**178-583YZ**	1.50			17	10	100
	M18			**178-589YZ**	1.50	27	18.5	50
 **Zinc Plated**	M5	**178-580**	0.80			8	5	100
	M6	**178-581**	1.00			10	6	100
	M8	**178-582**	1.25			13	8	100
	M10	**178-583**	1.50			17	10	100
	M12	**178-584**	1.75	**178-585**	1.50	19	12	50
	M16	**178-586**	2.00	**178-587**	1.50	24	16	50
	M18	**178-588**	2.50	**178-589**	1.50	27	18.5	50
	M20	**178-590**	2.50	**178-591**	2.00	30	20	25
	M24	**178-592**	3.00	**178-593**	1.50	36	24	25
	M30	**178-594**	3.50			46	30	25
	M36	**178-595**	4.00			55	36	10
	M48	**178-596**	5.00			75	48	1

DIN 985

NYLON INSERT HEX LOCKNUTS - Regular Type

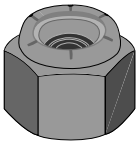
A2 and A4 Stainless Steel

Thread Size	A2 Stainless Steel SPAENAUR No.	A2 Stainless Steel Pitch	A4 Stainless Steel SPAENAUR No.	A4 Stainless Steel Pitch	Width Across Flats	Thick-ness	Pkg. Qty.
M2.5	**179-800**	0.45			5	3.8	100
M3	**179-801**	0.50			5.5	4	100
M4	**179-802**	0.70			7	5	100
M5	**179-803**	0.80			8	5	100
M6	**179-804**	1.00	**179-100**	1.00	10	6	100
M8	**179-805**	1.25	**179-101**	1.25	13	8	100
M10	**179-806**	1.50	**179-102**	1.50	17	10	100
M12	**179-807**	1.75	**179-103**	1.75	19	12	50
M14	**179-808**	2.00			22	14	50
M16	**179-809**	2.00	**179-104**	2.00	24	16	50
M18	**179-810**	2.50			27	18.5	50
M20	**179-811**	2.50	**179-105**	2.50	30	20	25
M22	**179-812**	2.50			32	22	25
M24	**179-813**	3.00			36	24	25
M27	**179-814**	3.00			41	27	10
M30	**179-815**	3.50			46	30	10



Plain Finish

CATALOG 13



NYLON INSERT HEX LOCKNUT - Heavy Type

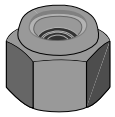
All Dimensions in Millimetres

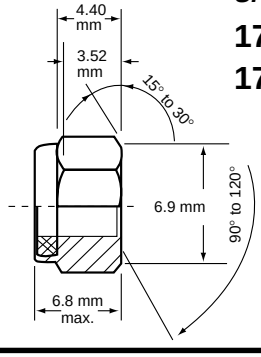
DIN 982 ~ DIN EN ISO 7040/10512

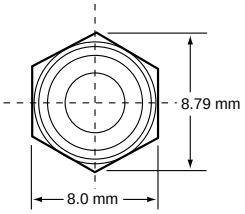
	Size (Dia.) in mm	COARSE THREAD *SPAENAUR No.*	COARSE THREAD Pitch mm	FINE THREAD *SPAENAUR No.*	FINE THREAD Pitch mm	Width Across Flats	Thick-ness	Pkg. Qty.
Metric Property Class 8 Steel, Plain Finish	M20			**178-600**	1.50	30	22.8	25
Metric Property Class 8 Steel Zinc Plated	M5	**178-300**	0.80			8	6.8	100
	M6	**178-301**	1.00			10	8	100
	M8	**178-302**	1.25	**178-303**	1.00	13	9.5	100
	M10	**178-304**	1.50	**178-305**	1.00	16	11.9	100
				178-306	1.25	16	11.9	100
	M12	**178-307**	1.75	**178-308**	1.50	18	14.9	50
	M14	**178-309**	2.00			21	17	50
	M16	**178-310**	2.00	**178-311**	1.5	24	19.1	50
	M18	**178-312**	2.50			27	20	50
	M20	**178-313**	2.50	**178-314**	1.50	30	22.8	25
	M24	**178-315**	3.00			36	27.1	25
	M27	**178-316**	3.00			41	30.8	25
	M30	**178-317**	3.50			46	32.6	25
Metric Property Class 10 Steel Zinc Plated	M6	**178-350**	1.00			10	8	100
	M8	**178-351**	1.25			13	9.5	100
	M10	**178-352**	1.50			16	11.9	100
	M12	**178-353**	1.75			18	14.9	50
	M16	**178-354**	2.00			24	19.1	50
	M20	**178-355**	2.50			30	22.8	25
	M24	**178-356**	3.00			36	27.1	25

DIN 6924

NYLON INSERT HEX LOCKNUT - Prevailing Torque Type







SPAENAUR No.	Description
178-379	M5 x 0.80 mm, Property Class 8 Steel, Zinc Plated.
178-379YZ	M5 x 0.80 mm, Property Class 8 Steel, Yellow Zinc Plated.

Unit Package Quantity 100

Visit us on the web at . . .

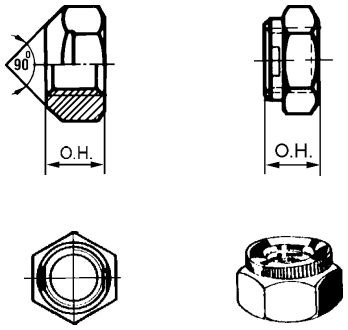
www.spaenaur.com

Prevailing Torque Hex Locknuts - All Metal

Metric

Écrous auto-freines hexagonaux - Tout métal

Métrique



Supplied with or without Collar - our option.

All Metallic

~DIN 980V

Metric

Property Class 8 Steel

Zinc Plated

Size (Dia.) in mm	COARSE THREAD *SPAENAUR No.*	Pitch mm	FINE THREAD *SPAENAUR No.*	Pitch mm	Width Across Flats	Overall Height (Max.)	Pkg. Qty.
M4	**166-157**	0.70			7	4.2	100
M5	**166-158**	0.80			8	5.1	100
M6	***166-159**	1.00			10	6	100
M8	**166-161**	1.25	**166-060**	1.00	13	8	100
M10	**166-061**	1.50	■**166-062**	1.00	17	10	100
			166-063	1.25	17	10	100
M12	**166-064**	1.75	**166-065**	1.25	19	12	100
			166-066	1.50	19	12	100
M14	**166-067**	2.00	**166-068**	1.50	22	14	100
M16	**166-069**	2.00	**166-070**	1.50	24	16	100
M18	**166-072**	2.50	**166-074**	1.50	27	18	50
M20	**166-094**	2.50	**166-075**	1.50	30	20	50
			•**166-076**	2.00	30	20	50
M22	**166-077**	2.50	**166-078**	1.50	32	22	50
M24	**166-079**	3.00	**166-080**	1.50	36	24	50
M27	**166-081**	3.00			41	27	25
M30	**166-082**	3.5	**166-073**	2.00	46	30	25
M36	**166-083**	4.00			55	36	10
M42	**166-084**	4.00			65	43	10

***166-159YZ** Yellow Zinc ■**166-062YZ** Yellow Zinc •**166-076YZ** Yellow Zinc

~DIN 980V

Metric

Property Class 10 Steel

Zinc Plated

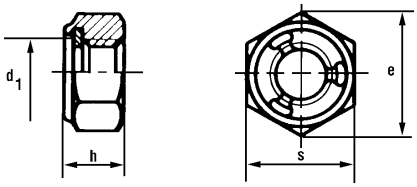
M5	**166-144**	0.80			8	5.1	100
M6	**166-160**	1.00			10	6	100
M8	**166-059**	1.25			13	8	100
M8	▲**166-820**	1.25			13	8	100
M8	□**166-163**	1.25			12.75-13.00	7.14-8.00	100
M10	◆**166-099**	1.50			17	10	100
M12	**166-147**	1.75			19	12	100
M14	**166-148**	2.00			22	14	100
M16	**166-149**	2.00			24	16	100
M18	**166-150**	2.50			27	18	50
M20	**166-152**	2.50			30	20	50
M22	†**166-153**	2.50			32	22	50
M24	Δ**166-154**	3.00			36	24	50
M30	**166-155**	3.50			46	30	25
M36	**166-156**	4.00			55	36	10

▲Plain Finish □ISO 7042 Plain Finish ◆**166-099YZ** Yellow Zinc
†**166-153YZ** Yellow Zinc Δ**166-154YZ** Yellow Zinc

DIN 980 A2 (18-8) Stainless Steel
Plain Finish

M12	**166-143**	1.75			19	11	100

Spring-Stop Hex Locknuts



~DIN 980M

Metric

Property Class 8 Steel

Zinc Plated

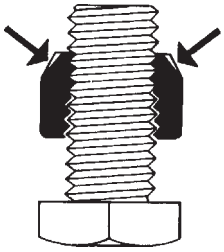
Size (Dia.) in mm	*SPAENAUR No.*	Pitch mm	Width Across Flats	Overall Height (Max.)	Pkg. Qty.
M4	**166-085**	0.70	7	4.8	100
M5	**166-086**	0.80	8	6	100
M6	**166-087**	1.00	10	6.6	100
M8	**166-088**	1.25	13	8.8	100
M10	**166-089**	1.50	17	11	100
M14	**166-091**	2.00	22	15.4	100

CATALOG 13

STEEL
TOP DISTORTION, PREVAILING-TORQUE HEX LOCKNUT

All metal, one piece prevailing torque locknuts with scientifically deflected thread locking element at top of nut.

C



VERTICAL SECTION

TOP VIEW
Distortion style may vary.

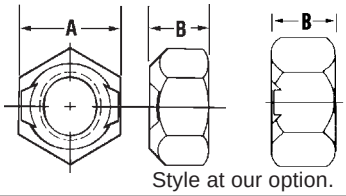
GRADE A
(Standard for most applications)

Finish: Cadmium Plated & Waxed or Zinc Plated - Our Option.

Grade A - Finished Hexagon Dimensions*
(Standard for most applications) Low carbon steel (C1110) or equivalent, Rockwell B80-B90, for use on most applications SAE Grade bolts 2 and 5. By common practice, Grade A Locknuts are used in conjunction with all sizes of Grade 5 bolts where coarse threads require 120,000 psi and fine threads require 109,000 psi.

*Note: Machine Screw Hexagon Dimensions below 1/4".

ALL METAL . . . .
For high temperature applications.



Style at our option.

ADVANTAGES

Lock on Top - allows nut to be threaded almost all the way on the bolt before wrenching is required.

Fully Reusable - many times without appreciable loss in locking torque.

Rugged - all metal one piece construction withstands severe vibration and shock loads.

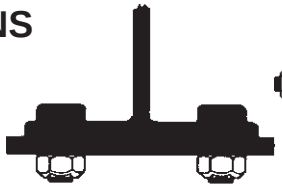
Chamfered Top - in most sizes shape identifies top and enables automatic feeding.

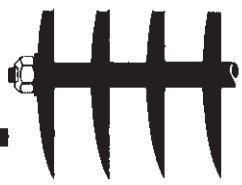
Spring Action - of lock permits locking efficiency over the entire range of bolt thread tolerances.

U.N.C. (Coarse) THREAD		U.N.F. (Fine) THREAD		A WIDTH ACROSS FLATS		B THICKNESS		Unit Pkg.
Thread Size	*SPAENAUR No.*	Thread Size	*SPAENAUR No.*	Max.	Min.	Max.	Min.	Quantity
10-24	**165-056**	10-32	—	.375	.362	.203	.187	100
1/4"-20	**165-058**	1/4"-28	—	.438	.428	.226	.212	100
5/16"-18	**165-060**	5/16"-24	**165-061**	.500	.489	.273	.258	100
3/8"-16	**165-062**	3/8"-24	**165-063**	.562	.551	.337	.320	100
7/16"-14	**165-064**	7/16"-20	**165-065**	.688	.675	.385	.365	50
1/2"-13	**165-066**	1/2"-20	**165-067**	.750	.736	.448	.427	50
9/16"-12	**165-068**	9/16"-18	—	.875	.861	.496	.473	50
5/8"-11	**165-070**	5/8"-18	**165-071**	.938	.922	.559	.535	50
3/4"-10	**165-072**	3/4"-16	**165-073**	1.125	1.088	.665	.617	50
7/8"-9	**165-074**	7/8"-14	—	1.312	1.269	.776	.724	50
1"-8	**165-076**	1"-14	**165-077**	1.500	1.450	.887	.831	25
1-1/4"-7	**165-078**	—	—	1.875	1.812	1.094	1.030	10

APPLICATIONS

GARDEN SHEARS


STRUCTURAL STEEL


DISC HARROW MOUNT

CATTLE WATER FEEDER

CASTER

C

STEEL

TOP DISTORTION, PREVAILING-TORQUE HEX LOCKNUT

Special "Thick" Finished Hexagon Dimensions

Low Carbon Steel C1110 or equivalent, Rockwell B80-B90, thicker than Grades A and C for use with low carbon steel and medium carbon steel heat treated bolts. Grade B is used where the minimum tensile of 120,000 psi in fine thread series must be met.

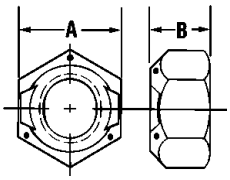
GRADE B

Generally identified by 3 equally spaced identical symbols on the chamfered top surface.
CADMIUM PLATED
WAX FINISH or ZINC PLATED,
Our Option.

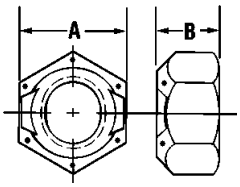
One-Piece ALL METAL LOCKNUTS
Reusable many times.

For use with Grade 5 Bolts

Distortion style may vary.



U.N.C. (Coarse) THREAD		U.N.F. (Fine) THREAD		A		B		Unit
Thread Size	*SPAENAUR No.*	Thread Size	*SPAENAUR No.*	WIDTH ACROSS FLATS Max.	Min.	THICKNESS Max.	Min.	Pkg. Qty.
—	—	1/4"-28	**165-205**	.438	.428	.226	.212	100
1/4"-20	**165-102**	1/4"-28	—	.438	.428	.257	.243	100
5/16"-18	**165-202**	—	—	.500	.489	.266	—	100
5/16"-18	**165-104**	5/16"-24	**165-105**	.500	.489	.302	.292	100
3/8"-16	**165-106**	3/8"-24	**165-107**	.562	.551	.377	.360	100
7/16"-14	**165-203**	—	—	.687	.675	.375	—	50
7/16"-14	**165-108**	7/16"-20	**165-109**	.688	.675	.430	.410	50
1/2"-13	**165-110**	1/2"-20	**165-111**	.750	.736	.510	.490	50
9/16"-12	**165-112**	9/16"-18	—	.875	.861	.555	.535	50
5/8"-11	**165-114**	5/8"-18	**165-115**	.938	.922	.645	.621	50
3/4"-10	**165-116**	3/4"-16	**165-117**	1.125	1.088	.750	.702	50
7/8"-9	**165-118**	7/8"-14	**165-119**	1.312	1.269	.862	.810	50
1"-8	**165-120**	1"-14	**165-121**	1.500	1.450	.958	.902	25



TOP DISTORTION, PREVAILING-TORQUE HEX LOCKNUT

GRADE C

Generally identified by 6 equally spaced identical symbols on the chamfered top surface.

Finished Hexagon Dimensions

Distortion style may vary.
Medium Carbon Steel C-1038 or equivalent, heat treated Rockwell C26-C32

CADMIUM PLATED
WAX FINISH or ZINC PLATED,
Our Option.

For use with Grade 5, 6, 7 & 8 Bolts.

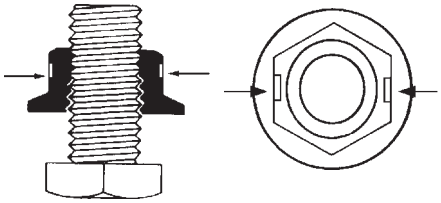
U.N.C. (Coarse) THREAD		U.N.F. (Fine) THREAD		A		B		Unit
Thread Size	*SPAENAUR No.*	Thread Size	*SPAENAUR No.*	WIDTH ACROSS FLATS Max.	Min.	THICKNESS Max.	Min.	Pkg. Qty.
1/4"-20	**165-130**	1/4"-28	**165-131**	.438	.428	.226	.212	100
5/16"-18	**165-132**	5/16"-24	**165-133**	.500	.489	.273	.258	100
3/8"-16	**165-134**	3/8"-24	**165-135**	.562	.551	.337	.320	100
7/16"-14	**165-136**	7/16"-20	**165-137**	.688	.675	.385	.365	50
7/16"-14	—	7/16"-20	**165-204**	.687	.675	.355	—	50
1/2"-13	**165-138**	1/2"-20	**165-139**	.750	.736	.448	.427	50
9/16"-12	**165-140**	9/16"-18	**165-141**	.875	.861	.496	.473	50
5/8"-11	**165-142**	5/8"-18	**165-143**	.938	.922	.559	.535	50
3/4"-10	**165-144**	3/4"-16	**165-145**	1.125	1.088	.665	.617	50
7/8"-9	**165-146**	7/8"-14	**165-147**	1.312	1.269	.776	.724	50
1"-8	**165-148**	1"-14	**165-149**	1.500	1.450	.887	.831	25
1-1/8"-7	**165-150**	1-1/8"-12	—	1.687	1.631	.999	.939	25
1-1/4"-7	**165-152**	1-1/4"-12	**165-153**	1.875	1.812	1.094	1.030	10

STEEL

REGULAR FLANGE SIDE DISTORTION HEX LOCKNUT

Large Flange Locknuts on following page.

HOW IT WORKS



VERTICAL SECTION TOP VIEW

The threads of a Regular Flange Hex Locknut have been scientifically deflected at two 180° opposing sides. The locking concept provides gripping surfaces on the flank, root, and crest of mating part threads and a spring-back effect of a body deflection through repeated shock loads. Reuseable many times. In addition, the nut locks adequately even when the bolt threads only reach the top of the nut.

GRADE F
FLANGE LOCKNUT
Standard for most applications

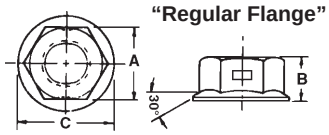
Grade F (.23 max. carbon steel)
Finish: Cadmium Plated & Waxed or Zinc Plated - Our Option.

ADVANTAGES OF FLANGE LOCKNUTS

ELIMINATES EXTRA PARTS
SPANS AND GAPS OVERSIZE AND ELONGATED HOLES
INCREASES AREA OF CONTACT
INCREASES BEARING AREA
PROVIDES GREATER LOAD DISTRIBUTION
INCREASES BEARING STRESS AREA
INCREASES LOAD DISTRIBUTION AREA

Grade F Flange Locknuts are:

- Cold formed. Not heat-treated.
- Min. Proof stress 120,000 PSI.
- For use with SAE Grade 1, 2, 3 and 5 bolts.



WITH SIDE LOCKING FEATURE

Lock in Middle - allows locking effectiveness even when bolt does not protrude thru top of nut.

Fully Reusable - many times without galling or seizing and without appreciable loss in locking torque.

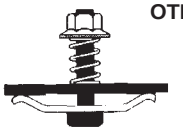
Low Torque Scatter - provides uniform bolt loading.

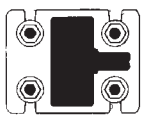
UNC (Coarse) THREAD Thread Size	*SPAENAUR No.*	UNF (Fine) THREAD Thread Size	*SPAENAUR No.*	A WIDTH ACROSS FLATS Max.	A WIDTH ACROSS FLATS Min.	B THICKNESS Max.	B THICKNESS Min.	C FLANGE DIA. Max.	Unit Pkg. Qty.
10-24	*165-158	10-32	*165-159	.375	.365	.219	.203	.500	100
1/4"-20	165-160	1/4"-28	165-161	.438	.428	.236	.222	.560	100
5/16"-18	†165-162	5/16"-24	—	.500	.489	.283	.268	.680	100
3/8"-16	165-164	3/8"-24	165-165	.562	.551	.347	.330	.810	50
7/16"-14	165-166	7/16"-20	—	.688	.675	.395	.375	.930	50
1/2"-13	▲165-168	1/2"-20	165-169	.750	.736	.458	.437	1.070	50
5/8"-11	165-170	5/8"-18	—	.938	.922	.569	.545	1.330	50
3/4"-10	165-172	3/4"-16	•165-173	1.125	1.088	.675	.627	1.585	25
7/8"-9	—	7/8"-14	■165-175PH	1.312	1.269	.787	.737	1.750	25
1"-8	165-176	1"-14	*165-177	1.500	1.450	.900	.850	2.060	5

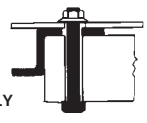
*Lock on Top †**165-208** Lock on Top ▲**165-168YZ** Yellow Zinc Pltd. •**165-209** Lock on Top ■ Phosphate & Oil Fin.

OTHER APPLICATIONS

ELONGATED HOLE


SPRING SPACER


SLOTTED PART MOUNT


SLOTTED BRACKET
MULTIPLE PARTS ASSEMBLY

YOKE ASSEMBLY

C

STEEL

GRADE F

LARGE FLANGE SIDE DISTORTION HEX LOCKNUT

A sturdy, one piece, all metal locknut with flanged base that provides extra strength, gaps oversized and elongated holes, and spreads bolt load over larger area.

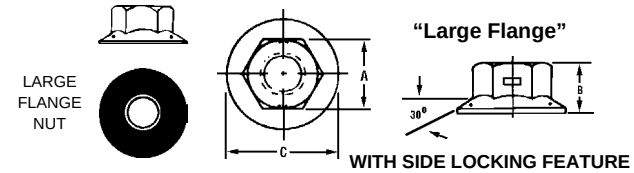
Standard for most applications where large flange is required

Finish: Cadmium Plated & Waxed or Zinc Plated - Our Option. Heat resistant to at least 288°C.

Grade F (.23 max. carbon steel)

Grade F Flange Prevailing Torque Nuts are not heat-treated and have a minimum proof stress of 120,000 PSI.

For use with SAE Grade 1, 2, 3 and 5 bolts.



UNC (Coarse) THREAD Thread Size	UNC (Coarse) THREAD *SPAENAUR No.*	UNF (Fine) THREAD Thread Size	UNF (Fine) THREAD *SPAENAUR No.*	A WIDTH ACROSS FLATS Max.	A WIDTH ACROSS FLATS Min.	B THICKNESS Max.	B THICKNESS Min.	C FLANGE DIA. Max.	C FLANGE DIA. Min.	Unit Pkg. Qty.
1/4"-20	—	1/4"-28	—	.438	.428	.312	.281	.728	.700	100
5/16"-18	—	5/16"-24	—	.500	.489	.375	.343	.820	.790	50
3/8"-16	**165-182**	—	—	.562	.551	.406	.390	.915	.885	50
7/16"-14	**165-184**	—	—	.688	.675	.468	.437	1.131	1.100	25
1/2"-13	**165-186**	—	—	.750	.736	.515	.485	1.205	1.175	25

GRADE F

SUPER FLANGE

TOP DISTORTION HEX LOCKNUT

Has all the locking power of standard top distortion Locknuts (pages C37 & C38) plus the advantages of a super flange design. Eliminates the need for extra parts, simplifies inventory, spans and gaps oversize and elongated holes and increases area of contact for greater load distribution.

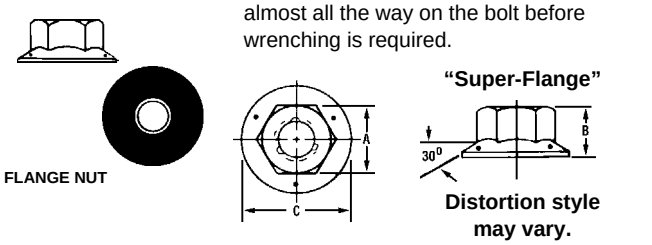
Heat resistant to at least 288°C

When a very large flange is needed

Finish: Cadmium Plated & Waxed or Zinc Plated, Our Option.

Grade F (.23 max. carbon steel)

Grade F Flange Prevailing Torque Nuts are not heat-treated and have a minimum proof stress of 120,000 PSI.



Lock on Top - allows nut to be threaded, almost all the way on the bolt before wrenching is required.

Distortion style may vary.

UNC (Coarse) THREAD Thread Size	UNC (Coarse) THREAD *SPAENAUR No.*	UNF (Fine) THREAD Thread Size	UNF (Fine) THREAD *SPAENAUR No.*	A WIDTH ACROSS FLATS Max.	A WIDTH ACROSS FLATS Min.	B THICKNESS Max.	B THICKNESS Min.	C FLANGE DIA. Max.	C FLANGE DIA. Min.	UNIT PKG. Qty.
1/4"-20	**165-188**	—	—	.500	.488	.312	.281	.906	.812	50
5/16"-18	**165-190**	5/16"-24	**165-191**	.562	.546	.375	.343	.968	.875	25
3/8"-16	**165-192**	—	—	.687	.669	.406	.390	1.093	1.000	25

C

HEX FLANGE NUTS

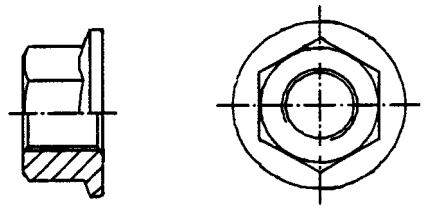
DIN 6923

~DIN EN 1661

Metric

Property Class 8 & 10 Steel

Zinc Plated



METRIC SIZES — Dimensions in Millimetres

Property Class	Nom. Size	*SPAENAUR No.*	Pitch mm	Width A/F	Thick-ness	Maximum Flange Dia.	Unit Pkg.
8	M5	**175-114**	0.80	8.00	5	11.8	100
	M6	**175-115**	1.00	10.0	6	14.2	100
	M8	**175-116**	1.25	13.0	8	17.9	100
	M10	**175-117**	1.50	16.0	10	21.8	50
	M12	**175-118**	1.75	18.0	12	26.0	50
	M14	**175-119**	2.00	21.0	14	29.9	50
	M16	**175-120**	2.00	24.0	16	34.5	50
	M20	**175-121**	2.50	30.0	20	42.8	25
10	M5	**175-122**	0.80	8.00	5	11.8	100
	M6	**175-123**	1.00	10.0	6	14.2	100
	M8	**175-124**	1.25	13.0	8	17.9	100
	M10	**175-125**	1.50	16.0	10	21.8	50
	M12	**175-126**	1.75	18.0	12	26.0	50
	M14	**175-127**	2.00	21.0	14	29.9	50
	M16	**175-128**	2.00	24.0	16	34.5	50
	M20	**175-129**	2.50	30.0	20	42.8	25

HEX NUT

with serrated flange

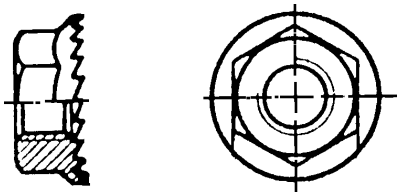
Tension Locking

Metric

Property Class 8 Steel

Black Finish

(*except Zinc Plated)



METRIC SIZES — Dimensions in Millimetres

Size Dia.	*SPAENAUR No.*	Pitch mm	Width A/F	Thick-ness	O/A Dia.	Pkg. Qty.
M5	**224-211**	0.80	8	4.3	11.2	100
M5	**224-211ZP***	0.80	8	4.3	11.2	100
†M5	**224-302**	0.80	8	4.3	11.2	100
M6	**224-212**	1.00	10	5.5	14.25	100
M6	**224-212ZP***	1.00	10	5.5	14.25	100
M8	**224-213**	1.25	13	7	18.25	50
M8	**224-213ZP***	1.25	13	7	18.25	50
M10	**224-214**	1.50	15	7.9	21	50
M12	**224-215**	1.75	17	8.7	24	50
■M16	**224-216**	2.00	22	11.2	31	25
M20▲	**224-300ZP***	2.50	30	20	43	25

†Prop. Class 10 ■Prop. Class 10 with ribbed flange ▲ Without Serration

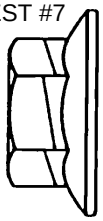
HEX FLANGE DISC-LOCK® NUTS - Inch and Metric Sizes

MEETS PHYSICAL REQUIREMENTS
OF ASTM A 194 - 2H MTL: STEEL

MIL TEST MIL- STD 1312
VIBRATION TEST #7

150,000 PSI
& 1040 MPa
PROOF
LOAD

HARDNESS
RC 24-38



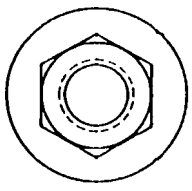
INCH SIZES

Sizes 1/2" - 5/8" Zinc Chromate Plated Steel
3/4" & larger Zinc Plated & Phosphated to MIL - 46010

COARSE THREAD Nominal Size	COARSE THREAD *SPAENAUR No.*	FINE THREAD Nominal Size	FINE THREAD *SPAENAUR No.*	Width A/F (Inches) Max.	Width A/F (Inches) Min.	Maximum Flange Diameter	Nominal Overall Height	Unit Pkg. Qty.
1/2"-13	–	1/2"-20	**175-201**	0.942	0.922	1.281"	0.820"	25
5/8"-11	**175-202**	5/8"-18	**175-203**	0.942	0.922	1.281"	0.820"	25
3/4"-10	**175-204**	3/4"-16	**175-205**	1.250	1.212	1.732"	1.125"	20
7/8"-9	**175-206**	7/8"-14	**175-207**	1.500	1.450	2.071"	1.420"	20

METRIC SIZES — Dimensions in mm

Sizes M12 - M16 Zinc Chromate Plated Steel
M20 & larger Zinc Plated & Phosphated to MIL - 46010

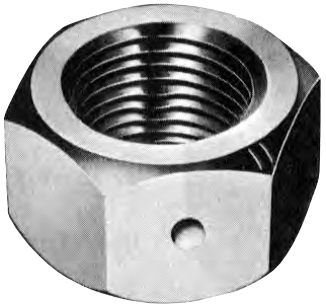


Nominal Size	COARSE THREAD *SPAENAUR No.*	COARSE THREAD Pitch	FINE THREAD *SPAENAUR No.*	FINE THREAD Pitch	Width A/F Max.	Width A/F Min.	Maximum Flange Diameter	Nominal Overall Height	Unit Pkg. Qty.
M12	–	1.75	**175-301**	1.50	19.00	18.40	27.00	15.00	25
M16	**175-302**	2.00	**175-303**	1.50	24.00	23.67	32.00	21.00	25
M20	**175-304**	2.50	–	1.50	31.75	30.78	45.00	28.00	20
M22	**175-306**	2.50	**175-307**	1.50	38.10	36.83	52.00	35.00	20

CATALOG 13

C

STEEL
TWO-WAY LOCKNUT

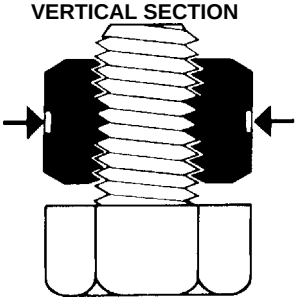


The TWO-WAY locks to the mating part by means of deflected threads in the centre of the nut. Holds at any point on the screw. Saves on length of screw as threads need not protrude from nut to lock securely. Top and bottom are identical; nut is ideal for automation. Economical - one piece to handle.

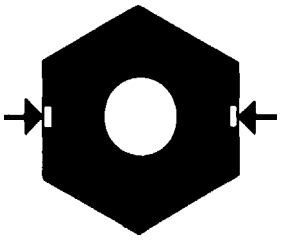
FINISHED HEX, GRADE A
(Standard for most applications)

Zinc Plated, Clear or Yellow Dichromate - Our Option.

VERTICAL SECTION



HORIZONTAL SECTION



HOW IT WORKS

The centre threads of the Two-Way Locknut have been precision deflected at two 180° opposing centre pressure points, thus uniformly ovalizing the centre threads of the nut and deflecting the centre threads of the nut out of their true helix.

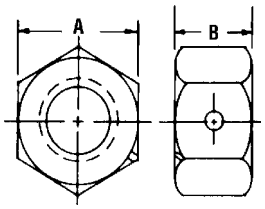
This locking element spreads over several of the centre threads and engages the mating threads of a bolt or stud with a resilient 180° spring lock. Even before the bolt end reaches the top of the nut, the lock is fully engaged.

For AUTOMATION . . . The double chamfer (the top and bottom are alike) make the nut always right side up. Ideal for hopper or hand feeding.

Grade A-Finished Hexagon Dimensions*-(Standard for most applications) Low carbon steel C1110 or equivalent, Rockwell B80-B90, for use on most applications SAE grade bolts 2 and 5. By common practice Grade A Two-Way Locknuts are used in conjunction with all sizes of Grade 5 bolts where coarse threads require 120,000 psi and fine threads require 109,000 psi.

*Note: Special Thick Machine Screw Hexagon Dimension below 1/4".

ALL METAL . . . for high temperature applications. Impervious to radiation.



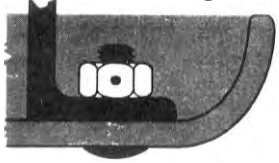
REUSABLE . . . 5 times or more under normal conditions. Satisfactory locking torque maintained through repeated applications.

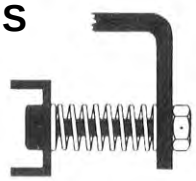
(All dimensions in Inches)

U.N.C. (Coarse) THREAD		U.N.F. (Fine) THREAD		A		B		Unit
Thread Size	*SPAENAUR No.*	Thread Size	*SPAENAUR No.*	WIDTH ACROSS FLATS Max.	Min.	THICKNESS Max.	Min.	Pkg. Quantity
8-32	**165-031**	—	**—**	.343	.332	.187	.171	100
10-24	**165-032**	10-32	**165-033**	.375	.362	.203	.187	100
1/4"-20	**165-034**	1/4"-28	**165-035**	.437	.428	.226	.212	100
5/16"-18	**165-036**	5/16"-24	**—**	.500	.489	.273	.258	100
3/8"-16	**▲165-038**	3/8"-24	**165-039**	.562	.551	.337	.320	100
7/16"-14	**†165-040**	7/16"-20	**165-041**	.687	.675	.385	.365	50
1/2"-13	**165-042**	1/2"-20	**165-043**	.750	.736	.448	.427	50
9/16"-12	—	9/16"-18	**165-045**	.875	.861	.496	.473	50
5/8"-11	**■165-046**	5/8"-18	**165-047**	.937	.922	.559	.535	50
3/4"-10	**165-048**	3/4"-16	**165-049**	1.125	1.088	.665	.617	50
7/8"-9	**165-050**	7/8"-14	**165-051**	1.312	1.269	.776	.724	50
1"-8	**165-052**	1"-14	**165-053**	1.500	1.450	.887	.831	25

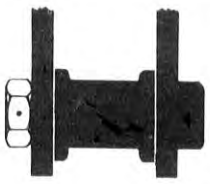
▲165-079 Three Way Locknut **†165-080** Three Way Locknut **■165-082** Three Way Locknut

APPLICATIONS


BUMPER MOUNT


SPRING SPACER

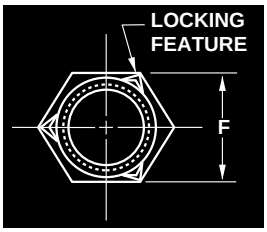
MUFFLER CLAMP

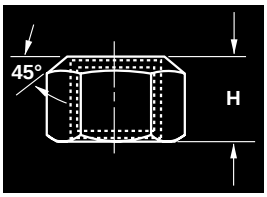

RUBBER SHOCK ASSEMBLY

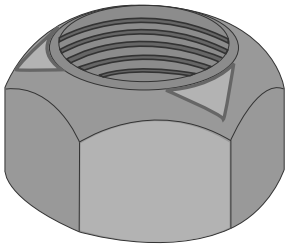
CONNECTING ROD

CATALOG 13

Note: For Grades B and C Locknuts see page C38.







COARSE and FINE THREAD

CROWNLOCK NUTS GRADE A

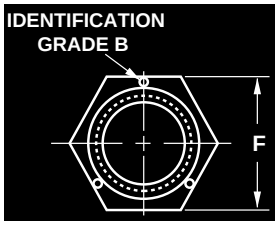
The Gripco Grade A Crownlock Nuts are manufactured from low carbon steel to meet Grade 2 performance specifications. These prevailing torque nuts are designed for use with Grade 2 bolts.

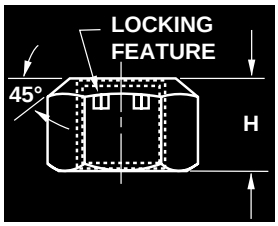
- No markings are required for a Grade A prevailing torque nut.
- Cadmium and Wax Finish is being replaced by Zinc Dichromate (Gold). Cadmium will be supplied until stock is depleted.
- Gripco Crownlock Nuts meet or exceed all current I.F.I. specifications.

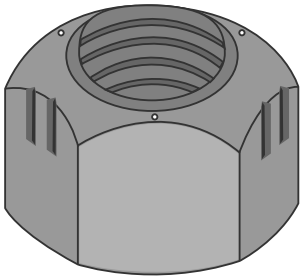
***SPAENAUR No's.* listed below** can usually be shipped immediately from stock.
Other sizes listed are available on request. Delivery 8-10 weeks. Price on request.

Coarse Thread Size	*SPAENAUR No.*	Fine Thread Size	*SPAENAUR No.*	*Dimensions in Inches* (F) WIDTH ACROSS FLATS MAX.	(F) WIDTH ACROSS FLATS MIN.	(H)THICKNESS MAX.	(H)THICKNESS MIN.
1/4"-20		1/4"-28		.438	.428	.226	.212
5/16"-18	**165-301**	5/16"-24		.500	.489	.273	.258
3/8"-16	†**165-302**	3/8"-24	**165-306**	.562	.551	.337	.320
7/16"-14		7/16"-20		.688	.675	.385	.365
1/2"-13		1/2"-20		.750	.736	.448	.427
5/8"-11	**165-304**	5/8"-18		.938	.922	.559	.535
3/4"-10		3/4"-16		1.125	1.088	.665	.617
7/8"-9		7/8"-14		1.312	1.269	.776	.724
1"-8		1"-14		1.500	1.450	.887	.831
1-1/8"-7	**165-388**	1-1/8"-12	**165-386**	1.688	1.631	.999	.939
1-1/4"-7		1-1/4"-12		1.875	1.812	1.094	1.031
1-1/2"-6	**165-305**	1-1/2"-12		2.250	2.175	1.317	1.245

†**165-387** Zinc Plated, 165-302 & 165-387 are not Gripco







CROWNLOCK NUTS GRADE B

The Gripco Grade B Crownlock Nuts are manufactured from low carbon steel and processed to meet Grade 5 performance specifications. These prevailing torque nuts are designed for use with Grade 5 bolts.

- Three dots at 120° intervals on the crown of the nut identify this product as a Grade B prevailing torque nut.
- Cadmium and Wax Finish is being replaced by Zinc Dichromate (Gold). Cadmium will be supplied until stock is depleted.
- Gripco Crownlock Nuts meet or exceed all current I.F.I. specifications.

***SPAENAUR No's.* listed below** can usually be shipped immediately from stock.
Other sizes listed are available on request. Delivery 8-10 weeks. Price on request.

COARSE and FINE THREAD

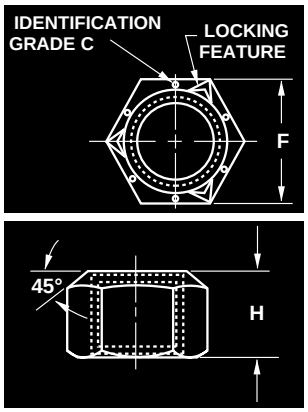
Coarse Thread Size	*SPAENAUR No.*	Fine Thread Size	*SPAENAUR No.*	*Dimensions in Inches* (F) WIDTH ACROSS FLATS MAX.	(F) WIDTH ACROSS FLATS MIN.	(H)THICKNESS MAX.	(H)THICKNESS MIN.
*8-32				.344	.332	.195	.179
*10-24		*10-32		.375	.362	.211	.195
1/4"-20	**165-307**	1/4"-28		.438	.428	.257	.243
5/16"-18	**165-308**	5/16"-24	**165-375**	.500	.489	.302	.292
3/8"-16	**165-309**	3/8"-24	**165-314**	.562	.551	.377	.360
7/16"-14	**165-310**	7/16"-20	**165-374**	.688	.675	.430	.410
1/2"-13	**165-311**	1/2"-20	**165-315**	.750	.736	.510	.490
5/8"-11	**165-312**	5/8"-18	**165-316**	.938	.922	.645	.621
3/4"-10	**165-313**	3/4"-16	**165-317**	1.125	1.088	.750	.702
7/8"-9		7/8"-14		1.312	1.269	.776	.724
1"-8		1"-14		1.500	1.450	.887	.831

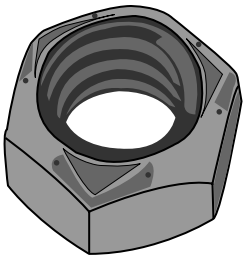
*These sizes will have same type locking feature as Crownlock Nuts A and C.

See Price List for Unit Package Quantities.

Grade "C" Crownlock Nuts
on following page.

C





COARSE and FINE THREAD

CROWNLOCK NUTS GRADE C

The Gripco Grade C Crownlock Nuts are manufactured from medium carbon steel, and heat treated to meet Grade 8 performance specifications. These prevailing torque nuts are designed for high-strength applications, for use with Grade 8 bolts.

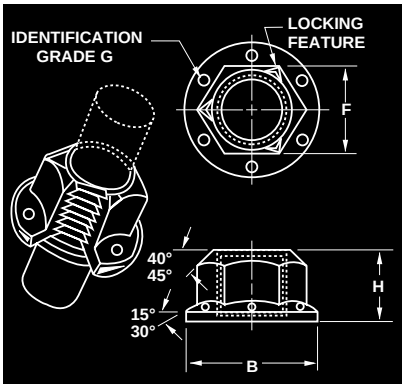
- Six dots at 60° intervals on the crown of the nut identify this product as a Grade C prevailing torque nut.
- Cadmium and Wax Finish is being replaced by Zinc Dichromate (Gold). Cadmium will be supplied until stock is depleted.
- Gripco Crownlock Nuts meet or exceed all current I.F.I. specifications.

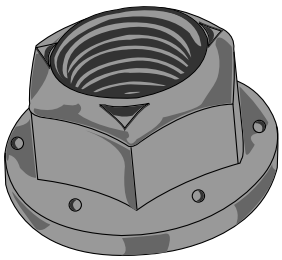
***SPAENAUR No's.* listed below** can usually be shipped immediately from stock.
Other sizes listed are available on request. Delivery 8-10 weeks. Price on request.

See Price List for Unit Package Quantities.

Coarse Thread Size	*SPAENAUR No.*	Fine Thread Size	*SPAENAUR No.*	*Dimensions in Inches* (F) WIDTH ACROSS FLATS MAX.	(F) WIDTH ACROSS FLATS MIN.	(H) THICKNESS MAX.	(H) THICKNESS MIN.
1/4"-20	**165-318**	1/4"-28	**165-324**	.438	.428	.226	.212
5/16"-18	**165-319**	5/16"-24	**165-325**	.500	.489	.273	.258
3/8"-16	**165-320**	3/8"-24	**165-326**	.562	.551	.337	.320
7/16"-14	**165-321**	7/16"-20	**165-327**	.688	.675	.385	.365
1/2"-13	**165-322**	1/2"-20	**165-328**	.750	.736	.448	.427
9/16"-12	**165-323**	9/16"-18	**165-329**	.875	.861	.496	.473
5/8"-11	**165-383**	5/8"-18	**165-330**	.938	.922	.559	.535
3/4"-10	**165-363▲**	3/4"-16	**165-331**	1.125	1.088	.665	.617
7/8"-9	—	7/8"-14	—	1.312	1.269	.776	.724
1"-8	**165-365**	1"-14	**165-369**	1.500	1.450	.887	.831
1-1/8"-7	**165-366▲**	1-1/8"-12	**165-370**	1.688	1.631	.999	.939
1-1/4"-7	**165-367▲**	1-1/4"-12	—	1.875	1.812	1.094	1.030
1-1/2"-6	—	1-1/2"-12	—	2.250	2.175	1.317	1.245

▲Not Gripco





Unit Pkg. Qty. 50

CROWNLOCK FLANGE NUTS GRADE G

The Gripco Grade G Crownlock Flange Nuts are manufactured from medium carbon steel, and heat treated to meet Grade G performance specifications. Greater height and the added hoop strength of the flange provide 30% more strength than a standard nut. These prevailing torque nuts are designed for high-strength applications, for use with Grade 8 bolts.

- Six dots at 60° intervals on the top of the flange identify this product as a Grade G prevailing torque flange nut.
- Gripco Crownlock Flange Nuts meet or exceed all current I.F.I. specifications.
- Cadmium and Wax Finish is being replaced by Zinc Dichromate (Gold). Cadmium will be supplied until stock is depleted.

Fine Thread Size	*SPAENAUR No.*	Dimensions in Inches (F) WIDTH ACROSS FLATS MAX.	(F) WIDTH ACROSS FLATS MIN.	(H) THICKNESS MAX.	(H) THICKNESS MIN.	(B) FLANGE DIAMETER MAX.	(B) FLANGE DIAMETER MIN.
1/2-20	**165-380***	.752	.736	.550	.469	1.070	1.026
1/2-20	**165-381▲**	.752	.736	.550	.469	1.070	1.026

*Phosphate and Oil Finish
▲Not Gripco

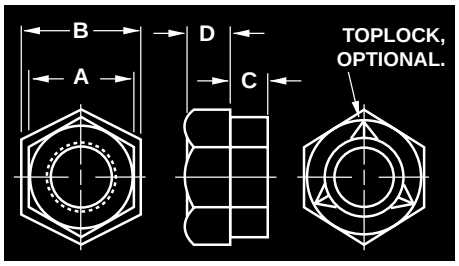
CATALOG 13

METRIC CROWNLOCK FLANGE NUT — PROP. CLASS 9

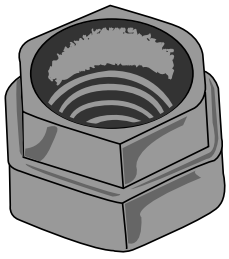
Unit Pkg. Qty. - 100

The Gripco Metric Crownlock Flange Nuts are manufactured from low carbon steel to meet class 9 performance specifications. Greater height and the added hoop strength of the flange provide 30% more strength than a standard nut. These prevailing torque nuts are designed for use with Grade 9.8 bolts. Cadmium and Wax Finish is being replaced by Zinc Dichromate (Gold). Cadmium will be supplied until stock is depleted.

Coarse Thread Size	*SPAENAUR No.*	Dimensions in mm (F) WIDTH ACROSS FLATS MAX.	(F) WIDTH ACROSS FLATS MIN.	(H) THICKNESS MAX.	(H) THICKNESS MIN.	(B) FLANGE DIAMETER MAX.	(B) FLANGE DIAMETER MIN.
M8 x 1.25	**165-382**	13.00	12.73	9.40	9.00	17.6	16.9



- Cadmium and Wax Finish is being replaced by Zinc Dichromate (Gold). Cadmium will be supplied until stock is depleted.



COARSE and FINE THREAD

CLINCH NUTS STANDARD SERIES

The Gripco Standard Series Clinch Nuts are manufactured from low carbon steel. These nuts are designed for use with sheet metal or similar materials where extruding and tapping are not advisable or possible. They may be used in open or blind applications.

Gripco Clinch Nuts are designed with a hex pilot to prevent rotation in a hex hole. This product can be staked for floating applications to accommodate bolt misalignment. They also can be clinched solid providing excellent push out strength for rigid applications.

Where flush mounting is required, a button die in combination with a hex punch provides an embossed relief in the stamping. These nuts can be automatically fed and clinched on volume production lines or individually clinched with riveters, orbital riveters, or arbor type presses.

- No markings are required on Clinch Nuts
- This product is also available with the Gripco prevailing torque feature.

***SPAENAUR No's.* listed below** can usually be shipped immediately from stock.
Other sizes listed are available on request. Deliver 8-10 weeks. Price on request.

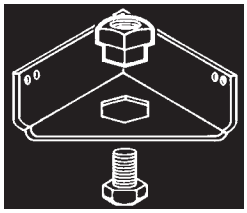
Coarse Thread Size	*SPAENAUR No.*	Fine Thread Size	*SPAENAUR No.*	A Pilot Width	B Nut Width	C Pilot Height	D Nut Height	Hexhole in Plate
1/4-20	**165-377▲**	1/4-28	—	.429	.521	.125	.171	.437
5/16-18	**165-376▲**	5/16-24	—	.491	.584	.156	.203	.500
3/8-16	**165-378**	3/8-24	—	.551	.670	.187	.234	.562
7/16-14	—	7/16-20	—	.614	.742	.218	.265	.625
1/2-13	**165-379**	1/2-20	—	.742	.866	.250	.296	.750
5/8-11	—	5/8-18	—	.922	1.047	.312	.359	.937

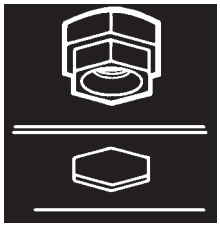
▲TOPLOCK

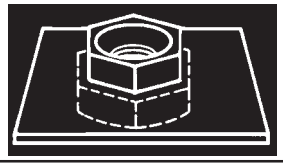
Clinching Force Requirements

Size Nut	Approx. Metal Thickness	Approx. Clinching Force for Steel
1/4"	.055	10,000 lbs.
5/16"	.055	12,000 lbs.
3/8"	.055	14,000 lbs.
7/16"	.075	20,000 lbs.
1/2"	.100	24,000 lbs.
5/8"	.132	36,000 lbs.

See Price List for Unit Package Quantities.







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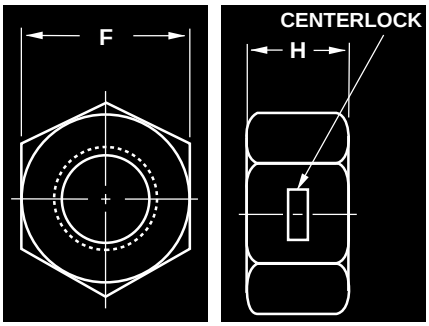


See Price List for Unit Package Quantities.

COARSE and FINE THREAD

CENTERLOCK NUTS GRADE A - GRADE B

The Gripco Grade A Centerlock Nuts are manufactured from low carbon steel to meet Grade A performance specifications. The Centerlock design permits thread-start from either end of the nut. These prevailing torque nuts are designed for use with Grade 2 bolts.
The Gripco Grade B Centerlock Nuts are manufactured from medium carbon steel, and processed to meet Grade B performance specifications. These prevailing torque nuts are designed for use with Grade 5 bolts.

- Cadmium and Wax Finish is being replaced by Zinc Dichromate (Gold). Cadmium will be supplied until stock is depleted.
- Gripco Centerlock Nuts meet or exceed all current I.F.I. specifications.

***SPAENAUR No's.* listed below** can usually be shipped immediately from stock. **Other sizes listed** are available on request. Delivery 8-10 weeks. Price on request.

FULL CENTERLOCK NUT - GRADE A

Coarse Thread Size	*SPAENAUR No.*	Fine Thread Size	*SPAENAUR No.*	*Dimensions in Inches* (F) WIDTH ACROSS FLATS MAX.	(F) WIDTH ACROSS FLATS MIN.	(H) THICKNESS MAX.	(H) THICKNESS MIN.
8-32	—	—	—	.345	.332	.191	.117
1/4"-20	**165-344**	1/4"-28	—	.438	.428	.226	.212
5/16"-18	**165-345***	5/16"-24	**165-351**	.500	.489	.273	.258
3/8"-16	—	3/8"-24	**165-352***	.563	.551	.337	.320
7/16"-14	**165-347***	7/16"-20	**165-353***	.688	.675	.385	.365
1/2"-13	**165-348***	1/2"-20	**165-354**	.750	.736	.448	.427
5/8"-11	**165-349***	5/8"-18	**165-355***	.938	.922	.559	.535
3/4"-10	**165-350**	3/4"-16	—	1.125	1.088	.665	.617
7/8"-9	—	7/8"-14	—	1.312	1.269	.776	.724
1"-8	—	1"-14	**165-372**	1.500	1.450	.887	.831

*Not Gripco

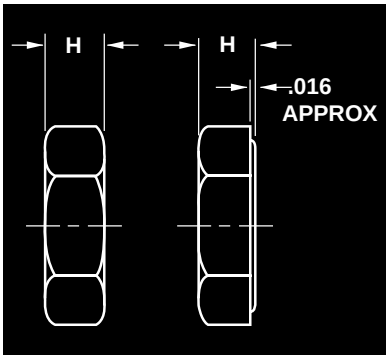
JAM - CENTERLOCK NUT - GRADE A

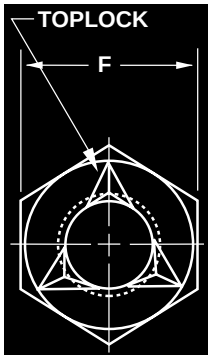
Coarse Thread Size	*SPAENAUR No.*	Fine Thread Size	*SPAENAUR No.*	*Dimensions in Inches* (F) WIDTH ACROSS FLATS MAX.	(F) WIDTH ACROSS FLATS MIN.	(H) THICKNESS MAX.	(H) THICKNESS MIN.
3/8"-16	**165-357***	3/8"-24	**165-359***	.563	.551	.227	.210
7/16"-14	—	7/16"-20	—	.688	.675	.260	.240
1/2"-13	**165-358***	1/2"-20	**165-360***	.750	.736	.323	.302
5/8"-11	—	5/8"-18	—	.938	.922	.387	.363
3/4"-10	—	3/4"-16	**165-362**	1.125	1.088	.446	.398
7/8"-9	—	7/8"-14	—	1.312	1.269	.510	.458
1"-8	—	1"-14	—	1.500	1.450	.575	.519

*Not Gripco

Grade B Centerlock Nuts are available in sizes listed above, subject to minimum production runs.

CATALOG 13



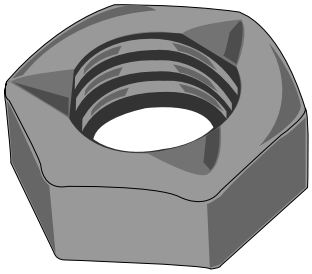


TOPLOCK NUTS
JAM and MACHINE SCREW SERIES

The Gripco Toplock Nuts are manufactured from low carbon steel to meet Grade A performance specifications. These prevailing torque nuts are designed for use in non-critical applications with Grade 2 bolts.

- Jam and Machine Screw Toplock Nuts are available.
- No markings are required for this series of nuts.
- Cadmium and Wax Finish is being replaced by Zinc Dichromate (Gold). Cadmium will be supplied until stock is depleted.
- Gripco Toplock Nuts meet or exceed all current I.F.I. specifications.

C



COARSE and FINE THREAD

See Price List for Unit Package Quantities.

***SPAENAUR No's.* listed below** can usually be shipped immediately from stock.
Other sizes listed are available on request. Delivery 8-10 weeks. Price on request.

Machine Screw Series

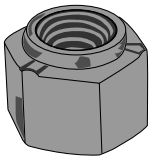
Coarse and *Fine Thread Sizes	*SPAENAUR No.*	Dimensions in Inches (F) WIDTH ACROSS FLATS MAX.	(F) WIDTH ACROSS FLATS MIN.	(H) THICKNESS MAX.	(H) THICKNESS MIN.
6-32	—	.312	.302	.114	.102
8-32	**165-333**	.344	.332	.130	.117
10-24	**165-334**	.375	.362	.130	.117
*10-32	**165-335**	.375	.362	.130	.117
12-24	—	.437	.423	.161	.148

Finished Hexagon Jam Nut Series

Coarse Thread Size	*SPAENAUR No.*	Fine Thread Size	*SPAENAUR No.*	Dimensions in Inches (F) WIDTH ACROSS FLATS MAX.	(F) WIDTH ACROSS FLATS MIN.	(H) THICKNESS MAX.	(H) THICKNESS MIN.
1/4"-20	**165-336**	1/4"-28	**▲165-340**	.438	.428	.164	.150
5/16"-18	**▲165-337**	5/16"-24	**165-341**	.500	.489	.195	.180
3/8"-16	**▲165-338**	3/8"-24	**165-342**	.563	.551	.227	.210
7/16"-14	—	7/16"-20	**165-343**	.688	.675	.260	.240
1/2"-13	**▲165-339**	1/2"-20	—	.750	.736	.323	.302
5/8"-11	—	5/8"-18	—	.938	.922	.387	.363
3/4"-10	—	3/4"-16	—	1.125	1.088	.446	.398
1-1/4"-7	—	1-1/4"-12	—	1.875	1.812	.751	.687

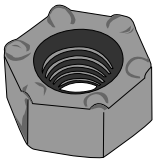
▲Not Gripco

GRIPCO Fasteners shown below are special and are subject to minimum production runs.



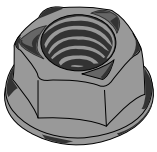
PILOT-PROJECTION WELD NUTS GRADE B

The Gripco Grade B Pilot-Projection Weld Nuts are manufactured from low carbon steel to meet Grade B performance specifications. These nuts are designed for use with Grade 5 bolts.
These weld nuts are engineered for positioning in pierced or drilled holes. The pilot eliminates the need for expensive jigs or centring devices, and helps reduce welding spatter from entering the nut threads.



COUNTERSUNK WELD NUTS STANDARD SERIES

The Gripco Standard Series Countersunk Weld Nuts are manufactured from low carbon steel. These nuts are designed to eliminate the time-consuming retapping of threads frequently required after welding.



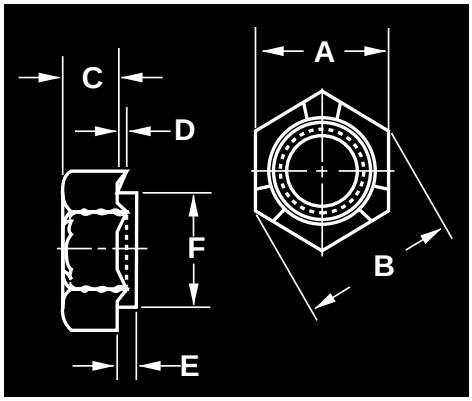
TOPLOCK FLANGE NUTS GRADE A

The Gripco Toplock Flange Nuts are manufactured from low carbon steel to meet Grade A performance specifications. These prevailing torque nuts are designed for use with Grade 2 bolts.

Contact ***SPAENAUR*** for prices and delivery.

Tel: **1-800-265-8772** Fax: **519-744-0818**

C



PILOT PROJECTION HEX WELD NUTS

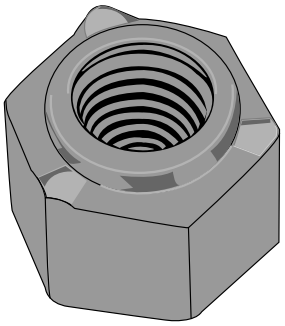
STANDARD SERIES

The Gripco Standard Series of Pilot Projection Weld Nuts are manufactured from low carbon steel for use with Grade 2 bolts.

These weld nuts are engineered for positioning in pierced or drilled holes. The pilot eliminates the need for expensive jigs or centring devices, and helps reduce welding spatter from entering the nut threads.

The three-projection type provides a non-rocking, firm current connection during welding. The mass of the projections is increased in proportion to increased pilot heights to assure welds on thick or thin metals.

- No markings are required for Standard Series Pilot Projection Weld Nuts.
- This product is also available with the Gripco prevailing torque feature, special to order.



COARSE and FINE THREAD

LONG and SHORT PILOT

NOT PLATED

***SPAENAUR No's.* listed below** can usually be shipped immediately from stock.
Other sizes listed are available on request. Delivery 8-10 weeks. Price on request.

Long Pilot - For use with 13 gauge (.0897") metal or thicker

Coarse Thread Size	*SPAENAUR No.*	Fine Thread Size	*SPAENAUR No.*	*ALL DIMENSIONS IN INCHES* A Width Across Flats	B Min. Width Across Corners	C Thick-ness ±.010	D Projection Height ±.003	E Pilot Height ±.005	F Pilot Dia. +.000 -.012	Pilot Hole Dia.
8-32	—	—	—	.500	.556	.187	.040	.085	.406	.421
10-24	—	10-32	—	.500	.556	.187	.040	.085	.406	.421
12-24	—	12-28	—	.500	.556	.187	.040	.085	.406	.421
1/4"-20	**208-212**	1/4"-28	**208-215**	.500	.556	.187	.040	.085	.406	.421
M6 x 1mm	***208-400*** *Property Class 9, plain finish*			*13.00 mm*	*14.38 mm*	*5.35 mm*	*.80 mm ±.075*	*1.60 mm ±.13+0.0 to -0.3*	*9.10 mm*	*9.50 mm*
5/16"-18	**208-213**	5/16"-24	—	.562	.624	.218	.040	.085	.469	.484
3/8"-16	**208-207**	3/8"-24	**208-216**	.625	.691	.250	.040	.085	.531	.546
7/16"-14	—	7/16"-20	—	.750	.830	.312	.040	.085	.656	.671
1/2"-13	**HN-202**	1/2"-20	—	.812	.898	.375	.040	.085	.719	.734
5/8"-11	**208-214**	5/8"-18	—	.937	1.051	.437	.040	.085	.781	.796

Short Pilot - For use with 14 gauge (.0747") metal or thinner

8-32	—	8-36	—	.375	.413	.125	.015	.030	.313	.328
10-24	**208-210**	10-32	**208-211**	.500	.556	.187	.025	.040	.406	.421
12-24	—	12-28	—	.500	.556	.187	.025	.040	.406	.421
1/4"-20	**208-205***	—	—	.438	.482	.156	.015	.030	.359	.375
1/4"-20	**208-206**	1/4"-28	**208-218**	.500	.556	.187	.025	.040	.406	.421
5/16"-18	**N-208**	5/16"-24	**208-219**	.562	.624	.218	.025	.040	.469	.484
3/8"-16	**N-209**	3/8"-24	**208-220**	.625	.691	.250	.030	.050	.531	.546
7/16"-14	—	7/16"-20	—	.750	.830	.312	.030	.050	.656	.671
1/2"-13	**N-210**	1/2"-20	—	.812	.898	.375	.035	.060	.719	.734
5/8"-11	**208-209**	5/8"-18	—	.937	1.051	.437	.035	.060	.781	.796

*Miniature Series

See Price List for Unit Package Quanitites.

6-Projection type are available in sizes listed above, subject to minimum production runs.

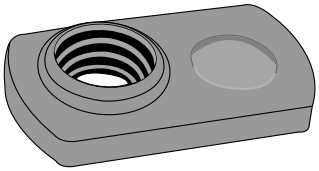
THE GRIPCO P1 AND P2 SERIES TAB WELD NUTS are manufactured from low carbon steel. These Tab Weld Nuts have been carefully engineered to offer fast, dependable results on flat sections, confined corners, close spacing, flanges, and narrow channels in open and blind applications.

The self-locating pilot positions the nut for assembly. The height of the pilot helps prevent welding spatter from entering the nut threads. The nut can be welded to a wide variety of metal thicknesses.

Prevailing torque feature can be incorporated on the side opposite the pilot, special to order. Nuts can also be furnished with plating, if required.

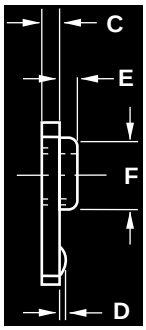
***SPAENAUR No's.* listed below** can usually be shipped immediately from stock.
Other sizes listed are available on request. Delivery 8-10 weeks. Price on request.

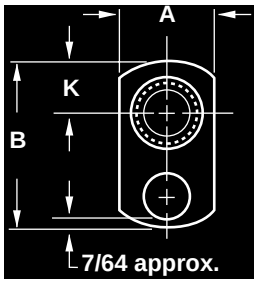
TAB WELD NUTS PILOT PROJECTION P1 SERIES

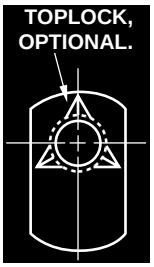


NOT PLATED

COARSE and FINE THREAD



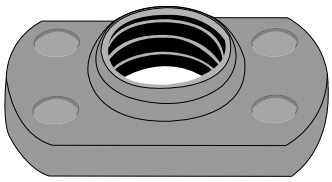




Coarse Thread Size	*SPAENAUR No.*	Fine Thread Size	*SPAENAUR No.*	A Width	B Length	C Thickness	K	Pilot E	Pilot F	Pilot Hole Dia.	D Projection Height
6-32	**208-033**	—	—	.437	.625	.094	.187	.031	.187	.203	.020
8-32	**208-020**	—	—	.437	.625	.094	.187	.031	.203	.218	.020
8-32	**208-812***	—	—	.380	.625	.094	.172	—	.193	.219	—
10-24	**208-034**	10-32	**208-024**	.437	.625	.094	.187	.031	.234	.250	.020
1/4"-20	**208-283▲**	—	—	.500	.812	.128-.122	.250	.046	.296	.312	.025
5/16"-18	**208-022**	5/16"-24	—	.625	1.125	.135	.343	.078	.359	.375	.030
3/8"-16	**208-023**	3/8"-24	—	.625	1.125	.135	.343	.093	.437	.453	.030

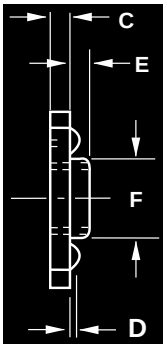
*Stainless Steel, passivated finish (not Gripco).

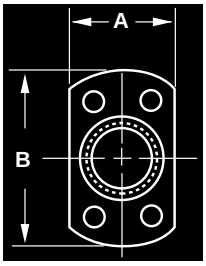
TAB WELD NUTS PILOT PROJECTION P2 SERIES

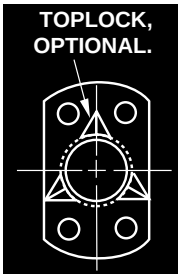


NOT PLATED

COARSE and FINE THREAD



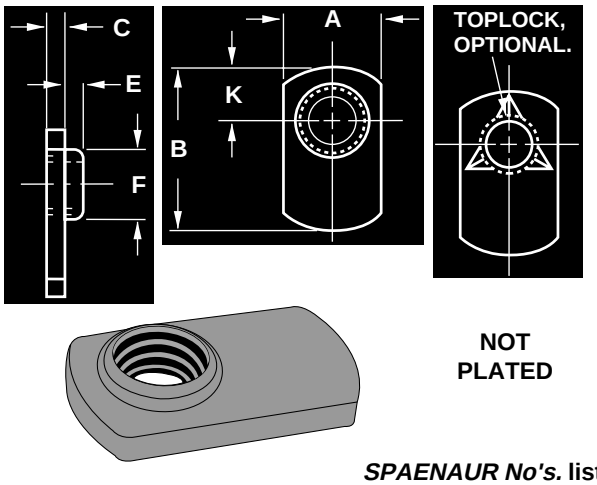




Coarse Thread Size	*SPAENAUR No.*	Fine Thread Size	*SPAENAUR No.*	A Width	B Length	C Thickness	Pilot E	Pilot F	Pilot Hole Dia.	D Projection Height
6-32	**208-035**	—	—	.375	.625	.094	.031	.187	.203	.020
8-32	**208-025**	—	—	.375	.625	.094	.031	.203	.218	.020
10-24	**208-041■**	10-32	**208-031**	.375	.625	.094	.031	.234	.250	.020
10-24	**208-026▲**	—	—	.443	.625	.094	.031	.234	.250	.020
1/4"-20	**208-027**	1/4"-28	—	.500	.812	.105	.046	.296	.312	.025
5/16"-18	**208-028**	5/16"-24	**208-036†**	.625	1.000	.135	.078	.359	.375	.030
3/8"-16	**208-029**	3/8"-24	—	.625	1.000	.135	.093	.437	.453	.030
1/2"-13	**208-030**	1/2"-20	—	.812	1.250	.187	.125	.593	.609	.033

▲ Not Gripco ■ with Toplock †Copper Plated and Toplock.

C



NOT PLATED

TAB WELD NUTS PILOT SPOT WELD S1 SERIES

The Gripco S1 Series Tab Weld Nuts are manufactured from low carbon steel. These Tab Weld Nuts have been carefully engineered to offer fast, dependable results on flat sections, confined corners, close spacing, flanges, and narrow channels in open and blind applications.

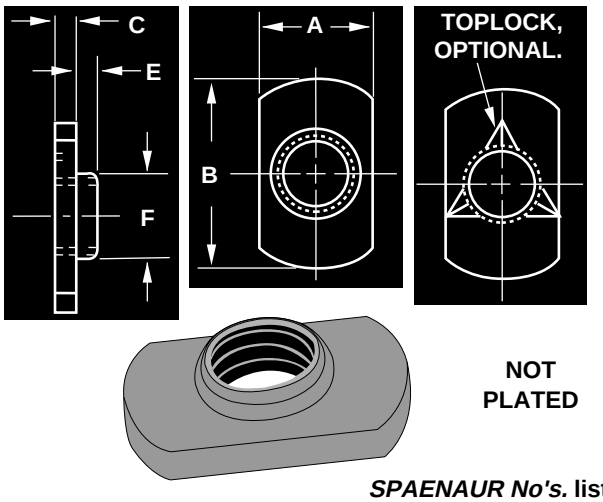
The self-locating pilot positions the nut for assembly. The height of the pilot helps prevent welding spatter from entering the nut threads. The nut can be welded to a wide variety of metal thicknesses.

- Prevailing torque feature can be incorporated on the side opposite the pilot, special to order.
- Can be furnished with plating, if required.

COARSE and FINE THREAD

***SPAENAUR No's.* listed below** can usually be shipped immediately from stock.
Other sizes listed are available on request. Delivery 8-10 weeks. Price on request.

Coarse Thread Size	*SPAENAUR No.*	Fine Thread Size	*SPAENAUR No.*	A Width	B Length	C Thickness	K	Pilot E	Pilot F	Pilot Hole Dia.
6-32	**N-233**	—	—	.437	.625	.094	.187	.031	.187	.203
8-32	**N-232**	—	—	.437	.625	.094	.187	.031	.200	.218
10-24	**N-234**	10-32	**N-235**	.437	.625	.094	.187	.031	.234	.250
1/4"-20	**N-236**	1/4"-28	—	.500	.812	.105	.250	.046	.296	.312
5/16"-18	**N-238**	5/16"-24	—	.625	1.125	.135	.343	.078	.359	.375
3/8"-16	**N-212**	3/8"-24	—	.625	1.125	.135	.343	.093	.437	.453



NOT PLATED

TAB WELD NUTS PILOT SPOT WELD S2 SERIES

The Gripco S2 Series Tab Weld Nuts are manufactured from low carbon steel. These Tab Weld Nuts have been carefully engineered to offer fast, dependable results on flat sections, confined corners, close spacing, flanges, and narrow channels in open and blind applications.

The self-locating pilot positions the nut for assembly.

The height of the pilot helps prevent welding spatter from entering the nut threads. The nut can be welded to a wide variety of metal thicknesses.

- Prevailing torque feature can be incorporated on the side opposite the pilot, special to order.
- Can be furnished with plating, if required.

COARSE and FINE THREAD

***SPAENAUR No's.* listed below** can usually be shipped immediately from stock.
Other sizes listed are available on request. Delivery 8-10 weeks. Price on request.

Coarse Thread Size	*SPAENAUR No.*	Fine Thread Size	*SPAENAUR No.*	Dimensions in Inches A Width	B Length	C Thickness	Pilot E	Pilot F	Pilot Hole Dia.
6-32	**N-241**	—	—	.437	.812	.094	.031	.187	.203
8-32	—	—	—	.437	.812	.094	.031	.203	.218
10-24	**N-243**	10-32	**N-244**	.437	.812	.094	.031	.234	.250
1/4"-20	**N-245**	1/4"-28	—	.500	1.000	.105	.046	.296	.312
5/16"-18	**N-247**	5/16"-24	—	.625	1.500	.135	.078	.359	.375
3/8"-16	**N-213**	3/8"-24	**N-249**	.625	1.500	.135	.093	.438	.453
1/2"-13	**N-250**	1/2"-20	—	.812	1.500	.187	.125	.593	.609

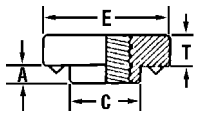
METRIC TAB WELD NUTS PILOT SPOT WELD S2M SERIES

				Dimensions in Millemetres					
M6 x 1	**208-300**	—	—	13.1/12.4	25.4	2.7	1.2	7.5	8.0
M8 x 1.25	**208-301▲**	—	—	16.3/15.6	38.1	3.6	2.0	9.1	9.6
M10 x 1.50	**208-302**	—	—	16.3/15.6	38.1	3.4	2.4	11.1	11.5

CATALOG 13

ROUND PILOT WELD NUTS - INCH Sizes

STEEL C-1015 Plain Finish and STAINLESS STEEL 300 Series



C

Pilot-projection Weld Nuts provide load bearing threads in sheets too thin to thread. Engineered projections - no burnouts in thin sheets. Round body - no indexing. Fits on narrow flanges. Self-locating pilot shank protects threads from weld splatter, eliminating the need to retap.

Thread fits are UN-2B

Unit Package 100

INCH SIZES

Thread Size	*SPAENAUR No.* STEEL	Stainless Steel	T	C Max.	E	A Max.	*Hole Size in Sheet	Thickness
4-40	**N-186**	—	1/16	.171	5/16	.030	.173	
6-32	**N-187**	—	3/32	.191	11/32	.030	.193	.030
8-32	**N-188**	—	7/64	.216	3/8	.030	.218	to
10-24	**N-190**	**208-811**	5/32	.248	7/16	.030	.250	.060
10-32	**N-189**	—	5/32	.248	7/16	.030	.250	
12-28	**N-192**	—	3/16	.315	33/64	.048	.316	.050
1/4-20	**N-193**	**208-810**	3/16	.315	33/64	.048	.316	to
1/4-28	**N-194**	—	3/16	.315	33/64	.048	.316	.095

P.C. 208

*(-.000 to +.004)

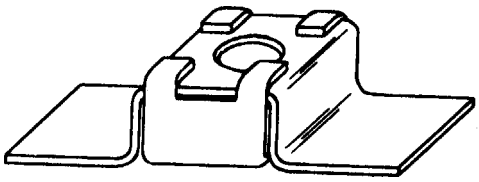
FLOATING NUT RETAINERS - INCH and METRIC Sizes

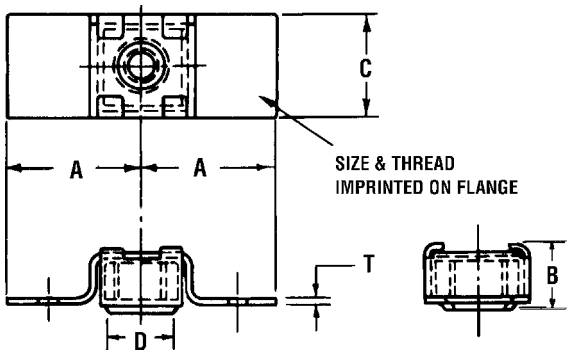
STEEL

Plain Finish

Material: **SAE 1010-1110 or Equivalent**

Thread: **Class 2B**





		Regular Metric Coarse Thread							
INCH Sizes		**METRIC Sizes**		**Dimension in Inches**					**Unit Package Quantity**
SPAENAUR No.	**Nut Size**	***SPAENAUR No.***	**Nut Size**	**A**	**B**	**C**	**D**	**T**	
208-273	8-32	—	—	3/4	5/16	1/2	5/16	.037-.045	100
208-274	10-24	—	—	3/4	5/16	1/2	5/16	.037-.045	100
—	—	**208-016**	M6	3/4	5/16	1/2	5/16	.037-.045	100
208-275	12-24	—	—	7/8	13/32	9/16	.398	.045-.050	100
208-276	1/4-20	—	—	7/8	13/32	9/16	.398	.045-.050	100
N-69	1/4-20	—	—	7/8	13/32	.72	15/32	.045-.050	50
208-277	1/4-28	—	—	7/8	13/32	9/16	.398	.045-.050	100
208-278	5/16-18	**208-013**	M8	1	15/32	25/32	.523	.045-.050	50
N-61	5/16-18	—	—	7/8	7/16	5/8	1/2	.045-.050	50
208-271	5/16-24	—	—	7/8	7/16	5/8	1/2	.045-.050	50
208-279	5/16-24	—	—	1	1/2	25/32	.523	.045-.050	50
208-280	3/8-16	**208-014**	M10	1	1/2	25/32	.523	.045-.050	50
N-62	3/8-24	—	—	7/8	7/16	.72	1/2	.045-.050	50
208-281	7/16-14	**208-015**	M12	1-1/8	25/32	15/16	3/4	.045-.050	50
208-282	1/2-13	—	—	1-1/8	25/32	15/16	3/4	.045-.050	50

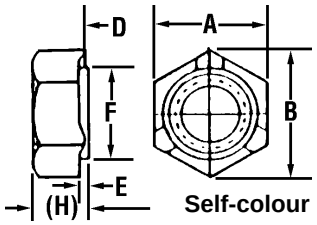
C

METRIC HEXAGON WELD NUTS

Steel (max. carbon content 0.25%)

3-PROJECTION TYPE

DIN 929



Self-colour

*Pilot hole is to H11 tolerance

Coarse Thread Size	*SPAENAUR No.*	A Width Across Flats	B Min. Width Across Corners	H Thickness	D Projection Height	E Pilot Height	*F Pilot Diameter
M3 x 0.50	**208-001**	7.5	8.15	3.0	0.25	0.55	4.5
M4 x 0.70	**208-002**	9.0	9.38	3.5	0.35	0.65	6.0
M5 x 0.80	**208-003**	10.0	10.95	4.0	0.40	0.70	7.0
M6 x 1.00	**208-004**	11.0	12.02	5.0	0.40	0.75	8.0
M7 x 1.00	**208-005**	12.0	13.9	5.5	0.45	0.80	9.0
M8 x 1.25	**208-006**	14.0	15.38	6.5	0.50	0.90	10.5
M8 x 1.00*	**208-017**	14.0	15.38	6.5	0.50	0.90	10.5
M10 x 1.50	**208-007**	17.0	18.74	8.0	0.65	1.15	12.5
M12 x 1.75	**208-008**	19.0	20.91	10.0	0.80	1.40	14.8
M14 x 2.00	**208-009**	22.0	24.27	11.0	1.00	1.80	16.8
M16 x 2.00	**208-010**	24.0	26.51	13.0	1.00	1.80	18.8

* **Fine Thread**

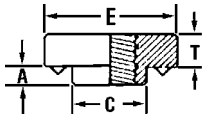
All Dimensions given in millimetres - *Unit Package 100*

METRIC SIZES

ROUND PILOT WELD NUTS

SHORT PILOT

Copper Plated STEEL C-1015 and STAINLESS STEEL 302



Pilot-projection Weld Nuts provide load bearing threads in sheets too thin to thread. Engineered projections - no burnouts in thin sheets. Round body - no indexing. Fits on narrow flanges. Self-locating pilot. Shank protects threads from weld splatter. No retapping.

Thread fits are Metric 6H

Unit Package 100

Coarse Thread Size	*SPAENAUR No.* Copper Pltd. STEEL	*SPAENAUR No.* Stainless Steel 302	T	C Max.	E Max.	A Max.	*Hole Size in Sheet	Min. Panel Thick-ness
M3 x 0.50	**208-050**	**208-800**	1.5	4.35	7.95	0.76	4.40	0.77
M4 x 0.70	**208-051**	**208-801**	2.6	5.50	9.55	0.76	5.55	0.77
M5 x 0.80	**208-052**	**208-802**	3.8	6.30	11.10	0.76	6.35	0.77
M6 x 1.00	**208-053**	**208-803**	4.6	8.00	13.20	1.24	8.05	1.25

All dimensions given in millimetres. *(+0.00)

SQUARE WELD NUTS

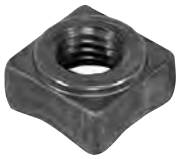
DIN 928

Steel (max. carbon content 0.25%)

Plain Finish

4 Weld Projections

Unit Package 100



METRIC SIZES

All dimensions in millimetres

Coarse Thread Size	*SPAENAUR No.*	Width Across Flats	Min. Width Across Corners	Thick-ness	Projection Height
M5 x 0.80	**208-045**	9	12	4.2	0.8
M6 x 1.00	**208-046**	10	13	5	0.8
M8 x 1.25	**208-047**	14	18	6.5	1
M10 x 1.50	**208-049**	17	22	8	1.2
M12 x 1.75	**208-048**	19	25	9.5	1.4

CATALOG 13

Stamped Spring Steel LOCKNUTS

INCH SIZES

for BOLTS and MACHINE SCREWS

REGULAR TYPE

Number of notches and shears may vary - our option.

Zinc or Cadmium plated, unless otherwise indicated.

P.C. 177, 226

SPAENAUR No.	Thread Size	Hex. Width
177-082	6-32	1/4"
N-296	10-24	3/8"
B-1547	1/4"-20	7/16"
N-113	1/4"-28	7/16"
N-116	5/16"-18	1/2"
N-114	5/16"-24	1/2"
N-117	3/8"-16	9/16"
B-1232	3/8"-24	9/16"
N-217	7/16"-14	3/4"
B-1233	7/16"-20	5/8"
N-118	1/2"-13	3/4"
B-1234	1/2"-20	3/4"
N-115	9/16"-18	7/8"
N-119	5/8"-11	15/16"
B-1766	5/8"-18	15/16"
N-120	3/4"-10	1-1/8"
N-214	3/4"-16	1-1/16"
***N-121**	7/8"-9	1-5/16"
N-215	7/8"-14	1-1/4"
*Plain Finish		
Special Threads		
B-1235	11/32"-24	17/32"
177-085	1/8"-27 NPS	9/16"
177-080	15/32"-32	5/8"

WASHER TYPE

†With Sealant

SPAENAUR No.	Thread Size	O.D.
N-174	6-32	7/16"
N-175	8-32	15/32"
B-1238	10-24	1/2"
†N-34	10-24	5/8"
B-1239	10-24	3/4"
†B-1239S	10-24	3/4"
N-176	10-32	1/2"
B-1241	1/4"-20	19/32"
■N-203	1/4"-20	19/32"
B-1242	1/4"-20	13/16"
■ Notched Flange		

ACORN TYPE

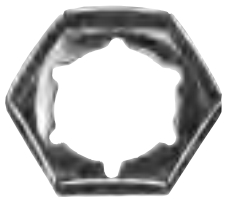
		Hex. Width
N-169	6-32	5/16"
N-170	8-32	11/32"
B-1237	10-24	3/8"
N-171	10-32	3/8"
B-1209	1/4"-20	7/16"
N-172	5/16"-18	9/16"

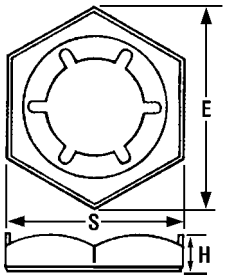
See Price List for Package Quantities

Self-Locking Counter Locknuts

Metric Sizes

DIN 7967





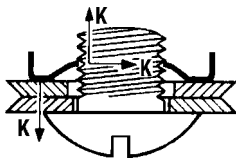
6 = 6 notches

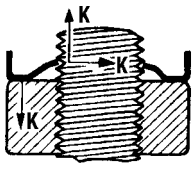
1 = single notch (Not to DIN)

S = across flats or key-width

E = across corner size is obtained by multiplying across flats size or "S" by 1.15

SPRING STEEL
Zinc Chromate Plated





SPAENAUR No.	NOMINAL SCREW SIZES Diameter in mm	SIZES in mm Pitch	S	H	NOTCH DESIGN	UNIT PKG.
177-200	3	0.5	5.5	2.0	1	100
177-202	4	0.7	7.0	2.5	1	100
177-203	5	0.8	8.0	2.5	1	100
177-204	6	1	10.0	3.0	6	100
177-205	7	1	11.0	3.0	6	100
177-206	8	1.25	13.0	3.5	6	100
177-420◆	10	1.25	17.0	4.0	6	100
177-208	12	1.75	19.0	4.5	6	100
177-209	14	2	22.0	5.0	6	100
177-210	16	2	24.0	5.0	6	100
177-421◆	16	2	24.0	5.0	6	100
177-211	18	2.5	27.0	5.5	6	100
177-212	20	2.5	30.0	6.0	6	100
177-213	22	2.5	32.0	6.0	6	100
177-214	24	3	36.0	7.0	6	50
177-215	27	3	41.0	7.0	6	50
177-216	30	3.5	46.0	8.0	6	50
177-217	36	4	55.0	9.0	6	50
177-218	42	4.5	65.0	11.0	6	25
177-219	48	5	75.0	14.0	6	25

◆ Plain Steel

Metric sizes

ASSORTMENT
805-453

Self-Locking Counter Locknuts

Contains 16 sizes - 490 pieces

Thread sizes from M3 to M36 (coarse)

Priced Singly

Inch sizes

ASSORTMENT
805-420

Stamped Spring Steel Locknuts

Contains 24 sizes - 590 pieces

Thread sizes from 6-32 to 3/4"-10 in "Regular" and "Washer" Types

Priced Singly

C

SELF-THREADING LOCKNUTS, - STAMPED STEEL & HARDENED

P.C. 177 Use on Unthreaded Studs. Zinc Plated **INCH SIZES** *Unit Package 100*

ILLUSTRATION	*SPAENAUR No.*	FITS STUD DIA.	DIA. OF FLANGE	SEAL INFO.
	N-52	1/8"	5/16" Hex.	Without Seal
	N-195	5/32"	11/32" Hex.	
	177-055	3/16"	11/32"Hex.	
	N-178	7/32"	7/16" Hex.	
	N-53	1/8"	7/16"	Without Seal
	N-54	1/8"	17/32"	
	▲N-257	5/32"	9/16"	
	N-56	3/16"	1/2"	
	N-57	3/16"	5/8"	
	N-204	1/4"	11/16"	

▲Gold Zinc Dichromate Finish

ILLUSTRATION	*SPAENAUR No.*	FITS STUD DIA.	DIA. OF FLANGE	SEAL INFO.
	N-55	1/8"	17/32"	With Seal
	N-58	3/16"	5/8"	
	†N-75	1/4"	19/32"	Without Seal
	***177-057**	5/16"	3/4"	
	177-056	5/32"	7/16" Hex.	Without Seal

†*Unit Package 50*
*****Black Phosphate Finish

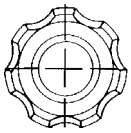
Tools shown on the right are for installation and removal of ear type threading-cutting nuts (eg. shown on left.)

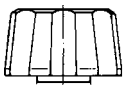
Tools Priced Singly P.C. 876

T-133 Tool to install 1/8" thread-cutting nuts.

T-134 Tool to install 3/16" thread-cutting nuts.

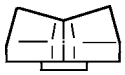
T-135 Tool to remove 1/8" and 3/16" thread-cutting nuts when ears are broken.

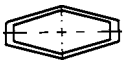


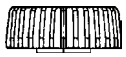


METRIC SIZES
Plastic Nuts with Metal Thread

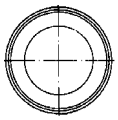
Plastic material Nylon 6/6
Standard Colour: **GREY**







(with Metric Coarse Threaded Brass Inserts)



Type	Effective Thread Length mm	Thread Sizes and *SPAENAUR No's.* M3	M4	M5	M6	M8	O/A Diameter Length mm	Height mm	Unit Pkg.
Wing Nuts	4.5	**210-001**					18	9.7	100
	4.0		**210-002**				18	9.7	100
	7.5			**210-003**			28	15.0	50
	6.0				**210-004**		28	15.0	50
	8.0					**210-005**	33	18.5	50
Thumb Nuts, coarse knurl	4.5	**210-006**					15	9.2	100
	4.0		**210-007**				15	9.2	100
	7.5			**210-008**			22	13.0	50
	6.0				**210-009**		22	13.0	50
	8.0					**210-010**	29	17.5	50
Thumb Nuts, fine knurl	4.5	**210-011**					15	8.5	100
	4.0		**210-012**				15	8.5	100
	7.5						22	11.5	50
	6.0				**210-014**		22	11.5	50
	8.0					**210-015**	28.5	15.0	50

CATALOG 13

Wing Nuts are ideal for applications which require frequent or occasional on-off hand pressure torque or release.

CORROSION-RESISTANT WING NUTS

Available in 3 Materials

Inch Sizes

For Unit Package Quantities, please refer to Price List.

Thread Size	ORDER BY *SPAENAUR* NUMBERS BRASS	18-8 STAINLESS STEEL	ZINC DIE-CAST
5-40 UNC		**214-001**	
6-32 UNC	**WN-502**	**WN-2000**	
8-32 UNC	**WN-503**	**WN-2001**	
10-24 UNC	**WN-504**	**WN-2002**	
10-32 UNF	**WN-510**	**WN-2003**	
12-24 UNC	**WN-505**	**214-111**	
1/4"-20 UNC	**WN-500**	**WN-2004**	
1/4"-28 UNF	**WN-511**		
5/16"-18 UNC	**WN-506**	**WN-2005**	
5/16"-24 UNF	**WN-512**		
3/8"-16 UNC	**WN-507**	**WN-2006**	
3/8"-24 UNF	**WN-513**		
7/16"-14 UNC	**WN-508**	**214-002**	
1/2"-13 UNC	**WN-509**	**WN-2007**	**WN-12**
1/2"-20 UNF	**212-001**		
5/8"-11 UNC	**WN-514**	**214-219**	
3/4"-10 UNC	**WN-515**		
	P.C. 212	P.C. 214	P.C. 213

Inch Sizes

ZINC PLATED

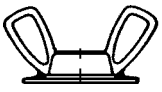
P.C. 211

Stamped Spring Steel Wing Locknuts

SPAENAUR No.	Thread	Pkg. Qty.
WN-16	8-32	100
WN-15	10-24	100
WN-11	1/4"-20	50
WN-17	5/16"-18	100

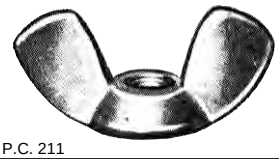
ZINC DIE-CAST WING NUTS

Inch Sizes

SPAENAUR No.	Thread Size	Wing Spread	Base O.D.	Unit Pkg.
LOW WASHER BASE **213-012**	10-24	1-1/32"	15/32"	100
 WASHER BASE **WN-14**	1/4"-20	1"	3/4"	50
WN-300	5/16"-18	1"	3/4"	100

P.C. 213

STEEL WING NUTS



Inch Sizes

Zinc Plated
EXTRA STRONG! (COLD FORGED)

P.C. 211

Thread Size	*SPAENAUR No.*	Wing Spread	Pkg. Qty.
6-32 UNC	**WN-1**	21/32"	50
8-32 UNC	**WN-2**	27/32"	50
10-24 UNC	**WN-3**	27/32"	50
10-32 UNF	**WN-4**	27/32"	50
12-24 UNC	**211-025**	1-1/16"	50
1/4"-20 UNC	**WN-6**	1-1/16"	50
5/16"-18 UNC	**WN-7**	1-7/32"	50
3/8"-16 UNC	**WN-8**	1-13/32"	50
7/16"-14 UNC	**WN-9**	1-13/16"	25
7/16"-20 UNF	**WN-19**	1-13/16"	25
1/2"-13 UNC	**WN-10**	1-7/8"	25
5/8"-11 UNC	**211-001**	2-1/2"	25
3/4"-10 UNC	**211-002**	2-11/16"	25

Plastikit "Plastikit" A-16

Contains...
62 Wing Nuts
9 Inch Sizes

Cold Forged Steel
Zinc Plated

Priced Singly

P.C. 804

STAMPED STEEL
WING NUTS

ZINC PLATED
Style 1 - Type D

Unit Package 100

Inch Sizes		
SPAENAUR No.	Thread Size	Wing Spread
211-020	6-32	3/4"
211-021	8-32	3/4"
211-022	10-32	7/8"
211-018	10-24	7/8"
211-019	1/4"-20	1-1/16"
211-023	5/16"-18	1-1/4"
211-024	3/8"-16	1-3/8"

Plastikit "Plastikit" 804-068

…contains 10 each of the above 7 numbers.

Priced Singly

Size:
1" x 2-3/4" x 4-1/2"

MOULDED NYLON THREADED WING NUTS

CORROSION-RESISTANT - NATURAL COLOUR NYLON 6/6 UL 94V2

●SHOCKPROOF ●NON-MAGNETIC ●VIBRATION-PROOF ●HIGH STRENGTH TO WEIGHT RATIO ●WON'T MAR SOFT SURFACES

PC Nylon Wing Nuts have unique properties which make them superior to metal wing and thumb nuts in many electrical and electronic applications where a hand adjustable fastener is needed along with an electrical insulation requirement to eliminate shock. Also recommended for use under corrosive conditions, because they are highly chemical resistant.

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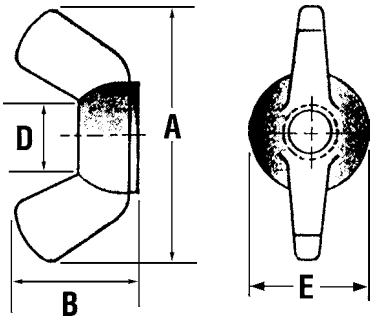


Other uses in product design, repair, and general use in the shop, lab, and factory include:

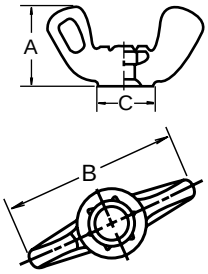
- PLATING EQUIPMENT
- PETRO CHEMICAL PROCESSING EQUIPMENT
- FOOD PROCESSING EQUIPMENT
- BATTERIES
- STERILIZERS
- APPLIANCES
- BUSINESS MACHINES, ETC.

SPAENAUR No.	Dimensions (in inches) THREAD	A	B	D	E	Unit Pkg. Qty.
210-135	4-40	.90	.48	.23	.40	100
210-136	6-32	.90	.48	.23	.40	100
210-137	8-32	.90	.48	.23	.40	100
210-138	10-24	.90	.48	.23	.40	100
210-139		1.10	.63	.30	.56	100
210-140	10-32	.90	.48	.23	.40	100
210-141		1.10	.63	.30	.56	100
210-142	1/4"-20	1.10	.63	.30	.56	100
210-143		1.38	.72	.36	.65	50
210-144	1/4"-28	1.10	.63	.30	.56	100
210-145		1.38	.72	.36	.65	50
210-146	5/16"-18	1.38	.72	.36	.65	50
210-147	3/8"-16	1.38	.72	.36	.65	50
210-148	7/16"-14	1.75	.90	.58	.85	50
210-149	1/2"-13	1.75	.90	.58	.85	50
210-150	9/16"-12	1.75	.90	.58	.85	50

NYLON INSERT WING LOCKNUTS

Unit Package 50

Made of die-cast Zamak alloy to prevent rust. Plain or Zinc Finish (our option). 360° Zytel 101 nylon ring resists vibration, provides minimum of 15 reuses. 3B thread fit assure easy, consistent assembly.



SPAENAUR No.	Thread	A Thickness	B Length	C Bearing Diameter
213-050	8-32 UNC	.500"	1.031"	.375"
213-051	10-24 UNC	.500"	1.031"	.375"
213-052	10-32 UNF	.500"	1.031"	.375"
213-053	1/4"-20 UNC	.594"	1.250"	.438"
213-054	1/4"-28 UNF	.594"	1.250"	.438"
213-055	5/16"-18 UNC	.718"	1.500"	.562"
213-056	3/8"-16 UNC	.718"	1.500"	.562"

METRIC SIZE

WING NUTS

Light Pattern
(American Form)

Metric Regular (Coarse) Thread

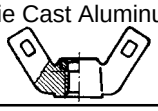
*Height and Width dimensions are for general reference only and may vary.

Thread Size Dia. x Pitch mm	* Width mm	* Height mm	COLD FORGED STEEL Plain	COLD FORGED STEEL Zinc Plated	Unit Pkg. Qty.
M3 x 0.50	18.70	8.60	**211-138**	**211-138ZP**	100
M4 x 0.70	22.50	10.50	**211-139**	**211-139ZP**	100
M5 x 0.80	22.50	10.50	**211-140**	**211-140ZP**	100
M6 x 1.00	27.20	12.20	**211-141**	**211-141ZP**	100
M8 x 1.25	30.00	14.60	**211-142**	**211-142ZP**	50
M10 x 1.50	35.00	16.70	**211-143**	**211-143ZP**	50
M12 x 1.75	47.00	22.30	**211-144**	**211-144ZP**	25

Light Pattern (American Form) continued on facing page.

WING LOCK NUTS
with polyamid inserts

Die Cast Aluminum



Metric Regular (COARSE) Thread

SPAENAUR No.	Thread Dia. x Pitch
213-300	M6 x 1.00
213-301	M10 x 1.50

Unit Package 25

Metric Regular (COARSE) Thread

SPAENAUR No.	Dia. x Pitch
211-150	M4 x 0.70
211-151	M5 x 0.80
211-152	M6 x 1.00
211-153	M8 x 1.25

WING NUTS

Style 1 - Type D

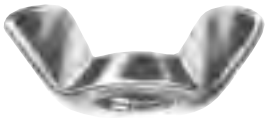
STAMPED STEEL
ZINC PLATED

Unit Package 100

CATALOG 13

More Metric Light Pattern on previous page.

WING NUTS



Light Pattern
(American Form)

Height and Width dimensions on this page, are for general reference only and may vary.

Thread Size Dia. x Pitch mm	* Width mm	* Height mm	MALLEABLE CASTING Plain	MALLEABLE CASTING Zinc Plated	Unit Pkg. Qty.
M3 x 0.50	17.36	8.87	**211-131**	**211-131ZP**	100
M4 x 0.70	19.58	7.93	**211-132**	**211-132ZP**	100
M5 x 0.80	22.12	10.10	**211-133**	**211-133ZP**	100
M6 x 1.00	29.21	12.19	**211-134**	**211-134ZP**	100
M8 x 1.25	29.92	13.00	**211-135**	**211-135ZP**	50
M10 x 1.50	36.80	16.85	**211-136**	—	50
M12 x 1.75	49.80	21.50	**211-137**	—	25

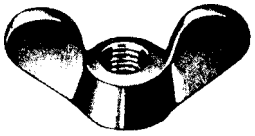
Thread Size Dia. x Pitch mm	* Width mm	* Height mm	STAINLESS STEEL A2 (304)	NYLON 6.6	BRASS Plain	BRASS Nickel Plated	Unit Pkg. Qty.
M3 x 0.50	17.6	8.6	**214-125**	—	—	—	100
M4 x 0.70	17.6	8.6	**214-124**	**210-016**	**212-511**	**212-531**	100
M5 x 0.80	21	10	**214-119**	**210-017**	**212-512**	**212-532**	100
M6 x 1.00	27	13	**214-120**	**210-018**	**212-513**	**212-533**	100
M8 x 1.25	30	15	**214-121**	**210-019**	**212-514**	**212-534**	50
M10 x 1.50	36	22	**214-122**	**210-020**	**212-515**	**212-535**	50
M12 x 1.75	46	24	**214-123**	—	**212-516**	**212-536**	25
M14 x 2.00	61	30	**214-126**	—	—	—	25
M16 x 2.00	64	30	**214-127**	—	—	—	25
M20 x 2.50	—	—	**214-128**	—	—	—	10
M24 x 3.00	—	—	—	—	—	—	10

Style 220

Medium Pattern

▲Zinc Plated with Clear Chromate Finish.

Dia. x Pitch mm	*Width mm	*Height mm	COLD FORGED ▲STEEL	Pkg. Qty.
M4 x 0.70	19	9.5	**211-100**	100
M5 x 0.80	22	11	**211-101**	100
M6 x 1.00	27	14	**211-102**	100
M8 x 1.25	31.5	15	**211-103**	50
M10 x 1.50	37	17.5	**211-104**	50
M12 x 1.75	53	24	**211-105**	50



WING NUTS

Heavy Pattern

DIN 315

Metric
Regular (Coarse) Thread

Thread Size Dia. x Pitch mm	* Width mm	* Height mm	MALLEABLE CASTING Plain	MALLEABLE CASTING Zinc Plated	BRASS Plain	BRASS Nickel Plated	Unit Pkg Qty.	STAINLESS STEEL A4 (316)	Unit Pkg Qty.
M3 x 0.50	20	10	—	**211-121ZP**	**212-500**	**212-520**	100	—	
M4 x 0.70	19	9.5	**211-122**	**211-122ZP**	**212-501**	**212-521**	100	**214-112**	100
M5 x 0.80	25	12	**211-123**	**211-123ZP**	**212-502**	**212-522**	100	**214-113**	100
M6 x 1.00	31.5	16	**211-124**	**211-124ZP**	**212-503**	**212-523**	100	**214-114†**	50
M8 x 1.25	37.5	19	**211-125**	**211-125ZP**	**212-504**	**212-524**	50	**214-115**	50
M10 x 1.50	49.5	24	**211-126**	**211-126ZP**	**212-505**	**212-525**	50	**214-116**	10
M12 x 1.75	63.5	32	**211-127**	**211-127ZP**	**212-506**	**212-526**	25	**214-117**	5
M14 x 2.00	71.5	36	—	**211-120ZP**	**212-508**	—	25	—	
M16 x 2.00	71.5	36	**211-128**	**■211-128ZP**	**212-507**	**212-527**	25	**214-118**	1
M20 x 2.50	88	45	**211-129**	**211-129ZP**	**212-509**	—	20	—	
M24 x 3.00	108	55	**211-130**	**211-130ZP**	**212-510**	—	10	—	

■211-128YZ - YELLOW ZINC †W=30, H=15

WING NUTS

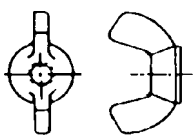
Nylon 6/6

Natural Colour

American Form

All Dimensions in Millimeters

Metric Regular (COARSE) Thread



SPAENAUR No.	Dia. x Pitch	*Width	*Height	Pkg. Qty.
210-021	M4 x 0.70	22.80	12.20	100
210-022	M5 x 0.80	22.80	12.20	100
210-023	M6 x 1.00	28.00	16.00	100
210-024	M8 x 1.25	35.10	18.30	50
210-025	M10 x 1.50	35.10	18.30	50

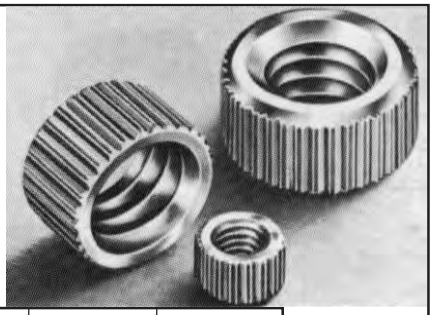
C

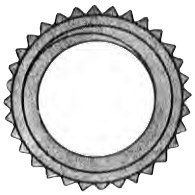
Splined Nuts

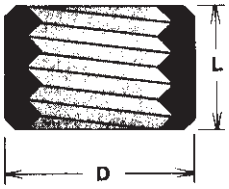
FEATURES

- Threaded with Class 2B tolerances for smooth assembly.
- Splines are free of burrs and slivers for safe handling.

Available in brass and aluminum from stock.







SPAENAUR No. BRASS	SPAENAUR No. ALUMINUM	Thread Size	Diameter D	Length L	UNIT PKG.
145-020	**148-020**	4-40	3/16"	3/32"	100
145-021	**148-021**	4-48			100
145-022	**148-022**	6-32	1/4"	1/8"	100
145-023	**148-023**	6-40			100
145-024	**148-024**	8-32	5/16"	5/32"	100
145-025	**148-025**	8-36			100
145-026	**148-026**	10-24			100
145-027	**148-127**	10-32			100
145-028	—	1/4"-20	3/8"	3/16"	100
145-029	**148-029**	1/4"-28			100

THIN HEXAGON STEEL LOCKNUTS

Zinc Plated

RADIO SIZES - VOL. CONTROL, CHASSIS CONNECTIONS

Inch **Sizes**

SPAENAUR No.	Thread	Width A.F.	Thickness
***157-005**	1/4"-32	5/16"	5/64"
***HN-146B**	1/4"-32	3/8"	3/32"
HN-46	3/8"-24	1/2"	3/32"
HN-47	3/8"-24	9/16"	3/32"
HN-44	3/8"-32	1/2"	3/32"
HN-45	3/8"-32	9/16"	3/32"
HN-22	7/16"-20	5/8"	1/8"
HN-161	7/16"-28	9/16"	3/32"
HN-48	15/32"-32	9/16"	3/32"
HN-162	1/2"-28	5/8"	1/8"
HN-163	1/2"-28	3/4"	1/8"
▲ **155-373**	3/4"-24	7/8"	3/16"

*Brass (Not Plated)
▲ U.P. 10

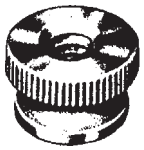
"NPT"

155-006	1/8"-27 NPT	9/16"	1/8"
155-005	1/4"-18 NPT	11/16"	1/8"
155-012	3/8"-18 NPT	7/8"	9/64"

P.C. 155 & 157

Unit Package 100

Unit Package 100



P.C. 145

KNURLED BRASS BATTERY NUTS

SPAENAUR No. Plain	SPAENAUR No. Nickel Plated	Thread	O/A Dia.	O/A Ht.
–	**N-13A**	6-32	11/32"	7/32"
N-14	**N-14A**	8-32	11/32"	7/32"

KNURLED BRASS THUMB NUTS

Plain	Nickel Plated			
145-030	—	6/32	3/8"	1/4"
N-15	**N-15A**	10-32	1/2"	21/64"
N-16	**N-16A**	1/4"-20	5/8"	3/8"
145-001	**145-003**	5/16"-18	45/64"	13/32"

P.C. 148

ROUND KNURLED NUTS

SPAENAUR No.	Material	Thread	O/A Dia.	O/A Ht.
N-3016	ALUMINUM	3/8"-24	17/32"	7/32"

Unit Package 100

ROUND KNURLED BRASS LOCKNUTS

PRECISION MILLED NUTS - FREE FROM BURRS
POPULAR SIZES FOR VOLUME CONTROLS - SWITCHES, ETC.

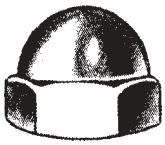
NICKEL PLATED
(*Plain)
Unit Package 100

P.C. 145

SPAENAUR No.	Thread	DIMENSIONS Diameter	DIMENSIONS Thickness
N-197B	1/4"-32	3/8"	1/16"
N-196B	1/4"-40	11/32"	1/16"
***145-004**	3/8"-24	1/2"	1/8"
N-198B	3/8"-32	1/2"	3/32"
N-199B	3/8"-32	9/16"	1/16"
N-200B	15/32"-32	9/16"	1/16"
N-201B	15/32"-32	9/16"	5/64"

CATALOG 13

Moulded NYLON CAP NUTS



(ACORN, DOME, OR CROWN NUTS)

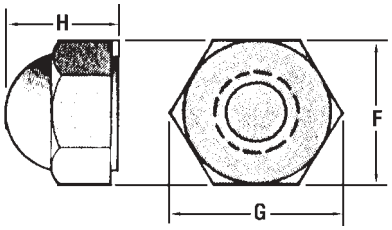
Closed-end style

Type 6/6 UL94V2

CORROSION-RESISTANT

INCH SIZES

Preferred for use on ceramic, glass, enamel, and irregular surfaces.



NATURAL COLOUR

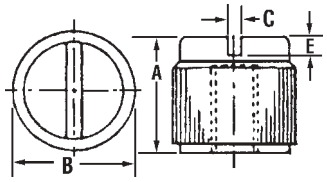
SPAENAUR No.	THREAD	Dimensions F	G	H	Unit Pkg.
210-101	4-40	.250"	.275"	.280"	100
210-102	6-32	.305"	.350"	.325"	100
210-103	8-32	.330"	.385"	.375"	100
210-104	10-24	.365"	.420"	.400"	100
210-105	10-32	.365"	.420"	.400"	100
210-106	1/4"-20	.425"	.510"	.475"	100
210-107	5/16"-18	.500"	.575"	.530"	100
210-108	3/8"-16	.560"	.630"	.620"	100
210-109	1/2"-13	.750"	.860"	.810"	50
210-110	5/8"-11	.925"	1.050"	1.000"	50

SLOTTED THUMB NUTS

INCH SIZES

NYLON 6/6

NATURAL COLOUR



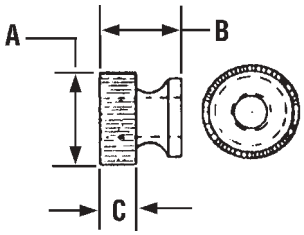
SPAENAUR No.	THREAD	Dimensions A	B	C	E	Unit Pkg.
210-115	4-40	.280"	.317"	.039"	.045"	100
210-116	6-32	.334"	.348"	.044"	.051"	100
210-117	8-32	.378"	.381"	.049"	.059"	100
210-118	10-24	.357"	.412"	.056"	.068"	100
210-119	10-32	.357"	.412"	.056"	.068"	100
210-120	1/4"-20	.370"	.478"	.070"	.088"	100

KNURLED THUMB NUTS

INCH SIZES

NYLON 6/6

NATURAL COLOUR



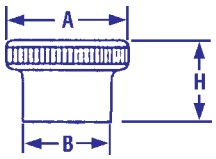
SPAENAUR No.	THREAD	Dimensions A	B	C	Unit Pkg.
210-125	4-40	.300"	.280"	.120"	100
210-126	6-32	.360"	.275"	.125"	100
210-127	8-32	.425"	.305"	.140"	100
210-128	10-24	.425"	.325"	.140"	100
210-129	10-32	.425"	.325"	.140"	100
210-130	1/4"-20	.540"	.365"	.155"	100

METRIC - KNURLED NUTS

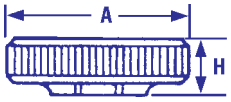
Open End Style

All items furnished in Metric Regular COARSE Thread only.

Styles



DIN 466

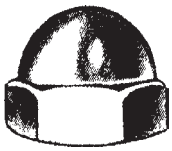


DIN 467

Style	Dia.	Pitch	DIMENSIONS (Max.) (in mm) H	A	B	*SPAENAUR* NUMBERS STEEL N.P.	BRASS	STAINLESS STEEL A2 (304)	UNIT PKG.
Knurled NUTS	**M3**	0.50	7.5	12	5.85		**149-040**		100
	M4	0.70	9.5	16	7.8		**149-041**		100
	M5	0.80	11.5	20	9.8		**149-042**		50
	M6	1.00	15.0	24	11.75		**149-043**		50
FLAT Knurled NUTS	**M3**	0.50	3.0	12			**149-050**		100
	M4	0.70	4.0	16			**149-051**		100
	M5	0.80	5.0	20			**149-052**		50
	M6	1.00	6.0	24			**149-053**		50

C

INCH SIZES **CHOICE OF 5 METALS**



CAP NUTS

(ACORN, DOME, OR CROWN NUTS)

Closed-end style

For Unit Package Quantities see our Price List

	STEEL Nickel Plated			BRASS Plain			BRASS Nickel Plated			18-8 STAINLESS STEEL			ALUMINUM			ZINC ALLOY Plain Finish		
UNC & UNF THREAD	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW																	
	SPAENAUR No.	Width A/F	Thick-ness	*SPAENAUR No.*	Width A/F	Thick-ness	*SPAENAUR No.*	Width A/F	Thick-ness	*SPAENAUR No.*	Width A/F	Thick-ness	*SPAENAUR No.*	Width A/F	Thick-ness	*SPAENAUR No.*	Width A/F	Thick-ness
4-36				**145-002**	1/4	1/4	**HN-528**	1/4	1/4									
4-40 UNC										**N-2000**	1/4	1/4				■**144-001**	1/4	1/4
4-40 UNC										**147-003**	9/32	1/4						
6-32 UNC	**N-277**	5/16	9/32	**B-928B**	5/16	9/32	**B-928**	5/16	9/32	•**N-2001**	5/16	9/32	**N-3001**	1/4	1/4	■**144-002**	5/16	9/32
8-32 UNC	**N-278**	5/16	9/32	**B-929B**	5/16	9/32	**B-929**	5/16	9/32	**N-2002**	5/16	5/16	**N-3002**	5/16	9/32	■**144-003**	5/16	9/32
10-24 UNC	**N-279**	3/8	11/32	**B-930B**	3/8	11/32	**B-930**	3/8	11/32	**147-007**	3/8	25/64	**N-3003**	3/8	11/32	■**144-004**	3/8	11/32
10-24 UNC																**144-012**	3/8	11/32
10-32 UNF	**N-280**	3/8	11/32	**145-010**	3/8	11/32	**1853**	3/8	11/32	**N-2004**	3/8	25/64	**N-3009**	3/8	11/32	**144-005**	3/8	11/32
12-24 UNC										**N-2005**	3/8	13/32						
1/4-20 UNC	**N-281**	7/16	3/8	**B-931B**	7/16	3/8	**B-931**	7/16	3/8	**147-004**	7/16	15/32	**N-3005**	7/16	3/8	■**144-006**	3/8	11/32
1/4-20 UNC																***N-85**	3/8	11/32
1/4-28 UNF	**N-282**	7/16	15/32	**B-932B**	7/16	3/8	**B-932**	7/16	3/8	**N-2007**	7/16	15/32						
5/16-18 UNC	**N-283**	9/16	7/16	**B-933B**	9/16	7/16	**B-933**	9/16	7/16	**N-2008**	9/16	17/32	**N-3006**	9/16	7/16	**144-007**	7/16	3/8
5/16-18 UNC																**144-011**	9/16	7/16
5/16-24 UNF	**N-284**▲	9/16	7/16	**B-934B**	9/16	7/16	**B-934**	9/16	7/16	**147-002**	9/16	17/32						
3/8-16 UNC	**N-285**	5/8	1/2	**B-935B**	5/8	1/2	**B-935**	5/8	1/2	**N-2010**	5/8	5/8	**N-3007**	5/8	1/2	■**144-008**	9/16	7/16
3/8-16 UNC																**144-013**	9/16	7/16
3/8-24 UNF	**N-286**	5/8	1/2	**B-936B**	5/8	1/2	**B-936**	5/8	1/2	**147-001**	5/8	5/8						
7/16-14 UNC	**146-001**	5/8	7/8	**145-011**	5/8	11/16	†**145-012**	5/8	11/16							**144-009**	5/8	1/2
1/2-13 UNC	**N-287**	3/4	9/16	**B-938B**	3/4	9/16	**B-938**	3/4	9/16	**N-2012**	3/4	13/16	**N-3008**	3/4	9/16			
1/2-20 UNF				**B-939B**	3/4	9/16	**B-939**	3/4	9/16									
5/8-11 UNC				**B-940B**	15/16	7/8	**B-940**	15/16	7/8	**N-2014**	1	63/64						
5/8-11 UNC				**145-013**	1	3/4												
3/4-10 UNC	**146-002**▲	1-1/16	1-5/32	**B-941B**	1-1/16	7/8	**B-941**	1-1/8	1-1/16	**N-2015**	1-1/16	1-3/16						
	P.C. 146			P.C. 145			P.C. 145			P.C. 147			P.C. 148			P.C. 144		

▲Zinc Plated

•**147-006** same as N-2001 except 11/32" thickness.

†**B937** same as 145-012 except 19/32" thickness.

*Washer-Base Style with O.D. 11/16"

■ Nickel Plated until stock is depleted, then Plain Finish will be supplied.

For Stamped Spring Steel LOCKNUTS see page C53.

Have a question?

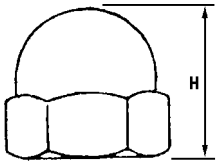
Call (800) 265-8772 or (519) 744-3521.

METRIC - CAP and DOMED NUTS

HEX DOME NUTS

DIN 1587

Metric Regular COARSE Thread



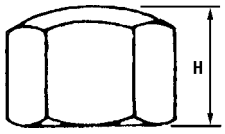
***M3 Dia. *Spaenaur No's.* are not to DIN.**

Dia.	DIMENSIONS (in mm) Pitch	H	Across Flats	STEEL Plain	STEEL Nickel Plated	STEEL Zinc Plated	BRASS Plain	BRASS Nickel Plated	A2 (304) STAINLESS STEEL	ALUMINUM	NYLON P.A. 6.6	Unit Pkg.
M3*	0.50	6.0	5.5			**150-028ZP**	**149-023**				**210-027**	100
M4	0.70	8.0	7.0	**150-020**	**150-020NP**	**150-020ZP**	**149-020**	**149-020NP**	**151-020**	**152-020**	**210-028**	100
M5	0.80	10.0	8.0	**150-021**	**150-021NP**	**150-021ZP**	**149-021**	**149-021NP**	**151-021**	**152-021**	**210-029**	100
M6	1.00	12.0	10.0	**150-022**	**150-022NP**	**150-022ZP**	**149-022**	**149-022NP**	**151-022**	**152-022**	**210-030**	100
M8	1.25	15.0	13.0	**150-024**	**150-024NP**	**150-024ZP**	**149-024**	**149-024NP**	**151-024**	**152-023**	**210-031**	50
M10	1.50	18.0	16.0	**150-025**	**150-025NP**	**150-025ZP**	**149-025**	**149-025NP**	**151-012**		**210-032**	50
M12	1.75	22.0	18.0	**150-023**		**150-023ZP**	**149-026**				**210-033**	25
M16	2.00	28.0	24.0			**150-029ZP**	**149-027**					10
M20	2.50	34.0	30.0	**150-026**		**150-026ZP**	**149-028**					10
M24	3.00	42.0	36.0	**150-027**		**150-027ZP**	**149-029**					10

Low Profile HEX CAP NUTS

DIN 917

Metric Regular COARSE Thread



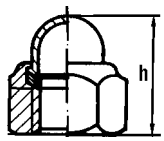
Dia.	DIMENSIONS (in mm) Pitch	H	Across Flats	STEEL Plain	STEEL Nickel Plated	BRASS Nickel Plated	A2 (304) STAINLESS STEEL	ALUMINUM	UNIT PKG.
M3	0.50	5.0	5.5	**150-008**			**151-004**		100
M4	0.70	5.5	7.0	**150-001**	**150-001NP**	**149-001**	**151-001**	**152-001**	100
M5	0.80	7.0	8.0	**150-002**	**150-002NP**	**149-002**	**151-002**	**152-002**	100
M6	1.00	9.0	10.0	**150-003**	**150-003NP**	**149-003**	**151-003**	**152-003**	100
M8	1.25	12.0	13.0	**150-005**	**150-005NP**	**149-005**	**151-005**	**152-004**	50
M10	1.50	14.0	16.0	**150-006**	**150-006NP**	**149-006**	**151-006**		50
M12	1.75	16.0	18.0	**150-007**	**150-007NP**		**151-007**		25
M14	2.00	18.0	21.0	**150-009**			**151-008**		10
M16	2.00	20.0	24.0	**150-010**			**151-009**		10
M20	2.50	25.0	30.0	**150-011**			**151-010**		10
M24	3.00	30.0	36.0	**150-012**					10

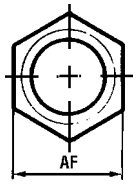
DOMED HEX CAP NUT

~ DIN 986

Property Class 6 Steel with Nylon Insert

Metric Regular COARSE Thread

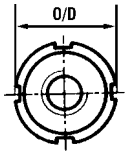


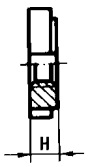


Dia.	Dimensions (in mm) Pitch	H	Across Flats	STEEL Zinc Plated	STEEL Nickel Plated	Unit Pkg.
M4	0.70	9.6	7.0	**178-370**		100
M5	0.80	10.5	8.0	**178-371**	**178-371NP**	100
M6	1.00	12.0	10.0	**178-372**		100
M8	1.25	14.0	13.0	**178-373**		50
M10	1.50	18.1	16.0	**178-374**		50
M12	1.75	22.5	18.0	**178-375**		25
M14	2.00	26.4	21.0	**178-376**		10
M16	2.00	27.5	24.0	**178-377**		10
M20	2.50	35.0	30.0	**178-378**		10

Slotted Round Locknuts

DIN 1804





Metric Fine Thread

Dia.	Dimensions (in mm) Pitch	H	O/D	STEEL Plain	Unit Pkg.
M16	1.00	7.0	32.0	**178-045**	50
M30	1.50	10.0	50.0	**178-046**	25
M35	1.50	11.0	55.0	**178-057**	10
M40	1.50	12.0	62.0	**178-052**	10
M42	1.50	12.0	62.0	**178-047**	10

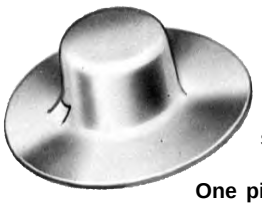
C

Push-on Fasteners

INCH SIZES

- Easy, speedy assembly.
- Rugged holding power.
- Sturdy construction - will not dent or deform.
- Always assembles in line - will not cock or misalign.
- Push or hammer on.

▲Mechanical Zinc Plated



Style PW

WASHER CAP TYPE

Steel - Zinc Electroplate and Bright Chromate Finish

High quality, heat-treated

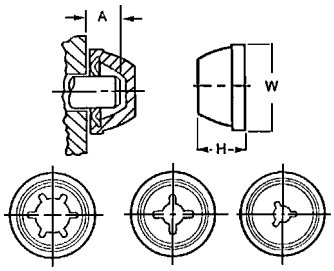
One piece cap fasteners for unthreaded rod or stud ends. Provides big savings - better assemblies. Push on or tap with hammer...it's assembled! No threading, notching, or drilling for cotter pins! Used as hubcaps on small wheeled goods, as hinge pin fasteners, machinery rods and pivots, etc.

SPAENAUR No.	*Stud Dia.	Washer Dia.	Cap Dia.	Height	Push-on Force	Min. Holding Strength	Pkg. Qty.
CRP-45	3/16"(.188)	1/2"	.220"	.202"	30 lbs.	220 lbs.	100
CRP-46	1/4" (.250)	9/16"	.289"	.205"	65 lbs.	360 lbs.	100
CRP-47	5/16"(.312)	5/8"	.358"	.236"	90 lbs.	460 lbs.	100
CRP-48	3/8" (.375)	11/16"	.419"	.234"	70 lbs.	380 lbs.	100
CRP-49	3/8" (.375)	3/4"	.431"	.270"	90 lbs.	700 lbs.	100
▲CRP-50	7/16"(.438)	7/8"	.504"	.328"	150 lbs.	960 lbs.	100
CRP-51	1/2"(.500)	15/16"	.567"	.328"	150 lbs.	800 lbs.	100
▲076-002	5/8"(.625)	1-3/16"	.693"	.413"	230 lbs.	1500 lbs.	100

*Recommended diameter tolerance of stud is +.002" and -.003". Surface hardness of stud must not exceed Rockwell 30T-78. Nickel-chrome plating or other hard finishes not recommended on steel studs.

Cap Type Push-on Fasteners

- Caps self-align on shafts
- Low push-on force, high retention
- Fast installation



Design 1 Design 2 Design 3

BLACK HIGH DENSITY POLYETHYLENE CAPS with SPRING STEEL INSERTS

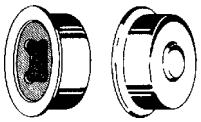
	DIMENSIONS IN INCHES							PERFORMANCE In Pounds	
SPAENAUR No.	Stud, Rod, or Wire Shaft Dia.	Cap Out-side Dia. W	Height O.A. H	Min. Shaft Ext. A	Max. Cap Pene-tration B	Steel Thick-ness	Max. Tooth Design	Min. Push-on Force	Holding Strength
076-011	5/32	.656	.344	.150	.250	.012	3	30	200
076-021*	5/16	.835	.440	.175	.350	.015	1	60	700
076-017	7/16	.835	.440	.175	.350	.015	1	110	700
076-018*	3/8	1.300	.645	.200	.525	.018	1	85	1200
076-020	5/8	1.300	.645	.200	.525	.018	1	90	1200

* White Plastic Caps

Unit Package Quantity 100

DECORATIVE HUB CAP FASTENERS

Hammer Style

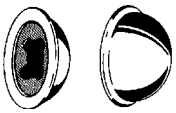


CRP-3
Light Action, for 1/4" Stud, Steel - Nickel Pltd.
5/8" O.D. x 5/16" Height - *U.P.Q. 50*

CRP-5
Light Action, for 3/8" Stud, Steel - Nickel Pltd.
7/8" O.D. x 25/64" Height - *U.P.Q. 50*

CRP-13
Hard Action, for 1/2" Stud, Steel - Nickel Pltd.
7/8" O.D. x 25/64" Height - *U.P.Q. 50*

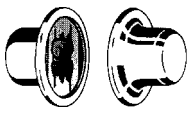
Dome Style



CRP-25
Light Action, for 1/4" Stud, Steel - Nickel Pltd.
5/8" O.D. x 5/16" Height - *U.P.Q. 50*

CRP-26
Light Action, for 5/16" Stud, Steel - Nickel Pltd.
5/8" O.D. x 5/16" Height - *U.P.Q. 50*

High Dome Style



CRP-56
Light Action, for 1/2" Stud, Aluminum Cap with Steel Retention Ring.
55/64" O.D. x 7/16" Height

U.P.Q. 100

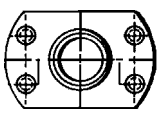
For Tinnerman® Cap Type Push-on Fasteners see page C131.

T-NUTS

PLAIN STEEL

FINE (UNF) AND COARSE (UNC) THREADS

SPAENAUR No.	THREAD SIZE	BASE SIZE	APPROX. BARREL LENGTH	BARREL DIA.	ADDITIONAL DATA	UNIT PKG. QTY.
Round Base						
794	10-24	3/4" Dia.	9/32"	.232/.227"	ROUND BASE with 3 Rivet Holes and 3 Bosses	50
N-276	1/4"-20	3/4" Dia.	9/16"	.311/.306"		100
2261	5/16"-18	7/8" Dia.	3/8"	.395/.370"		100
1471	5/16"-24	7/8" Dia.	3/8"	.400/.395"		50
Round Base						
N-179	1/4"-20	3/4" Dia.	5/16"	.311/.306"	ROUND BASE with 3 Rivet Holes	100
2262	3/8"-16	1" Dia.	7/16"	.471/.466"		100
2262ZP	3/8"-16	1" Dia.	7/16"	.471/.466"		100
Round Base						
191-087	10-24	3/4" Dia.	9/32"	.245/.240"	ROUND BASE with 3 Bosses on Barrel Side	100
191-088	1/4"-20	3/4" Dia.	5/16"	.311/.306"		50
N-74	1/4"-20	3/4" Dia.	9/16"	5/16"		50
191-028	5/16"-18	7/8" Dia.	3/8"	.390"		100
N-59	3/8"-24	1" Dia.	7/16"	13/32"		50
N-291	3/8"-16	1" Dia.	7/16"	.471/.466"		100
Round Base						
191-026	4-40	3/8" Dia.	7/64"	.130"	3 Prongs	100
N-22	6-32	9/16" Dia.	1/4"	.164/.157"	3 Prongs	100
191-024	8-32	15 mm	6.3 mm	5.6 mm	3 Prongs	100
N-17	8-32	3/4" Dia.	1/4"	.213/.208"	3 Prongs	100
Straight or Curved Prongs (our option)						
N-23	10-24	3/4" Dia.	9/32"	.232/.227"	3 Prongs	100
191-022	10-24	3/4" Dia.	3/16"	.243"	3 Prongs	100
191-293	10-24	1/2" Dia.	13/32"	.255/.235"	3 Prongs	100
191-292	10-24	23/32" Dia.	7/16"	.243"	3 Prongs	100
191-025	10-32	18 mm	7.9 mm	6.5 mm	3 Prongs	100
N-18	10-32	3/4" Dia.	9/32"	.243"	3 Prongs	100
191-329					3 Prongs	100
191-297	1/4"-20	3/4" Dia.	9/32"	.318/.312"	3 Prongs	100
N-20	1/4"-20	3/4" Dia.	5/16"	.311/.306"	4 Prongs	100
191-298	5/16"-18	7/8" Dia.	3/8"	.378/.373"	3 Prongs	100
191-299	5/16"-18	7/8" Dia.	1/2"	.392/.387"	4 Prongs	100
191-300	3/8"-16	1" Dia.	7/16"	.471/.466"	4 Prongs	100
Round Base						
N-254	8-32	9/16" Dia.	3/8"	.213/.208"	3 Prongs	100
191-011	10-24	45/64" Dia.	5/16"	.243"	3 Prongs	100
191-005	10-32	9/16" Dia.	3/8"	.235/.225"	3 Prongs	100
Curved Prongs						
N-227	1/4"-20	3/4" Dia.	9/16"	.311/.306"	3 Prongs	100
N-21	5/16"-18	7/8" Dia.	3/8"	.391/.386"	4 Prongs	100
N-184	3/8"-16	1" Dia.	7/16"	.471/.466"	6 Prongs	100
Rectangular Base						
191-020	10-32	1/2" x 3/4"	5/16"	.243"	RECTANGULAR BASE with 2 Rivet Holes	100
191-021	5/16"-18	9/16" x 7/8"	3/8"	.390"		100
N-86	5/16"-18	1/2" x 1-1/4"	7/8"	.375"		100
Slabbed Base (with 2 rivet holes)						
N-258	10-24	1/2" x 3/4"	9/32"	.232/.227"	2 Holes	100
N-269	10-32	1/2" x 3/4"	9/32"	.245/.227"	No Holes	100
***1470**	1/4"-20	1/2" x 3/4"	5/16"	.312/.292"	4 Bosses	50
191-003	1/4"-20	1/2" x 3/4"	5/16"	.312/.292"	2 Holes	100



Rivet Hole Sizes : Up to 1/4" Thread Size — .098"
3/8" and Up Thread Size — .145"

*Note: No. 1470 has 4 welding bosses on base, protruding out opposite side to barrel (no holes).

C

CATALOG 13

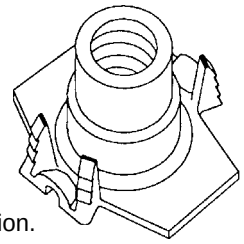
C

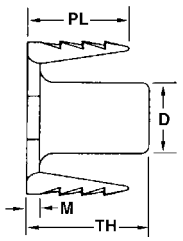
T-Nuts
Plain Steel

4 Serrated Prongs

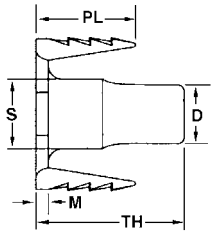
Stepped Barrel T-Nuts

Plain or Zinc Plated - our option.

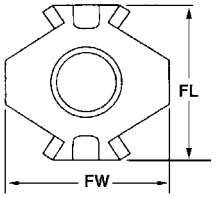




Side View



Side View (Stepped Barrel)



Bottom View

Inch Sizes

Small Base

Large Base

SPAENAUR No.	Thread Size	Dimensions in Inches TH total height	D barrel dia.	S step dia.	PL prong length	FW x FL flange dimensions	M material thickness	Unit Pkg. Qty.
191-029	8-32 x 3/16	.236	.225	—	.210	.640 x .625	.043	100
191-030	8-32 x 5/16	.355	.225	.270	.270	.640 x .625	.043	100
***191-031**	8-32 x 7/16	.485	.225	.290	.300	.700 x .625	.043	100
191-032	10-24 x 5/16	.355	.245	—	.300	.700 x .625	.043	100
191-033	10-24 x 7/16	.485	.245	.290	.300	.700 x .625	.043	100
191-041	10-32 x 7/16	.450	.260	—	.313	.690 x .630	.047	100
191-009	1/4-20 x 5/16	.355	.305	—	.300	.700 x .625	.047	100
191-035	1/4-20 x 1/4	.300	.320	—	.250	.885 x .830	.057	100
191-036	1/4-20 x 3/8	.435	.320	—	.400	.885 x .830	.057	100
191-037	1/4-20 x 7/16	.500	.320	.360	.400	.885 x .830	.057	100
191-038	5/16-18 x 3/8	.490	.385	—	.400	.885 x .830	.057	100
191-039	5/16-18 x 5/8	.650	.385	.430	.415	.885 x .830	.057	100
191-040	3/8-16 x 3/8	.490	.440	—	.400	.885 x 830	.057	100

***** Yellow Zinc Plated

Metric Sizes

Small Base

Large Base

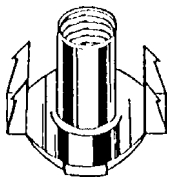
SPAENAUR No.	Thread Size Dia. x Pitch x TH	Dimensions in Inches TH total height	D barrel dia.	S step Dia.	PL prong length	FW x FL flange dimensions	M material thickness	Unit Pkg. Qty.
191-318	M4 x 0.7 x 6 mm	.236	.220	—	.210	.670 x .625	.043	100
191-319	M4 x 0.7 x 10 mm	.390	.220	.290	.300	.700 x .625	.043	100
191-320	M5 x 0.8 x 6 mm	.236	.250	—	.210	.670 x .625	.043	100
191-321	M5 x 0.8 x 10 mm	.395	.250	—	.300	.700 x .625	.043	100
191-322	M6 x 1.0 x 6 mm	.236	.305	—	.210	.670 x .625	.047	100
191-323	M6 x 1.0 x 10 mm	.390	.320	—	.350	.885 x .830	.057	100
191-324	M6 x 1.0 x 12 mm	.490	.320	—	.400	.885 x .830	.057	100
191-325	M8 x 1.25 x 10 mm	.393	.385	—	.344	.800 x .830	.057	100
191-326	M8 x 1.25 x 12 mm	.490	.385	—	.400	.885 x .830	.057	100
191-327	M8 x 1.25 x 17 mm	.650	.385	.430	.415	.885 x .830	.057	100
191-328	M10 x 1.5 x 12 mm	.490	.460	—	.400	.885 x .830	.057	100

191-023

STEEL - Plain Finish

10-24 UNC
4-Prong T-NUT

Barrel O/D ..... .243"
Barrel Length ..... 9/32"
Base Size ..... 11/16" X 45/64"



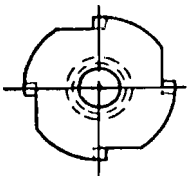
Unit Package 100

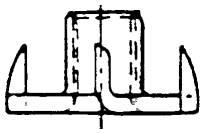
For more Inch and Metric T-Nuts see page C63, C65,C66 and C67.

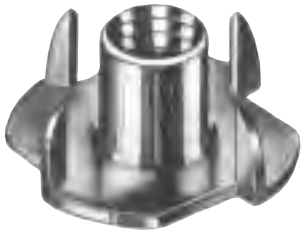
CATALOG 13

T-Nuts
18-8 Stainless Steel

Round Base
4 Straight Prongs

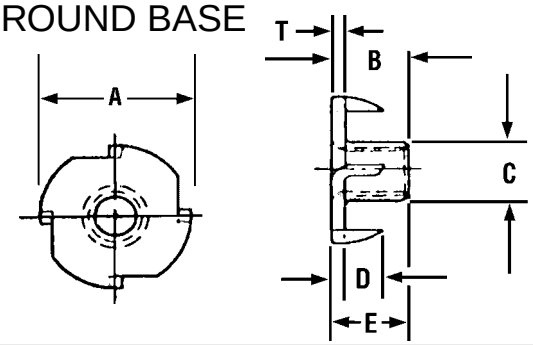






SPAENAUR No.	Thread Size	Base Size (Dia.)	Barrel Length	Barrel Dia.	Pkg. Qty.
191-800	1/4"-20 UNC	3/4"	5/16"	.306"-.311"	50
191-801	1/4"-20 UNC	3/4"	3/8"	.306"-.311"	50
191-802	1/4"-20 UNC	3/4"	7/16"	.306"-.311"	50
191-803	1/4"-20 UNC	3/4"	1/2"	.306"-.311"	50
191-804	5/16"-18 UNC	7/8"	3/8"	.386"-.391"	25
191-805	5/16"-18 UNC	7/8"	1/2"	.386"-.391"	25
191-806	3/8"-16 UNC	1"	7/16"	.466"-.471"	25

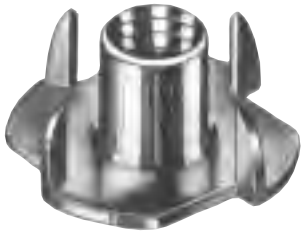
ROUND BASE



Plain Steel

GRADE 1010

Metric T-Nuts



Metric Regular COARSE Thread

SPAENAUR No.	Thread Dia.	Pitch	No. of Prongs	Nominal Dimensions - in Millimetres						Drill Size mm	Unit Package Quantity
				A	B	C	D	E	T		
191-309	M4	0.70	4	15	4.5	5.6	4.0	5.7	1.2	5.8	100
191-301	M4	0.70	4	15	6.8	5.6	4.0	8.0	1.2	5.8	100
191-310	M5	0.80	4	17	4.5	6.5	3.3	5.7	1.2	6.7	100
▲191-302	M5	0.80	4	18	4.6	6.5	5.0	5.8	1.2	6.7	100
191-311	M5	0.80	4	17	6.8	6.5	5.0	8.0	1.2	6.7	100
191-303	M5	0.80	4	18	7.8	6.5	5.0	9.0	1.2	6.7	100
191-313	M5	0.80	3	17	11.3	6.0	5.2	12.3	1.0	6.2	100
191-304	M6	1.00	4	19	7.8	7.6	6.0	9.0	1.2	7.8	100
191-306	M8	1.25	4	22.2	9.4	9.9	7.0	11.0	1.6	10.25	100
191-317	M8	1.25	6	22.2	9.4	9.9	7.0	11.0	1.6	10.25	100
191-307	M8	1.25	4	22.2	15.9	9.9	7.9	17.5	1.6	10.25	100
191-308	M10	1.50	4	25.5	11.2	11.6	7.7	13.0	1.8	11.9	100

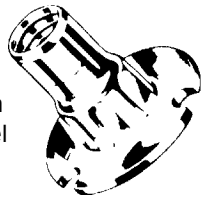
▲191-302ZP Zinc Plated

C

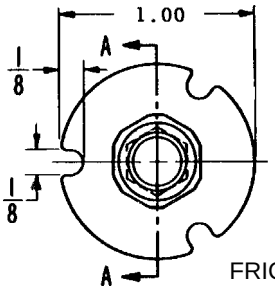
For Pallets or Crates

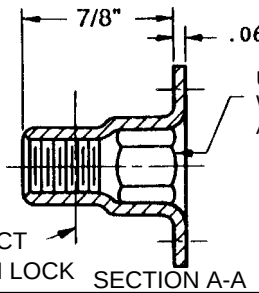
T-NUT
N-259
5/16"-18

Plain Steel

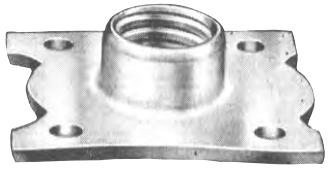


UNIT PACKAGE 100





P.C. 191



UNIT PACKAGE 100

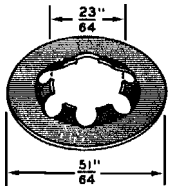
191-001
Plate Type T-Nut
Plain Steel
Thread: 1/2"-13
UNC-2B
Plate: 1-11/32" x 1-1/2"
4 Holes: 5/32" dia.

Solid Zinc

BARB-T-NUTS **191-100** (1/4"-20)
N-88 (5/16"-18)

Grips like a fish-hook when driven into 3/8" hole in wood with a single hammer blow. Locks securely. Cannot twist or turn. Proved greater holding power in various woods used in furniture framing.

UNIT PACKAGE 100 *(One number only)*



W-199ZP RATCHET WASHER
(Retainer Plate)
Steel — Zinc Plated
(See Page C60 for Capped Style)
UNIT PACKAGE 100

P.C. 671

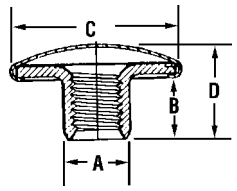
Looking for a product not listed?

Call us at (800) 265-8772.

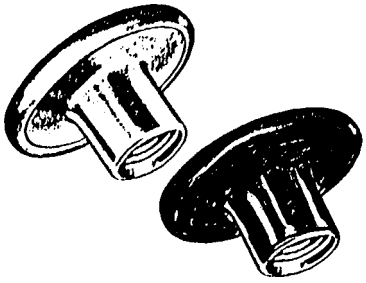
SPAENAUR

CATALOG 13

CAPPED and SOLID ONE PIECE T-NUTS



Round Base



Capped and Solid Teenut fasteners are bushings with internal threads and a substantial base, combining the functions of a nut and washer. They offer many design advantages, and frequently cut weight, labour, and cost.

P.C. 191, 192

SPAENAUR No.	SIZE	Material & Finish	A Barrel O.D.	B Barrel Lgth.	C Head O.D.	D Height O.A.	Unit Pkg. Qty.
N-255 (Solid)	8-32	Brass, Nickel Plated	13/64"	9/32"	33/64"	13/32"	100
N-80 (Solid)	10-32	Brass Nickel Plated	1/4"	1/4"	17/32"	3/8"	100
N-207NP (Capped)	1/4"-20	Steel, Nickel Plated	5/16"	7/32"	1/2"	21/64"	100
N-207ZP (Capped)	1/4"-20	Steel, Zinc Plated	5/16"	7/32"	1/2"	21/64"	100

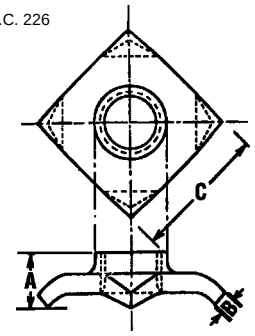
C

SELF-GRIPPING - SELF-LOCKING

P-M NUTS

Soft Steel Zinc Plated

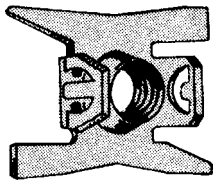
P.C. 226



Unit Package 100

SPAENAUR No.	THREAD SIZE	DIMENSIONS A	B	C
N-271	8-32	7/64"	.032"	5/16"
N-272	10-24	1/8"	.032"	3/8"
N-273	10-32	9/64"	.038"	3/8"
N-275	1/4"-28	3/16"	.058"	7/16"

ELIMINATES LOCKWASHERS, ELIMINATES WRENCHES, SELF-LOCKING, SELF-GRIPPING, LOWER COSTS, REUSABLE, SPEEDS ASSEMBLY, HIGH TENSILE STRENGTH, CUT THREADS, FITS INTO LIMITED SPACE.



191-010

SNAP-IN® T-NUT

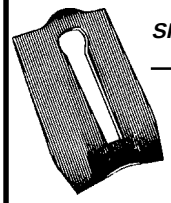
5/16"-18 Thread

Steel - Zinc Plated

Unit Package 100

Snaps into a rectangular hole
.400/.410" x .687/.693" in .062/.030" material
(17.46 mm x 10.32 mm in 1.57/0.76 mm material)
Used as a retainer for appliance, levelling legs.

"ZIP NUTS" **Stamped Steel**



SPAENAUR No.	Size
SF-2	1/16" Stud
SF-3	3/32" Stud or No. 4 Screw
SF-4	1/8" Stud or No. 6 Screw
SF-6	3/16" Stud or No. 10 Screw

Unit Package 100

P.C. 226

CAMTAINER® T-NUTS with TORX ® Recess

Grade 5.1 Steel **Cadmium Plated & Clear Chromate Finish**

SPAENAUR No.	Size and Lgth. Under Head	Head Diameter	Recess Size	Barrel O.D.
191-103	5/16"-18 x 1/2"	5/8"	T-50	25/64"
191-102	5/16"-18 x 1/2"	1"	T-55	25/64"

191-103

191-102

UNIT PACKAGE 25

CATALOG 13

C

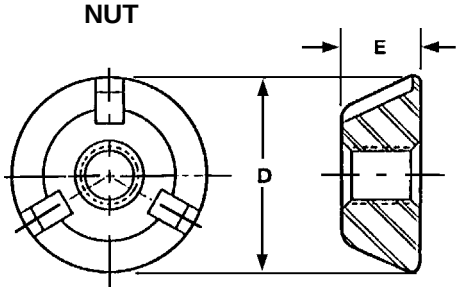
"Tampruf™" Nuts

Case-hardened STEEL - Cad. or Zinc Plated - our option

See Page B124 for "TAMPRUF™" SCREWS

NUT

BIT
Priced Singly



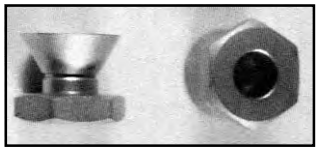
SPAENAUR No.	Thread Size	Max. Dia. "D"	Nominal Hght. "E"	Unit Pkg.	Takes Bit No.	Driver Handle No.
226-300	6-32	.406"	.160"	100	**876-788**	**876-536**
226-301	8-32			100		
226-302	10-24	.661"	.250"	100	**876-543**	Use 3/8" Square Socket Wrench
226-303	10-32			100		
226-304	1/4"-20			100		
226-305	5/16"-18	.864"	.345"	100	**876-545**	
226-306	3/8"-16			100		

Priced Singly

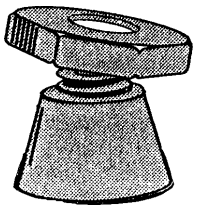
No. 876-536 DRIVER HANDLE ONLY (without Bit)

Break Away Nuts

Aluminum 2024-4 Alloy



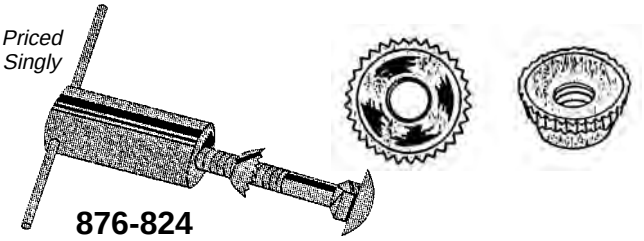
Head Shears Off



SPAENAUR No.	Thread Size	Pkg. Qty.
226-352	10-24 UNC	50
226-353	1/4"-20 UNC	50
226-354	5/16"-18 UNC	50
226-355	3/8"-16 UNC	25
226-356*	1/2"-13 UNC	25

*Zinc Die Cast, Plain Finish

Priced Singly



876-824
Wrench Tool for Tamper Proof Nuts

Tamper Proof Nuts

Aluminum

SPAENAUR No.	Thread Size	Max. Dia.	Nominal Height	Unit Pkg.
226-350	10-24 UNC	.500"	.188"	100
226-351	1/4"-20 UNC	.500"	.188"	100

SPANNER NUT

Zinc Alloy Casting

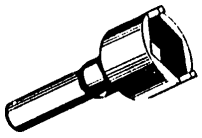
Outside Dia. 1"
Thickness 1/4"

226-010	**226-011**	**226-012**
1/4"-20 Thread Size	5/16"-18 Thread Size	3/8"-16 Thread Size

Pkg. Qty. 10 - Any one Number.

SPANNER NUT INSERT BIT

Alloy Steel
Plain



SPAENAUR No. **876-836**

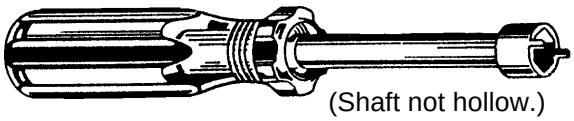
Will install all Spanner Nuts shown at left.
Bit size 1-1/2" long x 1/4" A.F.

Priced Singly

SPANNER NUT DRIVER TOOL

will fit all Spanner Nuts listed above.

SPAENAUR No. **876-997**



(Shaft not hollow.)

Priced Singly

WARNING: "Spanner" Nut Drivers and Insert Bits are **NOT GUARANTEED** against breakage or wear because of their extremely hard points.

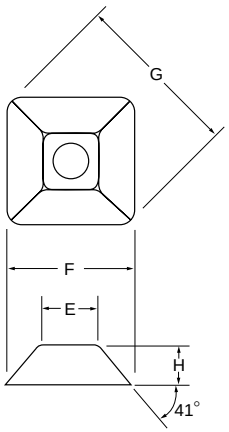
CATALOG 13

C

TUFNUT®

STEEL SECURITY NUTS are fastened easily with regular tools.

They can be installed as tightly as desired but are removable for maintenance.



TUFNUT® THEFT-RESISTANT NUTS
Material: C1010 COLD ROLLED STEEL
Hardness: .003" - .008" Case Hardened to RC55 - 60
Plating: .0002"- .0005" Chloride Zinc with Yellow Chromate

SPAENAUR No.	Thread Size	E	F	G	H
226-030	#10-24	0.425"	1.000"	1.125"	0.240"
226-031	1/4"-20	0.490"	1.000"	1.310"	0.260"
226-032	5/16"-18	0.490"	1.000"	1.310"	0.260"
226-033	3/8"-16	0.490"	1.000"	1.310"	0.260"
226-034	1/2"-13 (Hex)*	0.700"	1.225"	1.360"	0.300"

CARRIAGE BOLTS ARE RECOMMENDED for use with Tufnut security hardware in all situations where the square neck is not a problem. The round head is difficult to grasp, while the square neck prevents the bolt from turning.

*226-034

See pages B308 to B310 for Standard Carriage Bolts.
Can use with Security Fasteners on pages B124-B134.

Secures
Traffic Signs
Fencing
Outdoor Property and Outdoor Lighting
Solar Collectors
Electronic Controls
Office Equipment

381-092 5/16"-18 x 2-1/2"

381-093 5/16"- 18 x 3"

TUFBOLT SECURITY BOLTS are carriage bolts without a square neck beneath the head. They are useful for metal-to-metal fastenings where the square neck of a regular carriage bolt won't fit into a drilled hole. On a sign installation, the Tufbolt does not damage the bond between the reflective sheeting and the substrate.

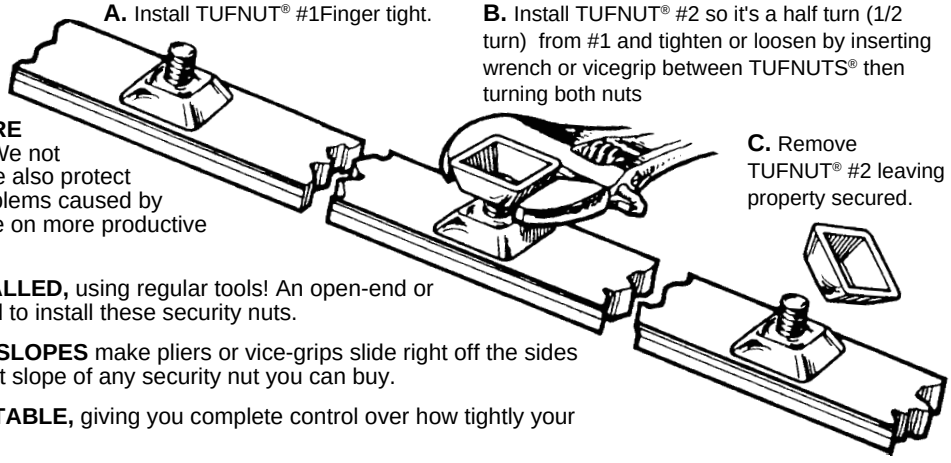
HERE'S HOW TUFNUT™ STEEL SECURITY NUTS WORK...

Tufnut security nuts should be used with a standard **CARRIAGE BOLT,** or our special round headed **TUFBOLT™** security bolt, which can be used on drilled metal surfaces.

A. Install TUFNUT® #1Finger tight.

B. Install TUFNUT® #2 so it's a half turn (1/2 turn) from #1 and tighten or loosen by inserting wrench or vicegrip between TUFNUTS® then turning both nuts

C. Remove TUFNUT® #2 leaving property secured.



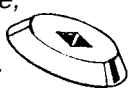
TUFNUT SECURITY HARDWARE SOLVES THEFT PROBLEMS. We not only protect your property, but we also protect your time. By preventing the problems caused by theft, your are free to concentrate on more productive projects.

THE TUFNUT IS EASILY-INSTALLED, using regular tools! An open-end or adjustable wrench is all you need to install these security nuts.

OUR CASE-HARDENED FLAT SLOPES make pliers or vice-grips slide right off the sides of the Tufnut. We offer the flattest slope of any security nut you can buy.

TUFNUTS ARE FULLY ADJUSTABLE, giving you complete control over how tightly your property is installed.

TUFNUTS ARE REUSABLE which means you don't need to replace them whenever you do maintenance.

Available, but not stocked. 

CARRIAGE BOLT ADAPTERS allow use of any length carriage bolt where you would otherwise use a Tufbolt. The adapters raise the neck of a carriage bolt so it doesn't touch the sign face or work surface. Made of black Nylon, they are designed to prevent the head of the bolt from being grasped and turned. Sizes are 5/16" and 3/8".

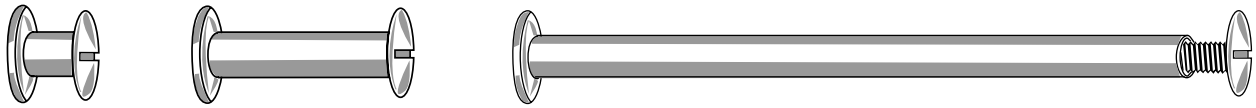
Tufnuts® work well with U-Channel and Square post applications, also security fastening of lag screw applications.

All items this page
Unit Pkg. Qty. 25

C

BINDER POSTS (BARREL NUTS) & SCREWS

ALUMINUM, BRASS & STEEL
As used in Binders, Albums, etc.



ORDER BY *SPAENAUR* NUMBERS LISTED BELOW

NOTE: SCREWS NOT INCLUDED WITH POSTS. Must be ordered separately.

BINDER POSTS

8-32 Female Thread. Body 13/64" Dia.
Unit Package 100

Length Under Hd.	Aluminum Plain	Aluminum Brass Anodized	Plain Brass
1/4"	**193-011**		
1/4"	***N-152A**		
3/8"	**193-004**		
3/8"	***N-153A**		***N-141B**
1/2"	**193-002**		**N-142B**
5/8"	***193-001**		
5/8"	**N-155A**		**N-143B**
3/4"	**N-156A**	**192-011**	**N-144B**
3/4"			**†192-004**
1"	**N-157A**	**192-012**	
1-1/4"	**N-158A**		**N-146B**
1-1/2"	**N-159A**		**192-001**
1-3/4"	**N-160A**		**N-148B**
2"	**N-161A**		**N-149B**
2-1/2"	**N-162A**		**N-150B**
3"	**N-163A**		**192-002**
3-1/2"	**193-005**		**192-003**
4"	**193-006**		
4-1/2"	**193-007**		
5"	**193-008**		
6"	**193-010**		

* Indicates "tapped through head" style.
† Indicates "slotted head" style.

SCREWS

8-32 Thread - Truss Slot Head Machine Screws
Unit Package 100

Aluminum	Plain Brass	Zinc-Plated Steel
MS-3000 (1/4"L)	**MS-794** (3/16"L)	**MS-1264** (1/4"L)
For longer Binder Post lengths 3/8" tapped through head to 6" use **MS-3001** (3/8"L) P.C.436		For longer Binder Post lengths 3/8" to 6" use **1789** (3/8"L)
also **192-013** (3/8" L) Flat Slot Head Brass Anodized P.C.192		
	P.C.400	P.C.380

EXTENSIONS

8-32 Male & Female Threads
Unit Package 25

Aluminum

8-32 Thread

Barrel Length	*SPAENAUR No.*
1/4"	**608-001**
1/2"	**608-002**
3/4"	**▲608-003**
1"	**▲608-004**

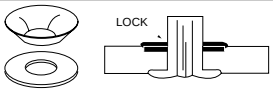
Barrel Dia.: 13/64"
Male Thrd.: 8-32 x 1/4"
Female Thrd.: 8-32 x Barrel Length

▲ Length of Male Thrd. will be 5/32" or 1/4", our option.

699-050
CONE and FLAT LOCKWASHER SETS

STEEL, Nickel Plated for 13/64" Diameter Metal Posts

(U.P. 100)



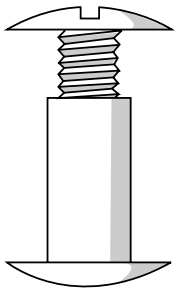
For Permanently fastening loose leaf binding posts. Used without flat washer when locking to metal only.

Molded THREADED PLASTIC POST & SCREWS

(Barrel Nuts) of Clear Cellulose Acetate Butyrate

NOTE: SCREWS NOT INCLUDED WITH POSTS. Must be ordered separately.
All Posts are 8-32 Thread, 7/32" O.D. (Unslotted). Screws are 8-32 Thread, Truss Head (Slotted).

These low cost attractive fastener sets consist of a female threaded, headed bushing and mating slotted-head machine screw. They are used for binding various materials such as flexible plastic, leather, fabric and paper for swatch books, key cases etc. Can also be used as insulating fasteners.



SPAENAUR No.	Description	Length Under Head	Pkg. Qty.
190-001	Post	1/4"	100
190-002	Post	3/8"	100
190-003	Post	1/2"	100
190-004	Post	5/8"	100
190-005	Post	3/4"	100
190-006	Post	7/8"	100
190-007	Post	1"	100
190-008	Screw	8-32 x 3/8"	100
190-009	Screw	8-32 x 1/4"	100

CATALOG 13

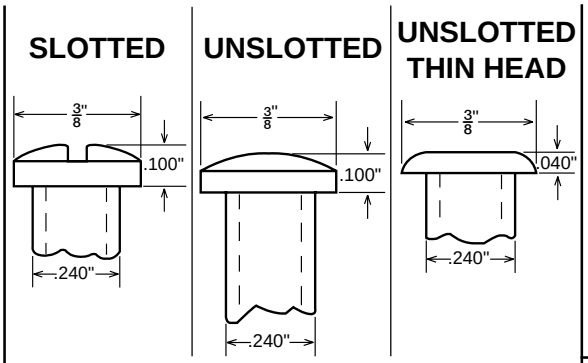
Rapid Assembly Post and Screw

Bind together punched papers, fabric swatches, key cases and a multitude of other objects.

Rapid Assembly Posts are manufactured in polyethylene. Rapid Assembly Screws are manufactured in nylon.

Unit Package 100 of a Size.
(Posts and Screws)

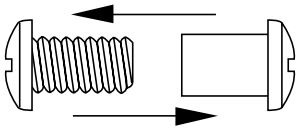
BINDER HEAD STYLES



NO SPECIAL TOOLS REQUIRED

SIMPLY PRESS TOGETHER FOR FAST EASY ASSEMBLY

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW			LENGTH	COLOUR
190-010	**190-011**	**190-012**	1/4"	WHITE
190-013	**190-014**	**190-015**	1/4"	BLACK
190-016	**190-017**	**190-018**	3/8"	WHITE
190-019	**190-020**	**190-021**	3/8"	BLACK
190-022	**190-023**	**190-024**	1/2"	WHITE
190-025	**190-026**	**190-027**	1/2"	BLACK
190-028	**190-029**	**190-030**	3/4"	WHITE
190-031	**190-032**	**190-033**	3/4"	BLACK
190-034	**190-035**	**190-036**	7/8"	WHITE
190-037	**190-038**	**190-039**	7/8"	BLACK
190-040	**190-041**	**190-042**	1"	WHITE
190-043	**190-044**	**190-045**	1"	BLACK



.250" length screw used with 1/4" post.

.375" length screw used with 3/8" through 3/4" post.

.690" length screw used with 7/8" through 1" post.

Looking for those "Hard to Find" products?

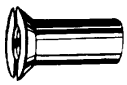
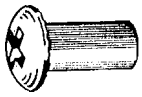
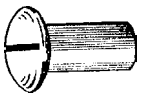
Call us at (800) 265-8772.

SPAENAUR

C

P.C. 191, 192, 193

SLEEVE NUTS - BRASS, STEEL, AND ALUMINUM

Illustration	*SPAENAUR No.*	Thread	Barrel Dia.	Head Dia.	Length	Material	Finish	Particulars	Unit Pkg. Qty.
	192-007	6-32	3/16"	1/4"	1/4"	Brass	Nickel	Oval, Slot Hd.	50
	192-006	6-32	3/16"	9/32"	3/8"	Brass	Nickel	Oval, Slot Hd.	50
	2290	6-32	3/16"	1/4"	1/2"	Brass	Nickel	Oval, Slot Hd.	50
	2290-A	6-32	3/16"	1/4"	5/8"				50
	192-008	6-32	3/16"	11/32"	5/8"				50
	703	8-32	1/4"	11/32"	3/8"	Brass	Nickel	Oval, Slot Hd.	50
	**B-795**	8-32	13/64"	5/16"	3/8"	Steel	Zinc	Flat, Slot Hd. tapped through hd.	100
	B-1432	8-32	13/64"	5/16"	1/2"	Brass	Plain		100
	N-260	8-32	13/64"	5/16"	3/4"	Brass	Plain		100
	704	10-32	1/4"	11/32"	3/8"	Brass	Nickel	Oval, Slot Hd.	50
	N-71	10-32	1/4"	3/8"	19/32"	Steel	Nickel	Oval Slot Hd.	100
	191-027	10-32	1/4"	3/8"	.210"	Steel	Zinc	Binding, Slot Hd. (tapped through hd.)	100
	2006	10-32	1/4"	3/8"	5/16"				100
	**N-288**	10-24	1/4"	7/16"	1/2"	Steel	Chrome	Phillips Truss Hd. (serrated under hd.)	100
	**193-163**	1/4"-20	3/8"	9/16"	1/4"	Alum.	Plain	Truss, Slot Hd.	100
	193-164	1/4"-20	3/8"	9/16"	7/8"				100

Barrel Nuts and Shoulder Screws

TRUSS HEAD **ONE-WAY SLOTTED** **CHROME PLATED**

See page P43 for UN-DO-IT Tool.

Barrel Nuts

10-24 FEMALE THREAD
Head Dia. 7/16"
Barrel Dia. 15/64"

SPAENAUR No.	Length Under Head	Thread Depth	Material
191-018	1/2"	3/8"	STEEL
191-019	5/8"	1/2"	STEEL
192-009	1/2"	3/8"	BRASS
192-010	5/8"	1/2"	BRASS

UNIT PACKAGE QUANTITY 50

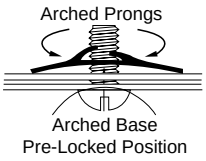
10-24
MALE THREAD
Head Dia. 7/16"
Barrel Dia. 15/64"

Shoulder Screws

SERRATED UNDER HEAD

SPAENAUR No.	Length Under Head	Approx. Barrel Length	Approx. Thread Length	Material
381-014	3/4"	5/32"	1/2"	STEEL
381-015	15/16"	1/4"	5/8"	STEEL
381-016	1-1/16"	1/4"	1/2"	STEEL
381-017	1-3/16"	9/32"	3/4"	STEEL
381-018	1-5/16"	1/4"	1"	STEEL
381-538	3/4"	1/8"	5/8"	BRASS
381-539	15/16"	1/4"	5/8"	BRASS
381-540	1-1/16"	1/4"	5/8"	BRASS
381-541	1-3/16"	1/4"	11/16"	BRASS
381-542	1-5/16"	5/32"	1"	BRASS

CATALOG 13

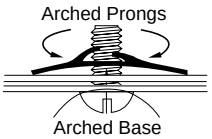
PRODUCTS / PRODUITS		PAGE
	**Engineering Data/Finishes** **How to Use Section** **Informations Technique /Traitement de Surface** **Utilisation de cette Section**	**C74**
	Single Thread Engaging/One-Piece/Self-Retaining (Flat, Round, Anchor, Angle Bracket & W-Type) **Écrous Plat/Engagement à un filet** (Plat, Rond, Ancrage, Angle et Forme -W)	**C78**
	Single Thread Engaging/One-Piece/Self-Retaining (J-Type, U-Type, Expansion, Specials) **Écrous à Pince pour Montage en aveugle** (Forme-J, Forme-U, Expansion, Spéciaux)	**C83**
	Nut & Bolt Retainers (Standard, Self-anchoring & J-Type Nut Retainers) **Écrous et Vis en Cage** (Regulier, Ancrage et Écrous Forme-J)	**C100**
	Stud Receivers/One-Piece/Self-Locking (Push-On, Grooveless, Ball Stud, Tubular) **Écrous Tubulaires** (Clip Standard, Attaches de Fermeture Gougons, Tubulaires)	**C119**
	Self-Sufficient/One-Piece (U-Type Standard & Special) **Attaches Divers** (Forme-U Standard et Spéciaux)	**C124**
	Tube, Hose & Harness Clamps/Cable, Wire & Tube Clips (Clutch Type and Clips) **Attaches pour Cables et Tubes** (Collier couvé, et Agrafe)	**C128**
	Plastics/Standard & Custom Molded (Cap, Expansion, & Dart Type) **Pièces Plastiques Standard et Spéciaux** (Capuchon, Expansion, Obturateur)	**C132**
	Miscellaneous Section/Assortments **Section générale et Assortiments**	**C134**

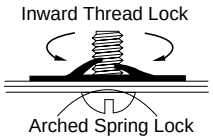
C

CATALOG 13

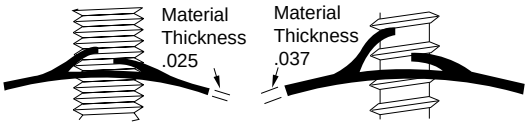
C

Tinnerman® Fastener Engineering Data





The Tinnerman® Principle of Spring Tension Fastening



1/4-20 Machine Screw
Tensile Load Limits: 600 Lbs.

14 A Sheet Metal Screw
Tensile Load Limit: 1150 Lbs.

The greater the material thickness, the stronger the Tinnerman® fastener.

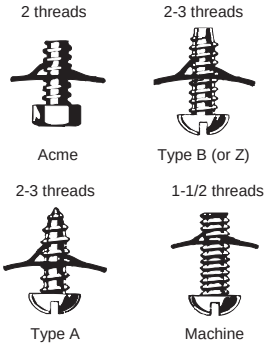
Tinnerman® brand fasteners are one-piece and self-locking. They provide and inward thread lock plus and arched spring lock which are energized as the screw tightens. The combined forces of this double locking action resist vibration loosening... and are exclusive with Tinnerman® spring steel fasteners.

While they provide a strong and reliable double-locking action with standard screws, even greater strength can be attained by increasing the material thickness of the fastener and using A or B-type screws. The example illustrated nearly doubles tensile strength with only a 48% increase in material thickness.

Excessive small parts handling can be drastically reduced through the use of the Tinnerman principle of spring tension fastening. Fully documented case histories prove that assembly savings of 30 to 80% have resulted from the following inherent benefits:

- easier handling, faster application
- elimination of lockwashers, spanner washers, and other loose pieces
- perform multiple functions
- self-retaining, self-locking
- no special tools, skills for equipment required
- will not “freeze” to threads or clog with paint
- ideal for service locations, reused indefinitely
- lock on unthreaded studs
- many types used without screw, stud or mounting hole.

Screw Lengths



All Dimensions in Inches

RECOMMENDED VALUES FOR PEAK FASTENER PERFORMANCE

Screw Size	Threads Per Inch	Max. Dia.	Root Dia.	Standard Max. Thick.	Clearance Hole Dia.	Install. Torque	Tensile Load Limit
2-56	56	.086	.063	.010	.109	*	*
2A	32	.088	.061	.017	.109	*	*
2B	32	.088	.064	.017	.109	*	*
4-36	36	.112	.080	.012	.125	3" lbs.	100 lbs.
4-40	40	.112	.080	.012	.125	3" lbs.	100 lbs.
4A	24	.114	.083	.022	.125	9" lbs.	300 lbs.
4B	24	.114	.086	.022	.125	9" lbs.	300 lbs.
6-32	32	.138	.099	.017	.156	5" lbs.	150 lbs.
6A	18	.141	.102	.025	.156	11" lbs.	400 lbs.
6B	20	.139	.104	.025	.156	11" lbs.	400 lbs.
8-32	32	.164	.125	.017	.187	7" lbs.	250 lbs.
8A	15	.168	.123	.028	.187	17" lbs.	600 lbs.
8B	18	.166	.122	.028	.187	17" lbs.	600 lbs.
10-24	24	.190	.138	.022	.218	12" lbs.	350 lbs.
10A	12	.194	.133	.031	.218	31" lbs	800 lbs.
10B	16	.189	.141	.031	.218	31" lbs.	800 lbs.
12-24	24	.216	.164	.022	.250	12" lbs.	350 lbs.
12A	11	.221	.162	.034	.250	34" lbs.	900 lbs.
1/4-20	20	.250	.188	.025	.281	30" lbs	600 lbs.
14A	10	.254	.185	.037	.281	48" lbs.	1150 lbs.
14B	14	.246	.192	.037	.281	48" lbs.	1150 lbs.
5/16-18	18	.312	.243	.028	.343	30" lbs.	1000 lbs.
5/16B	12	.315	.244	.044	.343	16' lbs.	1200 lbs.
5/16ACME	10	.312	.232	.044	.343	19' lbs.	2200 lbs.
20A	9	.333	.234	.044	.375	*	*
3/8ACME	12	.375	.282	.060	.406	*	*
3/8B	12	.380	.309	.060	.406	19' lbs.	2500 lbs.
24A	9	.390	.291	.060	.421	*	*

*computed on application.

Average Torque And Tensile Values

Tinnerman fasteners are tightened only enough to produce the **inward thread lock** and **arched spring lock** described above. They derive their locking characteristics, holding power and vibration resistance solely from spring tension. Unlike ordinary threaded nuts, they do not have to be tightened with a great amount of torque. In fact, any torque applied beyond the recommended installation torques charted are excessive and could result in loss of spring tension resiliency.

The table shows the **average** amount of torque to use in tightening Tinnerman fasteners, plus the **average** tensile load limits. These averages were determined through exhaustive testing. It is recommended that these values be followed. Established as guides for general application. Tests prove that Tinnerman fasteners will withstand greater tensile loads if the screw holes provide **minimum** clearance. These do not apply to self-retaining fasteners, e.g. “U” or “J” types, where part of the fastener engages the mounting, or clearance hole.

The proper lengths of machine screws to use with Tinnerman® fasteners are the same as for general practice, i.e., 1-1/2 thread protrusion beyond the threads (or prongs of the fastener.

Since A- or B-type sheet metal screws taper at the end, longer screws must be used. Sheet metal screws **must** protrude 2 to 3 threads beyond the prongs to assure proper grip on the full root diameter of the screw.

Important

All Tinnerman® fasteners shown on these pages are of the Standard-Thread Fit Class unless otherwise specified!

Standard Finishes For Tinnerman® Fasteners.

Listed below are the most commonly used finishes available for protective coating and rust-proofing Tinnerman® Brand Fasteners.
To specify desired finish use corresponding dash number, shown below as **the last dash number,** affixed to the Manufacturer's No.

Examples: C183-012**-27**, C1053-012**-4**, C1158-5610**-1**

C

FINISH	DESCRIPTION	COLOUR	ADVANTAGES	SALT SPRAY TEST
-27 Soluble Oil Dipped	Ferrous parts (except stainless steel) have a light coating of soluble oil applied. Non-ferrous parts are cleaned where necessary and are left in plain condition.	Natural.	Low-cost finish, recommended on ferrous parts for conditions of relatively little corrosion or for parts that are to receive a finish in the customer's plants.	5% solution at 95° F. Ferrous parts: first rust spots after 1 hour, end point (1/16" dia. rust spots) after 2-1/2 hours. Non-ferrous parts: corrosion will be normal for the plain finish of the material.
-4 Phosphate and Oil	Parts are phosphate coated, then dipped in a special oil and spun dry.	Black.	Moderate corrosion resistance. Neat in appearance — will not wear off in handling.	5% solution at 95° F. First rust spots after 32. hours. End point (1/16" dia. rust spots) after 48 hours.
-1 Phosphate and 2 Coats Olive Drab Paint	Parts are phosphate coated, then two coats of olive drab paint are applied Each coat is properly baked to obtain maximum protection.	Olive drab.	Good corrosion resistance. Does **not** cause hydrogen embrittlement common with electroplated high carbon spring steel. Excellent for insulating dissimilar metals against electrolytic action.	5% solution at 95° F. First rust spots after 48 hours. End point (1/16" dia. rust spots) after 96 hours. Being replaced by finishes -255 & -963
-67 Phosphate and 2 Coats Aluminum Paint	Parts are phosphate coated, then two coats of aluminum paint are applied. Each coat is properly baked to insure maximum protection.	Aluminum colour— smooth appearance.	Recommended in place of cadmium plating where appearance and corrosion resistance are requirements. High in abrasion resistance and a non-conductor of electricity.	5% solution at 95° F. rust spots after 48 hours. End point(1/16" dia. rust spots) after 96 hours. Being replaced by finishes -255 & -963
-373 Phosphate, 2 Coats of Paint and Oil	Parts are phosphate coated, then two coats of a bright green paint are applied. Each coat is properly baked. A supplementary coat of a special oil solution is added to insure the maximum corrosion resistance possible.	Bright green.	Exceptional corrosion resistance. Insulates dissimilar metals against electrolytic action. Does not cause hydrogen embrittlement.	5% soluttion at 95° F. First rust spots after 150 hours. End point (1/16" dia. rust spots) after 250 hours.
-255 & -963 Water based zinc coating Dacromet 320 or equivalent Plus clear sealer.	Parts are coated in a water based zinc coating for maximum protection.	Grey metallic	Exceptional corrosion resistance. Does not cause hydrogen embrittlement.	**-255** 5% solution at 95° F. End point (1/16' dia. rust spots) after 330 **-963** 5% solution at 95° F. End point (1/16' dia. rust spots) after 400 hours.
-252 Water based zinc coating plus water base organic black coating	Parts are water based zinc coated with the second coat being an organic finish.	Black	Exceptional corrosion resistance. Does not cause hydrogen embrittlement.	5% solution at 95° F. End point (1/16" dia. rust spots) after 400 hours.
NOTE: *The following electroplate finishes are limited to only a few parts, such as Tubular Type Clips and Tube Clamps. Please do not specify these finishes for other types of Tinnerman Fasteners without the approval of our engineering department.*				
-600 Zinc Mechanical-plate	Parts are mechanically plated from .00015" to .0003" thick. A clear chromate is applied as a sealer.	Satin Silver Colour	Excellent electrical conductivity and moderate corrosion resistance. No hydrogen embrittlement.	5% solution at 95° F. End point (red rust) after 24 hours.
-3B Zinc Electroplate	Parts are zinc electroplated from .00015" to .0002" thick and baked to reduce hydrogen embrittlement.	Silver colour. Slight discoloration from baking may occur.	Excellent electrical conductivity and moderate corrosion resistance.	5% solution at 95° F. End point (red rust) after 24 hours.

C

How To Use the Tinnerman® Section of the *SPAENAUR* Catalog.

This Tinnerman® Fastener section is designed to help solve your fastening problems quickly and efficiently. The index lists type and product illustrations for easy location and quick reference. Once the category and type of fastener required has been determined, isolating the exact design is a simple matter of deduction. The basic or standard designs are shown in the dimensional drawings on each charted page. Major reference dimensions are shown as variable call-out letters which appear in the column heads of the chart. The charts are organized as follows:

1

Column one shows the ***SPAENAUR No.*** given to the Tinnerman® part in stock.

2

Column two is the Manufacturer's No. The dash numbers specify screw size, stud size, material thickness and are critical for proper identification. If a ***SPAENAUR No.*** preceeds the Manufacturer's part number the last dash number is the finish. When ordering state the preferred finish.

3

Column three, states the screw size, stud size, tube dia., panel range, etc. found in bold type. which are prime factors for easy selection.

4

Design Variations column indicates whether a part is standard (as drawn and specified "Std.") or a modification of standard e. g. A, B, C or ABC in combination. Such variations are identified and illustrated. Parts are available only as specified in the Design Variation column. Further modification requires special tooling and order processing.

5...

The remaining columns chart the reference dimensions such as length A, width B, edge of panel to mounting hole C, material thickness T. These call-out letters have been standardized to always represent the same dimension (e.g., A is always length). This makes is easier to discuss dimensions without confusion.

Materials Guide For Plastic Fasteners

Plastic materials for Tinnerman® Fasteners are selected for their most appropriate characteristics, such as temperature factors, flame resistance, impact strength, etc. All fasteners are designed for top quality performance whether for general use or specific application.

Material	Part No. Suffix	Flame Class	Expansion Type	Toggles & Clinch Types	Wallboard Toggle	Cap Nut	Poly-Clamp	Dart Type	Clamps & Ratchet Strap	Adhesive Clamps	Sleeve	Slide Seal	TPI Insert	Screw	Special
ABS	-AE	SB													■
Acetal	-AG	SB						■						■	
Nylon	-AA	SE	■	■			●	●	■		■			●	
Glass-Filled Nylon	-AC	SB													■
Polycarbonate	-AF	SE											■		
Polyethylene	-AB	SB				■	●					■			
Polypropylene	-AD	SB		●	■	●	■	●	■		■				
Rigid PVC	-AR	SE								■					

■ Standard Material ● Optional Material SB = Slow Burning SE = Self-Extinguishing

ABS
A versatile engineering thermo-plastic offering the best balance of properties of common rigid thermoplastic materials — good heat resistance, good impact strength, good low-temperature properties, excellent electrical properties, and fair-to good chemical resistance. Plateable grades available.

ACETAL
An engineering thermoplastic that offers strength, rigidity, and good moisture, heat, and chemical resistance. Excellent abrasion resistance.

NYLON
Most common materials for standard plastic fasteners. Structurally strong, nylon features low coefficient of friction, good insulating properties, resistance to heat (self-extinguishing), shock, vibration, and chemical solvents.

Light, elastic; has superior torque strength. Available glass filled or unfilled.

Material has temperature range of -40° to 250°F.

POLYCARBONATE
Most desirable balance of properties of any thermoplastic material available — excellent high and low temperature strength, good heat resistance (up to 250°F under load), high impact strength (in -275 to +250°F range), excellent dimensional stability, nontoxic, self-extinguishing, and excellent electrical insulation.

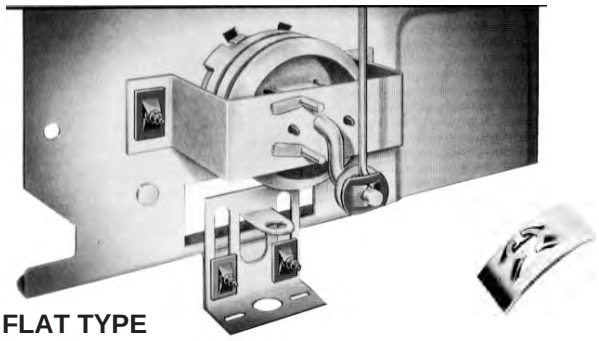
POLYETHYLENE
Low-cost, medium-strength material. Good insulator and has "rubber-like" characteristics. Can be used for temperature applications up to 190°F.

POLYPROPYLENE
Lightest of thermoplastics. Excellent chemical, heat, and electrical resistance properties. Is original "living" hinge material. Main disadvantage is low-temperature brittleness. Plateable grades available.

RIGID PVC (Polyvinyl Chloride)
Used for many specials fastener applications. Exceptional resistance to acids, alkalies, and alcohols. Excellent in corrosive applications. Self-extinguishing. Will not impart taste or colour to materials handed. Good abrasion resistance.

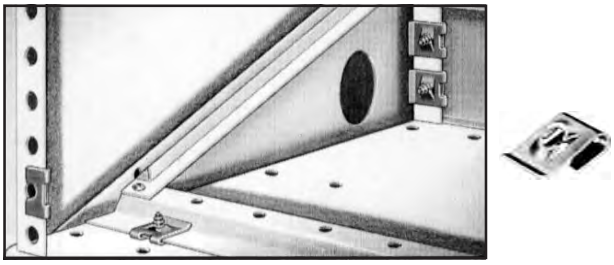
C

TYPICAL APPLICATIONS



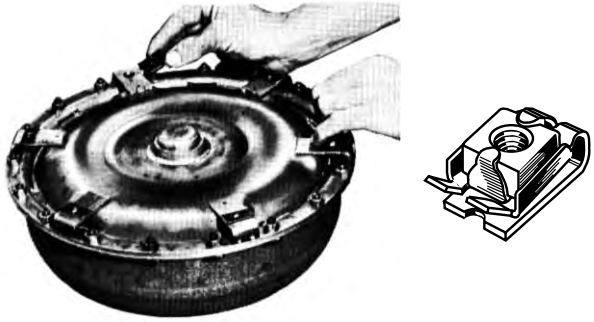
FLAT TYPE

One-piece, self-locking, heat-treated, spring-steel fasteners. Flat type Tinnerman fasteners replace threaded nuts, lock washers and spanner washers. Available in a wide variety of shapes and screw sizes. Also available in round designs with spanner holes for driving. Underside of room air conditioner control panel reveals flat type fasteners in use for reliable vibration-resistant attachments.



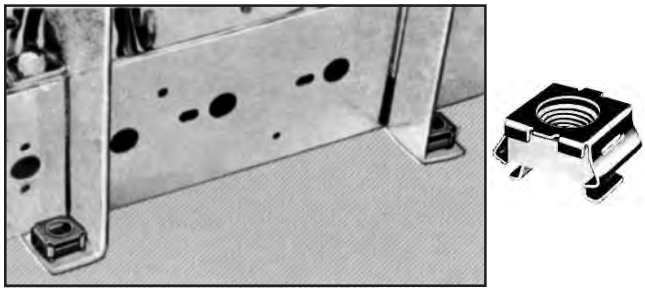
"J" TYPE

Snaps over edge of panels or into centre-hole locations. Holds itself in place for blind assembly. "Floats" freely for easy hole alignment. Electronic console cabinet makes good use of self-retaining "J" types on adjustable shelving installations. Tight tolerances and paint clogging are eliminated and attachments are 3-1/2 times stronger than with former methods.



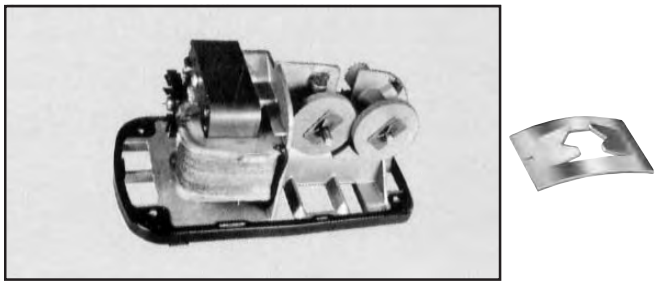
"U" TYPE

Similar to the "J" type retainer, but has a full lower leg. Ideal for attachments requiring full bearing on lower leg. Extrusion on the lower leg is for instant alignment. Fly-wheel is secured to pump assembly on an automatic transmission unit - application is fast and sure - assembly is dependable and trouble-free.



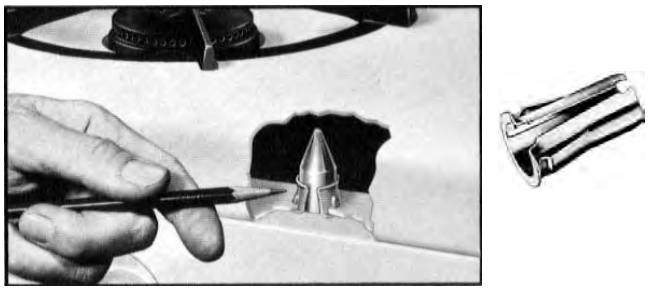
SELF-ANCHORING TYPE

Features a unique locking feature for permanent self-retention. Tinnerman nut retainers are ideal for mounting this television receiver chassis. Sturdy, self-retaining and easily applied, they release special skills and equipment for use in other areas.



PUSH-ON TYPE

Zips over unthreaded die-cast or plastic studs, rivets, nails, tubing, or wire to lock parts securely. Tinnerman® Standard Push-on type fasteners mount the grinding wheels securely in place on the electric knife sharpener. They bite hard into the shaft for permanent retention.

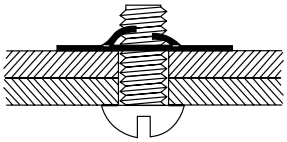


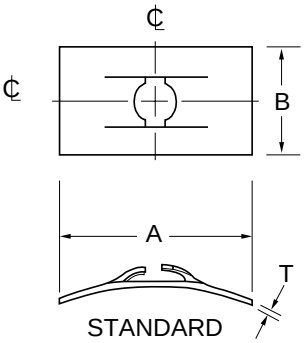
TUBULAR TYPE

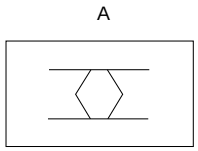
For use with unthreaded studs or rivets, on attachments where there is access to front side only. Permanent lock or removable types. Tubular type Tinnerman fasteners grip mating studs on this removable range top, providing a secure lock, yet allowing the panels to be separated for cleaning and service.

FLAT-TYPE Fasteners
(rectangular)

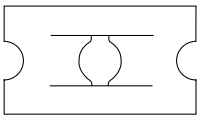
C



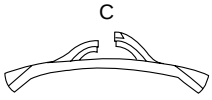




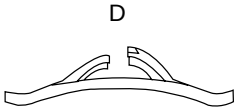
DIAMOND SHAPED SCREW HOLE



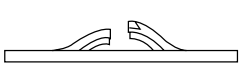
NOTCHED AT ENDS



CORNERS TURNED DOWN



ENDS TURNED UP



NO ARCH IN BASE

MATERIAL:
All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:
SS —Stainless Steel BE — Beryllium Copper P — Phosphor Bronze

DESIGN VARIATIONS:
Parts shown as standard or with design variations are available only in that particular design.

FINISHES: See Page C75 for available finishes.

The INCH dimensions of the listed parts are reference dimensions only. For complete design information, please request a blueprint.

SPAENAUR No.	Manufacturer's No.	**Screw Size**	**Design Variation**	**A Length**	**B Width**	**T Material Thickness**
—	C00102-256	**2-56**	Std.	.38	.22	.010
***1896**	C07885-012-27		Std.	.38	.22	.010
—	C07000-436	**4-36**	Std.	.38	.25	.012
TN-8	C07795-440-27	**4-40**	D	.44	.25	.012
—	C00105SS-440		Std.	.44	.25	.012
◆202-030	C07000-4-4	**4A or B**	Std.	.38	.25	.022
◆TN-62	C07000-632-4	**6-32**	Std.	.44	.28	.017
—	C11041-632		C	.51	.28	.017
—	C01181-632		D	.51	.31	.017
2089	C00410-632-1		Std.	.51	.31	.017
202-188	C01322-632-27		D	.63	.38	.017
202-100	C00112-632-4		Std.	.88	.38	.017
1898	C00111-632-27		A	.88	.50	.017
◆TN-110	C07000-6-4	**6A or B**	Std.	.50	.31	.025
—	C08000-6		Std.	.87	.44	.025
◆TN-7	C07000-832-4	**8-32**	Std.	.50	.31	.017
—	C08601-012		Std.	.51	.31	.012
—	C08016-832		Std.	.88	.44	.017
—	C10534-832		D	.88	.50	.017
◆TN-65	C07000-8-4	**8A or B**	Std.	.63	.41	.028
TN-145	C08002-8-27		Std.	.87	.47	.028
—	C00343-8A	**8A**	E	.63	.38	.031
—	C06590-8Z	**8B**	C	.63	.38	.025
◆B-1160	C01075-8Z-4		Std.	.88	.38	.031
◆202-029	C07000-1024-4	**10-24**	Std.	.63	.38	.022
2092	C00430-1024-27		A	.73	.44	.022
—	C07250-1024		Std.	.73	.44	.022
—	C01150-1024		B	.73	.44	.022
—	C01151-1024		BC	.73	.44	.022
—	C00917-1024		Std.	.87	.38	.022
—	C08004-1024		Std.	1.000	.47	.022
1901	C00140-1024-27		A	1.000	.50	.022
—	C00142-1024		AC	1.000	.50	.022
—	C06492-1024		C	1.310	.50	.022
—	C06493-1024		C	1.690	.63	.022
TN-9	D00430-1032-27	**10-32**	Std.	.75	.44	.017
—	C01851-1032		D	1.090	.50	.017
1900	C07000-10-4	**10A or B**	Std.	.75	.50	.031

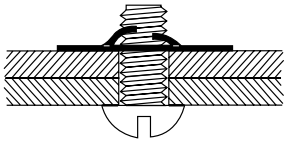
*Limited quantities available. ◆Not necessarily Tinnerman® brand.

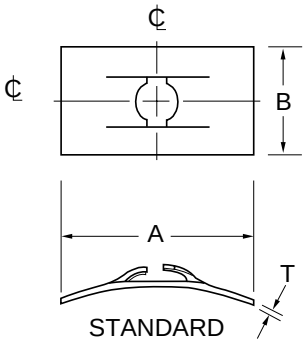
(Continued)

C

FLAT-TYPE Fasteners

(rectangular)



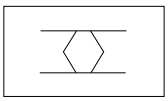


STANDARD

SPAENAUR No.	Manufacturer's No.	Screw Size	Design Variation	A Length	B Width	T Material Thickness
◆**B-1170**	D00430-10A-27	**10A**	Std.	.75	.44	.031
2064	C00917-10A-27		Std.	.88	.38	.031
—	C00917-10Z	**10B**	Std.	.88	.38	.031
—	C01779-10Z		D	.88	.50	.031
—	C00686-12A	**12A**	Std.	.75	.50	.031
—	C00328-12A		Std.	1.270	.63	.037
—	C08611-012	**1/4-20**	A	.63	.50	.012
202-001	C07000-1420-4		Std.	.75	.50	.025
—	C00583-1420		Std.	1.000	.50	.025
1903	C00161-1420-27		Std.	1.000	.56	.025
—	C08618-020		Std.	1.000	.56	.020
2017	C00160-1420-4		C	1.000	.56	.025
—	C08613-020		C	1.000	.56	.020
—	C08613-031		C	1.000	.56	.031
202-260	C09375-012-373		A	1.310	1.31	.012
B-1201	C07000-14-4	**14A-B**	Std.	.88	.56	.037
2096	C00601-5618-27	**5/16-18**	Std.	.98	.63	.028
—	C08616-5618		C	.98	.63	.028
202-113	C01297-3816-4	**3/8-16**	A	1.000	.75	.034
TN-105	C00453-017-27	**7/16-14**	A	1.000	.69	.017

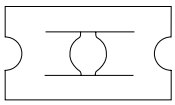
◆Not necessarily Tinnerman® brand.

A



DIAMOND SHAPED SCREW HOLE

B



NOTCHED AT ENDS

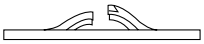
C

CORNERS TURNED DOWN

D

ENDS TURNED UP

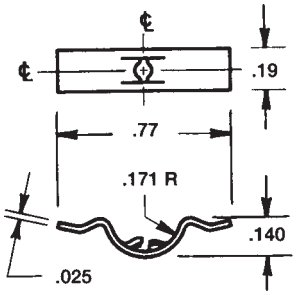
E

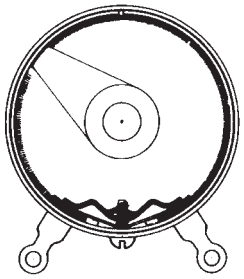


NO ARCH IN BASE

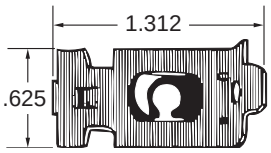
FLAT-TYPE Fasteners

(special)





SPAENAUR No.	Manufacturer's No.	Screw Size
202-170	C00744-025-27	**2B**



SPAENAUR No.	Manufacturer's No.	Screw Size
TN-130	C14289-14A-1	**14A**

Limited quantities available of TN-130.

The INCH dimensions of the listed parts are reference dimensions only.
For complete design information, please request a blueprint.

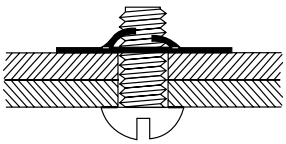
CATALOG 13

C

FLAT-TYPE Fasteners

(rectangular)

Zip-on Fit

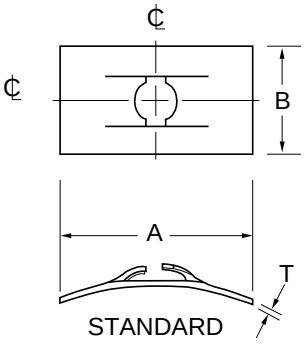


Zip-on fit
Longer, more resilient prongs permit zipping of SPEED NUT over screw threads. Only one or two turns of the screw locks the assembly. Ideal for rapid installation. Not recommended where maximum tensile and torque values are required.

MATERIAL:
All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:
SS —Stainless Steel BE — Beryllium Copper P — Phosphor Bronze

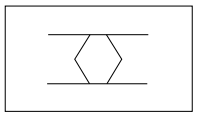
DESIGN VARITIONS:
Parts shown as standard or with design variations are available only in that particular design.

FINISHES: See Page C75 for available finishes.



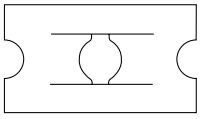
SPAENAUR No.	Manufacturer's No.	Screw Size	Design Variation	A Length	B Width	T Material Thickness
—	C00125-017-27	**8-32**	A	.88	.50	.017
—	C08609-020	**10-24**	BC	.75	.44	.020
—	C09159-012	**10-32**	A	.63	.38	.012
—	C09375-012	**1/4-20**	A	1.310	1.31	.012
—	C08610-020	**1/4-28**	A	1.000	.56	.020
—	C08614-014	**5/16-18**	Std.	.98	.63	.014
—	C08614-017		Std.	.98	.63	.017
—	C07644-017	**5/16-24**	Std.	.98	.63	.017
—	C08617-014	**3/8-16**	A	1.000	.69	.014
—	C08617-017		A	1.000	.69	.017
TN-132	D07516-017-4	**1/2-13**	A	1.220	.88	.017
TN-189	C07156-017-1	**5/8-11**	D	1.450	1.00	.017
202-515	C07156-017-27		D	1.450	1.00	.017
—	C13977-014	**5/8-18**	A	1.218	.91	.014
—	C10413-017	**3/4-10**	A	1.760	1.030	.017

A



DIAMOND SHAPED SCREW HOLE

B



NOTCHED AT ENDS

C

CORNERS TURNED DOWN

D

ENDS TURNED UP

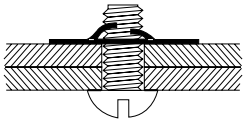
E

NO ARCH IN BASE

The INCH dimensions of the listed parts are reference dimensions only. For complete design information, please request a blueprint.

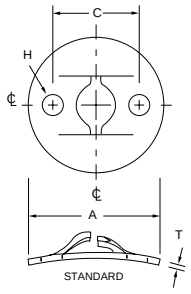
FLAT-TYPE Fasteners

(round)



MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:
SS—Stainless Steel BE—Beryllium Copper P—Phosphor Bronze

DESIGN VARIATIONS:
Parts shown as standard or with design variations are available only in that particular design.



Dimension in Inches

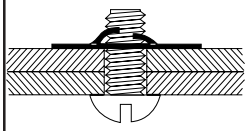
SPAENAUR No.	Manufacturer's No.	Screw Size	Design Variation	A Dia.	B* Width	C Centre to Centre	H Hole Dia.	T Mat'rl. Thick.
TN-64	C01000-632-27	**6-32**	BC	.38	.34	—	—	0.17
—	C00887-632		Std.	.50	—	.375	.062	.017
TN-84	C00944-832-1	**8-32**	Std.	.50	—	.375	.062	.017
—	C07868-832		BDE	.82	—	—	—	.017
TN-61	C08642-012-27	**10-24**	Std.	.57	—	.415	.103	.012
—	C00171-1032	**10-32**	A	.57	.44	.415	.103	.017
—	C00520-1032		ABC	.57	.44	—	—	.017

Design Variations shown on facing page.

(Continued)

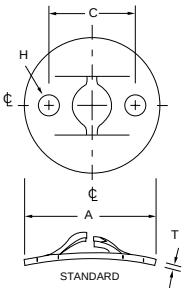
C

FLAT-TYPE and Zip-on Fit Fasteners (round)

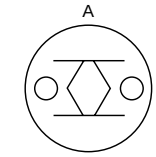


SPAENAUR No.	Manufacturer's No.	Screw Size	Design Variation	A Dia.	B* Width	C Centre to Centre	H Hole Dia.	T Mat'rl. Thick.
—	C01764-010	**1/4-20**	ABE	.50	—	—	—	.010
—	C00726-1420		E	.75	—	.410	.095	.025
2095	C00166-1420-4		BDE	.82	.64	—	—	.025
—	C07166-1420		ABDE	.82	.64	—	—	.025

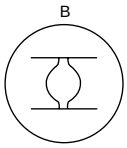
ZIP-ON FIT: Longer, more resilient prongs permit zipping of SPEED NUT over screw threads. Only one or two turns of the assembly. Ideal for rapid installation. Not recommended where maximum tensile and torque values are required.



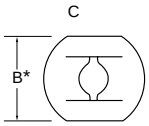
SPAENAUR No.	Manufacturer's No.	Screw Size	Design Variation	A Dia.	B* Width	C Centre to Centre	H Hole Dia.	T Mat'rl. Thick.
202-143	C08595-012-4	**6-32**	BC	.38	.34	—	—	.012
202-139	C08639-012-4	**8-32**	A	.50	—	.375	.062	.012
—	C08647-017	**1/4-20**	E	.75	—	.421	.095	.017
TN-244	C09186-014-27	**5/16-18**	ACE	.88	.69	.703	.100	.014
—	C15392-014	**3/8-16**	AC	.91	.69	.694	.100	.014
TN-104	C01156-014-4	**7/16-20**	AC	.91	.69	.694	.101	.014
—	C08697-014		AC	.91	.69	.694	.101	.014
—	C07356-014	**1/2-20**	AC	.98	.75	.750	.100	.014
—	C07356-020		AC	.98	.75	.750	.100	.020



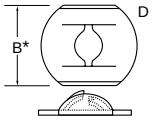
DIAMOND-SHAPED SCREW HOLE



NO SPANNER WRENCH HOLES



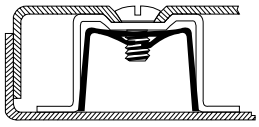
STRAIGHT SIDES



SIDES TURNED UP TO PERMIT USE OF WRENCH

NO ARCH IN BASE

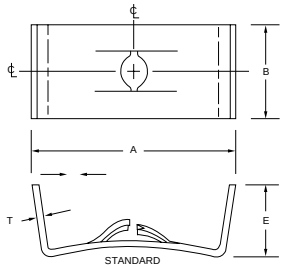
W-TYPE Fasteners



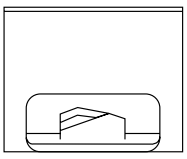
MATERIAL:
All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:
SS —Stainless Steel BE — Beryllium Copper P — Phosphor Bronze

DESIGN VARIATIONS:
Parts shown as standard or with design variations are available only in that particular design.

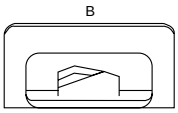
FINISHES: See Page C75 for available finishes.



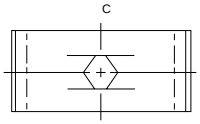
SPAENAUR No.	Manufacturer's No.	Screw Size	Design Variation	A Length	B Width	E Height	T Material Thickness
—	C01890-4Z	**4-B**	Std.	.35	.28	.12	.020
2090	C00224-632-27	**6-32**	Std.	.35	.28	.12	.017
—	C06439-6Z	**6-B**	Std.	.36	.28	.12	.022
—	C00335-1024	**10-24**	C	.67	.44	.11	.022
—	C08780-017	**1/4-20**	C	.75	.63	.32	.017
202-055	C06325-1420-1		E	1.01	.88	.24	.025
—	C06325-3816	**3/8-16**	E	1.02	.88	.24	.028



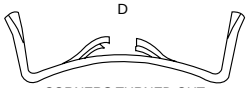
RELIEF CUTOUTS IN BOTH SIDES, SQUARE CORNERS



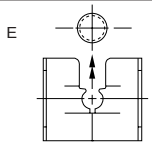
RELIEF CUTOUTS IN BOTH SIDES, ROUND CORNERS



DIAMOND-SHAPED SCREW HOLE



CORNERS TURNED OUT



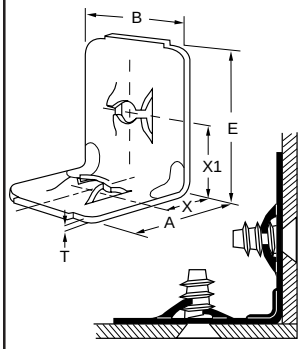
APPLIED FROM SIDE

CATALOG 13

See Price List for Unit Package Quantity.

C

ANGLE BRACKET Fasteners
(Special)



MATERIAL:
All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:
SS —Stainless Steel BE — Beryllium Copper P — Phosphor Bronze

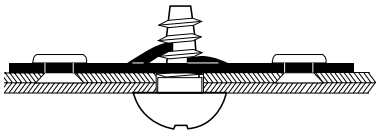
DESIGN VARIATIONS:
Parts shown as standard or with design variations available only in that particular design.

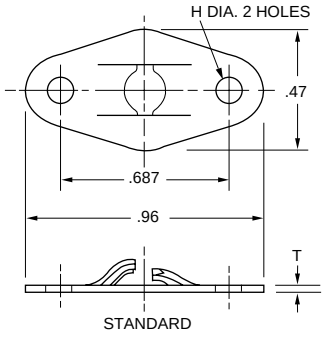
FINISHES:
See Page C75 for available finishes.

SPAENAUR No.	Manufacturer's No.	Screw Size	A	B	E	X	X'	T
—	C06083-8	**8A or B**	.74	.63	.74	.38	.38	.028
202-259	C06039-1024-4	**10-24**	.82	.50	.82	.50	.50	.022
—	C06083-10Z	**10B**	.74	.63	.74	.38	.38	.028

The INCH dimensions of the listed parts on this page are reference dimensions only. For complete design information, please request a blueprint.

ANCHOR-TYPE Fasteners





MATERIAL:
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DESIGN VARIATIONS:
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FINISHES: See Page C75 for available finishes.

SPAENAUR No.	Manufacturer's No.	Screw Size	Design Variation	H Hole Dia.	T Mat'rl. Thick.
TN-213	C06191-6Z-27	**6B**	Std.	.105	.025
—	C08579-10Z	**10B**	Std.	.135	.031

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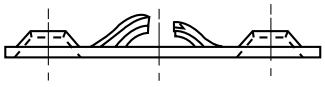
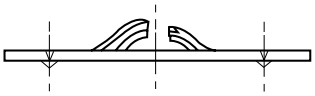
A



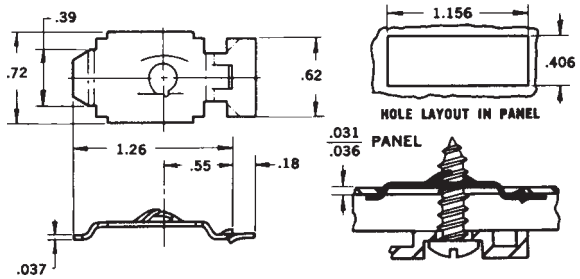
FOR 100° COUNTERSUNK RIVETS

B



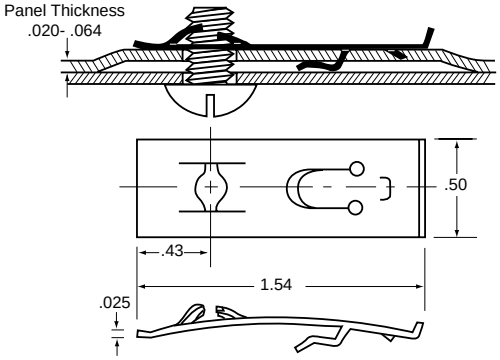
WELDING NIBS

LATCH-TYPE Fasteners



Limited quantity available.

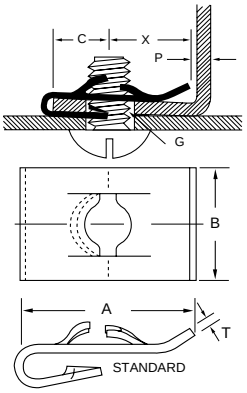
SPAENAUR No.	Manufacturer's No.	Screw Size
TN-15	C11626-14A-1	**14A**



SPAENAUR No.	Manufacturer's No.	Screw Size
202-152	C01815-8Z-67	**8B**

CATALOG 13

J-TYPE Fasteners



MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

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P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

DESIGN VARIATIONS:
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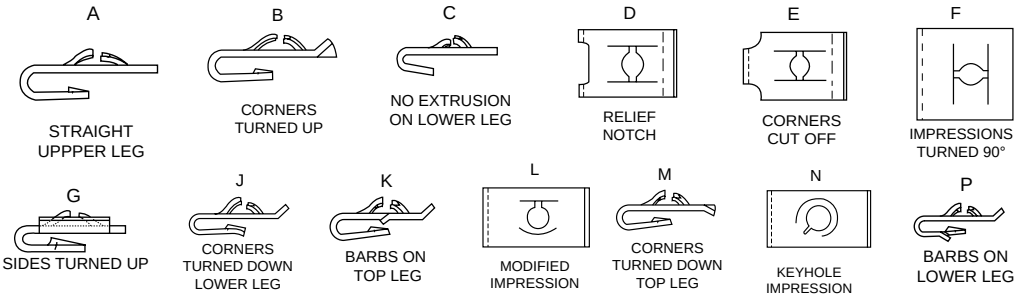


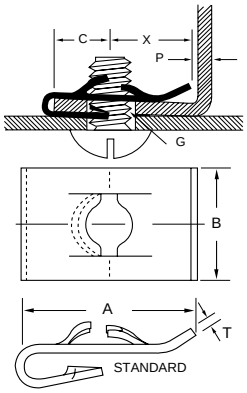
The INCH dimensions of the listed parts on this page are reference dimensions only. For complete design information, please request a blueprint.

SPAENAUR No.	Manufacturer's No.	**Screw Size**	**Design Variation**	**P Panel Range**	**A Length**	**B Width**	**C Max Centre Hole to Edge**	**X Centre Imp. to End**	**G Panel Hole Dia.**	**T Mat'rl. Thickness**
202-064	D08019-632-4	**6-32**	ADF	.025-.040	.47	.50	.218	.21	.187	.017
—	C08021-632		AE	.025-.040	.63	.31	.296	.29	.187	.017
2223	C01110-632-27		A	.032-.035	.38	.31	.156	.19	.187	.017
—	C06227-632		A	.041-.051	.36	.31	.156	.18	.187	.017
—	C08020-632		ADF	.045-.062	.47	.50	.218	.21	.187	.017
TN-238	C08022-632-27		AE	.045-.062	.63	.31	.296	.29	.187	.017
—	C08024-632		AE	.045-.062	.81	.31	.468	.30	.187	.017
—	C71222-632		A	.067-.080	.79	.31	.445	.30	.187	.017
—	C17859-632		F	.125-.130	.35	.50	.171	.17	.171	.017
—	C01635-6A	**6A**	AEFG	.032-.038	.39	.50	.187	.18	.187	.025
—	C15520-6A		DF	.125-.145	.49	.50	.250	.20	.250	.022
—	C08025-6	**6A or B**	ADF	.025-.040	.47	.50	.218	.20	.187	.025
TN-168	C08027-6-27		AE	.025-.040	.63	.31	.296	.29	.187	.025
TN-37	C08029-6-27		AE	.025-.040	.81	.31	.468	.30	.187	.025
TN-111	C08026-6-27		ADF	.045-.062	.47	.50	.218	.20	.187	.025
—	C08030-6		AE	.045-.062	.81	.31	.468	.30	.187	.025
—	C08028-6		AE	.045-.062	.63	.31	.296	.29	.187	.025
—	C01360-6		E	.100-.115	.63	.38	.250	.33	.250	.025
—	C15150-6		E	.168-.198	.57	.38	.234	.33	.218	.025
—	C06500-6Z	**6B**	A	.016-.020	.37	.31	.156	.19	.187	.022
—	C06227-6Z		A	.041-.051	.36	.31	.156	.19	.187	.022
—	C17626-6Z		AF	.068-.074	.44	.33	.245	.18	.218	.022
—	C01802-6Z		E	.094-.102	.63	.38	.250	.32	.250	.025
—	C08031-832	**8-32**	ADFN	.025-.040	.53	.50	.234	.25	.218	.017
—	C08033-832		AEN	.025-.-40	.68	.41	.328	.30	.218	.017
—	D01690-832		AF	.032-.040	.50	.50	.265	.21	.250	.017
TN-14	C01690-832-27		AF	.032-.040	.50	.50	.265	.21	.250	.017
—	C00639-832		AF	.040-.051	.49	.50	.265	.20	.250	.017
—	C08032-832		ADFN	.045-.062	.52	.50	.234	.25	.218	.017
TN-234	C08034-832-27		AEN	.045-.062	.68	.41	.328	.30	.218	.017
—	C01802-832		E	.094-.102	.63	.38	.250	.31	.250	.017
—	C11253-8A	**8A**	AEKN	.032-.038	.68	.41	.329	.30	.218	.028
—	C00951-8A		ADF	.032-.051	.48	.50	.250	.20	.218	.028
—	C01316-8A		ABDF	.032-.051	.49	.50	.250	.22	.218	.028
TN-78	C07525-8A-27		AD	.032-.064	.77	.44	.375	.35	.281	.028
—	C00539-020		Std.	.035-.051	.64	.44	.312	.29	.281	.020
—	C01132-022		ADF	.051-.064	.50	.50	.250	.22	.218	.022

Continued…

C

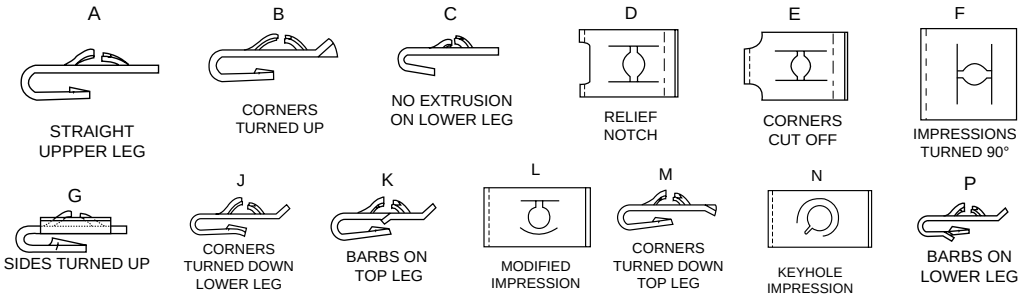
J-TYPE Fasteners



MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

DESIGN VARIATIONS: Parts shown as standard or with design variations are available only in that particular design.



The INCH dimensions of the listed parts on this page are reference dimensions only. For complete design information, please request a blueprint.

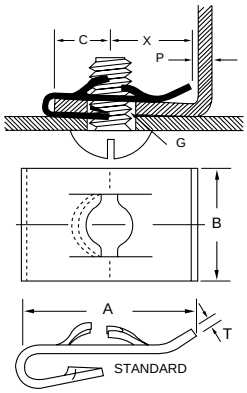
…Continued

SPAENAUR No.	Manufacturer's No.	Screw Size	Design Variation	P Panel Range	A Length	B Width	C Max Centre Hole to Edge	X Centre Imp. to End	G Panel Hole Dia.	T Mat'rl. Thickness
TN-79	C09470-017-27	**8A**	AD	.070-.090	.72	.41	.375	.31	.220	.017
—	C07284-8A		E	.075-.100	.63	.44	.250	.30	.218	.025
—	C11422-022		DF	.090-.110	.51	.50	.250	.20	.218	.022
—	C01802-017		E	.094-.102	.63	.38	.250	.32	.250	.017
TN-182	C01248-8A-27		E	.115-.128	.63	.44	.250	.30	.218	.025
—	C14329-8A		E	.120-.130	.63	.44	.250	.31	.218	.025
—	C15167-022	**8A or B**	ADF	.020-.030	.50	.50	.250	.22	.218	.022
B-1131	C09125-8-27		ADF	.023-.051	.48	.50	.250	.20	.218	.028
TN-150	C08039-8-27		AEN	.025-.040	.68	.41	.328	.30	.218	.028
—	C08041-8		AE	.025-.040	.87	.41	.515	.31	.218	.028
—	C01500-022		ADF	.025-.040	.50	.50	.250	.22	.218	.022
◆**TN-49**	C08042-8-4		AE	.045-.062	.86	.41	.515	.29	.218	.028
—	C09248-8		ACF	.080-.105	.79	.63	.500	.25	.218	.028
—	C01802-8		E	.094-.102	.63	.38	.250	.32	.250	.028
—	C15127-8		AEN	.168-.198	.61	.41	.281	.31	.218	.028
—	C13178-8		Std.	.213-.223	.65	.38	.312	.31	.250	.028
202-162	C01804-8Z-27	**8B**	ABDF	.025-.032	.49	.50	.250	.23	.218	.028
—	C01360-8		E	.100-.115	.63	.38	.250	.33	.250	.028
—	C01805-8Z		ABDF	.040-.051	.50	.50	.250	.21	.250	.028
202-157	C08043-1024-4	**10-24**	ADFN	.025-.040	.59	.63	.203	.28	.250	.022
—	C07433-1024		Std.	.032-.051	1.05	.50	.625	.37	.281	.022
—	C08044-1024		ADFN	.045-.062	.59	.63	.203	.28	.250	.022
—	C08046-1024		AE	.045-.062	.78	.38	.359	.34	.250	.022
—	C08048-1024		AEN	.045-.062	.97	.38	.562	.35	.250	.022
—	C08043-1032	**10-32**	ADFN	.025-.040	.59	.63	.203	.28	.250	.017
2222	C01186-10A-27	**10A**	ADF	.025-.032	.64	.69	.375	.25	.265	.031
2303	C01573-10A-27		ADF	.027-.045	.47	.69	.203	.24	.265	.031
2055	C00825-10A-27		ADF	.030-.040	.42	.69	.171	.23	.265	.031
B-1489	C10045-10A-27		ADF	.035-.050	.50	.56	.234	.24	.265	.031
B-1155	C00834-10A-1		DF	.040-.050	.64	.63	.343	.27	.281	.031
—	C011384-10A		AE	.062-.080	.77	.50	.358	.37	.250	.031
—	C08049-10A		ADFN	.025-.040	.58	.63	.250	.27	.250	.031
—	C09248-10A		ACF	.080-.105	.79	.63	.500	.25	.218	.031
—	C01221-10A		E	.081-.093	.60	.50	.281	.27	.250	.031
—	C14224-10A		E	.087-.110	.58	.50	.281	.26	.250	.031
—	C08051-10	**10A or B**	AE	.025-.040	.78	.50	.359	.36	.250	.031
—	C08050-10		ADFN	.045-.062	.58	.63	.250	.27	.250	.031

Continued…

◆Not necessarily Tinnerman® brand.

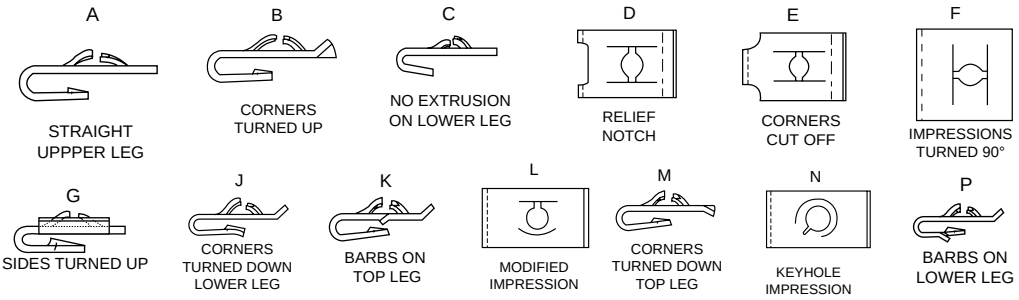
J-TYPE Fasteners



MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

DESIGN VARIATIONS: Parts shown as standard or with design variations are available only in that particular design.



The INCH dimensions of the listed parts on this page are reference dimensions only. For complete design information, please request a blueprint.

…Continued ***SPAENAUR No.***	Manufacturer's No.	**Screw Size**	**Design Variation**	**P Panel Range**	**A Length**	**B Width**	**C Max Centre Hole to Edge**	**X Centre Imp. to End**	**G Panel Hole Dia.**	**T Mat'rl. Thickness**
TN-38	C08052-10-27	**10A or B**	AE	.045-.062	.78	.50	.359	.36	.250	.031
—	C08054-10A		AEN	.045-.062	.97	.50	.562	.36	.250	.031
—	C14982-10		DF	.168-.198	.57	.63	.281	.27	.250	.031
—	C01808-10Z	**10B**	ADF	.032-.040	.64	.69	.343	.25	.265	.031
—	C01807-10Z		DF	.040-.050	.63	.63	.343	.26	.281	.031
—	C01809-10Z		E	.064-.081	.61	.50	.296	.28	.265	.031
TN-123	C14224-10Z-4		Std.	.087-.110	.60	.50	.281	.30	.250	.031
—	C70526-031		Std.	.120-.135	.60	.60	.281	.25	.296	.031
—	C07520-1420	**1/4-20**	AE	.025-.040	1.15	.63	.687	.43	.375	.025
—	C07577-1420		EF	.031-.062	.84	.75	.500	.26	.375	.025
—	C08748-1420		AE	.032-.040	.90	.56	.468	.37	.343	.025
B-1173	C00702-1420-27		D	.040-.051	.78	.50	.312	.40	.343	.025
—	C19383-1420		ADK	.040-.051	.91	.562	.375	.43	.312	.025
202-044	C01820-1420-4		A	.040-.062	1.13	.63	.687	.42	.375	.025
—	C07740-1420		AE	.075-.094	1.10	.63	.687	.40	.375	.025
—	C00844-1420		AE	.140-.187	1.29	.63	.781	.45	.437	.025
—	C07318-14A	**14A**	AE	.028-.056	.90	.56	.421	.40	.312	.040
2057	C00845-14A-27		AE	.032-.040	.88	.56	.468	.36	.343	.034
2058	C00846-14A-27		AE	.035-.046	1.23	.56	.718	.47	.343	.034
—	C01636-14-A		AE	.040-.051	.98	.63	.531	.42	.375	.034
—	C09719-14A		AE	.045-.075	.90	.56	.375	.42	.312	.040
B-1186	D01011-14A-27		AD	.050-.070	.91	.63	.531	.37	.375	.034
—	C07319-14A		AE	.060-.087	.91	.56	.421	.41	.312	.040
—	C00844-14A		AE	.140-.187	1.29	.63	.781	.45	.437	.034
B-1082	C00702-14-27	**14A or B**	D	.040-.051	.78	.50	.312	.40	.343	.037
B-1166	C01246-14-27		AE	.093-.105	.87	.56	.468	.36	.343	.034
—	D98244-14		ACE	.100-.140	1.09	.63	.58	.45	.25	.037
—	C09731-14Z	**14B**	AE	.028-.056	.90	.56	.421	.40	.312	.037
—	C01811-14Z		AE	.051-.064	.88	.56	.500	.36	.343	.034
—	C07467-5610	**5/16-10**	A	.032-.064	.98	.63	.500	.42	.437	.044
—	C00566-5610		AE	.032-.064	.99	.63	.500	.43	.437	.044
—	C00566-56Z	**5/16B**	AE	.032-.064	.99	.63	.500	.43	.437	.044

(Special J-Type Fasteners on following page.)

C

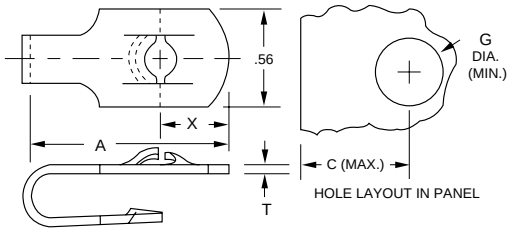
J-TYPE Fasteners
(Special)

MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

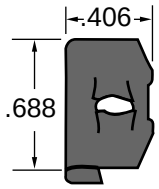
DESIGN VARIATIONS:
Parts shown as standard or with design variations are available only in that particular design.

FINISHES:
See Page C75 for finishes.



All Dimensions in Inches

SPAENAUR No.	Manufacturer's No.	Screw Size	Panel Range	A	C	G	X	T
2059	C00847-14A-27	**14A**	.125-.140	1.14	.734	.343	.34	.034
—	C06347-14A		.240-.250	1.15	.687	.375	.38	.034



Panel Range
.040-.050

SPAENAUR No.	Manufacturer's No.	Screw Size
2065	C00937-10A-27	**10A**

Limited quantities available.

SPAENAUR

TELEPHONE:
24 hours a day, 365 days a year
(800) 265-8772
(519) 744-3521

FAX:
24 hours a day, 365 days a year
(519) 744-0818
(800) 252-6380

Counter Sales:
7 a.m. to 6 p.m. EST., Weekdays

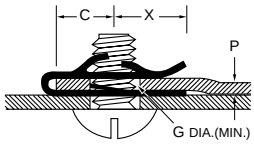
CATALOG 13

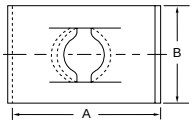
U-TYPE Fasteners

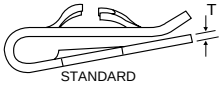
MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

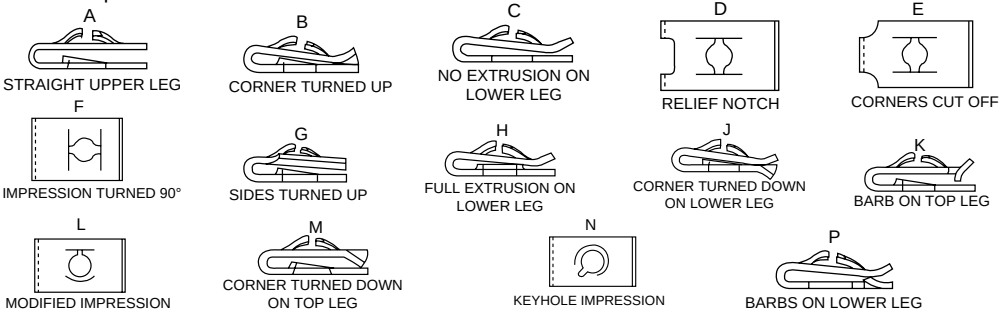
SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

DESIGN VARIATIONS:
Parts shown as standard or with design variations are available only in that particular design.









The INCH dimensions of the listed parts on this page are reference dimensions only. For complete design information, please request a blueprint.

SPAENAUR No.	Manufacturer's No.	Screw Size	Design Variation	P Panel Range	A Length	B Width	C Max Centre Hole to Edge	X Centre Imp to End	G Panel Hole Dia.	T Mat'rl. Thickness
—	C06187-4Z	**4B**	AB	.025-.032	.38	.31	.187	.18	.156	.020
—	C15301-4Z		AB	.025-.032	.38	.31	.187	.18	.156	.020
—	C09029-4Z		AB	.036-.047	.37	.31	.187	.17	.156	.022
—	C15263-4Z		AB	.051-.064	.36	.31	.145	.17	.156	.022
202-151	C09815-632-1	**6-32**	ABC	.012-.031	.38	.31	.187	.19	.187	.017
—	C06487-632		AC	.015-.025	.37	.31	.187	.17	.187	.017
—	C46551-011		N	.018-.023	.37	.31	.187	.18	.187	.011
—	C11982-632		AB	.025-.031	.37	.31	.165	.18	.187	.017
—	C08090-632		DF	.025-.040	.48	.50	.218	.21	.187	.017
—	C08092-632		E	.025-.040	.64	.31	.296	.30	.187	.017
—	C08094-632		E	.025-.040	.82	.31	.468	.31	.187	.017
—	C06005-632		A	.032-.040	.36	.31	.156	.18	.218	.017
TN-40	C06052-632-27		DF	.032-.040	.45	.50	.218	.22	.250	.017
—	C07888-632		AC	.035-.040	.37	.31	.156	.18	.156	.017
—	C11243-632		AC	.040-.051	.36	.31	.156	.17	.156	.017
—	C00880-632		A	.040-.051	.36	.31	.156	.18	.218	.017
◆202-021	D08091-632-4		DF	.045-.062	.48	.50	.218	.21	.187	.017
202-065	C08093-632-4		E	.045-.062	.65	.31	.296	.30	.187	.017
◆202-022	C08095-632-4		E	.045-.062	.82	.31	.468	.32	.187	.017
—	C19745SS-632		ABN	.050-.062	.35	.31	.156	.17	.218	.017
202-073	D098472-632-4		BCDN	.050-.062	.35	.31	.156	.17	.156	.017
202-201	D098472-632-27		BCDN	.050-.062	.35	.31	.156	.17	.156	.017
—	C06452-632		DF	.051-.064	.46	.50	.187	.23	.256	.017
—	C15180-632		ABC	.059-.065	.35	.31	.156	.17	.156	.017
◆TN-226	C01996-632-4		AC	.060-.064	.36	.31	.156	.17	.171	.017
—	C19877-632		ABCN	.065-.070	.35	.31	.125	.17	.156	.017
—	C07852-632		DF	.072-.081	.44	.50	.187	.23	.265	.017
—	C17451SS-632		AF	.072-.082	.34	.50	.171	.15	.203	.017
—	C11228-632		AFN	.090-.097	.42	.33	.235	.17	.218	.017
—	C71424-632		CF	.100-.120	.35	.44	.171	.17	.156	.017
—	C11351-632		CF	.110-.125	.35	.50	.171	.17	.156	.017
—	C11087-632		E	.110-.130	.53	.31	.250	.23	.187	.017
TN-225	C15471-632-27		EN	.135-.150	.51	.31	.265	.23	.187	.017
—	C01911-632		AC	.140-.156	.42	.28	.187	.17	.156	.017
—	C10132-632		A	.140-.156	.41	.28	.187	.16	.187	.017
—	C70794-632		C	.185-.195	.59	.31	.281	.30	.156	.017
—	C71117-632		Std.	.185-.195	.59	.31	.263	.32	.218	.017

Continued…

◆Not necessarily Tinnerman® brand.

See Price List for Unit Package Quantity.
See Page C75 for finishes.

C

U-TYPE Fasteners

MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

DESIGN VARIATIONS:
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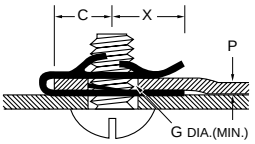
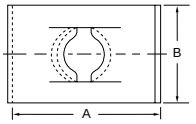
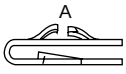
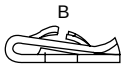




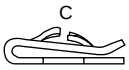
STANDARD



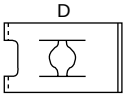
STRAIGHT UPPER LEG



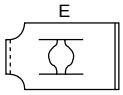
CORNER TURNED UP



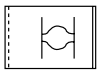
NO EXTRUSION ON LOWER LEG



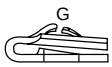
RELIEF NOTCH



CORNERS CUT OFF

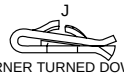


IMPRESSION TURNED 90°



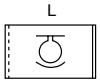
SIDES TURNED UP

FULL EXTRUSION ON LOWER LEG

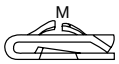


CORNER TURNED DOWN ON LOWER LEG

BARB ON TOP LEG

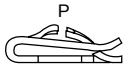


MODIFIED IMPRESSION



CORNER TURNED DOWN ON TOP LEG

KEYHOLE IMPRESSION



BARBS ON LOWER LEG

The INCH dimensions of the listed parts on this page are reference dimensions only.
For complete design information, please request a blueprint.

…Continued

SPAENAUR No.	Manufacturer's No.	Screw Size	Design Variation	P Panel Range	A Length	B Width	C Max Centre Hole to Edge	X Centre Imp to End	G Panel Hole Dia.	T Mat'rl. Thickness
—	C06736-632	**6-32**	E	.240-.260	.46	.31	.218	.23	.187	.017
—	C13091-6A	**6A**	ABF	.035-.045	.47	.50	.265	.19	.141	.022
—	C07547-6A		D	.062-.094	.60	.44	.296	.30	.250	.025
202-138	C08096-6-27	**6A or B**	DF	.025-.040	.48	.50	.218	.21	.187	.025
—	C06014-6		CD	.062-.094	.63	.44	.296	.32	.156	.025
TN-120	C08098-6-27		E	.025-.040	.64	.31	.296	.30	.187	.025
◆202-027	C08100-6-4		E	.025-.040	.81	.31	.468	.30	.187	.025
2061	C00885-6-27		D	.037-.064	.63	.44	.296	.32	.250	.025
202-066	C08097-6-4		DF	.045-.062	.47	.50	.218	.21	.187	.025
—	C08099-6		E	.045-.062	.65	.31	.296	.31	.187	.025
—	C09030-6		DF	.050-.078	.70	.63	.437	.24	.250	.025
—	C71020-6		F	.067-.083	.46	.50	.203	.21	.187	.025
202-037	C01785-6Z-27	**6B**	D	.025-.064	.84	.44	.500	.32	.218	.025
—	C06607-6Z		CEF	.032-.050	.34	.50	.171	.14	.156	.025
—	C13209-6Z		DF	.032-.050	.34	.50	.171	.14	.187	.025
—	C00880-6Z		A	.040-.051	.36	.31	.156	.18	.218	.022
—	C07707-6Z		EF	.047-.062	.33	.50	.171	.14	.203	.025
—	C09222-6Z		CEF	.055-.065	.34	.50	.164	.14	.156	.025
—	C06014-6		CD	.062-.094	.63	.44	.296	.32	.156	.025
—	C01881-6Z		Std.	.062-.094	1.21	.44	.828	.34	.281	.025
—	C07852-6Z		DF	.072-.081	.44	.50	.187	.23	.265	.025
—	C06346-6Z		AEF	.118-.125	.41	.50	.218	.18	.218	.022
—	C18705-6Z		AC	.120-.125	.42	.28	.187	.17	.156	.028
—	C13659SS-832	**8-32**	A	.014-.020	.38	.31	.185	.18	.218	.017
—	C06449-832		A	.025-.032	.38	.31	.187	.18	.218	.017
◆202-067	C08102-832-4		DF	.025-.040	.52	.50	.234	.25	.218	.017
202-091	C08104-832-1		E	.025-.040	.69	.41	.328	.31	.218	.017
202-108	C08106-832-4		E	.025-.040	.86	.41	.515	.31	.218	.017
202-107	C00915-832-4		DF	.030.-055	.52	.50	.203	.28	.203	.017
—	C08675-832		F	.030-.065	.51	.50	.203	.26	.203	.017
—	C10467-832		Std.	.031-.041	.64	.44	.312	.29	.281	.017
202-068	C09807-832-4		CN	.031-.051	.52	.44	.250	.22	.218	.017
—	C06052-832		DF	.032-.040	.45	.50	.218	.22	.250	.017
—	C06771-832		CF	.032-.062	.64	.63	.343	.27	.203	.017
202-062	C01287-832-4		F	.037-.094	.78	.50	.468	.27	.234	.017
—	C00365-832		FH	.040-.051	.50	.50	.218	.27	.218	.017
TN-256	C00814-832-4		CN	.040-.094	.74	.44	.328	.38	.170	.017

Continued…

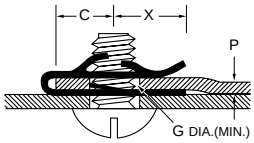
◆Not necessarily Tinnerman® brand.

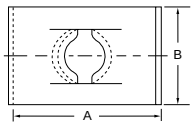
U-TYPE Fasteners

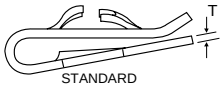
MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

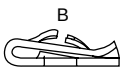
SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

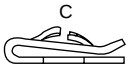
DESIGN VARIATIONS:
Parts shown as standard or with design variations are available only in that particular design.

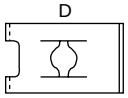


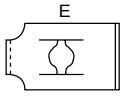


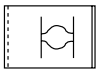


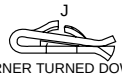


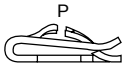












The INCH dimensions of the listed parts on this page are reference dimensions only.
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...Continued ***SPAENAUR No.***	Manufacturer's No.	**Screw Size**	**Design Variation**	**P Panel Range**	**A Length**	**B Width**	**C Max Centre Hole to Edge**	**X Centre Imp to End**	**G Panel Hole Dia.**	**T Mat'rl. Thickness**
202-116	C00814-832-373	**8-32**	CN	.040-.094	.74	.44	.328	.38	.170	.017
◆202-023	D08103-832-4		DF	.045-.062	.52	.50	.234	.26	.218	.017
202-104	D08105-832-27		E	.045-.062	.67	.41	.328	.30	.218	.017
—	C08107-832		E	.045-.062	.87	.41	.515	.32	.218	.017
◆202-024	C08681-832-4		N	.050-.063	.54	.31	.265	.23	.218	.017
—	C06452-832		DF	.051-.064	.46	.50	.187	.23	.256	.017
—	C14783-832		CDF	.051-.064	.46	.50	.187	.23	.265	.017
TN-195	C07852-832-4		DF	.072-.081	.44	.50	.187	.23	.265	.017
—	C70776-832		Std.	.085-.095	.53	.31	.250	.23	.218	.017
—	C47400-832		CN	.086-.096	.56	.44	.206	.30	.187	.017
—	C01487-832		A	.090-.098	.36	.31	.156	.18	.218	.017
TN-181	D15112-832-4		C	.094-.125	.75	.44	.281	.37	.170	.017
—	C00195-832		AC	.094	.76	.44	.312	.40	.187	.017
—	C11459SS-832		CDFK	.099-.104	.70	.63	.388	.24	.187	.017
—	C71122-832		DF	.110-.125	.51	.50	.187	.26	.213	.017
—	C00940-832		AC	.234-.250	.74	.44	.250	.40	.170	.017
—	C00721-8A	**8A**	A	.025	.36	.31	.156	.17	.218	.025
TN-232	C01022-8A-27		C	.025-.064	.83	.44	.500	.31	.187	.028
202-142	C01022-8A-255		C	.025-.064	.83	.44	.500	.31	.187	.028
—	C07429-8A		DF	.032-.040	.45	.50	.218	.22	.281	.028
—	C10483-8A		CDF	.032-.040	.45	.50	.218	.22	.281	.028
—	C13085-020		CDF	.032-.040	.46	.50	.218	.23	.281	.020
—	C01675-020		A	.035-.040	.36	.31	.171	.15	.234	.020
—	C15840-20		AB	.035-.050	.38	.31	.187	.19	.218	.020
—	C13982-8A		AB	.035-.050	.38	.31	.187	.19	.218	.025
—	C11733SS-020		CD	.037-.081	.56	.56	.274	.24	.187	.020
—	C01005-020		CD	.037-.081	.61	.56	.312	.29	.187	.020
—	C01005SS-8A		CD	.037-.081	.61	.56	.312	.29	.187	.028
B-993	C00636-8A-27		ADF	.040-.051	.53	.50	.218	.26	.250	.028
—	C14248-8A		CDFP	.045-.075	.49	.50	.218	.22	.187	.028
—	C19465-8A		D	.050-.080	.61	.44	.296	.31	.250	.028
—	C09379-8		D	.050-.090	.61	.44	.296	.31	.250	.028
—	C00194-8A		C	.062-.140	.59	.44	.281	.29	.187	.025
—	C08894-8A		C	.062-.140	.62	.44	.281	.31	.187	.025
—	C10163SS-8A		BC	.062-.140	.50	.44	.281	.19	.187	.025
TN-137	C07852-8A-27		DF	.072-.081	.44	.50	.187	.23	.265	.028

Continued... ◆Not necessarily Tinnerman® brand.

See Price List for Unit Package Quantity.
See Page C75 for finishes.

C

U-TYPE Fasteners

MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

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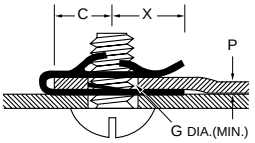
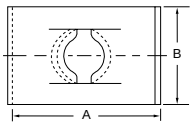
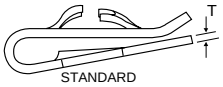
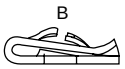




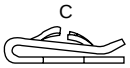


STANDARD

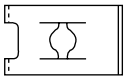
STRAIGHT UPPER LEG



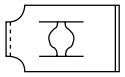
CORNER TURNED UP



NO EXTRUSION ON LOWER LEG



RELIEF NOTCH

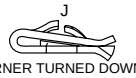


CORNERS CUT OFF

IMPRESSION TURNED 90°

SIDES TURNED UP

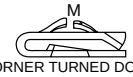
FULL EXTRUSION ON LOWER LEG



CORNER TURNED DOWN ON LOWER LEG

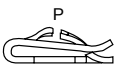
BARB ON TOP LEG

MODIFIED IMPRESSION



CORNER TURNED DOWN ON TOP LEG

KEYHOLE IMPRESSION



BARBS ON LOWER LEG

The INCH dimensions of the listed parts on this page are reference dimensions only.
For complete design information, please request a blueprint.

SPAENAUR No.	Manufacturer's No.	**Screw Size**	**Design Variation**	**P Panel Range**	**A Length**	**B Width**	**C Max Centre Hole to Edge**	**X Centre Imp to End**	**G Panel Hole Dia.**	**T Mat'rl. Thickness**
TN-251	C17721-8A-4	**8A**	E	.110-.187	.67	.44	.312	.31	.250	.028
—	C07703-8A		CDF	.115-.130	.66	.63	.437	.21	.187	.028
—	C14489-8A		Std.	.115-.140	.61	.44	.234	.30	.210	.025
—	C07508-8A		C	.130-.140	.63	.44	.281	.31	.187	.025
—	C09812-8A		CF	.187-.207	.74	.63	.453	.25	.281	.028
202-114	C11137-8A-255		AC	.187-.218	.59	.44	.250	.24	.187	.028
—	C08862-8	**8A or B**	AB	.025-.032	.38	.31	.187	.18	.218	.025
TN-138	D08108-8-27		DF	.025-.040	.52	.50	.234	.26	.218	.028
—	C08110-8		E	.025-.040	.69	.41	.328	.33	.218	.028
—	C08112-8		E	.025-.040	.85	.41	.515	.30	.218	.028
B-1187	C01789-8-27		D	.025-.051	.61	.44	.281	.29	.250	.028
—	C19526-8		DK	.025-.051	.67	.44	.280	.35	.250	.028
—	C17184-8		DF	.025-.064	.71	.63	.437	.24	.281	.028
—	C52138-8		CPN	.031-.039	.49	.50	.218	.21	.187	.028
◆**TN-220**	C00885-8-4		D	.037-.064	.63	.44	.296	.31	.250	.028
—	C00814-8		CN	.040-.094	.74	.44	.328	.38	.170	.025
202-041	C08109-8-3B		DF	.045-.062	.52	.50	.234	.26	.218	.028
202-176	C08109-8-27		DF	.045-.062	.52	.50	.234	.26	.218	.028
TN-53	C08111-8-27		E	.045-.062	.67	.41	.328	.32	.218	.028
—	C08113-8		E	.045-.062	.86	.41	.515	.32	.218	.028
—	D97408-8		E	.045-.062	.76	.31	.328	.37	.190	.028
—	C17096-8		A	.048-.062	.52	.31	.218	.25	.250	.025
TN-80	C09030-8-27		DF	.050-.078	.70	.63	.437	.24	.281	.028
TN-101	D07159-8-27		D	.055-.080	.71	.44	.281	.31	.281	.028
—	C71281-8		ABDF	.070-.090	.51	.50	.296	.19	.218	.028
—	C01793-8		D	.064-.093	.70	.63	.437	.24	.281	.028
202-092	D11539-8-1		CD	.081-.094	.61	.44	.281	.30	.281	.028
202-155	D11539-8-27		CD	.081-.094	.61	.44	.281	.30	.281	.028
—	C18074-8		ABDF	.090-.120	.50	.50	.250	.19	.281	.028
202-261	D09031-8-4		DF	.102-.125	.70	.63	.406	.25	.281	.028
—	C15286-8		CF	.290-.310	.57	.63	.300	.24	.187	.028
—	C19898-8AB	**8AB**	DFP	.052-.066	.44	.50	.218	.18	.281	.028
—	C70266-8AB		CDP	.075-.090	.62	.44	.250	.32	.187	.028
—	C98221-8AB		CDPN	.079-.110	.57	.53	.252	.25	.283	.028

Continued… ◆Not necessarily Tinnerman® brand.

U-TYPE Fasteners

MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

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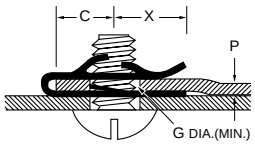
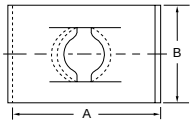
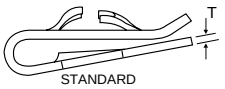
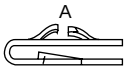
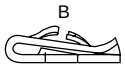
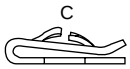


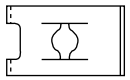


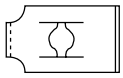


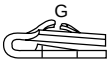


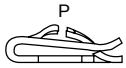












The INCH dimensions of the listed parts on this page are reference dimensions only. For complete design information, please request a blueprint.

SPAENAUR No.	Manufacturer's No.	Screw Size	Design Variation	P Panel Range	A Length	B Width	C Max Centre Hole to Edge	X Centre Imp to End	G Panel Hole Dia.	T Mat'rl. Thickness
—	D97455-031	**8AB**	C	.180-.220	.64	.44	3.00	3.3	.245	.031
—	C01274-8	**8B**	ABDF	.025-.032	.50	.50	.250	.24	.281	.028
—	C01348-8Z		CD	.025-.064	.73	.50	.343	.36	.171	.028
—	C01787-8Z		D	.025-.064	.84	.44	.500	.32	.281	.028
202-090	C01787SS-8Z-27		D	.025-.064	.84	.44	.500	.32	.281	.028
—	C01788-8Z		CD	.025-.064	.84	.44	.500	.32	.170	.028
—	C06352-8Z		DF	.030-.040	.45	.50	.218	.22	.281	.028
—	C01932-8Z		DH	.032-.051	.58	.50	.265	.27	.343	.025
◆**202-020**	C10554-8Z-4		CDF	.035-.045	.45	.50	.218	.22	.171	.028
—	C07674-8Z		DF	.036-.050	.46	.50	.250	.18	.281	.028
—	C01786-8Z		ADF	.040-.051	.53	.50	.218	.26	.250	.028
—	C06452-8Z		DF	.051-.064	.46	.50	.187	.23	.265	.028
—	C06077-8Z		ADF	.060-.070	.52	.50	.234	.24	.250	.028
—	C01881-8Z		Std.	.062-.094	1.21	.44	.828	.34	.281	.028
—	C07852-8Z		DF	.072-.081	.44	.50	.187	.23	.265	.028
—	C01487-8Z		A	.090-.098	.36	.31	.156	.19	.218	.025
—	D098381-8		BN	.090-.110	.43	.32	.220	.18	.218	.025
—	C11459SS-8Z		CDFK	.099-.109	.69	.63	.388	.25	.187	.028
202-189	C09223-8Z-27		ABD	.120-.140	.90	.63	.531	.32	.265	.028
—	D98359-8Z		BCD	.130-.169	.70	.63	.413	.18	.280	.028
202-088	D98214-8Z-4		Std.	.156-.187	1.16	.54	.750	.32	.281	.028
—	C70196-8Z		Std.	.156-.188	.72	.44	.265	.35	.250	.028
—	C06438-8Z		Std.	.182-.192	.64	.44	.281	.33	.281	.028
—	C00940-8Z		AC	.234-.250	.74	.44	.250	.40	.170	.028
—	C00699-1024	**10-24**	DF	.020-.051	.70	.63	.453	.23	.281	.022
—	C01274-1024		BDF	.025-.032	.50	.50	.250	.24	.281	.020
—	C08114-1024		DF	.025-.040	.58	.63	.203	.27	.250	.022
—	C08116-1024		E	.025-.040	.76	.38	.359	.34	.250	.022
—	C08118-1024		E	.025-.040	.95	.38	.562	.34	.250	.022
—	C01790-1024		Std.	.025-.051	.64	.44	.281	.31	.281	.020
202-164	D01155-1024-27		CD	.025-.064	.64	.44	.312	.31	.218	.020
TN-188	C01379-1024-27		ND	.025-.064	.84	.44	.500	.32	.281	.020
—	C09079-1024		Std.	.025-.064	.82	.44	.500	.30	.281	.020
—	C06739-1024		CD	.025-.064	.84	.44	.500	.32	.281	.020
—	C01153-1024		DH	.025-.081	.62	.44	.312	.30	.312	.020

Continued…

◆Not necessarily Tinnerman® brand.

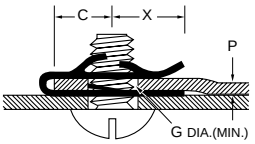
C

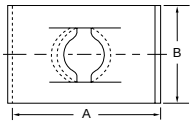
U-TYPE Fasteners

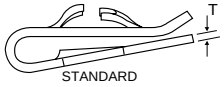
MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

DESIGN VARIATIONS: Parts shown as standard or with design variations are available only in that particular design.

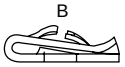




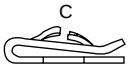


STANDARD

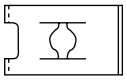
STRAIGHT UPPER LEG



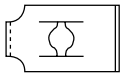
CORNER TURNED UP



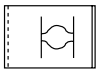
NO EXTRUSION ON LOWER LEG



RELIEF NOTCH



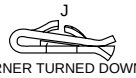
CORNERS CUT OFF



IMPRESSION TURNED 90°

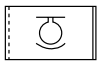
SIDES TURNED UP

FULL EXTRUSION ON LOWER LEG

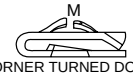


CORNER TURNED DOWN ON LOWER LEG

BARB ON TOP LEG

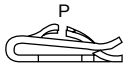


MODIFIED IMPRESSION



CORNER TURNED DOWN ON TOP LEG

KEYHOLE IMPRESSION



BARBS ON LOWER LEG

The INCH dimensions of the listed parts on this page are reference dimensions only. For complete design information, please request a blueprint.

SPAENAUR No.	Manufacturer's No.	Screw Size	Design Variation	P Panel Range	A Length	B Width	C Max Centre Hole to Edge	X Centre Imp to End	G Panel Hole Dia.	T Mat'rl. Thickness
◆**202-025**	C09076-1024-1	**10-24**	DH	.025-.081	.62	.44	.312	.30	.250	.020
TN-257	C00550-1024-27		H	.025-.081	.63	.44	.312	.30	.312	.020
202-109	D01152-1024-4		CD	.025-.093	.63	.44	.312	.31	.250	.020
—	C00361-1024		C	.025-.094	.63	.44	.312	.30	.218	.020
—	C09275-1024		AF	.036-.050	.52	.50	.250	.26	.281	.022
—	C06574-1024		ADF	.036-.050	.52	.50	.250	.26	.281	.020
202-063	C07674-1024-4		DF	.036-.050	.46	.50	.250	.18	.281	.020
—	C00605-1024		H	.040-.062	.84	.44	.500	.31	.312	.020
—	C11129-1024		Std.	.040-.081	.63	.44	.312	.31	.281	.020
—	C13885-1024		D	.040-081	.63	.44	.312	.31	.312	.020
—	C07496-1024		Std.	.040-.094	.74	.44	.343	.37	.281	.020
—	C1226-1024		C	.040-.094	.74	.44	.343	.37	.218	.020
TN-34	C8115-1024-27		DF	.045-.062	.56	.63	.250	.25	.250	.022
—	C8117-1024		E	.045-.062	.76	.38	.359	.35	.250	.022
—	C8119-1024		E	.045-.062	.95	.38	.562	.34	.250	.022
—	C9030-1024		DF	.050-.078	.71	.63	.437	.25	.281	.025
—	C00596-1024		Std.	.051-.081	.63	.44	.281	.32	.281	.020
—	C71453SS-1024		AN	.052.076	.64	.44	.281	.33	.281	.022
—	C00950-1024		H	.062-.081	.64	.44	.296	.31	.312	.020
—	C00635-1024		H	.070-.109	.62	.44	.281	.29	.281	.020
—	C45952-1024		CN	.086-.096	.56	.63	.206	.30	.218	.022
TN-118	C09040-1024-27		N	.100-.120	.62	.44	.265	.30	.281	.020
—	C17205-1024		D	.100-.125	.82	.44	.453	.32	.281	.020
—	C1197-1024		H	.109-120	.63	.44	.281	.31	.312	.020
202-061	C00575-1024-4		C	.115-.130	.63	.44	.250	.32	.218	.020
TN-193	C01880-1024-27		Std.	.156-.187	1.14	.44	.750	.31	.281	.020
—	C01274-1032	**10-32**	BDN	.025-.032	.50	.50	.250	.24	.281	.020
202-165	D01505-1032-4		DH	.025-.062	.66	.44	.312	.32	.312	.017
—	C06739SS-1032		CD	.025-.064	.84	.44	.500	.32	.218	.017
—	C01731-1032		C	.025-.064	.84	.44	.500	.32	.218	.017
—	C13398-1032		DF	.045-.062	.57	.63	.250	.26	.250	.017
—	C15206-1032		CDF	.055-.065	.44	.50	.234	.18	.218	.020
—	C70433-1032		CN	.060-.070	.44	.50	.225	.18	.281	.020
—	C13387-1032		DH	.060-.070	.50	.44	.312	.32	.312	.017
—	C18960-1032		Std.	.081-.100	.61	.44	.281	.31	.281	.017
1913	C00699-10A-4	**10A**	DF	.020-.051	.70	.63	.453	.23	.281	.031

Continued...

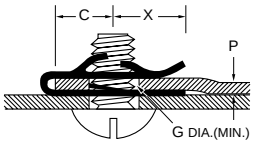
◆Not necessarily Tinnerman® brand.

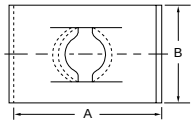
U-TYPE Fasteners

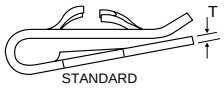
MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

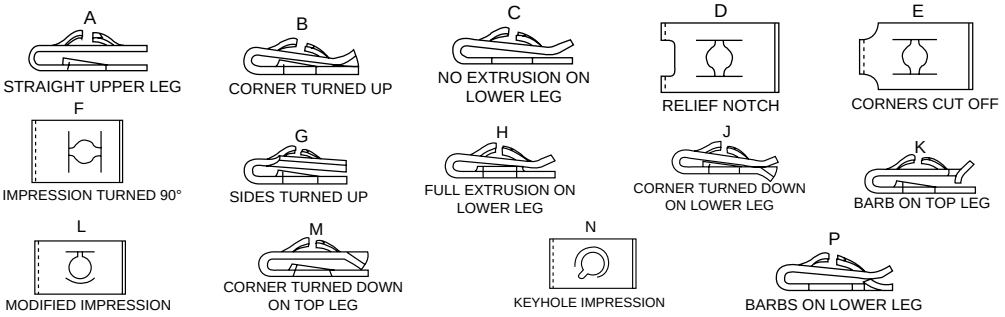
SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

DESIGN VARIATIONS: Parts shown as standard or with design variations are available only in that particular design.









The INCH dimensions of the listed parts on this page are reference dimensions only. For complete design information, please request a blueprint.

SPAENAUR No.	Manufacturer's No.	Screw Size	Design Variation	P Panel Range	A Length	B Width	C Max Centre Hole to Edge	X Centre Imp to End	G Panel Hole Dia.	T Mat'rl. Thickness
—	C17319-10A	**10A**	DK	.025-.064	.84	.44	.500	.32	.281	.031
—	D97288-10A		CDP	.025-.064	.84	.44	.500	.32	.281	.031
—	C17319-10A		DK	.025-.064	.84	.44	.500	.32	.281	.031
—	D97288-10A		CDP	.025-.064	.84	.44	.500	.32	.281	.031
B-1178	C01350-10A-27		CD	.025-.064	.73	.50	.343	.36	.218	.031
2062	D00907-10-27		AEFHM	.030-.043	.50	.53	.250	.25	.265	.031
—	C07685-10A		Std.	.037-.064	.62	.44	.296	.31	.281	.031
—	C15462-10A		DF	.040-.064	.60	.63	.281	.24	.281	.031
—	C09240-10A		D	.065-.087	.64	.44	.265	.33	.250	.031
—	C15326-10A		D	.081-.100	.61	.44	.281	.31	.281	.025
—	C00575-10A		C	.115-.130	.63	.44	.250	.32	.218	.031
202-087	D09223-10A-255		ABD	.120-.140	.90	.63	.531	.32	.265	.031
—	C06438-10A		Std.	.182-.192	.64	.44	.281	.33	.281	.031
—	C08834-10	**10A or B**	DF	.023-.050	.47	.50	.250	.22	.281	.031
202-161	D08834-10-27		DF	.023-.050	.47	.50	.250	.22	.281	.031
202-178	D08834-10-4		DF	.023-.050	.47	.50	.250	.22	.281	.031
—	C71188-10		DFK	.025-.040	.56	.63	.250	.26	.250	.031
—	C08122-10		E	.025-.040	.76	.50	.359	.33	.250	.031
—	C08124-10		E	.025-.040	.96	.50	.562	.35	.250	.031
—	C06384-10		Std.	.025-.040	1.00	.44	.593	.36	.281	.031
TN-176	C01787-10-27		D	.025-.064	.84	.44	.500	.32	.281	.031
—	C01153-10		DH	.025-.081	.62	.44	.312	.30	.312	.028
—	C01794-10		D	.032-.064	.62	.44	.281	.32	.281	.031
—	C70085-10		EK	.037-.047	.76	.50	.375	.34	.250	.031
—	C00885-10		D	.037-.064	.63	.44	.296	.31	.281	.031
TN-149	D00636-10-27		ADF	.040-.051	.53	.50	.218	.26	.250	.031
202-175	D00636-10-373		ADF	.040-.051	.53	.50	.218	.26	.250	.031
202-163	D00636-10-3B		ADF	.040-.051	.53	.50	.218	.26	.250	.031
—	C01226-10		C	.040-.094	.74	.44	.343	.37	.218	.031
—	C08121-10		DF	.045-.062	.56	.63	.250	.26	.250	.031
TN-68	C08123-10-27		E	.045-.062	.76	.50	.359	.34	.250	.031
—	C08125-10		E	.045-.062	.95	.50	.562	.35	.250	.031
—	C09030-10		DF	.050-.078	.70	.63	.437	.281	.281	.031
TN-131	D11621-10-4		CDF	.051-.064	.46	.50	.250	.21	.281	.031
—	C07431-10		CD	.055-.064	.73	.50	.343	.36	.218	.031
202-005	C01793-10-27		DF	.064-.093	.70	.63	.437	.24	.281	.031

Continued…

C

U-TYPE Fasteners

MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

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S - Low Carbon Steel

DESIGN VARIATIONS:
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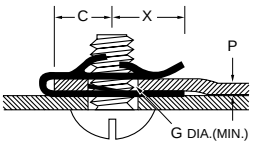
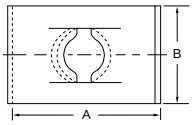
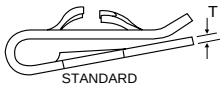
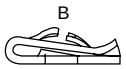


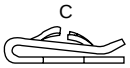


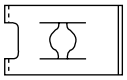


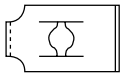
STANDARD

A
STRAIGHT UPPER LEG


B
CORNER TURNED UP


C
NO EXTRUSION ON LOWER LEG

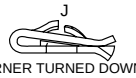

D
RELIEF NOTCH


E
CORNERS CUT OFF

F
IMPRESSION TURNED 90°

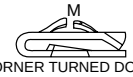
G
SIDES TURNED UP

H
FULL EXTRUSION ON LOWER LEG

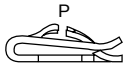

J
CORNER TURNED DOWN ON LOWER LEG

K
BARB ON TOP LEG

L
MODIFIED IMPRESSION


M
CORNER TURNED DOWN ON TOP LEG

N
KEYHOLE IMPRESSION


P
BARBS ON LOWER LEG

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For complete design information, please request a blueprint.

SPAENAUR No.	Manufacturer's No.	**Screw Size**	**Design Variation**	**P Panel Range**	**A Length**	**B Width**	**C Max Centre Hole to Edge**	**X Centre Imp to End**	**G Panel Hole Dia.**	**T Mat'rl. Thickness**
—	C06281-10	**10A or B**	Std.	.078-.094	.98	.50	.560	.35	.280	.028
202-185	C01758-10-27		D	.081-.094	.62	.44	.281	.31	.281	.031
—	C06437-10		Std.	.109-.125	.63	.44	.281	.32	.281	.031
—	D06954-10		C	.109-.125	.63	.44	.281	.32	.281	.031
—	C18551-10		CDK	.090-.110	.61	.44	.281	.31	.281	.031
—	C00779-10		FH	.093-.109	.69	.63	.406	.25	.281	.028
TN-199	D09031-10-27		DF	.102-.125	.70	.63	.406	.25	.281	.031
—	C71192-10AB	**10AB**	DN	.075-.083	.51	.50	.234	.24	.250	.028
—	C17588-10Z	**10B**	F	.025-.040	.61	.63	.343	.25	.281	.031
—	C07392-10Z		DF	.025-.040	.61	.63	.343	.25	.281	.031
—	C01792-10Z		DF	.025-.051	.71	.63	.406	.24	.281	.031
—	C01350-10Z		CD	.025-.064	.73	.50	.343	.36	.218	.031
—	C06352-10Z		DF	.030-.040	.45	.50	.281	.22	.281	.031
—	C01485-10Z		CD	.032-.064	.72	.50	.343	.34	.281	.031
—	C07674-10Z		DF	.036-.050	.46	.50	.250	.18	.281	.031
—	C01791-10Z		DF	.040-.064	.60	.63	.343	.24	.281	.031
—	C06308-10Z		DF	.040-.064	.89	.63	.562	.25	.281	.031
—	C06552-10Z		CDF	.051-.064	.44	.50	.187	.23	.218	.031
—	C01881-10Z		Std.	.062-.094	1.21	.44	.828	.34	.281	.031
—	C07852-10Z		DF	.072-.081	.44	.50	.187	.23	.265	.031
—	C13213-10Z		DF	.080-.100	.60	.63	.312	.27	.281	.031
—	C70209-10Z		Std.	.080-.100	.74	.44	.343	.37	.281	.031
—	C09223SS-10Z		BD	.120-.140	.90	.63	.531	.32	.265	.031
—	C17216-10Z		C	.125-.160	.64	.44	.281	.33	.218	.034
—	C14810-10Z		Std.	.125-.160	.64	.44	.281	.33	.281	.034
—	C14172SS-10Z		Std.	.125-.160	.64	.44	.281	.33	.281	.031
—	D98232-10Z		Std.	.130-.190	.96	.44		.31	.218	.031
—	C01880-10Z		Std.	.156-.187	1.14	.44	.750	.31	.281	.031
—	C06312-10Z		F	.170-.200	.74	.63	.453	.26	.281	.028
—	C06438-10Z		Std.	.182-.192	.64	.44	.281	.33	.281	.031
—	C11307-1224	**12-24**	EF	.043-.060	.63	.63	.338	.26	.312	.022
—	C00509-1224		C	.051-.109	.80	.50	.312	.39	.281	.022
—	C17280-1224		EF	.070-.080	.63	.63	.338	.26	.312	.022

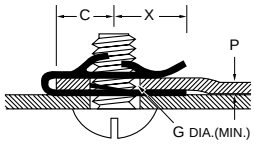
Continued…

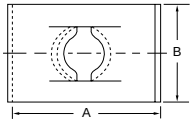
U-TYPE Fasteners

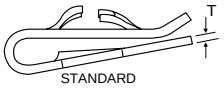
MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

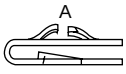
SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

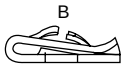
DESIGN VARIATIONS:
Parts shown as standard or with design variations are available only in that particular design.

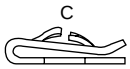


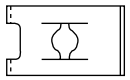


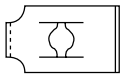


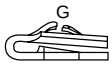


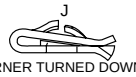


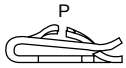












The INCH dimensions of the listed parts on this page are reference dimensions only.
For complete design information, please request a blueprint.

SPAENAUR No.	Manufacturer's No.	Screw Size	Design Variation	P Panel Range	A Length	B Width	C Max Centre Hole to Edge	X Centre Imp to End	G Panel Hole Dia.	T Mat'rl. Thickness
—	C70026-028	**12A**	EF	.036-.052	.58	.63	.338	.22	.281	.028
—	C18895-028		EF	.046-.052	.58	.63	.338	.22	.281	.028
—	C06610-1420	**1/4-20**	C	.032-.051	.82	.50	.343	.43	.265	.025
—	C01907-1420		CEF	.032-.156	1.24	.63	.937	.26	.281	.025
—	C09728-1420		EFH	.032-.156	1.24	.63	.937	.26	.375	.025
—	C01908-1420		CEF	.037-.156	1.88	.63	1.562	.26	.281	.025
—	D05663-1420		Std.	.051-.109	.72	.50	.312	.41	.359	.025
◆202-026	D00521-1420-S4		Std.	.051-.109	.78	.50	.312	.41	.359	.025
—	C14969-1420		H	.051-.109	.79	.50	.312	.39	.343	.025
—	C00509-1420		C	.051-.109	.79	.50	.312	.40	.281	.025
—	C09569-1420		EF	.060-.156	1.24	.63	.937	.26	.343	.025
—	C10974-1420		EF	.060-.156	1.88	.63	1.562	.26	.375	.025
—	C51641-1420		N	.062-.076	.57	.34	.240	.28	.312	.028
202-119	D07343-1420-4		C	.062-.125	.96	.50	.500	.41	.281	.025
◆2293	D01303-1420-27		Std.	.064-.125	.97	.50	.500	.43	.343	.025
202-141	D01303-1420-3B		Std.	.064-.125	.97	.50	.500	.43	.343	.025
—	C08738-1420		B	.070-.140	1.08	.56	.718	.32	.312	.025
B-1154	C06520-1420-27		Std.	.093-.125	.89	.50	.437	.43	.375	.025
—	C07446-1420		Std.	.105-.120	.98	.50	.500	.44	.343	.025
—	C17453-1420		EF	.156-.190	1.23	.63	.906	.26	.343	.025
—	C19238-1420		F	.170-.190	.68	.63	.375	.24	.343	.025
—	C15195-1420		F	.180-.190	.68	.63	.375	.24	.343	.025
—	C17589SS-1420		B	.276-.286	1.02	.56	.562	.32	.312	.025
—	C17589-1420		B	.276-.286	1.03	.56	.562	.32	.312	.025
TN-112	C08126-14A-27	**14A**	E	.028-.056	.93	.56	.421	.43	.312	.037
—	C01729-14A		Std.	.032-.051	.81	.50	.375	.41	.359	.034
—	C08127-14A		E	.060-.087	.93	.56	.421	.44	.312	.037
—	C08129-14A		E	.060-.087	1.17	.56	.671	.44	.312	.037
—	C07343-14A		C	.062-.125	.96	.50	.500	.41	.281	.037
—	C10392-14A		Std.	.105-.120	.98	.50	.500	.45	.343	.040
—	C01303-14	**14AB**	Std.	.064-.125	.97	.50	.500	.43	.343	.037
—	D98325-14AB		BE	.110-.130	.62	.75	.300	.26	.343	.037
—	C00521-14	**14A or B**	Std.	.051-.109	.78	.50	.312	.41	.359	.031

Continued…

◆Not necessarily Tinnerman® brand.

See Price List for Unit Package Quantity.

See Page C75 for finishes.

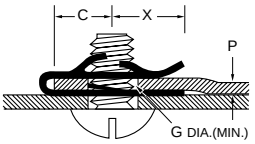
C

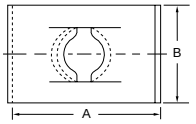
U-TYPE Fasteners

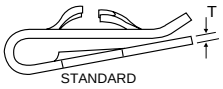
MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

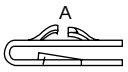
DESIGN VARIATIONS:
Parts shown as standard or with design variations are available only in that particular design.

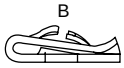


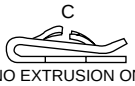


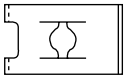


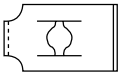
STANDARD


A
STRAIGHT UPPER LEG


B
CORNER TURNED UP


C
NO EXTRUSION ON LOWER LEG

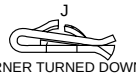

D
RELIEF NOTCH


E
CORNERS CUT OFF

F
IMPRESSION TURNED 90°

G
SIDES TURNED UP

H
FULL EXTRUSION ON LOWER LEG

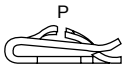

J
CORNER TURNED DOWN ON LOWER LEG

K
BARB ON TOP LEG

L
MODIFIED IMPRESSION

M
CORNER TURNED DOWN ON TOP LEG

N
KEYHOLE IMPRESSION


P
BARBS ON LOWER LEG

The INCH dimensions of the listed parts on this page are reference dimensions only.
For complete design information, please request a blueprint.

SPAENAUR No.	Manufacturer's No.	**Screw Size**	**Design Variation**	**P Panel Range**	**A Length**	**B Width**	**C Max Centre Hole to Edge**	**X Centre Imp to End**	**G Panel Hole Dia.**	**T Mat'rl. Thickness**
—	C09383-14Z	**14B**	D	.035-.065	.97	.50	.500	.42	.343	.037
—	C07343-14Z		C	.062-.125	.96	.50	.500	.41	.281	.037
—	C10692-14Z		ACEF	.062-.125	1.92	.75	1.562	.29	.312	.040
TN-133	C10392-14Z-27		Std.	.105-.120	.98	.50	.500	.45	.343	.040
—	C70942-14Z		Std.	.161-.213	.90	.48	.430	.42	.343	.037
—	C11381-5610	**5/16-10**	D	.037-.078	1.02	.63	.562	.38	.375	.044
—	C11218-5618	**5/16-18**	A	.037-.051	.94	.63	.500	.41	.375	.028
—	C10670-5618		AB	.075-.100	1.05	.63	.562	.39	.375	.028
—	C17234-5618		Std.	.112-.140	1.04	.63	.562	.40	.375	.028
TN-186	D07511-5618-27		A	.112-.140	1.04	.63	.562	.40	.375	.028
—	C01771-56Z	**5/16-B**	A	.037-.064	1.05	.63	.562	.41	.437	.044
—	C14505-56Z		AD	.064-.094	1.03	.63	.531	.42	.406	.044

U-TYPE Prevailing Torque

Prevailing Torque Fasteners: Provide restraining torque at any location on the screw threads. Typical application: Where U-nut is used as an adjustment nut.

SPAENAUR No.	Manufacturer's No.	**Screw Size**	**Design Variation**	**Panel Range**	**Prevailing Torque in Oz.**	**A Lgth.**	**B Wdth.**	**C Max Centre Hole to Edge**	**X Centre Imp to End**	**G Panel Hole Dia.**	**T Mat'rl. Thickness**
—	C10778-012	**3-48**	C	.044-.050	1 to 5	.39	.25	.156	.19	.125	.012
TN-86	C09341-012-27	**4-40**	C	.014-.036	1 to 5	.40	.25	.156	.20	.125	.012
—	C13487SS-025	**6B**	ABEF	.032-.064	2 to 5	.52	.50	.312	.18	.218	.025
—	C15203-017	**8-32**	DF	.032-.040	2 to 6	.45	.50	.218	.22	.250	.017
—	D98256-025	**8A**	BCN	.025-.032	DRAG	.38	.31	.187	.18	.190	.025
—	C17410-031	**10B**	DF	.050-.078	DRAG	.70	.63	.437	.24	.281	.031
—	C17979-037	**14A**	ABEF	.062-.125	30 to 50	1.30	.75	.937	.29	.343	.037
—	C70236-040	**14B**	C	.095-.125	20 to 50	.78	.50	.312	.39	.390	.040

Other sizes available.

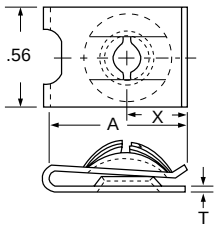
U-TYPE Fasteners (Special)

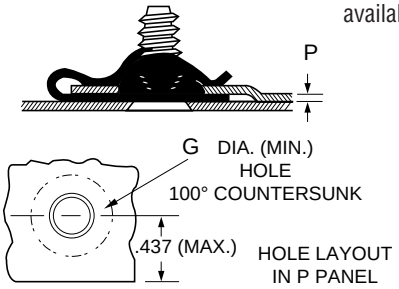
MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

DESIGN VARIATIONS: Parts shown as standard or with design variations are available only in that particular design.

FINISH: See Page C75 for available finishes.



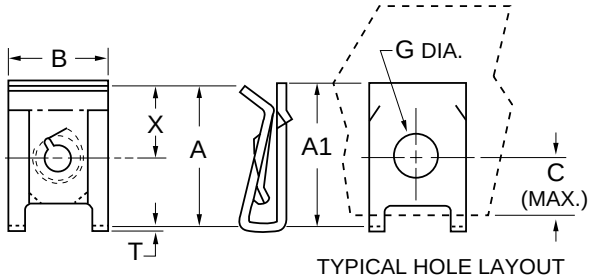


SPAENAUR No.	Manufacturer's No.	Screw Size	Panel Range	A	G	X	T
TN-127	C06432-10Z-1	**10B**	.051-.072	.76	.218	.29	.028

U-TYPE Fasteners (Special)

WIDE PANEL RANGE U-NUTS — NO CENTRE BACK LEG.

The INCH dimensions of the listed parts on this page are reference dimensions only. For complete design information, please request a blueprint.

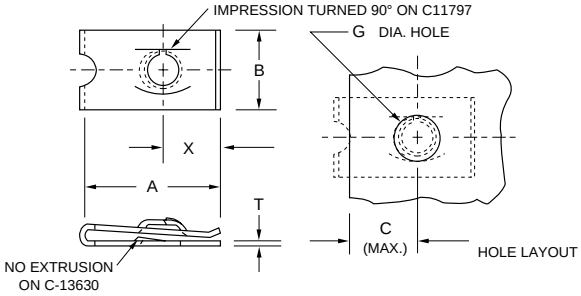


TYPICAL HOLE LAYOUT
IN "P" PANEL RANGE

SPAENAUR No.	Manufacturer's No.	Screw Size	P Panel Range	A	A1	B	C	X Centre to Edge	G Panel Hole	T Mat'rl. Thick.
—	C71153-7A	**7A**	.090-.160	.61	.66	.50	.203	.384	.187	.025
—	D97574-8AB	**8AB**	.025-.150	.74	.77	.53	.312	.415	.250	.028
—	D06396-8AB		.030-.070	.67	.75	.53	.312	.380	.328	.028
—	D98365-8AB		.051-.110	.74	.77	.53	.270	.198	.191	.028
202-047	D06377-8AB-4		.070-.150	.67	.75	.53	.312	.380	.328	.028
—	D98189-8AB		.090-.110	.74	.77	.53	.312	.350	.328	.028

U-TYPE Fasteners (Special)

The INCH dimensions of the listed parts on this page are reference dimensions only. For complete design information, please request a blueprint.



SPAENAUR No.	Manufacturer's No.	Screw Size	Panel Range	Installation Torque	A	B	C	G	X	T
TN-129	C11797-020-27	**10A**	.060-.080	21 in lbs.	.75	.63	.400	.281	.30	.020

C

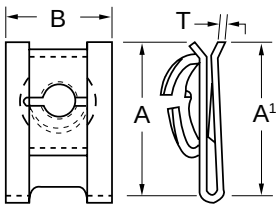
U-TYPE Fasteners (Special)

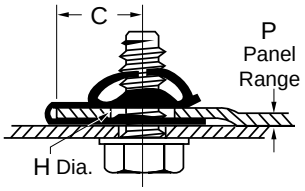
MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

DESIGN VARIATIONS: Parts shown as standard or with design variations are available only in that particular design.

FINISH: See Page C75 for available finishes.





Design Variation

A

Wide Panel Range

SPAENAUR No.	Manufacturer's No.	Screw Size	Design Variation	P Panel Range	A Length	A1 Length	B Width	C Max Hole to Edge	H Min. Dia.	T Mat'rl. Thick.
202-051	D98320-071M-1	**8AB**	Std.	.035-.045	.634	.720	.540	.320	.320	.028
202-049	D98316-017M-67		A	.020-.070	.697	.768	.542	.312	.328	.028
—	D98314-071M		Std.	.080-.110	.610	.700	.540	.320	.320	.028
202-050	D98317-071M-1		A	.070-.150	.670	.758	.531	.312	.328	.028
—	D06519SS		Std.	.035-.045	.670	.720	.540	.310	.250	.028
—	C46195-031	**10AB**	Std.	.032-.064	.825	.825	.593	.500	.312	.031
—	C70898-031		HIGH HI-EXT RETAIN BARBS	.032-.064	.825	.825	.593	.500	.312	.031
—	C46338-037	**14AB**	Std.	.025-.050	.860	.870	.593	.500	.312	.037
—	C44818-037		DUAL LEAD LIPS	.025-.050	.860	.860	.593	.500	.312	.037
—	C46975-037		Std.	.050-.075	.850	.850	.593	.500	.312	.037
—	C45072-037		DUAL LEAD LIPS	.050-.075	.850	.850	.593	.500	.312	.037
—	C49839-037		Std.	.095-.115	.840	.840	593	.468	.312	.037

U-TYPE Fasteners (Special)

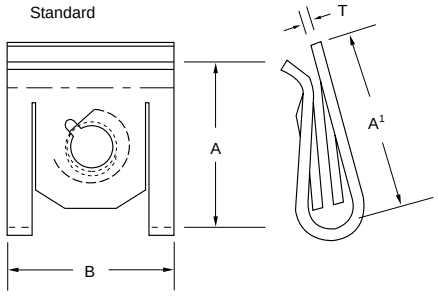
MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

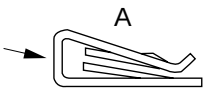
DESIGN VARIATIONS: Parts shown as standard or with design variations are available only in that particular design.

FINISH: See Page C75 for available finishes.

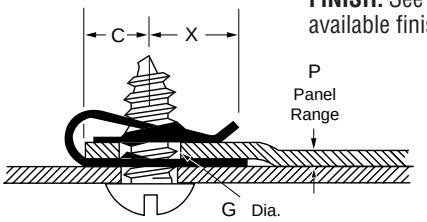
WIDE PANEL RANGE U-TYPE FASTENERS

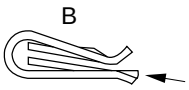


Design Variations

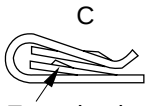


Square Back





Turned Down Corners



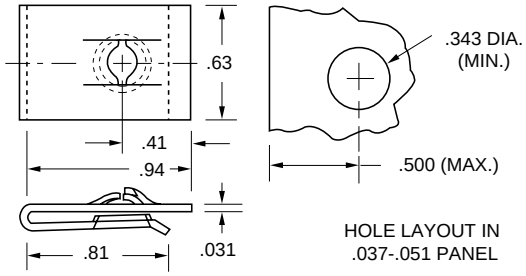
Extrusion in Lower Leg

SPAENAUR No.	Manufacturer's No.	Screw Size	Design Variation	Panel Range	A	A1	B	C	X	G	T
—	C19172-8Z	**8B or AB**	C	.025-.150	.650	.720	.53	.265	.350	.281	.028
202-035	D19640-8AB-4		AC	.025-.150	.770	.770	.53	.250	.420	.280	.028
—	C19419-8		C	.025-.150	.885	.955	.63	.500	.350	.281	.028
202-045	D97295-028-4		AC	.025-.150	.960	1.000	.53	.500	.385	.280	.028
202-046	D19641-8AB		AC	.025-.150	.970	1.000	.53	.470	.385	.280	.028
—	C71184-8Z		AC	.100-.150	.885	.955	.63	.500	.350	.281	.028
202-048	C19640-10AB-4	**10B or AB**	AC	.025-.150	.770	.770	.53	.250	.420	.280	.031
—	D98184-028		Std.	.100-.150	.650	.720	.63	.265	.315	.218	.028

CATALOG 13

See Price List for Unit Package Quantity.

U-TYPE Fasteners (Special)



SPAENAUR No.	Manufacturer's No.	Screw Size
1910	C00641-12A-27	**12A**

The INCH dimensions of the listed parts on this page are reference dimensions only. For complete design information, please request a blueprint.

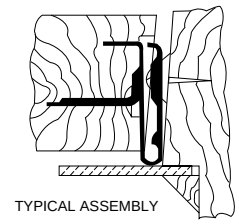
C

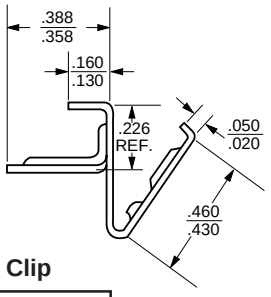
U-TYPE Fasteners (Special)

MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

MATERIAL THICKNESS .011

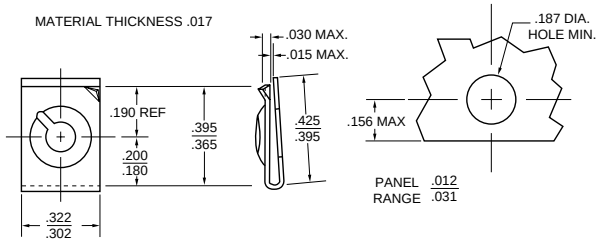




Special Shape Speed Clip

SPAENAUR No.	Manufacturer's No.
202-110	D44215-011-4

MATERIAL THICKNESS .017

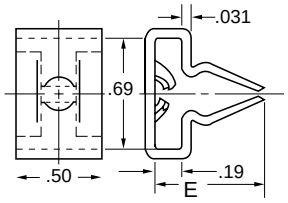


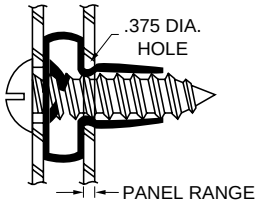
SPAENAUR No.	Manufacturer's No.	Screw Size
202-099	D98504-632-27	**6-32**

The INCH dimensions of the listed parts on this page are reference dimensions only. For complete design information, please request a blueprint.

EXPANSION TYPE Fasteners

MATERIAL: SPRING STEEL, heat treated.



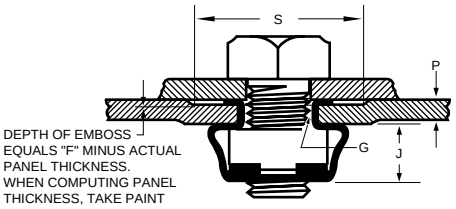


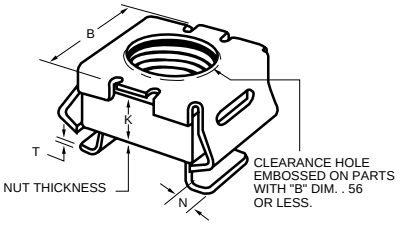
Expansion Type SPEED NUT fasteners provide fast, vibration-resistant attachments in blind or centre-panel locations where only one side is accessible. They snap easily into square or round holes and are provided where permanent fastener retention is desired. As the screw is driven, it expands the spring legs, locking them over the panel thickness and at the same time providing a double-locking action on the screw. These easy to apply fasteners require no special skills or equipment to install, can be used in place of weld-, clinch- or stake-type fasteners. Applied before or after painting, they will not clog and do not require masking.

SPAENAUR No.	Manufacturer's No.	Screw Size	Panel Range	E
—	C15872-14A	**14A**	.035-.045	.690
TN-108	C14298-14A-1		.080-.105	.670

C

STANDARD NUT RETAINERS





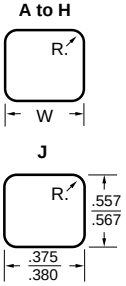
MATERIAL: All retainers are SPRING STEEL, heat treated unless otherwise specified.
Square Nuts — Low Carbon Steel

FINISH: Available in -4, -27, -24, -3B only.

Metric — all standard nut retainers can be made available in equivalent metric thread sizes.

G Mounting hole layout variations:

Where more than one hole layout is assigned to a part, the smaller is recommended when the panel is subjected to extraordinarily rough handling previous to the insertion of the screw.



Style	R.	W
A	.03	.375-.380
B	.03	.343-.348
C	.13	.503-.508
D	.031	.460-.465
F	.031	.573-.578
G	.12	.590-.610
H	.06	.559-.564

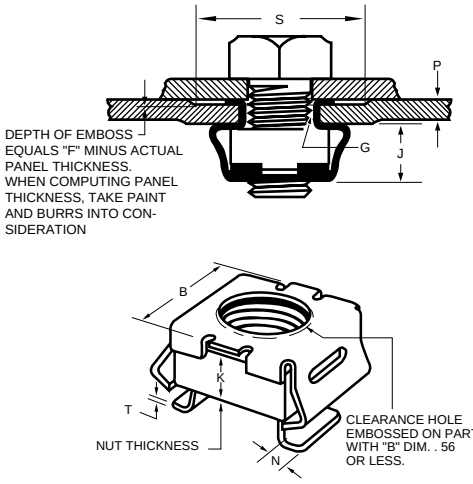
The INCH dimensions of the listed parts are reference dimensions only. For complete design information, please request a blueprint.

SPAENAUR No.	Manufacturer's No.	**Screw Size**	**P Panel Range**	**F**	**S Emboss Square (min.)**	**G Mounting Hole**	**B**	**J**	**N**	**K**	**T Mat'rl. Thickness**
—	C30395-632	**6-32**	.025-.063	.097	.421	.281 sq.	.45	.19	.06	.124	.017
◆202-398	D07931-632-4		.025-.063	.100	.531	A or B	.52	.25	.06	.156	.020
—	C07941-632		.064-.105	.140	.531	A or B	.52	.25	.06	.156	.020
—	C07951-632		.093-.126	.160	.531	A or B	.52	.25	.06	.156	.020
—	C33751-832	**8-32**	.025-.063	.097	.421	.200 x .281	.45	.19	.06	.124	.017
—	C30395-832		.025-.063	.097	.421	.281 sq.	.45	.19	.06	.124	.017
◆TN-89R	D07931-832-4		.025-.063	.100	.531	A or B	.52	.25	.06	.156	.020
202-120	D07931-832-3B		.025-.063	.100	.531	A or B	.52	.25	.06	.156	.020
◆202-012	D07941-832-4		.064-.105	.140	.531	A or B	.52	.25	.06	.156	.020
—	D07951-832		.093-.126	.160	.531	A or B	.52	.25	.06	.156	.020
—	C31365-832		.125-.156	.190	.531	A or B	.52	.25	.06	.187	.020
—	C33272-1024	**10-24**	.025-.063	.070	.531	A or B	.52	.25	.06	.156	.020
—	C30395-1024		.025-.063	.097	.421	.281 sq.	.45	.19	.06	.124	.017
◆TN-245R	D07931-1024-27		.025-.063	.100	.531	A or B	.52	.25	.06	.156	.020
◆202-013	D07941-1024-4		.064-.105	.140	.531	A or B	.52	.25	.06	.156	.020
—	C07951-1024		.093-.126	.160	.531	A or B	.52	.25	.06	.156	.020
—	C07957-1024		.093-.126	.175	.734	C or D	.66	.30	.10	.218	.025
—	C31365-1024		.125-.156	.190	.531	A or B	.52	.25	.06	.187	.020
TN-67R	D30395-1032-4	**10-32**	.025-.063	.097	.421	.281 sq.	.45	.19	.06	.124	.017
2501	D07931-1032-27		.025-.063	.100	.531	A or B	.52	.25	.06	.156	.020
202-136	D07931-1032-3B		.025-.063	.100	.531	A or B	.52	.25	.06	.156	.020
—	C31007-1032**		.025-.063	.100	.531	A or B	.52	.25	.06	.156	.020
◆202-014	D07941-1032-4		.064-.105	.140	.531	A or B	.52	.25	.06	.156	.020
202-074	D07941-1032-3B		.064-.105	.140	.531	A or B	.52	.25	.06	.156	.020
202-169	D98579-1032-81†		.064-.105	.140	.531	A or B	.52	.25	.06	.156	.020
—	C31523-1032**		.093-.126	.160	.531	A or B	.52	.25	.06	.187	.020
—	C07951-1032		.125-.156	.190	.531	A or B	.52	.25	.06	.156	.020
—	C31365-1032		.125-.156	.190	.531	A or B	.52	.25	.06	.187	.020
—	*D07931-M508*	***M5 x .8***	*.635-1.600*	*2.540*	*13.487*	*A or B*	*13.208*	*6.350*	*1.524*	*3.962*	*.508*
—	D07951-1224	**12-24**	.093-.126	.160	.531	A or B	.52	.25	.06	.156	.020
—	*D07931-M61*	***M6 x 1***	*.635-1.600*	*2.540*	*13.487*	*A or B*	*13.208*	*6.350*	*1.524*	*3.962*	*.508*

**Prevailing Torque 5-20 in. lbs. †Stainless Steel, waxed finish ◆Not necessarily Tinnerman® brand. Continued…

C

STANDARD NUT RETAINERS



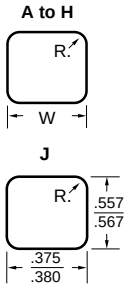
MATERIAL: All retainers are SPRING STEEL, heat treated unless otherwise specified.
Square Nuts — Low Carbon Steel

FINISH: Available in -4, -27, -24, -3B only.

Metric — all standard nut retainers can be made available in equivalent metric thread sizes.

G Mounting hole layout variations:

Where more than one hole layout is assigned to a part, the smaller is recommended when the panel is subjected to extraordinarily rough handling previous to the insertion of the screw.



Style	R.	W
A	.03	.375-.380
B	.03	.343-.348
C	.13	.503-.508
D	.031	.460-.465
F	.031	.573-.578
G	.12	.590-.610
H	.06	.559-.564

The INCH dimensions of the listed parts are reference dimensions only. For complete design information, please request a blueprint.

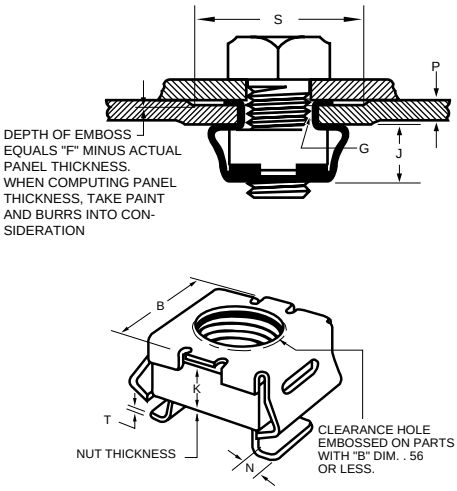
SPAENAUR No.	Manufacturer's No.	**Screw Size**	**P Panel Range**	**F**	**S Emboss Square (min.)**	**G Mounting Hole**	**B**	**J**	**N**	**K**	**T Mat'rl. Thick-ness**
◆202-135	D33757-1420-4	**1/4-20**	.025-.063	.100	.531	A or B	.52	.25	.04	.185	.020
TN-6R	D07988-1420-27		.025-.063	.100	.531	A or B	.52	.25	.06	.187	.020
202-128	D07988-1420-4		.025-.063	.100	.531	A or B	.52	.25	.06	.187	.020
202-129	D07988-1420-3B		.025-.063	.100	.531	A or B	.52	.25	.06	.187	.020
—	C30968-1420**		.025-.063	.100	.531	A or B	.52	.25	.06	.187	.202
—	D33925-1420**■		.025-.063	.100	.531	A or B	.52	.25	.06	.156	.020
—	D07953-1420		.057-.092	.135	.734	C or D	.66	.30	.10	.218	.025
202-393	D07998-1420-4		.064-.105	.140	.531	A or B	.52	.25	.06	.187	.020
202-130	D07998-1420-3B		.064-.105	.140	.531	A or B	.52	.25	.06	.187	.020
202-168	D98580-1420-27■		.064-.105	.140	.531	A or B	.52	.25	.06	.186	.020
◆202-036	D07956-1420-4		.093-.126	.160	.531	A or B	.52	.25	.06	.187	.020
202-124	D07956-1420-3B		.093-.126	.160	.531	A or B	.52	.25	.06	.187	.020
202-125	D07956-1420-3F		.093-.126	.160	.531	A or B	.52	.25	.06	.187	.020
—	D30998-1420**		.093-.126	.160	.531	A or B	.52	.25	.06	.187	.020
◆202-015	D07957-1420-4		.093-.126	.175	.734	C or D	.66	.30	.10	.218	.025
202-095	D31365-1420-3B		.125-.156	.190	.531	A or B	.52	.25	.060	.187	.020
—	D98581-1420■		.125-.156	.190	.531	A or B	.52	.25	.060	.186	.020
—	D07935-1420		.127-.162	.205	.734	C or D	.66	.30	.10	.218	.025
—	D33880-1420		.172-.192	.226	.531	A or B	.52	.25	.06	.187	.020
—	D33916-1420**		.172-.192	.226	.531	A or B	.52	.25	.06	.187	.020
—	D07988-1428	**1/4-28**	.025-.063	.100	.531	A or B	.52	.25	.06	.187	.020
202-394	D07988-1428-27		.025-.063	.100	.531	A or B	.52	.25	.06	.187.	.020
TN-57R	D07998-1428-4		.064-.105	.140	.531	A or B	.52	.25	.06	.187	.020
—	D07956-1428		.093-.162	.160	.531	A or B	.52	.25	.06	.187	.020
◆202-034	D07937-5618-4	**5/16-18**	.028-.056	.095	.734	C or D	.66	.30	.10	.218	.025
202-121	D07937-5618-3B		.028-.056	.095	.734	C or D	.66	.30	.10	.218	.025
◆TN-58R	D07953-5618-4		.057-.092	.135	.734	C or D	.66	.30	.10	.218	.025
202-122	D07953-5618-3B		.057-.092	.135	.734	C or D	.66	.30	.10	.218	.025
◆202-016	D07957-5618-4		.093-.126	.175	.734	C or D	.66	.30	.10	.218	.025
202-127	D07957-5618-3B		.093-.126	.175	.734	C or D	.66	.30	.10	.218	.025

**Prevailing Torque 5-20 in. lbs. ■Stainless Steel ◆Not necessarily Tinnerman® brand.

Continued…

C

STANDARD NUT RETAINERS



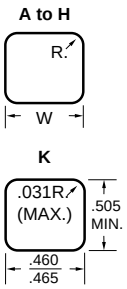
MATERIAL: All retainers are SPRING STEEL, heat treated unless otherwise specified.
Square Nuts — Low Carbon Steel

FINISH: Available in -4, -27, -24, -3B only.

Metric — all standard nut retainers can be made available in equivalent metric thread sizes.

G Mounting hole layout variations:

Where more than one hole layout is assigned to a part, the smaller is recommended when the panel is subjected to extraordinarily rough handling previous to the insertion of the screw.



Style	R.	W
A	.03	.375-.380
B	.03	.343-.348
C	.13	.503-.508
D	.031	.460-.465
E	.06	.588-.593
F	.031	.573-.578
G	.12	.590-.610
H	.06	.559-.564

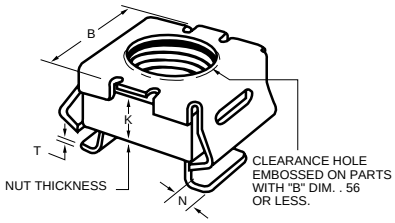
The INCH dimensions of the listed parts are reference dimensions only. For complete design information, please request a blueprint.

SPAENAUR No.	Manufacturer's No.	**Screw Size**	**P Panel Range**	**F**	**S Emboss Square (min.)**	**G Mounting Hole**	**B**	**J**	**N**	**K**	**T Mat'rl. Thickness**
—	D07969-5618	**5/16-18**	.093-.126	.165	.828	E or F	.87	.41	.10	.304	.025
◆TN-239R	D07935-5618-4		.127-.162	.205	.734	C or D	.66	.30	.10	.218	.025
202-166	D07935-5618-3B		.127-.162	.205	.734	C or D	.66	.30	.10	.218	.025
202-081	D31910-5618-4		.177-.197	.245	.734	C or D	.66	.30	.10	.218	.025
TN-139R	D07937-5624-4	**5/16-24**	.028-.056	.095	.734	C or D	.66	.30	.10	.218	.025
◆TN-90R	D07953-5624-4		.057-.092	.135	.734	C or D	.66	.30	.10	.218	.025
TN-46R	D30165-5624-4		.074-.110	.140	.690	C	.72	.34	.115	.218	.032
—	D07957-5624		.093-.126	.175	.734	C or D	.66	.30	.10	.218	.025
—	D07935-5624		.127-.162	.205	.734	C or D	.66	.30	.10	.218	.025
202-093	D07937-3816-4	**3/8-16**	.028-.056	.095	.734	C or D	.66	.30	.10	.218	.025
TN-59R	D07953-3816-4		.057-.092	.135	.734	C or D	.66	.30	.10	.218	.025
—	D07968-3816		.057-.092	.135	.828	E or H	.87	.41	.11	.304	.025
202-126	D07957-3816-3B		.093-.126	.175	.734	C or D	.66	.30	.10	.218	.025
◆202-397	D07957-3816-4		.093-.126	.175	.734	C or D	.66	.30	.10	.218	.025
◆202-399	D07969-3816-4		.093-.126	.165	.828	E or H	.87	.41	.10	.304	.025
◆202-017	D07935-3816-4		.127-.162	.205	.734	C or D	.66	.30	.10	.218	.025
—	D07925-3816		.127-.162	.205	.828	E or F	.87	.41	.10	.304	.025
202-131	D30683-3816-4		.162-.210	.245	.828	G or F	.87	.41	.10	.304	.025
202-132	D30683-3816-3B		.162-.210	.245	.828	G or F	.87	.41	.10	.304	.025
—	C33795-3816		.162-.210	.250	.824	F	.87	.41	.15	.304	.025
—	D33796-3816		.240-.260	.300	.828	F	.87	.41	.165	.304	.025
—	D07937-3824	**3/8-24**	.028-.056	.095	.734	C or D	.66	.30	.10	.218	.025
—	D07953-3824		.057-.092	.135	.734	C or D	.66	.30	.10	.218	.025
—	D07957-3824		.093-.126	.175	.734	C or D	.66	.30	.10	.218	.025
—	D07935-3824		.127-.162	.205	.734	C or D	.66	.30	.10	.218	.025
—	D07968-7614	**7/16-14**	.059-.092	.135	.828	E or F	.87	.41	.11	.304	.025
—	D07969-7614		.093-.126	.165	.828	E or F	.87	.41	.10	.304	.025
—	D07925-7614		.127-.162	.205	.828	E or F	.87	.41	.10	.304	.025
—	D07968-7620	**7/16-20**	.059-.092	.135	.828	E or F	.87	.41	.11	.304	.025

◆Not necessarily Tinnerman® brand.

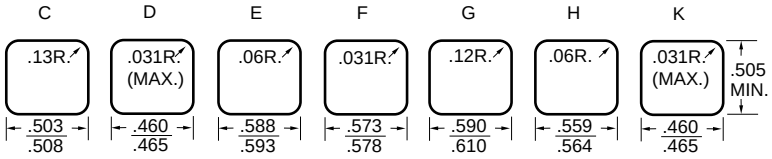
Continued…

STANDARD NUT RETAINERS



G Mounting hole layout variations:

Where more than one hole layout is assigned to a part, the smaller is recommended when the panel is subjected to extraordinarily rough handling previous to the insertion of the screw.



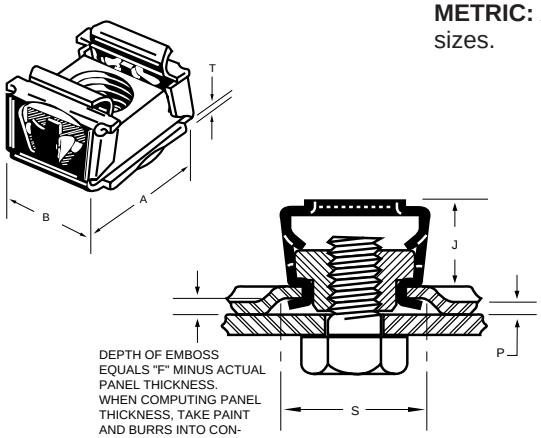
The INCH dimensions of the listed parts are reference dimensions only. For complete design information, please request a blueprint.

SPAENAUR No.	Manufacturer's No.	Screw Size	P Panel Range	F	S Emboss Square (min.)	G Mounting Hole	B	J	N	K	T Mat'rl. Thick-ness
—	D07969-7620	**7/16-20**	.093-.126	.165	.828	E or F	.87	.41	.10	.304	.025
—	D07925-7620		.127-.162	.205	.828	E or F	.87	.41	.10	.304	.025
—	D07968-1213	**1/2-13**	.059-.092	.135	.828	E or F	.87	.41	.11	.304	.025
—	D98361-1213		.059-.092	.135	.828	E or F	.87	.41	.11	.304	.025
202-086	D07969-1213-27		.093-.126	.165	.828	E or F	.87	.41	.10	.304	.025
—	D07925-1213		.127-.162	.205	.828	E or F	.87	.41	.10	.304	.025
202-105	D30683-1213-4		.162-.210	.245	.828	G or F	.87	.41	.10	.304	.025
—	D07968-1220	**1/2-20**	.059-.092	.135	.828	E or F	.87	.41	.11	.304	.025
—	D07969-1220		.093-.126	.165	.828	E or F	.87	.41	.10	.304	.025
—	D07925-1220		.127-.162	.205	.828	E or F	.87	.41	.10	.304	.025
—	D30680-18PT	**1/8-27**	.028-.056	.095	.734	C or D	.66	.30	.10	.218	.025
—	D98234-18PT	**Pipe Th'd**	.093-.126	.175	.734	C or D	.66	.30	.10	.218	.025
—	D97727-3410	**3/4-10**	.615-.635	—	—	.924 sq.	1.22	.71	.10	.656	.025

SELF-ANCHORING NUT RETAINER

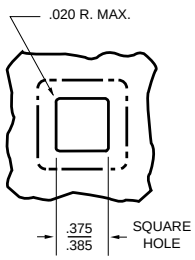
MATERIAL: All retainers are SPRING STEEL, heat treated unless otherwise specified.
Square Nuts — Low Carbon Steel

METRIC: All standard nut retainers can be made available in equivalent metric sizes.

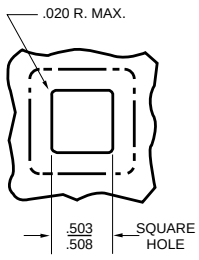


The INCH dimensions of the listed parts are reference dimensions only. For complete design information, please request a blueprint.

HOLE SIZES



FOR SCREW SIZE 8-32 THRU 1/4-28

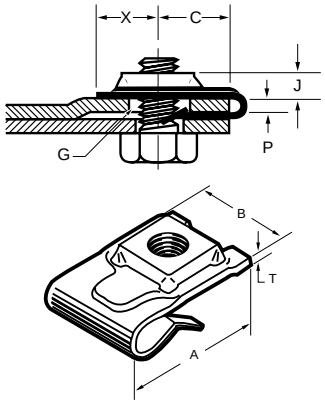


FOR SCREW SIZE 5/16-18 OR GREATER

SPAENAUR No.	Manufacturer's No.	Screw Size	P Panel Range	F	S Emboss Square (Min.)	A Length	B Width	J	T Mat'rl. Thick.
TN-55R	D30800-1420-3B	**1/4-20**	.025-.063	.110	.62	.525	.53	.30	.017

C

J-TYPE NUT RETAINERS

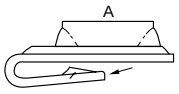


MATERIAL: All retainers are SPRING STEEL, heat treated unless otherwise specified.
Square Nuts — Low Carbon Steel

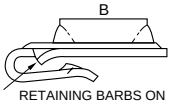
FINISH: Available in -4, -27, -24, -3B only.

METRIC: All standard nut retainers can be made available in equivalent metric sizes.

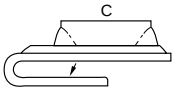
DESIGN VARIATIONS:
Parts shown as standard or with design variations are available only in that particular design.



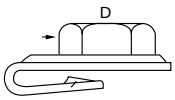
STRAIGHT BOTTOM LEG



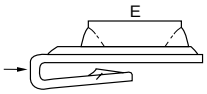
RETAINING BARBS ON TOP LEGS



NO EXTRUSION IN BOTTOM LEG



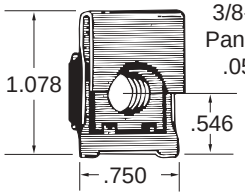
HEX NUT



SQUARE BACK

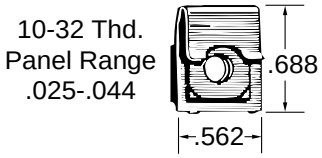
The INCH dimensions of the listed parts are reference dimensions only. For complete design information, please request a blueprint.

SPAENAUR No.	Manufacturer's No.	Screw Size	Design Vari-ation	P Panel Range	A Lgth.	B Wdth.	C Ctr. To Edge (Max.)	X Ctr. To End	J	G Panel Hole Dia. (Min.)	T Mat'rl. Thick. ness
—	C33892-1024	**10-24**	D	.031-.093	.95	.62	.500	.39	.23	.437	.025
—	C33892-1032	**10-32**	D	.031-.093	.95	.62	.500	.39	.23	.437	.025
202-076	C33892-1420-4	**1/4-20**	D	.032-.093	.95	.62	.500	.39	.23	.437	.025
202-078	C33924-1420-4		D	.032-.093	1.22	.62	.781	.39	.23	.437	.025
—	C33952-1420		D	.050-.090	1.05	.75	.546	.46	.34	.531	.028
202-145	C33896-1420-3B		D	.090-.140	1.04	.75	.500	.46	.34	.531	.028
202-140	C31078-5618-3B	**5/16-18**	Std.	.032-.093	1.215	.697	.370	.845	.227	.437	.031
—	C31280-5618		Std.	.093-.203	1.48	.75	.750	.44	.23	.437	.028
—	C33754-5618		ACDE	.130-.140	.82	.69	.400	.39	.33	.343	.031
202-077	C33896-3816-4	**3/8-16**	D	.090-.140	1.04	.75	.500	.46	.34	.531	.028
—	C31280-3816		Std.	.093-.203	1.48	.75	.750	.44	.23	.437	.028



SPAENAUR No.	Manufacturer's No.
TN-159R	C33952-3816-4

Limted quantity available



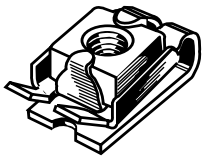
▲Inactive Status check for details.

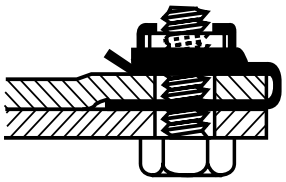
SPAENAUR No.	Manufacturer's No.
B-1567	C09958-1032-27▲
202-187	C09958-1032 Zinc Plated ▲

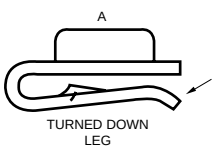
CATALOG 13

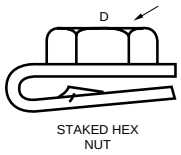
C

U-TYPE NUT RETAINERS









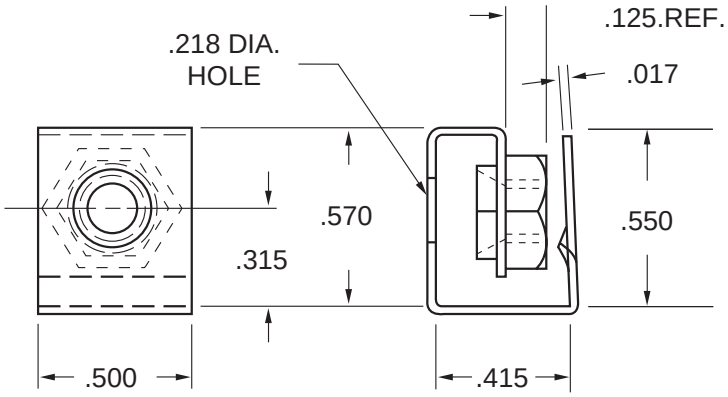
SPAENAUR No.	Manufacturer's No.	Screw Size	Design Variation	P Panel Range	A Lgth.	B Wdth.	C Ctr. To Edge (Max.)	X Ctr. To End	J	G Panel Hole Dia. (Min.)	T Mat'rl. Thickness
202-079	C33945-1420-4	**1/4-20**	D	.050-.075	.71	.69	.375	.31	.23	.343	.025

Other sizes available upon request.

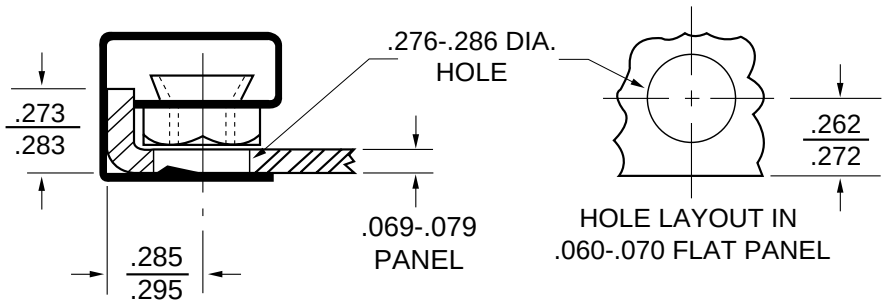
SPECIAL NUT & BOLT RETAINER

SPAENAUR No.	Manufacturer's No.	Screw Size
202-075	D31758-1032-3B	**10-32**
202-133	D31758-1032-4	
202-134	*D31758-M508-3F*	***M5 x 0.8***

Metric Parts listed in Italic.



Above numbers available for M6 x 1" Screw.



The above **Special Nut Retainers** were developed expressly for electronic chassis and cabinet assembly. It brings important benefits to the assembly line.

Mounted to simple stringers or flanged panels, the fastener either clips over the flange and locks in place in the mounting hole, or slides laterally along the stringer until it aligns with the desired mounting hole. A special extrusion on the fastener's mounting led snaps into the mounting hole to provide positive retention until the screw can be driven.

They eliminate the need for multiple tapped holes in the frame member for an important reduction in manufacturing costs. The fastener simply locates in pre-punched hole providing a reliable screw anchor point. The cage fully enclosed the nut and serves as a shield against protruding raw screw ends.

These fasteners are fully serviceable; can be removed, relocated, reused. Top quality materials, high manufacturing standards provide superior strength and reliability for dependable long service life.

The INCH dimensions of the listed parts are reference dimensions only.
For complete design information, please request a blueprint.

C

PUSH-ON TYPE Fasteners

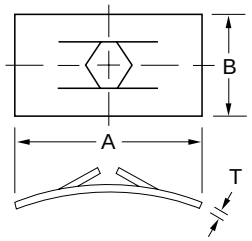
(round studs)

MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

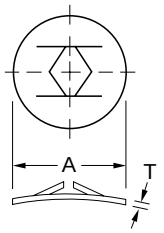
SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

DESIGN VARIATIONS: Parts shown as standard or with design variations are available only in that particular design.

FINISH: See Page C75 for available finishes.

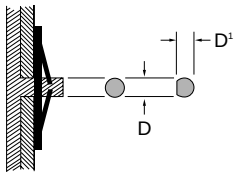


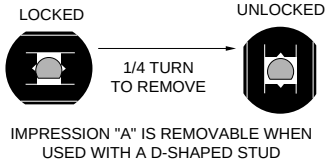
STANDARD RECTANGULAR



STANDARD ROUND

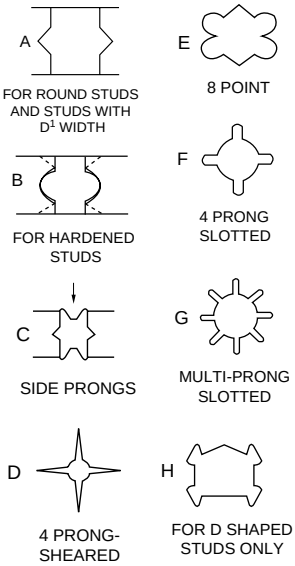
STUD DETAILS



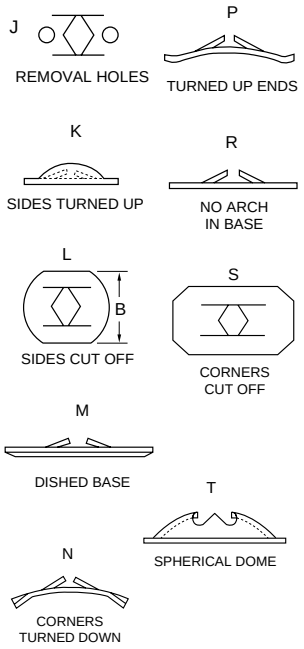


The INCH dimensions of the listed parts are reference dimensions only. For complete design information, please request a blueprint.

IMPRESSION VARIATIONS



SHAPE VARIATIONS



SPAENAUR No.	Manufacturer's No.	Stud Size D Dia.	Stud Size D¹ Width	Type	Design Variation	A Length or Dia.	B Width	T Mat'rl. Thick.
TN-143	C09817-012-27	**.056**	—	Rect.	B	.39	.22	.012
TN-22	C12040-012-4	**.060-.064**	—	Round	L	.38	.34	.012
—	C70578-010		—	Round	DM	.31	—	.010
—	C12001-012	**.062**	.049	Rect.	A	.38	.22	.012
—	C07454-012		—	Rect.	Std.	.39	.19	.012
—	C00872-012		—	Rect.	Std.	.39	.22	.012
B-1167	C01619-014-27		—	Rect.	Std.	.88	.31	.014
—	C11033-012		—	Round	Std.	.50	—	.012
202-390	C15164-012-27	**.078**	—	Round	AL	.38	.34	.012
—	C00939-012	**.081**	—	Rect.	Std.	.39	.22	.012
—	C10388-012		—	Rect.	P	.39	.22	.012
—	C07331-017	**.083-.097**	—	Rect.	Std.	.45	.23	.017
—	C08861-012	**.089-.093**	—	Rect.	Std.	.45	.23	.012
—	C17708SS-008	**.089-.097**	—	Round	DR	.25	—	.008
202-058	C12041-012-4	**.090-.096**	—	Round	L	.38	.34	.012
202-160	C12041-012-3B		—	Round	L	.38	.34	.012
TN-44	C09657-012-27		—	Round	AR	.63	—	.012
—	C09616SS-012	**.091-.097**	—	Round	Std.	.28	—	.012
—	C13120-012		—	Rect.	BP	.80	.31	.012
—	C13120-014		—	Rect.	BP	.80	.31	.012
◆TN-76	C12002-012-4	**.093**	.074	Rect.	A	.45	.23	.012
TN-13	C08148-017-27		—	Rect.	B	.45	.23	.017
1909	C00624-010-27		—	Rect.	S	.67	.22	.010
—	C08149-012		.074	Rect.	A	.70	.38	.012
—	C08149-014		.074	Rect	A	.70	.38	.014
TN-113	C08150-017-27		—	Rect.	B	.70	.38	.017
TN-32	C13120-017-27		—	Rect.	BP	.80	.31	.017
—	C13388SS-010		—	Round	DR	.22	—	.010
—	C09616-012		—	Round	Std.	.28	—	.012
—	C01926-012		—	Round	L	.52	.25	.012
—	C13203-017		—	Round	AT	1.00	—	.017
1906	C00490-012-27	**.100**	—	Rect.	Std.	.45	.23	.012
—	C00490-014		—	Rect.	Std.	.45	.23	.014
—	C00711-012		—	Rect.	Std.	.50	.31	.012
1914	C0711-017-27		—	Rect.	Std.	.50	.31	.017

Continued…

◆Not necessarily Tinnerman® brand.

See Price List for Unit Package Quantity.

PUSH-ON TYPE Fasteners

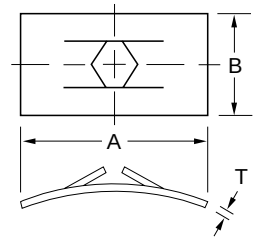
(round studs)

MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

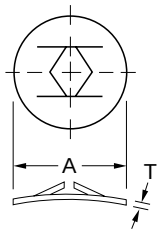
SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

DESIGN VARIATIONS: Parts shown as standard or with design variations are available only in that particular design.

FINISH: See Page C75 for available finishes.

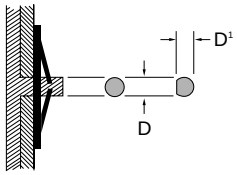


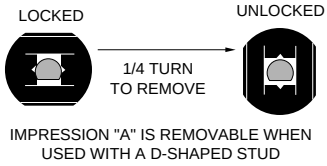
STANDARD RECTANGULAR



STANDARD ROUND

STUD DETAILS

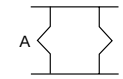




IMPRESSION "A" IS REMOVABLE WHEN USED WITH A D-SHAPED STUD

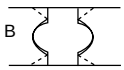
The INCH dimensions of the listed parts are reference dimensions only. For complete design information, please request a blueprint.

IMPRESSION VARIATIONS



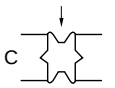
FOR ROUND STUDS AND STUDS WITH D¹ WIDTH

8 POINT

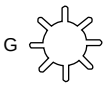


FOR HARDENED STUDS

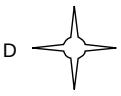
4 PRONG SLOTTED



SIDE PRONGS



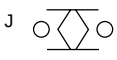
MULTI-PRONG SLOTTED



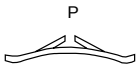
4 PRONG-SHEARED

FOR D SHAPED STUDS ONLY

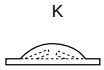
SHAPE VARIATIONS



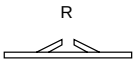
REMOVAL HOLES



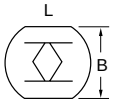
TURNED UP ENDS



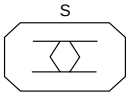
SIDES TURNED UP



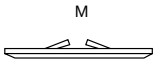
NO ARCH IN BASE



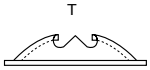
SIDES CUT OFF



CORNERS CUT OFF



DISHED BASE



SPHERICAL DOME

CORNERS TURNED DOWN

SPAENAUR No.	Manufacturer's No.	Stud Size D Dia.	Stud Size D¹ Width	Type	Design Variation	A Length or Dia.	B Width	T Mat'rl. Thick.
—	C09850-017	**.100-.106**	—	Rect.	Std.	1.31	1.31	.017
—	C00720SS-012	**.101-.104**	—	Round	Std.	.28	—	.012
—	C00720-012		—	Round	Std.	.28	—	.012
—	C11975-010	**.104-.108**	—	Round	Std.	.28	—	.010
202-118	C13000-012-4	**.106**	—	Rect.	Std.	.58	.38	.012
—	C09779SS-010	**.108-.112**	—	Round	Std.	.28	—	.010
—	C09779-010		—	Round	Std.	.28	—	.010
—	C07333-012	**.112-.120**	—	Round	L	.38	.34	.012
—	C06809-012	**.115**	—	Rect.	Std.	.58	.31	.012
—	C14763-012	**.117-.123**	—	Round	L	.38	.34	.012
—	C14763-017		—	Round	L	.38	.34	.017
—	C08750-012	**.118-.120**	—	Round	Std.	.28	—	.012
—	C10985-012	**.119-.125**	—	Round	M	.63	—	.012
TN-35	C01128-012-27	**.120-.125**	—	Rect.	P	.80	.31	.012
—	C01128-017		—	Rect.	P	.80	.31	.017
—	C17571-012	**.121**	—	Round	DR	.38	—	.012
—	C70833-010	**.122-.128**	—	Round	G	.26	—	.010
—	C01037-010	**.124-.126**	—	Round	L	.38	.34	.010
◆TN-167	C12042-017-4		—	Round	L	.38	.34	.017
TN-167ZP	C12042-017-3B		—	Round	L	.38	.34	.017
—	C00637-010	**.125**	—	Rect.	Std.	.30	.25	.010
—	C00637-012		—	Rect.	Std.	.30	.25	.012
TN-52	C00637-014-27		—	Rect.	Std.	.30	.25	.014
—	C18234-125		—	Round	FM	.56	—	.011
—	C09098-012		—	Rect.	Std.	.58	.25	.012
—	C09098-014		—	Rect.	Std.	.58	.25	.014
—	C08623-020		.085	Rect.	A	.58	.25	.020
—	C07809-010		—	Rect.	Std.	.58	.31	.010
—	C07809-012		—	Rect.	Std.	.58	.31	.012
1897	C00109-012-27		.085	Rect.	A	.58	.31	.012
—	C00109-014		.085	Rect.	A	.58	.31	.014
—	C08151-014		.100	Rect.	A	.58	.31	.014
◆202-031	C12003-012-4		.100	Rect.	A	.58	.31	.012

Continued…
◆Not necessarily Tinnerman® brand.

See Price List for Unit Package Quantity.

C

PUSH-ON TYPE Fasteners

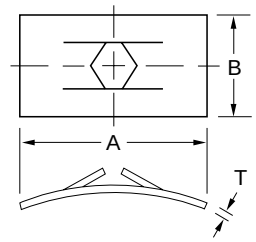
(round studs)

MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

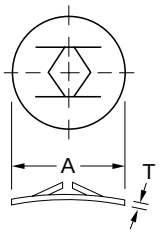
SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

DESIGN VARIATIONS: Parts shown as standard or with design variations are available only in that particular design.

FINISH: See Page C75 for available finishes.

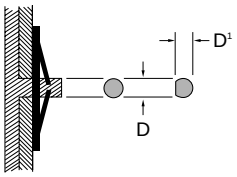


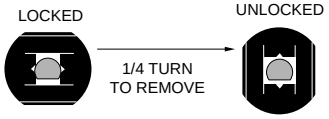
STANDARD RECTANGULAR



STANDARD ROUND

STUD DETAILS

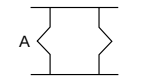




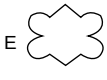
IMPRESSION "A" IS REMOVABLE WHEN USED WITH A D-SHAPED STUD

The INCH dimensions of the listed parts are reference dimensions only. For complete design information, please request a blueprint.

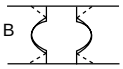
IMPRESSION VARIATIONS



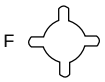
FOR ROUND STUDS AND STUDS WITH D¹ WIDTH



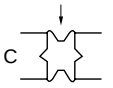
8 POINT



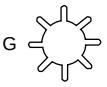
FOR HARDENED STUDS



4 PRONG SLOTTED



SIDE PRONGS

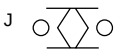


MULTI-PRONG SLOTTED

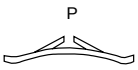
4 PRONG-SHEARED

FOR D SHAPED STUDS ONLY

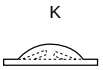
SHAPE VARIATIONS



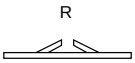
REMOVAL HOLES



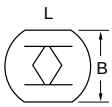
TURNED UP ENDS



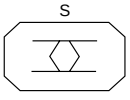
SIDES TURNED UP



NO ARCH IN BASE

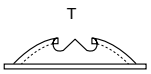


SIDES CUT OFF



CORNERS CUT OFF

DISHED BASE



SPHERICAL DOME

CORNERS TURNED DOWN

SPAENAUR No.	Manufacturer's No.	Stud Size D Dia.	Stud Size D¹ Width	Type	Design Variation	A Length or Dia.	B Width	T Mat'rl. Thick.
202-171	D12003-014-4	**.125**	.100	Rect.	A	.58	.31	.014
202-159	C12003-017-4		.100	Rect.	A	.58	.31	.017
TN-50	C08152-017-27		—	Rect.	B	.58	.31	.017
—	C07439-020		—	Rect.	B	.58	.31	.020
TN-87	C08153-012-27		.100	Rect.	A	.90	.50	.012
—	C08153-014		.100	Rect.	A	.90	.50	.014
—	C00777-017		—	Rect.	Std.	1.32	1.31	.017
—	C13951-010		—	Round	ET	.31	—	.010
—	C14100-010		—	Round	DR	.38	—	.010
202-137	C14100-014SS-27		—	Round	DR	.38	—	.014
—	C17969-012		—	Round	Std.	.43	—	.012
—	C11615-017		—	Round	Std.	.50	—	.017
TN-121	C11943-017-27		—	Round	A	1.38	—	.017
—	D07138-012	**.125-.129**	—	Rect.	Std.	.30	.25	.012
—	C14727-010	**.125-.145**	—	Rect.	ET	.38	.34	.010
—	C10262-010		—	Round	ET	.31	—	.010
—	C13654-020	**.131-.141**	—	Rect.	B	.56	.31	.020
—	C07358-014		—	Rect.	B	.56	.38	.014
—	C07358-020		—	Rect.	B	.56	.38	.020
—	C1591-012	**.139**	—	Round	L	.38	.34	.012
—	C1591-014		—	Round	L	.38	.34	.014
—	C09435-017	**.141-.147**	—	Round	ET	.31	—	.017
—	C09133-012	**.142-.146**	—	Rect.	Std.	.75	.44	.012
—	C09133-017		—	Rect.	Std.	.75	.44	.017
—	C00851-012		—	Round	LR	.38	.34	.012
—	C13509-020	**.144**	—	Rect.	CP	1.37	.38	.020
—	C06551-012	**.147-.152**	—	Round	LR	.38	.34	.012
—	C00690-012	**.148-.149**	—	Round	L	.38	.34	.012
—	C08695-012	**.150-.155**	—	Round	L	.38	.34	.012
TN-99	C12043-012-4	**.153-.157**	—	Round	L	.38	.34	.012
—	C12043-017		—	Round	L	.38	.34	.017
—	C15906-010	**.153-.159**	—	Round	ET	.31	—	.010
—	C10442SS-017		—	Round	AR	.81	—	.017
—	C01691-017	**.156**	—	Rect.	Std.	.56	.31	.017
—	C01059-012		—	Rect.	Std.	.56	.38	.012
—	C01059-014		—	Rect.	Std.	.56	.38	.014
—	C01059-017		—	Rect.	Std.	.56	.38	.017
2102	D12004-012-4		.125	Rect.	A	.56	.38	.012
—	C12004-017		.125	Rect.	A	.56	.38	.017

Continued…

◆Not necessarily Tinnerman® brand.

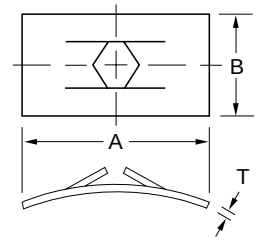
PUSH-ON TYPE Fasteners
(round studs)

MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

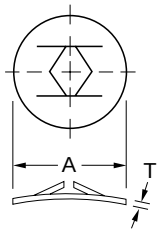
SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

DESIGN VARIATIONS: Parts shown as standard or with design variations are available only in that particular design.

FINISH: See Page C75 for available finishes.

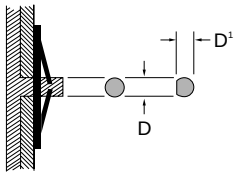


STANDARD RECTANGULAR



STANDARD ROUND

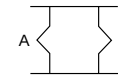
STUD DETAILS



IMPRESSION "A" IS REMOVABLE WHEN USED WITH A D-SHAPED STUD

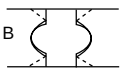
The INCH dimensions of the listed parts are reference dimensions only. For complete design information, please request a blueprint.

IMPRESSION VARIATIONS



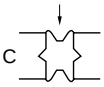
FOR ROUND STUDS AND STUDS WITH D¹ WIDTH

8 POINT



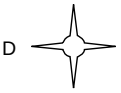
FOR HARDENED STUDS

4 PRONG SLOTTED



SIDE PRONGS

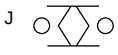
MULTI-PRONG SLOTTED



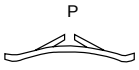
4 PRONG-SHEARED

FOR D SHAPED STUDS ONLY

SHAPE VARIATIONS

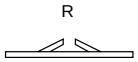


REMOVAL HOLES

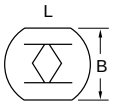


TURNED UP ENDS

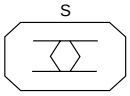
SIDES TURNED UP



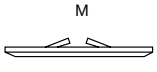
NO ARCH IN BASE



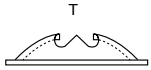
SIDES CUT OFF



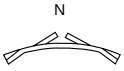
CORNERS CUT OFF



DISHED BASE



SPHERICAL DOME



CORNERS TURNED DOWN

SPAENAUR No.	Manufacturer's No.	Stud Size D Dia.	Stud Size D¹ Width	Type	Design Variation	A Length or Dia.	B Width	T Mat'rl. Thick.
—	C08155-014	**.156**	.125	Rect.	A	.56	.38	.014
202-156	D00433-012-27		—	Rect.	Std.	.75	.44	.012
1905	D00433-020-27		—	Rect.	Std.	.75	.44	.020
—	C13790-012		—	Round	DM	.38	—	.012
—	C15542SS-012		—	Round	DR	.38	—	.012
—	C01617-010		—	Round	L	.38	.31	.010
—	C10593-012		—	Round	CM	.47	—	.012
—	C10442-017		—	Round	AR	.81	—	.017
—	C06533-012	**.161-.164**	—	Rect.	Std.	.75	.44	.012
—	C06533-020		—	Rect.	Std.	.75	.44	.020
—	C09560-012		—	Round	L	.38	.34	.012
—	C01009-014		.116	Round	AK	.50	.41	.014
202-060	C17324-014-4	**.170**	—	Round	L	.50	.38	.014
—	D05709-012	**.170***	—	Rect.	Spec.*	.98	.56	.012
—	C17656-017	**.170-.180**	—	Rect.	Std.	.76	.44	.017
—	C01520-012	**.171**	—	Rect.	Std.	.63	.38	.012
◆202-032	C01840-012-4	**.175**	—	Round	Std.	.57	—	.012
—	C15549-012		—	Round	L	.57	.41	.012
—	C01989-012	**.177-.184**	.130-.135	Rect.	A	.63	.38	.012
—	C01989-017		.130-.135	Rect.	A	.63	.38	.017
—	C15005-017	**.184-.190**	—	Round	CN	.63	.38	.017
—	C10157-012		—	Round	ER	.31	—	.012
—	C18234-187		—	Round	FM	.56	—	.011
—	C00159-012	**.187**	.135	Rect.	A	.63	.38	.012
1902	C12005-012-4		.150	Rect.	A	.63	.38	.012
202-071	C12005-017-4		.150	Rect.	A	.63	.38	.017
B-1204	C07359-017-4		—	Rect.	B	.63	.38	.017
—	C07359-022		—	Rect.	B	.63	.38	.022
—	C00572-017		—	Rect.	Std.	.63	.56	.017
—	C07859-012		—	Rect.	Std.	.64	.38	.012
—	C07859-017		—	Rect.	Std.	.64	.38	.017
—	C15836-017		—	Rect.	J	.64	.38	.017
—	C00435-020		—	Rect.	Std.	.75	.44	.020
—	C00435-022		—	Rect.	Std.	.75	.44	.022
—	C00434-012		—	Rect.	N	.75	.44	.012
—	C00434-022		—	Rect.	N	.75	.44	.022
TN-164	C08161-012-4		.150	Rect.	A	.98	.56	.012

Continued…
◆Not necessarily Tinnerman® brand.

C

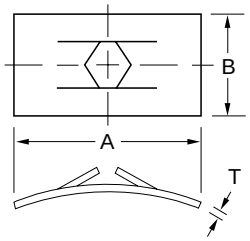
PUSH-ON TYPE Fasteners

(round studs)

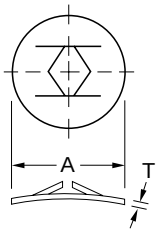
MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

DESIGN VARIATIONS:
Parts shown as standard or with design variations are available only in that particular design.
FINISH: See Page C75 for available finishes.

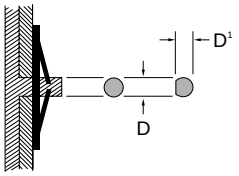


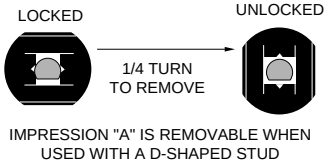
STANDARD RECTANGULAR



STANDARD ROUND

STUD DETAILS

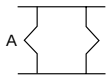




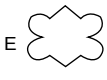
IMPRESSION "A" IS REMOVABLE WHEN USED WITH A D-SHAPED STUD

The INCH dimensions of the listed parts are reference dimensions only. For complete design information, please request a blueprint.

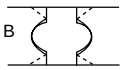
IMPRESSION VARIATIONS



FOR ROUND STUDS AND STUDS WITH D^1 WIDTH

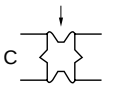


8 POINT



FOR HARDENED STUDS

4 PRONG SLOTTED



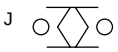
SIDE PRONGS

MULTI-PRONG SLOTTED

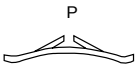
4 PRONG-SHEARED

FOR D SHAPED STUDS ONLY

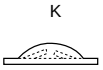
SHAPE VARIATIONS



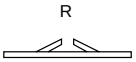
REMOVAL HOLES



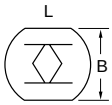
TURNED UP ENDS



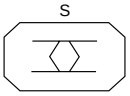
SIDES TURNED UP



NO ARCH IN BASE

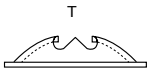


SIDES CUT OFF



CORNERS CUT OFF

DISHED BASE



SPHERICAL DOME

CORNERS TURNED DOWN

SPAENAUR No.	Manufacturer's No.	Stud Size D Dia.	Stud Size D^1 Width	Type	Design Variation	A Length or Dia.	B Width	T Mat'rl. Thick.
TN-171	C08161-017-1	**.187**	.150	Rect.	A	.98	.56	.017
—	D01074-025		—	Rect.	Std.	1.00	.69	.025
—	C10592-012		—	Round	CM	.47	—	.012
—	C00871-012		—	Round	Std.	.50	—	.012
—	C00871SS-014		—	Round	Std.	.50	—	.014
2104	C00871-017-27		—	Round	Std.	.50	—	.017
—	C00871-022		—	Round	Std.	.50	—	.022
—	C01526-012		—	Round	R	.50	—	.012
—	C08771-012		.135	Round	A	.50	.38	.012
—	C10608-017		—	Round	BL	.50	.38	.017
◆202-033	C12044-012-4		—	Round	L	.50	.38	.012
202-103	C12044-012-3B		—	Round	L	.50	.38	.012
—	C12044-017-3B		—	Round	L	.50	.38	.017
—	C01365-012	**.197**	—	Rect.	A	.63	.38	.012
—	C17446SS-012	**.200-.206**	—	Round	FR	.45	—	.012
—	C13614-017	**.210-.220**	—	Rect.	N	.76	.44	.017
—	C09751-010	**.216**	—	Round	Std.	.50	—	.010
—	C09751-012		—	Round	Std.	.50	—	.012
—	C12006-017	**.218**	.175	Rect.	A	.63	.44	.017
202-102	C12045-012-4		—	Round	L	.50	.38	.012
—	C12045-017		—	Round	L	.50	.38	.017
—	C18234-218		—	Round	FM	.56	—	.011
—	C18235-218		—	Round	FM	.73	—	.014
—	C10757SS-020	**.222-.228**	—	Round	L	.58	.44	.020
***202-149**	C06490-012-3F	**.226**	—	Rect.	Std.	.64	.44	.012
—	C10235-014	**.228-.234**	—	Round	Std.	.56	—	.014
—	C70189-014		—	Round	R	.56	—	.014
202-181	C07473-014-1	**.235**	—	Round	L	.56	.44	.014
—	*C18235-600M*	***6.00mm***	—	*Round*	*FM*	*.73*	—	*.014*
—	C06350-022	**.243**	—	Round	R	.81	—	.022
—	C17407-022		—	Round	ALR	.81	.63	.022
—	C15226SS-010	**.246-.252**	—	Round	FR	.45	—	.010
—	C15226SS-014		—	Round	FR	.45	—	.014
—	C08164-020	**.250**	—	Rect.	B	.62	.44	.020
202-057	C12007-017-4		.200	Rect.	A	.63	.44	.017
2105	C00390-017-27		.187	Rect.	A	.64	.44	.017
—	C00573-012		.187	Rect.	A	.64	.56	.012

Continued… ***Finish as per 3B plus yellow dichromate** ◆Not necessarily Tinnerman® brand.

PUSH-ON TYPE Fasteners

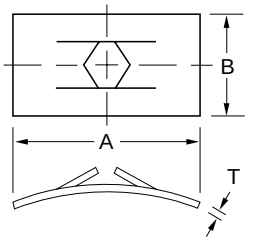
(round studs)

MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

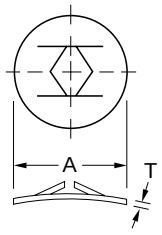
SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

DESIGN VARIATIONS: Parts shown as standard or with design variations are available only in that particular design.

FINISH: See Page C75 for available finishes.

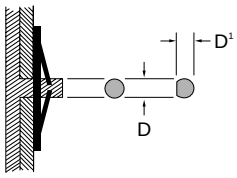


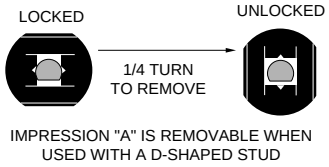
STANDARD RECTANGULAR



STANDARD ROUND

STUD DETAILS

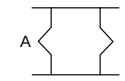




IMPRESSION "A" IS REMOVABLE WHEN USED WITH A D-SHAPED STUD

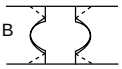
The INCH dimensions of the listed parts are reference dimensions only. For complete design information, please request a blueprint.

IMPRESSION VARIATIONS



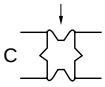
FOR ROUND STUDS AND STUDS WITH D¹ WIDTH

8 POINT



FOR HARDENED STUDS

4 PRONG SLOTTED



SIDE PRONGS

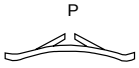
MULTI-PRONG SLOTTED

4 PRONG-SHEARED

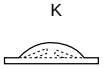
FOR D SHAPED STUDS ONLY

SHAPE VARIATIONS

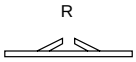
REMOVAL HOLES



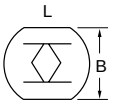
TURNED UP ENDS



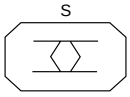
SIDES TURNED UP



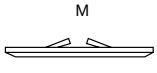
NO ARCH IN BASE



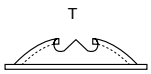
SIDES CUT OFF



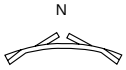
CORNERS CUT OFF



DISHED BASE



SPHERICAL DOME



CORNERS TURNED DOWN

SPAENAUR No.	Manufacturer's No.	Stud Size D Dia.	Stud Size D¹ Width	Type	Design Variation	A Length or Dia.	B Width	T Mat'rl. Thick.
B-1182	C01540-017-1	**.250**	—	Rect.	Std.	.95	.63	.017
—	C08165-012		.200	Rect.	A	.98	.62	.012
—	C08165-017		.200	Rect.	A	.98	.63	.017
—	C15288-012		—	Rect.	AN	1.00	.56	.012
TN-222	D01013-025-27		—	Rect.	Std.	1.00	.69	.025
—	C00675-012		—	Rect.	Std.	1.31	1.31	.012
2106	C00183-012-27		—	Round	Std.	.56	—	.012
—	C00183-017		—	Round	Std.	.56	—	.017
—	C00183SS-017		—	Round	Std.	.56	—	.017
—	C12046-012		—	Round	L	.56	.44	.012
◆202-002	C12046-017-4			Round	L	.56	.44	.017
—	C18235-250		—	Round	FM	.73	—	.014
—	C07445SS-020		—	Round	AL	.80	.56	.020
—	C07445-022		—	Round	AL	.80	.56	.022
202-150	C13113-014-4	**.265**	—	Round	Std.	.56	—	.014
—	C01335-012	**.271**	—	Rect.	Std.	.63	.50	.012
—	C01335-014		—	Rect.	Std.	.63	.50	.014
—	C70253SS-010	**.276-.282**	—	Round	FR	.45	—	.010
—	C70445-022	**.278-.284**	—	Round	LR	.79	.562	.022
—	C07405-017		—	Round	R	.88	—	.017
—	C07405SS-017		—	Round	R	.88	—	.017
—	C70137-296	**.291-.301**	—	Round	FM	.73	—	.014
202-004	C00185-014-4	**.300**	—	Rect.	Std.	.62	.50	.014
TN-219	C07495-017-4	**.308-.312**	—	Round	BL	.76	.63	.017
—	C18495SS-010	**.309-.313**	—	Round	FR	.51	—	.010
—	C13329-030M	**.310-.315**	—	Round	FR	.64	—	.012
202-085	C13329-014-4		—	Round	FR	.64	—	.014
—	C07818-014	**.312**	—	Rect.	Std.	.63	.50	.014
—	C07818-020		—	Rect.	Std.	.63	.50	.020
—	C00518-014		—	Rect.	N	.63	.50	.014
—	C17373-012		—	Rect.	J	.63	.50	.012
—	C12008-014		.250	Rect.	A	.69	.50	.014
—	C12008-020		.250	Rect.	A	.69	.50	.020
—	C10781-017		—	Rect.	N	1.00	.69	.017
TN-165	C01781-012-1		—	Rect.	P	1.00	.69	.012
—	C01781-017		—	Rect.	P	1.00	.69	.017
—	C17022-010		—	Round	GR	.63	—	.010

Continued…

◆Not necessarily Tinnerman® brand.

C

PUSH-ON TYPE Fasteners

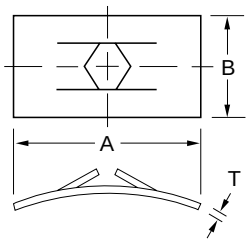
(round studs)

MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

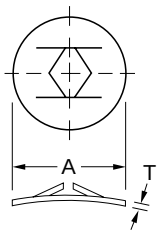
SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

DESIGN VARIATIONS: Parts shown as standard or with design variations are available only in that particular design.

FINISH: See Page C75 for available finishes.

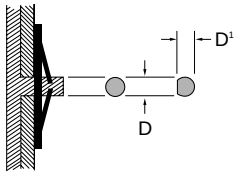


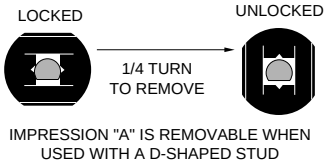
STANDARD RECTANGULAR



STANDARD ROUND

STUD DETAILS

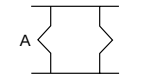




IMPRESSION "A" IS REMOVABLE WHEN USED WITH A D-SHAPED STUD

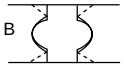
The INCH dimensions of the listed parts are reference dimensions only. For complete design information, please request a blueprint.

IMPRESSION VARIATIONS



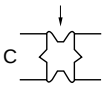
FOR ROUND STUDS AND STUDS WITH D¹ WIDTH

8 POINT



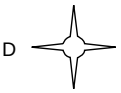
FOR HARDENED STUDS

4 PRONG SLOTTED



SIDE PRONGS

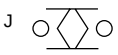
MULTI-PRONG SLOTTED



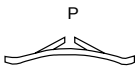
4 PRONG-SHEARED

FOR D SHAPED STUDS ONLY

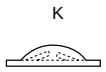
SHAPE VARIATIONS



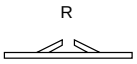
REMOVAL HOLES



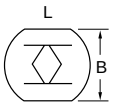
TURNED UP ENDS



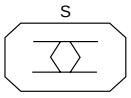
SIDES TURNED UP



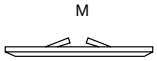
NO ARCH IN BASE



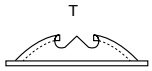
SIDES CUT OFF



CORNERS CUT OFF



DISHED BASE



SPHERICAL DOME

CORNERS TURNED DOWN

SPAENAUR No.	Manufacturer's No.	Stud Size D Dia.	Stud Size D¹ Width	Type	Design Variation	A Length or Dia.	B Width	T Mat'rl. Thick.
—	C17022SS-010	**.312**	—	Round	GR	.63	—	.010
—	C18235-312		—	Round	FM	.73	—	.014
—	C01782-012		—	Round	R	.88	—	.012
—	D05085-017		—	Round	Std.	.88	—	.017
B-1158	D01782-017-27		—	Round	R	.88	—	.017
—	C01782SS-017		—	Round	R	.88	—	.017
—	C01782-022		—	Round	R	.88	—	.022
202-082	C11653-017-27		—	Round	Std.	1.380	—	.017
—	C10575-012	**.312-.313**	.278-.282	Round	HR	.64	—	.012
—	C18235-354	**.354**	—	Round	FM	.73	—	.014
—	C15494-014	**.355**	—	Round	GR	.63	—	.014
—	C06046-012	**.365-.368**	—	Rect.	Std.	.63	.50	.012
—	C00665-014	**.375**	—	Rect.	Std.	.63	.50	.014
—	C00665-017		—	Rect.	Std.	.63	.50	.017
—	C00665-020		—	Rect.	Std.	.63	.50	.020
—	C12009-014		.300	Rect.	A	.75	.56	.014
202-172	C12009-020-4		.300	Rect.	A	.75	.56	.020
TN-146	C12010-017-4		—	Rect.	P	1.00	.69	.017
202-083	C13727-014-67		—	Round	GR	.63	—	.014
—	C13727SS-014		—	Round	GR	.63	—	.014
—	C13727-020		—	Round	GR	.63	—	.020
—	C18235-375		—	Round	FM	.73	—	.014
—	C01400-014		—	Round	R	.88	—	.014
—	C01400SS-014		—	Round	R	.88	—	.014
—	C01400-017		—	Round	R	.88	—	.017
—	C15981-014		—	Round	FR	1.38	—	.014
—	C19781-375		—	Round	GM	1.15	—	.017
—	C14565-014	**.380-.385**	—	Round	GR	.63	—	.014
—	C1437-017	**.395**	—	Rect.	Std.	.88	.56	.017
—	C18492-014	**.397-.402**	—	Round	GR	.63	—	.014
—	C15594-014	**.432-.437**	—	Round	FLR	.73	.63	.014
—	C6313-017	**.436-.438**	—	Rect.	Std.	1.00	.69	.017
B-1138	C06313-020-27	**436-.438**	—	Rect.	Std.	1.00	.69	.020
TN-250	C17050-017-27	**.437**	.375	Round	AR	.88	—	.017

Continued…

PUSH-ON TYPE Fasteners

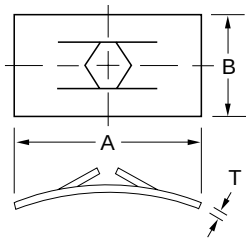
(round studs)

MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

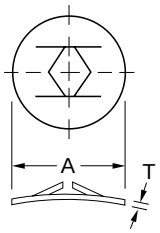
SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

DESIGN VARIATIONS: Parts shown as standard or with design variations are available only in that particular design.

FINISH: See Page C75 for available finishes.

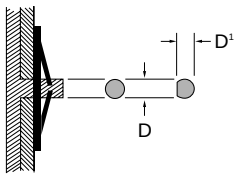


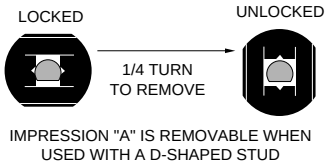
STANDARD RECTANGULAR



STANDARD ROUND

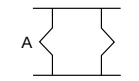
STUD DETAILS





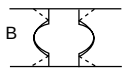
The INCH dimensions of the listed parts are reference dimensions only. For complete design information, please request a blueprint.

IMPRESSION VARIATIONS



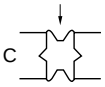
FOR ROUND STUDS AND STUDS WITH D¹ WIDTH

8 POINT

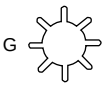


FOR HARDENED STUDS

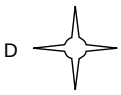
4 PRONG SLOTTED



SIDE PRONGS



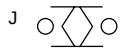
MULTI-PRONG SLOTTED



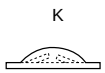
4 PRONG-SHEARED

FOR D SHAPED STUDS ONLY

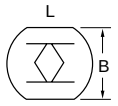
SHAPE VARIATIONS



REMOVAL HOLES

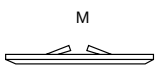


SIDES TURNED UP

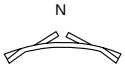


SIDES CUT OFF

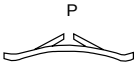
SPAENAUR No.	Manufacturer's No.	Stud Size D Dia.	Stud Size D¹ Width	Type	Design Variation	A Length or Dia.	B Width	T Mat'rl. Thick.
—	C18235-437	**.437**	—	Round	FM	.73	—	.014
—	C19781-437		—	Round	GM	1.15	—	.017
—	C13421-017	**.458-.480**	—	Rect.	P	.92	.75	.017
—	C11600-012	**.470-.475**	—	Round	BL	.91	.63	.012
—	C11600-017		—	Round	BL	.91	.63	.017
—	C15778-025	**.495**	—	Round	FLR	1.19	1.16	.025
—	C70674-500	**.500**	—	Round	GM	.79	—	.014
—	C70524-014		—	Round	FR	.79	—	.014
—	C01031SS-014		—	Rect.	S	.94	.69	.014
—	C01824-017		—	Rect.	Std.	.92	.75	.017
B-1074	C00867-017-27		—	Rect.	P	.92	.75	.017
202-148	D00501-010-4		—	Rect.	Std.	1.23	.88	.010
—	C00501-012		—	Rect.	Std.	1.23	.88	.012
—	C00501-017		—	Rect.	Std.	1.23	.88	.017
B-1028	C00501-020-27		—	Rect.	Std.	1.23	.88	.020
—	C00501-022		—	Rect.	Std.	1.23	.88	.022
—	D98166-043M	**.551**	—	Rect.	Std.	1.22	.88	.017
—	C18784-010	**.563-.573**	—	Round	GR	.92	—	.010
—	C71482-014	**.602-.610**	—	Round	GR	.96	—	.014
—	C01529-017	**.625**	—	Rect.	Std.	.99	.81	.017
TN-184	C00507-017-27		—	Rect.	P	1.49	1.00	.017
—	C70891-014		—	Round	GR	.96	—	.014
—	C70891SS-014		—	Round	GR	.96	—	.014
—	C17365-020		—	Round	A	1.49	—	.020
—	C06307-017	**.687**	—	Rect.	P	1.49	1.00	.017
—	C15802-025	**.740-.750**	—	Round	GR	1.63	—	.025
—	C71368-012	**.743-.748**	—	Round	GLR	1.13	1.09	.012
—	C17688-014		—	Round	GLR	1.13	1.09	.014
—	C71061-025	**.748-.750**	—	Round	GR	1.63	—	.025
—	C01583-012	**.750**	—	Rect.	P	1.48	1.25	.012
—	C01583-017		—	Rect.	P	1.48	1.25	.017



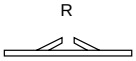
DISHED BASE



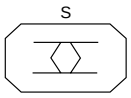
CORNERS TURNED DOWN



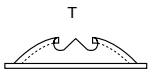
TURNED UP ENDS



NO ARCH IN BASE



CORNERS CUT OFF



SPHERICAL DOME

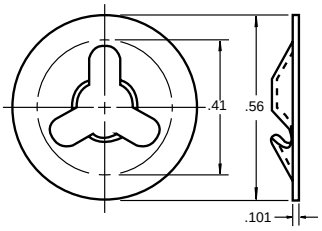
C

PUSH-ON TYPE Fasteners
(round stud specials)

MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

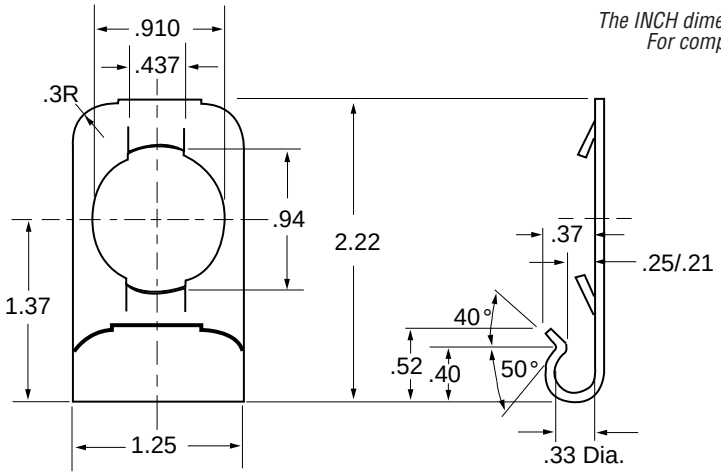
DESIGN VARIATIONS:
Parts shown as standard or with design variations are available only in that particular design.
FINISH: See Page C75 for available finishes.



SPAENAUR No.	Manufacturer's No.	Stud Dia.
TN-45	C14562-010-4	**.186-.192**

SPECIAL CABLE CLIP

The INCH dimensions of the listed parts are reference dimensions only. For complete design information, please request a blueprint.



SPAENAUR No.	Manufacturer's No.	Cable Dia.
202-174R	D05631-022-255	**.33**

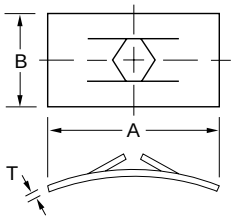
All Dimensions in Inches.

PUSH-ON TYPE Fasteners
(rectanglar stud)

MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

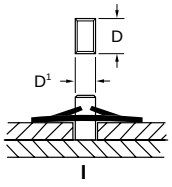
SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

DESIGN VARIATIONS:
Parts shown as standard or with design variations are available only in that particular design.
FINISH: See Page C75 for available finishes.



STANDARD RECTANGULAR

STUD DETAIL
(Studs Engage As Shown)



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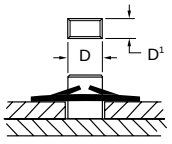
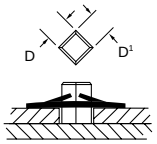
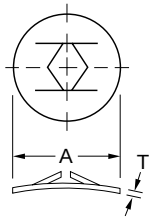


II



III



STANDARD ROUND

SPAENAUR No.	Manufacturer's No.	Stud Size D Length	Stud Size D1 Width	Type	Stud Detail	Design Variation	A Length or Dia.	B Width	T Mat'rl. Thick.
—	C09577-014	**.170**	.130-.138	Rect.	II	AD	.58	.31	.014
TN-241	C09451-010-4	**.181-.190**	.181-.190	Rect.	I or II	B	.63	.38	.010
—	C11855-012	**.186**	.186	Round	I or II	BE	.50	.34	.012
TN-63	C08820-014-27	**.215-.211**	.061-.063	Rect.	I	A	.63	.38	.014
—	C07259-014	**.222**	.083	Rect.	I	A	.63	.38	.014
—	C13910-012	**.230**	.090	Rect.	I	B	.56	.44	.012
—	C10290-012	**.247-.253**	.047-.053	Rect.	II	D	.58	.31	.012

CATALOG 13

PUSH-ON TYPE Fasteners

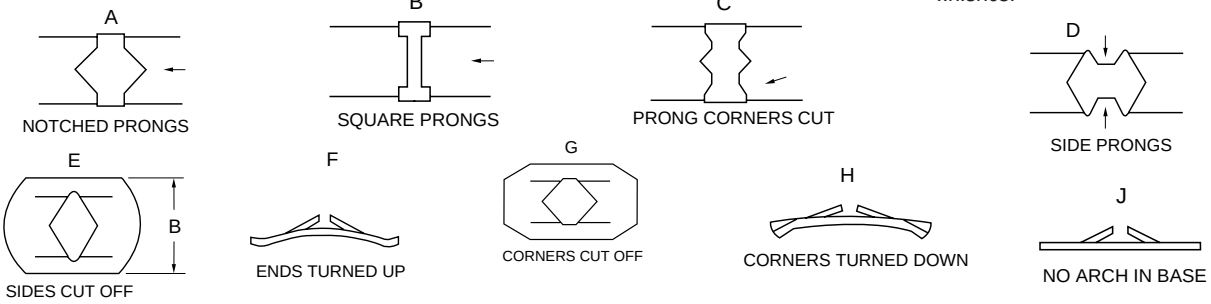
(rectanglar stud)

MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

DESIGN VARIATIONS: Parts shown as standard or with design variations are available only in that particular design.

FINISH: See Page C75 for available finishes.



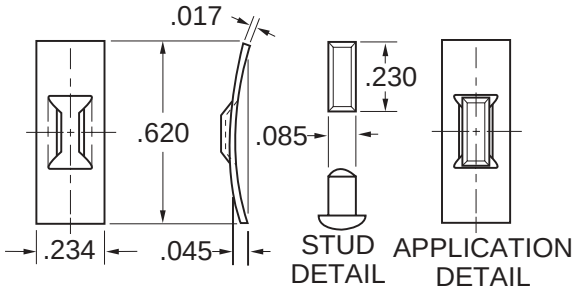
All Dimensions in Inches.

SPAENAUR No.	Manufacturer's No.	Stud Size D Length	Stud Size D^1 Width	Type	Stud Detail	Design Variation	A Length or Dia.	B Width	T Mat'rl. Thick.
B-1349	C09730-014-27	**.250**	.125	Rect.	II	DH	.63	.38	.014
—	C01774-012		.250	Round	III	A	.57	—	.012
—	C01774-017		.250	Round	III	A	.57	—	.017
—	C10751-014	**.312**	.062	Rect.	II	ADF	.92	.38	.014
—	C10934-014		.093	Rect.	II	BDF	.92	.31	.014
—	C14904-017		.312	Round	I or II	BEJ	.80	.56	.017
—	C11995-014	**.375**	.042	Rect.	II	BDF	.94	.38	.014
—	C11045-014		.125	Rect.	II	BF	.94	.38	.014
—	C12025-020		.125	Rect.	II	BD	.75	.44	.020
—	C14829SS-014	**.437**	.078	Rect.	II	BD	.76	.38	.014

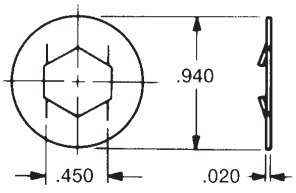
PUSH-ON TYPE Fasteners

(rectangular stud specials)

SPAENAUR No.	Manufacturer's No.	Stud Dia.
TN-242	C19267-017-1	**.230 x .085**



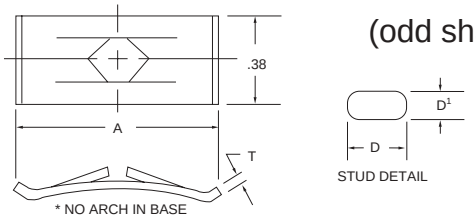
(odd shaped stud special)



For 7/16" Hex Rod.

SPAENAUR No.	Manufacturer's No.	Stud Dia.
202-177	D05282-020-4	**.437 Hex**

(odd shaped stud)



SPAENAUR No.	Manufacturer's No.	D	D^1	A	T
2060	C00848-017-27	**.250**	.125	.92	.017

C

BALL-STUD Fasteners

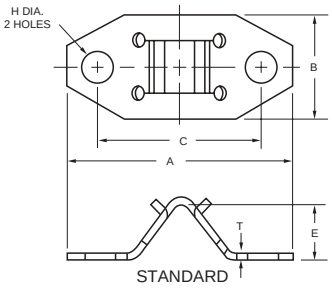
MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

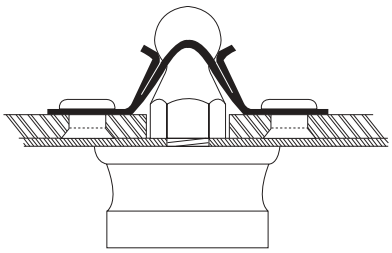
SS - Stainless Steel

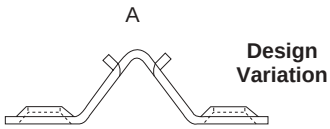
Studs— low carbon steel unless otherwise specified.

DESIGN VARIATIONS: Parts shown as standard or with design variations are available only in that particular design.

FINISH: See Page C75 for available finishes.







100° COUNTERSUNK RIVET HOLES

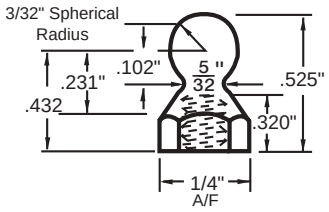
SPAENAUR No.	Manufacturer's No.	H Hole Dia.	Design Variation	Pull-Out Tension Stud Type Ball	Pull-Out Tension Stud Type Serrated	A Length	B Width	C Ctr. to Ctr.	E Height	T Matr'l. Thick.
—	C04893-012	**.105**	Std.	3.5 lbs.	5 lbs.	.97	.44	.685	.22	.012
—	C04893-017		Std.	8 lbs.	9 lbs.	.97	.44	.685	.22	.017
—	C04893-022		Std.	12 lbs.	13 lbs.	.97	.44	.685	.22	.022
—	C04893-028		Std.	18 lbs.	24 lbs.	.97	.44	.685	.22	.028
—	C04893-031		Std.	30 lbs.	30 lbs.	.97	.44	.685	.22	.031
086-647	C01663-012-3B	**.135**	Std.	3.5 lbs.	5 lbs.	.97	.44	.685	.22	.012
086-692	C01663-017-3B		Std.	8 lbs.	9 lbs.	.97	.44	.685	.22	.017
086-693	C01663SS-017-27		Std.	8 lbs.	9 lbs.	.97	.44	.685	.22	.017
◆C-788	C01663-022-4		Std.	12 lbs.	13 lbs.	.97	.44	.685	.22	.022
—	C01663-028		Std.	18 lbs.	24 lbs.	.97	.44	.685	.22	.028
—	C01663SS-028		Std.	18 lbs.	24 lbs.	.97	.44	.685	.22	.028
086-690	C01663-031-4		Std.	30 lbs.	30 lbs.	.97	.44	.685	.22	.031
—	C06273-022	**.140**	A	21 lbs.	22 lbs.	.1.06	.44	.750	.24	.022
—	C04883-017	**.145**	Std.	8 lbs.	9 lbs.	.97	.44	.685	.22	.017
—	C04883-028		Std.	18 lbs.	24 lbs.	.97	.44	.685	.22	.028
086-694	C04883-031-4		Std.	30 lbs.	30 lbs.	.97	.44	.685	.22	.031

◆Not necessarily Tinnerman® brand.

Internally Threaded Studs

C-968
DP-101-525-495

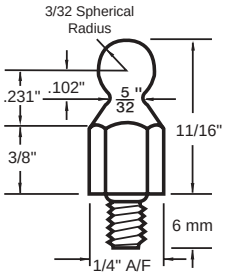
Internal Thread
6-32 NC2



Externally Threaded Studs

086-689
Mfgr. No.
P116

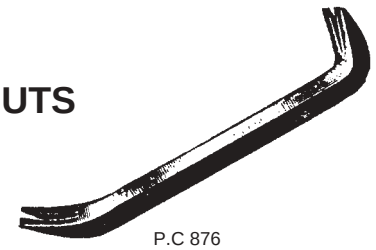
External Thread
M4 x 6 mm long



The INCH dimensions of the listed parts are reference dimensions only. For complete design information, please request a blueprint.

TOOL For Removing FLAT TYPE SPEED NUTS

Overall Length 3-3/4"



P.C 876

T-130

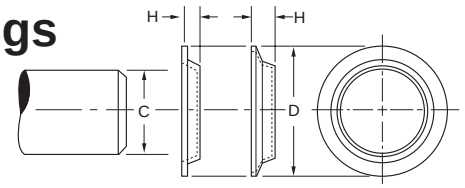
Miniature pry-off bar.
Flips off speed nuts fast!
As a pry-bar, has many uses.

CATALOG 13

Grooveless Retainer Rings

(G-R-R's)

The Thin-Wall Stud Receivers



C

Superior Stainless Steel Fasteners provide 360° of bearing surface for maximum holding power without a groove!

Tinnerman Grooveless Retainer Rings press over studs, shafts, or any round shape from .046" to .625" diameter. G-R-R's become an integral part of the axial application, replacing snap or bearing rings, cotter pins, staking, swaging, spinning, heat forming, ultrasonics, coining, cementing, or upsetting...eliminating high-cost operations. Designed without slots, or shears, G-R-R's will not "walk-off" or spring free. Low profile flat designs require a minimum of space. Wall dimensions as thin as .024" make them ideal for limited access locations. They need as little as .032" of shaft or stud extension for full anchor. Quality stainless steel assures long life, corrosion resistance, minimal distortion, dry finish, eliminates heat treat, finish and handling operations..and the extra costs they entail. A full range of sizes has been developed on modular tooling. Virtually any unlisted size can be made that falls within the limits of the tools, for a one-time set up charge. Sizes beyond this range can be made but require special tooling. Application tools are available for all sizes.

Retainer Ring *SPAENAUR No.*	Manufacturer's No.	C Stud Size	Metric Equiv. (mm)	D O.D.	H Height	Mat'l. Thick.	Style	HAND TOOL *SPAENAUR No.*
—	T99220SS-125-576	**.046**	**1.17**	.088	.017	.006	A	—
—	T99220SS-110-576	**.050**	**1.27**	.125	.020	.006	A	—
—	T99220SS-95-576	**.058**	**1.47**	.125	.020	.006	A	—
—	T99220SS-156-576	**.060**	**1.52**	.178	.020	.006	A	—
—	T99220SS-128-576	**.062**	**1.57**	.150	.016	.006	A	—
—	T99220SS-105-576	**.076**	**1.93**	.150	.025	.006	A	—
—	T99220SS-93-576	**.078**	**1.98**	.178	.025	.006	A	—
260-300	T99220SS-60-576	**.093**	**2.36**	.218	.030	.008	A	**876-336**
260-301	T99220SS-75-576			.245	.030	.008	A	**876-336**
—	T99220SS-85-576			.250	.030	.008	A	—
—	T99220SS-87-576			.325	.025	.006	A	—
260-315	T99220SS-69-576	**.098**	**2.49**	.218	.035	.008	B	**876-336**
—	T99220SS-170-576	**.117**	**2.97**	.175	.030	.010	A	—
—	T99220SS-165-576			.200	.030	.010	A	—
260-302	T99220SS-83-576			.245	.030	.010	A	—
260-303	T99220SS-67-576			.245	.030	.008	A	—
—	T99220SS-167-576	**.125**	**3.17**	.194	.030	.012	A	—
—	T99220SS-94-576			.210	.025	.006	A	—
260-304	T99220SS-58-576			.245	.025	.006	A	—
—	T99220SS-96-576			.245	.025	.008	A	—
—	T99220SS-107-576			.250	.025	.008	A	—
—	T99220SS-103-576			.305	.025	.006	A	—
—	T99220SS-111-576			.312	.025	.010	A	—
260-305	T99220SS-74-576			.325	.025	.006	A	—
—	T99220SS-185-576			.374	.025	.006	A	—
260-306	T99220SS-77-576	**.130**	**3.30**	.245	.025	.006	A	—
—	T99220SS-153-576	**.143**	**3.63**	.260	.025	.008	A	—
—	T99220SS-66-576	**.156**	**3.96**	.260	.025	.008	A	**876-339**
—	T99220SS-177-576			.325	.025	.006	A	—
—	T99220SS-86-576	**.162**	**4.11**	.437	.040	.015	A	—
—	T99220-162-27	**.162**	**4.12**	.437	.040	.014†	A	—
—	T99220SS-146-576	**.173**	**4.39**	.312	.025	.010	A	—
260-308	T99220SS-73-576	**.175**	**4.44**	.312	.025	.008	A	**876-340**
—	T99220SS-89-576			.375	.025	.008	A	—
—	T9920SS-164-576	**.187**	**4.75**	.2875	.025	.006	A	—
260-309	T99220SS-68-576			.312	.025	.006	A	—
260-310	T99220SS-72-576			.325	.025	.008	A	—
—	T99220SS-126-576			.375	.030	.012	A	—
—	T99220SS-121-576			.750	.025	.008	A	—
—	T99220SS-187-576	**.197**	**5.00**	.437	.045	.017	A	—
—	T99220-184-27			.985	.045	.017†	A	—
—	T99220SS-138-576	**.198**	**5.03**	.540	.065	.008	SPEC.	—
—	T99220-140-27	**.200**	**5.08**	.300	.050	.022†	A	—
—	T99220-133-27			.375	.050	.022†	A	—
—	T99220-99-27			.405	.050	.022†	A	—
—	T99220SS-151-576	**.2168**	**5.51**	.437	.030	.010	A	—
—	T99220SS-97-576	**.220**	**5.59**	.325	.025	.008	A	—
—	T99220-186-360	**.221**	**5.60**	.407	.050	.022†	A	—
—	T99220SS-168-103	**.227**	**5.77**	.312	.025	.008	A	—
260-311	T99220SS-79-576	**.234**	**5.94**	.375	.020	.006	A	—
—	T99220SS-90-576	**.237**	**6.02**	.437	.030	.010	A	—
—	T99220SS-196-576			.531	.045	.017	A	—

†Spring Steel Material

See Price List for Unit Package Quantity.
Continued on following page.

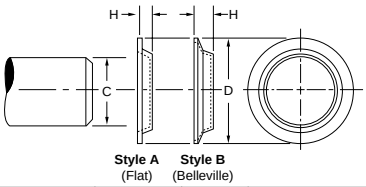
C

Grooveless Retainer Rings

(G-R-R's)

The Thin-Wall Stud Receivers

Continued from previous page.



Retainer Ring *SPAENAUR No.*	Manufacturer's No.	C Stud Size	Metric Equiv. (mm)	D O.D.	H Height	Mat'l. Thick.	Style	HAND TOOL *SPAENAUR No.*
—	T99220-171-4	**.2475**	**6.29**	.750	.060	.025†	A	—
—	T99220SS-144-576	**.248**	**6.30**	.750	.030	.010	A	—
260-312	T99220SS-80-576	**.250**	**6.35**	.312	.025	.006	A	—
260-313	T99220SS-82-576			.312	.025	.010	A	—
—	T99220-176-27			.350	.055	.022†	A	—
—	T99220SS-92-576			.395	.045	.010	B	—
—	T99220SS-104-576			.437	.050	.010	B	—
—	T99220SS-137-576			.625	.030	.010	A	—
—	T99220-191-4			.625	.035	.012†	A	—
—	T99220-119-27			.625	.055	.022†	A	—
—	T99220SS-147-576	**.265**	**6.68**	.437	.030	.010	A	—
—	T99220SS-174-576	**.282**	**7.16**	.500	.043	.020	A	—
—	T99220SS-106-576	**.298**	**7.57**	.437	.030	.010	A	—
—	T99220SS-118-576	**.300**	**7.62**	.500	.060	.020	A	—
—	T99220-154-27			.500	.055	.022†	A	—
—	T99220SS-145-576	**.309**	**7.85**	.437	.030	.008	A	—
260-314	T99220SS-64-576	**.312**	**7.92**	.437	.030	.010	A	**876-337**
—	T99220-84-27			.437	.030	.010†	A	—
—	T99220SS-78-576			.437	.035	.015	A	—
—	T99220SS-158-576			.437	.040	.017	A	—
—	T99220SS-131-576			.500	.030	.010	A	—
—	T99220SS-141-576			.564	.035	.015	A	—
—	T99220-124-27			.595	.045	.022†	A	—
—	T99220-112-27			.625	.050	.022†	A	—
—	T99220SS-161-576	**.315**	**8.00**	.500	.035	.010	A	—
—	T99220SS-160-576			.562	.070	.031	A	—
—	T99220SS-108-576			.625	.040	.010	A	—
—	T99220SS-134-576	**.318**	**8.08**	.750	.045	.015	A	—
—	T99220SS-194-576	**.3325**	**8.45**	.500	.030	.010	A	—
—	T99220SS-132-576	**.343**	**8.71**	.562	.030	.010	A	—
—	T99220SS-114-576	**.372**	**9.45**	.500	.035	.010	B	—
—	T99220SS-127-576			.625	.030	.010	A	—
—	T99220SS-173-576	**.3724**	**9.46**	.500	.043	.020	A	—
—	T99220SS-169-576	**.3734**	**9.48**	.500	.043	.020	A	—
—	T99220-190-27	**.3744**	**9.51**	.595	.080	.037†	A	—
—	T99220SS-115-576	**.375**	**9.52**	.500	.030	.010	A	—
—	T99220SS-91-576			.625	.030	.010	A	—
—	T99220SS-152-576	**.375**	**9.53**	.590	.030	.010	A	—
—	T99220SS-195-576	**.394**	**10.00**	.625	.030	.010	A	—
—	T99220-188-27			.750	.094	.017†	B	—
—	T99220SS-130-576	**.406**	**10.31**	.625	.030	.010	A	—
—	T99220SS-122-576	**.430**	**10.92**	.625	.030	.010	A	—
—	T99220-122-4			.625	.030	.010†	A	—
—	T99220SS-172-576	**.437**	**11.10**	.575	.030	.010	A	—
—	T99220SS-150-576			.655	.040	.020	A	—
—	T99220SS-101-576	**.446**	**11.33**	.625	.030	.010	A	—
—	T99220SS-139-576	**.451**	**11.46**	.610	.030	.010	A	—
—	T99220SS-129-576	**.462**	**11.73**	.625	.025	.010	A	—
—	T99220SS-88-576			.750	.025	.008	A	—
—	T99220SS-181-576	**.472**	**12.00**	.783	.070	.031	A	—
—	T99220-193-4	**.495**	**12.57**	.750	.022	.010†	A	—
—	T99220SS-120-576	**.500**	**12.70**	.750	.025	.010	A	—
—	T99220SS-175-576	**.591**	**15.00**	.750	.080	.015	A	—
—	T99220SS-100-576	**.624**	**15.85**	.750	.045	.015	A	—
—	T99220-199-4	**1.000**	**25.40**	1.750	.040	.014†	A	—

APPLICATIONS

HAND TOOLS

of Tough DELRIN

Black Colour

All Tools Priced Singly

Select hand tool listed in the extreme right column, opposite retaining ring numbers.

CATALOG 13

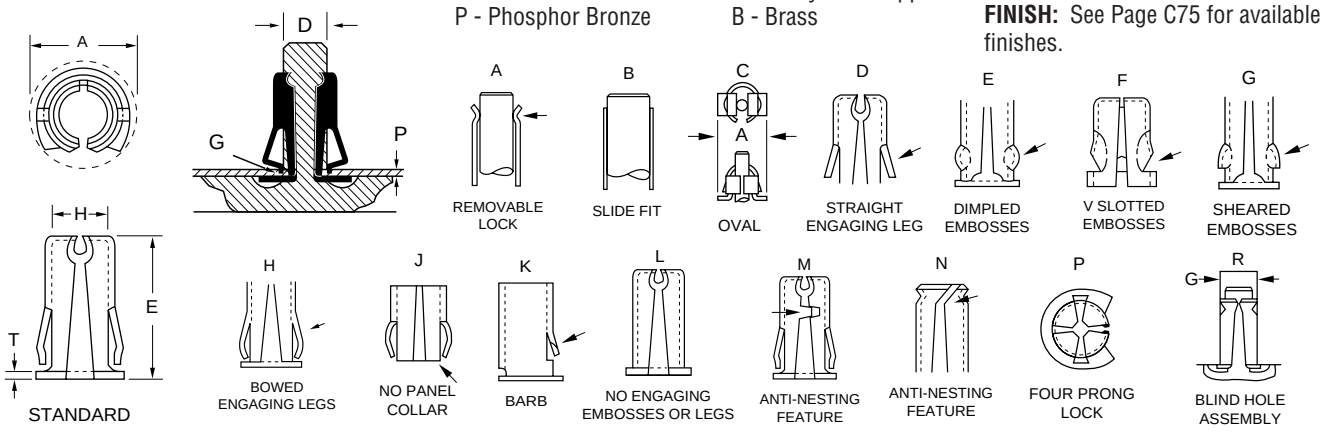
TUBULAR TYPE Fasteners

MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
B - Brass

DESIGN VARIATIONS: Parts shown as standard or with design variations are available only in that particular design.

FINISH: See Page C75 for available finishes.



SPAENAUR No.	Manufacturer's No.	D Stud Dia.	P Panel Range	Design Variation	A	E Height	H Opening At End	G Panel Hole Dia.	T Matr'l. Thick.
—	C21017-070	**.088-.098**	.070-.085	DP	.27	.27	.050	.185-.189	.012
TN-254	C23979-031-4	**.093-.105**	.031-.042	DP	.28	.25	.074	.196	.017
—	C03385-010	**.093**	—	ALR	.20	.23	.080	.120	.010
—	C57238-229M	**.117-.123**	.090-.110	CDM	.45	.40	.080	.250 x .500	.017
—	C22755-025	**.120-.130**	.025-.033	DP	.27	.29	.074	.185-.189	.017
—	C41390-035		.035-.045	DP	.23	.29	.074	.185-.203	.017
TN-10	C21970-040-4		.040-.045	DP	.27	.29	.074	.185-.189	.017
—	C23517-049		.049-.055	DP	.27	.29	.074	.185-.189	.017
—	C23517-095		.095-.105	DP	.27	.29	.074	.185-.189	.017
◆202-018	C02204-032-4	**.125**	.030-.036	H	.23	.26	.104	.161	.012
—	C02733-032		.030-.036	AH	.23	.26	.107	.161	.012
TN-5	C02204-040-4		.038-.044	Std.	.21	.26	.104	.161	.012
TN-73	C02733-040-27		.038-.044	A	.23	.26	.107	.161	.012
—	C02250-051		.049-.055	Std.	.23	.26	.104	.161	.012
—	C02733-051		.049-.055	A	.23	.26	.107	.161	.012
202-106	C02252-051-4		.049-.055	B	.23	.26	.121	.161	.012
B-1190*	C02328-050-27		.050-.060	F	.19	.20	.101	.154	.012
—	C02250-064		.062-.068	Std.	.23	.26	.104	.161	.012
—	C02733-064		.062-.068	A	.23	.26	.107	.161	.012
—	C02477-081		.079-.085	Std.	.23	.26	.104	.161	.012
—	C02733-081		.079-.085	A	.23	.26	.107	.161	.012
—	C02733-100		.098-.104	A	.23	.26	.107	.161	.012
TN-72	C02680-012-1		—	LR	.24	.25	.102	.156	.012
—	C03810-012		—	DR	.21	.23	.116	.161-.164	.012
—	C02997-012		—	ALR	.24	.25	.110	.155-.160	.012
—	C24583-012		—	BDR	.20	.23	.121	.161-.164	.012
—	C25112-049	**.156**	.049-.055	A	.31	.45	.140	.228	.012
—	C25152-052		.052-.066	Std.	.32	.45	.136	.228	.012
TN-255	C25152-062-1		.062-.068	Std.	.32	.45	.136	.228	.012
—	C25152-100		.100-.110	Std.	.32	.45	.136	.228	.012
—	C24316-125		.123-.129	A	.31	.47	.140	.228	.012
—	C03697-035	**.178-.180**	.035-.048	AF	.30	.27	.180	.228	.017

◆Not Tinnerman® brand. *Limited quantity available.

The INCH dimensions of the listed parts are reference dimensions only. For complete design information, please request a blueprint.

Continued…

See Price List for Unit Package Quantity.

C

TUBULAR TYPE Fasteners

MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

SS - Stainless Steel
P - Phosphor Bronze
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B - Brass

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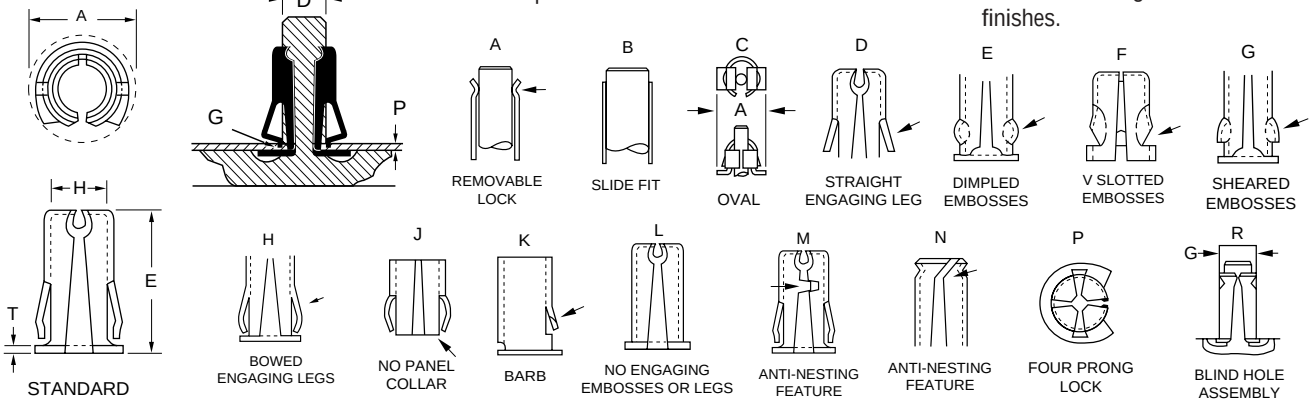
FINISH: See Page C75 for available finishes.



SPAENAUR No.	Manufacturer's No.	D Stud Dia.	P Panel Range	Design Variation	A	E Height	H Opening At End	G Panel Hole Dia.	T Matr'l. Thick.
—	C44043-081	**.182-.192**	.081-.097	AD	.32	.46	.168	.228	.011
—	C50854-088		.088-.104	AD	.32	.46	.168	.228	.011
—	C44824-036	**.184-.190**	.036-.046	DP	.34	.29	.125	.255	.014
—	C40776-045		.045-.055	DP	.34	.31	.125	.250	.017
202-144	D40231-075-4		.075-.085	DP	.34	.31	.125	.250	.017
—	C02437-035	**.186-.190**	.035-.048	AF	.32	.26	.173	.228	.017
TN-229	D40231-036-27		.036-.046	DP	.34	.29	.125	.250	.017
202-173	C02400-012-4		—	ALR	.33	.46	.174	.210-.213	.012
—	C02350-025	**.187**	.023-.029	A	.32	.47	.166	.228	.012
—	C02200-025		.023-.029	B	.31	.47	.183	.228	.012
—	C02198-032		.030-.036	Std.	.32	.46	.163	.228	.012
—	C02350-032		.030-.036	A	.32	.47	.166	.228	.012
—	C02200-032		.030-.036	B	.31	.47	.183	.228	.012
2066	C02198-040-27		.038-.044	Std.	.32	.46	.163	.228	.012
—	C02350-040		.038-.044	A	.32	.47	.166	.228	.012
—	C02200-040		.038-.044	B	.31	.47	.183	.228	.012
—	C25320-040		.040-.050	P	.38	.51	.130	.250	.014
202-191	C25321-040-4		.040-.050	A	.38	.51	.145	.250	.014
TN-170	C27739-040-27		.040-.055	GP	.40	.30	.152	.290-.312	.014
◆202-019	C02350-051-4		.049-.055	A	.32	.47	.166	.228	.012
—	C02822-064		.062-.068	Std.	.32	.46	.163	.228	.012
—	C02850-064		.062-.068	M	.32	.47	.166	.228	.012
—	C02201-081		.079-.085	Std.	.33	.46	.163	.228	.012
—	C02442-081		.079-.085	A	.32	.47	.166	.228	.012
—	C02203-081		.079-.085	B	.32	.46	.183	.228	.012
—	C02201-094		.092-.098	Std.	.33	.46	.163	.228	.012
202-190	C22519-115-20*		.115-.121	Std.	.31	.47	.163	.228	.012
—	C02866-125		.123-.129	A	.32	.47	.166	.228	.012
—	C02851-156		.154-.160	Std.	.32	.46	.163	.228	.012
—	C02694-156		.054-.160	A	.32	.46	.170	.228	.012
B-1380	C02297-020-27	**.188**	.020-.032	FM	.25	.28	.168	.218	.012
—	C02297-020		.032-.040	FM	.25	.28	.168	.225	.012
TN-71	C02346-035-27		.035-.048	F	.28	.26	.157	.228	.017

*Fin. Black, Min. .0003" Thick ◆Not necessarily Tinnerman® brand.

The INCH dimensions of the listed parts are reference dimensions only. For complete design information, please request a blueprint.

Continued…

TUBULAR TYPE Fasteners

MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

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P - Phosphor Bronze
BE - Beryllium Copper
B - Brass

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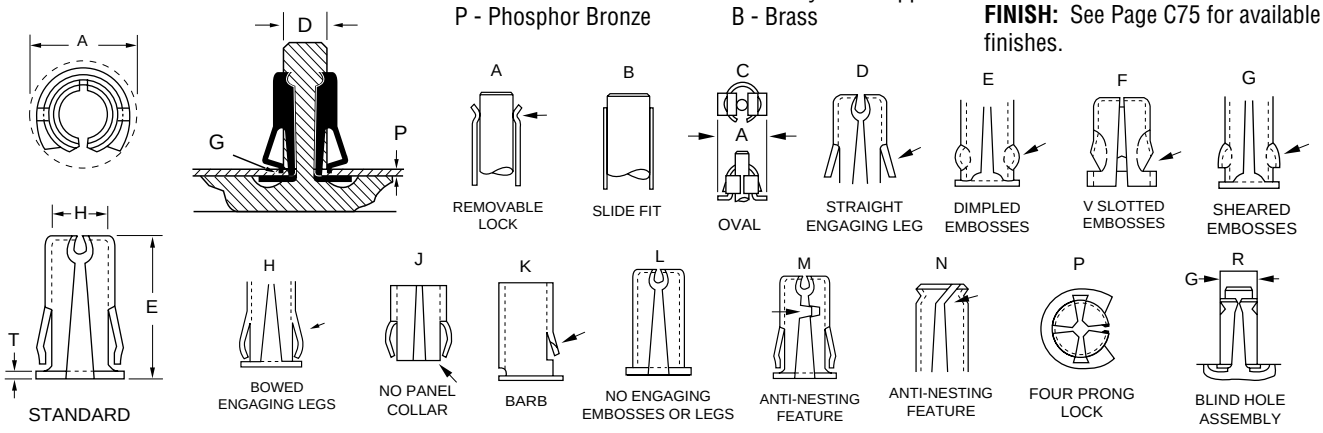
FINISH: See Page C75 for available finishes.



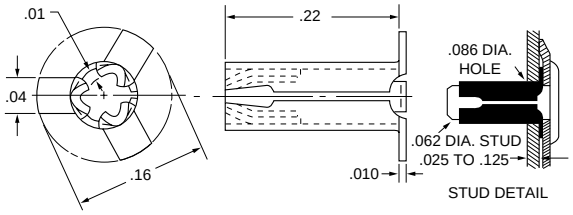
SPAENAUR No.	Manufacturer's No.	D Stud Dia.	P Panel Range	Design Variation	A	E Height	H Opening At End	G Panel Hole Dia.	T Matr'l. Thick.
—	C26146-032	**.250**	.027-.037	H	.42	.47	.210	.312	.012
—	C22310-030		.030-.034	AE	.41	.37	.232	.312	.014
TN-66	C03598-036-252		.034-.040	Std.	.43	.47	.210	.281-.284	.012
—	C25357-036		.034-.040	B	.43	.47	.256	.281-.284	.012
—	C27947-040		.040-.062	E	.36	.39	.220	.312	.014
—	C21585-040		.040-.062	AE	.41	.37	.232	.312	.014
—	C03598-075		.073-.079	Std.	.43	.47	.210	.281-.284	.012
—	C27947-075		.075-.091	E	.37	.37	.220	.312	.014
—	C03318-125		.123-.129	AE	.41	.37	.232	.312	.014
—	C23764-014		—	ALR	.41	.37	.232	.281	.014
—	C04601-036	**.312**	.036-.045	AFM	.44	.25	.300	.345	.012
—	C23205-046	**.500**	.046-.052	AF	.68	.33	.470	.531	.012

All Dimensions in Inches.

TUBULAR TYPE SPEED CLIP Fasteners

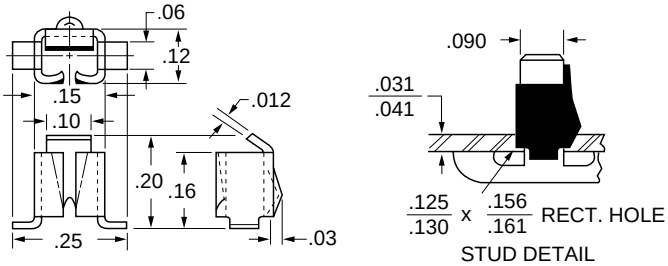
(Special)

The INCH dimensions of the listed parts are reference dimensions only. For complete design information, please request a blueprint.



SPAENAUR No.	Manufacturer's No.	Stud Size
TN-125	C02994-025-27	**.062**

SPAENAUR No.	Manufacturer's No.	Stud Size
TN-54	C22228-031-27	**.090**



C

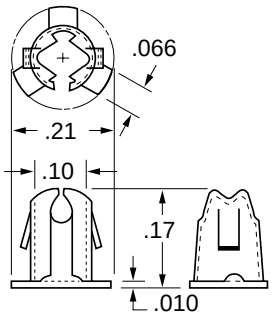
TUBULAR TYPE SPEED CLIP Fasteners
(Special)

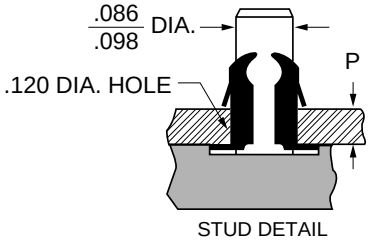
MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
B - Brass

DESIGN VARIATIONS:
Parts shown as standard or with design variations are available only in that particular design.

FINISH: See Page C75 for available finishes.



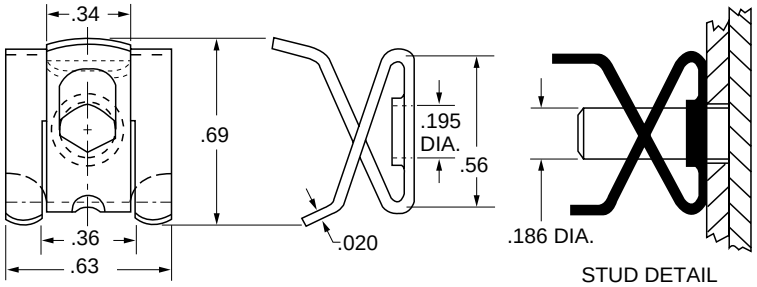


STUD DETAIL

SPAENAUR No.	Manufacturer's No.	Stud Size	P
TN-95	D04483-032-1	**.086-.098**	.032-.040

SPECIAL PURPOSE Fasteners

SPAENAUR No.	Manufacturer's No.	Stud Size
202-059	C15941-020-4	**.186**
202-117	C15941-020-373	



STUD DETAIL

SPAENAUR

Proudly serving you since 1936.
Thank you for your business.

DART TYPE Fasteners (Special)

MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

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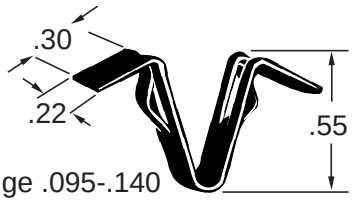
FINISH: See Page C75 for available finishes.

C

Other sizes available.

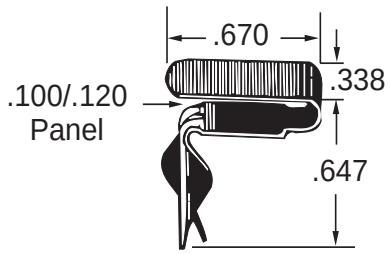


Panel Range .095-.140
Fits Hole .312

SPAENAUR No.	Manufacturer's No.	Material Thickness
086-017	D04792-012-67	.012
C-756	C04792-017-27	.017

C-272

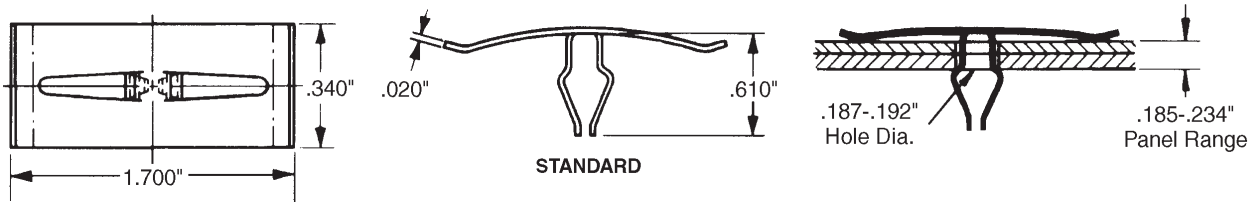
Mfr. No.
C23253-020-4



Panel Range .036
Fits Hole .280

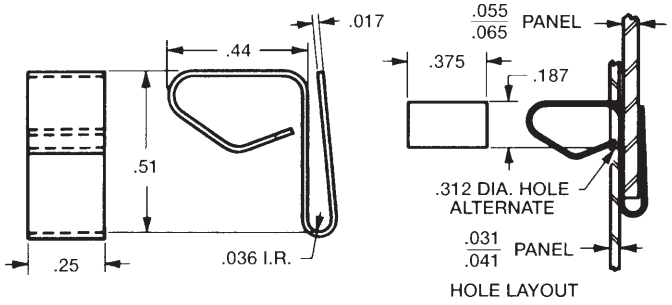
202-183

Mfr. No. C21116-020-4



202-184

Mfr. No.
C26717-017-4

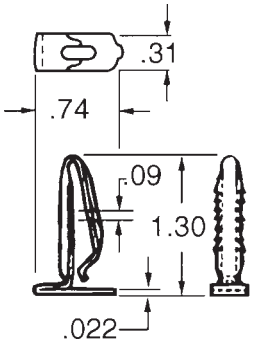


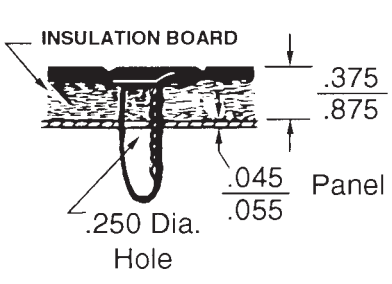
Panel Range
.031-.041"

PANEL CLIPS

C-1072

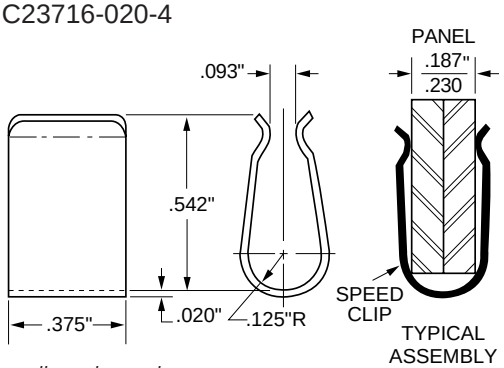
Mfr. No. D03568-022-27





C-928

Mfr. No. C23716-020-4



The INCH dimensions of the listed parts are reference dimensions only.
For complete design information, please request a blueprint.

See Price List for Unit Package Quantity.

C

U-TYPE Fasteners

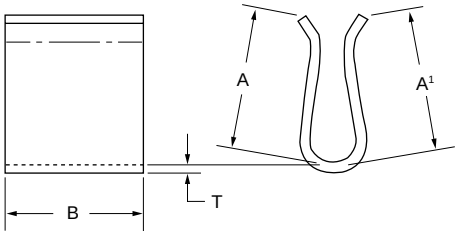
(Standard)

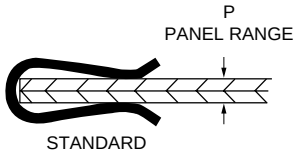
MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

DESIGN VARIATIONS: Parts shown as standard or with design variations are available only in that particular design.

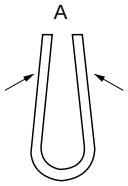
FINISH: See Page C75 for available finishes.



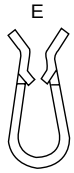


The INCH dimensions of the listed parts are reference dimensions only. For complete design information, please request a blueprint.

DESIGN VARIATIONS



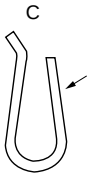
STRAIGHT LEGS



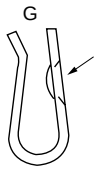
BARBS ON BOTH LEGS

SQUARE BACK

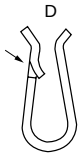
BARBS STAGGERED



A1-LEG STRAIGHT



DIMPLE ON A1-LEG



BARBS ON A-LEG

SPAENAUR No.	Manufacturer's No.	P Panel Range	Design Variation	A	A1	B Width	T Matr'l. Thick.
—	C22323-014	**.015-.060**	Std.	.34	.34	.50	.014
202-158	C22503-014-27		F	.34	.34	.50	.014
—	C42399-020	**.020-.032**	CD	.32	.22	1.00	.020
—	C02269-025	**.031-.115**	C	.81	.83	.50	.025
◆202-007	Phosphate & Oil	**.035-.080**	E	.65	.65	.13	.020
◆202-008	Zinc Plated		F	.65	.65	.25	.020
—	C27989-014	**.045-.075**	Std.	.38	.38	.50	.014
—	C02150-020	**.045-.100**	CG	.46	.57	.25	.020
—	C23358-020		CG	.46	.57	.75	.020
—	C57527-051M		CD	.46	.38	.75	.020
202-006	C02656-020-27	**.050-.094**	C	.43	.56	.25	.020
202-112	D20285-014-4	**.050-.100**	CE	.34	.35	.50	.014
202-069	D20285-017-4		CE	.34	.35	.50	.017
—	C20285SS-017		CE	.34	.35	.50	.017
C-253	D05207-014-27	**.060-.090**	E	.34	.34	.50	.014
—	C05207SS-014		E	.34	.34	.50	.014
◆202-009	C21465-014-4		E	.39	.39	.50	.014
202-180	C24209-014-4		D	.38	.38	.50	.014
—	C25887-014		CD	.34	.34	.50	.014
—	C28016-014	**.068-.087**	ABD	.20	.20	.38	.014
—	C49441-014		D	.20	.20	.38	.014
202-096	D98284-014-255	**.080-.140**	CD	.35	.30	.38	.014
—	C28494-014		CD	.35	.30	.50	.014
—	C29576-020	**.085-.095**	CF	.42	.32	.50	.020
—	C43294-014	**.090-.110**	Std.	.36	.36	.50	.014
—	C21592-020	**.093-.187**	CG	.36	.56	.22	.020
—	C2197-020		CG	.36	.56	.25	.020
—	C42820-020		CG	.36	.56	.50	.020
—	C40221-020	**.095-.115**	D	.39	.47	.25	.020
—	C40221SS-020		D	.39	.47	.25	.020
—	C56964-064M	**.100-.120**	F	.74	.68	.63	.025
—	C21457-025	**.100-.156**	D	.68	.68	.63	.025
—	C24597-012	**.103-.109**	BC	.25	.26	.46	.012
—	C23964-014	**.115-.125**	F	.34	.34	.50	.014
—	C49454-012	**.115-.132**	BCD	.16	.18	.25	.012
◆202-010	D27091-014-4	**.115-.185**	E	.42	.42	.50	.014
202-146	D27091-014-27	**.115-.185**	E	.42	.42	.50	.014
—	C57512-012	**.122-.135**	BC	.16	.18	.25	.012
—	C44981-014	**.125-140**	BCF	.25	.25	.50	.014
—	C22288-017	**.125-.170**	C	.36	.56	.25	.017

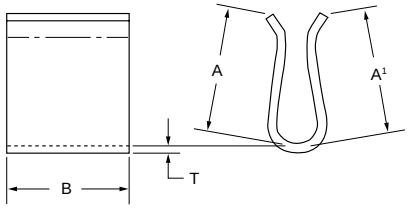
Continued… ◆Not necessarily Tinnerman® brand.

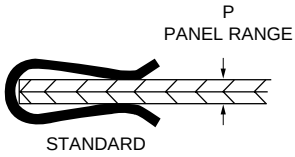
U-TYPE Fasteners
(Standard)

MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

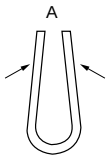
SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

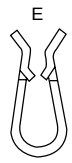
DESIGN VARIATIONS:
Parts shown as standard or with design variations are available only in that particular design.
FINISH: See Page C75 for available finishes.

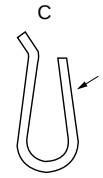


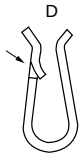


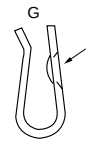
DESIGN VARIATIONS









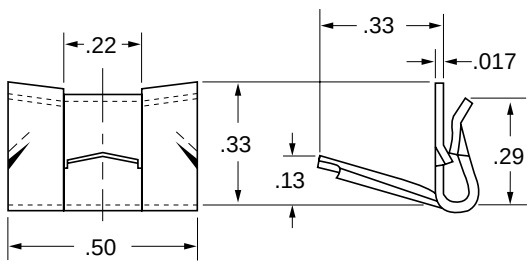


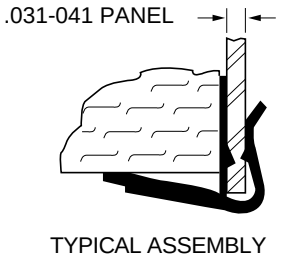
SPAENAUR No.	Manufacturer's No.	P Panel Range	Design Variation	A	A1	B Width	T Matr'l. Thick.
—	C43978-025	**.125-.187**	F	.68	.66	.63	.025
C-322	C29495-025-4	**.140-.200**	D	.74	.67	.63	.025
202-154	*D56491-036M-373*	***3.81-4.31***	*E*	*10.29-11.05*	*10.29-11.05*	*12.45-12.95*	*0.36*
◆**202-011**	C43806-014-4	**.170-.205**	E	.43	.43	.50	.014
—	C43806-020		E	.43	.43	.50	.020
—	C56353-025	**.190-.220**	F	.47	.73	.50	.025
—	C56529-064M	**.200-.235**	Std.	.68	.68	.63	.025
—	C48088-028	**.203-.210**	A	.59	.59	.44	.028
—	C21950-020	**.213-.243**	D	1.02	.63	.75	.020
—	C56935-064M	**.215-.235**	C	.68	.68	.63	.025
202-072	C45931-014-4	**.245-.255**	BE	.36	.36	.50	.014
—	C56468-051M	**.270-.310**	F	.63	1.02	.75	.020
—	C57065-014	**.270-.320**	BD	.26	.26	.50	.014
—	C20160-020	**.320-.340**	D	.61	.61	.50	.020
—	C56147-014		BE	.27	.27	.50	.014
—	C56697-015M		BD	.61	.61	.50	.020

◆Not necessarily Tinnerman® brand.

The INCH dimensions of the listed parts are reference dimensions only. For complete design information, please request a blueprint.

U- TYPE Fasteners
(Special)





SPAENAUR No.	Manufacturer's No.	Panel Range
202-070	C22960-017-255	**.031-.041**

C

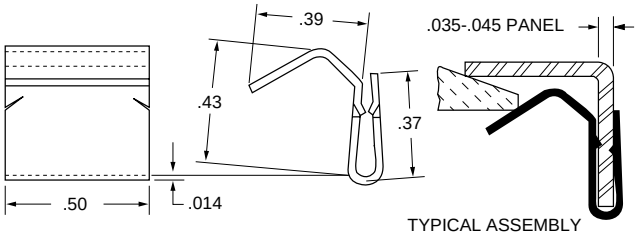
U- TYPE Fasteners (Special)

MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

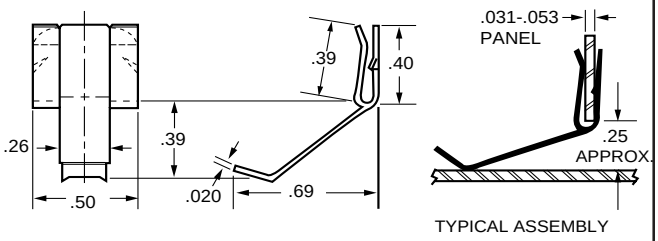
SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

DESIGN VARIATIONS: Parts shown as standard or with design variations are available only in that particular design.

FINISH: See Page C75 for available finishes.

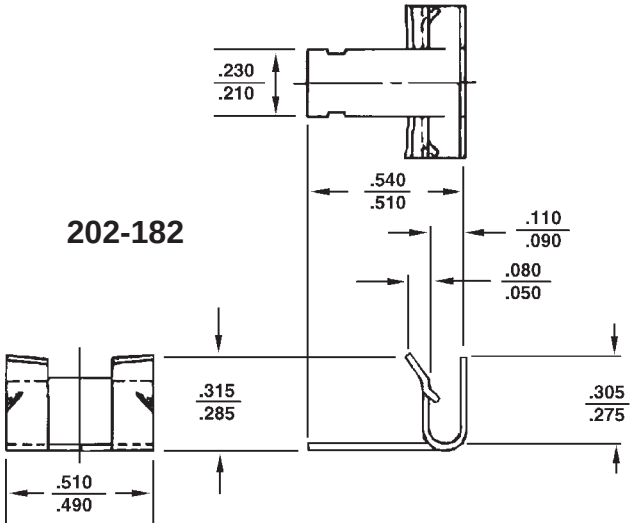


SPAENAUR No.	Manufacturer's No.	Panel Range
202-080	C44320-014-1	**.035-.045**

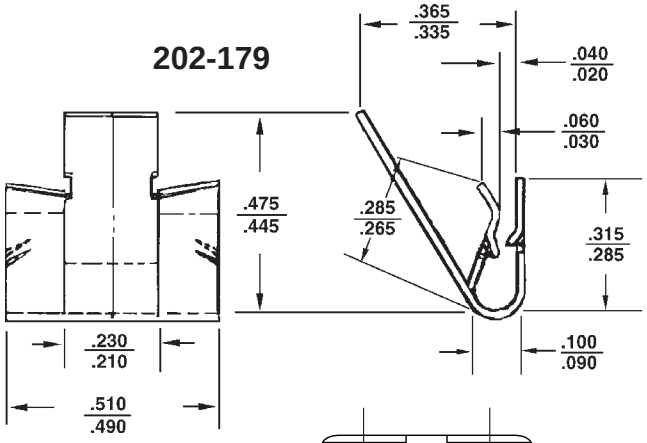


SPAENAUR No.	Manufacturer's No.	Panel Range
202-167	C28464-020-4	**.031-.053**

202-182



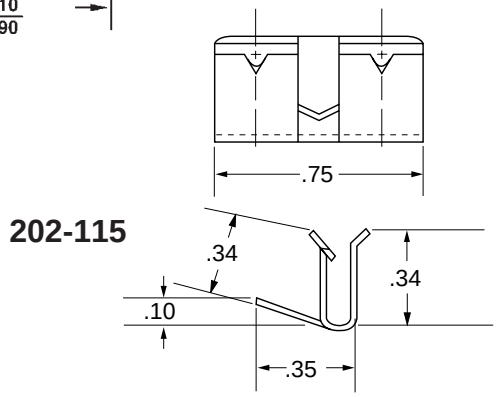
202-179



SPAENAUR No.	Manufacturer's No.	P Panel Range	T Matr'l. Thick.
◆202-179	C44140-014-4	**.025-.035**	.014
202-182	C41412-017-4	**.070-.090**	.017
202-115	D98327-017-67	**.090-.110**	.017

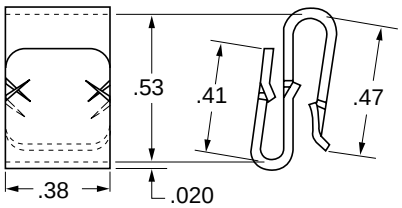
◆ Not necessarily Tinnerman® Brand

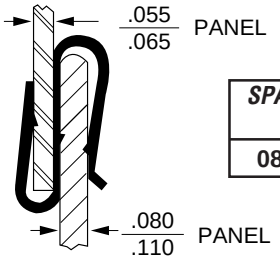
202-115



The INCH dimensions of the listed parts are reference dimensions only. For complete design information, please request a blueprint.

SPECIAL PURPOSE Fasteners





SPAENAUR No.	Manufacturer's No.	Panel Ranges	
086-350	D40991-020-4	**.055-.065**	**.080-.110**

CATALOG 13

See Price List for Unit Package Quantity.

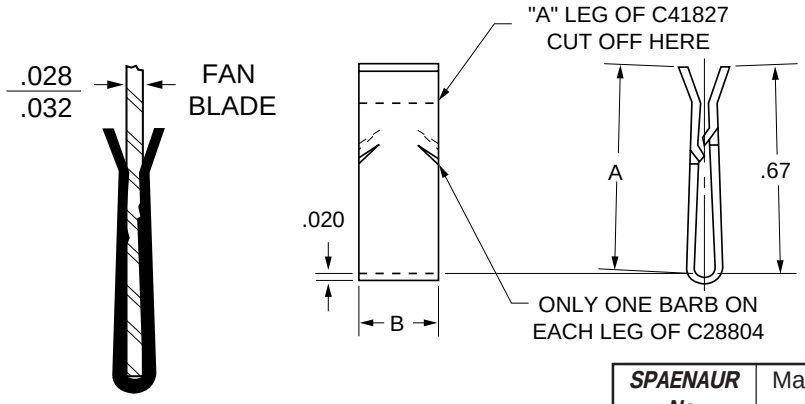
SPECIAL PURPOSE Fasteners

MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

DESIGN VARIATIONS: Parts shown as standard or with design variations are available only in that particular design.

FINISH: See Page C75 for available finishes.

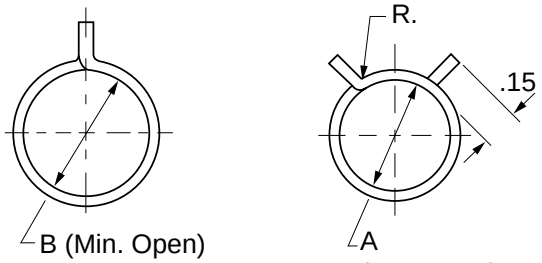


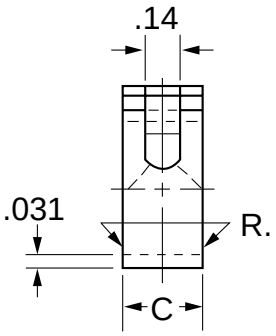
TYPICAL ASSEMBLY

The INCH dimensions of the listed parts are reference dimensions only. For complete design information, please request a blueprint.

SPAENAUR No.	Manufacturer's No.	**Weight in Grains**	**A**	**B**
202-097	C28804-020-4	**7**	.67	.13
—	C28805-020-3B	**12.6**	.67	.25

HOSE CLAMPS



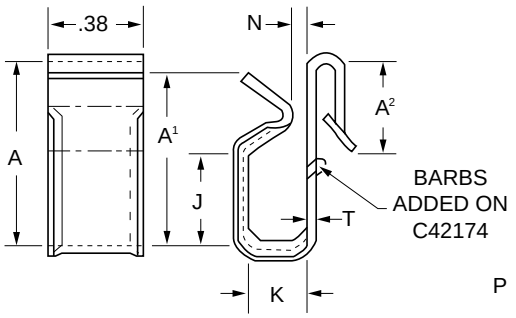


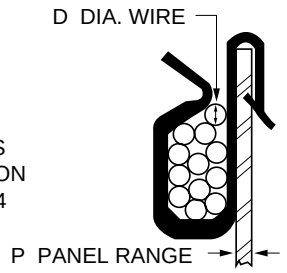
SPAENAUR No.	Manufacturer's No.	**Hose or Rod Diameter**	**A Free Position** (Max.)	**B Open Position** (Min.)	**C Width**
—	D97646-031	**.500**	.460	.545	.31
202-053	D97228-031-4	**.562**	.520	.605	.31
—	D97407-031	**.593**	.540	.650	.31
—	D97442-031	**.625**	.583	.668	.31
—	D97468-031	**.656**	.580	.713	.31
202-054	D98313-031-360	**.726**	.645	.860	.38

C

CABLE, WIRE, ROD & TUBE CLIPS

The INCH dimensions of the listed parts are reference dimensions only. For complete design information, please request a blueprint.





TYPICAL ASSEMBLY

SPAENAUR No.	Manufacturer's No.	D	P	A	A¹	A²	J	K	N	T
—	C23747-017	**.090 (twelve)**	.025-.055	.82	.71	.40	.44	.29	.06	.017
—	C20213-017		.025-.055	.83	.71	.40	.43	.29	.02	.017
—	C22533-017	**.125 (eight)**	.040-.050	.78	.75	.42	.42	.29	.09	.017
C-439	C26410-017-1	**.343 (one)**	.083-.093	.81	.81	.40	.41	.28	.14	.017

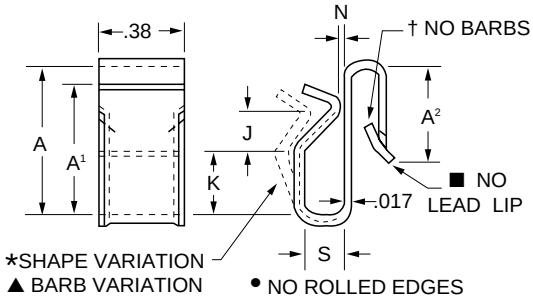
CABLE, WIRE, ROD & TUBE CLIPS

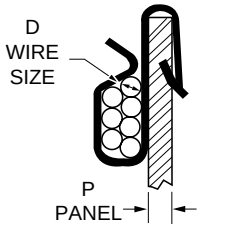
MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

DESIGN VARIATIONS: Parts shown as standard or with design variations are available only in that particular design.

FINISH: See Page C75 for available finishes.

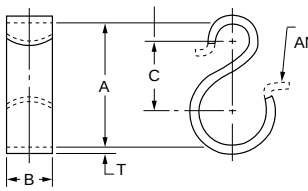


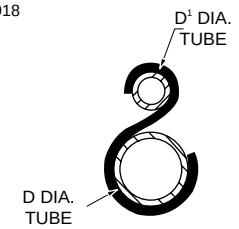


TYPICAL ASSEMBLY

SPAENAUR No.	Manufacturer's No.	D	P	A	A¹	A²	J	K	N	S
C-988	C42686-017-4	**.090 dia. (seven)**	.030-.050	.68	.64	.44	.22	.30	.03	.19
C-274	D98281-017-4		.060-.089	.68	.64	.44	.22	.30	.04	.19
—	C26121-017		.115-.135	.70	.62	.41	.18	.29	.03	.19
086-037	D22042-017-46❒		.115-.135	.70	.62	.41	.22	.29	.04	.19
—	C40699-043M	**.125 dia. (three)**	.090-.120	.60	.62	.38	.18	.29	.03	.19
086-019	C28572-017-1		.135-.165	.60	.62	.43	.18	.29	.03	.19
—	C54949-017	**.125 dia. (nine)**	.030-.050	.50	.74	.50	.11	.45	.03	.39
—	C41892-017*	**.190 x .375 (one)**	.032-.052	.71	.61	.46	.23	.28	.13	.19
—	C20744-017*		.032-.052	.71	.62	.46	.23	.28	.13	.19
—	C54337-020•▲		.100-.120	.69	.63	.42	.22	.30	.14	.23

❒ -46 Finish Phos. with Epoxy Resin Coating





SPAENAUR No.	Manufacturer's No.	D	D¹	A	B	C	T
086-341	C25481-020-4	**.375-.390**	.315-.325	.86	.38	.52	.020

CATALOG 13

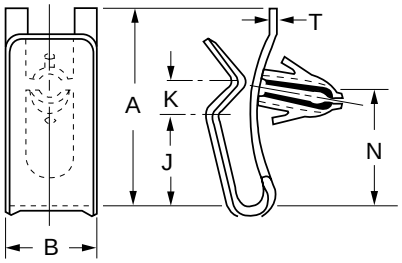
CABLE, WIRE, ROD & TUBE CLIPS

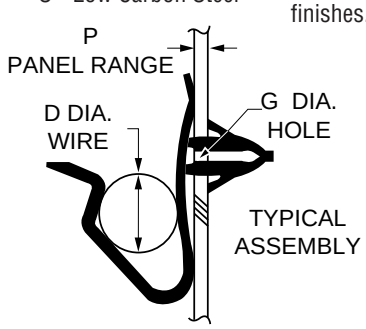
MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

DESIGN VARIATIONS:
Parts shown as standard or with design variations are available only in that particular design.

FINISH: See Page C75 for available finishes.

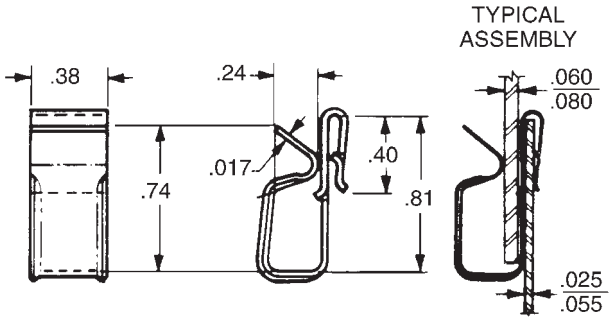


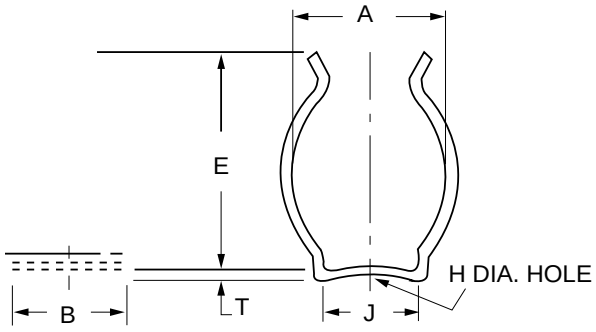


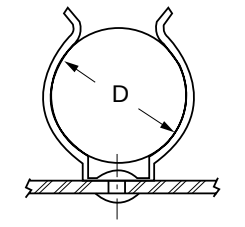
SPAENAUR No.	Manufacturer's No.	D	P	A	B	G	J	K	N	T
—	C29877-017	**.110-.500**	.031-.041	1.14	.56	.250	.70	.19	.82	.017
C-340	D22999-017-1		.031-.041	1.23	.56	.250	.66	.21	.82	.017
—	C22255-017	**.296-.515**	.025-.093	1.18	.56	.230-.270	.58	.19	.73	.017

"S" CLIP

SPAENAUR No.	Manufacturer's No.	Panel Ranges	
086-016	C28631-017-4	**.025-.055**	**.060-.080**







SPAENAUR No.	Manufacturer's No.	D	A	B	E	H	J	T
C-1031	C40915-017-4	**1.050**	.78	.56	1.08	.149	.46	.017
086-034	C22275-020-4	**1.062-1.312**	1.05	.50	1.19	.149	.56	.020

The INCH dimensions of the listed parts are reference dimensions only.
For complete design information, please request a blueprint.

C

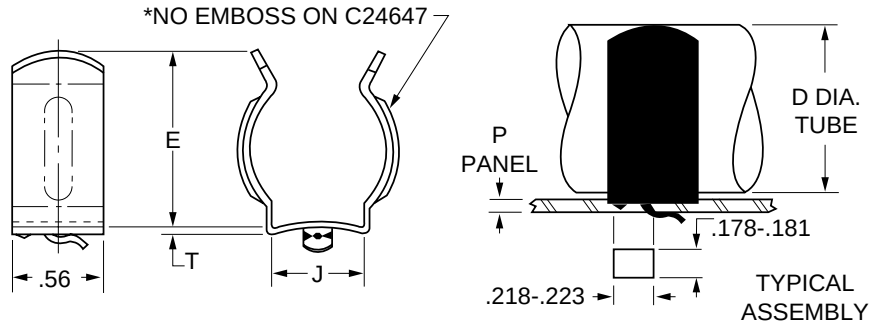
CABLE, WIRE, ROD & TUBE CLIPS

MATERIAL: All parts are SPRING STEEL, heat treated, unless otherwise specified. The only variations available are those shown with suffix letters in the manufacturer's number:

SS - Stainless Steel
P - Phosphor Bronze
BE - Beryllium Copper
S - Low Carbon Steel

DESIGN VARIATIONS: Parts shown as standard or with design variations are available only in that particular design.

FINISH: See Page C75 for available finishes.

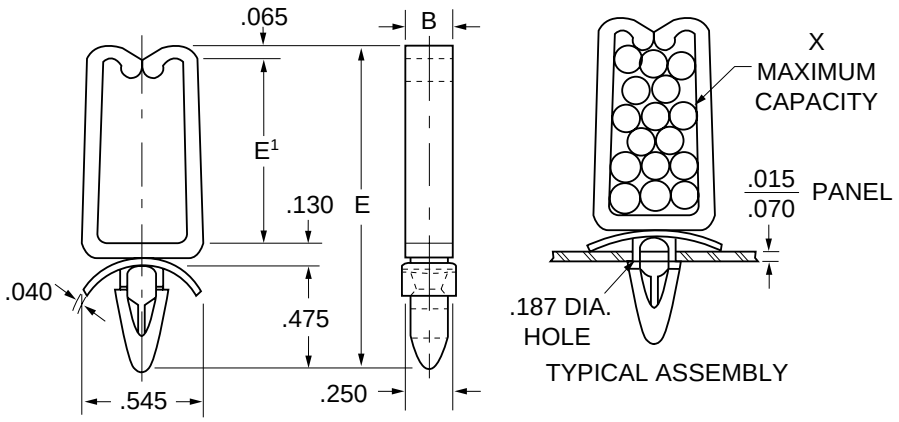


SPAENAUR No.	Manufacturer's No.	D Tube Dia.	P Panel Range	J Base Width	E Height	T Mat'rl. Thick.
086-031	C24937-7-047-4	**.875/1.000**	—	.56	.93	.017
086-032	C24937-9-047-67	**1.125/1.250**	.035/.060	.68	1.16	.020
—	C24937-9-090		.080/.100	.68	1.16	.020
—	C24937-10-047	**1.250/1.375**	.035/.060	.68	1.28	.020
—	C24937-11-027	**1.375/1.500**	.020-.035	.68	1.40	.020
086-033	C24937-11-047-4		.035/.060	.68	1.40	.020
086-035	D54764-020-255	**1.468/1.531**	.025/.033	—	1.85	—

The INCH dimensions of the listed parts are reference dimensions only.
For complete design information, please request a blueprint.

WIRE & TUBE RETAINER
Plastic Fasteners

MATERIAL: NYLON (BLACK)



SPAENAUR No.	Manufacturer's No.	Panel Range	E Height	E^1	B	X Max. Capacity
—	C61254AA-015-816	**.015-.070**	1.530	.860	.200	.750 x .375

The INCH dimensions of the listed parts are reference dimensions only.
For complete design information, please request a blueprint.

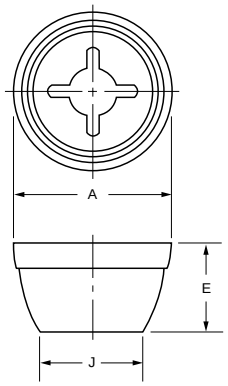
CATALOG 13

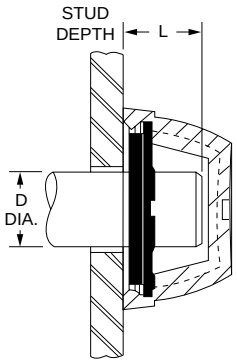
CAP TYPE PUSH-ON Plastic Fasteners

MATERIALS: High density linear polyethylene plastic cap SPRING STEEL, heat treated inserts.

FINISH: Plastic cap — Smooth gloss in choice of colours.

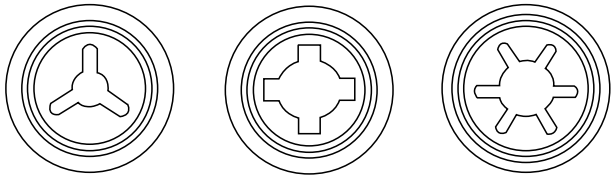
DESIGN VARIATIONS: Parts shown as standard or with design variations are available only in that particular design.





TYPICAL ASSEMBLY

DESIGN VARIATIONS - AT MANUFACTURER'S OPTION.



SPAENAUR No.	Manufacturer's No.	D Stud Diameter	Colour	A Dia.	E Height	J Dia.	L
076-022	C60002-125-805	**.125**	Black	.650	.35	.37	.125-.250
—	C60002-156	**.156**		.650	.35	.37	.125-.250
076-012	C60002-187-802	**.187**	White	.650	.35	.37	.125-.235
076-023	C60002-187-805		Black	.650	.35	.37	.125-.235
076-028	C60002-218-805	**.218**	Black	.650	.35	.37	.125-.170
—	C60008-218			.835	.46	.55	.200-.343
076-014	C60002-250-802	**.250**	White	.650	.35	.37	.125-.150
076-024	C60012-250-805		Black	.650	.35	.37	.125-.150
076-025	C60008-250-805		Black	.835	.46	.55	.200-.343
—	C60002-281	**.281**		.650	.35	.37	.125-.130
—	C61297-296	**.296**		.835	.46	.55	.200-.343
076-029	C60008-312-805	**.312**	Black	.835	.46	.55	.200-.343
076-026	C60008-375-805	**.375**	Black	.835	.46	.55	.200-.343
—	C60929-375			1.25	.65	.83	.250-.468
—	C60008-437	**.437**		.835	.46	.55	.200-.343
—	C61727-500	**.500**		.895	.46	.61	.200-.343
076-027	C60929-500-805		Black	1.25	.65	.83	.250-.468
—	C60929-664	**.664**		1.25	.65	.83	.250-.468
—	C60929-673	**.673**		1.25	.65	.83	.250-.468
—	C60008-1000M	**10.00mm†**		.835	.46	.55	.200-.343

† For metric stud. Other metric sizes available on special order.

Available Colours:

Plastic Cap fasteners are available in eight standard colours; Minimum quantities may apply:

Natural (-801)	Red (-803)	Black (-805)	Yellow (-807)
White (-802)	Blue (-804)	Silver (-806)	Green (-808)

When ordering, add the dash number shown next to colour selected, to the Manufacturer's No.
Example: C60002-125-801 (natural)

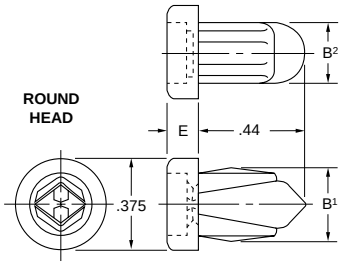
The INCH dimensions of the listed parts are reference dimensions only.
For complete design information, please request a blueprint.

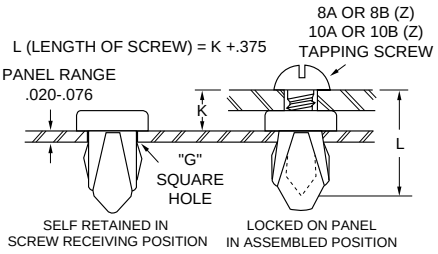
C

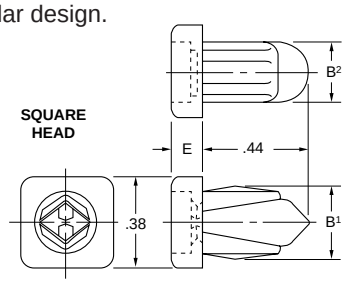
EXPANSION TYPE Plastic Fasteners

MATERIAL: Nylon (AA).
FINISH: Natural.

DESIGN VARIATIONS:
Parts shown as standard or with design variations are available only in that particular design.

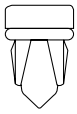






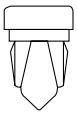
DESIGN VARIATIONS

A



PLASTISOL SEALER

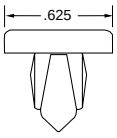
B



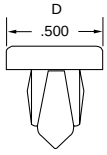
NEOPRENE SPONGE SEAL

OVER-SIZE HEAD

C

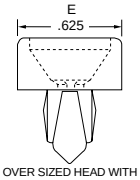


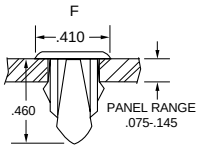
D



SPAENAUR No.	Manufacturer's No.	E Head Height	Head Type	Design Variation	B^1	B^2	G Square Panel Hole
225-037	C60183AA-031-801	**.031**	Round	Std.	.305	.25	.250-.281
225-038	C60053AA-031-801		Square	Std.	.305	.25	.250-.281
—	C60323-031		Square	A	.305	.25	.250-.281
—	C60900-031		Square	B	.305	.25	.250-.281
—	C60517-031		Square	A	.29	.265	.265-.281
—	C60053AA-062	**.062**	Square	Std.	.305	.25	.250-.281
—	C60323AA-062		Square	A	.305	.25	.250-.281
—	C61326AA-125	**.125**	Round	C	.305	.25	.250-.281
—	C61408AA-125		Round	D	.305	.25	.250-.281
—	C61326AA-187	**.187**	Round	C	.305	.25	.250-.281
225-040	C60053AA-187-801		Square	Std.	.305	.25	.250-.281
225-041	C60183AA-250-801	**.250**	Round	Std.	.305	.25	.250-.281
—	C61374AA-250		Round	E	.305	.25	.250-.281
—	C61374AA-312	**.312**	Round	E	.305	.25	.250-.281
—	C61374AA-375	**.375**	Round	E	.305	.25	.250-.281
225-043	C60183AA-500-801	**.500**	Round	Std.	.305	.25	.250-.281

WIDE PANEL RANGE





The INCH dimensions of the listed parts are reference dimensions only.
For complete design information, please request a blueprint.

Sales Desk open 7 a.m. to 7 p.m. E.S.T., Monday to Friday.

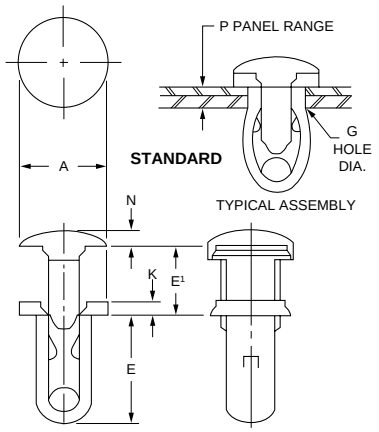
Call (800) 265-8772 or (519) 744-3521.

C

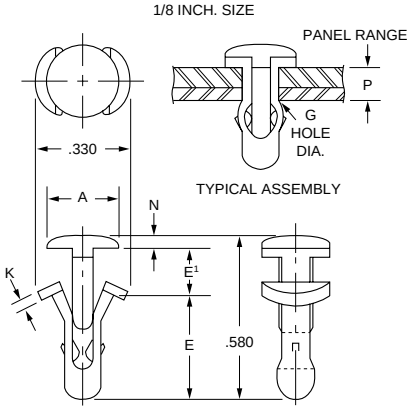
CLINCH TYPE Plastic Fasteners

MATERIAL: Nylon (AA).
FINISH: Natural or black.

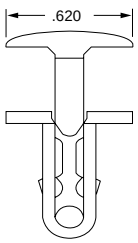
DESIGN VARIATIONS:
Parts shown as standard or with design variations are available only in that particular design.



A
1/8 INCH. SIZE



B
OVER-SIZE HEAD
1/4 INCH SIZE



The INCH dimensions of the listed parts are reference dimensions only. For complete design information, please request a blueprint.

SPAENAUR No.	Manufacturer's No.	G Hole Dia.	P Panel Range	Design Variation	A	E	E¹	K	N
086-211	C60203AA-020-801	**.125**	.020-.174	Std.	.25	.39	.235	.04	.04
086-212	C60207AA-020-805	**.187**	.020-.235	Std.	.37	.45	.35	.06	.06
—	C60207AD-020*		.020-.235	Std.	.37	.45	.35	.06	.06
—	C60184AA-020	**.250**	.020-.174	Std.	.37	.47	.305	.06	.06
—	C60955AA-035		.035-.250	B	.620	.550	.415	.06	.06

*Material: Polypropylene Copolymer

TPI's* Plastic Fasteners

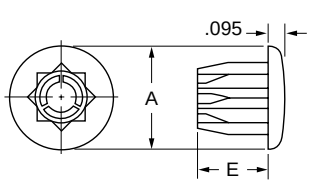
MATERIAL: Polycarbonate Resin.
FINISH: Natural.

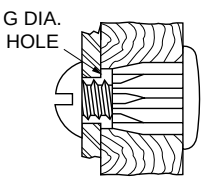
DESIGN VARIATIONS:
Parts shown as standard or with design variations are available only in that particular design.

*Tinnerman® Plastic Inserts...
may be easily rapped into wood or plastic as an insert, or wrenched on studs like a nut. Either way, TPI's provide solid, secure fastening at minimum cost.

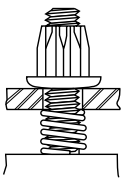
Two types of TPI nuts are available: **Pretapped,** used with machine screws for greater ease of assembly and **Plain** for use with tapping or machine screws where prevailing torque is a requisite. The screw forms its own thread as driven. Listed are sizes for No. 10 through 5/16" screws showing torque and tensile values.

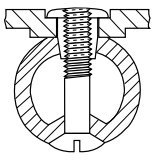
When seated as an insert, the 8-point splined body prevents rotation as the screws driven or removed. Used as a nut, the splines fit a standard 8-point socket wrench. TPI's are molded of polycarbonate resin which has many inherent advantages. It is non-toxic, has a very low absorption rate and can be painted. Mechanical properties approach those of metals. It is also corrosion proof, has excellent dielectric properties and will withstand temperatures ranging from -50 to 250 degrees Fahrenheit.

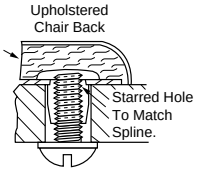




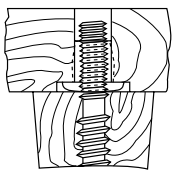
TYPICAL ASSEMBLY


ALTERNATE ASSEMBLY


TUBULAR STRUCTURE APPLICATION



TPI USED IN THIN METAL PANEL


TPI USED IN WOODEN FURNITURE LEG

SPAENAUR No.	Manufacturer's No.	Screw Size	Pre-tapped	Average Test Values: Prevailing Torque (in. lbs.)	Destruct. Torque (in. lbs.)	Install. Torque (in. lbs.)	Tensile Load Limit	A	E	G Hole Dia.
086-259	C61918AF-801	**8B**	No	—	30	25	300	.64	.44	.375
086-260	C60322AF-801	**10A**	No	17	40	30	330	.52	.28	.296

See Price List for Unit Package Quantity.

C

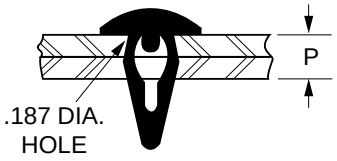
BUTTON HEAD DARTS
Plastic Fasteners

These versatile button-head darts offer many diversified application possibilities. They may be used for light retention, as bumpers, hole plugs, bearings or spacers. Ideally suited for simplified assembly of products shipped knocked-down for consumer assembly. Available in different materials, head types and panel ranges.

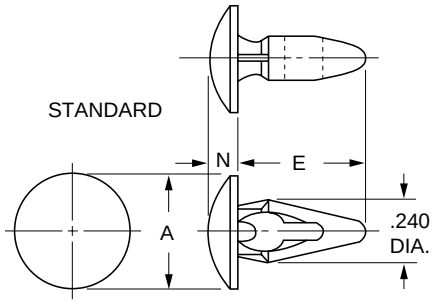
MATERIAL: Acetal, Nylon or Polypropylene

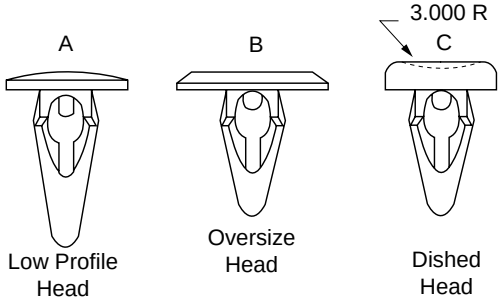
FINISH: Natural or Black.

DESIGN VARIATIONS:
Parts shown as standard or with design variations are available only in that particular design.



TYPICAL ASSEMBLY





The INCH dimensions of the listed parts are reference dimensions only. For complete design information, please request a blueprint.

SPAENAUR No.	Manufacturer's No.	P Panel Range	Design Variation	A	N	E	Material	Colour
086-203	C61546AG-028-801	**.035-.100**	Std.	.420	.100	.475	Acetal	Natural
086-213	C61546AG-028-805		Std.	.420	.100	.475	Acetal	Black
086-204	C61546AD-028-801		Std.	.420	.100	.475	Polypropylene	Natural
086-205	C61782AA-060-801	**.060-.100**	A	.445	.062	.595	Nylon	Natural
086-206	C61782AD-060-801		A	.445	.062	.595	Polypropylene	Natural
086-207	C61622AA-130-801	**.130-.180**	Std.	.420	.100	.555	Nylon	Natural
086-208	C61622AG-130-801		Std.	.420	.100	.555	Acetal	Natural
086-209	C61375AA-170-801	**.170-.234**	A	.420	.050	.595	Nylon	Natural
086-215	C61375AA-170-805		A	.420	.050	.595	Nylon	Black
—	C61758AA-170		A	.445	.062	.595	Nylon	—
—	C61612AA-170*		A	.445	.062	.595	Nylon	—

*Self-extinguishing nylon—UL rating 94V-2.

ASSORTMENT / ASSORTIMENT 805-640

Spring Nuts and Tubular Stud Retainers

65 Varieties 875 Pieces

SPRING STEEL - HEAT TREATED

Contains a full range of all most popular sizes, in **Flat, U and J Type Spring Nuts, and Tubular Stud Retainers.**

An excellent kit for general industrial maintenance, electronics, repair shops, etc. as well as for automotive general use. Inside label shows illustrations and size data.

Separate refill items available in "Unit Packages".

Priced Singly

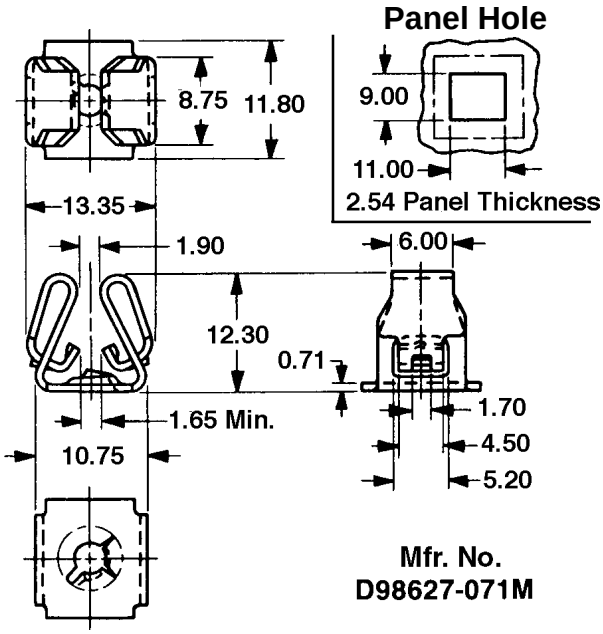
Shipping Weight: 4.5 kg (10 lbs.)

Furnished in Large Size grey enamel drawer with scooped bins for easy access. Drawers will fit into Slide Racks shown on page A3.

C

Tinnerman® Robotics Fastener*... latest innovation

*Patented



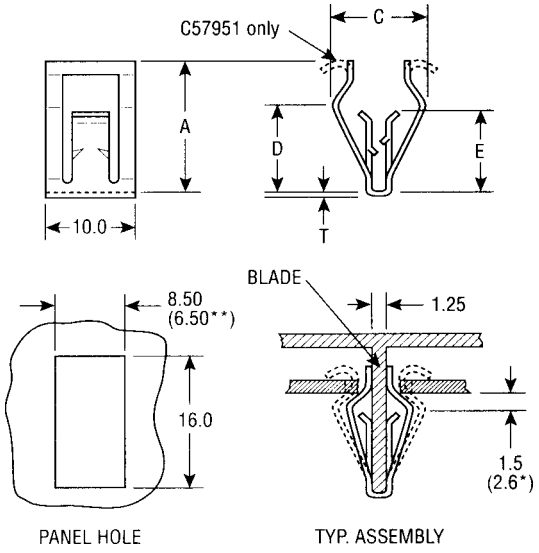
It pops into the panel from the front side, retains itself in screw receiving position, then locks firmly and reliably on the panel as the screw is driven - again, all from the front side.

Used with an 8AB (dog point), 8B or metric equivalent screw, the fastener shields surrounding wiring, cabling, etc. from the raw edges of the screw.

Takes #8 AB or B Thread

All dimensions in millimetres

Tinnerman® Trim Clip Offers Security, Utility, Economy, & Versatility



Designed for use over rectangular studs or integrally molded blades, ribs, etc., on trim strips, access plates, or any light application where removability is a factor.

High carbon spring steel, heat treated, the clip assures long, trouble-free service life.

The clips are ideal for blind side application and provide for unblemished exposed panel surfaces.

All dimensions in millimetres

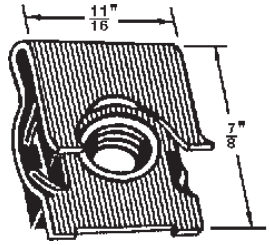
A Length	C	D	E	Blade Dim's.	T Mat'l Thick	Mfr. Part Number
16.20	10.70	10.40	9.50	1.25 x 5.0	0.51	C57951-051M
14.25	10.70	10.40	9.30	2.02 x 15.0	0.51	D98460-051M
16.00	12.50	9.70	9.15	1.90 x 15.0	0.51	D98568-051M*
7.40	7.50	4.50	4.90	2.13 x 15.0	0.30	D98597-030M**

Production part - samples available.

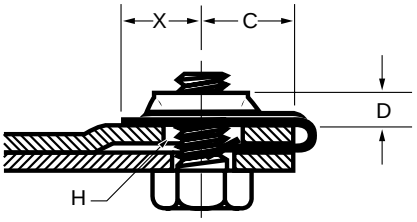
For samples or more information call the Order Office at SPAENAUR.

C

TYPE "J" SELF-RETAINING ANCHOR NUTS
Spring Steel — Heat Treated

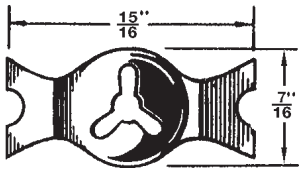


TN-142R
5/16-18 Thd.
Panel Range
.032-.060"
Phos. & Oil
U.P.Q. 25



SPAENAUR No.	C	X	D	H
TN-142R	.437"	.38"	.25"	.437"

TN-3
PUSH-ON TYPE SPRING NUT
Spring Steel - Heat Treated
Plain Finish



Fits smooth round stud
5/32" diameter

Unit Package Quantity
50

SPAENAUR
ASSORTMENT / ASSORTIMENT 805-513

Priced Singly.

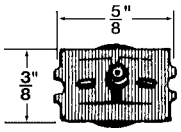
Automotive Special Screws & Nuts
26 Sizes — 321 Pieces

INCH and METRIC Sizes

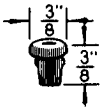
Order a Kit today for Your Body Shop!

Furnished in Regular Size, Grey enameled STEEL Drawer, with scooped bins. Drawer will fit into Slide Racks, shown on page A2.
Shipping Wt. 4.88 kg (10-3/4 lbs)

For Contents of Assortment No. 805-513 see page B148.

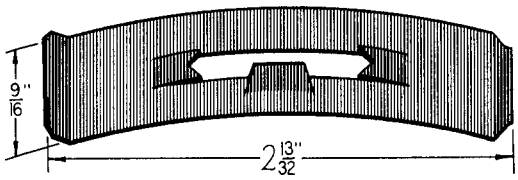


N-35 (with sealer)
Fits 1/16" Stud
Phos. & Oil



TN-249
Fits 1/16" Stud
(with sealant)
(378362-S102)
Green

TN-117
Approx. 1/8" x 1" Stud
Plain Finish



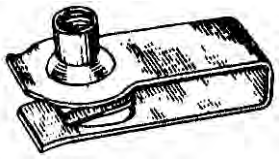
Extruded Panel Nuts
(Also found in Assortment No, 805-512, page C139.)

Type "J"

202-400 1/4"-20
Panel Range .032-.093"
Centre of Hole to Edge 1/2"
Phosphate Finish

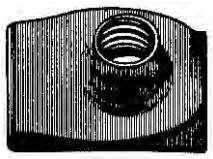
Type "U"

202-395
1/4"-20 (USS) REGULAR
(O.E.M. #1494252)
Panel range .025-.150"
Hole centre to panel edge .54"
Length 15/16" x Width 9/16"
Phos. & Oil



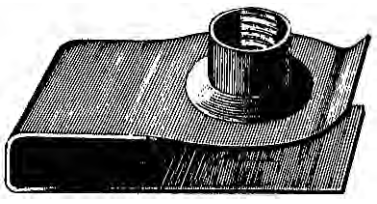
202-387
1/4"-20 (USS) LONG
(O.E.M. #1494257)
Panel range .025-.150"
Hole centre to panel edge 27/32"
Length 1-3/16" x Width 9/16"

N-256U
5/16"-18 (USS) REGULAR
(O.E.M. #1494253)
Panel range .025-.150"
Hole centre to panel edge 9/16"
Length 1" x Width 11/16"



202-396
5/16"-18 (USS) LONG
(O.E.M. #1494258)
Panel range .025-.150"
Hole centre to panel edge .83"
Length 1-1/4" x Width 11/16"
Phos. & Oil

202-392
3/8"-16 (USS) REGULAR
(O.E.M. #1494254)
Panel range .080-.150"
Hole centre to panel edge 3/4"
Length 1-5/16" x Width 15/16"



202-385
3/8"-16 (USS) LONG
(O.E.M. #45269)
Panel range .050-.200"
Hole centre to panel edge 1-1/8"
Length 1-11/16" x Width 15/16"
Phos. & Oil

C

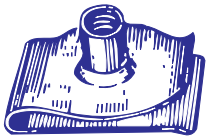
SPRING STEEL HEAT TREATED

202-500
(11500654)

M4 x 0.70 pitch
Panel range 0.8 to 4.0 mm
Hole centre to panel edge 9.5 mm
Sheet Metal assembly
G.M. 1977-1979
UNIT PACKAGE 50

M4 x 0.70 pitch
Panel range 0.8 to 4.0 mm
Hole centre to panel edge 13.5 mm
Sheet Metal assembly
G.M. 1977-1979
UNIT PACKAGE 50

202-501
(11500655)



202-502

Replaces 11502785
M6.3 x 1.0 Thread Pitch
Nut, Extruded Type, Metric, Self Locking
Sheet Metal and Front End Assembly:
General Motors '77/.

Panel range 0.8-4.5 mm
Hole centre to Panel edge 13.5 mm
UNIT PACKAGE 50

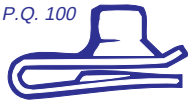
202-503

Replaces 11500657
M5 x 0.8 Thread Pitch
Nut, Extruded Type, Metric, Sheet Metal
and Front End Assembly:
General Motors '77/.

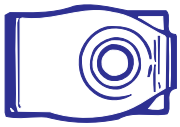
Panel range 0.8-4.0 mm
Hole centre to Panel edge 15.8 mm
UNIT PACKAGE 50

202-512
(11503957)

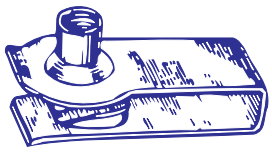
U.P.Q. 100



M6 x 1.0 pitch
Panel range
0.6 to 4.0 mm
Hole centre
to panel edge
13.5 mm



202-504
(11500658)
M6.3
x 1.00 pitch
Panel range 0.8 to 4.0 mm
Hole centre to panel edge 13.5 mm
G.M. cars 1977-1979
UNIT PACKAGE 100



202-505

Panel range
0.8-4.5 mm
Hole centre to
panel edge 18 mm

Replaces 11503715
M6 x 1.0 pitch

Nut, Extruded Type, Fenders, Shrouds,
Radiator.
General Motors '79/.

UNIT PACKAGE 50

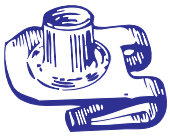
202-506

Replaces 11503716
M6 x 1.0 Thread Pitch

Panel range 0.8 to 4.5 mm
Hole centre to panel edge14 mm

Nut, Extruded Type Metric,
Sheet Metal and Front End Assembly:
General Motors '78/.

UNIT PACKAGE 50



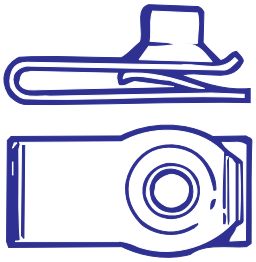
Panel range
3 to 3.8 mm
Hole centre to
panel edge
10 mm

202-507
Replaces 371964

M8 x 1.25 pitch

Nut, Extruded Type,
Shock Absorber Ends:
General Motors '79/.

UNIT PACKAGE 50



202-508
(11500661)
M8
x 1.25 pitch

Panel range 0.8 to 4.5 mm
Hole centre to panel edge 20 mm
G.M. cars 1977-1979

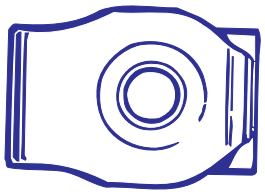
UNIT PACKAGE 50

Panel range
0.8 to 4.5 mm
Hole centre
to panel edge
13 mm

202-509

Replaces 11503719
Locking Type - M6 x 1.0 thread pitch
Nut, Extruded Type, Fenders, Shrouds,
Radiator:
General Motors '79/.

UNIT PACKAGE 50

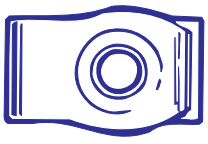


202-510
(11500662)
M10
x 1.5 mm pitch

Panel range 1.0 to 6.0 mm
Hole centre to panel edge
19.0 mm

Sheet Metal Assembly - G.M. cars 1977-1979

UNIT PACKAGE 25



202-511
(11500660)
M8
x 1.25 mm pitch

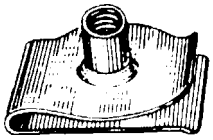
Panel range 0.8 to 4.0 mm
Hole centre to panel edge
14.5 mm

Sheet Metal and Front End Assembly
G.M. cars 1977-1979

UNIT PACKAGE 50

C

Actual Size Shown

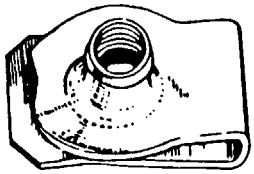


U.P.Q. 100

202-513
(11503455)

SPRING STEEL - HEAT TREATED
M8 x 1.25 mm pitch
Panel range 2.0 to 5.0 mm
Hole centre to panel edge 15 mm
Phosphate & Oil Finish

Actual Size Shown



U.P.Q. 25

202-514
(11503564)

SPRING STEEL - HEAT TREATED
M10 x 1.50 mm pitch
Panel range 1.5 to 5.0 mm
Hole centre to panel edge 20 mm
Phosphate & Oil Finish

SPAENAUR

ASSORTMENT / ASSORTIMENT 805-511

Contains
15 Sizes - 205 Pieces

METRIC RANGE

SPRING STEEL - HEAT TREATED

Priced Singly

Shipping weight: 3.06 kg (6-3/4 lbs)

Extruded Panel Nuts
Écrous sur panneau refoulé

For automotive and industrial use.

Every auto body shop needs one!

Regular size grey enamelled drawer fits the Slide Racks shown on page A2.

SPAENAUR

ASSORTMENT / ASSORTIMENT 805-512

SPRING STEEL HEAT TREATED

INCH SIZES

7 Extruded Panel Nuts
17 U-Type Spring Nuts
24 Sizes Total pieces 650

ASSORTMENT 805-512
Shipping Weight
3.06 kg (6-3/4 lbs.)

Regular size grey enamelled drawer fits the Slide Racks shown on page A2.

Priced Singly

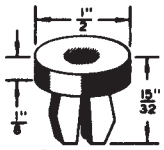
For AUTOMOTIVE service
and INDUSTRIAL use.

CATALOG 13

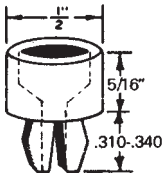
C

NYLON

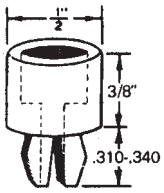
Suggested Screw Size is for Tapping Screws unless otherwise indicated.



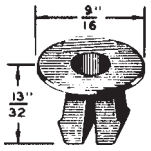
N-164P
(3783006)
Screw Size #8
Panel Hole
.280" sq.
Panel Range
.031-.156"



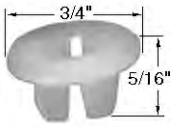
225-033
Screw Size #8
Panel Hole
.275-.285"
Panel Range
.031-.156"



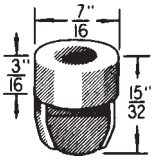
225-034
Screw Size #8
Panel Hole
.275-.285"
Panel Range
.031-.156"



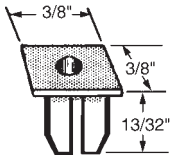
N-266P
(380370)
Screw Size #14
Panel Hole
21/64" sq.
Panel Range
.031-.172"



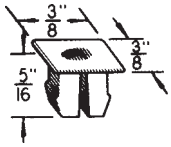
225-031
(60SGN02300)
Screw Size 1/4"
Panel Hole
.415-.430" sq.
Panel Range
.032-.135"



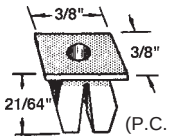
N-218P
(3880632)
Screw Size #8
Panel Hole
9/32" x 25/64"
Panel Range
.031-.050"



225-028
Screw Size
#8
Panel Hole .228"-.233"
Panel Range
.250"-.271"

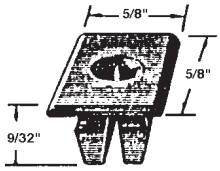


N-225P
Screw Size
#8
Panel Hole
1/4" sq.
Panel Range
.031-.125"

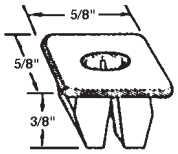


(P.C. 170)

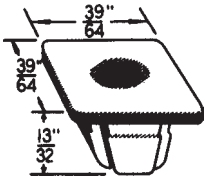
B-1576
Screw Size
#8 or 10
Panel Hole
.275-.280" sq.
Panel Range
.040-.045"



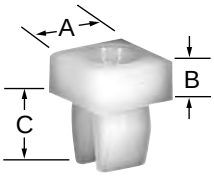
N-267P
(4755299)
Screw Size
#14 or 1/4"
Panel Hole
3/8" sq.
Panel Range
.062-.120"



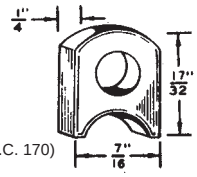
C-688P
(1196781)
Screw Size
#14 or 1/4"
Panel Hole
3/8" sq.
Panel Range
.031-.094"



N-264P
(6023925)
Screw Size #12 or 14
Panel Hole 3/8" sq.
Panel Range .115-.125"

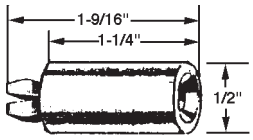


SPAENAUR No.	For Hole Size	Screw Size	Panel Range	A (sq.)	B	C
225-001	.225" x .255"	#8	.031"-.125"	.375"	.187"	.300"
225-035	.275" x .290"	#8-10	.031"-.125"	.375"	.125"	.320"
225-002	.275" x .290"	#8-10	.031"-.125"	.375"	.250"	.320"

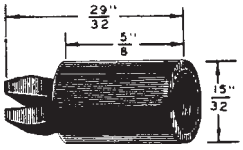


(P.C. 170)

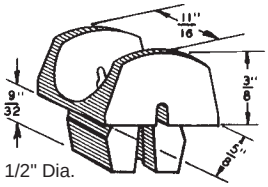
B-1561
7/32" Dia. Hole
(can be used with 1/4" fine
or coarse thread mach.
screw and 1/4" tapping)



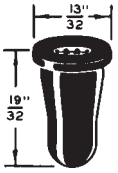
N-222P
(3863669)
Screw Size #8 or 10
Panel Hole 17/64" sq.
Panel Range .031-.094"



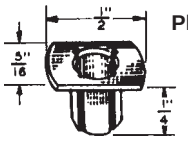
N-252P
(2524526)
Screw Size #8 or 10
Panel Hole 9/32" sq.
Panel Range .031-.094"



N-36
Screw Size #8
Panel Hole 13/32" sq.
Panel Range .031-.062"

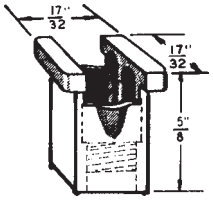


C-737P
(4770719)
Screw Size # 8 or 10
Black Plastic



Plastic Plug for Blind Moulding Bolts (Fasteners)

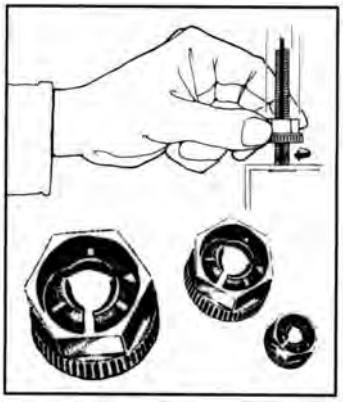
SPAENAUR No.	For Hole Size	For Screw Size
225-030	5/16"	No. 10



N-168P
(5953005X)
Screw Size 1/4-28
Machine Screw

KINGNUT®

High performance plastic nut fastener.



Install by pushing on and turning 360°.

Nut can quickly be pushed on to any threaded bolt and tightened. This can be done manually or with the aid of a quick-installation tool.

Nylon Endurance

20 years exposure to weather
10 years exposure to chemicals

Note: This product is intended for fast, easy assembly of non-load bearing items.

Anticorrosive • Vibration resistant • Labour cost savings

Temperature resistant from -10° to +75° C • Non-conductive properties

Material: 6/6 Polyamide Nylon

*For Reference only.

Spaenaur No.	For Screw Size Metric	Inch	O/A Hght. (mm)	Wrench Size (mm)	Max. Dia. (mm)	Avg. Tear-Off Force *[N]	Avg. Torque Load *[Ncm]	Unit Pkg. Qty.
164-026	M3	#6	4.0	7	8.2	160	10	100
164-027	M4	#8	4.7	8	9.4	310	18	100
164-028	M5	#10	5.8	10	11.7	500	48	100
164-029	M6	1/4"	7.0	13	15.2	800	75	50
877-916	Tool for M3/#6 and M4/#8 Nuts							1
877-917	Tool for M5/#10 and M6/1/4" Nuts							1

Priced Singly

Kit No. 805-670

Assembled in a plastic box with snap shut lid and a label for easy reference of parts.

Contents of Kit

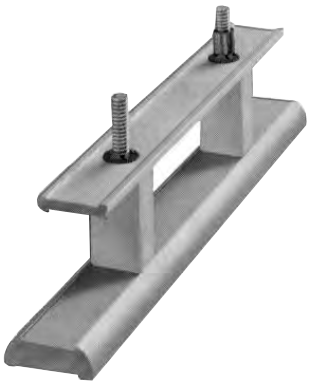
For Screw Size Metric	Inch	Kit Quantity
M3	#6	200
M4	#8	150
M5	#10	100
M6	1/4"	50

Tool - 1 only for M3/#6 and M4/#8 nuts.
Tool - 1 only for M5/#10 and M6/#1/4" nuts.

C

Style PT Pushnut

Typical applications



(Photo courtesy of American Accordian-Fold Door Co.)

Style PT Retainer, above, retains carriage bolts in slots in this auto bumper bracket until the bumper itself is attached by running down a hex nut.

The handle assembly for a folding door, at left, consists of two aluminum pieces separated by spacer blocks and held on screws by Style PT Retainer. Screws are driven into threaded holes in door latch mechanism.

Pushnut® Bolt Retainers

A PUSHNUT Bolt Retainer is a fastener which is pushed on a screw or bolt to securely retain it through handling operations prior to final assembly. The design was originally conceived and is now being used for retention of bolts in bumper brackets prior to final installation of the bumper bracket sub-assembly on an automobile.

ADVANTAGES

1. Easily Applied, Compact Fastener

Because the angled teeth bridge over several screw threads, a PUSHNUT Bolt Retainer slides down smoothly, eliminating the ratcheting action which is characteristic of push-on fasteners which fit into the threads. Round shape and low profile are economical of space. The flexible teeth fold flat when the second panel is tightened over the style PT fastener. Only .015"-.020" thickness is added to the assembly.

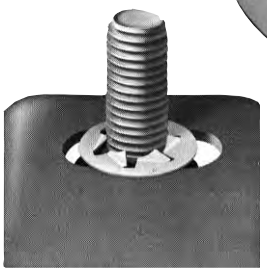
2. Grips Firmly on Bolt Threads or Shanks

A style PT fastener holds firmly at any point on the threaded or unthreaded portion of the bolt shank, even when not seated against the panel. The part must be broken for removal. It cannot be threaded off.

3. Holds Tightly on All Thread Pitches

Because a style PT fastener grips the OD of the screw thread, it functions properly, irrespective of the pitch or number of threads per inch for a given bolt diameter. Holding power figures below were obtained on plain steel bolts which were within class 2A dimensional limits.

STYLE PT



STEEL

Zinc Plated, or Phosphate Finish, at our option.

4. Style PT Retainers permit final assembly by either the "turn screw" or "turn nut" method. See "Typical Applications" at top of page.

5. Fast, Easy Assembly with Applicator Tools

Tools listed on the facing page are magnetized shank applicators equipped with wooden handles. Their use assures correct concentration of application force on the fastener flange, and facilitates assembly.

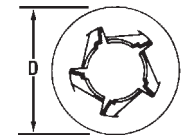
CATALOG 13

C

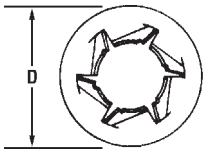
PUSHNUT®

Sizes, Tooth Designs, Dimensions and Performance

PUSHNUTS "PT" Style



Design 1



Design 2

Design 3

INCH SIZES

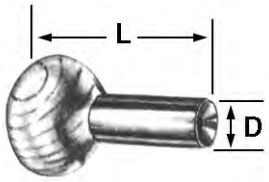
BOLT DIA.	*SPAENAUR No.*	DESIGN	DIMENSIONS DIA. D	DIMENSIONS HGT. H	DIMENSIONS MATL. THICK.	PERFORMANCE PUSH-ON FORCE LBS. (Max.)	PERFORMANCE HOLDING STRENGTH LBS. (Min.)	UNIT PKG.
#6	177-059	3	11/32"	.047"	.010"	17	40	100
#8	177-060	3	3/8"	.049"	.010"	22	50	100
#10	177-061	3	7/16"	.065"	.012"	26	65	100
1/4"	177-058	1	1/2"	.078"	.010"	17	65	100
5/16"	177-062	1	5/8"	.082"	.013"	35	100	100
3/8"	177-063	2	25/32"	.093"	.015"	38	150	100
7/16"	177-064	2	27/32"	.103"	.015"	44	300	100
1/2"	177-065	2	15/16"	.122"	.015"	40	280	100

METRIC SIZES — PUSHNUTS "PT" Style

Millimetres			mm	mm	mm	Newtons	Newtons	
M3.5			8.7	1.19	.20	75.7	178.8	100
M4			9.54	1.24	.23	97.9	222.5	100
M5	177-302	3	11.11	1.65	.30	111.2	289.2	100
M6	▲177-303	1	12.7	1.91	.25	111.2	400.5	100
M6.3	177-304	1	12.7	1.98	.25	111.2	400.5	100
M8	177-305	1	15.9	2.08	.33	155.7	445.0	100
M10	■177-306	2	19.8	2.36	.38	155.7	667.5	100
M10	177-307	2	24.0	2.62	.38	155.7	1335.0	100
M12	177-308	2	21.4	2.62	.38	111.2	1335.0	100

▲ also **177-303MZ,** Mechanical Zinc Finish ■ also **177-306MZ,** Mechanical Zinc Finish

Applicator Tools for above PUSHNUTS listed below.



Design 1
Magnetized Shank

Tools - Outils

APPLICATORS FOR PUSHNUT BOLT RETAINERS

INCH SIZES

SPAENAUR No.	Use with Pushnut No.	Design No.	Overall Length	Bolt Clearance Depth	Diameter D	Unit Package
876-270	177-059	1	3"	1-1/4"	7/16"	1
876-272	177-061	1	3"	1-1/4"	1/2"	1
876-273	177-058	1	3-1/2"	1-7/8"	9/16"	1
876-274	177-062	1	3-1/2"	1-7/8"	11/16"	1
876-275	177-063	1	5-3/4"	1-7/8"	7/8"	1
876-276	177-064	1	5-3/4"	1-7/8"	15/16"	1
876-277	177-065	1	6"	2-1/4"	1"	1

METRIC SIZES

876-272	177-302	1	76 mm	32 mm	13 mm	1
876-273	177-303	1	89 mm	48 mm	14 mm	1
876-273	177-304	1	89 mm	48 mm	14 mm	1
876-274	177-305	1	89 mm	48 mm	17.5 mm	1
876-275	177-306	1	146 mm	48 mm	22 mm	1
876-275	177-307	1	146 mm	48 mm	22 mm	1
876-277	177-308	1	152 mm	57 mm	25 mm	1

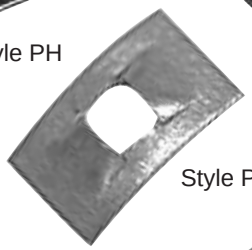
C

Arched Rectangular/round types

Spring Steel Material, with protective finish

Style PH

Style PA


Style PZ

Style PS

Style PV

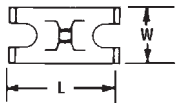
*Recommended diameter tolerance of stud for PH and PZ fasteners is ±.005"; for PA fasteners, +.002" and -.003". Surface hardness of stud must not exceed Rockwell 30T-78. Nickel-chrome plating on studs for PH fasteners must not exceed .001". Nickel-chrome plating or other hard finishes not recommended on steel studs for PA fasteners.

Arched types provide spring tension or "take-up" to compensate for unavoidable slack. Round styles require minimum space. These styles develop optimum clamping strength only when the body arch is substantially flattened against the work. Therefore, the bearing surface must be hard enough for the fastener edge to slide on, strong enough to resist breaking, and rigid enough not to yield.

See facing page for Pushnut Tools.

Unit Package 100 — All Numbers

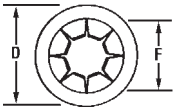
STYLE PH
▲ STYLE PZ



DIMENSIONS							PERFORMANCE		
							In Pounds		
Steel Thick. (Inch)	Width W (Inch)	Length L (Inch)	H (Inch)	Wgt. Lbs./M	To Fit Smooth Round Stud Diameter (Inch)*	*SPAENAUR No.*	Push-On Force	Seat. Force	Minumum Holding Strength
.013	.281	.550	.096	0.5	1/16 (.062)	**177-075**	25	60	85
.013	.328	.610	.104	0.7	3/32 (.094)	**177-076**	25	60	108
.015	.375	.672	.116	1.0	1/8 (.125)	**177-077**	45	70	130
.013	.375	.625	.107	0.8	3/16 (.188)	**177-078▲**	20	50	170

STYLE PA

Design 1

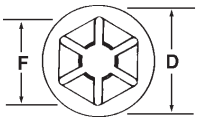


Design 2

DIMENSIONS						To Fit Smooth Round Stud Diameter (Inch)*	*SPAENAUR No.*	PERFORMANCE		
			Washer Dia.					In Pounds		
Design No.	Steel Thick. (Inch)	Total Height H (Inch)	Inside F (Inch)	Outside D (Inch)	Wgt. Lbs./M			Push On Force	Seat. Force	Minumum Holding Strength
1	.009	.073	.228	3/8	0.3	1/8 (.125)	**177-066**	15	15	130
1	.013	.078	.228	3/8	0.4	1/8 (.125)	**177-067**	26	25	350
2	.010	.087	.320	7/16	0.4	3/16 (.188)	**177-068**	10	50	200
2	.015	.095	.320	7/16	0.5	3/16 (.188)	**177-069**	15	100	400
2	.012	.095	.388	17/32	0.7	1/4 (.250)	**177-070**	25	60	400
2	.017	.103	.388	17/32	1.0	1/4 (.250)	**177-071**	30	115	600
2	.013	.058	.320	7/16	0.5	5/32 (.156)	**177-079†**	25	—	180
2	.017	.061	.546	3/4	1.7	3/8 (.375)	**177-073†**	55	110	700
2	.021	.114	.456	5/8	1.5	5/16 (.312)	**177-084**	60	120	900

† Flat Round Type

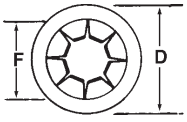
STYLE PV



ZINC PLATED

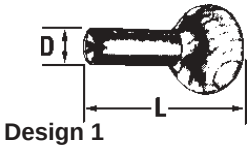
—	.015	.083	.750	15/16	2.6	1/4 (.250)	**177-081**	14	—	100

STYLE PS

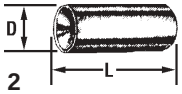


2	.035	.112	.730	1	6.4	1/2 (.500)	**177-083**	160	—	2000

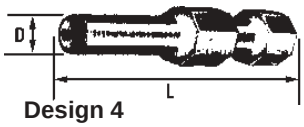
CATALOG 13



Design 1



Design 2



Design 4

between same horizontal lines.
See fasteners on facing page.
All tools have magnetized shanks.

Tools for Pushnuts

(Priced Singly)

SPAENAUR No. Fastener	Tool	Design No.	Overall Length L	Dia. D	Stud Clearance Depth
177-067	**876-287**	1	3"	7/16"	1-1/4"
177-066					
177-069	**876-288**	1	3/4"	7/16"	3/4"
177-068					
177-071	**876-295**	1	3-1/2"	1/2"	1-1/2"
177-070	**876-289**	2	3"	1/2"	1-1/2"
177-072	**876-290**	2	3"	5/8"	1-1/2"
177-073	**876-291**	2	3"	3/4"	1-1/2"
177-075	**876-292**	1	3"	5/16"	.875"
177-076	**876-293**	1	3"	3/8"	.750"
177-077	**876-287**	1	3"	7/16"	1-1/4"
	876-294	4	3"	1/2"	.635"
177-078	**876-297**	1	3"	5/8"	1-1/4"

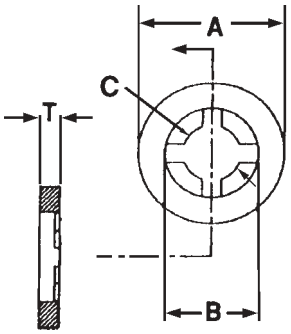
NOTE: Any tool will fit any fastener listed

C

Standard Moulded Nylon Retaining Washers

Similar to a standard nylon flat washer, **but with a specially configured I.D. designed to grip the outside of a screw shank**. The washer will slide onto the screw easily, but is retained on the screw. For use in applications requiring pre-assembly of the screw and washer to reduce final assembly cost.

Tolerances: +/- .015



Unit Package
100

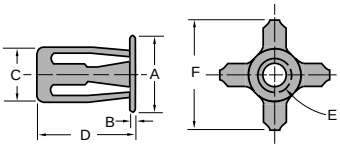
SPAENAUR No.	For Screw Size	A Outside Diameter	B Inside Diameter	C Inside Diameter to edge of teeth	T Thickness
177-400	#2	13/64"	.115"	.078"	.031"
177-401	#2	13/64"	.115"	.078"	.062"
177-402	#4	17/64"	.156"	.102"	.031"
177-403	#4	17/64"	.156"	.102"	.062"
177-404	#6	21/64"	.198"	.128"	.031"
177-405	#6	21/64"	.198"	.128"	.062"
177-406	#8	25/64"	.235"	.152"	.031"
177-407	#8	25/64"	.235"	.152"	.062"
177-408	#10	29/64"	.277"	.177"	.031"
177-409	#10	29/64"	.277"	.177"	.062"
177-410	1/4"	19/32"	.375"	.234"	.031"
177-411	1/4"	19/32"	.375"	.234"	.062"
177-412	5/16"	47/64"	.470"	.292"	.031"
177-413	5/16"	47/64"	.470"	.292"	.062"
177-414	3/8"	57/64"	.564"	.350"	.031"
177-415	3/8"	57/64"	.564"	.350"	.062"
177-416	7/16"	1-1/32"	.570"	.410"	.031"
177-417	7/16"	1-1/32"	.570"	.410"	.062"
177-418	1/2"	1-1/8"	.690"	.468"	.031"
177-419	1/2"	1-1/8"	.690"	.468"	.062"

C

JACK NUT®
SCREW ANCHOR

The Only Blind Fastener Which Grips Any Material From 0" to 3/8" Thick

(Screws Not Included)



Made of quality steel, zinc plated. Grips evenly on rough or smooth surfaces. Provides vibration-proof assembly. Weight-carrying capacity is limited in most cases only by strength of the material in which it is used.

EASY TO INSTALL

1 Insert anchor into hole. Needs only 3/8" expansion space.

2 Run in screw to collapse spider anchor backing by exerting pull on threads.

3 Anchor now is installed and ready to receive attachment screw.

Cuts cost, speeds assembly, solves seemingly impossible fastening problems. Can be used as a rivet and / or blind fastener. It's versatile, easy to use and no special tools are needed.

The only blind fastener with threads which grips any material from 0" to 3/8" thick. Needs only 3/8" expansion space. Allows holes to be fashioned before, during or after fabrication. Hole size is not critical and special type of hole is not necessary.

SPECIFICATIONS

SPAENAUR No.	E THREAD SIZE	A CAP DIA.	B CAP THICK	C BODY DIA.	D O/A LGTH.	F MAX. SPREAD	GRIP RANGE	DRILL HOLE SIZE	Unit Pkg. Qty.
INCH SIZES									
N-125	6-32	.468	.073	.318	.653	.660	.015-.187	.318-.330	100
226-007	6-32	.468	.073	.318	.841	.720	.187-.375	.318-.330	100
N-126	10-24	.531	.073	.382	.716	.760	.015-.187	.382-.400	100
N-127	1/4-20	.625	.073	.438	.731	.890	.015-.187	.438-.450	100
N-294	1/4-20	.625	.073	.438	.919	.890	.187-.375	.438-.450	100
226-014■	1/4-20	.625	.073	.438	.731	–	.015-.187	.438-.450	50
226-015▲	1/4-20	.625	.073	.438	.731	–	.015-.187	.438-.450	50
METRIC SIZES (mm)									
226-020	M4 x 0.7	11.89	1.85	8.08	16.59	–	0.38-4.75	8.08-8.38	100
226-021	M4 x 0.7	11.89	1.85	8.08	21.36	–	4.75-9.53	8.08-8.38	100
226-022	M5 x 0.8	13.49	1.85	9.70	18.19	–	0.38-4.75	9.70-10.16	100
226-023	M5 x 0.8	13.49	1.85	9.70	22.56	–	4.75-9.53	9.70-10.16	100
226-024	M6 x 1.0	15.88	1.85	11.13	18.57	–	0.38-4.75	11.13-11.43	100
226-025	M6 x 1.0	15.88	1.85	11.13	23.34	–	4.75-9.53	11.13-11.43	100
226-026	M6 x 1.0	15.88	1.85	11.13	27.79	–	9.53-12.70	11.13-11.43	50
226-027■	M6 x 1.0	15.88	1.85	11.13	18.57	–	0.38-4.75	11.13-11.43	50
226-028▲	M6 x 1.0	15.88	1.85	11.13	18.57	–	0.38-4.75	11.13-11.43	50

■ Vinyl Cap

▲ Rain Tite

N-128T FRICTION WRENCH

A metal device to keep Jack Nut screw anchor from rotating while screw is being run in. Easy to use. Simply put screw through appropriate hole in wrench and then into anchor. Insert into hole in the wall. Hold wrench and run in screw.

Unit Package 1

T-1956-2 SUPER-SPEED TOOL

FOR INSTALLING JACK NUTS

Each tool includes 3 Rods and 2 Adapters.

For all **Inch Thread** Jack Nuts listed above.

Priced Singly

HOOK for PICTURES, MIRRORS, ETC.

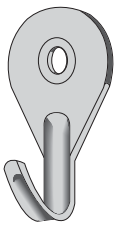
N-129H

Steel — Zinc Plated

For use with Jack Nut Fasteners.

It is neat in appearance and sturdily constructed to hold pictures, mirrors, etc. The hole will accommodate a 6-32 screw such as used with Jack nut No. N-125.

For use with larger screws, the hole may be enlarged easily by removing the insert.



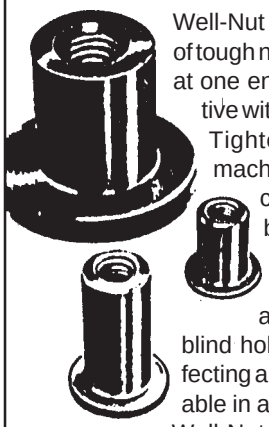
Actual Size

Unit Package 50

C

WELL-NUT®

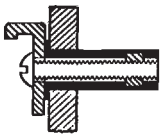
WHAT IT IS...*Tough!* NEOPRENE



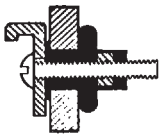
Well-Nut is essentially a bushing of tough neoprene having a flange at one end and a brass nut captive within the bore at the other. Tightening a conventional machine screw engaging the captive nut causes the bushing to expand—against the inner side of a thin-wall material, or against the sides of a blind hole in solid material—effecting a secure fastening. Available in a variety of formulations, Well-Nut resists most environmental conditions.

HOW IT INSTALLS...

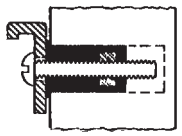
1. Well-Nut is inserted in a pre-drilled hole, with its flange against the outer surface. Since Well-Nut is a blind fastener, it is installed from one side of the work with no need for access to the inner side.



2. The part to be assembled to the surface is placed against the flange of the Well-Nut, and is secured by a machine screw engaging the captive brass nut.

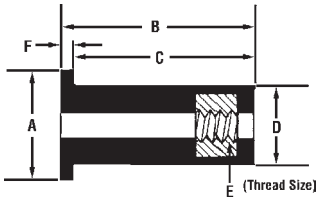


3. As the machine screw is tightened, the neoprene body of the Well-Nut is compressed and expanded, forcing it tightly into the screw threads and against the inner surface of the thin wall material.



4. Installed in a blind hole in solid material, the body of the Well-Nut expands tightly against the walls of the hole, effecting a secure, dependable fastening.

DIMENSIONS & INSTALLATION DATA



DURO **60-70** ±5

No other blind fastener does all this...

- Fastens in thin walls or blind holes.
- Functions as a threaded insert, or a fastener, or both.
- Seals effectively against air or liquid leakage at the assembly joint.
- Muffles noise.
- Dampens vibration, absorbs shock.
- Insulates electrically.
- Prevents galvanic corrosion.
- Ideal fastener for plastic-to-metal and other dissimilar materials.

SPAENAUR No.	E THREAD SIZE	A HEAD DIA.	B O/A LENGTH	C LENGTH UNDER HEAD	D BODY DIA.	F HEAD HEIGHT	RECOMMENDED HOLE SIZE	GRIP RANGE	UNIT PKG. QTY.
102-200	6-32	.452	.499	.437	.312	.062	5/16	.015-.156	50
102-201	6-32	.554	.981	.946	.240	.035	1/4	.375-.607	50
102-202	8-32	.438	.499	.447	.312	.052	5/16	.015-.156	50
102-203	10-24	.562	.562	.437	.375	.125	3/8	.015-.050	50
RB-312	10-24	.562	1.551	1.500	.375	.051	3/8	.812-1.143	50
102-204	10-32	.500	.554	.518	.375	.036	3/8	.015-.192	50
102-205	10-32	.562	1.051	1.000	.375	.051	3/8	.312-.643	50
102-206	10-32	.750	.807	.620	.375	.187	3/8	.030-.227	50
102-207	10-32	.750	.700	.620	.375	.080	3/8	.030-.227	50
102-209	10-32	.562	.665	.625	.375	.040	3/8	.035-.232	50
102-210	10-32	.554	.847	.812	.375	.035	3/8	.312-.450	50
102-211	1/4-20	.630	.630	.579	.500	.051	1/2	.015-.111	50
102-217	M6x1.0 mm	.750	.829	.642	.500	.187	1/2	.031-.187	50
102-212	1/4-20	.750	.829	.642	.500	.187	1/2	.031-.187	25
102-213	1/4-20	.635	1.051	1.000	.500	.051	1/2	.250-.457	25
RB-314	1/4-20	.630	1.395	1.384	.500	.051	1/2	.275-.422	25
102-214	5/16-18	.875	.725	.600	.620	.125	5/8	.015-.156	10
102-215	3/8-16	1.250	1.062	.875	.750	.187	3/4	.015-.437	10

WELL NUT® ASSORTMENT

ASSORTMENT ASSORTMENT **805-544**

Priced Singly

16 Sizes — 140 Pieces

Furnished in Regular Size grey enamel Steel drawer with scooped bins for easy access.

Drawer will fit into Slide Racks shown on page A2.

Shipping Weight: 2.43 kg (5.36 lbs.)

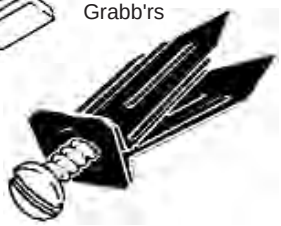
The quantities of each number are as follows:

SPAENAUR No.	Ass't. Qty.
102-200	10
102-201	10
102-202	10
102-203	10
102-204	10
102-205	10
102-206	10
102-207	10

SPAENAUR No.	Ass't. Qty.
102-209	10
102-210	10
102-211	10
102-212	5
102-213	5
102-214	5
102-215	5
RB-314	10

C

Drywall Grabb'rs



The Wall Grabb'r™

Drywall and Concrete Block Anchors

Wall Grabb'r patented design and spring steel construction join together to create the most convenient anchor ever! If you want to remove the Wall Grabb'r, simply unscrew the screw. The Wall Grabb'r becomes flat again and pulls out easily, leaving only a small slit to patch!

*CONCRETE GRABB'R holds in cinder block! For installation in concrete, we recommand drilling a 1/8" hole first.

Installs So Easy...And Holds So Well!

• Anti-rotational • Self-aligning • No special tools necessary

Screws and hooks not included.

Unit Package Quantity 50

SPAENAUR No.	For Thread Size	Total Length	Nose Style	Head Thickness	Head Size W x L (Approx.)	Material Thickness
102-042*	#8	0.90"	Rounded	0.080"	1/2" Square	0.025"
102-043	#6-8	1.00"	Pointed	0.080"	1/2" Square	0.020"
102-040	#8	1.36"	Pointed	0.080"	1/2" Square	0.020"
102-041	#10	1.36"	Pointed	0.080"	1/2" Square	0.020"

The Wall Grabb'r™ Anchors are protected by one or more of the following patents: 4,500,238 4,941,340 EP0274816B1 4,765,788 5,100,273 1306126 4,874,277 P3762656.6-08

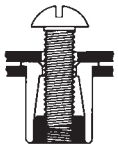
NYLON

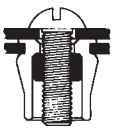
CAPTIVE NUTS

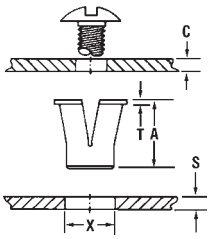
consist of a knurled brass or aluminum nut in an expanding nylon outer sleeve (black). No special assembly tools needed. Just push the fastener into a punched, drilled, or cored hole. A standard screw fastener completes the job by drawing the nut up and creating a bulge of nylon behind the workpiece.

INSERT INTO HOLE

STAYS IN PLACE


DRIVE SCREW


LOCKED IN PLACE



See also page C147

Unit Package 100
SCREWS NOT INCLUDED

Metric Size (mm)

SPAENAUR No.	Thread Coarse	Cage Lgth. "A"	Head Thick "T"	Hole Size "X"	Minimum Screw Length	Ideal Sheet Thickness "S"	Average Pull-out (kN)	Insertion Torque (N.m)
226-503	M6	16.0	0.8	12.7 +0.15	16 + Dim. "C"	3.175	1.2	3.39-11.3

CAUTION: Do not over-torque. Avoid heavy loading. Heat limit 77°C.

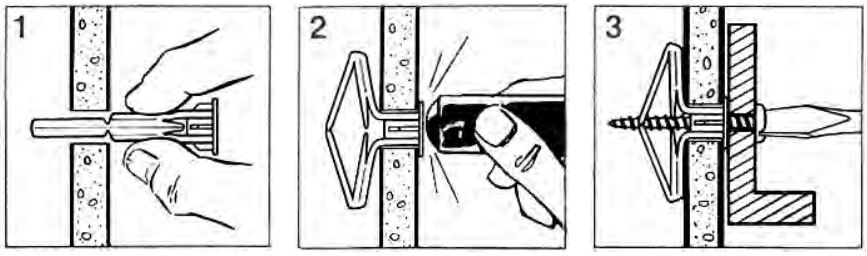
CATALOG 13

Screw Anchors (Winged)

For use in hollow walls. (Can also be used in solid walls.)

The screw anchor is made of tough, impervious polypropylene, and, when used with a stainless steel screw, becomes a corrosion-proof fastening. It will take any sheet metal screw from #8 to #10.

When you tighten the screw, the wings of the screw anchor form two reverse angles that won't give, wiggle, or pull out. When you remove the screw, the screw anchor stays in place for re-use. It's the simplest, most rugged, most versatile and fastest anchor you can use in hollow walls—and it's economical too.



INSTALLS 1-2-3 Just drill a 5/16" hole. Squeeze the screw anchor flat, and push into hole.

Tap flush with wall.

Put the fixture in place, insert the screw, and tighten until it feels secure.

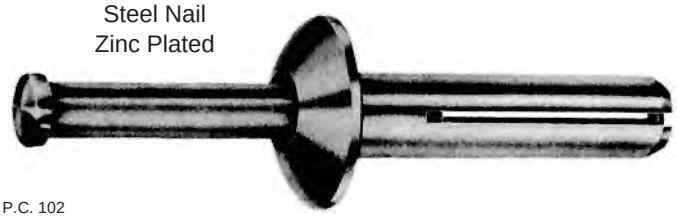
SPAENAUR No.	Anchor Size	Wall Thickness	Drill Diameter	Unit Package
058-010	Mini	1/8"	5/16"	100
058-007	Short	3/8"	5/16"	100
058-008	Medium	1/2"	5/16"	100
058-009	Long	5/8"	5/16"	100

Hollow Wall Application Chart

ANCHOR SIZE	REQUIRED SCREW LENGTH	+	WORK THICKNESS	=	MINIMUM SCREW LENGTH
MINI	1-1/8"	+		=	
SHORT	1-1/4"	+		=	
MEDIUM	1-3/8"	+		=	
LONG	1-1/2"	+		=	

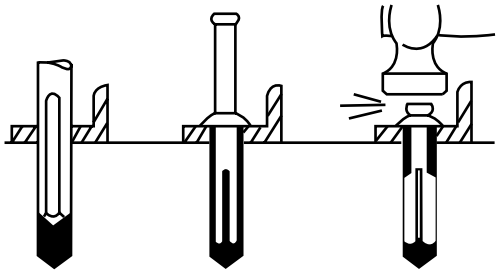
ZINC ALLOY NAILIN ANCHORS

Steel Nail
Zinc Plated



P.C. 102

Unit Package 100



SPAENAUR No.	Size	Drill Size & Dia.	Head Dia.	Head Thick-ness	Shoul-der Length	Ex-pansion Length	Overall Length	Work Thick-ness	Weight Lbs. Per 1000	Holding Power Lbs. Concrete
EX-2802	3/16" x 7/8"	(3/16")	13/32"	1/8"	1/4"	5/8"	1"	0-1/4"	4-3/4	400
EX-2808	1/4" x 1"	#12 (1/4")	1/2"	1/8"	1/4"	3/4"	1-1/8"	0-1/4"	18	820
EX-2814	1/4" x 1-1/4"	#12 (1/4")	9/16"	1/8"	1/2"	3/4"	1-5/8"	1/4" x 1/2"	22-1/2	960
EX-2820	1/4" x 1-1/2"	#12 (1/4")	9/16"	1/8"	3/4"	3/4"	1-7/8"	1/2" x 3/4"	25-1/2	1150

For Steel Toggle Nuts see page C160.

Visit us on the web at . . .

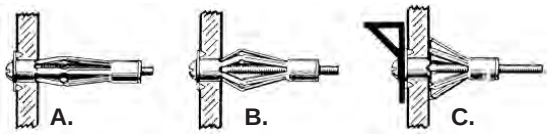
www.spaenaur.com

C

HOLLOW WALL SCREW ANCHORS

Steel, Zinc Plated

Securely fastens mirrors, pictures, cabinets, curtain/drape/shelf brackets, bathroom fixtures, etc., to hollow walls of plaster over wood lath or metal lath, wallboard, gypsum or cinder block, marble, hollow tile, etc. Fixtures can be removed or replaced for redecorating without disturbing the anchor.



A. Drill hole as per drill size on chart; tap anchor into hole until flush withsurface.

B. Turn in screw — anchor will expand and hold firmly.

C. Remove screw, place fixture—replace screw through fixture and tighten.

SPAENAUR No.	Grip Range	Hole Size	Pkg. Qty.	Mat'l. Thick.	DRYWALL Tensile	DRYWALL Shear	PLYWOOD Tensile	PLYWOOD Shear
N-89	1/16" - 1/4"	5/16"	100	1/8" 1/4"	• •	• •	110 125	100 450
N-90	1/8 to 1/2"	5/16"	100	1/4" 1/2"	25 90	190 165	65 300	350 425
N-91	5/8" to 7/8"	5/16"	100	5/8" 7/8"	130 145	205 275	65 450	355 450
N-92	1-1/4 to 1-1/2"	5/16"	50	1-1/4"	360	320	500	450
N-93	1/8 to 5/8"	3/8"	50	1/4" 5/8"	25 135	230 300	65 475	550 635
N-94	5/8 to 1-3/16"	3/8"	50	5/8" 1-1/8"	135 260	305 485	500 605	640 730
N-95	1-1/4 to 1-3/4"	3/8"	25	1-1/4"	300	490	660	765
N-96	1/8 to 5/8"	1/2"	50	1/4" 5/8"	25 140	240 300	65 500	600 850
N-97	5/8 to 1-3/16"	1/2"	50	5/8" 1-1/8"	155 165	330 550	560 720	900 1000
N-98	1-1/4 to 1-3/4"	1/2"	25	1-1/4"	200	575	765	1220

Values are ultimate loads in lbs. and should be used as a guide only. Actual results may vary. It is recommedned to apply a minimum safety factor of 4 to 1 of these loads. P.C. 102

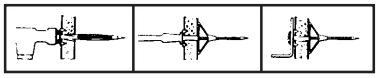
HOLLOW WALL DRIVE ANCHOR

Steel, Zinc Plated

SPAENAUR No.	Grip Range	DRYWALL Thick.	DRYWALL Tensile	DRYWALL Shear	Pkg. Qty.
102-028	1/8" to 13/16"	5/8"	85	175	100

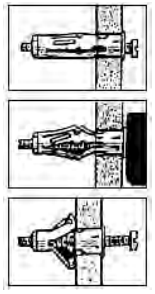
No pre-drilling is required when you use Drive Anchors to fasten mirrors, pictures, cabinets, curtains/drapes/shelf brackets, bathroom fixtures etc., to hollow walls or ceilings of wallboard or plaster over wood or metal lath, gypsum, etc. Fixtures are held securely, but can be removed for redecorating, and later replaced without disturbing the fastener.

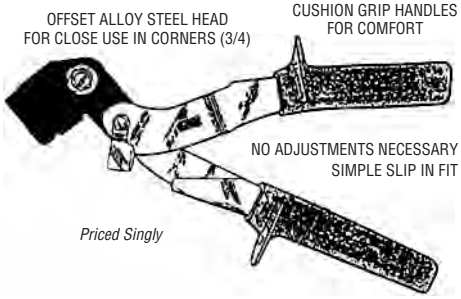
Installation: Place fastener against wall and drive in with hammer. Stop when flange rests against the face of the wall.
Tighten screw. You will feel the screw tightening when anchor is installed.
Remove screw, place fixture in position, replace screw through fixture and tighten.



WALL SETTER TOOL No. 876-498

(Used to install hollow wall fasteners)



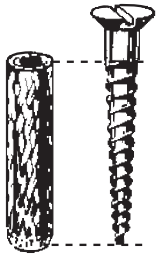


1 Push fastener into predrilled hole.

2 Slip Wall Setter jaw over screw head.

3 Then simply squeeze the handle until the fastener is fully collapsed.

"BRAIDED" FIBRE SCREW ANCHOR



P.C. 102

INCH SIZES

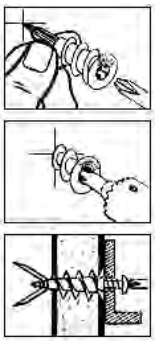
Use with Wood Screws

In determining length of screw, it is important that only threaded portion of screw must enter the **FIBREPLUG**

SPAENAUR No.	Fibreplug No.	Fibreplug Lgth. (Inch)	Drill Size	For Wood Screw No.	For Wood Screw Lgth. (Inch)	Unit Pkg. Qty.
EX-506-05	6	5/8	5/32"		1	100
EX-506-06		3/4		5-6	1-1/4	
EX-508-10	8	1	3/16"	7-8	1-1/2	100
EX-508-14		1-1/2			2 - 2-1/2	
EX-510-10	10	1	7/32"	9-10	1-1/2	100
EX-510-14		1-1/2			2 - 2-1/2	
EX-512-06	12	3/4	1/4"	11-12	1-1/4	100
EX-512-10		1			1-1/2	
EX-512-14		1-1/2			2 - 2-1/2	
EX-514-20	14	2	9/32"	14	3 - 3 -1/2	100
EX-516-14	16	1-1/2	5/16"	16	2 - 2-1/2	50
EX-516-20		2			3 - 3-1/2	
EX-520-10	20	1	3/8	20	1-1/2	50
EX-520-14		1-1/2			2 - 2-1/2	
EX-520-20		2			3 - 3-1/2	

ZiP-It ™ Anchors

For use in Wallboard



Overall Length 1-11/16"

SPAENAUR No. **102-003**

- Made of Du Pont ZYTEL® Nylon
- Fast and easy installation in wallboard from 3/8" to 1" thick
- High holding power
- Screw is removable
- Electrically non-conductive for safe installation

Unit Package Quantity 100

INSTALLATION:
Using a #2 or #3 Phillips screwdriver the *ZiP-It* ™ drills its own hole and drives into the wall in one motion. Insert a #8 sheet metal or dry wall screw with the same screwdriver for tight, secure, but removable fit.

CATALOG 13

NYLON ANCHORS

Use with any material

Truss

Round

Flat

All Anchors are furnished with carbon steel drive screws, zinc plated.

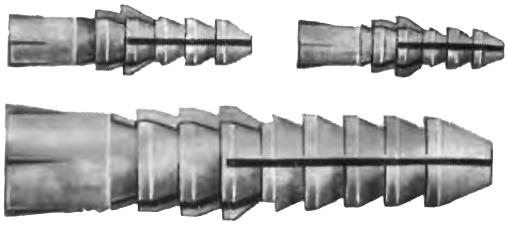
- TAP-IN LIKE A NAIL
- REMOVE LIKE A SCREW

INCH SIZES

SPAENAUR No.	Size of Plug (Dia. x Length under Head)	Head Style	Head Dia.	Drill Size	Unit Pkg.
	UNASSEMBLED (Loose Parts)				
EX-1	3/16 x 3/4"	Truss	9/16"	3/16"	100
EX-3	3/16 x 1"	Truss	9/16"	3/16"	100
EX-4	3/16 x 1"	Round	3/8"	3/16"	100
EX-5	3/16 x 1"	Flat	3/8"	3/16"	100
EX-7	3/16 x 1-1/2"	Round	3/8"	3/16"	100
EX-8	3/16 x 1-1/2"	Flat	3/8"	3/16"	100
EX-9	1/4 x 3/4"	Truss	9/16"	1/4"	100
EX-10	1/4 x 3/4"	Flat	7/16"	1/4"	100
EX-11	1/4 x 1"	Truss	9/16"	1/4"	100
EX-12	1/4 x 1"	Round	7/16"	1/4"	100
EX-13	1/4 x 1"	Flat	7/16"	1/4"	100
EX-14	1/4 x 1-1/2"	Round	7/16"	1/4"	100
EX-15	1/4 x 1-1/2"	Flat	7/16"	1/4"	100
EX-16	1/4 x 2"	Round	7/16"	1/4"	100
EX-17	1/4 x 2"	Flat	7/16"	1/4"	100

NYLON GRIP PLUGS

FOR LAG SCREWS, WOOD SCREWS, NAILS, etc.



P.C. 102

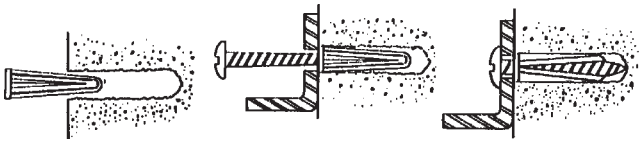
INCH SIZES

SPAENAUR No.	SCREW DIA.	HOOKS, NAILS DIA.	LENGTH OF ANCHOR	DRILL SIZE	UNIT PKG. QTY.
EX-S5	No. 4-8	3/32 - 5/32"	1"	3/16"	100
EX-S6	6-10	1/8 - 3/16"	1-1/8"	1/4"	100
EX-S8	10-14	3/16 - 1/4"	1-9/16"	5/16"	100
EX-S10	1/4 - 5/16"	1/4 - 5/16"	1-15/16"	3/8"	50
102-189	3/8 - 7/16"	3/8 - 7/16"	2-11/16"	9/16"	20
EX-S16	3/8 - 1/2"	3/8 - 1/2"	3-1/8"	5/8"	10

PLASTIC ANCHORS

For Use With Wood Screws

Installation



Drill hole 1/4 inch deeper than length of Plastic Anchor. Insert Anchor flush with surface of wall.

Insert wood or sheet metal screw through fixture into Anchor. Screw length should equal thickness of fixture plus length of Anchor, plus 1/4 inch.

As screw is driven in and tightened, end of Anchor is pierced, and Anchor is expanded to form strong fastening.

SPAENAUR No.	Screw Size	Length of Anchor	Size of Drill	Unit Pkg. Qty.
EX-608-06	6-8	3/4"	3/16"	100
EX-610-07	8-10	7/8"	3/16"	100
EX-612-10	10-12	1"	1/4"	100
EX-616-13	14-16	1-3/8"	5/16"	50

See pages B90-B93 for TAPCON ANCHOR SYSTEM

C

TOX

Patented Worldwide

Tops for Fixings

- **Rimmed or collar end to prevent slip-through.**
- **Screw must be at least 1/8" longer than plug length plus fixture thickness.**
- **Larger diameter screws result in better holding power. (Screws not included.)**
- **The Anchor is made from high grade nylon and is resistant to weather and ageing in a temperature range -40° to +80°C.**

Trika Universal Wall Anchors

SPAENAUR No.	Nominal Dia.	O/A Anchor Length	Drilling Size	Recommended Screw Dia.	Unit Pkg. Qty.
102-010	10 mm	62 mm (2-3/8")	10,0 mm (3/8")	7-8 mm (5/16")	30

–Triple segments spread for optimum compression transfer and extraordinary holding strength.
–Segments spread, buckle, twist and knot behind walls guaranteeing firm, secure hold.
–Star-shaped ridges and body-length fins prevent anchor rotation in soft materials and oversizes holes.
–Ideal for concrete, cinder blocks, ceiling plates, lightweight concrete and sheet rock.

Tox 4 Sector "K" Barbed Plug Anchors

SPAENAUR No.	Nominal Dia.	O/A Anchor Length	Drilling Size	Recommended Screw Dia.	Unit Pkg. Qty.
102-013	10 mm	66 mm (2-5/8")	10,0 mm (3/8")	6,0-8 mm (#12-20)	25

–"K" barbed plug is a 4 sector plug with rim and large overlapping barbs that deform to produce the best possible grip in any building material.
–One plug size takes a wide range of screw gauges, both conventional and twinfast.
–The plug is designed so that as the screw is tightened the plug is compressed along its axis and the barbs expand and lock into the wall material, also into cavities.
–In cavities this leads to an extra grip in addition to that achieved by the knotting up of the plug.
–In low density blocks the barbs are forced into the wall material while the rigid neck prevents the surface cracking – you get the best possible pullout values.

Tox Longplug Frame Fixing Anchors

SPAENAUR No.	Nominal Dia.	O/A Anchor Length	Drill Size	Recommended Screw Dia.	Unit Pkg. Qty.
102-014	6 mm	70 mm (2-3/4")	6,0 mm (1/4")	4,0 mm (#8)	35
102-015	8 mm	80 mm (3-5/32")	8,0 mm (5/16")	5,0 mm (#10)	30
102-016	8 mm	100 mm (3-15/16")	8,0 mm (5/16")	5,0 mm (#10)	25
102-017	10 mm	100 mm (3-15/16")	10,0 mm (3/8")	7,0 mm (#16)	10
102-018	10 mm	115 mm (4-9/16")	10,0 mm (3/8")	7,0 mm (#16)	10

– The Longplug frame fixing anchor will grip in any wall material as follows: In concrete and masonry the screw expands the plug as in a regular frame fixing. In hollow blocks and in plasterboard cavity walls the screw grips into the end of the plug and pulls it back into a knot making a secure hold.
– Frame fixing is used for flush fixing of frames and of studwork in partition walls.
– The collar fits flush and also prevents anchor from slipping too far into a cavity.
– When fixing metal profiles it is essential to drill a countersink to ensure a flush fixing.

1. Place #2 Phillips screwdriver into recess of E-Z Ancor.

2. Press into gypsum wallboard while turning the anchor clockwise until it is seated flush with the wall.

3. Place fixture in position over installed E-Z Ancor, and insert screw with #2 Phillips screwdriver **(#8 type A or AB screw is recommended).**

4. Tighten fixture in place...threads of screw self-thread securely into the anchor (a minimum of 1" thread engagement is recommended). Do not overtighten.

E-Z-ANCOR®

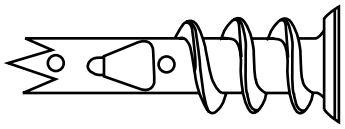
®A Registered Trade Mark of ITW Canada Inc.

SELF-DRILLING DRYWALL ANCHORS

(Length 1-11/16" - Shown Actual Size)

SPAENAUR No.

102-002



UNIT PACKAGE 100

CORROSION RESISTANT... *MADE OF* ***LONG-LASTING ZINC MATERIAL.***

FAST... *NO PRE-DRILLING OR HOLE PREPARATION. SAVES TIME AND MONEY.*

EASY... *INSTALLS EASILY WITH #2 PHILLIPS SCREWDRIVER...NO ELECTRIC DRILL OR OTHER TOOLS NECESSARY.*

ATTACH FIXTURE... *WITH #8 A OR AB SCREWS.*

REMOVABLE... *CAN BE EASILY BACKED OUT.*

SECURE... *DEEP THREADS PROVIDE STRONG ENGAGEMENT IN 3/8", 1/2" AND 5/8" WALLBOARD.*

NEAT... *UNIQUE TRI-CUT POINT SELF-DRILLS A CLEAN, SMALL HOLE.*

BREAKAWAY POINT... *POINT CAN BE BROKEN OFF IF CAVITY BEHIND WALLBOARD IS TOO SHALLOW.*

E-Z ANCOR® of High Strength Engineered Plastic

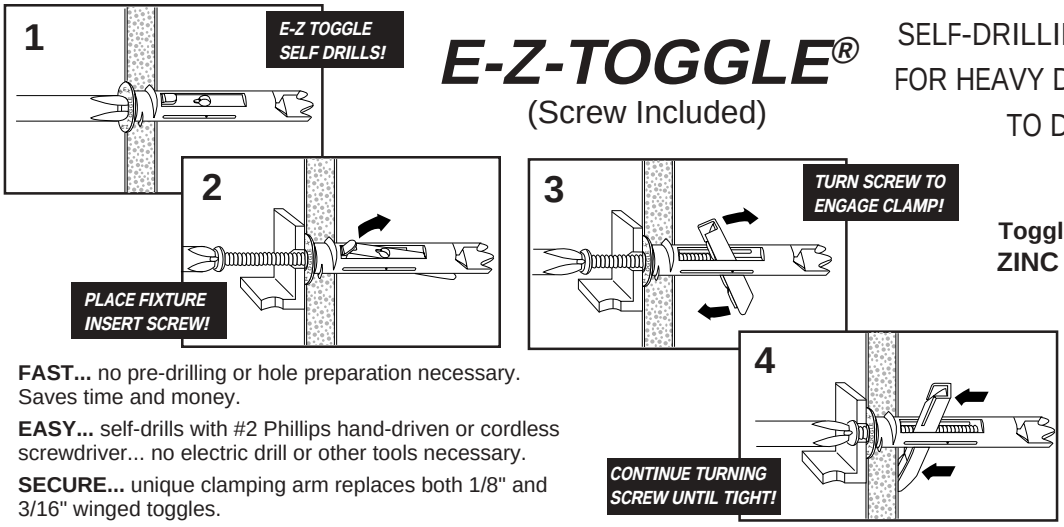
SPAENAUR No.

102-019

Unit Pkg. Qty. 100

(Length 1-3/8" - Shown Actual size)

- Completely non-conductive.
- Made of Du Pont ZYTEL® Nylon, one piece.
- Self-drilling, strong engagement in 3/8" to 5/8" wallboard.
- Install #6 A or AB screw with #2 Phillips screwdriver or cordless screwdriver using a #2 Phillips bit.



E-Z-TOGGLE®

(Screw Included)

SELF-DRILLING TOGGLE BOLT FOR HEAVY DUTY ANCHORING TO DRYWALL

Toggle Material: ZINC DIE CAST

Unit Package Quantity 50

FAST... no pre-drilling or hole preparation necessary. Saves time and money.

EASY... self-drills with #2 Phillips hand-driven or cordless screwdriver... no electric drill or other tools necessary.

SECURE... unique clamping arm replaces both 1/8" and 3/16" winged toggles.

STRONG... deep threads at head seat anchor into 3/8", 1/2" and 5/8" wallboard... patented clamp provides strong attachment.

SPAENAUR No.	Recommended Fixture Thickness	Screw Included
102-004	0" - 1/2"	2-1/8" Phillips Pan Head
102-005	0" - 1/2"	2-1/8" Phillips Washer Head
102-006	1/2" - 1-3/8"	3" Phillips Pan Head

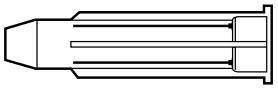
All *SPAENAUR* numbers are suited to 3/8", 1/2" and 5/8" drywall thickness.

E-Z-TOGGLE® TEST DATA	Screw Size #8-18	
Drywall Thickness	Pullout (lbs.) (Toggle from drywall)	Shear (lbs.) (Toggle in drywall)
3/8"	67	200
1/2"	84	230
5/8"	148	300

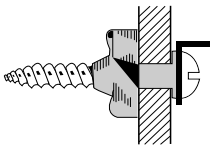
NOTE: The values in the table above are not to be used as design values. The results above are ultimate average values. In all cases, the drywall spalled (failed). The values of Pullout and Shear vary with the inconsistency of the drywall. Drywall will vary in strength due to humidity, age and other factors. The drywall used in the independent lab was tested to ASTM Standards.

C

EXPANDET® light Rosett® for lightweight fixings



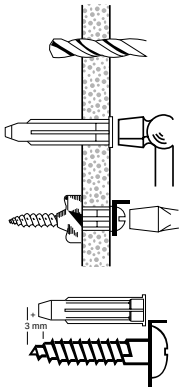
(Screws not included)



SPAENAUR No.	Grip Range	Screw Size	Drill Size	Anchor Length	Maximum Load* Direct	Maximum Load* Angled	Unit Pkg. Quantity
102-115	1/8"-3/8"	#6-8	1/4"	1-3/16"	77 lbs.	110 lbs.	100
102-116	3/8"-1/2"	#6-8	1/4"	1-3/8"	123 lbs.	189 lbs.	100
102-117	1"	#6-8	1/4"	2"	154 lbs.	198 lbs.	100
102-118	1/2"-3/4"	#10-12	5/16"	1-3/4"	145 lbs.	238 lbs.	50
102-119	1"	#10-12	5/16"	2-3/16"	209 lbs.	264 lbs.	50

***** Max. load in drywall at high grip range.

How to Install:



*Use 1/4" (6 mm) drill for **red** light Rosett and 5/16" (8 mm) drill for **blue** light Rosett.*

Hammer plug flush with wall

Insert screw and fixing and tighten screw.

Note: Screw length must be 1/8" or 3 mm longer than plug plus fitting combined.

For fixing light objects in gypsum and plasterboards, hollow doors and walls, chip board etc.

EXPANDET light Rosett is available in 2 sizes for 1/4" (6 mm) and 5/16"(8 mm) drill bit, easily identified by colours and in a variety of lengths covering boards from 1/8" - 1" (3 mm - 26 mm) in thickness.

EXPANDET light Rosett is manufactured in NYLON for strength.

PRACTICAL INFORMATION

EXPANDET light Rosett is easy to use and does not rotate on inserting the screw due to three protruding fins and is not lost within the cavity because of the lip at its head.

EXPANDET light Rosett does not require any special tool for fixing into the wall. The screw can be removed if required.

The use of EXPANDET light Rosett is not affected by insulating materials on the inside of the cavity.

TECHNICAL DETAILS

Fixing is obtained on the reverse side of the board by the screw drawing the plug up into a rosette like knob not damaging the board.

EXPANDET light Rosett can be tightened with an ordinary screw driver or with a power driver.

EXPANDET® Concrete/Masonry Screw Anchors
with fins for stronger fixing

SPAENAUR No.	Colour	Anchor Length	Screw Size	Drill Size	Maximum Load	Unit Pkg. Qty.
102-132	White	1"	#4-6	3/16"	771 lbs.	100
102-133	White	1-1/2"	#4-6	3/16"	1,157 lbs.	100
102-134	Red	1"	#7-9	7/32" or 15/64"	903 lbs.	100
102-135	Red	1-1/2"	#7-9	7/32" or 15/64"	1,355 lbs.	100
102-136	Green	1"	#10, 12	1/4" or 9/32"	1,036 lbs.	100
102-137	Green	1-1/2"	#10, 12	1/4" or 9/32"	1,554 lbs.	100
102-138	Green	2"	#10, 12	1/4" or 9/32"	2,072 lbs.	50
102-139	Blue	1-1/2"	#13-15, or 1/4" lag	5/16"	1,752 lbs.	100
102-140	Blue	2"	#13-15, or 1/4" lag	5/16"	2,336 lbs.	50
102-141	Orange	2-1/2"	#16, 18, or 5/16" lag	3/8"	2,733 lbs.	50
102-142	Grey	2-1/2"	#20-23 or 3/8" lag	15/32" or 7/16"	5,848 lbs.	25
102-143	Black	2-1/2"	#23-26 or 1/2" lag	9/16"	6,283 lbs.	25

* Maximum load may vary depending on type of concrete, size of bit and screw used.

P.V.C. Material
(Screws not included)

Designed for fixing with all types of wood screws in brick, stone, concrete, light concrete and other materials in which a hole can be drilled. EXPANDET screw anchors are easily identified and available in 7 colour coded sizes and a variety of lengths. EXPANDET screw anchors cover all screw sizes from #4 to #26 for weights ranging from the tiniest hook up to tonloads.

PRACTICAL INFORMATION

EXPANDET screw anchors make the job fast, easy and economical.

EXPANDET screw anchors are self-centering. The screw automatically seeks the centre of the plug.

EXPANDET screw anchors will not flatten out or fray when driven into a hole.

TECHNICAL DETAILS

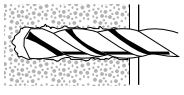
The three protruding fins prevent turning and ensure the plug takes up the profile of the hole to give maximum fixing strength.

EXPANDET screw anchors are indestructible P.V.C., resist moisture, do not rot, and are not affected by acids, alkalies and oils nor by exposures to heat or cold.

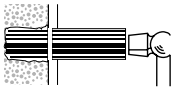
By not splitting open EXPANDET screw anchors give maximum surface contact to wall and entirely encapsulate the screws protecting them from rust and corrosion.

How to Install:

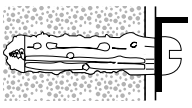
Always use plug, screw and drill bit size recommended.



1. Drill in centre of tile or brick - the rendering is not strong enough to fasten in.



2. To avoid surface damage, drill deep enough to allow plug to be inserted below surface of plaster or tile

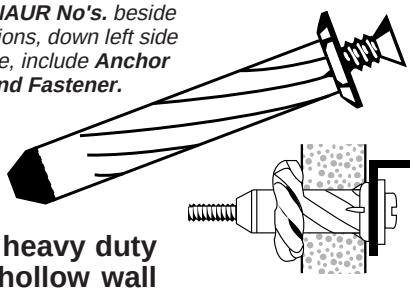


3. To obtain maximum surface plug expansion always use a screw which is longer than the plug + item to be fixed + plaster thickness. The strength of the fixing increases with the length of the screw and plug.

EXPANDET® Rosett® for heavy duty fixing

COLOUR	ANCHOR ONLY *SPAENAUR No.*	GRIP RANGE	DRILL	ANCHOR LENGTH	MAXIMUM LOAD* DIRECT	MAXIMUM LOAD* ANGLED
BLUE	102-145	1/8" - 3/4"	3/8"	1-3/4"	310 lbs.	339 lbs.
RED	102-146	3/4" - 1-1/4"	3/8"	2-1/4"	480 lbs.	619 lbs.
	Unit Pkg. Qty. - Same as below.	*Maximum load in drywall at high grip range.				

SPAENAUR No's. *beside illustrations, down left side of page, include* ***Anchor and Fastener.***

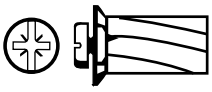


Fastener Selection Including Anchor

All Fastener are Plated Steel.
All Threads are M5 x 0.80 mm Pitch.

BLUE *(Unit Package Quantity - 50)*

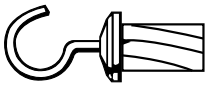
RED *(Unit Package Quantity - 25)*

102-126  **102-120**

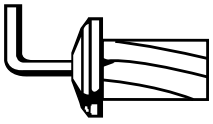
Pan Head Screw - Posi-drive/Slot

102-127 **102-121**

Telescope
For mounting U-shaped shelving
Flat Countersunk Screw - Posi-drive

102-128  **102-122**

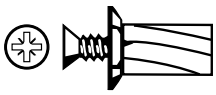
Round Hook (1/2" I.D.)

102-129  **102-123**

Square Hook (Inside Dim. 7/16" W. x 9/16" H.)

102-130 **102-124**

Eye Screw (1/2" I.D.)

102-131  **102-125**

Flat Countersunk Screw - Posi-drive

Designed specifically for heavy duty fastening in boards and hollow wall partitions such as gypsum boards, plaster boards, chip boards, hard masonite etc.

EXPANDET Rosett is made from strong and indestructible NYLON with glass fibre re-enforced M5 x 0.80 mm threaded nut. Available in 2 colour coded sizes for boards ranging from1/8" - 1-1/4" (3 - 30 mm).

PRACTICAL INFORMATION

EXPANDET Rosett is easy to use, does not require a special hand tool for fixing into the wall and may be tightened either with an ordinary screw driver or a power screw driver.

Since it has a thin flange and four angled flutes at its head EXPANDET Rosett is prevented from slipping into a drilled hole and from rotating.

EXPANDET Rosett works with the same degree of safety whether or not the hollow space is insulated.

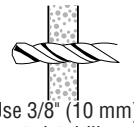
TECHNICAL DETAILS

When being tightened EXPANDET Rosett forms a rosette-like knob of great strength at the back of the board without damaging it.

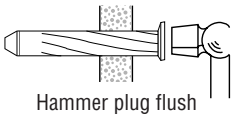
EXPANDET Rosett is impossible to overtighten and provides unsurpassed holding power in gypsum boards.

EXPANDET Rosett is tested and recommended for secure fastening in gypsum boards.

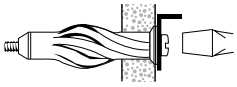
How to Install:



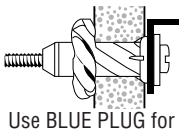
Use 3/8" (10 mm) twist drill.



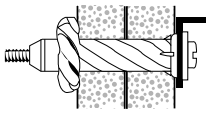
Hammer plug flush with wall.



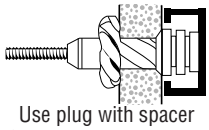
Tighten screw firmly.



Use BLUE PLUG for board thickness of 1/8" - 3/4".



Use RED PLUG for board thickness of 3/4" - 1-1/4".

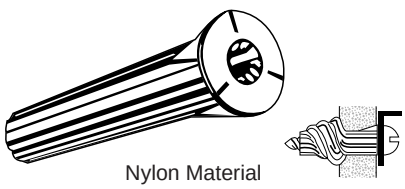


Use plug with spacer for mounting U-shaped shelving systems.

EXPANDET® Hollow and Solid Wall `Lip Anchor´

SPAENAUR No.	Grip Range (Hollow Wall)	Screw Size	Drill Size	Anchor Length
102-144	3/8" - 1/2"	#8 - 12	1/4"	1"

Unit Package Quantity 100 - Anchors Only



Nylon Material
(Screws not included)

C

MEDIUM-DUTY CONCRETE AND MASONRY ANCHORS

Comes complete with washers and nuts.

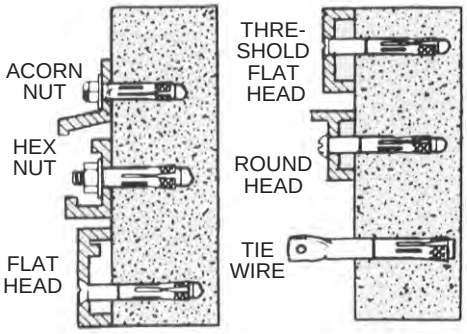
The Sleeve Anchor - Red Head's most versatile, medium-duty expansion anchor.

- Versatile application
- Head styles for every application
- Pre-assembled for easy installation
- Anchor can be installed through object to be fastened
- Six-rib sleeve design assures holding power of expansion device
- Filler sleeve eliminates galling between red sleeve and tapered bolt head

APPLICATIONS:

Sleeve expansion device allows anchor to be used in cement block, thin wall or solid concrete, brick or stone. Flat head variations are particularly useful for anchoring door and window frames and other architectural material. Excellent for anchoring electrical systems, transformers, cable trays, radiant heating units, and partitions, as well as cabinets, shelves, wood sleepers, duct straps, theatre seats, fire extinguishers, and tying wire.

HEAD TYPES



304 STAINLESS STEEL SLEEVE ANCHORS

Caustic and high-humidity environments can literally eat up carbon steel anchors, weakening them, and shortening service life. Once started, corrosion infects adjoining materials and causes contamination problems in such applications as the chemical and food industries.

When you specify Red Head stainless steel anchors for use in caustic environments, you are likely to prevent a lot of future maintenance problems in any corrosive environment.

Type 304 Stainless Steel Materials:

Anchor bolt - Type 304 stainless
Expansion and filler sleeves - Type 302 stainless
Also available in Hex Nut Style 1/4"-5/8" Dia.

316 Stainless Steel available as special order.

®A Registered Trade Mark of ITW Canada Inc.

RED HEAD SLEEVE ANCHORS

Hex Nut Head Illustrated

DRILL SIZE	THREAD SIZE UNC
1/4"	3/16"
5/16"	1/4"
3/8"	5/16"
1/2"	3/8"
5/8"	1/2"
3/4"	5/8"

CARBON STEEL - Zinc Plated

HEAD TYPE	*SPAENAUR No.*	DRILL SIZE	EFFECTIVE ANCHOR ▲LENGTH	MAX. MATERIAL THICKNESS	PULLOUT* (LBS.)	SHEAR* (LBS.)	Unit Pkg. Qty.
Acorn Tapped Through	**102-250**	1/4"	1-3/8"	1/4"	2100	1620	50
	102-251	1/4"	2-1/4"	1-1/8"			50
Hex Nut Head	**102-252**	5/16"	1-1/2"	1/4"	2600	2400	50
	102-253	5/16"	2-1/2"	1-1/4"			50
	102-254	3/8"	1-7/8"	3/8"	3100	3040	50
	102-255	3/8"	3"	1-1/2"			50
	102-256	1/2"	2-1/4"	3/8"	4400	5000	25
	102-257	1/2"	3"	1-1/8"			25
	102-258	1/2"	4"	2-1/8"			25
	102-259	5/8"	2-1/4"	1/4"	6120	8080	25
	102-260	5/8"	3"	1"			25
	102-261	5/8"	4-1/4"	2-1/4"			10
	102-262	5/8"	6"	4"			10
	102-263	3/4"	4"	1-3/4"	8090	13100	5
	102-264	3/4"	6-1/4"	4"			5
Flat Head Slot or Phillips Drive (our option)	**102-265**	1/4"	1-3/8"	1/4"	2100	1620	50
	102-266	1/4"	2-1/4"	1-1/8"			50
	102-267	1/4"	3-1/8"	2"			50
	102-268	1/4"	4"	2-7/8"			50
	102-270	3/8"	2-7/8"	1-3/8"	3100	3040	50
	102-271	3/8"	4"	2-1/2"			50
	102-272	3/8"	5"	3-1/2"			50
	102-273	3/8"	6"	4-1/2"			50
FHT	**102-274**	1/4"	2-1/4"	1-1/8"	2100	1620	50
TW	**102-275**	5/16"	1-1/2"	9/32" Eye	2000	500	50

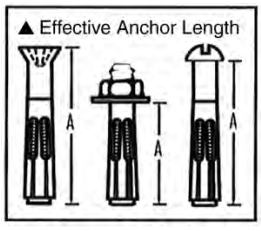
FHT = Flat Head Threshold (Head #10-3/8" Dia.) TW = Tie Wire

304 STAINLESS STEEL

HEAD	*SPAENAUR No.*	DRILL SIZE	EFFECTIVE ANCHOR ▲LENGTH	MAX. MATERIAL THICKNESS	PULLOUT* (LBS.)	SHEAR* (LBS.)	Unit Pkg. Qty.
Flat Slot or Phillips Dr. (our option)	**102-800**	1/4"	2-1/4"	1-1/8"	1613	1751	10
	102-802	3/8"	2-7/8"	1-1/2"	2597	2872	5
	102-803	3/8"	4"	2-3/4"	2597	2872	5
Round	**102-804**	1/4"	2"	7/8"	1613	1751	10

*Ultimate load capacity in 4000 PSI concrete. Capacities are for carbon steel versions only.

Safe working loads for single installations under static loading should not exceed 25% of the ultimate load capacity.



See page C158 for Sleeve Anchor Assortment.

RED HEAD WEDGE ANCHORS
Hex Nut and Flat Washer

CARBON STEEL - Zinc Plated

SPAENAUR No.	DESCRIPTION † DRILL SIZE	OVERALL LENGTH	Approx. THRD. LGTH	MAX. MATERIAL THICKNESS (to be fastened)	MIN. EMBED-MENT	4000 PSI CONCRETE PULLOUT* (LBS.)	SHEAR* (LBS.)	Install-ation Torque (Ft. Lbs.)
102-276	1/4"	1-3/4"	3/4"	3/8"	1-1/8"	1780	1400	8
102-277	1/4"	2-1/4"	1-1/4"	7/8"				
102-278	1/4"	3-1/4"	2-1/4"	1-7/8"				
102-279	3/8"	2-1/4"	1-1/8"	3/8"	1-1/2"	2240	2620	25
102-280	3/8"	2-3/4"	1-5/8"	7/8"				
102-281	3/8"	3"	1-3/4"	1-1/8"				
102-282	3/8"	3-3/4"	2-1/2"	1-7/8"				
102-283	3/8"	5"	3-3/4"	3-1/8"				
102-284	1/2"	2-3/4"	1-1/4"	1/8"	2-1/4"	5100	4760	55
102-285	1/2"	3-3/4"	2-1/4"	1"				
102-286	1/2"	4-1/4"	2-3/4"	1-1/2"				
102-287	1/2"	5-1/2"	3"	2-3/4"				
102-288	1/2"	7"	4-1/2"	4-1/4"				
102-289	5/8"	3-1/2"	1-3/4"	1/8"	2-3/4"	7180	7120	90
102-290	5/8"	4-1/4"	2-1/2"	1"				
102-291	5/8"	5"	3-1/4"	1-5/8"				
102-292	5/8"	6"	4-1/4"	2-5/8"				
102-293	5/8"	7"	5-1/4"	3-5/8"				
102-294	5/8"	8-1/2"	5-3/4"	5-1/8"				
102-295	3/4"	4-1/4"	1-3/4"	1/4"	3-1/4"	10840	13720	175
102-296	3/4"	4-3/4"	2-1/4"	3/4"				
102-297	3/4"	5-1/2"	3"	1-1/2"				
102-298	3/4"	6-1/4"	3-3/4"	2-1/4"				
102-299	3/4"	7"	4-1/2"	3"				
102-300	3/4"	8-1/2"	5-3/4"	4-1/2"				
102-301	3/4"	10"	5-3/4"	6"				
102-302	1"	6"	2-1/2"	1/2"	4-1/2"	20180	22820	300
102-303	1"	9"	2-1/2"	3-1/2"				

Carbon steel anchor expansion clips are made of Type 18-8 Stainless Steel.

304 STAINLESS STEEL (See Note)

SPAENAUR No.	DESCRIPTION † DRILL SIZE	OVERALL LENGTH	Approx. THRD. LGTH.	MAX. MATERIAL THICKNESS (to be fastened)	MIN. EMBED-MENT	4000 PSI CONCRETE PULLOUT* (LBS.)	SHEAR* (LBS.)	Install-ation Torque (Ft. Lbs.)
102-805	1/4"	2-1/4"	1-1/4"	7/8"	1-1/8"	1780	1400	8
102-806	3/8"	2-3/4"	1-5/8"	7/8"	1-1/2"	2240	2620	25
102-807	3/8"	3-3/4"	2-1/2"	1-1/8"				
102-808	3/8"	5"	3-3/4"	1-7/8"				
102-809	1/2"	2-3/4"	1-1/4"	7/8"	2-1/4"	5100	4760	55
102-810	1/2"	4-1/4"	2-3/4"	1-1/8"				
102-811	1/2"	7"	4-1/2"	4-1/4"				
102-812	5/8"	5"	3-1/4"	1-5/8"	2-3/4"	1780	7120	90
102-813	5/8"	7"	5-1/2"	3-5/8"				

† Drill Size is same as Anchor Thread Size - UNC.

*Ultimate load capacity in 4,000 PSI stone aggregate concrete. Ultimate pullout and shear loads are indicated for the depth of embedment in concrete shown in the "Minimum Embedment" column.

Safe working loads for single installations under static loading should not exceed 25% of the ultimate load capacity.

For extreme low temperature applications, use stainless steel anchors.

HEAVY-DUTY CONCRETE ANCHORS

Comes complete with washers and nuts.

Red Head's Wedge Anchor is easy to use. Anchor bolt, carbide bit and hole size are all the same. Heavy-duty and versatile, the Wedge Anchor is non-bottom bearing, so precise hole depth or clean-out is not always required. A one-piece stainless steel expanding clip assures full expansion for rugged, dependable holding strength.

APPLICATIONS:
Structural applications of all types. Ideal for fastening electrical, heating, ventilating, air conditioning and plumbing systems to concrete. Other applications include tilt-up construction, pipe hanging, in-plant machinery mountings, storage racks, warehouse equipment, highway rails, posts and guard apparatus. Numerous distinct applications for stainless steel models.

VARIATIONS:

Zinc-plated Carbon Steel - Standard anchor for all structural, in-plant and highway uses indicated in the Applications section. Zinc-plated in accordance with Federal specifications QQ-Z-325C, Type II, Class 3.

304 Stainless Steel - For protection in humid, highly corrosive and acidic environments. Used extensively in architecture to mount aluminum and stainless steel window frames and curtain walls.

Bolt Body - Type 304 Stainless Steel Nut, Washer and Expansion Clip - Type 18-8 Stainless Steel.

APPROVALS:
Meets or exceeds U.S. Government G.S.A. Specifications FF-S-325 Group II, Type 4 Class I.

Underwriters Laboratories

Factory Mutual

Note: Other Sizes in 304 S.S. are available, also 316 S.S. available in some sizes.

®A Registered Trade Mark of ITW Canada Inc.

C

ASSORTMENT
ASSORTIMENT **805-647**

RED HEAD® Sleeve Anchors

Priced Singly

Hex Nut Head shown

CARBON STEEL
Zinc Plated

26 Sizes
120 Pieces

Assorted Head Styles

Contents of Assortment

SPAENAUR No.	O/A Lgth.	Ass't. Qty.
102-250	1-3/8"	4
102-251	2-1/4"	4
102-252	1-1/2"	4
102-253	2-1/2"	4
102-254	1-7/8"	8
102-255	3"	8
102-256	2-1/4"	8
102-257	3"	8
102-258	4"	8
102-259	2-1/4"	4
102-260	3"	4
102-261	4-1/4"	4
102-262	6"	4

SPAENAUR No.	O/A Lgth.	Ass't. Qty.
102-263	4"	2
102-264	6-1/4"	2
102-265	1-1/2"	4
102-266	2-1/4"	4
102-267	3-1/8"	4
102-268	4"	4
102-270	2-3/4"	4
102-271	4"	4
102-272	5"	4
102-273	6"	4
102-274	2-1/4"	4
102-275	1-1/2"	4
102-278	3-1/4"	4

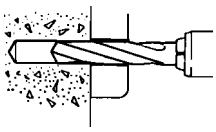
Furnished in Large Size 'Adjusta-bin' grey enamelled steel drawer. Drawer will fit into Slide Racks shown on page A3.

Shipping Weight: 11.48 kg (25.3 lbs.)

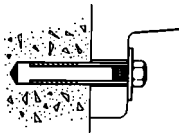
See page C156 and C157 for more information on RED HEAD® Sleeve and Wedge Anchors.

Metric FEBOLT Anchor Bolts *Metrique*

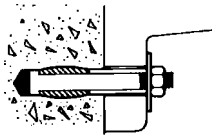
1 Simply drill one hole to same size as Febolt through materials to be fixed.



2 Insert Febolt.



3 Tighten the nut causing mass expansion of sleeve for permanent anchorage.



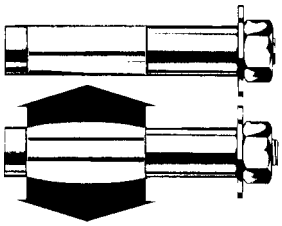
Bolt Material: BS 3111, Type 1, MILD STEEL, 30/35C, heat treated to 45/50 tons, in 2 squared.

Finish: All bolts zinc plated and passivated.

Expansion Sleeves: Made of P.V.C. to British Standards B.S. 2848/1957 and B.S. 2571/1963.

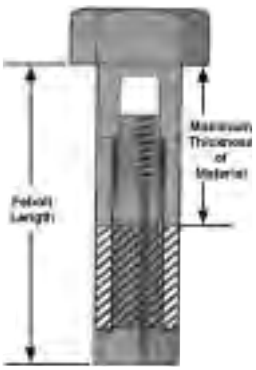
Before expansion

After expansion sleeve gives permanent grip



METRIC

Hexagon Covernut Type "FEBOLT"



FEBOLT - ideal for anchoring to concrete

Metric Dimensions (Approx. Inch Dimensions in brackets.)

SPAENAUR No.	Ref. No.	*Febolt & Drill Dia.	Febolt Length	Max. Fixture Thickness	(Approx. Inch Equiv. Dia. x Lgth.)	Colour Code	Unit Pkg. Qty.
102-112	FH.8.A	8	55	25	(5/16" x 1")	White	40
102-070	FH.10.B	10	85	50	(3/8" x 3-3/8")	Blue	40
102-074	FH.12.C	12	145	100	(1/2" x 5-3/4")	Brown	20
102-077	FH.16.C	16	185	135	(5/8" x 7-1/2")	Red	20
▲102-102	FH.20.D	20	265	190	(3/4" x 10")	Grey	4

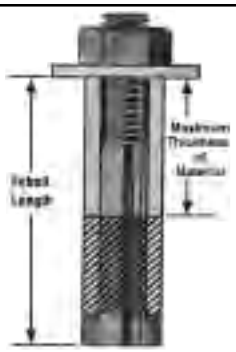
▲ Nickel or Zinc Plated (our option)

*Metric Masonry Drills must be used for "fixing" FEBOLTS.

CATALOG 13

C

Projection Bolt Type "FEBOLT"



U.K. Patent No. 1227535

Equally effective in both soft and hard materials.

Metric Dimensions (Approx. Inch Dimensions in brackets.)

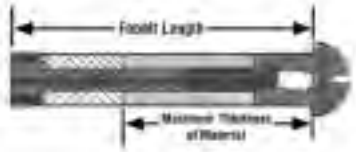
SPAENAUR No.	Ref. No.	*Febolt & Drill Dia.	Febolt Length	Max. Fixture Thickness	(Approx. Inch Equiv. Dia. x Lgth.)	Colour Code	Unit Pkg. Qty.
102-062	F.20.A	20	75	30	(3/4" x 2-15/16")	Grey	8
102-065	F.20.D	20	225	150	(3/4" x 9")	Grey	4

DRILL DIAMETER	6.5	8	10	16	20
THREAD SIZE-Metric Coarse	M4	M5	M6	M10	M14

*Metric Masonry Drills must be used for "fixing" FEBOLTS.

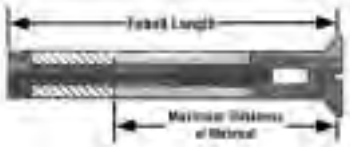
METRIC BOLT TYPE "FEBOLT"

(Approx. Inch Dimensions in brackets.)



Round Head

Unit Package Quantity 40



Counter-sunk Head

SPAENAUR No.	Ref. No.	*Febolt & Drill Dia.	Febolt Lgth.	Max. Fixture Thick.	Inch Equiv. Dia. x Lgth.
102-081	FR.5.A	5	28	13	(3/16" x 1-1/8")
102-082	FR.5.B	5	42	26	(3/16" x 1-5/8")
102-084	FR.6.5.B	6.5	70	40	(1/4" x 2-3/4")
102-085	FR.6.5.C	6.5	85	50	(1/4" x 3-3/8")
102-104	FR.8.B	8	80	45	(5/16" x 3-3/8")
102-105	FR.8.C	8	110	65	(5/16" x 4-5/16")
102-086	FR.10.A	10	60	30	(3/8" x 2-1/4")
102-088	FR.10.C	10	120	80	(3/8" x 4-3/4")

SPAENAUR No.	Ref. No.	*Febolt & Drill Dia.	Febolt Lgth.	Max. Fixture Thick.	Inch Equiv. Dia. x Lgth.
102-091	FR.5.A	5	28	13	(3/16" x 1-1/8")
102-092	FR.5.B	5	42	26	(3/16" x 1-5/8")
102-108	FR.8.C	8	115	70	(5/16" x 4-5/16")

Manufactured from 45/50 tons tensile steel, i.e., 100,800/112,000 p.s.i.

Carbide Tipped Percussion-type Masonry Bits

METRIC SIZES

Optimum for FEBOLT fixing. Hole size is FEBOLT size.

All Drill Bits Priced Singly

Diameters of the shank and tip are identical, giving increased precision, better support for the carbide tip, and less risk of breakage.

Hole size is FEBOLT size. The diameter of hole to be drilled in the construction material is the same as that of the FEBOLT selected for use.

To fix a 12 mm FEBOLT into concrete or brick-work, drill a hole, using a 12 mm good quality masonry drill bit. Should FEBOLT 'spin' because of an over-size hole, simply tighten the nut or cover nut by hand to expand the P.V.C. sleeve, when slight pressure will be necessary to push the FEBOLT home.

NOTE:
For best results, always use these Percussion-type Masonry Bits with a Rotary Percussion Drill. (An ordinary Rotary Drill may be used in an emergency.)

SPAENAUR No.	Drill Bit Diameter	For Chuck Size mm	Overall Length mm	Shank Style
875-750	5.0	12.5 mm or 1/2"	85	Straight Shank Style
875-751	6.5		100	
875-752	6.5		150	
875-753	8.0		120	
875-754	8.0		150	
875-755	10.0		120	
875-757	12.0	3/4"	150	
875-758	16.0		150	
875-759	16.0	B Taper	160	(Adapter needed)
875-760	20.0		400	

C

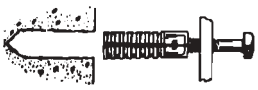
ALLOY LAG SCREW EXPANSION SHIELD

100% rust-proof throughout

For use with Lag Screws

A precision die-cast expansion shield of rust-proof alloy. Provides secure anchorage of lag screws in brick, stone, and other types of solid masonry. Heavy external corrugations assure powerful gripping action. Long and short standard sizes for lag screws.

Installation



Drill recommended hole size. Install shield flush or slightly below surface.

Insert lag screw through fixture into shield and tighten.

Precision internal shield threads permit easy turning of lag screw without lubrication.

In mortar joints, place shield between solid brick so sides bear against brick.

SPAENAUR No.	Dia. of Lag Screw with which Shield is used	Length of Shield (Note)	Outside Dia. and Drill Required	Unit Pkg. Qty.
LONG STANDARD SIZES				
EX-1815-3	1/4"	1-1/2"	1/2"	50
EX-1820-3	5/16"	1-3/4"	1/2"	50
EX-1825-3	3/8"	2-1/2"	5/8"	50
EX-1835-3	1/2"	3"	3/4"	25
EX-1845-3	5/8"	3-1/2"	7/8"	5
EX-1855-3	3/4"	3-1/2"	1"	5
SHORT STANDARD SIZES				
EX-1815-2	1/4"	1-5/16"	1/2"	50
EX-1820-2	5/16"	1-1/4"	1/2"	50
EX-1825-2	3/8"	1-3/4"	5/8"	50
EX-1835-2	1/2"	2"	3/4"	25
EX-1845-2	5/8"	2"	7/8"	25
EX-1855-2	3/4"	2"	1"	10

P.C. 102

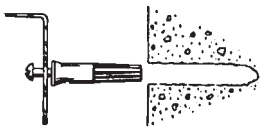
P.C. 102

LEAD ANCHORS

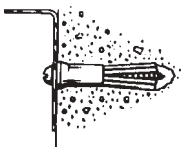
For use with Wood Screws or Sheet Metal Screws

A wood screw Anchor for quick installation of lighter weight fixtures in masonry. Made of lead, it will expand without turning in soft material. Withstands extreme changes in temperatures, and is not affected by moisture or chemicals.

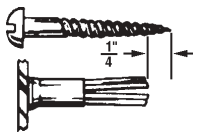
Installation



Drill hole 1/4 inch deeper than length of Anchor. Insert Anchor flush with surface of wall.



Insert wood screw through fixture into Anchor and tighten. Anchor is expanded and will hold firmly.



For best results, screw should protrude 1/4 inch thru bottom of Anchor. Screw length should equal thickness of fixture, plus length of Anchor, plus 1/4 inch.

SPAENAUR No.	Screw Size and Length of Anchor	Fractional Screw Size	Outside Dia. and Drill Required	Unit Pkg. Qty.
EX-408-06	6-8 x 3/4"	1/8"-3/16"	1/4"	100
EX-408-14	6-8 x 1-1/2"	1/8"-3/16"	1/4"	100
EX-412-10	10-12-14 x 1"	3/16"-1/4"	5/16"	100
EX-412-14	10-12-14 x 1-1/2"	3/16"-1/4"	5/16"	100
EX-418-10	16-18 x 1"	5/16"	3/8"	100
EX-418-14	16-18 x 1-1/2"	5/16"	3/8"	25
EX-422-16	20-22-24 x 1-3/4"	3/8"	7/16"	25

P.C. 058

SPRING-WING Toggle Nuts

(without Bolts)

Plated Steel

SPAENAUR No.	For Bolt Sizes		Size Drill Required (Masonry)	Unit Pkg. Qty.
	Thread	Length		
TB-3005-6	6-32 (1/8")	-	3/8"	50
TB-3005-8	8-32	-	7/16"	50
TB-3010-6	10-24 (3/16")	-	19/32"	50
TB-3015-6	1/4"-20	-	11/16"	50
TB-3020-6	5/16"-18	-	7/8"	50
TB-3025-6	3/8"-16	-	1"	50

Note:

Bolts for use with these Toggle Nuts may be selected from any of the Inch sizes listed in Section B, pages B7 to B27.

For POLYPROPYLENE Toggle Nuts See page C149.

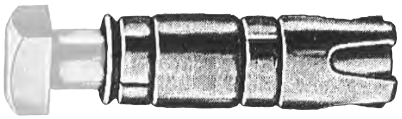
CATALOG 13

See pages B90-B93 for TAPCON ANCHOR SYSTEM

C

ALLOY EXPANSION SHIELDS

Bolt not included.

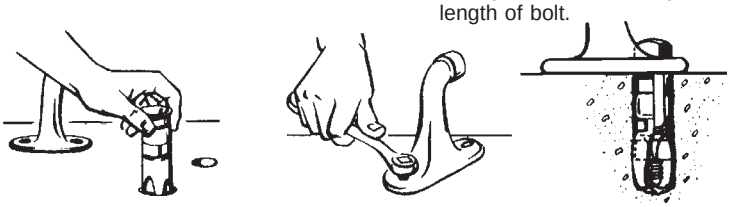


A general purpose expansion shield of rust-proof alloy. The shield locks in masonry as bolt is tightened, and remains securely anchored even though bolt is removed frequently. The short standard sizes provide sufficient holding power in firm masonry, but the long standard size is recommended for softer materials.

100% rust-proof throughout

For use with machine bolts

To determine length of bolt: thickness of fixture, plus length of expansion shield equals length of bolt.



SPAENAUR No.	Dia. of Bolt with which Shield is used	Safe Working Load (lbs.)	Length of Shield	Outside Dia. and Drill Required	Unit Pkg. Qty.
LONG STANDARD SIZES					
102-020	1/4"-20	500	1-5/16"	1/2"	50
SHORT STANDARD SIZES					
EX-3620-2	5/16"-18	200	1-1/2"	5/8"	50
EX-3625-2	3/8"-16	300	1-1/2"	5/8"	50
EX-3635-2	1/2"-13	700	2"	7/8"	25
EX-3645-2	5/8"-11	1000	2-1/2"	1"	25

DOUBLE EXPANSION SHIELDS

Bolt not included.

Heavy-duty expansion shield fitted with locking lug on both nut and collar. Load is distributed full-length of side casting, thus increasing holding power of all materials. Recommended for shear loads, or where bolt is subject to side pressure or vibration.

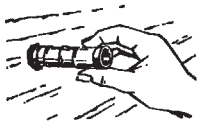
100% rust-proof throughout

For use with machine bolts

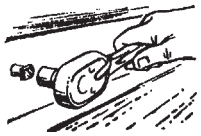
SPAENAUR No.	Dia. of Bolt with which Shield is used	Safe Working Load (lbs.)	Approx. Length of Shield	Outside Dia. and Drill Required	Unit Pkg. Qty.
***EX-7015**	1/4"-20	200	1-5/16"	1/2"	50
***EX-7020**	5/16"-18	300	1-5/8"	5/8"	50
***EX-7025**	3/8"-16	450	1-1/2"	3/4"	50
***EX-7035**	1/2"-13	1000	2-1/16"	7/8"	25
***EX-7045**	5/8"-11	1500	2-5/8"	1"	25
***EX-7055**	3/4"-10	2000	4"	1-1/4"	10
EX-7060	7/8"-9	2000	4-1/2"	1-1/2"	5
EX-7065	1"-8	2000	4-7/8"	1-5/8"	5

*Sizes marked with asterisk are furnished with 100% rust-proof zinc alloy sides. All other sizes furnished in malleable iron.

Double Installation



Drill hole of recommended diameter (slightly deeper than length of Double Shield). Insert Double Shield into hole (nut end first).



Double Shield should be flush, or slightly below surface of masonry. Place fixture, insert machine bolt, and tighten.

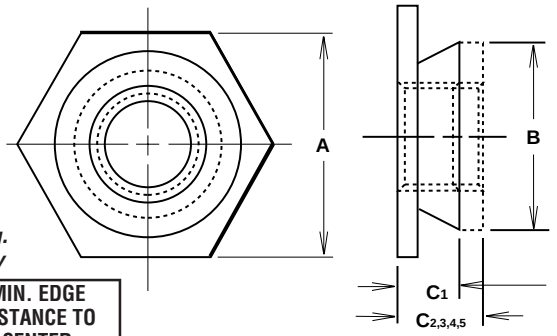
A deep setting helps to increase holding power of masonry. If desired, place a pipe sleeve between Double Shield and fixture to be attached.

See pages B90-B93 for
TAPCON ANCHOR SYSTEM

C

STAINLESS STEEL
Inch Sizes

Self-Clinching FLUSHNUTS add strong load-bearing threads in panels too thin or too ductible to tap — also they provide a flush-with-the-panel fastening. Installation requires only squeezing pressure with any pneumatic or hydraulic parallel-acting press.



DIMENSIONS & SPECIFICATIONS:

Unit Pkg. 100 only

SPAENAUR No.	THREAD SIZE	SHANK	C MAX.	SHEET THICKNESS	* HOLE SIZE	A	B MAX.	MIN. EDGE DISTANCE TO CENTER OF HOLE
200-828	2-56	-1	.060"	.060-.090"	.172"	3/16"	.171"	.23"
200-829		-2	.090"	.091"-up				
200-830	4-40	-1	.060"	.060-.090"	.172"	3/16"	.171"	.23"
200-831		-2	.090"	.091"-up				
200-832	6-32	-1	.060"	.060-.090"	.213"	1/4"	.212"	.27"
200-833		-2	.090"	.091"-up				
200-834	8-32	-1	.060"	.060-.090"	.290"	5/16"	.289"	.28"
200-835		-2	.090"	.091"-up				
200-836	10-32	-1	.060"	.060-.090"	.312"	11/32"	.311"	.32"
200-837		-2	.090"	.091"-up				
200-838	1/4"-20	-3	.120"	.125-.155"	.344"	3/8"	.343"	.34"
200-839		-4	.151"	.156-.186"				
200-840		-5	.182"	.187"-up				

*tol. +.003 to -.000

Note: Clinching profile may vary.

MATERIAL:

300 Series Stainless Steel (Passivated per QQ-P-35)

USE IN :

Materials with Rockwell Hardness of B-70 or less

Don't over-squeeze or hammer Flushnuts. Aluminum panels should be preanodized before fastener insertion.

INSTALLATION

Drill or punch the correct diameter hole in sheet, referring to table at top. Place shank of fastener in hole and apply a squeezing force between two parallel surfaces sufficient only to embed hexagonal head flush in sheet. The metal displaced by the head flows evenly and smoothly around the back-tapered shank of the fastener, securely locking it into place with high pull-out resistance while at the same time, the embedded hexagonal head provides high torque resistance.

PERFORMANCE DATA

THREAD SIZE	PULL-THRU LB.	*TORQUE (INCH-LB.)	5052-H34 ALUMINUM		COLD ROLLED STEEL	
			INSTALLATION FORCE (LB)	PUSH-OUT LB.	APPROX. INSTALLATION FORCE (LB.)	PUSH-OUT (LB.)
2-56	600	2-1/4	2000	200	3000	200
4-40	650	4-3/4	2000	200	3000	200
6-32	800	8-3/4	2000	200	3000	200
8-32	1050	18	2000	240	4000	240
10-32	1050	32	2500	240	4000	240
1/4"-20	2750	80	3500	640	4500	840

Note: These values are for general reference only. Variations in mounting hole size, panel material, panel thickness and installation procedures will affect these data.

INSTALLATION & PERFORMANCE DATA

For

SELF-CLINCHING NUTS

Per Page C163.

STEEL:

Carbon Steel, Heat Treated, Zinc per **ASTM B 633-85** SC1 (5µm), Type lll, Colourless

STAINLESS STEEL (S.S)

300 Series Stainless Steel (Passivated, QQ-P-35, Type 1)

ALUMINUM (ALUM.)

2024-T4 Aluminum

THREAD:

Class 2B (MIL-S-7742)

THREAD SIZE	SHANK	5052-H34 ALUMINUM			R/B 75 COLD ROLLED STEEL		
		INSTALLATION (LBS.)	PUSH-OUT (LBS)	*TORQUE (INCH-LBS.)	INSTALLATION (LBS.)	PUSH-OUT (LBS.)	*TORQUE (INCH-LBS.)
2-56	-0 (.030)	2000	80	10	3000	90	12
	-1 (.038)		90	10		125	12
	-2 (.054)		165	10		200	12
	-3 (.087)		200	10		225	12
3-48	-0 (.030)	2000	80	10	3000	90	12
	-1 (.038)		90	10		125	12
	-2 (.054)		165	10		200	12
	-3 (.087)		200	10		225	12
4-40	-0 (.030)	2000	80	10	3000	90	16
	-1 (.038)		90	10		125	18
	-2 (.054)		165	10		200	18
	-3 (.087)		200	10		225	18
6-32	-0 (.030)	2800	80	18	3500	100	25
	-1 (.038)		100	25		120	25
	-2 (.054)		175	30		250	35
	-3 (.087)		200	30		250	35
8-32	-0 (.030)	3500	80	25	4500	100	30
	-1 (.038)		115	25		140	30
	-2 (.054)		180	40		260	50
	-3 (.087)		240	40		260	50
10-24 and 10-32	-0 (.030)	4300	80	25	5000	100	40
	-1 (.038)		125	30		125	40
	-2 (.054)		200	50		285	75
	-3 (.087)		260	50		285	75
1/4"-20 and 1/4"-28	-1 (.054) -2 (.087) -3 (.120)	5000	350	110	6500	600	160
5/16"	-1 (.054) -2 (.087) -3 (.120)	5500	400	200	7500	650	300

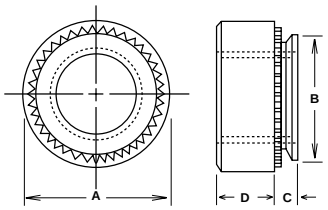
*Maximum screw tightening values.

CATALOG 13

See page B153 for Self-Clinching Studs.

C

••• add strong, load-bearing threads to thin metal sections. Easy to install.



■ A GENTLE SQUEEZE CLINCHES IT!
The installation of Self-Clinching fasteners is merely a matter of inserting them in previously punched or drilled holes in the sheet metal and applying squeezing force to imbed the clinching ring completely in the sheet.

*Cadmium or Zinc Plated - Our Option.

■ ONLY STANDARD TOOLS ARE REQUIRED —
Any pneumatic or oil hydraulic squeezer adjustable to predetermined pressures is the ideal tool for installing.

STEEL & STAINLESS STEEL NUTS

UNIT PACKAGE 100 — all sizes

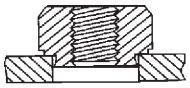
Thread Size	SPAENAUR No. CARBON STEEL *Cad. Plated	SPAENAUR No. STAINLESS STEEL #303	C Max.	Minimum Sheet Thickness	Hole Size In Sheet (+.003-.000)	B Max.	A	D	Shank Style	Min. Distance Centre Line Hole To Sheet Edge
2-56	**200-002** **200-003** **200-004** **—**	**—** **200-801** **200-802** **—**	.030 .038 .054 .087	.030-.039 .040 .056 .091	.166	.165	.25	.07	0 1 2 3	.19
3-48	**200-005** **200-006** **200-007** **—**	**200-803** **200-804** **200-805** **—**	.030 .038 .054 .087	.030-.039 .040 .056 .091	.166	.165	.25	.07	0 1 2 3	.19
4-40	**—** **200-001** **200-009** **—**	**—** **—** **—** **—**	.030 .038 .054 .087	.030-.039 .040 .056 .091	.166	.165	.25	.07	0 1 2 3	.19
6-32	**200-010** **200-011** **—** **—**	**—** **200-810** **—** **200-841**	.030 .038 .054 .087	.030-.039 .040 .056 .091	.1875	.187	.28	.07	0 1 2 3	.22
8-32	**200-013** **—** **—** **—**	**200-812** **200-813** **—** **—**	.030 .038 .054 .087	.030-.039 .040 .056 .091	.213	.212	.31	.09	0 1 2 3	.27
10-24	**—** **200-017** **—** **—**	**200-815** **200-816** **—** **—**	.030 .038 .054 .087	.030-.039 .040 .056 .091	Don't over- squeeze, or attempt to install these fasteners with hammer-blows.				0 1 2 3	.28
10-32	**200-020** **200-021** **—** **—**	**200-819** **—** **—** **200-822**	.030 .038 .054 .087	.030-.039 .040 .056 .091	.250 | .249 | .34 | .09 Always anodize aluminum panels before fastener insertion. Special care needed on Magnesium work.				0 1 2 3	
1/4"-20	**200-024** **—** **200-026**	**200-823** **200-824** **200-825**	.054 .087 .120	.056 .091 .125	.344	.343	.44	.17	1 2 3	.34
1/4"-28	**—** **200-027** **—**	**200-826** **—** **—**	.054 .087 .120	.056 .091 .125					1 1 3	
5/16"-18	**200-030** **200-028** **—**	**200-827** **—** **—**	.054 .087 .120	.056 .091 .125	.413	.411	.50	.23	1 2 3	.38
3/8"-16	**—** **—** **—**	**—** **—** **—**	.087 .120 .235	.091 .125 .250	.500	.498	.56	.27	1 2 3	.44
1/2"-13	**—**	**—**	.235	.250	.656	.654	.81	.36	3	.63

Note: Use Carbon Steel SELF-CLINCHING Fasteners in materials with Rockwell hardness of B-85 or less.
Use Stainless Steel SELF-CLINCHING Fasteners for use in materials with Rockwell hardness of B-70 or less.

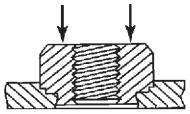
See page C162 for "INSTALLATION & PERFORMANCE DATA".

C

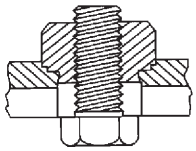
Installation & Performance Data



Fastener must be installed squarely in hole.



Squeezing force is applied to head of fastener.



Install bolt or screw from opposite side of head of fastener.

Information in the chart below relates to page C165

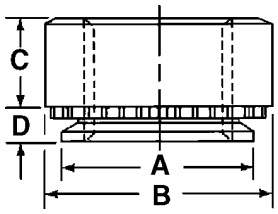
		Cold-rolled Steel			5052-H34 Aluminum		
Thread Size	Shank Code	Installation Force (tons)	Pushout (lbs.)	Torque-out (in.-lbs.)	Installation Force (tons)	Pushout (lbs.)	Torque-out (in.-lbs.)
2-56 3-48 4-40	0 1 2 3	1 - 2	100 120 225 225	13 14 17 18	0.5 - 1	60 89 169 169	8 9.5 12 12
6-32	0 1 2 3	1.5 - 3	105 125 270 270	15 19 27 27	1 - 2	60 90 185 185	16 17 21 21
8-32	0 1 2 3	2 - 3	105 140 280 280	25 34 44 44	1 - 2	65 100 215 215	21 23 32 32
10-24 10-32	0 1 2 3	2 - 4.5	115 175 315 315	31 39 59 59	1 - 2	65 105 245 245	25 31 49 49
1/4-20 1/4-28	1 2-3	3 - 4	395 395	145 145	2 - 3.5	355 355	85 120
5/16-18 5/16-24	1 2-3	3 - 4	420 420	160 175	2 - 3.5	375 375	115 155
3/8-16 3/8-24	1-2-3	3.5 - 5.5	455	315	2.5 - 4	395	265
1/2-13	1-2-3	5.0-7.5	1050	735	—	—	—

Information in the chart below relates to page C166.

Thread Size	Shank Code	Installation Force (kN)	Pushout (N)	Torque-out (N•m)	Installation Force (kN)	Pushout (N)	Torque-out (N•m)
M2 M2.5 M3	0 1 2 3	11.2 - 15.6	465 545 1010 1100	2.1	6.7 - 8.9	275 390 745 850	0.9 1.1 1.4 1.4
M3.5	0 1 2 3	13.4 - 26.7	475 565 1200 1300	1.8 1.8 2.3 2.5	11.2 - 13.4	290 465 965 1050	1.8 1.9 2.5 2.8
M4	0 1 2 3	18 - 27	485 640 1245 1300	2.9 2.95 4.2 4.2	11.2 - 13.4	290 465 965 1100	2.3 2.6 4.0 4.0
M5	0 1 2 3	18 - 38	525 790 1400 1500	3.6 3.6 6.0 6.0	11.2 - 15.6	290 475 1180 1225	3.0 3.6 4.7 5.7
M6	1 2	2 7- 36	1755	11.8	18 - 32	1570	11.8
M8	1 2	27 - 36	1860	26.0	18 - 32	1560	23.7

Self-Clinching Nuts

Unit Package 100



Self-clinching fasteners are pressed into holes in sheet metal by applying a steady squeezing force. This results in the cold-flow of sheet material, which is displaced by the knurl, into the undercut area on the shank of the fastener.

Thread Class 2B, MIL-S-7742; (6H ISO)

Heat-treated Carbon Steel, Zinc, Clear to ASTM B633-85
Series 300 Stainless Steel, Passivated ASTM A380

C

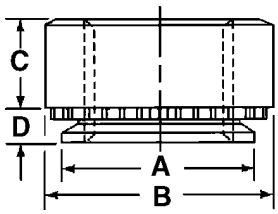
THREAD SIZE	*SPAENAUR No.* CARBON STEEL	*SPAENAUR No.* STAINLESS STEEL	SHANK	D Max. in.	Minimum Sheet Thick-ness	in.	A Max in.	B in.	C in.	Min.
2-56	–	–	0	.030	.030	.166 $^{+.003}_{-.000}$	.165	.250 ± .01	0.70 ± .01	.19
	–	–	1	.038	.040					
	–	–	2	.054	.056					
	–	–	3	.087	.091					
3-48	–	–	0	.030	.030	.166 $^{+.003}_{-.000}$	.165	.250 ± .01	0.70 ± .01	.19
	–	–	1	.038	.040					
	–	–	2	.054	.056					
	–	–	3	.087	.091					
4-40	**201-007**	**201-807**	0	.030	.030	.166 $^{+.003}_{-.000}$	.165	.250 ± .01	0.70 ± 0.01	.19
	–	**201-808**	1	.038	.040					
	–	**201-809**	2	.054	.056					
	–	–	3	.087	.091					
6-32	–	**201-810**	0	.030	.030	.1875 $^{+.003}_{-.000}$	.187	.281 ± 0.01	.070 ± 0.01	.22
	–	**201-811**	1	.038	.040					
	–	**201-812**	2	.054	.056					
	201-013	–	3	.087	.091					
8-32	–	–	0	.030	.030	.213 $^{+.003}_{-.000}$	.212	.312 ± 0.01	.090 ± 0.01	.27
	–	–	1	.038	.040					
	201-016	**201-816**	2	.054	.056					
	–	**201-817**	3	.087	.091					
10-24	**201-017**	–	0	.030	.030	.250 $^{+.003}_{-.000}$	.249	.344 ± 0.01	.090 ± 0.01	.28
	–	–	1	.038	.040					
	201-019	**201-820**	2	.054	.056					
	–	–	3	.087	.091					
10-32	–	–	0	.030	.030	.250 $^{+.003}_{-.000}$	.249	.344 ± 0.01	.090 ± 0.01	.28
	–	–	1	.038	.040					
	201-023	**201-824**	2	.054	.056					
	201-024	–	3	.087	.091					
1/4-20	–	–	1	.054	.056	.344 $^{+.003}_{-.000}$	.343	.437 ±0.01	.170 ± .01	.34
	–	**201-827**	2	.087	.091					
	–	–	3	.120	.125					
1/4-28	–	–	1	.054	.056	.344 $^{+.003}_{-.000}$	.343	.437 ±0.01	.170 ± .01	.34
	–	–	2	.087	.091					
	–	–	3	.120	.125					
5/16-18	–	–	1	.054	.056	.413 $^{+.003}_{-.000}$	.412	.500 ±0.01	.230 ± 0.01	.38
	–	–	2	.087	.091					
	–	–	3	.120	.125					
3/8-16	–	**201-829**	1	.087	.091	.500 $^{+.003}_{-.000}$	.499	.562 ± 0.01	.270 ± 0.01	.44
	–	–	2	.120	.125					
	201-031	–	3	.235	.250					
1/2-13	**201-032**	–	2	.235	.250	.656 $^{+.003}_{-.000}$	.655	.810± 0.01	.360 ± 0.01	—

See page C164 for Inch Self-Clinching Nut Data.

C

Self-Clinching Nuts

Unit Package 100



Self-clinching fasteners are pressed into holes in sheet metal by applying a steady squeezing force. This results in the cold-flow of sheet material, which is displaced by the knurl, into the undercut area on the shank of the fastener.

Thread Class 2B, MIL-S-7742; (6H ISO)

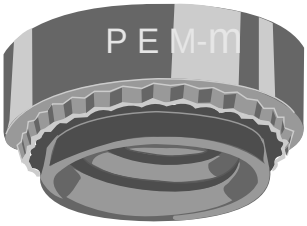
Heat-treated Carbon Steel, Zinc, Clear to ASTM B633-85
Series 300 Stainless Steel, Passivated ASTM A380

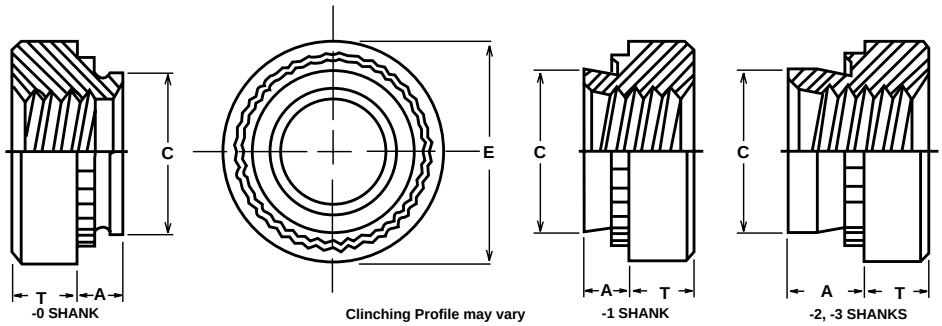
THREAD SIZE	*SPAENAUR No.* CARBON STEEL	*SPAENAUR No.* STAINLESS STEEL	SHANK	D Max. mm	Minimum Sheet Thick-ness	mm	A Max. mm	B mm	C mm	min.
M2 Pitch 0.4	–	–	0	0.76	0.8	4.25 $^{+.08}_{-.000}$	4.22	6.3 ± 0.25	1.5 ± 0.25	4.8
	–	–	1	0.97	1.0					
	–	–	2	1.37	1.4					
	–	–	3	2.21	2.3					
M3 Pitch 0.5	–	**201-836**	0	0.76	0.8	4.25 $^{+.08}_{-.000}$	4.22	6.3 ± 0.25	1.5 ± 0.25	4.8
	201-038	**201-837**	1	0.97	1.0					
	201-039	–	2	1.37	1.4					
	–	–	3	2.21	2.3					
M3.5 Pitch 0.6	–	–	0	0.76	0.8	4.75 $^{+.08}_{-.000}$	4.73	7.1 ± 0.25	1.5 ± 0.25	5.6
	–	–	1	0.97	1.0					
	–	–	2	1.37	1.4					
	–	–	3	2.21	2.3					
M4 Pitch 0.7	–	–	0	0.76	0.8	5.4 $^{+.08}_{-.000}$	5.38	7.9 ± 0.25	2.0 ± 0.25	6.9
	–	–	1	0.97	1.0					
	201-047	**201-846**	2	1.37	1.4					
	–	–	3	2.21	2.3					
M5 Pitch 0.8	–	–	0	0.76	0.8	6.4 $^{+.08}_{-.000}$	6.38	8.7 ± 0.25	2.0 ± 0.25	7.1
	–	**201-849**	1	0.97	1.0					
	–	–	2	1.37	1.4					
	201-052	**201-851**	3	2.21	2.3					
M6 Pitch 1.0	–	–	1	1.37	1.4	8.75 $^{+.08}_{-.000}$	8.72	11.05 ± 0.25	4.08 ± 0.25	8.6
	–	–	2	2.21	2.3					
M8 Pitch 1.25	–	–	1	1.37	1.4	10.5 $^{+.08}_{-.000}$	10.44	12.65 ±0.25	5.47 ± 0.25	9.7
	–	–	2	2.21	2.3					

See page C164 for Metric Self-Clinching Nut Data.

SPAENAUR

Quality fasteners - inspected, tested and certified!





A wise choice... PEM Fasteners for load-carrying threads in thin metal sheets

Metric

■ **"CLINCHED BY A SQUEEZE WITH THE GREATEST OF EASE"** — The installation of PEM fasteners is merely a matter of inserting them in previously punched or drilled holes in the sheet metal and applying squeezing force to imbed the clinching ring completely in the sheet.

One or several at a time may be pressed into position and permanently locked in the sheet.

■ **ONLY STANDARD TOOLS ARE REQUIRED —** Any pneumatic or oil/hydraulic squeezer adjustable to predetermined pressures is the ideal tool for installing PEM fasteners. The squeezing action of such tools uniformly presses the insert into the assembly regardless of inaccuracies of sheet thickness and gives the sheet material an opportunity to flow evenly and smoothly around the shank of the fastener.

(All dimensions are in millimetres)

UNIT PACKAGE 100

THREAD SIZE	*SPAENAUR No.* CARBON STEEL Cad or Zinc Pltd. Our Option	*SPAENAUR No.* STAINLESS STEEL #303	A Max.	Minimum Sheet Thickness (†)	Hole Size In Sheet +0.08	C Max.	E ±0.2	T ±0.1	Shank Style	Min. Distance Centre Line Hole To Sheet Edge
M2 Pitch 0.4	**200-100** **200-101** **200-102** **200-103**	**200-850** **200-851** **200-852** —	0.76 0.97 1.37 2.21	0.8-1.0 1.0 1.4 2.3	4.25	4.22	6.3	1.5	0 1 2 3	4.8
M3 Pitch 0.5	**200-104** — — **200-107**	— — — —	0.76 0.97 1.37 2.21	0.8-1.0 1.0 1.4 2.3	4.25	4.22	6.3	1.5	0 1 2 3	4.8
M3.5 Pitch 0.6	**200-108** **200-109** **200-110** **200-111**	**200-858** **200-859** **200-860** **200-861**	0.76 0.97 1.37 2.21	0.8-1.0 1.0 1.4 2.3	4.75	4.73	7.1	1.5	0 1 2 3	5.6
M4 Pitch 0.7	**200-112** **200-113** — **200-115**	**200-862** **200-863** — —	0.76 0.97 1.37 2.21	0.8-1.0 1.0 1.4 2.3	5.4	5.38	7.9	2.0	0 1 2 3	6.9
M5 Pitch 0.8	**200-116** **200-117** **200-118** —	**200-866** — — —	0.76 0.97 1.37 2.21	0.8-1.0 1.0 1.4 2.3	6.4	6.38	8.7	2.0	0 1 2 3	7.1
M6 Pitch 1.0	— — —	**200-870** — —	1.37 2.21 3.05	1.4 2.3 3.2	8.75	8.72	11.05	4.08	1 2 3	8.6
M8 Pitch 1.25	**200-121** —	— —	1.37 2.21	1.4 2.3	10.5	10.44	12.65	5.47	1 2	9.7

(†) SELECTION OF SHANK LENGTHS — PEM fasteners in each thread size are available with several shank lengths to meet the specifications of those design engineers who want panel holes refilled as much as possible. PEM fasteners with the shortest shank lengths provide adequate holding power for most applications in panel material which exceeds the minimum specified sheet thickness.

NOTE:

Use Carbon Steel PEM fasteners in materials with Rockwell hardness of B-85 or less.

Stainless Steel PEM fasteners are for use in materials with Rockwell hardness of B-70 or less.

C

			Page No.
	A-H™ INSERT SERIES THREADED HEX INSERTS	***The A-H Series features a hex body design that when used in a hex hole produces the ultimate in spin-out torque resistance. This feature is important when SPC and/or a prevailing torque thread lock is required. The A-H Series can be installed after finish.***	**C169**
	A-K™ INSERT SERIES KNURLED THREADED INSERTS	***The A-K Series, similar to the A-L, features a minimized head profile that allows for nearly flush installations without the need for special hole preparations such as countersinking or dimpling. The A-K Series can be installed after finish.***	**C170**
	A-L™ INSERT SERIES KNURLED THREADED INSERTS	***The A-L Series features a large diameter, low profile head, making it ideal for use in punched or even hand drilled out-of-round holes. The A-L Series offers the highest all around strength characteristics and is by far AVK's most versatile product. The A-L Series can be installed after finish.***	**C172**
AVK TEST DATA			**C174**
	A-O™ INSERT SERIES THREADED INSERTS	***The A-O Series provides very high pull-out loads particularly effective in thin metal. May be used where the AT Series insert will not generate enough pull-out in very thin materials and a hole size change cannot be made to accommodate the A-K or A-L Series inserts.***	**C175**
Power and Hand Tools for the A-H, A-K, A-L, A-O Series Inserts.			**C176 - C179, C193**
	A-T™ INSERT SERIES KNURLED THREADED INSERTS	***The A-T Series will work in "any" thickness over .030", even in buried holes. An installation tool is used to pull a "cone" shaped nut into the sleeve expanding it into the parent material.***	**C180**
	A-W® INSERT SERIES KNURLED THREADED INSERTS	***The A-W Series insert is ideal for use in "SOFT MATERIALS" such as plastics, fiberglass, wood, structural foam, aluminum, etc. The A-W Series insert can be used in thinner materials where the shallowest insert protrusion on the backside is desired.***	**C182**
Power and Hand Tools for the A-T and A-W Series Inserts.			**C184 - C187**
	R-N® RIVET NUT SERIES THREADED INSERTS	***The R-N Series rivet nut features a thicker head profile ideal for use in leg-leveling applications. Manufactured on high speed, state of the art cold heading equipment, the R-N Series guarantees quality in a rivet nut. The R-N Series can be installed after finish.***	**C188 - C191**
Hand Tools for the R-N and A-S Series Inserts.			**C192 - C193**
	A-S™ INSERT SERIES CAPTIVE THREADED STUD	***The A-S Series Stud offers a unique design advantage in that once installed, a threaded stud is left protruding from the workpiece. Component parts can be located on the stud until final assembly is accomplished with mating nut.***	**C194**

CATALOG 13

A-H™ INSERT SERIES
THREADED HEX INSERT

STEEL C-1010/C-1008

FINISH: Zinc/Yellow Dichromate per ASTM-B633 Type 2 FE/ZN with Clear Protective Coating.

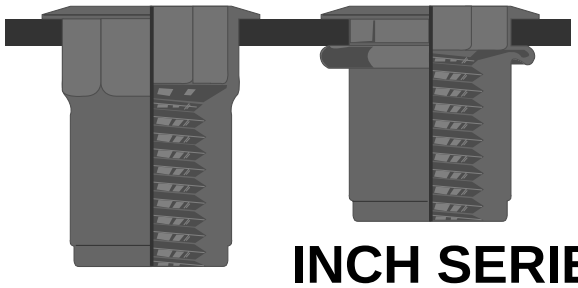
SPAENAUR Reserves the Option to Substitute Cad/Yellow Dichromate per QQ-P-416 Type 2, Class 2 with Clear Protective Coating.

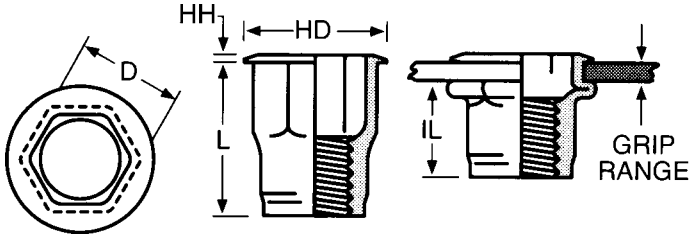
OPEN END STYLE

FEATURES:

- Exceptional resistance to spinning due to cross threading or overtightening. Permits the use of "thread locking screws".
- Blind installation - no access is needed to the backside.
- High quality finish resists corrosion.
- Installs before or after the parent material has been finished.
- Portable high speed tooling for use anywhere in the assembly line.
- Strong accurate internal rolled threads.
- Made in the USA.

The A-H Series Insert features a hexagonal body producing very high resistance to spinning when installed in a hex hole. It will maintain a high resistance to spinning even when the attached part does not come in contact with the insert. It is ideal for applications where SPC is being implemented. This blind threaded insert, like AVK's other blind threaded inserts, also features very high pull-out loads.





INCH SERIES (All Dimensions in Inches)

SPAENAUR No.	Thread Size	Manufacturer's No.	Grip Range	*Hole Size A/F	D Max.	HD ±.010 ±.025†	HH ± .003	L ± .015	IL Max.	Unit Pkg.
215-124	#6-32	AHS4-632-80	.020-.080	.250	.249	.375	.027	.385	.295	100
215-125	#8-32	AHS4-832-80								100
215-126	#10-24	AHS4-1024-130	.020-.130	.281	.280	.390	.027	.435	.275	100
215-127	#10-32	AHS4-1032-130								100
215-128	1/4-20	AHS4-420-165	.027-.165	.375	.374	.510	.030	.585	.400	100
215-129	1/4-28	AHS4-428-165								100
215-130	5/16-18	AHS4-518-150	.027-.150	.500	.499	.655†	.035	.685	.530	50
215-135	5/16-18	AHS4-518-312	.150-.312					.845	.515	50
215-131	5/16-24	AHS4-524-150	.027-.150					.685	.530	50
215-132	3/8-16	AHS4-616-150								50
215-133	3/8-24	AHS4-624-150								50

METRIC SERIES (All Dimensions in Millimetres)

						±0.25 ±0.64◆	±0.08	±0.38		
216-066	M4 x 0.7	AHS4-470-2.0	.50-2.0	6.35	6.35	9.53	0.68	9.78	7.49	100
216-068	M6 x 1.0	AHS4-610-4.2	.70-4.2	9.53	9.50	12.96	0.76	14.86	10.16	100
216-069	M8 x 1.25	AHS4-8125-3.8	.70-3.8	12.70	12.70	16.64◆	0.89	17.40	13.46	50
216-070	M10 x 1.50	AHS4-1015-3.8	.70-3.8	12.70	12.70	16.64◆	0.89	17.40	13.46	50

NOTES: *HEX HOLE TOLERANCE +.004" to -.000" (+0.10 to -0.00 mm)
INCH SERIES THREADS ARE CLASS 2B.
METRIC SERIES THREADS ARE CLASS 6H.
INTERNAL THREAD LOCKING FEATURES AVAILABLE.
USE RECOMMENDED TOOLING FOR SATISFACTORY INSTALLATION.

The **A-H SERIES INSERTS** use the same tools as the A-K / A-L / AO SERIES INSERTS on pages C176-C179, C193.

See page C174 for AVK Test Data.

A-K™ INSERT
KNURLED THREADED INSERTS

STEEL C-1010/C-1008

FINISH: Zinc/Yellow Dichromate per ASTM-B633 Type 2 FE/ZN with Clear Protective Coating.

SPAENAUR Reserves the Option to Substitute Cad/Yellow Dichromate per QQ-P-416 Type 2, Class 2 with Clear Protective Coating.

C

FEATURES:

- High torque-out values resists spinning due to cross-threading or overtightening.
- High pull-out values - very hard to pull out of thin material due to large “bubble” on the backside.
- Blind installation - no access to backside required.
- Wide grip range - one length does the job of numerous other inserts.
- Nearly flush - no need to countersink or dimple due to very slight head protrusion.
- Installs after surface finish - tool will not mar parent material.
- Portable high speed tooling - put installation tool at any convenient location on assembly line.

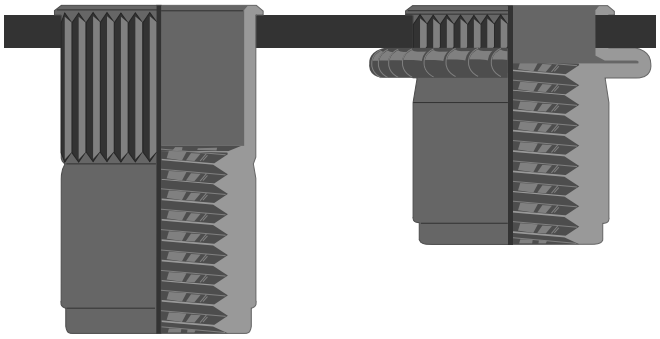
A multi purpose threaded insert with exceptionally strong torque-out and pull-out characteristics. Especially effective in very thin, as well as, thick sheet metal in both blind and open applications. The axial knurl is first forced into the parent material and then upset over the backside to engage the knurl into the parent material providing very high resistance to spinning. The “bubble” of material over the backside provides very high pull-out loads.

Additional MATERIALS and FINISHES available

ALUMINUM 5056	Clear Protective Coating
BRASS 270/260	Cad Plate per QQP 416 Type 1, Class 3 with Clear Protective Coating
MONEL 400	Clear Protective Coating

Also Available - CLOSED END INSERTS

APPLICATION



To order A-K INSERTS see facing page.

A-K™ SERIES INSERTS

ASSORTMENT / ASSORTIMENT **805-663**

Shipping Weight: 5.3 kg (11.6 lbs.)

A-L™ SERIES INSERTS

ASSORTMENT / ASSORTIMENT **805-664**

Shipping Weight: 5.4 kg (11.8 lbs.)

Each Assortment also contains 10 Conversion Kits from 6-32 to 3/8-24 thread size.

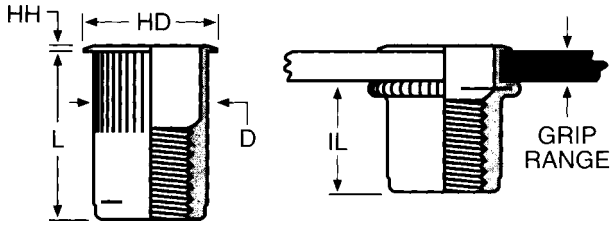
Priced Singly

Furnished in LARGE SIZE Steel drawer which will fit into Slide Racks shown on page A3.

Both Assortments contain 16 sizes — 331 pieces, the only difference being the Insert Series.

CONTENTS OF ASSORTMENTS A-K INSERTS	A-L INSERTS	Thread Size In Inches	Grip Range In Inches	Ass't. Qty.
215-051	215-071	6-32	.020-.080	25
215-052	215-072	8-32	.020-.080	25
215-053	215-073	10-24	.020-.130	25
215-054	215-074	10-32	.020-.130	25
215-055	215-075	1/4-20	.027-.165	20
215-056	215-076	1-4-28	.027-.165	20
215-057	215-077	5/16-18	.027-.165	10
215-058	215-078	5/16-24	.027-.150	10
215-059	215-079	3/8-16	.027-.150	10
215-060	215-080	3/8-24	.027-.150	10
215-061	215-081	6-32	.080-.130	25
215-062	215-082	8-32	.080-.130	25
215-063	215-083	10-24	.130-.225	25
215-064	215-084	10-32	.130-.225	25
215-065	215-085	1/4-20	.165-.260	20
215-066	215-086	1/4-28	.165-.260	20
TAA170	TAA170	Installation Tool		1

CATALOG 13



STEEL

C-1010/C-1008

A-K™ INSERT
KNURLED THREADED INSERTS

FINISH: Zinc/Yellow Dichromate per ASTM-B633 Type 2 FE/ZN with Clear Protective Coating.

SPAENAUR Reserves the Option to Substitute Cad/Yellow Dichromate per QQ-P-416 Type 2, Class 2 with Clear Protective Coating.

C

OPEN END STYLE **INCH SERIES** (All Dimensions in Inches)

SPAENAUR No.	**Thread Size**	Manufacturer's No.	**Grip Range**	**Hole Size** +.006 to -.000	**D** Max.	**HD** ±.010	**HH** ±.002	**L** ±.015	**IL** Max.	**Unit Pkg.**
215-051	#6-32	AKS4-632-80	.020-.080	17/64 (.2656)	.265	.310	.019	.420	.305	100
215-061	#6-32	AKS4-632-130	.080-.130	17/64 (.2656)	.265	.310	.019	.470	.305	100
215-052	#8-32	AKS4-832-80	.020-.080	17/64 (.2656)	.265	.310	.019	.420	.305	100
215-062	#8-32	AKS4-832-130	.080-.130	17/64 (.2656)	.265	.310	.019	.470	.305	100
215-053	#10-24	AKS4-1024-130	.020-.130	19/64 (.2969)	.296	.340	.019	.475	.315	100
215-134▲	#10-24	AKS7-1024-130B	.020-.130	19/64 (.2969)	.296	.340	.019	.990	.845	100
215-063	#10-24	AKS4-1024-225	.130-.225	19/64 (.2969)	.296	.340	.019	.585	.315	100
215-054	#10-32	AKS4-1032-130	.020-.130	19/64 (.2969)	.296	.340	.019	.475	.315	100
215-064	#10-32	AKS4-1032-225	.130-.225	19/64 (.2969)	.296	.340	.019	.585	.315	100
215-055*	1/4-20	AKS4-420-165	.027-.165	25/64 (.3906)	.390	.455	.022	.580	.380	100
215-065	1/4-20	AKS4-420-260	.165-.260	25/64 (.3906)	.390	.455	.022	.680	.380	100
215-056	1/4-28	AKS4-428-165	.027-.165	25/64 (.3906)	.390	.455	.022	.580	.380	100
215-066	1/4-28	AKS4-428-260	.165-.260	25/64 (.3906)	.390	.455	.022	.680	.380	100
215-057	5/16-18	AKS4-518-150	.027-.150	17/32 (.5312)	.530	.595	.022	.690	.470	50
215-067	5/16-18	AKS4-518-312	.150-.312	17/32 (.5312)	.530	.595	.022	.805	.425	50
215-058	5/16-24	AKS4-524-150	.027-.150	17/32 (.5312)	.530	.595	.022	.690	.470	50
215-068	5/16-24	AKS4-524-312	.150-.312	17/32 (.5312)	.530	.595	.022	.805	.425	50
215-059	3/8-16	AKS4-616-150	.027-.150	17/32 (.5312)	.530	.595	.022	.690	.470	50
215-069	3/8-16	AKS4-616-312	.150-.312	17/32 (.5312)	.530	.595	.022	.805	.425	50
215-060	3/8-24	AKS4-624-150	.027-.150	17/32 (.5312)	.530	.595	.022	.690	.470	50
215-070	3/8-24	AKS4-624-312	.150-.312	17/32 (.5312)	.530	.595	.022	.805	.425	50

*** 215-955** MONEL (Mfr. #AKM1-420-165)

▲Closed End, Useable Thread .730", Cad. pltd.

METRIC SERIES

(All Dimensions in Millimetres)

				+0.15 to -0.00		±0.25	±0.08	±0.38		
216-030	M4 x 0.7	AKS4-470-2.0	0.50-2.0	6.75	6.73	7.87	0.48	10.67	7.75	100
216-035	M4 x 0.7	AKS4-470-3.3	2.00-3.3	6.75	6.73	7.87	0.48	11.94	7.75	100
216-031	M5 x 0.8	AKS4-580-3.3	0.50-3.3	7.6	7.52	8.64	0.48	12.07	8.00	100
216-036■	M5 x 0.8	AKS4-580-5.7	3.30-5.7	7.6	7.52	8.64	0.48	14.86	8.00	100
216-032	M6 x 1.0	AKS4-610-4.2	0.70-4.2	10.0	9.91	11.56	0.55	14.73	9.65	100
216-037	M6 x 1.0	AKS4-610-6.6	4.20-6.6	10.0	9.91	11.56	0.55	17.25	9.65	100
216-033	M8 x 1.25	AKS4-8125-3.8	0.70-3.8	13.5	13.46	15.11	0.55	17.53	11.94	50
216-038	M8 x 1.25	AKS4-8125-7.9	3.80-7.9	13.5	13.46	15.11	0.55	20.45	10.80	50
216-034	M10 x 1.5	AKS4-1015-3.8	0.70-3.8	13.5	13.46	15.11	0.55	17.53	11.94	50
216-039	M10 x 1.5	AKS4-1015-7.9	3.80-7.9	13.5	13.46	15.11	0.55	20.45	10.80	50

■ **216-300** Aluminum (Mfr. #AKA1-580-5.7)

NOTE: 1. INCH SERIES THREADS ARE CLASS 2B.
2. METRIC SERIES THREADS ARE CLASS 6H.
3. USE AVK RECOMMENDED TOOLING FOR SATISFACTORY INSTALLATION.
4. ALUMINUM AND BRASS SECOND GRIP PARTS MAY HAVE MINIMUM ORDER RESTRICTIONS.

See page C174 for AVK Test Data.

C

A-L™ INSERT
KNURLED THREADED INSERTS

STEEL C-1010/C-1008

FINISH: Zinc/Yellow Dichromate per ASTM-B633 Type 2 FE/ZN with Clear Protective Coating.

SPAENAUR Reserves the Option to Substitute Cad/Yellow Dichromate per QQ-P-416 Type 2, Class 2 with Clear Protective Coating.

FEATURES:

- Usable in oversize and irregular holes.
- High torque-out values resists spinning due to cross threading or overtightening.
- High pull-out values - very hard to pull through material due to the “bubble” on the backside
- Wide grip range - one length does the job of numerous other inserts.
- Blind installation -no access to backside required.
- Nearly flush.
- Install after surface finish - tool will not mar parent material.
- Portable high speed tooling - put installation tool at convenient location on assembly line.
- SEALED HEAD AVAILABLE.

A blind threaded insert with large head for applications where large or irregular holes are a problem. The A-L insert works in sheet metal, structural foam, fiberglass and some plastics. The axial knurl is first forced into the parent material and then upset over the backside to engage the knurl into the parent material providing very high resistance to spinning. The “bubble” of material over the backside provides very high pull-out loads.

Additional MATERIALS and Finishes available

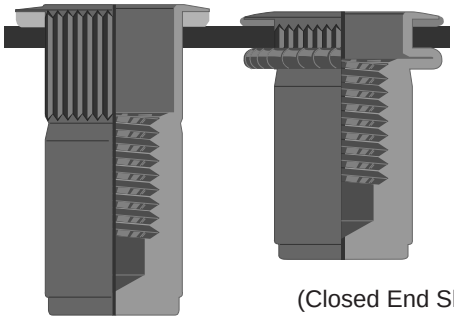
ALUMINUM 5056	Clear Protective Coating
BRASS 270/260	Cad Plate per QQP 416 Type 1, Class 3 with Clear Protective Coating
MONEL 400	Clear Protective Coating

Also Available

CLOSED END INSERTS

WEDGE HEAD INSERTS
Excellent for electrical grounding applications

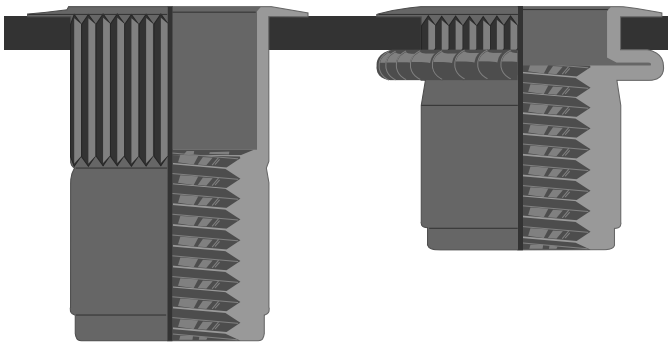
A-L INSERTS with ***SEALED HEAD**



(Closed End Shown)

***NOTE:** The sealing material slightly reduces the maximum grip. Test a sample part in your application if your grip is approximately 80% or more of the maximum insert grip.

APPLICATION

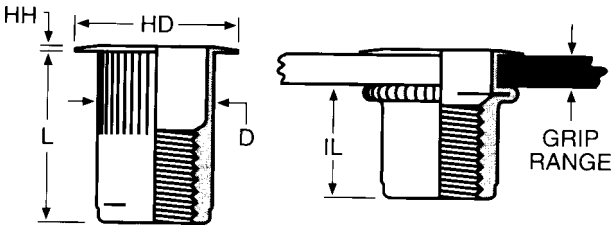


To order A-L INSERTS see facing page.

ASSORTMENT / ASSORTIMENT 805-664

See contents on page C170.

CATALOG 13



STEEL

C-1010/C-1008

A-L™ INSERT
KNURLED THREADED INSERTS

FINISH: Zinc/Yellow Dichromate per ASTM-B633 Type 2 FE/ZN with Clear Protective Coating.

SPAENAUR Reserves the Option to Substitute Cad/Yellow Dichromate per QQ-P-416 Type 2, Class 2 with Clear Protective Coating.

C

OPEN END STYLE **INCH SERIES** (All Dimensions in Inches)

SPAENAUR No.	Thread Size	Manufacturer's No.	Grip Range	Hole Size + .006 to -.000	D Max.	HD ±.010 ±.025†	HH ±.003	L ±.015	IL Max.	Unit Pkg.
215-071	#6-32	ALS4-632-80	.020-.080	17/64 (.2656)	.265	.390	.030	.420	.305	100
215-081	#6-32	ALS4-632-130	.080-.130	17/64 (.2656)	.265	.390	.030	.470	.305	100
215-072■	#8-32	ALS4-832-80	.020-.080	17/64 (.2656)	.265	.390	.030	.420	.305	100
215-082	#8-32	ALS4-832-130	.080-.130	17/64 (.2656)	.265	.390	.030	.470	.305	100
215-073	#10-24	ALS4-1024-130	.020-.130	19/64 (.2969)	.296	.415	.030	.475	.315	100
215-083	#10-24	ALS4-1024-225	.130-.225	19/64 (.2969)	.296	.415	.030	.585	.315	100
215-074*	#10-32	ALS4-1032-130	.020-.130	19/64 (.2969)	.296	.415	.030	.475	.315	100
215-084	#10-32	ALS4-1032-225	.130-.225	19/64 (.2969)	.296	.415	.030	.585	.315	100
215-075❑	1/4-20	ALS4-420-165	.027-.165	25/64 (.3906)	.390	.500	.030	.580	.380	100
215-085	1/4-20	ALS4-420-260	.165-.260	25/64 (.3906)	.390	.500	.030	.680	.380	100
215-076	1/4-28	ALS4-428-165	.027-.165	25/64 (.3906)	.390	.500	.030	.580	.380	100
215-086	1/4-28	ALS4-428-260	.165-.260	25/64 (.3906)	.390	.500	.030	.680	.380	100
215-077	5/16-18	ALS4-518-150	.027-.150	17/32 (.5312)	.530	.685†	.035	.690	.470	50
215-087	5/16-18	ALS4-518-312	.150-.312	17/32 (.5312)	.530	.685†	.035	.805	.425	50
215-078	5/16-24	ALS4-524-150	.027-.150	17/32 (.5312)	.530	.685†	.035	.690	.470	50
215-088	5/16-24	ALS4-524-312	.150-.312	17/32 (.5312)	.530	.685†	.035	.805	.425	50
215-079	3/8-16	ALS4-616-150	.027-.150	17/32 (.5312)	.530	.685†	.035	.690	.470	50
215-089	3/8-16	ALS4-616-312	.150-.312	17/32 (.5312)	.530	.685†	.035	.805	.425	50
215-080	3/8-24	ALS4-624-150	.027-.150	17/32 (.5312)	.530	.685†	.035	.690	.470	50
215-090	3/8-24	ALS4-624-312	.150-.312	17/32 (.5312)	.530	.685	.035	.805	.425	50

***215-374** Aluminum (Mfr. #ALA1-1032-130) **■215-372** Aluminum (Mfr. #ALA1-832-80)

❑**215-376** Aluminum (Mfr. #ALA1-420-165)

METRIC SERIES (All Dimensions in Millimetres)

				+0.15 to -0.00		±0.25 ±0.64◆	±0.08	±0.38		
216-040	M4x0.7	ALS4-470-2.0	0.50-2.0	6.75	6.73	9.91	0.76	10.67	7.75	100
216-045	M4x0.7	ALS4-470-3.3	2.00-3.3	6.75	6.73	9.91	0.76	11.94	7.75	100
216-041	M5x0.8	ALS4-580-3.3	0.50-3.3	7.6	7.52	10.54	0.76	12.07	8.00	100
216-046	M5x0.8	ALS4-580-5.7	3.30-5.7	7.6	7.52	10.54	0.76	14.86	8.00	100
216-042▲	M6x1.0	ALS4-610-4.2	0.70-4.2	10.0	9.91	12.70	0.76	14.73	9.65	100
216-047	M6x1.0	ALS4-610-6.6	4.20-6.6	10.0	9.91	12.70	0.76	17.27	9.65	100
216-043	M8x1.25	ALS4-8125-3.8	0.70-3.8	13.5	13.46	17.40◆	0.89	17.53	11.94	50
216-048	M8x1.25	ALS4-8125-7.9	3.80-7.9	13.5	13.46	17.40◆	0.89	20.48	10.80	50
216-044	M10x1.5	ALS7-1015-3.8	0.70-3.8	13.5	13.46	17.40◆	0.89	17.53	11.94	50
216-049	M10x1.5	ALS4-1015-7.9	3.80-7.9	13.5	13.46	17.40◆	0.89	20.48	10.80	50

▲**216-042CP** Cad./Yellow Dichromate finish.

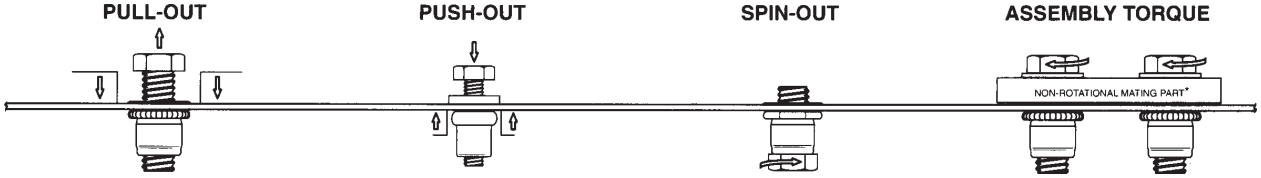
NOTE:
1. INCH SERIES THREADS ARE CLASS 2B.
2. METRIC SERIES THREADS ARE CLASS 6H.
3. USE AVK RECOMMENDED TOOLING FOR SATISFACTORY INSTALLATIONS.

See page C174 for AVK Test Data.

C

The test data on this page is intended to provide the designer with approximate strength values in various materials and thicknesses. The figures shown are averages of multiple tests. AVK recommends that this data be used only as a guide since various application factors may affect AVK product performance. We recommend testing your application when an exact strength figure is required or the load to be applied comes close to the published data.

Thread size data is provided in pounds (LBS.) and Kilo-Newtons (KN) for force and inch pounds (INCH LBS.) and Newton meters (Nm) for torque.



PULL-OUT is the force required to pull the AVK product from the parent material. The parent material is restrained by a hold down ring 3x the AVK part "D" dim.

PUSH-OUT is the force required to push the AVK product through the parent material. The parent material is supported by a hold down ring 3x the AVK part "D" dim

SPIN-OUT is the torque required to turn the AVK product in the parent material after installation without influencing clamp load on the AVK product.

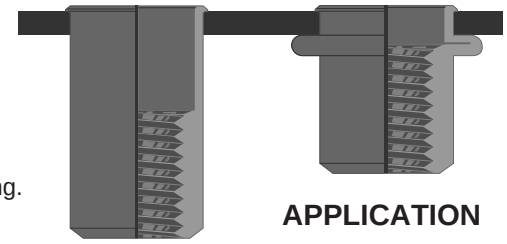
ASSEMBLY TORQUE is the amount of torque suggested for Grade 5 (Metric Class 8.0/9.9) mating hardware based on industry standards.

A-L, A-K, A-H, A-S, product was tested with the -4 finish. R-N Series was Cadmium plated.

		PULL-OUT								PUSH-OUT	SPIN-OUT		
		IN STEEL SHEET				IN ALUMINUM SHEET				IN STEEL	STEEL	ALUM	
	THREAD SIZE	.030" 0.76 mm	.062" 1.57 mm	.090" 2.28 mm	.125" 3.17 mm	.030" 0.76 mm	.062" 1.57 mm	.090" 2.28 mm	.125" 3.17 mm	.125" 3.17 mm	.062" 1.57 mm	.062" 1.57 mm	ASSEMBLY TORQUE
A-L/A-K SERIES	6-32	316	817	1347	1952	276	898	1464	1604				12
	8-32	316	773	1428	2000	275	828	1341	1571				22
	10-24	473	971	1694	2127	325	964	1626	1967				32
	10-32	473	971	1694	2127	325	964	1626	1967				36
	1/4-20	570	1196	2244	2983	411	1157	2269	2892				75
	5/16-18	703	2034	3066	4501	463	1435	2591	3896				156
	3/8-16	703	1509	2551	4501	601	1554	2709	3850				276
	1/2-13	NA	1693	2855	4480	NA	1866	3055	4184				660
	M4	1.4	3.4	6.3	8.8	1.2	3.6	5.9	6.9				2.5
	M5	2.1	4.3	7.5	9.4	1.4	4.2	7.2	8.7				5.0
	M6	2.5	5.3	9.9	13.2	1.8	5.1	10.0	12.8				8.6
	M8	3.1	9.0	13.6	20.0	2.0	6.3	11.5	17.3				21
	M10	3.1	6.7	11.3	20.0	2.6	6.9	12.0	17.1				42
	M12	NA	7.5	12.7	19.9	NA	8.3	13.5	18.6				72
A-H SERIES	6-32	284	735	NA		248	898	NA			37	40	12
	8-32	284	696	NA		247	745	NA			36	39	22
	10-24	426	874	1525		292	867	1463			69	71	32
	10-32	426	874	1525		292	867	1463			69	71	36
	1/4-20	513	1176	2020		369	1041	2042			130	143	75
	5/16-16	633	1831	2759		416	1292	2332			190	186	156
	3/8-16	633	1358	2296		541	1399	2438			190	188	276
	M4	1.3	3.1	5.7		1.0	3.2	5.3			4.2	4.5	2.5
	M5	1.9	3.9	6.7		1.2	3.8	6.4			7.8	8.0	5.0
	M6	2.2	4.8	8.9		1.6	4.6	9.0			14.7	16.2	8.6
	M8	2.8	8.1	12.2		1.8	5.6	10.3			21.5	21.0	21
	M10	2.8	6.0	10.2		2.3	6.2	10.8			21.6	21.0	42
A-S SERIES	6-32	316	817	1437	1952	276	898	1464	1604	628			12
	8-32	316	773	1428	2000	275	828	1341	1571	623			22
	10-24	473	971	1694	2127	325	964	1626	1967	578			32
	10-32	473	971	1694	2127	325	964	1626	1967	578			36
	1/4-20	570	1196	2244	2983	411	1157	2269	2892	874			75
	5/16-16	703	2034	3066	4501	463	1435	2591	3896	1134			156
	3/8-16	703	1509	2551	4501	601	1554	2709	3850	1155			276
	M4	1.4	3.4	6.3	8.8	1.2	3.6	5.9	6.9	2.7			2.5
	M5	2.1	4.3	7.5	9.4	1.4	4.2	7.2	8.7	2.5			5.0
	M6	2.5	5.3	9.9	13.2	1.8	5.1	10.0	12.8	3.8			8.6
	M8	3.1	9.0	13.6	20.0	2.0	6.3	11.5	17.3	5.0			21
	M10	3.1	6.7	11.3	20.0	2.6	6.9	20.0	17.1	5.1			42
R-N SERIES	1/4-20	347	854	1768		398	845	2100		1991	51	30	75
	5/16-18	574	1201	2008		533	1106	2244		2688	70	46	156
	3/8-16	623	1229	2041		585	1174	2110		3693	131	83	276
	1/2-13	611	1314	2236		774	1385	2643		3877	300	130	660
	M6	1.5	3.7	7.8		1.7	3.7	9.3		8.8	5.5	4.5	8.6
	M8	2.5	5.3	8.9		2.6	2.9	9.9		11.9	7.2	5.9	21
	M10	2.7	5.4	9.0		2.6	5.2	9.3		16.4	14.0	7.9	42
	M12	2.7	5.8	9.9		3.4	6.1	11.7		17.2	37.9	26.6	72

A-O™ INSERT
THREADED INSERTS

FEATURES:
- High Pull-out loads.
- Blind installation.
- Wide grip range.
- Nearly flush installation.
- Installs after painting or plating.
- Portable installation tooling.



APPLICATION

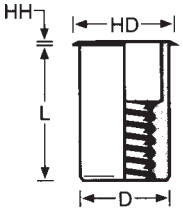
A Blind Threaded insert with very high pull-out loads particularly effective in thin metal. May be used where the AT Series insert will not generate enough pull-out in very thin materials and a hole size change cannot be made to accommodate the AK Series insert.

Note: Grip range can be affected by parent material density and actual hole size. AVK suggests trial installations to determine optimum grip.

STEEL C-1010/C-1008

INCH SERIES FINISH: ZINC PLATE PER ASTM-B633 TYPE 3 Fe/Zn WITH CLEAR PROTECTIVE COATING

METRIC SERIES FINISH: ZINC/YELLOW DICHROMATE PER ASTM B-633 TYPE 2 FE/ZN WITH CLEAR PROTECTIVE COATING.



OPEN END STYLE INCH SERIES (All Dimensions in Inches)

SPAENAUR No.	Thread Size	Manufacturer's No.	Grip Range	Hole Size +.006 to -.000	D Max.	HD ±.010	HH ±.003	L ±.015	IL Max.	Unit Pkg.
215-091	#6-32	AOS3-632-80	.020-.080	1/4 (.250)	.249	.295	.018	.385	.315	100
215-092	#8-32	AOS3-832-80	.020-.080	1/4 (.250)	.249	.295	.018	.385	.315	100
215-093	#10-24	AOS3-1024-130	.020-.130	9/32 (.2812)	.280	.320	.020	.440	.330	100
215-094	#10-32	AOS3-1032-130	.020-.130	9/32 (.2812)	.280	.320	.020	.440	.330	100
215-095	1/4-20	AOS3-420-165	.030-.165	3/8 (.375)	.374	.425	.022	.580	.440	100
215-096	1/4-28	AOS3-428-165	.030-.165	3/8 (.375)	.374	.425	.022	.580	.440	100
215-097	5/16-18	AOS3-518-200	.040-.200	1/2 (.500)	.499	.560	.022	.690	.540	50
215-098	5/16-24	AOS3-524-200	.040-.200	1/2 (.500)	.499	.560	.022	.690	.540	50
215-099	3/8-16	AOS3-616-200	.040-.200	1/2 (.500)	.499	.560	.022	.690	.540	50
215-100	3/8-24	AOS3-624-200	.040-.200	1/2 (.500)	.499	.560	.022	.690	.540	50

METRIC SERIES (All Dimensions in Millimetres)

				+0.15 to -0.00		±0.25	±0.08	±0.38		
216-050	M4x0.7	AOS4-470-2.0	.50-2.0	6.4	6.32	7.49	0.46	9.78	8.00	100
216-051	M5x0.8	AOS4-580-3.3	.50-3.3	7.2	7.11	8.13	0.51	11.18	8.38	100
216-052	M6x1.0	AOS4-610-4.2	.76-4.2	9.6	9.50	10.80	0.56	14.73	11.18	100
216-053	M8x1.25	AOS4-8125-5.1	1.02-5.1	12.7	12.67	14.22	0.56	17.53	13.72	50
216-054	M10x1.5	AOS4-1015-5.1	1.02-5.1	12.7	12.67	14.22	0.56	17.53	13.72	50

Priced Singly

ASSORTMENT / ASSORTIMENT 805-665

A-O, A-T & A-W SERIES INSERTS

Shipping Weight: 5.3 kg (11.6 lbs.)

Assortment Contents at right. 20 sizes — 390 pieces.

Assortment also contains 9 Conversion Kits from 6-32 to 3/8-16 thread size, & 1 installation tool TAA170.

Furnished in LARGE SIZE Steel drawer which will fit into Slide Racks shown on page A3.

SPAENAUR No.	Insert Series	Thread Size In Inches	Grip Range or Lgth. (Inch)	Ass't. Qty.
215-091	A-O	6-32	.020-.080	25
215-092	A-O	8-32	.020-.080	25
215-093	A-O	10-24	.020-.130	25
215-094	A-O	10-32	.020-.130	25
215-095	A-O	1/4-20	.030-.165	20
215-097	A-O	5/16-18	.040-.200	10
215-099	A-O	3/8-16	.040-.200	10
215-102	A-T	6-32	.385 O/A Lgth.	25
215-103	A-T	8-32	.385 O/A Lgth.	25
215-104	A-T	10-24	.385 O/A Lgth.	25
215-105	A-T	10-32	.385 O/A Lgth.	25
215-106	A-T	1/4-20	.530 O/A Lgth.	20
215-107	A-T	1/4-28	.530 O/A Lgth.	20
215-108	A-T	5/16-18	.630 O/A Lgth.	10
215-110	A-T	3/8-16	.760 O/A Lgth.	10
215-115	A-W	8-32	.385 O/A Lgth.	25
215-117	A-W	10-32	.385 O/A Lgth.	25
215-118	A-W	1/4-20	.530 O/A Lgth.	20
215-120	A-W	5/16-18	.630 O/A Lgth.	10
215-122	A-W	3/8-16	.755 O/A Lgth.	10

NOTE:
1. **INCH SERIES THREADS ARE CLASS 2B.**
2. **METRIC SERIES THREADS ARE CLASS 6H.**
3. **USE AVK RECOMMENDED TOOLING FOR SATISFACTORY INSTALLATIONS.**

C

POWER INSTALLATION TOOLS For…

A-H™ INSERT SERIES THREADED HEX INSERTS

A-K™ INSERT SERIES KNURLED THREADED INSERTS

A-L™ INSERT SERIES KNURLED THREADED INSERTS

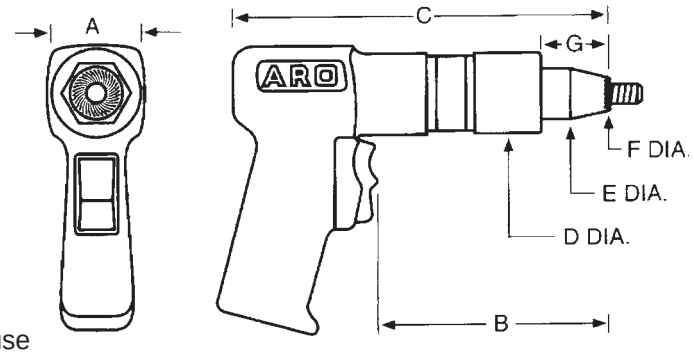
A-O™ INSERT SERIES THREADED INSERTS

AVK's pneumatic insert placing equipment allows an operator to efficiently install the A-H, A-K, A-L and A-O Series threaded inserts on the production line where high-volume output and assurance of proper fastener installation is required.

FEATURES

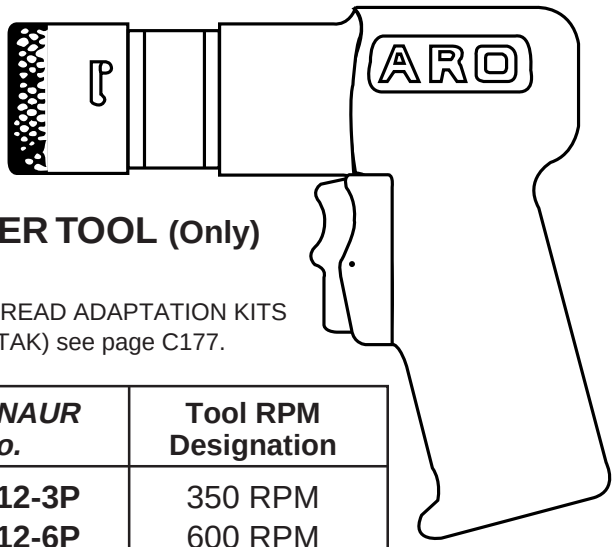
- Super fast "quick change" front-end — no tools needed to change to another size, to change the drive screw or to lube the bearing assembly.
- Uses standard length grade 8, socket head cap screws as the placing mandrels - easy to replace from *SPAENAUR's* stock.
- Lightweight, balanced and portable.
- Special nose pieces can be designed to satisfy access problems.
- Unique "Rocker Style Trigger" is a simple easy-to-use design — positive forward — reverse at the touch of a finger.
- Uses needle thrust bearings in the front end assembly to cut down on torque-reducing friction.
- Works on a trouble free "stall" principal — no clutch!

"NOZZLE" DESIGN TO SET AH, AK, AL OR AO SERIES INSERT. WILL NOT WORK FOR AT OR AW SERIES INSERTS.



DIMENSIONS IN INCHES ARE FOR REFERENCE ONLY

RPM	WEIGHT LBS.	A	B	C	D DIA.	E DIA.	F DIA. MAX	G
3,000	2.55	1.86	4.75	7.75	1.57	1.00	.400	1.3
1,500	2.58	1.86	4.75	7.75	1.57	1.00	.400	1.3
900	3.18	1.86	6.00	9.00	1.57	1.00	.500	1.3
600	3.18	1.86	6.00	9.00	1.57	1.00	.640	1.3
350	3.25	1.86	5.37	8.37	1.50	1.42	.900	NA



POWER TOOL (Only)

For THREAD ADAPTATION KITS (TAK) see page C177.

SPAENAUR No.	Tool RPM Designation
TAA912-3P	350 RPM
TAA912-6P	600 RPM
TAA912-9P	900 RPM
TAA912-15P	1500 RPM
TAA912-30P	3000 RPM

TAVK-2500 Muffler Assembly for ARO Power Tool - *Priced Singly*

P.C. 880

POWER TOOL INSTALLATION DATA

INSERT MATERIAL — STEEL-BRASS		
Thread Size	**RPM Desig.**	**PSI Setting**
INCH SERIES		
#6-32	3000	70-80
#8-32	3000	75-90
#10-24	1500	60-80
#10-32	1500	60-80
1/4-20	900	70-90
1/4-28	900	70-90
5/16-18	600	80-110
5/16-24	600	80-110
3/8-16	600	80-110
3/8-24	600	80-110
METRIC SERIES		
M4x0.7	3000	70-80
M5x0.8	1500	60-80
M6x1.0	900	70-90
M8x1.25	600	80-110
M10x1.5	600	80-110

NOTE: Use lower listed air pressure when installation is in lower part of grip range and maximum listed air pressure in maximum grip range. When installing aluminum inserts, refer to the power tool instruction manual that comes with the tool.

CATALOG 13

INSERT POWER TOOL For…

A-H™ INSERT SERIES THREADED HEX INSERTS

A-K™ INSERT SERIES KNURLED THREADED INSERTS

A-L™ INSERT SERIES KNURLED THREADED INSERTS

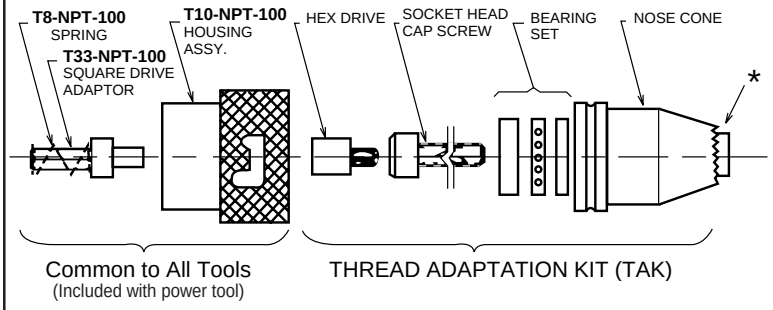
A-O™ INSERT SERIES THREADED INSERTS

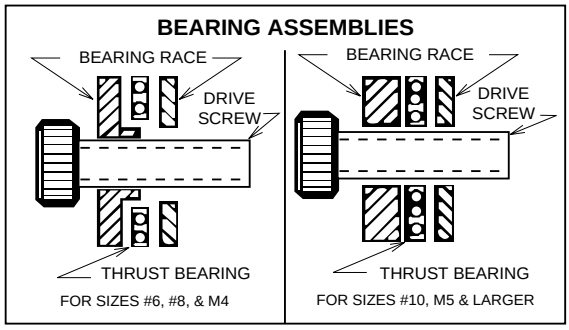
C

CONVERSION CAPABILITIES AND COMPONENT PART NUMBERS

THREAD ADAPTATION KITS (TAK)

The thread adaption kit (TAK) enables the tool to be converted from one thread size to another. See listing on the previous page for correct RPM. The TAK part number is listed below.





* "NOZZLE" DESIGN FOR AH, AK, AL AND AO SERIES INSERTS, WILL NOT WORK FOR AT OR AW INSERT INSTALLATION.

These tool components are for AH, AK, AL and AO Series Inserts.

		Order by *SPAENAUR No's* listed below.				
			Components Of Kit			
	Thread Size	Thread Adaption Kit (TAK)	Hex Drive	Socket Head Cap Screw	Bearing Set	Nose Cone
INCH	#6-32	TAKPT632TAK	T29NPT22	TA632-150	T32PT1	T77AKPT6
	#8-32	TAKPT832TAK	T29NPT23	TA832-150	T32PT2	T77AKPT8
	#10-24	TAKPT1024TAK	T29NPT4	TA1024-175	T32PT4	T77AKPT10
	#10-32	TAKPT1032TAK	T29NPT4	TA1032-175	T32PT4	T77AKPT10
	1/4-20	TAKPT420TAK	T29NPT5	TA420-150	T32PT5	T77AKPT250
	1/4-28	TAKPT428TAK	T29NPT5	TA428-150	T32PT5	T77AKPT250
	5/16-18	TAKPT518TAK	T29NPT6	TA518-200	T32PT7	T77AKPT3125
	5/16-24	TAKPT524TAK	T29NPT6	TA524-200	T32PT7	T77AKPT3125
	3/8-16	TAKPT616TAK	T29NPT7	TA616-200	T32PT8	T77AKPT375
	3/8-24	TAKPT624TAK	T29NPT7	TA624-200	T32PT8	T77AKPT375
METRIC	M4x0.7	TAKPT470TAK	T29NPT24	TM4-40MM	T32PT3	T77AKPT470
	M5x0.8	TAKPT580TAK	T29NPT10	TM5-45MM	T32PT4	T77AKPT580
	M6x1.0	TAKPT610TAK	T29NPT11	TM6-40MM	T32PT6	T77AKPT610
	M8x1.25	TAKPT8125TAK	T29NPT12	TM8-50MM	T32PT7	T77AKPT8125
	M10x1.5	TAKPT1015TAK	T29NPT25	TM10-50MM	T32PT10	T77AKPT1015

CATALOG 13

P.C. 880

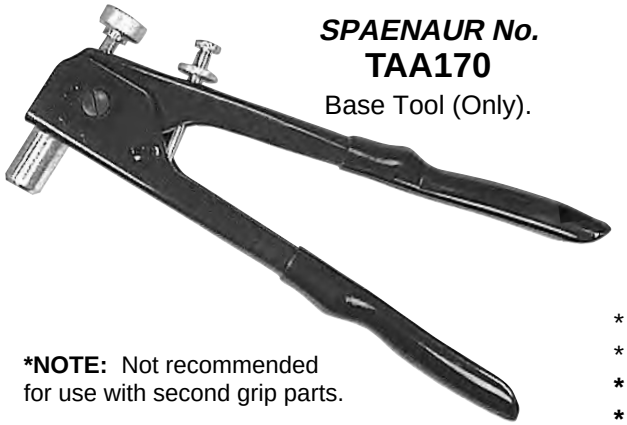
C

HAND INSTALLATION TOOLS For…

A-H™ INSERT SERIES THREADED HEX INSERTS
A-K™ INSERT SERIES KNURLED THREADED INSERTS
A-L™ INSERT SERIES KNURLED THREADED INSERTS
A-O™ INSERT SERIES THREADED INSERTS

"PLIER" TYPE HAND TOOL

The TAA170 is a plier type hand installation tool. The tool and conversion kits are sold separately. The mandrel and nose piece are sold only as a conversion kit. A double stroke may be required to set the 1/4, 5/16, 3/8, M6, M8 and M10 sizes in very thin materials.



SPAENAUR No.
TAA170
Base Tool (Only).

***NOTE:** Not recommended for use with second grip parts.

	Thread Size	*SPAENAUR No.* Conversion Kit INCH THREADS
	#4-40	**TAA271-440**
	#6-32	**TAA271-632**
	#8-32	**TAA271-832**
	#10-24	**TAA271-1024**
	#10-32	**TAA271-1032**
	1/4-20	**TAA271-420**
	1/4-28	**TAA271-428**
*	5/16-18	**TAA271-518**
*	5/16-24	**TAA271-524**
*	3/8-16	**TAA271-616**
*	3/8-24	**TAA271-624**

Thread Size	*SPAENAUR No.* Conversion Kit METRIC THREADS
M4x0.7	**TAA271-470**
M5x0.8	**TAA271-580**
M6x1.0	**TAA271-610**
M8x1.25	**TAA271-8125**
M10x1.5	**TAA271-1015**
-	-
-	-
-	-
-	-
-	-

TOOL KIT IN PLASTIC BOX

SPAENAUR No.
TAA571-G

Kit Contains:
- 1 — Hand tool
- 1 — #6-32 Conversion Kit
- 1 — #8-32 Conversion Kit
- 1 — #10-24 Conversion Kit
- 1 — #10-32 Conversion Kit
- 1 — 1/4"-20 Conversion Kit
- 1 — 5/16"-18 Conversion Kit

This tool kit is designed to set the A-H, A-K, A-L and A-O Series inserts and other similar types of threaded inserts.

The enclosed tool, TAA170 is designed for quick installation with simple change over from one thread size to another.

GENERAL DUTY HAND THREADED INSERT SETTER

• Designed for one-handed operation • Simple stroke adjustment by means of adjuster ring with memory stroke scale • Quick-drill mechanism threads and unthreads threaded inserts by pulling and pushing the round knob grip

SPAENAUR No.
TAA140
Base Tool (Only).

The tool and the conversion kits are sold separately. A double stroke may be required to set the 1/4" size in very thin materials. Nose piece has nose cone "pilot" to set A-H, A-K, A-L & A-O Series insert.

Thread Size	*SPAENAUR No.* Conversion Kit	*SPAENAUR No.* Replacement Placing Mandrel
INCH THREADS		
#6-32	**TAA241-632**	**T18AA241-632**
#8-32	**—**	**T18AA241-832**
#10-24	**TAA241-1024**	**T18AA241-1024**
#10-32	**TAA241-1032**	**T18AA241-1032**
1/4-20	**TAA241-420**	**T18AA241-420**
1/4-28	**TAA241-428**	**T18AA241-428**
METRIC THREADS		
M3x0.5	**TAA241-350**	**T18AA241-350**
M5x0.8	**TAA241-580**	**T18AA241-580**
M6x1.0	**TAA241-610**	**T18AA241-610**

CATALOG 13

HAND INSTALLATION TOOLS For…

A-H™ INSERT SERIES THREADED HEX INSERTS
A-K™ INSERT SERIES KNURLED THREADED INSERTS
A-L™ INSERT SERIES KNURLED THREADED INSERTS
A-O™ INSERT SERIES THREADED INSERTS

C

• Rugged construction for long tool life • Simple stroke adjustment by means of adjuster ring with memory stroke scale • Quick-drill mechanism threads and unthreads threaded inserts by pulling and pushing the round knob grip

SPAENAUR No.
TAA150
Base Tool (Only).

*Note: Tool will set all AVK INSERTS shown above, but ONLY ALUMINUM RIVET NUTS in these sizes.

The tool and conversion kits are sold separately.

INCH THREADS

Thread Size	*SPAENAUR No.* Conversion Kit	*SPAENAUR No.* Replacement Placing Mandrel
1/4-20	**TAA251-420**	**T18AA251-420**
1/4-28	**TAA251-428**	**T18AA251-428**
5/16-18*	**TAA251-518**	**T18AA251-518**
5/16-24*	**TAA251-524**	**T18AA251-524**
3/8-16*	**TAA251-616**	**T18AA251-616**
3/8-24*	**TAA251-624**	**T18AA251-624**

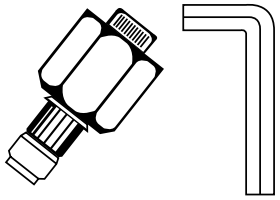
METRIC THREADS

M6x1.0	**TAA251-610**	**T18AA251-610**
M8x1.25*	**TAA251-8125**	**T18AA251-8125**
M10x1.50*	**TAA251-1015**	**T18AA251-1015**

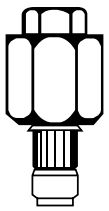
Hi-Torquer® Single Size
"EXPENDABLE" PLACING TOOLS

AVK's expendable placing tools offer an inexpensive means of installing small quantities of A-H, A-K, A-L and A-O Series Inserts. Ideal to send out with a small bag of Inserts for accessory installations, field modifications, or rework and repair. Each tool is individually packaged with instructions for use.

The TAA184 Series
Sizes #6, #8, #10, M4 & M5 have socket head capscrew and hex key wrench for installing the A-H, A-K, A-L & A-O Series Inserts, while sizes 1/4"-20, M6 & larger require a standard socket wrench (not included) to drive the hex head screw.



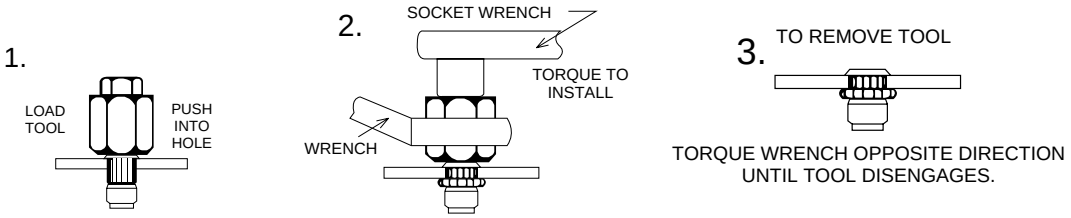
FOR SIZES #6, #8, #10, M4 & M5
Socket Head Screw & Hex Wrench



FOR SIZES 1/4"-20 to 3/8"-24
and M6 to M10
Hex Head Screw

INCH		METRIC	
Thread Size	*SPAENAUR No.*	Thread Size	*SPAENAUR No.*
#6-32	**TAA184-632**	M4x0.7	**TAA184-470**
#8-32	**TAA184-832**	M5x0.8	**TAA184-580**
#10-24	**TAA184-1024**	M6x1.0	**TAA184-610**
#10-32	**TAA184-1032**	M8x1.25	**TAA184-8125**
1/4-20	**TAA184-420**	M10x1.5	**TAA184-1015**
1/4-28	**TAA184-428**	-	-
5/16-18	**TAA184-518**	-	-
5/16-24	**TAA184-524**	-	-
3/8-16	**TAA184-616**	-	-
3/8-24	**TAA184-624**	-	-

INSTALLATION:



TORQUE WRENCH OPPOSITE DIRECTION UNTIL TOOL DISENGAGES.

P.C. 880

CATALOG 13

C

A-T™ INSERT
KNURLED THREADED INSERTS

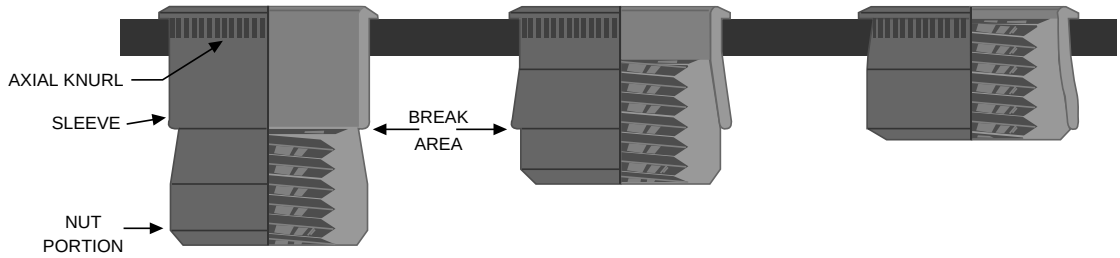
STEEL C-1010 or C-1110

FINISH: CAD PLATE PER QQ-P-416 TYPE 1 CLASS 3

FEATURES:

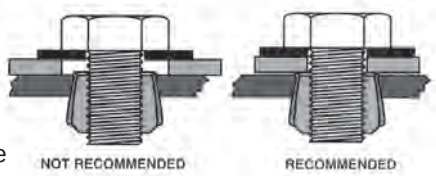
- Non “Grip-Sensitive” - One length works in “any” thickness over .030" (0.76 mm).
- Blind - Installs from one side of the work piece.
- Installation will not mar parent material.
- High resistance to torque-out - in attachment applications, properly installed AT Series Inserts will normally fail high strength bolts.
- Portable tooling allows installation anywhere convenient on assembly lines.
- Nearly flush installation - approximately .015" protrusion. Can be made technically flush by sightly countersinking the hole.
- Install “before or after” painting or plating.
- No hole de-burring required.
- Uses standard drilled holes.

A "Non-Grip Sensitive” insert that will work in "any" thickness over .030" (0.76 mm), even in buried holes. An installation tool is used to pull a "cone" shaped nut into the sleeve expanding it into the parent material. The axial knurl under the flange is forced into the parent material insuring superior torque-out resistance.



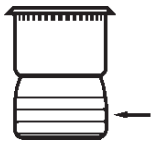
The A-T Series Insert is versatile, it can be used in many types of applications

AVK recommends that the mating part comes in contact with the head of the AT Series Insert. If a gap or clearance hole exits between the mating part and the AT Series Insert, the threaded nut portion may rotate or pull through the parent material



All materials or the AT Series are plated cadmium or tin and look similar. Radial grooves are machined into the part for material identification.

MATERIAL TYPE IDENTIFICATION GROOVES



NONE ..... STEEL
1 ..... STAINLESS
2 ..... BRASS
3 ..... ALUMINUM

Other Materials and Finishes Available

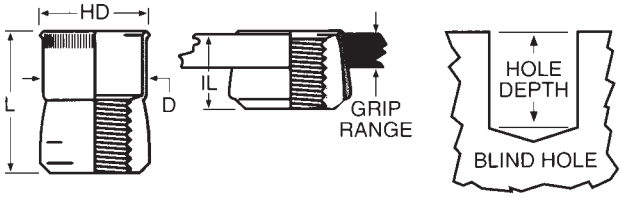
MATERIAL	TYPE	FINISH
ALUMINUM	6061-T6	CAD PLATE PER QQ-P-416 TYPE 1 CLASS 3
BRASS	360 or 464	CAD PLATE PER QQ-P-416 TYPE 1 CLASS 3
STAINLESS	304 SERIES	PASSIVATE-CAD PLATE PER QQ-P-416 TYPE 1 CLASS 3

ASSORTMENT / ASSORTIMENT 805-665

See contents on page C175.

TO ORDER A-T INSERTS SEE FACING PAGE.

(Closed End A-T Inserts Also Available.)



STEEL

C-1010 or C-1110

A-T™ INSERT
KNURLED THREADED INSERTS

FINISH: CAD PLATE PER QQ-P-416 TYPE 1 CLASS 3

C

OPEN END STYLE INCH SERIES (All Dimensions in Inches)

SPAENAUR No.	Thread Size	Manufacturer's No.	D Max.	HD ±.005	L ±.015	IL Max.	HOLE DEPTH Min.	Unit Pkg.
215-101	#4-40	ATS2-440	.1875	.211	.370	.205	.400	100
215-102▲	#6-32	ATS2-632	.2185	.240	.370	.205	.400	100
215-103*■	#8-32	ATS2-832	.2495	.269	.370	.205	.400	100
215-104	#10-24	ATS2-1024	.2805	.306	.370	.205	.400	100
215-105	#10-32	ATS2-1032	.2805	.306	.370	.205	.400	100
215-106	1/4-20	ATS2-420	.3745	.400	.515	.275	.540	100
215-107	1/4-28	ATS2-428	.3745	.400	.515	.275	.540	100
215-108	5/16-18	ATS2-518	.4995	.528	.615	.325	.640	50
215-109	5/16-24	ATS2-524	.4995	.528	.615	.325	.640	50
215-110	3/8-16	ATS2-616	.5615	.588	.745	.390	.770	50
215-111	3/8-24	ATS2-624	.5615	.588	.745	.390	.770	50
215-112	1/2-13	ATS2-813	.7485	.800	.935	.485	.960	50
215-113	1/2-20	ATS2-820	.7485	.800	.935	.485	.960	50

***215-800** 304 Stainless Steel (U.P. Q. 50) ▲**215-302** 6061-T6 Aluminum, Cad. Pltd. ■ **215-303** 6061-T6 Aluminum, Cad. Pltd.

METRIC SERIES

(All Dimensions in Millimetres)

				±0.13	±0.38			
216-055•	M3x0.5	ATS2-350	4.75	5.36	9.40	5.21	10.16	100
216-056	M4x0.7	ATS2-470	6.32	6.83	9.40	5.21	10.16	100
216-057†	M5x0.8	ATS2-580	7.12	7.77	9.40	5.21	10.16	100
216-058	M6x1.0	ATS2-610	9.51	10.16	13.08	6.99	13.72	100
216-059	M8x1.25	ATS2-8125	12.69	13.41	15.62	8.26	16.26	100
216-060	M10x1.5	ATS2-1015	14.26	14.94	18.92	9.91	19.56	50
216-061	M12x1.75	ATS2-12175	19.01	20.32	23.75	12.32	24.38	50

•**216-800** 304 Stainless Steel - U.P.Q. 50 †**216-801** 304 Stainless Steel - U.P.Q. 50

NOTE: 1. USE AVK RECOMMENDED TOOLING FOR SATISFACTORY INSTALLATIONS.
2. INTERNAL THREADS ARE MANUFACTURED OVERSIZE DUE TO THE MECHANICAL FUNCTION OF THE INSERTS AND ARE NOT GAUGEABLE BEFORE OR AFTER INSTALLATION. HOWEVER, THEY ARE ALWAYS COMPATABLE WITH CLASS A2/A3 SCREWS.

HOLE SIZE VS. MATERIAL THICKNESS

The proper hole size varies with the thickness of the parent material. Refer to the hole size chart at right. We recommend testing the inserts before finalizing the hole size. Standard hole size tolerances are acceptable but do not go below nominal size.

MATERIAL THICK. .030-.090			.091-.124		.125-.186		.187 & OVER	
THREAD SIZE	Drill	Decimal	Drill	Decimal	Drill	Decimal	Drill	Decimal
#4-40	3/16	.1875	#10	.1935	#10	.1935	#9	.1960
#6-32	7/32	.2188	#2	.2210	#1	.2280	#1	.2280
#8-32	1/4	.2500	"F"	.2570	17/64	.2656	17/64	.2656
#10-24	9/32	.2812	"L"	.2900	"L"	.2900	19/64	.2969
#10-32	9/32	.2812	"L"	.2900	"L"	.2900	19/64	.2969
1/4-20	3/8	.3750	3/8	.3750	"W"	.3860	25/64	.3906
1/4-28	3/8	.3750	3/8	.3750	"W"	.3860	25/64	.3906
5/16-18	1/2	.5000	1/2	.5000	33/64	.5156	33/64	.5156
5/16-24	1/2	.5000	1/2	.5000	33/64	.5156	33/64	.5156
3/8-16	9/16	.5625	9/16	.5625	37/64	.5781	37/64	.5781
3/8-24	9/16	.5625	9/16	.5625	37/64	.5781	37/64	.5781
1/2-13	3/4	.7500	49/64	.7656	25/32	.7810	51/64	.7970
1/2-20	3/4	.7500	49/64	.7656	25/32	.7810	51/64	.7970
M3x0.5	3/16	.1875	#10	.1935	#10	.1935	#9	.1960
M4x0.7	1/4	.2500	"F"	.2570	17/64	.2656	17/64	.2656
M5x0.8	9/32	.2812	"L"	.2900	"L"	.2900	19/64	.2969
M6x1.0	3/8	.3750	3/8	.3750	"W"	.3860	25/64	.3906
M8x1.25	1/2	.5000	1/2	.5000	33/64	.5156	33/64	.5156
M10x1.5	9/16	.5625	9/16	.5625	37/64	.5781	37/64	.5781
M12x1.75	3/4	.7500	49/64	.7656	25/32	.7810	51/64	.7970

A-W® INSERT SERIES KNURLED THREADED INSERTS

STEEL C-1010 or C-1110

FINISH: CAD PLATE PER QQ-P-416 TYPE 1 CLASS 3

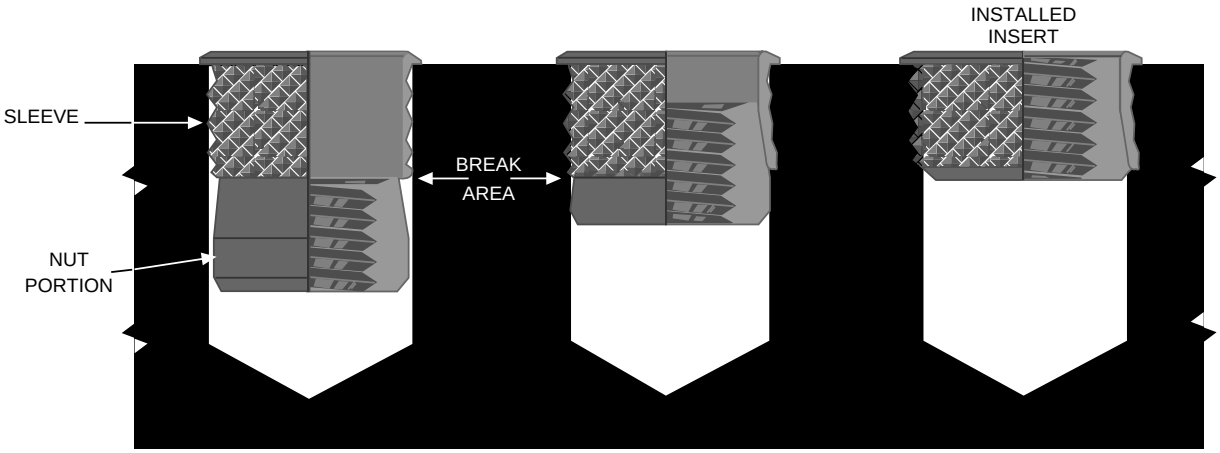
C

FEATURES:

- Blind installation.
- Installation will not mar parent material.
- Ideal for high speed production.
- Wear resistant threads.
- Nearly flush installation - only .015" protrusion.
- Install after painting.
- Use in standard drilled holes.

The A-W Series Insert is ideal for use in “SOFT MATERIALS” such as plastics, fiberglass, wood, structural foam, aluminum, etc. An installation tool pulls a “cone” shaped nut into a sleeve expanding the unique “DIAMOND KNURL” into the parent material resulting in very high torque-out resistance and pull-out values. The A-W Series Insert can be used in thinner materials where the shallowest insert protrusion on the backside is desired.

THICK OR BURIED APPLICATIONS



To order A-W INSERTS see facing page.

Other Materials and Finishes Available

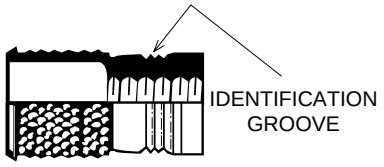
MATERIAL	TYPE	FINISH
BRASS	360 or 464	CAD PLATE PER QQ-P-416 TYPE 1 CLASS 3

ASSORTMENT / ASSORTIMENT 805-665

See contents on page C175.

A-W® SERIES INSERT PART IDENTIFICATION

All A-W Series Inserts are CAD plated (unless otherwise specified) regardless of the insert material and therefore look alike. IDENTIFICATION “GROOVES” have been cut into the “NUT” portion of the insert for visual identification. The sketch to the right explains the grooves.



NO GROOVES = CAD PLATED STEEL
TWO GROOVES = CAD PLATED BRASS

STEEL C-1010 or C-1110

FINISH: CAD PLATE PER QQ-P-416 TYPE 1 CLASS 3

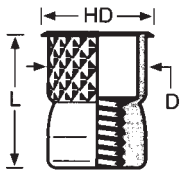
OPEN END STYLE

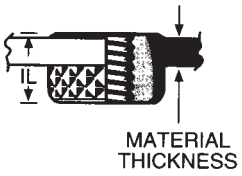
A-W® INSERT
KNURLED THREADED INSERTS

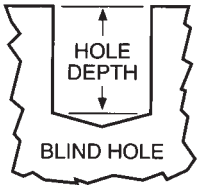
C

TECHNICAL DATA

The suggested hole size listed below works well in softer materials but may have to be enlarged in certain types of plastic to prevent splitting and in hard materials to allow the nut to pull up into the sleeve. In plastic, simply increase the drill size until the insert holds without splitting the plastic. In hard material, increase the hole size to allow the nut to pull into the sleeve. It is recommended that the insert be tested in the application before finalizing the hole size.







INCH SERIES (All Dimensions in Inches)

SPAENAUR No.	Thread Size	Manufacturer's No.	HOLE SIZE +.005-.000	HD ±.005	L ±.015	D Max.	IL Max.	Hole Depth Min.	Unit Pkg.
215-114	#6-32	AWS2-632	15/64 (.234)	.255	.370	.233	.205	.40	100
215-115	#8-32	AWS2-832	17/64 (.266)	.285	.370	.264	.205	.40	100
215-116	#10-24	AWS2-1024	19/64 (.297)	.320	.370	.295	.205	.40	100
215-117	#10-32	AWS2-1032	19/64 (.297)	.320	.370	.295	.205	.40	100
215-118	1/4-20	AWS2-420	25/64 (.391)	.415	.515	.389	.275	.54	100
215-119	1/4-28	AWS2-428	25/64 (.391)	.415	.515	.389	.275	.54	100
215-120	5/16-18	AWS2-518	17/32 (.531)	.550	.615	.528	.325	.64	50
215-121	5/16-24	AWS2-524	17/32 (.531)	.550	.615	.528	.325	.64	50
215-122	3/8-16	AWS2-616	19/32 (.594)	.615	.740	.590	.390	.77	50
215-123	3/8-24	AWS2-624	19/32 (.594)	.615	.740	.590	.390	.77	50

METRIC SERIES

(All Dimensions in Millimetres)

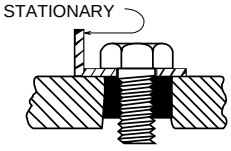
				±0.13	±0.38				
216-062	M4x0.7	AWS2-470	6.75	7.24	9.40	6.71	5.21	10.16	100
216-063	M5x0.8	AWS2-580	7.54	8.13	9.40	7.50	5.21	10.16	100
216-064	M6x1.0	AWS2-610	9.92	10.54	13.08	9.88	6.99	13.72	100
216-065	M8x1.25	AWS2-8125	13.49	13.97	15.62	13.41	8.26	16.26	50

NOTE: 1. Use AVK recommended tooling for satisfactory installations.
2. Internal threads are manufactured oversize due to the mechanical function of the inserts and are not able to be gauged before or after installation. However, they are always compatible with class 2 bolts.

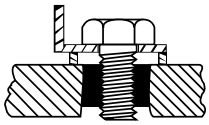
ENGINEERING DATA

1. The AW series insert will protrude approximately .015" above the parent materials unless special hole preparation is specified, see bottom of page.
2. The attachment screw is to be installed into the top of the insert, not the blind side.
3. The component part being assembled is to be in contact with the head of the insert (see sketch at top right). In most cases, when used in this configuration, torque resistance of the insert surpasses those of high strength bolts.
4. Application testing is recommended where GASKET material is used over the insert.
5. The component part being attached shall not be allowed to rotate with the bolt. Normally two or more bolts are used in an application which prevent rotation of the component.

The A-W Series Insert should come in contact with attached part.



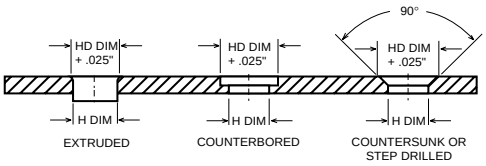
RECOMMENDED



NOT RECOMMENDED WITHOUT TESTING.

TECHNICALLY FLUSH INSTALLATIONS

Special hole preparation is required to produce a technically flush application. Please refer to the sketch at right.



SEE TECHNICAL DATA FOR HD DIMENSION

CATALOG 13

POWER INSTALLATION TOOLS For…

A-T™ INSERT SERIES KNURLED THREADED INSERTS

A-W® INSERT SERIES KNURLED THREADED INSERTS

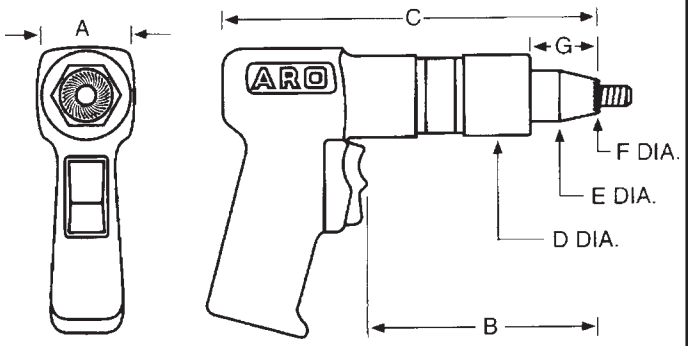
C

AVK's A-T Series and A-W Series Insert pneumatic placing equipment allows an operator to efficiently install the inserts on the production line where high-volume output and assurance of proper fastener installation is desired.

FEATURES

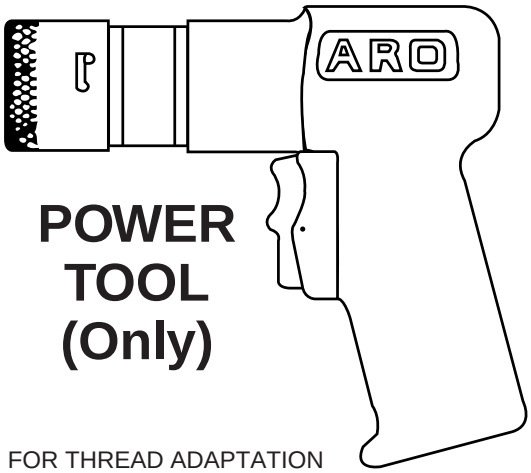
- Super fast "Quick-Change" front-end — no tools needed to change to another size, to change the drive screw or to lube the bearing assembly.
- Uses standard length grade 8, socket head capscrews as the placing mandrels — easy to obtain from *SPAENAUR's* stock.
- Lightweight, balanced and portable.
- Special nose pieces can be designed to satisfy access problems.
- Unique "Rocker Style Trigger" is a simple, easy-to-use design — positive forward — reverse at the touch of a finger.
- Uses needle thrust bearings in the front end assembly to cut down on torque-eating friction.
- Works on a trouble free "stall" principle — no clutch!

The NPT nose cone is designed for AT and AW Insert Installation — not for AK, AL, or AO Series Insert Installation.



DIMENSIONS IN INCHES ARE FOR REFERENCE ONLY

RPM	WEIGHT LBS.	A	B	C	D DIA.	E DIA.	F DIA. MAX	G
3,000	2.55	1.86	4.75	7.75	1.57	1.00	.350	1.3
1,500	2.58	1.86	4.75	7.75	1.57	1.00	.600	1.3
600	3.18	1.86	6.00	9.00	1.57	1.00	.625	1.3
350	3.25	1.86	6.00	8.37	1.50	1.43	.900	NA



POWER TOOL (Only)

FOR THREAD ADAPTATION KITS (TAK) see page C185.

P.C. 880

SPAENAUR No.	TOOL RPM DESIGNATION
TAA912-3P	350 RPM
TAA912-6P	600 RPM
TAA912-15P	1500 RPM
TAA912-30P	3000 RPM

TAVK-2500 Muffler Assembly for ARO Power Tool - *Priced Singly*

POWER TOOL INSTALLATION DATA

Thread Size	Insert Material: STEEL/BRASS RPM Desig.	STEEL/BRASS PSI Setting	ALUMINUM RPM Desig.	ALUMINUM PSI Setting	STAINLESS STEEL RPM Desig.	STAINLESS STEEL PSI Setting
INCH SERIES						
#4-40	3000	36-40	3000	40-45	3000	45-50
#6-32	3000	70-80	3000	60-80	3000	65-70
#8-32	3000	60-85	3000	70-80	3000	85-95
#10-24	1500	60-85	1500	60-80	1500	80-90
#10-32	1500	60-85	1500	60-80	1500	80-90
1/4-20	1500	70-95	1500	60-90	600	75-85
1/4-28	1500	70-95	1500	60-90	600	75-85
5/16-18	600	80-100	600	80-100	600	90-100
5/16-24	600	80-100	600	80-100	600	90-100
3/8-16	600	90-110	600	80-110	600	90-110
3/8-24	600	90-110	600	80-110	600	90-110
1/2-13	350	95-110	—	—	—	—
1/2-20	350	95-110	—	—	—	—
METRIC SERIES						
M3x0.5	3000	36-40	3000	36-40	3000	45-50
M4x0.7	3000	60-85	3000	70-80	3000	80-90
M5x0.8	1500	60-85	1500	60-80	1500	80-90
M6x1.0	1500	70-95	1500	60-80	600	75-85
M8x1.25	600	80-100	600	80-100	600	95-110
M10x1.5	600	90-110	600	80-110	600	95-110
M12x1.75	350	95-110	—	—	—	—

CATALOG 13

INSERT POWER TOOL For…

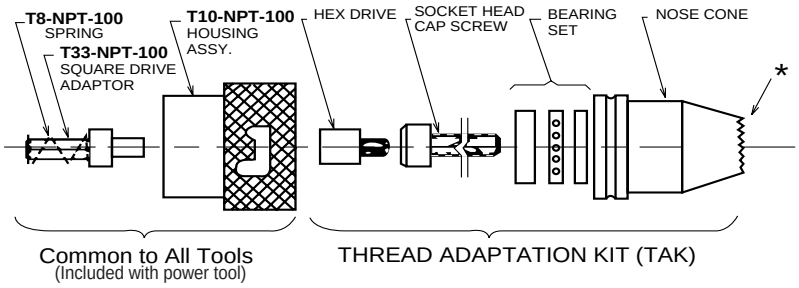
A-T™ INSERT SERIES KNURLED THREADED INSERTS

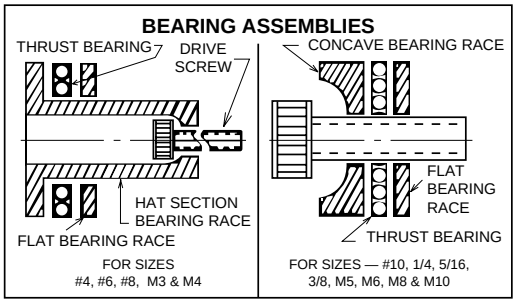
A-W® INSERT SERIES KNURLED THREADED INSERTS

C

CONVERSION CAPABILITIES AND COMPONENT PART NUMBERS
THREAD ADAPTATION KITS (TAK)

The power tools may be converted to set other thread sizes as long as you use the "CORRECT RPM TOOL" designated for the thread size insert being installed. The change from one size to another is accomplished by exchanging the THREAD ADAPTATION KIT (TAK) in the tool housing with another thread size TAK. Choose the TAK from the table below. Be sure to use the correct RPM tool.





***Knurl only design for AT & AW insert installation - not AH, AK, AL or AO series insert installation.**

These tool components are for use with AT and AW Series Inserts.

		Order by *SPAENAUR No's* listed below				
			Components Of Kit			
	Thread Size	Thread Adaptation Kit (TAK)	Hex Drive	Socket Head Cap Screw	Bearing Set	Nose Cone
INCH	4-40	TNPT440 TAK	T29NPT1	TA440-075	T30NPT4	T77NPT4
	6-32	TNPT632 TAK	T29NPT2	TA632-087	T30NPT6	T77NPT6
	8-32	TNPT832 TAK	T29NPT3	TA832-087	T30NPT8	T77NPT8
	10-24	TNPT1024TAK	T29NPT4	TA1024-150	T30NPT10	T77NPT10
	10-32	TNPT1032TAK	T29NPT4	TA1032-150	T30NPT10	T77NPT10
	1/4-20	TNPT420 TAK	T29NPT5	TA420-125	T30NPT250	T77NPT250
	1/4-28	TNPT428 TAK	T29NPT5	TA428-125	T30NPT250	T77NPT250
	5/16-18	TNPT518 TAK	T29NPT6	TA518-175	T30NPT3125	T77NPT3125
	5/16-24	TNPT524 TAK	T29NPT6	TA524-175	T30NPT3125	T77NPT3125
	3/8-16	TNPT616 TAK	T29NPT7	TA616-175	T30NPT375	T77NPT375
	3/8-24	TNPT624 TAK	T29NPT7	TA624-175	T30NPT375	T77NPT375
	1/2-13	TNPT813CTA	T29NPT26	TA813-200	T30NPT500	T77NPT500
	1/2-20	TNPT820CTA	T29NPT26	TA820-200	T30NPT500	T77NPT500
METRIC	M3	TNPT350 TAK	T29NPT8	TM3-20MM	T30NPT-M3	T77NPT-M3
	M4	TNPT470 TAK	T29NPT9	TM4-20MM	T30NPT-M4	T77NPT-M4
	M5	TNPT580 TAK	T29NPT10	TM5-40MM	T30NPT-M5	T77NPT-M5
	M6	TNPT610 TAK	T29NPT11	TM6-35MM	T30NPT-M6	T77NPT-M6
	M8	TNPT8125TAK	T29NPT12	TM8-45MM	T30NPT-M8	T77NPT-M8
	M10	TNPT1015TAK	T29NPT100	TM10-45MM	T30NPT-M10	T77NPT100
	M12	TNPT12175CTA	T29NPT27	TM12-50MM	T30NPT-M12	T77NPT-12

P.C. 880

C

THE Hi-Torquer® MANUAL PLACING TOOL For…

A-T™ INSERT SERIES KNURLED THREADED INSERTS

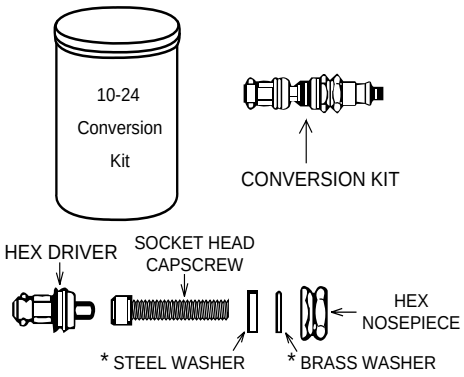
A-W® INSERT SERIES KNURLED THREADED INSERTS

The Hi-Torquer manual placing tool system offers a low-cost method of installing AVK's A-T and A-W Series threaded inserts in low-volume production applications, or in the field to make modifications or repairs. The unique Hi-Torquer® incorporates a "Quick-Change" thread adaptation kit which makes it possible to change over the base tool (tool body with "T" handle) to place different thead sizes without the need for any tools like hex key wrenches or screw driver. One manual tool body and handle may be used to set all sizes of A-T and A-W Series Inserts simply by using the appropriate thread conversion kit to change from one thread size to another.

SPAENAUR No.
TAA112
BASE TOOL (Only)

Example:

THREAD CONVERSION KITS



* Brass and Steel washers are not used with thread sizes No. 4, 6, 8 and M3 & 4.

		Order by *SPAENAUR No's.* listed below.	
	Thread Size	**Thread Conversion Kit**	**Replacement Placing Screw Socket Head Capscrew**
INCH	#4-40	**TAAT202-440**	**TA440-075**
	#6-32	**TAAT202-632**	**TA632-075**
	#8-32	**TAAT202-832**	**TA832-075**
	#10-24	**TAAT202-1024**	**TA1024-100**
	#10-32	**TAAT202-1032**	**TA1032-100**
	1/4-20	**TAAT202-420**	**TA420-125**
	1/4-28	**TAAT202-428**	**TA428-125**
	5/16-18	**TAAT202-518**	**TA518-125**
	5/16-24	**TAAT202-524**	**TA524-125**
	3/8-16	**TAAT202-616**	**TA616-125**
	3/8-24	**TAAT202-624**	**TA624-125**
METRIC	M3x0.5	**TAAT202-350**	**TM3-20MM**
	M4x0.7	**TAAT202-470**	**TM4-20MM**
	M5x0.8	**TAAT202-580**	**TM5-25MM**
	M6x1.0	**TAAT202-610**	**TM6-30MM**
	M8x1.25	**TAAT202-8125**	**TM8-30MM**
	M10x1.5	**TAAT202-1015**	**TM10-35MM**

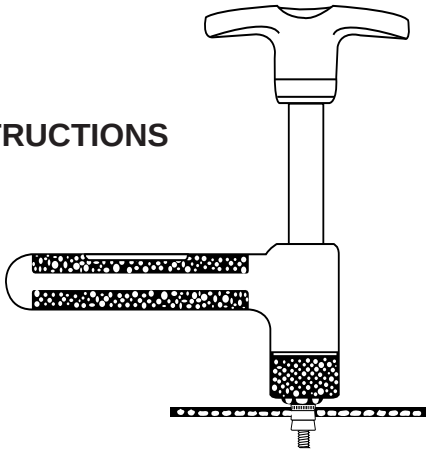
ORDERING NOTE:

FOR ONE COMPLETE TOOL, ORDER 1 EACH TAA112 BASE TOOL AND APPROPRIATE THREAD CONVERSION KIT. ADDITIONAL THREAD CONVERSION KITS MAY BE PURCHASED SEPARATELY, WITHOUT NEED OF MORE BASE TOOLS.

INSTALLATION INSTRUCTIONS

HI-TORQUER® MANUAL TOOLS:

Screw an A-T Series Insert sleeveside first into the tool's placing screw. Hold the tool in one hand. Using the tool, insert the A-T Series Insert into a hole until the tool comes to rest against the parent material. Push in on the "T" handle and turn with the other hand until the A-T Series Insert is installed. Remove the tool by unscrewing the "T" handle out of the installed A-T Series Insert. A 1/4" socket drive can be used to generate greater torque for placing the 3/8" or M10 size by pushing it into the 1/4" recess built into the top of the handle.



P.C. 880

CATALOG 13

Hi-Torquer® Single Size
"EXPENDABLE" PLACING TOOLS For…

A-T™ INSERT SERIES KNURLED THREADED INSERTS

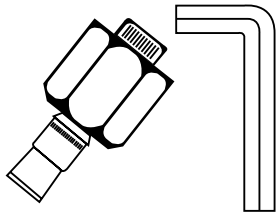
A-W® INSERT SERIES KNURLED THREADED INSERTS

C

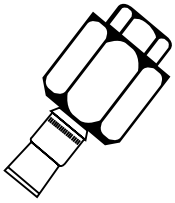
AVK's "916" single size placing tools offer an inexpensive means of installing small quantities of AT and AW Series Inserts. Ideal to send out with a small bag of Inserts for accessory installations, field modifications, or rework and repair. Each tool is individually packaged with instructions for use.

THE TAAT-916 Series

SIZES #4, #6, #8 & #10 have socket head capscrew and supplied hex key for installing the AT & AW Series Inserts, while sizes 1/4"-20 and larger require a standard socket wrench to drive the hex head screw.



FOR SIZES: 4-40 to 10-32, M3, M4 & M5 Socket Head Screw & Hex Wrench



FOR SIZES: 1/4"-20 to 1/2"-20 and M6 to M10 Hex Head Screw

INCH

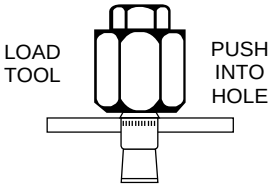
Thread Size	*SPAENAUR No.*
#4-40	**TAAT916-440**
#6-32	**TAAT916-632**
#8-32	**TAAT916-832**
#10-24	**TAAT916-1024**
#10-32	**TAAT916-1032**
1/4-20	**TAAT916-420**
1/4-28	**TAAT916-428**
5/16-18	**TAAT916-518**
5/16-24	**TAAT916-524**
3/8-16	**TAAT916-616**
3/8-24	**TAAT916-624**
1/2-13	**TAAT916-813**
1/2-20	**TAAT916-820**

METRIC

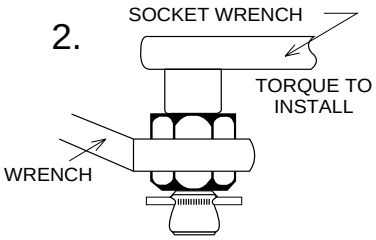
Thread Size	*SPAENAUR No.*
M3x0.5	**TAAT916-350**
M4x0.7	**TAAT916-470**
M5x0.8	**TAAT916-580**
M6x1.0	**TAAT916-610**
M8x1.25	**TAAT916-8125**
M10x1.5	**TAAT916-1015**
-	-
-	-

—INSTALLATION—

1.



2.



3. TO REMOVE TOOL

TORQUE WRENCH OPPOSITE DIRECTION UNTIL TOOL DISENGAGES.

SPAENAUR

Canada's leading supplier of industrial fasteners and components.

C

R-N® RIVET NUT SERIES THREADED INSERTS

FLAT HEAD Standard Open End

INCH THREADS

(Keyless)

Material	*Type	Standard Finish
STEEL	C1008 / C1010 or C1108 / C1110	Cadmium Plated per QQ-P-416 Type 1, Class 2
ALUMINUM	5056 or 6053-T4	Clear Protective Coating

*Materials are used interchangeably.

The RN SERIES RIVET NUT is a versatile threaded insert that can be used in blind or through applications to permanently rivet two or more pieces of material together while at the same time providing a strong reuseable thread. The RN Series Rivet Nuts are manufactured using state-of-the-art cold forming technology. This provides very precise tolerances. All surfaces of the RN Series are FORMED, not machined. This provides excellent quality. The internal thread of the RN Series Rivet Nut is roll FORMED not machined. This provides excellent thread strength.

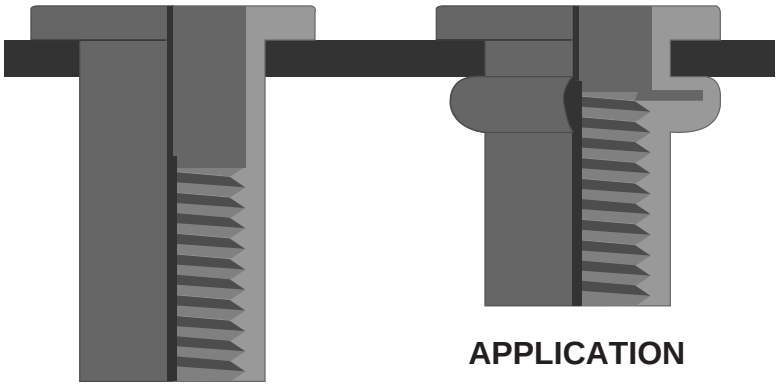
Additional Material Available

STAINLESS STEEL
430

Pickled and Passivated Per QQ-P-35 Type 2 or ASTM-A-380

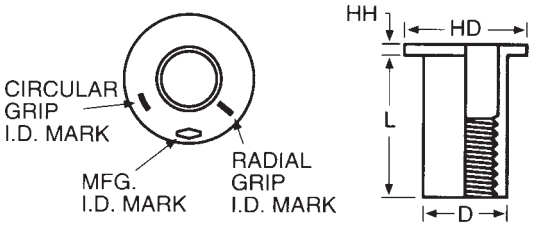
Also available in Flat Head

OPEN END KEYED	CLOSED END	CLOSED END KEYED

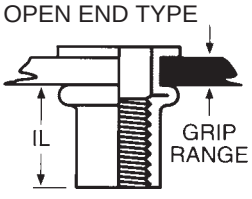


APPLICATION

DIMENSIONS and INSTALLATION INFORMATION



See facing page for L and IL dimensions and Identification Marks.

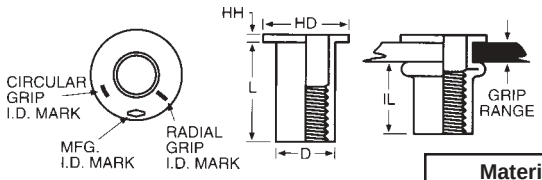


TYPICAL INSTALLATION

THREAD SIZE	Hole Size +.003 +.000	USE DRILL SIZE	HD + .015	HH Nom.	D +.000 -.004
#4-40 UNC	.155	5/32	.270	.025	.155
#6-32 UNC	.189	#12	.325	.032	.189
#8-32 UNC	.221	#2	.357	.032	.221
#10-24 UNC	.250	1/4	.406	.038	.250
#10-32 UNF	.250	1/4	.406	.038	.250
1/4-20 UNC	.332	Q	.475	.058	.332
1/4-28 UNF	.332	Q	.475	.058	.332
5/16-18 UNC	.413	Z	.665	.062	.413
5/16-24 UNF	.413	Z	.665	.062	.413
3/8-16 UNC	.490	12.5 mm	.781	.088	.490
3/8-24 UNF	.490	12.5 mm	.781	.088	.490
1/2-13 UNC	.625	5/8	.906	.085	.625
1/2-20 UNF	.625	5/8	.906	.085	.625

See pages C190 and C191 for **Countersunk Head** RN® Rivet Nuts.

RN Test Data on page C174.



FLAT HEAD
Standard Open End
INCH THREADS

R-N® RIVET NUT SERIES THREADED INSERTS

KEYLESS

C

Material	*Type	Standard Finish
STEEL	C1008 / C1010 or C1108 / C1110	Cadmium Plated per QQ-P-416 Type 1, Class 2
ALUMINUM	5056 or 6053-T4	Clear Protective Coating

See chart on previous page for dimensions on HD, HH, D and Hole Size.

***Materials are used interchangeably.**

DIMENSIONS ARE IN INCHES.

SPAENAUR No's. STEEL Coarse	STEEL Fine	ALUMINUM Coarse	ALUMINUM Fine	Nominal Thread	Grip Range	Ident. Mark	L ± .015	IL Ref.
196-030	—	**197-030**	—	#4-40	.010-.060	Blank	.345	.230
196-031	—	**197-031**	—		.060-.085	1-Rad.	.370	.230
196-032	—	**197-032**	—		.085-.110	2-Rad.	.400	.230
196-033	—	**197-033**	—		.110-.135	3-Rad.	.425	.230
196-034	—	**197-034**	—		.135-.160	4-Rad.	.450	.230
196-035	—	**197-035**	—		.160-.185	5-Rad.	.480	.230
—	—	**197-036**	—	#6-32	.010-.075	1-Rad.	.438	.300
196-037	—	**197-037**	—		.075-.120	3-Rad.	.500	.315
196-038	—	**197-038**	—		.120-.160	5-Rad.	.500	.270
196-039	—	**197-039**	—		.160-.200	1-Cir.	.562	.290
196-040	—	**197-040**	—		.200-.240	2-Cir.	.625	.310
196-041	—	**197-041**	—		.240-.280	3-Cir.	.687	.330
196-042	—	**197-042**	—	#8-32	.010-.075	1-Rad.	.438	.300
196-043	—	**197-043**	—		.075-.120	3-Rad.	.500	.315
196-044	—	**197-044**	—		.120-.160	5-Rad.	.500	.270
196-045	—	**197-045**	—		.160-.200	1-Cir.	.625	.350
196-046	—	**197-046**	—		.200-.240	2-Cir.	.625	.305
196-047	—	**197-047**	—		.240-.280	3-Cir.	.687	.340
196-048	**196-054**	**197-048**	**197-054**	#10-24 and #10-32	.010-.080	Blank	.531	.380
196-049	**196-055**	**197-049**	**197-055**		.080-.130	1-Rad.	.594	.390
196-050	**196-056**	**197-050**	**197-056**		.130-.180	2-Rad	.641	.390
196-051	**196-057**	**197-051**	**197-057**		.180-.230	3-Rad.	.703	.395
196-052	**196-058**	—	**197-058**		.230-.280	4-Rad.	.750	.395
196-053	**196-059**	**197-053**	**197-059**		.280-.330	5-Rad.	.797	.385
196-060	**196-066**	**197-060■**	**197-066**	1/4-20 and 1/4-28	.020-.080	Blank	.625	.450
196-061*▲	**196-067**	**197-061†**	**197-067**		.080-.140	1-Rad.	.687	.450
196-062	**196-068**	**197-062**	**197-068**		.140-.200	2-Rad.	.750	.450
196-063	**196-069**	**197-063**	**197-069**		.200-.260	3-Rad.	.812	.445
196-064	**196-070**	**197-064**	**197-070**		.260-.320	4-Rad.	.875	.445
196-065	**196-071**	**197-065**	**197-071**		.320-.380	5-Rad.	.937	.445
196-072	**196-078**	**197-072**	**197-078**	5/16-18 and 5/16-24	.030-.125	Blank	.750	.505
—	**196-079**	**197-073**	**197-079**		.125-.200	1-Rad.	.875	.555
196-074	**196-080**	**197-074**	**197-080**		.200-.275	2-Rad.	.937	.540
196-075	**196-081**	**197-075**	**197-081**		.275-.350	3-Rad.	1.032	.560
—	**196-082**	**197-076**	**197-082**		.350-.425	4-Rad.	1.125	.580
196-077	**196-083**	**197-077**	**197-083**		.425-.500	5-Rad.	1.187	.565
196-084	**196-090**	**197-084**	**197-090**	3/8-16 and 3/8-24	.030-.115	Blank	.844	.585
196-085	**196-091**	**197-085**	**197-091**		.115-.200	1-Rad.	.938	.595
196-086	**196-092**	**197-086**	**197-092**		.200-.285	2-Rad.	1.031	.605
196-087	**196-093**	**197-087**	**197-093**		.285-.370	3-Rad.	1.125	.615
196-088	**196-094**	**197-088**	**197-094**		.370-.455	4-Rad.	1.218	.630
196-089	**196-095**	**197-089**	**197-095**		.455-.540	5-Rad.	1.312	.635
196-096	**196-100**	**197-096**	**197-100**	1/2-13 and 1/2-20	.050-.150	Blank	.906	.605
196-097	**196-101**	**197-097**	**197-101**		.150-.250	1-Rad.	1.031	.630
196-098	**196-102**	**197-098**	**197-102**		.250-.350	2-Rad.	1.141	.640
196-099	**196-103**	**197-099**	**197-103**		.350-.450	3-Rad.	1.250	.650

***196-801** - 430 Stainless Steel - *U.P.Q. 50.* ▲**196-061K** Open-End Keyed
■ **197-179** Anodized Finish †**197-180** Anodized Finish

UNIT PKG. QTY. - 100— #4 - 5/16" Thread Dia. ***50*** —3/8" Thread Dia. ***25*** — 1/2" Thread Dia.

Tel: **1-800-265-8772** Fax: **519-744-0818**

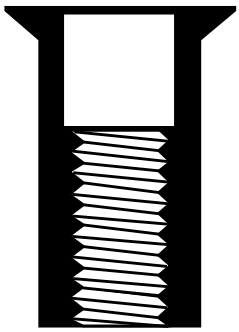
C

R-N® RIVET NUT SERIES THREADED INSERTS

COUNTERSUNK HEAD

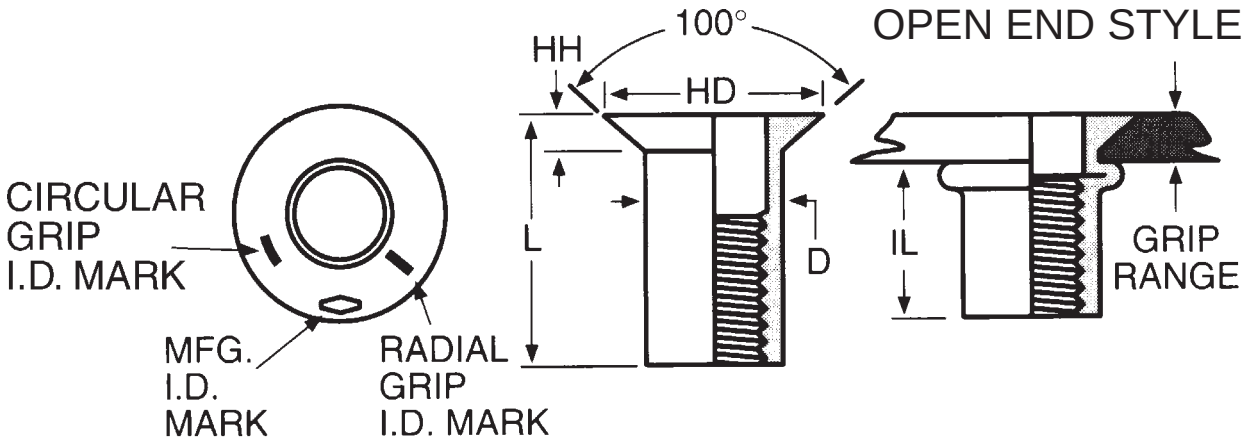
INCH THREADS Standard Open End

(Keyless)



Material	*Type	Standard Finish
STEEL	C1008 / C1010 or C1108 / C1110	Cadmium Plated per QQ-P-416 Type 1, Class 2
ALUMINUM	5056 or 6053-T4	Clear Protective Coating

*Materials are used interchangeably.



DIMENSIONS (In Inches)

THREAD SIZE	Hole Size +.003 -.000	USE DRILL SIZE	HD Ref.	HH Max.	D +.000 -.004
#4-40 UNC	.155	5/32	.263	.051	.155
#6-32 UNC	.189	#12	.323	.063	.189
#8-32 UNC	.221	#2	.355	.063	.221
#10-24 UNC	.250	1/4	.391	.065	.250
#10-32 UNF	.250	1/4	.391	.065	.250
1/4-20 UNC	.332	Q	.529	.089	.332
1/4-28 UNF	.332	Q	.529	.089	.332
5/16-18 UNC	.413	Z	.656	.104	.413
5/16-24 UNF	.413	Z	.656	.104	.413
3/8-16 UNC	.490	12.5 mm	.770	.124	.490
3/8-24 UNF	.490	12.5 mm	.770	.124	.490
1/2-13 UNC	.625	5/8	.906	.124	.625
1/2-20 UNF	.625	5/8	.906	.124	.625

Additional Material Available

STAINLESS STEEL
430, 304 or 305

Pickled and Passivated Per QQ-P-35 Type 2 or ASTM-A-380

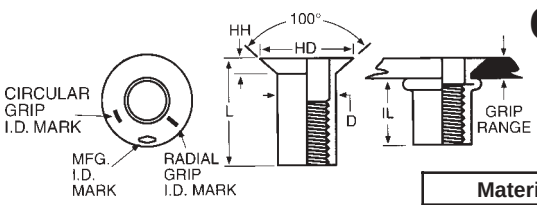
Also available in Countersunk Head

OPEN END KEYED	CLOSED END	CLOSED END KEYED

See facing page for dimensions on L, IL and Identification Marks.

RN Test Data on page C174.

CATALOG 13



COUNTERSUNK HEAD

Standard Open End

INCH THREADS

R-N® RIVET NUT SERIES THREADED INSERTS

KEYLESS

C

Material	*Type	Standard Finish
STEEL	C1008 / C1010 or C1108 / C1110	Cadmium Plated per QQ-P-416 Type 1, Class 2
ALUMINUM	5056 or 6053-T4	Clear Protective Coating

*****Materials are used interchangeably.

See chart on previous page for dimensions on HD, HH, D and Hole Size.

DIMENSIONS ARE IN INCHES.

SPAENAUR No's.				Nominal Thread	Grip Range	Ident. Mark	L +.015	IL Ref.
STEEL		**ALUMINUM**						
Coarse	**Fine**	**Coarse**	**Fine**					
196-104	**—**	**197-104**	**—**	#4-40	.050-.081	Blank	.370	.235
196-105	**—**	**197-105**	**—**		.081-.106	1-Rad.	.395	.235
196-106	**—**	**197-106**	**—**		.106-.131	2-Rad.	.420	.235
196-107	**—**	**197-107**	**—**		.131-.156	3-Rad.	.450	.235
196-108	**—**	**197-108**	**—**		.156-.181	4-Rad.	.475	.235
196-109	**—**	**197-109**	**—**		.181-.206	5-Rad.	.500	.235
196-110	**—**	**—**	**—**	#6-32	.065-.106	Blank	.500	.325
196-111	**—**	**197-111**	**—**		.106-.161	2-Rad.	.500	.280
196-112	**—**	**197-112**	**—**		.161-.201	4-Rad.	.562	.295
196-113	**—**	**197-113**	**—**		.201-.241	1-Circ.	.625	.315
196-114	**—**	**197-114**	**—**		.241-.281	2-Circ.	.625	.270
196-115	**—**	**197-115**	**—**		.281-.321	3-Circ.	.687	.290
196-116	**—**	**197-116**	**—**	#8-32	.065-.106	Blank	.500	.325
196-117	**—**	**197-117**	**—**		.106-.161	2-Rad.	.500	.280
196-118	**—**	**197-118**	**—**		.161-.201	4-Rad	.562	.290
196-119	**—**	**197-119**	**—**		.201-.241	1-Circ.	.625	.310
196-120	**—**	**197-120**	**—**		.241-.281	2-Circ.	.687	.325
196-121	**—**	**197-121**	**—**		.281-.321	3-Circ.	.687	.295
196-122	**196-128**	**197-122**	**197-128**	#10-24 and #10-32	.065-.116	Blank	.578	.395
196-123	**196-129**	**197-123**	**197-129**		.116-.166	1-Rad.	.625	.385
196-124	**196-130**	**197-124**	**197-130**		.166-.216	2-Rad.	.687	.400
196-125	**196-131**	**197-125**	**197-131**		.216-.266	3-Rad.	.734	.390
196-126	**196-132**	**197-126**	**197-132**		.266-.316	4-Rad.	.781	.385
196-127	**196-133**	**197-127**	**197-133**		.316-.366	5-Rad.	.844	.400
196-134	**196-140**	**197-134**	**197-140**	1/4-20 and 1/4-28	.089-.151	Blank	.687	.440
196-135	**196-141**	**197-135***	**197-141**		.151-.211	1-Rad.	.750	.440
196-136	**196-142**	**197-136**	**197-142**		.211-.271	2-Rad.	.812	.440
196-137	**196-143**	**197-137**	**197-143**		.271-.331	3-Rad.	.875	.435
196-138	**196-144**	**197-138**	**197-144**		.331-.391	4-Rad.	.937	.435
196-139	**196-145**	**197-139**	**197-145**		.391-.451	5-Rad.	1.000	.445
196-146	**196-152**	**197-146**	**197-152**	5/16-18 and 5/16-24	.106-.181	Blank	.844	.540
196-147	**196-153**	**197-147**	**197-153**		.181-.256	1-Rad.	.937	.560
196-148	**196-154**	**197-148**	**197-154**		.256-.331	2-Rad.	1.000	.550
196-149	**196-155**	**197-149**	**197-155**		.331-.406	3-Rad	1.093	.565
196-150	**196-156**	**197-150**	**197-156**		.406-.481	4-Rad.	1.156	.555
196-151	**196-157**	**197-151**	**197-157**		.481-.556	5-Rad.	1.250	.575
196-158	**196-164**	**197-158**	**197-164**	3/8-16 and 3/8-24	.125-.211	Blank	.938	.580
196-159	**196-165**	**197-159**	**197-165**		.211-.296	1-Rad.	1.031	.590
196-160	**196-166**	**197-160**	**197-166**		.296-.381	2-Rad.	1.125	.600
196-161	**196-167**	**197-161**	**197-167**		.381-.466	3-Rad.	1.219	.615
196-162	**196-168**	**197-162**	**197-168**		.466-.551	4-Rad.	1.312	.625
196-163	**196-169**	**197-163**	**197-169**		.551-.636	5-Rad.	1.422	.650
196-170	**196-174**	**197-170**	**197-174**	1/2-13 and 1/2-20	.126-.226	Blank	.984	.610
196-171	**196-175**	**197-171**	**197-175**		.226-.326	1-Rad.	1.094	.620
196-172	**196-176**	**197-172**	**197-176**		.326-.426	2-Rad.	1.218	.640
196-173	**196-177**	**197-173**	**197-177**		.426-.526	3-Rad.	1.312	.635

197-178* Keyed Anodized

UNIT PKG. QTY. 100 —#4 - 5/16" Thread Dia. ***50*** —3/8" Thread Dia. ***25*** — 1/2" Thread Dia.

C

R-N® RIVET NUT SERIES THREADED INSERTS

HAND INSTALLATION TOOLS

GENERAL DUTY HAND RIVET NUT SETTER

- Designed for one-handed operation
- Simple stroke adjustment by means of adjuster ring with memory stroke scale
- Quick-drill mechanism threads and unthreads nut rivets by pulling and pushing the round knob grip

SPAENAUR No.

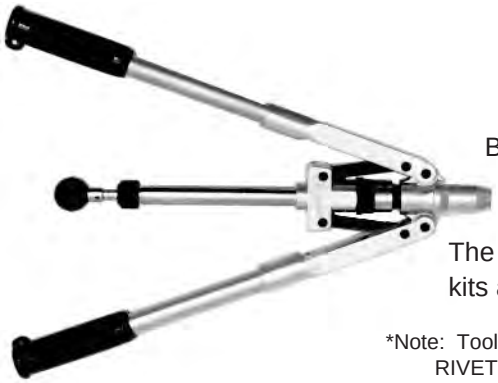
TAA140

BASE TOOL (Only)

The tool and conversion kits are sold separately.

Thread Size	*SPAENAUR No's.* Conversion Kit	Replacement Placing Mandrel
INCH THREADS		
#4-40	**TAA241-440**	**T18AA241-440**
#6-32	**TAA241-632**	**T18AA241-632**
#8-32	—	**T18AA241-832**
#10-24	**TAA241-1024**	**T18AA241-1024**
#10-32	**TAA241-1032**	**T18AA241-1032**
METRIC THREADS		
M3x0.5	**TAA241-350**	**T18AA241-350**
M5x0.8	**TAA241-580**	**T18AA241-580**
M6x1.0	**TAA241-610**	**T18AA241-610**

• Rugged construction for long tool life • Simple stroke adjustment by means of adjuster ring with memory stroke scale • Quick-drill mechanism threads and unthreads nut rivets by pulling and pushing the round knob grip



SPAENAUR No.

TAA150

BASE TOOL (Only)

The tool and conversion kits are sold separately.

*Note: Tool will set ONLY ALUMINUM RIVET NUTS in these sizes.

Thread Size	*SPAENAUR No's.* Conversion Kit	Replacement Placing Mandrel
INCH THREADS		
1/4-20	**TAA253-420**	**T18AA253-420**
1/4-28	—	**T18AA253-428**
5/16-18*	**TAA253-518**	**T18AA253-518**
5/16-24*	**TAA253-524**	—
3/8-16*	—	**T18AA253-616**
3/8-24*	—	—
METRIC THREADS		
M6x1.0	**TAA253-610**	**T18AA253-610**
M8x1.25*	**TAA253-8125**	—
M10x1.5*	**TAA253-1015**	—

ENGINEERING DATA

R-N® RIVET NUT SERIES

INCH THREADS

These data are average only — certain variations must be expected in practice.

Upset load (lbs.) (Fig.1)

RN Mat'l	Aluminum		Brass		Steel		Stainless Steel	
Thread Size	Min. Grip	Max. Grip	Min. Grip	Max. Grip	Min. Grip	Max. Grip	Min. Grip	Max. Grip
#4-40	400	450	700	800	700	800	800	900
#6-32	500	600	800	950	850	1000	1000	1300
#8-32	600	700	1300	1500	1000	1250	1400	1650
#10-32	750	800	1600	1800	1300	1500	1900	2000
1/4-20	1300	1450	2570	2880	2300	2610	3300	3400
5/16-18	1900	2150	3870	4210	3300	3650	4800	5600
3/8-16	2570	2700	4620	4940	4965	5325	6100	6660
1/2-13	4000	4400	NA	NA	6700	7200	NA	NA

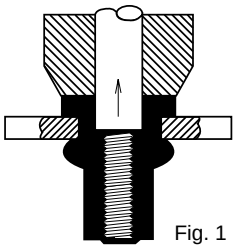


Fig. 1

Ultimate thread strength (lbs.) (Fig. 2)

RN Mat'l	Aluminum		Brass		Steel		Stainless Steel	
Thread Size	Min. Grip	Max. Grip	Min. Grip	Max. Grip	Min. Grip	Max. Grip	Min. Grip	Max. Grip
#4-40	675	575	1265	1075	1180	1000	1600	1300
#6-32	964	820	1740	1480	1705	1450	2400	2000
#8-32	1095	935	2050	1740	1920	1630	3000	2200
#10-32	1600	1450	3025	2525	3000	2500	4000	3500
1/4-20	2500	2400	4900	4250	5240	4520	6000	5100
5/16-18	4000	3700	7795	6840	7625	6300	8700	7500
3/8-16	4700	4450	11600	11200	11500	10450	11700	9650
1/2-13	7900	6400	NA	NA	17250	14500	NA	NA

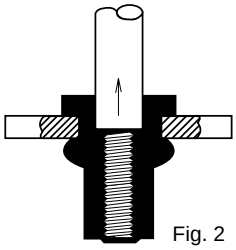


Fig. 2

P.C. 880

CATALOG 13

HAND INSTALLATION TOOLS For…

A-L™ SERIES A-K™ SERIES A-H™ SERIES A-O™ SERIES R-N® SERIES A-S™ SERIES

TAA480 DOUBLE ACTION LEVER TOOL

The TAA480 Double Action Lever Tool is no longer available.
Conversion Kits and Replacement Mandrels shown at right will continue to be available to fit the TAA480 Tool only.

The MFX-480 Quick Interchange System Tool (page C194-1) is our comparable replacement tool.
Note however that the Conversion Kits and Mandrels are not interchangeable with TAA480.

TAA510 PLUNGER-DOUBLE ACTION LEVER TOOL

The TAA510 Plunger-Double Action Lever Tool is no longer available.
Conversion Kits and Replacement Mandrels shown at right will continue to be available to fit the TAA510 Tool only.

The MFX-511 Quick Interchange System plus Push/Pull Action Tool (page C194-1) is our comparably replacement tool.
Note however that the Conversion Kits and Mandrels are not interchangeable with TAA510.

The chart below indicates the capability of **TAA480** and **TAA510** to install a wide variety of AVK steel and aluminum products. Once you've selected the AVK product and thread size, refer to the chart and select the appropriate tool and conversion kit.

• Denotes the product can be installed with the **TAA480** tool.

+ Denotes the product can be installed with **TAA510** tool.

THREAD SIZE	INSERT MATERIAL STEEL	INSERT MATERIAL ALUM.	A-L, A-K, A-H, A-P, A-O SERIES INSERTS CONVERSION KIT#	A-L, A-K, A-H, A-P, A-O SERIES INSERTS REPLACEMENT MANDREL#
6-32 UNC	• +	• +	TAA481-632	T18AA481-632
8-32 UNC	• +	• +	TAA481-832	T18AA481-832
10-24 UNC	• +	• +	TAA481-1024	T18AA481-1024
10-32 UNF	• +	• +	TAA481-1032	T18AA481-1032
1/4-20 UNC	• +	• +	TAA481-420	T18AA481-420
5/16-18 UNC	• +	• +	TAA481-518	T18AA481-518
3/8-16 UNC	• +	• +	TAA481-616	T18AA481-616
1/2-13 UNC	+	• +	TAA481-813	T18AA481-813
M4 x 0.7	• +	• +	TAA481-470	T18AA481-470
M5 x 0.8	• +	• +	TAA481-580	T18AA481-580
M6 x 1.0	• +	• +	TAA481-610	T18AA481-610
M8 x 1.25	• +	• +	TAA481-8125	T18AA481-8125
M10 x 1.50	• +	• +	TAA481-1015	T18AA481-1015
M12 x 1.75	+	• +	TAA481-12175	T18AA481-12175

THREAD SIZE	INSERT MATERIAL STEEL	INSERT MATERIAL ALUM.	R-N SERIES RIVET NUTS CONVERSION KIT#	R-N SERIES RIVET NUTS REPLACEMENT MANDREL#
4-40 UNC	• +	• +	TAA483-440	T18AA481-440
6-32 UNC	• +	• +	TAA483-632	T18AA481-632
8-32 UNC	• +	• +	TAA483-832	T18AA481-832
10-24 UNC	• +	• +	TAA483-1024	T18AA481-1024
10-32 UNC	• +	• +	TAA483-1032	T18AA481-1032
1/4-20 UNC	+	• +	TAA483-420	T18AA481-420
1/4-28 UNF	+	• +	TAA483-428	T18AA481-428
5/16-18 UNC	+	• +	TAA483-518	T18AA481-518
3/8-16 UNC		+	TAA483-616	T18AA481-616
M3 x 0.5	• +	• +	TAA483-350	T18AA481-350
M4 x 0.7	• +	• +	TAA483-470	T18AA481-470
M5 x 0.8	• +	• +	TAA483-580	T18AA481-580
M6 x 1.0	+	• +	TAA483-610	T18AA481-610
M8 x 1.25	+	• +	TAA483-8125	T18AA481-8125
M10 x 1.50		+	TAA483-1015	T18AA481-1015

THREAD SIZE	STUD MATERIAL STEEL	A-S SERIES STUDS CONVERSION KIT#	A-S SERIES STUDS REPLACEMENT MANDREL#
6-32 UNC	•	TAA485-632	T18AA485-632
8-32 UNC	•	TAA485-832	T18AA485-832
10-24 UNC	•	TAA485-1024	T18AA485-1024
10-32 UNF	•	TAA485-1032	T18AA485-1032
1/4-20 UNC	•	TAA485-420	T18AA485-420
5/16-18 UNC	•	TAA485-518	T18AA485-518
3/8-16 UNC	•	TAA485-616	T18AA485-616
M4 x 0.7	•	TAA485-470	T18AA485-470
M5 x 0.8	•	TAA485-580	T18AA485-580
M6 x 1.0	•	TAA485-610	T18AA485-610
M8 x 1.25	•	TAA485-8125	T18AA485-8125
M10 x 1.50	•	TAA485-1015	T18AA485-1015

NOTE: More UNF fine thread sizes are available.

P.C. 880

C

A-S™ INSERT SERIES
CAPTIVE THREADED STUD

A-S Series is available. We invite your enquiries.

STEEL
C-1010/C-1008 SHELL
C-1038 STEM

FINISH: Zinc/Yellow Dichromate per ASTM-B633 Type 2 FE/ZN with Clear Protective Coating.

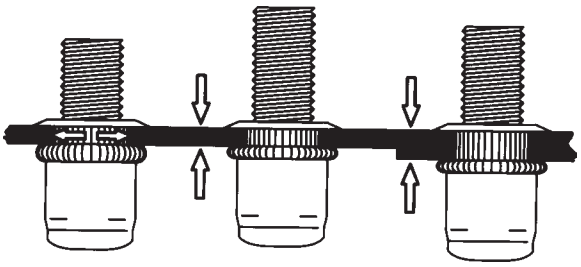
FEATURES:

- PROTRUDING STUD allows component parts to be located on the stud until final assembly is accomplished with a mating nut.
- EXCEPTIONAL TORQUE STRENGTH is achieved as the stud's knurled body expands FILLING THE HOLE.
- QUALITY INSTALLATIONS even in variable thickness materials are assured by our spin/spin torque stall tools.
- ELIMINATE PAINT MASKING procedures as required with weld or clinch studs. The A-S Series Stud can be installed after painting.

The **A-S SERIES STUD** offers a unique design advantage in that once installed, a threaded stud is left protruding from the workpiece. Component parts can be located on the stud until final assembly is accomplished with a mating nut. The A-S Series Stud is installed using lightweight, hand held pneumatic tools that can be located at any position in your product's assembly sequence. The A-S Series Stud can be installed either prior to or after finish.

SPINWALL TECHNOLOGY™
HOW HOLE FILL WORKS FOR YOU

As the A-S Series is installed, the knurled body expands 360° FILLING THE HOLE. This feature provides exceptional torque strength and vibration resistance.



The installation tool then exerts a torque load on the stud forming a backside flange even in variable thickness material — WITHOUT ADJUSTMENT.

Additional Design Types

SEALED HEAD

A PVC foam seal is bonded to the underside of the head and when installed provides a weathertight seal.

WEDGE HEAD

The addition of 9 wedges under the head provided even greater torque capability, especially in soft or thin materials, and is excellent for electrical grounding applications.

Installation Tools Available

Power tool shown is specifically designed to install A-S Series Inserts.

See page C194-1 for MFX Hand Installation Tools to set A-S Series Inserts.

HAND INSTALLATION TOOLS For…

AL™ SERIES AK™ SERIES AH™ SERIES AO™ SERIES R-N® SERIES AS™ SERIES

The chart below indicates the capability of **MFX-480** and **MFX-511** to install a wide variety of steel and aluminum rivet products. Once you've selected the rivet product and thread size, refer to the charts and select the appropriate tool and conversion kit.

MFX-480 Quick Interchange System Tool

with stroke indicator for setting blind rivet nuts and studs. Conversion kits can be changed without tools. The body of the tool is ABS (plastic) with steel parts. Tool includes 4 conversion kits to set blind rivet nuts M4, M5, M6 and M8 and 4 conversion kits to set blind rivet studs M4, M5, M6 and M8.

THREAD SIZE	Will set A-L, A-K, A-H, A-O, R-N SERIES INSERTS		
	CONVERSION KIT#	REPLACEMENT MANDREL#	REPLACEMENT ANVIL
4-40 UNC	**MFX483-440**	**MFX18481-440**	**MFX28481-440**
6-32 UNC	**MFX483-632**	**MFX18481-632**	**MFX28481-632**
8-32 UNC	**MFX483-832**	**MFX18481-832**	**MFX28481-832**
10-24 UNC	**MFX483-1024**	**MFX18481-1024**	**MFX28481-1024**
10-32 UNF	**MFX483-1032**	**MFX18481-1032**	**MFX28481-1032**
1/4-20 UNC	**MFX483-420**	**MFX18481-420**	**MFX28481-420**
1/4-28 UNF	**MFX483-428**	**MFX18481-428**	**MFX28481-428**
5/16-18 UNC	**MFX483-518**	**MFX18481-518**	**MFX28481-518**
3/8-16 UNC	**MFX483-616**	**MFX18481-616**	**MFX28481-616**
1/2-13 UNC	**MFX483-813**	**MFX18481-813**	**MFX28481-813**
M3 x 0.5	**MFX483-350**	**MFX18481-350**	**MFX28481-350**
M4 x 0.7	**MFX483-470**	**MFX18481-470**	**MFX28481-470**
M5 x 0.8	**MFX483-580**	**MFX18481-580**	**MFX28481-580**
M6 x 1.0	**MFX483-610**	**MFX18481-610**	**MFX28481-610**
M8 x 1.25	**MFX483-8125**	**MFX18481-8125**	**MFX28481-8125**
M10 x 1.50	**MFX483-1015**	**MFX18481-1015**	**MFX28481-1015**

MFX-511 Quick Interchange System Tool plus Push/Pull Action

with stoke indicator for setting blind rivet nuts and studs. This tool has a push/pull mechanism for quicker installation. The body of the tool is ABS (plastic) with steel parts. The lever is steel. The tool includes 4 conversion kits to set blind rivet nuts M5, M6, M8 and M10 and 3 conversion kits to set blind rivet studs M5, M6 and M8.

THREAD SIZE	Will set A-S SERIES STUDS		
	CONVERSION KIT#	REPLACEMENT MANDREL#	REPLACEMENT ANVIL
6-32 UNC	**MFX485-632**	**MFX18485-632**	**MFX28481-632**
8-32 UNC	**MFX485-832**	**MFX18485-832**	**MFX28481-832**
10-24 UNC	**MFX485-1024**	**MFX18485-1024**	**MFX28481-1024**
10-32 UNF	**MFX485-1032**	**MFX18485-1032**	**MFX28481-1032**
1/4-20 UNC	**MFX485-420**	**MFX18485-420**	**MFX28481-420**
1/4-28 UNF	**MFX485-428**	**MFX18485-428**	**MFX28481-428**
5/16-18 UNC	**MFX485-518**	**MFX18485-518**	**MFX28481-518**
3/8-16 UNC	**MFX485-616**	**MFX18485-616**	**MFX28481-616**
M4 x 0.7	**MFX485-470**	**MFX18485-470**	**MFX28481-470**
M5 x 0.8	**MFX485-580**	**MFX18485-580**	**MFX28481-580**
M6 x 1.0	**MFX485-610**	**MFX18485-610**	**MFX28481-610**
M8 x 1.25	**MFX485-8125**	**MFX18485-8125**	**MFX28481-8125**
M10 x 1.50	**MFX485-1015**	**MFX18485-1015**	**MFX28481-1015**
M12 x 1.75	**MFX485-12175**	**MFX18485-12175**	**MFX28481-12175**

Handtools for Blind Rivet Nuts and Studs

Imperial Size / Metric Size	#4 M3			#8 M4			#10 M5			1/4" M6			5/16" M8			3/8" M10			7/16" M12		
Material	Aluminum	Steel	St. Steel	Aluminum	Steel	St. Steel	Aluminum	Steel	St. Steel	Aluminum	Steel	St. Steel	Aluminum	Steel	St. Steel	Aluminum	Steel	St. Steel	Aluminum	Steel	St. Steel
Spaenaur No. **MFX-480**				●	●	●	●	●	●	●	●	▲	●	●							
				●	●	●	●	●	●	●	●	▲	●	●							
Spaenaur No. **MFX-511**							●	●	●	●	●	●	●	●	▲	●	●		●		
							●	●	●	●	●	●	●	●	▲						

● Recommended capacity for intensive use. ▲ Maximum capacity.

Note: Conversion kits, mandrels and anvils shown above can only be used with the MFX Tool system.

All items on this page Priced Singly.

Tel: 1-800-265-8772 Fax: 519-744-0818

C

THREADED INSERT SETTING TOOL KITS - Inch or Metric

Housed in a compact plastic tool box for easy storage.

Each kit includes one hand setting tool, 4 conversion kits and four sizes of 10 inserts each for either inch or metric applications.

Designed for quick, manual insertion of permanent load bearing threads in materials from 0.020" to 0.128" (0.51mm to 3.25mm) thickness.

The setting tool has been designed to enable threaded nut inserts to be set easily by hand. Invaluable to maintenance engineers for on-the-spot repairs.

Simple setup and easy uniform stroke allows a nutsert to be set in thin sheet materials without causing surface damage.

Benefits: One side application, flush mounting, permanent thread, moisture resistant, cost effective, strong, vibration resistant and portable.

SPAENAUR No. 876-1807

INCH KIT contains the tool, mandrels and 10 inserts of each size listed below to install threads for:
8-32 UNC thread with 0.020" to 0.050" grip range
10-24 UNC thread with 0.030" to 0.066" grip range
10-32 UNF thread with 0.030" to 0.066" grip range
1/4"-20 UNC thread with 0.036" to 0.128" grip range

SPAENAUR No. 876-1835

METRIC KIT contains the tool, mandrels and 10 inserts of each size listed below to install **metric coarse threads** for:
M4 thread with 0.51mm to 1.27mm grip range
M5 thread with 0.51mm to 1.27mm grip range
M6 thread with 0.76mm to 1.68mm grip range
M8 thread with 0.91mm to 3.25mm grip range

Rivet Nut and Rivet Stud Tool Kit.

This rugged industrial strength tool is the best available hand tool for the proper installation of rivet nuts and rivet studs available. The stroke can be set from a minimum to over 1/2". This model has a ball bearing turn knob for easy spin on and spin off and also features a unique patent pending stroke setting indicator which reflects the approximate stroke set on the tool. With an overall length of 21", it is capable of giving greater leverage for larger diameter rivet nuts and studs.

Supplied in a wooden case with 4 sizes of conversions for rivet nuts and 3 sizes of stud pullers.

Other sizes available upon request.

General Information	876-1809	876-1810
Capacity:	6-32 -1/2" in thin wall inserts	M3 -M12 in thin wall inserts
Body Construction:	ABS plastics	ABS plastics
Tool arms:	Steel	Steel
Weight:	4.84 lbs	2.2 kg
Length:	21"	530 mm
Conversion Kit Sizes:	**10-24, 1/4-20, 5/16-18 and 3/8-16**	**M5, M6, M8 and M10.**
Stud Puller Sizes:	**10-24, 1/4-20, 5/16-18**	**M5, M6, and M8.**

C

X-Grip Power Tools for Rivet Nuts

Installation tool for rivet nuts and rivet studs, equipped with a **manual spin on / spin off knob.**
Ideal for light production and repair applications.
Tool has a manual turning knob for left and right-hand spinning for rivet nuts and studs.
Supplied in a wooden case with 4 rivet nut conversion kits, sizes include **6-32, 8-32, 10-24 and 1/4-20.**
Other sizes available upon request including metric.

Stud Pullers available upon request.

General Information	876-1812	876-1814
Capacity all Materials:	4-40 - 5/16" (M3 - M8)	4-40 - 3/8" (M3 - M10)
Weight:	4 lbs (1.8 kg)	4.4 lbs (2.0 kg)
Dimensions Length by Height:	8.5 x 10" (215 mm x 255 mm)	8.5" x 10" (215 mm x 255 mm)
Stroke:	.080" -.235" (2 mm x 6 mm)	.080" - .235" (2 mm x 6 mm)
Pressure Required:	70 psi - 100 psi (5 bar - 7 bar)	70 psi - 100 psi (5 bar - 7 bar)
Tensile strength at 85 psi (6 bar):	5,100 lbs (23.000 N)	6,500 lbs (29.000 N)

X-Grip Power Tools for Rivet Nuts - with Power Spinner

Fully automatic, state of the art, hydra pneumatic installation tools for rivet nuts and rivet studs.
Features stroke setting gauge and pressure relief valve to protect seals. The nut automatically spins onto the tool by pressure on the mandrel. Depressing the trigger begins the pull stroke. When the preset stroke distance is reached, the tool automatically goes into the reverse spin to disengage from the installed insert.
Constructed with fully automatic left-hand and right-hand spinning air motor for blind rivet nuts and studs.
Supplied in a wooden case with 4 rivet nut conversion kits sizes include **6-32, 8-32, 10-24 and 1/4-20.**

Other sizes available upon request including metric.
Stud Pullers available upon request.

General Information	876-1811	876-1813
Capacity all Materials:	4-40 - 5/16" (M3 - M8)	4-40 - 3/8" (M3 - M10)
Weight:	4.4 lbs (2.0 kg)	4.9 lbs (2.2 kg)
Dimensions Length by Height:	8.5 x 10" (215 mm x 255 mm)	8.5" x 10" (215 mm x 255 mm)
Stroke:	.080" -.235" (2 mm x 6 mm)	.080" - .235" (2 mm x 6 mm)
Pressure Required:	70 psi - 100 psi (5 bar - 7 bar)	70 psi - 100 psi (5 bar - 7 bar)
Tensile strength at 85 psi (6 bar):	5,100 lbs (23.000 N)	6,500 lbs (29.000 N)

SPAENAUR

Your source for Engineered Fasteners

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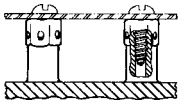
On-sert®

STEEL (With protective finish)

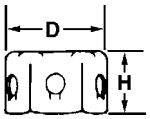
INCH SIZES

These distinctive fasteners, with a single helical thread, slip over hollow plastic bosses and prevent splitting when screws are driven. They also prevent cross-threading, and resist screw pull-out, yet screws may be removed without harming the fasteners or the boss. On-sert fasteners thus perform the same function as solid inserts, but cost only about one-fifth as much. One type is used when screws enter the top of a boss, while another type is used when screws enter the bottom of the boss.

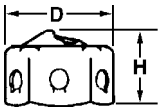


On-Serts® They fit "ON THE BOSS"

UNIT PACKAGE 100 - ALL ON-SERTS

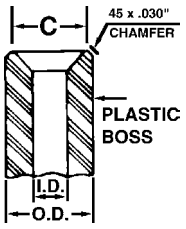


Design 1
Screw enters through top of boss



Design 2
Screw enters through bottom of boss

Thread Size	(see Note 1) *SPAENAUR No.*	ON-SERT FASTENERS				PLASTIC BOSS			*SPAENAUR No.* Applicator Tool (see Note 3)
		Design	Height H (In.)	Dia. D (In.)	Weight Lbs./M Pieces	O.D. (In.)	I.D. (In.) (see Note 2)	Min. Dia. of Ctsk. C (In.)	
4-40	**628-001**	1	.220	.284	1.0	.247-.253	.096-.100	.180	**876-278**
							.130-.140	.180	**876-279**
6-20 & 6-18	**628-003**	1	.230	.354	1.5	.309-.315	.116-.120	.250	**876-280**
6-32	**628-004**	1	.230	.354	1.4		.116-.120	.250	**876-280**
8-18 & 8-15	**628-005**	1	.230	.354	1.4		.140-.144	.290	**876-281**
8-18 & 8-15	**628-006**	1	.230	.328	1.3	.279-.285	.140-.144	.220	**876-280**
8-18 & 8-15	**628-007**	1	.260	.544	3.5	.497-.503	.140-.144	.290	**876-284**
8-18 & 8-15	**628-008**	1	.254	.556	3.0	.509-.515	.140-.144	.290	**876-285**
8-18 & 8-15	**628-009**	1	.220	.422	1.9	.372-.378	.140-.144	.290	**876-282**
	628-010	2	.280	.422	1.9		.185-.250	none	**876-286**
8-32	**628-011**	1	.220	.422	1.9		.140-.144	.290	**876-283**
	628-012	2	.270	.422	1.9		.185-.250	none	**876-286**
10-12 & 10-16	**628-013**	1	.230	.422	1.8		.160-.164	.290	**876-282**



EXAMPLE

Screw Size (driven to 5/16" penetration)	Hole Size (I.D.) (In.)	On-Sert Fastener	High Impact Styrene		Polycarbonate		ABS		Acetal	
			Maximum Torque (In.Lbs.)	Average Pull-out (Lbs.)	Maximum Torque (In.Lbs.)	Average Pull-out (Lbs.)	Maximum Torque (In.Lbs.)	Average Pull-out (Lbs.)	Maximum Torque (In.Lbs.)	Average Pull-out (Lbs.)
8-18	.142	**none**	10	150	10	162	15	375	25	530
	inter. fit	**628-009**	27	280	30	370	33	438	53	680
	.250	**none**	Assembly not possible							
	clear fit	**628-009**	15	118	20	129	15	68	15	107

NOTE 1. The thread form of Parts 628-001, 628-011, and 628-012 is designed to accept either a machine screw or Type F Tapping Screw of the thread size designated. Each of the other parts accommodates a Tapping Screw of the size indicated.

NOTE 2. For maximum screw pull-out resistance with Design 1 parts, the boss I.D. should be as specified above to provide an interference fit with the screw. On-sert fasteners can also be used where the screw clears the I.D. of the boss, but this arrangement reduces resistance to screw pull-out.

NOTE 3. Design 2 parts should always be installed with the appropriate applicator tool which is designed to protect the projecting thread form from deformation by pressure or a direct blow. Although Design 1 parts may be installed by tapping directly on the top of the fasteners with a hammer, the magnetized applicator tool facilitates handling and positioning.

On-Sert® Fastener

Shipping Weight
2.49 kg. (5-1/2 lbs.)

Priced Singly

ASSORTMENT
ASSORTIMENT
805-492

12 sizes - 800 pcs.
(As listed above.)

Ideal for prototype work

Regular size grey enamelled Steel Drawer fits Slide Racks shown on page A2.

On-Sert® APPLICATOR TOOLS

Style 2

Style 3

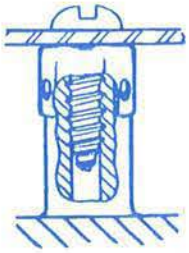
Style 4

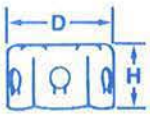
Tools Priced Singly.

SPAENAUR No. Fastener	*SPAENAUR No.* Tool	Style No.	Overall Length L	Bolt Clearance Depth	Dia. D
628-001	**876-278**	2	3"	Not applicable	1/2"
628-001	**876-279**	4	3"		1/2"
628-003	**876-280**	2	3"		1/2"
628-004	**876-280**	2	3"		1/2"
628-005	**876-281**	4	3"		1/2"
628-006	**876-280**	2	3"		1/2"
628-007	**876-284**	2	3"		3/4"
628-008	**876-285**	4	3"		3/4"
628-009	**876-282**	2	3"	1-1/4"	5/8"
628-010	**876-286**	3	1-13/16"	N/A	.615"
628-011	**876-283**	4	3"		5/8"
628-012	**876-286**	3	1-13/16"	1-1/4"	.615"
628-013	**876-282**	2	3"	N/A	5/8"

STEEL
(with protective finish)

UNIT PKG. 100 All On-serts





METRIC DATA

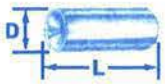
On-Sert® Fasteners

See page C198 for Inch applications and more information re usage.

*N - Newtons = 9.8 kgm
*Nm - Newton meters = 980 kgm-cm

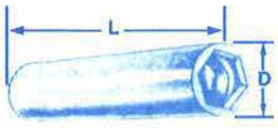
SPAENAUR No.	Tapping Screw Dia. mm	Pitch mm	For Boss Dia. mm	Dia.-D mm	Height (Est.)-H mm	Boss Hole Size mm	Boss With or Without Fastener	High Impact Styrene Maximum Torque *Nm	High Impact Styrene Average Pull-out *N	ABS Maximum Torque *Nm	ABS Average Pull-out *N	Acetal Maximum Torque *Nm	Acetal Average Pull-out *N
628-003	3.5	1.27	8	8.99	5.84	3	With	-	-	2.5	1602	2.5	2225
						3	Without	-	-	1.5	1112	1.5	1691
						5.4	With	1.8	222	1.8	267	1.8	222
						5.4	Without	Assembly not possible.					
628-006	4.2	1.41	8	8.33	5.84	3.6	With	Application not recommended.		3.1	890	3.1	1847
						3.6	Without	Material brittle for thin		1.7	846	2.3	1099
						5	With	wall thickness		1.7	267	1.7	187
						5	Without	Assembly not possible.					
628-005	4.2	1.41	8	8.99	5.84	3.6	With	3.1	890	3.4	1099	3.4	2078
						3.6	Without	1.8	578	1.7	868	2.8	1691
						5.4	With	1.7	400	1.7	303	1.7	258
						5.4	Without	Assembly not possible.					
628-009	4.2	1.41	9.52	10.72	5.84	3.6	With	3.1	1246	3.7	1949	3.7	2358
						3.6	Without	1.1	668	1.7	1669	2.8	2358
						6.3	With	1.7	525	1.7	303	1.7	476
						6.3	Without	Assembly not possible.					
628-007	4.2	1.41	12.7	13.82	6.60	3.6	With	-	-	3.7	2448	3.7	3115
						3.6	Without	-	-	1.7	1780	2.8	2670
						7.9	With	-	-	1.7	445	1.7	534
						7.9	Without	Assembly not possible.					
628-008	4.2	1.41	13	14.1	6.45	3.6	With	-	-	3.7	2448	3.7	3115
						3.6	Without	-	-	1.7	1780	2.8	2670
						7.9	With	-	-	1.7	445	1.7	534
						7.9	Without	Assembly not possible.					
628-013	4.8	1.59	9.52	10.72	5.84	4.1	With	3.7	1513	3.7	1824	3.7	3827
						4.1	Without	3.7	1513	2.3	1655	2.3	3827
						6.3	With	3.1	445	3.1	445	3.1	445
						6.3	Without	Assembly not possible.					

On-Sert® APPLICATOR TOOLS



Design 2

Tools Priced Singly.



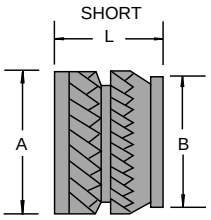
Design 3

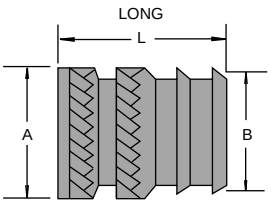
Design 4

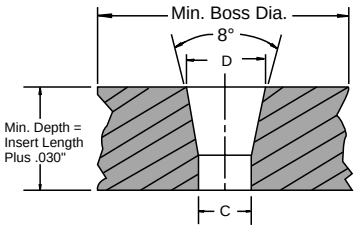
SPAENAUR No. Fastener	SPAENAUR No. Tool	Design No.	Overall Length L	Bolt Clearance Depth	Dia. D
628-001	876-278	2	3"	Not applicable	1/2"
	876-279	4	3"		1/2"
628-003	876-280	2	3"		1/2"
628-004	876-280	2	3"		1/2"
628-005	876-281	4	3"		1/2"
628-006	876-280	2	3"		1/2"
628-007	876-284	2	3"		3/4"
628-008	876-285	4	3"		3/4"
628-009	876-282	2	3"	1-1/4"	5/8"
628-010	876-286	3	1-13/16"	N/A	.615"
628-011	876-283	4	3"		5/8"
628-012	876-286	3	1-13/16"	1-1/4"	.615"
628-013	876-282	2	3"	N/A	5/8"

C

BRASS







Ultrasert II Inch

- Diagonal knurls & under cuts provide superior assembly strength in plastics
- Excellent design for automated systems
- Installed ultrasonically or with heat
- Two lengths to choose from allowing design flexibility

INSERT SPECIFICATIONS					HOLE SIZE RECOMMENDATIONS			
SPAENAUR No.	Internal Thread Size	Diameter (Inch) A ±.005	B ±.005	Lgth. (Inch) L ±.004	Diameter (Inch) C ±.001	D ±.001	Min. Boss Dia. (Inch)	Unit Pkg Qty.
628-570	0-80	.141	.123	.115	.118	.123	.282	P.O.R.
628-571	0-80	.141	.112	.188	.107	.123	.282	P.O.R.
628-572	2-56	.141	.123	.115	.118	.123	.282	100
628-573	2-56	.141	.112	.188	.107	.123	.282	P.O.R.
628-574	4-40	.172	.157	.135	.153	.159	.344	100
628-575	4-40	.172	.146	.219	.141	.159	.344	100
628-576	6-32	.219	.203	.150	.199	.206	.438	100
628-577	6-32	.219	.190	.250	.185	.206	.438	100
628-578	8-32	.250	.230	.185	.226	.234	.500	100
628-579	8-32	.250	.213	.312	.208	.234	.500	100
628-580	10-24	.297	.272	.225	.267	.277	.594	100
628-581	10-24	.297	.251	.375	.246	.277	.594	100
628-582	10-32	.297	.272	.225	.267	.277	.594	100
628-583	10-32	.297	.251	.375	.246	.277	.594	100
628-584	1/4-20"	.375	.354	.300	.349	.363	.750	100
628-585	1/4-20"	.375	.332	.500	.321	.363	.750	100
628-586	1/4-28"	.375	.354	.300	.349	.363	.750	P.O.R.
628-587	1/4-28"	.375	.332	.500	.321	.363	.750	P.O.R.
628-588	5/16-18"	.469	.439	.335	.431	.448	.938	100
628-589	5/16-18"	.469	.406	.562	.401	.448	.938	100
628-590	5/16-24"	.469	.439	.335	.431	.448	.938	100
628-591	5/16-24"	.469	.406	.562	.401	.448	.938	P.O.R.
628-592	3/8-16"	.563	.532	.375	.523	.540	1.126	P.O.R.
628-593	3/8-16"	.563	.493	.625	.488	.540	1.126	P.O.R.
628-594	3/8-24"	.563	.532	.375	.523	.540	1.126	P.O.R.
628-595	3/8-24"	.563	.493	.625	.488	.540	1.126	P.O.R.

Ultrasert II Metric

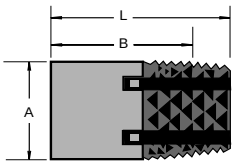
SPAENAUR No.	Internal Thread Size (mm)	Diameter (mm) A ± 0.13	B ± 0.13	Lgth. (mm) L ± 0.10	Diameter (mm) C ± 0.03	D ±.03	Min. Boss Dia.(mm)	Unit Pkg. Qty.
628-610	M2.2 x 0.45	3.58	3.12	2.9	3.00	3.12	7.16	100
628-611	M2.2 x 0.45	3.58	2.84	4.8	2.72	3.12	7.16	P.O.R.
628-612	M2.5 x 0.45	4.37	3.99	3.4	3.89	4.04	8.74	P.O.R.
628-613	M2.5 x 0.45	4.37	3.71	5.6	3.58	4.04	8.74	P.O.R.
628-614	M3 x 0.5	5.56	5.16	3.8	5.05	5.23	11.13	P.O.R.
628-615	M3 x 0.5	5.56	4.38	6.4	4.70	5.23	11.23	P.O.R.
628-616	M3.5 x 0.6	5.56	5.16	3.8	5.05	5.23	11.23	P.O.R.
628-617	M3.5 x 0.6	5.56	4.83	6.4	4.70	5.23	11.23	P.O.R.
628-618	M4 x 0.7	6.35	5.84	4.7	5.74	5.94	12.70	100
628-619	M4 x 0.7	6.35	5.41	7.9	5.28	5.94	12.70	100
628-620	M5 x 0.8	8.33	7.82	6.7	7.70	8.00	16.66	100
628-621	M5 x 0.8	8.33	7.19	11.1	7.06	8.00	16.66	100
628-622	M6 x 1	9.53	8.99	7.6	8.86	9.22	19.06	100
628-623	M6 x 1	9.53	8.43	12.7	8.15	9.22	19.06	100
628-624	M8 x 1.25	11.91	11.15	8.5	10.95	11.38	23.83	P.O.R.
628-625	M8 x 1.25	11.91	10.31	14.3	10.19	11.38	23.83	P.O.R.

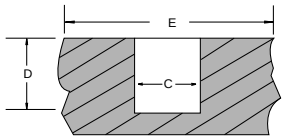
NOTE:
Bold Type *SPAENAUR No's. in stock.*

Light Type SPAENAUR No's. available - P.O.R.

CATALOG 13

BRASS





All Dimensions in Inches.

STANDARD EXPANSION Inch

- Versatile - can be used in any type of plastic
- Simple press-in installation

NOTE:
Bold Type *SPAENAUR No's. in stock.*

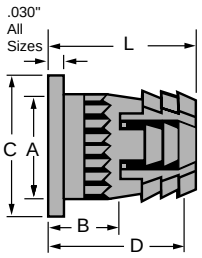
Light Type SPAENAUR No's. available - P.O.R.

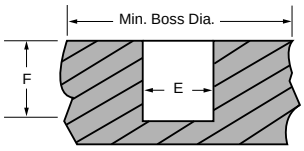
INSERT SPECIFICATIONS					HOLE SIZE RECOMMENDATIONS			
Standard Expansion		Body Dia.	Installed Length	Min Threaded Length	Dia.	Depth	Min. Boss Dia.	Unit Pkg. Qty.
SPAENAUR No.	Thread Size	A ±.003	L ±.004	B	C ±.001	D Ref	E	
628-596	4-40	.156	.250	.178	.158	.250	.312	100
628-597	5-40	.188	.313	.240	.190	.313	.376	P.O.R.
628-598	6-32	.188	.313	.240	.190	.313	.376	100
628-599	6-32	.188	.375	.303	.190	.375	.376	P.O.R.
628-600	8-32	.219	.313	.240	.221	.313	.438	P.O.R.
628-601	8-32	.219	.375	.303	.221	.375	.438	100
628-602	10-24	.250	.375	.303	.252	.375	.500	P.O.R.
628-603	10-24	.250	.438	.365	.252	.438	.500	100
628-604	10-32	.250	.313	.240	.252	.313	.500	P.O.R.
628-605	10-32	.250	.375	.303	.252	.375	.500	100
628-606	10-32	.250	.438	.365	.252	.438	.500	100
628-607	1/4"-20	.313	.500	.428	.315	.500	.626	100

BRASS

WEDGE EXPANSION Inch

- Strong brass threads in wood, particle board or soft plastics
- Straight knurl prevents rotation





All Dimensions in Inches.

INSERT SPECIFICATIONS							HOLE SIZE RECOMMENDATIONS			
Wedge Expansion		Body Dia.	Installed Length	Min Threaded Length	Flange Dia.	Max. Screw Penetration	Drill Diameter	Depth	Min. Boss Dia.	Unit Pkg. Qty.
SPAENAUR No.	Thread Size	A ±.003	L ±.004	B	C ±.003	D	E	F Ref.		
—	6-32	.270	.250	.085	.344	.188	"G" (.261)	.250	.540	P.O.R.
—	6-32	.270	.313	.138	.344	.250	"G" (.261)	.313	.540	P.O.R.
628-626	8-32	.270	.313	.138	.344	.250	"G" (.261)	.313	.540	100
—	10-24	.313	.375	.165	.406	.312	"N" (.302)	.373	.625	P.O.R.
—	10-24	.313	.500	.203	.406	.437	"N" (.302)	.500	.625	P.O.R.
—	1/4"-20	.400	.500	.203	.500	.437	25/64 (.391)	.500	.800	P.O.R.

Sizes shown in above chart, without *SPAENAUR No's.*, are available P.O.R.

Looking for those "Hard to Find" products?

Call us at (800) 265-8772.

SPAENAUR

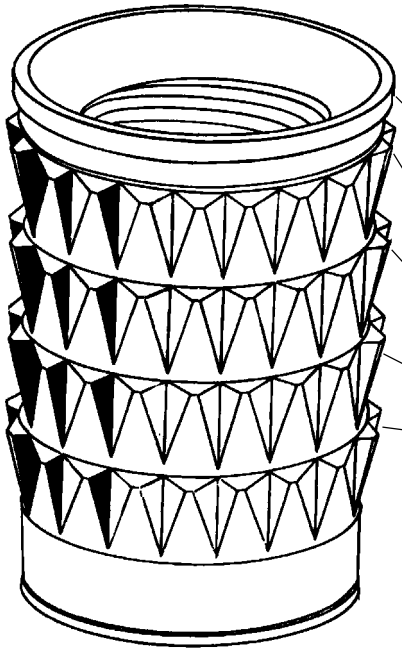
C

BRASS

Designed to provide metallic screw threads in preformed substrates of plastic, laminates, or any low-strength material.

For ULTRASONIC...or PUSH-IN INSTALLATION

Furnished in INCH and METRIC Thread Sizes



Barb-Sert!

It's the rings and the barbs that make the difference. The rings and a unique barbed external form are specially designed to allow low installation force but deliver high pull-out and torque-out performance.

A 360° ring at the top, which directs the dislodged material downward, resulting in a neat, smooth appearance at the surface, and closing off paths of the barbs.

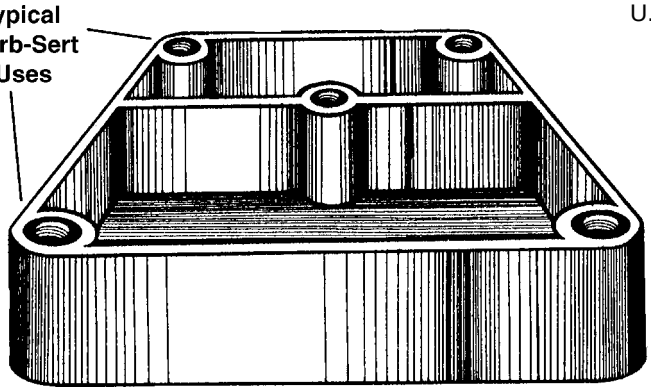
See Facing Page

360° barbed retaining rings make installation faster and apply higher resistance to pull- and torque-out.

A full 360° pilot ring at the bottom guides the insert during installation.

U.S. Patent No. 4,046,181 - Foreign Patents Granted

Typical Barb-Sert Uses



Need an Ultrasonic Machine?

We can help you obtain one.

ASSORTMENT / ASSORTIMENT 805-493

Barb-Sert

Brass Inserts

25 sizes - 480 pieces

Ideal for prototype work

Contains all **Inch** and **Metric** sizes as listed on facing page except 628-551.

Put up in a regular size grey Enamelled Steel Drawer.

Fits the Slide Racks shown on page A2.
Shipping Weight: 2.72 kg (6 lbs.)

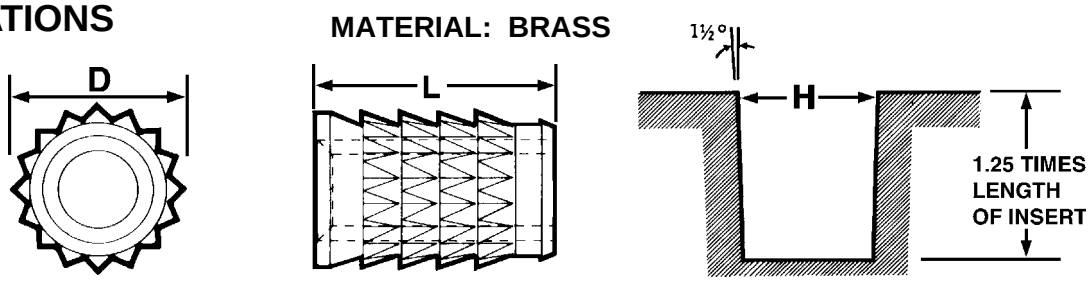
Priced Singly

CATALOG 13

C

SPECIFICATIONS

MATERIAL: BRASS



DIMENSIONS AND HOLE-SIZE RECOMMENDATIONS

INCH SIZES		METRIC SIZES		"D"	LENGTH "L"		RECOMMENDED HOLE SIZE*
Internal Thread Size	*SPAENAUR No.*	Internal Thread Size	*SPAENAUR No.*		Reg.	Short	Ultrasonic or Push-in "H"
2-56	**628-500**	M2.5 x 0.45	**628-550**	.173"	.205"	-	.159"
2-56	**628-501**	M2.5 x 0.45	**▲628-551**	.173"	-	.160"	.159"
4-40	**628-502**	M3 x 0.5	**628-552**	.173"	.205"	-	.159"
4-40	**628-503**	M3 x 0.5	**628-553**	.173"	-	.160"	.159"
6-32	**628-504**	M3.5 x 0.6	**628-554**	.217"	.276"	-	.196"
6-32	**628-505**	M3.5 x 0.6	**628-555**	.217"	-	.160"	.196"
8-32	**628-506**	M4 x 0.7	**628-556**	.250"	.335"	-	.229"
8-32	**628-507**	M4 x 0.7	**628-557**	.250"	-	.217"	.229"
10-24	**628-508**	M5 x 0.8	**628-558**	.280"	.395"	-	.255"
10-24	**628-509**	M5 x 0.8	**628-559**	.280"	-	.257"	.255"
10-32	**628-510**	-		.280"	.395"	-	.255"
10-32	**628-511**	-		.280"	-	.257"	.255"
1/4"-20	**628-512**	M6 x 1	**628-560**	.335"	.500"	-	.320"
1/4"-20	**628-513**	M6 x 1	**628-561**	.335"	-	.296"	.320"

▲Available but not stocked. P.O.R.

UNIT PACKAGE 100
All sizes

*Recommended hole sizes only. Tests should be carried out to establish the most suitable hole sizes for your specific application and material.

PERFORMANCE DATA

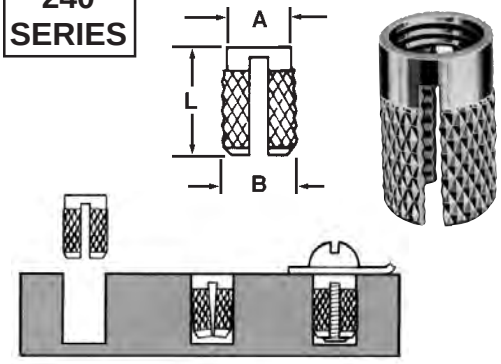
MATERIAL	THREAD SIZE															
	4-40 (M3)				**6-32** (M3.5)				**8-32** (M4)				**10-24** (M5)			
	Ultrasonic		Push-In		Ultrasonic		Push-In		Ultrasonic		Push-In		Ultrasonic		Push-In	
	Pull Out (Lbs.)	Torque Out (In. Lbs.)	**Pull Out (Lbs.)**	Torque Out (In. Lbs.)	**Pull Out (Lbs.)**	Torque Out (In. Lbs.)	**Pull Out (Lbs.)**	Torque Out (In. Lbs.)	**Pull Out (Lbs.**	Torque Out (In. Lbs.)	**Pull Out (Lbs.)**	Torque Out (In. Lbs.)	**Pull Out (Lbs.)**	Torque Out (In. Lbs.)	**Pull Out (Lbs.)**	Torque Out (In. Lbs.)
Nylon	175	26	175	26	500	48	400	52	700	85	700	74	925	110	950	100
Lexan	187	30	142	24	430	56	400	56	725	76	600	100	1000	95	950	110
PVC	125	26	150	24	470	44	450	52	750	64	725	85	1000	85	850	100
Delrin	157	24	140	20	395	46	335	44	700	80	450	74	850	90	600	90
Polyethylene	57	5	45	3	165	13	90	9	210	16	100	20	290	25	210	20

C

"E-Z Lok" Press Inserts
for Cored or Drilled Holes in Plastics

This diamond knurled insert was designed to replace molded-in inserts and threads in plastic castings. Installed "cold", the 240 sharply reduces the cost of moldings. The number of "shots" per hour is multiplied, reject waste caused by misaligned and faulty inserts is cut and no retapping to clean threads is necessary. In addition to providing clean threads, the 240 also provides screw-locking action unobtainable in molded-in inserts. Along with this self-locking feature, you also have an insert that is not critical to hole depth and does not require any secondary operation to secure the fastener in the hole.

240 SERIES

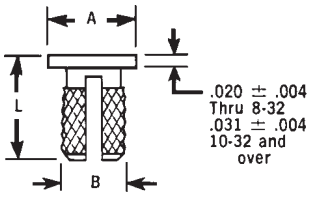


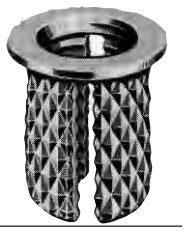
BRASS - Plain

	SPAENAUR No.	Internal Thread	A ±.010	B ±.004	L ±.010	Starting Hole Size*
INCH SIZES	**628-514**	0-80	.094"	.104"	.125"	.094" (3/32")
	628-515	2-56	.125"	.135"	.156"	.125" (1/8")
	628-516	4-40	.156"	.166"	.188"	.156" (5/32")
	628-517	6-32	.187"	.199"	.250"	.188" (3/16")
	628-518	8-32	.218"	.230"	.313"	.219" (7/32")
	628-519	10-32	.250"	.262"	.375"	.250" (1/4")
	628-520	10-24	.250"	.262"	.375"	.250" (1/4")
	628-521	1/4"-20	.312"	.326"	.500"	.313" (5/16")
	628-522	5/16"-18	.375"	.389"	.563"	.375" (3/8")
	628-523	3/8"-16	.437"	.451"	.625"	.438" (7/16")
METRIC SIZES	**628-562**	M3-0.5	.156"	.166"	.188"	.156" (5/32")
	628-563	M3.5-0.6	.187"	.199"	.250"	.188" (3/16")
	628-564	M4-0.7	.218"	.230"	.313"	.219" (7/32")
	628-565	M5-0.8	.250"	.262"	.375"	.250" (1/4")
	628-566	M6-1.0	.312"	.326"	.500"	.313" (5/16")

Where headed inserts are required, this variation of the standard 240 fills the bill. Recommended for use in terminal strips and like applications in electronic assemblies.

260 SERIES



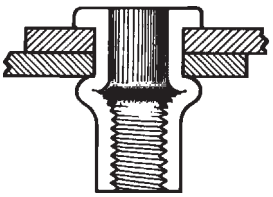


BRASS - Plain

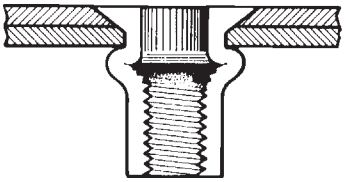
	SPAENAUR No.	Internal Thread	A ±.010	B ±.004	L ±.010	Starting Hole Size*
INCH SIZES	**628-524**	2-56	.187"	.135"	.156"	.125" (1/8")
	628-525	4-40	.218"	.166"	.188"	.156" (5/32")
	628-526	6-32	.249"	.199"	.250"	.188" (3/16")
	628-527	8-32	.280"	.230"	.313"	.219" (7/32")
	628-528	10-32	.312"	.262"	.375"	.250" (1/4")
	628-800▲	10-32	312"	.262"	.375"	.250" (1/4")
	628-529	1/4"-20	.375"	.326"	.500"	.313" (5/16")
	628-530	5/16"-18	.437"	.389"	.563"	.375" (3/8")
	628-531	3/8"-16	.500"	.451"	.625"	.438" (7/16")

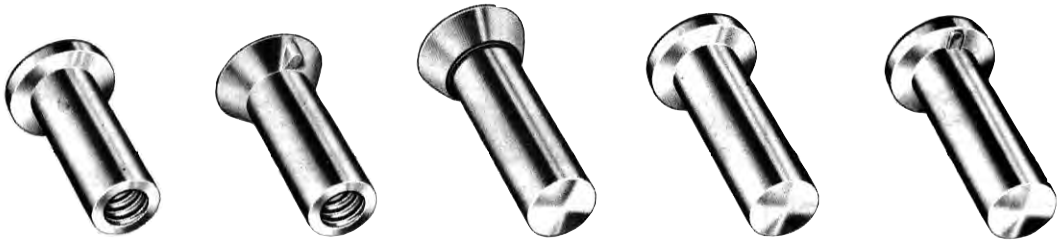
▲ 303 Stainless Steel

***** The holes sizes are based on average materials and torque requirements. HOLE SIZES MAY VARY WITH THE MATERIAL USED AND THE SCREW DIMENSIONS MAY VARY WITH DIFFERENT STANDARDS. THESE VARIABLES MAY AFFECT YOUR NEEDS.



ONE-PIECE BLIND RIVETS WITH INTERNAL THREADS





FLAT (Open—Keyless) | **CTSK.** (Open—Keyed) | **CTSK.** (Closed—Keyless) | **FLAT** (Closed—Keyless) | **FLAT** (Closed—Keyed)

HAVE A FASTENING PROBLEM? THE RIVET NUT BLIND FASTENER IS THE SOLUTION.

RIVET NUTS are tubular rivets with internal threads. A hand or power tool pull-up stud engages the threads of the Rivet Nut and exerts a pull, causing the shank to expand tightly against the material being fastened. After the Rivet Nut is installed, there are clean threads available for screw attachments of hinges, handles, brackets, metal partitions, knobs or other accessories.

Rivet Nuts have been widely used in airplanes for Deicer attachment, access doors, luggage racks, static eliminators, radar equipment, in stoves, kitchen cabinets, appliances, buses and trucks, vending machines, storm doors and windows and in many automotive applications.

Rivet Nuts can be installed in seconds—by one person working from one side.

Rivet Nuts require no finishing work—once the Rivet Nut is installed it is ready for use.

Rivet Nuts simplify production—cut assembly time.

STANDARD RIVET NUT FASTENER MATERIALS AND FINISHES

Material	Type No.	Standard Finish	Min. Tensile Strength (PSI Ult.)
ALUMINUM	**6053-T4**	Anodize — Alumilite No. 205 Will meet Specifications: MIL-A-8625 (ASG)	28,000
STEEL	**C-1108*** **C-1110***	Cadmium Plate — .0002" Minimum Thickness Per QQ-P-416b Class 3, Type I	45,000
	4037	Cadmium Plate — .0003" Minimum Thickness Per QQ-P-416b Class 2, Type II	55,000 (No. 4 & No. 6 THD Size) 85,000 (No. 8 — 1/2" THD Size)
STAINLESS STEEL	**430**	Pickled and Passivated Per QQ-P-35 Type II	67,000
	305** **Carp No. 10****	None — Bright as Machined	80,000
BRASS	**Alloy No. 260**	None — Bright as Machined	50,000

*C-1108 and C-1110 steel may be used interchangeably. **305 and Carpenter No. 10 stainless steel may be used interchangeably.

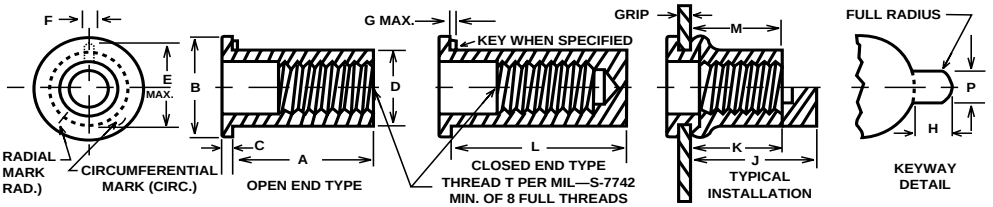
For AVK Rivet Nuts and Tools, see pages C188-C193.

Blind Nutplate Fasteners

FLAT HEAD

Aluminum and Steel

C



Thread Size and Fit	B ±.015	C Nom.	D + .000 - .004	E Max.	F + .005 - .000	G Max.	Install Drill Size (Ref.)	Install Hole Size Min.	Install Hole Size Max.	Keyway Dimensions P + .003 - .000	Keyway Dimensions H
4-40 UNC-3B	.270	.025	.155	.198	.054	.023	5/32	.155	.157	.062	.046-.048
6-32 UNC-3B	.325	.032	.189	.240	.054	.023	#12	.189	.193	.062	.056-.058
8-32 UNC-3B	.357	.032	.221	.271	.054	.023	#2	.221	.226	.062	.056-.058
10-32 UNF-3B	.406	.038	.250	.302	.054	.023	E	.250	.256	.062	.056-.058
1/4"-20 UNC-3B	.475	.058	.332	.382	.054	.035	Q	.332	.338	.062	.056-.058
5/16"-18 UNC-3B	.665	.062	.413	.505	.120	.040	Z	.413	.423	.128	.097-.102
3/8"-16 UNC-3B	.781	.088	.490	.597	.120	.040	12.5 mm	.490	.500	.128	.110-.115
1/2"-13 UNC-3B	.906	.085	.625	.733	.120	.040	5/8	.625	.635	.128	.110-.115

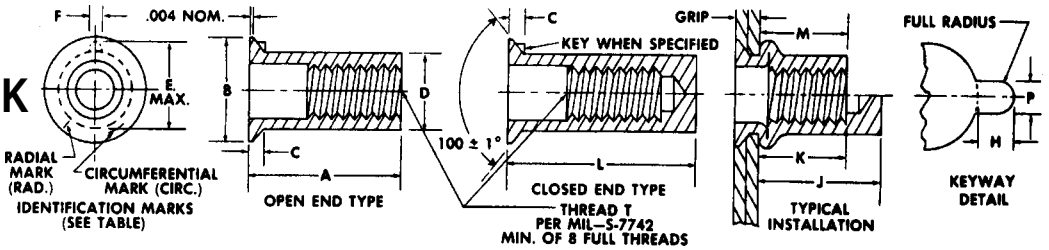
SPAENAUR No.	Thread Size	Grip Range	Head Style		End Style	Dimensions in Inches A	M	L	J	K	Ident. Mark	Mfr. No.
ALUMINUM						±.015						
RN-3007	**6-32**	.010-.075	Flat	Keyed	Open	.438	.300				1-Rad.	A6K-75
RN-3010	**6-32**	.120-.160	Flat	Keyless	Open	.500	.270				5-Rad.	A6-160
RN-3029	**8-32**	.120-.160	Flat	Keyless	Open	.500	.270				5-Rad.	A8-160
STEEL												
196-016	**10-32**	.010-.080	Flat	Keyless	Open	.531	.380					
196-002	**10-32**	.010-.080	Flat	Keyed	Open	.531	.380				1-Rad.	S10K80
RN-8	**1/4"-20**	.140-.200	Flat	Keyless	Open	.750	.450				2-Rad.	S25-200

All Rivet Nuts this page Unit Package Qty. 100

Visit us on the web at . . .

www.spaenaur.com

COUNTERSUNK HEAD



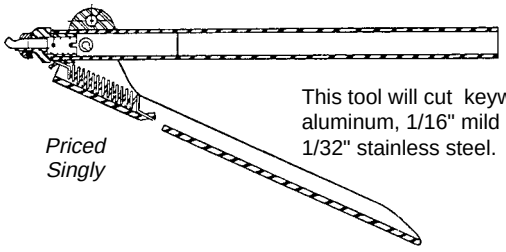
Thread Size and Fit	B Ref.	C Max.	D +.000 -.004	E Max.	F +.005 -.000	Install Drill Size (Ref.)	Install Hole Size Min.	Install Hole Size Max.	Keyway Dimensions P+.003 -.000	Keyway Dimensions H
#4-40 UNC-3B	.263	.051	.155	.198	.054	5/32	.155	.157	.062	.046-.048
#6-32 UNC-3B	.323	.063	.189	.240	.054	#12	.189	.193	.062	.056-.058
#8-32 UNC-3B	.355	.063	.221	.271	.054	#2	.221	.226	.062	.056-.058
#10-32 UNF-3B	.391	.065	.250	.302	.054	E	.250	.256	.062	.056-.058
1/4-20 UNC-3B	.529	.089	.332	.382	.054	Q	.332	.338	.062	.056-.058
5/16-18 UNC-3B	.656	.104	.413	.505	.120	Z	.413	.423	.128	.097-.102
3/8-16 UNC-3B	.770	.124	.490	.597	.120	12.5 mm	.490	.500	.128	.110-.115
1/2-13 UNC-3B	.906	.124	.625	.733	.120	5/8	.625	.635	.128	.110-.115

SPAENAUR No.	Thread Size	Grip Range	Head Style	End Style	DIMENSIONS A	M	L	J	K	Ident. Mark	Mfr. No.
ALUMINUM *UNIT PACKAGE 100*											
RN-3021	**4-40**	.050-.081	Ctsk.	Keyless	Open	.370	.235				Blank	A4-81
RN-3033	**6-32**	.065-.106	Ctsk.	Keyless	Open	.500	.325				Blank	A6-106
RN-3022	**6-32**	.065-.106	Ctsk.	Keyed	Open	.500	.325				Blank	A6K106
RN-3026	**6-32**	.106-.161	Ctsk.	Keyless	Open	.500	.280				2-Rad.	A6-161
RN-3027	**6-32**	.106-.161	Ctsk.	Keyed	Open	.500	.280				2-Rad.	A6K161
197-001	**8-32**	.065-.106	Ctsk.	Keyed	Open	.500	.325				Blank	A8K106
RN-3024	**10-32**	.065-.116	Ctsk.	Keyed	Open	.578	.395				Blank	A10K116
STEEL *UNIT PACKAGE 100*											
196-001	**6-32**	.065-.106	Ctsk.	Keyless	Open	.500	.325				Blank	S6-106
196-004	**8-32**	.161-.201	Ctsk.	Keyless	Open	.562	.290				4-Rad.	S8-201
RN-11	**10-32**	.065-.116	Ctsk.	Keyed	Open	.578	.395				Blank	S10K116
196-013	**1/4"-20**	.089-.151	Ctsk.	Keyed	Closed			1.000	.750	.435	Blank	S25KB151
▲196-800	**1/4"-20**	.211-.271	Ctsk.	Keyed	Closed			1.125	.750	.435	2-Rad.	SS25KB271

▲430 Stainless Steel - *Unit Pkg. 25*

876-754
BASIC KEY CUTTING TOOL
Set for No. 4 threaded Flat Head Rivet Nuts.

Closing the handle of the tool retracts a cutter blade that nips a keyway in thin metal. A small round file or guide drill is recommended for cutting keyways in heavier metals.



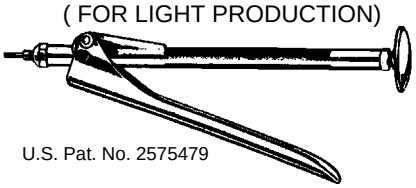
Priced Singly

This tool will cut keyways in 3/32" aluminum, 1/16" mild steel, and 1/32" stainless steel.

C

T-6000 SPEED HEADER

(FOR LIGHT PRODUCTION)



U.S. Pat. No. 2575479

Operating a push-pull knob on the handle threads the Rivet Nut on and off the pull-up stud. Knurled barrel is held in palm of hand and lever is squeezed, retracting pull-up stud and producing Rivet Nut bulge.

SPAENAUR No.	Thread Size
876-736	4-40
T-6000-6/32	6-32
T-6000-8/32	8-32
T-6000-10/32	10-32
T-6000-1/4-20	1/4-20

Note: Extra studs should be ordered with tool.

OPERATING RANGE

RIVET NUT MATERIAL	#4	#6	#8	#10	1/4"	5/16"	3/8"	1/2"
ALUMINUM	X	X	X	X				
BRASS & STEEL	X	X	X					
STAINLESS STEEL	X	X						

X RECOMMENDED — ADEQUATE BUT BORDERLINE STRENGTH-RECOMMEND POWER TOOL

WRENCH TYPE HEADER

for FIELD REPAIR and EXPERIMENTAL USE with Aluminum, Brass, Steel and Stainless Steel Materials.

U.S. Patent No. 2641378

T-845 Series

Wrench Type Header for Thread Sizes 6-32 to 1/4"-28. Replacement Pull Up Stud available.

T-722 Series

Designed for larger sizes that require pull-up loads greater than provided with lever type hand tool. Sold only as a unit. Replacement Pull Up Stud available. Suitable for field and experimental installation.

SPAENAUR No.	Thread Size	Pull Up Stud Replacement Part No.
T-845 Series		
T-845-6-32	6-32	**876-1795**
T-845-8-32	8-32	**876-1796**
876-725	10-24	**876-1798**
T-845-10-32	10-32	**876-1797**
T-845-1/4-20	1/4"-20	**876-1799**
876-726	1/4"-28	**876-1800**
T-722 Series		
T-722-5/16-18	5/16"-18	**876-1801**
T-722-5/16-24	5/16"-24	**876-1802**
T-722-3/8-16	3/8"-16	**876-1803**
T-722-3/8-24	3/8"-24	**876-1804**
T-722-1/2-13	1/2"-13	**876-1805**
T-722-1/2-20	1/2"-20	**876-1806**

OPERATING RANGE

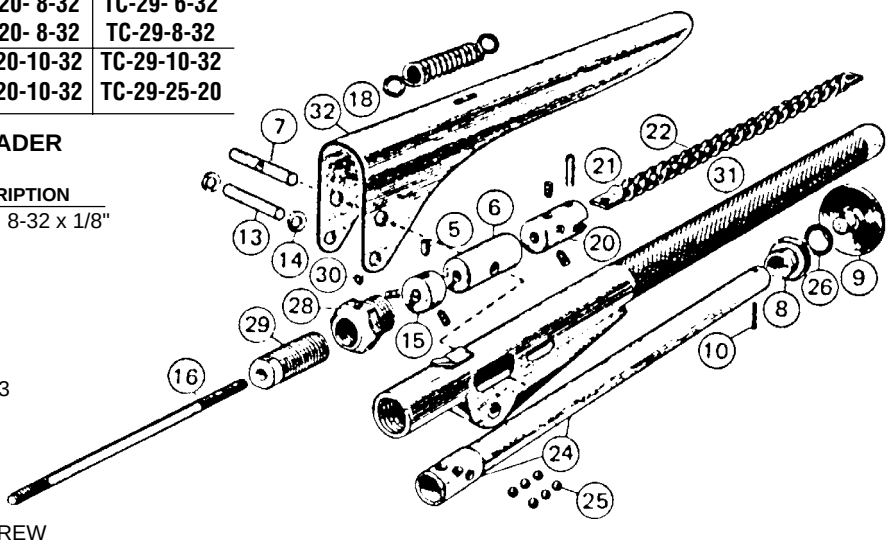
HEADER TYPE	RIVET NUT MATERIAL	#4	#6	#8	#10	1/4"	5/16"	3/8"	1/2"
T-845	ALUMINUM	X	X	X	X	X			
	BRASS & STEEL	X	X	X	X	X			
	STAINLESS STEEL	X	X	X	X	X			
T-722	ALUMINUM						X	X	X
	BRASS & STEEL						X	X	X
	STAINLESS STEEL						X	X	X

T-6000 SPEED HEADER CONVERSION PARTS

The following parts are required to convert the T-6000 Speed Header to other sizes.

Thread	Collar	Pull-up Stud	Coupling	Anvil
4-40	**TC-15- 4-40**	**TC-16- 4-40**	**TC-20- 8-32**	**TC-29- 4-40**
6-32	**TC-15- 6-32**	**TC-16- 6-32**	**TC-20- 8-32**	**TC-29- 6-32**
8-32	**TC-15- 8-32**	**TC -16- 8-32**	**TC-20- 8-32**	**TC-29-8-32**
10-32	**TC-15-10-32**	**TC-16-10-32**	**TC-20-10-32**	**TC-29-10-32**
1/4-20	**TC-15-10-32**	**TC-16-25-20**	**TC-20-10-32**	**TC-29-25-20**

*Specify Thread Size



SERVICE PARTS FOR T-6000 HEADER

SPAENAUR No.	ILLUST. No.	DESCRIPTION
876-702	5	SET SCREW No. 8-32 x 1/8"
876-703	6	PLUNGER
876-704	7	CROSS PIN
876-705	8	SLIDE BUSHING
876-706	9	KNOB
876-707	10	KNOB PIN
876-708	13	HINGE PIN
876-709	14	WASHER FOR 13
*TC-15	15	COLLAR
*TC-16	16	PULL-UP STUD
876-710	18	SPRING
*TC-20	20	COUPLING
876-711	21	PIN
876-712	22	OPERATING SCREW
876-713	24	OPERATING SLIDE AND NUT
876-714	25	3/16" HARDENED STEEL BALLS
876-715	26	"O" RING
876-716	28	ADJUSTABLE ANVIL SLEEVE
*TC-29	29	ADJUSTABLE ANVIL
876-717	30	BRASS SET SCREW (8-32 x 3/16")
876-718	31	HANDLE
876-719	32	SQUEEZE HANDLE

P.C. 876

CATALOG 13

C

FLAT HEAD

Keyless

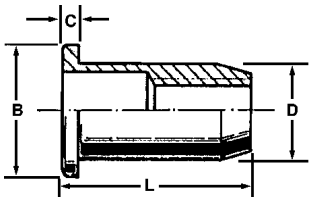
Installs like a blind rivet.
When set—it's a riveted-in Nut!

STEEL

Zinc Dichromate Plated

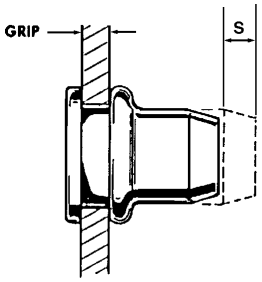
(open-end type)

ALL ITEMS THIS PAGE
UNIT PACKAGE 100



Metric Threads

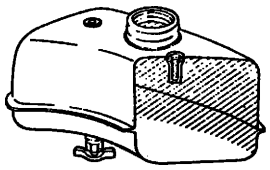
TYPICAL INSTALLATION



SPAENAUR No.	All Dimensions stated in millimetres: Thread Size	Grip Range	L	B	C	D	S	Install Drill Size
194-001	M3	1.00/1.50	9.0	7.5	1.0	5	1.3/2.5	5.1
194-002	M3	1.50/3.00	10.0	7.5	1.0	5		
194-004	M4	1.00/2.00	10.5	9.0	1.0	6	1.7/3.8	6.1
194-005	M4	2.00/4.00	12.0	9.0	1.0	6		
194-006	M5	0.25/3.00	14.0	10	1.0	7	2.5/5.0	7.1
194-008	M5	3.00/4.00	14.8	10	1.0	7		
194-009	M6	0.50/3.00	16.0	13	1.5	9	2.2/4.7	9.1
194-011	M6	3.00/4.50	18.2	13	1.5	9		
194-012	M6	4.50/6.00	19.8	13	1.5	9		
194-015	M8	3.00/5.50	21.0	16	2.0	11	3.0/5.5	11.1

Typical APPLICATIONS

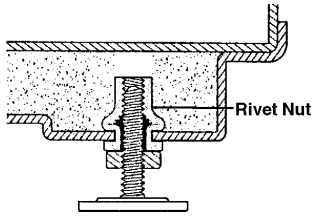
MOWER FUEL TANK



Closed-end Rivet Nuts make liquid-tight seal when installed in tank.

Special Advantages: Sturdy, multiple-thread nut plate.

APPLIANCE LEVELING FEET



Rivet Nuts provide nut plate for screw that adjusts feet.

Special Advantages: Rivet Nuts puts nut plate in metal too thin to tap.

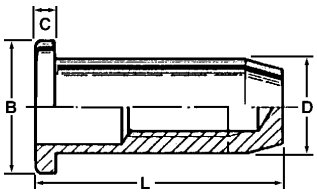
FLAT HEAD

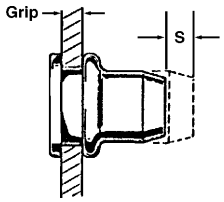
Keyless

STEEL

Zinc Dichromate Plated

(closed-end type)





TYPICAL INSTALLATION

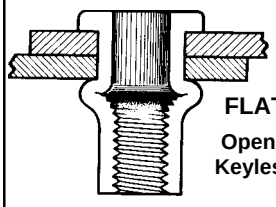
SPAENAUR No.	All Dimensions stated in millimetres: Thread Size	Grip Range	L	B	C	D	S	Install Drill Size
194-100	M3	0.25-1.00	13.1	7.5	1.0	5	1.3/2.5	5.1
194-101	M3	1.00-1.75	13.9	7.5	1.0	5		
194-102	M4	0.25-1.00	14.2	9.0	1.0	6	1.7/3.8	6.1
194-103	M4	1.00-2.00	15.5	9.0	1.0	6		
194-104	M4	2.00-4.00	17.0	9.0	1.0	6		
194-105	M5	1.00-2.00	18.7	11	1.0	7	2.5/5.0	7.1
194-107	M6	2.00-3.00	23.0	13	1.4	9	2.2/4.7	9.1
194-109	M8	0.50-3.00	26.0	16	1.5	11	3.0/5.8	11.1
194-110	M10	1.50-3.00	32.3	19	2.0	13		13.1

Note:

Metric Rivet Nut sizes not listed on pages C209, C210 & C211 can usually be furnished in minimum lots upon request.

CATALOG 13

C



FLAT
Open - Keyless

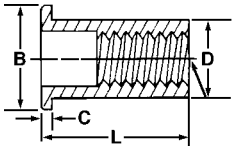
Installs like a blind rivet.
When set - it's a riveted-in Nut!

FLAT
Closed - Keyless

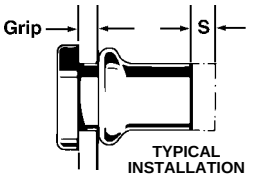
FLAT HEAD

(open-end type)

ALUMINUM Plain



OPEN-END TYPE



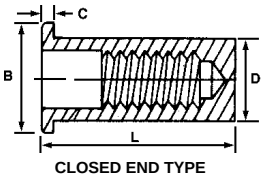
TYPICAL INSTALLATION

SPAENAUR No.	All dimensions stated in millimetres							Install Drill Size
	Thread Size	Grip Range	L	B	C	D	S	
195-001	M3	0.25-1.00	8.2	7.5	1.0	5		
195-002	M3	1.00-1.75	9.0	7.5	1.0	5		
195-003	M3	1.75-2.50	9.8	7.5	1.0	5	1.0/1.7	5.1
195-004	M3	2.50-3.25	10.6	7.5	1.0	5		
195-005	M3	3.25-4.00	11.4	7.5	1.0	5		
195-006	M4	0.25-1.00	9.9	9	1.0	6		
195-007	M4	1.00-1.75	10.6	9	1.0	6		
195-008	M4	1.75-2.50	11.4	9	1.0	6		
195-009	M4	2.50-3.25	12.1	9	1.0	6	1.3/2.0	6.1
195-010	M4	3.25-4.00	12.9	9	1.0	6		
195-011	M4	4.75-5.50	14.4	9	1.0	6		
195-014	M5	2.00-3.00	13.6	10	1.0	7		
195-015	M5	3.00-4.00	14.7	10	1.0	7	1.5/3.0	7.1
195-016	M5	4.00-5.00	15.8	10	1.0	7		
195-020	M6	3.00-4.50	18.2	13	1.5	9		
195-021	M6	4.50-6.00	19.8	13	1.5	9	1.8/3.3	9.1
195-022	M6	6.00-7.50	21.4	13	1.5	9		
195-023	M8	0.70-1.50	18.4	16	1.5	11		
195-024	M8	1.50-3.00	20.0	16	1.5	11		
195-025	M8	3.00-4.50	21.6	16	1.5	11	3.0/4.5	11.1
195-027	M10	0.70-1.50	22.8	19	2.0	13		
195-028	M10	1.50-3.00	24.4	19	2.0	13		
195-029	M10	3.00-4.50	26.0	19	2.0	13	3.0/4.5	13.1
195-030	M10	6.00-7.50	29.2	19	2.0	13		
195-031	M10	9.00-10.50	32.4	19	2.0	13		
195-032	M12	1.50-3.00	27.8	23	2.0	16		16.15
195-033	M14	3.00-4.50	33.9	24	2.5	18	3.0/4.5	18.15
195-034	M16	3.00-4.50	37.3	28	2.5	21		21.15

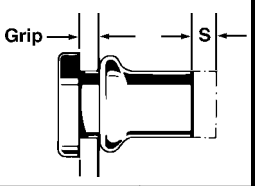
FLAT HEAD

(Closed end type)

ALUMINUM Plain



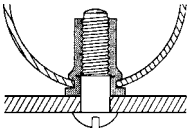
CLOSED END TYPE



SPAENAUR No.	All dimensions stated in millimetres							Install Drill Size
	Thread Size	Grip Range	L	B	C	D	S	
195-100	M3	1.00-1.75	13.3	7.5	1.0	5	1.0/1.7	5.1
195-101	M4	1.75-2.50	16.0	9.0	1.0	6	1.3/2.0	6.1
195-103	M6	1.50-3.00	23.6	13	1.5	9	1.8/3.3	9.1
195-104	M6	3.00-4.50	25.2	13	1.5	9	1.8/3.3	9.1

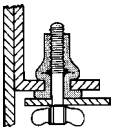
Metric
Rivet Nut
APPLICATIONS

BARBEQUE CART



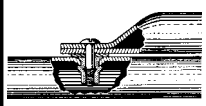
Flat panels fastened securely to tubular legs with Rivet Nuts.
Special Advantages: Blind side fastening; fast installation.

AIR CONDITIONER FASTENING



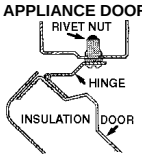
Rivet Nuts under bottom panel permits wing nut attachment.
Special Advantages: Easy accessibility to fan and controls.

FOLDING FURNITURE



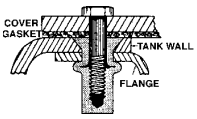
Pivot points in tubular furniture are natural spots for Rivet Nuts.
Special Advantages: Improved appearance; fast installation.

APPLIANCE DOORS



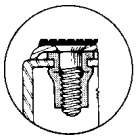
Rivet Nuts solve blind fastening and nut-plate problems on appliances.
Special Advantages: Rivet Nuts can be installed after assembly.

OIL RESERVOIR COVERS



Rivet Nuts with closed ends extend into reservoirs, act as nut plates.
Special Advantages: No tapping of holes, no welding or grinding.

BOAT STEP PADS



Rivet Nuts in coaming permits easy mounting and replacement.
Special Advantages: Installation from the interior; neater design.

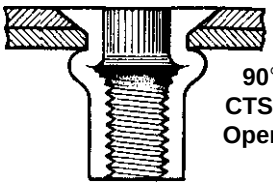
UNIT PACKAGE 100
ALL ITEMS ON THIS PAGE

Also available

RIVET NUT
Inch Sizes

See Pages C188 to C191

CATALOG 13



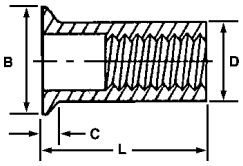
Installs like a blind rivet.
When set - it's a riveted-in Nut!

C

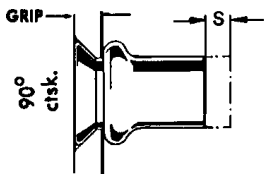
COUNTERSUNK HEAD

ALL ITEMS THIS PAGE
UNIT PACKAGE 100

Open-end type



OPEN-END TYPE



Countersunk Head

ALUMINUM Plain

All Dimensions stated in Millimetres

SPAENAUR No.	Thread Size	Grip Range	L	B	C	D	S	Install Drill Size
195-200	M3	1.30-1.75	8.4	7.2	1.4	5	1.0/1.7	5.1
195-201	M3	1.75-2.50	9.2	7.2	1.4	5		
195-203	M4	1.30-1.75	9.5	8.2	1.4	6	1.3/2.0	6.1
195-204	M4	1.75-2.50	10.5	8.2	1.4	6		
195-205	M4	2.50-3.25	11.3	8.2	1.4	6		
195-206	M4	3.25-4.00	12.1	8.2	1.4	6		
195-207	M5	1.50-2.00	11.5	9.6	1.6	7	1.5/3.0	7.1
195-208	M5	2.00-3.00	12.6	9.6	1.6	7		
195-209	M5	3.00-4.00	13.7	9.6	1.6	7		
195-210	M5	4.00-5.00	14.8	9.6	1.6	7		
195-211	M6	3.00-4.50	16.6	11.7	1.6	9	1.8/3.3	9.1
195-212	M6	4.50-6.00	18.0	11.7	1.6	9		
195-213	M6	6.00-7.50	19.8	11.7	1.6	9		
195-214	M8	3.00-4.50	20.1	13.5	1.6	11	3.0/4.5	11.1
195-215	M10	3.00-4.50	24.0	15.5	1.6	13		13.1
195-216	M12	3.00-4.50	27.4	19.0	1.8	16		16.15

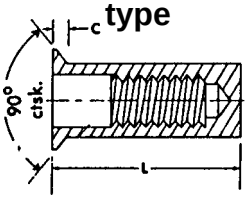
STEEL Zinc Dichromate Plated

194-200	M3	1.25-1.75	8.8	7.2	1.4	5	1.3/2.5	5.1
194-201	M4	2.00-3.00	10.5	8.2	1.4	6	1.7/3.8	6.1
194-203	M5	2.00-3.00	12.7	9.6	1.6	7	2.5/5.0	7.1
194-206	M8	1.50-3.00	16.6	13.5	1.6	11	3.0/5.5	11.1

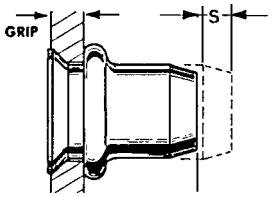
STEEL Cadmium Plated

196-178	M6	0.75-2.00	15.50	10.38	1.47	8.43	2.06-2.13	8.50

Closed-end type



CLOSED-END TYPE



TYPICAL INSTALLATION

ALUMINUM Plain

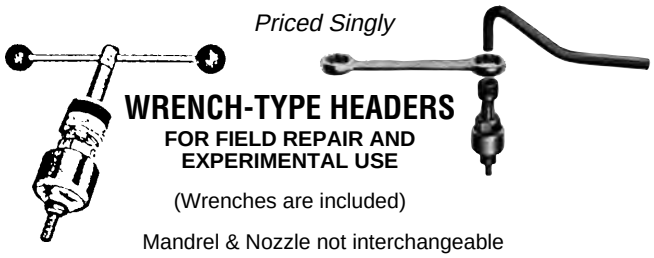
SPAENAUR No.	Thread Size	Grip Range	L	B	C	D	S	Install Drill Size
195-300	M4	1.75-2.50	15.5	8.2	1.4	6	1.3/2.0	6.1
195-302	M6	3.00-4.50	23.6	11.7	1.6	9	1.8/3.3	9.1

STEEL Zinc Dichromate Plated

194-300	M4	1.25-1.75	14.2	8.2	1.4	6	1.7/3.8	6.1
194-301	M4	1.75-2.50	15.0	8.2	1.4	6		6.1
194-302	M5	1.50-2.00	17.7	9.6	1.6	7	2.5/5.0	7.1
194-303	M5	2.00-3.00	18.8	9.6	1.6	7		7.1
194-304	M6	1.50-3.00	22.0	11.7	1.6	9	2.2/4.7	9.1
194-305	M6	3.00-4.50	23.6	11.7	1.6	9		9.1
194-306	M8	1.50-3.00	24.8	13.5	1.6	11	3.0/5.5	11.1

C

Priced Singly



WRENCH-TYPE HEADERS

FOR FIELD REPAIR AND EXPERIMENTAL USE

(Wrenches are included)

Mandrel & Nozzle not interchangeable

Tool No.	Thread Size
877-600	M6
877-601	M8

Tool No.	Thread Size
877-602	M10
877-603	M12

ALUM | BRASS | STEEL

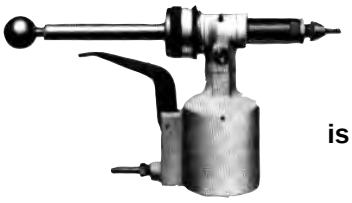
Priced Singly

877-604

HAND-SETTING PLIER

Includes Mandrel and Nozzle for M3 Rivet Nut. Interchangeable larger sizes of Mandrel and Nozzle must be ordered separately.

MANDREL	NOZZLE	Thread Size	ALUM.	BRASS	STEEL
877-650	**877-651**	M3			
877-652	**877-653**	M4			
877-654	**877-655**	M5			
877-656	**877-657**	M6			



877-607

OIL-PNEUMATIC POWER HEADER is no longer available.

Mandrel and Nozzel parts listed below are available until our current supply is depleted. Mandrel and Nozzle must be ordered separately.

MANDREL	NOZZLE	Thread Size	ALUM.	BRASS	STEEL
877-674	**877-675**	M3			
877-676	**877-677**	M4			
877-678	**877-679**	M5			
877-680	**877-681**	M6			
877-682	**877-683**	M8			
877-684	**877-685**	M10			

Priced Singly

*Recommended air pressure for setting Rivet Nut up to size M8 is 5 to 6 bar. For size M10 use 7.5 to 8 bar air pressure.

877-605 SPEED HEADER

(FOR LIGHT PRODUCTION)

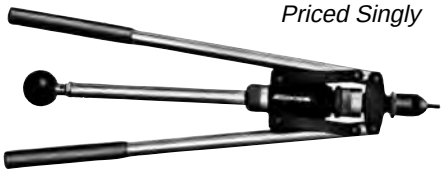
Tool includes Mandrel & Nozzel for installing size M3 Rivet Nut.

Interchangeable larger sizes of Mandrel and Nozzle must be ordered separately.

Priced Singly

MANDREL	NOZZLE	Thread Size	ALUM.	BRASS	STEEL
877-658	**877-659**	M3			
877-660	**877-661**	M4			
877-662	**877-663**	M5			
877-664	**877-665**	M6			

Priced Singly



877-606

LAZY TONG HEADER

Includes Mandrel and Nozzle for M5 Rivet Nut. Interchangeable larger sizes of Mandrel and Nozzle must be ordered separately.

MANDREL	NOZZLE	Thread Size	ALUM.	BRASS	STEEL
877-666	**877-667**	M5			
877-668	**877-669**	M6			
877-670	**877-671**	M8			
877-672	**877-673**	M10			

877-609

Pneumatic-hydraulic POWER HEADER is no longer available.

Mandrel and Nozzel parts listed below are available until our current supply is depleted. Mandrel and Nozzle must be ordered separately.

MANDREL	NOZZLE	Thread Size	ALUM.	BRASS	STEEL
877-610	**877-616**	M3			
877-611	**877-617**	M4			
877-612	**877-618**	M5			
877-613	**877-619**	M6			
877-614	**877-620**	M8			
877-615	**877-621**	M10			

Priced Singly

*Recommended air pressure for setting Rivet Nut up to size M10 is 5 to 6 bar air pressure.

*5 bar = 72.5 psi
6 bar = 87.7 psi
8 bar = 116.0 psi

*To convert to PSI multiply bar by 14.5

CATALOG 13

C

Automatic self-locking external thread with use-activated epoxy adhesive

Used for the repair and prevention of stripped threads in Aluminum, Magnesium, Cast Iron, Steel, Copper, and Brass.

External threads are standard inch size and pitch to permit use of standard drills and taps. No special tap sizes needed.

Installation

1 Drill with standard drill.

2 Tap hole with standard tap.

3 Turn E-Z LOK home flush with bolt, stud, or spark plug.

	SPAENAUR No.	INTERNAL THREAD	EXTERNAL THREAD	LENGTH	TAP DRILL SIZE	TAP SIZE	MIN. FULL THREAD DEPTH	POWER DRIVE TOOL
Made of **STEEL** with **BLACK OXIDE FINISH** — **COARSE THREAD SIZES**	**627-020**	4-40	10-32	.250	5/32	10/32	9/32	***SPAENAUR No.***
	627-021	6-32	1/4-20	.280	7	1/4-20	11/32	
	627-022	8-32	5/16-18	.290	F	5/16-18	7/16	**876-790**
	627-001	10-24	3/8-16	.406	5/16	3/8-16	15/32	**876-791**
	627-002	1/4-20	7/16-14	.437	23/64	7/16-14	1/2	**876-792**
	627-003	5/16-18	1/2-13	.484	27/64	1/2-13	9/16	**876-793**
	627-004	3/8-16	9/16-12	.515	31/64	9/16-12	19/32	**876-794**
	627-005	7/16-14	5/8-11	.656	17/32	5/8-11	23/32	**876-795**
	627-006	1/2-13	3/4-10	.656	21/32	3/4-10	3/4	**876-796**
	627-007	5/8-11	7/8-9	.687	49/64	7/8-9	13/16	**876-797**
	627-008	5/8-11	7/8-9	1.125	49/64	7/8-9	1-1/4	**876-797**
	627-009	3/4-10	1-8	.781	7/8	1-8	7/8	**876-798**
	627-025*	7/8-9	1-1/4-7	1.125	1-7/64	1-1/4-7	1-1/8	—
	627-010	1-8	1-3/8-12	1.250	1-9/32	1-3/8-12	1-3/8	—
FINE THREAD SIZES	**627-011**	10-32	3/8-16	.406	5/16	3/8-16	15/32	**876-791**
	627-012	1/4-28	7/16-14	.437	23/64	7/16-14	1/2	**876-792**
	627-013	5/16-24	1/2-13	.484	27/64	1/2-13	9/16	**876-793**
	627-014	3/8-24	9/16-12	.515	31/64	9/16-12	19/32	**876-794**
	627-015	7/16-20	5/8-11	.656	17/32	5/8-11	23/32	**876-795**
	627-016	1/2-20	3/4-10	.656	21/32	3/4-10	3/4	**876-796**
	627-017	5/8-18	7/8-9	.687	49/64	7/8-9	13/16	**876-797**
	627-018	3/4-16	1-8	.781	7/8	1-8	7/8	**876-798**
METRIC THREAD SIZES	**627-216***	M4-0.7	M8-1.25	7.5 mm	6.9 mm	M8-1.25	9.0 mm	—
	627-200	M6-1.0	3/8-16	.406	5/16	3/8-16	15/32	**876-792**
	627-201	M8-1.25	1/2-13	.484	27/64	1/2-13	9/16	**876-793**
	627-202	M10-1.50	9/16-12	.515	31/64	9/16-12	19/32	**876-794**
	627-203	M12-1.75	3/4-10	.656	21/32	3/4-10	3/4	**876-795**
	627-204	M14-2.0	7/8-9	.687	49/64	7/8-9	13/16	**876-796**
	627-205	M16-2.0	1-8	.781	7/8	1-8	7/8	**876-797**
SPARK PLUG SIZES	**627-206**	M10-1.0	9/16-18	.453	33/64	9/16-18	1/2" reach	—
	627-207	M12-1.25	5/8-18	.453	37/64	5/8-18	1/2" reach	—
	627-208	M12-1.25	5/8-18	.703	37/64	5/8-18	3/4" reach	—
	627-209	M14-1.25	3/4-16	.328	11/16	3/4-16	3/8" reach	—
	627-210	M14-1.25	3/4-16	.453	11/16	3/4-16	1/2" reach	—
	627-211	M14-1.25	3/4-16	.703	11/16	3/4-16	3/4" reach	—
	627-217	M18-1.50	1-12	.453	59/64	1-12	1/2" reach	—
VW CASE SAVERS	**627-213** (Open)	M10-1.50	9/16-12	1.000	31/64	9/16-12	1-1/16	—
	627-214 (Closed)	M10-1.50	9/16-12	1.000	31/64	9/16-12	1-1/16	—
CUMMINS HEAD BOLT	**627-019**	11/16-16	7/8-14	2.000	13/16 (875-167)	7/8-14 (874-339)	2-3/16	—

Components of Assortment No. 805-425

Components of Assortment No. 805-422

***Not in Assortment**

Cont'd.

Automatic self-locking external thread with use-activated epoxy adhesive

303 STAINLESS STEEL, PASSIVATED

Components of Assortment No. 805-423

	SPAENAUR No.	INTERNAL THREAD	EXTERNAL THREAD	LENGTH	TAP DRILL SIZE	TAP SIZE	MIN. FULL THREAD DEPTH	POWER DRIVE TOOL
COARSE THREAD SIZES	**627-800**	10-24	3/8-16	.406	5/16	3/8-16	15/32	**876-791**
	627-801	1/4-20	7/16-14	.437	23/64	7/16-14	1/2	**876-792**
	627-802	5/16-18	1/2-13	.484	27/64	1/2-13	9/16	**876-793**
	627-812▲	M8x1.25	M12x1.75	12.5	10.4	M12x1.75	14.5	**876-793**
	627-803	3/8-16	9/16-12	.515	31/64	9/16-12	19/32	**876-794**
	627-804	7/16-14	5/8-11	.656	17/32	5/8-11	23/32	**876-795**
	627-805	1/2-13	3/4-10	.656	21/32	3/4-10	3/4	**876-796**
FINE THREAD SIZES	**627-806**	10-32	3/8-16	.406	5/16	3/8-16	15/32	**876-791**
	627-807	1/4-28	7/16-14	.437	23/64	7/16-14	1/2	**876-792**
	627-808	5/16-24	1/2-13	.484	27/64	1/2-13	9/16	**876-793**
	627-809	3/8-24	9/16-12	.515	31/64	9/16-12	19/32	**876-794**
	627-810	7/16-20	5/8-11	.656	17/32	5/8-11	23/32	**876-795**
	627-811	1/2-20	3/4-10	.656	21/32	3/4-10	3/4	**876-796**

▲Metric Not in Assortment 805-423

POWER DRIVE TOOL

Order Power Drive Tool by ***SPAENAUR No.*** shown in extreme right column of charts.

Priced Singly

SPAENAUR No's. 876-790 thru 876-793 have 1/4" Hex. Shank.

SPAENAUR No's. 876-794 thru 876-798 have 3/8" Hex. Shank.

"E-Z LOK"

STANDARD ASSORTMENTS,

Inch and Metric

Priced Singly

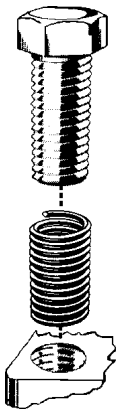
Steel Drawer Size:
13-5/16" W. x 9-1/4" D. x 2" H.

SPAENAUR No.	**Contents (Indicated in charts.)**
805-425	21 **sizes in Inch**, Steel (60 Pieces)
805-422	15 **sizes in Metric/Inch**, Steel (60 Pieces) Internal threads are Metric, External are Inch
805-423	12 **sizes in Inch**, 303 Stainless Steel (42 Pieces)

SPAENAUR

Your #1 Choice for Fasteners.

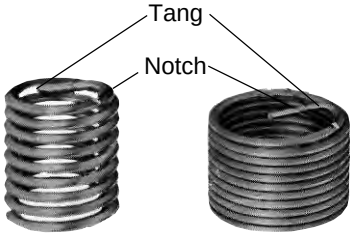
CATALOG 13



The HeliCoil® Thread Repair System is the most effective and universally accepted method of thread repair. It quickly, easily and permanently restores stripped, worn, or damaged threads to original condition.

HeliCoil Thread Repairs make all other thread repair methods obsolete, eliminating welding, plugging, oversize fasteners and oversized drilling of mating parts. Out-of-service parts can be restored instead of replaced, reducing service delays and customer complaints.

HeliCoil Stainless Steel Inserts



Standard Spark Plug

HeliCoil Thread Repair Inserts are precision-formed thread liners made of coiled 18-8 stainless steel wire. When installed into HeliCoil-tapped holes, they permanently conform to the size of the original thread.

Two types of inserts are supplied with the products listed in this catalog:

1. *Standard,* free-running type for all Inch Coarse, Inch Fine, Metric Coarse and Metric Fine thread sizes.
2. *Spark Plug,* for all spark plug port thread sizes.

Both inserts feature an installaltion tang which is notched for easy removal.

HeliCoil Taps

The standard HeliCoil tap supplied for Inch and Metric size applications can be attached to a tap handle and used like a conventional tap.

Spark Plug taps feature pilot threads, a reamer section and tap combination. No drilling of worn out threads is required.

HeliCoil Installation Tools

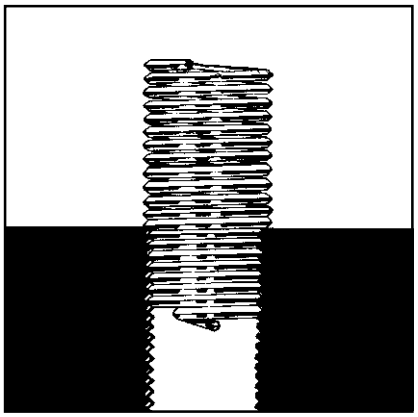
Standard Type

Prewinder Type

The standard HeliCoil tool is used for installing Inch Coarse and Metric Coarse sizes.

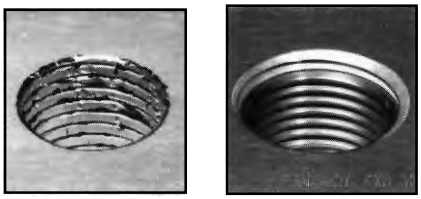
A prewinder attachment is provided for some Coarse, all Fine, and Spark Plug sizes.

Retention Principle



HeliCoil Stainless Steel Inserts are designed in the free state to be larger than the tapped hole. After installation, they expand with a spring-like action, which permanently anchors the insert in place against the tapped hole. No staking, locking, swaging, keying, or interference fits are required.

Performance/Reliability



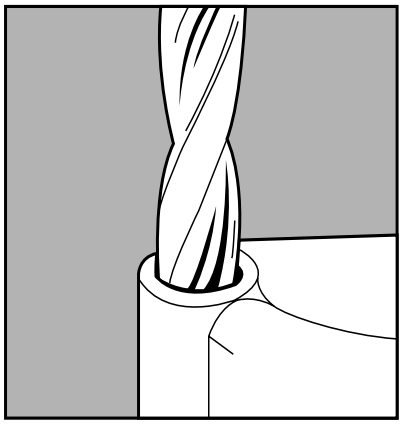
Stripped **Fixed**

HeliCoil Thread Repairs can be used in any material: Cast iron, steel, copper, brass, bronze, aluminum, magnesium, plastics, and wood. After installation, they never shift, wear, or spin out. Stripping, fatigue, corrosion, cross-threading, and seizing are eliminated. HeliCoil Thread Repairs provide freedom from wear after repeated assembly and disassembly.

More HeliCoil
Information
on page C218.

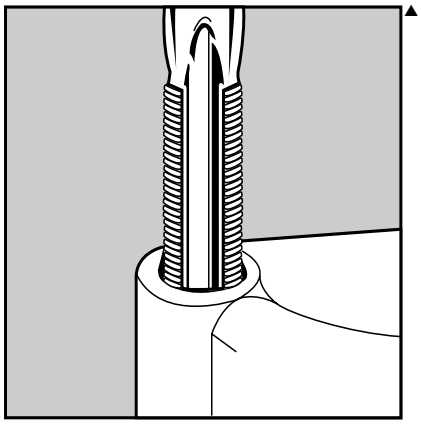
HeliCoil Product
listings on following
pages C219 to C228.

C



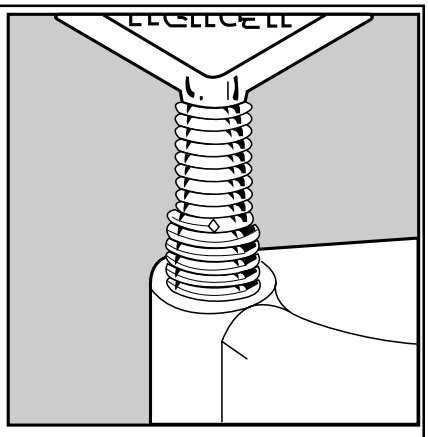
Drill

1. Drill out damaged or stripped threads using drill size as specified on pack or kit.
2. Drill to adequate depth: completely through, or to bottom, for blind holes.



Tap

1. Use HeliCoil tap as listed on pgs. C220 to C227. Check thread size designation on shank to assure correct size.
2. Cut proper thread size as required to receive insert. No other machining is necessary.



Install

1. Use correct installation tool and insert. Screw insert on mandrel until driving tang is fully engaged in slot.

Note: Installation tool with prewinder body.

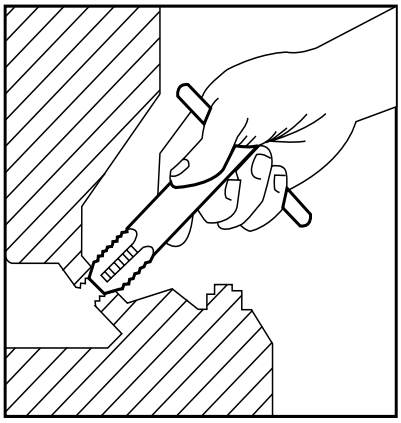
Retract mandrel from prewinder. Place insert on threaded portion. Place prewinder over mandrel. Rotate mandrel clockwise until insert is engaged in 1 or 2 threads of the prewinder.

2. Screw insert into tapped hole. Top of insert must be 1/4 to 1/2-turn below top surface.

Tang Removal

Tang must be removed to allow full passage of fastener through insert. After installation, place square end of punch (no chamfer) on tang. Strike sharply with hammer. Tang will break off at notch.

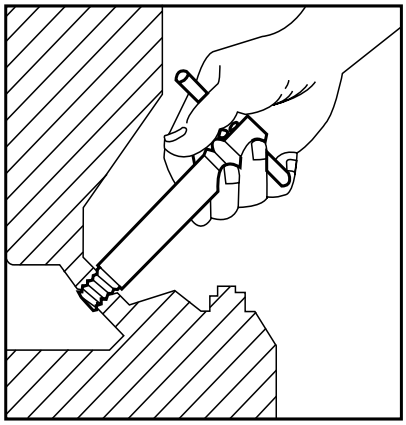
Spark Plug Application Procedures



Ream/Tap

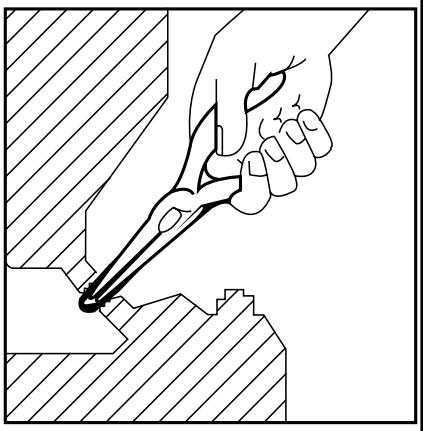
The HeliCoil reamer/tap design eliminates the need for drilling out worn threads, engine disassembly, and use of a tap wrench.

1. Pack flutes with heavy grease to contain chips.
2. Thread pilot into hole. Rotate until new threads are cut.
3. Blow remaining chips out through ports.



Install

1. Set stop collar to contact tool body when mandrel projects through prewinder an approximate distance equal to plug reach.
2. Retract mandrel from body. Place insert on threaded portion.
3. Place tool body over mandrel. Rotate mandrel clockwise until insert is engaged in 1 or 2 threads of the body.
4. Place tool squarely over tapped hole. Rotate mandrel while holding the body. Wind insert into work until collar contacts body. Top of insert must be 1/4 to 1/2-turn below top surface.



Tang Removal

1. Use tool shown on page C219, or long-nose pliers.
2. Bend tang up and down to snap it off at notch.

HeliCoil

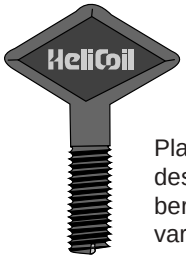
Full industrial range
now available from

SPAENAUR

Heavy-duty Style

HeliCoil Installation Tools for hand installation of inserts.

Note: HeliCoil Installation Tools vary in design and appearance, ranging from light-weight to heavy-duty styles as thread size increases.



■ECONOMY STYLE

HeliCoil Installation Tools for hand installation of inserts.

Plastic Installation Tools, as illustrated, are designated by a square (■). The other numbers listed are STEEL with a black finish, and vary in design and appearance.

C

Inch Sizes			Metric Sizes		
THREAD Size	*SPAENAUR No.*	HeliCoil No.	THREAD Size	*SPAENAUR No.*	HeliCoil No.
2-56	**876-650**	551-02	M2.2 x 0.45	**877-042**	7751-2.2
3-48	**876-651**	551-03	M2.5 x 0.45	**877-043**	7751-2.5
3-56	**876-655**	7552-03	M3 x 0.50	**877-044**	7751-3
4-40	**876-652**	7551-04	M3.5 x 0.60	**877-045**	7751-3.5
4-48	**876-656**	7552-04	M4 x 0.7	**877-021**	7751-4
5-40	**876-653**	7551-05	M5 x 0.8	**877-047**	7751-5
6-32	**876-659**	7551-06	M6 x 1.0	**877-048**	7751-6
6-40	**876-657**	7552-06	M7 x 1.0	**877-049**	7751-7
8-32	**876-660**	7551-2	M8 x 1.25	**877-050**	7751-8
8-36	**876-658**	7552-2	M8 x 1.0	**877-051**	7755-8
10-24	**876-661**	7551-3	M10 x 1.5	**877-052**	7751-10
10-32	**876-662**	7552-3	M10 x 1.0	**877-053**	7755-10
12-24	**876-663**	7551-1	M10 x 1.25	**877-054**	7756-10
1/4"-20	**876-664**	7551-4	M12 x 1.75	**877-055**	7751-12
1/4"-28	**876-665**	7552-4	M12 x 1.50	**877-056**	7753-12
5/16"-18	**876-666**	7551-5	M12 x 1.25	**877-046**	7756-12
5/16"-24	**876-667**	7552-5	M14 x 2.0	**877-057**	7751-14
3/8"-16	**876-668**	7551-6	M14 x 1.50	**877-058**	7753-14
3/8"-24	**876-669**	7552-6	M16 x 2.0	**877-059**	7751-16
7/16"-14	**876-670**	7551-7	M16 x 1.5	**877-060**	7753-16
7/16"-20	**876-671**	7552-7	M18 x 2.5	**877-061**	7751-18
1/2"-13	**876-672**	7551-8	M18 x 1.5	**877-062**	7753-18
1/2"-20	**876-673**	7552-8	M20 x 2.5	**877-063**	7751-20
9/16"-12	**876-037**	3724-9			
9/16"-18	**876-674**	535-9			
5/8"-11	**876-675**	3724-10			
5/8"-18	**876-676**	535-10			
3/4"-10	**876-039**	3724-12			
3/4"-16	**876-677**	535-12			
7/8"-9	**876-040**	3724-14			
7/8"-14	**876-079**	535-14			
1"-8	**876-041**	3724-16			
1"-14	**876-080**	535-16			
1"-12	**876-081**	535-161			
1-1/8"-7	**876-042**	3724-18			
1-1/8"-12	**876-082**	535-18			
1-1/4"-7	**876-043**	3724-20			
1-1/4"-12	**876-083**	535-20			
1-3/8"-6	**876-044**	3724-22			
1-3/8"-12	**876-084**	535-22			
1-1/2"-6	**876-045**	3724-24			
1-1/2"-12	**876-085**	535-24			

Inch Sizes			Metric Sizes		
THREAD Size	*SPAENAUR No.*	HeliCoil No.	Size	*SPAENAUR No.*	HeliCoil No.
6-32	**876-654**	2288-06	M5 x 0.8	**877-000**	3747-5
8-32	**876-046**	2288-2	M6 x 1.0	**877-001**	3747-6
10-24	**876-030**	2288-3	M6.3 x 1.0	**877-002**	3747-6.3
10-32	**876-070**	2299-3	M7 x 1.0	**877-003**	3747-7
12-24	**876-031**	2288-1	M8 x 1.25	**877-004**	3747-8
1/4"-20	**876-683**	2288-4	M8 x 1.00	**877-011**	4835-8
1/4"-20	**■876-032**	5288-4	M10 x 1.50	**877-005**	3747-10
1/4"-28	**876-071**	2299-4	M10 x 1.25	**877-012**	4640-10-1
5/16"-18	**876-684**	2288-5	M11 x 1.00	**877-013**	4835-11
5/16"-18	**■876-033**	5288-5	M11 x 1.50	**877-041**	3747-11-5
5/16"-24	**876-072**	2299-5	M12 x 1.75	**877-006**	3747-12
3/8"-16	**876-685**	2288-6	M12 x 1.50	**877-014**	4973-12
3/8"-16	**■876-034**	5288-6	M14 x 2.00	**877-007**	3747-14
3/8"-24	**876-073**	2299-6	M14 x 1.50	**877-015**	4973-14
7/16"-14	**876-686**	2288-7	M16 x 2.00	**877-008**	3747-16
7/16"-14	**■876-035**	5288-7	M16 x 1.50	**877-016**	4973-16
7/16"-20	**876-074**	2299-7	M18 x 2.50	**877-009**	3747-18
1/2"-13	**876-687**	2288-8	M20 x 2.50	**877-010**	3747-20
1/2"-13	**■876-036**	5288-8			
1/2"-20	**876-075**	2299-8			
9/16"-18	**876-076**	2299-9			
5/8"-11	**876-723**	2288-10			
5/8"-11	**■876-038**	5288-10			
5/8"-18	**876-077**	2299-10			
3/4"-10	**876-724**	2288-12			
3/4"-16	**876-078**	2299-12			

For Extracting Tools See Page C227

All tools this page PRICED SINGLY

TANG BREAK-OFF TOOLS

Tang Break-off Tools are available for use with inserts up through 1/2" (M12) nominal diameter.

Their operation is automatic, having a spring loaded, easily triggered punch that strikes a sharp, uniform blow against the tang of the installed insert. It can be operated with one hand.

See page C227 for Extracting Tools.

Inch Sizes

THREAD Size	*SPAENAUR No.*	HeliCoil No.
#2/3 UNC & UNF	**876-745**	3695-02
#4/5 UNC & UNF	**876-746**	3695-04
#6 UNC & UNF	**876-727**	3695-06
#8 UNC & UNF	**876-728**	3695-2
#10 UNC & UNF	**876-729**	3695-3
1/4" UNC & UNF	**876-730**	3695-4
5/16"-18 UNC	**876-1192**	3695-5
5/16"-24 UNF	**876-1193**	3692-5
3/8" -16 UNC	**876-743**	3695-6
3/8"-24 UNF	**876-1194**	3692-6
7/16"-14 UNC	**876-1195**	3695-7
7/16"-20 UNF	**876-1196**	3692-7
1/2"-13 UNC	**876-744**	3695-8
1/2"-20 UNF	**876-1197**	3692-8

Metric Sizes

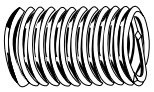
THREAD Size (Standard Coarse and Fine Thread)	*SPAENAUR No.*	HeliCoil No.
M2.2 & M2.5	**877-066**	4238-2.2
M3 & M3.5	**877-067**	4238-3
M4	**877-068**	4238-4
M5	**877-069**	4238-5
M6	**877-070**	4238-6
M8	**877-071**	4238-8
M10	**877-072**	4238-10
M12	**877-073**	4238-12

C

INCH Coarse Series (U.N.C.)

INDUSTRIAL Screw Thread Inserts

Standard Free-Running Style



All TAPS and TOOLS, Priced Singly

U.N.C. COARSE Thread Size	Insert LENGTH in Inches	DRILL SIZES For... Aluminum	DRILL SIZES Steel Magnesium & Plastic	HeliCoil Insert Stainless (18-8) Steel *SPAENAUR No.*	Unit Pkg. Inserts only	Straight Flute for ALUMINUM Finishing PLUG	Straight Flute for ALUMINUM Finishing BOTTOM	TAPS Class 3B for STEEL (mild) Finishing PLUG	TAPS Class 3B for STEEL (mild) Finishing BOTTOM	HeliCoil HAND TOOL *SPAENAUR No.*
2-56	**.086** **.129** **.172** **.215** **.258**	3/32 **HSD-3/32**	.096 (#41) **HSD-41**	**627-050** **▼627-051** **627-052** **627-053** **627-054**	25	**▼874-030**	**874-035**	**874-030**	**874-035**	**▼876-650** HD
3-48	**.099** **.148** **.198** **.248** **.297**	.1065 (#36) **HSD-36**	.1094 (7/64) **HSD-7/64**	**627-055** **627-056** **627-057** **627-058** **627-059**	25	**874-031**	**874-036**	**874-031**	**874-036**	**876-651** HD
4-40	**.112** **.168** **.224** **.280** **.336**	.1200 (#31) **HSD-31**	.1200 (#31) **HSD-31**	**627-060** **▼627-061** **627-062** **627-063** **627-064**	25	**▼874-032**	**874-037**	**874-032**	**874-037**	**▼876-652** HD
5-40	**.125** **.188** **.250** **.312** **.375**	.1339 (3.4 mm) **875-573**	.1360 (#29) **HSD-29**	**627-065** **627-066** **627-067** **627-068** **627-069**	25	**874-033**	**874-038**	**874-033**	**874-038**	**876-653** HD
6-32	**.138** **.207** **.276** **.345** **.414**	.1470 (#26) **HSD-26**	.1495 (#25) **HSD-25**	**627-070** **▼627-071** **627-072** **627-073** **627-074**	25	**▼874-034**	**874-039**	**874-034**	**874-039**	**▼876-654** E
8-32	**.164** **.246** **.328** **.410** **.492**	.1730 (#17) **HSD-17**	.1770 (#16) **HSD-16**	**627-075** **▼627-850** **627-076** **627-077** **627-078**	12	**▼874-010**	**874-040**	**874-010**	**874-040**	**▼876-046** E
10-24	**.190** **.285** **.380** **.475** **.570**	.2031 (13/64) **HSD-13/64**	.2055 (#5) **HSD-5**	**627-079** ***627-851** **627-080** **627-081** **627-082**	12	***874-011**	**874-041**	**874-011**	**874-041**	***876-030** E
12-24	**.216** **.324** **.432** **.540** **.648**	.2280 (#1) **HSD-1**	.2280 (#1) **HSD-1**	**627-083** **627-852** **627-084** **627-085** **627-086**	12	**874-012**	**874-042**	**874-012**	**874-042**	**876-031** E
1/4"-20	**.250** **.375** **.500** **.625** **.750**	.2660 (#H) **875-181**	.2660 (#H) **875-181**	**627-087** ***627-853** **627-088** **627-089** **627-090**	12	***874-013**	**874-043**	**874-013**	**874-043**	***876-032** E
5/16"-18	**.312** **.469** **.625** **.781** **.938**	.3320 (#Q) **875-179**	.3320 (#Q) **875-179**	**627-091** ***627-854** **627-092** **627-093** **627-094**	12	***874-014**	**874-044**	**874-014**	**874-044**	***876-033** E
3/8"-16	**.375** **.562** **.750** **.938** **1.125**	.3970 (#X) **875-182**	.3970 (#X) **875-182**	**627-095** ***627-855** **627-096** **627-097** **627-098**	12	***874-015**	**874-045**	**874-015**	**874-045**	***876-034** E
7/16"-14	**.438** **.656** **.875** **1.094** **1.312**	.4531 (29/64) **HSD-29/64**	.4531 (29/64) **HSD-29/64**	**627-099** ***627-856** **627-100** **627-101**	10	***874-016**	**874-046**	**874-016**	**874-046**	***876-035** E

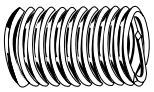
* Indicates a component of Assortment 805-463, on page C223.
▼ Indicates a component of Assortment 805-545, on page C221.

CATALOG 13

INCH Coarse Series (U.N.C.)

INDUSTRIAL Screw Thread Inserts

Standard Free-Running Style



All TAPS and TOOLS, Priced Singly

U.N.C. COARSE Thread Size	Insert LENGTH in Inches	DRILL SIZES For... Aluminum	DRILL SIZES Steel Magnesium & Plastic	HeliCoil Insert Stainless (18-8) Steel *SPAENAUR No.*	Unit Pkg. Inserts only	TAPS Straight Flute for ALUMINUM Finishing PLUG	TAPS Straight Flute for ALUMINUM Finishing BOTTOM	TAPS Class 3B for STEEL (mild) Finishing PLUG	TAPS Class 3B for STEEL (mild) Finishing BOTTOM	HeliCoil HAND TOOL *SPAENAUR No.*
1/2"-13	**.500** **.750** **1.000** **1.250** **1.500**	.5156 (33/64)	.5312 (17/32)	**627-103** ***627-857** **627-104** **627-105** **627-106**	10	***874-017**	**874-182**	**874-017**	**874-182**	***876-036** E
9/16"-12	**.562** **.844** **1.125** **1.406** **1.688**	.5781 (37/64)	.5938 (19/32)	**627-107** **627-858** **627-108** **627-109** **627-110**	10	**874-018**	**874-183**	**874-018**	**874-183**	**876-037** HD
5/8"-11	**.625** **.938** **1.250** **1.562** **1.875**	.6562 (21/32)	.6562 (21/32)	**627-111** ***627-859** **627-112** **627-113** **627-114**	10	***874-019**	**874-184**	**874-019**	**874-184**	***876-038** E
3/4"-10	**.750** **1.125** **1.500** **1.875** **2.250**	.7812 (25/32)	.7812 (25/32)	**627-115** ***627-860** **627-116** **627-117** **627-118**	10	***874-020**	**874-266**	**874-020**	**874-266**	***876-039** HD
7/8"-9	**.875** **1.312** **1.750** **2.188** **2.625**	.9062 (29/32)	.9062 (29/32)	**627-119** **627-861** **627-120** **627-121** **627-122**	10	**874-021**	**874-267**	**874-021**	**874-267**	**876-040** HD
1"-8	**1.000** **1.500** **2.000** **2.500** **3.000**	1.0312 (1-1/32)	1.0312 (1-1/32)	**627-123** **627-862** **627-124** **627-125** **627-126**	10	**874-022**	**874-268**	**874-022**	**874-268**	**876-041** HD
1-1/8"-7	**1.125** **1.688** **2.250** **2.812** **3.375**	1.1719 (1-11/64)	1.1719 (1-11/64)	**627-127** **627-863** **627-128** **627-129** **627-130**	5	**874-023**	**874-269**	**874-023**	**874-269**	**876-042** HD
1-1/4"-7	**1.250** **1.875** **2.500** **3.125** **3.750**	1.2969 (1-19/64)	1.2969 (1-19/64)	**627-131** **627-864** **627-132** **627-133** **627-134**	5	**874-024**	**874-270**	**874-024**	**874-270**	**876-043** HD
1-3/8"-6	**1.375** **2.062** **2.750** **3.438** **4.125**	1.4219 (1-27/64)	1.4219 (1-27/64)	**627-135** **627-865** **627-136** **627-137** **627-138**	5	**874-025**	**874-271**	**874-025**	**874-271**	**876-044** HD
1-1/2"-6	**1.500** **2.250** **3.000** **3.750** **4.500**	1.5469 (1-35/64)	1.5469 (1-35/64)	**627-139** **627-866** **627-140** **627-141** **627-142**	5	**874-026**	**874-272**	**874-026**	**874-272**	**876-045** HD

*Indicates a component of Assortment 805-463, shown on page C223.

ASSORTMENT / ASSORTIMENT 805-545

▼ Components of assortment 805-545 found on pages C220 & C222.

INCH COARSE (U.N.C.) AND FINE (U.N.F) REPAIR INSERT ASSORTMENT

HeliCoil

4 U.N.C. Sizes — 87 Inserts.
(2-56, 4-40, 6-32 and 8-32)

4 U.N.F. Sizes— 87 Inserts.
(3-56, 4-48, 6-40 and 8-36)

Plus 8 Taps and 8 Installation Tools.

Priced Singly

Furnished in REGULAR SIZE Steel drawer. Drawer will fit into Slide Racks shown on page A2.

Shipping Weight: 2.46 kg (5.43 lbs)

Inside label shows Part Nos. for ordering refills.

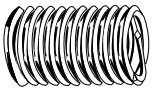
E = Economy Style
HD = Heavy Duty

C

INCH Fine Series (U.N.F.)

INDUSTRIAL Screw Thread Inserts

Standard Free-Running Style



UNF FINE Thread Size	Insert LENGTH in Inches	DRILL SIZES For... Aluminum	DRILL SIZES For... Steel Magnesium & Plastic	Helicoil Insert Stainless (18-8) Steel *SPAENAUR No.*	Unit Pkg. Inserts only	*All TAPS and TOOLS, Priced Singly* — Straight Flute TAPS Class 3B For ALUMINUM Finishing PLUG	For ALUMINUM Finishing BOTTOM	For STEEL (Mild) Finishing PLUG	For STEEL (Mild) Finishing BOTTOM	Helicoil HAND TOOL *SPAENAUR No.*
3-56	**.099** **.148** **.198** **.248** **.297**	.1040 (#37) **HSD-37**	.1065 (#36) **HSD-36**	**627-149** **▼627-150** **627-151** **627-152** **627-153**	25	**▼874-196**		**874-196**		**▼876-656** HD
4-48	**.112** **.168** **.224** **.280** **.336**	.1181 (3 mm) **875-568**	.1200 (#31) **HSD-31**	**627-154** **▼627-155** **627-156** **627-157** **627-158**	25	**▼874-197**	**874-1664**	**874-197**	**874-1664**	**▼876-656** HD
6-40	**.138** **.207** **.276** **.345** **.414**	.1470 (#26) **HSD-26**	.1495 (#25) **HSD-25**	**627-159** **▼627-160** **627-161** **627-162** **627-163**	25	**▼874-198**		**874-198**		**▼876-657** HD
8-36	**.164** **.246** **.328** **.410** **.492**	.1730 (#17) **HSD-17**	.1770 (#16) **HSD-16**	**627-164** **▼627-165** **627-166** **627-167** **627-168**	12	**▼874-199**		**874-199**		**▼876-658** HD
10-32	**.190** **.285** **.380** **.475** **.570**	.2010 (#7) **HSD-7**	.2031 (13/64") **HSD-13/64**	**627-169** **†627-867** **627-170** **627-171** **627-172**	12	**†874-070**	**874-253**	**874-070**	**874-253**	**†876-070** E
1/4"-28	**.250** **.375** **.500** **.625** **.750**	.2610 (G) **875-178**	.2638 (6.7 mm) **875-612**	**627-173** **†627-868** **627-174** **627-175** **627-176**	12	**†874-071**	**874-1665**	**874-071**	**874-1665**	**†876-071** E
5/16"-24	**.312** **.469** **.625** **.781** **.938**	.3281 (21/64") **HSD-21/64**	.3281 (21/64") **HSD-21/64**	**627-177** **†627-869** **627-178** **627-179** **627-180**	12	**†874-072**	**874-254**	**874-072**	**874-254**	**†876-072** E
3/8"-24	**.375** **.562** **.750** **.938** **1.125**	.3906 (25/64") **HSD-25/64**	.3906 (25/64") **HSD-25/64**	**627-181** **†627-870** **627-182** **627-183** **627-184**	12	**†874-073**	**874-258**	**874-073**	**874-258**	**†876-073** E
7/16"-20	**.438** **.656** **.875** **1.094** **1.312**	.4531 (29/64") **HSD-29/64**	.4531 (29/64") **HSD-29/64**	**627-185** **†627-871** **627-186** **627-187** **627-188**	10	**†874-074**	**874-255**	**874-074**	**874-255**	**†876-074** E
1/2"-20	**.500** **.750** **1.000** **1.250** **1.500**	.5156 (33/64")	.5156 (33/64")	**627-189** **†627-872** **627-190** **627-191** **627-192**	10	**†874-075**		**874-075**		**†876-075** E
9/16"-18	**.562** **.844** **1.125** **1.406** **1.688**	.5781 (37/64")	.5781 (37/64")	**627-193** **627-873** **627-194** **627-195** **627-196**	10	**874-076**		**874-076**		**876-076** E
5/8"-18	**.625** **.938** **1.250** **1.562** **1.875**	.6406 (41/64")	.6406 (41/64")	**627-197** **†627-874** **627-198** **627-199**	10	**†874-077**	**874-256**	**874-077**	**874-256**	**†876-077** E

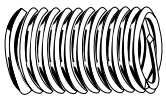
† Indicates a component of Assortment No. 805-464, on page C223.
▼ Indicates a component of Assortment No. 805-545, on page C221.

CATALOG 13

INCH Fine Series (U.N.F.)

INDUSTRIAL Screw Thread Inserts

Standard Free-Running Style



All TAPS and TOOLS, Priced Singly

C

U.N.F. FINE Thread Size	Insert LENGTH in Inches	DRILL SIZES For... Aluminum	DRILL SIZES For... Steel Magnesium & Plastic	Helicoil Insert Stainless (18-8) Steel *SPAENAUR No.*	Unit Pkg. Inserts only	Straight Flute TAPS Class 3B For ALUMINUM Finishing PLUG	Straight Flute TAPS Class 3B For ALUMINUM Finishing BOTTOM	Straight Flute TAPS Class 3B For STEEL (Mild) Finishing PLUG	Straight Flute TAPS Class 3B For STEEL (Mild) Finishing BOTTOM	Helicoil HAND TOOL *SPAENAUR No.*
3/4"-16	**.750** **1.125** **1.500** **1.875** **2.250**	.7656 (49/64")	.7656 (49/64")	**627-220** **†627-875** **627-221** **627-222** **627-223**	10	**†874-078**		**874-078**		**†876-078** E
7/8"-14	**.875** **1.312** **1.750** **2.188** **2.625**	.8906 (57/64")	.8906 (57/64")	**627-224** **627-876** **627-225** **627-226** **627-227**	10	**874-079**		**874-079**		**876-079** HD
1"-14	**1.000** **1.500** **2.000** **2.500** **3.000**	1.0156 (1-1/64")	1.0312 (1-1/32")	**627-228** **627-877** **627-229** **627-230** **627-231**	5	**874-080**	**874-265**	**874-080**	**874-265**	**876-080** HD
1"-12	**1.000** **1.500** **2.000** **2.500** **3.000**	1.0156 (1-1/64")	1.0312 (1-1/32")	**627-232** **627-878** **627-233** **627-234** **627-235**	5	**874-081**		**874-081**		**876-081** HD
1-1/8"-12	**1.125** **1.688** **2.250** **2.812** **3.375**	1.1406 (1-9/64")	1.11562 (1-5/32")	**627-236** **627-879** **627-237** **627-238** **627-239**	5	**874-082**		**874-082**		**876-082** HD
1-1/4"-12	**1.250** **1.875** **2.500** **3.125** **3.750**	1.2656 (1-17/64")	1.2812 (1-9/32")	**627-240** **627-880** **627-241** **627-242** **627-243**	5	**874-083**		**874-083**		**876-083** HD
1-3/8"-12	**1.375** **2.062** **2.750** **3.438** **4.125**	1.3906 (1-25/64")	1.4062 (1-13/32")	**627-244** **627-881** **627-245** **627-246** **627-247**	5	**874-084**		**874-084**		**876-084** HD
1-1/2"-12	**1.500** **2.250** **3.000** **3.750** **4.500**	1.5156 (1-33/64")	1.5312 (1-17/32")	**627-248** **627-882** **627-249** **627-250**	5	**874-085**		**874-085**		**876-085** HD

†Indicates a component of Assortment No. 805-464, shown below.

Inch HeliCoil ASSORTMENTS ASSORTIMENTS

805-463 Inch Coarse (U.N.C.)

Contains: 8 sizes - 88 only HeliCoil Inserts
(Sizes from 10-24 to 3/4"-10)
Plus 8 Taps and 8 Installation Tools

Shipping Weight 3.18 kg (7 lbs.)

805-464 Inch Fine (U.N.F.)

Contains: 8 sizes - 88 only HeliCoil Inserts
(Sizes from 10-32 to 3/4"-16)
Plus 8 Taps and 8 Installation Tools

Shipping Weight 3.63 kg (8 lbs.)

Regular Size Drawer:
13-3/8" x 9-1/4"x 2"

Priced Singly

Grey Enamelled Drawer fits the Slide Racks shown on page A2. Inside lid label shows Part Nos. for ordering refills, installation instructions, etc.

CATALOG 13

E = Economy Style
HD = Heavy Duty

METRIC

Industrial Screw Thread Inserts

Standard Free-running Style

Standard COARSE THREAD

All TAPS, TOOLS, *Priced Singly*

C

Metric COARSE Thread Size	Insert LENGTH in mm	DRILL SIZES For... ALUM.	DRILL SIZES Magnesium, Plastic STEEL	Helicoil Insert Stainless (18-8) Steel *SPAENAUR No.*	Unit Pkg. Inserts only	Straight Flute TAPS Class 5H For ALUMINUM Finishing PLUG	Straight Flute TAPS Class 5H For ALUMINUM Finishing BOTTOM	Straight Flute TAPS Class 5H For STEEL (Mild) Finishing PLUG	Straight Flute TAPS Class 5H For STEEL (Mild) Finishing BOTTOM	Helicoil HAND TOOL *SPAENAUR No.*
M2.2 Pitch: 0.45 mm	2.2 3.3 4.4 5.5 6.6	mm 2.30 **875-554**	mm 2.35 **875-555**	**627-251** **627-252** **627-253** **627-254**	25	**874-059**		**874-059**		**877-042** HD
M2.5 Pitch: 0.45 mm	2.5 3.8 5.0 6.3 7.5	 2.55 **875-559**	 2.65 **875-561**	**627-255** **627-256** **627-257** **627-258** **627-259**	25	**874-061**	**874-578**	**874-061**	**874-578**	**877-043** HD
M3 Pitch: 0.50 mm	3.0 4.5 6.0 7.5 9.0	 3.15 **875-689**	 3.20 **875-570**	**627-260** **627-261** **627-262** **627-263** **627-264**	25	**874-063**	**874-579**	**874-063**	**874-579**	**877-044** HD
M3.5 Pitch: 0.60 mm	3.5 5.3 7.0 8.8 10.5	 3.70 **875-576**	 3.70 **875-576**	**627-265** **627-266** **627-267** **627-268** **627-269**	25	**874-065**	**874-580**	**874-065**	**874-580**	**877-045** HD
M4 Pitch: 0.70 mm	4.0 6.0 8.0 10.0 12.0	 4.20 **875-582**	 4.25 **875-583**	**627-270** **627-919** **627-271** **627-272** **627-273**	12	**874-519**	**874-581**	**874-519**	**874-581**	**877-021** HD
M5 Pitch: 0.80 mm	5.0 7.5 10.0 12.5 15.0	 5.20 **875-594**	 5.30 **875-596**	**627-274** ***627-920** **627-275** **627-276** **627-277**	12	***874-520**	**874-582**	**874-520**	**874-582**	***877-000** E
M6 Pitch: 1.00 mm	6.0 9.0 12.0 15.0 18.0	 6.25 **875-607**	 6.30 **875-608**	**627-278** ***627-921** **627-279** **627-280** **627-281**	12	***874-521**	**874-583**	**874-521**	**874-583**	***877-001** E
M6.3 Pitch: 1.00 mm	9.45	6.60 **875-611**	6.60 **875-611**	**627-922**	12	**874-522**		**874-522**		**877-002** **E**
M7 Pitch: 1.00 mm	7.0 10.5 14.0 17.5 21.0	 7.25 **875-619**	 7.30 **875-620**	**627-286** **627-923** **627-287** **627-288** **627-289**	12	**874-523**		**874-523**		**877-003** E
M8 Pitch: 1.25 mm	8.0 12.0 16.0 20.0 24.0	 8.30 **875-632**	 8.40 **875-633**	**627-290** ***627-924** **627-291** **627-292** **627-293**	12	***874-524**	**874-584**	**874-524**	**874-584**	***877-004** E
M10 Pitch: 1.50 mm	10.0 15.0 20.0 25.0 30.0	 10.50 **875-658**	 10.50 **875-658**	**627-294** ***627-925** **627-295** **627-296** **627-297**	12	***874-525**	**874-585**	**874-525**	**874-585**	***877-005** E
M12 Pitch: 1.75 mm	12.0 18.0 24.0 30.0 36.0	 12.50 **875-682**	 12.50 **875-682**	**627-298** ***627-926** **627-299** **627-300**	10	***874-526**	**874-586**	**874-526**	**874-586**	***877-006** E

*Indicates a component of Assortment **805-465,** on page C225.

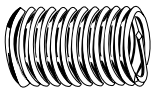
CATALOG 13

METRIC

Industrial Screw Thread Inserts

Standard Free-running Style

Standard COARSE THREAD



See pages P46-P63 for Drill Listings.

All TAPS, TOOLS, *Priced Singly*

Metric COARSE Thread Size	Insert LENGTH in mm	DRILL SIZES (mm) For... ALUM.	DRILL SIZES (mm) Magnesium, Plastic STEEL	HeliCoil Insert Stainless (18-8) Steel *SPAENAUR No.*	Unit Pkg. Inserts only	Straight Flute TAPS Class 5H For ALUMINUM Finishing PLUG	Straight Flute TAPS Class 5H For ALUMINUM Finishing BOTTOM	Straight Flute TAPS Class 5H For STEEL (Mild) Finishing PLUG	Straight Flute TAPS Class 5H For STEEL (Mild) Finishing BOTTOM	HeliCoil HAND TOOL *SPAENAUR No.*
M14 Pitch: 2.00 mm	14.0			**627-301**						
	21.0			**627-927**						
	28.0	14.50	14.50	**627-302**	10	**874-527**		**874-527**		**877-007**
	35.0			**627-303**						
	42.0	**875-701**	**875-701**	**627-304**						E
M16 Pitch: 2.00 mm	16.0			**627-305**						
	24.0			**627-928**						
	32.0	16.50	16.50	**627-306**	10	**874-528**		**874-528**		**877-008**
	40.0			**627-307**						
	48.0	**875-703**	**875-703**	**627-308**						E
M18 Pitch: 2.50 mm	18.0			**627-309**						
	27.0			**627-929**						
	36.0	18.75	18.75	**627-310**	10	**874-529**		**874-529**		**877-009**
	45.0			**627-311**						
	54.0			**627-312**						E
M20 Pitch: 2.50 mm	20.0			**627-313**						
	30.0			**627-930**						
	40.0	20.75	20.75	**627-314**	10	**874-530**		**874-530**		**877-010**
	50.0			**627-315**						
	60.0			**627-316**						E

E = Economy Style
HD = Heavy Duty

Spark Plug Series (Metric & Inch)

Thread Size	Reach	Tap *SPAENAUR No.*	Tool *SPAENAUR No.*	HeliCoil Inserts *SPAENAUR No.*	Unit Pkg. Inserts Only
M10-1.0 mm	1/2"	**874-531**	**877-017**	**627-938**	6
M12-1.25 mm	1/2"	**874-532**	**877-018**	**627-939**	6
	3/4"			**627-940**	6
M14-1.25 mm	3/8"	**874-533**	**877-019**	**627-941**	6
	7/16"			**627-942**	6
	1/2"			**627-943**	6
	3/4"			**627-944**	6
M14-1.25 mm	.472"	**874-533**	**877-019**	**627-945**	6
M18-1.50 mm	1/2"	**874-536**	**877-020**	**627-946**	6
7/8"-18	1/2"-5/8"	**874-086**	**876-086**	**627-883**	6

Assortment 805-466 (shown below) contains various quantities of all *SPAENAUR* numbers listed in the chart at left.

Do not use HeliCoil Inserts to repair Taper Seat Spark Plug Ports.

Label shows Part Nos., Sizes, etc.

Priced Singly

Regular size grey Enamelled Steel Drawer fits the Slide Racks shown on page A2.

For information re Metric HeliCoil inserts see pages C224 to C227.

Metric
HeliCoil ASSORTMENTS

805-465 Metric Coarse and Fine

Contains:
8 sizes - 94 Inserts (M5 to M12 sizes)
Plus 7 Taps and 7 Installation Tools
Complete with installation instructions

Shipping Weight 2.84 kg (6-1/4 lbs.)

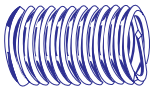
805-466 Spark Plug Series

Contains:
10 sizes - 60 Inserts
Plus 5 Taps and 5 Installation Tools

Shipping Weight 5.67 kg (12-1/2 lbs.)

METRIC
FINE THREAD

Industrial Screw Thread Inserts
Standard Free-running Style



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Metric FINE Thread Size	Insert LENGTH in mm	DRILL SIZES mm For... ALUM.	DRILL SIZES mm Magnesium, Plastic STEEL	HeliCoil Insert Stainless (18-8) Steel *SPAENAUR No.*	Unit Pkg. Inserts only	Straight Flute TAPS Class 5H For ALUMINUM Finishing PLUG	For ALUMINUM Finishing BOTTOM	For STEEL (Mild) Finishing PLUG	For STEEL (Mild) Finishing BOTTOM	HeliCoil HAND TOOL *SPAENAUR No.*
M8	8.0			*627-931						
	12.0			627-317						
	16.0	8.25	8.30	627-318	12	*874-570		874-570		*877-011
Pitch	20.0			627-319						
1.00 mm	24.0	875-631	875-632	627-320						E
M10	10.0			627-321						
	15.0			627-932						
	20.0	10.25	10.25	627-322	12	874-163		874-163		877-053
Pitch	25.0			627-933						
1.00 mm	30.0	875-655	875-655	627-323						HD
M10	10.0			627-324						
	15.0			*627-325						
	20.0	10.25	10.25	627-326	12	*874-571		874-571		*877-012
Pitch	25.0			*627-327						
1.25 mm	30.0	875-655	875-655	627-328		*All TAPS, TOOLS, Packed Singly*				E
M11	11.0			627-934						
				—						
		7/16"	7/16"	—	6	874-572		874-572		877-013
Pitch				—						
1.00 mm		HSD-7/16	HSD-7/16	—						E
M12	12.0			627-329						
	18.0			627-330						
	24.0	12.25	12.25	627-331	6	874-166		874-166		877-046
Pitch	30.0			627-332						
1.25 mm	36.0	875-679	875-679	627-333						HD
M12	12.0			627-334						
	18.0			627-935						
	24.0	12.25	12.50	627-335	6	874-573		874-573		877-014
Pitch	30.0			627-336						
1.50 mm	36.0	875-679	875-682	627-337						E
M14	14.0			627-338						
	21.0			627-936						
	28.0	14.25	14.50	627-339	6	874-574		874-574		877-015
Pitch	35.0			627-340						
1.50 mm	42.0		875-701	627-341						E
M16	16.0			627-342						
	24.0			627-937						
	32.0	16.25	16.50	627-343	6	874-575		874-575		877-016
Pitch	40.0			627-344						
1.50 mm	48.0		875-703	627-345						E
M18	12.7			†627-946						
	18.0			627-346						
	27.0	18.25	18.50	627-347	6	874-534		874-534		877-020
	36.0			627-348						
Pitch	45.0			627-349						
1.50 mm	54.0		875-705	627-350						E

* Indicates a component of Assortment 805-465 (page C225)
† indicates a component of Assortment 805-466 (page C225)

Note: HeliCoil Inserts are normally stocked in standard, "free-running" style only. HeliCoil Screw-lock (internal locking) style, also HeliCoil Inserts on Strip Feed Reels are available "to order" in production quantities.

CATALOG 13

Special Applications

All special size application kits are individually packed according to thread size. Complete with tap, tool, HeliCoil Stainless Steel Inserts, instructions, and drill specifications.

These items usually ordered in complete "Kits" (see Kit Part No.), but may also be specified as separate parts.

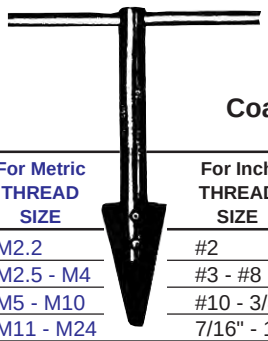
See pages P46-P63 for Inch & Metric Drill Listings.

C

Description	Thread Size	Length	KIT *SPAENAUR No.*	Inserts Per Kit	Drill Size	TAP *SPAENAUR No.*	TOOL *SPAENAUR No.*	INSERTS *SPAENAUR No.*	UNIT PKG. Inserts Only
Carburetor Fuel Inlet Repairs	7/8-20	.330	**627-820**	10	57/64	**874-099**	**876-099**	**627-884**	6
	1-20	.325	**627-821**	10	1-1/64	**874-087**	**876-087**	**627-885**	6
Cummins Engine Head Bolt	11/16-16	1.250	**627-822**	9	45/64	**874-088**	**876-088**	**627-886**	3
Caterpillar Diesel Precombustion Chamber Engines	3/4-12	.474	**627-823**	6	25/32	**874-027**	**876-113**	**627-887**	6
	7/8-12	.481	**627-824**	6	29/32	**874-089**	**876-089**	**627-888**	6
		.600		6				**627-889**	6
	1-12	.469	**627-825**	6	1-1/32	**874-090**	**876-090**	**627-890**	6
		.725		6				**627-891**	6
	1-1/8-12	.469	**627-826**	6	1-5/32	**874-091**	**876-091**	**627-892**	3
		.609		6				**627-893**	3
Harley-Davidson Cam cover screw, tappet guide, oil pump stud and timer mounting threads	1/4-24	.500	**627-829**	12	17/64 HSD-17/64	**874-093**	**876-093**	**627-896**	12
Harley-Davidson Front/Rear Brake Drum Threads	3/8-20	.375	**627-830**	6	25/64 HSD-25/64	**874-094**	**876-094**	**627-897**	6
Harley-Davidson Head Bolt Threads	7/16-16	.656	**627-831**	6	29/64 HSD-29/64	**874-029**	**876-048**	**627-898**	6
Japanese Motorcycle Head Bolt	M10 x 1.25	25.0 mm	**627-900**	12	13/32 HSD-13/32	**874-571**	**877-012**	**627-327**	12
VW Crankcase Stud Threads	M10 x 1.5	23.5 mm	**627-901**	80	13/32 HSD-13/32	**874-576**	**877-005**	**627-947**	16
VW Special Lengths	M12 x 1.5	18 mm	**627-902**	6	31/64 HSD-31/64	**874-573**	**877-014**	**627-948**	6
	M14 x 1.5	12.6 mm			9/16	**874-574**	**877-015**	**627-949**	3
VW Electro Magnetic Fuel Cut-off Jet	M8 x 1	8 mm	**627-904**	12	21/64 HSD-21/64	**874-570**	**877-011**	**627-931**	12
	M11 x 1	11 mm	**627-905**	6	7/16 HSD-7/16	**874-572**	**877-013**	**627-934**	6
VW Rabbit Head Bolt Threads	M11 x 1.5	16.5 mm	**627-906**	6	29/64 HSD-29/64	**874-577**	**877-041**	**627-950**	6

Tools for "Special Applications"

Application	Description	TOOL *SPAENAUR No.*
GM 140 CID Head Bolt/Main Bearing Thread Repair Kit Part No. 4935-7	7/16"-14 Insert Tool	**876-047**
	29/64" drill with stop collar	**876-095**
	6-1/8" x 1/4" drill	**876-096**
	29/64" guide bushing/spacer	**876-097**
	1/4" drill sleeve	**876-098**



EXTRACTING TOOLS

for Inch or Metric Coarse and Fine Thread

For Metric THREAD SIZE	For Inch THREAD SIZE	*SPAENAUR No.*	HeliCoil No.
M2.2	#2	**876-678**	1227-02
M2.5 - M4	#3 - #8	**876-679**	1227-06
M5 - M10	#10 - 3/8"	**876-680**	1227-6
M11 - M24	7/16" - 1"	**876-681**	1227-16
—	$1\frac{1}{8}$" - $1\frac{1}{2}$"	**876-682**	1227-24

Note: All Taps and Tools listed separately on this page are PRICED SINGLY.

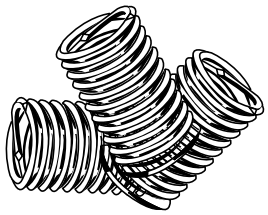
C

Heli-Coil® Thread Repair KITS - INCH SIZES

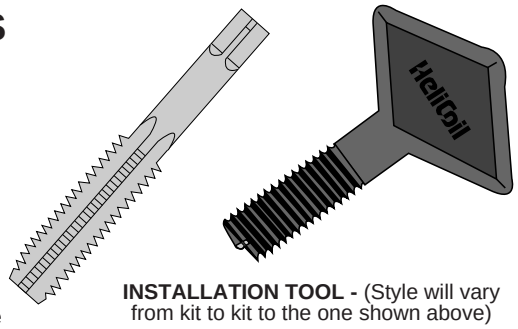
All kits contain the proper tap, installation tool, a quantity of 18-8 stainless steel inserts and detailed instructions.

Kits up to 3/4" thread dia. inclusive, do not include drill bit, but required bit size is listed in chart.

Kits over 3/4" thread dia. are in sturdy metal cases and include the proper high speed drill bit.



18-8 Stainless Steel Inserts
Standard Free-running Style



INSTALLATION TOOL - (Style will vary from kit to kit to the one shown above)

INCH COARSE THREAD KITS

SPAENAUR No.	MFGR'S No.	THREAD Dia. x Pitch	INSERT LENGTH	INSERTS PER KIT	DRILL SIZE
627-351	5521-2	8-32	.246"	12	11//64"
627-352	5521-3	10-24	.285"	12	13/64"
627-353	5521-4	1/4"-20	.375"	12	17/64"
627-354	5521-5	5/16"-18	.469"	12	21/64"
627-355	5521-6	3/8"-16	.562"	12	25/64"
627-356	5521-8	1/2"-13	.750"	6	17/32"
627-357	5521-9	9/16"-12	.844"	6	19/32"
627-358	5521-10	5/8"-11	.938"	6	21/32"
627-359	5521-12	3/4"-10	1.125"	4	25/32"
627-360	5521-14	7/8"-9	1.312"	6	29/32"
627-361	5521-16	1"-8	1.500"	6	1-1/32"
627-362	5521-18	1-1/8"-7	1.688"	5	1-5/32"
627-363	5521-20	1-1/4"-7	1.875"	4	1-9/32"
627-364	5521-22	1-3/8"-6	2.062"	4	1-13/32"
627-365	5521-24	1-1/2"-6	2.250"	4	1-17/32"

INCH FINE THREAD KITS

SPAENAUR No.	MFGR'S No.	THREAD Dia. x Pitch	INSERT LENGTH	INSERTS PER KIT	DRILL SIZE
627-366	5528-3	10-32	.285"	12	13/64"
627-367	5528-4	1/4"-28	.375"	12	17/64"
627-368	5528-5	5/16"-24	.469"	12	21/64"
627-369	5528-6	3/8"-24	.562"	12	25/63"
627-370	5528-7	7/16"-20	.656"	6	29/64"
627-371	5528-8	1/2"-20	.750	6	33/64"
627-372	5528-9	9/16"-18	.844"	6	37/64"
627-373	5528-10	5/8"-18	.938"	6	41/64"
627-374	5528-12	3/4"-16	1.125"	4	49/64"
627-375	5528-14	7/8"-14	1.312"	6	57/64"
627-376	5528-16	1"-14	1.500"	6	1-1/64"
627-377	5528-161	1"-12	1.500"	6	1-1/64"
627-378	5528-18	1-1/8"-12	1.688"	5	1-5/32"
627-379	5528-20	1/1/4"-12	1.875"	4	1-9/32"
627-380	5528-22	1-3/8"-12	2.062"	4	1-13/32"
627-381	5528-24	1-1/2"-12	2.250"	4	1-17/32"

INCH Kits listed below are in Steel Cases and include drill bits for 1/2" chuck

Heli-Coil® Thread Repair Kits - METRIC SIZES

All kits contain the proper tap, installation tool, a quantity of 18-8 stainless steel inserts and complete instructions. (Drill bit is not included, but required bit size is listed in chart.)

METRIC COARSE THREAD KITS

SPAENAUR No.	MFGR'S No.	THREAD Dia. x Pitch (mm)	INSERT LENGTH (mm)	INSERTS PER KIT	DRILL SIZE (Inch)
627-951	5546-3	M3 x 0.5	4.5	12	1/8"
627-952	5546-4	M4 x 0.7	6.0	12	11/64"
627-953	5546-5	M5 x 0.8	7.5	12	13/64"
627-954	5546-6	M6 x 1.0	9.0	12	1/4"
627-955	5546-6.3	M6.3 x 1.0	9.5	12	17/64"
627-956	5546-7	M7 x 1.0	10.5	12	9/32"
627-957	5546-8	M8 x 1.25	12.0	12	21/64"
627-958	5546-10	M10 x 1.5	15.0	12	13/32"
627-906	5546-11-5	M11 x 1.5	16.5	6	29/64"
627-959	5546-12	M12 x 1.75	18.0	6	31/64"
627-960	5546-14	M14 x 2.0	21.0	6	37/64"
627-961	5546-16	M16 x 2.0	24.0	6	21/32"
627-962	5546-18	M18 x 2.5	27.0	6	47/64"
627-963	5546-20	M20 x 2.5	30.0	4	13/16"

METRIC FINE THREAD KITS

SPAENAUR No.	MFGR'S No.	THREAD Dia. x Pitch (mm)	INSERT LENGTH (mm)	INSERTS PER KIT	DRILL SIZE (Inch)
627-904	5542-8-1	M8 x 1	8.0	12	21/64"
627-965	5542-10	M10 x 1	15.0	12	13/32"
627-905	5543-11-1	M11 x 1	11.0	6	7/16"
627-967	5543-10	M10 x 1.25	15.0	12	13/32"
627-968	5543-11	M11 x 1.25	16.5	6	29/64"
627-902	5544-12	M12 x 1.5	18.0	6	31/64"
627-970	5544-14	M14 x 1.5	21.0	6	9/16"
627-971	5544-16	M16 x 1.5	24.0	6	21/32"

SPAENAUR

SAMEDAY SHIPPING GUARANTEED!

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Flat Washers	Rondelles plates	**D2**
Sealing Rings	Anneaux de scellage	**D20**
Spring & Tooth Lockwashers	Rondelles de blocage à ressort et dentées	**D22**
Disc Springs Washers	Rondelles à ressorts «Belleville»	**D41**
Spring Tension Washers	Rondelles tendeuses à ressort	**D67**
Countersunk Washers	Rondelles pour vis à tête fraisée	**D70**
Rubber Washers	Rondelles en caoutchouc	**D71**
Beveled Construction Washers	Rondelles construction obliques	**D76**
Shim Washers & Stock	Cales - rondelles et feuilles d'acier	**D78**

D

USS STANDARD WASHERS
Steel - Plain and Zinc Plated

For Bolt Size	*SPAENAUR No's.* Plain	Zinc Pltd.	I.D.	O.D.	Thickness Range	Unit Pkg. Qty.
3/16"	–	**89-SN-ZP**	1/4"	9/16"	.036-.065"	100
1/4"	**90-SN**	**90-SN-ZP**	5/16"	3/4"	.051-.080"	100
5/16"	**91-SN**	**91-SN-ZP**	3/8"	7/8"	.064-.104"	50
3/8"	**92-SN**	**92-SN-ZP**	7/16"	1"	.064-.104"	50
7/16"	**93-SN**	**93-SN-ZP**	1/2"	1-1/4"	.064-.104"	50
1/2"	**94-SN**	**94-SN-ZP**	9/16"	1-3/8"	.086-.132"	50
9/16"	**B-927**	**B-927-ZP**	5/8"	1-1/2"	.086-.132"	25
5/8"	**95-SN**	**95-SN-ZP**	11/16"	1-3/4"	.108-.160"	25
3/4"	**105-SN**	**105-SN-ZP**	13/16"	2"	.122-.177"	25
7/8"	**656-024**	**–**	15/16"	2-1/4"	.136-.192"	25
1"	**106-SN**	**656-020**	1-1/16"	2-1/2"	.136-.192"	20
1-1/8"	**W-271**	–	1-1/4"	2-3/4"	.136-.192"	25
1-1/4"	**W-272**	–	1-3/8"	3"	.136-.192"	25
1-3/8"	**W-273**	**W-273-ZP**	1-1/2"	3-1/4"	.153-.213"	25
1-1/2"	**W-274**	**656-069**	1-5/8"	3-1/2"	.153-.213"	25
1-5/8"	**W-296**	–	1-3/4"	3-3/4"	.153-.213"	25
1-3/4"	**W-284**	–	1-7/8"	4"	.153-.213"	25
1-7/8"	–	–	2"	4-1/4"	.153-.213"	–
2"	**W-298**		2-1/8"	4-1/2"	.153-.213"	25

S.A.E. FLAT WASHERS
Low Carbon Steel
Plain and Zinc Plated

For Bolt Size	*SPAENAUR No's.* Plain	Zinc Pltd.	Yellow Zinc Pltd.	I.D.	O.D.	Thickness Range	Unit Pkg. Qty.
#6	–	**656-042**	–	5/32"	3/8"	.036-.065"	100
#8	**59-SN**	**59-SN-ZP**	–	3/16"	7/16"	.036-.065"	100
#10	–	**656-043**	**656-043YZ**	7/32"	1/2"	.036-.065"	100
1/4"	–	**656-044**	**656-044YZ**	9/32"	5/8"	.051-.080"	100
5/16"	–	**656-045**	**656-045YZ**	11/32"	11/16"	.051-.080"	100
3/8"	–	**656-046**	–	13/32"	13/16"	.051-.080"	100
7/16"	–	**656-054**	–	15/32"	59/64"	.051-.080"	100
1/2"	–	**656-048**	–	17/32"	1-1/16"	.074-.121"	50
9/16"	–	**656-049**	–	19/32"	1-3/16"	.074-.121"	50
5/8"	–	**656-050**	–	21/32"	1-5/16"	.074-.121"	50
3/4"	–	**656-051**	–	13/16"	1-1/2"	.108-.160"	50
7/8"	**656-023**	**656-052**	–	15/16"	1-3/4"	.108-.160"	25
1"	–	**656-053**	–	1-1/16"	2"	.108-.160"	25

Steel Fender Washers Low Carbon Steel

Large O.D. for extra wide bearing surface

For Bolt Size	SPAENAUR No's. Plain	Zinc. Pltd. Clear or Yellow our option	I.D.	O.D.	Nominal Thickness	Unit Pkg. Qty.
#4	**W-207**	**–**	1/8"	1"	.062"	100
#7	**–**	**W-168**	11/64"	9/16"	.032"	100
#8	**1183**	**1183-ZP**	11/64"	3/4"	.031"	100
#8	**–**	**656-022**	3/16"	1-1/8"	.056"-.064"	100
#10	**–**	**656-021**	.196"	1"	.062"	100
#10	**–**	**W-249**	7/32"	7/8"	.062"	100
#10	**–**	**656-028**	7/32"	1-1/4"	.035"	50
#14	**–**	**W-287**	.261"	1-17/64"	.017"	100
1/4"	**–**	**2333**	9/32"	1-1/4"	.065"	50
1/4"	**–**	**W-167**	9/32"	1-3/16"	.031"	50
5/16"	**–**	**768**	11/32"	1-1/4"	.065"	50
5/16"	**–**	**1700**	11/32"	1-1/2"	.083"	50
3/8"	**–**	**2227**	25/64"	1-1/2"	.083"	50
3/8"	**–**	**W-179**	13/32"	1-1/4"	.120"	50
3/8"	**656-070**	**–**	13/32"	1-3/8"	.098"-.112"	50
3/8"	**–**	**1294**	7/16"	1-3/4"	.078"	50
7/16"	**–**	**W-223**	15/32"	2-3/8"	.095"	25
1/2"	**–**	**W-166**	17/32"	2"	.150"	25
5/8"	**–**	**W-158**	41/64"	2-1/2"	.187"	25

Hardened Steel Structural Washers

Plain Finish

conforming to ASTM F436 for use with A325 and A490 Structural Bolts

For Bolt Size	SPAENAUR No's.	I.D.	O.D.	Thickness Range	Unit Pkg. Qty.
1/2"	**W-325**	17/32"	1-1/16"	.097-.177"	100
5/8"	**W-326**	11/16"	1-5/16"	.122-.177"	100
3/4"	**W-327**	13/16"	1-15/32"	.122-.177"	100
7/8"	**W-328**	15/16"	1-3/4"	.136-.177"	100
1"	**W-329**	1-1/8"	2"	.136-.177"	100
1-1/8"	**W-330**	1-1/4"	2-1/4"	.136-.177"	100
1-1/4"	**W-331**	1-3/8"	2-1/2"	.136-.177"	100
1-1/2"	**–**	1-5/8"	3"	.136-.177"	–

Hot Galvanized!

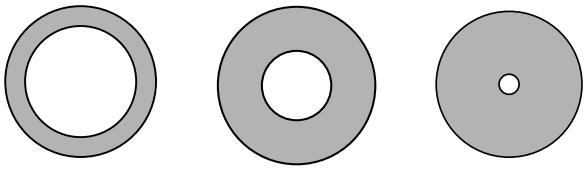
STEEL PLATE WASHERS

For maximum protection

SPAENAUR No.	Bolt Diameter	Outside Diameter	Hole Diameter	Nominal Thickness Gauge	Nominal Thickness Inches	Unit Package
656-002	1/4"	3/4"	5/16"	16	1/16"	100
656-003	5/16"	7/8"	3/8"	14	5/64"	100
656-004	3/8"	1"	7/16"	14	5/64"	100
656-005	1/2"	1-3/8"	9/16"	12	7/64"	50
656-006	5/8"	1-3/4"	11/16"	10	9/64"	50
656-007	3/4"	2"	13/16"	10	9/64"	50
656-008	7/8"	2-1/4"	15/16"	9	5/32"	50
656-009	1"	2-1/2"	1-1/16"	9	5/32"	25
656-010	1-1/8"	2-3/4"	1-1/4"	9	5/32"	25
656-011	1-1/4"	2-3/4"	1-5/16"	9	5/32"	25

Additional Steel Flat Washers

Plain, Zinc, Nickel or Copper Finishes



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FOR BOLT SIZE	*SPAENAUR No.*	INSIDE DIAMETER	OUTSIDE DIAMETER	THICKNESS RANGE	FINISH	UNIT PKG. QTY.
2	**656-034**	3/32"	7/32"	.018-.024"	Zinc	100
3	**656-035**	7/64"	3/8"	.033-.039"	Zinc	100
3	**656-058**	7/64"	7/16"	.030-.036"	Nickel	100
4	**656-119**	.125"	.281"	.018-.024"	Copper	100
4	**W-277**	1/8"	5/16"	.030-.036"	Zinc	100
4	**656-036**	1/8"	3/8"	.033-.039"	Zinc	100
4	**656-061**	1/8"	3/8"	.038-.046"	Zinc	100
5	**656-037**	.130"	7/16"	.038-.046"	Zinc	100
6	**656-038**	9/64"	7/16"	.044-.052"	Zinc	100
6	**656-118**	.142"	5/16"	.030-.036"	Zinc	100
6	**W-295**	.144"	5/16"	.038-.046"	Zinc	100
6	**656-060**	5/32"	7/16"	.113-.127"	Nickel	100
8	**W-216**	.170"	3/8"	.030-.036"	Plain	100
8	**W-216CP**	.170"	3/8"	.030-.036"	Zinc	100
8	**656-039**	.175"	1/2"	.044-.052"	Zinc	100
8	**656-062**	3/16"	1/2"	.044-.052"	Plain	100
8	**2007**	3/16"	1/2"	.055-.065"	Plain	100
8	**2007-ZP**	3/16"	1/2"	.055-.065"	Zinc	100
10	**656-040**	13/64"	3/8"	.044-.052"	Zinc	100
10	**W-332**	.203"	1/2"	.044-.052"	Nickel	100
10	**656-057**	.203"	9/16"	.033-.039"	Zinc	100
10	**1183-A**	13/64"	3/4"	.044-.052"	Plain	100
12	**656-041**	.227"	5/8"	.044-.052"	Zinc	100
12	**656-014**	.243"	.840"	.113-.127"	Zinc	100
14	**W-203**	1/4"	3/8"	.030-.036"	Plain	100
14	**W-203NP**	.260"	.375"	.033-.039"	Nickel	100
14	**B-1526**	1/4"	5/8"	.044-.052"	Zinc	100
14	**2008**	1/4"	5/8"	.044-.052"	Plain	100
1/4"	**656-029**	17/64"	1/2"	.030-.036"	Nickel	100
1/4"	**W-159**	17/64"	5/8"	.055-.065"	Zinc	100
1/4"	**W-180**	17/64"	3/4"	.055-.065"	Zinc	100
1/4"	**656-063**	.312"	.750"	.068-.082"	Zinc	100
5/16"	**656-030**	11/32"	9/16"	.030-.036"	Nickel	100
5/16"	**656-031**	21/64"	19/32"	.055-.065"	Zinc	100
5/16"	**W-165**	21/64"	5/8"	.113-.127"	Zinc	100
5/16"	**W-190**	21/64"	7/8"	.055-.065"	Zinc	100
5/16"	**W-178**	11/32"	7/8"	.113-.127"	Zinc	100
5/16"	**W-157**	11/32"	1-1/8"	.068-.082"	Zinc	100
5/16"	**W-280**	3/8"	3/4"	.062-.074"	Zinc	100
5/16"	**656-012**	3/8"	1"	.173-.187"	Plain	50
3/8"	**656-032**	25/64"	5/8"	.030-.036"	Nickel	100
3/8"	**W-147**	25/64"	11/16"	.113-.127"	Zinc	100
3/8"	**W-160**	25/64"	3/4"	.128-.142"	Zinc	100
3/8"	**W-175**	13/32"	5/8"	.038-.046"	Zinc	100
3/8"	**2078**	7/16"	3/4"	.050-.058"	Zinc	50
3/8"	**656-047**	15/32"	15/16"	.055-.062"	Zinc	100
3/8"	**656-123**	7/16"	1"	.021-.027"	Zinc	100
3/8"	**656-055**	7/16"	1"	.083-.097"	Zinc	100
7/16"	**656-033**	31/64"	3/4"	.030-.036"	Nickel	100

Cont'd.

Additional Steel Flat Washers

cont'd.

FOR BOLT SIZE	*SPAENAUR No.*	INSIDE DIAMETER	OUTSIDE DIAMETER	THICKNESS RANGE	FINISH	UNIT PKG. QTY.
7/16"	**656-033**	31/64"	3/4"	.030-.036"	Nickel	100
7/16"	**W-389**	1/2"	5/8"	.044-.052"	Nickel	100
1/2"	**W-318**	17/32"	7/8"	.030-.036"	Zinc	100
1/2"	**656-013**	17/32"	1-1/16"	.113-.127"	Zinc	50
1/2"	**W-177**	17/32"	1-5/64"	.098-.112"	Zinc	50
1/2"	**W-320**	17/32"	1-1/4"	.113-.127"	Zinc	100
9/16"	**656-001**	37/64"	1"	.055-.065"	Plain	100
5/8"	**W-260**	41/64"	1"	.062-.074"	Zinc	100
5/8"	**W-202**	41/64"	1-5/16"	.113-.127"	Zinc	50
5/8"	**2473**	21/32"	7/8"	.030-.036"	Zinc	50
11/16"	**W-150**	23/32"	1-3/8"	.044-.052"	Zinc	100
3/4"	**W-288**	51/64"	1"	.055-.062"	Zinc	100
7/8"	**W-149**	59/64"	1-19/64"	.029-.034"	Zinc	100
7/8"	**656-027**	.938"	1.47"	.098-.112"	Zinc	50
7/8"	**656-121**	1"	1-3/8"	.055-.062"	Zinc	100
1"	**W-152**	1-1/32	1-3/8"	.055-.062"	Zinc	100
1-1/4"	**656-056**	1-5/16"	2-3/4"	.143-.157"	Plain	25
1-3/4"	**W-285**	1-7/8"	3-1/4"	.113-.127"	Plain	25
2"	**W-297**	2-1/16"	4-1/4"	.186-.202"	Plain	25

D

ASSORTMENT
ASSORTIMENT
B-558

STEEL FLAT WASHERS

Zinc Plated

17 Sizes - 1190 Pieces

A complete range of hole sizes from 3/16" to 13/16".

Also features 4 popular sizes of Fender Washers.

REGULAR SIZE welded Steel grey enamel Drawer has hinged lid and "scooped" Bins.
Drawer fits the Slide Racks shown on Page A2.

Priced Singly Shipping Weight - 8.16 kg (18 lbs.)

Contents of Assortment B-558

BOLT SIZE	INSIDE DIAMETER	OUTSIDE DIAMETER	THICKNESS RANGE	ASS'T QTY.
8	3/16"	7/16"	.036-.065"	200
8	3/16"	1/2"	.055-.065"	150
8	11/64"	3/4"	.031"	100
3/16"	1/4"	9/16"	.036-.065"	150
14	1/4"	5/8"	.044-.052"	150
1/4"	5/16"	3/4"	.051-.080"	100
5/16"	11/32"	1-1/4"	.065"	50
5/16"	11/32"	1-1/2"	.083"	40
5/16"	3/8"	7/8"	.064-.104"	50
3/8"	25/64"	1-1/2"	.083"	40
3/8"	7/16"	1"	.064-.104"	40
3/8"	7/16"	1-3/4"	.078"	25
7/16"	1/2"	1-1/4"	.064-.104"	25
1/2"	9/16"	1-3/8"	.086-.132"	25
9/16"	5/8"	1-1/2"	.086-.132"	25
5/8"	11/16"	1-3/4"	.108-.160"	10
3/4"	13/16"	2"	.122-.177"	10

FLAT and *HELICAL LOCKWASHERS

STEEL, Zinc Plated

Plastikit
«Plastikit»
804-081

Priced Singly

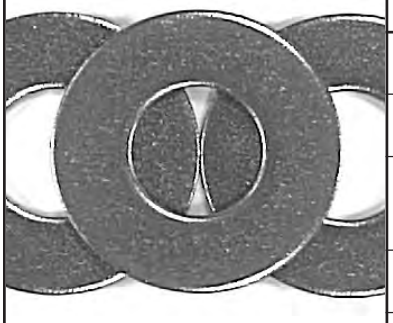
7 Sizes – 280 pieces

Put up in a clear durable plastic container with hinged lid. Size: 1" x 2-3/4" x 4-1/2".

SPAENAUR No.	Bolt Size	Ass't Qty.
*W-311	6	20
*W-312	8	20
*15-SN	10	20
*16-SN	1/4"	20
*17-SN	5/16"	20
*18-SN	3/8"	20
*20-SN	1/2"	20
656-042	6	20
656-039	8	20
656-043	10	20
656-044	1/4"	20
656-045	5/16"	20
656-046	3/8"	20
W-177	1/2"	20

CATALOG 13

For L9 Fastening System Hardened Washers, see page B181.



"STANDARD"

18-8 Stainless Steel

SPAENAUR No.	BOLT SIZE	INSIDE DIAMETER	OUTSIDE DIAMETER	THICKNESS RANGE	UNIT PACKAGE
W-2009	2	.0937"	1/4"	.012-.022"	100
658-014	2	.0937"	1/4"	.022-.041"	100
W-2019	4	.125"	5/16"	.022-.041"	100
658-059	4	.125"	3/8"	.022-.041"	100
W-2020	6	.147"	3/8"	.022-.041"	100
658-060	6	.156"	5/16"	.022-.041"	100
658-061	6	.156"	1/2"	.022-.041"	100
W-2070	8	.171"	3/8"	.022-.041"	100
658-063	8	.171"	5/8"	.034-.061"	100
W-2071	10	.200"	7/16"	.022-.041"	100
658-012	10	.200"	5/8"	.034-.068"	100
658-064	10	.203"	1/2"	.034-.068"	100
658-011	10	.203"	3/4"	.040-.075"	100
658-065	10	.203"	7/8"	.040-.075"	100
W-2037	12	.243"	1/2"	.045-.075"	100
658-016	1/4"	.265"	1/2"	.045-.075"	100
W-2000	1/4"	.281"	11/16"	.034-.068"	100
658-066	1/4"	.265"	1"	.050-.084"	100
658-067	1/4"	.265"	1-1/4"	.050-.084"	100
658-015	1/4"	.281"	5/8"	.034-.068"	100
658-003	1/4"	.281"	1"	.034-.068"	50
658-009	5/16"	.343"	3/4"	.034-.068"	100
W-2038	5/16"	.375"	7/8"	.045-.075"	100
658-068	5/16"	.343"	1-1/4"	.045-.075"	100
658-072	5/16"	.343"	1-1/2"	.109-.140"	50
658-025	3/8"	.391"	1"	.034-.061"	100
W-2039	3/8"	.391"	1"	.040-.075"	100
658-069	3/8"	.391"	1-1/4"	.050-.084"	100
658-070	3/8"	.391"	1-1/2"	.056-.112"	100
658-073	–	.437"	1-1/2"	.109-.140"	50
W-2040	7/16"	.500"	1-1/8"	.045-.075"	100
W-2041	1/2"	.562"	1-1/4"	.056-.112"	100
658-071	1/2"	.562"	1-1/2"	.056-.112"	100
W-2042	5/8"	.687"	1-1/2"	.056-.112"	100
658-002	3/4"	.813"	1.3/4"	.095-.115"	50
W-2043	3/4"	.812"	1-7/8"	.075-.155"	50
658-008	7/8"	.937"	2"	.085-.115"	25
W-2044	7/8"	.937"	2-1/4"	.075-.155"	50
658-074	1"	1.0625"	2"	.075-.131"	25
W-2045	1"	1.0625"	2-1/2"	.109-.140"	50
W-2072	1-1/4"	1.312"	2-3/4"	.109-.140"	50

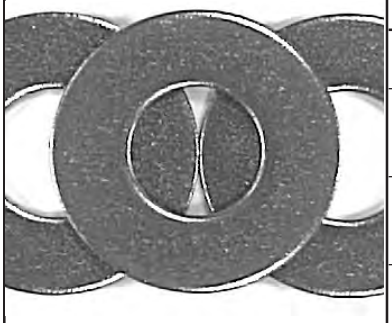
ASSORTMENT
ASSORTIMENT
805-520

18-8 Stainless Steel Flat Washers

16 Sizes - 967 Pieces

REGULAR SIZE Steel, grey enamel Drawer will fit Slide Racks shown on page A2.
Shipping Weight 4.31 kg (9-1/2 lbs.)

Bolt Size	I.D.	O.D.	Thickness	Ass't Qty.
2	.0937"	1/4"	.012-.022"	100
4	.125"	5/16"	.022-.041"	100
6	.147"	3/8"	.022-.041"	100
8	.171"	3/8"	.022-.041"	100
10	.200"	7/16"	.022-.041"	100
12	.243"	1/2"	.045-.075"	100
1/4"	.281"	.625"	.034-.068"	100
5/16"	.343"	3/4"	.034-.068"	100
3/8"	.391"	1"	.050-.084"	50
7/16"	.500"	1-1/8"	.045-.075"	50
1/2"	.562"	1-1/4"	.056-.112"	25
5/8"	.687"	1-1/2"	.056-.112"	20
3/4"	.812"	1-7/8"	.075-.155"	10
7/8"	.937"	2-1/4"	.075-.155"	5
1"	1.0625"	2-1/2"	.109-.140"	5
1-1/4"	1.312"	2-3/4"	.109-.140"	2



"STANDARD"

316 Stainless Steel

SPAENAUR No.	BOLT SIZE	INSIDE DIAMETER	OUTSIDE DIAMETER	THICKNESS RANGE	UNIT PACKAGE
W-2300	4	.125"	5/16"	.022-.041"	100
W-2302	6	.156"	3/8"	.022-.041"	100
W-2303	8	.171"	3/8"	.022-.041"	100
W-2304	10	.200"	7/16"	.020-.038"	100
658-001	10	.203"	.430"	.022-.041"	100
W-2305	1/4"	.281"	11/16"	.034-.068"	100
658-013	1/4"	.281"	5/8"	.034-.068"	100
658-023	1/4"	.281"	.734"	.045-.075"	100
658-024	5/16"	.343"	5/8"	.045-.075"	100
658-010	5/16"	.337"	3/4"	.034-.068"	100
W-2306	5/16"	.337"	7/8"	.045-.075"	100
658-018	3/8"	.391"	1"	.034-.060"	100
W-2307	3/8"	.391"	1"	.045-.075"	100
658-020	7/16"	.468"	7/8"	.045-.075"	100
W-2308	7/16"	.500"	1-1/8"	.045-.075"	100
658-019	1/2"	.531"	1"	.045-.075"	100
658-026	1/2"	.531"	1-1/4"	.055-.069"	100
W-2309	1/2"	.562"	1-1/4"	.056-.112"	100
658-021	5/8"	.656"	1-1/4"	.076-.131"	100
W-2310	5/8"	.687"	1-1/2"	.056-.112"	100
658-022	3/4"	.812"	1-3/8"	.062-.131"	100
W-2311	3/4"	.812"	1-7/8"	.075-.155"	50
658-027	7/8"	.937"	2"	.102-.116"	50
W-2312	7/8"	.937"	2-1/4"	.075-.155"	50
658-028	1"	1.0625"	2"	.118-.132"	50
W-2313	1"	1.0625"	2-1/2"	.109-.140"	50
658-017	1-1/2"	1.625"	3-1/4"	.109-.140"	25

High Strength 17-7 (PH) Stainless Steel Flat Washers

These washers are made of 17-7 precipitation hardened (PH) stainless steel, heat treated to Rockwell 40-48° C hardness. They provide the strength of heat-treated steel and corrosion resistance of a stainless steel. They can be used in atmospheres where plain steel, no matter how well plated, cannot survive.

SPAENAUR No.	BOLT SIZE	INSIDE DIAMETER	OUTSIDE DIAMETER	NOMINAL THICKNESS	UNIT PACKAGE
658-050	1/4"	.312"	3/4"	.063"	100
658-051	5/16"	.375"	7/8"	.078"	100
658-052	3/8"	.437"	1"	.078"	100
658-053	7/16"	.500"	1-1/4"	.078"	50
658-054	1/2"	.562"	1-3/8"	.078"	50
658-055	9/16"	.625"	1-1/2"	.090"	50
658-056	5/8"	.687"	1-3/4"	.125"	25
658-057	3/4"	.812"	2"	.122"	25
658-058	1"	1.0625"	2"	.131"	10

"STANDARD"

BRASS Flat Washers

*Nickel Plated

SPAENAUR No.	SCREW SIZE	BOLT SIZE	INSIDE DIAMETER	OUTSIDE DIAMETER	THICKNESS RANGE	UNIT PACKAGE
W-526	000	-	.037"	5/64"	.010-.016"	200
W-527	00	-	.050"	7/64"	.013-.019"	200
649-003	0	-	.065"	5/32"	.015-.021"	200
W-525	1	-	.078"	3/16"	.015-.021"	200
W-500	2	-	.092"	3/16"	.015-.021"	500
W-501	3	-	.105"	1/4"	.017-.023"	500
W-502	4	-	.119	9/32"	.022-.028"	500
W-502NP*	4	-	.119"	9/32"	.022-.028"	500
649-002	5	1/8"	.125"	3/4"	.052-.062"	100
W-528	5	1/8"	.133"	9/32"	.022-.028"	250
W-529	6	-	.147"	5/16"	.022-.028"	250
W-529NP*	6	-	.147"	5/16"	.022-.028"	250
W-503	6	-	.147"	3/8"	.028-.036"	250
W-530	8	5/32"	.172"	3/8"	.028-.036"	250
W-504	8	5/32"	.172"	7/16"	.032-.040"	250
W-531	10	3/16"	.200"	7/16"	.032-.040"	100
W-531NP*	10	3/16"	.200"	7/16"	.032-.040"	100
W-505	10	3/16"	.200"	1/2"	.036-.044"	100
W-532	12	7/32"	.227"	1/2"	.036-.044"	100
W-506	12	7/32"	.227"	9/16"	.036-.044"	100
W-523	-	-	1/4"	1/2"	.013-.019"	100
W-507	14	1/4"	.260"	9/16"	.036-.044"	100
W-508	14	1/4"	.260"	11/16"	.046-.056"	100
649-001	-	-	17/64"	15/32"	.028-.036"	100
W-509	16	-	.282"	5/8"	.036-.044"	100
W-510	16	-	.282"	3/4"	.059-.069"	100
W-511	18	-	.310"	11/16"	.046-.056"	100
W-512	18	-	.310"	7/8"	.059-.069"	100
W-513	20	5/16"	.337"	3/4"	.059-.069"	100
W-514	20	5/16"	.337"	7/8"	.059-.069"	100
W-540	-	3/8"	.390"	.682"	.046-.056"	100
W-515	24	3/8"	.391"	7/8"	.059-.069"	50
W-516	24	3/8"	.391"	1"	.075-.087"	50
W-517	30	7/16"	1/2"	1-1/8"	.075-.087"	50
W-518	34	1/2"	9/16"	1-1/4"	.085-.097"	50
649-004	34	1/2"	9/16"	1-3/8"	.085-.097"	50
W-519	-	5/8"	11/16"	1-1/2"	.096-.108"	50
W-520	-	3/4"	13/16"	1-7/8"	.108-.120"	50
W-521	-	7/8"	15/16"	2-1/4"	.123-.135"	25
W-522	-	1"	1-1/16"	2-1/2"	.137-.151"	25
W-580	-	1-1/8"	1-3/16"	2-3/4"	.155-.169"	25
W-581	-	1-1/4"	1-5/16"	3"	.155-.169"	25

ASSORTMENT
ASSORTIMENT
805-519

Brass Flat Washers

16 Sizes - 1315 Pieces

Shipping Weight 3.18 kg (7 lbs.)

REGULAR SIZE Steel, grey enamel Drawer
will fit Slide Racks shown on page A2.

Contents of Assortment

Screw/Bolt Size	I.D.	O.D.	Thickness Range	Ass't. Qty.
2	.092"	3/16"	.015-.021"	200
3	.105"	1/4"	.017-.023"	200
4	.119"	9/32"	.022-.028"	200
5	.133"	9/32"	.022-.028"	100
6	.147"	5/16"	.022-.028"	100
8	.172"	3/8"	.028-.036"	100
10	.200"	7/16"	.032-.040"	100
12	.227"	1/2"	.036-.044"	100
1/4"	.260"	9/16"	.036-.044"	100
.294"	.310"	11/16"	.046-.056"	25
5/16"	.337"	3/4"	.059-.069"	25
3/8"	.390"	.682"	.046-.056"	25
7/16"	1/2"	1-1/8"	.075-.087"	10
1/2"	9/16"	1-1/4"	.085-.097"	10
5/8"	11/16"	1-1/2"	.096-.108"	10
3/4"	13/16"	1-7/8"	.108-.120"	10

"STANDARD"

Aluminum

SPAENAUR No.	BOLT SIZE	INSIDE DIAMETER	OUTSIDE DIAMETER	THICKNESS RANGE	UNIT PACKAGE
647-013	3	.108"	.400"	.029-.035"	100
647-012	4	.125"	3/8"	.029-.035"	100
W-3002	6	.147"	3/8"	.029-.035"	100
W-3003	8	.172"	3/8"	.029-.035"	100
W-189	10	.196"	7/8"	.059-.067"	100
W-3000	10	.203"	7/16"	.037-.043"	100
W-3001	1/4"	.260"	11/16"	.046-.054"	100
647-014	5/16"	.343"	7/8"	.059-.067"	100
647-011	5/16"	.344"	9/16"	.059-.067"	100
W-3005	5/16"	.375"	7/8"	.059-.067"	100
647-015	3/8"	.406"	7/8"	.059-.067"	100
W-3006	3/8"	.391"	1"	.076-.084"	100
W-3007	1/2"	.563"	1-1/4"	.086-.094"	100
W-3008	5/8"	.687"	1-1/2"	.096-.104"	100
W-3009	3/4"	.812"	1-7/8"	.096-.104"	50

Copper

W-4007	3/16"	.189"	1/2"	.036-.044"	100
W-4008	1/4"	.253"	11/16"	.046-.056"	100
W-4009	5/16"	.337"	7/8"	.059-.069"	100
W-4010	3/8"	.391"	1"	.059-.069"	100
W-4011	1/2"	.563"	1-1/4"	.085-.097"	50
W-4012	5/8"	.687"	1-1/2"	.085-.097"	50
W-4013	3/4"	.812"	1-7/8"	.085-.097"	50

P.C. 651

Silicon Bronze

SPAENAUR No.	BOLT SIZE	INSIDE DIAMETER	OUTSIDE DIAMETER	NOMINAL THICKNESS	UNIT PACKAGE
W-551	1/4"	.260"	11/16"	.041"	100
W-552	5/16"	21/64"	3/4"	.065"	100
W-553	5/16"	.337"	7/8"	.064"	100
W-554	3/8"	.391"	7/8"	.064"	100
W-555	3/8"	25/64"	1"	.065"	100
W-556	1/2"	9/16"	1-1/8"	.065"	100
W-557	1/2"	9/16"	1-1/4"	.095"	100
W-558	5/8"	11/16"	1-1/2"	.092"	25
W-559	3/4"	13/16"	1-7/8"	.102"	25
W-560	7/8"	15/16"	2-1/4"	.109"	10
W-561	1"	1-1/16"	2-1/2"	.125"	10

P.C. 649

Lead

W-5900	10	7/32"	1/2"	.062"	100
653-001	12	1/4"	1/2"	.062"	100
W-5901	1/4"	17/64"	11/16"	.062"	100
W-5903	5/16"	11/32"	7/8"	.062"	100
653-002	–	5/8"	1-1/8"	.188"	100

Copper Burrs

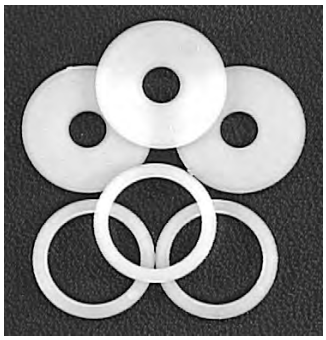
- for Rivets -

SPAENAUR No.	B.W. Gauge (or inches)	INSIDE DIAMETER	OUTSIDE DIAMETER	NOMINAL THICKNESS	UNIT PACKAGE
W-4000	**12**	.101-.104"	.375-.385"	.042"	500
W-4001	**10**	.128-.131"	.375-.385"	.042"	500
651-001	**10**	.125"	.312"	.040"	500
W-4002	**8**	.157-.160"	.500-.510"	.042"	250
W-4003	**3/16"**	.192-.195"	.500-.510"	.042"	250
W-4004	**4**	.236-.239"	.625-.635"	.050"	250
W-4005	**1/4"**	.257-.260"	.625-.635"	.050"	100
W-4006	**5/16"**	.320-.323"	.625-.635"	.050"	100

TEFLON - TFE Flat Washers

- the lowest static and dynamic coefficient of friction of any solid material. The most slippery substance known.
Continuous temperature range -25°C to +260°C (-15°F to +500°F). Teflon is unaffected by outdoor weathering. Inert to almost all chemicals. No moisture absorption. Can be cemented only after special treatment.

SPAENAUR No.	BOLT SIZE	INSIDE DIAMETER	OUTSIDE DIAMETER	NOMINAL THICKNESS	UNIT PACKAGE
654-100	#4	.120"	9/32"	.030"	50
654-101	#6	.150"	5/16"	.045"	50
654-102	#8	.170"	3/8"	.045"	50
654-103	#10	.195"	7/16"	.060"	50
654-104	1/4"	.265"	9/16"	.060"	25
654-105	5/16"	.340"	11/16"	.060"	25
654-106	3/8"	.405"	13/16"	.060"	25
654-107	1/2"	.531"	1"	.060"	25



6/6 Nylon

See pages D74 & D75 for Nylon 6/6 Insulators and Shoulder Washers

also page C145 for Nylon Retaining Washers.

654-001	2	.090"	.250"	.032"	100
654-015	2	.104"	.220"	.031"	100
654-002	4	.115"	.250"	.032"	100
W-5000	4	.115"	.290"	.047"	100
W-5001	6	.140"	.312"	.047"	100
654-003	6	.140"	.312"	.062"	100
W-5002	8	.170"	.375"	.062"	100
654-004	10	.194"	.375"	.062"	100
W-5003	10	.200"	.437"	.062"	100
654-028	1/4"	.250"	.625"	.032"	100
654-005	1/4"	.257"	.500"	.062"	100
654-013	1/4"	.257"	.875"	.031"	100
654-010	1/4"	.257"	.875"	.062"	100
W-5004	1/4"	.260"	.562"	.062"	100
654-014	5/16"	.317"	.500"	.031"	100
654-006	5/16"	.317"	.500"	.062"	100
654-011	5/16"	.336"	.709"	.079"	100
W-5005	5/16"	.344"	.687"	.062"	100
W-5006	5/16"	.343"	.885"	.062"	100
654-007	3/8"	.380"	.625"	.062"	100
W-5007	3/8"	.402"	.807"	.065"	100
654-008	7/16"	.443"	.750"	.093"	100
654-023	—	.500"	1.500"	.125"	100
654-016	1/2"	.503"	1.120"	.033"	100
654-009	1/2"	.505"	.750"	.093"	100
654-017	1/2"	.540"	1.120"	.125"	100
W-5012	1/2"	.563"	.812"	.093"	100
654-019	—	.625"	.812"	.032"	100
654-012	5/8"	.630"	.812"	.100"	100
654-018	3/4"	.768"	1.425"	.100"	100
654-022	7/8"	1.015"	1.5"	.080"	100

See Page D14 for Inch and Metric Flat Washer Assortment.

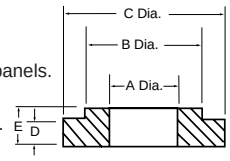
FLAT FIBRE WASHERS

Vulcanized Red Fibre. A hard, dense, bone-like material.Tough yet pliable.

SPAENAUR No.		Diameter		Pkg. Qty.
1/32"Thick	1/16"Thick	Inside	Outside	
W-20F	W-21F	3/32"	3/16"	100
W-64F	W-65F	3/32"	1/4"	100
W-22F	W-23F	1/8"	1/4"	100
W-24F	W-25F	1/8"	5/16"	100
W-251F	–	1/8"	3/8"	100
W-252F	–	.130"	3/8"	100
–	W-250F	5/32"	3/8"	100
W-26F	W-27F	3/16"	5/16"	100
W-28F	W-29F	3/16"	3/8"	100
638-099	638-098	.191"	11/16"	100
W-30F	W-31F	1/4"	3/8"	100
W-34F	W-35F	1/4"	1/2"	100
W-32F	W-33F	5/16"	7/16"	100
W-38F	W-39F	5/16"	9/16"	100
W-36F	W-37F	3/8"	1/2"	100
W-40F	W-41F	3/8"	5/8"	100
W-44F	W-45F	7/16"	11/16"	100
W-42F	W-43F	1/2"	5/8"	100
638-100	–	1/2"	11/16"	100
W-46F	W-47F	1/2"	3/4"	100
W-50F	W-51F	9/16"	13/16"	50
W-48F	W-49F	5/8"	3/4"	100
W-52F	W-53F	5/8"	7/8"	50
W-54F	W-55F	11/16"	15/16"	50
W-56F	W-57F	3/4"	1"	50
W-58F	W-59F	3/4"	1-1/16"	50
–	638-087	3/4"	1-1/4"	100
W-60F	W-61F	13/16"	1-1/8"	50
W-62F	W-63F	7/8"	1-3/16"	25
W-66F	W-67F	15/16"	1-1/4"	25
W-68F	W-69F	1"	1-5/16"	25
–	W-84F	1-1/4"	1-7/16"	25
638-002(.017" Thick.- Grey Colour)		1/8"	1/4"	100
638-003(.037" Thick.- Grey Colour)		1/8"	1/4"	100
638-004(.067" Thick. - Grey Colour)		1/8"	1/4"	100
W-85F(3/32" Thick)		5/16"	15/32"	100
W-275F (1/8" Thick)		1/4"	3/4"	100
638-088 (1/8" Thick)		3/16"	1-1/8"	100

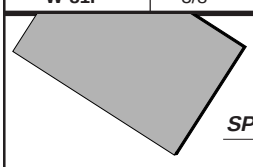
EXTRUDED FIBRE WASHERS

STANDARD SIZES
Shoulder Washers to fit metal panels.
Used wherever a metal panel has to be insulated.



SPAENAUR No.	Inside Dia. A	Shoulder B	O.D. C	Base D	Height E	Pkg. Qty.
W-74F	#4 (1/8")	13/64"	5/16"	3/64"	5/64"	100
W-75F	#6 (9/64")	7/32"	3/8"	3/64"	5/64"	100
W-76F	#8 (11/64")	1/4"	7/16"	1/16"	3/32"	100
W-77F	#10 (13/64")	9/32"	1/2"	1/16"	3/32"	100
W-78F	1/4"	3/8"	1/2"	1/16"	3/32"	100
W-79F	5/16"	7/16"	9/16"	1/16"	3/32"	100
W-80F	3/8"	1/2"	5/8"	1/16"	3/32"	100
W-81F	3/8"	1/2"	3/4"	1/16"	3/32"	100

VULCANIZED RED FIBRE SHEETS



SPAENAUR No.	Size	Unit Pkg.
W-70FS	1/32" x 2" x 3"	25
W-71FS	1/16" x 2" x 3"	25

Useful for cutting into special shapes-
Washers, Gaskets, etc.

FLAT FIBROUS WASHERS

Light Grey Colour
Made of
ELECTRICAL INSULATING
TRANSFORMER BOARD

SPAENAUR No.	Nominal Thickness	I.D.	O.D.	Unit Pkg.
W-283F	1/32"	.130"	3/8"	100
W-86F	1/16"	.219"	1/2"	100
UH-11	1/16"	1/4"	3/4"	100

FLAT FIBRE WASHERS

BLACK COLOUR (Hard)

SPAENAUR No.	Nominal Thickness	I.D.	O.D.	Unit Pkg.
638-001	1/32"	5/32"	5/16"	100
W-171F	1/16"	3/16"	7/8"	100
UH-10	1/16"	3/16"	1-3/8"	100

FLAT PHENOLIC WASHERS

Fabric Base - Natural Colour

SPAENAUR No.	Nominal Thickness	I.D.	O.D.	Unit Pkg.
W-257F	1/16"	3/8"	7/8"	100
W-334F	.025"	11/16"	1-1/16"	100
W-333F	.010"	1-1/16"	1-5/16"	100

LEATHER WASHERS

639-001 5/16" I.D., 1" O.D., 1/8" thick
639-002 1/4" I.D., 1" O.D., 1/8" thick

Unit package 100

FIBRE WASHERS of Red, Vulcanized Fibre

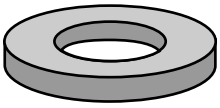
ASSORTMENT
ASSORTIMENT **B-584**

24 SIZES — 1000 PIECES

Inside diameters range from 1/8" to 3/4".
Priced Singly. Shipping Weight 2.49 kg (5-1/2 lbs.)
REGULAR SIZE DRAWER

CONTENTS			
I.D.	O.D.	Nominal Thickness	Ass't Qty.
1/8"	1/4"	1/32"	50
1/8"	1/4"	1/16"	50
3/16"	3/8"	1/32"	50
3/16"	3/8"	1/16"	50
1/4"	3/8"	1/32"	50
1/4"	3/8"	1/16"	50
1/4"	1/2"	1/32"	50
1/4"	1/2"	1/16"	50
5/16"	9/16"	1/32"	50
5/16"	9/16"	1/16"	50
3/8"	5/8"	1/32"	50
3/8"	5/8"	1/16"	50
7/16"	11/16"	1/32"	50
7/16"	11/16"	1/16"	50
1/2"	3/4"	1/32"	50
1/2"	3/4"	1/16"	50
5/8"	3/4"	1/32	25
5/8"	3/4"	1/16"	25
5/8"	7/8"	1/32"	25
5/8"	7/8"	1/16"	25
3/4"	1"	1/32"	25
3/4"	1"	1/16"	25
3/4"	1-1/16"	1/32"	25
3/4"	1-1/16"	1/32"	25

~DIN 125A
~ ISO 7089



Metric STEEL FLAT WASHERS

Available finishes:
Plain, Zinc, Yellow Zinc and Chrome Plated.

Regular Style

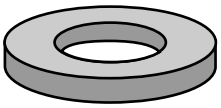
Hardness: 140 HV

Assortment 805-411
on page D14.
Plastikit 804-082
on page D13.

(All Dimensions in Millimetres.)

ORDER BY *SPAENAUR* NUMBER LISTED BELOW				BOLT SIZE (mm)	INSIDE DIA. (MIN.)	OUTSIDE DIA. (MAX.)	THICK-NESS (NOM.)	UNIT PKG. QTY.
PLAIN	ZINC PLATED	YELLOW ZINC PLTD.	CHROME PLATED					
657-067	**657-067ZP**	**657-067YZ**		**1.6**	1.7	4.0	.3	250
657-001	**657-001ZP**		**657-022**	**1.7**	1.8	4.5	.3	250
657-002	**657-002ZP**	**657-002YZ**	**657-023**	**2**	2.2	5.0	.3	250
	657-003ZP	**657-003YZ**	**657-024**	**2.3**	2.5	6.0	.5	100
657-068	**657-068ZP**	**657-068YZ**		**2.5**	2.7	6.0	.5	100
657-004	**657-004ZP**	**657-004YZ**		**2.6**	2.8	7.0	.5	100
657-005	**657-005ZP**	**657-005YZ**		**3**	3.2	7.0	.5	100
657-006	**657-006ZP**	**657-006YZ**		**3.5**	3.7	8.0	.5	100
657-007	**657-007ZP**	**657-007YZ**		**4**	4.3	9.0	.8	100
657-008	**657-008ZP**	**657-008YZ**		**5**	5.3	10.0	1.0	100
657-009	**657-009ZP**	**657-009YZ**		**6**	6.4	12.0	1.6	100
657-010	**657-010ZP**	**657-010YZ**		**7**	7.4	14.0	1.6	100
657-011	**657-011ZP**	**657-011YZ**		**8**	8.4	16.0	1.6	100
657-012	**657-012ZP**	**657-012YZ**		**10**	10.5	20.0	2.0	100
657-013	**657-013ZP**	**657-013YZ**		**12**	13.0	24.0	2.5	100
657-014	**657-014ZP**	**657-014YZ**		**14**	15.0	28.0	2.5	100
657-015	**657-015ZP**	**657-015YZ**		**16**	17.0	30.0	3.0	100
657-016	**657-016ZP**	**657-016YZ**		**18**	19.0	34.0	3.0	100
657-017	**657-017ZP**	**657-017YZ**		**20**	21.0	37.0	3.0	50
657-018	**657-018ZP**	**657-018YZ**		**22**	23.0	39.0	3.0	50
657-019	**657-019ZP**	**657-019YZ**		**24**	25.0	44.0	4.0	50
657-020	**657-020ZP**	**657-020YZ**		**27**	28.0	50.0	4.0	25
657-021	**657-021ZP**	**657-021YZ**		**30**	31.0	56.0	4.0	25
657-069	**657-069ZP**	**657-069YZ**		**33**	34.0	60.0	5.0	10
657-070	**657-070ZP**	**657-070YZ**		**36**	37.0	66.0	5.0	10
657-071	**657-071ZP**	**657-071YZ**		**39**	42.0	72.0	6.0	10
657-072	**657-072ZP**	**657-072YZ**		**42**	45.0	78.0	8.0	10
657-073	**657-073ZP**	**657-073YZ**		**45**	48.0	85.0	8.0	10
657-074	**657-074ZP**	**657-074YZ**		**48**	52.0	92.0	8.0	10
657-075		**657-075YZ**		**52**	56.0	98.0	8.0	10

Steel
Metric Flat Washers



Cold Rolled
Plain Finish
Hardness: 200 Brinell (HRB.94)

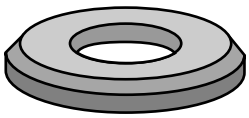
(All Dimensions in Millimetres.)

SPAENAUR No.	BOLT SIZE (mm)	INSIDE DIA. (MIN.)	OUTSIDE DIA. (MAX.)	THICK-NESS (AVG.)	UNIT PKG. QTY.
657-170	**5**	5.3	10.0	1 $^{\pm 0.1}$	100
657-171	**6**	6.4	12.0	1.6 $^{\pm 0.2}$	100
657-172	**8**	8.4	16.0	1.6 $^{\pm 0.2}$	100
657-173	**10**	10.5	20.0	2 $^{\pm 0.2}$	100
657-174	**12**	13.0	24.0	2.5 $^{\pm 0.3}$	100
657-174ZP*	**12**	13.0	24.0	2.5 $^{\pm 0.3}$	100
657-175	**14**	15.0	28.0	2.5 $^{\pm 0.3}$	100
657-176	**16**	17.0	30.0	3 $^{\pm 0.3}$	100
657-177	**18**	19.0	34.0	3 $^{\pm 0.3}$	100
657-178	**20**	21.0	37.0	3 $^{\pm 0.3}$	50

*Zinc Plated

~DIN 125B

~ ISO 7090



Metric STEEL FLAT WASHERS

Available finishes:
Plain, Zinc, Yellow Zinc and Chrome Plated.

Single Chamfer Style

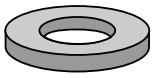
(All Dimensions in Millimetres.)

ORDER BY *SPAENAUR* NUMBER LISTED BELOW				BOLT SIZE (mm)	INSIDE DIA. (MIN.)	OUTSIDE DIA. (MAX.)	THICK-NESS (NOM.)	UNIT PKG. QTY.
PLAIN	ZINC PLATED	YELLOW ZINC PLTD.	CHROME PLATED					
	657-053ZP			3	3.2	7.0	.5	100
			657-025	4	4.3	9.0	.8	100
657-056	657-056ZP	657-056YZ	657-026	5	5.3	10.0	1.0	100
657-057	657-057ZP	657-057YZ	657-027	6	6.4	12.0	1.6	100
657-058	657-058ZP			7	7.4	14.0	1.6	100
657-059	657-059ZP	657-059YZ		8	8.4	16.0	1.6	100
657-060	657-060ZP	657-060YZ	657-028	10	10.5	20.0	2.0	100
657-061	657-061ZP	657-061YZ	657-029	12	13.0	24.0	2.5	100
657-062	657-062ZP	657-062YZ	657-030	14	15.0	28.0	2.5	100
657-063	657-063ZP	657-063YZ	657-031	16	17.0	30.0	3.0	100
657-064	657-064ZP			18	19.0	34.0	3.0	100
657-065	657-065ZP	657-065YZ		20	21.0	37.0	3.0	50
657-169	657-169ZP			22	23.0	39.0	3.0	50
657-066	657-066ZP	657-066YZ		24	25.0	44.0	4.0	50
		657-162YZ		27	28.0	50.0	4.0	25
657-143	657-143ZP	657-143YZ		30	31.0	56.0	4.0	25
657-135				33	34.0	60.0	5.0	10
657-136	657-136ZP			36	37.0	66.0	5.0	10
657-137				39	40.0	72.0	6.0	10
657-138				42	45.0	78.0	8.0	10
657-139				45	48.0	85.0	8.0	10
657-140				48	52.0	92.0	8.0	10
657-141				52	56.0	98.0	8.0	10
*657-142	*657-142ZP			64	66.15	114.0	9.0	10

* Not to DIN Spec.

Metric FLAT and *HELICAL LOCKWASHERS

Steel, Zinc Plated
7 Sizes – 280 pieces



DIN 125A / 127B

SPAENAUR No.	Bolt Size (mm)	Ass't Qty.	*SPAENAUR No.*	Bolt Size (mm)	Ass't Qty.
657-007ZP	4	20	*664-006ZP	4	20
657-008ZP	5	20	*664-007ZP	5	20
657-009ZP	6	20	*664-008ZP	6	20
657-010ZP	7	20	*664-009ZP	7	20
657-011ZP	8	20	*664-010ZP	8	20
657-012ZP	10	20	*664-011ZP	10	20
657-013ZP	12	20	*664-012ZP	12	20

Plastikit
«Plastikit»
804-082

Put up in a clear durable plastic container with hinged lid. Size: 1" x 2-3/4" x 4-1/2".
Priced Singly

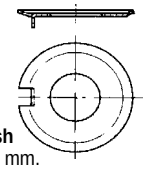
Full line of Flat Washers on D12.

Full line of Helical Washers on D25.

EXTERNAL TAB WASHER

DIN 432

Unit Pkg. 100



Steel
Plain Finish
Dimensions in mm.

Bolt Size	*SPAENAUR No.*	I.D.	O.D.	Tab Width	Thickness
M6	657-294	6.4	19	3.5	.75
M8	657-295	8.4	22	3.5	1.0
M12	657-296	13	30	4.5	1.2

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ASSORTMENT / ASSORTIMENT **805-446**

Metric FLAT WASHERS
A2 Stainless Steel

~DIN 125A ~ISO 7089

20 Sizes – 893 Pieces

Shipping Weight 3.2 kg (7 lb.)

ASSORTMENT / ASSORTIMENT **805-447**

Metric FLAT WASHERS
Brass

~DIN 125A ~ISO 7090

20 Sizes – 893 Pieces

Shipping Weight 3.25 kg (7.2 lb.)

All dimensions in millimetres (except Inch where noted).

Contents of Assortments 805-446 and 805-447

Bolt Size	O.D.	Thickness	Qty.
M1.6	4.0	.3	100
M2	5.0	.3	100
M2.3	6.0	.5	100
M2.6	7.0	.5	100
M3	7.0	.5	100
M3.5	8.0	.5	50
M4	9.0	.8	80
M5	10.0	1.0	70
M6	12.0	1.6	60
M8	16.0	1.6	40
M10	20.0	2.0	25
M12	24.0	2.5	20
M14	28.0	2.5	15
M16	30.0	3.0	10
M18	34.0	3.0	6
M20	37.0	3.0	5
M22	39.0	3.0	4
M24	44.0	4.0	3
M27	50.0	4.0	3
M30	56.0	4.0	2

ASSORTMENT / ASSORTIMENT **805-448**

Inch & Metric FLAT WASHERS 6/6 Nylon

Metric Style **~DIN 125A** ~ ISO 7089

Inch Style – Sizes No. 4 to 1/2"

Total: 18 Sizes – 1000 Pieces

Shipping Weight 2.27 kg (5 lb.)

Contents of Assortment 805-448

Bolt Size	O.D.	Thickness	Qty.
METRIC:			
M3	7.0	.5	100
M4	9.0	.8	80
M5	10.0	1.0	70
M6	12.0	1.6	60
M8	16.0	1.6	50
M10	20.0	2.0	40
M12	24.0	2.5	35
M16	30.0	3.0	35
M20	37.0	3.0	30
INCH:			
#4	.250"	.032"	100
#6	.312"	.062"	80
#8	.375"	.062"	70
#10	.375"	.062"	60
1/4"	.500"	.062"	50
5/16"	.500"	.062"	40
3/8"	.625"	.062"	35
7/16"	.750"	.093"	35
1/2"	.750"	.093"	30

ASSORTMENT / ASSORTIMENT **805-411**

Metric STEEL FLAT WASHERS

Zinc Plated & Plain

21 Sizes — 943 Pieces

~DIN 125A ~ISO 7089

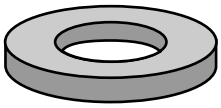
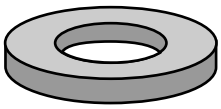
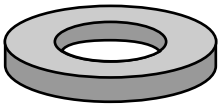
Shipping Weight 3.52 kg (7-1/4 lbs.)

All drawers shown above are REGULAR SIZE, welded steel, have hinged lids and finished in grey enamel. Drawers will fit Slide Racks shown on A2.

Contents of Assortment 805-411

Bolt Size	O.D.	Thickness	Qty.
M1.7	4.5	.3	100
M2	5.0	.3	100
M2.3	6.0	.5	100
M2.6	7.0	.5	100
M3	7.0	.5	100
M3.5	8.0	.5	50
M4	9.0	.8	80
M5	10.0	1.0	70
M6	12.0	1.6	60
M7	14.0	1.6	50
M8	16.0	1.6	40
M10	20.0	2.0	25
M12	24.0	2.5	20
M14	28.0	2.5	15
M16	30.0	3.0	10
M18	34.0	3.0	6
M20	37.0	3.0	5
M22	39.0	3.0	4
M24	44.0	4.0	3
M27	50.0	4.0	3
M30	56.0	4.0	2

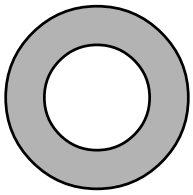
CATALOG 13

MATERIAL	SPAENAUR No's. S.S. A2	SPAENAUR No's. S.S. A4	BOLT SIZE (mm)	INSIDE DIAMETER (MIN.)	OUTSIDE DIAMETER (MAX.)	THICKNESS (NOM.)	UNIT PACKAGE
Metric FLAT WASHERS ~DIN 125A ~ ISO 7089  **Property Classes A2 & A4 STAINLESS STEEL** *May not be to DIN Spec.	*659-022		1	1.1	3.2	.3	250
	*659-023		1.2	1.3	3.8	.3	250
	*659-024		1.4	1.5	3.8	.3	250
	659-025		1.6	1.7	4	.3	250
	659-002	659-030	2	2.2	5.0	.3	250
	659-003		2.3	2.5	6.0	.5	100
	659-047	659-031	2.5	2.7	6.0	.5	100
	659-004		2.6	2.8	7.0	.5	100
	659-005	659-032	3	3.2	7.0	.5	100
	659-006	659-050	3.5	3.7	8.0	.5	100
	659-007	659-033	4	4.3	9.0	.8	100
	659-008	659-034	5	5.3	10.0	1.0	100
	659-009	659-035	6	6.4	12.0	1.6	100
	659-011	659-036	8	8.4	16.0	1.6	100
	659-012	659-037	10	10.5	20.0	2.0	100
	659-013	659-038	12	13.0	24.0	2.5	100
	659-014	659-039	14	15.0	28.0	2.5	100
	659-015	659-040	16	17.0	30.0	3.0	100
	659-016	659-041	18	19.0	34.0	3.0	100
	659-017	659-042	20	21.0	37.0	3.0	50
	659-018	659-043	22	23.0	39.0	3.0	50
	659-019	659-044	24	25.0	44.0	4.0	50
	659-020	659-045	27	28.0	50.0	4.0	25
	659-021	659-046	30	31.0	56.0	4.0	25
	PLAIN BRASS	NICKEL PLATED					
Metric FLAT WASHERS ~DIN 125A ~ ISO 7089  **BRASS**	650-001	650-001NP	1.7	1.8	4.5	.3	250
	650-002		2	2.2	5.0	.3	250
	650-003		2.3	2.5	6.0	.5	100
	650-022		2.5	2.7	6.0	.5	100
	650-004	650-004NP	2.6	2.8	7.0	.5	100
	650-005		3	3.2	7.0	.5	100
	650-006		3.5	3.7	8.0	.5	100
	650-007	650-007NP	4	4.3	9.0	.8	100
	650-008		5	5.3	10.0	1.0	100
	650-009		6	6.4	12.0	1.6	100
	650-026		7	7.4	14.0	1.6	100
	650-011		8	8.4	16.0	1.6	100
	650-012		10	10.5	20.0	2.0	100
	650-013		12	13.0	24.0	2.5	100
	650-014		14	15.0	28.0	2.5	100
	650-015		16	17.0	30.0	3.0	100
	650-016		18	19.0	34.0	3.0	100
	650-017		20	21.0	37.0	3.0	50
	650-018		22	23.0	39.0	3.0	50
	650-019		24	25.0	44.0	4.0	50
	650-020		27	28.0	50.0	4.0	25
	650-021		30	31.0	56.0	4.0	25
Metric FLAT WASHERS  Type 6/6 UL 94V2 **NYLON** See pages D74 and D75 for Nylon 6/6 Insulators and Shoulder Washers.	655-020		2	2.15	5.00	0.80	100
	655-021		2.5	2.65	5.60	0.80	100
	655-010		3	3.20	7.00	0.50	100
	655-022		3.5	3.70	8.00	0.80	100
	655-011		4	4.30	9.00	0.80	100
	655-012		5	5.30	11.00	1.00	100
	655-013		6	6.40	12.00	1.50	100
	655-015		8	8.40	16.00	1.60	100
	655-023		8	8.50	25.00	2.00	100
	655-016		10	10.50	22.00	2.50	100
	655-017		12	13.00	24.00	2.50	100
	655-018		16	17.00	30.00	3.00	100
	655-019		20	21.00	37.00	3.00	50
	All Dimensions in millimetres						

D

CATALOG 13

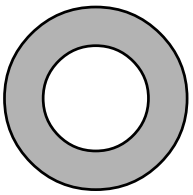
D



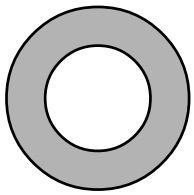
Round Flat Washers

DIN 126 ~ DIN EN ISO 7091

Coarse Steel Washers for Metric Hexagon Bolts and Metric Nuts, (not chamfered)



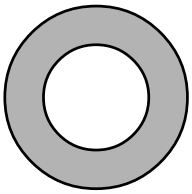
For Bolt Size	Plain Steel	Zinc Plated	Yellow Zinc Plated	All Dimensions in Millimetres I.D. (Min.)	O.D. (Max.)	Thick. (Nom.)	Unit Pkg. Qty.
M5	657-032			5.5	10	1	100
M6	657-033			6.6	12	1.6	100
M7	657-034			7.6	14	1.6	100
M8	657-035	657-035ZP		9	16	1.6	100
M10	657-036	657-036ZP	657-036YZ	11	20	2	100
M12	657-037	657-037ZP		13.5	24	2.5	100
M14	657-038		657-038YZ	15.5	28	2.5	100
M16	657-039	657-039ZP		17.5	30	3	100
M18	—	657-054ZP		20	34	3	50
M20	657-040	657-040ZP		22	37	3	50
M22	657-077	657-077ZP		23	39	3	50
M24	657-041			26	44	4	50
M27	657-042	657-042ZP		30	50	4	25
M30	657-043	657-043ZP		33	56	4	25
M33	657-044	657-044ZP		36	60	5	10
M36	657-045	657-045ZP		39	66	5	10
M39	657-046			42	72	6	10
M42	657-047			45	78	8	10
M45	657-076			48	85	8	10
M48	657-048			52	92	8	10
M52	657-049			56	98	8	10



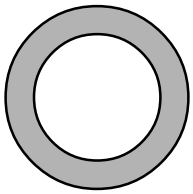
Round Flat Washers

DIN 7349

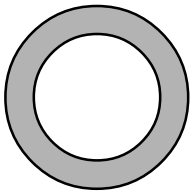
For use with Metric Bolts with HEAVY Clamping Sleeves and for close tolerance use with DIN 1481.



For Bolt Size	Plain Steel	Zinc Plated	All Dimensions in Millimetres I.D.	O.D.	Thickness	Unit Pkg. Qty.
M3	657-183	657-183ZP	3.2	9	1	100
M4	657-184		4.3	12	1.6	100
M5	657-185		5.3	15	2	100
M6	657-186	657-186ZP	6.4	17	3	100
M8	657-187	657-187ZP	8.4	21	4	100
M10	657-188		10.5	25	4	100
M12	657-189	657-189ZP	13	30	6	100
M14	657-191	657-191ZP	15	36	6	100
M16	657-192	657-192ZP	17	40	6	100
M18	657-194		19	44	8	100
M20	657-195		21	44	8	100
M22	657-196		23	50	8	50
M24	657-197	657-197ZP	25	50	10	50
M27	657-198		28	60	10	25
M30	657-199	657-199ZP	31	68	10	25



Metric Flat Washers with reduced O.D.

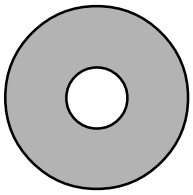


DIN 433 ~ DIN EN ISO 7092

For use with Machine Screws.

For Bolt Size	Plain Steel	Zinc Plated	A4 Stainless Steel	All Dimensions in Millimetres I.D. (Min.)	O.D. (Max.)	Thick. (Nom.)	Unit Pkg. Qty.
M1		657-078ZP		1.1	2.5	0.3	100
M1.2	657-079	657-079ZP		1.3	3	0.3	100
M1.4		657-080ZP		1.5	3	0.3	100
M1.6	657-081	657-081ZP		1.7	3.5	0.3	100
M1.8	657-082	657-082ZP		1.9	4	0.3	100
M2	657-083	657-083ZP		2.2	4.5	0.3	100
M2.5	657-084	657-084ZP		2.7	5	0.5	100
M3		657-085ZP		3.2	6	0.5	100
M3.5	657-144			3.7	7	0.5	100
M4	657-086	657-086ZP	657-800	4.3	8	0.5	100
M5	■657-087	657-087ZP	657-815	5.3	9	1	100
M6	657-088	657-088ZP	657-801	6.4	11	1.6	100
M8	657-089	657-089ZP	657-802	8.4	15	1.6	100
M10	*657-090	657-090ZP	657-803	10.5	18	1.6	100
M12	657-091	657-091ZP		13	20	2	100
M14	657-092	657-092ZP		15	24	2.5	100
M16	657-093	657-093ZP		17	28	2.5	100
M18	657-094	657-094ZP		19	30	3.0	100
M20	657-095	657-095ZP		21	34	3.0	50

***657-090YZ** Yellow Zinc Plated ■**657-502NP** Brass - Nickel Plated



Metric Fender Washers

~DIN 9021 ~ ISO 7093

Washers with O.D. approx. 3 times I.D.
Previously unmachined.

Washers with Large O.D.
Plain Steel Similar to DIN 9021

SPAENAUR No.	I.D. x O.D. x Thickness
657-147	4.3 x 20 x 1.25 mm
657-317	6.4 x 25 x 1.25 mm
657-149	8.4 x 30 x 1.25 mm
657-318	8.5 x 38 x 1.25 mm
657-319	10.5 x 38 x 1.5 mm

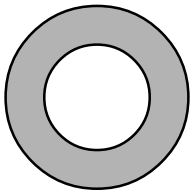
Unit Pkg. Qty. 100

For Bolt Size	Plain Steel	Zinc Plated	Yellow Zinc Plated	A2 Stainless Steel	Nylon 6/6	All Dimensions in Millimetres I.D. (Min.)	O.D. (Max.)	Thick. (Nom.)	Unit Pkg. Qty.
M2.5	657-253	657-253ZP		657-804		2.7	8	0.8	100
M3	657-254	657-254ZP	657-254YZ	657-805	657-400	3.2	9	0.8	100
M3.5	657-255	657-255ZP		657-806		3.7	11	0.8	100
M4	657-256	657-256ZP	657-256YZ	657-807	657-401	4.3	12	1	100
M5	657-257	657-257ZP	657-257YZ	657-808	657-402	5.3	15	1.1	100
M6	657-258	657-258ZP	657-258YZ	657-809	657-403	6.4	18	1.6	100
M7	657-259	657-259ZP				7.4	22	2	100
M8	657-260	657-260ZP	657-260YZ	657-810	657-404	8.4	24	2	100
M10	657-261	657-261ZP	657-261YZ	†657-811	657-405	10.5	30	2.5	100
M12	657-262	657-262ZP	657-262YZ	657-812	657-406	13	37	3	100
M14	657-263	657-263ZP	657-263YZ			15	44	3	100
M16	657-264	657-264ZP				17	50	3	100
M18	657-265	657-265ZP				19	56	4	100
M20	657-266	657-266ZP				21	60	4	50

†**657-813** A4 Stainless Steel

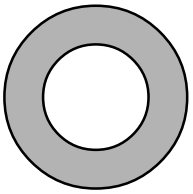
D

Metric Flat Washers



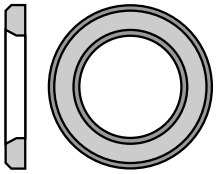
DIN 7989A

For Steel Construction - Plain Steel

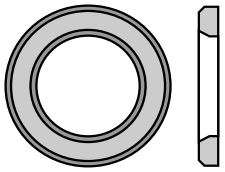


For Bolt Size	*SPAENAUR No.*	All Dimensions in Millimetres I.D.	O.D.	Thickness	Unit Pkg. Qty.
M10	**657-050**	11	20	8	100
M12	**657-051**	13.5	24	8	100
M16	**657-096**	17.5	30	8	100
M20	**657-052**	22	37	8	50
M24	**657-097**	26	44	8	50
M24	**657-097ZP** Zinc Pltd.	26	44	8	50
M27	**657-098**	30	50	8	25
M30	**657-099**	33	56	8	25

Metric Flat Washers



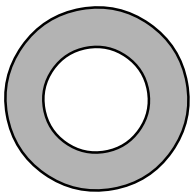
Plain Steel - Black Finish **DIN 6916** **Hardened**



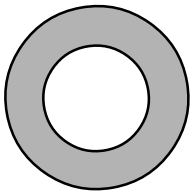
For use with steel structures (joints with high-tensile, prestressed bolts) and DIN 6914 High Tension Hexagon Bolts (Pg. B203) and DIN 6915 Heavy Hex Nuts (Pg. C21).

For Bolt Size	*SPAENAUR No.*	All Dimensions in Millimetres I.D.	O.D.	Thickness	Unit Pkg. Qty.
M12	**657-150**	13	24	3	100
M16	**657-151**	17	30	4	100
M20	**657-152**	21	37	4	50
M22	**657-153**	23	39	4	50
M24	**657-154**	25	44	4	50
M27	**657-155**	28	50	5	25
M30	**657-156**	31	56	5	25
M33	**657-157**	34	60	5	10

Metric Flat Washers

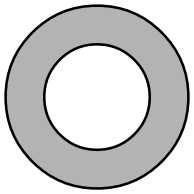


Plain Steel – Black Finish **DIN 6340** **Hardened**



For Bolt Size	*SPAENAUR No.*	All Dimensions in Millimetres I.D.	O.D.	Thickness	Unit Pkg. Qty.
M6	**657-298**	6.4	17	3	100
M8	**657-299**	8.4	23	4	100
M10	**657-300**	10.5	28	4	100
M12	**657-301**	13	35	5	100
M14	**657-302**	15	40	5	100
M16	**657-303**	17	45	6	100
M18	**657-304**	19	45	6	100
M20	**657-305**	21	50	6	50
M24	**657-306**	25	60	8	50

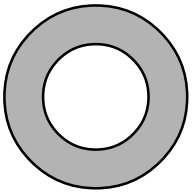
For Spherical Seat Washer DIN 6319C and Dished Washer DIN 6319D see page B354.



DIN 1440
~ DIN EN 28738
~ ISO 8738

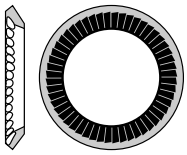
Fine Tolerance – Steel

Metric Flat Washers for Clevis Pins



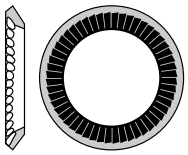
Bolt Size (mm)	Plain Steel	Zinc Plated	Yellow Zinc Plated	All Dimensions in Millimetres I.D.	O.D.	Thickness	Unit Pkg. Qty.
3	**657-234**	**657-234ZP**		3	6	0.8	100
4	**657-235**	**657-235ZP**	**657-235YZ**	4	8	0.8	100
5	**657-236**	**657-236ZP**	**657-236YZ**	5	10	1.0	100
6	**657-237**	**657-237ZP**		6	12	1.6	100
8	**657-238**	**657-238ZP**	**657-238YZ**	8	15	2	100
10	**657-239**	**657-239ZP**		10	18	2.5	100
12	**657-240**	**657-240ZP**		12	20	3	100
13	**657-241**			13	25	3	100
14	**657-242**	**657-242ZP**		14	22	3	100
16	**657-243**	**657-243ZP**	**657-243YZ**	16	24	3	100
18	**657-244**	**657-244ZP**		18	28	4	100
19	***657-251**			19	30	4	100
20	**657-245**	**657-245ZP**	**657-245YZ**	20	32	4	50
22	**657-246**		**657-246YZ**	22	34	4	50
25	**657-247**			25	40	4	50
28	**657-248**	**657-248ZP**		28	42	5	25
30	**657-249**			30	44	5	25
36	**657-250**			36	50	6	10

***DIN 1441**

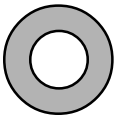


Metric Rib Washers

Spring Steel – Black Finish



For Bolt Size	*SPAENAUR No.*	All Dimensions in Millimetres I.D.	O.D.	Thickness	Overall Height	Unit Pkg. Qty.
M3	**657-275**	3.2	5.5	0.45	0.9	100
M4	**657-276**	4.3	7.0	0.50	1.0	100
M5	**657-277**	5.3	9.0	0.60	1.1	100
M6	**657-278**	6.4	10.0	0.70	1.2	100
M7	**657-279**	7.4	12.0	0.70	1.3	100
M8	**657-280**	8.4	13.0	0.80	1.4	100
M10	**657-282**	10.5	16.0	1.00	1.6	100
M12	**657-284**	13.0	18.0	1.10	1.7	100
M14	**657-286**	15.0	22.0	1.20	2.0	100
M16	**657-293**	17.0	24.0	1.30	2.1	100
M18	**657-287**	19.0	27.0	1.50	2.3	100
M20	**657-288**	21.0	30.0	1.50	2.4	50
M22	**657-289**	23.0	33.0	1.50	2.5	50
M24	**657-290**	25.6	36.0	1.80	2.7	50
M27	**657-291**	28.6	39.0	2.00	2.9	25
M30	**657-292**	31.6	45	2.00	3.2	25

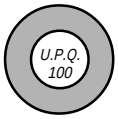


***SPAENAUR No.* 657-407**

M6 Thick Flat Washer

Steel – Zinc Plated

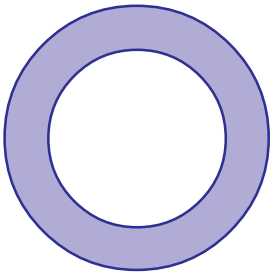
6.4 I.D. x 16 O.D. x 0.8 mm Thick.



Flat Small O.D. Washers *U.P.Q. 100*

Steel – Zinc Plated

***SPAENAUR No.* 657-408**	***SPAENAUR No.* 657-409**
8 I.D. x 12 O.D. x 2 mmThick.	9 I.D. x 13 O.D. x 2 mmThick.



Metric Sealing Rings

DIN 7603

Form **7603A** – Flat Gasket

Form **7603C** – Packing Gasket

Available in Aluminum Natural, Fibre Natural, Copper Natural and Copper Natural with "KFC" packing.

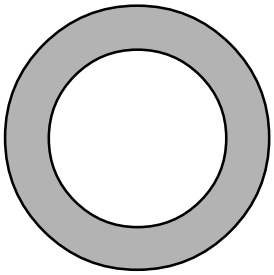
Unit Package Quantity 100 (one number)

Continued on next page…

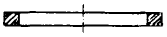
D

DIN 7603A			DIN 7603C	All Dimensions in Millimetres			DIN 7603A			DIN 7603C	All Dimensions in Millimetres		
Aluminum Natural	Fibre Natural	Copper Natural	Copper Filled with "KFC"	I.D.	O.D.	Thick.	Aluminum Natural	Fibre Natural	Copper Natural	Copper Filled with "KFC"	I.D.	O.D.	Thick.
661-300	661-400	661-700		4	8	1			661-749		12	17	1
		661-701		5	7.5	1	661-316	661-410	661-750		12	17	1.5
661-301		661-702		5	9	1			661-751	661-879	12	17	2
		661-703		5	9	1.5			661-752		12	18	1
		661-705		5.5	8	1	661-317	661-411	661-753		12	18	1.5
661-302	661-402	661-706		6	10	1			661-754	661-880	12	18	2
		661-707	661-867	6	10	1.5	661-318	661-412	661-755		12	19	1.5
		661-708		6	10	2			661-756		12	20	1
661-303	661-403	661-709		6	12	1		661-413	661-757		12	20	1.5
		661-710	661-868	6	12	1.5			661-758		12	20	2
		661-711		6	12	2		661-414			12	22	1.5
	661-404	661-712		6.2	17.5	2			661-759		13	17	1
661-305		661-713		6.5	9.5	1			661-760		13	17	1.5
		661-714		6.5	11	1			661-761		13	17	2
661-307		661-715		8	11.5	1			661-762		13	18	1
		661-716	661-869	8	11.5	1.5		661-415	661-763		13	18	1.5
		661-717		8	11.5	2			661-764	661-881	13	18	2
661-308	661-405	661-718		8	12	1			661-765		13	19	1
		661-719	661-870	8	12	1.5			661-766		13	19	1.5
		661-720		8	12	2			661-767	661-882	13	19	2
661-309		661-721		8	13	1			661-768		13	20	1
		661-722	661-871	8	13	1.5		661-416	661-769		13	20	1.5
		661-723		8	13	2			661-770		13	20	2
661-310	661-406	661-724		8	14	1			661-771		14	18	1
		661-725	661-872	8	14	1.5	661-320	661-417	661-772		14	18	1.5
		661-726		8	14	2			661-773	661-883	14	18	2
661-311		661-727		10	13.5	1			661-774		14	20	1
		661-728	661-873	10	13.5	1.5	661-321	661-418	661-775		14	20	1.5
		661-729		10	13.5	2			661-776	661-884	14	20	2
661-312	661-407	661-730		10	14	1	661-322	661-419	661-777		14	22	1.5
		661-731	661-874	10	14	1.5			661-778		14	24	1
		661-732		10	14	2		661-420	661-779		14	24	1.5
		661-733		10	15	1			661-780		14	24	2
		661-734	661-875	10	15	1.5	661-323	661-421	661-781		15	19	1.5
		661-735		10	15	2					15	20	1.5
661-313	661-408	661-736		10	16	1	661-324	661-422			15	24	1.5
		661-737	661-876	10	16	1.5			661-782		16	20	1
		661-738		10	16	2	661-325	661-423	661-783		16	20	1.5
		661-739		10	18	1			661-784	661-885	16	20	2
		661-740		10	18	1.5			661-785		16	22	1
		661-741		10	18	2	661-326	661-424	661-786		16	22	1.5
		661-742		10	20	1			661-787	661-886	16	22	2
		661-743		10	20	1.5			661-788		16	24	1.5
		661-744		10	20	2			661-789		17	21	1
661-314		661-745		12	15.5	1.5	661-327	661-425	661-790		17	21	1.5
			661-877	12	15.5	2			661-791	661-887	17	21	2
		661-746		12	16	1			661-792		17	22	1
661-315	661-409	661-747		12	16	1.5			661-793		17	22	1.5
		661-748	661-878	12	16	2			661-794		17	22	2

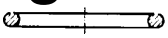
Metric Sealing Rings (cont'd)



DIN 7603



Form **7603A** – Flat Gasket



Form **7603C** – Packing Gasket

Available in Aluminum Natural, Fibre Natural, Copper Natural and Copper Natural with "KFC" packing.

"KFC" packing is made from cellulose fibre and binding materials, developed for use as a filler in Sealing Rings. Good compressionability, springiness and workability - easy on forming tools. 250°C Max.

D

DIN 7603A			DIN 7603C	All Dimensions in Millimetres			DIN 7603A			DIN 7603C	All Dimensions in Millimetres		
Aluminum Natural	Fibre Natural	Copper Natural	Copper Filled with "KFC"	I.D.	O.D.	Thick.	Aluminum Natural	Fibre Natural	Copper Natural	Copper Filled with "KFC"	I.D.	O.D.	Thick.
		661-795		17	23	1	661-341		661-839		26	34	2
661-328	661-426	661-796		17	23	1.5				661-901	26	34	2.5
		661-797	661-888	17	23	2			661-840		27	32	1.5
		661-798		18	22	1	661-342	661-436	661-841		27	32	2
661-329	661-427	661-799		18	22	1.5				661-902	27	32	2.5
		661-800	661-889	18	22	2			661-842		27	35	2
		661-801		18	24	1			661-843		28	33	2
661-330	661-428	661-802		18	24	1.5	661-343	661-437	661-844		28	34	2
		661-803	661-890	18	24	2				661-903	28	34	2.5
		661-804		20	24	1			661-845		28	36	2
661-331	661-429	661-805		20	24	1.5			661-846		30	36	1.5
		661-806	661-891	20	24	2	661-344	661-438	661-847		30	36	2
		661-807		20	26	1				661-904	30	36	2.5
661-332	661-430	661-808		20	26	1.5	661-345		661-848		30	38	2
		661-809	661-892	20	26	2				661-905	30	38	2.5
		661-810		21	26	1	661-346	661-439	661-849		32	38	2
661-333	661-431	661-811		21	26	1.5				661-906	32	38	2.5
		661-812	661-893	21	26	2			661-850		33	39	1.5
		661-813		21	27	1	661-347	661-440	661-851		33	39	2
		661-814		21	27	1.5				661-907	33	39	2.5
		661-815		21	27	2			661-852		35	41	1.5
		661-816		21	28	1	661-348	661-441	661-853		35	41	2
	661-432	661-817		21	28	1.5				661-908	35	41	2.5
		661-818		21	28	2			661-854		36	42	1.5
		661-819		22	26	1.5	661-349	661-442	661-855		36	42	2
		661-820		22	27	1				661-909	36	42	2.5
661-335	661-433	661-821		22	27	1.5			661-856		36	44	2
		661-822	661-894	22	27	2	661-350		661-857		38	44	2
		661-823		22	28	1				661-910	38	44	2.5
		661-824		22	28	1.5	661-351	661-443	661-858		40	47	2
		661-825		22	28	2				661-911	40	47	2.5
		661-826		22	29	1			661-859		40	49	2
661-336	661-434	661-827		22	29	1.5	661-352	661-444	661-860		42	49	2
661-334		661-828	661-895	22	29	2				661-912	42	49	2.5
		661-829		23	28	2	661-353	661-445	661-861		45	52	2
661-337		661-830		24	29	2				661-913	45	52	2.5
			661-896	24	29	2.5		661-446	661-862		48	55	2
661-338	661-435	661-831		24	30	2				661-914	48	55	2.5
			661-897	24	30	2.5			661-863		50	57	2
		661-832		24	32	1.5			661-864		52	60	2.5
		661-833		24	32	2				661-915	52	60	3
		661-917	661-898	24	32	2.5	661-354				48	55	2
		661-834		26	31	1.5			661-865		60	68	2.5
661-339		661-835		26	31	2				661-916	60	68	3
			661-899	26	31	2.5			661-866		75	84	2.5
		661-836		26	32	1.5							
661-340	661-447	661-837		26	32	2							
			661-900	26	32	2.5							
		661-838		26	34	1.5							

Unit Package Quantities

*17 & 18 mm I.D. - **100***
*26-30 mm I.D. - **25***
*20-24 mm I.D. - **50***
*32-75 mm I.D. - **10***

D

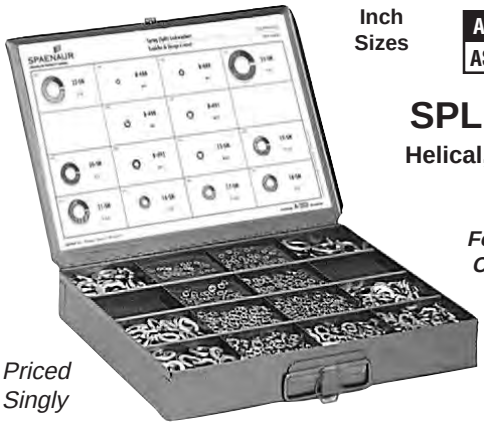
ASME/ANSI B18.21.1

REGULAR STYLE
HELICAL - SPLIT TYPE

Material	SPAENAUR No.'s Zinc Plated	SPAENAUR No.'s Plain Finish	Nominal Bolt Size	Washer Section Width	Washer Section Thickness	Unit Package
STEEL Zinc Plated and Plain Finish	W-307		2	.035"	.020"	100
	W-308		3	.040"	.025"	100
	W-309		4	.040"	.031"	100
	W-310		5	.047"	.031"	100
	W-311		6	.047"	.031"	100
	W-312		8	.055"	.040"	100
	15-SN		10	.062"	.047"	100
	16-SN	663-079	1/4"	.109"	.062"	100
	17-SN	663-299	5/16"	.125"	.078"	100
	18-SN	18-SNB	3/8"	.141"	.094"	100
	19-SN		7/16"	.156"	.109"	100
	20-SN	663-090	1/2"	.171"	.125"	100
	21-SN		9/16"	.188"	.141"	100
	22-SN	663-091	5/8"	.203"	.156"	100
	23-SN		3/4"	.234"	.188"	100
	W-237		7/8"	.266"	.219"	100
	W-239	W-239B	1"	.297"	.250"	100
	W-241		1-1/8"	.328"	.281"	50
	W-243		1-1/4"	.359"	.312"	50
	W-244		1-5/16"	.375"	.328"	50
	W-245		1-3/8"	.391"	.344"	25
	W-246		1-7/16"	.406"	.359"	25
	W-247		1-1/2"	.422"	.375"	25
	W-363		1-5/8"	.500"	.375"	25
	W-364		1-3/4"	.500"	.375"	25
	W-365		1-7/8"	.500"	.375"	25
	W-366		2"	.500"	.375"	20
	W-367		2-1/4"	.500"	.375"	10
	W-368		2-1/2"	.500"	.375"	10

See page D5 for 804-081 Plastikit.

P.C. 663



Priced Singly

Inch Sizes

ASSORTMENT ASSORTIMENT **A-203**

SPLIT LOCKWASHERS

Helical, "Regular" and "Light" Styles
Steel, Plated

For Bolts of #4 to 3/4" diameter
Contains 14 sizes - 582 pieces

Regular Size Drawer Size: 13-3/8" x 9-1/4" x 2"
See page A2 for Storage Slide Rack
Shipping Wt. 2.95 kg (6-1/2 lbs.)

See page D24 for Light Style.

Contents of Assortment A-203

Bolt Size	Width	Thickness	Qty.	Style
4	.035"	.020"	50	Light
6	.040"	.025"	50	Light
8	.047"	.031"	50	Light
10	.055"	.040"	50	Light
10	.062"	.047"	75	Regular
12	.062"	.047"	50	Light
1/4"	.109"	.062"	75	Regular
5/16"	.125"	.078"	50	Regular
3/8"	.141"	.094"	35	Regular
7/16"	.156"	.109"	30	Regular
1/2"	.171"	.125"	20	Regular
9/16"	.188"	.141"	15	Regular
5/8"	.203"	.156"	20	Regular
3/4"	.234"	.188"	12	Regular

Stainless - Aluminum - Bronze

REGULAR STYLE

HELICAL - SPLIT TYPE

ASME/ANSI B18.21.1

Nominal Bolt Size	Washer Section Width	Washer Section Thickness	18-8 STAINLESS STEEL	316 STAINLESS STEEL	ALUMINUM 7075-T6	SILICON BRONZE	Unit Pkg.
2	.035"	.020"	W-2021	W-2314		W-582	
3	.040"	.025"	W-2022	W-2327		W-583	
4	.040"	.031"	W-2023	W-2315		W-584	
6	.047"	.031"	W-2024	W-2316		W-585	
8	.055"	.040"	W-2025	W-2317	663-304	W-586	
10	.062"	.047"	W-2026	W-2318	663-305	W-587	
12	.070"	.056"	W-2027			W-588	100
1/4"	.109"	.062"	W-2028	W-2319	663-300	W-562	
5/16"	.125"	.078"	W-2029	W-2320	663-301	W-563	
3/8"	.141"	.094"	W-2030	W-2321	663-302	W-564	
7/16"	.156"	.109"	W-2031	W-2328		W-565	
1/2"	.171"	.125"	W-2032	W-2322	663-306	W-566	
5/8"	.203"	.156"	W-2033	W-2323	663-307	W-567	
3/4"	.234"	.188"	W-2034	W-2324	663-308	W-568	
7/8"	.266"	.219"	W-2035	W-2325		W-569	50
1"	.297"	.250"	W-2036	W-2326		W-570	

ASME/ANSI B18.21.1

REGULAR STYLE

HELICAL SPLIT TYPE

Material	*SPAENAUR No.*	Nominal Bolt Size	Washer Section Width	Washer Section Thickness	Unit Package
Hot Galvanized **Steel**	663-082	1/4"	.109"	.062"	100
	663-083	5/16"	.125"	.078"	100
	663-084	3/8"	.141"	.094"	100
	663-085	1/2"	.171"	.125"	100
	663-086	5/8"	.203"	.156"	100
	663-087	3/4"	.234"	.188"	100
	663-088	7/8"	.266"	.219"	100
	663-089	1"	.297"	.250"	100

Priced Singly

ASSORTMENT 805-528 Inch Sizes

SPLIT LOCKWASHERS

(18-8) Stainless Steel
Helical, "Regular" Styles

For Bolts of #2 to 1" diameter
Contains 16 sizes - 1000 pieces

Regular Drawer Size: 13-3/8" x 9-1/4" x 2"
See page A2 for Storage Slide Racks.
Shipping Wt. 3.62 kg (8 lbs.)

See following page for Light Style Lockwashers.

Contents of 805-528			Ass't
Bolt Size	Width	Thickness	Qty.
2	.035"	.020"	100
3	.040"	.025"	100
4	.040"	.031"	100
6	.047"	.031"	100
8	.055"	.040"	100
10	.062"	.047"	100
12	.070"	.056"	100
1/4"	.109"	.062"	100
5/16"	.125"	.078"	50
3/8"	.141"	.094"	50
7/16"	.156"	.109"	25
1/2"	.171"	.125"	25
5/8"	.203"	.156"	15
3/4"	.234"	.188"	15
7/8"	.266"	.219"	10
1"	.297"	.250"	10

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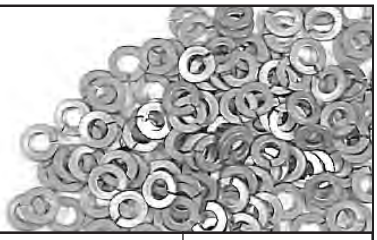
LIGHT STYLE

SPRING STEEL LOCKWASHERS



Zinc Plated **Steel**

*Non-standard Size

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SPAENAUR No.	Nominal Bolt Size	Washer Section Width	Washer Section Thickness	Unit Package
B-495	**2**	.030"	.015"	100
W-153	**3**	.035"	.020"	100
***663-080**	**4**	.020"	.022"	100
B-488	**4**	.035"	.020"	100
W-248	**5**	.040"	.025"	100
B-489	**6**	.040"	.025"	100
B-490	**8**	.047"	.031"	100
B-491	**10**	.055"	.040"	100
B-492	**12**	.062"	.047"	100
W-115	**14**	.107"	.047"	100

HIGH-COLLAR STYLE

ASME/ANSI B18.21.1

SPRING STEEL LOCKWASHERS

Zinc Plated **Steel**

High-collar style is used with:

Socket Head Cap Screws -Pages B212 to B217 and B234 to B237.

Countr-Bor Cap Screws -Page B248.

P.C. 663

W-337	**4**	.022"	.022"	100
W-338	**5**	.030"	.030"	100
W-339	**6**	.030"	.030"	100
W-340	**8**	.042"	.047"	100
W-341	**10**	.042"	.047"	100
W-342	**12**	.047"	.078"	100
W-343	**1/4"**	.047"	.078"	100
W-344	**5/16"**	.062"	.093"	100
W-345	**3/8"**	.076"	.125"	100
W-346	**7/16"**	.090"	.140"	100
W-347	**1/2"**	.103"	.172"	100
W-348	**9/16"**	.116"	.187"	100
W-349	**5/8"**	.125"	.203"	100
W-350	**3/4"**	.154"	.218"	100
W-351	**7/8"**	.182"	.234"	100
W-352	**1"**	.208"	.250"	100
W-353	**1-1/8"**	.236"	.313"	50
W-354	**1-1/4"**	.236"	.313"	50
W-355	**1-1/2"**	.292"	.375"	25

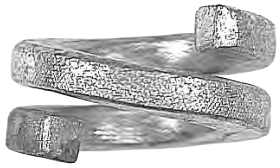
18-8 Stainless Steel

667-005	**4**	.022"	.022"	100
667-006	**6**	.030"	.030"	100
667-007	**8**	.042"	.047"	100
667-001	**10**	.042"	.047"	100
667-002	**1/4"**	.047"	.078"	100
667-003	**5/16"**	.062"	.093"	100
667-004	**3/8"**	.076"	.125"	100
667-008	**1/2"**	.103"	.172"	100

DOUBLE COIL STYLE

Spring Steel – Hot Galvanized Finish

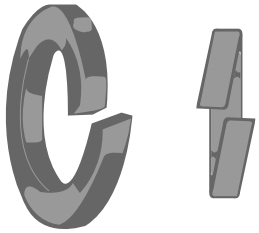
(▲Plain Finish)



P.C. 663

W-357	**3/8"**	.156"	.109"	100
W-358	**1/2"**	.203"	.156"	100
W-359	**5/8"**	.234"	.188"	100
W-360	**3/4"**	.266"	.219"	100
▲663-001	**7/8"**	.266"	.219"	100

CATALOG 13



DIN 127B

Metric LOCKWASHERS

Split Type – Helical – Plain Ends

For use with Hex Head Cap Screws
Styles DIN 931 and DIN 933

*Not to DIN spec.

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All Dimensions in Millimetres				ORDER BY *SPAENAUR* NUMBERS BELOW						
				STEEL			A2	A4		
BOLT SIZE	Inside Dia.	Outside Dia.	Nom. Section Thickness	Plain	Zinc Plated	Yellow Zinc Plated	Stainless Steel	Stainless Steel	Silicon Bronze	Unit Pkg. Qty.
2	2.1	4.4	.5	**664-001**	**664-001ZP**	**664-001YZ**	**668-001**		**666-001**	100
2.3	2.4	4.9	.6	**664-002**	**664-002ZP**		**668-002**		**666-002**	100
2.5	2.6	5.1	.6	**664-131**	**664-131ZP**	**664-131YZ**	**668-026**			100
2.6	2.7	5.2	.6	**664-003**	**664-003ZP**		**668-003**		**666-003**	100
3	3.1	6.2	.8	**664-004**	**664-004ZP**	**664-004YZ**	**668-004**	**668-027**	**666-004**	100
3.5	3.6	6.7	.8	**664-005**	**664-005ZP**	**664-005YZ**	**668-005**		**666-005**	100
4	4.1	7.6	.9	**664-006**	**664-006ZP**	**664-006YZ**	**668-006**	**668-028**	**666-006**	100
5	5.1	9.2	1.2	**664-007**	**664-007ZP**	**664-007YZ**	**668-007**	**668-029**	**666-007**	100
6	6.1	11.8	1.6	**664-008**	**664-008ZP**	**664-008YZ**	**668-008**	**668-030**	**666-008**	100
***6.4**	6.5	11.4	1.6	**664-021**	**664-021ZP**	**664-021YZ**				100
7	7.1	12.8	1.6	**664-009**	**664-009ZP**	**664-009YZ**	**668-009**		**666-009**	100
8	8.1	14.8	2	**664-010**	**664-010ZP**	**664-010YZ**	**668-010**	**668-031**	**666-010**	100
10	10.2	18.1	2.2	**664-011**	**664-011ZP**	**664-011YZ**	**668-011**	**668-032**	**666-011**	100
***11**	11.4	18.3	2.1	**664-022**	**664-022ZP**	**664-022YZ**				100
12	12.2	21.1	2.5	**664-012**	**664-012ZP**	**664-012YZ**	**668-012**	**668-033**	**666-012**	100
***13**	13.4	21.2	2.4	**664-023**	**664-023ZP**	**664-023YZ**				100
14	14.2	24.1	3	**664-013**	**664-013ZP**	**664-013YZ**	**668-013**	**668-034**	**666-013**	100
16	16.2	27.4	3.5	**664-014**	**664-014ZP**	**664-014YZ**	**668-014**	**668-035**	**666-014**	100
18	18.2	29.4	3.5	**664-015**	**664-015ZP**	**664-015YZ**	**668-015**	**668-036**	**666-015**	100
20	20.2	33.6	4	**664-016**	**664-016ZP**	**664-016YZ**	**668-016**	**668-037**	**666-016**	100
22	22.5	35.9	4	**664-017**	**664-017ZP**	**664-017YZ**	**668-017**		**666-017**	100
24	24.5	40	5	**664-018**	**664-018ZP**	**664-018YZ**	**668-018**	**668-038**	**666-018**	50
***26**	26.6	40.3	5	**664-025**	**664-025ZP**	**664-025YZ**				50
27	27.5	43	5	**664-019**	**664-019ZP**	**664-019YZ**	**668-019**		**666-019**	50
***28**	28.4	42.4	5	**664-026**	**664-026ZP**	**664-026YZ**			(See	50
30	30.5	48.2	6	**664-020**	**664-020ZP**	**664-020YZ**	**668-020**		Silicon Bronze	50
***32**	33	48.8	6	**664-027**	**664-027ZP**	**664-027YZ**			Assortment	25
33	33.5	55.2	6	**664-028**	**664-028ZP**	**664-028YZ**			805-450	25
***35**	36	55.8	6	**664-029**	**664-029ZP**	**664-029YZ**			Below.)	25
36	36.5	58.2	6	**664-046**	**664-046ZP**	**664-046YZ**				25
39	39.5	61.2	6	**664-132**						10
42	42.5	68.2	7	**664-133**						10
45	45.5	71.2	7	**664-134**						10
48	49.0	75	7	**664-135**						10
52	53.0	83	8	**664-136**						10

Metric

DIN 127B

ASSORTMENT 805-450
ASSORTMENT

SPLIT LOCKWASHERS

Helical - Plain Ends

SILICON BRONZE

18 Sizes - 940 Pieces

Regular Size grey enamel Steel Drawer
will fit Slide Racks on A2.
Shipping Wgt. 3.18 kg (7 lbs.)

All Dimensions in Millimetres

Contents of Assortment

Bolt Size	I.D.	O.D.	Thickness	Qty.
M2	2.1	4.4	.5	100
M2.3	2.4	4.9	.6	100
M2.6	2.7	5.2	.6	100
M3	3.1	6.2	.8	100
M3.5	3.6	6.7	.8	100
M4	4.1	7.6	.9	100
M5	5.1	9.2	1.2	80
M6	6.1	11.8	1.6	60
M7	7.1	12.8	1.6	50
M8	8.1	14.8	2.0	40
M10	10.2	18.1	2.2	30
M12	12.2	21.1	2.5	30
M14	14.2	24.1	3.0	15
M16	16.2	27.4	3.5	10
M18	18.2	29.4	3.5	8
M20	20.2	33.6	4.0	6
M22	22.5	35.9	4.0	6
M24	24.5	40	5.0	5

CATALOG 13

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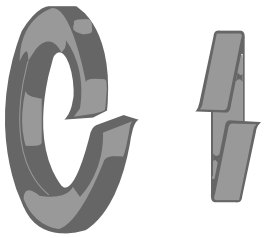


DIN 127A

Metric LOCKWASHERS

Split Type – Helical – Barbed Ends

For use with Hex Head Cap Screws
Styles DIN 931 and DIN 933

*Not to DIN spec.

All Dimensions in Millimetres				ORDER BY *SPAENAUR* NUMBERS BELOW					
				STEEL					
BOLT SIZE	Inside Dia.	Outside Dia.	Section Thickness	**Plain**	**Zinc Plated**	**Yellow Zinc Plated**	**A2 Stainless Steel**	**A4 Stainless Steel**	**Unit Pkg. Qty.**
2	2.1	4.4	.5	**664-024**	**664-024ZP**	**664-024YZ**			100
2.5	2.6	5.1	.6	**664-130**	**664-130ZP**	**664-130YZ**			100
2.6	2.7	5.2	.6	**664-081**	**664-081ZP**	**664-081YZ**			100
3	3.1	6.2	.8	**664-068**	**664-068ZP**	**664-068YZ**			100
3.5	3.6	6.7	.8	**664-069**	**664-069ZP**	**664-069YZ**			100
4	4.1	7.6	.9	**664-070**	**664-070ZP**	**664-070YZ**			100
5	5.1	9.2	1.2	**664-071**	**664-071ZP**	**664-071YZ**			100
6	6.1	11.8	1.6	**664-072**	**664-072ZP**	**664-072YZ**			100
***6.4**	6.5	11.4	1.6	**664-073**	**664-073ZP**	**664-073YZ**			100
7	7.1	12.8	1.6	**664-074**	**664-074ZP**	**664-074YZ**			100
8	8.1	14.8	2	**664-075**	**664-075ZP**	**664-075YZ**			100
10	10.2	18.1	2.2	**664-076**	**664-076ZP**	**664-076YZ**			100
***11**	11.4	18.3	2.1	**664-077**	**664-077ZP**	**664-077YZ**			100
12	12.2	21.1	2.5	**664-078**	**664-078ZP**	**664-078YZ**			100
***13**	13.4	21.2	2.4	**664-079**	**664-079ZP**	**664-079YZ**			100
14	14.2	24.1	3	**664-080**	**664-080ZP**	**664-080YZ**			100
16	16.2	27.4	3.5	**664-082**	**664-082ZP**	**664-082YZ**			100
18	18.2	29.4	3.5	**664-083**	**664-083ZP**	**664-083YZ**			100
20	20.2	33.6	4	**664-084**	**664-084ZP**	**664-084YZ**			100
22	22.5	35.9	4	**664-085**	**664-085ZP**	**664-085YZ**			100
24	24.5	40	5	**664-086**	**664-086ZP**	**664-086YZ**			50
***26**	26.6	40.3	5	**664-087**	**664-087ZP**	**664-087YZ**			50
27	27.5	43	5	**664-088**	**664-088ZP**	**664-088YZ**			50
***28**	38.4	42.4	5	**664-089**	**664-089ZP**	**664-089YZ**			50
30	30.5	48.2	6	**664-090**	**664-090ZP**	**664-090YZ**			50
***32**	33	48.8	6	**664-091**	**664-091ZP**	**664-091YZ**			25
33	33.5	55.2	6	**664-092**	**664-092ZP**	**664-092YZ**			25
***35**	36	55.8	6	**664-093**	**664-093ZP**	**664-093YZ**			25
36	36.5	58.2	6	**664-094**	**664-094ZP**	**664-094YZ**			25
39	39.5	61.2	6	**664-125**					10
42	42.5	68.2	7	**664-126**					10
45	45.5	71.2	7	**664-127**					10
48	49	75	7	**664-128**					10
52	53	83	8	**664-129**					10

DIN 127B

ASSORTMENT **805-449** **Metric**

SPLIT LOCKWASHERS

Helical - Plain Ends
A2 Stainless Steel

20 SIZES - 950 PIECES
All sizes from M2 to M30

See page D25

Regular Size grey enamel Steel Drawer will fit Slide Racks on page A2.

Shipping Wt. 3.4 kg (7-1/2 lbs.)

Priced Singly

Contents of Assortment

All Dimensions in Millimetres

Bolt Size	I.D.	O.D.	Thickness	Qty.
M2	2.1	4.4	.5	100
M2.3	2.4	4.9	.6	100
M2.6	2.7	5.2	.6	100
M3	3.1	6.2	.8	100
M3.5	3.6	6.7	.8	100
M4	4.1	7.6	.9	100
M5	5.1	9.2	1.2	80
M6	6.1	11.8	1.6	60
M7	7.1	12.8	1.6	50
M8	8.1	14.8	2.0	40
M10	10.2	18.1	2.2	30
M12	12.2	21.1	2.5	30
M14	14.2	24.1	3.0	15
M16	16.2	27.4	3.5	10
M18	18.2	29.4	3.5	8
M20	20.2	33.6	4.0	6
M22	22.5	35.9	4.0	6
M24	24.5	40.0	5.0	6
M27	27.5	43.0	5.0	5
M30	30.5	48.2	6.0	4

DIN 7980

* Not to DIN Spec.

Metric LOCKWASHERS

Split Type – Helical – Plain Ends

High Collar Style

For use with Socket Head Cap Screws Style DIN 912.

D

All Dimensions in Millimetres				ORDER BY *SPAENAUR* NUMBERS BELOW					
				STEEL					
BOLT SIZE	Inside Dia.	Outside Dia.	Section Thickness	**Plain**	**Zinc Plated**	**Yellow Zinc Plated**	**A2 Stainless Steel**	**A4 Stainless Steel**	**Unit Pkg. Qty.**
3	3.1	5.6	1	**664-050**	**664-050ZP**	**664-050YZ**	**668-044**	**668-021**	100
3.5	3.6	6.1	1	**664-067**	**664-067ZP**	**664-067YZ**			100
4	4.1	7	1.2	**664-051**	**664-051ZP**	**664-051YZ**	**668-045**	**668-022**	100
5	5.1	8.8	1.6	**664-052**	**664-052ZP**	**664-052YZ**	**668-046**	**668-023**	100
6	6.1	9.9	1.6	**664-053**	**664-053ZP**	**664-053YZ**	**668-047**	**668-024**	100
8	8.1	12.7	2	**664-054**	**664-054ZP**	**664-054YZ**	**668-048**	**668-025**	100
10	10.2	16	2.5	**664-055**	**664-055ZP**	**664-055YZ**	**668-049**	**668-039**	100
12	12.2	18	2.5	**664-056**	**664-056ZP**	**664-056YZ**	**668-050**	**668-040**	100
14	14.2	21.1	3	**664-057**	**664-057ZP**	**664-057YZ**			100
16	16.2	24.4	3.5	**664-058**	**664-058ZP**	**664-058YZ**	**668-051**	**668-041**	100
18	18.2	26.4	3.5	**664-059**	**664-059ZP**	**664-059YZ**			100
20	20.2	30.6	4.5	**664-060**	**664-060ZP**	**664-060YZ**	**668-052**	**668-042**	100
22	22.5	32.9	4.5	**664-061**	**664-061ZP**	**664-061YZ**			100
24	24.5	35.9	5	**664-062**	**664-062ZP**	**664-062YZ**		**668-043**	50
27	27.5	38.9	5	**664-063**	**664-063ZP**	**664-063YZ**			50
30	30.5	44.1	6	**664-064**	**664-064ZP**	**664-064YZ**			50
33	33.5	47.1	6	**664-065**	**664-065ZP**	**664-065YZ**			25
36	36.5	52.2	7	**664-066**	**664-066ZP**	**664-066YZ**			25
39	39.5	54.4	7.4	***664-047**					10
42	42.5	60.2	8	**664-049**					10
48	49	67	8	**664-137**					10

ASSORTMENT
ASSORTIMENT
805-413

Metric SPLIT LOCKWASHERS

Helical - Plain Ends

Steel, Zinc Plated

24 SIZES - 1381 PIECES
All sizes from M2 to M24

Contains two styles:

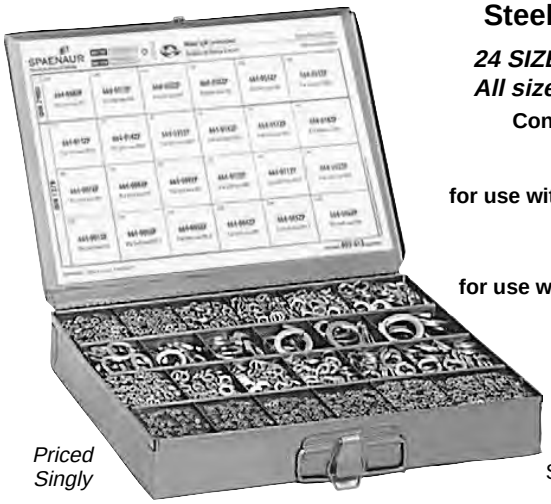
DIN 127B
for use with Hex Head Cap Screws (DIN 931/933)

DIN 7980
for use with Socket Head Cap Screws (DIN 912)

See page D25 and above.

Regular Size grey enamel Steel Drawer will fit Slide Racks on page A2.

Shipping Wt. 3.4 kg (7-1/2 lbs.)



Priced Singly

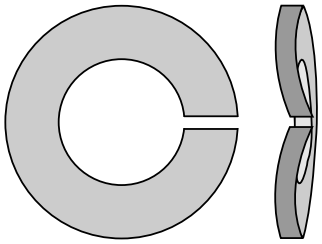
DIN 127B

Bolt Size	I.D.	O.D.	Thickness	Qty.
M2	2.1	4.4	.5	100
M2.3	2.4	4.9	.6	100
M2.6	2.7	5.2	.6	100
M3	3.1	6.2	.8	100
M3.5	3.6	6.7	.8	100
M4	4.1	7.6	.9	100
M5	5.1	9.2	1.2	80
M6	6.1	11.8	1.6	60
M7	7.1	12.8	1.6	50
M8	8.1	14.8	2.0	40
M10	10.2	18.1	2.2	30
M12	12.2	21.1	2.5	30
M14	14.2	24.1	3.0	15
M16	16.2	27.4	3.5	10
M18	18.2	29.4	3.5	8
M20	20.2	33.6	4.0	6
M22	22.5	35.9	4.0	6
M24	24.5	40	5.0	6

DIN 7980

M3	3.1	5.6	1.0	100
M4	4.1	7.0	1.2	100
M5	5.1	8.8	1.6	80
M6	6.1	9.9	1.6	70
M8	8.1	12.7	2.0	50
M10	10.2	16.0	2.5	40

D



DIN 128A

Metric LOCKWASHERS

Split Bowed Type – Plain Ends

■ A2 Stainless Steel specs. similar to DIN 128A.

All Dimensions in Millimetres				ORDER BY *SPAENAUR* NUMBERS BELOW					
				STEEL			■ A2	A2 S.S.	
BOLT SIZE	Min. Inside Dia.	Max. Outside Dia.	Nom. Thickness (Ref. Only)	**Plain**	**Zinc Plated**	**Yellow Zinc Plated**	**Stainless Steel**	Section Thick.	**Unit Pkg. Qty.**
2	2.1	4.4	0.5	***664-030**	**664-030ZP**	**664-030YZ**	**664-900**	0.6	100
2.3	2.4	4.9	0.6	**664-031**	**664-031ZP**	**664-031YZ**			100
2.5	2.6	5.1	0.6	**▲664-032**	**664-032ZP**	**664-032YZ**	**664-902**	0.6	100
2.6	2.7	5.2	0.6	**664-033**	**664-033ZP**	**664-033YZ**			100
3	3.1	6.2	0.7	**664-034**	**664-034ZP**	**664-034YZ**	**664-904**	0.8	100
3.5	3.6	6.7	0.7	**664-035**	**664-035ZP**	**664-035YZ**	**664-906**	0.8	100
4	4.1	7.6	0.8	**664-036**	**664-036ZP**	**664-036YZ**	**664-908**	0.8	100
5	5.1	9.2	1.0	**664-037**	**664-037ZP**	**664-037YZ**	**664-910**	1.2	100
6	6.1	11.8	1.3	**664-038**	**664-038ZP**	**664-038YZ**	**664-912**	1.5	100
7	7.1	12.8	1.3	**664-095**	**664-095ZP**	**664-095YZ**			100
8	8.1	14.8	1.6	**664-039**	**664-039ZP**	**664-039YZ**	**664-914**	1.9	100
10	10.2	18.1	1.8	**664-040**	**664-040ZP**	**664-040YZ**	**664-916**	2.0	100
12	12.2	21.1	2.1	**664-041**	**664-041ZP**	**664-041YZ**	**664-918**	2.4	100
14	14.2	24.1	2.4	**664-042**	**664-042ZP**	**664-042YZ**			100
16	16.2	27.4	2.8	**664-043**	**664-043ZP**	**664-043YZ**	**664-920**	3.3	100
18	18.2	29.4	2.8	**664-044**	**664-044ZP**	**664-044YZ**	**664-922**	3.4	100
20	20.2	33.6	3.2	**664-045**	**664-045ZP**	**664-045YZ**			100
22	22.5	35.9	3.2	**664-096**	**664-096ZP**	**664-096YZ**			100
24	24.5	40	4.0	**664-097**	**664-097ZP**	**664-097YZ**			50
27	27.5	43	4.0	**664-098**	**664-098ZP**	**664-098YZ**			50
30	30.5	48.2	6.0	**664-099**	**664-099ZP**	**664-099YZ**			50
33	33.5			**664-100**	**664-100ZP**	**664-100YZ**			25
36	36.5	58.2	6.0	**664-101**	**664-101ZP**	**664-101YZ**			25

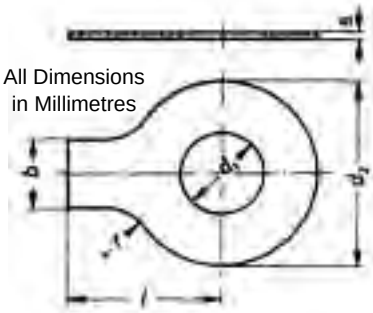
***664-030MZ** Mech. Zinc Olive Green Finish **▲664-032MZ** Mech. Zinc Olive Green Finish

METRIC LONG TAB WASHERS (LOCKING)

DIN 93

Steel, Plain Finish

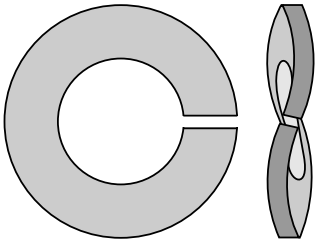
For Bolt Size	*SPAENAUR No.*	I.D. (d_1)	O.D. (d_2)	Tab Width (b)	Tab Length (l)	Radius (r)	Thick. (s)	Unit Pkg. Qty.
M3	**657-100**	3.2	12	4	13	2.5	0.38	100
M3.5	**657-101**	3.7	12	4	13	2.5	0.38	100
M4	**657-102**	4.3	14	5	14	2.5	0.38	100
M5	**657-103**	5.3	17	6	16	2.5	0.5	100
M6	**657-104**	6.4	19	7	18	4	0.5	100
M8	**657-105**	8.4	22	8	20	4	0.75	100
M10	**657-106**	10.5	26	10	22	6	0.75	100
M12	**657-107**	13	30	12	28	10	1	100
M14	**657-108**	15	33	12	28	10	1	100
M16	**657-109**	17	36	15	32	10	1	100
M18	**657-110**	19	40	18	36	10	1	100
M20	**■657-111**	21	42	18	36	10	1	50
M22	**657-112**	23	50	20	42	10	1	50
M24	**657-113**	25	50	20	42	10	1	50
M27	**657-114**	28	58	23	48	16	1.6	25
M30	**657-115**	31	63	26	52	16	1.6	25
M33	**657-116**	34	68	28	56	16	1.6	10
M36	**657-117**	37	75	30	60	16	1.6	10



Applications

■657-111ZP Zinc Plated

CATALOG 13



DIN 128B

Metric LOCKWASHERS

Split Twisted Type – Plain Ends

D

All Dimensions in Millimetres				ORDER BY *SPAENAUR* NUMBERS BELOW					
				STEEL					
BOLT SIZE	Min. Inside Dia.	Max. Outside Dia.	Nom. Section (Ref. only)	**Plain**	**Zinc Plated**	**Yellow Zinc Plated**	**A2 Stainless Steel**	**A4 Stainless Steel**	**Unit Pkg. Qty.**
2	2.1	4.4	.5	**664-102**	**664-102ZP**	**664-102YZ**			100
2.3	2.4	4.9	.6	**664-103**	**664-103ZP**	**664-103YZ**			100
2.5	2.6	5.1	.6	**664-104**	**664-104ZP**	**664-104YZ**			100
2.6	2.7	5.2	.6	**664-105**	**664-105ZP**	**664-105YZ**			100
3	3.1	6.2	.7	**664-106**	**664-106ZP**	**664-106YZ**			100
3.5	3.6	6.7	.7	**664-107**	**664-107ZP**	**664-107YZ**			100
4	4.1	7.6	.8	**664-108**	**664-108ZP**	**664-108YZ**			100
5	5.1	9.2	1	**664-109**	**664-109ZP**	**664-109YZ**			100
6	6.1	11.8	1.3	**664-110**	**664-110ZP**	**664-110YZ**			100
7	7.1	12.8	1.3	**664-111**	**664-111ZP**	**664-111YZ**			100
8	8.2	14.9	1.6	**664-112**	**664-112ZP**	**664-112YZ**			100
10	10.2	18.1	1.8	**664-113**	**664-113ZP**	**664-113YZ**			100
12	12.2	21.1	2.1	**664-114**	**664-114ZP**	**664-114YZ**			100
14	14.2	24.1	2.4	**664-115**	**664-115ZP**	**664-115YZ**			100
16	16.2	27.4	2.8	**664-116**	**664-116ZP**	**664-116YZ**			100
18	18.2	29.4	2.8	**664-117**	**664-117ZP**	**664-117YZ**			100
20	20.2	33.6	3.2	**664-118**	**664-118ZP**	**664-118YZ**			100
22	22.5	35.9	3.2	**664-119**	**664-119ZP**	**664-119YZ**			100
24	24.5	40	4	**664-120**	**664-120ZP**	**664-120YZ**			50
27	27.5	43	4	**664-121**	**664-121ZP**	**664-121YZ**			50
30	30.5	48.2	6	**664-122**	**664-122ZP**	**664-122YZ**			50
33	33.5			**664-123**	**664-123ZP**	**664-123YZ**			25
36	36.5	58.2	6	**664-124**	**664-124ZP**	**664-124YZ**			25

Metric TAB WASHERS with LONG and SHORT TAB

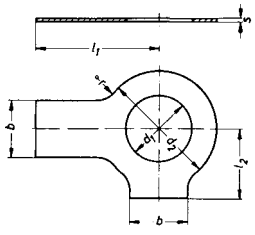
(LOCKING)

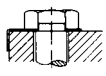
DIN 463

All Dimensions in Millimetres

For Bolt Size	*Use SPAENAUR No.*	I.D. (d_1)	O.D. (d_2)	Tab Width (b)	Tab1 Length (l_1)	Tab2 Length (l_2)	Thick. (s)	Unit Pkg. Qty.
M3	**657-118**	3.2	7	4	13	5	0.38	100
M4	**657-119**	4.3	9	5	14	6.5	0.38	100
M5	**657-120**	5.3	10	6	16	8	0.5	100
M6	**657-121**	6.4	12.5	7	18	9	0.5	100
M8	**657-122**	8.4	17	8	20	11	0.75	100
M10	**657-123**	10.5	21	10	22	13	0.75	100
M12	**657-124**	13	24	12	28	15	1	100
M14	**657-125**	15	28	12	28	16	1	100
M16	**657-126**	17	30	15	32	18	1	100
M18	**657-145**	19	34	18	36	20	1	100
M20	**657-127**	21	37	18	36	21	1	50
M22	**657-128**	23	39	20	42	23	1	50
M24	**657-129**	25	44	20	42	25	1	50
M27	**657-130**	28	50	23	48	29	1.6	25
M30	**657-131**	31	56	26	52	32	1.6	25
M33	**657-132**	34	60	28	56	34	1.6	10
M36	**657-133**	37	66	30	60	38	1.6	10
M42	**657-134**	43	78	35	70	44	1.6	10

Carbon Steel – Plain Finish





Application

(Metric Long Tab Washers on D28.)

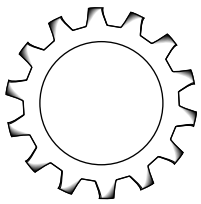
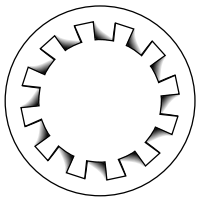
Tel: **1-800-265-8772** Fax: **519-744-0818**

Tooth Lockwashers

Inch

Rondelles de blocage dentées

Pouces

ASME/ANSI B18.21.1	Nominal Screw or Bolt Size	DIMENSIONS Outside Diameter	DIMENSIONS Thickness	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW Zinc Plated STEEL	410 STAINLESS STEEL	PHOSPHOR BRONZE
 EXTERNAL TOOTH (Flat)	*2	.285-.275"	.018"	W-215		
	4	.260-.245"	.019-.015"	42-SN	W-2046	W-545
	6	.320-.305"	.022-.016"	43-SN	W-2047	W-546
	8	.381-.365"	.023-.018"	44-SN	W-2048	W-547
	10	.410-.395"	.025-.020"	46-SN	W-2049	W-548
	12	.475-.460"	.028-.023"	145-A	W-2050	
	1/4"	.510-.494"	.028-.023"	145	W-2051	W-549
	9/32"	.510-.494"	.031"	145-B		
	5/16"	.610-.588"	.034-.028"	47-SN	W-2052	
	3/8"	.694-.670"	.040-.032"	49-SN	W-2053	
	7/16"	.760-.740"	.040-.032"	1351	W-2054	
	1/2"	.900-.880"	.045-.037"	1352	W-2055	
	9/16"	.985-.960"	.045-.037"	1349		
	5/8"	1.070-1.045"	.050-.042"	1481	W-2056	
	11/16"	.922-914"	.035"	671-003		
	3/4"	1.260-1.220"	.055-.047"	51-SN	W-2057	673-001
 INTERNAL TOOTH (Flat)	2	.200-.175"	.015-.010"		W-2058	
	3	.232-.215"	.019-.012"	W-144		
	4	.270-.255"	.019-.015"	54-SN	W-2059	W-550
	5	.280-.245"	.021-.017"	671-002		W-571
	6	.295-.275"	.021-.017"	1750	W-2060	W-541
	8	.340-.325"	.023-.018"	1739	W-2061	W-542
	10	.381-.365"	.025-.020"	1740	W-2062	W-543
	12	.410-.394"	.025-.020"	1741	W-2063	W-572
	1/4"	.478-.460"	.028-.023"	788	W-2064	W-544
	*1/4"	.536-.524"	.039"	W-391		
	5/16"	.610-.594"	.034-.028"	55-SN	W-2065	W-573
	3/8"	.692-.670"	.040-.032"	739	W-2069	W-574
	7/16"	.789-.740"	.040-.032"	57-SN	W-2066	W-575
	*7/16"	.607-.593"	.018"	W-299		
	1/2"	.900-.867"	.045-.037"	B-403	W-2067	W-576
	9/16"	.965-.957"	.045-.037"			W-577
	5/8"	1.071-1.045"	.050-.042"	B-404	W-2068	W-578
	.725-.704"	1.166-1.147"	.045"	671-004		
	3/4"	1.245-1.220"	.055-.047"	B-405	675-001	W-579
	7/8"	1.410-1.364"	.060-.052"	B-919		
	1"	1.637-1.590"	.067-.059"	B-493		
	1-1/8"	1.830-1.799"	.067-.059"	B-859		
	1-5/16"	1.950-1.921"	.063"	B-860		
	*Non-Standard Size			P.C. 671	P.C. 675	P.C. 673

Zinc Plated **STEEL**

EXTERNAL TOOTH 82° COUNTERSUNK

SPAENAUR No.	Screw Size
1063	6
1064	8
888	10
1065	12
1072	1/4"
1066	9/32"
901	5/16"
58-SN	3/8"
W-335	7/16"

Zinc Plated **STEEL**

INTERNAL-EXTERNAL FLAT

SPAENAUR No.	Screw Size	Outside Diameter	Nom. Thick.
671-061	6	.510-.495"	.024"
671-062	8	.610-.580"	.030"
671-063	10	.610-.580"	.030"
671-064	1/4"	.760-.720"	.035"
671-065	5/16"	.900-.865"	.035"
W-259	3/8"	.985-.965"	.040"
671-066	1/2"	1.260-1.220"	.050"
671-069	5/8"	1.620-1.590"	.062"

ASSORTMENT / ASSORTIMENT 4640-S

Steel, Zinc Plated

Tooth Lockwashers

30 VARIETIES - 877 PIECES

12 Sizes of External Tooth Flat Lockwashers

9 Sizes of Internal Tooth Flat Lockwashers

9 Sizes of External Tooth 82° Countersunk Lockwashers

For Bolt/Screw Size #4 to 3/4" dia.

Furnished in a Regular Size grey enamelled steel drawer with hinged lid and scooped bins. Drawer will fit Slide Racks shown on page A2.

Shipping Weight 2.26 kg (5 lbs.)

See page D30 for our complete line.

Contents of Assortment 4640-S

Screw/Bolt Size	Dimensions in Inches O.D.	Thickness	Ass't Qty.
EXTERNAL TOOTH FLAT			
4	.260-.245	.019-.015	25
6	.320-.305	.022-.016	35
8	.381-.365	.023-.018	35
10	.410-.395	.025-.020	35
1/4"	.510-.494	.028-.023	35
5/16"	.610-.588	.034-.028	35
3/8"	.694-.670	.040-.032	35
7/16"	.760-.740	.040-.032	25
1/2"	.900-.880	.045-.037	25
9/16"	.985-.960	.045-.037	20
5/8"	1.070-1.045	.050-.042	15
3/4"	1.260-1.220	.055-.047	12
INTERNAL TOOTH FLAT			
4	.270-.255	.019-.015	25
6	.295-.275	.021-.017	35
8	.340-.325	.023-.018	35
10	.381-.365	.025-.020	35
12	.410-.394	.025-.020	35
1/4"	.478-.460	.028-.023	35
5/16"	.610-.594	.034-.028	35
3/8"	.692-.670	.040-.032	35
7/16"	.789-.740	.040-.032	20
EXTERNAL TOOTH - COUNTERSUNK			
6	.300-.285	.018	35
8	.353-.337	.018	35
10	.370-.353	.022	35
12	.430-.410	.022	35
1/4"	.513-.487	.022	30
9/32"	.543-.523	.025	30
5/16"	.625-.603	.025	25
3/8"	.801-.776	.032	20
7/16"	.890-.863	.035	10

ASSORTMENT / ASSORTIMENT 805-529

410 STAINLESS STEEL

Tooth Lockwashers

18 VARIETIES - 1050 PIECES

9 Sizes of External Tooth Flat Lockwashers

9 Sizes of Internal Tooth Flat Lockwashers

For Bolt/Screw Size #4 to 3/4" dia.

See page D30 for our complete line of 410 Stainless Steel.

Furnished in a Regular Size grey enamelled steel drawer, with hinged lid and scooped bins. Drawer will fit Slide Racks shown on page A2.

Shipping Weight 2.26 kg (5 lbs.)

Contents of Assortment 805-529

Screw/Bolt Size	Dimensions in Inches O.D.	Thickness	Ass't Qty.
EXTERNAL TOOTH FLAT			
4	.260-.245	.019-.015	100
6	.320-.305	.022-.016	100
8	.381-.365	.023-.018	100
10	.410-.395	.025-.020	100
12	.475-.460	.028-.023	30
1/4"	.510-.494	.028-.023	25
3/8"	.694-.670	.040-.032	25
1/2"	.900-.880	.045-.037	25
5/8"	1.070-1.045	.050-.042	20
INTERNAL TOOTH FLAT			
4	.270-.255	.019-.015	100
6	.295-.275	.021-.017	100
8	.340-.325	.023-.018	100
10	.381-.365	.025-.020	100
12	.410-.394	.025-.020	50
1/4"	.478-.460	.028-.023	25
3/8"	.692-.670	.040-.032	25
1/2"	.900-.867	.045-.037	15
3/4"	1.245-1.220	.055-.047	10

D

ASSORTMENT / ASSORTIMENT 805-533 PHOSPHOR BRONZE

Tooth Lockwashers

16 VARIETIES - 1000 PIECES

11 Sizes of External Tooth Flat Lockwashers

5 Sizes of Internal Tooth Flat Lockwashers

For Bolt/Screw Size #4 to 3/4" dia.

See page D30 for our complete line.

Furnished in a Regular Size grey enamelled steel drawer with hinged lid and scooped bins. Drawer will fit Slide Racks shown on page A2.

Shipping Weight 2.04 kg (4-1/2 lbs.)

Contents of Assortment 805-533

Screw/Bolt Size	Dimensions in Inches O.D.	Thickness	Ass't. Qty.
EXTERNAL TOOTH FLAT			
4	.260-245	.019-.015	100
6	.320-305	.022-.016	100
8	.381-365	.023-.018	100
10	.410-.395	.025-020	100
1/4"	.510-.494	.028-.023	50
INTERNAL TOOTH FLAT			
4	.270-.255	.019-.015	50
5	.280-.245	.021-.017	50
6	.295-.275	.021-.017	100
8	.340-.325	.023-.018	100
10	.381-.365	.025-.020	100
12	.410-.394	.025-.020	50
1/4"	.478-.460	.028-.023	50
3/8"	.692-.670	.040-.032	20
1/2"	.900-.867	.045-.037	10
5/8"	1.071-1.045	.050-.042	10
3/4"	1.245-1.220	.055-.047	10

Plastikit / «Plastikit» 1706 STEEL

Zinc Plated

Tooth Lockwasher

19 VARIETIES - 188 PIECES

11 Sizes External and 8 Sizes Internal Tooth Lockwashers

For Bolt/Screw Size #10 to 3/4" dia.

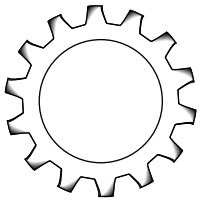
Put up in a clear durable plastic container with hinged lid.

Size: 1" x 2-3/4" x 4-1/2"

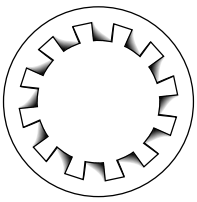
Contents of Plastikit 1706

Screw/Bolt Size	Dimensions in Inches O.D.	Thickness	Ass't. Qty.
EXTERNAL TOOTH FLAT			
10	.410-.395	.025-.020	15
12	.475-.460	.028-.023	20
1/4"	.510-.494	.028-.023	20
9/32"	.510-.494	.031	15
5/16"	.610-.588	.034-.028	25
3/8"	.694-.670	.040-.032	10
7/16"	.760-.740	.040-.032	6
1/2"	.900-.880	.045-.037	5
9/16"	.985-.960	.045-.037	4
5/8"	1.070-1.045	.050-.042	3
3/4"	1.260-1.220	.055-.047	2
INTERNAL TOOTH FLAT			
10	.381-.365	.025-.020	15
12	.410-.394	.025-.020	20
1/4"	.478-.460	.028-.023	10
5/16"	.610-.594	.034-.028	5
3/8"	.692-.670	.040-.032	5
7/16"	.789-.740	.040-.032	4
1/2"	.900-.867	.045-.037	2
5/8"	.1.071-1.045	.050-.045	2

METRIC STYLES	ORDER BY *SPAENAUR* NUMBERS BELOW. STEEL Plain	STEEL Zinc Plated	STEEL Yellow Zinc Plated	A2 STAINLESS STEEL	PHOSPHOR BRONZE	Dimensions in mm NOM. SIZE (Screw Size) mm	I.D.	O.D.	T	Unit Pkg. Qty.
DIN 6797A	**672-029**	**672-029ZP**	**672-029YZ**	**676-001**	**674-001**	**2**	2.2	4.5	0.3	100
	672-036	**672-036ZP**	**672-036YZ**			**2.3**	2.5	5.	0.4	100
	W-282	**W-282ZP**	**W-282YZ**	**676-002**	**674-002**	**2.5**	2.7	5.5	0.4	100
	672-037	**672-037ZP**	**672-037YZ**			**2.6**	2.8	5.5	0.4	100
	672-020	**672-020ZP**	**672-020YZ**	**676-003**	**674-003**	**3**	3.2	6.	0.4	100
	672-030	**672-030ZP**	**672-030YZ**	**676-004**	**674-004**	**3.5**	3.7	7.	0.5	100
	672-021	**672-021ZP**	**672-021YZ**	**676-005**	**674-005**	**4**	4.3	8.	0.5	100
	672-022	**672-022ZP**	**672-022YZ**	**676-006**	**674-006**	**5**	5.3	10.	0.6	100
	672-023	**672-023ZP**	**672-023YZ**	**676-007**	**674-007**	**6**	6.4	11.	0.7	100
	672-039	**672-039ZP**	**672-039YZ**			**7**	7.4	12.5	0.8	100
	672-024	**672-024ZP**	**672-024YZ**	**676-009**	**674-009**	**8**	8.4	15.	0.8	100
	672-025	**672-025ZP**	**672-025YZ**	**676-010**	**674-010**	**10**	10.5	18.	0.9	100
	672-026	**672-026ZP**	**672-026YZ**	**676-011**	**674-011**	**12**	12.5	20.5	1.	100
	672-040	**672-040ZP**	**672-040YZ**			**13**	13.2			100
	672-027	**672-027ZP**	**672-027YZ**	**676-012**		**14**	14.5	24.	1.	100
	672-028	**672-028ZP**	**672-028YZ**	**676-013**	**674-013**	**16**	16.5	26.	1.2	100
	672-032	**672-032ZP**	**672-032YZ**	**676-014**		**18**	19.	30.	1.4	100
	672-033	**672-033ZP**	**672-033YZ**	**676-015**		**20**	21.	33.	1.4	50
	672-034	**672-034ZP**	**672-034YZ**	**676-016**		**24**	25.	38.	1.5	50
	672-041	**672-041ZP**	**672-041YZ**			**27**	28.	44.	1.6	50
	672-035	**672-035ZP**	**672-035YZ**	**676-017**		**30**	31.	48.	1.6	50
DIN 6797J	**W-306**	**W-306ZP**	**W-306YZ**	**676-018**	**674-018**	**2**	2.2	4.5	0.3	100
	672-018	**672-018ZP**	**672-018YZ**			**2.3**	2.5	5.	0.4	100
	672-011	**672-011ZP**	**672-011YZ**	**676-019**		**2.5**	2.7	5.5	0.4	100
	672-019	**672-019ZP**	**672-019YZ**			**2.6**	2.8	5.5	0.4	100
	672-001	**672-001ZP**	**672-001YZ**	**676-020**	**674-020**	**3**	3.2	6.	0.4	100
	672-012	**672-012ZP**	**672-012YZ**	**676-021**	**674-021**	**3.5**	3.7	7.	0.5	100
	672-002	**672-002ZP**	**672-002YZ**	**676-022**	**674-022**	**4**	4.3	8.	0.5	100
	672-003	**672-003ZP**	**672-003YZ**	**676-023**	**674-023**	**5**	5.3	10.	0.6	100
	672-004*	**672-004ZP**	**672-004YZ**	**676-024**	**674-024**	**6**	6.4	11.	0.7	100
	672-043	**672-043ZP**	**672-043YZ**			**7**	7.4	12.5	0.8	100
	672-005	**672-005ZP**	**672-005YZ**	**676-026**	**674-026**	**8**	8.4	15.	0.8	100
	672-006	**672-006ZP**	**672-006YZ**	**676-027**	**674-027**	**10**	10.5	18.	0.9	100
	672-007	**672-007ZP**	**672-007YZ**	**676-028**	**674-028**	**12**	13.0	20.5	1.	100
	672-044	**672-044ZP**	**672-044YZ**			**13**	13.2			100
	672-008	**672-008ZP**	**672-008YZ**	**676-029**	**674-029**	**14**	14.5	24.	1.	100
	672-009	**672-009ZP**	**672-009YZ**	**676-030**	**674-030**	**16**	16.5	26.	1.2	100
	672-014	**672-014ZP**	**672-014YZ**	**676-031**		**18**	19.	30.	1.4	100
	672-015	**672-015ZP**	**672-015YZ**	**676-032**		**20**	21.	33.	1.4	50
	672-048					**22**	23.	36.	1.5	50
	672-016	**672-016ZP**	**672-016YZ**	**676-033**		**24**	25.	38.	1.5	50
	672-045	**672-045ZP**	**672-045YZ**			**27**	28.	44.	1.6	50
	672-017	**672-017ZP**	**672-017YZ**	**676-034**		**30**	31.	48.	1.6	50
DIN 6797V		**672-085**				**2.5**	2.7	5.1	0.2	100
		672-087				**3.5**	3.7	7.	0.25	100
		672-088				**4**	4.3	8.	0.25	100
		672-089				**5**	5.3	9.8	0.3	100
		672-090				**6**	6.4	11.8	0.4	100
		672-092				**8**	8.4	15.3	0.4	100
		672-093				**10**	10.5	19.	0.5	100
		672-094				**12**	12.5	23.	0.5	100
		672-095				**14**	14.5	26.3	0.6	100
		672-096				**16**	16.5	30.2	0.6	100

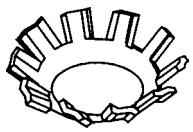


EXTERNAL TOOTH (Flat)



INTERNAL TOOTH (Flat)

***672-004PH**
Phosphate Coated



EXTERNAL TOOTH
90° Countersunk

D

CATALOG 13

For Metric Flat Tooth Lockwasher Assortments see page D35.

OVERLAP TOOTH LOCKWASHERS (Flat)

For Assortments see page D36.

METRIC	ORDER BY *SPAENAUR* NUMBERS BELOW				Dimensions in mm				
	STEEL			A2	NOM. SIZE				Unit
STYLES	Plain	Zinc Plated	Yellow Zinc Plated	STAINLESS STEEL	(Screw Size) mm	I.D.	O.D.	T	Pkg. Qty.
DIN 6798A	**672-050**	**672-050ZP**	**672-050YZ**	**676-035**	**2**	2.2	4.5	0.3	100
	672-051	**672-051ZP**	**672-051YZ**	**676-036**	**2.5**	2.7	5.5	0.4	100
	672-052	**672-052ZP**	**672-052YZ**	**676-037**	**3**	3.2	6.0	0.4	100
	672-053	**672-053ZP**		**676-038**	**3.5**	3.7	7.0	0.5	100
	672-054	**672-054ZP**	**672-054YZ**	**676-039**	**4**	4.3	8.0	0.5	100
Carbon Steel	***672-055**	**672-055ZP**	**672-055YZ**	**676-040**	**5**	5.3	10.0	0.6	100
	672-056	**672-056ZP**	**672-056YZ**	**676-041**	**6**	6.4	11.0	0.7	100
			672-082YZ		**6.3**	6.5	12.3	0.7	100
Heat Treated	**672-108**				**7**	7.4	12.5	0.8	100
	672-057	**672-057ZP**	**672-057YZ**	**676-043**	**8**	8.4	15.0	0.8	100
	672-058	**672-058ZP**	**672-058YZ**	**676-044**	**10**	10.5	18.0	0.9	100
	672-059	**672-059ZP**	**672-059YZ**	**676-045**	**12**	12.5	20.5	1.0	100
	672-060	**672-060ZP**		**676-046**	**14**	14.5	24.0	1.0	100
	672-061	**672-061ZP**		**676-047**	**16**	16.5	26.0	1.2	100
	672-062	**672-062ZP**			**18**	19.0	30.0	1.4	100
	672-063	**672-063ZP**		**676-042**	**20**	21.0	33.0	1.4	50
EXTERNAL TOOTH	**672-109**	**672-109ZP**			**22**	23.0	36.0	1.5	50
	672-064	**672-064ZP**		**676-048**	**24**	25.0	38.0	1.5	50
	672-110				**27**	28.0	44.0	1.6	50
	672-065	**672-065ZP**			**30**	31.0	48.0	1.6	50
DIN 6798J	**672-066**	**672-066ZP**	**672-066YZ**	**676-052**	**2**	2.2	4.5	0.3	100
	672-067	**672-067ZP**	**672-067YZ**	**676-053**	**2.5**	2.7	5.5	0.4	100
	672-111		**672-111YZ**		**2.6**	2.8	5.5	0.4	100
	672-068	**672-068ZP**	**672-068YZ**	**676-054**	**3**	3.2	6.0	0.4	100
	672-069	**672-069ZP**	**672-069YZ**	**676-049**	**3.5**	3.7	7.0	0.5	100
Carbon Steel	**672-070**	**672-070ZP**	**672-070YZ**	**676-056**	**4**	4.3	8.0	0.5	100
	672-071	**672-071ZP**	**672-071YZ**	**676-057**	**5**	5.3	10.0	0.6	100
	672-072	**672-072ZP**	**672-072YZ**	**676-058**	**6**	6.4	11.0	0.7	100
	672-083	**672-083ZP**			**6.3**	6.5	12.3	0.7	100
Heat Treated	**672-112**				**7**	7.4	12.5	0.8	100
	672-073	**672-073ZP**	**672-073YZ**	**676-060**	**8**	8.4	15.0	0.8	100
	672-074	**672-074ZP**	**672-074YZ**	**676-061**	**10**	10.5	18.0	0.9	100
	672-075	**672-075ZP**	**672-075YZ**	**676-062**	**12**	12.5	20.5	1.0	100
	672-076	**672-076ZP**		**676-063**	**14**	14.5	24.0	1.0	100
	672-077	**672-077ZP**		**676-064**	**16**	16.5	26.0	1.2	100
	672-078	**672-078ZP**			**18**	19.0	30.0	1.4	100
	672-079	**672-079ZP**		**676-050**	**20**	21.0	33.0	1.4	50
INTERNAL TOOTH	**672-113**				**22**	23.0	36.0	1.5	50
	672-080	**672-080ZP**		**676-051**	**24**	25.0	38.0	1.5	50
	672-114				**27**	28.0	44.0	1.6	50
	672-081	**672-081ZP**			**30**	31.0	48.0	1.6	50
DIN 6798V	**672-091**				**2**	2.2	4.2	0.2	100
	672-097				**2.5**	2.7	5.1	0.2	100
	672-098				**3**	3.2	6.0	0.2	100
EXTERNAL	**672-099**				**3.5**	3.7	7.0	0.25	100
90° COUNTERSUNK	**672-100**		**672-100YZ**		**4**	4.3	8.0	0.25	100
	672-101	**672-101ZP**			**5**	5.3	9.8	0.3	100
	672-102	**672-102ZP**			**6**	6.4	11.8	0.4	100
Carbon Steel	**672-103**				**8**	8.4	15.3	0.4	100
	672-104				**10**	10.5	19.0	0.5	100
	672-105				**12**	13.0	23.0	0.5	100
	672-106				**14**	14.5	24.0	1.0	100
Heat Treated	**672-107**				**16**	16.5	26.0	1.2	100

***672-055PH** Phosphate Finish

DIN 6797A
EXTERNAL TOOTH

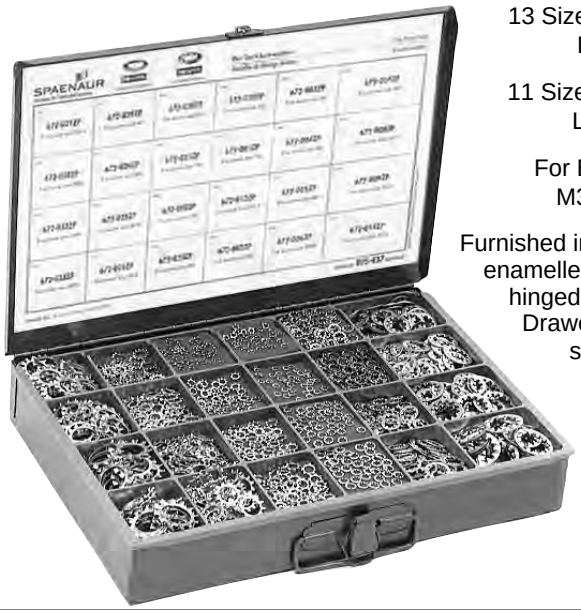
ASSORTMENT
ASSORTIMENT
805-437

DIN 6797J
INTERNAL TOOTH

STEEL, Zinc Plated

Tooth Lockwashers - Flat

24 VARIETIES - 850 PIECES



13 Sizes of External Tooth Lockwashers

11 Sizes of Internal Tooth Lockwashers

For Bolt/Screw Size M3 to M20 Dia.

Furnished in a Regular Size grey enamelled steel drawer, with hinged lid and scoop bins. Drawer will fit Slide Racks shown on page A2.

Shipping Wt. 2.72 kg (6 lbs.)

See page D33 for full line.

Contents of Assortment 805-437

Bolt Size	Dimensions in Millimetres I.D.	O.D.	Thickness	Ass't. Qty.
EXTERNAL TOOTH FLAT				
M3	3.2	6.0	0.4	40
M3.5	3.7	7.0	0.5	40
M4	4.3	8.0	0.5	40
M5	5.3	10.0	0.6	40
M6	6.4	11.0	0.7	40
M7	7.4	12.5	0.8	35
M8	8.4	15.0	0.8	35
M10	10.5	18.0	0.9	35
M12	12.5	20.5	1.0	35
M14	14.5	24.0	1.0	35
M16	16.5	26.0	1.2	30
M18	19.0	30.0	1.4	25
M20	21.0	33.0	1.4	25
INTERNAL TOOTH FLAT				
M3	3.2	6.0	0.4	40
M3.5	3.7	7.0	0.5	40
M4	4.3	8.0	0.5	40
M5	5.3	10.0	0.6	40
M6	6.4	11.0	0.7	40
M8	8.4	15.0	0.8	35
M10	10.5	18.0	0.9	35
M12	12.5	20.5	1.0	35
M14	14.5	24.0	1.0	35
M16	16.5	26.0	1.2	30
M18	19.0	30.0	1.4	25

DIN 6797A
EXTERNAL TOOTH

ASSORTMENT
ASSORTIMENT
805-451

DIN 6797J
INTERNAL TOOTH

A2 STAINLESS STEEL

Metric Tooth Lockwashers - Flat

24 VARIETIES - 850 PIECES

12 Sizes of External Tooth Lockwashers

12 Sizes of Internal Tooth Lockwashers

For Bolt/Screw Size M3 to M20 Dia.

Furnished in a Regular Size grey enamelled steel drawer with hinged lid and scoop bins. Drawer will fit Slide Racks shown on page A2.

Shipping Wt. 2.95 kg (6-1/2 lbs.)

See page D33 for full line.

Contents of Assortment 805-451

Bolt Size	Dimensions in Millimetres I.D.	O.D.	Thickness	Ass't. Qty.
EXTERNAL TOOTH FLAT				
M3	3.2	6.0	0.4	40
M3.5	3.7	7.0	0.5	40
M4	4.3	8.0	0.5	40
M5	5.3	10.0	0.6	40
M6	6.4	11.0	0.7	40
M8	8.4	15.0	0.8	40
M10	10.5	18.0	0.9	35
M12	12.5	20.5	1.0	35
M14	14.5	24.0	1.0	35
M16	16.5	26.0	1.2	30
M18	19.0	30.0	1.4	25
M20	21.0	33.0	1.4	25
INTERNAL TOOTH FLAT				
M3	3.2	6.0	0.4	40
M3.5	3.7	7.0	0.5	40
M4	4.3	8.0	0.5	40
M5	5.3	10.0	0.6	40
M6	6.4	11.0	0.7	40
M8	8.4	15.0	0.8	40
M10	10.5	18.0	0.9	35
M12	12.5	20.5	1.0	35
M14	14.5	24.0	1.0	35
M16	16.5	26.0	1.2	30
M18	19.0	30.0	1.4	25
M20	21.0	33.0	1.4	25

All Assortments Priced Singly.

D

DIN 6798A
EXTERNAL TOOTH

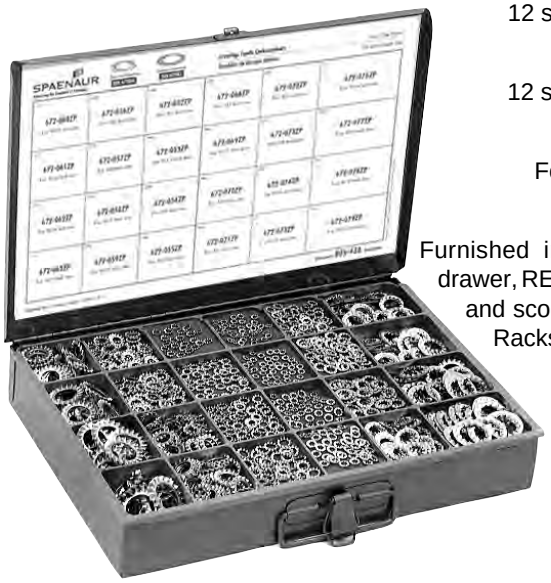
ASSORTMENT / ASSORTIMENT 805-438

DIN 6798J
INTERNAL TOOTH

SPRING STEEL, Zinc Plated

Metric OVERLAP Tooth Lockwashers - Flat

24 VARIETIES - 730 PIECES



12 sizes of External Tooth Lockwashers

12 sizes of Internal Tooth Lockwashers

For Bolt/Screw size M3 to M20 Dia.

Furnished in a grey enamelled steel drawer, REGULAR SIZE with hinged lid and scoop bins. Drawer will fit Slide Racks shown on page A2.

Shipping Wt. 2.72 kg (6 lbs.)

See page D34 for full line.

Contents of Assortment 805-438

Bolt Size	Dimensions in Millimetres I.D.	O.D.	Thickness	Ass't. Qty.
EXTERNAL TOOTH FLAT				
M3	3.2	6.0	0.4	40
M3.5	3.7	7.0	0.5	40
M4	4.3	8.0	0.5	40
M5	5.3	10.0	0.6	40
M6	6.4	11.0	0.7	40
M8	8.4	15.0	0.8	35
M10	10.5	18.0	0.9	30
M12	12.5	20.5	1.0	30
M14	14.5	24.0	1.0	25
M16	16.5	26.0	1.2	25
M18	19.0	30.0	1.4	20
M20	21.0	33.0	1.4	15
INTERNAL TOOTH FLAT				
M3	3.2	6.0	0.4	40
M3.5	3.7	7.0	0.5	40
M4	4.3	8.0	0.5	40
M5	5.3	10.0	0.6	40
M6	6.4	11.0	0.7	40
M8	8.4	15.0	0.8	30
M10	10.5	18.0	0.9	25
M12	12.5	20.5	1.0	25
M14	14.5	24.0	1.0	20
M16	16.5	26.0	1.2	20
M18	19.0	30.0	1.4	15
M20	21.0	33.0	1.4	15

DIN 6798A
EXTERNAL TOOTH

ASSORTMENT / ASSORTIMENT 805-470

DIN 6798J
INTERNAL TOOTH

A2 STAINLESS STEEL

Metric OVERLAP Tooth Lockwashers - Flat

22 VARIETIES

770 PIECES

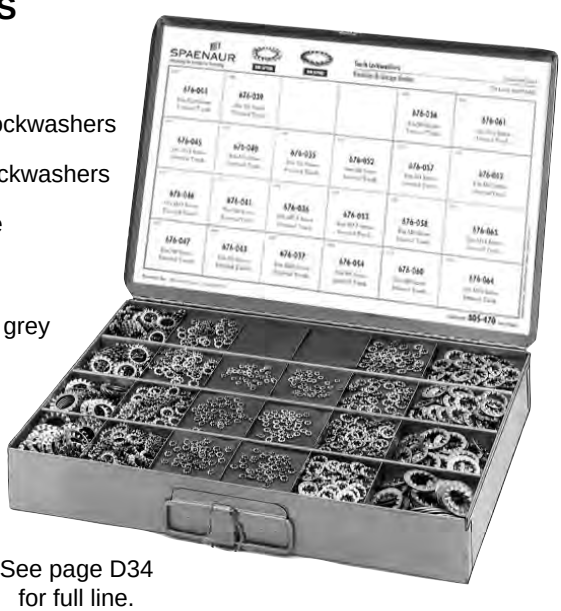
11 sizes of External Tooth Lockwashers

11 sizes of Internal Tooth Lockwashers

For Bolt/Screw size M2 to M16 Dia.

Furnished in a Regular Size grey enamelled steel drawer with hinged lid and scoop bins. Drawer will fit Slide Racks shown on page A2.

Shipping Wt. 2.50 kg (5-1/2 lbs.)



See page D34 for full line.

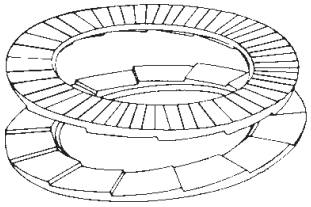
Contents of Assortment 805-470

Bolt Size	Dimensions in Millimetres I.D.	O.D.	Thickness	Ass't Qty.
EXTERNAL TOOTH FLAT				
M2	2.2	4.5	0.3	40
M2.5	2.7	5.5	0.4	40
M3	3.2	6.0	0.4	40
M4	4.3	8.0	0.5	40
M5	5.3	10.0	0.6	40
M6	6.4	11.0	0.7	40
M8	8.4	15.0	0.8	35
M10	10.5	18.0	0.9	30
M12	12.5	20.5	1.0	30
M14	14.5	24.0	1.0	25
M16	16.5	26.0	1.2	25
INTERNAL TOOTH FLAT				
M2	2.2	4.5	0.3	40
M2.5	2.7	5.5	0.4	40
M3	3.2	6.0	0.4	40
M4	4.3	8.0	0.5	40
M5	5.3	10.0	0.6	40
M6	6.4	11.0	0.7	40
M8	8.4	15.0	0.8	35
M10	10.5	18.0	0.9	30
M12	12.5	20.5	1.0	30
M14	14.5	24.0	1.0	25
M16	16.5	26.0	1.2	25

Nord-Lock Washers maintain preload at loosening movements.

The Nord-Lock Principle

The Nord-Lock washer has cams or wedges on one side, with a lead angle greater than a thread angle, and radial teeth or ribs on the other side. The washers are installed cam face to cam face, forming the unique Nord-Lock fastener.

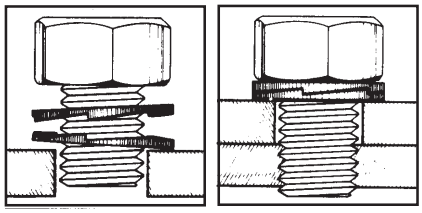


When tightening the fastener to preload, the teeth penetrate and seat against the joint material and the nut and/or fastener head.

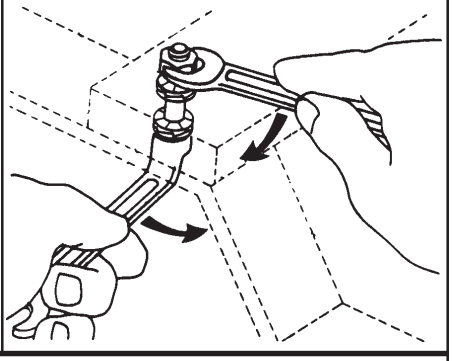
When subjected to vibration the interacting cams create a wedge action thereby maintaining preload in the joint which prevents the fasteners from vibrating loose.

Assemblies

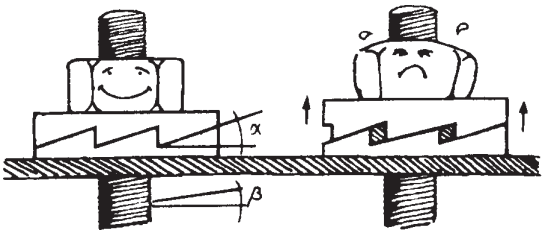
Nord-Lock washers can be used on standard as well as high-grade bolts. When tightening, a 20% higher torque is used than on standard flat electro-zinc plated washers.



Hold the screw cap when tightening the nut.



BENEFITS OF NORD-LOCK



The key is the difference in angles. Here you see what happens when a nut attempts to loosen. The pair of washers expand more than the corresponding pitch of the thread. Nord-Lock washers positively lock the fastener in a joint which is subjected to extreme vibration.

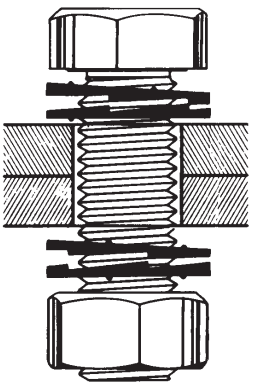
See following pages for Nord-Lock® Washers.

*Recommended torque - ft./lbs.

Bolt Size	3/16" (M5)	1/4" (M6)	5/16" (M8)	3/8" (M10)	7/16" (M11)	1/2" (M12)	9/16" (M14)	5/8" (M16)	3/4" (M20)	7/8" (M22)	1" (M24)	1-1/8" (M30)	1-1/4" (M33)	1-3/8" (M36)	1-1/2" (M39)
Grade 2*	N/A	8	16	28	44	66	96	131	231	225	338	481	675	875	1144
Grade 5*	N/A	11	24	41	67	101	144	200	362	581	875	1075	1513	1963	2587
Grade 8*	N/A	16	34	59	95	144	206	287	506	825	1225	1738	1831	3187	4200

CAUTION

READ BEFORE INSTALLING NORD-LOCK WASHER PAIRS



INTERLOCKING CAMS

The superior locking performance of a Nord-Lock fastener is secured only if it is correctly assembled and the proper Nord-Lock fastener combination is selected. It is imperative that the following instructions are closely observed:

Nord-Lock Washer Pairs must be assembled cam face to cam face.

When used in conjunction with a bolt/nut fastener, install a pair of Nord-Lock Washers, cam face to cam face, between both the bolt head and the joint material and the nut and the joint material (see Fig. 1). The teeth of the washer pairs will now bite into the bolt head and the joint material as well as the nut, and the joint material on the corresponding side.

When used in conjunction with a cap screw or bolt in a threaded hole, install one pair of Nord-Lock Washers, cam face to cam face, under the cap screw or bolt head (see Fig. 2). The teeth of the washer pair will now bite into the cap screw or bolt head on one side and the joint material on the other side.

Due to the preload, the screw is prevented from turning in either direction. Should the screw tend to loosen, it causes the mating washer to slide up the cams on the other washer, producing a wedge action, and the preload is maintained.

These washers can be used on low-grade and high-grade screws, and on joint surfaces with hardness up to HRc45.

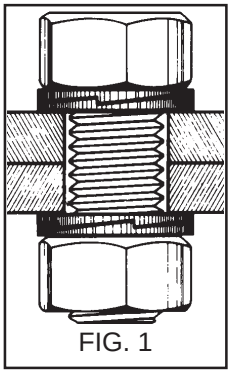


FIG. 1

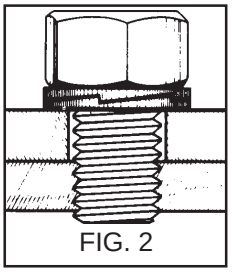


FIG. 2

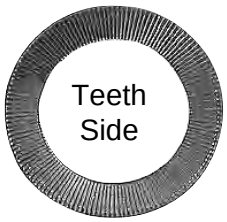
NORD-LOCK

Bolt Securing System

C1020 LOW CARBON STEEL

Heat Treated

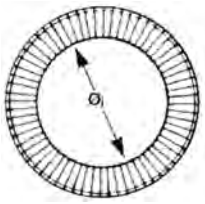
Zinc Plated and Yellow Chromate Finish



D

INCH SIZES

Spaenaur No's Loose Pairs	*Spaenaur No's* Glued Pairs	Bolt Size	Inch Dimensions ID	Inch Dimensions OD	Inch Dimensions T	Unit Pkg.
-	**677-318**	1/4"	0.28	0.45	0.07	50 pairs
-	**677-319**	1/4"	0.28	0.53	0.10	50 pairs
-	**677-303**	3/8"	0.41	0.65	0.10	50 pairs
677-121	**677-321**	3/8"	0.41	0.83	0.10	50 pairs
-	**677-304**	7/16"	0.45	0.73	0.10	25 pairs
-	**677-323**	1/2"	0.53	0.77	0.10	25 pairs
677-124	**677-324**	1/2"	0.53	1.00	0.13	25 pairs
677-115	**677-315**	3/4"	0.79	1.21	0.13	20 pairs
-	**677-328**	3/4"	0.79	1.54	0.13	20 pairs
-	**677-310**	1"	1.10	1.54	0.13	20 pairs
-	**677-332**	1"	1.10	1.91	0.18	20 pairs

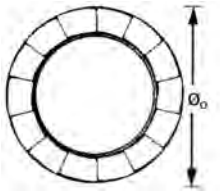


Inside Dia. Tolerances

For 1/4" to 5/16" Bolt Size ± .004"
For 3/8" to 1-1/2" Bolt Size ± .008"
For M3 to M8 Bolt Size ± 0,1mm
For M10 to M42 Bolt Size ± 0,2mm

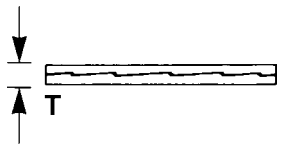
METRIC SIZES

Loose Pairs	Glued Pairs	Bolt Size	Metric Dimensions (mm) ID	Metric Dimensions (mm) OD	Metric Dimensions (mm) T	Unit Pkg.
	677-300	M5	5.4	9.0	1.8	50 pairs
-	**677-301**	M6	6.5	10.8	1.8	50 pairs
-	**677-317**	M6	6.5	13.5	2.5	50 pairs
-	**677-302**	M8	8.7	13.5	2.5	50 pairs
677-116	**677-316**	M8	8.7	16.6	2.5	50 pairs
-	**677-342**	M10	10.7	16.6	2.5	50 pairs
-	**677-320**	M10	10.7	21.0	2.5	50 pairs
-	**677-305**	M12	13.0	19.5	2.5	25 pairs
-	**677-322**	M12	13.0	25.4	3.4	25 pairs
-	**677-336**	M14	15.2	23.0	3.4	25 pairs
-	**677-325**	M14	15.2	30.7	3.4	25 pairs
-	**677-307**	M16	17.0	25.4	3.4	25 pairs
677-126	**677-326**	M16	17.0	30.7	3.4	25 pairs
-	**677-308**	M20	21.4	30.7	3.4	20 pairs
-	**677-327**	M20	21.0	39.0	3.4	20 pairs
-	**677-337**	M22	23.4	34.5	3.4	20 pairs
-	**677-329**	M22	23.4	42.0	4.6	20 pairs
-	**677-330**	M24	25.3	39.0	3.4	20 pairs
-	**677-331**	M24	25.3	48.5	4.6	20 pairs
-	**677-333**	M27	28.4	42.0	4.6	20 pairs
-	**677-334**	M27	28.4	48.5	4.6	20 pairs
-	**677-338**	M30	30.5	47.0	4.6	10 pairs
-	**677-339**	M33	33.5	48.5	6.6	10 pairs
677-140	**677-340**	M36	37.4	55.0	6.6	10 pairs
-	**677-341**	M39	40.4	58.5	6.6	10 pairs
-	**677-335**	M42	42.5	63.0	4.6	10 pairs



Outside Dia. Tolerances

For 1/4" to 1-1/2" Bolt Size ± .008"
For M3 to M42 Bolt Size ± 0,2mm



Thickness Tolerances

For 1/4" to 1-1/2" Bolt Size ± .010"
For M3 to M42 Bolt Size ± 0,25mm

Larger Sizes are available - Prices on Request.

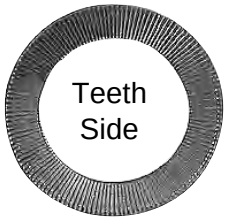
See following page for Nord-Lock Assortments and Stainless Steel Washers.

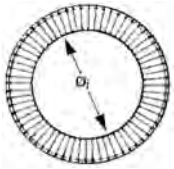
CATALOG 13

NORD-LOCK

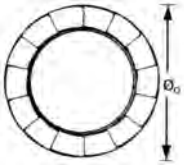
Bolt Securing System

316 STAINLESS STEEL





Inside Dia. Tolerances
For 1/4" to 5/16" Bolt Size ± .004"
For 3/8" to 1-1/2" Bolt Size ± .008"
For M3 to M8 Bolt Size ± 0,1mm
For M10 to M42 Bolt Size ± 0,2mm



Outside Dia. Tolerances
For 1/4" to 1-1/2" Bolt Size ± .008"
For M3 to M42 Bolt Size ± 0,2mm

Thickness Tolerances
For 1/4" to 1-1/2" Bolt Size ± .010"
For M3 to M42 Bolt Size ± 0,25mm

INCH SIZES

Washers shown below are stocked. Many more sizes are available in Stainless Steel. Prices on request.

Spaenaur No's Loose Pairs	*Spaenaur No's* Glued Pairs	Bolt Size	Inch Dimensions ID	Inch Dimensions OD	Inch Dimensions T	Unit Pkg.
-	**677-901**	1/4"	0.28	0.453	0.09	50 pairs
677-803	**677-903**	3/8"	0.41	0.630	0.09	50 pairs
677-804	**677-904**	7/16"	0.45	0.73	0.09	25 pairs

METRIC SIZES

Loose Pairs	Glued Pairs	Bolt Size	Metric Dimensions (mm) ID	Metric Dimensions (mm) OD	Metric Dimensions (mm) T	Unit Pkg.
-	**677-900**	M5	5.4	9.0	2.2	50 pairs
-	**677-908**	M6	6.5	10.8	2.2	50 pairs
-	**677-902**	M8	8.7	13.5	2.2	50 pairs
-	**677-909**	M10	10.7	16.0	2.2	50 pairs
-	**677-905**	M12	13.0	19.5	2.2	25 pairs
677-806	**677-906**	M14	15.2	23.0	3.2	25 pairs
-	**677-907**	M16	17.0	25.4	3.2	25 pairs

Metric NORD-LOCK MAINTENANCE KIT

Available in Carbon Steel or 316 Stainless Steel Washers

5 sizes of washers are supplied in a plastic container 4" x 7" x 1".

Contains: 50 pairs, bolt size M6
40 pairs, bolt size M8
25 pairs, bolt size M10
20 pairs, bolt size M12
20 pairs, bolt size M16

Complete washer specifications shown above. Price on request. Allow 7 weeks for delivery.

NORD-LOCK® VIBRATION PROOF FASTENERS

ASSORTMENT 805-516
ASSORTIMENT

Zinc Plated Steel
Contains 14 Sizes
361 Glued Pairs

Regular Size welded steel drawer has hinged lid and is finished in grey enamel. Fits into Slide Racks shown on page A2.

Priced Singly

Shipping Wt. 3.74 kg (8-1/4 lbs.)

Inch and Metric

Contents of Assortment 805-516

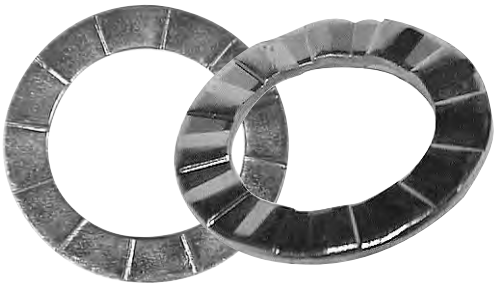
For Bolt Size	*Spaenaur No.*	Ass't Qty.
M5	677-300	50 pairs
M6	677-301	50 pairs
M8	677-302	50 pairs
3/8"	677-303	50 pairs
7/16"	677-304	25 pairs
M12	677-305	25 pairs
M14	677-325	25 pairs
M16	677-307	25 pairs
M20	677-308	25 pairs
M22	677-337	15 pairs
1"	677-310	15 pairs
M30	677-338	2 pairs
M33	677-339	2 pairs
M39	677-341	2 pairs

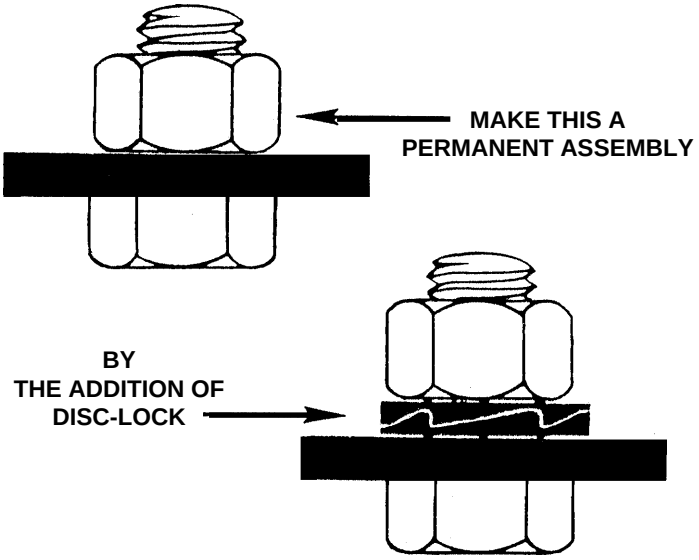
Specifications for *Spaenaur No's.* found on previous page.

D

DISC-LOCK®

Bolt it together and it stays that way!





Disc-Lock self-locking washers are hardened steel washers that mate together against a series of inclined cams. The back side has ridges that will bite into the joint material and the nut or capscrew. As one of the Disc-Lock washers attempts to rotate with the nut or capscrew, the preload is actually increased, further locking the nut. When removal of the fastener is necessary, approximately 50% more torque is required for loosening than tightening. The Disc-Lock has been developed in America, and is virtually vibration-proof, according to U.S. Military specifications.

When you bolt pieces together, it's a good feeling to know they will stay that way…

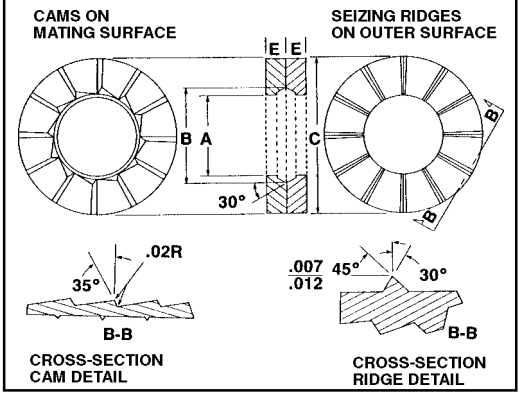
INCH SPECIFICATIONS

(with approx. mm bolt size)

Hardened Steel (Zinc Plated)	A4 (316) Stainless Steel	For Bolt Size Inches	mm	Inch Dimensions A	C	*EE	Unit Pkg. Pairs
677-017		#6	3	.150	.340	.080	50
677-018		#8	4	.175	.340	.080	50
677-001	**677-810**	3/16	5	.203	.401	.080	50
677-002	**677-811**	1/4	6	.262	.495	.101	50
677-003	**677-812**	5/16	8	.326	.628	.119	50
677-004	**677-813**	3/8	10	.409	.705	.135	50
677-005		7/16	11	.450	.880	.135	25
677-006	**677-814**	1/2	12	.510	.937	.136	25
677-007		9/16	14	.572	1.128	.127	25
677-008	**677-815**	5/8	16	.651	1.247	.154	25
677-009		3/4	20	.820	1.381	.183	20
677-010		7/8	22	.883	1.470	.240	20
677-011		1	25	1.015	1.626	.240	20
677-012		1-1/16	27	1.079	1.650	.135	10
677-013		1-1/8	28	1.140	1.715	.240	10
677-014		1-1/4	32	1.275	1.875	.265	10
677-016		1-3/8	36	1.430	2.196	.230	10
677-015		1-1/2	38	1.523	2.196	.230	10

* Weight and thickness of pairs will vary slightly with gauge of metal.

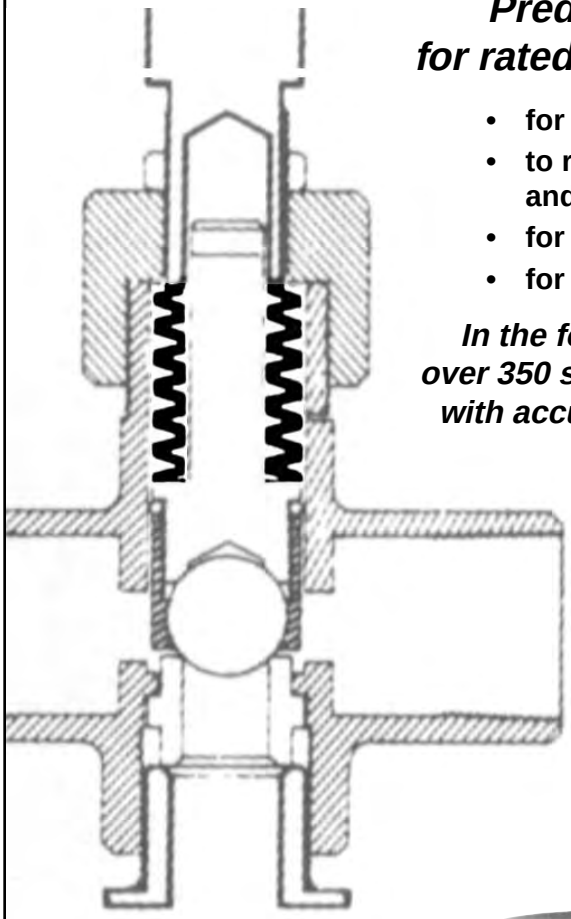
TECHNICAL DATA



Disc-Lock washers are steel case hardened to RC55 and zinc plated.

Note: Disc-Lock washers are priced by the pair. A package of 50 (pairs) contains 100 identical pieces.

CATALOG 13

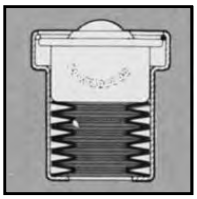


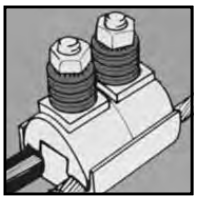
Predictable performance for rated load at given deflection

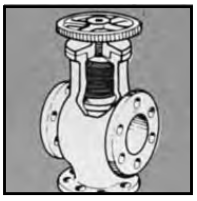
- **for high loads in limited space**
- **to replace coil springs for economy and improved design**
- **for use with bolted sections**
- **for use with ball bearings**

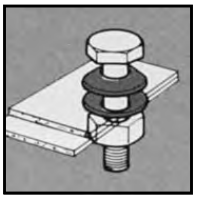
In the following pages, we have listed over 350 sizes of DISC SPRINGS, complete with accurate dimensional and technical data.

FINISH: All sizes are normally stocked in 'self-colour' (unplated). Plating and/or special finishes are NOT recommended due to risk of mechanical impairment.









INTRODUCTION

TO COST-SAVING, SPACE-SAVING DISC SPRINGS

D

Disc springs are precision springs made of high carbon spring steel, alloy steel, stainless, and heat resisting steels and non-ferrous materials. Conical in shape and made to special geometrical relationships of OD, ID, thickness, and height, they are subject to exacting manufacturing and quality control standards. Materials used are generally in annealed condition and hardened to range of Rc44-51 depending on material thickness used. Load/deflection relationships are closely controlled. Disc springs are made of cold rolled strip, hot rolled sheet, or forgings of flat or conical shape. After the spring is formed by stamping, it may be machined at the inner and outer diameters or on all surfaces. Machining operations eliminate surface defects obtained in the blanking operation and increase spring life, particularly under dynamic or fatigue loading conditions. All disc springs are “preset”. This is a controlled overstress of the spring so that it will not significantly relax under load when applied. Additionally, shot peening for surface consolidation may be employed. Accurate control of spring height and thickness is critical to predictable performance within close tolerances.

Disc springs are used singly or in stacks to achieve desired load and travel. In general, they function best under conditions requiring very high load in confined space or short travel. Under these design constraints it is often not practical or even possible to use a coil spring.

A further advantage of disc springs results from the various characteristic performance due to height/thickness ratio employed. The curve of the spring is non-linear (as distinguished from normal coil springs, which are linear) and may be progressive, regressive, or even exhibit a constant load over a significant portion of its useful deflection.

Disc springs used in parallel stack arrangements may be useful as load damping devices.The friction of the surface generates heat and dissipates energy under load release - a useful hysteresis effect under certain conditions.

When properly designed and used, disc springs have a long life, superior performance, and may result in significant cost reduction.

Typical disc spring applications are as follows:

1. Power transmission components such as clutches, brakes, transmissions, etc.
2. Valves, piping and drilling tools.
3. Screwed or bolted sections.
4. Bearing preload.
5. Hoists, cranes, and heavy engineering applications.
6. Electrical switchgear and buss bars.

The unique engineering value aspect of disc springs is that of the most efficient space utilization with energy employed. As machines and vehicles get smaller due to energy cost reduction needs, the designer is obliged to consider the disc spring element as the only practical solution to his problem in many cases.

While disc springs may not always be used interchangeably with coil springs because of their relatively long travel aspect when they are considered at the initial stages of design, they may be employed to great economic advantage. Disc springs and coil springs are complimentary.

Materials generally employed are C1075, SAE6150, Stainless 17/7 PH (ARMCO), Inconel X-750, Inconel 718, and Monels.

The company uses sophisticated computer programs for load and stress evaluation and performance prediction.

The manufacture and application of disc springs is widely known and understood in Europe. Their use in North American engineering and manufacturing industry is increasing in popularity and acceptance. Originally, the disc spring was first patented by J. Belleville (France) over 100 years ago. In early 1930’s the engineers (G.M.) Almen and Laszlo developed the theoretical foundation for disc springs calculation and use. This theory was formalized for general industrial use in West Germany at the end of World War II. The Germans standardized the theory, manufacture and quality requirements in DIN 2093 and DIN 2092. These specs became accepted world wide as the first industrial standardization of disc springs. The standard has spred throughout Europe and is now widely employed by multi-national engineering companies. The Japanese developed their own version of this standard.

No U.S.A. industry standard has yet been written on disc springs. Many U.S. manufacturers accept the DIN as a guide to performance and quality standards.

INTRODUCTION

TO COST-SAVING, SPACE-SAVING DISC SPRINGS

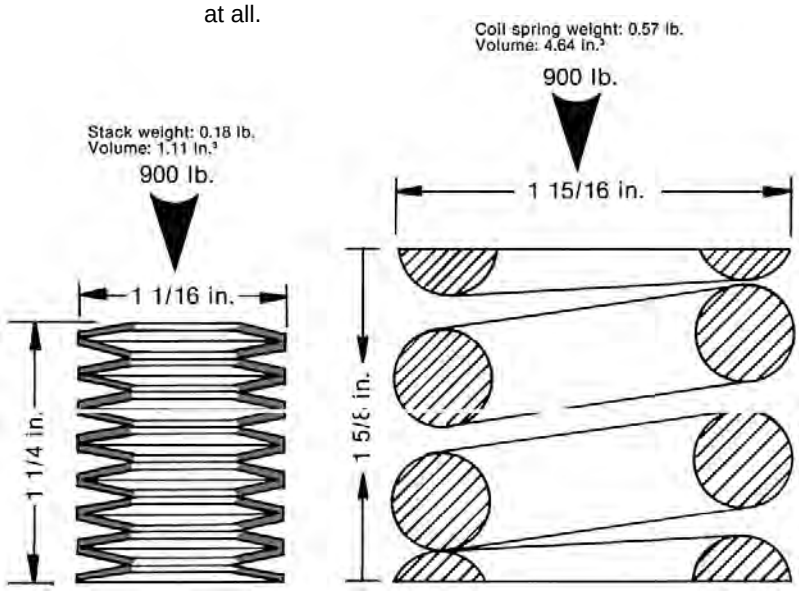
Compared to a coil spring, a disc spring achieves economy in design, and reduces the cost of the overall assembly by the maximum utilization of space.

The disc spring is unique among the various types of springs because it offers several distinct advantages over its counterparts. Among them are the following:

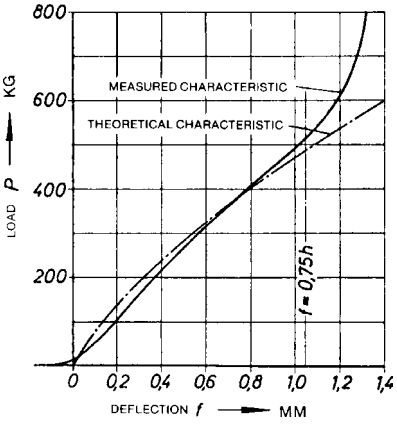
1. A choice of a wide range of load deflection characteristics, such as a straight line, progressive and regressive.
2. Flexibility in stack arrangement in order to achieve a desired performance.
3. Space saving.
4. Self-damping (especially when stacked in parallel).
5. Longer fatigue life.
6. Simplified inventory because an individual spring size can be used for a wide range of applications.

DISC SPRING STACK COMPARED TO HELICAL SPRING

Note that the same load is achieved at substantial reduction in space. Disc stacks may be designed for extremely high loads where coil springs are not feasible at all.



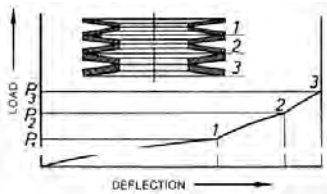
THEORETICAL VS. MEASURED CHARACTERISTIC OF A DISC SPRING



The characteristic of the individual disc spring is non-linear. Its shape depends on the ratio h/t. At the lower portion of the deflection range, the characteristic in practice departs slightly from the theoretical.

When f/h >0.75, the characteristic in practice again departs increasingly from the theoretical because the disc springs roll upon one another or upon the supporting surface, and this leads to a continuous shortening of the lever arm.

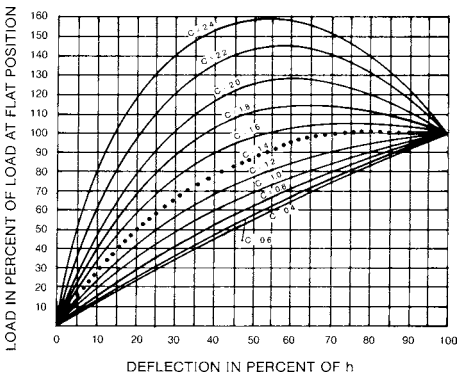
Disc springs of differing thickness can be



stacked in series to obtain a progressively rising load. This effect is also obtained using same thickness springs but incrementally increasing the units in the stack. Care must be taken not to over-stress the spring in the stack.

(Note: Friction forces between springs must be considered.)

DISC SPRING CHARACTERISTICS

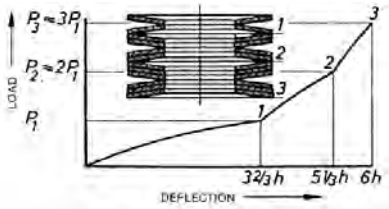


This is a graphic illustration of the values contained in Table 1, page D44

The characteristic or load-deflection relationship depends on the ratio of cone height h to the thickness t (h/t).

C = (characteristic) = h/t

If C is small (up to 0.6), the graph is almost a straight line. If C is 1.4, the graph is nearly straight over a considerable range of deflection, and this is called a constant-load disc spring, and is shown above as a dotted line.



DISC SPRINGS MAY BE USED SINGLY OR IN COMBINATIONS

Stacked in Parallel

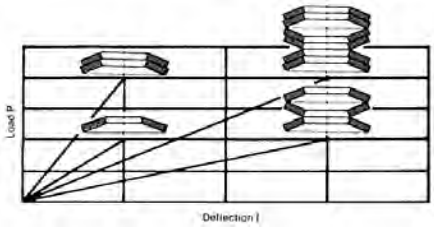
TOTAL DEFLECTION= deflection of 1 disc
TOTAL LOAD= load on 1 disc x no. of discs

Series

TOTAL DEFLECTION= deflection of 1 disc x no. discs in stack
TOTAL LOAD= load on 1 disc

Parallel-Series

COMBINATIONS can be designed to accommodate virtually any load or deflection, and to obtain progressive or regressive characteristics.



DISC SPRINGS

6 Styles

Page Nos.

- Metric - "AM" Series D54-D63
- Inch - "Stainless Steel" D66
- Inch - "AI" "SAI" Series D50-D51
- Inch - "SP/SSP" Series D52
- Inch - "Contact Disc" D64
- Inch - "AK" Series D53

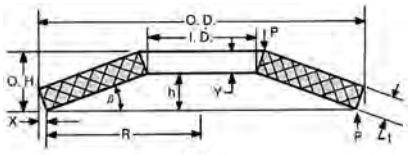


Fig. 1

Nomenclature

O.D. = Maximum outside dia. (upper surface)
I.D. = Minimum inside dia. (bottom surface)
h = Conical disc height (cone height)
O.H. = Overall height = Y + h
t = Actual thickness of disc
ß = Cone angle of disc
R = Radius from centreline to load bearing circle (bottom surface)
M = Ratio factor
μ = Poisson's ratio (.3 for steel)
E = Young's modulus (30,000,000 for steel)
f = Deflection of disc
∂ = Ratio of diameters (O.D./I.D.)
P = Load in lbs. at a given deflection
P_f = Load in lbs. at flat
X = Sinß • t
Y = Cosß • t

The load-deflection formula was developed by J. Almen and A. Laszlo, and published in the Transactions of Amer. Soc. of Mech. Engineers, May 1936, and is rendered as follows:

LOAD IN LBS. AT A GIVEN DEFLECTION

$$P = \frac{E \cdot f}{(1-\mu^2) \cdot M \cdot R^2} \cdot [(h-f/2) \cdot (h-f) \cdot t + t^3]$$

$$\text{WHERE } M = \frac{6}{\pi \cdot L_n \partial} \cdot \frac{(\partial-1)^2}{\partial^2}$$

DISC SPRING AT FLAT:

In the flattened condition, the deflection f is equal to the conical height h and the equation becomes:

$$P_f = \frac{E \cdot h \cdot t^3}{(1-\mu^2) \cdot M \cdot R^2}$$

SIMPLIFIED PROCEDURE FOR APPROXIMATE LOAD CALCULATIONS

In the flattened condition the load formula is as follows:

$$P_f = \frac{E \cdot h \cdot t^3}{(1-\mu^2) \cdot M \cdot R^2} \quad (1)$$

By simplification:

$$K = \frac{E}{(1-\mu^2) \cdot M \cdot R^2} \quad (2)$$

Where the K factor is dependent only on the diameters and the material.

Hence:

$$P_f = K \cdot h \cdot t^3 \quad (3)$$

For a specific disc spring curvature c = h/t and h = c • t.

The formula becomes by simplification:

$$P_f = K \cdot C \cdot t^4 \quad (4)$$

By solving this equation for t (thickness), we obtain:

$$t = \sqrt[4]{\frac{P_f}{K \cdot C}} \quad (5)$$

To find the load for any deflection, multiply the load at flat by a factor I, found in Table 1.

$$P = P_f \cdot I \quad (6)$$

With the above formulas we have a simple procedure for determining the load at different deflections or calculating the thickness for a given load:

1. Find value of constant M in Table 2
2. Solve for constant K
3. Choose C from Table 1
4. If load is given, solve for t (equation 5)
5. If thickness is given, solve for load (equation 4)
6. To find the load for different deflections (equation 6)

Also available Series AK Disc Springs for use with BALL BEARINGS, page D53.

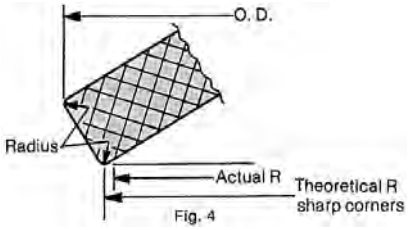


Fig. 4

A well designed disc spring has radii at all corners to reduce stress concentrations at the edges. A suitable radius is approx. = t/6. This radius further reduces dimension R (see Fig. 4).

Usually the overall height of the disc spring is specified because it is easy to measure and control. The cone height h, on the other hand, is difficult to measure (see Fig. 5).

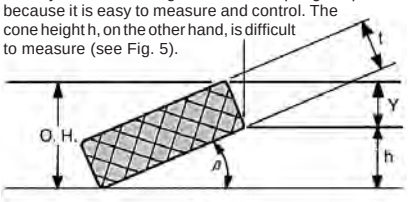


Fig. 5

For an approximate calculation, h= (overall height - t) is acceptable. However, this is not accurate. In fact, h = (overall height - Y), where Y = Cosß • t. For small thicknesses (under 2 mm), this is not significant. With thicker disc springs, this becomes a major factor for accurate load and stress calculations. This has not been adequately considered in previous technical literature.

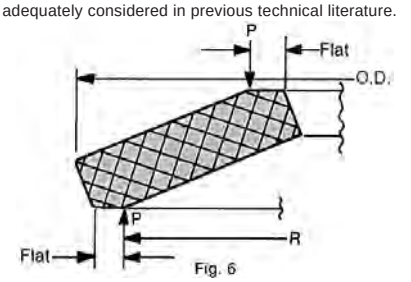


Fig. 6

Disc springs 7.49 mm and thicker are made with a bearing flat at Upper I.D. and Lower O.D. as standard (see Fig. 6). This bearing flat assures more uniform loading and better alignment of the disc stack.

The flat is equal approx. to O.D./150. For load calculations, R must be calculated to the inner edge of the flat.

DISC SPRING STRESS CALCULATIONS

$$S1 = \frac{E \cdot f}{(1-\mu 2) \cdot M \cdot R^2} \cdot [C_1 \cdot (h - f/2) + C_2 \cdot t]$$

$$S2 = \frac{E \cdot f}{(1-\mu^2) \cdot M \cdot R^2} \cdot [C_1 \cdot (h-f/2) - C_2 \cdot t]$$

$$S3 = \frac{E \cdot f}{(1-\mu^2) \cdot R^2} \cdot [T_1 \cdot (h-f/2) + T_2 \cdot t]$$

Where M, C_1 and C_2 are from Table 2, E and μ from Table 3, and

$$T1 = \frac{(\partial \cdot L_n \partial) - (\partial-1)}{L_n \partial} \cdot \frac{\partial}{(\partial-1)^2}$$

$$T2 = \frac{(.5) \cdot \partial}{\partial-1}$$

∂ = D/d and L_n = natural logarithm. Stress as given is psi

To calculate the load accurately, the following important factors must be considered:

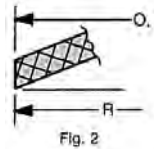


Fig. 2

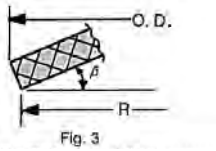
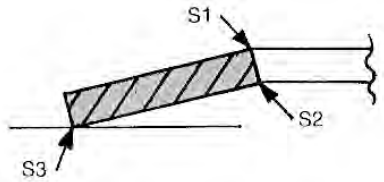


Fig. 3

Disc with theoretical sharp corners. If the disc spring is made as in Fig. 2, which is unusual, then R = O.D./2. Most disc springs are made as in Fig. 3.

Therefore, the load bearing radius is not equal to half of the maximum outside diameter. To calculate R, the angle B first has to be determined.



For evaluation of compressive stress, use formula S1. It computes the compressive stress at the upper inner diameter. This compressive stress may be as high as 400,000 psi for certain bolted applications.

For dynamic applications, it is necessary to consider the tensile stresses at the points marked S2 and S3. The stresses at these points depend on the ratio of diameters (∂) and the spring characteristic (C) as well as on the deflection (f). This stress should not exceed 200,000 psi at .75h deflection.

SUMMARY

Precise load and stress calculations require the determination of the disc spring angle ß. Since this is not easily determined by physical measurement, we have developed a computer program that calculates the precise angle and arrives at the exact dimension for conical height h. This then determines accurate load and stress calculation. When designing special disc springs and wishing to evaluate the resultant load and stress with accuracy, please consult our Engineering Department.

The load and stress formulas are correct only with the assumption that the spring will be worked within the elastic limit of the material.

Table 1

To find the load at any intermediate point (between 10% h and flat), multiply the load at flat by the constant I found in Table 1 below.

C	Deflection in Percent of h									
h/t	10	20	30	40	50	60	70	75	80	90
0.30	0.11	0.21	0.32	0.42	0.52	0.62	0.71	0.76	0.81	0.91
0.40	0.11	0.22	0.33	0.43	0.53	0.63	0.72	0.77	0.82	0.91
0.50	0.12	0.24	0.35	0.45	0.55	0.64	0.73	0.78	0.82	0.91
0.60	0.13	0.25	0.36	0.47	0.57	0.66	0.75	0.79	0.84	0.92
0.70	0.14	0.27	0.39	0.49	0.59	0.68	0.77	0.81	0.85	0.92
0.80	0.16	0.29	0.41	0.52	0.62	0.71	0.79	0.83	0.86	0.93
0.90	0.17	0.32	0.45	0.56	0.65	0.74	0.81	0.85	0.88	0.94
1.00	0.19	0.34	0.48	0.59	0.69	0.77	0.84	0.87	0.90	0.95
1.05	0.19	0.36	0.50	0.61	0.71	0.79	0.85	0.88	0.91	0.96
1.10	0.20	0.37	0.52	0.63	0.73	0.80	0.87	0.89	0.92	0.96
1.15	0.21	0.39	0.54	0.65	0.75	0.82	0.88	0.91	0.93	0.97
1.20	0.22	0.41	0.56	0.68	0.77	0.84	0.90	0.92	0.94	0.97
1.25	0.23	0.43	0.58	0.70	0.79	0.86	0.91	0.93	0.95	0.98
1.30	0.25	0.44	0.60	0.73	0.82	0.88	0.93	0.95	0.96	0.98
1.35	0.26	0.46	0.63	0.75	0.84	0.91	0.95	0.96	0.98	0.99
1.40	0.27	0.48	0.65	0.78	0.87	0.93	0.97	0.98	0.99	1.00
1.50	0.29	0.52	0.70	0.83	0.92	0.98	1.01	1.01	1.02	1.01
1.60	0.32	0.57	0.76	0.89	0.98	1.03	1.05	1.05	1.05	1.03
1.80	0.38	0.67	0.88	1.02	1.12	1.14	1.14	1.13	1.11	1.06
2.00	0.44	0.78	1.01	1.17	1.25	1.27	1.25	1.22	1.18	1.10
2.50	0.63	1.10	1.40	1.60	1.67	1.65	1.55	1.48	1.40	1.21
3.00	0.87	1.48	1.91	2.13	2.19	2.11	1.93	1.81	1.66	1.35
3.50	1.15	1.96	2.49	2.75	2.80	2.66	2.37	2.19	1.98	1.51
4.00	1.47	2.50	3.16	3.50	3.50	3.29	2.88	2.63	2.34	1.69

Table 2
Constant M, C_1 and C_2

∂ OD/ID	M	C_1	C_2	∂ OD/ID	M	C_1	C_2
1.10	.166	.986	1.002	2.10	.706	1.242	1.416
1.15	.232	1.001	1.025	2.20	.721	1.264	1.453
1.20	.291	1.016	1.048	2.30	.733	1.286	1.490
1.25	.342	1.030	1.070	2.40	.742	1.307	1.527
1.30	.388	1.044	1.092	2.50	.750	1.328	1.563
1.35	.428	1.058	1.114	2.60	.757	1.348	1.599
1.40	.463	1.072	1.135	2.80	.767	1.388	1.669
1.45	.495	1.085	1.157	3.00	.773	1.426	1.738
1.50	.523	1.098	1.178	3.20	.776	1.464	1.806
1.60	.571	1.124	1.219	3.40	.778	1.500	1.873
1.70	.610	1.149	1.260	3.60	.778	1.535	1.938
1.80	.642	1.173	1.300	3.80	.777	1.570	2.003
1.90	.668	1.197	1.339	4.00	.775	1.604	2.067
2.00	.689	1.220	1.378				

Table 3
Modulus of elasticity and Poisson's ratio for different materials

Material	E Modulus Vs. Temperature in F°				Poisson's Ratio μ
	68F°	250F°	400F°	600F°	
Steel - 1075	30 x 10^6	29.5 x 10^6	—	—	0.30
Steel - 6150	30 x 10^6	29.8 x 10^6	28.5 x 10^6	—	0.30
Stainless 17/7 PH	29 x 10^6	N/A	N/A	26.5 x 10^6	0.34
Stainless 302	28 x 10^6	N/A	26.5 x 10^6	—	0.30
Inconel x -750	31 x 10^6	30.8 x 10^6	29.5 x 10^6	28.3 x 10^6	0.29

Dynamic Loading & Fatigue Life

Dynamic loading of disc springs occurs when the load continuously changes from preload to final load.

The "stress-time" curve of such disc springs which pulsate uniformly is sinusoidal. This is not true in cases of impact loading, and therefore it is difficult to predict their life and behaviour.

Disc spring "life" may be differentiated into 2 categories:

1) Limited life: where cycles vary without failure between 40,000 and 2,000,000 cycles.
2) Unlimited life: cycles in excess of 2.10^6 without failure. For virtually indefinite life, the table below indicates the appropriate values required, given in percent of travel, relating preload to final load AND considering the disc spring thickness:

Preload in % of h	Max. Deflection in % of h	
	Disc Thickness	
	≤.039"	≥.157"
15	50	44
25	56	49
50	67	64

Fatigue Life

Fatigue life for disc springs is defined by the effective number of stress cycles that can be sustained prior to failure under certain conditions. This depends on the minimum stress, maximum stress, and stress range.

The diagrams presented here are for evaluating fatigue life of single disc springs or series stacks not more than 6 springs. There are three basic groups, depending on thickness (see legend under each diagram).

The horizontal axis represents PRELOAD STRESS.
The vertical axis represents FINAL STRESS.
The fatigue life is found at the intersection of these points on the graph. The ZONE in which they fall tells the predicted life. If they fall outside the zones, their life is not generally predictable.

The horizontal border line enclosing the top portion of the graph (zone) represents the yield strength of the spring steel material.

Intersection points of min/max stress limits which fall outside the graph/zone boundaries are to be avoided as they indicate spring failure is likely at an early stage.

The graphs were developed based on empirical test data. The test loads were sinusoidally executed.

How to Use the Graphs

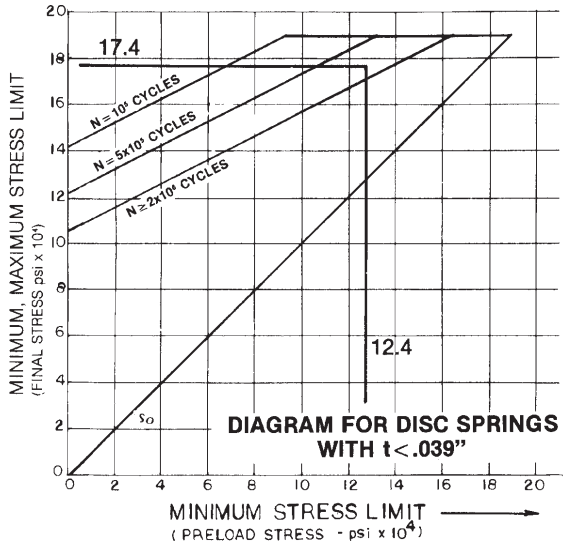
1. For standard catalog disc springs:
   a) Determine preload stress.
   b) Determine final load stress.

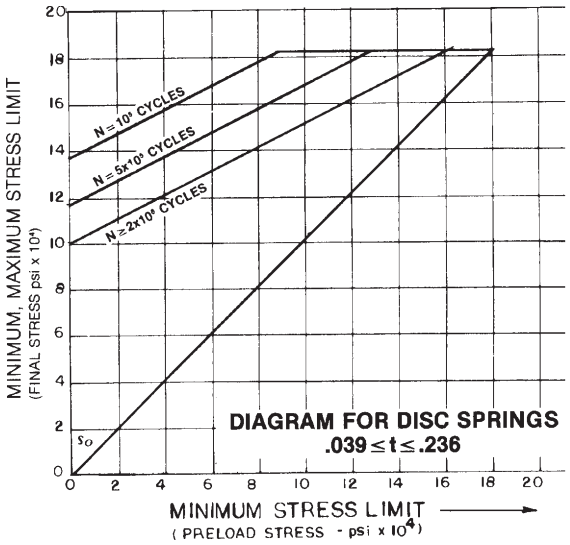
The intersection of the stress coordinates will indicate the range of fatigue life that may be expected.

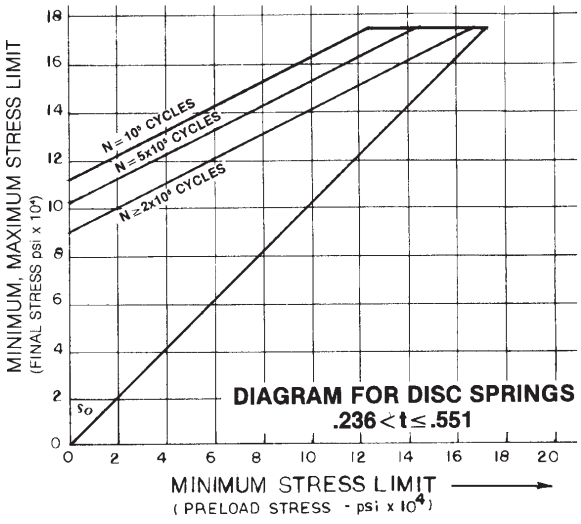
2. For non-standard or special disc springs:
   a) Determine the preload stress for points S_2 and S_3. Use the HIGHER of the two values for preload and final load.
   b) Repeat above procedure for FINAL STRESS, using again the higher value found.

EXAMPLE (Dotted Line)

AM188207: .709 x .323 x .0276 (See catalog page D46)
Preload stress at deflection f = .5h: 124000 psi
Final load stress at deflection f = .75h: 174000psi
Intersection point between nearby 2MIO-cycles-line:
Predicted cycles: 1.5 MIO







D

DISC SPRING Damping (Hysteresis)

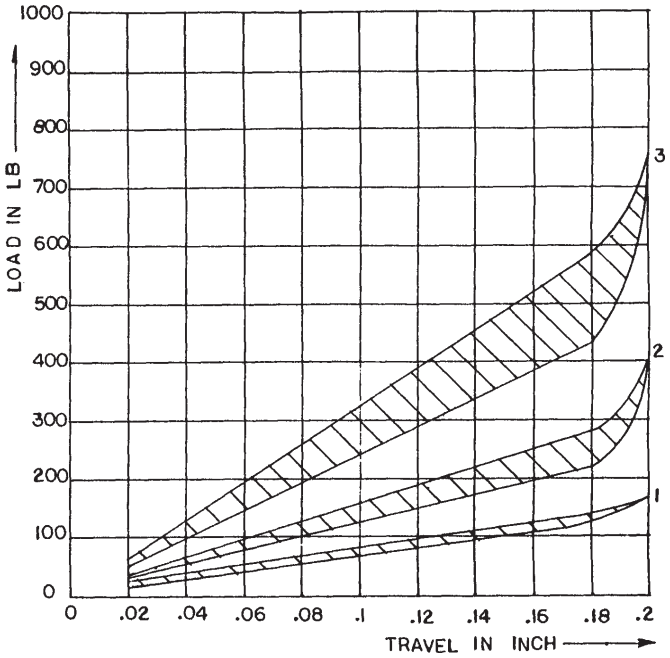
In disc spring stacks, particularly those with parallel units, friction must be considered. Friction occurs due to contact of the spring face (radial wall). As a result, the spring force increases on loading, and decreases on unloading....giving the damping effect. The load value is a function of the number of disc springs in parallel, as shown on the graph. An approximation of load increase or decrease is on the order of 2-3 per cent per each set of 2.

18 x 8.2 x 0.7 x 1.25 OA
(.709 x .323 x .0276 x .0492 OA)

Measured characteristic of various disc spring stacks:

Stacks consisting of 10 single disc springs or 10 multi spring components were tested.

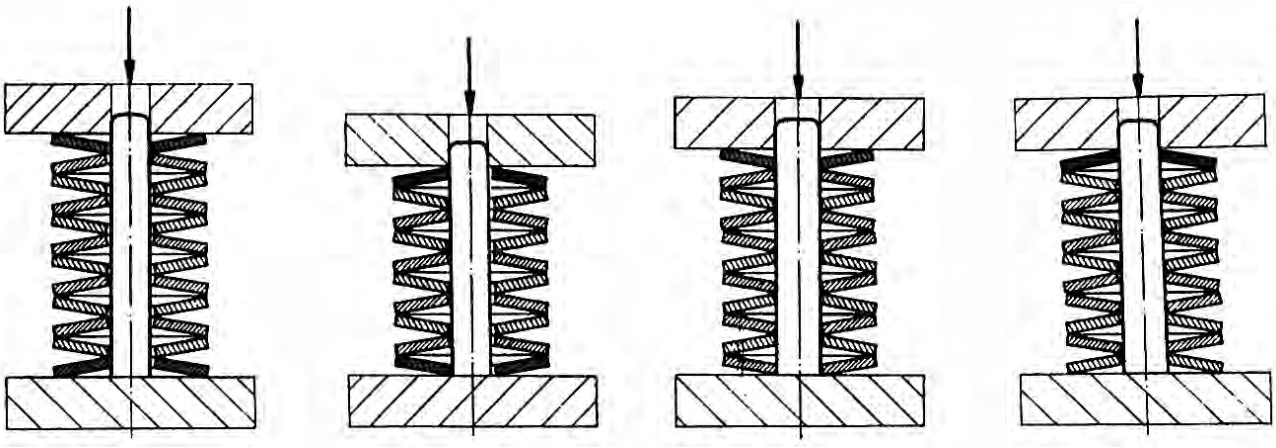
Curve 1: Single discs of 10 in series
Curve 2: 10 sets of 2 parallel
Curve 3: 10 sets of 3 parallel



GUIDING THE DISC SPRING

It is preferable to guide disc springs by means of a rod through the I.D. rather than in a sleeve over the O.D. The springs at either end of the stack should contact hardened thrust washers with their outer diameter. The surface finish of the thrust washer should match that of the guide rods.

Springs at the moving end of a stack are more or less over deflected by comparison to the calculated value. Springs at the opposite ends are under deflected. The greatest relative movement occurs between the last spring in a stack and the guide rod. Friction between the disc springs, as well as between the springs and the guide rod, are greatest at the moving end.



CORRECT **WRONG** **CORRECT** **WRONG**

CATALOG 13

The tolerances shown on this page are for unplated AM series only. For tolerances on other series, consult *SPAENAUR*.

TOLERANCE FOR THICKNESS

THICKNESS t		TOLERANCE	
MM	INCH	MM	INCH
0.3 0.4	.0118 .0157	+.02 -.06	+.0008 -.0024
0.5 0.6	.0197 .0236		
0.7 0.8	.0276 .0315	+.03 -.09	+.0012 -.0035
0.9 1.0	.035 .039		
1.1 1.25	.043 .049		
1.5 1.75	.059 .069	+.04 -.12	+.0016 -.0047
2.0	.078		
2.25 2.5	.088 .098		
3.0 3.5	.118 .138		
4.0 to 16.0	.157 to .630	±.127	±.005

OVERALL HEIGHT TOLERANCE

GROUP	SPRING THICKNESS Range		OVERALL HEIGHT TOLERANCE	
	MM	INCH	MM	INCH
1	less than 1.25	less than 0.049	+0.010 -0.05	+0.0004 -0.002
2	1.25 to 2.00	0.049 to 0.078	+0.15 -0.08	+0.006 -0.003
	over 2.00 to 3.00	over 0.078 to 0.118	+0.30 -0.10	+0.012 -0.004
	over 3.00 to 6.00	over 0.118 to 0.236	+0.30 -0.15	+0.012 -0.006
3	over 6.00 to 14.00	over 0.236 to 0.551	±0.30	±0.012

DISC SPRING HARDNESS RANGE

THICKNESS OF DISC		
MM	INCH	ROCKWELL C
0.2 to 0.9	.008 to .035	46 to 51
1.0 to 4.0	.039 to .157	44 to 49
4.25 to 16.0	.164 to .630	42 to 48

For Stainless Steel and Inconel, consult SPAENAUR.

CONVERSION TABLE

inches x 25.4 = millimetres
millimetres ÷ 25.4 = inches
1 lb. = .454 kg
1 kg = 2.2 lbs.
1 psi = .0007 kg/mm^2
1 kg/mm^2 = 1422 psi
1 Newton (N) = .225 lbs. force
1 lb. force = 4.44 N
1 N/mm^2 = .102 kg/mm^2 = 145 psi
1 kg/mm^2 = 9.81 N/mm^2 = 1422 psi

OD AND ID GUIDE CLEARANCE

OD OR ID SIZE		CLEARANCE FOR OD OR ID	
MM	INCH	MM	INCH
up to 16	up to 0.63	0.2	0.008
over 16 to 20	0.63 to 0.79	0.3	0.012
over 20 to 26	0.79 to1.02	0.4	0.016
over 26 to 31.5	1.02 to 1.24	0.5	0.020
over 31.5 to 50	1.24 to 1.97	0.6	0.024
over 50 to 80	1.97 to 3.14	0.8	0.031
over 80 to 140	3.15 to 5.52	1.0	0.039
over 140 to 250	5.52 to 9.85	1.6	0.063

NOTE: Inside Guiding is preferred. Guide Bolts should be Rc55-60 ground and polished.

OD/ID TOLERANCE

OD/ID RANGE		TOTAL TOLERANCE	
MM	INCH	MM	INCH
1.6 to 3	.063 to .118	0.102	0.004
3.0 to 6	.118 to .236	0.127	0.005
6.0 to 10	.236 to .394	0.152	0.006
10 to 18	.394 to .709	0.178	0.007
18 to 30	.709 to 1.18	0.203	0.008
30 to 50	1.18 to 1.97	0.254	0.010
50 to 80	1.97 to 3.15	0.305	0.012
80 to 120	3.15 to 4.72	0.356	0.014
120 to 180	4.72 to 7.09	0.406	0.016
180 to 250	7.09 to 9.84	0.457	0.018

NOTE: For OD, tolerance is MINUS value shown.
For ID, tolerance is PLUS value shown.

LOAD TOLERANCE

GROUP	THICKNESS RANGE		TOLERANCE FOR LOAD AT DEFLECTION =.75h
	MM	INCH	
1	less than 1.25	0.049	+25% -7.5%
2	1.25 to 3.00	0.049 - 0.118	+15% -7.5%
	over 3.00 to 6.00	0.118 - 0.236	+10% -5%
3	over 6.00 to 14.00	0.236 - 0.551	±5%

NOTE: Load will vary in stacked springs in proportion to number of springs in stack.

*When thickness, OA Height **AND LOAD VALUES** are specified, the controlling factor shall be the **load shown.***

MATERIALS

High-grade spring steel of selected surface condition. Most commonly used are C-1075 or SAE 6150 chrome vanadium steel. Other alloy steels are also used. We use 17-7Ph stainless for corrosion resistance. It is slightly magnetic.

HARDNESS

Disc springs are carefully heat treated with austempering process, and in such a manner as to prevent surface decarburization.

Suggested Tightening Torque1 Values To Produce Corresponding Bolt Clamping Loads

Size	Bolt Dia.	Tensile Stress Area	SAE Grade 2 Bolts					SAE Grade 5 Bolts					SAE Grade 7[3]			SAE Grade 8[4]		
			Tensile Strength	Proof Load	Clamp[2] Load	Tightening Torque Dry	Lub.	Tensile Strength	Proof Load	Clamp[2] Load	Tightening Torque Dry	Lub.	Clamp[2] Load	Tightening Torque Dry	Lub.	Clamp[2] Load	Tightening Torque Dry	Lub.
	D (in.)	*A* (sq. in.)	(min psi)	(psi)	*P* (lb.)	*K*=0.20	*K*=0.15	(min psi)	(psi)	*P* (lb.)	*K*=0.20	*K*=0.15	*P* (lb.)	*K*=0.20	*K*=0.15	*P* (lb.)	*K*=0.20	*K*=0.15
						lb. in.	lb. in.				lb. in.	lb. in.		lb. in.	lb. in.		lb. in.	lb. in.
4-40	0.1120	0.00604	74,000	55,000	240	5	4	120,000	85,000	380	8	6	480	11	8	540	12	9
4-48	0.1120	0.00661			280	6	5			420	9	7	520	12	9	600	13	10
6-32	0.1380	0.00909			380	10	8			580	16	12	720	20	15	820	23	17
6-40	0.1380	0.01015			420	12	9			640	18	13	800	22	17	920	25	19
8-32	0.1640	0.01400			580	19	14			900	30	22	1100	36	27	1260	41	31
8-36	0.1640	0.01474			600	20	15			940	31	23	1160	38	29	1320	43	32
10-24	0.1900	0.01750			720	27	21			1120	43	32	1380	52	39	1580	60	45
10-32	0.1900	0.02000			820	31	23			1285	49	36	1580	60	45	1800	68	51
1/4-20	0.2500	0.0318			1320	66	49			2020	96	75	2500	120	96	2860	144	108
1/4-28	0.2500	0.0364			1500	76	56			2320	120	86	2860	144	108	3280	168	120
						lb. ft.	lb. ft.				lb. ft.	lb. ft.		lb. ft.	lb. ft.		lb. ft.	lb. ft.
5/16-18	0.3125	0.0524			2160	11	8			3340	17	13	4120	21	16	4720	25	18
5/16-24	0.3125	0.0580			2400	12	9			3700	19	14	4560	24	18	5220	25	20
3/8-16	0.3750	0.0775			3200	20	15			4940	30	23	6100	40	30	7000	45	35
3/8-24	0.3750	0.0878			3620	23	17			5600	35	25	6900	45	45	7900	50	35
7/16-14	0.4375	0.1063			4380	30	24			6800	50	35	8400	60	45	9550	70	55
7/16-20	0.4375	0.1187			4900	35	25			7550	55	40	9350	70	50	10700	80	60
1/2-13	0.5000	0.1419			5840	50	35			9050	75	55	11200	95	70	12750	110	80
1/2-20	0.5000	0.1599			6600	55	40			10700	90	65	12600	100	80	14400	120	90
9/16-12	0.5625	0.1820			7500	70	55			11600	110	80	14350	135	100	16400	150	110
9/16-18	0.5625	0.2030			8400	80	60			12950	120	90	16000	150	110	18250	170	130
5/8-11	0.6250	0.2260			9300	100	75			14400	150	110	17800	190	140	20350	220	170
5/8-18	0.6250	0.2560			10600	110	85			16300	170	130	20150	210	160	23000	240	180
3/4-10	0.7500	0.3340			13800	175	130			21300	260	200	26300	320	240	30100	380	280
3/4-16	0.7500	0.3730			15400	195	145			23800	300	220	29400	360	280	33600	420	320
7/8-9	0.8750	0.4620	60,000	33,000	11400	165	125			29400	430	320	36400	520	400	41600	600	460
7/8-14	0.8750	0.5090			12600	185	140			32400	470	350	40100	580	440	45800	660	500
1-8	1.0000	0.6060			15000	250	190			38600	640	480	47700	800	600	54500	900	680
1-12	1.0000	0.6630			16400	270	200			42200	700	530	52200	860	660	59700	1000	740
1-1/8-7	1.1250	0.7630			18900	350	270	105,000	74,000	42300	800	600	60100	1120	840	68700	1280	960
1-1/8-12	1.1250	0.8560			21200	400	300			47500	880	660	67400	1260	940	77000	1440	1080
1-1/4-7	1.2500	0.9690			24000	500	380			53800	1120	840	76300	1580	1100	87200	1820	1360
1-1/4-12	1.2500	1.0730			26600	550	420			59600	1240	920	84500	1760	1320	96600	2000	1500
1-3/8-6	1.3750	1.1550			28600	660	490			64100	1460	1100	91000	2080	1560	104000	2380	1780
1-3/8-12	1.3750	1.3150			32500	740	560			73000	1680	1260	104000	2380	1780	118400	2720	2040
1-1/2-6	1.5000	1.4050			34800	870	650			78000	1940	1460	111000	2780	2080	126500	3160	2360
1-1/2-12	1.5000	1.5800			39100	980	730			87700	2200	1640	124005	3100	2320	142200	3560	2660

Notes:

1. Tightening torque values are calculated from the formula $T = KDP$, where T = tightening torque, lb-in.; K = torque-friction coefficient; D = nominal bolt diameter, in.; and P = bolt clamping load developed by tightening. lb.

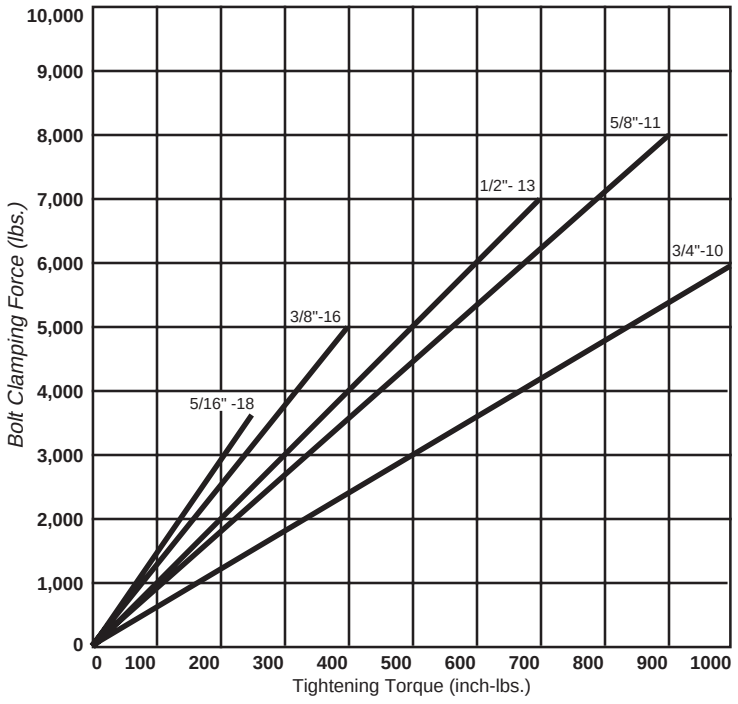
2. Clamp load is also known as preload or initial load in tension on bolt. Clamp load (lb.) is calculated by arbitrarily assuming usable bolt strength is 75% of bolt proof load (psi) times tensile stress area (sq. in.) of threaded section of each bolt size. Higher or lower values of clamp load can be used depending on the application requirements and the judgement of the designer.

3. Tensile strength (min psi) of all Grade 7 bolts is 133,000. Proof load is 105,000 psi.

4. Tensile strength (min psi) of all Grade 8 bolts is 150,000 psi. Proof load is 120,000 psi.

Ref.: Fastening Reference. Machine Design. Nov. 1977.

Bolt Clamping Force vs. Tightening Torque for Unlubricated Steel Bolts.



SPAENAUR

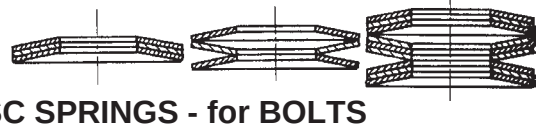
Bolt Load & Stress as a Function of Torque

Nominal Dia.	Bolt stress, psi											
	7,500		15,000		30,000		45,000		60,000		90,000	
	Torque ft-lb.	Load lb.	Torque ft-lb.	Load lb.	Torque ft-lb.	Load lb.	Torque ft-lb.	Load lb.	Torque ft-lb.	Load lb.	Torque ft-lb.	Load lb.
National Coarse Series												
1/4"	1	240	2	480	4	950	6	1,430	8	1,900	-	-
5/16"	2	390	4	780	8	1,570	12	2,350	16	3,130	-	-
3/8"	3	600	6	1,160	12	2,320	18	3,480	24	4,640	-	-
7/16"	5	800	10	1,590	20	3,180	30	4,770	40	6,360	-	-
1/2"	8	1,060	15	2,120	30	4,250	45	6,370	60	8,500	-	-
9/16"	12	1,360	23	2,720	45	5,450	68	8,170	90	10,900	-	-
5/8"	15	1,690	30	3,380	60	6,770	90	10,200	120	13,500	-	-
3/4"	25	2,510	50	5,010	100	10,000	150	15,000	200	20,000	-	-
7/8"	40	3,460	80	6,920	160	13,800	240	20,800	320	27,700	-	-
1"	62	4,540	123	9,080	245	18,200	-	-	-	-	-	-
1-1/8"	98	5,720	195	11,400	390	22,900	-	-	-	-	-	-
1-1/4"	137	7,260	273	14,500	545	29,100	-	-	-	-	-	-
1-3/8"	183	8,650	365	17,300	730	34,600	-	-	-	-	-	-
1-1/2"	219	10,500	437	21,100	875	42,100	-	-	-	-	-	-
1-3/4"	390	14,200	775	28,500	1,550	56,900	-	-	-	-	-	-
2"	563	18,700	1,125	37,500	2,250	74,900	-	-	-	-	-	-
8-thread Series												
1"	-	-	-	-	245	18,200	368	27,200	490	36,300	-	-
1-1/8"	-	-	-	-	355	23,700	533	35,500	710	47,400	-	-
1-1/4"	-	-	-	-	500	30,000	750	44,900	1,000	59,900	-	-
1-3/8"	-	-	-	-	680	37,000	1,020	55,400	1,360	73,900	-	-
1-1/2"	-	-	-	-	800	44,700	1,200	67,000	1,600	89,400	-	-
1-5/8"	-	-	-	-	1,100	53,200	1,650	79,800	2,200	106,300	-	-
1-3/4"	-	-	-	-	1,500	62,400	2,250	93,600	3,000	124,800	-	-
1-7/8"	-	-	-	-	2,000	72,300	3,000	108,500	4,000	144,600	-	-
2"	-	-	-	-	2,200	83,000	3,300	124,500	4,400	166,000	-	-
2-1/4"	-	-	-	-	3,180	106,600	4,770	159,800	6,360	213,100	-	-
2-1/2"	-	-	-	-	4,400	133,100	6,600	199,600	8,800	266,100	-	-
2-3/4"	-	-	-	-	5,920	162,500	8,800	243,700	11,840	325,000	-	-
3"	-	-	-	-	7,720	194,900	11,580	292,300	15,440	389,700	-	-
National Fine Series												
1/4"	-	-	-	-	6	1,090	9	1,630	12	2,120	18	2,930
5/16"	-	-	-	-	12	1,740	18	2,600	24	3,480	36	5,210
3/8"	-	-	-	-	22	2,630	31	3,940	44	5,260	66	7,880
7/16"	-	-	-	-	32	3,560	50	5,070	64	7,100	96	10,700
1/2"	-	-	-	-	50	4,790	76	7,100	100	9,600	150	14,200
9/16"	-	-	-	-	72	6,080	109	9,120	144	12,200	216	18,200
5/8"	-	-	-	-	98	7,670	148	11,500	196	15,300	294	23,000
3/4"	-	-	-	-	170	11,200	255	16,800	340	22,300	510	33,500
7/8"	-	-	-	-	270	15,300	404	22,800	540	30,500	810	45,800
1"	-	-	-	-	390	19,900	587	29,800	780	39,700	1,170	59,600
1-1/8"	-	-	-	-	574	25,600	860	38,500	1,148	51,300	1,722	76,900
1-1/4"	-	-	-	-	790	32,200	1,180	48,300	1,580	64,300	2,370	96,500
1-3/8"	-	-	-	-	1,044	42,400	1,565	59,000	2,088	78,800	3,132	118,200
1-1/2"	-	-	-	-	1,358	47,400	2,060	71,000	2,716	94,800	4,074	142,200

TECHNICAL DATA and RELATED INFORMATION can be found on pages D42 to D49 and D65.

D

Disc springs can be used singly, or may be combined to make a stacked spring column.



For INCH Bolt Sizes

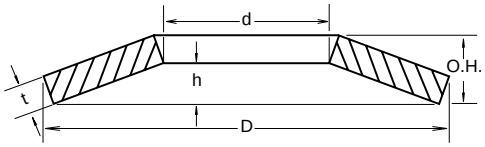
AI/SAI Series

STEEL & STAINLESS STEEL

DISC SPRINGS - for BOLTS

Materials: **CHROME VANADIUM STEEL,** hardened, self-colour or phosphate finish our option. **STAINLESS STEEL** .049" & thinner, 301/302 (HRC 40 min.) is generally supplied but,17-7PH is optional subject to availability. Thicknesses of .050" and over, 17-7PH will be supplied.

Series AI **pre-stressed** disc springs are used to maintain load or tension in bolted assemblies. Pressure begins at the outer radius and flattens gradually toward the bolt as deflection progresses. Disc springs exert a uniform pressure that remains constant in spite of tension losses caused by thermal expansion and contraction, compression set, or wear of parts. Because pressures are predictable, disc springs provide a simple and effective means of determining bolt tension that is far more accurate than "torque" readings.



Load Values for Stainless Steel approx. 95% of Spring Steel values shown.

■Conform to MIL-W-12133/1"B"
Material and finish must be specified on order.

See AM Series for LARGER SIZES

POWERFUL SPRING ACTION IN LIMITED SPACE

Note: Tested only at f = .75h.

P Load at flat in lbs.
f Deflection in inches

SPAENAUR No. STEEL	STAINLESS STEEL	⁎Cross-Ref. AI/SAI Series Part No.	Nom. Bolt or Shaft Size	Inch Dimensions D	d	t	h	O.H.	f = .75h P	f	P max.	f max.
680-004	**680-806**	180907	**#2**	.187	.093	.007	.006	.013	10	.005	12	.006
680-005	**680-807**	180910	**#2**	.187	.093	.010	.005	.015	23	.004	29	.005
680-006	**680-808**	251209	**#4**	.250	.125	.009	.008	.017	16	.006	19	.008
680-007	**680-800**	251213	**#4**	.250	.125	.013	.007	.020	39	.005	50	.007
680-113	**680-809**	281315	**#6**	.281	.138	.015	.008	.023	54	.006	69	.008
680-009	**680-810**	311511	**5/32"**	.312	.156	.011	.011	.022	26	.008	30	.011
680-019	**680-811**	311517	**#6**	.312	.156	.017	.008	.025	63	.006	82	.008
680-035	**680-812**	341619	**#8**	.343	.164	.019	.009	.028	80	.007	104	.009
DS-10	**680-813**	371915	**3/16"**	.375	.195	.015	.012	.027	49	.009	59	.012
—	**680-814**	371920	**3/16"**	.375	.195	.020	.010	.030	92	.008	118	.010
—	**680-816**	502518	**1/4"**	.500	.255	.018	.016	.034	64	.012	75	.016
DS-20■	**—**	502519	**1/4"**	.500	.258	.019	.016	.035	75	.012	89	.016
DS-30	**680-817**	502523	**1/4"**	.500	.258	.023	.016	.039	130	.012	160	.016
—	**680-818**	502525	**1/4"**	.500	.255	.025	.013	.038	129	.010	165	.013
—	**680-819**	502538	**1/4"**	.500	.255	.038	.010	.048	344	.008	454	.010
—	**680-820**	623122	**5/16"**	.625	.317	.022	.020	.042	93	.015	110	.020
680-100■	**680-821**	623132	**5/16"**	.625	.317	.032	.016	.048	213	.012	273	.016
DS-40	**680-801**	753227	**5/16"**	.750	.320	.028	.024	.052	146	.018	174	.024
DS-50	**—**	753231	**5/16"**	.750	.320	.032	.024	.056	213	.018	261	.024
DS-60	**—**	683823	**3/8"**	.688	.382	.024	.020	.044	104	.015	125	.020
DS-70	**—**	683827	**3/8"**	.688	.382	.028	.020	.048	162	.015	200	.020
—	**680-823**	753828	**3/8"**	.750	.380	.028	.023	.051	150	.017	180	.023
680-101■	**680-803**	753831	**3/8"**	.750	.382	.032	.020	.052	188	.015	236	.020
DS-80	**680-824**	753835	**3/8"**	.750	.382	.035	.022	.057	272	.017	342	.022
DS-90	**680-825**	753840	**3/8"**	.750	.382	.040	.019	.059	343	.014	441	.019
—	**680-826**	753856	**3/8"**	.750	.380	.056	.014	.070	679	.011	897	.014
—	**680-827**	874431	**7/16"**	.875	.442	.031	.028	.059	185	.021	218	.028
—	**680-828**	874445	**7/16"**	.875	.442	.045	.022	.067	413	.017	530	.022
DS-100■	**—**	104435	**7/16"**	1.000	.445	.035	.032	.067	219	.024	258	.032

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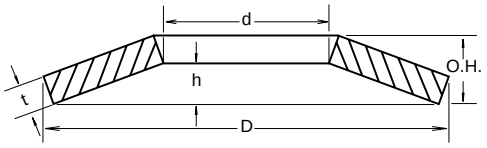
For INCH Bolt Sizes

AI/SAI Series

STEEL & STAINLESS STEEL



∗Prefix Cross-Ref. Part No. with an AI for Steel and SAI for Stainless Steel.

POWERFUL SPRING ACTION IN LIMITED SPACE

Note: Tested only at f = .75h.
P Load at flat in lbs.
f Deflection in inches

D

SPAENAUR No. STEEL	*SPAENAUR No.* STAINLESS STEEL	∗Cross-Ref. AI/SAI Series Part No.	Nom. Bolt or Shaft Size	Inch Dimensions D	d	t	h	O.H.	f = .75h P	f	P max.	f max.
DS-110	—	104439	7/16"	1.000	.445	.039	.032	.071	298	.024	359	.032
DS-120		104449	7/16"	1.000	.445	.049	.026	.075	455	.020	580	.026
680-102	680-830	105135	1/2"	1.000	.512	.035	.032	.067	236	.024	277	.032
DS-130	—	115139	1/2"	1.100	.512	.039	.036	.075	289	.027	339	.036
DS-140■	—	115149	1/2"	1.100	.512	.049	.030	.083	517	.025	640	.034
DS-150	—	115159	1/2"	1.100	.512	.059	.028	.087	717	.021	923	.028
—	680-833	105173	1/2"	1.000	.512	.073	.018	.091	1092	.014	1442	.018
—	680-835	115638	9/16"	1.125	.567	.038	.035	.073	258	.026	303	.035
680-103	680-836	115656	9/16"	1.125	.567	.056	.028	.084	612	.021	784	.028
680-104	680-837	126340	5/8"	1.250	.630	.040	.042	.082	303	.031	344	.042
680-105	680-838	126362	5/8"	1.250	.630	.062	.030	.092	717	.022	922	.030
—	680-839	126389	5/8"	1.250	.630	.089	.022	.111	1529	.017	2019	.022
DS-160	—	136349	5/8"	1.375	.637	.049	.046	.095	469	.034	549	.046
DS-170■	—	136359	5/8"	1.375	.637	.059	.043	.102	733	.032	901	.043
DS-180	—	136378	5/8"	1.375	.637	.078	.032	.110	1198	.024	1556	.032
—	680-840	136944	11/16"	1.375	.692	.045	.044	.089	365	.033	423	.044
680-107	680-841	157545	3/4"	1.500	.755	.045	.048	.093	342	.036	386	.048
680-108	680-844	157572	3/4"	1.500	.755	.072	.037	.109	965	.028	1235	.037
DS-190■	—	157659	3/4"	1.500	.761	.059	.055	.114	871	.041	1019	.055
DS-200■	—	157678	3/4"	1.500	.761	.078	.044	.122	1495	.033	1897	.044
DS-210	—	157698	3/4"	1.500	.761	.098	.036	.134	2373	.027	3097	.036
—	680-845	1575107	3/4"	1.500	.755	.107	.027	.134	2266	.020	2991	.027
680-109■	680-847	178885	7/8"	1.750	.880	.085	.043	.128	1354	.032	1735	.043
680-110	680-849	201065	1"	2.000	1.016	.065	.065	.130	778	.049	895	.065
DS-220■	—	201078	1"	2.000	1.016	.078	.060	.138	1178	.045	1436	.060
DS-230	680-850	201098	1"	2.000	1.016	.098	.060	.158	2290	.045	2881	.060
DS-240	—	201011	1"	2.000	1.016	.118	.047	.165	3033	.035	3944	.047
DS-250	—	231078	1"	2.375	1.016	.078	.079	.157	1073	.059	1231	.079
DS-260■	—	231098	1"	2.375	1.016	.098	.079	.177	2038	.059	2463	.079
DS-270	—	231011	1"	2.375	1.016	.118	.063	.181	2693	.047	3434	.063
680-111	—	251280	1-1/4"	2.500	1.250	.080	.080	.160	1131	.060	1301	.080
680-112	—	251212	1-1/4"	2.500	1.250	.120	.060	.180	2591	.045	3322	.060

See Price List for Unit Package Quantity.

See "AM" Series for larger sizes. Also available Mechanical Zinc or Cadmium Plated Special to Order.

For information on FLANGE DISC SPRINGS please consult your Spaenaur Sales Representative.

D

SP/SSP Series

STEEL AND STAINLESS STEEL

for HEAVY BOLTED SECTIONS

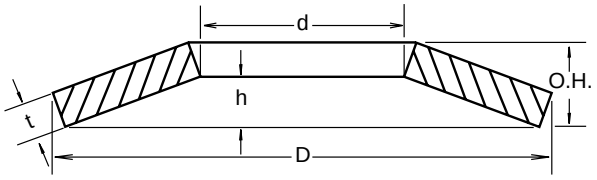
For INCH Bolt Sizes

- ELECTRICAL INDUSTRY APPLICATIONS
  Bus Bar Joints • Transformers
- AUTOMOTIVE
- FARM IMPLEMENTS

Materials: High-grade **SPRING STEEL**, in self colour or phosphate finish, our option. **17-7PH STAINLESS STEEL**

This series of Disc Springs has been specifically designed for heavy bolted sections, such as those used in electrical industries - on bus bar applications, transformers, etc. They are widely used to compensate for developed looseness due to thermal expansion of bolted sections. These conical spring washers are not as accurately formed as our AI series, which are generally used for lighter loads and more predictable load/deflection characteristics.
SP Disc Springs are made of high quality spring steel, heat treated to Rockwell C43-50. 17-7PH stainless steel is heat treated to Rockwell hardness C40-48.

Can be finished "to order" in Mechanical Zinc Plating.



IMPORTANT NOTE: SP Series Disc Springs are not pre-stressed. They are designed for static bolted applications only. ***See Series AM or AI as shown on other pages, for other applications.***

Load Values for Stainless Steel approx. 95% of Spring Steel values shown.

*Prefix Cross-Ref. Part No. with an SP for Steel and SSP for Stainless Steel.

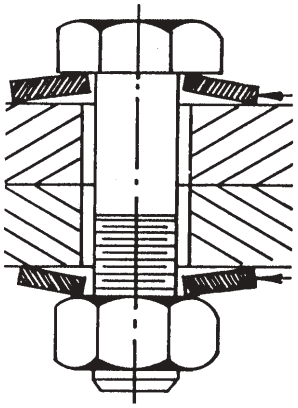
SPAENAUR No. STEEL	STAINLESS STEEL	* Cross-Ref. SP/SSP Part No.	NOMINAL BOLT SIZE Inch	D	INCH DIMENSIONS d	t	1) O.H.	2) O.H.	3) Load Flat (in lbs.)	Weight per M (in lbs.)
—	**680-852**	52203	—	.197	.087	.012	.020	.016	65	0.08
680-203	**680-853**	62704	—	.236	.106	.016	.026	.020	146	0.16
680-205	**680-854**	73205	**1/8" #5**	.276	.126	.020	.030	.025	210	0.26
680-207	**680-855**	83705	**#6**	.315	.146	.020	.031	.027	176	0.34
680-209	**680-856**	94308	**5/32" #8**	.354	.169	.031	.043	.037	590	0.68
680-211	**680-804**	115310	**3/16" #10**	.433	.209	.039	.055	.047	1070	1.3
680-213	**680-805**	146412	**1/4"**	.551	.252	.050	.067	.056	1390	2.5
680-215	**680-859**	177415	—	.669	.291	.059	.079	.070	1800	4.8
680-217	**680-860**	188420	**5/16"**	.709	.331	.078	.102	.088	4755	6.9
680-219	**680-861**	218425	**5/16"**	.827	.331	.098	.118	.108	5345	12.5
680-221	**680-802**	231120	**3/8"**	.906	.413	.078	.106	.094	3200	11.4
680-223	**680-862**	241130	**3/8"**	.945	.413	.118	.146	.130	8000	18.9
680-225	**680-863**	291325	**1/2"**	1.142	.512	.098	.130	.116	4700	22.9
680-227	**680-864**	321335	**1/2"**	1.260	.512	.138	.169	.156	9900	40.0
680-229	**680-865**	351530	**9/16"**	1.378	.591	.125	.157	.141	6500	40.7
680-231	**680-866**	391540	**9/16"**	1.535	.591	.157	.197	.181	12000	70.0
▲680-233	**680-867**	391735	**5/8"**	1.535	.669	.138	.185	.162	10000	58.5
†680-235	**680-868**	421740	**5/8"**	1.654	.669	.157	.204	.201	13000	90.0
680-237	**680-869**	471950	—	1.850	.748	.197	.244	.222	20000	125.0
680-239	**680-870**	522160	**3/4"**	2.047	.827	.236	.287	.246	31000	169.0
680-245	—	702870	**1"**	2.756	1.102	.276	.362	.317	46000	392.0

1) When delivered.

2) After first loading.

3) Load ± 20% of nominal shown.

Note: Values for Load at Flat shown in the table are computed.



A typical application of SP/SSP Series Disc Springs

CATALOG 13

▲680-233MZ Mechanical Zinc
†680-235MZ Mechanical Zinc

See Price List for Unit Package Quantity.

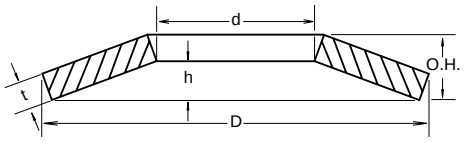
AK Series

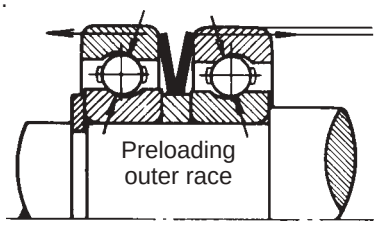
FOR BALL BEARING APPLICATIONS

Series AK disc springs are specially designed as preloading springs for use with radial ball bearings. They help maintain positioning accuracy of the bearing with no end play. They also minimize vibration and shaft deflection. Proper preloading will increase bearing rigidity and eliminate excessive running noise.

Material: C1075 STEEL, Not plated or phosphate finish, our option.

Hardness Range: depending on size, Rc 40-51.





Load tolerances: ±20% at .75h

P Load in lbs. **Note:** Tested only
f Deflection in inches at f = .75h.

SPAENAUR No.	Ball Bearing Size	INCH DIMENSIONS D	d	t	h	O.H.	Ratio h/t	f = .75h P	f	Unit Pkg. Qty.
680-250	AK-R-2	.366	.228	.0079	.0080	.0158	1.01	5.9	.0060	100
680-251	AK-623/EL-3	.386	.244	.0079	.0080	.0158	1.01	5.4	.0060	100
680-252	AK-R-3	.492	.319	.0098	.0100	.0197	1.02	8.3	.0075	100
680-253	AK-624/EL-4	.504	.283	.0098	.0099	.0197	1.01	6.7	.0075	100
680-254	AK-R-4	.618	.406	.0098	.0120	.0217	1.22	6.8	.0090	100
680-255	AK-625/634/EL-5	.622	.323	.0098	.0119	.0217	1.22	5.3	.0089	100
680-256	AK-626/635/EL-6	.740	.362	.0118	.0138	.0256	1.17	7.2	.0104	100
680-257	AK-607/EL-7	.740	.402	.0138	.0138	.0276	1.00	11.8	.0104	100
680-258	AK-608/627/EL-8	.858	.484	.0138	.0157	.0295	1.14	10.7	.0118	100
680-259	AK-R-6	.862	.539	.0138	.0158	.0295	1.14	11.8	.0118	100
680-260	AK-609/EL-9	.933	.563	.0157	.0198	.0354	1.26	18.5	.0148	50
680-261	AK-6000/629	1.012	.563	.0157	.0198	.0354	1.26	14.5	.0148	50
680-262	AK-6001	1.091	.681	.0157	.0238	.0394	1.52	18.4	.0179	50
680-263	AK-R-8	1.110	.724	.0157	.0278	.0433	1.77	24.1	.0208	50
680-264	AK-6200	1.169	.685	.0157	.0277	.0433	1.77	19.0	.0208	50
680-265	AK-6002/6201	1.248	.803	.0157	.0277	.0433	1.77	18.6	.0208	50
680-266	AK-R-10	1.358	1.000	.0197	.0277	.0472	1.41	34.8	.0208	25
680-267	AK-6300	1.362	.803	.0157	.0277	.0433	1.76	14.1	.0208	25
680-268	AK-6003/6202	1.362	.882	.0197	.0276	.0472	1.40	27.3	.0207	25
680-269	AK-6301	1.441	.803	.0197	.0316	.0512	1.60	25.5	.0237	25
680-270	AK-6203	1.559	1.004	.0197	.0316	.0512	1.61	25.3	.0237	25
680-271	AK-6004/6302	1.638	1.004	.0197	.0355	.0551	1.80	26.1	.0266	10
680-272	AK-6005/6204/6303	1.831	1.201	.0236	.0357	.0591	1.51	35.3	.0267	10
680-273	AK-6205/6304	2.028	1.398	.0236	.0357	.0591	1.51	31.1	.0267	10
680-274	AK-6006	2.146	1.594	.0236	.0357	.0591	1.51	32.5	.0268	10
680-275	AK-6007/6206/6305	2.421	1.594	.0276	.0434	.0708	1.57	40.3	.0325	10
680-276	AK-6306	2.815	1.791	.0276	.0553	.0827	2.00	42.5	.0414	10
680-277	AK-6207	2.815	1.988	.0276	.0554	.0827	2.01	50.3	.0415	10
680-278	AK-6307	3.130	1.988	.0315	.0593	.0906	1.88	52.2	.0445	10
680-279	AK-6010/6208	3.130	2.185	.0315	.0594	.0906	1.88	60.6	.0445	10
680-280	AK-6209	3.327	2.382	.0354	.0633	.0984	1.79	82.4	.0475	10
680-281	AK-6308	3.524	2.382	.0354	.0632	.0984	1.79	65.9	.0474	1
680-282	AK-6011/6210	3.524	2.579	.0354	.0633	.0984	1.79	76.9	.0475	1
680-283	AK-6309	3.898	2.579	.0394	.0632	.1024	1.60	67.1	.0474	1
680-284	AK-6013/6211	3.898	2.776	.0394	.0633	.1024	1.61	76.4	.0474	1
680-285	AK-6310	4.291	2.776	.0492	.0572	.1063	1.16	81.7	.0429	1
680-286	AK-6014/6212	4.291	2.972	.0492	.0573	.1063	1.16	91.1	.0430	1
680-287	AK-6311	4.685	2.972	.0492	.0611	.1102	1.24	73.0	.0458	1
680-288	AK-6312	5.079	3.366	.0492	.0770	.1260	1.57	92.7	.0578	1

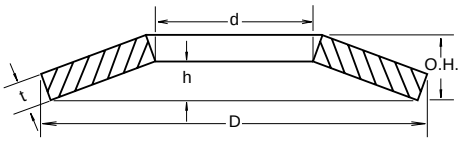
Larger bearing sizes available upon request.

AM SERIES

METRIC DISC SPRINGS

SPAENAUR No's.
followed by an asterisk(*)
are to DIN 2093 specifications

NOMENCLATURE
P = load in lbs.
σ = stress in (psi)
lbs./sq. in. x 10^3
f = deflection in inches



MATERIALS and HARDNESS

High grade spring steel of selected surface condition, plain or phosphate finish, our option.
Most commonly used are C-1075 or SAE 6150 chrome vanadium steel. Other alloys & 17-7 S.S. available.

Disc springs are carefully heat treated with austempering process and in such a manner as to prevent surface decarburization.

SERIES AM DISC SPRING DIMENSIONS

Chart continues across facing pages.

SPAENAUR No.	Cross-Ref. AM Series Part No.	SPRING DIMENSIONS in Millimetres D O.D.	d I.D.	t Thick	INCH DIMENSIONS Subject to normal commercial tolerances. D	d	t	h	O.H.
681-200	AM63203	6	3.2	0.3	.236	.126	.0118	.0060	.0177
681-201	AM83202	8	3.2	0.2	.315	.126	.0079	.0078	.0157
681-202	AM83203	8	3.2	0.3	.315	.126	.0118	.0099	.0216
▲681-203	AM83204	8	3.2	0.4	.315	.126	.0157	.0080	.0236
681-204*	AM84202	8	4.2	0.2	.315	.165	.0079	.0099	.0177
681-001*	AM84203	8	4.2	0.3	.315	.165	.0118	.0099	.0216
681-002*	AM84204	8	4.2	0.4	.315	.165	.0157	.0080	.0236
681-205	AM103203	10	3.2	0.3	.394	.126	.0118	.0139	.0256
681-206	AM103204	10	3.2	0.4	.394	.126	.0157	.0120	.0276
681-207	AM103205	10	3.2	0.5	.394	.126	.0197	.0099	.0295
681-208	AM104204	10	4.2	0.4	.394	.165	.0157	.0120	.0276
681-209	AM104205	10	4.2	0.5	.394	.165	.0197	.0099	.0295
681-210*	AM105225	10	5.2	0.25	.394	.205	.0098	.0120	.0217
681-003*	AM105204	10	5.2	0.4	.394	.205	.0157	.0120	.0276
681-004*	AM105205	10	5.2	0.5	.394	.205	.0197	.0099	.0295
681-211	AM124204	12	4.2	0.4	.472	.165	.0157	.0159	.0315
681-212	AM124205	12	4.2	0.5	.472	.165	.0197	.0139	.0335
681-213	AM124206	12	4.2	0.6	.472	.165	.0236	.0159	.0394
681-214	AM125205	12	5.2	0.5	.472	.205	.0197	.0158	.0354
681-215	AM125206	12	5.2	0.6	.472	.205	.0236	.0139	.0374
681-216	AM126205	12	6.2	0.5	.472	.244	.0197	.0140	.0335
681-217	AM126206	12	6.2	0.6	.472	.244	.0236	.0140	.0374
681-218	AM135205	12.5	5.2	0.5	.492	.205	.0197	.0139	.0335
681-219*	AM136235	12.5	6.2	0.35	.492	.244	.0138	.0178	.0315
681-005*	AM136205	12.5	6.2	0.5	.492	.244	.0197	.0139	.0335
681-006*	AM136207	12.5	6.2	0.7	.492	.244	.0276	.0119	.0394
681-220*	AM147235	14	7.2	0.35	.551	.283	.0138	.0178	.0315
681-007*	AM147205	14	7.2	0.5	.551	.283	.0197	.0158	.0354
681-008*	AM147208	14	7.2	0.8	.551	.283	.0315	.0119	.0433
681-221	AM155204	15	5.2	0.4	.591	.205	.0157	.0218	.0374
681-222	AM155205	15	5.2	0.5	.591	.205	.0197	.0198	.0394
681-223	AM155206	15	5.2	0.6	.591	.205	.0236	.0178	.0413
681-224	AM155207	15	5.2	0.7	.591	.205	.0276	.0158	.0433
681-225	AM156205	15	6.2	0.5	.591	.244	.0197	.0198	.0394
681-226	AM156206	15	6.2	0.6	.591	.244	.0236	.0178	.0413
681-227	AM156207	15	6.2	0.7	.591	.244	.0276	.0158	.0433
681-228	AM158207	15	8.2	0.7	.591	.323	.0276	.0159	.0433
■681-229	AM158208	15	8.2	0.8	.591	.323	.0315	.0159	.0472
681-230*	AM168204	16	8.2	0.4	.630	.323	.0157	.0198	.0354
681-009*	AM168206	16	8.2	0.6	.630	.323	.0236	.0179	.0413
681-011	AM168207	16	8.2	0.7	.630	.323	.0276	.0179	.0453
681-231	AM168208	16	8.2	0.8	.630	.323	.0315	.0159	.0472

■681-836 17-7PH Stainless Steel
▲681-030 17-7PH Stainless Steel

ASSORTMENT / ASSORTIMENT 805-415

Priced Singly

METRIC DISC SPRINGS
AM SERIES
Heat Treated Steel
24 Sizes — 353 Pieces

Furnished in REGULAR SIZE Steel drawer.

Shipping Weight: 2.75 kg. (6 lbs.)

Contents and Quantity of Assortment Items.

SPAENAUR No.	For Bolt or Pin Dia.	Thick-ness	Asst. Qty.	*SPAENAUR No.*	For Bolt or Pin Dia.	Thick-ness	Asst. Qty.
681-001	M4	0.30 mm	25	**681-013**	M10	0.80 mm	15
681-002	M4	0.40 mm	25	**681-014**	M10	1.10 mm	15
681-003	M5	0.40 mm	25	**681-015**	M11	0.80 mm	15
681-004	M5	0.50 mm	20	**681-016**	M11	1.25 mm	12
681-005	M6	0.50 mm	20	**681-017**	M12	0.90 mm	12
681-006	M6	0.70 mm	20	**681-018**	M12	1.50 mm	12
681-007	M7	0.50 mm	20	**681-020**	M14	1.50 mm	10
681-008	M7	0.80 mm	15	**681-021**	M16	1.25 mm	10
681-009	M8	0.60 mm	15	**681-024**	M18	2.00 mm	8
681-011	M8	0.70 mm	15	**681-026**	M20	2.25 mm	6
681-010	M8	0.90 mm	15	**681-028**	M22	2.50 mm	4
681-012	M8	1.00 mm	15	**681-029**	M25	2.50 mm	4

	f = .25h		f = .50h		f = .75h			f = h		
SPAENAUR No.	**P Load**	**f Deflection**	**P Load**	**f Deflection**	**P Load (in lbs.)**	**f Deflection (in inches)**	**Stress σ**	**P Load**	**f Deflection**	**Unit Pkg. Qty.**
681-200	11	.0015	20	.0030	29	.0045	188	37	.0060	100
681-201	3	.0020	5	.0039	6	.0059	89	7	.0078	100
681-202	11	.0025	19	.0049	25	.0074	159	30	.0099	100
681-203	17	.0020	31	.0040	44	.0060	196	56	.0080	100
681-204*	5	.0025	8	.0049	9	.0074	155	10	.0099	100
681-001*	12	.0025	21	.0050	28	.0074	199	33	.0099	100
681-002*	19	.0020	35	.0040	50	.0060	186	64	.0080	100
681-205	12	.0035	19	.0069	23	.0104	146	26	.0139	100
681-206	18	.0030	32	.0060	43	.0090	173	52	.0120	100
681-207	25	.0025	47	.0049	66	.0074	218	85	.0099	100
681-208	19	.0030	33	.0060	45	.0090	164	55	.0120	100
681-209	26	.0025	49	.0049	70	.0074	192	90	.0099	100
681-210*	7	.0030	11	.0060	14	.0090	147	15	.0120	100
681-003*	21	.0030	37	.0060	50	.0090	198	61	.0120	100
681-004*	29	.0025	54	.0050	78	.0074	186	99	.0099	100
681-211	20	.0040	34	.0079	42	.0119	152	48	.0159	100
681-212	28	.0035	50	.0069	68	.0104	174	84	.0139	100
681-213	54	.0040	98	.0080	135	.0120	248	168	.0159	100
681-214	36	.0040	63	.0079	84	.0119	199	101	.0158	100
681-215	47	.0035	87	.0070	122	.0105	210	154	.0139	100
681-216	32	.0035	57	.0070	78	.0105	195	97	.0140	100
681-217	52	.0035	95	.0070	133	.0105	223	168	.0140	100
681-218	27	.0035	48	.0069	65	.0104	148	80	.0139	100
681-219*	20	.0045	31	.0089	36	.0134	194	38	.0178	100
681-005*	29	.0035	51	.0070	70	.0104	171	87	.0139	100
681-006*	58	.0030	110	.0060	159	.0090	213	206	.0119	100
681-220*	16	.0045	25	.0089	29	.0134	159	31	.0178	100
681-007*	28	.0040	50	.0079	66	.0119	167	80	.0158	100
681-008*	68	.0030	131	.0060	191	.0090	201	249	.0119	100
681-221	24	.0055	36	.0109	41	.0164	152	42	.0218	100
681-222	32	.0050	52	.0099	66	.0149	150	76	.0198	100
681-223	41	.0045	72	.0089	96	.0134	164	118	.0178	100
681-224	51	.0039	94	.0079	133	.0118	197	168	.0158	100
681-225	33	.0050	54	.0099	69	.0149	166	79	.0198	100
681-226	42	.0045	74	.0089	100	.0134	161	123	.0178	100
681-227	53	.0040	98	.0079	138	.0119	182	174	.0158	100
681-228	61	.0040	114	.0080	159	.0119	198	202	.0159	100
681-229	88	.0040	166	.0080	236	.0120	220	303	.0159	100
681-230*	20	.0050	31	.0099	36	.0149	152	38	.0198	100
681-009*	41	.0045	72	.0089	97	.0134	169	119	.0179	100
681-011	61	.0045	111	.0089	153	.0134	189	191	.0179	100
681-231	74	.0040	138	.0079	197	.0119	186	252	.0159	100

NOTE 1. Disc springs are tested only at f = .75h.

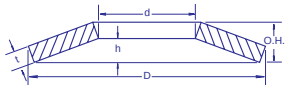


Chart continues across facing pages.

SPAENAUR No.	Cross-Ref. AM Series Part No.	SPRING DIMENSIONS in Millimetres D O.D.	d I.D.	t Thick	INCH DIMENSIONS Subject to normal commercial tolerances. D	d	t	h	O.H.
681-010*	AM168209	16	8.2	0.9	.630	.323	.0354	.0140	.0492
681-232	AM186204	18	6.2	0.4	.709	.244	.0157	.0238	.0394
681-233	AM186205	18	6.2	0.5	.709	.244	.0197	.0237	.0433
681-234	AM186206	18	6.2	0.6	.709	.244	.0236	.0237	.0472
681-235	AM186207	18	6.2	0.7	.709	.244	.0276	.0217	.0492
681-236	AM186208	18	6.2	0.8	.709	.244	.0315	.0198	.0512
681-237	AM188205	18	8.2	0.5	.709	.323	.0197	.0238	.0433
681-238	AM188207	18	8.2	0.7	.709	.323	.0276	.0218	.0492
681-239	AM188208	18	8.2	0.8	.709	.323	.0315	.0199	.0512
681-012	AM188210	18	8.2	1.0	.709	.323	.0394	.0158	.0551
681-240*	AM189245	18	9.2	0.45	.709	.362	.0177	.0238	.0413
681-241*	AM189207	18	9.2	0.7	.709	.362	.0276	.0198	.0472
681-242*	AM189210	18	9.2	1.0	.709	.362	.0394	.0159	.0551
681-243	AM208206	20	8.2	0.6	.787	.323	.0236	.0278	.0512
681-244	AM208207	20	8.2	0.7	.787	.323	.0276	.0257	.0531
681-245	AM208208	20	8.2	0.8	.787	.323	.0315	.0238	.0551
681-246	AM208209	20	8.2	0.9	.787	.323	.0354	.0219	.0571
681-247	AM208210	20	8.2	1.0	.787	.323	.0394	.0218	.0610
681-248*	AM201005	20	10.2	0.5	.787	.402	.0197	.0258	.0453
681-013*	AM201008	20	10.2	0.8	.787	.402	.0315	.0218	.0531
681-249	AM201009	20	10.2	0.9	.787	.402	.0354	.0219	.0571
681-250	AM201010	20	10.2	1.0	.787	.402	.0394	.0219	.0610
681-014*	AM201011	20	10.2	1.1	.787	.402	.0433	.0179	.0610
†681-251	AM201013	20	10.2	1.3	.787	.402	.0492	.0200	.0689
681-252	AM201015	20	10.2	1.5	.787	.402	.0591	.0119	.0709
681-253*	AM221106	22.5	11.2	0.6	.886	.441	.0236	.0317	.0551
681-015*	AM221108	22.5	11.2	0.8	.886	.441	.0315	.0258	.0571
■681-016*	AM221113	22.5	11.2	1.25	.886	.441	.0492	.0199	.0689
681-254	AM238207	23	8.2	0.7	.906	.323	.0276	.0317	.0591
681-255	AM238208	23	8.2	0.8	.906	.323	.0315	.0297	.0610
681-256	AM238209	23	8.2	0.9	.906	.323	.0354	.0278	.0630
681-257	AM238210	23	8.2	1.0	.906	.323	.0394	.0277	.0669
681-258	AM231009	23	10.2	0.9	.906	.402	.0354	.0299	.0650
681-259	AM231010	23	10.2	1.0	.906	.402	.0394	.0278	.0669
681-260	AM231013	23	10.2	1.3	.906	.402	.0492	.0259	.0748
681-261	AM231210	23	12.2	1.0	.906	.480	.0394	.0239	.0630
681-262	AM231213	23	12.2	1.3	.906	.480	.0492	.0239	.0728
681-263	AM231215	23	12.2	1.5	.906	.480	.0591	.0199	.0787
681-264	AM251010	25	10.2	1.0	.984	.402	.0394	.0297	.0689
681-265*	AM251207	25	12.2	0.7	.984	.480	.0276	.0357	.0630
681-017*	AM251209	25	12.2	0.9	.984	.480	.0354	.0278	.0630
681-266	AM251210	25	12.2	1.0	.984	.480	.0394	.0318	.0709
681-267	AM251213	25	12.2	1.3	.984	.480	.0492	.0279	.0768
681-018*	AM251215	25	12.2	1.5	.984	.480	.0591	.0218	.0807
681-268	AM281008	28	10.2	0.8	1.100	.402	.0315	.0376	.0689
681-269	AM281010	28	10.2	1.0	1.100	.402	.0394	.0356	.0748
681-270	AM281013	28	10.2	1.3	1.100	.402	.0492	.0317	.0807
681-271	AM281015	28	10.2	1.5	1.100	.402	.0591	.0277	.0866
681-272	AM281210	28	12.2	1.0	1.100	.480	.0394	.0377	.0768
681-273	AM281213	28	12.2	1.3	1.100	.480	.0492	.0338	.0827
681-274	AM281215	28	12.2	1.5	1.100	.480	.0591	.0298	.0886
681-275*	AM281408	28	14.2	0.8	1.100	.559	.0315	.0398	.0709
681-019*	AM281410	28	14.2	1.0	1.100	.559	.0394	.0318	.0709

SPAENAUR No's. followed by an asterisk (*) are to DIN 2093 specifications.

■681-016YZ Yellow Zinc Plated

†681-838 17-7PH Stainless Steel

NOMENCLATURE
P = load in lbs.
σ = stress in (psi) lbs./sq. in. x 10^3
f = deflection in inches

	f = .25h		f = .50h		f = .75h			f = h		
SPAENAUR No.	**P Load**	**f Deflection**	**P Load**	**f Deflection**	**P Load (in lbs.)**	**f Deflection (in inches)**	**Stress σ**	**P Load**	**f Deflection**	**Unit Pkg. Qty.**
681-010*	87	.0035	167	.0070	242	.0105	200	315	.0140	100
681-232	20	.0059	30	.0119	33	.0178	120	32	.0238	100
681-233	31	.0059	49	.0119	58	.0178	134	63	.0237	100
681-234	45	.0059	75	.0119	95	.0178	149	109	.0237	100
681-235	56	.0054	99	.0109	132	.0163	159	160	.0217	100
681-236	68	.0050	125	.0099	173	.0149	189	218	.0198	100
681-237	33	.0059	52	.0119	62	.0178	160	68	.0238	100
681-238	61	.0054	106	.0109	142	.0163	174	172	.0218	100
681-239	74	.0050	135	.0099	187	.0149	169	234	.0199	100
681-012	101	.0040	194	.0079	282	.0119	200	366	.0158	100
681-240*	28	.0059	43	.0119	50	.0178	167	52	.0238	100
681-241*	55	.0049	99	.0099	134	.0148	169	165	.0198	100
681-242*	108	.0040	207	.0079	300	.0119	198	389	.0159	100
681-243	51	.0069	81	.0139	97	.0208	167	107	.0278	100
681-244	62	.0064	105	.0128	135	.0193	164	159	.0257	100
681-245	75	.0059	133	.0119	179	.0178	161	219	.0238	100
681-246	89	.0055	164	.0109	227	.0164	176	286	.0219	100
681-247	118	.0054	220	.0109	310	.0163	207	394	.0218	100
681-248*	34	.0064	52	.0129	60	.0193	161	63	.0258	100
681-013*	72	.0055	130	.0109	178	.0164	171	220	.0218	100
681-249	99	.0055	181	.0110	251	.0165	188	316	.0219	100
681-250	131	.0055	243	.0109	343	.0164	202	436	.0219	100
681-014*	132	.0045	252	.0090	364	.0134	198	473	.0179	100
681-251	217	.0050	415	.0100	601	.0150	255	781	.0200	100
681-252	207	.0030	409	.0060	608	.0089	209	805	.0119	100
681-253*	57	.0079	87	.0159	100	.0238	186	104	.0317	100
681-015*	73	.0065	127	.0129	167	.0194	165	202	.0258	100
681-016*	166	.0050	318	.0100	461	.0149	199	600	.0199	100
681-254	66	.0079	107	.0158	129	.0238	154	143	.0317	100
681-255	79	.0074	133	.0148	170	.0223	151	199	.0297	100
681-256	93	.0069	163	.0139	218	.0208	157	265	.0278	100
681-257	121	.0069	217	.0138	296	.0208	187	366	.0277	100
681-258	111	.0075	191	.0149	252	.0224	188	302	.0299	100
681-259	129	.0069	230	.0139	314	.0208	183	388	.0278	100
681-260	210	.0065	391	.0129	555	.0194	231	709	.0259	100
681-261	113	.0060	208	.0119	290	.0179	176	365	.0239	100
681-262	208	.0060	392	.0120	560	.0180	216	720	.0239	100
681-263	279	.0050	542	.0099	794	.0149	241	1040	.0199	100
681-264	117	.0074	207	.0149	279	.0223	160	342	.0297	100
681-265*	79	.0089	122	.0178	142	.0268	191	150	.0357	100
681-017*	87	.0070	153	.0139	204	.0209	156	248	.0278	100
681-266	140	.0080	245	.0159	325	.0239	202	393	.0318	100
681-267	204	.0070	378	.0140	532	.0209	200	675	.0279	100
681-018*	250	.0055	482	.0109	702	.0164	219	917	.0218	100
681-268	83	.0094	131	.0188	157	.0282	145	171	.0376	100
681-269	123	.0089	209	.0178	270	.0267	153	319	.0356	100
681-270	177	.0079	321	.0159	444	.0238	188	556	.0317	100
681-271	242	.0069	457	.0138	655	.0208	225	845	.0277	100
681-272	142	.0094	238	.0189	303	.0283	186	354	.0377	100
681-273	203	.0085	366	.0169	500	.0254	185	621	.0338	100
681-274	278	.0074	522	.0149	743	.0223	221	952	.0298	100
681-275*	104	.0099	163	.0199	191	.0298	200	204	.0398	100
681-019*	114	.0079	199	.0159	264	.0238	167	320	.0318	100

NOTE 1. Disc springs are tested only at f = .75h.

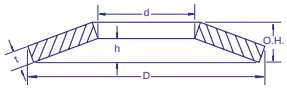


Chart continues across facing pages.

SPAENAUR No.	Cross-Ref. AM Series Part No.	SPRING DIMENSIONS in Millimetres D O.D.	d I.D.	t Thick	INCH DIMENSIONS Subject to normal commercial tolerances. D	d	t	h	O.H.
681-276	AM281413	28	14.2	1.3	1.100	.559	.0492	.0339	.0827
681-020*	AM281415	28	14.2	1.5	1.100	.559	.0591	.0258	.0846
681-277	AM321210	31.5	12.2	1.0	1.240	.480	.0394	.0436	.0827
681-278	AM321213	31.5	12.2	1.25	1.240	.480	.0492	.0377	.0866
681-279	AM321215	31.5	12.2	1.5	1.240	.480	.0591	.0336	.0925
681-280*	AM321608	31.5	16.3	0.8	1.240	.642	.0315	.0416	.0728
681-021*	AM321613	31.5	16.3	1.25	1.240	.642	.0492	.0358	.0846
681-281	AM321615	31.5	16.3	1.5	1.240	.642	.0591	.0359	.0945
681-022*	AM321618	31.5	16.3	1.75	1.240	.642	.0690	.0278	.0965
681-282	AM321620	32	16.3	2.0	1.240	.642	.0787	.0300	.1083
681-283	AM341210	34	12.3	1.0	1.340	.484	.0394	.0495	.0886
681-284	AM341213	34	12.3	1.3	1.340	.484	.0492	.0436	.0925
681-285	AM341215	34	12.3	1.5	1.340	.484	.0591	.0396	.0984
681-286	AM341413	34	14.3	1.3	1.340	.563	.0492	.0457	.0945
681-287	AM341415	34	14.3	1.5	1.340	.563	.0591	.0417	.1004
681-288	AM341615	34	16.3	1.5	1.340	.642	.0591	.0417	.1004
681-289	AM341620	34	16.3	2.0	1.340	.642	.0787	.0339	.1122
681-290*	AM361809	35.5	18.3	0.9	1.400	.720	.0354	.0456	.0807
681-023*	AM361813	35.5	18.3	1.25	1.400	.720	.0492	.0398	.0886
681-024*	AM361820	35.5	18.3	2.0	1.400	.720	.0787	.0319	.1102
681-291	AM401413	40	14.3	1.3	1.570	.563	.0492	.0554	.1043
681-292	AM401415	40	14.3	1.5	1.570	.563	.0591	.0495	.1083
681-293	AM401420	40	14.3	2.0	1.570	.563	.0787	.0417	.1201
681-294	AM401615	40	16.3	1.5	1.570	.642	.0591	.0515	.1102
681-295	AM401620	40	16.3	2.0	1.570	.642	.0787	.0437	.1220
681-296	AM401820	40	18.3	2.0	1.570	.720	.0787	.0458	.1240
681-297*	AM402010	40	20.4	1.0	1.570	.803	.0394	.0516	.0906
†681-025*	AM402015	40	20.4	1.5	1.570	.803	.0591	.0456	.1043
681-298	AM402020	40	20.4	2.0	1.570	.803	.0787	.0439	.1220
■681-026*	AM402023	40	20.4	2.25	1.570	.803	.0886	.0358	.1240
681-299	AM402025	40	20.4	2.5	1.570	.803	.0984	.0379	.1358
681-300*	AM452213	45	22.4	1.25	1.770	.882	.0492	.0635	.1122
681-027*	AM452218	45	22.4	1.75	1.770	.882	.0689	.0517	.1201
681-028*	AM452225	45	22.4	2.5	1.770	.882	.0984	.0398	.1378
681-301	AM501813	50	18.4	1.3	1.970	.724	.0492	.0633	.1122
681-302	AM501815	50	18.4	1.5	1.970	.724	.0591	.0712	.1299
681-303	AM501820	50	18.4	2.0	1.970	.724	.0787	.0595	.1378
681-304	AM501825	50	18.4	2.5	1.970	.724	.0984	.0635	.1614
681-305	AM501830	50	18.4	3.0	1.970	.724	.1181	.0556	.1732
681-306	AM502020	50	20.4	2.0	1.970	.803	.0787	.0595	.1378
681-307	AM502025	50	20.4	2.5	1.970	.803	.0984	.0536	.1516
681-308	AM502220	50	22.4	2.0	1.970	.882	.0787	.0636	.1417
681-309	AM502225	50	22.4	2.5	1.970	.882	.0984	.0556	.1535
681-310*	AM502513	50	25.4	1.25	1.970	1.000	.0492	.0634	.1122
681-311	AM502515	50	25.4	1.5	1.970	1.000	.0591	.0634	.1220
▲681-312*	AM502520	50	25.4	2.0	1.970	1.000	.0787	.0557	.1339
681-029	AM502525	50	25.4	2.5	1.970	1.000	.0984	.0558	.1535
681-313*	AM502530	50	25.4	3.0	1.970	1.000	.1181	.0438	.1614
681-314*	AM562915	56	28.5	1.5	2.200	1.122	.0591	.0773	.1358
681-315*	AM562920	56	28.5	2.0	2.200	1.122	.0787	.0636	.1417
681-316*	AM562930	56	28.5	3.0	2.200	1.122	.1181	.0518	.1693
681-317	AM572319	57	23	1.9	2.250	.890	.0750	.0745	.1490
681-318	AM572320	57	23	2.0	2.250	.890	.0787	.0755	.1537

†**681-025YZ** Yellow Zinc

▲**681-312YZ** Yellow Zinc
■**681-825** 17-7PH S.S. (U.P. 25)

NOMENCLATURE
P = load in lbs.
σ = stress in (psi) lbs./sq. in. x 10^3
f = deflection in inches

	f = .25h		f = .50h		f = .75h			f = h		
SPAENAUR No.	P Load	f Deflection	P Load	f Deflection	P Load (in lbs.)	f Deflection (in inches)	Stress σ	P Load	f Deflection	Unit Pkg. Qty.
681-276	220	.0085	395	.0170	540	.0254	213	670	.0339	100
681-020*	249	.0064	473	.0129	683	.0193	196	884	.0258	100
681-277	140	.0109	226	.0218	277	.0327	166	310	.0436	100
681-278	181	.0094	319	.0188	429	.0282	155	524	.0377	50
681-279	247	.0084	457	.0168	642	.0252	194	814	.0336	50
681-280*	91	.0104	140	.0208	161	.0312	171	169	.0416	50
681-021*	188	.0089	335	.0179	454	.0268	182	559	.0358	50
681-281	304	.0090	557	.0179	776	.0269	208	979	.0359	50
681-022*	335	.0070	641	.0139	930	.0209	199	1209	.0278	50
681-282	535	.0075	1029	.0150	1497	.0225	251	1952	.0300	50
681-283	151	.0124	237	.0247	278	.0371	164	297	.0495	50
681-284	194	.0109	331	.0218	431	.0327	156	512	.0436	50
681-285	262	.0099	472	.0198	649	.0297	187	809	.0396	50
681-286	217	.0114	367	.0228	473	.0342	182	555	.0457	50
681-287	293	.0104	523	.0208	713	.0312	181	882	.0417	50
681-288	309	.0104	553	.0209	753	.0313	202	932	.0417	50
681-289	505	.0085	962	.0170	1389	.0254	234	1799	.0339	50
681-290*	107	.0114	167	.0228	194	.0342	162	206	.0456	50
681-023*	173	.0099	301	.0199	400	.0298	163	484	.0398	50
681-024*	445	.0080	853	.0159	1236	.0239	204	1607	.0319	50
681-291	216	.0139	348	.0277	424	.0416	159	472	.0554	50
681-292	268	.0124	463	.0247	610	.0371	151	733	.0495	50
681-293	434	.0104	811	.0208	1149	.0313	214	1467	.0417	50
681-294	294	.0129	504	.0257	658	.0386	172	785	.0515	50
681-295	475	.0109	882	.0218	1244	.0328	208	1582	.0437	50
681-296	528	.0114	974	.0229	1365	.0343	206	1729	.0458	50
681-297*	135	.0129	208	.0258	241	.0387	162	254	.0516	50
681-025*	266	.0114	468	.0228	627	.0342	175	765	.0456	50
681-298	527	.0110	978	.0219	1377	.0329	204	1751	.0439	50
681-026*	565	.0090	1083	.0179	1570	.0269	205	2042	.0358	50
681-299	817	.0095	1573	.0190	2286	.0284	246	2979	.0379	50
681-300*	248	.0159	385	.0318	447	.0476	191	473	.0635	50
681-027*	364	.0129	644	.0258	868	.0388	176	1064	.0517	50
681-028*	666	.0100	1277	.0199	1851	.0299	199	2406	.0398	50
681-301	178	.0158	277	.0316	322	.0474	123	342	.0633	50
681-302	327	.0178	517	.0356	616	.0534	162	670	.0712	50
681-303	456	.0149	806	.0297	1085	.0446	159	1328	.0595	50
681-304	891	.0159	1618	.0318	2235	.0477	235	2798	.0635	50
681-305	1218	.0139	2303	.0278	3299	.0417	283	4252	.0556	50
681-306	468	.0149	826	.0298	1111	.0446	160	1360	.0595	50
681-307	720	.0134	1339	.0268	1891	.0402	204	2409	.0536	50
681-308	535	.0159	933	.0318	1240	.0477	187	1500	.0636	50
681-309	780	.0139	1445	.0278	2032	.0417	203	2580	.0556	50
681-310*	201	.0159	312	.0317	363	.0476	156	384	.0634	50
681-311	293	.0159	479	.0317	592	.0476	173	668	.0634	50
681-312*	464	.0139	829	.0279	1129	.0418	175	1396	.0557	50
681-029	834	.0139	1543	.0279	2169	.0418	206	2754	.0558	50
681-313*	1021	.0110	1970	.0219	2871	.0329	218	3747	.0438	50
681-314*	437	.0193	537	.0387	622	.0580	186	654	.0773	25
681-315*	456	.0159	794	.0318	1055	.0477	167	1276	.0636	25
681-316*	999	.0129	1903	.0259	2742	.0388	196	3549	.0518	25
681-317	460	.0186	764	.0372	966	.0558	158	1116	.0745	25
681-318	525	.0189	881	.0378	1123	.0566	166	1310	.0755	25

NOTE 1. Disc springs are tested only at f = .75h.

SPAENAUR No's. followed by an asterisk(*) are to DIN 2093 specifications

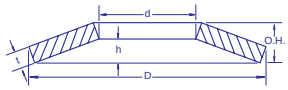


Chart continues across facing pages.

SPAENAUR No.	Cross-Ref. AM Series Part No.	SPRING DIMENSIONS in Millimetres D O.D.	d I.D.	t Thick	INCH DIMENSIONS Subject to normal commercial tolerances. D	d	t	h	O.H.
▲681-319	AM602120	60	20.5	2.0	2.360	.807	.0787	.0832	.1614
681-320	AM602125	60	20.5	2.5	2.360	.807	.0984	.0713	.1693
681-321	AM602130	60	20.5	3.0	2.360	.807	.1181	.0674	.1850
681-322	AM602625	60	25.5	2.5	2.360	1.004	.0984	.0754	.1732
681-323	AM602630	60	25.5	3.0	2.360	1.004	.1181	.0656	.0831
681-324	AM603125	60	30.5	2.5	2.360	1.201	.0984	.0717	.1693
681-325	AM603130	60	30.5	3.0	2.360	1.201	.1181	.0678	.1850
681-326	AM603135	60	30.5	3.5	2.360	1.201	.1378	.0599	.1969
681-327*	AM633118	63	31	1.8	2.480	1.220	.0709	.0933	.1634
681-328*	AM633125	63	31	2.5	2.480	1.220	.0984	.0695	.1673
681-329	AM633130	63	31	3.0	2.480	1.220	.1181	.0717	.1890
†681-330*	AM633135	63	31	3.5	2.480	1.220	.1378	.0557	.1929
681-331	AM702620	70	25.5	2.0	2.760	1.004	.0787	.0990	.1172
681-332	AM703125	70	30.5	2.5	2.760	1.201	.0984	.0953	.1929
681-333	AM703130	70	30.5	3.0	2.760	1.201	.1181	.0834	.2008
681-334	AM703630	70	35.5	3.0	2.760	1.398	.1181	.0836	.2008
681-335	AM703640	70	35.5	4.0	2.760	1.398	.1575	.0717	.2283
681-336	AM704140	70	40.5	4.0	2.760	1.595	.1575	.0641	.2205
681-337	AM704150	70	40.5	5.0	2.760	1.595	.1968	.0480	.2441
681-338*	AM713620	71	36	2.0	2.800	1.420	.0787	.1033	.1811
681-339*	AM713625	71	36	2.5	2.800	1.420	.0984	.0795	.1772
681-340*	AM713640	71	36	4.0	2.800	1.420	.1575	.0637	.2205
681-341	AM803125	80	31	2.5	3.150	1.220	.0984	.1110	.2087
681-342	AM803130	80	31	3.0	3.150	1.220	.1181	.0990	.2165
681-343	AM803140	80	31	4.0	3.150	1.220	.1575	.0833	.2402
681-344	AM803630	80	36	3.0	3.150	1.420	.1181	.1072	.2244
681-345	AM803640	80	36	4.0	3.150	1.420	.1575	.0875	.2441
681-346*	AM804123	80	41	2.25	3.150	1.610	.0886	.1172	.2047
681-347*	AM804130	80	41	3.0	3.150	1.610	.1181	.0915	.2087
681-348	AM804140	80	41	4.0	3.150	1.610	.1575	.0877	.2441
681-349*	AM804150	80	41	5.0	3.150	1.610	.1968	.0678	.2638
681-350*	AM904625	90	46	2.5	3.540	1.810	.0984	.1271	.2244
681-351*	AM904635	90	46	3.5	3.540	1.810	.1378	.0994	.2362
681-352*	AM904650	90	46	5.0	3.540	1.810	.1968	.0797	.2756
681-353	AM1004140	100	41	4.0	3.940	1.610	.1575	.1270	.2835
681-354	AM1001450	100	41	5.0	3.940	1.610	.1968	.1092	.3051
681-355*	AM1005127	100	51	2.7	3.940	2.010	.1063	.1389	.2441
681-356*	AM1005135	100	51	3.5	3.940	2.010	.1378	.1112	.2480
681-357	AM1005140	100	51	4.0	3.940	2.010	.1575	.1194	.2756
■681-358	AM1005150	100	51	5.0	3.940	2.010	.1968	.1117	.3071
681-359*	AM1005160	100	51	6.0	3.940	2.010	.2362	.0877	.3228
681-361*	AM1125730	112	57	3.0	4.410	2.240	.1181	.1548	.2717
681-362*	AM1125740	112	57	4.0	4.410	2.240	.1575	.1271	.2835
681-363*	AM1125760	112	57	6.0	4.410	2.240	.2362	.0995	.3346
681-365	AM1254140	125	41	4.0	4.920	1.610	.1575	.1661	.3228
681-366	AM1255140	125	51	4.0	4.920	2.010	.1575	.1783	.3346
681-367	AM1255150	125	51	5.0	4.920	2.010	.1968	.1548	.3504
681-368	AM1255160	125	51	6.0	4.920	2.010	.2362	.1350	.3701
681-370	AM1256150	125	61	5.0	4.920	2.400	.1968	.1592	.3543
681-371	AM1256160	125	61	6.0	4.920	2.400	.2362	.1434	.3780
681-372	AM1256160-R	125	61	5.59	4.920	2.400	.2200	.1600	.3780
681-373	AM1256180	125	61	7.49	4.920	2.400	.2950	.1361	.4291
681-374*	AM1256435	125	64	3.5	4.920	2.520	.1378	.1788	.3150

NOMENCLATURE
P = load in lbs.
σ = stress in (psi) lbs./sq. in. x 10^3
f = deflection in inches

	f = .25h		f = .50h		f = .75h			f = h		
SPAENAUR No.	P Load	f Deflection	P Load	f Deflection	P Load (in lbs.)	f Deflection (in inches)	Stress σ	P Load	f Deflection	Unit Pkg. Qty.
681-319	553	.0208	906	.0416	1125	.0624	160	1278	.0832	25
681-320	723	.0178	1287	.0357	1745	.0535	178	2150	.0713	25
681-321	1070	.0168	1979	.0337	2781	.0505	229	3528	.0674	25
681-322	826	.0189	1455	.0377	1952	.0566	183	2384	.0754	25
681-323	1081	.0164	2006	.0328	2827	.0492	204	3596	.0656	25
681-324	828	.0179	1473	.0358	1995	.0538	199	2456	.0717	25
681-325	1228	.0169	2268	.0339	3184	.0508	210	4037	.0678	25
681-326	1599	.0150	3047	.0299	4393	.0449	232	5690	.0599	25
681-327*	563	.0233	869	.0467	1004	.0700	206	1054	.0933	25
681-328*	700	.0174	1252	.0348	1705	.0521	166	2108	.0695	25
681-329	1176	.0179	2155	.0359	3004	.0538	198	3786	.0717	25
681-330*	1293	.0139	2479	.0278	3594	.0418	199	4672	.0557	25
681-331	570	.0248	890	.0495	1046	.0743	155	1118	.0990	25
681-332	892	.0238	1493	.0476	1900	.0714	187	2210	.0953	25
681-333	1114	.0209	1992	.0417	2714	.0626	175	3356	.0834	25
681-334	1201	.0209	2148	.0418	2924	.0627	201	3615	.0836	25
681-335	2106	.0179	3996	.0359	5742	.0538	229	7415	.0717	25
681-336	2024	.0160	3878	.0320	5619	.0480	216	7304	.0641	25
681-337	2786	.0120	5481	.0240	8117	.0360	227	10723	.0480	25
681-338*	678	.0258	1048	.0517	1212	.0775	204	1273	.1033	25
681-339*	685	.0199	1193	.0397	1585	.0596	160	1917	.0795	25
681-340*	1766	.0159	3386	.0319	4907	.0478	204	6380	.0637	20
681-341	874	.0277	1407	.0555	1714	.0832	165	1906	.1110	20
681-342	1078	.0248	1864	.0495	2456	.0743	157	2950	.0990	20
681-343	1753	.0208	3272	.0417	4637	.0625	205	5923	.0833	10
681-344	1291	.0268	2194	.0536	2837	.0804	194	3351	.1072	20
681-345	1960	.0219	3637	.0437	5125	.0656	201	6520	.0875	10
681-346*	878	.0293	1354	.0586	1562	.0879	208	1635	.1175	20
681-347*	1058	.0229	1860	.0457	2491	.0686	174	3036	.0915	20
681-348	2097	.0219	3890	.0438	5480	.0658	203	6969	.0877	10
681-349*	2844	.0170	5511	.0339	8062	.0509	224	10553	.0678	10
681-350*	1007	.0318	1563	.0636	1818	.0953	196	1923	.1271	10
681-351*	1392	.0248	2480	.0497	3366	.0745	171	4151	.0994	10
681-352*	2709	.0199	5191	.0399	7524	.0598	199	9781	.0797	10
681-353	2077	.0317	3622	.0635	4812	.0952	175	5825	.1270	1
681-354	2951	.0273	5477	.0546	7719	.0819	206	9820	.1092	1
681-355*	1132	.0347	1751	.0695	2028	.1042	187	2134	.1389	1
681-356*	1331	.0278	2321	.0556	3084	.0834	159	3732	.1112	1
681-357	2071	.0298	3657	.0597	4918	.0895	193	6017	.1194	1
681-358	3351	.0279	6200	.0559	8715	.0838	207	11063	.1117	1
681-359*	4099	.0219	7907	.0438	11520	.0657	218	15037	.0877	1
681-361*	1381	.0387	2135	.0774	2470	.1161	185	2596	.1548	1
681-362*	1813	.0318	3160	.0636	4197	.0954	166	5078	.1271	1
681-363*	3775	.0249	7212	.0497	10424	.0746	190	13524	.0995	1
681-365	2023	.0415	3315	.0831	4119	.1246	144	4678	.1661	1
681-366	2404	.0446	3866	.0892	4701	.1337	180	5222	.1783	1
681-367	3120	.0387	5468	.0774	7302	.1161	169	8878	.1548	1
681-368	4078	.0337	7539	.0675	10589	.1012	194	13433	.1350	1
681-370	3500	.0398	6099	.0796	8097	.1194	202	9795	.1592	1
681-371	4760	.0359	8725	.0717	12160	.1076	200	15331	.1434	1
681-372	4775	.0400	8495	.0800	11513	.1200	225	14179	.1600	1
681-373	8356	.0340	15835	.0680	22728	.1021	263	29330	.1361	1
681-374*	2027	.0447	3141	.0894	3648	.1341	201	3851	.1788	1

NOTE 1. Disc springs are tested only at f = .75h.

SPAENAUR No's. followed by an asterisk(*) are to DIN 2093 specifications

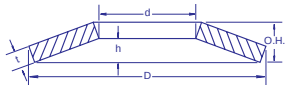


Chart continues across facing pages.

SPAENAUR No.	Cross-Ref. AM Series Part No.	SPRING DIMENSIONS in Millimetres D O.D.	d I.D.	t Thick	INCH DIMENSIONS Subject to normal commercial tolerances. D	d	t	h	O.H.
681-375*	AM1256450	125	64	5.0	4.920	2.520	.1968	.1392	.3346
681-376*	AM1256480	125	64	7.5	4.920	2.520	.2950	.1241	.4173
681-377	AM1257160	125	71	6.0	4.920	2.800	.2362	.1319	.3661
681-379	AM1257180	125	71	7.49	4.920	2.800	.2950	.1165	.4094
681-380	AM1257110	125	71	9.4	4.920	2.800	.3700	.0964	.4646
681-381*	AM1407238	140	72	3.8	5.510	2.830	.1496	.1945	.3425
681-382*	AM1407250	140	72	5.0	5.510	2.830	.1968	.1590	.3543
681-383*	AM1407280	140	72	7.5	5.510	2.830	.2950	.1480	.4409
681-384	AM1506150	150	61	5.0	5.910	2.400	.1968	.2102	.4055
681-385	AM1506160	150	61	6.0	5.910	2.400	.2362	.1905	.4252
681-386	AM1506160-R	150	61	5.59	5.910	2.400	.2200	.2069	.4252
681-387	AM1507160	150	71	6.0	5.910	2.800	.2362	.1909	.4252
681-388	AM1507160-R	150	71	5.59	5.910	2.800	.2200	.2074	.4252
681-389	AM1507180	150	71	7.49	5.910	2.800	.2950	.1796	.4724
681-390	AM1508180	150	81	7.49	5.910	3.200	.2950	.1682	.4606
681-391	AM1508110	150	81	9.4	5.910	3.200	.3700	.1443	.5118
681-392*	AM1608243	160	82	4.3	6.300	3.230	.1693	.2223	.3898
681-393*	AM1608260	160	82	6.0	6.300	3.230	.2362	.1789	.4134
681-394	AM1608260-R	160	82	5.59	6.300	3.230	.2200	.1954	.4134
681-395*	AM1608210	160	82	9.4	6.300	3.230	.3700	.1639	.5315
681-396*	AM1809248	180	92	4.8	7.090	3.620	.1890	.2461	.4331
681-397*	AM1809260	180	92	6.0	7.090	3.620	.2362	.2025	.4370
681-398	AM1809260-R	180	92	5.59	7.090	3.620	.2200	.2189	.4370
681-399*	AM1809210	180	92	9.4	7.090	3.620	.3700	.1836	.5512
681-400	AM2008280	200	82	7.49	7.870	3.230	.2950	.2662	.5591
681-401	AM2008210	200	82	9.4	7.870	3.230	.3700	.2424	.6102
681-402	AM2008212	200	82	11.25	7.870	3.230	.4430	.2126	.6535
681-403	AM2009210	200	92	9.4	7.870	3.620	.3700	.2470	.6142
681-404	AM2009212	200	92	11.25	7.870	3.620	.4430	.2211	.6614
681-405	AM2009214	200	92	13.11	7.870	3.620	.5160	.1992	.7126
681-406*	AM20010255	200	102	5.5	7.870	4.020	.2165	.2779	.4921
681-407*	AM20010280	200	102	7.5	7.870	4.020	.2950	.2430	.5354
681-408	AM20010210	200	102	9.4	7.870	4.020	.3700	.2477	.6142
681-409*	AM20010212	200	102	11.4	7.870	4.020	.4430	.1972	.6375
681-410	AM20010214	200	102	13.11	7.870	4.020	.5160	.2039	.7165
681-411	AM20011212	200	112	11.25	7.870	4.410	.4430	.1982	.6378
681-412	AM20011214	200	112	13.11	7.870	4.410	.5160	.1762	.6890
681-413	AM20011216	200	112	15.01	7.870	4.410	.5910	.1519	.7402
681-414	AM22511265	225	112	6.5	8.860	4.410	.2559	.2817	.5354
681-415*	AM22511280	225	112	7.5	8.860	4.410	.2950	.2784	.5709
681-416*	AM22511212	225	112	11.3	8.860	4.410	.4430	.2289	.6693
681-417	AM25010210	250	102	9.4	9.840	4.020	.3700	.3415	.7087
681-418	AM25010212	250	102	11.25	9.840	4.020	.4430	.3077	.7480
681-419	AM25012770	250	127	7.0	9.840	5.000	.2756	.3096	.5827
681-420*	AM25012710	250	127	9.4	9.840	5.000	.3700	.3025	.6693
681-421	AM25012712	250	127	11.25	9.840	5.000	.4430	.3212	.7598
681-422*	AM25012714	250	127	13.1	9.840	5.000	.5160	.2591	.7717
681-423	AM25012716	250	127	15.01	9.840	5.000	.5910	.2716	.8583

Disc springs 7.49 mm and thicker are made with a bearing flat at upper I.D. and lower O.D., as Standard. See Figure 6 on page D44.

NOMENCLATURE
P = load in lbs.
σ = stress in (psi) lbs./sq. in. x 10^3
f = deflection in inches

	f = .25h		f = .50h		f = .75h			f = h		
SPAENAUR No.	**P Load**	**f Deflection**	**P Load**	**f Deflection**	**P Load (in lbs.)**	**f Deflection (in inches)**	**Stress σ**	**P Load**	**f Deflection**	**Unit Pkg. Qty.**
681-375*	2919	.0348	5219	.0696	7107	.1044	176	8788	.1392	1
681-376*	7662	.0310	14640	.0621	21163	.0931	246	27458	.1241	1
681-377	4721	.0330	8754	.0659	12330	.0989	212	15676	.1319	1
681-379	7682	.0291	14753	.0582	21417	.0874	239	27876	.1165	1
681-380	11965	.0241	23492	.0482	34727	.0723	274	45817	.0964	1
681-381*	2256	.0486	3495	.0973	4055	.1459	190	4277	.1945	1
681-382*	2853	.0397	4972	.0795	6603	.1192	168	7990	.1590	1
681-383*	7588	.0370	14254	.0740	20306	.1110	219	26051	.1480	1
681-384	3634	.0525	5934	.1051	7346	.1576	179	8313	.2102	1
681-385	4663	.0476	8130	.0952	10801	.1428	174	13074	.1905	1
681-386	4650	.0517	7836	.1034	10047	.1551	192	11770	.2069	1
681-387	4953	.0477	8632	.0954	11462	.1432	196	13868	.1909	1
681-388	4941	.0518	8322	.1037	10664	.1555	216	12486	.2074	1
681-389	8168	.0449	14967	.0898	20852	.1347	217	26281	.1796	1
681-390	8090	.0421	14960	.0841	21018	.1262	228	26669	.1682	1
681-391	12487	.0361	24003	.0721	34871	.1082	256	45416	.1443	1
681-392*	2884	.0556	4456	.1112	5153	.1668	188	5412	.2223	1
681-393*	4092	.0447	7225	.0894	9719	.1342	169	11892	.1789	1
681-394	4084	.0488	6974	.0977	9068	.1465	187	10765	.1954	1
681-395*	12321	.0410	23437	.0820	33750	.1229	244	43660	.1639	1
681-396*	3464	.0615	5365	.1230	6223	.1845	182	6560	.2461	1
681-397*	3915	.0506	6738	.1012	8834	.1519	157	10565	.2025	1
681-398	3905	.0547	6491	.1095	8198	.1642	172	9467	.2189	1
681-399*	11120	.0459	20914	.0918	29824	.1377	206	38293	.1836	1
681-400	7920	.0666	13475	.1331	17455	.1997	185	20646	.2662	1
681-401	11956	.0606	21660	.1212	29862	.1818	204	37313	.2424	1
681-402	16228	.0531	30631	.1063	43816	.1594	247	56392	.2126	1
681-403	12796	.0617	23110	.1235	31770	.1852	211	39602	.2470	1
681-404	17786	.0553	33430	.1160	47645	.1658	245	61147	.2211	1
681-405	23996	.0498	46160	.0996	67103	.1494	280	87434	.1992	1
681-406*	4710	.0695	7322	.1390	8536	.2085	190	9051	.2779	1
681-407*	7414	.0608	12974	.1215	17158	.1823	194	20684	.2430	1
681-408	13575	.0619	24507	.1238	33676	.1858	234	41963	.2477	1
681-409*	16230	.0493	30859	.0986	44422	.1479	225	57451	.1972	1
681-410	26090	.0510	50101	.1019	72728	.1529	283	94662	.2039	1
681-411	17489	.0495	33237	.0991	47825	.1486	228	61833	.1982	1
681-412	23472	.0440	45514	.0881	66604	.1321	256	87217	.1762	1
681-413	29561	.0380	58068	.0760	85874	.1139	269	113328	.1519	1
681-414	5421	.0704	8784	.1409	10774	.2113	168	12078	.2817	1
681-415*	7271	.0696	12243	.1392	15681	.2088	180	18353	.2784	1
681-416*	15165	.0572	28392	.1145	40326	.1717	194	51613	.2289	1
681-417	13017	.0854	22034	.1707	28383	.2561	191	33399	.3415	1
681-418	17073	.0769	30627	.1539	41834	.2308	192	51868	.3077	1
681-419	6211	.0774	10010	.1548	12202	.2322	165	13590	.3096	1
681-420*	11651	.0756	20257	.1513	26833	.2269	193	32393	.3025	1
681-421	20008	.0803	35617	.1606	48293	.2409	237	59503	.3212	1
681-422*	22121	.0648	41550	.1295	59185	.1943	210	75924	.2591	1
681-423	34298	.0679	65017	.1358	93351	.2037	263	120492	.2716	1

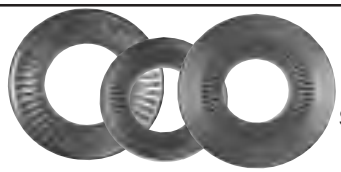
See also IMPORTANT DATA on pages D42 to D49.

NOTE 1. Disc springs are tested only at f = .75h.

D

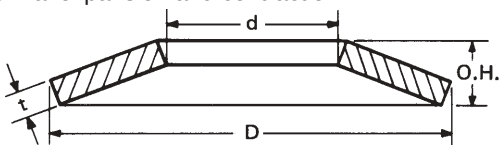
UNIT PACKAGE 100

for locking bolts, screws and nuts

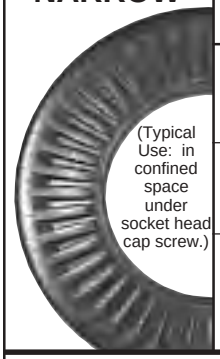


High Quality Carbon SPRING STEEL (Oil Finish)

CONTACT Disc Springs combine two important features for improved bolt connections. Their conical shape provides a reactive force and a high elasticity of spring return to compensate for developed looseness, loss of bolt tension due to applied surface deterioration, or movement due to thermal expansion and contraction. The hardened, serrated profile "grips" the lower surface of the bolt or nut to prevent the loss of tension that normally occurs during extreme vibration or severe shock.

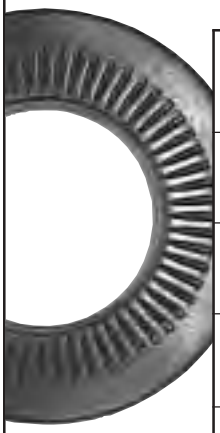


CONTACT **"NARROW"**



SPAENAUR No.	Use with Bolt Dia. Inch	mm	D (O.D.) Inch	mm	d (I.D.) Inch	mm	t (thickness) Inch	mm	Max. O.H. (O/A height) inch	mm	Calculated load at Flat lbs.	Newton
680-010	-	M3	.236	6	.122	3.1	.020	.50	.035	.90	540	2400
680-011	#6	M3.5	.276	7	.142	3.6	.028	.70	.043	1.10	719	3200
680-012	#8	M4	.315	8	.161	4.1	.032	.80	.047	1.20	944	4200
680-013	#10	M5	.394	10	.201	5.1	.039	1	.059	1.50	1529	6800
680-014	-	M6	.472	12	.240	6.1	.047	1.20	.073	1.85	2136	9500
680-015	9/32"	M7	.551	14	.284	7.2	.055	1.40	.081	2.05	3080	13700
680-016	5/16"	M8	.630	16	.323	8.2	.055	1.40	.087	2.20	3934	17500
680-017	3/8"	M10	.787	20	.402	10.2	.063	1.60	.102	2.60	6182	27500
680-018	7/16"	M12	.945	24	.488	12.4	.063	1.60	.102	2.60	10993	48900

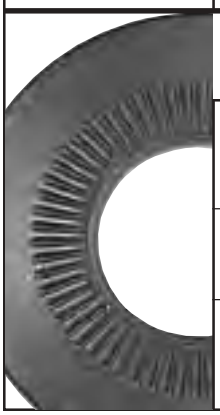
CONTACT **"REGULAR"** (For general use)



680-020	-	M3	.315	8	.122	3.1	.024	.6	.039	1	540	2400
680-021	#6	M3.5	.354	9	.142	3.6	.028	.7	.049	1.25	719	3200
680-022	#8	M4	.394	10	.161	4.1	.035	.9	.055	1.40	944	4200
680-023	#10	M5	.472	12	.201	5.1	.047	1.2	.073	1.85	1850	8230
680-024	-	M6	.551	14	.240	6.1	.051	1.3	.083	2.10	2136	9500
680-026	1/4"	-	.551	14	.254	6.45	.055	1.4	.087	2.20	2608	11600
680-027	5/16"	M8	.709	18	.323	8.2	.055	1.4	.093	2.35	3934	17500
680-028	5/16"	M8	.709	18	.323	8.2	.035	0.9	.081	2.05	760	N/A
680-029	-	M9	.787	20	.362	9.2	.063	1.6	.094	2.40	5126	22800
680-030	3/8"	M10	.866	22	.402	10.2	.063	1.6	.108	2.75	6182	27500
680-031	7/16"	M12	1.063	27	.488	12.4	.071	1.8	.122	3.10	8992	40000
680-032	1/2"	-	1.063	27	.512	13	.071	1.8	.120	3.05	10993	48900
680-033	9/16"	M14	1.181	30	.567	14.4	.094	2.4	.146	3.70	12364	55000
680-034	5/8"	M16	1.260	32	.646	16.4	.098	2.5	.156	3.95	16860	75000

CONTACT **"WIDE"**

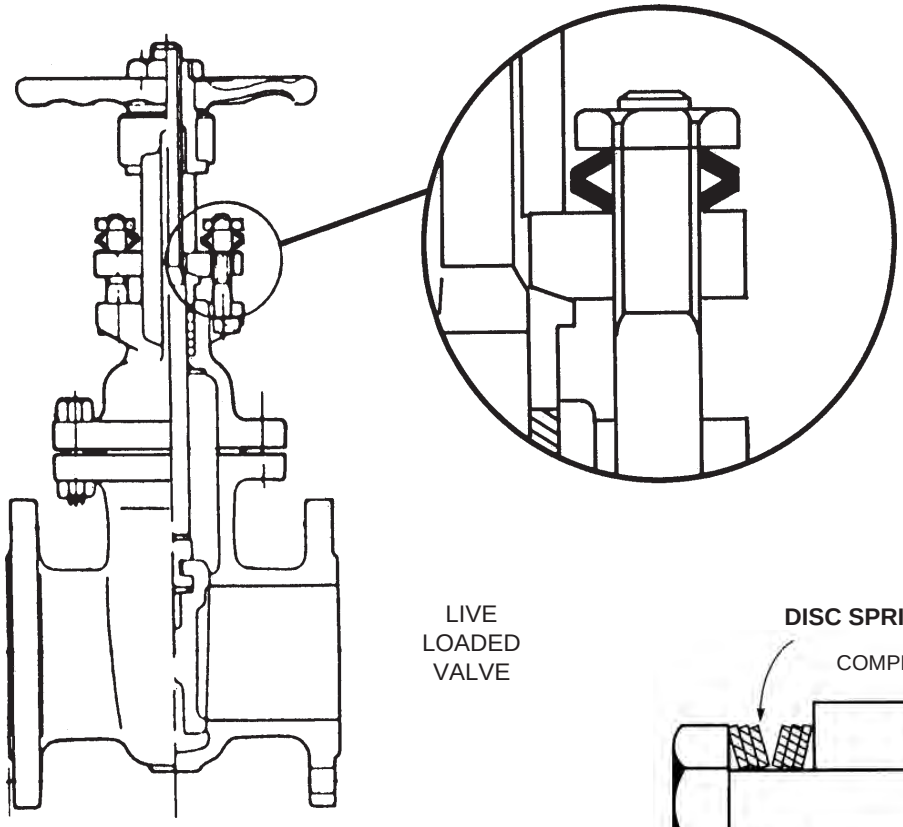
(Typical use: for oversize holes in sheet metal applications making use of wide bearing surface.)



680-036	#8	M4	.551	14	.161	4.1	.039	1	.071	1.80	944	4200
680-037	#10	M5	.630	16	.201	5.1	.047	1.2	.083	2.10	1529	6800
680-038	-	M6	.709	18	.240	6.1	.055	1.4	.098	2.50	2136	9500
680-039	1/4"	-	.717	18.2	.254	6.4	.055	1.4	.100	2.55	2608	11600
680-040	5/16"	M8	.866	22	.323	8.2	.055	1.4	.094	2.40	4766	21200
680-041	3/8"	M10	1.063	27	.402	10.2	.063	1.6	.112	2.85	7576	33700
680-042	-	M12	1.260	32	.488	12.4	.071	1.8	.138	3.5	10993	48900
680-043	1/2"	-	1.260	32	.512	13	.071	1.8	.138	3.5	10993	48900

LIVE LOAD FLANGE AND GASKET CONNECTION

Use the elastic properties of disc springs in the flange system to maintain a positive seal under varying thermal and mechanical operating conditions.

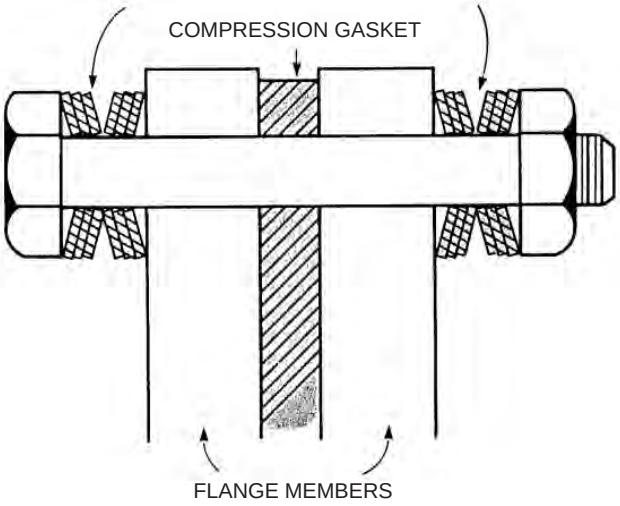


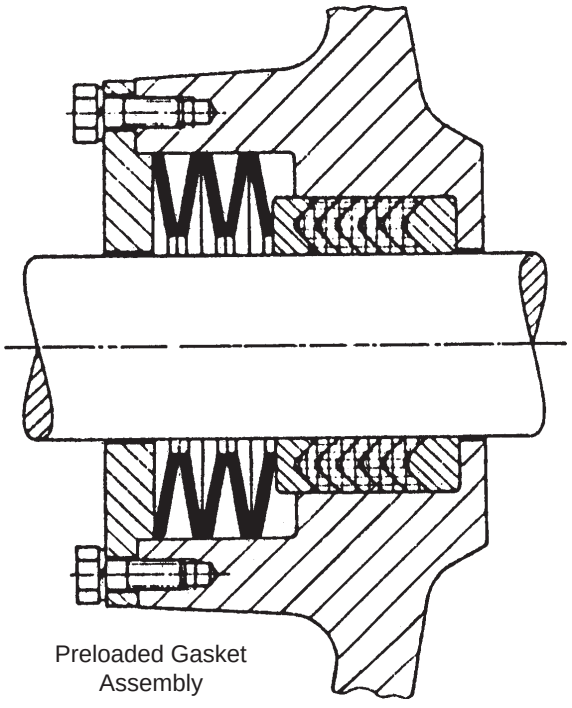
LIVE LOADED VALVE

Disc Springs help to eliminate gasket leakage by maintaining sufficient load under the following conditions:

- GASKET SET
- BOLT CREEP
- LOSS OF GASKET RESILIENCY
- VIBRATION
- SHOCK LOADING
- THERMAL EXPANSION
- PRESSURE VARIATIONS

TYPICAL DISC SPRING ARRANGEMENT





Preloaded Gasket Assembly

- Preload by torquing bolts to proper operating condition for gasket loading.
- As unit heats up, temperature differences occur between flange members and bolts, causing flange members to grow in relation to bolt.
- This growth further compresses disc springs, thereby not damaging bolts or compression gasket.
- As bolt temperature approaches that of flange members during stable operations, disc spring relaxes to original preload position, thereby producing the optimal gasket sealing force.

Independent tests have shown a “live loaded” valve can operate up to 100 times longer than a conventionally loaded valve.

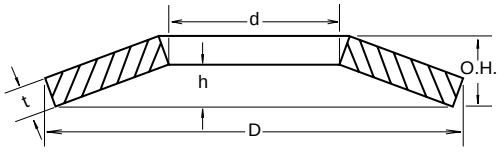
Stainless Steel 17-7PH Armco is available “Special to Order” on most common sizes.

STAINLESS STEEL for Flange Applications

Spring Discs are an elastic mechanical element. When used in bolt joints that are subject to thermal or mechanical shock, they deflect and move with the bolted joint. Hence, they compensate for developed looseness. The reactive power of the spring disc serves to keep the bolt joint tight under all conditions. Principal applications include piping construction, compression joints, steam piping joints, valve and pump connections, and others in the petrochemical field.

A principal cause of flange leakage is abnormally high loads produced by thermal expansion and contraction of a bolted joint. Generally, flanges are under static load conditions. However, in large piping systems, there may also be mechanical shock from compressor related piping. Thermal and mechanical shock differential can cause variation and yielding in bolt loads. To protect against these conditions, always use spring discs under the nut or bolt head.

Pre-stressing or torquing the bolt at factory installation is not sufficient to protect the flange joint under unexpected temperature variations and mechanical shock loads in the field. By absorbing peak stresses, spring discs prevent damage to the bolt, gasket, and joint.



2/parallel Cross-section

Series Stack

SPAENAUR No.	Use with Bolt Dia. Inch	mm	*INCH DIMENSIONS* D	d	t (± 10%)	O.H.	*LOAD AT FLAT P (lbs.)	Unit Pkg.
681-800	1/2"	M12	.900	.515	.089	.100	2100	50
681-801	5/8"	M16	1.145	.656	.125	.143	6000	50
▲681-802	3/4"	M20	1.365	.781	.131	.150	5100	50
681-803	7/8"	M22	1.585	.906	.160	.180	7100	50
681-804	1"	M26	1.805	1.032	.168	.195	8600	10
681-805	1-1/8"	M29	2.020	1.156	.187	.217	10600	10
681-806	1-1/4"	M32	2.240	1.281	.190	.225	10500	10
681-807	1-3/8"	M35	2.450	1.406	.250	.290	23000	10
681-808	1-1/2"	M38	2.680	1.531	.250	.290	19000	10
681-809	1-5/8"	M42	2.950	1.687	.262	.307	20000	1
681-810	1-3/4"	M45	3.170	1.812	.281	.329	23000	1
681-811	1-7/8"	M48	3.380	1.937	.300	.353	28000	P.O.R.
681-812	2"	M52	3.600	2.062	.318	.375	32000	1
681-813	2-1/4"	M58	4.040	2.312	.356	.418	39000	1
681-814	2-1/2"	M64	4.470	2.562	.394	.464	48000	P.O.R.

▲681-815 Material: Inconel X750

*For single spring disc; for higher loads, use parallel stacks.

Note: Load calculated for 17-7PH stainless steel with large radii. $R = \frac{t}{4}$

MATERIAL:

STAINLESS: 17-7PH (Armco) precipitation hardened
Hardness: Rc 40-45
TEMPERATURE RANGE: -220°C to +300°C.
For higher temperatures, to +600°C, we can supply Inconel X-750 (non-standard). Prices on application.
Note: For normal operating temperatures, we can supply Chrome Vanadium SAE 6150. Prices on request.

TOLERANCE:

OD - Plus .000/Minus 1.5% x OD
(Designed for standard flange spot face diameter.)
ID - Minus .000/Plus 1.5% ID
THICKNESS - Tolerance may vary ±10% of nominal thickness shown.
LOAD - Plus/Minus 20% of nominal shown.
(When ordering, ALWAYS specify materials after part number.)

LOAD CHANGE (DECREASE) (▲P) VS. TEMPERATURE

For flanges subject to high temperature conditions, the relative load loss resultant is shown in the table below. Therefore, it may be necessary to use two discs in parallel to compensate and achieve adequate clamping load. (See illustration at upper right.)

LOAD CHANGE (DECREASE) (▲P) VS. TEMPERATURE

Temperature	**21°C (70°F)**	**205°C (400°F)**		**302°C (575°F)**		**399°C (750°F)**		**455°C (850°F)**	
Material	E psi•10^6	E psi•10^6	▲P %	E psi•10^6	▲P %	E psi•10^6	▲P %	E psi•10^6	▲P %
SAE6150	30	28.5	5	27.5	8.3	-	-	-	-
17-7PH	28	24.4	6.2	23.2	10.8	-	-	-	-
Temperature	**21°C (70°F)**	**121°C (250°F)**		**260°C (500°F)**		**538°C (1000°F)**		**649°C (1200°F)**	
Inconel X-750	31	30.8	.6	28.7	7.4	25	19.4	23	25.8

▲P = Load Change E = Modulus of Elasticity

Spring Discs make secure, reliable bolted connections and flanges, as used in:

- **Piping construction**
- **Compression joints**
- **Steam piping joints**
- **Petrochemical field applications**
- **Valve and pump connections**

Typical Application of Flanged (bolted) Piping

WAVE
SPRING TENSION WASHERS

Undulated surface with many bands or contact points. Provides stability - more "load build-up" and less deflection than in the bowed washer at left. Used to provide pressure between surfaces and prevent rattles. Controlled friction provided between surfaces.

Spring Steel - Plain Finish

SPAENAUR No.	For Bolt Size	Inside Diameter	Outside Diameter	Nominal Height	Material Thickness
W-379	#10	.204-195"	.313-.293"	.060"	.016"
W-305	1/4"	1/4"	9/16"	3/32"	.010"
B-1373	1/4"	9/32"	1/2"	1/16"	.008"
W-382	3/8"	25/64"	3/4"	.090"	.015"
B-1374	3/8"	27/64"	39/64"	3/64"	.010"
W-383	7/16"	29/64"	.840"	.060"	.015"
W-142	9/16"	19/32"	7/8"	5/64"	.032"
W-385	5/8"	.659-.640"	.885-.865"	.125"	.015"

P.C. 680 — *UNIT PACKAGE 100*

SPHERICAL
SPRING TENSION WASHERS

Plain Finish

SPAENAUR No.	Inside Diameter	Outside Diameter	Height	Material Thickness	Material
680-001	1/8"	15/32"	5/64"	.020"	Steel
W-141	3/16"	1/2"	.068"	.016"	Steel

P.C. 680 — *Unit Package 100*

BOWED
SPRING TENSION WASHERS

Plain Finish

To provide tension between two rotating or static surfaces, to eliminate play and prevent rattle.

***Alternate Style**

SPAENAUR No.	Inside Diameter	Outside Diameter	Material Thickness	Material
W-2075	.095-.099"	.297-.307"	.009"	410 S. Steel
***W-224**	1/8"	3/8"	.010"	Steel
***W-209**	1/8"	1/2"	.016"	Steel
W-261	11/64"	15/64"	.010"	Steel
680-008	.171"	5/16"	.010"	Steel
W-172	3/16"	9/16"	.008"	Steel
***W-208**	3/16"	3/4"	.020"	Steel
680-003	.200"	.370"	.010"	Steel
W-262	13/64"	7/16"	.010"	Steel
680-002	13/64"	17/32"	.014"	Steel
W-264	15/64"	7/16"	.010"	Steel
W-392	1/4"	1/2"	.008"	Steel
W-265	1/4"	1/2"	.010"	Steel
W-210	1/4"	1/2"	.016"	Steel
W-162S	17/64"	1/2"	.010"	Steel
W-162	17/64"	1/2"	.012"	Copper Alloy
W-266	17/64"	7/16"	.015"	Steel
W-174S	17/64"	9/16"	.010"	Steel
W-174	17/64"	9/16"	.010"	Copper Alloy
W-211	9/32"	5/8"	.012"	Steel
W-213	.320"	5/8"	.020"	Steel
W-267	.320"	1/2"	.015"	Steel
W-214	21/64"	1/2"	.012"	Steel
W-268	25/64"	3/4"	.020"	Steel
W-269	7/16"	3/4"	.017"	Steel
W-270	.505"	3/4"	.015"	Steel
W-393	11/16"	29/32"	.025"	Steel
W-258	49/64"	1"	.020"	Steel

P.C. 680 — *UNIT PACKAGE 100*

ASSORTMENT / ASSORTIMENT 805-527

SPRING TENSION WASHERS

Bowed and Wave
29 SIZES — 1175 WASHERS

Inch Sizes
Steel - Plain Finish

Contents of Assortment 805-527

BOWED SPRING TENSION WASHERS:

I.D.	O.D.	Thickness	Ass't. Qty.
▲.095-.099"	.297"-.307"	.009"	25
1/8"	1/2"	.016"	50
11/64"	15/64"	.010"	25
3/16"	9/16"	.008"	50
3/16"	3/4"	.020"	50
.200"	.370"	.009"	50
13/64"	7/16"	.010"	50
13/64"	17/32"	.014"	25
15/64"	7/16"	.010"	25
1/4"	1/2"	.016"	50
17/64"	1/2"	.010"	50
9/32"	5/8"	.012"	50
.320"	5/8"	.020"	50
25/64"	3/4"	.020"	25
7/16"	3/4"	.017"	50
.505"	3/4"	.015"	50
11/16"	29/32"	.025"	25
49/64"	1"	.020"	25

▲410 Stainless Steel

WAVE SPRING TENSION WASHERS

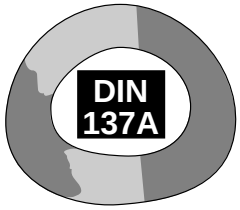
Bolt Size	O.D.	Thickness	Ass't. Qty.
M3.5 (#6)	.315"	.020"	50
#8	5/16"	.010"	50
#10	.303"	.015"	25
M6 (#12)	.472"	.020"	25
1/4"	1/2"	.008"	50
M8 (5/16")	9/16"	.008"	25
3/8"	39/64"	.010"	50
7/16"	.840"	.015"	50
9/16"	7/8"	.032"	25
5/8"	7/8"	.015"	50
3/4"	1.094"	.020"	50

Furnished in a Regular Size grey enamelled STEEL Drawer, with scooped bins. Drawer will fit into Slide Racks shown on page A2.

2.26 kg (5 lbs.) Shipping Wt.

CATALOG 13

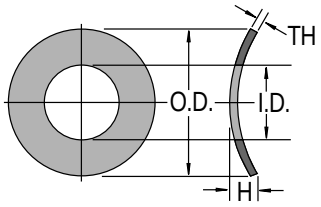
D



Metric BOWED SPRING WASHERS

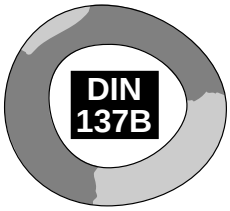
High Grade, Tempered Steel - Plain Finish (Oil), Zinc Plated, Yellow Zinc Plated and A2 Stainless Steel

These parts are appropriately used in light metal construction where a useful elastic spring action proportionally high with respect to the washer's outer diameter is looked for. These washers can be flattened out completely without effect on their resiliency.



ORDER BY *SPAENAUR* NUMBERS BELOW Unit Package - 100

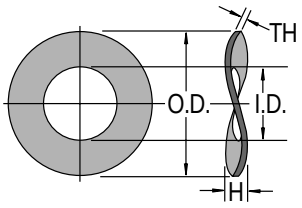
STEEL (Oil) Plain Finish	STEEL Zinc Plated	STEEL Yellow Zinc Plated	A2 Stainless Steel	Bolt Size in mm	Sizes in Millimetres I.D. Min.	O.D. Max.	Thick.	HIGH Min.	Approximate sizes in Inches I.D. Min.	O.D. Max.	Thick.	HIGH Min.
				1	1.1	2.5	0.2	0.35	.043	.098	.008	.014
	681-144ZP			**1.2**	1.3	3.0	0.2	0.35	.051	.118	.008	.014
681-100	**681-100ZP**	**681-100YZ**	**681-816**	**2**	2.2	4.5	0.3	0.50	.087	.177	.012	.020
681-101	**681-101ZP**	**681-101YZ**	**681-817**	**2.5**	2.8	5.5	0.3	0.55	.110	.217	.012	.022
681-102	**681-102ZP**	**681-102YZ**	**681-818**	**3**	3.2	6.0	0.4	0.65	.126	.236	.016	.026
681-135	**681-135ZP**	**681-135YZ**	**681-819**	**3.5**	3.7	7.0	0.4	0.70	.146	.276	.016	.028
681-103	**681-103ZP**	**681-103YZ**	**681-820**	**4**	4.3	8.0	0.5	0.80	.169	.315	.020	.031
681-104	**681-104ZP**	**681-104YZ**	**681-821**	**5**	5.3	10.0	0.5	0.90	.207	.394	.020	.035
681-105	**681-105ZP**	**681-105YZ**	**681-822**	**6**	6.4	11.0	0.5	1.10	.252	.433	.020	.043
681-106	**681-106ZP**	**681-106YZ**		**7**	7.4	12.0	0.5	1.20	.291	.472	.020	.047
681-107	**681-107ZP**	**681-107YZ**	**681-823**	**8**	8.4	15.0	0.5	1.70	.331	.591	.020	.067
681-108	**681-108ZP**	**681-108YZ**	**681-824**	**10**	10.5	18.0	0.8	2.00	.413	.709	.031	.079
681-109	**681-109ZP**	**681-109YZ**		**12**	—	—	—	—	—	—	—	—
	681-156ZP	**681-156YZ**		**16**	—	—	—	—	—	—	—	—



Metric SINGLE WAVE SPRING WASHERS

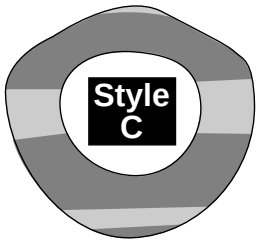
High Grade, Tempered Steel - Plain Finish (Oil), Zinc Plated, Yellow Zinc Plated and A2 Stainless Steel

This type is used wherever a higher pressure than with type A is required, and when this pressure is to be distributed at several points. It is particularly recommended with aluminum screws and parts to be fixed, as the resilient effect catches up with the extrusion of this metal under the tightening pressure.



ORDER BY *SPAENAUR* NUMBERS BELOW Unit Package - 100

STEEL (Oil) Plain Finish	STEEL Zinc Plated	STEEL Yellow Zinc Plated	A2 Stainless Steel	Bolt Size in mm	Sizes in Millimetres I.D. Min.	O.D. Max.	Thick.	HIGH Min.	Approximate sizes in Inches I.D. Min.	O.D. Max.	Thick.	HIGH Min.
681-110	**681-110ZP**	**681-110YZ**		**2**	—	—	—	—	—	—	—	—
681-111	**681-111ZP**	**681-111YZ**	**681-826**	**3**	3.2	8	0.5	0.8	.126	.315	.020	.031
681-136	**681-136ZP**	**681-136YZ**	**681-827**	**3.5**	3.7	8	0.5	0.9	.146	.315	.020	.035
681-112	**681-112ZP**	**681-112YZ**	**681-828**	**4**	4.3	9	0.5	1.0	.169	.354	.020	.039
681-113	**681-113ZP**	**681-113YZ**	**681-829**	**5**	5.3	11	0.5	1.1	.207	.433	.020	.043
681-114	**681-114ZP**	**681-114YZ**	**681-830**	**6**	6.4	12	0.5	1.3	.252	.472	.020	.057
681-115	**681-115ZP**	**681-115YZ**		**7**	7.4	14	0.8	1.5	.291	.551	.031	.059
681-116	**681-116ZP**	**681-116YZ**	**681-831**	**8**	8.4	17	0.8	1.5	.331	.591	.031	.059
681-117	**681-117ZP**	**681-117YZ**	**681-832**	**10**	10.5	21	1.0	2.1	.413	.826	.039	.083
681-118	**681-118ZP**	**681-118YZ**	**681-833**	**12**	13.0	24	1.2	2.5	.512	.945	.047	.098
681-119	**681-119ZP**	**681-119YZ**		**14**	15.0	28	1.6	3.0	.591	1.102	.063	.118
681-120	**681-120ZP**	**681-120YZ**	**681-834**	**16**	17.0	30	1.6	3.2	.669	1.181	.063	.126
681-137	**681-137ZP**	**681-137YZ**		**18**	19.0	34	1.6	3.3	.748	1.339	.063	.130
681-138	**681-138ZP**	**681-138YZ**	**681-835**	**20**	21.0	36	1.6	3.7	.827	1.417	.063	.146
681-139	**681-139ZP**	**681-139YZ**		**22**	23.0	40	1.8	3.9	.906	1.575	.071	.154
681-140	**681-140ZP**	**681-140YZ**		**24**	25.0	44	1.8	4.1	.984	1.732	.071	.161
681-141	**681-141ZP**	**681-141YZ**		**27**	28.0	50	2.0	4.7	1.102	1.969	.079	.185
681-142	**681-142ZP**	**681-142YZ**		**30**	31.0	56	2.2	5.0	1.220	2.205	.087	.197

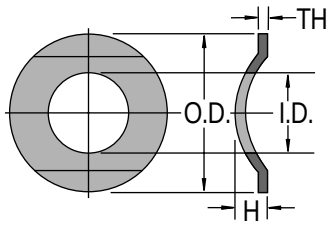


UNIT PACKAGE 100

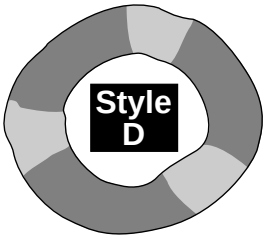
Metric FLAT-FACE BOWED SPRING WASHERS – Steel

High Grade, Tempered Steel - Plain Finish (Oil)

Use this type wherever slight pressures are to be exerted especially when bearing on excessively fragile materials.



STEEL (Oil) Plain Finish	Bolt Size in mm	Sizes in Millimetres I.D. Min.	O.D. Max.	Thick.	HIGH Min.	Approximate sizes in Inches I.D. Min.	O.D. Max.	Thick.	HIGH Min.
681-121	**3.5**	3.6	11.3	0.15	1.55	.142	.445	.006	.061
681-122	**4**	4.1	10.0	0.3	1.4	.161	.394	.012	.055
681-124	**6**	6.2	11.3	0.25	1.5	.244	.445	.010	.059
681-125	**7**	7.1	11.3	0.25	1.55	.280	.445	.010	.061

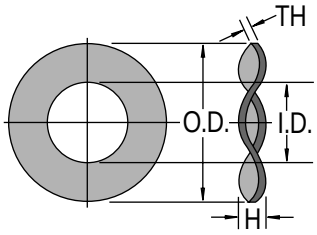


UNIT PACKAGE 100

Metric DOUBLE WAVE SPRING WASHERS – Steel

High Grade, Tempered Steel - Plain Finish (Oil)

This part is useful when pressure has to be distributed at several points without marking the parts brought under tension.



STEEL (Oil) Plain Finish	Bolt Size in mm	Sizes in Millimetres I.D. Min.	O.D. Max.	Thick.	HIGH Min.	Approximate sizes in Inches I.D. Min.	O.D. Max.	Thick.	HIGH Min.
681-126	**6**	6.1	12.25	0.2	1.8	.240	.482	.008	.071
681-127	**6**	6.2	10.2	0.2	1.4	.244	.402	.008	.055
681-128	**8**	8.1	14.15	0.1	1.35	.319	.557	.004	.053
681-129	**8**	8.1	13.8	0.2	1.35	.319	.543	.008	.053
681-130	**10**	10.3	15.1	0.2	1.4	.406	.594	.008	.055
681-131	**10**	10.6	19.25	0.2	1.4	.417	.758	.008	.055
681-132	**10**	10.6	19.25	0.3	1.5	.417	.758	.012	.059
681-133	**10**	10.6	19.25	0.15	1.4	.417	.758	.006	.055
***681-134**	**12**	12.4	20.3	0.2	1.7	.488	.799	.008	.067

***681-134ZP** Zinc Plated

ASSORTMENT
ASSORTIMENT **805-417**

Metric Spring Tension Washers

High Grade Tempered Steel - Plain Finish (Oil)
Contains 24 SIZES — 1800 PIECES

Bowed Spring DIN 137A
Single Wave Spring DIN 137B
and Flat-face Bowed Spring Style C Washers are found in Assortment.

Regular Size welded STEEL drawer is finished in grey enamel with 24 scooped bins.

Will fit into the Slide Racks shown on page A2.

Shipping weight 2.84 kg (6-1/4 lbs.)

Priced Singly

Contents of Assortment 805-417

Bolt Size	I.D.	O.D.	Thickness	Ass't. Qty.
Bowed Spring Washers DIN 137A				
2	2.2	4.5	0.3	100
2.5	2.8	5.5	0.3	100
3	3.2	6.0	0.4	100
3.5	3.7	7.0	0.4	100
4	4.3	8.0	0.5	100
5	5.3	10.0	0.5	100
6	6.4	11.0	0.5	100
7	7.4	12.0	0.5	100
8	8.4	15.0	1.7	80
10	10.5	18.0	0.8	50
12	-	-	-	40
Single Wave Spring Washers DIN 137B				
3	3.2	8.0	0.5	100
4	4.3	9.0	0.5	100
5	5.3	11.0	0.5	100
6	6.4	12.0	0.5	100
7	7.4	14.0	0.8	80
8	8.4	15.0	0.8	60
10	10.5	21.0	1.0	50
12	13.0	24.0	1.2	40
14	15.0	28.0	1.6	30
16	17.0	30.0	1.6	20
Flat-Face Bowed Spring Washers STYLE C				
3.5	3.6	11.3	0.15	50
6	6.2	11.3	0.25	50
7	7.1	11.3	0.25	50

D

FINISHING (SCREW) WASHERS

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW — *Unit Pkg. 100*

COUNTERSUNK

†7/8" O.D.

FLUSH TYPE

Screw Size	Outside Diameter	BRASS	BRASS NIC. PL.	STEEL PLAIN	STEEL NIC. PL.	18-8 STAINLESS	Nylon O.D.	NATURAL 6/6 NYLON	BLACK 6/6 NYLON
No. 4	25/64"	7141B	7141			W-2073			
No. 5	13/32"				W-370NP				
No. 6	7/16"	7143B	7143		W-371NP	W-2010	.437"	W-5008	644-102
No. 8	17/32"	7145B	7145		W-372NP	W-2011	.510"	W-5009	644-103
No. 9	17/32"	7146B	7146						
No. 10	19/32"	7147B	7147		W-255NP	W-2012	.575"	W-5010	644-105
No. 12	11/16"	7148B	7148			W-2013	.609"		
1/4"	25/32"	7149B	7149		W-374NP	W-2014	.683"	W-5011	644-107
9/32"	25/32"	7150B	7150						
5/16"	15/16"	7151B	7151		†W-375NP	642-003			
3/8"	1-1/8"	7153B	7153						
No. 4	19/64"								
No. 5	19/64"								
No. 6	11/32"	7137B	7137						
No. 6	.358"					W-2015			
No. 8	3/8"	7138B	7138						
No. 10	15/32"	7139B	7139		W-254	W-2017			
No. 12	9/16"	7140B	7140						
No. 14	5/8"	W-539	W-539N						
		P.C. 643	P.C. 643	P.C. 641	P.C. 641	P.C. 642		P.C. 644	P.C. 644

ASSORTMENT / ASSORTIMENT B-598 — *Priced Singly*

COUNTERSUNK FINISHING WASHERS

Zinc Plated Steel, Stainless Steel, and Brass, Nickel Plated

20 Sizes - 1700 Pieces

Contains sizes to fit countersunk screws - #4 ga. to 9/16" selected from this page.

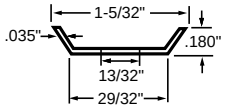
Put up in a Regular Size Steel Drawer.

Shipping Weight 3.18 kg (7 lbs.)

CUP WASHER

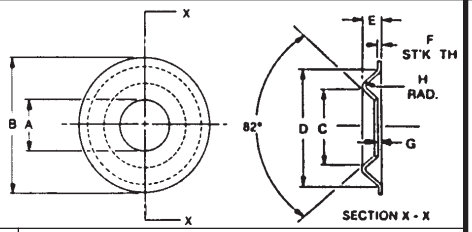
641-001

STEEL, Zinc Plated



Unit Pkg. 50

FLANGE-TYPE COUNTERSUNK WASHERS



UNIT PACKAGE 100

ORDER BY *SPAENAUR No's.*

STAINLESS STEEL 18-8	BRASS PLAIN	BRASS NICKEL PLTD.	Size Screw	Dimensions in Inches A	B	C	D	E	F	G
642-002	643-002	643-003	#6	.200	.500	.290	.420	.090	.012	.020
W-10	643-004	643-005	#8	.220	.615	.355	.531	.099	.020	.020
642-001	643-006	643-007	#10	.293	.719	.370	.625	.109	.020	.020

P.C. 641

W-163

Wide Flange Ctsk. WASHER

STEEL, Zinc Plated

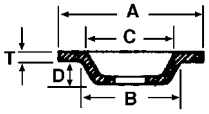
1/4" I.D. 1-3/16" O.D.
.035" Thick

Unit Package 50

FLUSH COUNTERSUNK WASHERS

STEEL, Zinc Plated
FOR NO. 8
OVAL HEAD SCREWS

P.C. 641

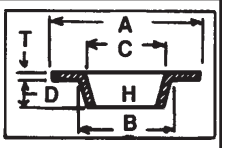


SPAENAUR No.	Approximate Dimensions A	B	C	D	T	Unit Pkg.
W-316	1/2"	5/16"	5/16"	5/64"	.035"	100

P.C. 641

RECESSED WASHERS

STEEL, Zinc Plated

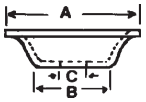


SPAENAUR No.	Dimensions in Inches A	B	C	D	H	T	Unit Pkg.
W-314	11/16	9/32	1/4	1/32	5/32	.020	100
W-313	7/8	19/32	3/8	1/16	5/32	.032	100
W-315	1	5/8	9/16	1/16	11/64	.030	100

CUP WASHERS

STEEL, Zinc Plated

Unit Package 100



SPAENAUR No.	Outside Dia. A	Dia. B	Hole C	Material Thickness
W-87	9/16"	3/8"	5/32"	.020"
W-88	3/4"	1/2"	3/16"	.034"

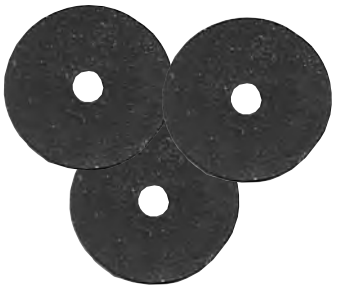
SPAENAUR No. 2000

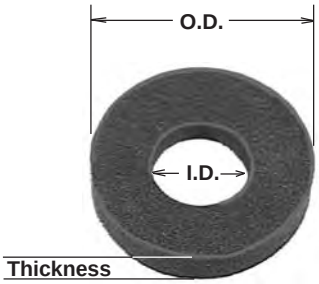
SPACER WASHER
for 1/4" Bolt
STEEL, Zinc Plated
Hole Dia. 5/16" Outside Dia. 3/4"
Height 1/4"

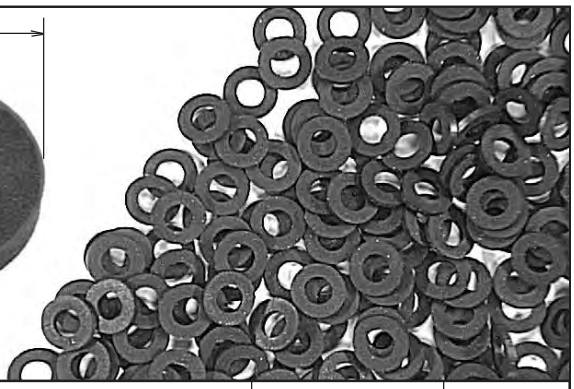
P.C. 696

Unit Package 50

CATALOG 13







UNIT PACKAGE QUANTITIES SHOWN IN PRICE LIST.
SEE SECTION J FOR MORE RUBBER PRODUCTS.

D

SPAENAUR No.	I.D.	O.D.	Thickness	Material	Durometer	Colour
RB-374	3/32"	1/2"	1/8"	Neoprene	60-70	Black
315-286	9/64"	3/8"	1/4"	SBR	60	Black
RB-290	5/32"	5/16"	1/32"	Neoprene	75-85	Black
RB-170	5/32"	1/2"	1/4"	Natural Rubber	65-70	Black
RB-291	11/64"	33/64"	3/32"	Neoprene	65-70	Black
RB-146	3/16"	5/8"	3/32"	Neoprene	65-70	Black
315-052	3/16"	3/4"	1/8"	Nitrile	75-85	Black
B-1253	3/16"	3/4"	9/32"	SBR	65-75	Black
RB-72	3/16"	1"	1/8"	SBR	55-60	Black
RB-114	7/32"	5/8"	3/32"	SBR	70-75	Black
315-005	7/32"	7/16"	1/16"	Neoprene	60-65	Black
RB-351	15/64"	1-1/4"	1/4"	Neoprene	60-65	Black
315-040	1/4"	1/2"	1/8"	SBR	55-65	Black
RB-145	1/4"	5/8"	7/64"	Neoprene	60-70	Black
RB-318	9/32"	15/16"	1/16"	SBR	55-65	Black
315-002	5/16"	7/16"	1/16"	Neoprene	60-70	Black
315-003	5/16"	5/8"	1/8"	Neoprene	60-70	Black
315-100 (Metric)	7.93 mm	30 mm	6 mm	Neoprene	70-80	Black
4163	5/16"	1-1/2"	1/4"	SBR	65-70	Black
RB-86	3/8"	1/2"	1/16"	SBR	65-75	Black
RB-352	3/8"	5/8"	3/64"	Neoprene	60-70	Black
315-039	3/8"	5/8"	1/8"	SBR	50-60	Black
RB-292	3/8"	1"	1/8"	Neoprene	65-75	Black
RB-64	3/8"	1"	19/32"	Neoprene	85-95	Black
315-035	25/64"	15/16"	9/16"	EPDM	65-75	Black
315-034	.498/.485"	.781/.812"	.125"	SBR	60-70	Black
RB-167	1/2"	1"	5/16"	SBR	65-75	Black
RB-135	1/2"	1-3/16"	1/2"	SBR	75-85	Black
315-170	5/8"	1-1/2"	1/4"	Neoprene	60-65	Black
315-076	5/8"	25/32"	3/16"	SBR	70	Black
RB-307	13/16"	1-3/32"	3/32"	Neoprene	60-65	Black
4228	7/8"	2"	3/8"	Closed Cell Neoprene Sponge	-	Black
RB-372	1.625"	2.854"	.060"	Nitrile	75-80	Black

More Rubber (E.P.D.M.) and Silicone Washers on following page.

D

RUBBER (E.P.D.M.) WASHER

Colour - Black **Standard Thickness is 3/32"** Durometer 70 ±5

SPAENAUR No.	Screw Size	Inside Diameter	Outside Diameter	Unit Pkg. Quantity
315-056	#6 Standard	.120"	1/4"	100
315-057	#6 Optional	.120"	3/8"	100
315-058	#8 Standard	.150"	5/16"	100
315-059	#8 Optional	.150"	7/16"	100
315-078	#8 Optional	.152"	3/8"	100
315-060	#10 Standard	.170"	3/8"	100
315-061	#10 Optional	.170"	1/2"	100
315-062	#12 Standard	.195"	7/16"	100
315-063	#12 Optional	.195"	9/16"	100
315-064	#14 Standard	.230"	1/2"	100

SPAENAUR No.	Screw Size	Inside Diameter	Outside Diameter	Unit Pkg. Quantity
315-065	#14 Optional	.230"	5/8"	50
315-066	5/16" Standard	.290"	9/16"	50
315-067	5/16" Optional	.290"	11/16"	50
315-068	3/8" Standard	.355"	5/8"	50
315-069	3/8" Optional	.355"	13/16"	50
315-070	1/2" Optional	.490"	1-1/16"	25
315-071	5/8" Optional	.615"	1-5/16"	25
315-072	3/4" Optional	.740"	1-1/2"	25
315-073	1" Optional	.990"	2"	25

SILICONE WASHER

Colour - Red

"Hi/Low Temp"

Excellent Heat Resistance - Extreme Low Temperature
-62°C to 230°C (-80°F to 450°F)
Low Compression Set

Durometer 60 ±5

SPAENAUR No.	Inside Diameter	Outside Diameter	Thickness	Unit Pkg. Quantity
315-400	.125"	.375"	.062"	100
315-401	.156"	.437"	.062"	100
315-402	.187"	.500"	.093"	100
315-403	.250"	.625"	.093"	50

SPAENAUR No.	Inside Diameter	Outside Diameter	Thickness	Unit Pkg. Quantity
315-404	.312"	.687"	.125"	50
315-405	.375"	.750"	.125"	50
315-406	.500"	1.00"	.125"	25

Meeting your needs today and tomorrow!

Our 55 person call centre is available to answer any questions that you may have pertaining to product, delivery or application. Our bilingual telesales staff is thoroughly trained to ISO 9002 standards and open from 7 a.m. to 7 p.m. to personally take your order. Call us today at **800-265-8772.**

CATALOG 13

NYLTITE ROLLED NYLON WASHERS

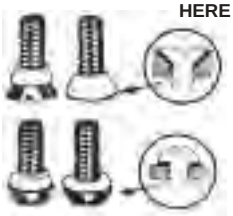
P.C. 230

Made of DuPont Zytel which meets specs: MIL-M-20693A; MIL-P-17091-B.

Used as an insulator or sealer with bolt, screw, nail or rivet.

Screw Size	I.D.	Wall Thickness	*SPAENAUR No.*	Unit Pkg.
1	.075"	.012"	—	100
2	.088"	.012"	**W-5801**	100
3	.101"	.012"	**W-5802**	100
4	.116"	.013"	**W-5803**	100
5	.129"	.014"	**W-5804**	100
6	.142"	.015"	**W-5805**	100
8	.168"	.015"	**W-5806**	100
10	.194"	.015"	**W-5807**	100
12	.220"	.017"	**W-5808**	100
1/4"	.252"	.019"	**W-5809**	100
5/16"	.316"	.020"	**W-5810**	100
3/8"	.379"	.022"	**W-5811**	100
7/16"	.441"	.022"	**W-5812**	100
1/2"	.504"	.022"	**W-5813**	100
5/8"	.630"	.025"	**W-5814**	100
3/4"	.755"	.028"	**W-5815**	100

HERE IS HOW NYLTITE ROLLED WASHER WORKS



The Nyltite washer deforms under pressure to conform and seal with any STANDARD fastener. The nylon flows inward towards the inner cut edges, providing a positive seal around the screw threads. The rolled washers offer this positive seal because they expand and contract with surrounding materials. Note: The absence of flow outward at the rolled edge, eliminates the need for back-up washers.

SEALING WASHER

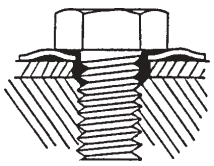
Reusable

Stainless Steel Clad, with Neoprene Sealer

SPAENAUR No.	Screw Size	O.D.	Overall Height	Unit Package
679-803	6	3/8"	.100"	100
679-804	8	3/8"	.085"	100
679-805	10	7/16"	.085"	100
679-806	1/4"	7/16"	.085"	100

"BARTITE" PERMANENT SEALING WASHERS

BARTITE Sealing Washer is both economical, and a permanent seal against liquids and vapors, resistant to water, gasoline, petroleum oils, salt sprays, etc.



The 300 series stainless steel washer is partially dome-shaped, with a flattened perimeter.

When under torque, the tightening creates a tension effect, which adds to the permanency of the complete assembly. Neoprene sealant with stands temperatures up to 250°F; it also retains its sealability at -60°F.

SPAENAUR No.	Thread Size	Metal O.D.	Overall Height	Unit Pkg.
679-810	#8	1/2"	.065"	100
679-811	#10	9/16"	.065"	100
679-812	#14	5/8"	.073"	100
679-813	5/16"	11/16"	.077"	100
679-814	3/8"	51/64"	.082"	100
679-815	7/16"	57/64"	.090"	100
679-816	1/2"	63/64"	.090"	50

NYLTITE HEADED SLEEVE

Used with bolt, screw, nail or rivet

- Provides electrical insulation.
- Eliminates electrolytic action.
- Creates a leak-proof seal.
- Acts as grommet, bearing, or housing.
- Reduces "fastener vibration".

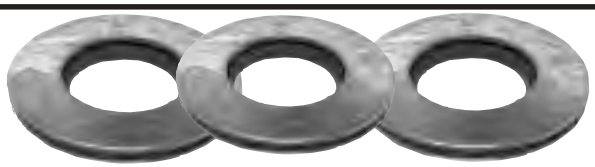
Unit Package 100—All Sizes

P.C. 230

Screw Size	I.D.	Wall Thickness	1/4" Shank	1/2" Shank	3/4" Shank
1	.075	.012	**W-5500**		
2	.088	.012	**W-5501**		
3	—	—	**W-5502**	**W-5503**	
4	.116	.013	**W-5504**	**W-5505**	**W-5506**
5	.129	.014		**W-5508**	**W-5509**
6	.142	.015	**W-5510**	**W-5511**	**W-5512**
8	.168	.015	**W-5513**	**W-5514**	**W-5515**
10	.194	.015	**W-5516**	**W-5517**	**W-5518**
12	.220	.017	**W-5519**	**W-5520**	**W-5521**
1/4"	.252	.019	**W-5522**	**W-5523**	**W-5524**
5/16"	.316	.020	**W-5525**	**W-5526**	**W-5527**
3/8"	.379	.022	**W-5528**	**W-5529**	**W-5530**
7/16"	.441	.022	**W-5531**	**W-5532**	**W-5533**
1/2"	.504	.022	**W-5534**	**W-5535**	**W-5536**
5/8"	.629	.025	**W-5537**	**W-5538**	**W-5539**
3/4"	.754	.027	**W-5540**	**W-5541**	**W-5542**

HERE IS HOW NYLTITE HEADED SLEEVE WORKS

A NYLTITE headed sleeve, long enough to extend from bolt head to nut before tightening, is either slipped over the bolt before insertion, or dropped into bolt hole. In the latter case, the rim-flange at one end prevents the sleeve from falling through the hole. The rim-flange also insures the positioning of sufficient plastic material between bolt head and work. As the nut is drawn up on the bolt, the NYLTITE sleeve is compressed, and cold-flows into a new shape, forming washer-like discs at both ends.



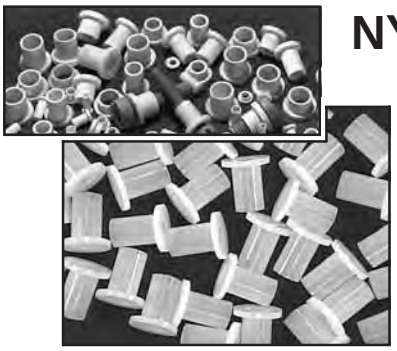
MASTER SEAL™ WASHERS

Used with Round, Pan or Hex Head Screws – as with Weather Seal Fasteners shown on page B114. Also available: High Tensile Neoprene or EPDM Bonded Washer on special orders of minimum quantities.

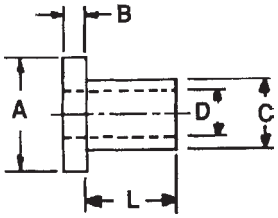
Unit Package 100

SPAENAUR No.	Screw Size	Dimensions I.D.	Dimensions O.D.	Dimensions GA.	MATERIAL
W-227	6	5/32"	3/8"	20	**Galvanized Steel bonded to Neoprene** P.C. 685
685-005	8	11/64"	1/2"	24	
W-228	8	11/64"	1/2"	20	
W-230	10	13/64"	1/2"	20	
W-233	12	7/32"	5/8"	20	
685-002	1/4"	.275"	5/8"	20	
685-003	5/16"	.330"	3/4"	20	
685-004	3/8"	.434"	7/8"	20	
685-001	1/2"	.532"	1"	20	
W-2001	6	5/32"	3/8"	20	**302 Stainless Steel bonded to Neoprene** P.C. 686
W-2002	8	11/64"	1/2"	20	
W-2005	10	13/64"	1/2"	20	
W-2006	12	7/32"	5/8"	20	
W-2008	14	9/32"	5/8"	20	

D



NYLON MACHINE SCREW INSULATORS



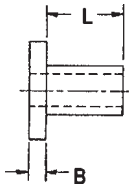
Nylon screw insulators are used to isolate metal screws electrically as well as to reduce corrosion. They can be used as light load bearings in many applications.

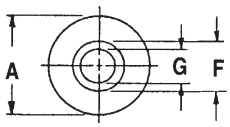
Material 6/6 Nylon - Natural Colour

Unit Package Qty. 100

SPAENAUR No.	Screw Size	Inch Dimensions (Millimetre equivalent in brackets)									
		L		A		B		C		D	
230-014	**2**	1/8"	(3.18)	.181"	(4.60)	3/64"	(1.19)	.120"	(3.05)	.090"	(2.29)
230-015	**2**	3/16"	(4.76)	.181"	(4.60)	3/64"	(1.19)	.120"	(3.05)	.090"	(2.29)
230-016	**2**	1/4"	(6.35)	.181"	(4.60)	3/64"	(1.19)	.120"	(3.05)	.090"	(2.29)
230-001	**4**	3/64"	(1.19)	.235"	(5.97)	3/64"	(1.19)	.145"	(3.68)	.115"	(2.92)
230-002	**4**	1/16"	(1.59)	.235"	(5.97)	3/64"	(1.19)	.145"	(3.68)	.115"	(2.92)
230-003	**4**	3/32"	(2.38)	.235"	(5.97)	3/64"	(1.19)	.145"	(3.68)	.115"	(2.92)
230-004	**4**	1/8"	(3.18)	.235"	(5.97)	3/64"	(1.19)	.145"	(3.68)	.115"	(2.92)
230-017	**4**	3/16"	(4.76)	.235"	(5.97)	3/64"	(1.19)	.145"	(3.68)	.115"	(2.92)
230-018	**4**	1/4"	(6.35)	.235"	(5.97)	3/64"	(1.19)	.145"	(3.68)	.115"	(2.92)
230-005	**6**	1/8"	(3.18)	.290"	(7.37)	3/64"	(1.19)	.170"	(4.32)	.140"	(3.56)
230-019	**6**	3/16"	(4.76)	.290"	(7.37)	3/64"	(1.19)	.170"	(4.32)	.140"	(3.56)
230-006	**6**	1/4"	(6.35)	.290"	(7.37)	3/64"	(1.19)	.170"	(4.32)	.140"	(3.56)
230-020	**6**	3/8"	(9.53)	.290"	(7.37)	3/64"	(1.19)	.170"	(4.32)	.140"	(3.56)
230-007	**8**	1/8"	(3.18)	.344"	(8.74)	1/16"	(1.59)	.205"	(5.21)	.173"	(4.39)
230-021	**8**	1/4"	(6.35)	.344"	(8.74)	1/16"	(1.59)	.205"	(5.21)	.173"	(4.39)
230-022	**8**	3/8"	(9.53)	.344"	(8.74)	1/16"	(1.59)	.205"	(5.21)	.173"	(4.39)
230-023	**8**	1/2"	(12.70)	.344"	(8.74)	1/16"	(1.59)	.205"	(5.21)	.173"	(4.39)
230-024	**10**	3/16"	(4.76)	.399"	(10.13)	1/16"	(1.59)	.260"	(6.60)	.200"	(5.08)
230-008	**10**	1/4"	(6.35)	.399"	(10.13)	1/16"	(1.59)	.260"	(6.60)	.200"	(5.08)
230-009	**10**	3/8"	(9.53)	.399"	(10.13)	1/16"	(1.59)	.260"	(6.60)	.200"	(5.08)
230-025	**10**	1/2"	(12.70)	.399"	(10.13)	1/16"	(1.59)	.260"	(6.60)	.200"	(5.08)
230-026	**1/4"**	1/8"	(3.18)	.513"	(13.03)	1/16"	(1.59)	.312"	(7.92)	.260"	(6.60)
230-010	**1/4"**	3/16"	(4.76)	.513"	(13.03)	1/16"	(1.59)	.312"	(7.92)	.260"	(6.60)
230-027	**1/4"**	1/4"	(6.35)	.513"	(13.03)	1/16"	(1.59)	.312"	(7.92)	.260"	(6.60)
230-011	**1/4"**	3/8"	(9.53)	.513"	(13.03)	1/16"	(1.59)	.312"	(7.92)	.260"	(6.60)
230-012	**1/4"**	1/2"	(12.70)	.513"	(13.03)	1/16"	(1.59)	.312"	(7.92)	.260"	(6.60)
230-028	**1/4"**	5/8"	(15.88)	.513"	(13.03)	1/16"	(1.59)	.312"	(7.92)	.260"	(6.60)
230-029	**1/4"**	3/4"	(19.05)	.513"	(13.03)	1/16"	(1.59)	.312"	(7.92)	.260"	(6.60)
230-030	**5/16"**	1/4"	(6.35)	.620"	(15.75)	1/16"	(1.59)	.360"	(9.14)	.320"	(8.13)
230-013	**5/16"**	3/8"	(9.53)	.620"	(15.75)	1/16"	(1.59)	.360"	(9.14)	.320"	(8.13)
230-031	**5/16"**	1/2"	(12.70)	.620"	(15.75)	1/16"	(1.59)	.360"	(9.14)	.320"	(8.13)

NYLON SHOULDER WASHERS





Material:
6/6 Nylon
Natural Colour

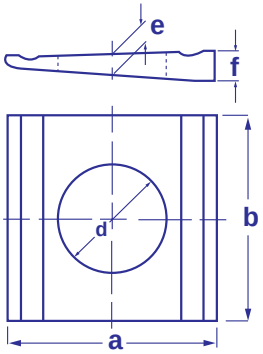
These washers are suitable for a variety of insulation and mechanical applications. Strong and corrosion resistant, they seal, reduce vibration, act as spacers and guides.

Unit Package Quantity 100

SPAENAUR No.	Inch Dimensions (Millimetre equivalent in brackets)				
	L	A	B	F	G
230-114	3/16" (4.76)	.187" (4.75)	1/32" (0.79)	.119" (3.02)	.063" (1.60)
230-115	3/16" (4.76)	.205" (5.21)	1/32" (0.79)	.125" (3.18)	.093" (2.36)
230-100	1/32" (0.79)	.218" (5.54)	3/64" (1.19)	.135" (3.43)	.115" (2.92)
230-101	1/32" (0.79)	.235" (5.97)	3/64" (1.19)	.137" (3.48)	.115" (2.92)
230-116	7/32" (5.55)	.250" (6.35)	11/64" (4.37)	.150" (3.81)	.115" (2.92)
230-102	3/64" (1.19)	.234" (5.94)	3/64" (1.19)	.147" (3.73)	.115" (2.92)
230-103	1/16" (1.59)	.250" (6.35)	1/32" (0.79)	.143" (3.63)	.115" (2.92)
230-117	1/8" (3.18)	.250" (6.35)	3/64" (1.19)	.139" (3.53)	.118" (3.00)
230-118	1/8" (3.18)	.500" (12.70)	1/8" (3.18)	.375" (9.53)	.285" (7.14)
230-119	.250" (6.35)	.250" (6.35)	.047" (1.19)	.156" (3.96)	.125" (3.18)
230-120	1/32" (0.79)	.252" (6.40)	1/32" (0.79)	.186" (4.72)	.140" (3.56)
230-121	1/8" (3.18)	.281" (7.14)	3/32" (2.38)	.158" (4.01)	.093" (2.36)
230-104	1/64" (0.41)	.310" (7.87)	1/16" (1.59)	.183" (4.65)	.139" (3.53)
230-122	3/64" (1.19)	.312" (7.93)	1/16" (1.59)	.170" (4.32)	.127" (3.23)
230-123	3/16" (4.76)	.312" (7.93)	1/16" (1.59)	.250" (6.35)	.156" (3.96)
230-105	3/64" (1.19)	.250" (6.35)	3/64" (1.19)	.143" (3.63)	.113" (2.87)
230-106	1/32" (0.79)	.265" (6.73)	1/32" (0.79)	.157" (3.99)	.126" (3.20)
230-107	1/32" (0.79)	.312" (7.93)	1/16" (1.59)	.187" (4.75)	.141" (3.58)
230-124	5/16" (7.94)	.312" (7.93)	1/32" (0.79)	.154" (3.91)	.130" (3.30)
230-125	1/4" (6.35)	.290" (7.37)	3/64" (1.19)	.170" (4.32)	.140" (3.56)
230-108	3/64" (1.19)	.328" (8.33)	3/64" (1.19)	.218" (5.54)	.146" (3.71)
230-126	3/8" (9.53)	.345" (8.76)	1/16" (1.59)	.205" (5.21)	.173" (4.39)
230-127	13/32" (10.32)	.510" (12.95)	1/16" (1.59)	.250" (6.35)	.171" (4.34)
230-128	1/8" (3.18)	.375" (9.53)	1/16" (1.59)	.280" (7.11)	.201" (5.10)
230-109	3/64" (1.19)	.375" (9.53)	3/64" (1.19)	.245" (6.22)	.192" (4.88)
230-110	1/32" (0.79)	.375" (9.53)	1/16" (1.59)	.308" (7.82)	.196" (4.98)
230-129	1/8" (3.18)	.370" (9.40)	.110" (2.79)	.307" (7.80)	.255" (6.48)
230-111	1/32" (0.79)	.385" (9.78)	1/16" (1.59)	.240" (6.10)	.145" (3.68)
230-130	3/32" (2.38)	.375" (9.53)	1/64" (0.41)	.185" (4.70)	.140" (3.56)
230-131	1/8" (3.18)	.433" (10.99)	1/16" (1.59)	.312" (7.92)	.199" (5.05)
230-132	1/8" (3.18)	.400" (10.16)	1/8" (3.18)	.275" (6.99)	.140" (3.56)
230-133	3/32" (2.38)	.438" (11.13)	1/32" (0.79)	.267" (6.78)	.203" (5.16)
230-134	.187" (4.75)	.495" (12.57)	.065" (1.65)	.312" (7.92)	.200" (5.08)
230-135	1/8" (3.18)	.697" (17.70)	1/16" (1.59)	.359" (9.12)	.266" (6.76)
230-112	3/64" (1.19)	.625" (15.88)	1/16" (1.59)	.375" (9.53)	.190" (4.83)
230-113	5/16" (7.94)	.500" (12.70)	1/16" (1.59)	.312" (7.92)	.200" (5.08)
230-136	3/16" (4.76)	.490" (12.45)	1/4" (6.35)	.310" (7.87)	.195" (4.95)
230-137	1/8" (3.18)	.502" (12.75)	1/32" (0.79)	.399" (10.13)	.349" (8.86)
230-138	9/64" (3.58)	.515" (13.08)	1/16" (1.59)	.312" (7.93)	.260" (6.60)
230-139	.062" (1.57)	.625" (15.88)	1/32" (0.79)	.310" (7.87)	.195" (4.95)
230-140	1/2" (12.70)	.620" (15.75)	1/16" (1.59)	.370" (9.40)	.316" (8.03)
230-141	3/8" (9.53)	.687" (17.45)	3/8" (9.53)	.359" (9.12)	.263" (6.68)
230-142	3/16" (4.76)	.743" (18.87)	1/16" (1.59)	.443" (11.25)	.375" (9.53)
230-143	1/4" (3.38)	.750" (19.05)	5/64" (1.98)	.505" (12.83)	.378" (9.60)
230-144	7/32" (5.55)	.750" (19.05)	3/32" (2.38)	.380" (9.65)	.266" (6.76)
230-145	1" (25.40)	.875" (22.23)	1/16" (1.59)	.500" (12.70)	.375" (9.53)
230-146	3/4" (19.05)	1.000" (25.40)	1/8" (3.18)	.500" (12.70)	.375" (9.53)

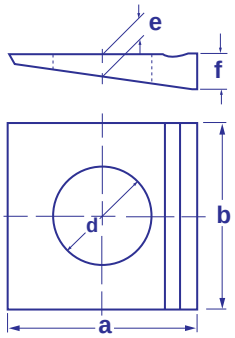
D

DIN 434
8% Slope for "U" Beams
Steel, Plain
(Suffix ZP indicates Zinc Plated)



SPAENAUR No.	For BOLT DIAMETER Metric	Inch	Hole Dia. d (mm)	Dimensions in Millimetres a	b	e	f	Unit Pkg.
635-050	M8	5/16"	9	22	22	2.9	3.8	100
635-051	M10	3/8"	11	22	22	2.9	3.8	100
635-051ZP	M10	3/8"	11	22	22	2.9	3.8	100
635-052	M12	1/2"	13.5	30	26	3.7	4.9	50
635-053	M16	5/8"	17.5	36	32	4.45	5.9	50
635-053ZP	M16	5/8"	17.5	36	32	4.45	5.9	50
635-054	M20	3/4"	22	44	40	5.25	7	50
635-055	M22	7/8"	24	50	44	6	8	25
635-055ZP	M22	7/8"	24	50	44	6	8	25
635-056	M24	1"	26	56	56	6.26	8.5	25
635-056ZP	M24	1"	26	56	56	6.26	8.5	25
635-057	M27	-	30	56	56	6.26	8.5	25
*635-058	M30	1-1/8"	33	62	62	6.5	9	10
*635-059	M33	1-1/4"	36	68	68	7	9.4	10
*635-059ZP	M33	1-1/4"	36	68	68	7	9.4	10

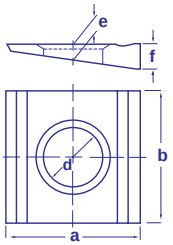
DIN 435
14% Slope for "I" Beams
Steel, Plain



SPAENAUR No.	For BOLT DIAMETER Metric	Inch	Hole Dia. d (mm)	Dimensions in Millimetres a	b	e	f	Unit Pkg.
635-060	M8	5/16"	9	22	22	3.05	4.6	100
635-061	M10	3/8"	11	22	22	3.05	4.6	100
635-062	M12	1/2"	13.5	30	26	4.1	6.2	50
635-062ZP	M12	1/2"	13.5	30	26	4.1	6.2	50
635-063	M16	5/8"	17.5	36	32	5	7.5	50
635-064	M20	3/4"	22	44	40	6.1	9.2	50
635-065	M22	7/8"	24	50	44	6.5	10	25
635-066	M24	1"	26	56	56	6.9	10.8	25
635-067	M27	-	30	56	56	6.9	10.8	25
*635-068	M30	1-1/8"	33	62	62	7.5	11.7	10
635-069GV	M33	1-1/4"	36	68	68	8	12.5	10

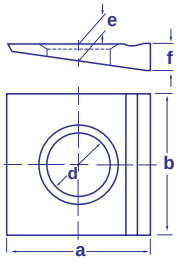
GV = Galvanized Finish.

DIN 6918
8% Slope for "U" Beams
Countersunk – Steel, Plain



SPAENAUR No.	For BOLT DIAMETER Metric	Inch	Hole Dia. d (mm)	Dimensions in Millimetres a	b	e	f	Unit Pkg.
657-208	M12	1/2"	13	30	26	3.7	4.9	50
657-209	M16	5/8"	17	36	32	4.45	5.9	50
657-267	M20	3/4"	21	44	40	5.25	7	50
657-268	M22	7/8"	23	50	44	6	8	25
657-269	M24	1"	25	56	56	6.26	8.5	25
657-271	M27	-	28	56	56	6.26	8.5	25

DIN 6917
14% Slope for "I" Beams
Countersunk – Steel,Plain



SPAENAUR No.	For BOLT DIAMETER Metric	Inch	Hole Dia. d (mm)	Dimensions in Millimetres a	b	e	f	Unit Pkg.
657-201	M12	1/2"	13	30	26	4.1	6.2	50
657-202	M16	5/8"	17	36	32	5	7.5	50
657-203	M20	3/4"	21	44	40	6.1	9.2	50
657-204	M22	7/8"	23	50	44	6.5	10	25
657-205	M24	1"	25	56	56	6.9	10.8	25
657-206	M27	-	28	56	56	6.9	10.8	25
*657-207	M30	1-1/8"	-	-	-	-	-	10

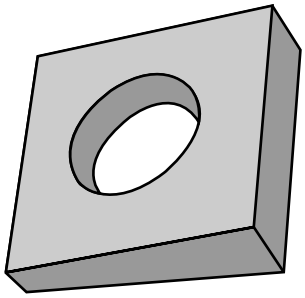
DIN 6917 and DIN 6918 are for use with DIN 6914 Hex Cap Screws

CATALOG 13

MALLEABLE IRON BEVELED WASHERS

16-2/3% Slope

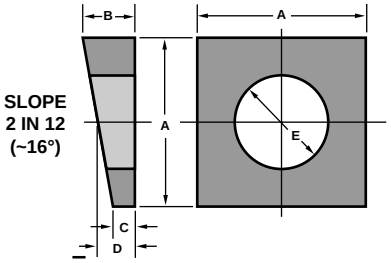
Plain Finish



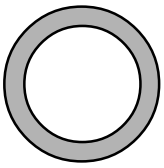
SPAENAUR No.	Bolt Dia.	Across Flats (Square)	Thickness at Large End	Thickness at Taper	Hole Dia.	Unit Pkg. Qty.
635-001	1/4"	11/16"	7/32"	5/64"	5/16"	50
W-289	3/8"	1-1/4"	11/32"	5/32"	7/16"	50
W-290	1/2"	1-1/4"	11/32"	5/32"	9/16"	50
W-291	5/8"	1-1/2"	13/32"	5/32"	11/16"	25
W-292	3/4"	1-1/2"	13/32"	5/32"	13/16"	25
W-293	7/8"	2"	1/2"	7/32"	15/16"	10

ALUMINUM (Alloy 319) BEVELED WASHERS

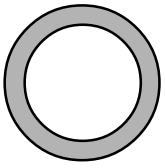
TYPE A - Plain Finish



SPAENAUR No.	BOLT DIA.	A	B	C	D	HOLE DIA. E	UNIT PKG. QTY.
635-300	1/4"	0.69"	0.22"	0.09"	0.16"	0.31"	100
635-301	5/16"	1.00"	0.31"	0.16"	0.23"	0.38"	100
635-302	3/8"	1.25"	0.34"	0.12"	0.23"	0.44"	50
635-303	1/2"	1.25"	0.34"	0.12"	0.23"	0.56"	50
635-304	5/8"	1.50"	0.38"	0.12"	0.25"	0.69"	25
635-305	3/4"	1.50"	0.44"	0.19"	0.31"	0.81"	25



Metric SHIM and SUPPORTING RINGS



Shim Washer Mtrl. - Steel St 2 K 60, Oil Dipped.
Supporting Ring Mtrl. - Spring Steel, Oil Dipped, HRC: 44-49.

DIN 988

Dimensions in Millimetres

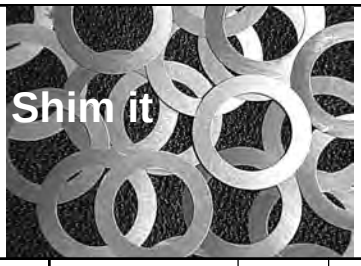
SPAENAUR No.	I.D.	O.D.	Thickness	U.P.QTY.
	SHIM RINGS			
657-179	10	16	0.1	100
657-180	10	16	0.2	100
657-181	10	16	0.3	100
657-182	10	16	0.5	100
657-165	10	16	1.5	100
657-163	10	16	2.0	100
657-158	12	18	0.5	100
657-210	13	19	0.3	100
657-213	25	35	0.5	100
657-214	32	45	0.1	100
657-215	32	45	0.15	100
657-216	32	45	0.3	100
657-217	32	45	0.5	100
657-168	40	50	0.1	50
657-160	40	50	0.15	50
657-159	40	50	0.20	50
657-161	40	50	0.5	50
657-218	42	52	0.5	50
657-219	45	55	0.1	50
657-220	45	55	0.15	50
657-828	45	55	0.3	50
657-221	45	55	0.5	50
657-222	63	80	0.1	50
657-164	63	80	0.3	50
657-223	63	80	0.5	50
657-224	63	80	1.0	50
657-225	70	90	0.1	50
657-226	70	90	0.3	50
657-315	75	95	0.1	50
657-146	75	95	0.3	50
657-227	75	95	0.5	50
657-228	80	100	0.1	25
657-252	80	100	0.15	25
657-229	80	100	0.3	25
657-230	80	100	0.5	25
657-231	80	100	1.5	25
657-232	120	150	0.1	1
657-233	120	150	0.3	1
657-167	120	150	0.5	1
	SUPPORTING RINGS			
657-211	15	21	1.5	100
657-212	16	22	1.5	100
657-814	25	35	2.0	100
657-311	32	45	2.5	100
657-312	35	45	2.5	100
657-313	40	50	2.5	50
657-314	45	55	3.0	50

SHIM RINGS

WITHOUT KEYWAY

STEEL Not Plated

(AISI 1010)



Ready to use. Shim Rings provide a simple, fast, accurate means of spacing milling cutters, saws and knives for precision work. Wide selection. Hole diameters from 3/8" I.D. to 2" I.D.; in thicknesses from .001" to .125".

UNIT PACKAGE - 10 Per Size

D

SIZE I.D. x O.D.	Thick-ness	*SPAENAUR No.*
3/8" x 5/8"	.002"	656-150
	.003"	656-151
	.005"	656-152
	.010"	656-153
	.015"	656-154
	.020"	656-155
	.031"	656-156
	.047"	656-157
	.062"	656-158
1/2" x 3/4"	.002"	656-159
	.003"	656-160
	.004"	656-161
	.005"	656-162
	.010"	656-163
	.015"	656-164
	.020"	656-165
	.031"	656-166
	.047"	656-167
	.062"	656-168
5/8" x 1"	.002"	656-169
	.003"	656-170
	.004"	656-171
	.005"	656-172
	.010"	656-173
	.015"	656-174
	.020"	656-175
	.031"	656-176
	.047"	656-177
	.062"	656-178
3/4" x 1-1/8" (Cont'd.)	.002"	656-179
	.003"	656-180
	.004"	656-181
	.005"	656-182
	.010"	656-183
3/4" x 1-1/8"	.015"	656-184
	.020"	656-185
	.031"	656-186
	.047"	656-187
	.062"	656-188
7/8" x 1-3/8"	.002"	656-236
	.003"	
	.005"	656-237
	.010"	656-189
	.015"	656-190
	.020"	656-191
	.031"	656-192
	.047"	
	.062"	656-248
1" x 1-1/2"	.002"	656-193
	.003"	656-194
	.004"	656-195
	.005"	656-196
	.010"	656-197
	.015"	656-198
	.020"	656-199
	.031"	656-200
	.047"	656-201
	.062"	656-202
	.093"	656-241
	.125"	656-240
1-1/8" x 1-5/8"	.002"	656-249
	.003"	656-203
	.005"	656-204
	.010"	656-205
1-1/4" x 1-3/4"	.002"	
	.003"	
	.004"	656-206
	.005"	656-207
	.010"	656-208
	.015"	656-238
	.020"	
	.031"	656-209
	.047"	656-210
1-3/8" x 1-7/8"	.002"	
	.003"	656-211
	.005"	656-212
	.010"	656-213
	.020"	656-239
	.031	656-242
	.062"	656-243
	.093"	656-244
	.125"	656-245
1-1/2" x 2-1/8"	.005"	656-214
	.007"	656-235
	.010"	656-215
	.020"	656-216
	.062"	656-246
	.093"	656-247
1-3/4" x 2-3/4"	.005"	656-217
	.010"	656-218
	.020"	656-219
2" x 2-3/4"	.005"	656-220
	.010"	656-221
	.020"	656-222
	.062"	656-268
	.093"	656-269
	.125"	656-270

Priced Singly

SHIM RINGS

ASSORTMENT
ASSORTIMENT
805-629

Steel
Not Plated

73 SIZES — 730 Pieces

Contains many numbers listed on this page.
Large size welded STEEL grey enamelled Drawer has "scooped" bins. Drawer fits Slide Racks on page A3.

Shipping Wgt. 4.88 kg (10-3/4 lbs)

Assortment Packs

Priced Singly

Packs contain 19 thicknesses from .001" to .125" (19 Shims)

SPAENAUR No.	SHIM SIZE
656-223	3/8" I.D. x 5/8" O.D.
656-224	1/2" I.D. x 3/4" O.D.
656-225	5/8" I.D. x 1" O.D.
656-226	3/4" I.D. x 1-1/8" O.D.
656-227	7/8" I.D. x 1-3/8" O.D.
656-228	1" I.D. x 1-1/2" O.D.
656-229	1-1/8" I.D. x 1-5/8" O.D.
656-230	1-1/4" I.D. x 1-3/4" O.D.
656-231	1-3/8" I.D. x 1-7/8" O.D.
656-232	1-1/2" I.D. x 2-1/8" O.D.
656-233	1-3/4" I.D. x 2-3/4" O.D.
656-234	2" I.D. x 2-3/4" O.D.

SHIM RING TOLERANCES

I.D. & O.D. Tolerances	
I.D.	+.011/-.000"
O.D.	±.002"

Thicknesses	Tolerances
.001, .0015, .002, .003"	± 10%
.004, .005, .006"	± .0005"
.007, .008, .010, .012, .015"	± .00075"
.020, .025"	± .001"
.031"	± .0015"
.047, .062"	± .002"
.093"	± .0025"
.125"	± .002"

CATALOG 13

See pages D80 to D82 for SHIM STOCK.

SHIM RINGS

WITH KEYWAY

STEEL Not Plated

(AISI 1010)

Inch Sizes

Shim Rings are sold in:

(a) Unit Packages of 10 per size

(b) Assorted Packs of 19, which contain one size only, in 19 thicknesses (see lower right)

(c) Assortment No. 805-630 (See lower left)

D

Size I.D. x O.D.	Thick-ness	SPAENAUR No.
3/8" x 5/8" with 1/8" Keyway	.002"	
	.003"	
	.004"	**656-300**
	.005"	**656-301**
	.010"	**656-302**
	.015"	
	.020"	
	.031"	**656-303**
	.047"	
	.062"	
1/2" x 3/4" with 1/8" Keyway	.002"	
	.003"	
	.004"	**656-304**
	.005"	**656-305**
	.010"	**656-306**
	.015"	
	.020"	
	.031"	**656-307**
	.047"	**656-308**
	.062"	**656-309**
	.093"	
	.125"	**656-310**
5/8" x 1" with 3/16" Keyway (cont'd.)	.002"	
	.003"	
	.004"	**656-311**
	.005"	**656-312**
	.010"	**656-313**
	.015"	**656-314**
	.020"	
	.031"	**656-315**
	.047"	**656-316**
	.062"	
3/4" x 1-1/8" with 3/16" Keyway	.002"	**656-317**
	.003"	**656-318**
	.004"	
	.005"	**656-319**
	.010"	**656-320**
	.012"	**656-321**
	.015"	**656-322**
	.020"	
	.031"	**656-323**
	.047"	**656-324**
	.062"	
7/8" x 1-3/8" with 3/16" Keyway	.002"	
	.003"	**656-325**
	.004"	**656-326**
	.005"	**656-327**
	.010"	**656-328**
	.015"	
	.020"	
	.031"	**656-329**
	.047"	**656-330**
	.062"	
1" x 1-1/2" with 1/4" Keyway (cont'd.)	.001"	**656-331**
	.002"	**656-332**
	.003"	**656-333**
	.004"	**656-334**
	.005"	**656-335**
	.007"	**656-336**
	.010"	**656-337**
	.012"	**656-338**
	.020"	**656-339**
	.025"	**656-340**
	.031"	**656-341**
	.047"	**656-342**
1" x 1-1/2" (1/4" Keyway)	.062"	**656-343**
	.093"	**656-344**
	.125"	**656-345**
1-1/8" x 1-5/8" (1/4" Keyway)	.002"	
	.005"	**656-346**
	.010"	**656-347**
	.020"	
1-1/4" x 1-3/4" with 5/16" Keyway	.002"	**656-348**
	.003"	**656-349**
	.004"	**656-350**
	.005"	**656-351**
	.006"	**656-352**
	.007"	**656-353**
	.008"	**656-354**
	.010"	**656-355**
	.012"	**656-356**
	.015"	**656-357**
	.020"	**656-358**
	.025"	**656-359**
	.031"	**656-360**
	.062"	**656-361**
	.093"	**656-362**
	.125"	**656-363**

Priced Singly

Shim Rings
with Keyway

ASSORTMENT / ASSORTIMENT 805-630

64 Sizes — 490 Pieces

Steel, Not Plated

Contains No's. 656-300 to 656-363, as listed on this page

Large Size welded STEEL, grey enamelled Drawer has "scooped" bins. Fits Slide Racks shown on page A3.

Shipping weight 4.99 kg (11 lbs.)

Assorted Packs

Priced Singly

SHIM RINGS

Contain thicknesses from .001" to .125" (19 to pack)

SPAENAUR No.	SPACER SIZE	KEYWAY SIZE
656-364	3/8" I.D. x 5/8" O.D.	1/8"
656-365	1/2" I.D. x 3/4" O.D.	1/8"
656-366	5/8" I.D. x 1" O.D.	3/16"
656-367	3/4" I.D. x 1-1/8" O.D.	3/16"
656-368	7/8" I.D. x 1-3/8" O.D.	3/16"
656-369	1" I.D. x 1-1/2" O.D.	1/4"
656-370	1-1/8" I.D. x 1-5/8" O.D.	1/4"
656-371	1-1/4" I.D. x 1-3/4" O.D.	5/16"
656-372	1-3/8" I.D. x 1-7/8" O.D.	5/16"
656-373	1-1/2" I.D. x 2-1/8" O.D.	3/8"
656-374	1-3/4" I.D. x 2-3/4" O.D.	7/16"
656-375	2" I.D. x 2-3/4" O.D.	1/2"

For SHIM STOCK see pages D80 to D82.

D

STEEL Shim Stock

SINGLE ROLLS

Thickness in Inches	Equivalent Thickness in mm	*SPAENAUR No.* 6" x 100" ROLLS	12" x 120" ROLLS
.001"	.025	**603-001**	**603-023**
.0015"	.038	**603-002**	**603-024**
.002"	.051	**603-003**	**603-025**
.0025"	.064	**603-004**	—
.003"	.076	**603-005**	**603-026**
.0035"	.089	**603-006**	—
.004"	.102	**603-007**	**603-028**
.005"	.127	**603-008**	**603-029**
.006"	.152	**603-009**	**603-030**
.007"	.179	**603-010**	**603-031**
.008"	.203	**603-011**	**603-032**
.009"	.229	**603-012**	**603-033**
.010"	.254	**603-013**	**603-034**
.012"	.305	**603-014**	**603-035**
.0135"	.343	**603-015**	—
.015"	.381	**603-016**	**603-036**
.0165"	.419	**603-017**	—
.018"	.457	**603-018**	**603-037**
.020"	.508	**603-019**	**603-038**
.022"	.559	**603-020**	—
.025"	.635	**603-021**	**603-039**
.031"	.787	**603-022**	**603-040**

WHEN ACCURACY COUNTS
Specify
PRECISION BRAND
SHIM STOCK

THE SHIM STOCK LEADER

The economical answer for more precise assembly and product reliability.

The machinist, tool and die maker, millwright, design engineer have found shim stock an economical answer for solving a variety of industrial and commercial shimming problems.

Precision Brand Steel Shim is a cold rolled, full hard bright finish, low carbon material with a maximum carbon content up to 0.15%, and a minimum hardness of RB80. Shim is versatile. It is universally used for tool and die alignment, arbor spacers, and all shim applications where combined hardness, flatness and accuracy is required. Save hours of costly machine and assembly work. This material is intended for flatwork and punching only, as it has not been annealed after final cold rolling, and is very stiff and springy. Precision Brand Steel Shim meets QQS-698 and AISI-1010. Also meets steel shim standards 16A and 16AA.

When accuracy counts, come to the people who know shim stock and the importance of close tolerances. You don't pay any more for the highest quality available. And you may pay less because of our volume.

ASSORTMENTS

Description	Thickness in Inches	*SPAENAUR No.*
6" x 12" sheets 1 sheet ea. thickness *12 sheets/set*	.001, .0015, .002, .003, .004, .005, .006, .007, .008, .010, .012, .015	**603-041**
6" x 12" sheets 1 sheet ea. thickness *15 sheets/set*	.001, .0015, .002, .003, .004, .005, .006, .007, .008, .010, .012, .015, .020, .025, .031	**603-042**
6" x 50" rolls 1 roll ea. thickness *4 rolls/box*	.001, .002, .003, .005	**603-043**

LARGE SHEETS (6" x 25")

Description	Thickness	*SPAENAUR No.*
6" x 25" sheets	.012"	**603-044**
2 sheets/package	.015"	**603-045**
	.020"	**603-046**
Sold in full package	.025"	**603-047**
quantities only	.031"	**603-048**

CHEMISTRY			
C	Mn	P. Max.	S. Max.
.08-.13	.30-.60	.040	.050
Mean Tensile 80,000 PSI			

THICKNESS TOLERANCE		
	Width	
Thickness	6"	12"
.001-.003"	± 10%	± 10%
.004-.006"	± .0005"	± .00075"
.007-.019"	± .00075"	± .001"
.020-.025"	± .001"	± .0015"
.026-.031"	± .0015"	± .002"

CATALOG 13

Poc-Kit® Feeler Gauge Assortment and Shim Stock Punch and Die Set shown on P105.

BLUE TEMPERED (STEEL)
Shim Stock

SPECIFICATIONS AND USE

Precision Brand Blue Tempered Spring Steel Shim is a C1095 high carbon, hardened and tempered product to meet the most exacting requirements. This high quality spring steel has a Rockwell hardness range of C 48/51. This material is preferred by tool and die makers for low templates and shim applications where toughness and low fatigue values are required. The blue surface is ideal for scribing layouts. Recommended for various types of coiled and flat mechanical springs, such as those used in tuning devices, electrical assemblies, steel tapes and rules.

Precision Brand Blue Tempered Spring Steel Shim meets the following standards: MIL-S-7947, AMS 5122 and Blue Tempered Shim Standards 23C.

SINGLE ROLLS 50"

Thickness	Equivalent Thickness in mm	Width	*SPAENAUR No.*
.002"	.051	3"	**603-101**
.003"	.076	3"	**603-102**
.004"	.102	5"	**603-103**
.005"	.127	6"	**603-104**
.006"	.152	6"	**603-105**
.007"	.179	6"	**603-106**

LARGE SHEETS (6" x 25")

6" x 25" sheets
2 sheets/package

Sold in Full Package Quantities only.

Thickness	Equivalent Thickness in mm	*SPAENAUR No.*
.008"	.203	**603-107**
.010"	.254	**603-108**
.012"	.305	**603-109**
.015"	.381	**603-110**
.020"	.508	**603-111**
.025"	.635	**603-112**
.032"	.813	**603-113**

ASSORTMENT

Description	Thickness	*SPAENAUR No.*
6" x 12" sheets 1 sheet ea. thickness *6 sheets/set*	.005", .010", .015" .020", .025", .032"	**603-114**

THICKNESS TOLERANCE

Thickness	Width Up to 6" Incl.
.004"	± 10%
.005-.009"	± .00075"
.010-.013"	± .001"
.014-.019"	± .0015"
.020-.032"	± .002"

CHEMISTRY

C	Mn	P Max.	S Max.
.90-1.03	.30-.50	.040	.050

Tensile: 230,000/250,000 PSI based on Rockwell Hardness C48/51

STAINLESS STEEL
Shim Stock

SPECIFICATIONS AND USE

Precision Brand Stainless Steel Shim is a T302, cold rolled, full hard material with a hardness of RC-40/45. Because of its accurate thickness and temper, it is widely used for shimming applications where corrosion resistance is required. Also used extensively for spring clips, washers and retainers. Precision Brand Stainless Steel Shim has been recognized for shimming applications in nuclear and fossil-fueled generating stations, oil and gas refineries, and desalinization projects throughout the world. Material certifications available upon request. Precision Brand Stainless Steel Shim meets the following standards: AISI 302, SAE 30302, MIL-S-5059 and Stainless Steel Shim standards 22L and 22LL.

SINGLE ROLLS

Thickness	Equivalent Thickness in mm	*SPAENAUR No.* 6" x 50" ROLLS	*SPAENAUR No.* 12" x 50" ROLLS
.0005"	.013	**603-801**	**—**
.001"	.025	**603-802**	**603-818**
.0015"	.038	**603-803**	**—**
.002"	.051	**603-804**	**603-819**
.003"	.076	**603-805**	**603-820**
.004"	.102	**603-806**	**603-821**
.005"	.127	**603-807**	**603-822**
.006"	.152	**603-808**	**603-823**
.007"	.179	**603-809**	**603-824**
.008"	.203	**603-810**	**603-825**
.009"	.229	**603-811**	**—**
.010"	.254	**603-812**	**603-826**
.012"	.305	**603-813**	**603-827**
.015"	.381	**603-814**	**603-828**
.020"	.508	**603-815**	**603-829**
.025"	.635	**603-816**	**603-830**
.031"	.787	**603-817**	**603-831**

LARGE SHEETS (12" x 24")

12" x 24" sheets
2 sheets/package

Sold in Full Package Quantities only.

Thickness	Equivalent Thickness in mm	*SPAENAUR No.*
.025"	.635	**603-116**
.031"	.787	**603-115**

ASSORTMENT

Description	Thickness	*SPAENAUR No.*
6" x 12" sheets 1 sheet ea. thickness *8 sheets/set*	.001", .002", .003", .005", .008", .010", .015", .020"	**603-832**

THICKNESS TOLERANCE

Thickness	Width 6"	Width 12"
.0005-.009"	± 10%	± 10%
.010-.019"	± .001"	± .0015"
.020-.028"	± .0015"	± .0015"
.029-.031"	±.002"	± .002"

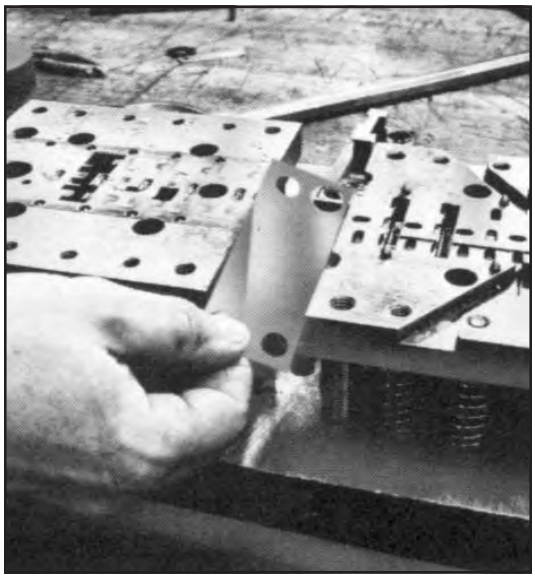
CHEMISTRY

C Max.	Mn Max.	Si Max.	P Max.	S Max.	Cr	Ni
0.15	2.00	1.00	0.045	0.030	17.00/ 19.00	8.00/ 10.00

BRASS Shim Stock

D

Cut It



Shim It

SINGLE ROLLS

Thickness in Inches	Equivalent Thickness in mm	*SPAENAUR No.* 6" x 100" ROLLS	12" x 120" ROLLS
.001"	.025	**603-500**	**603-516**
.0015"	.038	**603-501**	-
.002"	.051	**603-502**	**603-517**
.003"	.076	**603-503**	**603-518**
.004"	.102	**603-504**	**603-519**
.005"	.127	**603-505**	**603-520**
.006"	.152	**603-506**	**603-521**
.007"	.179	**603-507**	-
.008"	.203	**603-508**	**603-522**
.009"	.229	**603-509**	-
.010"	.254	**603-510**	**603-523**
.012"	.305	**603-511**	-
.015"	.381	**603-512**	**603-532**
.020"	.508	**603-513**	**603-533**
.025"	.635	**603-514**	-
.031"	.787	**603-515**	-

LARGE SHEETS (6" x 25")

Description	Thickness in Inches	*SPAENAUR No.*
6" x 25" sheets	.012	**603-527**
2 sheets/package	.015	**603-528**
	.020	**603-529**
Sold in Full Package	.025	**603-530**
Quantities only	.031	**603-531**

ASSORTMENTS

Description	Thickness In Inches	*SPAENAUR No.*
6" x 12" sheets 1 sheet ea. thickness *12 sheets/set*	.001, .0015, .002, .003, .004, .005, .006, .007, .008, .010, .012, .015	**603-524**
6" x 12" sheets 1 sheet ea. thickness *15 sheets/set*	.001, .0015, .002, .003, .004, .005, .006, .007, .008, .010, .012, .015, .020, .025, .031	**603-525**
6" x 50" rolls 1 roll ea. thickness *4 rolls/box*	.001, .002, .003, .005	**603-526**

SPECIFICATIONS AND USE

Precision Brand Brass Shim is a cold rolled, half hard, 70% copper, 30% zinc alloy material with an R30T hardness range of 56/68. Because of its accurate thickness and temper, it is universally used for shimming applications in explosive atmospheres and where corrosion problems exist. Due to its excellent forming quality, it may be lightly drawn, blanked or stamped, and is used extensively in metal sculpture.

Precision Brand Brass Shim meets the following standards: SAE CA 260, ASTM-B36 #6, AMS 4507-C, QQ-B-613-b #2 and brass shim standards 17S and 17SS.

CHEMISTRY

Cu	Zn	
70	30	Approximate Tensile 62,000 PSI

THICKNESS TOLERANCES

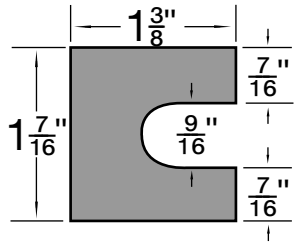
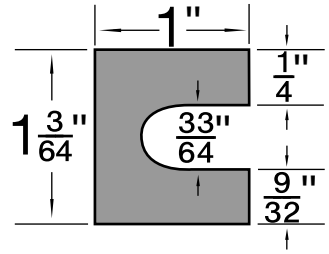
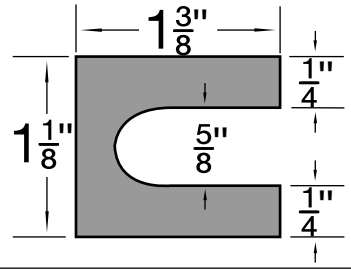
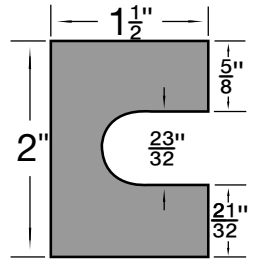
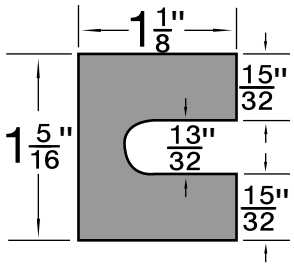
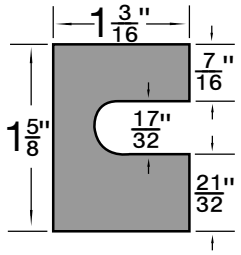
Thickness in Inches	Width 6"	12"
.001" to .003"	±10%	±10%
.004"	±.0003	±.0006
.005" to .006"	±.0004	±.0008
.007" to .009"	±.0006	±.0010
.010" to .013"	±.0008	±.0013
.014" to .017"	±.0010	±.0015
.018" to .021"	±.0013	±.0018
.022" to .031"	±.002	±.002

CATALOG 13

Poc-Kit® Feeler Gauge Assortment and Shim Stock Punch and Die Set shown on P105.

Steel - Zinc Plated

P.C. 602

Illustration	SPAENAUR No.	Thickness	Unit Pkg. Qty.	Description and Application
	**W-134SH**	1/8"	25	*BALL-JOINT SHIMS* *For Oldsmobile 1957-'73*
	**W-300SH** **W-138SH** **W-139SH** **W-140SH**	1/64" 1/32" 1/16" 1/8"	25 25 25 25	*BALL-JOINT SHIMS* *For Ford, Meteor 1957-'73* *Checker 1957-'73*
	**W-6SH** **W-7SH** **W-8SH** **W-9SH**	1/64" 1/32" 1/16" 1/8"	50 50 50 50	*BALL-JOINT SHIMS* *For Ford Products Cars 1954-'79* *and Universal use*
	**W-187SH**	1/8"	25	*BODY SHIM* *For Ford 1955-'73*
	**W-185SH** **W-186SH**	1/16" 1/8"	25 25	*HOOD ALIGNING SHIMS* *For Chevrolet '55-'73*
	***W-182SH** **W-183SH** **W-184SH**	1/32" 1/16" 1/8"	25 25 25	*UNIVERSAL BODY SHIMS* *For ALL Cars* ***Slot Depth .850" ± .015625"**

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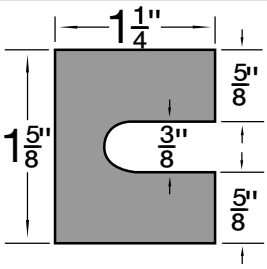
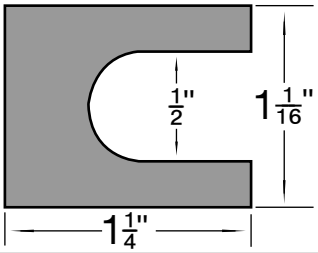
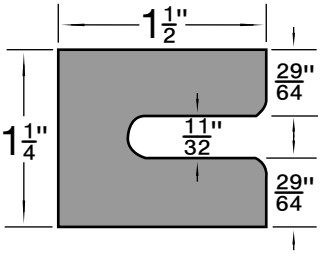
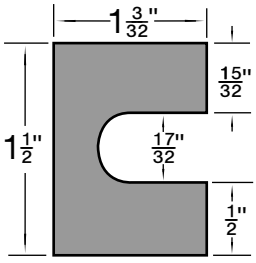
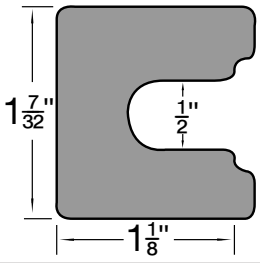
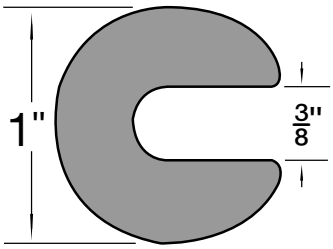
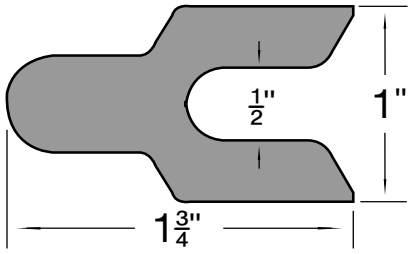
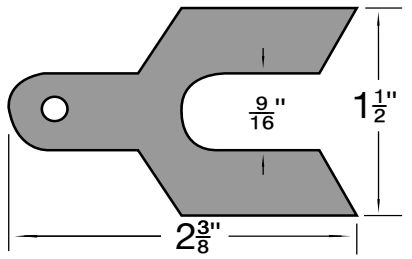
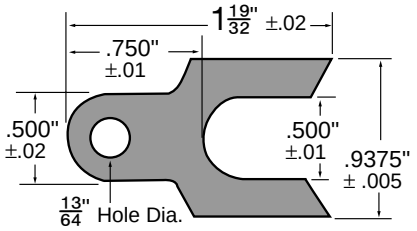
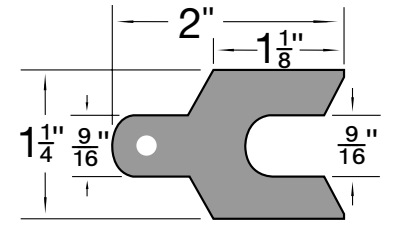
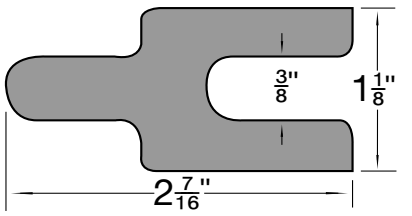
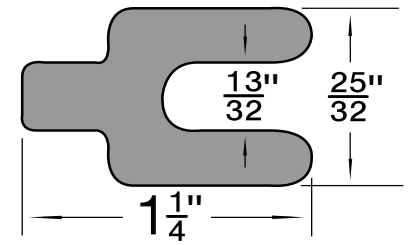
Steel - Zinc Plated

Illustration	*SPAENAUR No.*	Thickness	Unit Pkg. Qty.	Description and Application
	**602-431** **W-164SH**	1/16" 1/8"	25 50	*BODY SHIM* *General Purpose*
	**W-12SH**	1/8"	50	*ALL PURPOSE SHIM*
	**B-1360**	.080"	50	*ALL PURPOSE SHIM*
	**W-301SH** **W-302SH** **W-303SH** **W-304SH**	1/64" 1/32" 1/16" 1/8"	50 50 50 25	*BALL-JOINT SHIMS* *Mustang 1965 - 1966*
	**602-412** **602-413** **602-414**	1/32" 1/16" 1/8"	25 25 25	*BALL-JOINT SHIMS* *Chevrolet 1971-'79*
	**W-148** **W-155** **W-146**	1/32" 1/16" 1/8"	100 100 100	*WASHER SHIM* *All Purpose Universal All cars 1963-79*

CATALOG 13

Steel - Zinc Plated

Illustration	*SPAENAUR No.*	Thickness	Unit Pkg. Qty.	Description and Application
	**602-396** **602-397** **602-398**	1/32" 1/16" 1/8"	25 25 25	*BALL-JOINT SHIMS* *Chev. & Chevelle Com.* *1971-1979*
	**602-399** **602-411**	1/32" 1/8"	25 25	*BALL-JOINT SHIMS* *Chev. & GMC Heavy Trucks* *1963-1973*
	**602-432**	1/64"	25	*BALL-JOINT SHIMS*
	**W-195SH** **W-196SH** **W-197SH**	1/32" 1/16" 1/8"	25 25 25	*BALL-JOINT SHIMS* *For Chevrolet Light Truck 1960-1979*
	**602-415** **602-416**	1/16" 1/8"	25 25	*FENDER TAB SHIMS* *Buick 1965-1973*
	**602-428** **602-417** **602-418**	1/32" 1/16" 1/8"	50 50 50	*SHIMS* *Fiat & Small Foreign Cars* *1970-1979*

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Steel - Zinc Plated

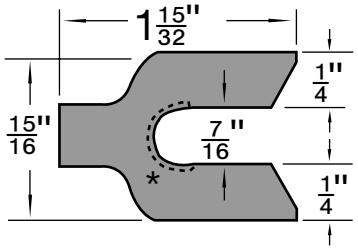
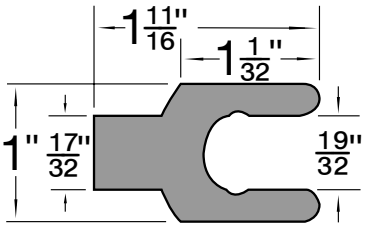
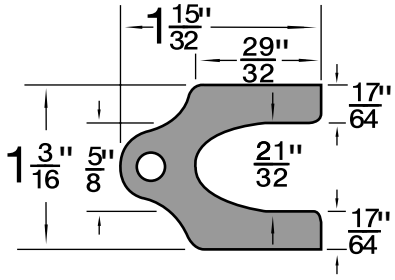
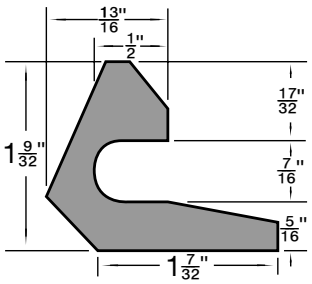
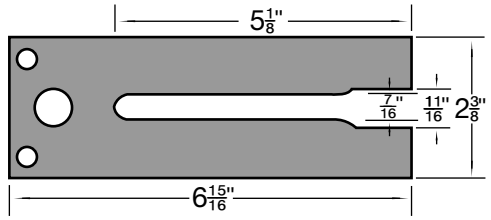
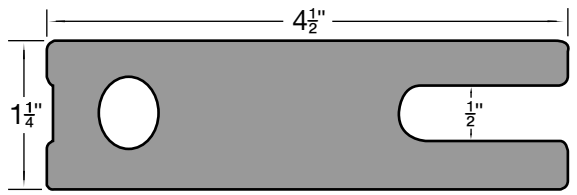
Illustration	*SPAENAUR No.*	Thickness	Unit Pkg. Qty.	Description and Application
	**602-429**	1/64"	25	*CASTER-CAMBER SHIMS* *For Chevrolet, Pontiac 1955-1970* *Corvair '60-62* *dashed line on drawing is the cut out for this part number.
	W-14SH	1/32"	50	
	W-15SH	1/16"	50	
	W-16SH	1/8"	50	
	***W-17SH**	3/16"	25	
	**W-191SH**	.030"	25	*BALL-JOINT SHIMS* *For Buick, Pontiac 1957-1973*
	W-135SH	.060"	25	
	W-136SH	.080"	25	
	W-137SH	.110"	25	
	W-192SH	.164"	25	
	**602-430**	1/64"	25	*UNIVERSAL BALL-JOINT SHIMS* *Fit all bolt sizes*
	W-220SH	1/32"	25	
	W-221SH	1/16"	25	
	**W-217SH**	1/32"	25	*CASTER-CAMBER SHIMS* *Corvair 1961 - 1968*
	W-218SH	1/16"	25	
	W-219SH	1/8"	25	

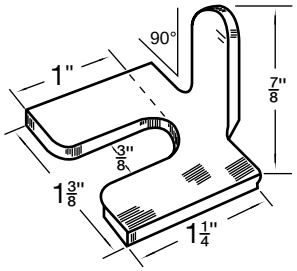
Illustration	*SPAENAUR No.*	Thickness	Description and Application
	**W-204SH**	1/32"	*Chev. & GMC Trucks* *1960-1968*
	W-205SH	1/16"	
	W-206SH	1/8"	
	**602-424**	1/64"	*REAR SUSPENSION SHIM* *GM Cars 1963-1979*
	602-425	1/32"	
	602-426	1/16"	
	602-427	1/8"	

CATALOG 13

BODY SHIM

STEEL—Zinc Plated

SPAENAUR No.	Thickness
602-422	1/16"
602-423	1/8"



Shim, Body at Hinge to Fender Reinforcement, Lower Fender Reinforcement to Body.

Chevrolet, Oldsmobile, Buick, Pontiac — 1977-1979.

Unit Pkg. Qty. 25

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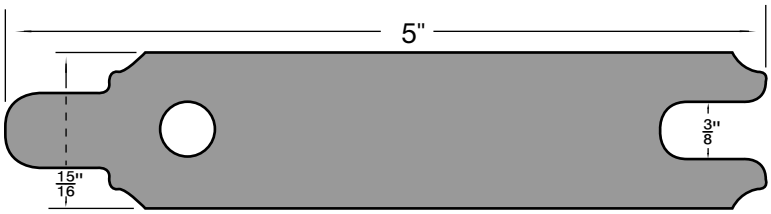
ALIGNING SHIMS FOR STARTERS

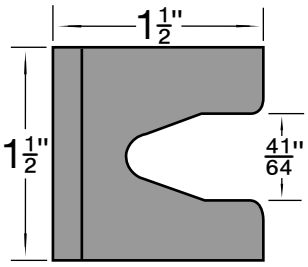
CHEVROLET, OLDSMOBILE, BUICK, PONTIAC
ALL G.M. CARS 1970-1979

STEEL
Zinc Plated

Unit Pkg. Qty. 25

SPAENAUR No.	Thickness
602-419	1/64"
602-420	1/32"
602-421	1/16"





UNIVERSAL
"BREAK-OFF" SHIM

SPAENAUR No.
W-321SH

.065" Thick

Unit Pkg. Qty. 50

FOR ALL BOLT SIZES—
3/8", 7/16", 1/2", 9/16", 5/8" and 21/32"

Break-Off Feature For Added Application in Hard-To-Shim Areas.

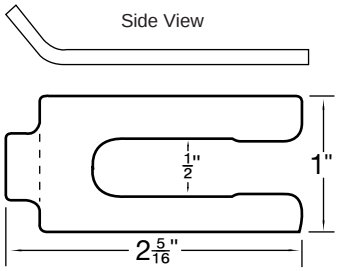
UNIVERSAL TAB BODY SHIM

Pontiac 1965-'72

Unit Pkg. Qty. 25

For aligning:

- FENDERS
- DOORS
- TRUNK
- HOOD



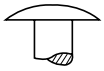
SPAENAUR No.	Thickness	Unit Pkg. Qty.
602-394	1/16"	25
602-395	1/8"	25

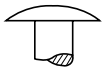
SPAENAUR

We're your complete source for all your fastener needs.

Rivets	Rivets	**E2**
POP Rivets	Rivets «POP»	**E18**
Cotter Pins	Goupilles fendues	**E48**
Hitch Pin Clips	Agrafes pour goupilles d'attelage	**E56**
Hitch & Lock Pins	Goupilles d'attelage et de verrouillage	**E70**
Shackles	Maillons d'attache forgée	**E82**
Clevis Pins & Yokes	Axes et fourches de chape	**E85**
Dowel Pins	Goupilles cylindriques	**E90**
Taper Pins	Goupilles coniques	**E96**
Spring Tension Pins	Goupilles à ressort	**E105**
Woodruff, Shaft & Machine Keys	Clés «Woodruff», à talon et parallèles	**E117**
Drill Rod	Acier en rondin	**E124**
Shaft Collars	Collier de serrage	**E127**
Retaining Rings	Bagues de retenue et outils	**E130**

C-1008 SOFT STEEL - HARDNESS ROCKWELL B-60, MAX. Plain Finish

RIVET SIZE					
DIA.	L.	ROUND	FLAT	TRUSS	90° CTSK.
1/8"	7/32 1/4 5/16 3/8	RVT-50 291-001 RVT-7	RVT-49 291-180	291-177 B-1675 B-1625	291-029 RVT-156
	1/2 3/4 1	RVT-51 RVT-52 RVT-53		291-182	
3/16"	7/32 17/64 3/8	RVT-54	RVT-85	RVT-92	RVT-114
	7/16 1/2 9/16	RVT-55 RVT-1 RVT-8	RVT-86 291-181	RVT-94	RVT-115
	5/8 3/4 7/8	B-1696 RVT-56 RVT-2		RVT-95 RVT-96 RVT-97	RVT-116
	1 1-1/4 1-3/8	RVT-3 RVT-57		RVT-98	
	1-1/2 1-3/4 2	RVT-58 RVT-59		RVT-100 RVT-132 RVT-101	
	2-1/4 2-3/8			RVT-133 RVT-135	
	2-1/2			RVT-134	
1/4" cont'd.	3/8 7/16 1/2	RVT-60 RVT-61 RVT-155	RVT-87 RVT-88	RVT-102 RVT-103 RVT-257	RP-66 RVT-117
	5/8 3/4 7/8	RVT-62 RVT-4 RVT-63	B-1677 RVT-89 291-183	RVT-104	RVT-118 291-178

RIVET SIZE					
DIA.	L.	ROUND	FLAT	TRUSS	90° CTSK.
1/4" cont'd.	1 1-1/4 1-1/2	RVT-5 RVT-6 RVT-64	RVT-128	RVT-106 RVT-107 RVT-108	
	1-3/4 2 2-1/2	RVT-65 RVT-66 RVT-153		RVT-109	
5/16"	1/2 5/8 3/4	RVT-67 B-1693 RVT-68	RVT-90 RVT-258	RVT-110 RVT-111 RVT-112	
	7/8 15/16 1	RVT-69 RVT-10	B-1614	 RVT-113	
	1-1/4 1-5/16	RVT-70 291-179			
	1-3/4 2	RVT-71 RVT-12			
3/8"	1/2 5/8 3/4	RVT-72 RVT-73 RVT-74	RVT-91		
	7/8 1 1-1/8	RVT-75 RVT-76 RVT-77	B-1699 B-1659		
	1-1/4 1-1/2 1-5/8 2	RVT-78 RVT-79 RVT-80	 291-033		
7/16"	1 1-1/4 1-3/8	RVT-81 RVT-82			 B-1660
	1-1/2 2	RVT-83 RVT-84	RVT-255		

— ADDITIONAL SIZES —

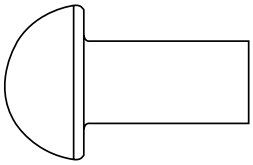
NOTE: Special Head, Diameters and Plating Finishes, listed on chart below.

(Sizes listed below are subject to prior sale and minimum run quantities if reordered.)

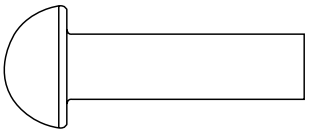
SPAENAUR No.	Dia. x Lgth.	Head Style	Head Dia.	Finish
291-021	5/32" x 5/8"	Round	9/32"	Zinc
291-022	3/16" x 1-3/8"	Round	11/32"	Zinc
291-024	3/16" x 2-1/2"	Round	11/32"	Zinc
291-025	1/4" x 2-15/16"	Round	7/16"	Zinc
291-026	1/4" x 3"	Round	7/16"	Zinc
291-027	5/16" x 1-1/8"	Round	9/16"	Zinc
291-002	5/64" x 5/64"	Flat	5/32"	Plain
291-003	3/32" x 5/32"	Flat	3/16"	Zinc
291-004	1/8" x 7/32"	Flat	1/4"	Zinc
291-007	3/16" x 1/4"	Flat	3/8"	Zinc
291-008	3/16" x 17/64"	Flat	3/8"	Zinc
291-009	3/16" x 9/32"	Flat	21/64"	Zinc
291-010	3/16" x 13/32"	Flat	3/8"	Zinc
RVT-90ZP	5/16" x 1/2"	Flat	5/8"	Zinc

SPAENAUR No.	Dia. x Lgth.	Head Style	Head Dia.	Finish
291-028	1/8" x 5/16"	Pan	7/32"	Plain
291-012	9/64" x 1-5/8"	Truss	9/32"	Plain
291-013	3/16" x 1-5/8"	Truss	7/16"	Zinc
RVT-132ZP	3/16" x 1-3/4"	Truss	7/16"	Zinc
291-014	3/16" x 1-7/8"	Truss	7/16"	Zinc
291-015	3/16" x 2-5/8"	Truss	7/16"	Zinc
291-030	3/16" x 15/32"	90°Ctsk.	11/32"	Zinc
291-031	3/16" x 55/64"	90°Ctsk.	11/32"	Zinc
291-034	1/8" x 5/16"	L-P Rd.▲	1/4"	Plain
291-016	5/32" x 17/32"	L-P Rd.▲	1/4"	Zinc
291-017	5/32" x 47/64"	L-P Rd.▲	1/4"	Plain
291-018	3/16" x 3/4"	L-P Rd.▲	5/16"	Zinc
291-019	3/16" x 1-5/8"	L-P Rd.▲	5/16"	Zinc
291-020	1/4" x 1-15/64"	L-P Rd.▲	11/32"	Plain
291-032	1/8" x 21/64"	Wafer	3/8"	Nickel

▲Low Profile Round.
All Items This Page Unit Package Qty. 100.



BUTTON HEAD RIVETS
STEEL - PLAIN FINISH



Dimensions are to ASME/ANSI B18.1.2, 1972 (R 1983).
Tensile strength: 52,000 to 62,000 P.S.I. Annealed, for cold driving.

P.C. 291

Dia.	Length (Inches)	*SPAENAUR No.*	Unit Pkg.
1/2"	1	**RVT-196**	50
	1-1/4	**RVT-175**	50
	1-1/2	**RVT-176**	50
	1-3/4	**RVT-177**	50
	2	**RVT-178**	50
	2-1/2	**RVT-179**	50
5/8"	1-1/4	**RVT-180**	50
	1-1/2	**RVT-181**	50
	1-3/4	**RVT-182**	50
	1-7/8	**RVT-183**	50
	2	**RVT-184**	50
	2-1/8	**RVT-185**	50
	2-1/4	**RVT-186**	50
	2-1/2	**RVT-187**	50
	3	**RVT-188**	25
	3-1/2	**RVT-189**	25
	4	**RVT-190**	25
3/4"	1-3/4	**RVT-191**	25
	1-7/8	**RVT-192**	25
	2	**RVT-193**	25
	2-1/4	**RVT-194**	25
	2-3/8	**RVT-195**	25
	2-1/2	**RVT-172**	25
	2-3/4	**RVT-198**	25
	3	**RVT-199**	25
	3-1/4	**RVT-200**	25
	3-1/2	**RVT-201**	25
	4	**RVT-202**	20
	4-1/2	**RVT-203**	20
	5	**RVT-204**	20
7/8" cont'd.	2	**RVT-205**	25
	2-1/2	**RVT-208**	25
	2-3/4	**RVT-210**	25
7/8" cont'd.	2-7/8	**RVT-211**	25
	3	**RVT-212**	20
	3-1/4	**RVT-213**	20
	3-1/2	**RVT-214**	20
	3-3/4	**RVT-215**	20
	4	**RVT-216**	20
	4-1/4	**RVT-217**	20
	4-1/2	**RVT-218**	20
	4-3/4	**RVT-219**	20
1"	2-1/2	**RVT-221**	20
	3	**RVT-223**	20
	3-1/2	**RVT-224**	20
	4	**RVT-225**	10
	4-1/2	**RVT-226**	10

"HOW TO MEASURE RIVET LENGTHS" - see page E4.

Straight Type for Solid Rivets

Tool Grade Steel
Heat Treated

Rivet Dia.	Length "L"	*SPAENAUR No.*	Pkg. Qty.
Round Cupping			
1/8"	3-1/2"	**876-1762**	1
3/16"	3-1/2"	**876-1763**	1
1/4"	3-1/2"	**876-1764**	1
Flat Cupping			
1/8"	3-1/2"	**876-1767**	1
3/16"	3-1/2"	**876-1768**	1
1/4"	3-1/2"	**876-1769**	1

Straight Type for Flaring Tubular Rivets

1/8"	3-1/2"	**876-1779**	1
3/16"	3-1/2"	**876-1780**	1
1/4"	3-1/2"	**876-1781**	1

Straight Bell Type for Solid Rivets

Round Cupping			
5/16"	3-1/2"	**876-1765**	1
3/8"	3-1/2"	**876-1766**	1
3/8"	3-1/2"	***876-1866**	1
Flat Cupping			
5/16"	3-1/2"	**876-1770**	POA

Rivet Sets for Pneumatic Riveting Hammers

with .401" Dia. Shank

(*with .498" Dia. Shank)

Select desired Rivet Set by rivet diameter and desired Cupping Style.

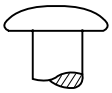
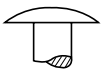
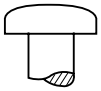
Also available for Brazier, Button and Universal style.

Tel: 1-800-265-8772 Fax: 519-744-0818

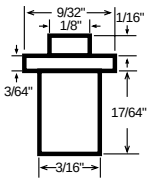
Aluminum Alloy No. 1100-F (2-S)

SOLID ALUMINUM RIVETS

Unit Package 100

Order Rivet Size by *SPAENAUR* No's.							
DIA.	**Length**	**ROUND**	**UNIVERSAL**	**TRUSS**	**PAN**	**FLAT**	**90° CTSK.**
1/16"	3/8"	**RVT-3016**		**286-016**		**286-027**	**286-039**
3/32"	1/4"	**286-013**				**286-102**	**RVT-3019**
	1/2"	**286-014**			**RVT-3018**	**286-028**	**286-040**
1/8"	3/16"			**286-017**	**RVT-3013**		**286-002**
	1/4"	**286-003**				**286-011**	**286-099**
	5/16"			**286-018**			**286-041**
	3/8"	**B-800**				**286-012**	**RVT-3032**
	1/2"	**B-1197**	**RVT-3012**		**RVT-3017**		**RVT-3021**
	3/4"	**RVT-3020**		**286-019**		**286-029**	**286-042**
	1"	**B-801**		**286-020**		**286-030**	**286-043**
9/64"	9/16"						
5/32"	1/4"		**286-007**	**286-021**		**286-046**	
	5/16"		**B-131**	**286-022**			
	3/8"	**B-1726**				**286-031**	
	7/16"	**RVT-3001**					
	1/2"			**286-098***			**286-009**
	9/16"	**B-1727**					
	3/4"		**RVT-3028**	**286-023**		**286-032**	
3/16"	1/4"						
	5/16"	**B-730**		**B-132**	**RVT-3010**		
	3/8"	**RVT-3005**	**B-1682**	**286-024**	**RVT-3002**	**286-004**	**286-044**
	7/16"	**RVT-3006**	**B-1700**				
	1/2"	**B-731**	**B-133**	**286-008**	**RVT-3014**	**RVT-3022**	**RVT-3025**
	5/8"	**RVT-3007**	**B-1118**				**RVT-3027**
	3/4"	**B-732**			**B-194**	**286-033**	**RVT-3024**
	7/8"	**RVT-3008**		**B-1119**			
	1"	**RVT-3009**		**B-1051**		**286-034**	**RVT-3030**
	1-3/8"			**RVT-3026**			
	1-1/2"	**286-015**	**RVT-3015**			**286-035**	**286-045**
1/4"	3/8"		**B-1574**				
	1/2"	**B-1142**				**RVT-3023**	**RVT-3031**
	3/4"	**B-1143**		**B-802**		**286-005**	
	1"	**B-1144**				**286-006**	
5/16"	3/4"	**B-1665**					
	1"	**B-1666**					
	1-1/2"	**286-010**					
	1-5/8"	**286-101**					
3/8"	1"	**RVT-3029**					

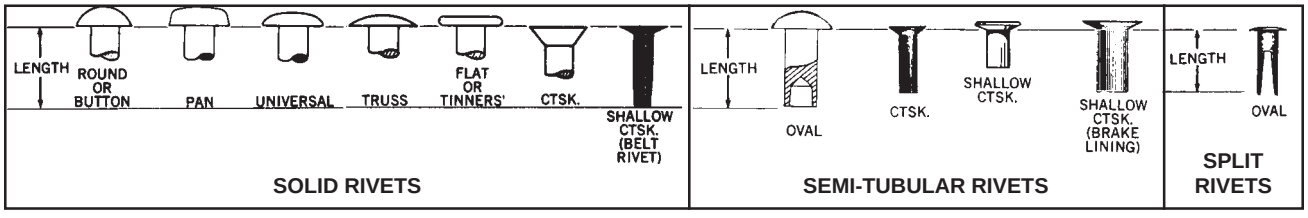
***** 3/8" Head Diameter



Solid Type Aluminum Collar Rivet

SPAENAUR No.
286-100

HOW TO MEASURE RIVET LENGTHS



For Plastic Blind Rivets, see page E36.

18-8 STAINLESS STEEL
Solid Rivets

RIVET SIZE DIA.	Lgth.	ROUND	FLAT	90° CTSK.
1/8" Also *294-200 316 S.S.	3/16"	RVT-2005		
	1/4"	RVT-2007	RVT-2006	
	3/8"	RVT-2001	RVT-2008	RVT-2003
	1/2"	RVT-2002*	RVT-2009	RVT-2010
	5/8"	RVT-2012	RVT-2011	RVT-2013
	3/4"	RVT-2015	RVT-2014	RVT-2016
	1"	RVT-2018	RVT-2017	RVT-2019
5/32"	1/4"		RVT-2082	
	1/2"		RVT-2081	
3/16"	1/4"	RVT-2021		
	17/64"		▲294-021	
	3/8"	RVT-2023	RVT-2022	RVT-2024
	1/2"	RVT-2026	RVT-2025	RVT-2027
	5/8"	RVT-2029	RVT-2028	RVT-2030
	3/4"	RVT-2032	RVT-2031	RVT-2033
	1"	RVT-2035	RVT-2034	RVT-2036
	1-1/4"	RVT-2038	RVT-2037	RVT-2039
	1-3/8"	▲294-020		
	1-1/2"	RVT-2041	RVT-2040	
	1-3/4"	294-001		
	2"	RVT-2004		
1/4"	3/8"	RVT-2043	RVT-2042	
	1/2"	RVT-2044	RVT-2000	RVT-2045
	5/8"	RVT-2047	RVT-2046	RVT-2048
	3/4"	RVT-2050	RVT-2049	RVT-2051
	1"	RVT-2053	RVT-2052	RVT-2054
	1-1/4"	RVT-2055		RVT-2056
	1-1/2"	RVT-2057		
	2"	RVT-2058		
5/16"	5/8"	RVT-2060	RVT-2059	
	3/4"	RVT-2062	RVT-2061	
	1"	RVT-2064	RVT-2063	
	1-1/4"	RVT-2065		
	1-1/2"	RVT-2067	RVT-2066	
	2"	RVT-2068		
3/8"	5/8"	RVT-2069		
	3/4"	RVT-2070		
	1"	RVT-2071		
	1-1/4"	RVT-2072		
	1-1/2"	RVT-2073		
	2"	RVT-2075		

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▲430 Stainless Steel

ORDER BY *SPAENAUR* NUMBERS SHOWN IN **BOLD FACE.**

UNIT PACKAGE QUANTITY 100 ALL ITEMS ON THIS PAGE.

BRASS
Solid Rivets

RIVET SIZE DIA.	LGTH.	OVAL	ROUND	90° CTSK.	FLAT
5/64"	5/32"	RVT-571			
	11/32"	288-006			
1/8"	1/4"		RVT-558		
	3/8"		RVT-559		
	1/2"		RVT-560		
5/32"	13/32"				
	17/32"			288-007	
3/16"	5/16"				288-005
	3/8"		RVT-577		
	1/2"		RVT-561		
	5/8"		RVT-562	RVT-563	
	3/4"		RVT-564	RVT-565	
	1"		RVT-555		
1/4"	1/2"		RVT-566		
	3/4"		RVT-567	RVT-554	
	1"		RVT-568		
	1-1/4"		288-002		
	1-3/4"		RVT-569	RVT-570	

P.C. 288

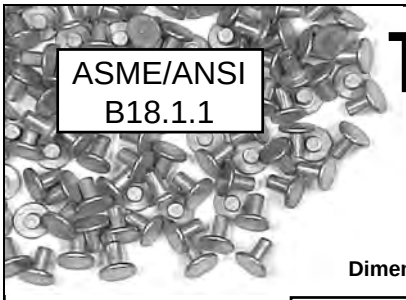
COPPER
Solid Rivets

.087"	5/16"			RVT-4000	
3/32"	5/16"		290-017		
1/8"	3/8"		RVT-4040		
	1/2"		RVT-4041		■290-016
	5/8"		290-010	RVT-4055	
	3/4"		RVT-4042	RVT-4038	
	1"		RVT-4018	RVT-4051	
3/16"	3/8"		RVT-4032	RVT-4053	
	1/2"		RVT-4019	RVT-4020	
	5/8"		RVT-4039	RVT-4036	
	3/4"		RVT-4044		
	7/8"			RVT-4037	
	1"		RVT-4016	RVT-4017	
	1-1/4"			290-001	
	1-1/2"		RVT-4035	RVT-4034	
1/4"	1/2"		RVT-4050		
	3/4"		RVT-4045	RVT-4046	
	1"		RVT-4043	RVT-4052	
	1-1/2"			RVT-4022	
	2"			RVT-4049	
5/16"	1-1/4"			RVT-4048	
	2"			RVT-4054	

P.C. 290

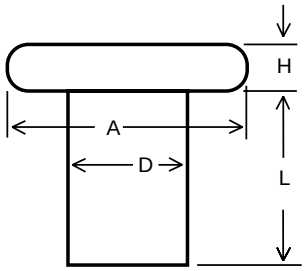
■7/32" Head Dia.

For **Copper TUBULAR Rivets** see page **E16**.



TINNERS' RIVETS

FLAT HEAD - SOLID



Unit Package 100 - One Size

Dimensions shown are subject to normal commercial tolerances

E

STEEL

TINNED FINISH

(*Zinc Plated)

P.C. 291

SPAENAUR No.	D Dia.	L Length	A Head Dia.	H Head Thickness	*Size Number (Metric Equiv.)
RVT-136	.088"	5/32"	.225"-.205"	.036"-.024"	8 oz. (.23 kg)
RVT-137	.104"	3/16"	.265"-.245"	.037"-.025"	12 oz. (.34 kg)
RVT-138	.110"	13/64"	.285"-.265"	.040"-.028"	1 lb. (.45 kg)
RVT-139	.119"	7/32"	.295"-.275"	.045"-.033"	1-1/4 lb. (.57 kg)
RVT-141	.143"	17/64"	.341"-.319"	.050"-.036"	2 lb. (.90 kg)
RVT-142	.147"	9/32"	.311"-.289"	.069"-.055"	2-1/2 lb. (1.13 kg)
RVT-143	.159"	5/16"	.329"-.303"	.073"-.059"	3 lb. (1.36 kg)
RVT-144	.175"	11/32"	.368"-.342"	.076"-.062"	4 lb. (1.81 kg)
RVT-145	.185"	3/8"	.388"-.362"	.084"-.070"	5 lb. (2.27 kg)
***RVT-146**	.202"	25/64"	.419"-.393"	.090"-.076"	6 lb. (2.72 kg)
RVT-147	.223"	7/16"	.475"-.445"	.101"-.085"	8 lb. (3.63 kg)
RVT-149	.257"	1/2"	.532"-.498"	.108"-.090"	12 lb. (5.44 kg)

18-8 STAINLESS STEEL

P.C. 294

RVT-2100	.089"	5/32"	.225"-.205"	.036"-.024"	8 oz. (.23 kg)
RVT-2103	.111"	13/64"	.285"-.265"	.040"-.028"	1 lb. (.45 kg)
RVT-2104	.120"	7/32"	.295"-.275"	.045"-.033"	1-1/4 lb. (.57 kg)
RVT-2105	.130"	15/64"	.316"-.294"	.046"-.034"	1-1/2 lb. (.68 kg)
RVT-2106	.144"	17/64"	.341"-.319"	.050"-.036"	2 lb. (.90 kg)
RVT-2107	.148"	9/32"	.311"-.289"	.069"-.055"	2-1/2 lb. (1.13 kg)
RVT-2108	.160"	5/16"	.329"-.303"	.073"-.059"	3 lb. (1.36 kg)
RVT-2109	.176"	11/32"	.368"-.342"	.076"-.062"	4 lb. (1.81 kg)
RVT-2110	.186"	3/8"	.388"-.362"	.084"-.070"	5 lb. (2.27 kg)
RVT-2111	.203"	25/64"	.419"-.393"	.090"-.076"	6 lb. (2.72 kg)
RVT-2112	.224"	7/16"	.475"-.445"	.101"-.085"	8 lb. (3.63 kg)
RVT-2113	.238"	15/32"	.505"-.475"	.104"-.088"	10 lb. (4.54 kg)
RVT-2114	.259"	1/2"	.532"-.498"	.108"-.090"	12 lb. (5.44 kg)

COPPER

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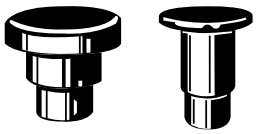
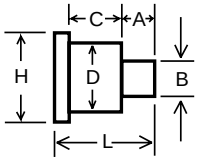
RVT-4023	.110"	13/64"	.285"-.265"	.040"-.028"	1 lb. (.45 kg)
RVT-4024	.119"	7/32"	.295"-.275"	.045"-.033"	1-1/4 lb. (.57 kg)
RVT-4025	.129"	15/64"	.316"-.294"	.046"-.034"	1-1/2 lb. (.68 kg)
RVT-4026	.143"	17/64"	.341"-.319"	.050"-.036"	2 lb. (.90 kg)
RVT-4027	.147"	9/32"	.311"-.289"	.069"-.055"	2-1/2 lb. (1.13 kg)
RVT-4028	.159"	5/16"	.329"-.303"	.073"-.059"	3 lb. (1.36 kg)
RVT-4030	.185"	3/8"	.388"-.362"	.084"-.070"	5 lb. (2.27 kg)
RVT-4031	.202"	25/64"	.419"-.393"	.090"-.076"	6 lb. (2.72 kg)

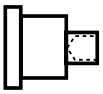
***Size numbers refer to approximate weight of 1000 rivets.**



STEEL SHOULDER RIVETS
Solid Type



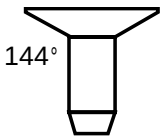
SPAENAUR No.	B Diameter of Small Shoulder	A Length of Small Shoulder	D Diameter of Large Shoulder	C Length of Large Shoulder	H Diameter of Head	L Length Over-All	Head Style	Finish	Unit Pkg. Qty.
293-602	5/64"	5/64"	3/32"	3/32"	9/64"	13/64"	Flat	Plain	100
293-600	.115"	3/32"	.175"	7/32"	1/4"	11/32"	Flat	Plain	100
293-603	1/8"	5/32"	11/64"	9/64"	9/32"	3/8"	Flat	Plain	100
293-605	1/8"	3/16"	5/32"	1/16"	5/16"	1/4"	Truss	Plain	100
1737	3/16"	5/32"	1/4"	5/32"	3/8"	13/32"	Flat	Plain	50
B-1326	3/16"	5/32"	9/32"	3/32"	7/16"	11/32"	Flat	Plain	50
1738	3/16"	7/32"	1/4"	3/16"	1/2"	1/2"	Flat	Plain	50
B-949	7/32"	1/8"	5/16"	5/32"	1/2"	3/8"	Flat	Plain	50
B-916	1/4"	5/32"	5/16"	3/8"	1/2"	19/32"	Flat	Plain	50
B-1129	9/32"	7/32"	3/8"	3/16"	5/8"	17/32"	Flat	Plain	50

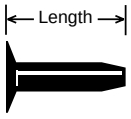


STEEL SHOULDER RIVETS - Tubular Type

293-610	5/64"	13/64"	1/8"	3/32"	1/4"	11/32"	Flat	Zinc	100
293-613	3/32"	1/8"	1/8"	5/16"	7/32"	7/16"	Oval	Zinc	100
293-607	1/8"	3/16"	3/16"	3/32"	9/32"	11/32"	Flat	Zinc	100
293-606	1/8"	9/64"	3/16"	5/64"	5/16"	9/32"	Truss	Plain	100
293-608	11/64"	5/32"	15/64"	5/32"	7/16"	3/8"	Flat	Brass	100
293-609	23/64"	13/64"	27/64"	7/64"	25/32"	27/64"	Flat	Zinc	100

COPPER BELT RIVETS





Unit Package 100 (Rivets Only)

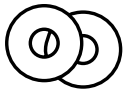
SHALLOW COUNTERSUNK FLAT HEAD - SOLID TYPE

Rivet Number refers to the Stubs iron wire gauge number of the stock used in the shank of the rivet

Rivet Number	**10**	**8**
Shank Dia.	0.136"-0.130"	0.167"-0.161"
Head Dia.	0.417"-0.395"	0.481"-0.455"
Length	***SPAENAUR No.***	
3/8"	**RVT-4006**	**RVT-4011**
1/2"	**RVT-4007**	**RVT-4012**
5/8"	**RVT-4008**	**RVT-4013**
11/16"		**290-002**
3/4"	**RVT-4009**	**RVT-4014**
1"	**RVT-4010***	**RVT-4015**
1-1/16"	**290-003**	
1-1/4"		**290-057**
1-3/8"	**290-004**	
1-1/2"	**290-005**	**RVT-4047**
1-5/8"	**290-006**	
2"	**290-007**	
2-1/8"	**290-008**	
2-1/4"	**290-009**	
	Use Burr No. W-4001 (*Use Burr No. 651-002)	Use Burr No. W-4002

COPPER BURRS

For use with Copper Belt Rivets



SPAENAUR No.	Rivet Size	Unit Pkg.
W-4001	#10	500
W-4002	#8	250

See page D9 for more information on BURRS & WASHERS.

P.C. 651

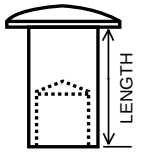
STEEL

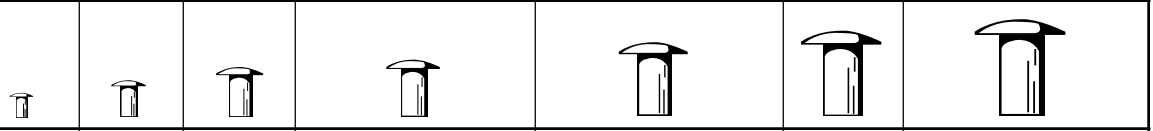
NICKEL OR ZINC PLATED AT OUR OPTION

SHALLOW TUBULAR - OVAL

Unit Package 100

To permanently fasten assemblies of metal, wood, plastic, ceramic, leather or composition materials with pre-punched or pre-drilled holes. Combines the high shear and compression strength of solid rivets with quick, easy clinching.





BODY DIAMETER	1/16"	3/32"	1/8"	9/64"		3/16"		7/32"	1/4"	
HEAD DIAMETER	7/64"	3/16" *5/32"	7/32"	15/64"	3/8"	5/16"	3/8"	3/8"	7/16"	1/2"
LENGTH	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									P.C. 292
3/32"	**RVT-22**		**RVT-36**							
1/8"	**RVT-23**	**RVT-27**	**RVT-16**							
5/32"	**RVT-24**	**RVT-28**	**B-1680**							
3/16"	**RVT-25**	**RVT-29**	**RVT-15**	**B-1644**		**RVT-47**				
7/32"		***RVT-30**	**RVT-37**			**RVT-9**				
1/4"		**RVT-31**	**RVT-38**	**B-1644A**	**RVT-130**		**RVT-13**	**RVT-239**		
9/32"		**RVT-32**	**RVT-39**							
5/16"		***RVT-33**	**RVT-40**	**2449**		**RVT-48**	**RVT-167**	**RVT-240**		
11/32"		***RVT-34**				**2450**				
3/8"		***RVT-35**	**RVT-42**	**RVT-45**	**RVT-131**		**RVT-14**	**RVT-241**	**RVT-123**	**292-006**
7/16"			**RVT-43**				**RVT-168**		**RVT-124**	**292-013**
1/2"			**RVT-44**	**RVT-46**	**RVT-129**	**1462**	**RVT-165**	**RVT-242**	**RVT-125**	**292-004**
9/16"			**292-496**				**RVT-235**			**292-011**
5/8"			**RVT-154**				**RVT-236**		**RVT-126**	**292-021**
11/16"							**292-027**			
3/4"			**292-015**				**RVT-157**		**RVT-244**	**292-007**
13/16"										**292-008**
7/8"							**RVT-158**		**RVT-245**	**RVT-151**
15/16"							**RVT-227**			**292-005**
1"							**RVT-159**		**RVT-246**	**292-003**
1-1/16"						**RVT-152**				**292-026**
1-1/8"							**RVT-160**		**RVT-247**	**292-024**
1-3/16"							**RVT-161**		**RVT-248**	
1-1/4"							**RVT-162**			**RVT-254**
1-5/16"							**RVT-237**		**RVT-250**	
1-3/8"							**RVT-163**		**RVT-251**	**292-001**
1-7/16"							**RVT-238**		**RVT-252**	
1-1/2"							**RVT-164**		**RVT-253**	
1-9/16"										**292-010**
1-5/8"							**292-022**			
1-3/4"										**292-002**
1-13/16"										**292-018**
2"										**292-019**
2-1/8"										
2-1/4"						**292-009**				
2-3/8"							**292-023**			
2-1/2"										

More sizes of Steel Tubular Rivets listed below and on following pages.

— ADDITIONAL SIZES —

Unit Package 100

NOTE: Special Head, Diameters and Plating Finishes, listed on following charts.

(Steel Tubular Rivets listed below and on following pages are subject to prior sale and minimum run quantities if reordered.)

SPAENAUR No.	Dia. x Lgth.	Head Style	Head Dia.	Finish	*SPAENAUR No.*	Dia. x Lgth.	Head Style	Head Dia.	Finish
292-028	1/16" x 5/64"	Oval	7/64"	Zinc	**292-036**	1/16" x 17/64"	Oval	1/8"	Nickel
292-029	1/16" x 7/64"	Oval	7/64"	Zinc	**292-037**	1/16" x 19/64"	Oval	1/8"	Blk. Ox.
292-030	1/16" x 7/32"	Oval	7/64	Nickel	**292-038**	1/16" x 23/64"	Oval	1/8"	Blk. Ox.
292-032	1/16" x 35/64"	Oval	7/64"	Zinc	**292-039**	1/16" x 1/2"	Oval	1/8"	Nickel
292-033	1/16" x 7/64"	Oval	1/8"	Blk. Ox.	**292-040**	1/16" x 35/64"	Oval	1/8"	Nickel
292-034	1/16" x 5/32"	Oval	1/8"	Nickel	**292-041**	5/64" x 7/32"	Oval	1/8"	Zinc
292-035	1/16" x 5/32"	Oval	1/8"	Blk. Ox.					

Continued on next page.
Finish Legend on E13.

(Steel Tubular Rivets listed below are subject to prior sale and minimum run quantities if reordered.) ***Unit Package 100***

SPAENAUR No.	Dia. x Lgth.	Head Style	Head Dia.	Finish	*SPAENAUR No.*	Dia. x Lgth.	Head Style	Head Dia.	Finish
292-042	5/64" x 7/64"	Oval	9/64"	Zinc	**292-094**	1/8" x 5/32"	Oval	7/32"	Zinc
292-043	5/64" x 1/8"	Oval	9/64"	Zinc	**292-095**	1/8" x 5/32"	Oval	7/32"	Brass
292-044	5/64" x 5/32"	Oval	9/64"	Zinc	**292-097**	1/8" x 9/64"	Oval	7/32"	Nickel
292-045	5/64" x 5/32"	Oval	9/64"	Nickel	**292-098**	1/8" x 3/16"	Oval	7/32"	Zinc
292-046	5/64" x 9/64"	Oval	9/64"	Zinc	**292-099**	1/8" x 3/16"	Oval	7/32"	ZD-CY
292-047	5/64" x 3/16"	Oval	9/64"	Nickel	**292-101**	1/8" x 1/4"	Oval	7/32"	Ant. Cu.
292-048	5/64" x 3/16"	Oval	9/64"	Zinc	**292-102**	1/8" x 1/4"	Oval	7/32"	Zinc
292-049	5/64" x 13/64"	Oval	9/64"	Nickel	**292-103**	1/8" x 7/64"	Oval	7/32"	Zinc
292-050	5/64" x 7/32"	Oval	9/64"	Zinc	**292-104**	1/8" x 17/64"	Oval	7/32"	Nickel
292-051	5/64" x 15/64"	Oval	9/64"	Zinc	**292-105**	1/8" x 9/32"	Oval	7/32"	Zinc
292-052	5/64" x 1/4"	Oval	9/64"	Zinc	**292-106**	1/8" x 5/16"	Oval	7/32"	Brass
292-053	5/64" x 1/4"	Oval	9/64"	Brass	**292-107**	1/8" x 5/16"	Oval	7/32"	Zinc
292-054	5/64" x 17/64"	Oval	9/64"	Zinc	**292-108**	1/8" x 11/32"	Oval	7/32"	Zinc
292-055	5/64" x 9/32"	Oval	9/64"	Nickel	**292-109**	1/8" x 3/8"	Oval	7/32"	Zinc
292-056	5/64" x 5/16"	Oval	9/64"	Zinc	**292-110**	1/8" x 3/8"	Oval	7/32"	Brass
292-057	5/64" x 13/32"	Oval	9/64"	Nickel	**292-112**	1/8" x 7/16"	Oval	7/32"	Zinc
292-058	5/64" x 15/32"	Oval	9/64"	Zinc	**292-113**	1/8" x 15/32"	Oval	7/32"	Nickel
292-059	5/64" x 7/16"	Oval	9/64"	Brass	**292-114**	1/8" x 15/32"	Oval	7/32"	Zinc
292-060	5/64" x 1/2"	Oval	9/64"	Nickel	**292-115**	1/8" x 17/32"	Oval	7/32"	Zinc
292-062	5/64" x 21/32"	Oval	9/64"	Zinc	**292-116**	1/8" x 9/16"	Oval	7/32"	Blk. Ox.
292-064	5/64" x 3/32"	Oval	5/32"	Nickel	**292-117**	1/8" x 19/32"	Oval	7/32"	Ant. Cu.
292-065	5/64" x 7/16"	Oval	5/32"	Zinc	**292-118**	1/8" x 5/8"	Oval	7/32"	Zinc
292-067	5/64" x 9/32"	Oval	3/16"	Nickel	**292-119**	1/8" x 41/64"	Oval	7/32"	Zinc
292-068	5/64" x 5/16"	Oval	3/16"	Nickel	**292-120**	1/8" x 11/16"	Oval	7/32"	Nickel
292-070	3/32" x 1-3/8"	Oval	9/64"	Nickel	**292-121**	1/8" x 11/16"	Oval	7/32"	Blk. Ox.
292-071	3/32" x 1-25/32"	Oval	9/64"	Nickel	**292-122**	1/8" x 23/32"	Oval	7/32"	Nickel
292-072	3/32" x 3/8"	Oval	5/32"	Zinc	**292-015**	1/8" x 3/4"	Oval	7/32"	Nickel
292-073	3/32" x 3/32"	Oval	3/16"	Zinc	**292-123**	1/8" x 3/4"	Oval	7/32"	Zinc
292-074	3/32" x 1/8"	Oval	3/16"	Zinc	**292-124**	1/8" x 13/16"	Oval	7/32"	Zinc
292-075	3/32" x 3/16"	Oval	3/16"	Nickel	**292-125**	1/8" x 27/32"	Oval	7/32"	Nickel
292-076	3/32" x 3/16"	Oval	3/16"	Zinc	**292-126**	1/8" x 7/8"	Oval	7/32"	Zinc
292-077	3/32" x 13/64"	Oval	3/16"	Nickel	**292-127**	1/8" x 31/32"	Oval	7/32"	Zinc
292-078	3/32" x 7/32"	Oval	3/16"	Zinc	**292-128**	1/8" x 1"	Oval	7/32"	Zinc
292-079	3/32" x 1/4"	Oval	3/16"	Nickel	**292-129**	1/8" x 1-1/32"	Oval	7/32"	Nickel
292-080	3/32" x 1/4"	Oval	3/16"	ZD-CY	**292-130**	1/8" x 1-1/8"	Oval	7/32"	Zinc
292-081	3/32" x 9/32"	Oval	3/16"	Brass	**292-131**	1/8" x 1-3/16"	Oval	7/32"	Nickel
292-082	3/32" x 9/32"	Oval	3/16"	Nickel	**292-134**	1/8" x 1-21/64"	Oval	7/32"	Nickel
292-083	3/32" x 5/16"	Oval	3/16"	Nickel	**292-135**	1/8" x 1-23/64"	Oval	7/32"	Nickel
292-084	3/32" x 29/64"	Oval	3/16"	Nickel	**292-136**	1/8" x 1-13/32"	Oval	7/32"	Zinc
292-085	3/32" x 29/64"	Oval	3/16"	Zinc	**292-137**	1/8" x 1-13/32"	Oval	7/32"	Nickel
292-086	3/32" x 1/2"	Oval	3/16"	Nickel	**292-138**	1/8" x 1-7/16"	Oval	7/32"	Zinc
292-087	3/32" x 1/2"	Oval	3/16"	Zinc	**292-139**	1/8" x 1-25/32"	Oval	7/32"	Nickel
292-088	7/64" x 1/8"	Oval	7/32"	Zinc	**292-140**	1/8" x 19/32"	Oval	15/64"	Zinc
292-089	1/8" x 1-1/8"	Oval	13/64"	Nickel	**292-141**	1/8" x 5/32"	Oval	9/32"	Nickel
292-090	1/8" x 1/8"	Oval	7/32"	Zinc	**292-142**	1/8" x 3/16"	Oval	9/32"	Zinc
292-091	1/8" x 1/8"	Oval	7/32"	ZD-CY					
292-092	1/8" x 1/8"	Oval	7/32"	Br.Jp.H.					
292-093	1/8" x 1/8"	Oval	7/32"	Wh.Jp.H.					

Continued on next page.

Finish Legend on E13.

(Steel Tubular Rivets listed below are subject to prior sale and minimum run quantities if reordered.) *Unit Package 100*

SPAENAUR No.	Dia. x Lgth.	Head Style	Head Dia.	Finish	*SPAENAUR No.*	Dia. x Lgth.	Head Style	Head Dia.	Finish
292-144	1/8" x 13/64"	Oval	9/32"	Wh.Jp.	**292-197**	9/64" x 7/32"	Oval	5/16"	Nickel
292-145	1/8" x 1/4"	Oval	9/32"	Bl.Jp.	**292-198**	9/64" x 7/32"	Oval	5/16"	Zinc
292-146	1/8" x 9/32"	Oval	9/32"	Nickel	**292-199**	9/64" x 1/4"	Oval	5/16"	Nickel
292-147	1/8" x 19/64"	Oval	9/32"	Copper	**292-200**	9/64" x 1/4"	Oval	5/16"	Zinc
292-148	1/8" x 19/64"	Oval	9/32"	Zinc	**292-201**	9/64" x 1/4"	Oval	5/16"	Brass
292-149	1/8" x 13/32"	Oval	9/32"	Nickel	**292-202**	9/64" x 1/4"	Oval	5/16"	Blk. Ox.
292-150	1/8" x 1-3/16"	Oval	9/32"	Zinc	**292-203**	9/64" x 1/4"	Oval	5/16"	Plain
292-152	1/8" x 5/32"	Oval	5/16"	Nickel	**292-204**	9/64" x 1/4"	Oval	5/16"	Blk. Jp.
292-153	1/8" x 9/32"	Oval	5/16"	ZD-CY	**292-205**	9/64" x 19/64"	Oval	5/16"	Blk. Ox.
292-154	1/8" x 5/16"	Oval	5/16"	Zinc	**292-206**	9/64" x 5/16"	Oval	5/16"	Nickel
292-156	1/8" x 7/16"	Oval	5/16"	Nickel	**292-207**	9/64" x 5/16"	Oval	5/16"	Zinc
292-157	1/8" x 1-11/32"	Oval	5/16"	Zinc	**292-208**	9/64" x 5/16"	Oval	5/16"	Plain
292-158	1/8" x 1-21/32"	Oval	5/16"	Nickel	**292-209**	9/64" x 11/32"	Oval	5/16"	Plain
292-159	9/64" x 5/8"	Oval	7/32"	Brass	**292-210**	9/64" x 11/32"	Oval	5/16"	Blk. Ox.
292-160	9/64" x 5/32"	Oval	15/64"	Nickel	**292-211**	9/64" x 11/32"	Oval	5/16"	Nickel
292-161	9/64" x 5/32"	Oval	15/64"	Zinc	**292-212**	9/64" x 11/32"	Oval	5/16"	Zinc
292-162	9/64" x 3/16"	Oval	15/64"	Zinc	**292-213**	9/64" x 3/8"	Oval	5/16"	Wh.Jp.H.
292-163	9/64" x 13/67"	Oval	15/64"	Zinc	**292-214**	9/64" x 3/8"	Oval	5/16"	Nickel
292-164	9/64" x 7/32"	Oval	15/64"	Zinc	**292-215**	9/64" x 3/8"	Oval	5/16"	Zinc
292-165	9/64" x 7/32"	Oval	15/64"	Nickel	**292-216**	9/64" x 3/8"	Oval	5/16"	Plain
292-166	9/64" x 1/4"	Oval	15/64"	Zinc	**292-217**	9/64" x 3/8"	Oval	5/16"	Ant. Br.
292-151	9/64" x 1/4"	Oval	5/16"	Zinc	**292-218**	9/64" x 7/16"	Oval	5/16"	Nickel
292-167	9/64" x 9/32"	Oval	15/64"	Zinc	**292-219**	9/64" x 7/16"	Oval	5/16"	Zinc
292-168	9/64" x 7/16"	Oval	15/64"	Zinc	**292-220**	9/64" x 7/16"	Oval	5/16"	Blk. Ox.
292-169	9/64" x 5/8"	Oval	15/64"	Zinc	**292-221**	9/64" x 1/2"	Oval	5/16"	Gn.Jp.H.
292-170	9/64" x 21/32"	Oval	15/64"	Zinc	**292-222**	9/64" x 1/2"	Oval	5/16"	Gy.Jp.H.
292-171	9/64" x 11/16"	Oval	15/64"	Nickel	**292-223**	9/64" x 1/2"	Oval	5/16"	Wh.Jp.H.
292-172	9/64" x 49/64"	Oval	15/64"	Zinc	**292-224**	9/64" x 1/2"	Oval	5/16"	Plain
292-173	9/64" x 7/32"	Oval	1/4"	Zinc	**292-225**	9/64" x 1/2"	Oval	5/16"	Nickel
292-174	9/64" x 17/64"	Oval	1/4"	Nickel	**292-226**	9/64" x 1/2"	Oval	5/16"	Zinc
292-175	9/64" x 9/32"	Oval	1/4"	Zinc	**292-227**	9/64" x 1/2"	Oval	5/16"	Brass
292-176	9/64" x 9/32"	Oval	1/4"	Nickel	**292-228**	9/64" x 1/2"	Oval	5/16"	Blk. Ox.
292-178	9/64" x 3/8"	Oval	1/4"	Nickel	**292-229**	9/64" x 1/2"	Oval	5/16"	Bl. Jp.
292-179	9/64" x 7/16"	Oval	1/4"	Nickel	**292-230**	9/64" x 17/32"	Oval	5/16"	Zinc
292-180	9/64" x 9/16"	Oval	17/64"	Nickel	**RVT-228**	9/64" x 9/16"	Oval	5/16"	Nickel
292-181	9/64" x 3/16"	Oval	9/32"	Zinc	**292-231**	9/64" x 9/16"	Oval	5/16"	Plain
292-182	9/64" x 7/32"	Oval	9/32"	Zinc	**292-232**	9/64" x 9/16"	Oval	5/16"	Blk. Ox.
292-183	9/64" x 15/64"	Oval	9/32"	Nickel	**292-233**	9/64" x 9/16"	Oval	5/16"	Wh.Jp.H.
292-184	9/64" x 1/4"	Oval	9/32"	Nickel	**292-234**	9/64" x 5/8"	Oval	5/16"	Nickel
292-185	9/64" x 1/4"	Oval	9/32"	Zinc	**292-235**	9/64" x 11/16"	Oval	5/16"	Nickel
292-186	9/64" x 1/4"	Oval	9/32"	Brass	**292-236**	9/64" x 23/32"	Oval	5/16"	Nickel
292-187	9/64" x 7/16"	Oval	9/32"	Zinc	**RVT-259**	9/64" x 1-3/8"	Oval	5/16"	Nickel
292-188	9/64" x 1/2"	Oval	9/32"	Zinc	**292-238**	9/64" x 5/16"	Oval	21/64"	Nickel
292-189	9/64" x 5/8"	Oval	9/32"	Blk. Ox.	**292-239**	9/64" x 5/16"	Oval	21/64"	Blk. Ox.
292-190	9/64" x 41/64"	Oval	9/32"	Zinc	**292-240**	9/64" x 5/16"	Oval	3/8"	Nickel
292-191	9/64" x 3/4"	Oval	9/32"	Blk. Ox.	**292-242**	9/64" x 5/16"	Oval	3/8"	Brass
292-192	9/64" x 7/8"	Oval	9/32"	Nickel	**292-243**	9/64" x 3/8"	Oval	3/8"	Zinc
292-193	9/64" x 1-7/16"	Oval	9/32"	Zinc	**292-244**	9/64" x 3/8"	Oval	3/8"	Ant. Cu.
292-194	9/64" x 5/32"	Oval	5/16"	Nickel	**292-245**	9/64" x 3/8"	Oval	3/8"	Blk. Jp.
292-195	9/64" x 3/16"	Oval	5/16"	Nickel					
292-196	9/64" x 3/16"	Oval	5/16"	Zinc					

Continued on next page.
Finish Legend on E13.

(Steel Tubular Rivets listed below are subject to prior sale and minimum run quantities if reordered.) ***Unit Package 100***

SPAENAUR No.	Dia. x Lgth.	Head Style	Head Dia.	Finish
292-246	9/64" x 7/16"	Oval	3/8"	Nickel
292-247	9/64" x 15/32"	Oval	3/8"	Zinc
292-248	9/64" x 17/32"	Oval	3/8"	Zinc
292-249	9/64" x 9/16"	Oval	3/8"	Nickel
292-250	9/64" x 5/8"	Oval	3/8"	Ant. Cu.
292-251	9/64" x 9/16"	Oval	7/16"	Nickel
292-253	9/64" x 7/16"	Oval	15/32"	Brass
292-254	5/32" x 11/64"	Oval	1/4"	Nickel
292-256	5/32" x 3/16"	Oval	9/32"	Nickel
292-257	5/32" x 5/16"	Oval	9/32"	Nickel
292-258	5/32" x 3/16"	Oval	5/16"	Zinc
292-259	5/32" x 3/16"	Oval	5/16"	ZD-CY
292-260	5/32" x 13/64"	Oval	5/16"	Zinc
292-261	5/32" x 7/32"	Oval	5/16"	Zinc
292-262	5/32" x 7/32"	Oval	5/16"	ZD-CY
292-263	5/32" x 7/32"	Oval	5/16"	Nickel
292-265	5/32" x 9/32"	Oval	5/16"	Blk. Ox.
292-266	5/32" x 1/2"	Oval	5/16"	Nickel
292-268	5/32" x 5/8"	Oval	5/16"	Zinc
292-269	5/32" x 11/16"	Oval	5/16"	Nickel
292-270	5/32" x 15/16"	Oval	5/16"	Nickel
292-271	5/32" x 1-5/16"	Oval	21/64"	Park.
292-273	3/16" x 7/32"	Oval	5/16"	Zinc
292-274	3/16" x 7/32"	Oval	5/16"	Brass
292-275	3/16" x 1/4"	Oval	5/16"	Zinc
292-277	3/16" x 9/32"	Oval	5/16"	Zinc
292-278	3/16" x 5/16"	Oval	5/16"	Zinc
292-279	3/16" x 9/16"	Oval	5/16"	Zinc
292-280	3/16" x 9/16"	Oval	5/16"	Nickel
292-281	3/16" x 19/32"	Oval	5/16"	Zinc
292-282	3/16" x 11/16"	Oval	5/16"	Zinc
292-283	3/16" x 13/16"	Oval	5/16"	Zinc
292-284	3/16" x 27/32"	Oval	5/16"	Nickel
292-285	3/16" x 1"	Oval	5/16"	Zinc
292-286	3/16" x 1-1/16"	Oval	5/16"	Zinc
292-287	3/16" x 1-5/16"	Oval	5/16"	Zinc
292-288	3/16" x 1-3/8"	Oval	5/16"	Zinc
292-289	3/16" x 1-7/16"	Oval	5/16"	Zinc
292-290	3/16" x 2-1/8"	Oval	5/16"	Zinc
292-291	3/16" x 7/32"	Oval	3/8"	Zinc
292-292	3/16" x 7/32"	Oval	3/8"	Nickel
292-293	3/16" x 1/4"	Oval	3/8"	Zinc
292-294	3/16" x 17/64"	Oval	3/8"	ZD-CY
292-295	3/16" x 17/64"	Oval	3/8"	Zinc
292-297	3/16" x 9/32"	Oval	3/8"	Zinc
292-298	3/16" x 5/16"	Oval	3/8"	ZD-CY
292-299	3/16" x 5/16"	Oval	3/8"	Zinc
292-300	3/16" x 3/8"	Oval	3/8"	Zinc
292-301	3/16" x 25/64"	Oval	3/8"	Zinc
292-302	3/16" x 13/32"	Oval	3/8"	Nickel
292-303	3/16" x 7/16"	Oval	3/8"	Zinc
292-304	3/16" x 1/2"	Oval	3/8"	Zinc
292-306	3/16" x 3/4"	Oval	3/8"	Zinc
292-307	3/16" x 7/8"	Oval	3/8"	Zinc
292-308	3/16" x 15/16"	Oval	3/8"	Zinc
292-309	3/16" x 1"	Oval	3/8"	Zinc
292-311	3/16" x 1-1/16"	Oval	3/8"	Zinc
292-312	3/16" x 1-3/32"	Oval	3/8"	ZD-CY
292-313	3/16" x 1-1/8"	Oval	3/8"	Nickel
292-314	3/16" x 1-3/16"	Oval	3/8"	ZD-CY
292-315	3/16" x 1-7/32"	Oval	3/8"	Zinc
292-316	3/16" x 1-1/4"	Oval	3/8"	Zinc
292-317	3/16" x 1-5/16"	Oval	3/8"	Zinc
292-318	3/16" x 1-3/8"	Oval	3/8"	Zinc
292-320	3/16" x 1-15/32"	Oval	3/8"	Zinc
292-321	3/16" x 1-1/2"	Oval	3/8"	ZD-CY
292-322	3/16" x 1-1/2"	Oval	3/8"	Zinc
292-323	3/16" x 1-9/16"	Oval	3/8"	Zinc
292-326	3/16" x 1-7/8"	Oval	3/8"	Zinc
292-327	3/16" x 1-15/16"	Oval	3/8"	Zinc
292-328	3/16" x 2-1/4"	Oval	3/8"	Zinc
292-329	3/16" x 2-3/4"	Oval	3/8"	Zinc
292-330	3/16" x 3/8"	Oval	15/32"	Zinc
292-331	3/16" x 1/4"	Oval	1/2"	Nickel
292-332	3/16" x 7/16"	Oval	1/2"	Nickel
292-016	3/16" x 1-9/16"	Oval	1/2"	Nickel
292-333	7/32" x 1-3/16"	Oval	3/8"	Nickel
292-014	7/32" x 5/8"	Oval	7/16"	Nickel
292-334	1/4" x 1"	Oval	3/8"	Nickel
292-336	1/4" x 5/16"	Oval	7/16"	Zinc
292-337	1/4" x 7/16"	Oval	7/16"	Zinc
292-338	1/4" x 1/2"	Oval	7/16"	Zinc
292-339	1/4" x 9/16"	Oval	7/16"	ZD-CY
292-340	1/4" x 9/16"	Oval	7/16"	Zinc
292-341	1/4" x 13/16"	Oval	7/16"	Nickel
292-343	1/4" x 1"	Oval	7/16"	Zinc
292-345	1/4" x 1-1/4"	Oval	7/16"	Zinc
292-347	1/4" x 2-1/4"	Oval	7/16"	Nickel

Cont'd. on next page.

Finish Legend on E13.

(Steel Tubular Rivets listed below are subject to prior sale and minimum run quantities if reordered.) ***Unit Package 100***

SPAENAUR No.	Dia. x Lgth.	Head Style	Head Dia.	Finish
Oval Head - cont'd.				
292-348	1/4" x 2-13/16"	Oval	7/16"	Zinc
292-349	1/4" x 1/4'	Oval	1/2"	Nickel
292-350	1/4" x 5/16"	Oval	1/2"	Zinc
292-352	1/4" x 1/2"	Oval	1/2"	Zinc
292-353	1/4" x 9/16"	Oval	1/2"	Zinc
292-354	1/4" x 11/16"	Oval	1/2"	Zinc
292-355	1/4" x 3/4"	Oval	1/2"	Zinc
292-356	1/4" x 1-3/16"	Oval	1/2"	Nickel
292-357	1/4" x 1"	Oval	3/4"	Zinc
292-358	5/16" x 9/16"	Oval	1/2"	Nickel
292-359	5/16" x 9/16"	Oval	1/2"	Zinc
292-360	5/16" x 5/8"	Oval	9/16"	Nickel
292-361	5/16" x 1-1/4"	Oval	9/16"	Zinc
Round Head				
292-362	9/64" x 1/4"	Round	5/16"	Brass
292-363	9/64" x 3/8"	Round	5/16"	Brass
292-364	3/16" x 9/16"	Round	5/16"	Zinc
Flat Head				
292-365	5/64" x 1/4"	Flat	9/64"	Zinc
292-366	5/64" x 11/16"	Flat	9/64"	Zinc
292-367	5/64" x 13/16"	Flat	13/64"	Nickel
292-368	3/32" x 3/8"	Flat	3/16"	Zinc
292-369	1/8" x 3/8"	Flat	11/64"	Nickel
292-370	1/8" x 31/64"	Flat	15/64"	Nickel
292-371	9/64" x 19/64"	Flat	5/16"	Nickel
292-372	9/64" x 11/16"	Flat	5/16"	Nickel
292-373	5/32" x 1"	Flat	11/32"	Zinc
292-374	3/16" x 9/16"	Flat	13/32"	Nickel
292-375	1/4" x 5/16"	Flat	3/8"	Zinc
292-376	1/4" x 3/8"	Flat	7/16"	Nickel
292-377	1/4" x 1/2"	Flat	7/16"	Nickel
292-378	1/4" x 31/64"	Flat	1/2"	Nickel
292-379	1/4" x 1/2"	Flat	5/8"	Nickel
292-380	5/16" x 3/4"	Flat	1/2"	Nickel
Undercut Head				
292-381	9/64" x 1/4"	Flat	9/32"	Brass
292-382	9/64" x 1/4"	Flat	9/32"	ZD-CY
292-383	9/64" x 3/16"	Flat	19/64"	Ant. Br.
292-384	9/64" x 1/4"	Flat	19/64"	ZD-CY
292-385	9/64" x 9/32"	Flat	19/64"	Brass
292-387	9/64" x 5/16"	Flat	19/64"	Brass
292-388	13/64" x 1/4"	Flat	11/32"	ZD-CY

Cont'd.

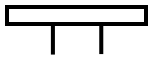
SPAENAUR No.	Dia. x Lgth.	Head Style	Head Dia.	Finish
Undercut Head - cont'd.				
292-390	3/16" x 9/32"	Flat	11/32"	Brass
292-391	7/32" x 1/4"	Flat	23/64"	Brass
292-392	3/16" x 9/32"	Flat	23/64"	Brass
292-393	3/16" x 5/16"	Flat	23/64"	ZD-CY
292-460	3/16" x 23/64"	Flat	23/64"	ZD-CY
292-394	3/16" x 3/8"	Flat	23/64"	ZD-CY
292-395	3/16" x 3/8"	Flat	23/64"	Brass
292-396	13/64" x 1/4"	Flat	23/64"	ZD-CY
292-397	13/64" x 5/16"	Flat	23/64"	ZD-CY
292-399	7/32" x 9/32"	Flat	23/64"	Brass
292-400	7/32" x 5/16"	Flat	23/64"	Brass
292-401	7/32" x 5/16"	Flat	23/64"	ZD-CY
292-402	7/32" x 3/8"	Flat	23/64"	Brass
292-403	1/4" x 1/4"	Flat	3/8"	Zinc
Countersunk Head				
292-404	1/8" x 1/4"	90°Ctsk.	9/32"	ZD-CY
292-405	1/8" x 1/4"	90°Ctsk.	15/64"	Zinc
292-406	9/64" x 3/16"	120°Ctsk.	5/16"	Brass
B-1654	1/8" x 7/32"	150°Ctsk.	7/32"	Cad.
292-408	1/8" x 7/32"	150°Ctsk.	1/4"	Brass
292-409	1/8" x 3/16"	150°Ctsk.	9/32"	Brass
292-410	9/64" x 5/16"	150°Ctsk.	9/32"	ZD-CY
292-411	9/64" x 5/32"	150°Ctsk.	19/64"	Brass
292-412	9/64" x 1/4"	150°Ctsk.	19/64"	Brass
292-413	9/64" x 1/4"	150°Ctsk.	19/64"	ZD-CY
292-414	9/64" x 1/8"	150°Ctsk.	5/16"	Nickel
292-415	9/64" x 3/16"	150°Ctsk.	5/16"	Nickel
292-416	9/64" x 3/16"	150°Ctsk.	5/16"	Brass
292-417	9/64" x 3/16"	150°Ctsk.	5/16"	Blk. Ox.
292-418	9/64" x 7/32"	150°Ctsk.	5/16"	Nickel
292-419	9/64" x 7/32"	150°Ctsk.	5/16"	Blk. Ox.
292-420	9/64" x 1/4"	150°Ctsk.	5/16"	Blk. Ox.
292-421	9/64" x 1/4"	150°Ctsk.	5/16"	Nickel
292-422	9/64" x 5/16"	150°Ctsk.	5/16"	Nickel
292-423	9/64" x 5/16"	150°Ctsk.	5/16"	Blu.Jp.H
292-424	9/64" x 5/16"	150°Ctsk.	5/16"	Blk. Ox.
292-425	9/64" x 11/32"	150°Ctsk.	5/16"	Blk. Ox.
292-426	9/64" x 3/8"	150°Ctsk.	5/16"	Nickel
292-427	9/64" x 3/8"	150°Ctsk.	5/16"	Copper
292-428	9/64" x 3/8"	150°Ctsk.	5/16"	Brass
292-429	9/64" x 3/8"	150°Ctsk.	5/16"	Blk. Ox.
RVT-173	9/64" x 3/8"	150°Ctsk.	5/16"	Blk. Jp.
292-430	9/64" x 13/32"	150°Ctsk.	5/16"	Blk. Ox.
292-431	9/64" x 7/16"	150°Ctsk.	5/16"	Nickel
292-432	9/64" x 7/16"	150°Ctsk.	5/16"	Blk. Ox.
292-433	9/64" x 1/2"	150°Ctsk.	5/16"	Nickel
292-434	9/64" x 1/2"	150°Ctsk.	5/16"	Brass
292-435	9/64" x 1/2"	150°Ctsk.	5/16"	Blk. Ox.

Continued on next page.
Finish Legend on E13.

(Steel Tubular Rivets listed below are subject to prior sale and minimum run quantities if reordered.) ***Unit Package 100***

SPAENAUR No.	Dia. x Lgth.	Head Style	Head Dia.	Finish
Countersunk Head - Cont'd.				
292-436	9/64" x 1/2"	150°Ctsk.	5/16"	Blk.Jp.H.
292-437	9/64" x 1/2"	150°Ctsk.	5/16"	Wh.Jp.H.
292-438	9/64" x 9/16"	150°Ctsk.	5/16"	Nickel
292-439	9/64" x 9/16"	150°Ctsk.	5/16"	Blk. Ox.
292-440	9/64" x 5/8"	150°Ctsk.	5/16"	Copper
292-441	9/64" x 5/8"	150°Ctsk.	5/16"	Nickel
292-443	9/64" x 1/4"	150°Ctsk,	23/64"	Brass
RVT-260	3/16" x 3/8"	150°Ctsk.	11/32"	Plain
292-444	3/16" x 11/16"	150°Ctsk.	23/64"	Brass
292-445	3/16" x 5/8"	150°Ctsk.	15/32"	Ant.Br.
292-446	3/16" x 9/16"	150°Ctsk.	15/32"	Ant.Br.
292-447	13/64" x 1/2"	150°Ctsk.	15/32"	Brass
292-448	13/64" x 1/2"	150°Ctsk.	15/32"	Ant.Br.
292-449	1/4" x 1/2"	150°Ctsk.	15/32"	Brass
292-450	1/4" x 17/32"	150°Ctsk.	15/32"	ZD-C
292-451	1/4" x 9/16"	150°Ctsk.	1/2"	Brass

Wafer Head



292-454	1/4" x 7/8"	Wafer	3/4"	Zinc
292-455	1/4" x 1"	Wafer	3/4"	Zinc
292-457	5/16" x 1/2"	Wafer	7/8"	Zinc

Self-Piercing

292-458	5/32" x 3/16"	Flat	5/16"	Nickel
292-459	5/32" x 1/4"	Oval	5/16"	Nickel

Ctsk. Oval Head

B-1271	1/8" x 1/4"	Ctsk./ Oval	7/32"	Nickel

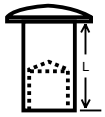
E

Steel Tubular Rivet Finish - Legend

Ant.Br.	Antique Brass	**Blk.Ox.**	Black Oxide	**Gy.Jp.H.**	Grey Japanned Head	**ZD-C**	Zinc Di-chromate
Ant.Cu.	Antique Copper	**Blu.Jp.H.**	Blue Japanned Head	**Park.**	Parkerize	**ZD-CY**	Zinc Di-chromate Yellow
Blk.Jp.	Black Japanned	**Br.Jp.H.**	Brown Japanned Head	**Wh.Jp.**	White Japanned		
Blk.Jp.H.	Black Japanned Head	**Gn.Jp.H.**	Green Japanned Head	**Wh.Jp.H.**	White Japanned Head		

430 Stainless Steel Tubular Rivets

Oval Head Style



Unit Package Quantity -100
(Except 294-019 - U.P.Q. 50)

SPAENAUR No.	Dia. x Lgth.	Head Style	Head Dia.	*SPAENAUR No.*	Dia. x Lgth.	Head Style	Head Dia.
294-003	3/32" x 7/64"	Oval	3/16"	**294-011**	1/8" x 1/4"	Oval	7/32"
294-004	3/32" x 1/8"	Oval	3/16"	**294-012**	1/8" x 5/16"	Oval	7/32"
294-005	3/32" x 5/32"	Oval	3/16"	**294-013**	1/8" x 9/16"	Oval	7/32"
294-006	3/32" x 11/64"	Oval	3/16"	**294-014**	9/64" x 5/32"	Oval	15/64"
294-007	1/8" x 7/64"	Oval	7/32"	**294-015**	9/64" x 9/32"	Oval	15/64"
294-002*	1/8" x 1/8"	Oval	7/32"	**294-016**	9/64" x 3/16"	Oval	5/16"
294-008	1/8" x 1/8	Oval	7/32"	**294-017**	3/16" x 3/16"	Oval	3/8"
294-009	1/8" x 5/32"	Oval	7/32"	**294-018**	3/16" x 3/8"	Oval	3/8"
294-010	1/8" x 3/16"	Oval	7/32"	**294-022**	1/4" x 1-1/8"	Oval	7/16"
				294-019	1/4" x 1-3/8"	Oval	7/16"

*(302 Stainless Steel)

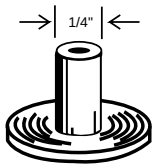
HAND SETTING TOOL

HARDENED STEEL with Knurled Finish

For Tubular and Shallow Tubular Rivets

Priced Singly

SPAENAUR No.	For Rivet Dia.
876-004	1/16"
876-005	3/32"
876-001	1/8"
876-546	9/64"and 5/32"
876-547	3/16"
876-006	7/32"
876-548	1/4"



Unit Package 100

P.C. 292

WAFER HEAD - SHALLOW TUBULAR

SNOW TRACK RIVETS

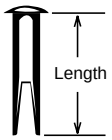
Annealed Steel - Zinc Chromated

SPAENAUR No.	Dia.	Lgth. Under Head	Head
RVT-169	1/4"	13/32"	3/4" x 1/16"
RVT-170	1/4"	7/16"	3/4" X 1/16"

CATALOG 13

Split Rivets - Oval Head

BRASS



Plain Finish
*(except B-1266 Nickel Plated)

Unit Package 100

P.C. 288

BODY DIA.	3/32"	1/8"	9/64"
HEAD DIA.	5/32"	7/32"	5/16"
LENGTH			
1/4"			
5/16"			RVT-548
7/16"			RVT-550
1/2"			RVT-551
9/16"			
5/8"			RVT-552
3/4"		*B-1266	RVT-553

E

Plain and Plated Steel

RIVET CAPS

USED TO COVER THE CLINCH OF SPLIT OR DEEP-DRILLED TUBULAR RIVETS

SPAENAUR No.	Cap Dia.	Suggested for Rivet Shank Dia.	Back of Cap	Finish	For Use With
RC-1	5/16"		Concave	Nickel	Split Rivets
RC-2	5/16"	9/64"	Flat	Nickel	Split Rivets
RC-3	5/16"		Flat	Nickel	Tubular Rivets
RC-11	21/64"		Flat	Brass	Tubular Rivets
RC-12	21/64"	9/64"	Flat	Plain	Tubular Rivets
RC-5	3/8"		Concave	Nickel	Split Rivets
RC-7	9/32"		Concave	Nickel	Split Rivets
RC-8	1/2"	9/64"	Concave	Nickel	Split Rivets
RC-9	9/16"		Concave	Nickel	Split Rivets

P.C. 283 *Unit Package 100*

HOLDER CP-140H

For inserting Split Rivets

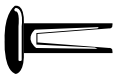
with 5/16" head dia.

Length 2-1/2"

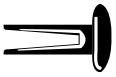
Unit Pkg. 10

P.C. 090

STEEL
Split Rivets - Oval Head



Plated Finish
(See below)



SPAENAUR No.	Dia. x Lgth.	Head Dia.	Finish
293-014	5/64" x 3/16"	9/64"	Zinc
293-015	1/8" x 3/16"	7/32"	Zinc
293-002	1/8" x 1/4"	7/32"	Nickel
293-003	1/8" x 5/16"	7/32"	Nickel
2432	1/8" x 3/8"	7/32"	Nickel
293-004	1/8" x 7/16"	7/32"	Nickel
2433	1/8" x 9/16"	7/32"	Nickel
293-006	1/8" x 5/8"	7/32"	Nickel
293-016	9/64" x 3/16"	5/16"	Nickel
293-017	9/64" x 3/16"	5/16"	Brass
293-018	9/64" x 1/4"	5/16"	Nickel
293-019	9/64" x 1/4"	5/16"	Brass
RVT-17	9/64" x 1/4"	5/16"	Copper
RVT-18	9/64" x 5/16"	5/16"	Copper
293-021	9/64" x 5/16"	5/16"	Nickel
293-020	9/64" x 5/16"	5/16"	Zn. Di-Ch.
RVT-19	9/64" x 3/8"	5/16"	Copper
293-022	9/64" x 3/8"	5/16"	Nickel
RVT-20	9/64" x 7/16"	5/16"	Copper
293-001	9/64" x 1/2"	5/16"	Nickel
293-008	5/32" x 5/16"	5/16"	Copper
293-009	5/32" x 3/8"	5/16"	Copper
293-010	5/32" x 7/16"	5/16"	Copper
293-011	5/32" x 1/2"	5/16"	Copper
293-012	5/32" x 9/16"	5/16"	Copper
RVT-120	5/32" x 3/4"	5/16"	Copper

UNIT PACKAGE 100

Visit us on the web at . . .

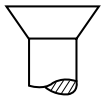
www.spaenaur.com

Aluminum Alloy No. 1100-F (2-S)

TUBULAR ALUMINUM RIVETS

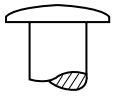
Unit Package 100

Countersunk Head



SPAENAUR No.	Dia. x Lgth.	Head Style	Head Dia.
286-047	1/8" x 5/32"	90°Ctsk.	7/32"
286-048	1/8" x 1/2"	150°Ctsk.	1/4"
286-049	3/16" x 7/32"	150°Ctsk.	23/64"
286-050	9/64" x 3/16"	150°Ctsk.	5/16"
286-051	9/64" x 3/8"	150°Ctsk.	5/16"
286-052	9/64" x 7/16"	150°Ctsk.	5/16"
286-053	9/64" x 1/2"	150°Ctsk.	5/16"
286-054	9/64" x 9/16"	150°Ctsk.	5/16"
286-055	9/64" x 5/8"	150°Ctsk.	5/16"
286-056	9/64" x 35/64"	150°Ctsk.	23/64"
RVT-3000	3/16" x 1/2"	150°Ctsk.	23/64"
RVT-3011	1/4" x 3/4"	150°Ctsk.	3/8"

Oval Head

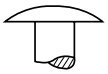


SPAENAUR No.	Dia. x Lgth.	Head Style	Head Dia.
286-057	5/64" x 5/32"	Oval	9/64"
286-058	5/64" x 29/64"	Oval	9/64"
286-059	7/64" x 5/16"	Oval	7/32"
286-061	1/8" x 11/64"	Oval	7/32"
286-062	1/8" x 3/16"	Oval	7/32"
286-063	1/8" x 7/32"	Oval	7/32"
286-064	1/8" x 3/8"	Oval	7/32"
286-065	1/8" x 13/32"	Oval	7/32"
286-066	1/8" x 7/16"	Oval	7/32"
286-067	1/8" x 1/2"	Oval	7/32"
286-068	1/8" x 35/64"	Oval	7/32"
286-069	1/8" x 21/64"	Oval	9/32"
286-070	1/8" x 13/32"	Oval	9/32"
286-071	1/8" x 5/16"	Oval	5/16"
286-073	9/64" x 3/8"	Oval	15/64"

Continued - next column.

SPAENAUR No.	Dia. x Lgth.	Head Style	Head Dia.
…cont'd			
286-074	9/64" x 3/16"	Oval	5/16"
286-075	9/64" x 5/16"	Oval	5/16"
286-076	9/64" x 21/64"	Oval	5/16"
286-077	9/64" x 1/2"	Oval	5/16"
286-078	9/64" x 13/32"	Oval	3/8"
286-079	5/32" x 15/16"	Oval	5/16"
286-080	3/16" x 9/16"	Oval	5/16"
286-081	3/16" x 7/32"	Oval	3/8"
286-082	3/16" x 3/8"	Oval	3/8"
286-083	3/16" x 7/16"	Oval	3/8"
286-085	3/16" x 5/8"	Oval	3/8"
286-087	3/16" x 1"	Oval	3/8"
286-088	3/16" x 1-1/4"	Oval	3/8"
286-089	3/16" x 1-7/16"	Oval	3/8"
286-090	3/16" x 1-9/16"	Oval	3/8"
286-091	3/16" x 2-1/32"	Oval	3/8"
286-092	3/16" x 9/16"	Oval	1/2"
286-001	1/4" x 3/8"	Oval	1/2"
RVT-3004	1/4" x 1/2"	Oval	1/2"
286-094	1/4" x 9/16"	Oval	1/2"
286-093	1/4" x 1-1/8"	Oval	7/16"

Truss Head

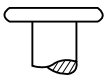


B-1783	1/8" x 1/4"	Truss	7/32"
286-025	9/64" x 1/4"	Truss	5/16"
B-1703	9/64" x 9/16"	Truss	5/16"
RVT-3003	3/16" x 1/4"	Truss	3/8"

Pan Head

B-1694	1/8" x 5/16"	Pan	7/32"

Flat Head



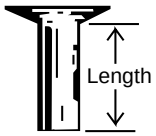
286-096	9/64" x 7/32"	Flat	5/16"

Solid Aluminum Rivets shown on page E4.

SPAENAUR
Advancing the Standard of Fastening

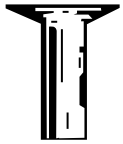
BRASS

FOR ATTACHING CLUTCH FACINGS & BRAKE LININGS
FLAT - SHALLOW 120° or 150° COUNTERSUNK HEAD (at our option)



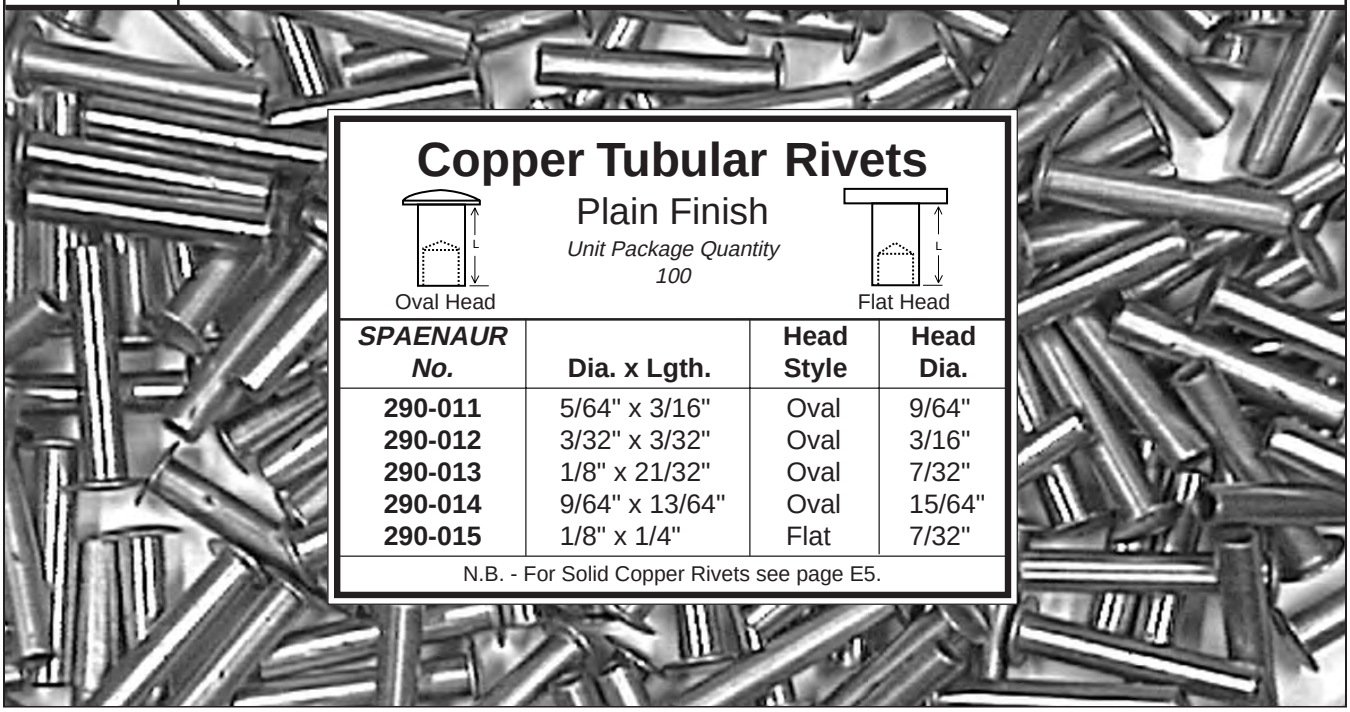
CLUTCH FACING RIVETS

DEEP-DRILLED TUBULAR



BRAKE LINING SHALLOW SEMI-TUBULAR RIVETS

BODY DIAMETER	9/64"		9/64"		9/64"		3/16"		3/16"		1/4"	
	SPAENAUR No.	Nom. Hd. Dia.	***SPAENAUR No.***	Nom. Hd. Dia.	***SPAENAUR No.***	Nom. Hd. Dia.	***SPAENAUR No.***	Nom. Hd. Dia.	***SPAENAUR No.***	Nom. Hd. Dia.	***SPAENAUR No.***	Nom. Hd. Dia.
LGTH. UNDER HD.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW											
3/16"	**RVT-542**	5/16"	**RVT-504**	5/16"	**RVT-512**	3/8"						
1/4"	**RVT-543**	5/16"	**RVT-505**	5/16"	**RVT-513**	3/8"	**RVT-520**	3/8"				
17/64"					**288-013**	3/8"						
5/16"	**RVT-544**	5/16"	**RVT-506**	5/16"	**RVT-514**	3/8"	**RVT-521**	3/8"				
3/8"	**RVT-545**	5/16"	**RVT-507**	5/16"	**RVT-515**	3/8"	**RVT-522**	3/8"	**RVT-528**	1/2"	**RVT-535**	1/2"
7/16"			**RVT-508**	5/16"	**RVT-516**	3/8"	**RVT-523**	23/64"				
1/2"	**RVT-546**	5/16"	**RVT-509**	5/16"	**RVT-517**	23/64"	**RVT-524**	3/8"	**RVT-529**	1/2"	**RVT-536**	1/2"
9/16"			**RVT-510**	19/64"								
5/8"			**RVT-511**	5/16"	**RVT-518**	3/8"	**RVT-501**	3/8"	**RVT-530**	1/2"	**RVT-537**	1/2"
11/16"			**288-001**	5/16"								
3/4"					**RVT-519**	3/8"	**RVT-525**	3/8"	**RVT-531**	1/2"	**RVT-538**	1/2"
7/8"							**RVT-526**	3/8"	**RVT-532**	1/2"		
1"							**RVT-527**	3/8"	**RVT-533**	1/2"	**RVT-540**	1/2"
1-1/4 "							**RVT-502**	23/64"	**RVT-534**	15/32"	**RVT-541**	1/2"
P.C. 288	*Unit Package Quantity 100*											



Copper Tubular Rivets

Plain Finish

Unit Package Quantity 100

Oval Head

Flat Head

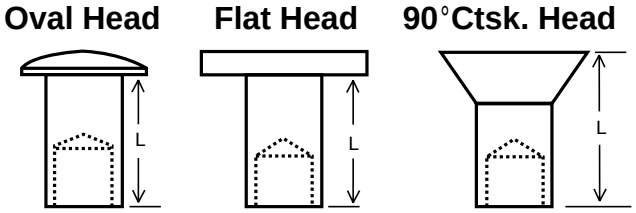
SPAENAUR No.	Dia. x Lgth.	Head Style	Head Dia.
290-011	5/64" x 3/16"	Oval	9/64"
290-012	3/32" x 3/32"	Oval	3/16"
290-013	1/8" x 21/32"	Oval	7/32"
290-014	9/64" x 13/64"	Oval	15/64"
290-015	1/8" x 1/4"	Flat	7/32"

N.B. - For Solid Copper Rivets see page E5.

Brass Tubular Rivets

Oval, Flat and 90°Ctsk. Head

Unit Package Quantity 100



Oval Head

SPAENAUR No.	Dia. x Lgth.	Head Style	Head Dia.	Finish
288-018	1/16" x 7/64"	Oval	7/64"	Plain
288-019	1/16" x 9/64"	Oval	7/64"	Plain
288-020	1/16" x 9/32"	Oval	7/64"	Zinc
288-021	5/64" x 9/64"	Oval	9/64"	Plain
288-022	5/64" x 9/64"	Oval	9/64"	Nickel
288-023	5/64" x 5/32"	Oval	9/64"	Plain
288-029	5/64" x 9/64"	Oval	3/16"	Plain
288-028	5/64" x 5/32"	Oval	3/16"	Nickel
288-024	5/64" x 11/64"	Oval	9/64"	Plain
288-025	5/64" x 7/32"	Oval	9/64	Plain
288-026	5/64" x 7/32"	Oval	9/64"	Nickel
288-027	5/64" x 1/8"	Oval	3/16"	Plain
T-68	5/64" x 5/16"	Oval	5/32"	Nickel
288-030	3/32" x 3/32"	Oval	3/16"	Plain
288-031	3/32" x 7/32"	Oval	3/16"	Zinc
288-032	3/32" x 1/4"	Oval	3/16"	Plain
288-033	3/32" x 21/64"	Oval	3/16"	Plain
RVT-556	1/8" x 1/8"	Oval	7/32"	Plain
288-036	1/8" x 5/32"	Oval	7/32"	Nickel
288-037	1/8" x 3/16"	Oval	7/32"	Plain
288-039	1/8" x 13/64"	Oval	7/32"	Plain
288-038	1/8" x 7/32"	Oval	7/32"	Plain
288-034	1/8" x 7/32"	Oval	15/64"	Plain

Oval Head continued next column . . .

SPAENAUR No.	Dia. x Lgth.	Head Style	Head Dia.	Finish
…Cont'd.				
288-040	1/8" x 5/16"	Oval	7/32"	Plain
288-042	1/8" x 25/64"	Oval	15/64"	Plain
288-041	1/8" x 9/16"	Oval	7/32"	Plain
288-054	1/8" x 21/32"	Oval	7/32"	Plain
288-055	1/8" x 11/16"	Oval	7/32"	Plain
288-044	9/64" x 1/4"	Oval	1/4"	Plain
288-043	9/64" x 1/4"	Oval	1/4"	Zinc
288-045	9/64" x 43/64"	Oval	5/16"	Plain
288-046	9/64" x 3/4"	Oval	5/16"	Plain
288-047	9/64" x 19/64"	Oval	3/8"	Plain
288-056	9/64" x 5/16"	Oval	1/4"	Plain
288-048	9/64" x 5/16"	Oval	3/8"	Plain
288-049	9/64" x 21/64"	Oval	3/8"	Plain
RVT-573	9/64" x 3/8"	Oval	5/16"	Plain
RVT-574	9/64" x 7/16"	Oval	5/16"	Plain
288-050	5/32" x 1/4"	Oval	5/16"	Plain
288-051	3/16" x 1/2"	Oval	5/16"	Nickel
288-053	3/16" x 7/16"	Oval	3/8"	Plain
RVT-575	3/16" x 1"	Oval	3/8"	Plain
RVT-576	1/4" x 3/4"	Oval	1/2"	Plain

Flat Head

288-008	1/16" x 7/32"	Flat	5/64"	Plain
288-009	5/64" x 11/64"	Flat	1/8"	Plain
288-010*	3/16" x 5/16"	Flat	23/64"	Plain

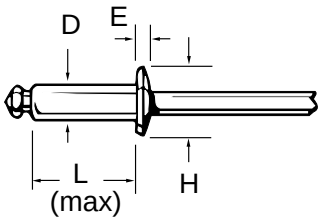
90°Ctsk. Head

288-011**	.100" x 3/16"	90°Ctsk.		Plain
288-012	3/16" x 27/32"	90°Ctsk.	21/64"	Plain

***Undercut Head** ******Undercut Serrated Head

SPAENAUR
HEAD OFFICE & DISTRIBUTION CENTRE:
815 Victoria Street North, P.O. Box 544
Kitchener, Ontario, Canada N2G 4B1
Telephone **(519) 744-3521** Toll-Free **1-800-265-8772**
Fax **(519) 744-0818**

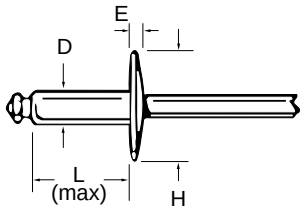
ALUMINUM
Dome Head Open-end
Covered by IFI Spec. 114



IFI Grade 19
5056 Aluminum Body with Coated Carbon Steel Mandrel
Break-stem - Mandrel head remains in rivet body.
†Values shown are a guide only and may vary depending upon the application.

SPAENAUR No.	Mfr. No.	D RIVET BODY DIA.	HOLE SIZE & DRILL NO.	GRIP RANGE (Inches)	L LENGTH UNDER HD. (Max.)	H HEAD DIA. (Nom.)	E HEAD HEIGHT (Max.)	TYPICAL ULTIMATE STRENGTHS (lb)† SHEAR	TENSILE
PR-78	AD32BS	3/32"	.097-.100 #41	.031-.125	.240	.188	.032	125	175
310-311	AD34BS			.126-.250	.365				
310-326	AD41BS	1/8"	.129-.133 #30	.031-.062	.203	.250	.040	210	325
PR-52	AD42BS			.063-.125	.265				
PR-53	AD43BS			.126-.187	.328				
PR-71	AD44BS			.188-.250	.390				
310-304	AD45BS			.251-.312	.453				
310-305	AD46BS			.313-.375	.515				
310-312	AD48BS			.376-500	.640				
310-306	AD410BS			.501-.625	.765				
PR-70	AD52BS	5/32"	.160-.164 #20	.063-.125	.290	.312	.047	340	490
PR-69	AD53BS			.126-.187	.353				
PR-67	AD54BS			.188-.250	.415				
PR-64	AD56BS			.251-.375	.540				
310-308	AD58BS			.376-.500	.665				
PR-51	AD62BS	3/16"	.192-.196 #11	.063-.125	.315	.375	.055	445	720
PR-50	AD64BS			.126-.250	.440				
PR-77	AD66BS			.251-.375	.565				
PR-55	AD68BS			.376-.500	.690				
310-309	AD610BS			.501-.625	.815				
310-310	AD612BS			.626-.750	.940				
310-313	AD614BS			.751-.875	1.065				
310-327	AD616BS			.876-1.000	1.190				
310-314*	TAPD6150BS			1.041-1.290	1.500				
PR-73	AD84BS	1/4"	.257-.261 F	.063-.250	.490	.500	.073	890	1200
PR-74	AD86BS			.251-.375	.615				
PR-75	AD88BS			.376-.500	.740				
310-328	AD810BS			.501-.625	.865				
PR-76	AD812BS			.626-.750	.990				
310-329	AD816BS			.751-1.000	1.240				

ALUMINUM
Large Flange Head Open-end
Covered by IFI Spec. 114

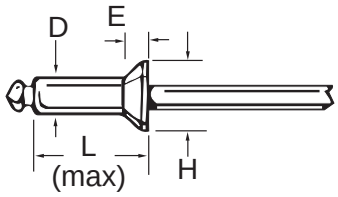


IFI Grade 19
5056 Aluminum Body with Coated Carbon Steel Mandrel
Break-stem - Mandrel head remains in rivet body.

310-330	AD42BSLF	1/8"	.129-.133 #30	.031-.125	.265	.375	.065	210	325
310-331	AD43BSLF			.126-.187	.328				
310-307	AD44BSLF			.188-.250	.390				
310-332	AD54BSLF	5/32"	.160-.164 #20	.126-.250	.415	.468	.075	340	490
310-333	AD64BSLF	3/16"	.192-.196 #11	.063-.250	.450	.625	.092	445	720
310-334	AD66BSLF			.251-375	.565				
310-316	AD68BSLF			.376-.500	.690				
PR-68LF	AD610BSLF			.501-.625	.815				
310-335	AD612BSLF			.626-.750	.940				
310-336	AD616BSLF			.751-1.000	1.190				

Unit Pkg. Qty. 500 - All numbers
*(Except 310-314 - U.P.Q.100)

ALUMINUM
120° Countersunk Head
Open-end



Covered by IFI Spec.114

IFI Grade 19

5056 Aluminum Body with Coated Carbon Steel Mandrel

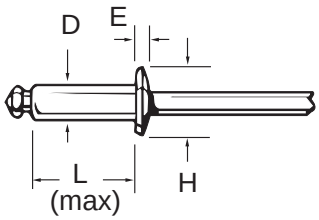
Break-stem - Mandrel head remains in rivet body.

† Values shown are a guide only and may vary depending upon the application.

SPAENAUR No.	Mfr. No.	D RIVET BODY DIA.	HOLE SIZE & DRILL NO.	GRIP RANGE (Inches)	L LENGTH (Max.)	H HEAD DIA. (Nom.)	E HEAD HEIGHT (Max.)	TYPICAL ULTIMATE STRENGTHS (lb) †	
								SHEAR	TENSILE
310-384	TAPK36BS	3/32"	.097-.100 #41	.101-.200	.290	.185	.037	125	175
PR-62	AK42BS	1/8"	.129-.133 #30	.063-.125	.265	.220	.030	210	325
310-395	AK43BS			.126-.187	.328	.220			
310-372	AK44BS			.188-.250	.390	.220			
PR-63	AK45BS			.251-.312	.453	.220			
310-373	AK54BS	5/32"	.160-.164 #20	.188-.250	.415	.281	.040	340	490
310-374	AK56BS			.251-.375	.540	.281	.040		
310-394	TAPK512BS			.360-.422	.610	.312	.060		
310-375	AK64BS	3/16"	.192-.196 #11	.126-.250	.440	.348	.050	445	720

ALUMINUM
Dome Head
Open-end

Covered by IFI Spec.114



IFI Grade 11

5052 Aluminum Body with 7178 Aluminum Mandrel

Break-stem - Mandrel head remains in rivet body.

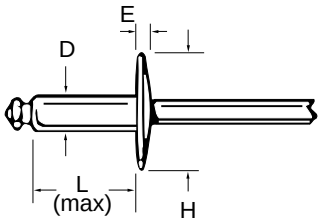
310-383	AD32ABS	3/32"	.097-.100 #41	.031-125	.240	.188	.032	85	135
PR-72	AD34ABS			.126-.250	.365				
310-337	AD36ABS			.251-.375	.490				
310-338	AD41ABS	1/8"	.129-.133 #30	.031-.062	.203	.250	.040	155	235
310-353	AD42ABS			.063-.125	.265				
PR-65	AD43ABS			.126-.187	.328				
PR-66	AD44ABS			.188-.250	.390				
310-350	AD45ABS			.251-.312	.453				
310-351	AD46ABS			.313-.375	.515				
310-339	AD48ABS			.376-.500	.640				
310-340	AD410ABS			.501-.625	.765				
310-354	AD52ABS	5/32"	.160-.164 #20	.063-.125	.290	.312	.047	225	350
310-341	AD53ABS			.126-.187	.353				
310-355	AD54ABS			.188-.250	.415				
310-356	AD56ABS			.251-.375	.540				
PR-79	AD58ABS			.376-.500	.665				
PR-56	AD62ABS	3/16"	.192-.196 #11	.063-.125	.315	.375	.055	315	500
PR-57	AD64ABS			.126-.250	.440				
PR-58	AD66ABS			.251-.375	.565				
PR-59	AD68ABS			.376-.500	.690				
PR-60	AD610ABS			.501-.625	.815				
310-342	AD612ABS			.626-.750	.940				
310-343	AD616ABS			.751-1.00	1.190				
310-344	AD84ABS	1/4"	.257-.261 F	.063-.250	.490	.500	.073	600	750
310-345	AD86ABS			.251-.375	.615				
310-346	AD812ABS			.501-.750	.990				

Unit Package 500 - All numbers on this page.

E

ALUMINUM
Large Flange Head Open-end

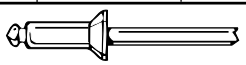
Covered by IFI Spec.114



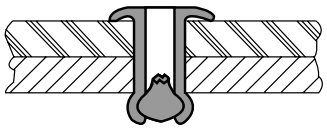
IFI Grade 11
5052 Aluminum Body with 7178 Aluminum Mandrel

Break-stem - Mandrel head remains in rivet body.

†Values shown are a guide only and may vary depending upon the application.

SPAENAUR No.	Mfr. No.	D RIVET BODY DIA.	HOLE SIZE & DRILL NO.	GRIP RANGE (Inches)	L LENGTH (Max.)	H HEAD DIA. (Nom.)	E HEAD HEIGHT (Max.)	TYPICAL ULTIMATE STRENGTHS (lb) † SHEAR	TENSILE
310-352	AD42ABSLF	1/8"	.129-.133 #30	.031-.125	.265	.375	.065	155	235
310-347	AD44ABSLF			.126-.250	.390				
310-348	AD54ABSLF	5/32"	.160-.164 #20	.126-.250	.415	.468	.075	225	350
310-349	AD64ABSLF	3/16"	.192-.196 #11	.063-.250	.450	.625	.092	315	500
PR-61LF	AD66ABSLF			.251-.375	.565				
310-385	AD68ABSLF			.376-.500	.690				
310-357	AD610ABSLF			.501-.625	.815				
310-358	AD612ABSLF			.626-.750	.940				
120° Countersunk Head 									
310-376	AK42ABS	1/8"	.129-.133 #30	.063-.125	.265	.220	.030	155	235

ALUMINUM
Dome Head Open-end



Soft-Set Rivets

For Fastening Plastics

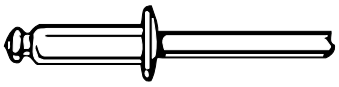
Break-stem - Mandrel head remains in rivet body.

1100 Aluminum Body with Aluminum Mandrel

310-377	PAD41ABS	1/8"	.129-.133 #30	.031-.062	.203	.250	.040	65	85
310-317	PAD42ABS			.063-.125	.265				
310-318	PAD43ABS			.126-.187	.328				
310-319	PAD44ABS			.188-.250	.390				
310-320	PAD46ABS			.251-.375	.515				
310-321	PAD48ABS			.376-.500	.640				
310-322	PAD54ABS	5/32"	.160-.164 #20	.063-.250	.415	.312	.047	105	145
310-323	PAD56ABS			.251-.375	.540				
—	PAD64ABS	3/16"	.192-.196 #11	.188-.250	.440	.375	.055	145	205
310-324	PAD66ABS			.251-.375	.565				
310-325	PAD68ABS			.365-.500	.690				

COPPER
DOME HEAD

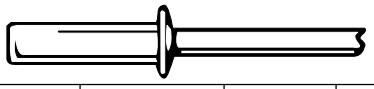
Open-End



Copper Body
Coated Carbon Steel Mandrel

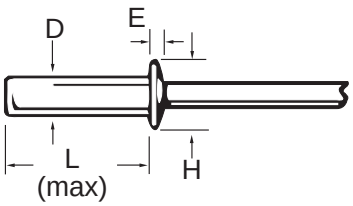
*(Bronze Mandrel)

Break-stem - Mandrel head remains in rivet body.

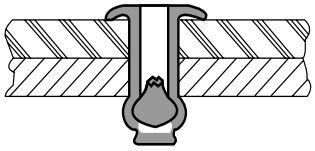
310-018	CD42BS	1/8"	.129-.133 #30	.063-.125	.265	.250	.040	215	300
***PR-9C**	TCPD44C5			.071-.100	.230				
310-054	CD44BS			.126-.250	.390				
Closed-End 									
PR-110C	CD43H	1/8"	.129-.133 #30	.063-.187	.377	.236	.051	270	337
310-059	CD-45H			.251-.312	.487 ± .015		.036		

CATALOG 13

ALUMINUM
Dome Head Closed-End
Hollow Core



Break-stem
Mandrel head remains in rivet body.



Closed-End Sealing 'POP' Rivet
This rivet type incorporates a unique cup-shaped end configuration that seals tight, preventing passage of vapor or liquid around or through the set rivet at pressures up to 500 psi.

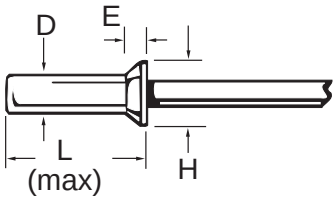
IFI Grade 19
5056 Aluminum Body with Coated Carbon Steel Mandrel

† Values shown are a guide only and may vary depending upon the application.

E

SPAENAUR No.	Mfr. No.	D RIVET BODY DIA.	HOLE SIZE & DRILL NO.	GRIP RANGE (Inches)	L LENGTH (Max.)	H HEAD DIA. (Nom.)	E HEAD HEIGHT (Max.)	TYPICAL ULTIMATE STRENGTHS (lb) † SHEAR	TENSILE
PR-104	AD41H	1/8"	.129-.133 #30	.032-.062	.255	.236	.051	305	385
PR-103	AD42H			.063-.125	.316				
PR-109	AD43H			.126-.187	.377				
310-391	AD44H			.188-.250	.440				
PR-100	AD45H			.251-.312	.502				
310-359	AD46H			.313-.375	.565				
310-360	AD48H			.376-.500	.690				
PR-108	AD52H	5/32"	.160-.164 #20	.063-.125	.330	.312	.066	430	605
PR-107	AD53H			.126-.187	.392				
310-392	AD54H			.188-.250	.435				
PR-101	AD55H			.188-.312	.517				
PR-105	AD62H	3/16"	.192-.196 #11	.063-.125	.345	.375	.081	575	840
PR-106	AD64H			.126-.250	.470				
PR-102	AD66H			.251-.375	.595				
310-380	AD68H			.376-.500	.720				
310-361	AD84H	1/4"	.257-.261 F	.126-.250	.505	.500	.099	900	1100
310-362	AD86H			.251-.375	.630				
1100 Aluminum Body - with Aluminum Mandrel								IFI Grade 15	
310-386	AD42AH	1/8"	.129-.133 #30	.063-.125	.316	.236	.051	105	150
310-363	AD43AH			.126-.187	.377				
310-364	AD44AH			.188-.250	.440				
310-387	AD54AH	5/32"	.160-.164 #20	.063-.250	.455	.312	.066	155	240
310-388	AD62AH	3/16"	.192-.196 #11	.063-.125	.345	.375	.081	220	310
310-382	AD64AH			.126-.250	.470				
310-389	AD66AH			.251-.375	.595				
310-390	AD68AH			.376-.500	.720				

ALUMINUM
120° Countersunk Head
Closed-End



IFI Grade 19
5056 Aluminum Body with Coated Carbon Steel Mandrel

Break-stem - Mandrel head remains in rivet body.

310-365	AK41H	1/8"	.129-.133 #30	.031-.062	.297	.233	.050	305	385
310-396	AK42H			.063-.125	.361				
310-366	AK43H			.126-.187	.422				
310-367	AK44H			.188-.250	.486				
310-368	AK45H			.251-.312	.548				
310-369	AK53H	5/32"	.160-.164 #20	.126-.187	.452	.312	.065	430	605
310-370	AK64H	3/16"	.192-.196 #11	.126-.250	.540	.375	.075	575	840
310-371	AK66H			.251-.375	.665				

Pop® T-Rivets

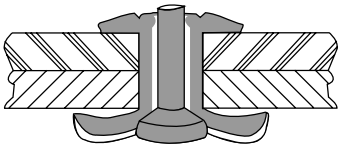
THE STRONG, RELIABLE FASTENER THAT RESISTS VIBRATION

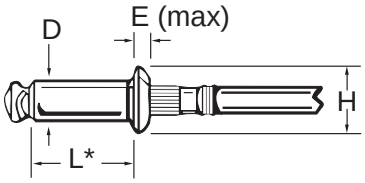
Designed for structural and similar high-strength applications, "Pop" T-Rivets have exceptional pull-up properties, and provide tensile strength up to 1100 pounds, and shear strength up to 2400 pounds. In setting, the hardened steel mandrel splits the aluminum body into a trifurcated shape that insures high clamping strength, even in thin or fragile materials.

Available in 3/16" and 1/4" rivet diameters with dome head.

For maximum performance of T-Rivets use *SPAENAUR* Power Rivet Tool **PRG-540** with **876-858** Nosepiece for 3/16" Dia. rivets or **876-859** Nosepiece for 1/4" Dia. rivets.

Aluminum (5056) RIVET with Plated Carbon Steel C-1038 Mandrel
Dome Head - Open End





Unit Package Quantity - 100

†Values shown are a guide only and may vary depending upon the application.

SPAENAUR No.	Mfr. No.	D RIVET BODY DIA.	HOLE SIZE & DRILL NO.	GRIP RANGE (Inches)	L* LENGTH UNDER HD. (Max.)	H HEAD DIA. (Nom.)	E HEAD HEIGHT (Max.)	TYPICAL ULTIMATE STRENGTHS (lb) †	
								SHEAR	TENSILE
310-019	AD6140TFBS	3/16"	.192-.196 #11	.032-.140	.447	.390	.103	950	600
310-020	AD6187TFBS			.141-.187	.510			1025	
310-021	AD6250TFBS			.188-.250	.572			1050	
310-022	AD6312TFBS			.252-.312	.635			1100	
310-023	AD6375TFBS			.313-.375	.697			1200	
310-024	AD6437TFBS			.376-.437	.760			1275	
310-025	AD6519TFBS			.438-.519	.822			1350	
310-026	AD8140TFBS	1/4"	.257-.261 F	.032-.140	.500	.510	.126	1425	1100
310-027	AD8187TFBS			.141-.187	.552			1575	
310-028	AD8250TFBS			.188-.250	.615			1650	
310-029	AD8312TFBS			.251-.312	.677			1775	
310-030	AD8375TFBS			.313-.375	.740			2050	
310-031	AD8437TFBS			.376-.437	.802			2150	
310-032	AD8519TFBS			.438-.519	.865			2325	
310-033	AD8620TFBS			.520-.620	.937			2400	

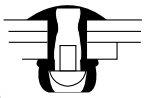
*To allow for blind side clearance ADD .125" for 3/16" diameter rivets and .165" for 1/4" diameter rivets.

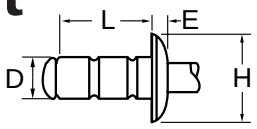
Looking for those "Hard to Find" products?
Call us at (800) 265-8772.

SPAENAUR

Multi-Grip Blind Rivet

Dome Head





Functions in a wide range of material thicknesses.
Break-stem - Mandrel head remains in rivet body.

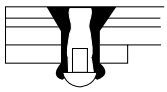
Dimensions in Inches

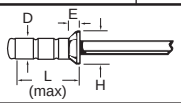
Aluminum Body with Zinc Plated Steel Mandrel

†Values shown are a guide only and may vary depending upon the application.

SPAENAUR No.	Mfr. No.	D - RIVET BODY DIA.	HOLE SIZE	GRIP RANGE	L LENGTH	H HEAD DIA.	E HEAD HEIGHT	TYPICAL ULTIMATE STRENGTHS (lb) † SHEAR	TENSILE
310-410	AD41-43BS	1/8"	.130-.142	.039-.189	.315	.252	.035	154	220
310-411	AD43-45BS	1/8"	.130-.142	.157-.315	.441	.252	.035	154	220
310-412	AD52-54BS	5/32"	.161-.173	.047-.252	.402	.315	.047	254	364
310-413	AD62-64BS	3/16"	.193-.205	.063-.252	.425	.378	.051	353	507
310-414	AD66-68BS	3/16"	.193-.205	.252-.504	.827	.378	.051	353	507

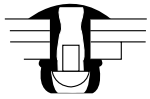
120° Countersunk Head

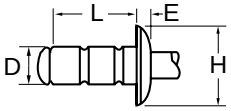




310-415	AK41-44BS	1/8"	.130-.142	.039-.252	.437	.217	.028	154	209

Dome Head

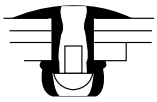


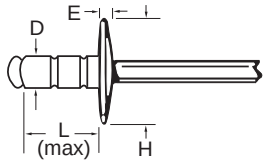


Aluminum Body with Carbon Steel Mandrel

310-406	AD45-47BS	1/8"	.130-.142	.251-.437	.594	.250	.036	154	220
310-407	AD53-55BS	5/32"	.161-.173	.126-.312	.485	.312	.043	254	364
310-408	AD68-612BS	3/16"	.193-.205	.437-.750	1.050	.375	.051	353	507

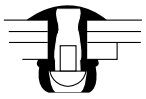
Large Flange Head

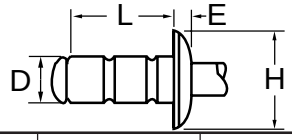




310-409	AD41-43BSLF	1/8"	.130-.142	.039-.189	.313	.375	.044	154	220
310-416	AD43-45BSLF	1/8"	.130-.142	.157-.315	.453	.375	.044	154	220
310-417	AD52-54BSLF	5/32"	.161-.173	.047-.252	.400	.468	.063	254	364
310-418	AD53-55BSLF	5/32"	.161-.173	.126-.312	.485	.468	.063	254	364
310-419	AD62-64BSLF	3/16"	.193-.205	.063-.252	.425	.625	.075	353	507
310-420	AD66-68BSLF	3/16"	.193-.205	.252-.504	.716	.625	.075	353	507

Dome Head

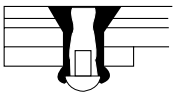


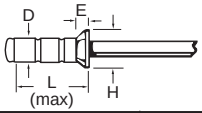


Aluminum Body with Stainless Steel Mandrel

310-421	AD62-64SSBS	3/16"	.193-.205	.062-.250	.425	.375	.051	353	507

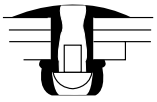
120° Countersunk Head

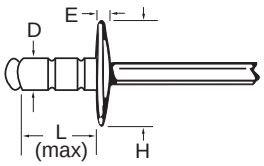




310-422	AK64-66SSBS	3/16"	.193-.205	.188-.375	.565	.348	.055	353	507

Large Flange Head



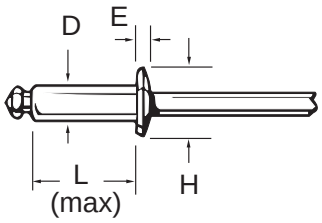


310-423	AD62-64SSBSLF	3/16"	.193-.205	.062-.250	.425	.625	.075	353	507
310-424	AD64-68SSBSLF	3/16"	.193-.205	.126-.500	.716	.625	.075	353	400
310-425	AD68-612SSBSLF	3/16"	.193-.205	.437-.750	1.050	.625	.075	353	507

UNIT PACKAGE 500
All numbers this page.

STEEL
Dome Head Open-end

Covered by IFI Spec. 114



IFI Grade 30

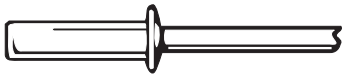
Plated Carbon Steel Body with Coated Carbon Steel Mandrel

Break-Stem - Mandrel head remains in rivet body.

†Values shown are a guide only and may vary depending upon the application.

SPAENAUR No.	Mfr. No.	D RIVET BODY DIA.	HOLE SIZE & DRILL NO.	GRIP RANGE (Inches)	L LENGTH UNDER HD. (Max.)	H HEAD DIA. (Nom.)	E HEAD HEIGHT (Max.)	TYPICAL ULTIMATE STRENGTHS (lb) †	
								SHEAR	TENSILE
310-004	SD32BS	3/32"	.097-.100	.031-.125	.240	.188	.032	150	205
310-005	SD34BS		#41	.126-.250	.365				
310-036	SD41BS	1/8"	.129-.133 #30	.031-.062	.203	.250	.040	295	425
PR-3	SD42BS			.063-.125	.265				
PR-1	SD43BS			.126-.187	.328				
PR-11	SD44BS			.188-.250	.390				
PR-14	SD45BS			.251-.312	.453				
PR-12	SD46BS			.313-.375	.515				
PR-13	SD48BS			.376-.500	.640				
PR-4	SD52BS	5/32"	.160-.164 #20	.063-.125	.290	.312	.047	410	570
310-037	SD53BS			.126-.187	.353				
310-006	SD54BS			.188-.250	.415				
PR-15	SD56BS			.251-.375	.540				
310-035	SD62BS	3/16"	.192-.196 #11	.063-.125	.315	.375	.055	590	815
PR-5	SD64BS			.126-.250	.440				
PR-6	SD66BS			.251-.375	.565				
PR-7	SD68BS			.376-.500	.690				
PR-17	SD610BS			.501-.625	.815				
310-038	SD612BS			.626-.750	.940				
310-039	SD614BS			.751-.875	1.065				
310-040	SD616BS			.751-1.000	1.190				
310-041	SD84BS	1/4"	.257-.261 F	.063-.250	.490	.500	.073	1245	1505
310-042	SD86BS			.251-.375	.615				
310-043	SD88BS			.376-.500	.740				
310-044	SD810BS			.501-.625	.865				
310-045	SD812BS			.626-.750	.990				
310-046	SD816BS			.876-1.000	1.240				

Domed Head, Closed-End Rivets

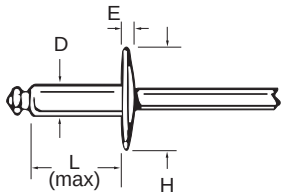


Steel Rivet with Carbon Steel Zinc Plated Mandrel

310-055	SD84H	1/4"	.257-.261	.126-.250	.720	.500	.110	2000	2000

STEEL
Large Flange Head Open-end

Covered by IFI Spec. 114



IFI Grade 30

Plated Carbon Steel Body with Coated Carbon Steel Mandrel

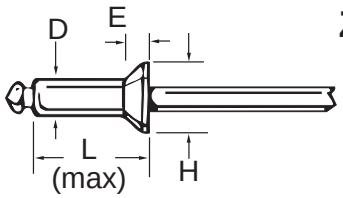
Break-stem - Mandrel head remains in rivet body.

310-047	SD42BSLF	1/8"	.129-.133 #30	.063-.125	.265	.375	.065	295	425
310-048	SD44BSLF			.126-.250	.390				
310-049	SD54BSLF	5/32"	.160-.164 #20	.126-.250	.415	.468	.075	410	570
310-050	SD64BSLF	3/16"	.192-.196 #11	.063-.250	.440	.625	.092	590	815
PR-16LF	SD66BSLF			.251-.375	.565				
310-051	SD68BSLF			.376-.500	.690				
310-007	SD610BSLF			.501-.625	.815				
310-052	SD612BSLF			.626-.750	.940				

UNIT PACKAGE 500
All numbers this page.

E

STEEL
120° Countersunk Head Open-end



Covered by IFI Spec. 114

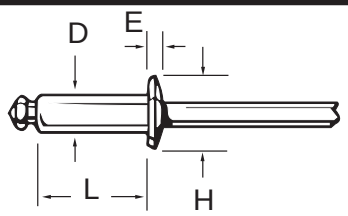
Zinc-Plated Carbon Steel Body with Coated Carbon Steel Mandrel

Break-stem - Mandrel remains in rivet body.

†Values shown are a guide only and may vary depending upon the application.

SPAENAUR No.	Mfr. No.	D RIVET BODY DIA.	HOLE SIZE & DRILL NO.	GRIP RANGE (Inches)	L LENGTH (Max.)	H HEAD DIA. (Nom.)	E HEAD HEIGHT (Max.)	TYPICAL ULTIMATE STRENGTHS (lb) † SHEAR	TENSILE
310-034 **PR-2** **310-053**	SK42BS SK43BS SK44BS	1/8"	.129-.133 #30	.063-.125 .126-.187 .126-.250	.265 .328 .390	.220	.045	295	425
310-009	TSPK54BS	5/32"	.160-.164 #20	.114-.177	.335	.312	.058	420	560

MONEL
Dome Head Open-end



Covered by IFI Spec. 114

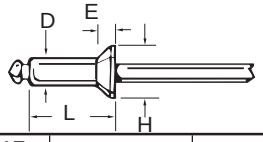
IFI Grade 40

Monel Body with Coated Carbon Steel Mandrel

Break-stem - Mandrel head remains in rivet body.

310-381 **PR-128** **PR-129**	MD424BS MD429BS MD440BS	1/8"	.129-.133 #30	.071-.120 .121-.170 .231-.280	.240 .290 .400	.236	.041	440	565
Nickel-Copper Alloy Body with Carbon Steel Mandrel									
—	MD319BS	7/64"	.113-.117 #33	.020-.070	.215	.192	.028	258	292
— **PR-130** — —	MD530BS MD537BS MD540BS MD545BS	5/32"	.160-.164 #20	.101-.160 .161-.230 .231-.260 .261-.310	.325 .395 .425 .475	.263	.040	495	674
— — **PR-132** **PR-126** **PR-127** **310-900** **PR-133**	MD624BS MD630BS MD636BS MD639BS MD650BS MD665BS MD675BS	3/16"	.192-.196 #11	.020-.090 .091-.150 .151-.200 .201-.230 .231-.340 .341-.490 .491-.590	.265 .325 .385 .415 .525 .675 .775	.320	.055	742	843
310-901 **PR-134**	MD850BS MD870BS	1/4"	.257-.261 F	.151-.300 .301-.500	.525 .725	.427	.068	1214	1517

120° Countersunk Head Open-end



Nickel-Copper Alloy Body with Carbon Steel Mandrel

Break-stem - Mandrel head remains in rivet body.

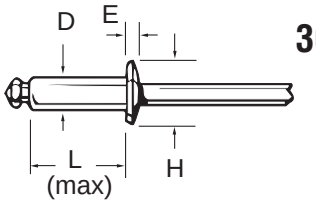
—	MK319BS	7/64"	.113-.117 #33	.020-.070	.238	.192	.028	258	292
— — **PR-135** — **310-902**	MK419BS MK424BS MK429BS MK435BS MK440BS	1/8"	.129-.133 #30	.020-.100 .101-.150 .151-.200 .201-.260 .261-.310	.246 .296 .346 .406 .456	.236	.036	337	427
—	MK530BS	5/32"	.160-.164 #20	.131-.190	.359	.263	.039	495	674
— **310-057** **310-058**	MK636BS TLPK665BS TLPK675BS	3/16"	.192-.196 #11	.181-.230 .371-.520 .521-.620	.425 .709 .807	.320	.045	742	843

CATALOG 13

300 Series

STAINLESS STEEL

Dome Head Open-end



IFI Grade 50

300 Series Stainless Steel Body with Coated Carbon Steel Mandrel

Break-stem - Mandrel head remains in rivet body.

†Values shown are a guide only and may vary depending on the application.

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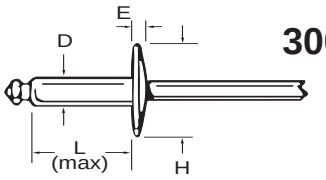
SPAENAUR No.	Mfr. No.	D RIVET BODY DIA.	HOLE SIZE & DRILL NO.	GRIP RANGE (Inches)	L LENGHT UNDER HD. (Max.)	H HEAD DIA. (Nom.)	E HEAD HEIGHT (Max.)	TYPICAL ULTIMATE STRENGTHS (lb) †	
								SHEAR	TENSILE
310-835	SSD41BS	1/8"	.129-.133 #30	.031-.062	.203	.250	.040	550	700
310-800	SSD42BS			.063-.125	.265				
310-801	SSD43BS			.126-.187	.328				
310-802	SSD44BS			.188-.250	.390				
310-803	SSD46BS			.251-.375	.515				
310-836	SSD48BS			.376-.500	.640				
310-809	SSD52BS	5/32"	.160-.164 #20	.063-.125	.290	.312	.047	900	1130
310-810	SSD54BS			.126-.250	.415				
310-807	SSD56BS			.251-.375	.540				
310-806	SSD62BS	3/16"	.192-.196 #11	.063-.125	.315	.375	.055	1000	1375
310-804	SSD64BS			.126-.250	.440				
310-805	SSD66BS			.251-.375	.565				
310-808	SSD68BS			.376-.500	.690				
300 Series Stainless Steel Body with Stainless Steel Mandrel									
310-820	SSD42SSBS	1/8"	.129-.133 #30	.031-.125	.265	.250	.040	550	700
310-821	SSD43SSBS			.126-.187	.328				
310-822	SSD44SSBS			.188-.250	.390				
310-823	SSD46SSBS			.251-.375	.515				
310-826	SSD48SSBS			.376-.500	.640				
310-827	SSD52SSBS	5/32"	.160-.164 #20	.063-.125	.290	.312	.047	900	1130
310-828	SSD54SSBS			.126-.250	.415				
310-829	SSD56SSBS			.251-.375	.540				
310-830	SSD62SSBS	3/16"	.192-.196 #11	.063-.125	.315	.375	.055	1000	1375
310-824	SSD64SSBS			.125-.250	.425				
310-825	SSD66SSBS			.251-.375	.565				
310-831	SSD68SSBS			.376-.500	.690				

300 Series

STAINLESS STEEL

Large Flange Head Open-end



IFI Grade 50

300 Series Stainless Steel Body with Coated Carbon Steel Mandrel

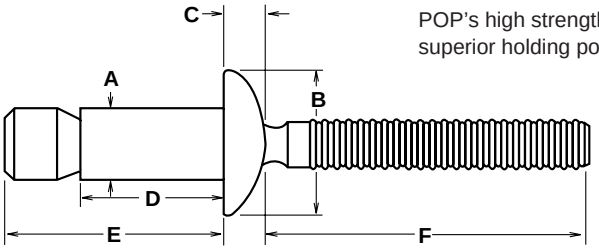
Break-stem - Mandrel remains in rivet body.

310-837	SSD42BSLF	1/8"	.129-.133 #30	.031-.125	.265	.375	.065	550	700
310-838	SSD43BSLF			.126-.187	.328				
310-839	SSD44BSLF			.188-.250	.390				
300 Series Stainless Steel Body with Stainless Steel Mandrel									
310-832	SSD42SSBSLF	1/8"	.129-.133 #30	.031-.125	.265	.375	.065	550	700
310-833	SSD43SSBSLF			.126-.187	.328				
310-834	SSD44SSBSLF			.188-.250	.390				

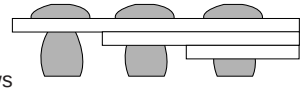
UNIT PACKAGE 500
All numbers this page.

Tel: 1-800-265-8772 Fax: 519-744-0818

The POP® UltraGrip Rivet – Set it. Forget it.



POP's high strength UltraGrip rivets with a positive mechanical locking system provide superior holding power over other high strength rivets. This system also guarantees 100% mandrel retention that's visually verifiable. The locking feature seals the mandrel head into the body preventing head drop-out and keeps the application free of contamination from metal fragments.



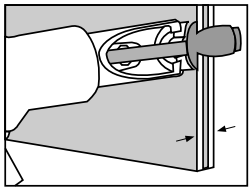
UltraGrip high strength rivets provide a wide grip range that allows one rivet size to handle several applications, reducing the amount of parts in inventory. Ultra-Grip rivets are available in 3/16" and 1/4" diameter with grip ranges up to 5/8".

E

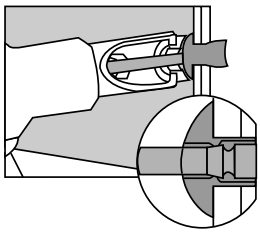
Dome Head Style

Unit Pkg. Qty. - 500

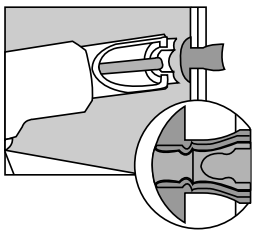
	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW					Fastener Dimensions					
Diameter	Steel Body & Mandrel	Aluminum Body & Mandrel	Stainless Steel Body & Mandrel	Grip Range	Hole Size	A	B	C	D	E	F
3/16"	**301-440** **301-442**	**301-360** **301-362**	**301-800** **—**	.062-.270" .062-.437"	.191-.201"	.183"	.385"	.085"	.415" .572"	.675" .950"	1.00" 1.00"
1/4"	**301-441** **301-443**	**301-361** **301-363**	**301-801** **—**	.080-.375" .080-.625"	.261-.272"	.253"	.525"	.117"	.560" .810"	.970" 1.405"	1.00" 1.00"



After inserting an UltraGrip rivet with its "easy entry" chamfered head into the prepared hole, the POP Rivetool engages the mandrel pulling it into the rivet body.



As the mandrel head recedes into the rivet body it draws the materials together and forms an expanded head on the blind side. The positive mechanical lock is formed when the rivet body's internal locking ring seats itself in the mandrel's groove.



The POP Rivetool continues to pull, breaking the mandrel flush and completing installation. There is no need for grinding or other smoothing operations. Visual inspection verifies that the rivet is fully set and that the mandrel head is locked in place.

Typical Installed Values in Nominal Grip - Pounds / Material and Finish Specifications.

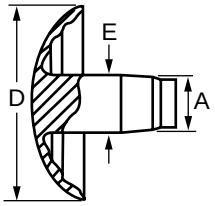
Material	Dia.	Shear	Tensile	Pin Push-Out	Material Specifications Body	Material Specifications Mandrel	Finish Specifications Body	Finish Specifications Mandrel
Steel	3/16" 1/4"	1400 2500	1100 2150	150 300	AISI 1006 (Steel)	AISI 10B22 (Steel)	Zinc Plated with Clear Chro. Fin.	Gold Finish
Aluminum	3/16" 1/4"	700 1300	500 890	50 100	5056 (Aluminum)	7075 (Aluminum)	Clear Chromate	Gold Chromate
Stainless	3/16" 1/4"	1400 2500	1000 2000	125 250	AISI 302 (Stainless Steel)	AISI 305 (Stainless Steel)	No Plate	No Plate

Installation Tools for UltraGrip Rivets

PRT-5200 and **MCS-5200** POP® Rivetools will set 3/16" dia. rivets. *(See page E31)*

Aluminum Mushroom Plugs for use with 3/16" Dia. Pop® Rivets

SPAENAUR No.	A Tapered End Diameter	D Head Diameter	E Stem Diameter	Unit Pkg. Qty.
310-060	.108"	.432"	.1195"	500



ASSORTMENT No. **805-638** SHOWN

Size: 18" x 12" x 3" See pages E18 to E28 for Pop Rivets.

Priced Singly

ASSORTMENT / ASSORTIMENT 805-638

'POP'® RIVETS

18 Popular sizes of Aluminum, Steel and Monel 'Pop' Rivets, Plus Back-up Washers.

With tool

21 Varieties — 2700 Pieces

Assortment includes the No. 876-400 Heavy Duty Hand Riveter.

Shipping Weight: 7.60 kg (16-3/4 lbs.)

Or... **ASSORTMENT / ASSORTIMENT 805-637** Without tool

Same as 805-638 in all respects, **but,** not including Hand Riveter #876-400.

Shipping Weight: 6.92 kg (15-1/4 lbs.)

E

All assortments on this page are in LARGE SIZE grey enamel steel drawers with hinged lid and catch. Drawers will fit into Slide Racks shown on page A3.

ASSORTMENT / ASSORTIMENT 805-659

ALUMINUM

Open-End Pop® Rivets

*Aluminum & Steel Mandrels

Includes #876-400 Heavy Duty Riveter.

Shipping Weight: 6.62 kg. (14.6 lbs.)

Priced Singly

*Quantity 100 pieces per number, except **PR-61LF** -50, **310-310** -75 & **310-314** - 25 pieces.*

ASSORTMENT / ASSORTIMENT 805-662

PLATED STEEL

Open-End Pop® Rivets

Steel Mandrels

Includes #876-400 Heavy Duty Riveter.

Shipping Weight: 8.94 kg. (19.7 lbs.)

Priced Singly

*Quantity 100 pieces per number, except **310-007** & **PR-16LF** - 50 pieces.*

SPAENAUR No.	RIVET DIA. x LGTH.	GRIP RANGE	HEAD STYLE
PR-78	3/32" x .240"	.031-.125"	Dome
310-311	3/32" x .365"	.126-.250"	Dome
PR-72*	3/32" x .365"	.126-.250"	Dome
PR-62	1/8" x .230"	.063-.125"	Countersunk
310-352*	1/8" x .265"	.031-.125"	Dome Lg. Flange
310-353*	1/8" x .265"	.063-.125"	Dome
PR-52	1/8" x .265"	.063-.125"	Dome
PR-53	1/8" x .328"	.126-.187"	Dome
PR-63	1/8" x .400"	.251-.312"	Countersunk
310-306	1/8" x .765"	.501-.625"	Dome
PR-69	5/32" x .353"	.126-.187"	Dome
310-356*	5/32" x .540"	.251-.375"	Dome
PR-64	5/32" x .540"	.251-.375"	Dome
PR-50	3/16" x .440"	.126-.250"	Dome
PR-57*	3/16" x .440"	.126-.250"	Dome
PR-58*	3/16" x .565"	.215-.375"	Dome
PR-61LF*	3/16" x .565"	.215-.375"	Dome Lg. Flange
PR-77	3/16" x .565"	.251-.375"	Dome
310-310	3/16" x .940"	.626-.750"	Dome
310-314	3/16" x 1.50"	1.041-1.290"	Dome

SPAENAUR No.	RIVET DIA. x LGTH.	GRIP RANGE	HEAD STYLE
310-004	3/32" x .240"	.031-.125"	Dome
310-005	3/32" x .365"	.126-.250"	Dome
310-034	1/8" x .265"	.063-.125"	Countersunk
PR-3	1/8" x .265"	.063-.125"	Dome
PR-1	1/8" x .328"	.126-.187"	Dome
PR-11	1/8" x .390"	.188-.250"	Dome
PR-14	1/8" x .453"	.251-.312"	Dome
PR-12	1/8" x .515"	.313-.375"	Dome
PR-13	1/8" x .640"	.376-.500"	Dome
310-009	5/32" x .240"	.101-.130"	Countersunk
PR-4	5/32" x .290"	.063-.125"	Dome
310-006	5/32" x .415"	.188-.250"	Dome
PR-15	5/32" x .540"	.251-.375"	Dome
310-035	3/16" x .315"	.063-.125"	Dome
PR-5	3/16" x .440"	.126-.250"	Dome
PR-6	3/16" x .565"	.251-.375"	Dome
PR-16LF	3/16" x .565"	.251-.375"	Dome Lg. Flange
PR-7	3/16" x .690"	.376-.500"	Dome
PR-17	3/16" x .815"	.501-.625"	Dome
310-007	3/16" x .815"	.501-.625"	Dome Lg. Flange

RIVETING DATA

RIVETERS, PULLING HEADS, RIVET AND MANDREL MATERIALS

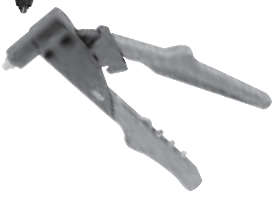
Chart below indicates diameter and materials of rivets best set by each Rivet Tool.

RIVET DIAMETERS
(Approx. Metric equiv. in brackets.)
● INDICATES OPEN-END RIVETS
■ INDICATES CLOSED-END RIVETS

E

Rivetools

	MATERIAL		3/32"	7/64"	1/8"	5/32"	3/16"	1/4"
	Rivet	**Mandrel**	(2.4)	(2.8)	(3.2)	(4.0)	(4.8)	(6.3)
876-200 ***H.D."Pop" Rivetool*** Comes equipped with nosepieces for 1/8", 5/32" and 3/16" diameter rivets. See page E33 for other nosepieces.	alum.	alum.	●		●■	●■	●■	
	alum.	steel	●		●■	●■	●	
	steel	steel	●		●	●	●	
	monel	steel		●	●			
	stainless	stainless			●			
876-400 (See page E35) ***Heavy-duty Hand Riveter -*** for "POP" Rivets. Spring action, rugged, low priced, 4 nosepieces for 3/32", 1/8", 5/32" & 3/16".	alum.	alum.	●		●■	●■	●■	
	alum.	steel	●		●■	●■	●	
	steel	steel	●		●	●	●	
	monel	steel		●	●			
	stainless	stainless			●			
876-1815 (See page E33) ***PowerLink 30 "Pop" Rivet Tool.*** Comes with four nosepieces to set 3/32", 1/8", 5/32" & 3/16" "POP" Rivets. Designed for one hand operation.	alum.	alum.	●		●■	●■	●■	
	alum.	steel	●		●■	●■	●	
	steel	steel	●		●	●	●	
	monel	steel		●	●			
	stainless	stainless			●			
876-1818 ***Manual "Pop" Rivetool.*** For recessed rivet applications. Provides a 5" nosepiece and ergonomically designed hand grips for comfortable operation. Longer handles provide more leverage and easier operations on tough 1/4" and "T" rivets. Hardened tool steel jaws for durability. Comes with nosepieces to set 3/16" and 1/4" rivets, and "T" rivets.	alum.	alum.	●		●	●■	●■	●■
	alum.	steel	●		●	●■	●■	●■
	steel	steel	●		●	●■	●■	●■
	monel	steel	●		●	●	●	
	stainless	stainless			●	●	●	
	stainless	steel			●	●	●	
876-1817 ***Hand "Pop" Rivetool.*** Durable, dependable hand operated riveter capable of setting most types and sizes in POP's rivet line. Ideal for applications where lateral space is limited.	alum.	alum.	●	●	●■	●■	●■	●■
	alum.	steel	●	●	●■	●■	●■	●
	steel	steel	●	●	●■	●■	●■	●
	monel	steel	●	●	●	●	●	●
	stainless	stainless	●	●	●	●		
PRG-510 ***PNEUMATIC "POP" RIVETER*** Latest addition to the "POP" Rivet line of power tools. This low cost "POP" Riveter is designed for high-speed production riveting , trouble-free operations, and easy maintenance. Comes with air hose and 1/8", 5/32", and 3/16" open-end nosepieces. See page E33 for other nose-pieces. **MCS-510** Same as above , but with mandrel collecting system.	alum.	alum.	●		●■	●■	●■	
	alum.	steel	●		●■	●	●	
	steel	steel	●		●			
	monel	steel		●	●			
	stainless	stainless			●			
PRG-540 ***AIR-HYDRAULIC "POP" RIVETER*** Heavy-duty "POP" Riveter ideal for setting "POP" Rivet in high production type fastening operations. Sets all diameter "POP" Rivets. Easy portability. Comes with air hose and 3/32", 1/8", 5/32" and 3/16" nosepieces. **MCS-540** Same as above , but with mandrel collection system.	alum.	alum.	●		●■	●■	●■	●
	alum.	steel	●		●■	●■	●■	■
	steel	steel	●		●	●	●	■
	monel	steel		●	●	●	●	●
	stainless	stainless			●		●	



Replacement parts for installing rivet sizes from 3/32" to 3/16" inclusive with PRG 540 Riveter.

PRG-540-43 Mandrel Guide
PRG-540-46 Jaws
PRG-14 Jaw Pusher
PRG-540-14 Piston Rod

Parts required to convert - 540 Riveters to set 1/4" Pop® rivets.

PRG-540-44 Jaws, **PRG-740-7A** Jaw Pusher and **PRN-811** Nosepiece for 1/4" OPEN END Rivets.

PRG-540-44 Jaws, **PRG-740-7A** Jaw Pusher and **PRN-822** Nosepiece for 1/4" CLOSED END Rivets.

P.C. 876

SPAENAUR No. 13300 Jaws for TT-17 and TT-4, *Unit Pkg. - 1 Set* (Riveter Tools no longer available.)

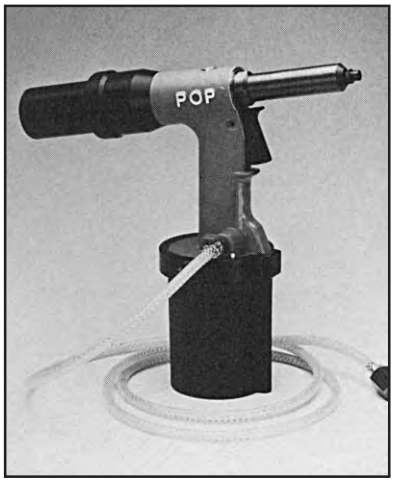
CATALOG 13

All items on this page Priced Singly.

See pages E31, E32, E33 & E35 for REPLACEMENT PARTS and NOSEPIECE DATA.

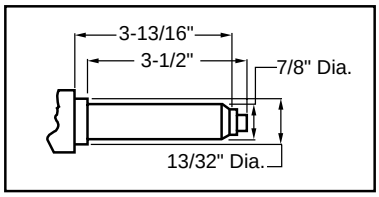
POP® 5000 Series Air-hydraulic Rivetools

POP's new tool line design features rugged, lightweight construction, ergonomic design for balance and comfort, and power for productivity.



PRT-5200

10" L, 11" H, Wt: 2.9 lbs.



Air Consumption: .011 CF/rivet
Air Required: 85 psi max.

Note: Will not operate at pressure greater than 100 psi.

MCS-5200

(with vacuum Mandrel Collection System)

11-1/2" L, 11" H, Wt: 3.2 lbs.

5200 Air-hydraulic tools

The 5200 is designed for long-haul, midrange riveting. Powerful enough to set all rivets up to and including 3/16" stainless steel, this tool has a new stronger design, and yet is smaller and lighter than other tools in its class. Its size, weight and balance reduce worker fatigue. And it's easy to maintain. It features a revolutionary air return head design that minimizes moving parts and repair requirements.

E

POP® 5000 Series Power Tool / Rivet Selection

TOOL	RIVET MATERIAL		RIVET DIAMETERS													
			OPEN-END RIVETS						CLOSED-END SEALING RIVETS				T-RIVETS		ULTRA GRIP	
SPAENAUR No.	BODY	MANDREL	3/32	7/64	1/8	5/32	3/16	1/4	1/8	5/32	3/16	1/4	3/16	1/4	3/16	1/4
PRT-5200 MCS-5200 *	alum.	alum.	•		•	•	•		•	•	•				•	
	alum.	steel	•		•	•	•		•	•	•		•	•	•	
	steel	steel	•		•	•	•								•	
	monel	steel		•	•	•	•									
	stainless	steel			•	•	•								•	
	stainless	stainless			•	•	•		•	•	•				•	

***** Also suitable for high strength structural 3/16" rivets.

NOSEPIECE DATA for use with **Open-End** "Pop" Rivets, -Types AD/BS, AD/ABS, CD/BBS, MD/BS, SD/BS

Nosepiece No.	Rivet Dia.	*RIVETER STYLE NO.* 876-200	PRG-510	PRG-540	TT-4	TT-17		
PRN-314	3/32"	•	•					
PRN-414	1/8"	•	•	•	•			
PRN-514	5/32"	•	•	•	•			
PRN-614	3/16"	•	•	•	•			
PRN-811	1/4"			† •				
13033-C/3	3/32"				•	•		
13033-C/4	1/8"				•	•		
13033-C/5	5/32"				•	•		
13033-C/6	3/16"				•	•		

TT-4 and TT-17 are no longer available but *Spaenaur* still stocks Nosepieces and Jaws.

For use with **CLOSED-END** "Pop" Rivets, - Types AD/H and CD/H

876-436	1/8"	•	•	•				
PRN-522	5/32"	•	•	•				
PRN-622	3/16"	•	■	•				
PRN-822	1/4"			† •				
13085-C/4	1/8"				•	•		
13085-C/5	5/32"				•	•		
13085-C/6	3/16"				•	•		

■ Riveter is not designed to pull this size "Pop" Rivet in the AD/H Series. († Requires Conversion Kit - See page E30)

CATALOG 13

All items on this page Priced Singly.

E

The Heavy-Duty'Pop' Rivetool

SPAENAUR No.
876-200

Made of heavy-duty steel.

Includes wrench and three nose-pieces to set 1/8", 5/32" and 316" dia. 'Pop' Rivets.

The "POP" Rivetool No. 876-200 handles the big jobs easily, effectively and economically. It features an extended-reach nose for riveting in hard-to-get-at places and is equipped with a wrench for nose-piece changes.
A fast-selling tool that can replace nuts, bolts, screws and other more difficult and time-consuming fasteners. The 876-200 'Pop' Rivetool is ideal for the handyman and has a wide range of applications.

RIVET IT RIGHT WITH POP® RIVETOOL

- Select a rivet with the "grip range" equal to or greater than combined thickness of the items being fastened.
- For light duty use 1/8" dia. rivets.
- For medium duty use 5/32" dia. rivets.
- For heavy duty use 3/16" **aluminum rivets only**.
- When riveting metals use rivets of same material.

REPLACEMENT PARTS LIST

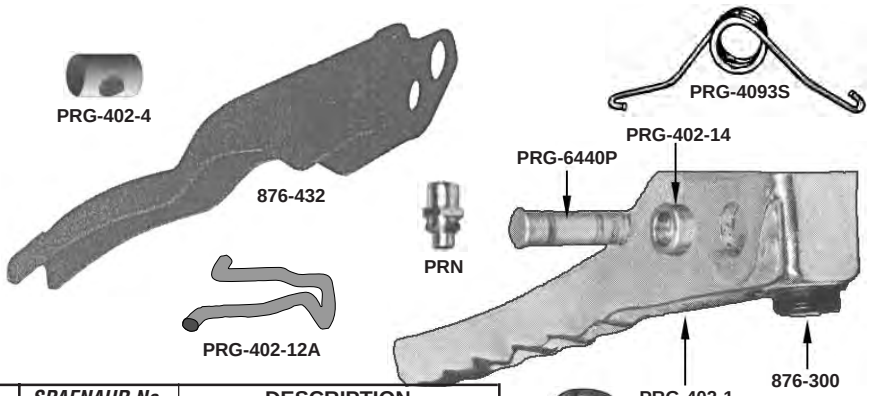
For Models

876-200 & 876-430

HAND "POP" RIVETERS

876-430 has been discontinued but spare parts are available while quantities last.

See page E30 for descriptive information on other hand riveters.



P.C. 876

SPAENAUR No.	DESCRIPTION	*SPAENAUR No.*	DESCRIPTION
PRG-402-1	Riveter Support (For PRG-402 H.D.)	**876-436**	Nosepiece 1/8" Closed-End Aluminum Rivet with Steel Mandrel
876-431	Riveter Support (For 876-430)	**PRN-434**	Nosepiece 1/8" Closed-End Aluminum Rivet with Aluminum Mandrel
PRG-402-3	Pulling Head	**PRN-534**	Nosepiece 5/32" Closed-End Aluminum Rivet with Aluminum Mandrel
PRG-402-4	Pulling Head Pin	**PRN-522**	Nosepiece 5/32" Closed-End Aluminum Rivet with Steel Mandrel
876-432	Handle (For 876-430)	**PRN-634**	Nosepiece 3/16" Closed-End Aluminum Rivet with Aluminum Mandrel
PRG-402-7	Jaw Case-Small	**PRN-622**	Nosepiece 3/16"Closed-End Aluminum Rivet with Steel Mandrel
PRG-402-8	Jaws (For PRG-402 H.D.)	**PRG-473**	Handle Fulcrum Pin Retainer
876-300	Nosepiece Housing Insert	**PRG-6440P**	Handle Fulcrum Pin
876-434	Nosepiece Housing Large (For 876-430)	**PRG-4033S**	Jaw Pusher Spring
PRG-402-12A	Handle Latch	**876-435**	Jaw Pusher Spring (For 876-430)
PRG-402-14	Handle Bushing	**PRG-4093S**	Handle Return Spring
PRG-520-33	JAW PUSHER		
PRH-820-11A	Jaw Case-Large		
PRN-314	Nosepiece 3/32" Open-End		
PRN-414	Nosepiece 7/64"&1/8" Open End		
PRN-514	Nosepiece 5/32" Open-End		
PRN-614	Nosepiece 3/16" Open-End		
PRG-510-52A	Nose Housing for PRG-510 Gun		

'POP' PowerLink 30

A Revolutionary Rivet Tool

Includes wrench and four nose-pieces to set 3/32",1/8", 5/32" and 316" dia. 'Pop' Rivets. These pieces are out of the way improving access and preventing torn pockets.

- A jam free front-end design.
- A shorter nose housing for the back pocket.
- An innovative latch design keeps handles closed without cumbersome chains or wires.
- An overall design to minimize friction, improving performance and provide longevity.
- A shorter grip opening ergonomically. designed for one hand operation.
- Grips cover the length of the lever and body.
- Innovative soft handles are contoured to fit the hand.
- Recessed rib design eliminates pinch points.

A patented compound link design does the work for you.

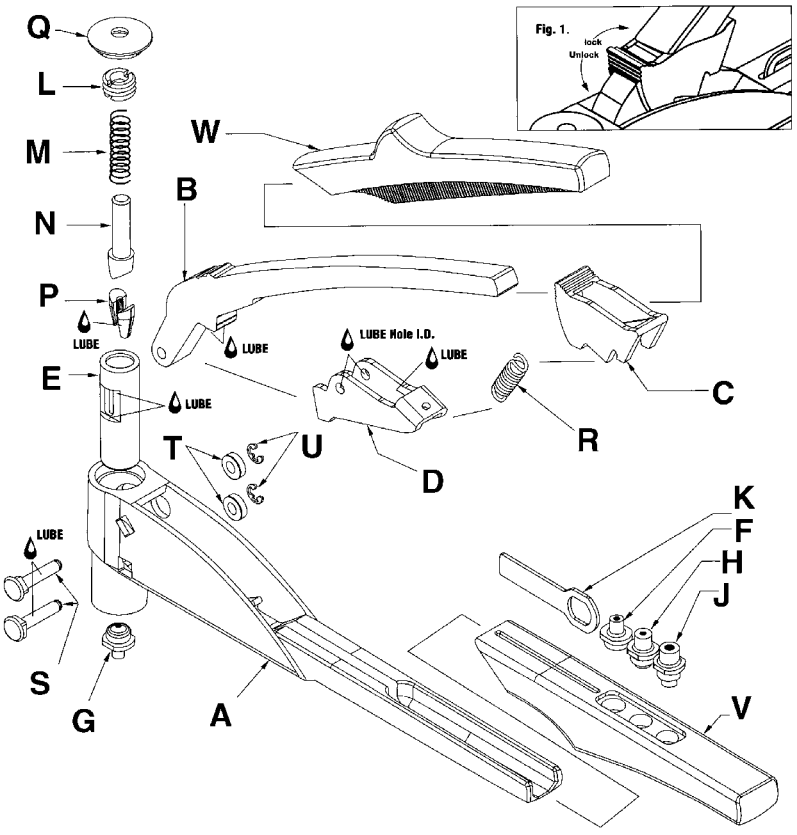
SPAENAUR No.
876-1815

Ergonomic Hand Rivet Tool. 50% easier to use than any rivet tool on the market.

See chart on E30 for rivets that can be set by PowerLink 30.

E

POWERLINK 30 REPLACEMENT PARTS



Spaenaur No.	Description
876-1823	(A) Body
876-1824	(B) Handle
876-1825	(C) Latch
876-1826	(D) Link
876-1827	(E) Jaw Carrier

KITS must be purchased as a complete set.

876-1819 Nosepiece KIT includes:
(F) 1 Nosepiece (3/32")
(G) 1 Nosepiece (1/8")
(H) 1 Nosepiece (5/32")
(J) 1 Nosepiece (3/16")
(K) 1 Wrench

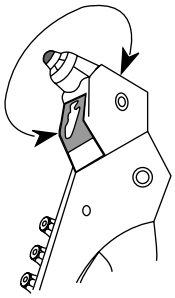
876-1820 Jaw Service KIT includes:
(L) 1 Retaining Screw
(M) 1 Jaw Pusher Spring
(N) 1 Jaw Pusher
(P) 2 Jaws
(Q) 1 Cap

876-1821 Fulcrum Pin KIT includes:
(R) 1 Handle Return Spring
(S) 2 Fulcrum Pins
(T) 2 Bushings
(U) 2 Retaining Rings

876-1822 Handle Grip KIT includes:
(V) 1 Body Grip
(W) 1 Handle Grip

All items on this page Priced Singly.

E



360° Swivel Head

Rivet, Nut & Anchor Riveting Tools

876-1000 Inch Tool
877-1000 Metric Tool

Both tools come complete for installing Rivets, Wall Anchors, and AO, AT and AW Inserts.

In Handy Plastic Case

Priced Singly

876-1000
Inch Tool complete.

877-1000
Metric Tool complete.

Replacement parts are in stock at *SPAENAUR.*

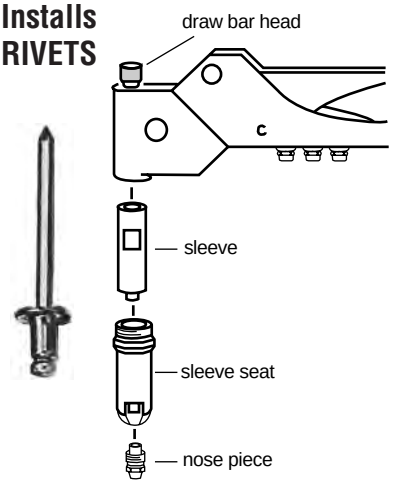
876-1016	3/32" Nose Piece
876-1017	1/8" Nose Piece
876-1018	5/32" Nose Piece
876-1019	3/16" Nose Piece
876-1020	2 Piece Jaws
876-1021	Spring
876-1009	#4-40 Draw Bar/Fixing Screw
876-1010	#8-32 Draw Bar/Fixing Screw
876-1011	#10-24 Draw Bar/Fixing Screw
***876-1556**	#10-32 Draw Bar/Fixing Screw
876-1012	1/4"-20 Draw Bar/Fixing Screw
876-1014	Draw Pipe and Fastener
876-1015	Sleeve Seat
876-1022	2 Wrench Set

*Available but not inlcluded in kit.

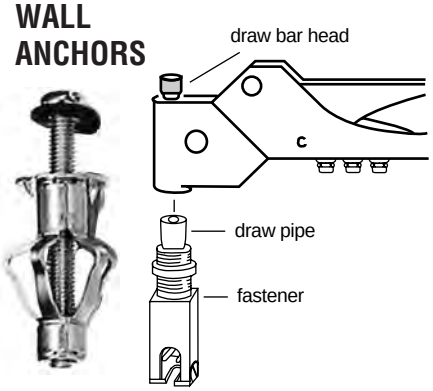
876-1016	2.4 mm (3/32") Nose Piece
876-1017	3.2 mm (1/8") Nose Piece
876-1018	4.0 mm (5/32") Nose Piece
876-1019	4.8 mm (3/16") Nose Piece
876-1020	2 Piece Jaws
876-1021	Spring
877-1001	M3 x 0.50 Pitch Draw Bar/Fixing Screw
877-1002	M4 x 0.70 Pitch Draw Bar/Fixing Screw
877-1003	M5 x 0.80 Pitch Draw Bar/Fixing Screw
877-1004	M6 x 1.00 Pitch Draw Bar/Fixing Screw
876-1014	Draw Pipe and Fastener
876-1015	Sleeve Seat
876-1022	2 Wrench Set

Not recommended for AK, AL, AH or Rivet Nut type Inserts.

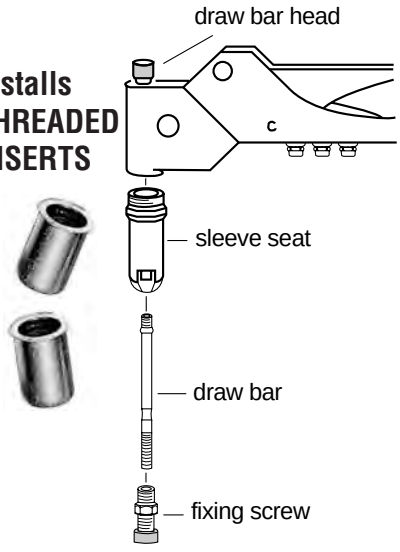
Installs RIVETS

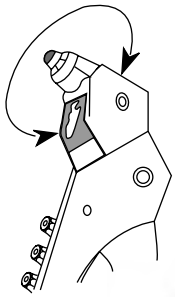


Installs WALL ANCHORS



Installs THREADED INSERTS





360° Swivel Head

(Rivets are not included.)

SPAENAUR No. **876-1001**

Hand Riveting Tool

The ideal Hand Riveting Tool for setting blind rivets in normal or tough-to-get-at-spots because of the 360° Swivel Head.

SPAENAUR No. **876-1001** is the complete Hand Riveting Tool for setting 3/32", 1/8" and 5/32" dia. rivets of steel or aluminum and 3/16" dia. rivets of aluminum only.

Replacement parts are readily available from SPAENAUR.

876-1002	3/32" (2.4 mm) Nose Piece	**876-1006**	Wrench
876-1003	1/8" (3.2 mm) Nose Piece	**876-1007**	2-Piece Jaws
876-1004	5/32" (4.0 mm) Nose Piece	**876-1008**	Spring
876-1005	3/16" (4.8 mm) Nose Piece		

Parts for 876-400

Illustration	*SPAENAUR No.* & Description
	876-402 3/32" (2.4 mm) Nosepiece
	876-403 1/8" (3.2 mm) Nosepiece
	876-404 5/32" (4.0 mm) Nosepiece
	876-405 3/16" (4.8 mm) Nosepiece
	876-401 Jaw
	876-406 Jaw Pusher Spring
	876-407 Returning Nut
	876-408 Pivot Pin
	876-409 E-Ring
	876-410 Wrench

SPAENAUR No. 876-400

Heavy Duty

HAND RIVETER

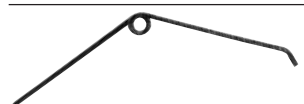
For ‘Pop’ Rivets

LOW PRICE

Comes with Wrench and 4 Nose-pieces to set 3/32", 1/8", 5/32" & 3/16" rivet diameters.

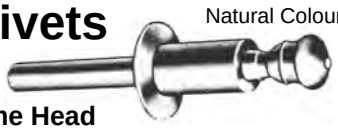
Lock releases with one hand.

Parts for 876-400

Illustration	*SPAENAUR No.* & Description
	876-1731 Body Frame
	876-1732 Lever
	**876-1736** Release Spring
	876-1733 Jaw Case
	876-1734 Pusher
	876-1735 Lever Pin
	876-1738 Stopper & Rubber Washer

Plastic Blind Rivets

Tough! Nylon 6/6



Natural Colour

Dome Head

SPAENAUR No.	Rivet Dia.	Length under hd.	Grip Range	Drill Size	Shear Strength
		Dimensions in Inches			
310-400	**5/32"**	.315"	.020-.197"	#20	40 lbs.
310-401	(4 mm)	.468"	.197-.354"	(.160-.164")	
310-402	**.197"**	.315"	.020-.197"	#7	67 lbs.
310-403	(5 mm)	.468"	.197-.354"	(.200-.204")	
310-404	**.236"**	.315"	.020-.197"	"C"	100 lbs.
310-405	(6 mm)	.468"	.197-.354"	(.240-.244")	

UNIT PACKAGE 100

The *SPAENAUR* Plastic Blind Rivet is highly corrosion-resistant and non-conductive.

Self-plugging mandrel.

Especially suited for joining plastic to metal, wood, fiberglass, synthetic materials, plexiglass, etc.

Effective temperature range: -40°C to +80°C (-22°F to +176°F).
Melting temperature: 250-255°C (482-491°F).
Flammable but self-extinguishing.

CHEMICAL PROPERTIES
Resistant to carbohydrates, oils, fats, propellants, alcohols, diluted alkalines and lyes, trichlorethylene, salt water, hot water conditional, etc.

Priced Singly

876-487

Hand Tool for PLASTIC Blind Rivets

Sets ALL Sizes

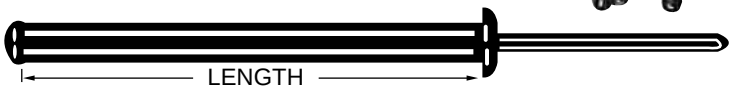
Metric "Extra Length" Blind Rivets

Dome Head - Open-End

Aluminum Rivet with Steel Mandrel

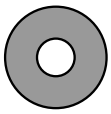
Zinc and Clear Dichromate Finish

UNIT PACKAGE 100



SPAENAUR No.	Rivet Length under head (mm)	Drill Size (mm)	Rivet Dia. (mm)	Grip Range (mm)
310-010	36.0	5.1 to 5.2	5	25-30
310-011	41.0			30-35
310-012	46.0			35-40
310-013	51.0			40-45
310-014	56.0			45-48
310-015	61.0			48-52
310-016	66.0			52-57
310-017	71.0			57-62

BACK-UP WASHERS



For use with "Pop" Rivets

P.C. 643, 656

SPAENAUR No.	Material	For Rivet Dia.	Washers O.D.	Washers Thick.	Washers Finish	Unit Pkg.
656-035	Steel	3/32"	3/8"	.035"	Zinc	100
656-037	Steel	1/8"	7/16"	.040"	Zinc	100
656-039	Steel	5/32"	1/2"	.050"	Zinc	100
W-332	Steel	3/16"	1/2"	.047"	Nickel	100
W-167	Steel	1/4"	1-3/16"	.031"	Zinc	50
W-3002	Aluminum	1/8"	3/8"	.032"	Plain	100
W-3003	Aluminum	5/32"	3/8"	.032"	Plain	100
W-3000	Aluminum	3/16"	7/16"	.037"	Plain	100
W-3001	Aluminum	1/4"	11/16"	.047"	Plain	100
W-2020	St.Steel	1/8"	3/8"	.031"	Plain	100
W-2071	St.Steel	3/16"	7/16"	.031"	Plain	100
W-4001	Copper	1/8"	.380"	.042"	Plain	500

Combined DRILL and COUNTERSINK - Double Ended

High Speed Steel

For 120° ctsk. Countersunk Pop Rivets.

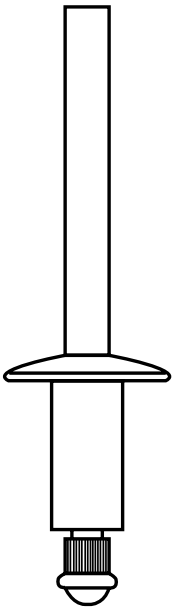
Priced Singly

SPAENAUR No.	Drill Dia.	Countersink	Overall Length
T-159	1/8"	120° (both ends)	2"

Not guaranteed against breakage or wear.

Also see Page P49 for Six Flute Countersinks and more sizes of combined Drill and Countersinks.

Structural — Self-plugging rivets (CQR)



HIGH SHEAR STRENGTH

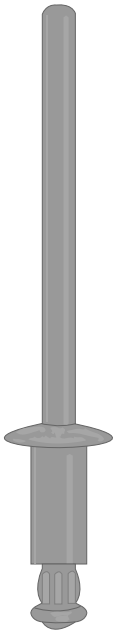
Cherry Q Rivet mandrel plugs the entire length of the rivet sleeve, providing full shear strength values for structural or load-bearing applications.

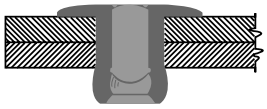
SEALING CAPABILITY

Specially designed mandrel of the Q Rivet is engineered to effect a seal, upon installation, which offers resistance to leakage.

VIBRATION RESISTANT

Rivet sleeve curls over end of mandrel to insure its positive retention.





Q RIVETS

They're strong... comparable to solid rivets!

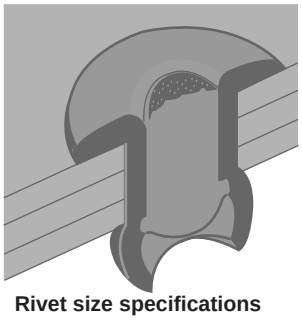
CHERRY Q RIVETS

MINIMUM RIVET SHEAR AND TENSILE STRENGTH (lbs.) in THICK STEEL SHEETS.

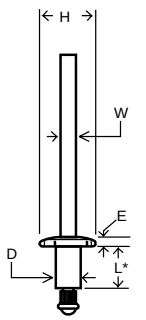
RIVET DIA.	AA SERIES ALUM. RIVET ALUM. MAND.		BS SERIES ALUM. RIVET STEEL MAND (Cad. Plated)		SS SERIES STEEL RIVET STEEL MAND. (Cad. Plated)		CC SERIES STAINLESS RIVET STAINLESS MAND. (SS Range 302-4)	
	Shear	Tens.	Shear	Tens.	Shear	Tens.	Shear	Tens.
1/8"	225	250	350	325	500	400	700	600
5/32"	325	325	525	450	700	550	1050	1000
3/16"	500	450	750	650	1050	825	1650	1300
1/4"	850	750	1250	1050	1750	1450	2450	2250

See page E38 For Chart of STOCK SIZES

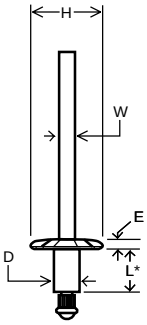
CHERRY Q



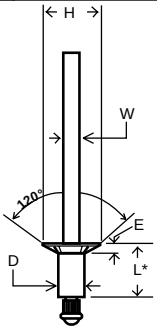
Rivet size specifications and Hole Size data.



PROTRUDING HEAD



LARGE HEAD



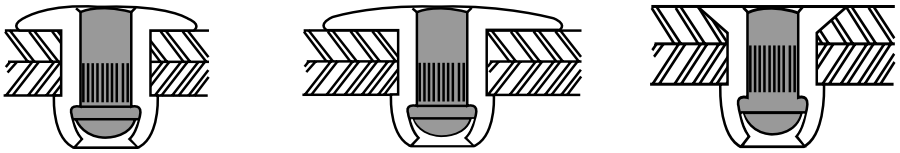
FLUSH HEAD

*L- Length varies with each grip length (See following page).	NOM. RIVET DIA.	HOLE SIZE AND DRILL NUMBER	W MAND. DIA.	D RIVET DIA.	Protruding Head H HEAD DIA.	Protruding Head E HEAD THICK.	Large Head H HEAD DIA..	Large Head E HEAD THICK.	Flush Head H HEAD DIA.	Flush Head E HEAD THICK.
	1/8"	.129"-.133" (#30)	.075"	.125"	.250"	.037"	.375"	.039"	.236"	.037"
	5/32"	.160"-.164" (#20)	.094"	.156"	.312"	.045"	.469"	.054"	.263"	.037"
	3/16"	.192"-.196" (#10)	.114"	.187"	.375"	.051"	.625"	.079"	.319"	.046"
	1/4"	.257"-.261" (F)	.151"	.250"	.500"	.071"	.750"	.100"	.418"	.058"

Structural - Self-plugging rivets

*GRIP IS TOTAL OF MATERIAL THICKNESS

G



ORDER BY *SPAENAUR* NUMBERS LISTED BELOW

UNIT PACKAGE 100

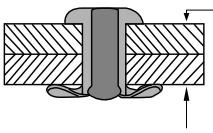
D RIVET DIA.		L LENGTH Under Head		(G) *GRIP RANGE		AA Series Aluminum Rivet Aluminum Mandrel		BS Series Aluminum Rivet Steel Mandrel (Cad. or Zinc) our option)		SS Series Steel Rivet Steel Mandrel (Cad. or Zinc our option)		CC Series Stainless Rivet Stainless Mandrel (SS Range 302-304)	
inch	approx. mm	inch	approx. mm	inch	approx. mm	Prot. Head	Large Head	Prot. Head	Large Head	Prot. Head	Large Head	Prot. Head	Large Head
						*Q RIVET MANDREL BREAKS FLUSH AT MID-GRIP							
		.212	3.07	Up to .062	Up to 1.57								
		.275	6.99	.063-.125	1.60-3.18			**301-300**		**301-400**			
		.337	8.56	.126-.187	3.20-4.75			**301-301**				**301-504**	
1/8"	3.2	.400	10.16	.188-.250	4.78-6.35			**301-302**		**301-401**		**301-500**	
		.462	11.73	.251-.312	6.38-7.92							**301-501**	
		.525	13.33	.313-.375	7.95-9.53			**301-303**		**301-402**			
		.587	14.91	.376-.437	9.55-11.10								
		.650	16.51	.438-.500	1.13-12.70								
		.300	7.62	.062-.125	1.57-3.18			**301-304**		**301-403**			
5/32"	4.0	.425	10.80	.126-.250	3.20-6.35	**301-350**		**301-305**			**301-413** (Flush Head)		
		.550	13.97	.251-.375	6.38-9.53			**301-306**		**301-404**			
		.675	17.15	.376-.500	9.55-12.70								
		.325	8.26	.062-.125	1.60-3.18								
		.450	11.43	.126-.250	3.20-6.35	**301-351**		**301-307**		**301-405**			
		.575	14.61	.251-.375	6.38-9.53	**301-352**		**301-308**	**301-315**		**301-412**	**301-502**	
3/16"	4.8	.700	17.78	.376-.500	9.55-12.70	**301-353**		**301-309**		**301-406**		**301-503**	
		.850	21.60	.501-.625	12.73-15.88			**301-310**					
		.950	24.13	.626-.750	15.90-19.05					**301-407**			
		1.075	27.31	.751-.875	19.08-22.23								
		.375	9.53	.062-.125	1.60-3.18								
		.500	12.70	.126-.250	3.20-6.35			**301-311**		**301-408**			
		.625	15.88	.251-.375	6.38-9.53					**301-409**			
		.750	19.05	.376-.500	9.55-12.70			**301-312**					
1/4"	6.3	.875	22.23	.501-.625	12.73-15.88					**301-410**			
		1.000	25.40	.626-.750	15.90-19.05			**301-313**		**301-411**			
		1.125	28.58	.751-.875	19.08-22.23								
		1.250	31.75	.876-1.000	22.23-25.40								

CHERRY MULTI-GRIP T RIVETS

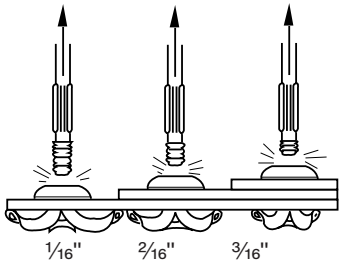
These rivets break flush at each of the nominal grips* below:

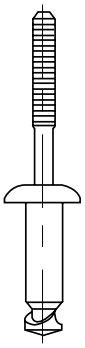
Structural, Self-plugging rivets

RIVET DIA. BSPT series	G RIVET GRIP RANGE Min.	Nom.*	Max.	L RIVET LGTH. Max.	ALUMINUM RIVET STEEL MANDREL, CAD PLATED Protruding Head
3/16"	.046"	.062" .125" .187"	.203"	.520"	**301-380**
	.203"	.250" .312" .375"	.390"	.648"	**301-381**



The Multi-grip principal of the same rivet in 3 material thicknesses:



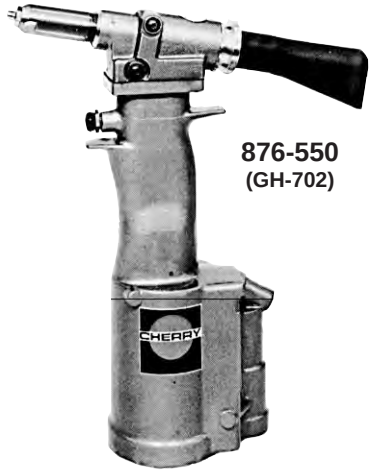


To set Multi-Grip T Rivets,

Use a Pull-Gun No. 876-551 or 876-552

(See Page E39).

Unit Package 100



876-550
(GH-702)

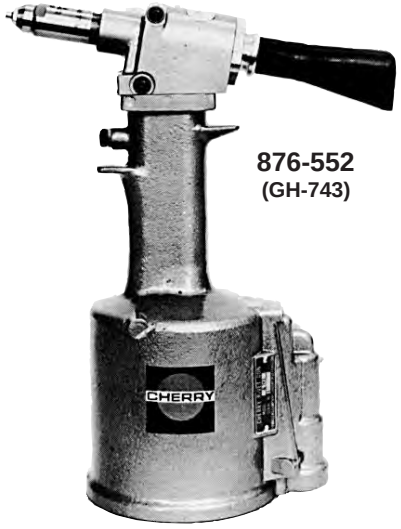
Pneumatic - Hydraulic Tool

Weight: 3-1/2 lbs.
Use 90 to 120 psi air pressure for maximum efficiency.
Pulling Head and 2 Nose-Pieces incl.
For Rivet dia. 3/32", 1/8", 5/32" & 3/16".

876-551
(GH-703)

Pneumatic - Hydraulic Tool

Weight: 5-3/4 lbs.
Use 90 to 120 psi air pressure for maximum efficiency.
Same Pulling Head and Nose-Pieces as with 876-550.



876-552
(GH-743)

Pneumatic - Hydraulic Tool

Weight: 6-1/4 lbs.
Uses 90 to 120 psi air pressure.
Comes ready to set 1/4" "Q" Rivets, plus Nose-Piece for 3/16" incl.

Shown above is the Cherry Commercial Products family of pneumatic/hydraulic riveters which were designed specifically for the most efficient installation of Cherry Commercial Rivets. The size and power of each riveter determines its capacity as outlined below (See Chart at bottom).

COMPLETE LISTING OF CHERRY "Q" RIVETS FOUND ON PAGES E37 & E38.

876-553
(GH-780)

PNEUMATIC TOOL

Weight: 3 lbs.
Takes 90 to 120 psi air p.
Includes
Pulling Hd. & 2 Nose-Pieces, for 3/32", 1/8", 5/32", 3/16".

876-555 PULLING HEAD
(Series... H702, H703, H743, H780)

TWO-PIECE JAW SET

876-1083
(use with 876-550 and 876-551 Guns shown above)

NOSE-PIECES

876-215
for 3/16" Dia. Rivets
(use with 876-551 or 876-552 Gun.)

876-216
for 3/16" and 1/4" Dia. Rivets
(Use with 876-552 Gun)

Shown in the chart below, are the riveting capabilities of the above listed Power Tools.

CHERRY N, Q, and T RIVETS	RIVET DIA.	876-550 (GH-702) POWER RIVETER	876-551 (GH-703) POWER RIVETER	876-552 (GH-743) POWER RIVETER	876-553 (GH-780) POWER RIVETER
BSP SERIES	3/32"	YES	YES	NO	YES
Aluminum Rivet	1/8"	YES	YES	NO	YES
Steel Mandrel	5/32"	YES	YES	NO	YES
	3/16"	YES	YES	YES	YES
	1/4"	NO	Ord. Extra Hd.	YES	NO
BSPT SERIES					
Aluminum Rivet	3/16"	NO	YES	YES	NO
Steel Mandrel	1/4"	NO	Ord. Extra Hd.	YES	NO
SSP SERIES	3/32"	YES	YES	NO	YES
Steel Rivet	1/8"	YES	YES	NO	YES
Steel Mandrel	5/32"	YES	YES	NO	YES
	3/16"	NO	YES	YES	NO
	1/4"	NO	NO	YES	NO
CCP SERIES	1/8"	YES	YES	NO	YES
Stainless Steel Rivet	3/16"	NO	YES	YES	NO
Stainless Steel Mandrel					

All items on this page
Priced Singly.

SPAENAUR

Our Quality Policy

You are the Customer.
We will meet **your** expectations
for both Product and Service -

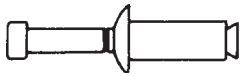
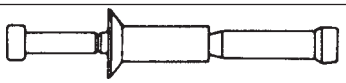
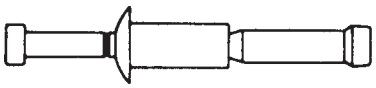
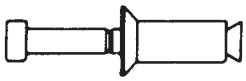
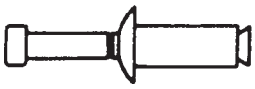
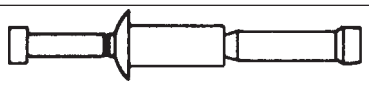
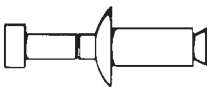
Accurately,

On Time,

Every Time.

We are phasing out the "Old Style" rivets listed here.
Listed items available only until stock sold.
Please contact our Sales Department for special clear-out prices!

New Style Cherry "Q" Rivets - Page E37

Illustration	*SPAENAUR No.*	Dia.	Nominal Grip Length	Rivet Length	Rivet Type	Head Style	Stem Material
ALUMINUM CHERRY RIVETS (A17ST Aluminum Alloy) Finish: Alumilite No. 205							
	**CR-117-4-4**	1/8"	1/8"	.193"	Pull-Through Hollow	Modified Brazier Head	Steel
	CR-117-6-6	3/16"	3/16"	.255"			
	CR-117-6-16		1/2"	.567"			
	**CR-162-6-12**	3/16"	3/8"	.453"	Self-Plugging	100° Countersunk Head	17ST Aluminum Alloy
	**CR-163-5-8**	5/32"	1/4"	.318"			
	CR-163-6-4	3/16"	1/8"	.193"		Modified Brazier Head	17ST Aluminum Alloy
	CR-163-6-8		1/4"	.318"			
	CR-163-6-20		5/8"	.693"			
	CR-163-6-26		13/16"	.880"			
	CR-163-8-4	1/4"	1/8"	.250"			
	CR-163-8-6		3/16"	.318"			
	CR-163-8-20		5/8"	.755"			
	CR-179-4-2	1/8"	1/16"	.470"		Universal Head	2017-T4 Aluminum
STEEL CHERRY RIVETS Finish: Cadmium Plated							
	**CR-316-5-4**	5/32"	1/8"	.193"	Pull-Through Hollow	100° Countersunk Head	Steel
	CR-316-5-6		3/16"	.255"			
	CR-317-5-6	5/32"	3/16"	.255"		Modified Brazier Head	Steel
	**CR-317-6-4**	3/16"	1/8"	.193"			
	CR-317-6-6		3/16"	.255"			
	CR-1484-6-12	3/16"	3/8"	.442"	Pull-Through Hollow	Fabric-Gripping Domed (Oval) Head 9/16" Diameter	Steel
	**CR-363-6-6**	3/16"	3/16"	.255"	Self-Plugging	Modified Brazier Head	Steel
	CR-363-6-8		1/4"	.318"			
	CR-363-6-10		5/16"	.442			
MONEL CHERRY RIVETS Finish: Cadmium Plated							
	**CR-517-4-4**	1/8"	1/4"	.318"	Pull-Through Hollow	Modified Brazier Head	Steel
	CR-517-4-8		5/16"	.380"			
	CR-517-4-10						
Use these MONEL rivets to attach - STAINLESS STEEL PANELS on Bus and Truck Bodies, Railway Coaches, etc.	**CR-517-5-4**	5/32"	1/8"	.193"			
	CR-517-5-6		3/16"	.255"			
	CR-517-5-8		1/4"	.318"			
	CR-517-5-10		5/16"	.380"			
	CR-517-6-4	3/16"	1/8"	.193"			
	CR-517-6-6		3/16"	.255"			
	CR-517-6-10		5/16"	.380"			
P.C. 301	**CR-517-6-12**		3/8"	.442"			

PULLING HEADS

A pulling head consists of two parts: a sleeve and a drawbolt.

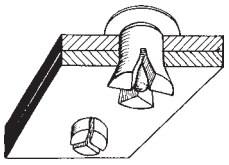
Cherry Rivet Pull Gun CR-25-B for installing old style Cherry Rivets has been discontinued.

Pulling Heads shown at right are available until current stock is depleted.

Rivet Diameter	For Brazier Head Rivets use Pulling Head Number	For Countersunk Head Rivets Use Pulling Head Number
3/32"	—	**CR-6H3C**
1/8"	—	**CR-6H4C**
5/32"	**CR-6H5B**	**CR-6H5C**
3/16"	—	**CR-6H6-C**

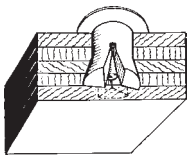
All Rivets - Unit Package 500
Pulling Heads Priced Singly

ALUMINUM



METAL TO METAL

DRIVE PIN – Stainless Steel is being replaced by aluminum pin



METAL TO WOOD

Structural - Self-plugging rivets

- **EASILY INSTALLED**
  No special tools required... just a hammer.
- **HIGH SHEAR STRENGTH**
  Drive Rivets are plugged the full length of the rivet sleeve, providing full shear strength values for structural or load-bearing applications.

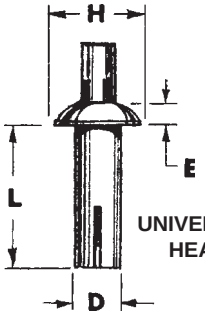
E

RIVET SIZE SPECIFICATIONS AND HOLE SIZE DATA

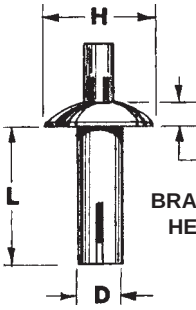
(Approximate Metric mm equivalent shown in brackets.)				UNIVERSAL HEAD		BRAZIER HEAD		100° FLUSH HEAD	
NOM. RIVET DIA.	HOLE DIA. FOR THRU HOLE	HOLE DIA. RANGE FOR BLIND HOLE	D RIVET DIA.	H HEAD DIA.	E HEAD THICK.	H HEAD DIA.	E HEAD THICK.	H HEAD DIA.	E HEAD THICK.
1/8 (3.2)	.128 (3.3)	.128-.140 (3.3-3.5)	.125	.250	.054	-	-	.216	.042
5/32 (4.0)	.161 (4.0)	.161-.172 (4-4.3)	.156	.312	.067	-	-	.278	.055
3/16 (4.8)	.191 (4.9)	.191-.219 (4.9-5.5)	.188	.375	.080	.469	.094	.344	.070-
1/4 (6.4)	.257 (6.5)	.266-.281 (6.7-7)	.250	.500	.107	.625	.125	.458	.095
5/16 (7.9)	.323 (8.2)	.344-.375 (8.7-9.5)	.313	.625	.138	-	-	.594	.125
3/8 (9.5)	.386 (9.8)	.437.-468 (11-12)	.375	.750	.166	-	-	.718	.156

TIPS ON INSTALLATION **1.** Measure your total material thickness.

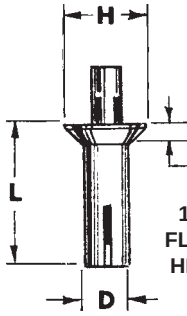
2. Select the correct grip length rivet from tables on the following pages by comparing your total sheet thickness with the MIN. and MAX. values in columns headed GRIP RANGE.



UNIVERSAL HEAD

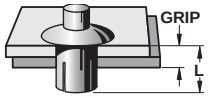


BRAZIER HEAD



100° FLUSH HEAD

Thru Hole Application

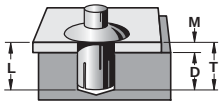


GRIP = total thickness of sheets to be fastened.

3. INSERT A RIVET
Seat head firmly against outer surface.

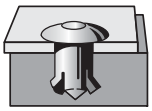
4. HIT THE PIN
Drive pin flush with rivet head.
Expanding prongs clinch sheets tightly, eliminating gaps.

Blind Hole Application



To determine length of rivet under the head: Select a rivet with the **L** dimension equal to **M** (Thickness of outer panel) + **D** (Hole depth in wood or inner panel). The total hole depth (**T**) should be at least .06" (2mm) greater than the length of the rivet.

Metal and wood pulled tightly together. Nothing protrudes through wood.



ALUMINUM RIVETS with Stainless or Aluminum Pins

Drive Rivets					*SPAENAUR* NUMBERS		
D RIVET DIA.	GRIP RANGE Nom.	Min.	Max.	L Lgth. Max.	UNIVERSAL HEAD	100° CTSK. HEAD FLUSH HEAD	BRAZIER HEAD
1/8" (3.2) **Standard Grip**	3/32"	.078"	.109"	3/16"	**304-300**		
	1/8"	.109"	.141"	7/32"			
	5/32"	.141"	.172"	1/4"	**304-302**		
	3/16"	.172"	.203"	9/32"	**304-303**		
	7/32"	.203"	.234"	5/16"			
	1/4"	.234"	.266"	11/32"			
5/32" (4.0) **Standard Grip**	1/8"	.109"	.141"	1/4"	**304-306**		
	5/32"	.141"	.172"	9/32"			
	3/16"	.172"	.203"	5/16"			
	7/32"	.203"	.234"	11/32"	**304-309**	**304-384**	
	1/4"	.234"	.266"	3/8"	**304-310**		
(3/16" and 1/4" Dia. next page)	5/16"	.297"	.328"	7/16"	**304-311**		
	3/8"	.359"	.391"	1/2"	**304-312**		

CATALOG 13

ALUMINUM Drive Rivets

Cont'd. from previous page.

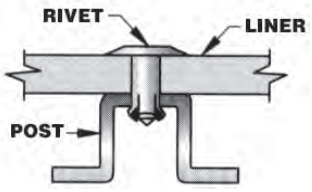
UNIT PACKAGE 500	G GRIP RANGE Nom.	Min.	Max.	L Lgth. Max.	SPAENAUR NUMBERS UNIVERSAL HEAD	100° CTSK. HEAD FLUSH HEAD	BRAZIER HEAD
3/16" (4.8) is furnished with Stainless or Aluminum drive pin. **Multi-Grip**	1/8"	.078"	.172"	9/32"	**304-313**		**304-437**
	3/16"	.141"	.234"	11/32"	**304-314**		**304-438**
	1/4"	.203"	.297"	13/32"	**304-315**		**304-434**
	5/16"	.266"	.359"	15/32"	**304-316**		**304-439**
	3/8"	.328"	.421"	17/32"	**304-317**	**304-374**	**304-435**
	7/16"	.391"	.484"	19/32"	**304-318**		**304-440**
	1/2"	.453"	.547"	21/32"	**304-319**		
	9/16"	.516"	.609"	23/32"	**304-320**		
	5/8"	.578"	.672"	25/32"	**304-321**		
	3/4"	.703"	.797"	29/32"	**304-322**		
	7/8"	.828"	.922"	1-1/32"	**304-323**		
	1"	.953"	1.047"	1-5/32"	**304-324**		
1/4" Dia. (6.4 mm) is furnished with Stainless or Aluminum drive pin. **Multi-Grip**	1/8"	.078"	.172"	9/32"	**304-326**		**304-376**
	3/16"	.141"	.234"	11/32"	**304-327**		**304-377**
	1/4"	.203"	.297"	13/32"	**304-328**		**304-378**
	5/16"	.266"	.359"	15/32"	**304-329**		**304-379**
	3/8"	.328"	.422"	17/32"	**304-330**		**304-380**
	7/16"	.391"	.484"	19/32"	**304-331**		**304-381**
	1/2"	.453"	.547"	21/32"	**304-332**		**304-382**
	9/16"	.516"	.609"	23/32"	**304-333**		
	5/8"	.578"	.672"	25/32"	**304-334**		
	11/16"	.641"	.734"	27/32"	**304-335**		
	3/4"	.703"	.797"	29/32"	**304-336**		
	13/16"	.766"	.859"	31/32"	**304-337**		
	7/8"	.828"	.922"	1-1/32"	**304-338**		
	1"	.953"	1.047"	1-5/32"	**304-340**		
	1-1/8"	1.078"	1.171"	1-9/32"	—		**304-383**

Other Sizes Available P.O.R.

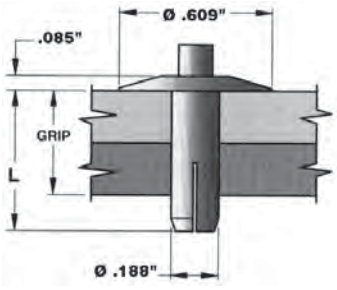
ALUMINUM TRAILER LINER DRIVE RIVETS

with aluminum drive pin

For fastening plywood or plastic liners in T.I.R. containers.



Large diameter, low profile head increases bearing surface and eliminates cargo snagging.

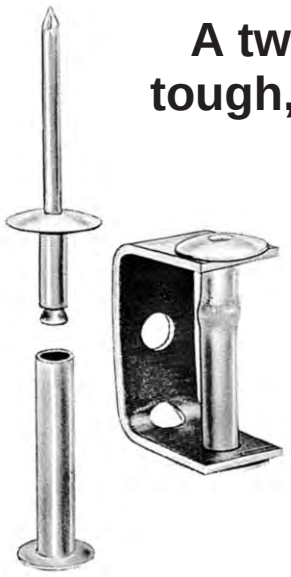


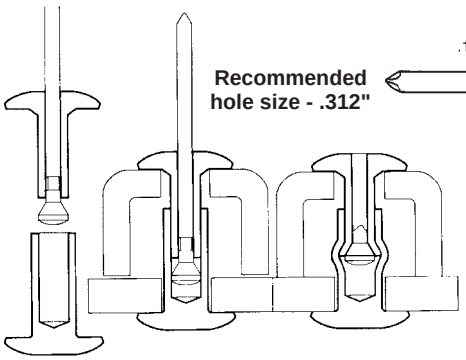
UNIT PACKAGE 500

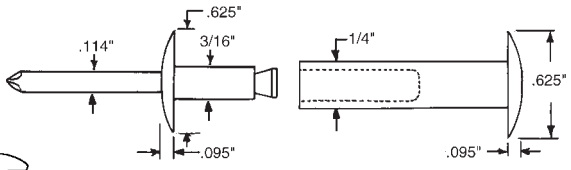
RIVET DIA.	GRIP RANGE Min.	Max.	L Max. Lgth.	SPAENAUR No.
3/16" (4.8 mm)	.075"	.175"	9/32"	**304-470**
	.175"	.275"	25/64"	**304-471**
	.275"	.375"	31/64"	**304-472**
	.375"	.475"	37/64"	**304-473**
	.475"	.575"	11/16"	**304-474**
	.575"	.675"	25/32"	**304-475**
	.675"	.775"	7/8"	***304-476**
	.775"	.875"	63/64"	***304-477**
	.875"	.975"	1-5/64"	**304-478**

*with stainless steel pin - tamper-resistant style - not exactly as illustrated.

A two-piece fastening system for those really tough, "sandwich-type" or long grip applications







Steel
Zinc Plated

- **VIBRATION-PROOF** won't shake loose.
- **TAMPER-PROOF** smooth, low-profile heads on both ends.
- **CONTROLLED CLAMP-UP** clamps tightly ... but without crushing.
- **NON-CRITICAL HOLES** no close-tolerance drilling necessary.
- **EASILY SET WITH BLIND RIVETING TOOL** Designed for 3/16" open-end steel rivets.
- **EXTRA WIDE GRIP RANGE** thickness of material may be as much as 4".

Grip is Total Material Thickness	*SPAENAUR No.*	Unit Package
5/8" to 3/4"	**301-450**	100
3/4" to 7/8"	**301-451**	100
7/8" to 1-1/8"	**301-452**	100
1-1/8 to 1-3/8"	**301-453**	100
1-3/8" to 1-5/8"	**301-454**	100
1-5/8" to 1-7/8"	**301-455**	100
1-7/8 to 2-1/8"	**301-456**	100
2-1/8" to 2-3/8"	**301-457**	100
2-3/8" to 2-5/8"	—	—
2-5/8" to 2-7/8"		
2-7/8" to 3-1/8"		
3-1/8" to 3-3/8"		
3-3/8" to 3-5/8"	—	
3-5/8" to 3-7/8"	—	—
TYPICAL TENSION VALUES – 350 LBS.		

Also available 3/16" Dia. Shank and Aluminium on Special Order.

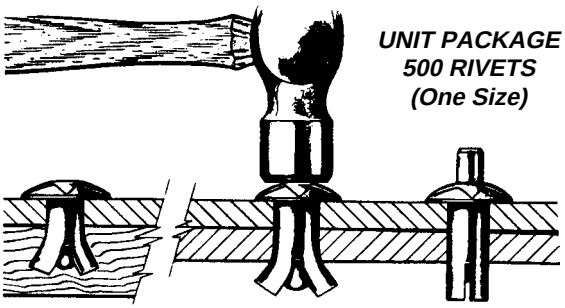
NOTE: Cherrymates are recommended in applications where the shear value does not exceed the tension.

SPAENAUR

Our Mission

- We are a Team of Professionals
- We Listen to our Customers
- We Grow Ourselves

Proudly serving you since 1936.



UNIT PACKAGE
500 RIVETS
(One Size)

- *Grip length required equals the combined thickness of materials to be fastened.*
- *Materials: Rivet body of aluminum alloy 2117T4. Drive pin of aluminum.*

PIN-GRIP eliminates the need for explosives, special tools, or special skills. Pin-Grip does the job of a conventional rivet - faster, easier, safer, with real economies in time and labour.

Aluminum alloy Pin-Grip body is assembled with an aluminum knurled drive pin. When the pin is driven flush with the Pin-Grip head, the slotted shank expands and grips firmly. Simultaneously, the knurled pin locks itself in position. Pin-Grip displays extraordinary performance when subjected to shear loads, tension, and vibration.

Pin-Grip is used with wide industrial acceptance for blind or limited-access applications in the assembly and repair of truck, trailer, bus, and auto bodies, porcelain panel construction, the fabrication of tubular metal furniture, duct work, cabinets, displays, fire doors; the mounting of store fronts, nameplates, hinges, ornaments, metal trim. Practical money-saving applications for Pin-Grip actually number into the hundreds.

The effective fastening range of Pin-Grips (1/16" increments) makes it possible to use a single size for varying thicknesses of work.

E

UNIVERSAL HEAD

Head 3/8" Dia. Head 1/2" Dia.

GRIP LENGTH*			*SPAENAUR No.*	
			.187"	.250"
Nom.	Min.	Max.	3/16" Dia.	1/4" Dia.
1/8"	.094"	.156"		DR2215-04-0
3/16"	.156"	.219"		
1/4"	.219"	.281"	DR2210-08-0	
5/16"	.281"	.344"	DR2210-10-0	
3/8"	.344"	.406"	DR2210-12-0	DR2215-12-0
1/2"	.469"	.531"	DR2210-16-0	DR2215-16-0
7/8"	.843"	.906"		DR2215-28-0
1"	.969"	1.031"	DR2210-32-0	DR2215-32-0
1-1/8"	1.094"	1.156"	DR2210-36-0	DR2215-36-0

FULL BRAZIER HEAD

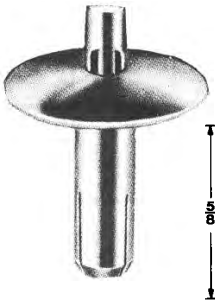
Head 15/32" Dia. Head 39/64" Dia.

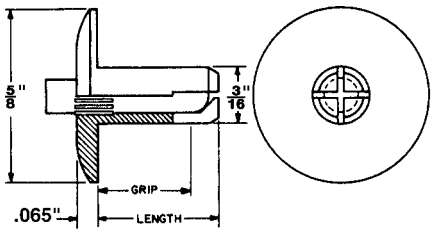
GRIP LENGTH*			*SPAENAUR No.*	
			.187"	.250"
Nom.	Min.	Max.	3/16" Dia.	1/4" Dia.
3/32"	.062"	.125"		DR2215-03-5
1/8"	.094"	.156"	DR2210-04-5	DR2215-04-5
3/16"	.156"	.219"	DR2210-06-5	DR2215-06-5
1/4"	.219"	.281"	DR2210-08-5	DR2215-08-5
5/16"	.281"	.344"	DR2210-10-5	
3/8"	.344"	.406"	DR2210-12-5	DR2215-12-5
1/2"	.469"	.531"	DR2210-16-5	DR2215-16-5
1-1/8"	1.094"	1.156"		DR2215-36-5

*Note: For overall shank lengths on 3/16" and 1/4" diameter Pin-Grip add 1/8" to nominal grip length.

P.C. 304

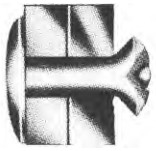
LINER HEAD

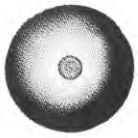




MULTI-GRIP

Greatest bearing surface because of large head diameter.
No cargo hang-up - because head profile is extremely low.
Faster, easier insertion - because of tapered end.





Head 11/16" Dia.

GRIP LENGTH*		*SPAENAUR No.*	
		.187"	SHANK LENGTH
Min.	Max.	3/16" Dia.	Length Under Head
.076"	.175"	DR2210-07-4	9/32"
.376"	.475"	DR2210-37-4	37/64"
.476"	.575"	DR2210-47-4	11/16"
.676"	.775"	DR2210-67-4	7/8"
.776"	.875"	DR2210-77-4	63/64"
.876"	.975"	DR2210-87-4	1-5/64"

Note: The Pin-Grip line is being gradually phased out.
If the size that you require is not listed on this page, please order Drive Rivets from the size charts which appear on the previous pages E42 and E43.

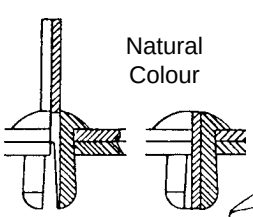
To forestall disappointment in cases where Pin-Grip sizes are discontinued after this catalog is printed, we will automatically fill your order with the equivalent size and style in Drive Rivets.

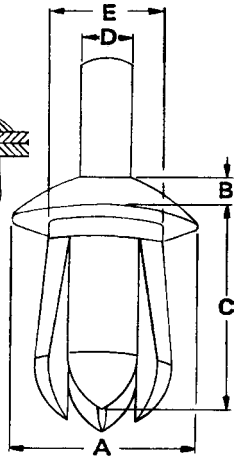
- EASILY INSTALLED -

No special tools required
...just a hammer
(Insertion tool available, see facing page.)

Tough! Nylon 6/6

UNIT PACKAGE 100





One-piece nylon blind rivets that offer a fast, economical, permanent hand-installed fastener that can be used in a wide variety of materials, including sheet metal, plastic sheets, fiberglass, P.C. boards, and composition materials.

Installation is made from one side of the work piece. The rivet is inserted in a pre-punched hole, and the drive pin is forced into the specially designed legs which expand and securely lock the assembled components in place. Rivet provides a secure joint even under extreme vibration conditions, while it electrically insulates and resists corrosion and cathodic transfer.

Approximate metric equivalent (mm) shown in brackets.

E

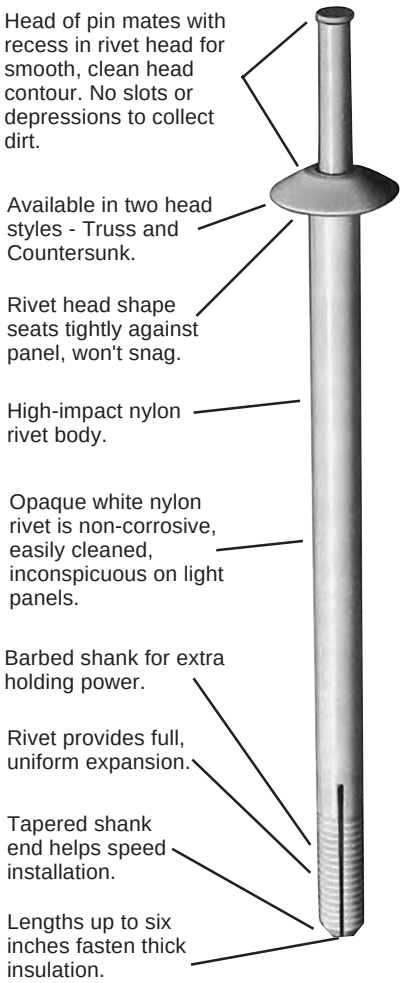
SPAENAUR No.	RIVET DIA. "E"	HOLE SIZE AND DRILL NUMBER	Panel Thickness Range	Head Style	Head Dia. "A"	Head Height "B"	Lock Length "C"	Pin Dia. "D"
305-001	**.125** (3.18)	.123/.126 HSD-1/8	.031/.140 (0.79/3.56)	Round	.187 (4.75)	.047 (1.19)	.190 (4.83)	.075 (1.91)
305-002			.031/.140 (0.79/3.56)	Round	.218 (5.54)	.060 (1.52)	.225 (5.72)	.075 (1.91)
305-003	**.156** (3.96)	.154/.157 HSD - 5/32	.187/.250 (4.75/6.35)	Binder	.218 (5.54)	.050 (1.27)	.312 (7.92)	.093 (2.36)
305-004			.218/.312 (5.54/7.92)	Binder	.218 (5.54)	.050 (1.27)	.359 (9.12)	.093 (2.36)
305-005			.218/.375 (5.54/9.53)	Binder	.218 (5.54)	.050 (1.27)	.421 (10.69)	.093 (2.36)
305-006	**.182** (4.62)	.180/.183 HSD - 14	.130/.290 (3.30/7.37)	Truss	.280 (7.11)	.050 (1.27)	.380 (9.65)	.120 (3.05)
305-007	**.187** (4.75)	.185/.188 HSD - 3/16	.062/.125 (1.57/3.18)	Round	.281 (7.14)	.075 (1.91)	.230 (5.84)	.125 (3.18)
305-008			.062/.125 (1.57/3.18)	Binder	.430 (10.92)	.120 (3.05)	.218 (5.54)	.125 (3.18)
305-009			.062/.187 (1.57/4.75)	Round	.375 (9.53)	.080 (2.03)	.281 (7.14)	.125 (3.18)
305-010			.062/.187 (1.57/4.75)	Truss	.437 (11.10)	.050 (1.27)	.281 (7.14)	.125 (3.18)
305-011			.062/.187 (1.57/4.75)	Round	.375 (9.53)	.080 (2.03)	.295 (7.49)	.125 (3.18)
305-012			.125/.187 (1.57/4.75)	Truss	.437 (11.10)	.075 (1.91)	.281 (7.14)	.125 (3.18)
305-013			.062/.187 (1.57/4.75)	Truss	.437 (11.10)	.075 (1.91)	.295 (7.49)	.125 (3.18)
305-014			.062/.187 (1.57/4.75)	Round	.281 (7.14)	.075 (1.91)	.295 (7.49)	.125 (3.18)
305-015			.062/.187 (1.57/4.75)	Truss	.437 (11.10)	.075 (1.91)	.295 (7.49)	.125 (3.18)
305-016			.062/.187 (1.57/4.75)	Truss	.281 (7.14)	.050 (1.27)	.296 (7.52)	.125 (3.18)
305-017			.078/.375 (1.98/9.53)	Round	.281 (7.14)	.047 (1.19)	.450 (11.43)	.125 (3.18)
305-018			.078/.375 (1.98/9.53)	Binder	.312 (7.92)	.062 (1.57)	.450 (11.43)	.125 (3.18)
305-019			.078/.375 (1.98/9.50)	Round	.320 (8.13)	.109 (2.77)	.455 (11.56)	.125 (3.18)
305-020			.156/.281 (3.96/7.14)	Round	.375 (9.53)	.080 (2.03)	.380 (9.65)	.125 (3.18)
305-021			.156/.281 (3.96/7.14)	Truss	.430 (10.92)	.075 (1.91)	.380 (9.65)	.125 (3.18)
305-022			.156/.281 (3.96/7.14)	Truss	.437 (11.10)	.075 (1.91)	.380 (9.65)	.125 (3.18)
305-023			.312/.440 (7.92/11.18)	Binder	.281 (7.14)	.075 (1.91)	.535 (13.59)	.125 (3.18)
305-024			.312/.440 (7.92/11.18)	Binder	.312 (7.92)	.062 (1.57)	.535 (13.59)	.125 (3.18)
305-025			.312/.440 (7.92/11.18)	Round	.320 (8.13)	.109 (2.77)	.535 (13.59)	.125 (3.18)
305-026			.375/.500 (9.53/12.70)	Binder	.312 (7.92)	.062 (1.57)	.609 (15.47)	.125 (3.18)
305-027			.375/.500 (9.53/12.70)	Round	.320 (8.13)	.109 (2.77)	.609 (15.47)	.125 (3.18)
305-028			.375/.500 (9.53/12.70)	Binder	.281 (7.14)	.080 (2.03)	.625 (15.88)	.125 (3.18)
305-029			.375/.750 (9.53/19.05)	Round	.320 (8.13)	.109 (2.77)	.850 (21.59)	.125 (3.18)
305-030	**.218** (5.54)	.216/.219 HSD - 7/32	.031/.062 (0.79/1.57)	Button	.375 (9.53)	.223 (5.66)	.170 (4.32)	.125 (3.18)
305-031			.093/.350 (2.36/9.53)	Round	.370 (9.40)	.080 (2.03)	.450 (11.43)	.120 (3.05)
305-032			.094/.312 (2.39/7.92)	Binder	.437 (11.10)	.100 (2.54)	.464 (11.79)	.125 (3.18)
305-033			.187/.250 (4.75/6.35)	Truss	.370 (9.40)	.080 (2.03)	.343 (8.71)	.120 (3.05)
305-034	**.226** (5.74)	.221/.226 HSD - 2	.125/.312 (3.18/7.92)	Round	.375 (9.53)	.080 (2.03)	.468 (11.43)	.125 (3.18)
305-035			.125/.312 (3.18/7.92)	Truss	.437 (11.10)	.075 (1.91)	.468 (11.43)	.125 (3.18)
305-036	**.250** (6.35)	.248/.251 HSD -1/4	.093/.312 (2.36/7.92)	Binder	.468 (11.89)	.080 (2.03)	.500 (12.70)	.150 (3.81)
305-037			.093/.312 (2.36/7.92)	Truss	.468 (11.89)	.080 (2.03)	.500 (12.70)	.150 (3.81)
305-038			.093/.312 (2.36/7.92)	Binder	.625 (15.88)	.109 (2.77)	.500 (12.70)	.150 (3.81)
305-039			.156/.330 (3.96/8.38)	Binder	.468 (11.89)	.080 (2.03)	.375 (9.53)	.150 (3.81)
305-040			.281/.500 (7.14/12.70)	Round	.370 (9.40)	.080 (2.03)	.620 (15.75)	.150 (3.81)
305-041			.281/.500 (7.14/12.70)	Binder	.468 (11.89)	.080 (2.03)	.620 (15.75)	.150 (3.81)
305-042			.281/.500 (7.14/12.70)	Truss	.468 (11.89)	.080 (2.03)	.620 (15.75)	.150 (3.81)
305-043			.281/.500 (7.14/12.70)	Binder	.625 (15.88)	.109 (2.77)	.620 (15.75)	.150 (3.81)
305-044	**.275** (6.99)	.272/.275 (Drill No.) 875-180	.093/.350 (2.36/8.89)	Binder	.620 (15.75)	.109 (2.77)	.480 (12.19)	.150 (3.81)

Nylon Drive Rivets

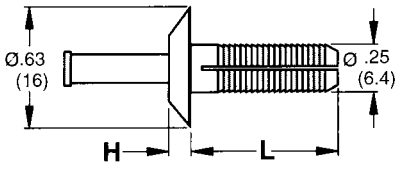
High-impact nylon rivets help provide:
- **Clean, non-corrosive installation**
- **Thermal and electrical insulation**
- **Colour coordinated appearance**
- **Non-snag head shape**

Unit Package Quantity 100

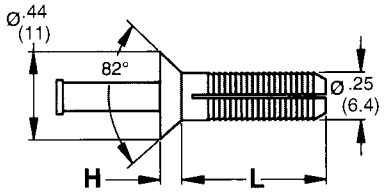
Inch
(millimetre)



Truss Head Style



Countersunk Head Style



Spaenaur No.	Head Styles	H	L	Grip Min.	Grip Max.	Pin Material	Pin Colour	Rivet Colour
305-045	Truss	.109 (2.8)	.75 (19)	.06 (1.6)	.50 (13)	2117 Aluminum	Natural	Natural
305-046	Truss	.109 (2.8)	.75 (19)	.06 (1.6)	.50 (13)	2117 Aluminum	Natural	Black
305-047	Truss	.109 (2.8)	1 (25)	.25 (6.4)	.75 (19)	2117 Aluminum	Natural	Natural
305-048	Counter sunk	.109 (2.8)	.75 (19)	.19 (4.8)	.50 (13)	2117 Aluminum	Natural	Natural
305-049	Counter sunk	.109 (2.8)	1 (25)	.25 (6.4)	.75 (19)	2117 Aluminum	Natural	Natural

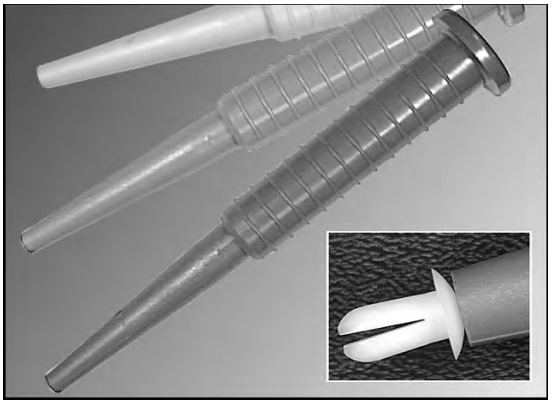
Nylon Poly Drive Rivet Insertion Tool

This tough, lightweight drive rivet insertion tool makes the assembly of nylon drive rivets even more economical! This tool provides faster assembly and more accurate placement and positioning in those hard-to-reach areas. A large plunger head and easy-grip handle reduces operator fatique.

The rivets do not have to be pre-driven! The rivet is loaded into the tool and then inserted into the prepared hole. Quick pressure on the plunger by the operator frees the pin and expands the rivet in the assembly.

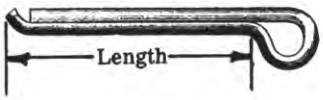
Three sizes are available colour coded to cover all standard drive rivets.

SPAENAUR No.	Rivet Pin Size		Colour	
876-854	.075"	(1.9 mm)	Red	*Priced Singly*
876-855	.125"	(3.1 mm)	Yellow	
876-856	.150"	(3.8 mm)	Green	

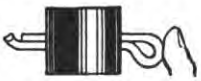


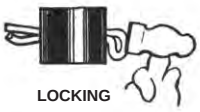
P.C. 091

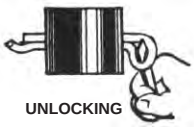
HAMMER-LOK COTTER PINS



Length under head to end of longer shank.


INSERTING


LOCKING


UNLOCKING

Unit Package 100

Spread and locked with one blow from a hammer. The handiest cotter pin you ever used.

Easiest to Insert - As the shanks are parallel and the points well tapered, they slip smoothly through the hole.

Easiest to Lock - Just hit the head with a hammer. This causes the shorter shank to ride over the upturned point on the longer, automatically spreading the pin and locking it rigidly in place.

Easiest to Remove - Insert a screwdriver, tang of a file, or any thin tool in the eye and twist. This returns the short shank to its original position, and the pin is then removed the same as an ordinary cotter.

May be used as ordinary cotters, when desired. The points can be spread with pliers in one twist because one point is longer and turned up, easy to grasp.

E

PLAIN STEEL

SPAENAUR No.	Diameter	Length
CP-55	1/16"	1/2"
CP-56		1"
091-168	5/64"	3/4"
091-169		1"
CP-57	3/32"	1/2"
CP-58		3/4"
CP-59		1"
CP-60		1-1/2"
CP-61	1/8"	1"
CP-62		1-1/4"
CP-63		1-1/2"
CP-64		2"
091-173		2-1/2"
091-175		3-1/2"
091-170	5/32"	3/4"
CP-65		1-1/2"
CP-66		2"
CP-138	3/16"	1"
CP-67		1-1/2"
CP-68		2"
091-208	1/4"	2"
091-174	3/8"	2-1/2"

BRASS

SPAENAUR No.	Diameter	Length
CP-558	1/8"	1"

Plastikit «Plastikit» **A-44**

Round Plain Steel COTTER PINS
14 Sizes - 250 Pieces

Clear plastic box with hinged lid.
Size 1" x 2-3/4" x 4-1/2"

ASSORTMENT ASSORTIMENT **805-524**

COTTER PINS
BRASS
Plain Finish

ROUND, EXTENDED PRONG TYPE
16 Sizes - 1100 Pieces
Sizes range from 1/16" x 1/2" to 3/16" x 2"
See page E49 for full range.

Shipping Wt. 386 kg (8-1/2 lbs.)

ASSORTMENT ASSORTIMENT **B-585**

HAMMER-LOK COTTER PINS
PLAIN STEEL
14 Sizes - 1445 Pieces
Sizes range from 1/16" x 1/2" to 3/16" x 2"
See top of this page for full range.

Shipping Wt. 4.23 kg (9-1/2 lbs.)

ASSORTMENT ASSORTIMENT **805-523**

COTTER PINS
18-8 Stainless Steel
ROUND, EXTENDED PRONG STYLE
20 Sizes - 1400 Pieces
Dia. from 1/32" to 1/4"
Lengths from 1/2" to 2"
See page E50 for full range.

Shipping Wt. 3.63 kg (8 lbs.)

ASSORTMENT ASSORTIMENT **B-581**

COTTER PINS
PLAIN STEEL
ROUND, EXTENDED PRONG STYLE
14 Sizes - 1575 Pieces
Contains sizes ranging from 1/16" x 3/4" to 5/32" x 2".
See page E49 for full range.

Shipping Wt. 4.12 kg (9-1/4 lbs.)

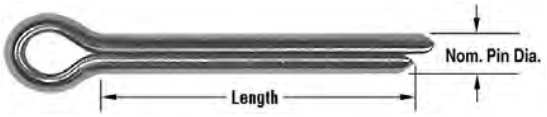
Regular size welded STEEL drawers have hinged lid, SCOOPED bins, and are finished in grey enamel. Drawers fit Slide Racks shown on page A2.

CATALOG 13

STEEL Low Carbon

ROUND, EXTENDED PRONG STYLE

For easy insertion and locking.



ASME/ANSI B18.8.1

Plain Finish

Nom. Pin Dia.	1/32"	3/64"	1/16"	5/64"	3/32"	7/64"	1/8"
LGTH.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW						
1/4"	091-171						
3/8"			*091-206		091-176		
1/2"	091-163	091-178	CP-1		CP-8	091-185	CP-110
3/4"	091-164	CP-107	CP-2	CP-105	CP-9	091-186	CP-16
1"	091-165	091-177	CP-3	CP-106	CP-10	CP-108	CP-17
1-1/4"	091-166	091-161	CP-4	091-180	CP-11	091-187	CP-18
1-1/2"	091-167	091-162	CP-5	091-155	CP-12	CP-109	CP-19
1-3/4"			CP-6	091-181	CP-13	CP-134	CP-20
2"			CP-7	091-156	CP-14	091-188	CP-21
2-1/4"			091-179	091-182	091-184	091-189	091-190
2-1/2"			CP-81	091-157	CP-15	CP-102	CP-22
3"			091-160	091-158	091-152	091-149	CP-23
3-1/2"				091-183	091-153	091-150	091-143
4"				091-159	091-154	091-151	091-142
	Unit Package 100						

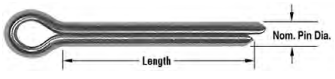
Nom. Pin Dia.	5/32"	3/16"	7/32"	1/4"	5/16"	3/8"	1/2"
LGTH.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW						
3/4"	CP-80	CP-112					*Unit Pkg. 10*
1"	CP-24	CP-31	091-191	CP-116	CP-119		
1-1/4"	CP-25	CP-32	091-192	CP-117	CP-120		
1-1/2"	CP-26	CP-33	091-193	CP-38	CP-44	CP-124	
1-3/4"	CP-27	CP-34	091-194	CP-100	CP-121		
2"	CP-28	CP-35	091-195	CP-39	CP-45	CP-50	CP-126
2-1/4"	CP-111	CP-113	091-196	CP-118	CP-122		
2-1/2"	CP-29	CP-36	091-197	CP-40	CP-46	CP-51	CP-127
3"	CP-30	CP-37	091-198	CP-41	CP-47	CP-52	CP-128
3-1/2"	091-144	CP-114	091-199	CP-42	CP-48	CP-53	CP-129
4"	091-145	CP-115	091-200	CP-43	CP-49	CP-54	CP-130
4-1/2"			091-201				
5"			091-202	091-146	CP-123	CP-125	CP-131
6"					091-147	CP-103	091-148
8"	*Unit Package 100*						•091-172

*Yellow Zinc Dichromate Pltd.

•**091-207** 7/16" Dia. x 8"Long, U.P. 10

BRASS

Plain Finish



ROUND, EXTENDED PRONG TYPE

ASME/ANSI B18.8.1

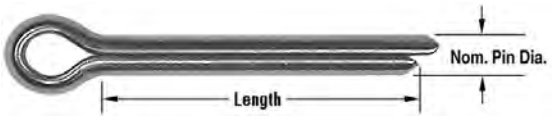
Nom. Pin Dia.	1/16"	3/32"	1/8"	5/32"	3/16"	1/4"	5/16"	3/8"	1/2"
LGTH.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
1/2"	CP-500	CP-506	CP-513						*Unit Pkg. 10*
3/4"	CP-501	CP-507	CP-514	CP-522	CP-531				
1"	CP-502	CP-508	CP-515	CP-523	CP-532	CP-540	CP-549		
1-1/4"	CP-503	CP-509	CP-516	CP-524	CP-533	CP-541	CP-550		
1-1/2"	CP-504	CP-510	CP-517	CP-525	CP-534	CP-542	CP-551		
1-3/4"			CP-518	CP-526	CP-535	CP-543			
2"	CP-505	CP-511	CP-519	CP-527	CP-536	CP-544		CP-554	
2-1/4"				CP-528	CP-537				
2-1/2"		CP-512	CP-520	CP-529	CP-538	CP-545	CP-552		
3"			CP-521	CP-530	CP-539	CP-546	CP-553	CP-555	
3-1/2"						CP-547			
4"	*Unit Package 100*					CP-548			CP-556

P.C. 092

See page E48 for Assortments.

18-8 Stainless Steel

ROUND, EXTENDED PRONG STYLE
For easy insertion and locking



ASME/ANSI B18.8.1

P.C. 093

Nom. Pin Dia.	1/32"	3/64"	1/16"	5/64"	3/32"	1/8"	5/32"	3/16"	1/4"	5/16"	3/8"	1/2"
LGTH.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW											
1/4"	CP-2002	CP-2005					*Unit Package 100*				*Unit Pkg. 50*	*Unit Pkg. 10*
3/8"												
1/2"	CP-2003	CP-2007	CP-2008	CP-2012	CP-2014							
5/8"			CP-2001									
3/4"	CP-2004	093-050	CP-2009	CP-2013	CP-2015	CP-2020	CP-2026					
1"	CP-2046		CP-2010	093-056	CP-2016	CP-2021	CP-2027	CP-2031	CP-2036			
1-1/4"			CP-2011		CP-2017	CP-2022	CP-2028	CP-2032				
1-1/2"	CP-2048		093-055		CP-2018	CP-2023	CP-2029	CP-2033	CP-2037	CP-2040		
2"			093-049		CP-2019	CP-2000	CP-2030	CP-2034	CP-2038	CP-2041	CP-2043	
2-1/4"												
2-1/2"						CP-2025		CP-2035			093-057	
3"						093-052			093-053	CP-2042	093-058	
3-1/2"								093-051			093-059	
4"						093-054			093-061	CP-2024	CP-2044	CP-2045
4-1/2"											093-060	

316 Stainless Steel

For High Corrosion Resistance

ROUND, EXTENDED PRONG STYLE
For easy insertion and locking

ASME/ANSI B18.8.1

Nom. Pin Dia.	1/32"	3/64"	1/16"	5/64"	3/32"	1/8"	5/32"	3/16"	1/4"	5/16"	3/8"	1/2"
LGTH.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW											
1/2"			093-001		093-006							
3/4"			093-002		093-007	093-012		093-024		*Unit Package 10*		
1"			093-003		093-008	093-013	093-019	093-025				
1-1/4"			093-004		093-009	093-014	093-020	093-026	093-031	093-037		
1-1/2"			093-005		093-010	093-015	093-021	093-027	093-032	093-038	093-044	
1-3/4"						093-016			093-033			
2"					093-011	093-017	093-022	093-028	093-034	093-039	093-045	
2-1/2"						093-018	093-023	093-029	093-035	093-040	093-046	
3"								093-030	093-036	093-041	093-047	
4"			*Unit Package 100*					*Unit Pkg. 50*	*Unit Pkg. 25*	093-042	093-048	
5"										093-043	093-062	

See pages E52-55 for METRIC Cotter Pins.

SPAENAUR

We source from 1,200 domestic and international suppliers, and are proud to represent the finest names in the industry.

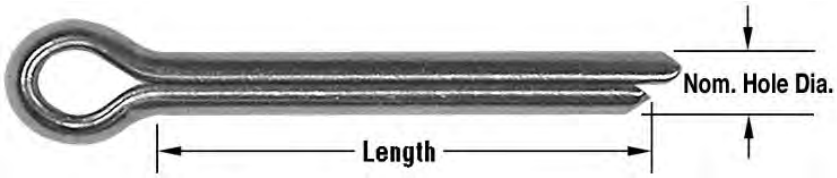
E

Agrati
Allen®
Armstrong®
AVK®
Avdel Cherry Textron
AWAB
Boteco®
Buttite®
Disc-Lock®
Dodge®
Dot®
Durham
Eberhard®
Emhart
E-Z Lok
Flexo™
FEW
Fujilok®
Gripco®
Hazet®
Heli-Coil
Holo-Krome®
Infasco
ITW
Knipex®
L•9®
Loctite®
Mago
Mikalor®
Molex®
Molly®
Nord-Lock®
Novibra
On-the-Level
Oetiker®
Palnut®
PEquality®
POP®
Rubig®
Shear-Loc®
Southco®
Swivel Quick
TamperProof
Tamper-Pruf
Tapcon®
Teks®
Tinnerman®
Two-Way
Velcro®
Wera

Metric Cotter Pins

~ DIN 94
~ DIN EN ISO 1234

STEEL
Plain Finish



Nom. Hole Dia.	1 mm	1.2 mm	1.6 mm	2 mm	2.5 mm	3.2 mm	4 mm	5 mm	6.3 mm	8 mm	10 mm	13 mm
Length (mm)	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW											
6			091-300		091-414	091-419						
8	091-404		091-301	091-409								
10			091-302	091-311	091-416							
12			091-303	091-312	091-320	091-422	091-428					
14					091-417							
15						091-423						
16			091-304	091-313	091-321	091-332	091-429					
18			091-305	091-314	091-322	091-333						
20			091-306	091-315	091-323	091-334	091-345					
22	091-405		091-307	091-316	091-324	091-335	091-346					
25	091-406		091-308	091-317	091-325	091-336	091-347	091-358				
28			091-309	091-318	091-326	091-337	091-348	091-359				
30							091-442					
32			091-310	091-319	091-327	091-338	091-349	091-360	091-433			
36				091-410	091-328	091-339	091-350	091-361	091-371			
40				091-411	091-329	091-340	091-351	091-362	091-372	091-434		
45				091-412	091-330	091-341	091-352	091-363	091-373	091-383		
50					091-331	091-342	091-353	091-364	091-374	091-384		
56						091-343	091-354	091-365	091-375	091-385	091-395	
63						091-344	091-355	091-366	091-376	091-386	091-396	
71						091-424	091-356	091-367	091-377	091-387	091-397	
80							091-357	091-368	091-378	091-388	091-398	
90								091-369	091-379	091-390	091-399	091-436
100								091-370	091-380	091-391	091-400	091-437
112									091-381	091-392	091-401	091-438
125									091-382	091-393	091-402	091-439
140										091-394	091-403	
	Unit Package - 100							*Unit Package – 50*				*U.P.–25*

ASSORTMENT
ASSORTIMENT **805-475**

COTTER PINS

PLAIN STEEL

24 SIZES - 1473 PIECES

Priced Singly

Contains sizes ranging from M2 x 16 mm to M8 x 63 mm.

Regular size welded STEEL drawer has hinged lid "scooped" bins, and is finished in Grey enamel.

Inside lid label shows Spaenaur No., size and data.

Drawer fits Slide Racks shown on page A2.

Shipping weight: 5.70 kg (12-1/2 lbs)

CATALOG 13

Metric Cotter Pins

PLATED STEEL

Zinc (ZP) & Yellow Zinc (YZ) Finish

~ DIN 94

~ DIN EN ISO 1234

Nom. Hole Dia. 1 mm	1.2 mm	1.6 mm	2 mm	2.5 mm	3.2 mm	4 mm	5 mm	6.3 mm	8 mm	10 mm
Length (mm)	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW — **ZP** – Zinc Plated **YZ** – Yellow Zinc Plated									
8			091-301YZ							
10	091-431ZP	091-407ZP	091-302YZ							
12			091-303ZP	091-312ZP						
14					091-417YZ					
					091-417ZP					
15						091-423ZP				
						091-423YZ				
16	091-435ZP	091-443ZP	091-304YZ		091-321YZ	091-332ZP				
18			091-305ZP	091-314ZP		091-333YZ	091-430ZP			
20			091-306ZP	091-315ZP	091-323ZP	091-334ZP	091-345ZP			
				091-315YZ						
22	091-405ZP			091-316ZP		091-335ZP				
	091-405YZ			091-316YZ						
25	091-406ZP		091-308ZP	091-317ZP		091-336ZP	091-347ZP	091-358ZP		
28					091-326ZP		091-348YZ			
30								091-432YZ		
32				091-319ZP		091-338ZP	091-349ZP	091-360YZ	091-433ZP	
								091-360ZP		
35								091-389YZ		
								091-389ZP		
36				091-410ZP	091-328ZP	091-339ZP	091-350ZP	091-361YZ	091-371ZP	
					091-328YZ			091-361ZP		
40					091-329ZP		091-351ZP		091-372ZP	
					091-329YZ		091-351YZ	091-362ZP		
45				091-412ZP			091-352ZP	091-363YZ	091-373ZP	091-383ZP
								091-363ZP		091-383YZ
50				091-413ZP		091-342ZP	091-353YZ	091-364ZP	091-374ZP	
								091-364YZ		
56							091-354ZP	091-365ZP	091-375ZP	
63			*Unit Package – 100*			091-344ZP		091-366ZP	091-376YZ	091-396ZP
71								091-367ZP	091-377YZ	091-387ZP
80								091-368ZP		091-398ZP
90									091-390ZP	091-399ZP
100									091-380ZP	091-400ZP
112									091-392ZP	
125									091-382ZP	091-393ZP	091-402ZP
140								*Unit Package – 50*		091-394ZP	091-403ZP

~ DIN 94

Metric Cotter Pins - COPPER - Plain Finish

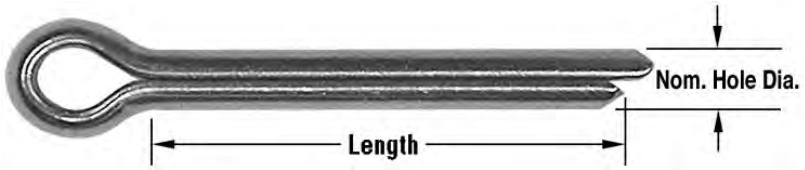
Nom. Hole Dia. 1 mm	1.2 mm	1.6 mm	2 mm	2.5 mm	3.2 mm	4 mm	5 mm	6.3 mm	8 mm	10 mm
Length (mm)	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
15								*Unit Package – 50*		
16			091-740							
18		091-700	091-702	091-705	091-709	091-714	091-720			
25		091-701	091-703	091-706	091-710	091-715	091-721	091-727		
30										
32			091-704	091-707	091-711	091-716	091-722	091-728	091-734	
40				091-708	091-712	091-717	091-723	091-729	091-735	
50					091-713	091-718	091-724	091-730	091-736	
56										
63						091-719	091-725	091-731	091-737	
80							091-726	091-732	091-738	
100		*Unit Package – 100*						091-733	091-739	*Unit Package – 25*

Metric Cotter Pins

BRASS

Plain Finish

~ DIN 94
~ DIN EN ISO 1234



E

Nominal Hole Dia.	1.6 mm	2 mm	2.5 mm	3.2 mm	4 mm	5 mm	6.3 mm	8 mm	10 mm
LENGTH (mm)	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
		Unit Package 100				*Unit Package 50*			*Unit Pkg. 25*
6	092-500								
8	092-501								
10	092-502	092-513							
12	092-503	092-514	092-526						
16	092-504	092-515	092-527						
18	092-505	092-516	092-528						
20	092-506	092-517	092-529	092-539	092-550				
22	092-507	092-518	092-530	092-540	092-551				
25	092-508	092-519	092-531	092-541	092-552	092-564	092-577		
28	092-509	092-520	092-532	092-542	092-553	092-565	092-578		
32	092-510	092-521	092-533	092-543	092-554	092-566	092-579		
36	092-511	092-522	092-534	092-544	092-555	092-567	092-580		
40	092-512	092-523	092-535	092-545	092-556	092-568	092-581	092-590	
45		092-524	092-536	092-546	092-557	092-569	092-582	092-591	
50		092-525	092-537	092-547	092-558	092-570	092-583	092-592	092-600
56			092-538	092-548	092-559	092-571	092-584	092-593	092-601
63				092-549	092-560	092-572	092-585	092-594	092-602
71					092-561	092-573	092-586	092-595	092-603
80					092-562	092-574	092-587	092-596	092-604
90					092-563	092-575	092-588	092-597	092-605
100						092-576	092-589	092-598	092-606
112								092-599	092-607
125									
140									

ASSORTMENT
ASSORTIMENT **805-507**

COTTER PINS

BRASS

24 SIZES - 1473 PIECES

Contains sizes ranging from M2 x 16 mm to M8 x 63 mm.
Regular size welded STEEL drawer has hinged lid
"scooped" bins, and is finished in Grey enamel.
Drawer fits Slide Racks shown on page A2.
Shipping weight: 5.70 kg (12-1/2 lbs)

CATALOG 13

Metric Cotter Pins

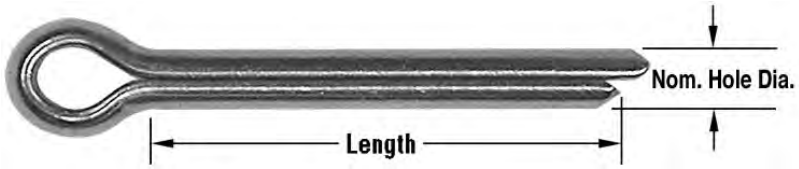
A2

STAINLESS STEEL

Plain Finish

~ DIN 94

~ DIN EN ISO 1234



Nominal Hole Dia.	1.6 mm	2 mm	2.5 mm	3.2 mm	4 mm	5 mm	6.3 mm	8 mm	10 mm
LENGTH (mm)	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW								
6	093-800	*Unit Package 100*				*Unit Package 50*			*Unit Pkg. 25*
8	093-801								
10	093-802	093-813							
12	093-803	093-814	093-825						
16	093-804	093-815	093-826	093-837					
18	093-805	093-816	093-827	093-838					
20	093-806	093-817	093-828	093-839	093-850	093-865	093-878		
22	093-807	093-818	093-829	093-840	093-851	093-866	093-879		
25	093-808	093-819	093-830	093-841	093-852	093-867	093-880		
28	093-809	093-820	093-831	093-842	093-853	093-868	093-881		
32	093-810	093-821	093-832	093-843	093-854	093-869	093-882	093-892	093-902
36	093-811	093-822	093-833	093-844	093-855	093-870	093-883	093-893	093-903
40	093-812	093-823	093-834	093-845	093-856	093-871	093-884	093-894	093-904
45		093-824	093-835	093-846	093-857	093-872	093-885	093-895	093-905
50			093-836	093-847	093-858	093-873	093-886	093-896	093-906
56				093-848	093-859	093-874	093-887	093-897	093-907
63				093-849	093-860	093-875	093-888	093-898	093-908
71					093-861	093-876	093-889	093-899	093-909
80					093-862	093-877	093-890	093-900	093-910
90					093-863		093-891	093-901	093-911
100					093-864				093-912
112									
125									
140									

ASSORTMENT
ASSORTIMENT **805-508**

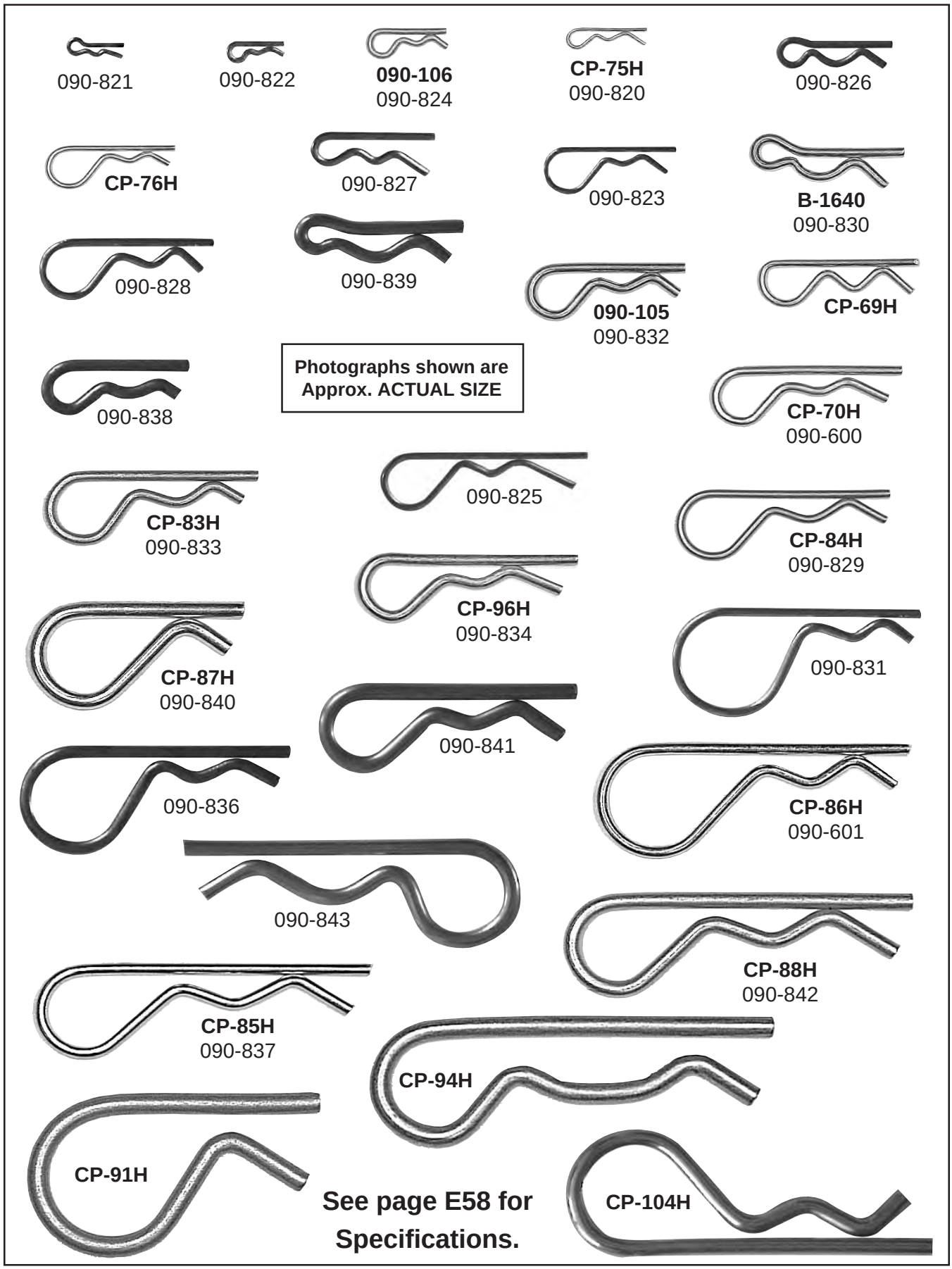
COTTER PINS

A2 Stainless Steel

24 Sizes - 1473 Pieces

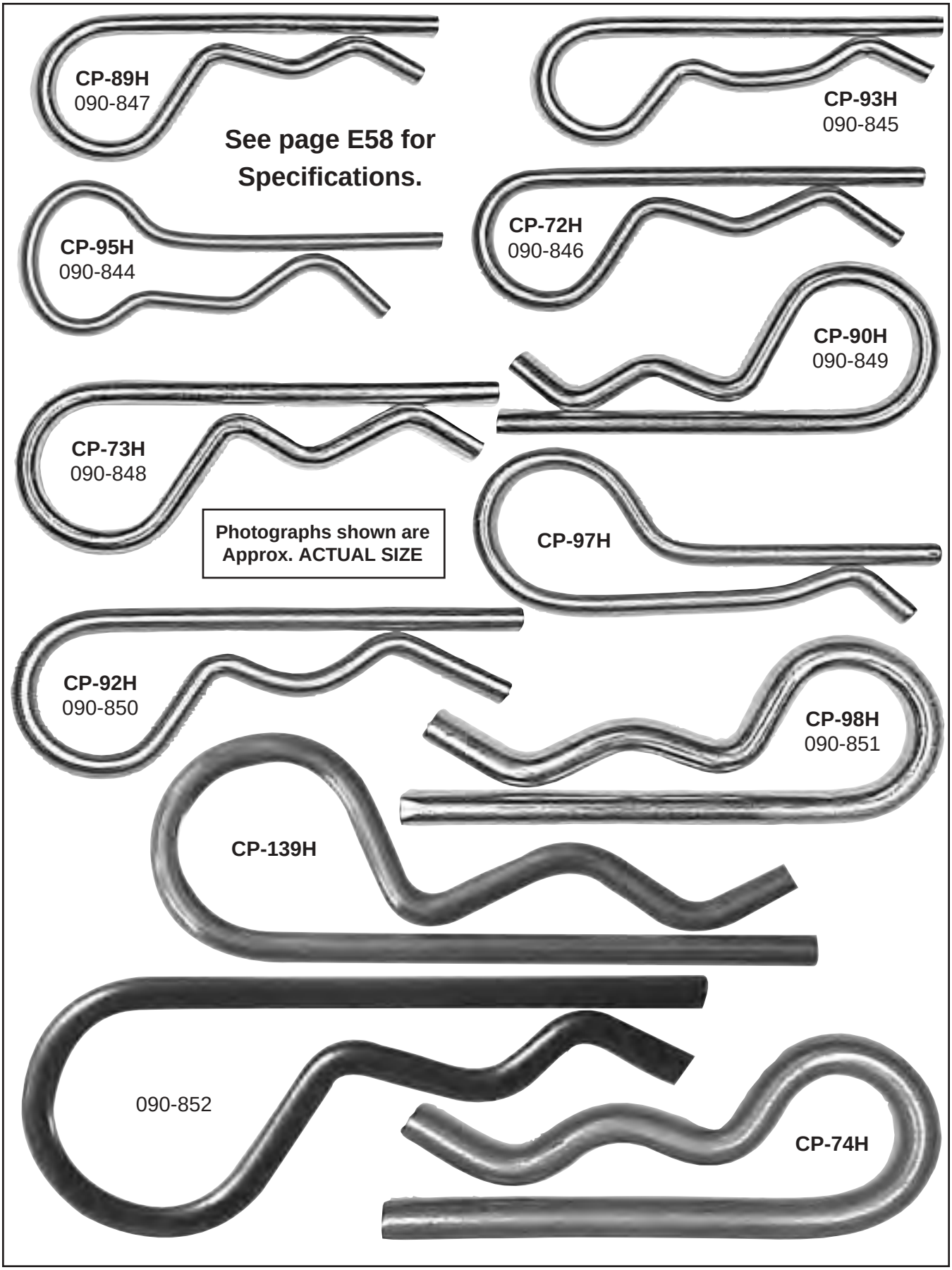
Contains sizes ranging from M2 x 16 mmto M8 x 63 mm.
Regular size welded STEEL drawer has hinged lid
"scooped" bins, and is finished in Grey enamel.
Drawer fits Slide Racks shown on page A2.

Shipping Weight: 5.70 kg (12-1/2 lbs.)



See page E58 for Specifications.

Bold type is Steel, Zinc plated.
Light type is Stainless Steel.



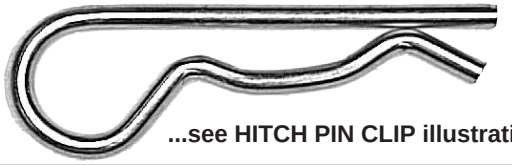
Bold type is Steel, Zinc plated.
Light type is Stainless Steel.

STEEL - ZINC PLATED or STAINLESS STEEL

For use on Agricultural Implements, Construction and Automotive Equipment, Lawn Mowers, Industrial Machinery and Equipment.

INTERNAL TYPE (HAIRPIN COTTERS)

TEMPERED FOR ADDED STRENGTH AND LONGER LIFE



...see HITCH PIN CLIP illustrations on previous pages.

STEEL Zinc Plated *SPAENAUR No.*	Unit. Pkg. Qty.	302 STAINLESS STEEL *SPAENAUR No.*	Unit. Pkg. Qty.	Wire Nom. Dia.	Wire Dec. Dia.	Recommended Drill Hole Size	For use with Clevis Pin Min. Dia.	For use with Clevis Pin Max. Dia.	Approx. Overall Length
CP-75H	100	**090-820**	100		.028	1/32	1/8	5/32	.600
		090-821	100		.035	.040	7/64	9/64	7/16
		090-822	100		.042	.047	1/16	1/8	7/16
		090-823	100		.042	3/64	3/16	1/4	1
CP-76H	100				.042	3/64	3/16	3/8	29/32
090-106	100	**090-824**	100		.047	1/16	1/8	3/16	19/32
		090-825	100		.047	1/16	1/4	3/8	1-9/16
		090-826	100		.054	1/16	3/16	1/4	3/4
		090-827	100		.054	1/16	1/4	3/8	7/8
CP-69H	100				.062	5/64	3/16	3/8	1-5/32
		090-828	100		.062	5/64	1/4	1/2	1-5/16
CP-84H	100	**090-829**	100	1/16	.062	5/64	3/8	1/2	1-9/16
B-1640	50	**090-830**	100		.072	5/64	5/16	3/8	1-3/32
		090-831	100		.072	5/64	3/8	1/2	1-7/8
CP-70H	100	***090-600**	100		.073	5/64	5/16	3/8	1-7/16
090-105	100	**090-832**	100		.080	3/32	1/4	3/8	1-3/16
CP-83H	100	**090-833**	100		.080	3/32 or 7/64	3/8	1/2	1-9/16
		090-838	50		.093	7/64	1/4	1/2	1-1/8
CP-96H	100	**090-834**	50	3/32	.093	7/64	1/4	1/2	1-5/8
CP-86H	100	**090-601**	100	3/32	.093	7/64	1/4	5/8	2-5/16
		090-836	50		.093	7/64	3/8	1/2	2
CP-85H	100	**090-837**	50	3/32	.093	7/64	3/8	3/4	2-1/2
		090-839	50		.105	1/8	5/16	3/8	1-1/4
CP-87H	100	**090-840**	25	1/8	.125	9/64	1/2	3/4	1-9/16
		090-841	25		.125	9/64	1/2	3/4	1-15/16
CP-88H	100	**090-842**	25	1/8	.125	9/64	7/16	3/4	2-9/16
		090-843	25		.125	9/64	5/8	7/8	2-1/2
CP-95H	50	**090-844**	25	1/8	.125	9/64	3/4	1-1/8	3-1/8
CP-104H	50			5/32	.148	5/32 or 11/64	5/8	7/8	2-3/4
CP-93H	50	**090-845**	25	5/32	.148	5/32 or 11/64	1/2 x 5/8 Rect.	5/8 x 1 Rect.	3
CP-89H	50	**090-847**	25	5/32	.148	5/32 or 11/64	5/8	1	2-15/16
CP-72H	50	**090-846**	25	5/32	.148	5/32 or 11/64	3/4	1-1/8	3-5/16
CP-91H	50			11/64	.162	11/64 or 3/16	7/8	1-1/16	2-3/16
CP-94H	50			11/64	.162	11/64 or 3/16	1/2 x 3/4 Rect.	5/8 x 1 Rect.	3
CP-97H	50			11/64	.162	11/64 or 3/16	1/2 x 1 Rect.	7/8 x 1 Rect.	3-7/16
CP-90H	50	**090-849**	10	3/16	.177	3/16 or 13/64	5/8	1	3-1/4
CP-73H	25	**090-848**	10	3/16	.177	3/16 or 13/64	3/4	1-1/16	3-1/2
CP-92H	50	**090-850**	10	3/16	.177	3/16 or 13/64	7/8	1-1/4	3-3/4
CP-98H	25	**090-851**	5	1/4	.243	1/4 or 17/64	3/4	1	4
		090-852	5		.243	17/64	1-1/4	1-1/2	5-1/8
CP-139H	25			1/4	.243	1/4 or 17/64	1-1/4	2	5
CP-74H	10			5/16	.310	5/16 or 21/64	7/8	1	3-15/16

***** 17-7PH Stainless Steel.

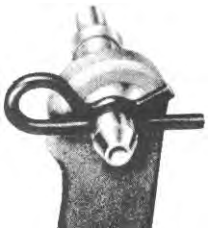
ASSORTMENT
ASSORTIMENT
A-212

INCH SIZES

Hitch Pin Clips

INTERNAL TYPE (HAIRPIN COTTERS)

Steel - Zinc Plated **20 Sizes - 444 Pieces**



For
- **agricultural implements**
- **construction and automotive equipment**
- **lawn mowers**
- **industrial machinery and equipment**

Large size grey enamel steel drawer
Size: 18" x 12" x 3"
Priced Singly
Shipping Weight 4.99 kg (11 lbs.)

E

SPAENAUR

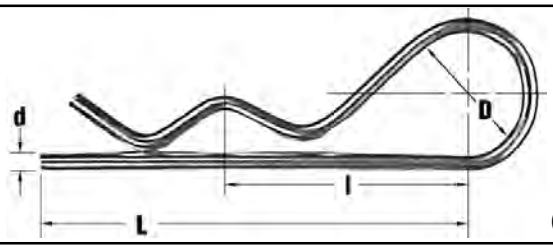
Our Mission

- We are a Team of Professionals
- We Listen to our Customers
- We Grow Ourselves

Proudly serving you since 1936.

E

STEEL
Zinc Plated
Hitch Pin Clips



METRIC
Single Loop Style

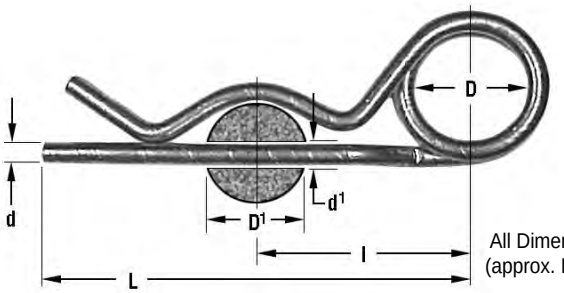
See facing page for illustrations.

All Dimensions Stated in Millimetres
(approx. Inch equivalent in brackets).

SPAENAUR No.	L mm (in.)	l mm (in.)	D mm (in.)	d mm (in.)	Recommended Drill Hole Size	Clevis Pin Min. Ø Max.	Unit Pkg. Qty.
090-021	34.5 (1.36")	16 (.63")	9 (.35")	2 (.08")	2.5 (.098")	6 - 11 (1/4 - 3/8")	100
090-000	50 (1.97")	25 (.98")	10 (.39")	2 (.08")	2.5 (.098")	9 - 14 (5/16 - 9/16")	100
090-001	60 (2.36")	28 (1.10")	18 (.71")	3 (.12")	3.5 (.138")	10 - 16 (3/8 - 5/8")	100
090-002	60 (2.36")	30 (1.18")	20 (.79")	4 (.16")	4.5 (.177")	16 - 20 (5/8 - 13/16")	50
090-003	85 (3.35")	40 (1.58")	24 (.95")	5 (.20")	6.0 (.236")	20 - 28 (13/16 - 1-1/8")	50
090-004	105 (4.14")	50 (1.97")	30 (1.18")	6 (.24")	7.0 (.275")	28 - 40 (1-1/8 - 1-9/16")	25
090-005	105 (4.14")	50 (1.97")	30 (1.18")	7 (.27")	8.0 (.315")	28 - 45 (1-1/8 - 1-3/4")	25
090-022	143.5 (5.65")	79 (3.11")	39 (1.54")	7 (.27")	8.0 (.315")	34 - 45 (1-3/8 - 1-3/4")	10
090-006	110 (4.32")	55 (2.17")	28 (1.10")	8 (.32")	9.0 (.355")	30 - 45 (1-3/16 - 1-3/4")	10
090-023	129.5 (5.10")	62 (2.44")	35 (1.38")	8 (.32")	9.0 (.355")	45 - 56 (1-3/4 - 2-1/4")	10

STEEL - Zinc Plated
Hitch Pin Clips

Side Profile



METRIC
Double Loop Style

See page E62
for illustrations.

All Dimensions Stated in Millimetres
(approx. Inch equivalent in brackets).

SPAENAUR No.	L mm (in.)	l mm (in.)	D mm (in.)	d mm (in.)	Recommended Hole Size-d[1]	Clevis Pin Ø D[1]	Unit Pkg. Qty.
090-007	50 (1.97")	25 (.98")	10 (.39")	2 (.08")	2.5 (.098")	8 - 14 (5/16 - 9/16")	100
090-008	62 (2.44")	32 (1.26")	16 (.63")	3 (.12")	3.5 (.138")	14 - 20 (9/16 - 13/16")	100
090-009	78 (3.07")	44 (1.73")	23 (.91")	4 (.16")	4.5 (.177")	17 - 24 (5/8 - 7/8")	50
090-010	92 (3.62")	50 (1.97")	26 (1.02")	5 (.20")	5.5 (.217")	18 - 30 (5/8 - 1-3/16")	50
090-011	120 (4.73")	70 (2.76")	30 (1.18")	6 (.24")	6.5 (.256")	24 - 36 (5/8 - 1-3/8")	25
090-012	130 (5.12")	72 (2.83")	30 (1.18")	7 (.28")	8.0 (.315")	26 - 40 (1 - 1-9/16")	25
090-013	130 (5.12")	76 (3.00")	30 (1.18")	8 (.32")	9.0 (.355")	24 - 40 (5/8 - 1-9/16")	10

ASSORTMENT
ASSORTIMENT
805-509

Contains all sizes listed above except 090-021, 090-022 & 090-023.

Single Loop Style and Double Loop Style.

METRIC

Hitch Pin Clips

INTERNAL TYPE (HAIRPIN COTTERS)

STEEL, Zinc Plated

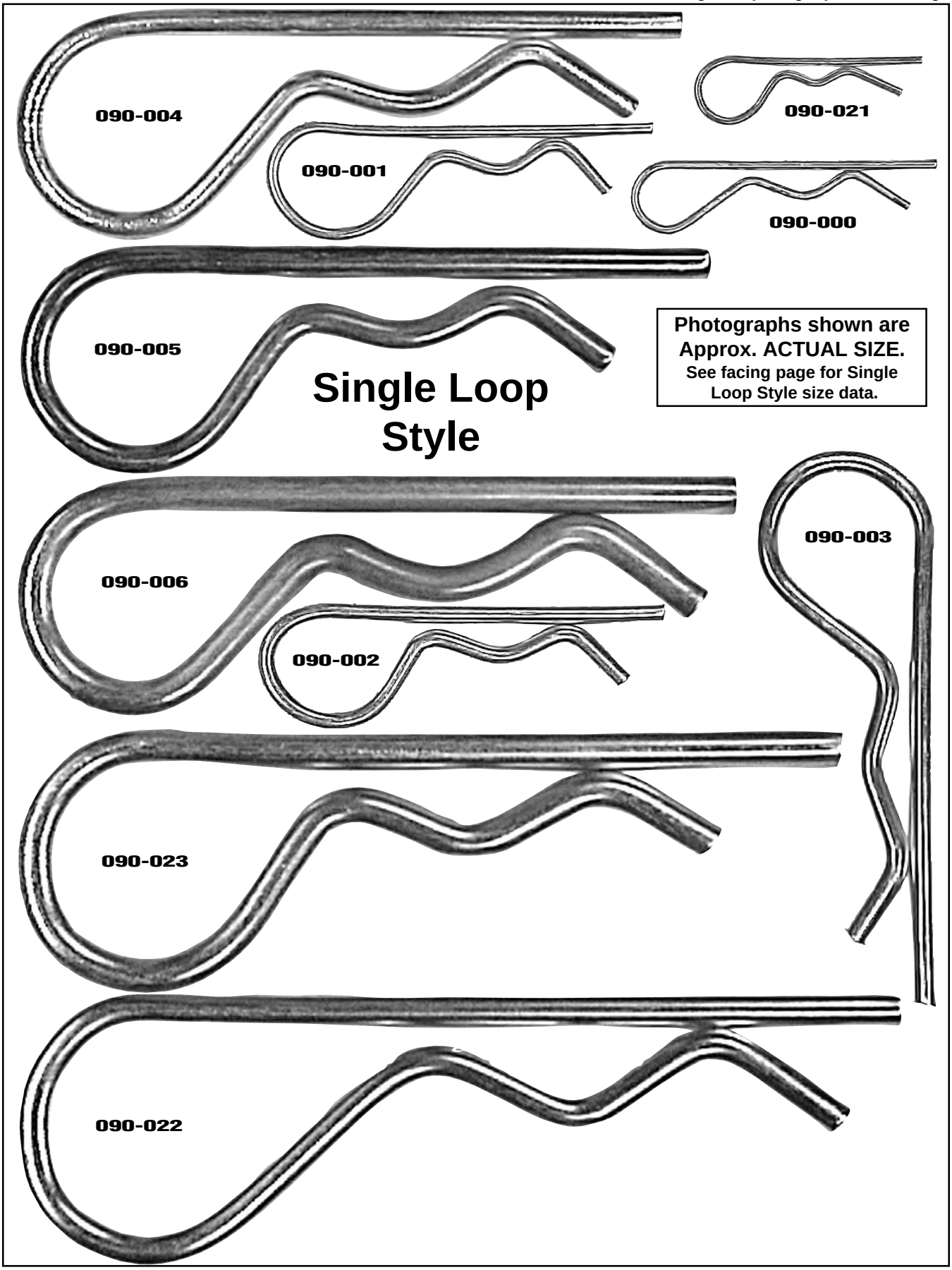
14 Sizes - 150 Pieces

Regular Size Grey Enamelled Drawer fits the Slide Racks shown on page A2.

Shipping Weight 5.56 kg (12-3/4 lbs.)

Priced Singly

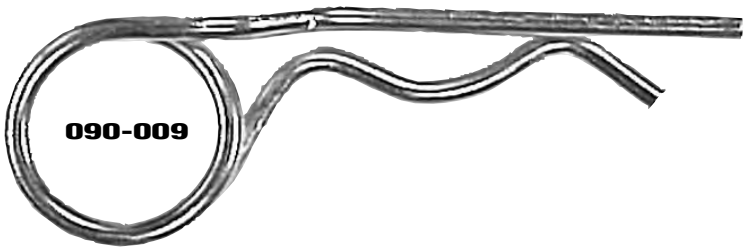
CATALOG 13

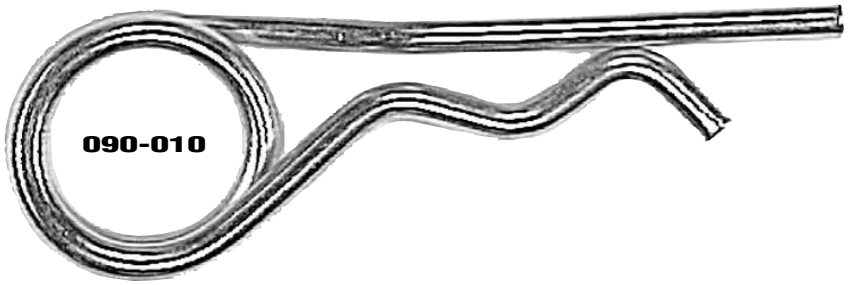

090-004
090-021
090-001
090-000
090-005
Single Loop Style
Photographs shown are Approx. ACTUAL SIZE.
See facing page for Single Loop Style size data.
090-003
090-006
090-002
090-023
090-022

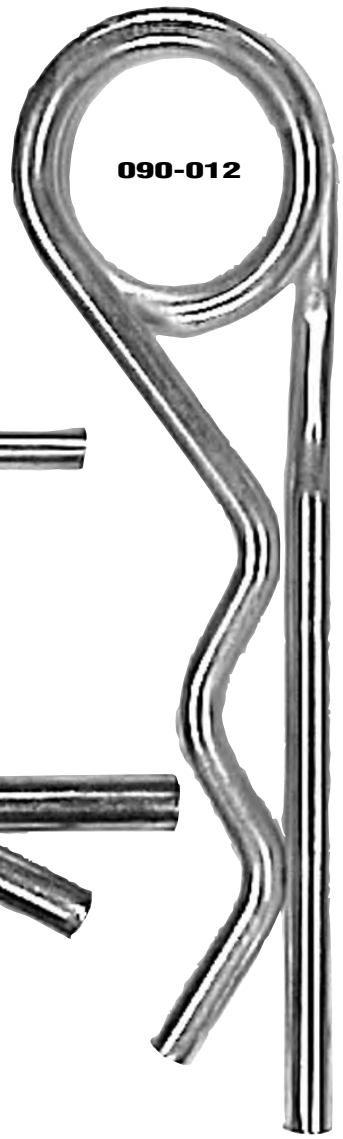
E

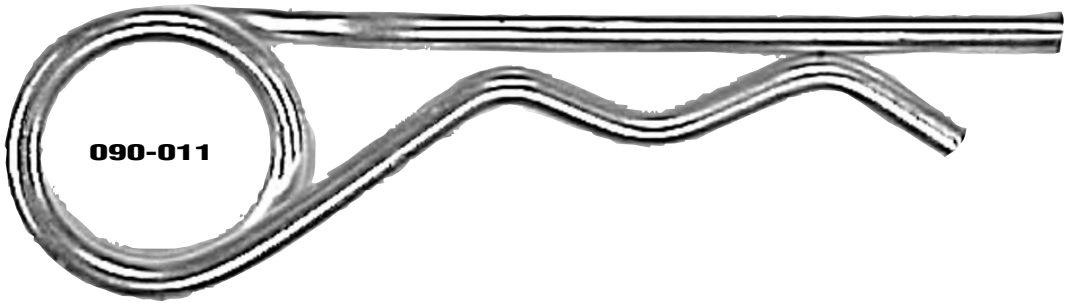
Double Loop Style

Photographs shown are Approx. ACTUAL SIZE.
See page E60 for Double Loop Style size data.



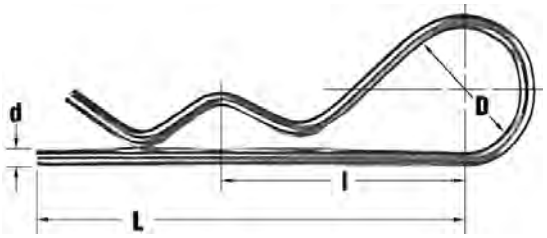






CATALOG 13

301/302 Stainless Steel Hitch Pin Clips



METRIC
Single Loop Style

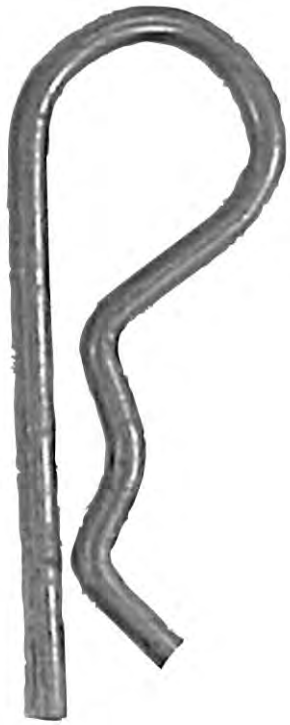
Metric Dimensions stated in Millimetres
(Inch equivalent in brackets.)

SPAENAUR No.	L mm (Inch)	l mm (Inch)	D mm (Inch)	d mm (Inch)	Recommended Drill Hole Size mm (Inch)	Clevis Pin Min. Ø Max. mm (Inch)
090-810	50 (1.97")	25 (.98")	10 (.39")	2 (.08")	2.5 (.10")	9 to 14 (.35/.55")
090-811	60 (2.36")	28 (1.10")	18 (.71")	3 (.12")	3.5 (.14")	10 to 16 (.39/.63")
090-812	60 (2.36")	30 (1.18")	20 (.79")	4 (.16")	4.5 (.18")	16 to 20 (.63/.79")
090-813	85 (3.35")	40 (1.57")	24 (.94")	5 (.20")	6.0 (.24")	20 to 28 (.79/1.10")

090-810
Unit Pkg
100

090-811
Unit Pkg.
100

090-812
Unit Pkg.
50

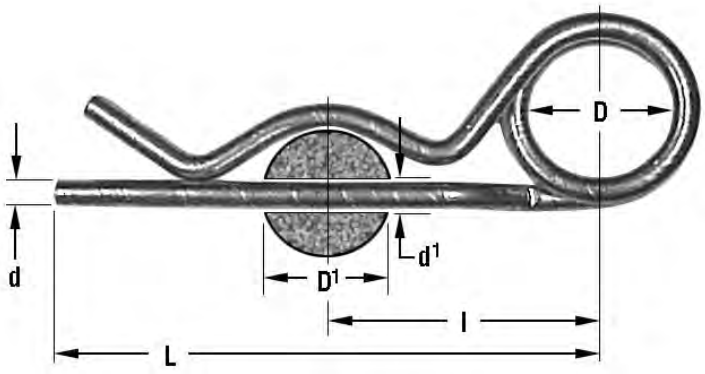


090-813
Unit Pkg.
50

Photographs shown are Approx. ACTUAL SIZE.
See chart above for size data.

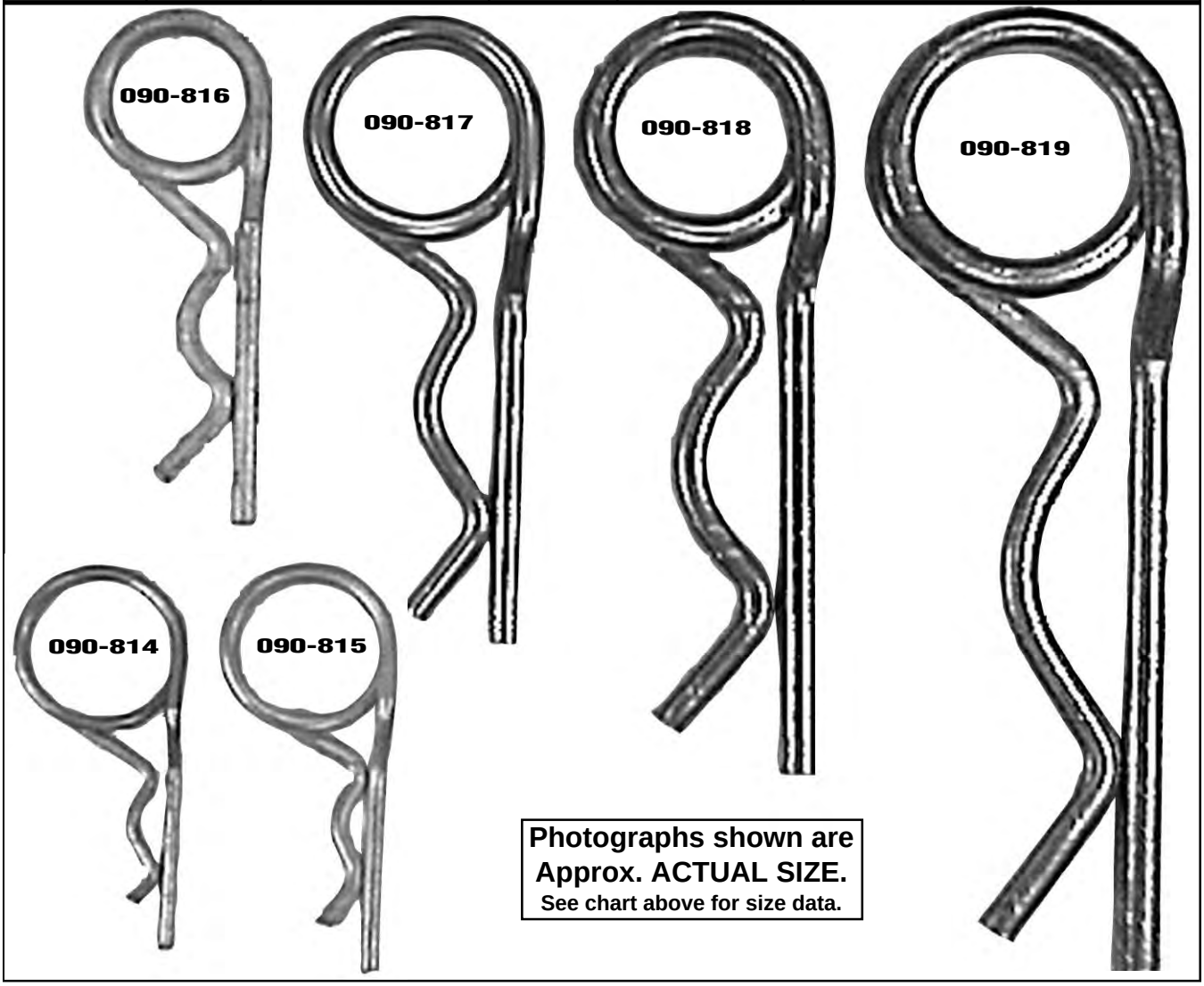
Metric DIN 11024
301/302
Stainless Steel
Double Loop Style
Hitch Pins

All dimensions stated are in millimetres
(Inch equivalent in brackets.)



E

SPAENAUR No.	L mm (In.)	l mm (In.)	D mm (In.)	d mm (In.)	Recommended Hole Size - d1	Clevis Pin ø D1	Unit Pkg. Qty.
090-814	42 (1.65")	24 (.95")	20 (.79")	2.25 (.089")	2.5 (.098")	9 to 11.2 (5/16 - 7/16")	100
090-815	48 (1.77")	26 (1.02")	20 (.79")	2.8 (.110")	3.2 (.126")	11.2 to 14 (7/16 - 9/16")	50
090-816	64 (2.52")	32 (1.26")	20 (.79")	3.6 (.142")	4 (.158")	14 to 20 (9/16 - 13/16")	50
090-817	80 (3.15")	39 (1.57")	25 (.98")	4.5 (.177")	5 (.197")	20 to 26 (13/16 - 1")	50
090-818	97 (3.82")	45 (1.77")	25 (.98")	5.6 (.221")	6.3 (.250")	26 to 34 (1- 1-3/8")	50
090-819	125 (4.93")	56 (2.21")	30 (1.18")	6.3 (.250")	7 (.275")	34 to 45 (1-3/8 - 1-3/4")	25

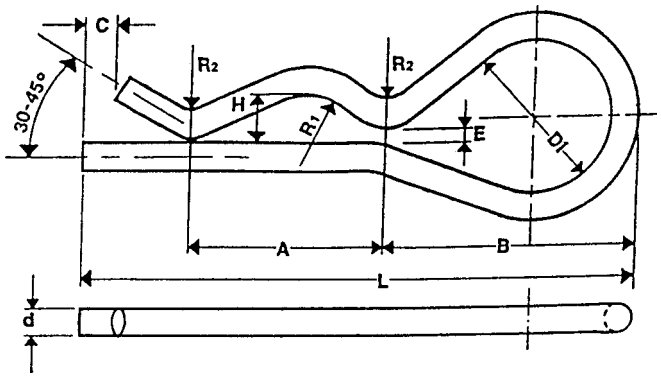


Photographs shown are Approx. ACTUAL SIZE.
See chart above for size data.

CATALOG 13

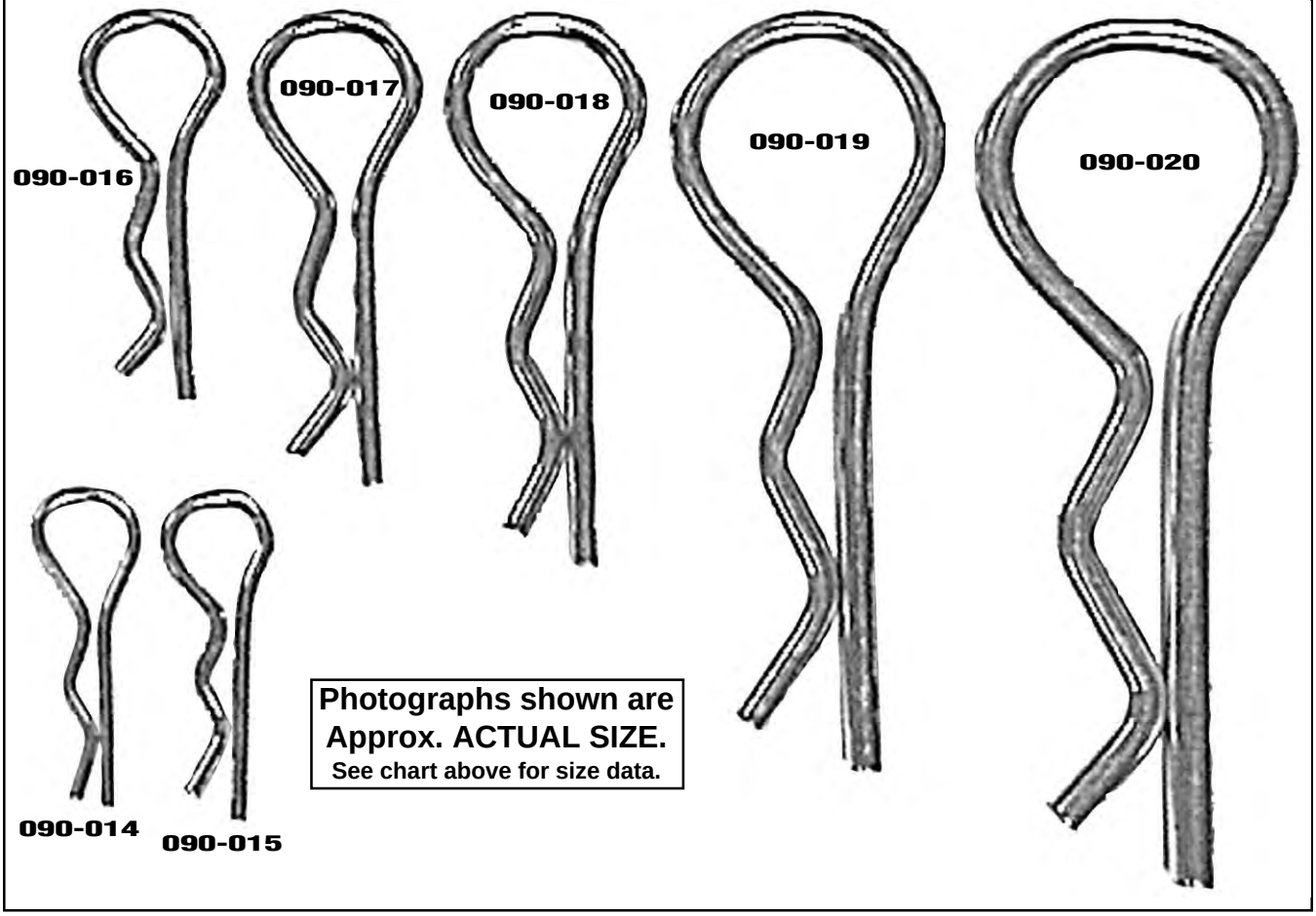
Metric Type B Spring Steel Zinc Chromate Plated Hitch Pins

All dimensions stated in millimetres
(Inch equivalent in brackets.)



E

SPAENAUR No.	Wire Dia. d mm (In.)	Total Lgth. L mm (In.)	For Clevis Pin Min. Ø Max.	All dimensions stated in millimetres D1	A	B	C	E	H	R1	R2	Unit Pkg. Qty.
090-014	2.0 (.08")	43±2 (1.69")	9-12 (5/16 - 1/2")	10	17	16	4	2	3	3	2	100
090-015	2.5 (.10")	45±2 (1.77")	11-16 (3/8 - 5/8")	10	15	17	5	1	2	4	2	100
090-016	3.0 (.12")	54±2 (2.12")	13-18 (1/2 - 11/16")	13	18	22	3	1	3	4	2	50
090-017	3.5 (.14")	67±2 (2.64")	15-22 (5/8 -7/8")	17	21	27	8	1	4	5	4	50
090-018	4.0 (.16")	75±2 (2.95")	18-24 (11/16 - 7/8")	19	26	31	4	2	4	7	5	50
090-019	5.0 (.20")	107±3 (4.22")	20-32 (13/16 - 1-1/4")	27	33	44	9	2	5	14	5	25
090-020	6.0 (.24")	117±3 (4.60")	24-36 (7/8 - 1-3/8")	31	42	52	5	3	11	20	6	25



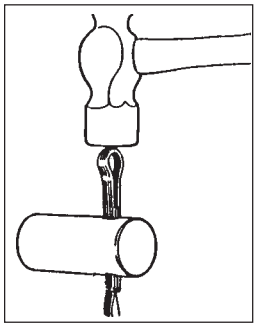
Photographs shown are Approx. ACTUAL SIZE.
See chart above for size data.

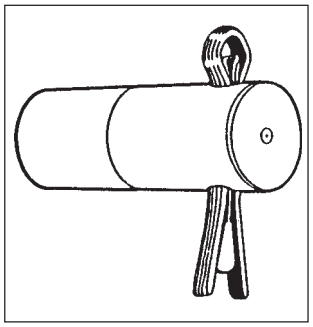
CATALOG 13

E

WEDGE-FAST COTTERS

LOW CARBON STEEL
Plain Finish





Length of Cotter pin is measured from under the head to the end of legs.

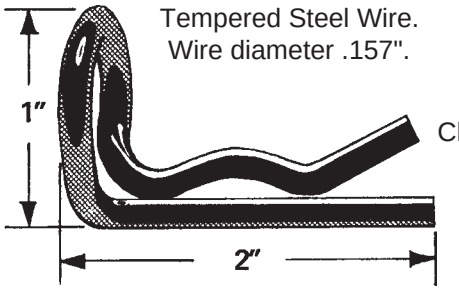
Use WEDGE-FAST COTTERS

* where a positive lock is required to meet safety regulations.
* where vibration may cause wear over a period of time.
* where continued hard use can be expected as on heavy industrial machinery, farm implements, off-the-road construction equipment, mining equipment, railroad rolling stock, etc.
* where equipment may be exposed to vandalism.

SPAENAUR No.	SIZE DIA. x LENGTH	HOLE SIZE	RECOMMENDED SHAFT DIAMETER		UNIT PKG. QTY.
			MIN.	MAX.	
091-001	5/16" x 2"	3/8"	3/4"	1"	100
091-002	5/16" x 2-1/2"	3/8"	1"	1-1/4"	100
091-003	5/16" x 3"	3/8"	1-5/16"	1-1/2"	100
091-004	5/16" x 3-1/2"	3/8"	1-5/16"	1-1/2"	100
091-005	3/8" x 2-1/2"	7/16"	1"	1-1/4"	100
091-006	3/8" x 3"	7/16"	1-5/16"	1-1/2"	100
091-007	3/8" x 3-1/2"	7/16"	1-5/16"	1-1/2"	100

Right-angle Grip HITCH PIN CLIP

090-103
Tempered Steel Wire.
Wire diameter .157".



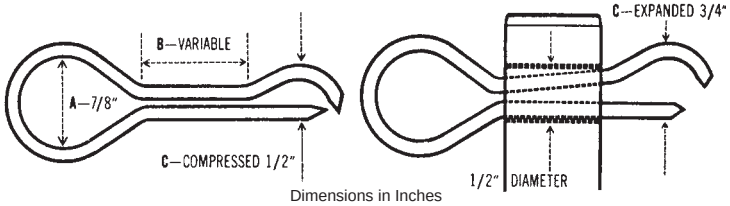
Zinc Chromate Plated

Unit Pkg. 50

Used in construction work for securing concrete forms. Also many other applications.

CLINCH PINS

For agricultural implements and heavy equipment.
A quick hitch for tow bar and other applications.



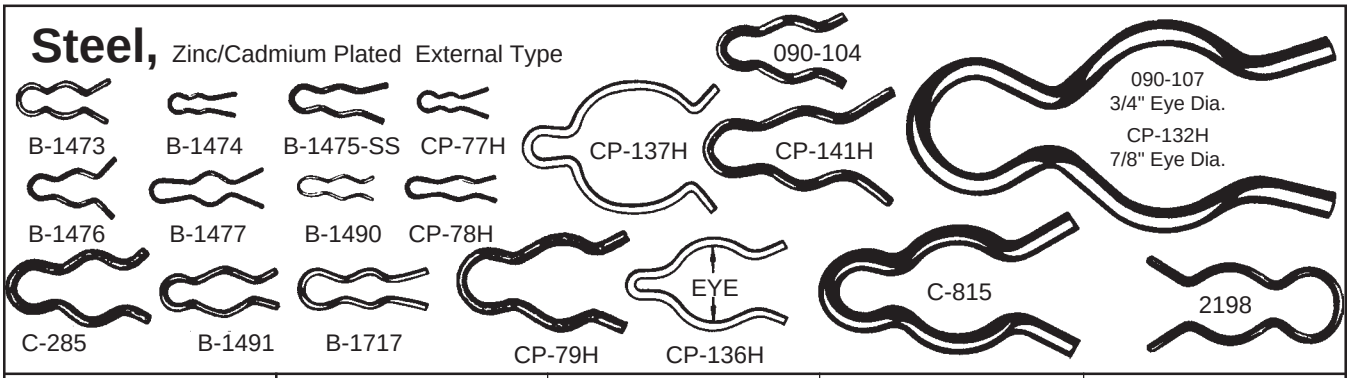
Dimensions in Inches

SPAENAUR No.	Metal	Wire Dia.	B Shank Length	Length O.A.	For Hole Dia.	Unit Pkg. Qty.
090-102	Steel, Zinc Plated	5/16	1-1/4	3-7/16	3/8 to 7/16	10
CP-101		3/8	1-1/4	3-1/2	1/2 to 5/8	10
CP-99		3/8	1-1/2	3-1/2	1/2 to 5/8	10
092-001	Brass	5/32	9/16	1-1/8	3/16 to 5/16	100

Visit us on the web at . . .

www.spaenaur.com

Steel, Zinc/Cadmium Plated External Type



SPAENAUR No.	Centre Eye Inside Diameter	Overall Length	Gauge of Wire	Unit Package Quantity
***B-1474**	1/16"	23/64"	.026"	500
CP-77H	5/64"	13/32"	.026"	100
B-1490	3/32"	7/16"	.028"	500
CP-78H	3/32"	1/2"	.028"	100
***B-1475-SS**	7/64"	1/2"	.036"	500
B-1477	1/8"	17/32"	.028"	500
B-1473	1/8"	31/64"	.047"	500
***B-1476**	9/64"	15/32"	.032"	500
B-1717	3/16"	21/32"	.032"	100
B-1491	11/64"	5/8"	.047"	500
090-104	1/4"	11/16"	.062"	100
C-285	9/32"	3/4"	.062"	50
2198	5/16"	15/16"	.048"	50
CP-141H	5/16"	1"	.062"	100
CP-79H	3/8"	7/8"	.073"	100
CP-136H	7/16"	53/64"	.041"	100
C-815	1/2"	1-23/64"	.105"	50
CP-137H	5/8"	61/64"	.047"	100
090-107	3/4"	2-7/8"	.187"	50
CP-132H	7/8"	2-1/4"	.125"	100

*18-8 Stainless Steel

P.C. 090

E

ASSORTMENT / ASSORTIMENT B-597

HAIR PIN COTTERS
External Type
Steel, Plated

Contains 1450 Pieces in 12 sizes - to fit shaft dia. 1/16" to 3/8".

Regular Drawer Size 13-3/8" x 9-1/4" x 2"

Welded Steel drawer has "scooped" bins, and is finished in Grey Enamel. Drawer fits Slide Racks shown on page A2.

P.C. 805 Shipping Weight 2.27 kg (5 lbs.) *Priced Singly*

Plastikit «Plastikit» A-45

Hair Pin Cotters
External Type
Steel, Plated

8 Sizes - 150 Pieces

Clear Plastic Box - 1" x 2-3/4" x 4-1/2" *Priced Singly*

P.C. 804

Plastikit «Plastikit» A-62

Hitch Pin Clips
Internal Type
Steel, Zinc Plated

14 Sizes - 40 Pieces

Clear Plastic Box - 1" x 2-3/4" x 4-1/2" *Priced Singly*

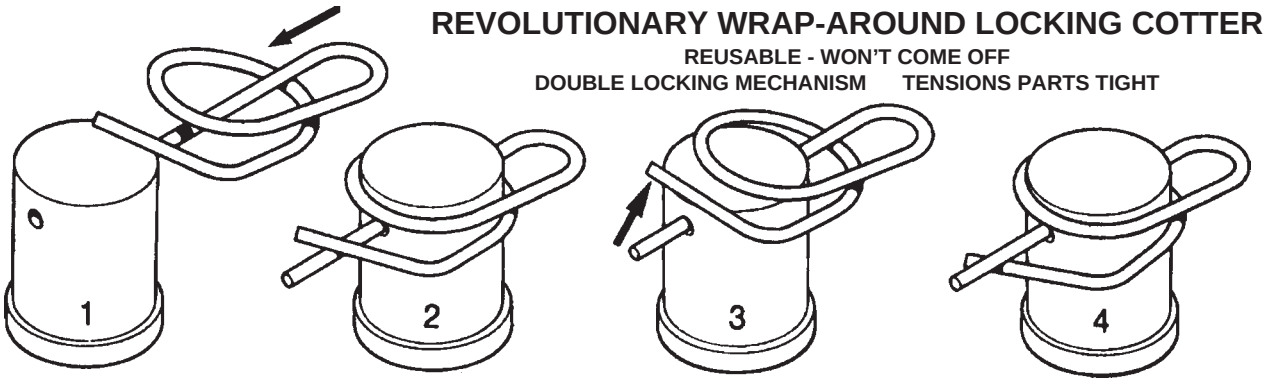
Hair Pin Cotters, also known as Hitch Pin Clips, are general purpose, snap-on clips made of oil tempered spring wire for countless commercial, home and industrial uses.

E

RUE™ RING COTTERS PATENT NO. 4,592,689

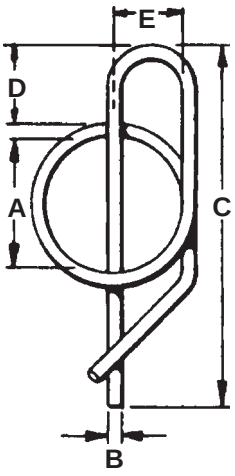
REVOLUTIONARY WRAP-AROUND LOCKING COTTER

REUSABLE - WON'T COME OFF
DOUBLE LOCKING MECHANISM TENSIONS PARTS TIGHT



1. TO INSTALL PUSH ON - CAM RAMP LIFTS RING OVER PIN
2. AUTOMATIC LOCK RING CAPTURES PIN
3. TO REMOVE PUSH UP AND BACK ON CAM RAMP
4. OPTIONAL MANUAL LOCK TENSIONS JOINT

Available in **- MB HARD DRAWN SPRING WIRE - Zinc Plated** *and* **STAINLESS STEEL - Type 302**



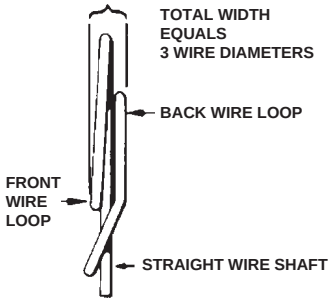
SPAENAUR No.			Dimensions in Inches					UNIT
HARD DRAWN SPRING WIRE	STAINLESS STEEL 302	FITS SHAFT SIZE	A	B	C	D	E	PKG. QTY.
090-200	**090-800**	**1/4"**	.257-.267	.041	.844	.2500	.1250	100
090-201		**1/4"**	.260-.270	.054	.936	.2810	.1250	100
090-202		**5/16"**	.320-.330	.047	1.044	.3125	.1563	100
090-203	**090-801**	**3/8"**	.382-.392	.054	1.214	.3440	.1875	100
090-204		**1/2"**	.510-.520	.062	1.420	.3750	.2500	100
090-205	**090-802**	**1/2"**	.510-.520	.072	1.456	.3750	.2500	100
090-206		**5/8"**	.635-.645	.072	1.690	.4375	.3125	100
090-207		**3/4"**	.760-.770	.080	2.081	.5000	.3750	100
090-208		**3/4"**	.760-.770	.091	2.166	.5000	.3750	100
090-209		**7/8"**	.885-.895	.105	2.506	.5625	.4375	100
090-210		**1"**	1.010-1.020	.105	2.756	.6250	.5000	100

(Stainless Steel Sizes Without Numbers - Min. 5,000 Pieces, 8 weeks Delivery, P.O.R.)

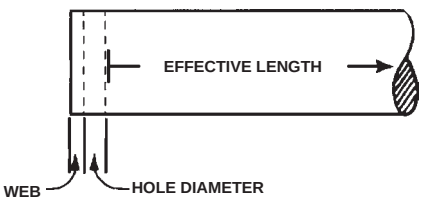
ILLUSTRATION - SIDE VIEW

Total width of any Rue Ring equals 3 of its wire diameters. The straight wire shaft which goes through the pin hole is one, plus two additional wire loops, one on each side, front and back as illustrated.

Rue Ring Cotters will retro-fit most applications without design changes.



HOLE PLACEMENT - END SHAFT USE ONLY



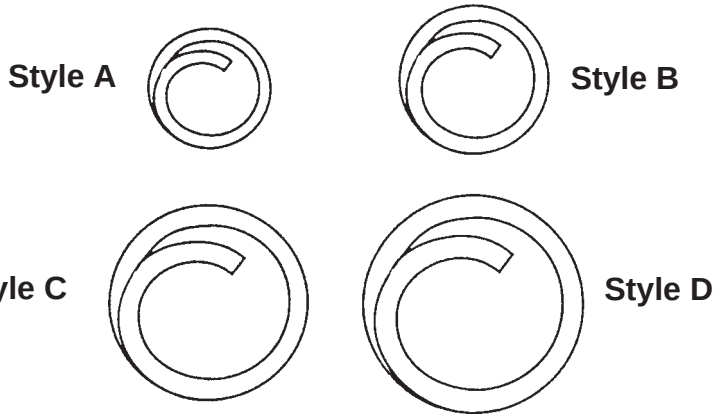
Recommended hole size is 2 times the wire diameter of the selected Rue Ring. This leaves the Rue Ring short of interfering with effective shaft length.

Recommended web thickness is a minimum of 1 wire diameter and a maximum of 2 wire diameters. A thicker web results in more holding power, but makes installation and removal more difficult.

CATALOG 13

Ring Cotters

MB SPRING WIRE, Zinc Plated
or
Type 302 STAINLESS STEEL (Passivated).

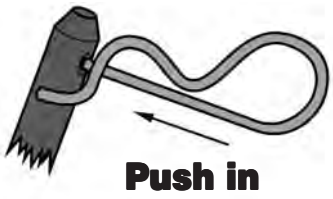


Thread the wire end (inside the ring) into the hole in shaft and turn until ring snaps in place. To remove, turn again in the same direction.

SPAENAUR No. Zinc Pltd. Wire	*SPAENAUR No.* Stainless Steel	Style	O.D. x Wire Diameter	Use on Shaft Diameter	Unit Pkg.
090-028	**090-803**	A	5/8" x .048"	3/16" - 1/4"	100
090-029	**090-804**	B	3/4" x .048"	1/4" - 5/16"	100
090-030	**090-805**	C	1" x .062"	3/8" - 7/16"	100
090-031	**090-806**	D	1-1/8" x .072"	7/16" - 1/2"	100

The Grip Clip

STEEL 1045/1050
Oil Tempered
Zinc Plated
Rockwell RC 30-35



A clip that can be removed only with a twist and a pull. For applications where traditional pins and clips can accidentally pull out while in use (i.e. snagged in agricultural use), this Grip Clip can be used to reduce the potential for lost clips and hitch pins. Inserting and removing the Grip Clip is simple and easy.

SPAENAUR No.	Wire Dia.	Recommended Shaft Sizes	Overall Length	Inside Dia. of Eye	Unit Pkg.
090-024	.125"	3/8" - 5/8"	2"	7/16"	100
090-025	.125"	7/16" - 3/4"	2-9/16"	9/16"	100
090-026	.148"	5/8" - 1"	2-3/4"	3/4"	100
090-027	.177"	7/8" - 1-1/4"	3-3/4"	15/16"	50

E

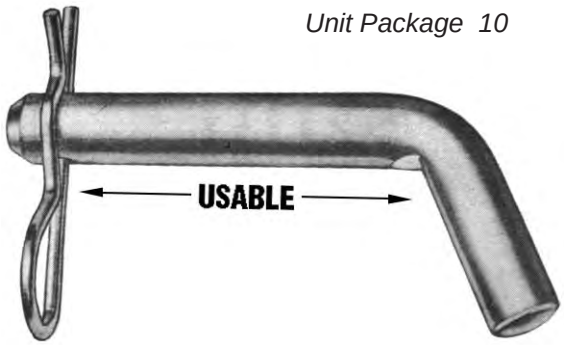
BENT PULL PINS

Designed for use on Farm Equipment; Lawn and Garden Equipment; Recreational Vehicles and on Mobile Home Trailer Hitches.

Steel C-1117

SPAENAUR No.	Diameter	Approx. Usable Length
233-232	1/2"	3"
233-233	5/8"	3"
233-234	3/4"	3-1/2
233-235	3/4"	4-1/2"

Unit Package 10



- Made from high strength steel.
- **Heavy zinc plating** resists rust.
- Fits all popular trailer hitches.
- Each pin complete with hairpin.

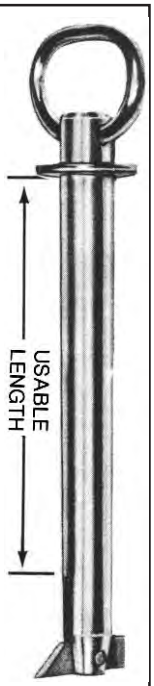
TENSION LOCK HITCH PINS

Steel C-1144 Stress Relieved

Tension Spring Holds Toggle Lock Where You Put It Locked...or Unlocked - For Easy One-Hand Use!

Specifically designed for quick hitching (and unhitching) all types of mobile equipment. Machined from high strength steel. **Zinc Plated.** A Safe-Sure Hitch Pin.

SPAENAUR No.	Diameter	Approx. Usable Length
233-226	3/8"	2-3/4"
233-215	1/2"	3-1/2"
233-216	5/8"	3-1/2"
233-217	3/4"	3-1/2"
233-218	7/8"	3-1/2"
233-219	1"	3-1/2"
233-220	3/4"	6"
233-221	7/8"	6"
233-222	1"	6"
233-223	13/16"	6-1/4"



TAB LOCK PINS

C1018 Case Hardened **Steel, Zinc Plated**

SPAENAUR No.	Diameter	Approx. Usable Length	Unit Pkg. Quantity
233-085	1/4"	1-3/4"	10
233-086	5/16"	1-3/4"	10
233-087	3/8"	1-3/4"	10

PIN-LOCK

HAIRPIN PROVIDES POSITIVE LOCKING.

EACH PIN COMPLETE WITH HAIRPIN.

PIN-LOCK HAIR PIN HITCH PIN

For heavy mobile equipment.

Steel
C-1144 Stress Relieved
Zinc Plated

SPAENAUR No.	Dia.	Approx. Usable Length	Unit Pkg. Qty.
233-245	3/8"	3"	10
233-246	1/2"	4"	10
B-2005	5/8"	4-1/2"	5
B-2006	3/4"	4-1/2"	10
B-2007	1"	4-1/2"	1
B-2008	5/8"	6"	10
B-2009	3/4"	6"	10
B-2010	7/8"	6"	10
B-2011	1"	6"	1

CATALOG 13

FAST-POSITIVE SAFETY LOCKING PINS MULTI-PURPOSE

For Farm, Campers, Boats, Trailers, Snowmobiles, Lawn & Garden Equipment.

LOCK PINS

STEEL - Zinc Chromate Plated (Yellow or Clear - Our Option) and STAINLESS STEEL 300 Series

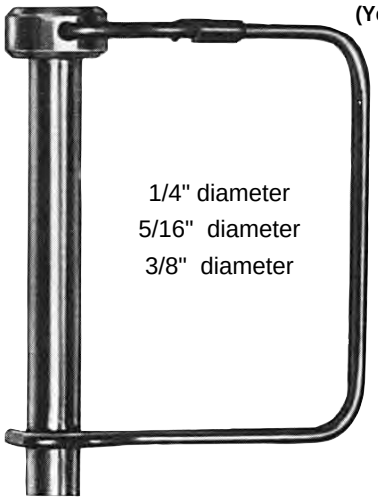
1/4" diameter
5/16" diameter
3/8" diameter

A"MUST" AND TIME-SAVER FOR ALL EQUIPEMENT.

A fast, handy lock pin, on and off in a jiffy, replacing frail bolts and cotter pins. Assures a more secure, safer hitch. Saves time and temper. Positive locking.

Steel C-1010/C-1018 Zinc Chromate Plated

SPAENAUR No.	Diameter	Usable Length	Unit Pkg. Quantity
233-239	1/4"	1-3/8"	10
B-1995	1/4"	1-3/4"	10
233-241	5/16"	1-3/8"	10
233-242	5/16"	1-3/4"	10
B-1996	3/8"	1-3/8"	10
233-243	3/8"	2-1/2"	10
300 Series Stainless Steel			
233-939	1/4"	1-3/8"	10
233-940	1/4"	1-3/4"	10
233-943	5/16"	1-3/8"	10
233-944	5/16"	1-3/4"	10
233-947	3/8"	1-3/8"	10
233-948	3/8"	1-3/4"	10



1/4" diameter
5/16" diameter
3/8" diameter

Available in STEEL Zinc Chromate Plated (Yellow or Clear - Our Option) and 300 Series STAINLESS STEEL

Steel
C-1010 - C-1018

Precision formed from high strength premium steel. Oil-tempered spring stays securely snap-locked. Heavy zinc plated to resist rust.

For all PTO powered equipment - fits all PTO knuckles and most adapters.

Steel C-1010/C-1018 Zinc Chromate Plated

SPAENAUR No.	Diameter	Usable Length	Unit Pkg. Quantity
233-240	1/4"	2-1/2"	10
B-1997	5/16"	2-1/2"	10
B-1998	3/8"	2-1/4"	10
233-244	3/8"	2-1/2"	10
300 Series Stainless Steel			
233-941	1/4"	2-1/4"	10
233-942	1/4"	2-1/2"	10
233-945	5/16"	2-1/4"	10
233-946	5/16"	2-1/2"	10
233-949	3/8"	2-1/4"	10
233-950	3/8"	2-1/2"	10

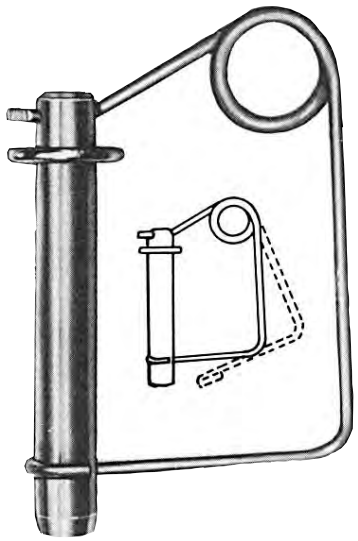
SNAP-LOCK HITCH PINS

Steel C-1144
Stress Relieved
Heavy Zinc Plated

TEMPERED SPRING-STEEL SNAP STAYS LOCKED

SPAENAUR No.	Diameter	Usable Length	Unit Pkg. Quantity
233-214	1/2"	3-1/2"	5
233-257	5/8"	4"	5
233-258	3/4"	4"	1
233-259	3/4"	6"	1
233-260	7/8"	5-1/2"	1
233-261	1"	5-1/2"	1

All
Popular Sizes
1/2", 5/8", 3/4", 7/8", 1"



See pages E56 to E69 for Hitch Pin Clips.

HEAVY DUTY HITCH PINS

- PRECISION MACHINED
- C-1144 STRESS RELIEVED STEEL
- ZINC PLATED
- VINYL COATED HANDLE
- INCLUDES HAIR PIN CLIP

SPAENAUR No	Dia.	Approx. Usable Lgth.	Pkg. Qty.
***233-070**	1/2"	4"	1
233-071	5/8"	4-1/2"	1
233-072	3/4"	4-1/2"	1
233-073	7/8"	4-1/2"	1
233-074	1"	4-1/2"	1
233-075	5/8"	6"	1
233-076	3/4"	6-1/2"	1
233-077	7/8"	6-1/2"	1
233-078	1"	6-1/2"	1
233-079	1-1/8"	7"	1
233-080	1-1/4"	7"	1

***233-248** Slightly different shape to the handle; see illustration at right.

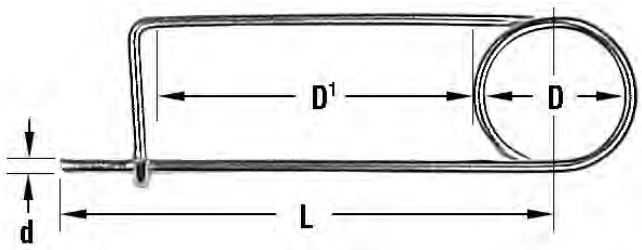
SPAENAUR

We're your complete source for all your fastener needs.

Metric Industrial Safety Pins

Oil Tempered Steel - Zinc Plated

All dimensions stated in millimetres

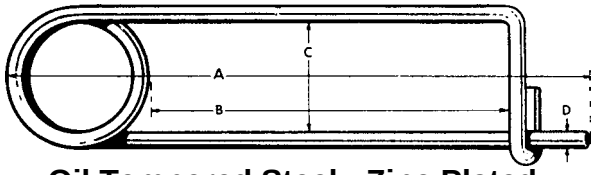


SPAENAUR No.	d	L	D	D1	Unit Pkg. Quantity
142-200	2	58	20	35	100
142-201	2.5	66	23	40	100
142-203	3	74	26	45	100
142-205	3.5	82	30	50	100
142-207	4	88	35	55	50
142-206	3.5	112	30	50	50
142-204	3	114	26	45	50
142-202	2.5	116	23	40	50
142-208	4	108	35	55	25
142-209	5	105	40	60	25
142-210	6	122	45	60	25

INDUSTRIAL

SAFETY PINS

Inch Sizes



Oil Tempered Steel - Zinc Plated

(or Cadmium, our option)

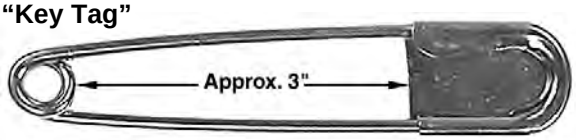
FOR A COMPLETE LISTING OF HITCH PIN & HAIR PIN CLIPS, SEE PAGES E56 to E72.

FOR QUICK RELEASE PINS, SEE PAGES E80 to E83.

SPAENAUR No.	Length A	(See Diagram) B	C	Wire Diameter D	Unit Package
142-153	1-9/16"	15/16"	3/8"	.047"	100
142-154	1-3/4"	1-1/16"	3/8"	.058"	100
***142-150**	2.05"	1-9/32"	1/4"	.048"	100
142-155	2-3/4"	1-11/16"	5/8"	.091"	100
142-156	4-1/4"	2-13/16"	13/16"	.120"	50
142-170	5-1/4"	3"	1-1/2"	.177"	25
142-157	5-3/4"	3-3/4"	1-1/8"	.148"	25
142-171	8-1/8"	5"	1-5/8"	.243"	25
142-172	8-1/2"	5"	2-1/4"	.243"	25

***Note:** 142-150 is furnished "Open" and unplated.

"Key Tag"



***SPAENAUR No.* 142-158**

SAFETY NET PIN

Brass - Nickel Plated

Overall Length: 5" Inside Width: 3/4"
Wire Diameter: .144" *Unit Package 50*

142-159
Non-Magnetic
STAINLESS
STEEL

Special Design **INDUSTRIAL SAFETY PIN**
Overall Length: 1-1/4" Inside Height: 7/16"
Wire Diameter: .051" *Unit Package 100*

The need for a better quality lynch pin became apparent when the trend towards larger horsepower tractors pulling wider and heavier implements was growing.

Rübig responded to the need by perfecting their Safety Lynch Pin with a breaking strain approx. 3 times greater than normal lynch pins (68 to 88 tons per square inch), and with the following features:

Conforms to **ISO/DIS 7072** and meets requirements of **DIN 11023** (1979) (German industrial specifications)

1) Safety catch in shaft of pin into which the spring snapped tight (US Patent No. 3926089).
2) Extra hole in top of pin to take safety chain.
3) Best quality spring steel ring passing right through the pin at its hinge points.
4) Zinc electroplate finish.

E

The need for security!

Reduces damage to machinery, loss of time, and dangerous situations caused by lynch pin failure. It makes good sense to use these high quality pins on your equipment.

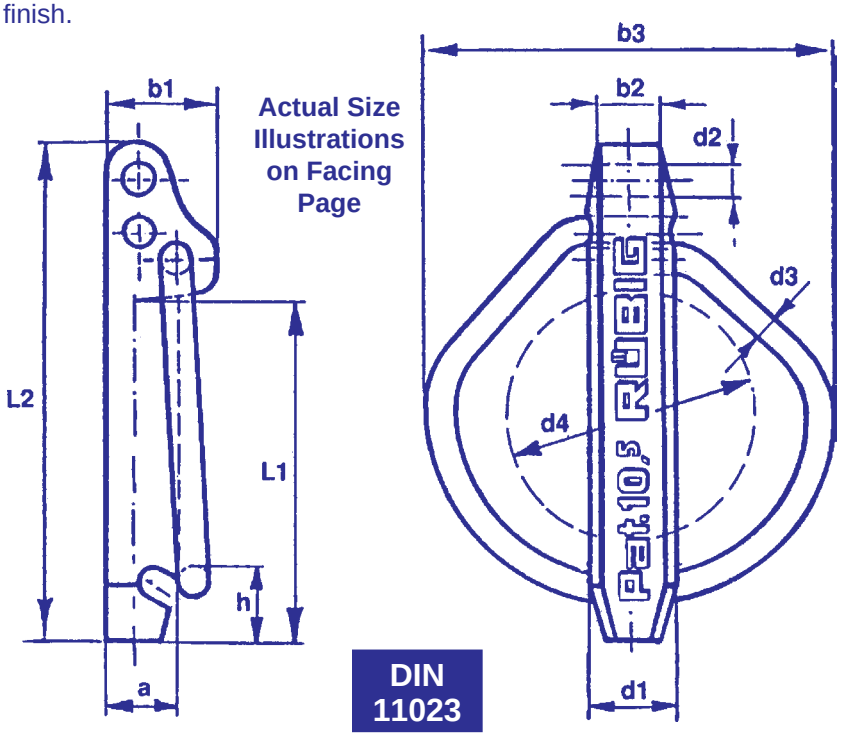
Why a safety catch?

Suitable for extreme conditions, this pin should be used, for example,

- when the implement is very near to the ground: ploughing, cultivating, harrowing
- working in woodlands and scrub areas, where branches and tree stumps can easily push other pins out
- in the vineyards
- bracken cutting
- hitch points on trailer

Attention: Don't put your finger between ring and shaft when you close the pin.

Actual Size Illustrations on Facing Page



DIN 11023

Dimensions in Millimeters

SPAENAUR No.	Ø *d1	L1	L2	h	b1	b2	b3	Ø d2	Ø d3	Shaft Ød4	a
233-050	7.5	42	62	7	13.5	7.5	50	4	3.6	32	7.5
233-051	9.5	45	66	11	14	8	50	4.5	3.6	32	8
233-052	10.5	45	66	11	14	8	50	4.5	3.6	32	8.5
233-053	11.5	45	66	11	14	9	50	4.5	3.6	32	9
233-054	11.5lg	55	77	8	15	9	59	4.5	4	45	9
233-056	11.5w	45	66	7	14	9	50	4.5	3.6	38.5	9
233-055	15.5	60	80	12	17.5	14.5	68	6	4	45	12.5

UNIT PKG. 10 (One Number)

*Permissible deviation: d1 of 4.5 to 9.5 +0.3-0.2; ±0.5

RÜBIG Safety Lynch Pin - SPECIFICATIONS

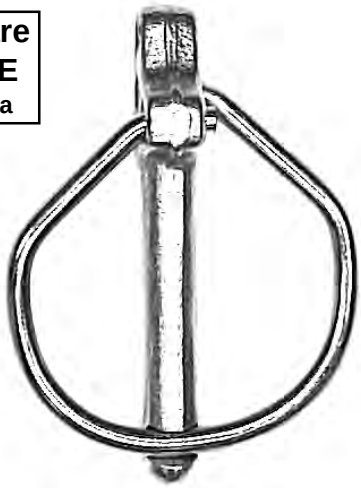
Drop-forged steel shaft, hardened and tempered to a strength of 110-140 kp/mm^2, the spring is made of spring steel wire in accordance with DIN 17233. Both shaft and spring are galvanized, layer thickness: 10-12 micron, yellow chromatized. After assembly, each individual safety lynch pin is tested for correct functioning and spring-opening power. (Spring-opening force: 80-120N). The minimum values required by DIN 11023 are exceeded considerably by all RÜBIG-Safety Lynch Pins, and they are officially tested ("Wieselburg"), recognized by the DLG (agricultural association of Germany), and sizes 7.5 and 10.5 are also available in stainless steel.

Naturally, to give such benefits has not been achieved without considerable cost, and while the initial purchase price is greater, true costs in terms of longer life, greater security, not lost so easily, are a fraction of the price normally paid for the common lynch pin.

CATALOG 13

REDUCED RISK THROUGH SAFETY + SECURITY

Photographs shown are Approx. ACTUAL SIZE
See facing page for size data



233-050
Safety Lynch Pin 7.5 mm

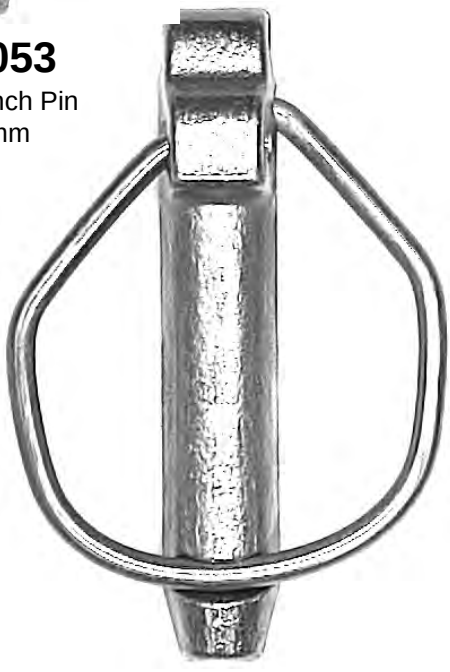
233-051
Safety Lynch Pin 9.5 mm

233-052
Safety Lynch Pin 10.5 mm

233-053
Safety Lynch Pin 11.5 mm

233-056
Safety Lynch Pin 11.5w mm

233-054
Safety Lynch Pin 11.5lg mm



233-055
Safety Lynch Pin 15.5 mm

E

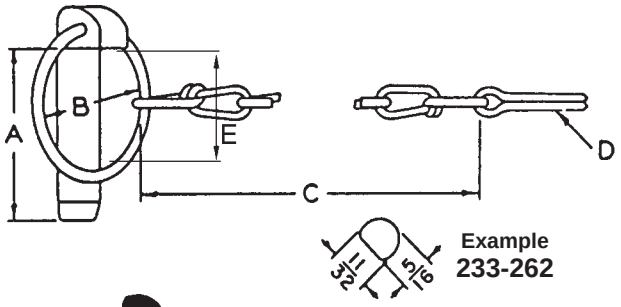
...DESIGNED FOR SAFETY *(also known as Quick-Pins)*

PINS are made of **Steel C1010-C1018**.

Spring Steel SNAP RING is assembled mechanically to prevent any stretch or loss of tension.

Complete Assembly is **Zinc Chromate Plated**.
(Yellow or clear - our option)

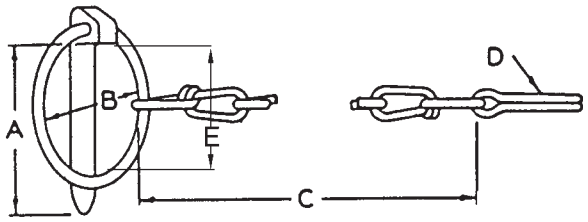
Two styles - with or without securing chain, cotter key.



Example
233-262

PIN STYLE 2

SPAENAUR No.	PIN SIZE	Approximate PIN LGTH. A	Approximate INSIDE RING DIA. B	CHAIN LGTH. C	COTTER SIZE D	USABLE LGTH. E
233-236	5/16 x 17/64	1-3/4	1-9/16	NONE	NONE	1-3/8
233-352	5/16 x 17/64	2-3/8	1-5/8	NONE	NONE	1-7/16
233-353	5/16 x 17/64	2-3/8	1-5/8	8-1/2	3/16 x 3/4	1-7/16
233-262	11/32 x 5/16	1-5/8	1-9/16	NONE	NONE	1-5/16
B-1999	7/16 x 11/32	1-3/4	1-3/8	NONE	NONE	1-3/16
B-1999C	7/16 x 11/32	1-3/4	1-3/8	7-3/4	3/16 x 3/4	1-3/16
233-247	7/16 x 3/8	1-1/2	1-9/16	NONE	NONE	1-1/4
233-237	7/16 x 3/8	1-15/16	1-5/8	NONE	NONE	1-5/16
B-2004	7/16 x 11/32	2	1-7/8	NONE	NONE	1-11/16
B-2004C	7/16 x 11/32	2	1-7/8	7-3/4	3/16 x 3/4	1-11/16



PIN STYLE 1

SPAENAUR No.	PIN SIZE	Approximate PIN LGTH. A	Approximate INSIDE RING DIA. B	CHAIN LGTH. C	COTTER SIZE D	USABLE LGTH. E
B-2012	3/16	1-1/2	1-1/4	NONE	NONE	7/8
233-256	3/16	1-1/4	1	6-1/4	3/32 x 3/4	7/8
B-2013	1/4	1-9/16	1-3/8	NONE	NONE	1-1/4
233-254	1/4	1-3/4	1-3/8	8	3/16 x 3/4	1-1/4
B-2014	5/16	2-11/32	1-5/8	NONE	NONE	1-1/2
233-255	5/16	2-11/32	1-5/8	7-3/4	3/16 x 3/4	1-1/2

UNIT PACKAGE 10

INCH SIZES

Lynch Pin

ASSORTMENT
ASSORTIMENT
805-503

11 SIZES - 70 PIECES

- DESIGNED FOR SAFETY -

Steel C1010 - C1018, Zinc Plated

Shipping weight
4.54 kg (10 lbs.)

Regular Drawer Size
13-3/8" x 9-1/4" x 2"

Grey Enamelled Drawer will fit slide racks shown on page A2.

Contents of Assortment 805-503

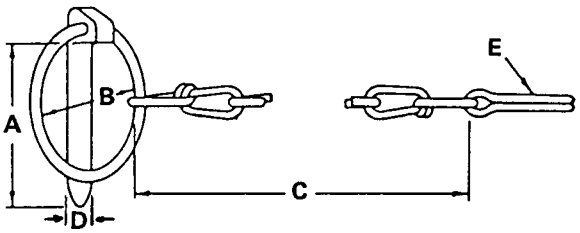
SPAENAUR No.	Qty.	*SPAENAUR No.*	Qty.
B-1999	5	**B-2014**	4
B-1999C	5	**233-254**	5
B-2004	4	**233-255**	4
B-2004C	3	**233-256**	10
B-2012	10	**233-262**	10
B-2013	10		

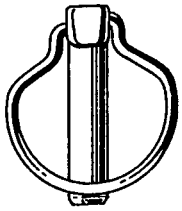
Lynch Pins

(also known as Quick-Pins)

Steel

C1010 - C1018
Zinc Chromate Plated
(Yellow or Clear - Our Option)
All dimensions stated in millimetres





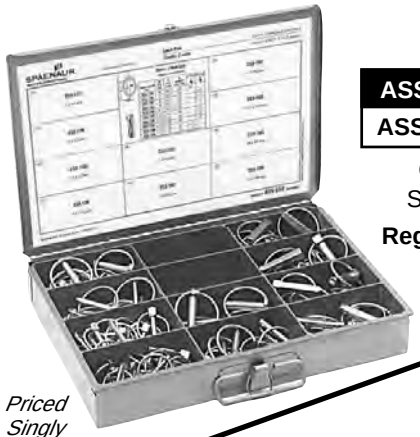
*Asterisk before *SPAENAUR No.* indicates above style ring.

PIN STYLE 1 **PIN STYLE 2**

UNIT PACKAGE 10

SPAENAUR No.	PIN D DIA.	PIN STYLE	A PIN LENGTH	B APPROX. INSIDE RING DIA.	C CHAIN LENGTH	E COTTER SIZE
233-108	4.5	**1**	32	29	-	-
233-110	4.5	**1**	40	36	-	-
233-121	4.5	**1**	40	36	197	5 x 32
233-109	5.2	**1**	32	29	-	-
233-111	6	**1**	32	32	-	-
233-112	6	**1**	40	36	-	-
233-122	6	**1**	40	36	197	5 x 32
233-100	6	**1**	40	42	-	-
233-113	6	**1**	45	37	-	-
233-101	7	**2**	40	42	-	-
233-114	7.5	**2**	40	36	-	-
233-115	8	**2**	40	36	-	-
233-123	8	**2**	40	36	197	5 x 32
***233-126**	8	**2**	45	36	-	-
233-102	8	**2**	40	42	-	-

SPAENAUR No.	PIN D DIA.	PIN STYLE	A PIN LENGTH	B APPROX. INSIDE RING DIA.	C CHAIN LENGTH	E COTTER SIZE
233-129	8	**2**	45	39	-	-
233-103	9	**2**	40	42	-	-
233-116	9	**2**	45	39	-	-
233-124	9.5	**2**	40	39	197	5 x 32
233-104	9.5	**2**	40	42	-	-
233-105	10	**2**	45	42	-	-
233-117	10	**2**	45	39	-	-
233-106	10.5	**2**	40	42	-	-
233-107	11	**2**	40	42	-	-
233-125	11	**2**	40	39	197	5 x 32
***233-127**	11	**2**	45	38	-	-
233-118	11	**2**	45	39	-	-
233-120	11	**2**	50	47	-	-
233-128	11	**2**	50	50	-	-
233-119	12	**2**	45	39	-	-



Priced Singly

Lynch Pin

METRIC SIZES **10 sizes 110 pieces**

ASSORTMENT
ASSORTIMENT
805-510

Grey Enameled Drawer will fit Slide Racks shown on page A2.

Regular Size: 13-3/8" x 9-1/4" x 2"

Shipping weight 4.99 kg (11 lbs.)

Contents of Assortment 805-510

SPAENAUR No.	Qty.	*SPAENAUR No.*	Qty.
233-100	10	**233-105**	8
233-101	10	**233-106**	8
233-102	10	**233-107**	8
233-103	8	**233-108**	20
233-116	8	**233-109**	20

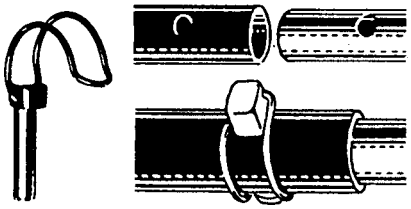
METRIC SIZE

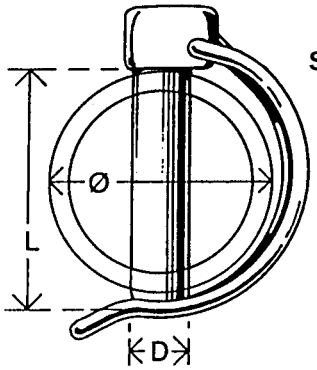
PIPE PINS

Steel

C1010 - C1018

Zinc Chromate Plated
(Yellow or Clear - Our Option)





with SPRING STEEL SNAP RING

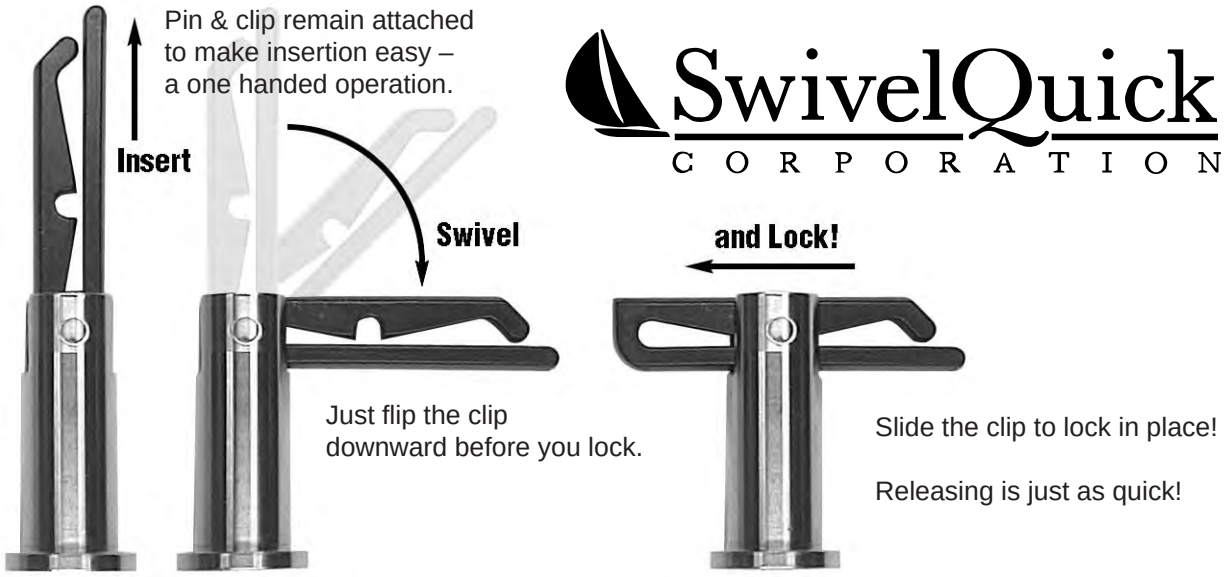
Unit Pkg. 10	Dimensions in millimetres		
SPAENAUR No.	D PIN DIA.	L PIN LENGTH	Ø PIPE O.D.
233-150	4.5	32	28
233-152	4.5	40	36
233-151	6	32	28
233-153	6	40	36
233-154	6	45	36
233-156	8	40	36
233-157	8	45	40
233-158	8	50	45
233-159	8	60	55
233-160	10	40	36
233-161	10	50	45
233-162	10	60	55

E

300 Series

INTRODUCING A NEW REVOLUTIONARY FASTENER, UNIQUE IN DESIGN, PROVIDING COST AND VERSATILITY ADVANTAGES OVER ALL OTHER FASTPINS AVAILABLE TODAY.

US Patent 4822197 Foreign patents pending.



SwivelQuick CORPORATION

A SIMPLE POSITIVE LOCKING QUICK RELEASE PIN.

Allow us to introduce the revolutionary SWIVELQUICK PIN! This unique fastener is more versatile than other fastpins in the market today! It is also more affordable! The SWIVELQUICK PIN offers you value and versatility!

This newly designed and patented clevis pin features a positive locking quick release mechanism. The pin is available in style "A" up to 7/16" dia. and style "B" from 1/2" to 1" dia. (See illustrations top of opposite page.)

Functioning as a simple one piece unit, the SWIVELQUICK PIN can be installed single handedly. No more tools needed; no more sharp corroding cotter pins; and no more loose spring ball pins.

The SWIVELQUICK PIN is strong and dependable - finely machined from bar stainless to a 93 finish and deburred, with a Delrin plastic clip. It is weather-resistant and usable in a wide range of temperatures.

Originally designed as durable marine hardware, the SWIVELQUICK PIN can be used in many other industries such as:

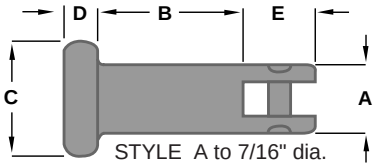
AERONAUTICS	TRUCKING	AGRICULTURE
MILITARY	AUTOMOTIVE	AEROSPACE
CONSTRUCTION	MEDICAL	MANUFACTURING

Pick the SWIVELQUICK PIN! It's the fastener with the unique "Slide and Lock" action that offers you value and versatility.

SPAENAUR INC. is the Exclusive Distributor in Canada.

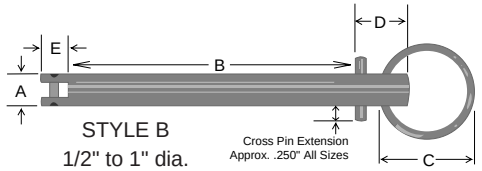
CATALOG 13

THE SWIVELQUICK PIN™



STYLE A to 7/16" dia.

300 Series
Stainless Steel
Delrin Clip Included



STYLE B
1/2" to 1" dia.
Cross Pin Extension
Approx. .250" All Sizes

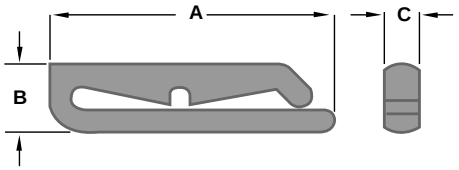
A PIN DIA. NOM. DECIMAL RANGE	3/16" .186/.181"	1/4" .248/.243"	5/16" .311/.306"	3/8" .373/.368"	7/16" .436/.431"	1/2"	5/8"	3/4"	1"
C HEAD DIAMETER RING O.D.	.320/.302"	.380/.365"	.440/.428"	.510/490"	.570/.552"	1-1/4"	1-1/4"	1-1/2"	1-1/2"
D HEAD THICKNESS	.070/.052"	.100/.084"	.100/.084"	.130/.115"	.160/.146"	.560"	.686"	.875"	.875"
E SLOT DEPTH	.196"	.196"	.315"	.315"	.441"	.436"	.587"	.587"	.587"
CLIP SIZE	01	01	02	02	03	03	04	04	04

B GRIP LENGTH	ORDER BY *SPAENAUR NUMBERS* LISTED BELOW								
1/2"	**233-840**	**233-848**	**233-858**						
3/4"	**233-841**	**233-849**	**233-859**	**233-870**				*Unit Package 5*	
7/8"				**233-871**					
1"	**233-843**	**233-851**	**233-860**	**233-872**	**233-882**	**233-894**			
1-1/8"	**233-844**	**233-852**	**233-861**	**233-883**	**233-873**				
1-1/4"	**233-845**	**233-853**	**233-862**	**233-874**	**233-884**	**233-895**	**233-905**		
1-3/8"	**233-846**	**233-854**	**233-863**	**233-875**	**233-885**				
1-1/2"	**233-847**	**233-855**	**233-864**	**233-876**	**233-886**	**233-896**	**233-906**	**233-916**	**233-927**
1-5/8"			**233-865**	**233-877**	**233-887**				
1-3/4"		**233-856**	**233-866**	**233-878**	**233-888**	**233-897**	**233-907**	**233-917**	**233-928**
1-7/8"				**233-879**	**233-889**				
2"		**233-857**	**233-867**	**233-880**	**233-890**	**233-898**	**233-908**	**233-918**	**233-929**
2-1/8"			**233-868**						
2-1/4"			**233-869**	**233-881**	**233-891**	**233-899**	**233-909**	**233-919**	**233-930**
2-1/2"					**233-892**	**233-900**	**233-910**	**233-920**	**233-931**
2-3/4"					**233-893**	**233-901**	**233-911**	**233-921**	**233-932**
3"						**233-902**	**233-912**	**233-922**	**233-933**
3-1/4"	*Unit Package 10*					**233-903**	**233-913**	**233-923**	**233-934**
3-1/2"						**233-904**	**233-914**	**233-924**	**233-935**
3-3/4"							**233-915**	**233-925**	**233-936**
4"								**233-926**	**233-937**
4-1/4"									**233-938**

SWIVELQUICK CLIP™

DELRIN 507 with UV INHIBITORS

- Use with style "A" and "B" pins.
- Self lubricating.
- Can be used in wide range of temperatures.
- PH range 4 - 9 (safe use).
- Durable, stable, tough, abrasion resistant.
- Shelf life of approx. 20 years.



SPECIFICATIONS FOR STANDARD CLIP SIZES

Unit Pkg. Qty. - 10

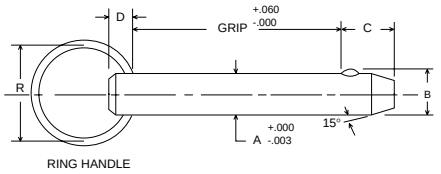
SPAENAUR No.		122-697	122-698	122-699	122-700
	Clip Size	01	02	03	04
A	**Overall Length**	.825"	1.240"	1.663"	2.718"
B	**Height**	.185"	.300"	.425"	.564"
C	**Width**	.089"	.150"	.210"	.304"

STEEL
Material: C 1144
Finish: Zinc Plated

STAINLESS STEEL
Ring: 303 St. Steel
Body: 302 St. Steel

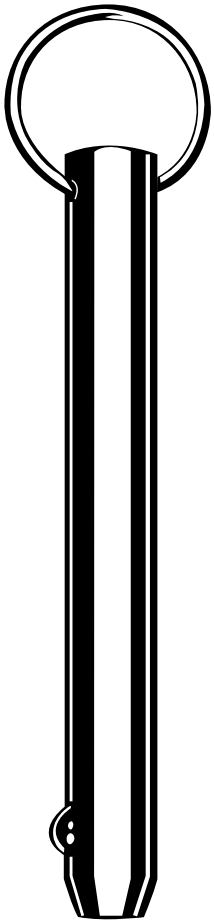
REGULAR STYLE
Quick Release Pins
with Spring loaded ball
Steel and Stainless Steel

Time Saving



E

(No shoulder)



SPAENAUR No's. STEEL	Pkg. Qty.	STAINLESS STEEL	Pkg. Qty.	A SHANK DIA.	GRIP (inches)	Dimensions in inches B	C	D	R
233-264	25	**233-800**	10	3/16"	1.00	.200	.200	.187	1.00
233-265	25	**233-801**	10		1.30				
233-266	25	**233-802**	10		1.80				
233-267	25	**233-803**	10		2.30				
233-268	10	**233-804**	10	1/4"	1.00	.286	.312	.250	1.00
233-269	10	**233-805**	10		1.30				
233-270	10	**233-806**	10		1.80				
233-271	10	**233-807**	10		2.30				
233-272	10	**233-808**	10		2.80				
233-273	10	**233-809**	10		3.20				
233-274	10	**233-810**	10		3.80				
233-276	10	**233-811**	10	5/16"	1.00	.358	.375	.250	1.00
233-277	10	**233-812**	10		1.20				
233-279	10	**233-813**	10		1.60				
233-300	10	**233-814**	10		2.30				
233-275	10	—	—		2.80				
233-287	10	**233-815**	10	3/8"	1.30	.426	.500	.250	1.00
233-288	10	**233-816**	10		1.60				
233-280	10	—	—		1.80				
233-289	10	**233-817**	10		2.50				
233-290	10	**233-818**	10		3.0				
233-291	10	**233-819**	10		3.50				
233-292	10	**233-820**	10		4.0				
233-297	10	**233-821**	5	7/16"	1.10	.496	.562	.250	1.00
233-298	10	**233-822**	5		1.50				
233-299	10	**233-823**	5		2.00				
233-308	10	**233-824**	5	1/2"	1.5	.570	.625	.312	1.25
233-309	10	**233-825**	5		2.0				
233-310	5	**233-826**	5		2.5				
233-311	5	**233-827**	5		3.0				
233-312	5	**233-828**	5		3.5				
233-313	5	**233-829**	5		4.0				
233-314	5	**233-830**	5		4.5				
233-315	5	**233-831**	5		5.0				
233-324	5	—	—	5/8"	2.30	.710	.750	.375	1.25
233-325	5	—	—		3.0				
233-323	5	**233-832**	1	3/4"	1.6	.856	.937	.375	1.50

CATALOG 13

STEEL

Material: C 1144
Finish: Zinc Plated

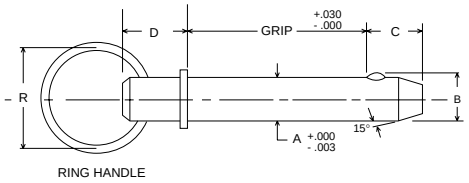
— and —

STAINLESS STEEL

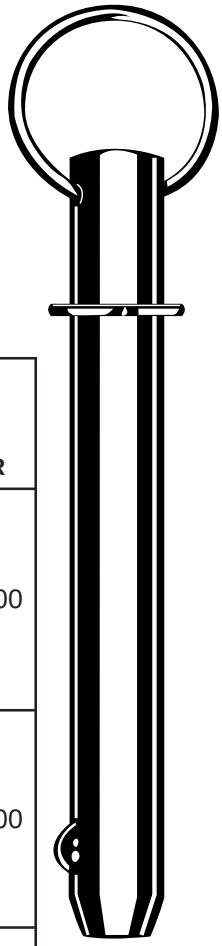
Centreless Ground
Ring: 303 Stainless Steel
Body: 302 Stainless Steel

"QR" HITCH PINS with spring loaded ball

Quick Release Pins



RING HANDLE



SHOULDER STYLE

Spaenaur No. STEEL	Approx. Single Shear Lbs.	Unit Pkg. Qty.	*Spaenaur No.* STAINLESS STEEL	Approx. Single Shear Lbs.	Unit Pkg. Qty.	A SHANK Dia.	Dimensions in Inches GRIP	B	C	D	R
233-404		10	**233-970**		5		1.0				
233-405		10	**233-971**		5		1.3				
233-406	4320	10	**233-972**	4870	5	**1/4"**	1.8	.286	.312	.750	1.00
233-407		10	**233-973**		5		2.3				
233-408		10	**233-974**		5		2.8				
233-409		10	**233-975**		5		1.3				
233-410		10	**233-976**		5		1.6				
233-411	9740	10	**233-977**	11020	5	**3/8"**	1.8	.426	.500	.750	1.00
233-412		10	**233-978**		5		2.5				
233-413		10	**233-979**		5		3.0				
233-414		5	**233-980**		1		1.5				
233-415		5	**233-981**		1		2.0				
233-416		5	**233-982**		1		2.5				
233-417	17290	5	**233-983**	19560	1	**1/2"**	3.0	.570	.625	1.062	1.25
233-418		5	**233-984**		1		3.5				
233-419		5	**233-985**		1		4.0				
233-316	27330	5	**233-833**	30850	1	**5/8"**	4.0	.710	.750	1.125	1.25
233-317		5	**233-834**		1		5.75				
233-318	39020	5	**233-835**	44020	1	**3/4"**	4.0	.856	.937	1.375	1.50
233-319		5	**233-836**		1		6.25				
233-322	53080	1	**233-837**	58970	1	**7/8"**	4.5	.996	1.000	1.500	1.50
233-320		1	**233-838**		1		7.0				
233-321	70190	1	**233-839**	79340	1	**1"**	7.0	1.140	1.250	1.500	1.50

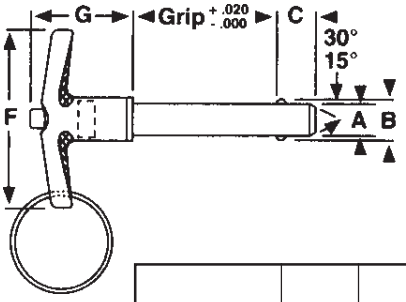
… used in construction, agricultural, marine, road, oil and mining machinery to secure bracket assemblies and facilitate change of attachments or accessories.

- **Trouble-free operation; easy, one-hand removal**
- **Dependable holding power in all applications**
- **Eliminate need for cotter pins and tools**
- **Solid body construction, high shear strength**
- **Permit quick fastening and disassembly**
- **Other Grip Lengths available on Special Order**

E

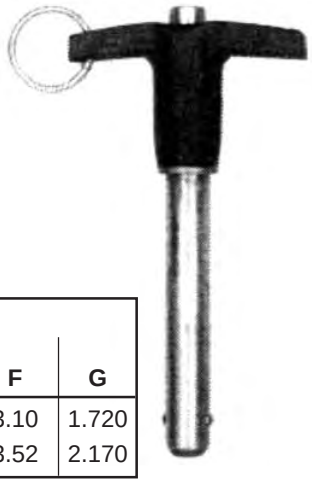
STEEL
Material: 4130 Alloy
Finish: Yellow Zinc Plated

"QR" HITCH PINS
Quick Release Ball Lock Pins



T - HANDLE
with push button release.

The T-handle of aluminum alloy allows for better gripping and use where force is needed for insertion and removal of pin.



SPAENAUR No.	Pkg. Qty.	A Shank Dia. (Nom.)	Dimensions in Inches Recommended Hole Size	Grip	B	C	F	G
233-350	1	3/4"	.757/.750	3.5	.887	.670	3.10	1.720
233-351	1	1"	1.010/1.000	4.0	1.219	.890	3.52	2.170

Other sizes & grip lengths in stainless steel available on special order. L-Handle Style also available upon request.

Forged Shackles

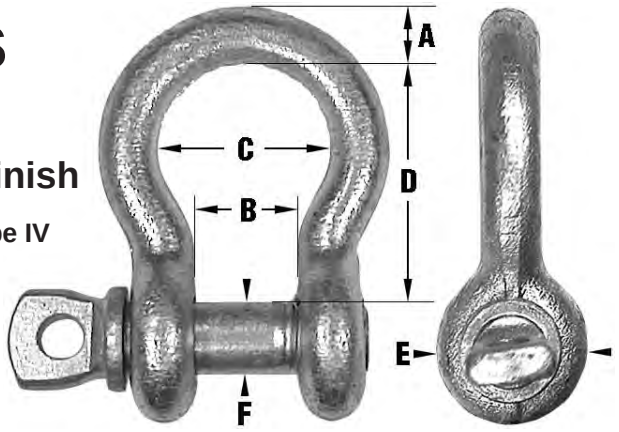
Screw Pin Anchor Type, Class 1*

C-1035 Steel - Hot Dipped Galvanized Finish

***Shackles meet Federal Specifications RRC-271b Type IV**

Size and workload are permanently marked on all shackles. Loads are based on a safety factor of 5 to 1. When tested, all shackles are pulled at a uniform rate of speed in a direct tension.

WARNING: Any deviations as angular lifts, shock loads, modification of the basic forging, etc. will result in drastically reduced maximum loads.



Order by SPAENAUR Numbers listed below	Max. Load Tons	All Dimensions in Inches Size Dia. (A)	Width @ Eyes (B)	Tol. +/-	Width @ Bow (C)	Length (D)	Tol. +/-	O.D. Eyes (E)	Pin or Bolt Dia. (F)	Unit Pkg. Qty.
121-051	**1/3**	3/16	3/8	1/16	9/16	7/8	1/16	5/8	1/4	10
121-052	**1/2**	1/4	15/32	1/16	3/4	1-1/8	1/16	3/4	5/16	10
121-053	**3/4**	5/16	17/32	1/16	15/16	1-1/4	1/16	7/8	3/8	10
121-054	**1**	3/8	21/32	1/16	1-1/8	1-7/16	1/8	1	7/16	10
121-055	**1-1/2**	7/16	23/32	1/16	1-5/16	1-11/16	1/8	1-1/8	1/2	10
121-056	**2**	1/2	13/16	1/16	1-1/2	1-15/16	1/8	1-1/4	5/8	10
121-057	**3-1/4**	5/8	1-1/16	1/16	1-7/8	2-1/2	1/8	1-11/16	3/4	1
121-058	**4-3/4**	3/4	1-1/4	1/16	2	3	1/4	1-7/8	7/8	1
121-059	**6-1/2**	7/8	1-7/16	1/16	2-5/8	3-1/4	1/4	2-1/8	1	1
121-060	**8-1/2**	1	1-11/16	1/16	2-3/4	3-3/4	1/4	2-1/2	1-1/8	1
121-061	**9-1/2**	1-1/8	1-13/16	1/16	2-15/16	4-1/4	1/4	2-5/8	1-1/4	1
121-062	**12**	1-1/4	2	1/16	3-1/4	4-1/2	1/4	3	1- 3/8	1
121-063	**14**	1-3/8	2-1/4	1/8	3-1/2	5-1/4	1/4	3-1/4	1-1/2	1
121-064	**17**	1-1/2	2-3/8	1/8	3-3/4	5-3/4	1/4	3-1/2	1-5/8	1

ROD ENDS or CLEVIS YOKES see page E89.

Quick Release Pins

Quick release pins are the quality answer where safety, speed of removal and dependability are of paramount importance.

"T" Handle Style

Available in two materials.

2 - Ball Construction

Corrosion Resistant Steel

Passivated

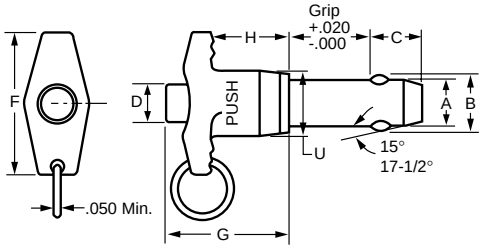
Shank and Spindle 17-4 PH CRES per AMS 5643 or 15-7 PH MO Per AMS 5657.

4130 Alloy Steel

Per AMS 6360

Single Acting Pins

Positive locking pins, firmly installed until a simple "Push" unlocks the balls for quick release.



Priced Singly

SPAENAUR No. Corrosion Resistant Steel	Alloy Steel	Nom. Dia.	Grip Lgth.	Recom. Hole Dia. Max./Min.	Dimensions in Inches A Max./Min.	B ±.005	C Max.	D Min.	F Max.	G Max.	H Min.	U Min.	Min. Pull Out Load Capabilities
233-952	—	1/4"	1/2"	.254/.250	.2485/.2470	.289	.290	.250	1.815	1.270	.800	.380	230 lbs.
233-953	233-553		1"										
233-954	—		1-1/2"										
233-955	—		2"										
233-956	233-556		2-1/2"		CRS Double Shear Strength 9,200 Lb. 4130 Alloy Steel Double Shear Strength 8,200 Lb.								
233-957	—	3/8"	1"	379/.375.	3735/.3720	.440	.365	.300	2.065	1.450	.850	.510	575 lbs.
233-958	233-558		1-1/2"										
233-959	233-559		2"										
233-960	233-560		2-1/2"		CRS Double Shear Strength 20,600 Lb. 4130 Alloy Steel Double Shear Strength 18,400 Lb.								

"L" Handle Style

Available in two materials.

2 - Ball Construction

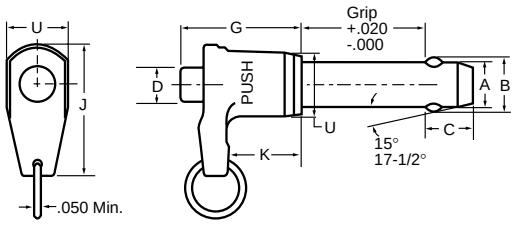
Corrosion Resistant Steel

Passivated

Shank and Spindle 17-4 PH CRES per AMS 5643 or 15-7 PH MO Per AMS 5657.

4130 Alloy Steel

Per AMS 6360



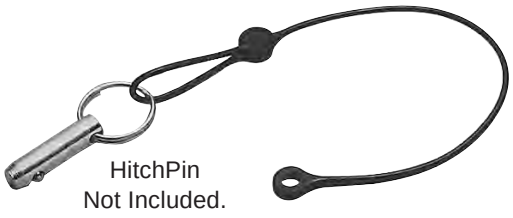
Priced Singly

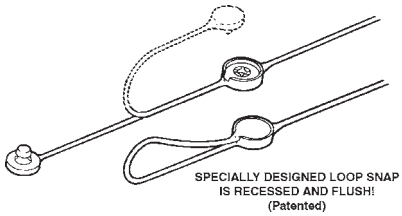
SPAENAUR No. Corrosion Resistant Steel	Alloy Steel	Nom. Dia.	Grip Lgth.	Recom. Hole Dia. Max./Min.	Dimensions in Inches A Max./Min.	B ±.005	C Max.	D Min.	F Max.	G Max.	H Min.	U Min.	Min. Pull Out Load Capabilities
233-961	—	1/4"	1/2"	.254/.250	.2485/.2470	.289	.290	.250	1.270	1.800	.760	.380	230 lbs.
233-962	—		1"										
233-963	233-563		1-1/2"										
233-964	—		2"										
233-965	233-565		2-1/2"		CRS Double Shear Strength 9,200 Lb. 4130 Alloy Steel Double Shear Strength 8,200 Lb.								
233-966	—	3/8"	1"	379/.375.	3735/.3720	.440	.365	.300	1.450	2.030	.850	.510	575 lbs.
233-967	—		1-1/2"										
233-968	—		2"										
233-969	—		2-1/2"		CRS Double Shear Strength 20,600 Lb. 4130 Alloy Steel Double Shear Strength 18,400 Lb.								

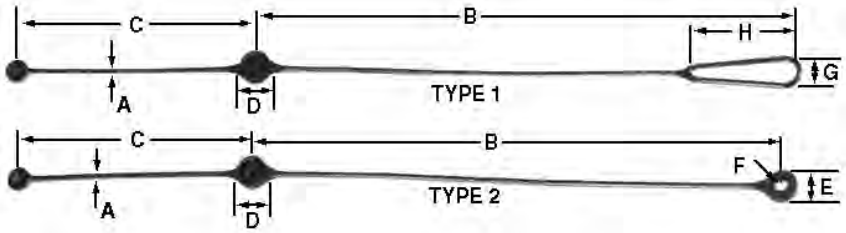
Other Handle Styles and Sizes available on request.

Nylon Lanyards

Keep pins, fasteners and other components where they belong with Nylon Lanyards. This low-cost alternative to steel lanyards offers light-duty retention and loss prevention. Available from stock in various styles and lengths. Made from "Super Tough" ST801 Zytel Nylon.


HitchPin
Not Included.





U-Lock Style

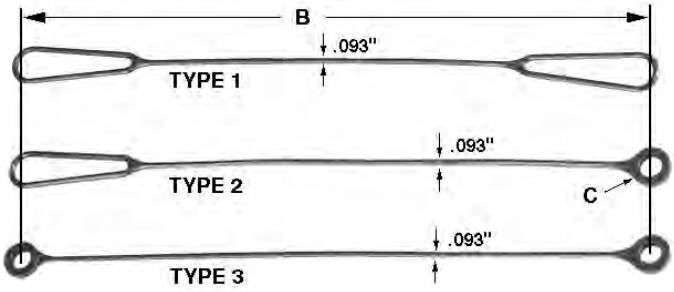
One end is a loop, supplied open. Attach to component, then "snap" together! Loop is permanently locked. Available with either a molded loop or eyelet on the other end.

Spaenaur No.	Type	A	B	C	D	E	F	G	H	Approx. Break Strength	Assembled Length
086-049	1	.093"	8"	4"	.500"	–	–	.340	1.50	35 lbs.	10"
086-042	2	.093"	8"	4"	.500"	.473"	.200"	–	–	35 lbs.	10"
086-043	2	.093"	8"	4"	.500"	.473"	.260"	–	–	35 lbs.	10"

Fixed End Style

Supplied in either Type 1, Type 2, or Type 3 configurations with molded (fixed) loops and eyelets. Attach loop to rings of pins being retained. Rivet eyelet to equipment. Or, devise your own methods of attachment. These three styles offer limitless possibilities!

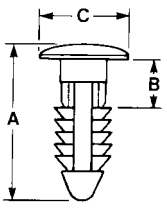
Spaenaur No.	TYPE	B O/A Lgth.	C Eye Hole
086-050	Type 1	6.00"	N/A
086-051	Type 1	8.00"	N/A
086-052	Type 2	6.00"	.260"
086-053	Type 2	8.00"	.260"
086-054	Type 2	12.00"	.260"
086-055	Type 3	6.00"	.260"
086-056	Type 3	8.00"	.260"



Press-Lock Rivets

Press-Lock Rivets are a one-piece moulded "rivet" to be used in conjunction with Nylon Lanyards. Insert through eyelet end of Lanyard and press into threaded, non-threaded, drilled or punched holes. Ribs deflect upon insertion and spring back for a secure lock. Made from 6/6 nylon in natural colour.

Spaenaur No.	Recommended Hole Size	A	B	C
086-044	.250"	.625"	.125"	.500"
086-045	.250"	.750"	.250"	.500"



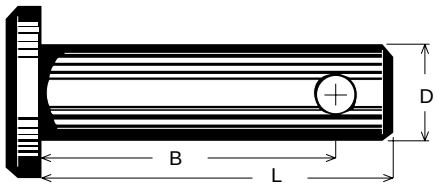
CATALOG 13

C-1008/C-1018 Grade

STEEL

Case HARDENED

Finish - Zinc Chromate or Dichromate (our option)



Cross-drilled & counter-sunk for cotter pin.

See page E49 for COTTER PINS

SAE Standard Sizes

SPAENAUR No.	Diameter D	Length Under Head B	Length Under Head L	Hole Diameter	Use Cotter Pin	Unit Package Quantity
233-002	**3/16"**	0.504"-0.484"	0.580"	.080"	1/16"	100
233-003	**1/4"**	0.692"-0.672"	0.780"	.080"	1/16"	100
233-004	**5/16"**	0.832"-0.812"	0.940"	.111"	3/32"	100
233-005	**3/8"**	0.958"-0.938"	1.060"	.111"	3/32"	100
233-006	**7/16"**	1.082"-1.062"	1.190"	.111"	3/32"	50
233-007	**1/2"**	1.223"-1.203"	1.395"	.143"	1/8"	50
233-008	**5/8"**	1.473"-1.453"	1.610"	.143"	1/8"	25
233-009	**3/4"**	1.739"-1.719"	1.910"	.174"	5/32"	25

Other Stock Sizes to IFI Standards except for Hole Dia. and point style.

Hole Dia. Tol. on Pins listed below +.010" to -.005"

233-001	**1/8"** -.005	3/8"	7/16"	1/16"	3/64"	100
B-1942	**3/16"**	17/32"	5/8"	3/32"	1/16"	100
233-012		1-1/16"	1-3/16"			100
233-011		1-1/2"	1-5/8"'			100
233-010		2-13/32"	2-1/2"			100
B-2036	**1/4"**	13/32"	1/2"	3/32"	1/16"	100
B-359		3/4"	27/32"			50
B-1718		29/32"	1"			50
B-360		1"	1-3/32"			50
B-1719		1-5/32"	1-1/4"			50
B-1710		1-9/32"	1-3/8"			50
B-1720		1-13/32"	1-1/2"			50
B-1721		1-17/32"	1-5/8"			50
B-1772		1-5/8"	1-3/4"			50
B-1801		1-29/32"	2"			50
B-1638	**5/16"**	9/16"	3/4"	1/8"	3/32"	50
B-1711		19/32"	3/4"			50
233-018		21/32"	27/32"			50
B-1773		23/32"	13/16"			50
1052		27/32"	15/16"			50
B-1712		13/16"	31/32"			50
1057		7/8"	1"			50
B-361		15/16"	1-1/16"			50
B-362		1"	1-1/8"			50
B-363		1-1/8"	1-1/4"			50
1058		1-1/4"	1-3/8"			50
B-364		1-3/8"	1-1/2"			50
B-365		1-7/16"	1-9/16"			50
B-367		1-9/16"	1-11/16"			50
1056		1-5/8"	1-3/4"			50
B-368		1-3/4"	1-7/8"			50
B-1971		2-19/32"	2-3/4"			50

Cont'd. next page

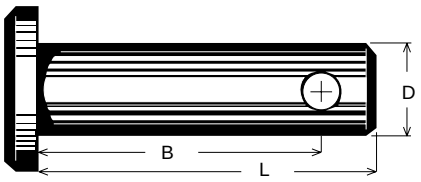
See page E88 for ASSORTMENT.

See page E89 for CLEVIS YOKES.

C-1008/C-1018 Grade

STEEL

Case HARDENED



Cross-drilled & counter-sunk for cotter pin.

See page E49 for COTTER PINS

Finish - Zinc Chromate or Dichromate (our option)

(Continued) Other Stock Sizes

Hole Dia. Tol. on Pins listed below +.010" to -.005"

E

SPAENAUR No.	Diameter D	Length under head B	Length under head L	Hole Diameter	Use Cotter Pin	Unit Package Quantity
B-370	**3/8"**	5/8"	3/4"	5/32"	3/32"	50
B-371		3/4"	7/8"			50
B-372		7/8"	1"			50
B-1722		15/16"	1-3/32"			50
1059		1"	1-1/8"			50
B-373		1-1/8"	1-1/4"			50
B-374		1-1/4"	1-3/8"			50
B-375		1-5/16"	1-7/16"			50
B-376		1-3/8"	1-1/2"			50
1395		1-1/2"	1-5/8"			50
B-377		1-5/8"	1-3/4"			50
B-378		1-7/8"	2"			50
***B-1928**		2"	2-1/8"			25
B-379A		2-1/8"	2-1/4"			25
B-379		2-1/4"	2-3/8"			25
B-1970		2-15/32"	2-5/8"			25
B-1981		3-1/4"	3-3/8"			25
B-380	**7/16"**	53/64"	63/64"	5/32"	3/32"	25
B-381		1"	1-5/32"			25
B-382		1-1/8"	1-9/32"			25
1054		1-1/4"	1-13/32"			25
B-383		1-3/8"	1-17/32"			25
B-384		1-1/2"	1-21/32"			25
1055		1-3/4"	1-29/32"			25
233-019		1-3/4"	1-29/32"	.119-.104"	7/64"	25
B-1753	**1/2"**	1-3/32"	1-1/4"	5/32"	1/8"	25
B-385		1-3/8"	1-17/32"			25
B-386		1-5/8"	1-25/32"			25
B-1754		2-3/32"	2-1/4"			25
B-1874		2-19/32"	2-3/4"			25
B-1805		3.343"	3-1/2"			25
233-065		3-27/32"	4"			25
B-1802	**5/8"**	1-11/32"	1-1/2"	5/32"	1/8"	25
B-1803		1-27/32"	2"			25
B-1804		3-11/32"	3-1/2"			25
B-1994	**1"**	3-3/64"	3-1/4"	13/64"	3/16"	10

*Hole Diameter .112"

Slotted Round Head Pin

Low Carbon Steel
Zinc Plated

Note: Items will be discontinued when present stock is sold.

Unit Pkg. Quantity 100 (except 233-017 U.P. 50.)

SPAENAUR No.	Nominal Diameter	Length (L)	Pin Diameter (A)	Head Diameter	Head Height (H)	Slot Width (J)	Slot Depth (T)
233-014	3/16"	1-1/2" +/- .060"	.1865"	.335"	.140"	.055"	.076"
233-015	3/16"	1-7/8" +/- .060"	.1865"	.335"	.140"	.055"	.076"
233-016	3/16"	2-1/4" +/- .060"	.1865"	.335"	.140"	.055"	.076"
233-017	3/16"	2-1/2" +/- .090"	.1865"	.335"	.140"	.055"	.076"

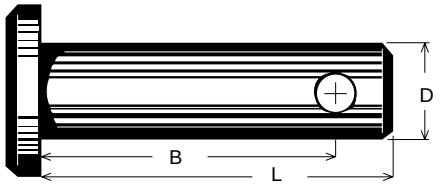
CATALOG 13

300 Series

STAINLESS STEEL

NOT HARDENED

Plain Finish



Cross-drilled & counter-sunk for cotter pin.

See page E49 for COTTER PINS

SPAENAUR No.	Nom. Diameter D	Length under head B	Length under head L	Hole Diameter	Use Cotter Pin	Unit Package Quantity
234-002		13/32"	1/2"			50
234-003	**3/16"**	21/32"	3/4"	.094"	1/16"	50
234-004	(Max. 0.186"	1-5/32"	1-1/4"			50
234-005	Min. 0.181")	1-21/32"	1-3/4"			50
234-006		13/32"	1/2"			50
234-007		21/32"	3/4"			50
234-008	**1/4"**	1-1/32"	1-1/8"	.094"	1/16"	50
234-009	(Max. 0.248"	1-17/32"	1-5/8"			50
234-010	Min. 0.243")	1-29/32"	2"			50
234-011		19/32"	3/4"	.141"		50
234-012		27/32"	1"	.141"		50
234-013	**5/16"**	1-3/32"	1-1/4"	.156"	3/32"	50
234-001	(Max. 0.311"	1-5/8"	1-25/32"	.109"		50
234-014	Min. 0.306")	1-27/32"	2"	.156"		50
234-015		2-11/32"	2-1/2"	.156"		50
234-016		19/32"	3/4"			25
234-017		27/32"	1"			25
234-018		1-3/32"	1-1/4"			25
234-019	**3/8"**	1-11/32"	1-1/2"	.156"	3/32"	25
234-020	(Max. 0.373"	1-19/32"	1-3/4"			25
234-021	Min. 0.368")	1-27/32"	2"			10
234-022		2-11/32"	2-1/2"			10
234-023		27/32"	1"			10
234-024		1-11/32"	1-1/2"			10
234-025	**1/2"**	1-27/32"	2"	.156"	3/32"	10
234-026	(Max. 0.496"	2-11/32"	2-1/2"			10
234-027	Min. 0.491")	2-27/32"	3"			10

STEEL

Material: C 1213
Finish: Zinc Plated

CLEVIS PINS

Complete with 2 Hair Pin Cotter Clips.

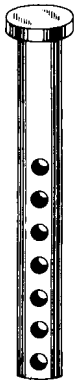
SPAENAUR No.	Diameter	Usable Length	Overall Length	Unit Pkg. Quantity
233-081	1"	2-1/8"	2-7/8"	5
233-082	1"	2-3/4"	3-1/2"	5
233-083	1"	2-7/8"	3-5/8"	5
233-084	1"	3-1/4"	4"	5

TENSILE STRENGTH 78,000 PSI MINIMUM
YEILD 60,000 PSI MINIMUM

E

UNIVERSAL CLEVIS PINS

C1018 Steel - Zinc Chromate Plated (Not Hardened)



*C1010 Steel

Unit Package Quantity 10

(Number of holes may vary)

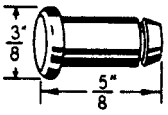
P.C. 233

SPAENAUR No.	Dia.	Length Under Head	Dia. of Holes
B-1776	1/4"	2"	7/64"
B-1777	5/16"	2"	7/64"
B-1778	3/8"	2"	9/64"
B-1779	7/16"	2"	7/64"
B-1780	7/16"	2-1/2"	7/64"
B-1921	7/16"	3"	7/64"
B-1781	1/2"	2"	9/64"
***B-1782**	1/2"	2-1/2"	5/32"
B-1922	1/2"	3"	9/64"
B-1923	5/8"	3"	5/32"
B-1929	3/4"	3"	9/64"

MISCELLANEOUS CLEVIS PINS

B-1679

C-1008 Hardened STEEL
Zinc Plated



Pin diameter: 1/4"
Effective length: 7/16"

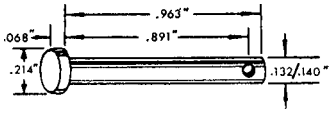
Unit Package 50

Use with Hairpin Cotter No. B-1717

Groove Dia: 3/16"

B-1930

Grade C1010
Hardened STEEL
Zinc Plated



Unit Package 50

Hole Dia. - .068"

ASSORTMENT
ASSORTIMENT
B-555

Clevis Pin Assortment

Steel - Zinc Plated

Grade C-1008 / C-1018 Hardened

32 Sizes - 340 Pieces

Diameters 1/4", 5/16", 7/16" and 1/2" with a good range of popular lengths.

Furnished in LARGE SIZE grey enamelled steel drawer with "scooped" bins.

Drawer will fit into the Slide Racks shown on page A3.

Shipping weight 10.7 kg (23-1/2 lbs.)

P.C. 805

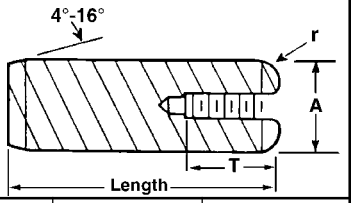
Priced Singly

DOWEL PULL PINS

with Internal Threads

SPECIFICATIONS:

Material: Alloy steel, case-hardened to 58-62 Rockwell C Scale
Precision ground: .0002 over nominal ±.0001
Surface finish: 8 Micro. In. Max.



NOM. O.D.	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	1"
A	.2501-.2503	.3126-.3128	.3751-.3753	.4376-.4378	.5001-.5003	.6251-.6253	.7501-.7503	1.0001-1.0003
INSIDE TAP	8-32	10-32	10-32	1/4"-20	1/4"-20	1/4"-20	5/16"-18	5/16"-18
T	21/64"	21/64"	3/8"	1/2"	1/2"	1/2"	5/8"	3/4"
R	1/16"	1/16"	5/64"	3/32"	7/64"	1/8"	1/8"	1/8"
Length	**ORDER BY *SPAENAUR No's.* LISTED BELOW**							
3/4"	**238-1350**	**238-1354**	**238-1358**		**238-1366**			
1"	**238-1351**	**238-1355**	**238-1359**	**238-1363**	**238-1367**	**238-1372**		
1-1/4"								
1-1/2"	**238-1352**	**238-1356**	**238-1360**	**238-1364**	**238-1368**	**238-1373**	**238-1375**	
1-3/4"								
2"	**238-1353**	**238-1357**	**238-1361**	**238-1365**	**238-1369**	**238-1374**	**238-1376**	**238-1378**
2-1/4"								
2-1/2"			**238-1362**		**238-1370**		**238-1377**	
2-3/4"								
3"					**238-1371**			**238-1379**
3-1/2"	*UNIT PACKAGE 25*						*UNIT PACKAGE 5*	**238-1383**
4"								**238-1384**
5"			*UNIT PACKAGE 10*					**238-1385**

CATALOG 13

STEEL

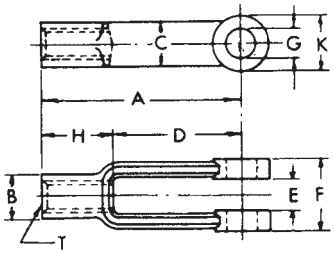
DROP FORGED

ADJUSTABLE YOKE ENDS
(ROD ENDS or CLEVIS YOKES)

Drop forged and machined steel - plain finish.
Fine thread UNF-2, Right-hand.

S.A.E. Standard - Light Series

Unit Package 5 (one size)



SPAENAUR No.	T-Thread	DIMENSIONS IN INCHES A	B	C	D	E	F	G	H	K	Use With Clevis Pin No.	Cotter Pin No.
B-1934	1/4"-28 NF	2"	7/16"	7/16"	1 1/4"	9/32"	5/8"	1/4"	3/4"	1/2"	233-003	CP-1
B-1935	5/16"-24 NF	2 1/4"	1/2"	1/2"	1 7/16"	11/32"	3/4"	5/16"	13/16"	19/32"	233-004	CP-9
B-1936	3/8"-24 NF	2 1/2"	5/8"	5/8"	1 5/8"	7/16"	7/8"	3/8"	7/8"	11/16"	233-005	CP-9
B-1937	7/16"-20 NF	2 7/8"	23/32"	23/32"	1 7/8"	1/2"	1"	7/16"	1"	13/16"	233-006	CP-108
B-1938	1/2"-20 NF	3"	13/16"	13/16"	1 7/8"	9/16"	1 1/8"	1/2"	1 1/8"	15/16"	233-007	CP-17
699-030	5/8"-18 NF	4 15/16"	1 1/16"	1 1/16"	3 11/16"	11/16"	1 3/8"	5/8"	1 1/4"	1 3/16"	233-008	CP-17
699-031	3/4"-16 NF	6 1/16"	1 1/4"	1 1/4"	4 9/16"	13/16"	1 5/8"	3/4"	1 1/2"	1 7/16"	233-009	CP-25

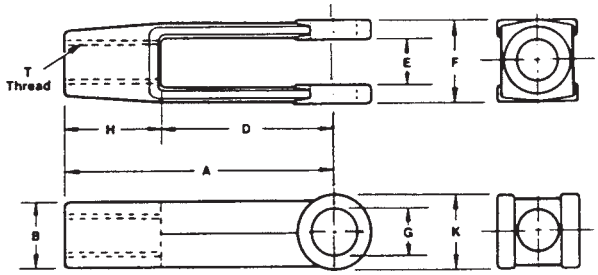
P.C. 699

Clevis Pins and Cotter Pins must be ordered separately.

Fiberglass Reinforced YOKES with spring steel inserts

Right-hand UNF - 2B thread.

Dimensions to S.A.E. Standards.



Made of a special compound composed of 40% fiberglass and 60% nylon, with heat treated, spring steel reinforced inserts. The metal insert makes the yoke unusually strong.

Made in black only, the yoke has 5 dimensional variations to accommodate rod diameters from 10-32 through 1/2"-20.

STRONG — LIGHT WEIGHT

SPAENAUR No.	T-Thread	DIMENSIONS IN INCHES A	B	C	D	E	F	G	H	K	Use With Clevis Pin No.	Cotter Pin No.
695-001	10-32 NF	1 9/16"	5/16"	-	1"	3/16"	7/16"	3/16"	9/16"	3/8"	233-002	CP-1
695-002	1/4"-28 NF	2"	7/16"	-	1 1/4"	9/32"	5/8"	1/4"	3/4"	1/2"	233-003	CP-1
695-003	5/16"-24 NF	2 1/4"	1/2"	-	1 7/16"	11/32"	3/4"	5/16"	13/16"	19/32"	233-004	CP-9
695-004	3/8"-24 NF	2 1/2"	5/8"	-	1 5/8"	7/16"	7/8"	3/8"	57/64"	11/16"	233-005	CP-9
695-005	1/2"-20 NF	3"	13/16"	-	1 7/8"	9/16"	1 1/8"	1/2"	1 1/8"	15/16"	233-007	CP-17

Unit Package 5 (One Size)

Clevis Pins and Cotter Pins must be ordered separately.

More ROD ENDS on pages B322 and B323

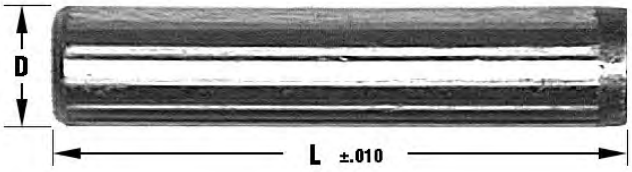
More CLEVIS and COTTER PINS on pages E49 and E85.

ALLOY STEEL

Not Plated

DOWEL PINS

Precision ground
Case-hardened



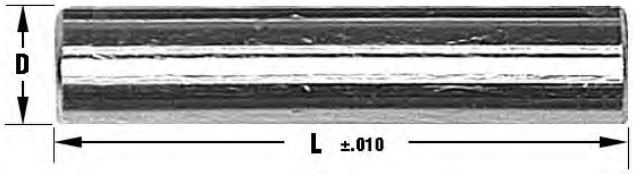
Nom. Dia.	1/16"	3/32"	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	Additional Sizes available
Max. D	.0628"	.0941"	.1253"	.1878"	.2503"	.3128"	.3753"	.4378"	.5003"	
Min. D	.0626"	.0939"	.1251"	.1876"	.2501"	.3126"	.3751"	.4376"	.5001"	
Lengths	**ORDER BY *SPAENAUR* NUMBERS LISTED BELOW**									
1/4	**238-1338**		**238-1310**							**5/8"** Nom. Dia. Max. D .62553" Min. D .6251" **238-1387** Length 3/4" **238-091** Length 3" **238-048** Length 3-1/2"
3/8	**238-1339**	**238-1343**	**238-018**							
1/2	**238-1340**	**238-1344**	**238-019**	**238-028**	**238-037**	**238-049**	**238-061**			
5/8			**238-020**	**238-029**	**238-038**	**238-050**	**238-062**		**238-1386**	
3/4	**238-1341**	**238-1345**	**238-021**	**238-030**	**238-039**	**238-051**	**238-063**			
7/8			**238-022**	**238-031**	**238-040**	**238-052**	**238-064**			
1	**238-1342**		**238-023**	**238-032**	**238-041**	**238-053**	**238-065**	**238-073**	**238-081**	
1-1/4		**238-1346**	**238-024**	**238-033**	**238-042**	**238-054**	**238-066**	**238-074**	**238-082**	
1-1/2			**238-025**	**238-034**	**238-043**	**238-055**	**238-067**	**238-075**	**238-083**	
1-3/4			**238-026**	**238-035**	**238-044**	**238-056**	**238-068**	**238-076**	**238-084**	**3/4"** Nom. Dia. Max. D .7503" Min. D .7501" **238-093** Length 1-1/2" **238-1380** Length 3"
2			**238-027**	**238-036**	**238-045**	**238-057**	**238-069**	**238-077**	**238-085**	
2-1/4					**238-046**	**238-058**	**238-070**		**238-086**	
2-1/2					**238-047**	**238-059**	**238-071**	**238-079**	**238-087**	
2-3/4					**238-002**	**238-1382**			**238-1381**	
3			**238-090**		**238-003**	**238-060**	**238-072**	**238-080**	**238-088**	
3-1/2										
4					**238-092**				**238-089**	
	Unit Package - 100							*Unit Package - 20*		*Unit Pkg.10*

Precision ground after hardening to ±.0001" O.D. Surface Finish - 8 Micro In. max. Material - Tough Alloy
Heat Treat - Case-hardened - RC 58-62 at surface, Case Depth - 1/8 dia. and up: .020-.030,
under 1/8 dia.: .010-.020, Core Hardness - RC 50-54.

18-8 Stainless Steel

DOWEL PINS

Precision ground



Nom. Dia.	1/16"	3/32"	1/8"	3/16"	1/4"	5/16"	3/8"	7/16"	1/2"	Additional Sizes available
Max. D	.0628"	.0941"	.1253"	.1878"	.2503"	.3128"	.3753"	.4378"	.5003"	
Min. D	.0626"	.0939"	.1251"	.1876"	.2501"	.3126"	.3751"	.4376"	.5001"	
Lengths	**ORDER BY *SPAENAUR* NUMBERS LISTED BELOW**									
1/4			**238-802**							**1/2"** (U.P.-20) Max. D .5000" Min. D .4999" Length - 1.00" ▲**238-801**
3/8			**238-803**	**238-807**						
1/2			**238-804**	**238-808**	**238-812**					
3/4			**238-805**	**238-809**	**238-813**	**238-817**	**238-821**			
1			**238-806**	**238-810**	**238-814**	**238-818**	**238-822**		**238-825**	
1-1/4			**238-829**							
1-1/2				**238-811**	**238-815**	**238-819**	**238-823**		**238-826**	**1/2"** (U.P.-20) Max. D .5000" Min. D .4998" Length - 1.12" ■**238-001**
2					**238-816**	**238-820**	**238-824**		**238-827**	
Unit Package - 100						*Unit Package - 50*		*Unit Package - 25*		

▲303 Stainless Steel
■8620 Steel, Plain Finish

DOWEL PULL PINS with Internal Threads on page E88.

ASSORTMENT / ASSORTIMENT 805-476

INCH SIZES

ALLOY STEEL
Not Plated
DOWEL PINS
24 Sizes 410 Pieces

Precision ground - case-hardened

Contains sizes from 1/8" dia. x 1/2" long to 7/16" dia. x 2" long
Shipping Weight: 5.33 kg (11-3/4 lbs.)

E

ASSORTMENT / ASSORTIMENT 805-473

DIN 7 METRIC

STEEL
Not Plated
DOWEL PINS
24 Sizes 410 Pieces

m6 Tolerance - NOT HARDENED

Contains diameters M3 to M10, lengths to 60 mm

See pages E94 and E95 for full line.

ASSORTMENT / ASSORTIMENT 805-484

DIN 6325 METRIC

STEEL
Not Plated
DOWEL PINS
24 Sizes 410 Pieces

Precision ground Tol. m6 - HARDENED HRC 60 ±2

Contains diameters M1.5 to M12, lengths to 60 mm

Shipping Weight: 4.42 kg (9-3/4 lb.)

See pages E92 and E93 for full line.

ABOVE THREE ASSORTMENTS each come in a REGULAR SIZE welded steel drawer with hinged lid, and finished in grey enamel. Drawers will fit into the Slide Racks shown on page A2.

CATALOG 13

All Assortments are Priced Singly.

Metric DOWEL PINS – Steel

HARDENED – Not Plated

DIN 6325 Precision Ground Tol. m6
~ DIN EN ISO 8734 HRC 60 ±2

E

Nom. Dia.	0.8 mm	1 mm	1.5 mm	2 mm	2.5 mm	3 mm	4 mm
Length (mm)	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW						
2							
3					*Continued on next page…*		
4		**238-280**	**238-286**	**238-1335**			
5	**238-277**	**238-281**	**238-287**	**238-298**			
6		**238-282**	**238-100**	**238-103**	**238-272**	**238-112**	**238-978**
8		**238-283**	**238-101**	**238-104**	**238-960**	**238-113**	**238-124**
10		**238-284**	**238-265**	**238-105**	**238-961**	**238-114**	**238-125**
12		**238-099**	**238-102**	**238-106**	**238-962**	**238-115**	**238-126**
14			**238-288**	**238-107**	**238-963**	**238-116**	**238-127**
16			**238-289**	**238-108**	**238-964**	**238-117**	**238-128**
18			**238-290**	**238-109**	**238-965**	**238-118**	**238-129**
20			**238-291**	**238-110**	**238-959**	**238-119**	**238-130**
22				**238-271**			
24			**238-292**	**238-299**	**238-270**	**238-120**	**238-131**
26							**238-979**
28			**238-293**	**238-798**	**238-285**	**238-973**	**238-132**
30			**238-294**	**238-799**	**238-966**	**238-121**	**238-133**
32				**238-957**	**238-967**	**238-122**	**238-980**
36			**238-296**	**238-958**	**238-968**	**238-974**	**238-981**
40			**238-297**	**238-111**	**238-969**	**238-123**	**238-134**
45					**238-970**	**238-975**	**238-982**
50					**238-971**	**238-976**	**238-135**
60						**238-977**	**238-983**
70							**238-984**
80							**238-985**
90							
	Unit Package - 100						

See page E91 for Assortment 805-484.

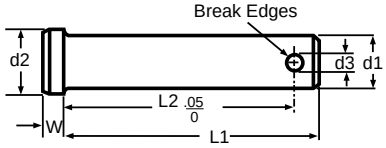
DIN 1434 **DIN 1435**

Steel METRIC CLEVIS PINS

Type B – with split pin hole

Dimensions in millimetres

SPAENAUR No.	DIN	Finish	d1 h11 Tol.	d2	d3	L1	L2	W	*Unit Pkg. Quantity*
233-401	1434	Zinc Plated	10	14	3.2	25	20	2	50
233-403	1434	Yellow Zinc	14	19	4	40	35	3	50
233-069YZ	1435	Yellow Zinc	16	24	4	55	50	5	10



CATALOG 13

Chamfered one end

Dimensions shown are subject to normal commercial tolerances.

Nom. Dia.	5 mm	6 mm	8 mm	10 mm	12 mm	16 mm	20 mm
Length (mm)	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW						
2							
3	...*Continued from previous page*						
4							
5							
6							
8	**238-986**						
10	**238-136**	**238-142**					
12	**238-137**	**238-143**					
14	**238-138**	**238-144**	**238-157**				
16	**238-139**	**238-145**	**238-158**	**238-173**			
18	**238-140**	**238-146**	**238-159**	**238-266**			
20	**238-141**	**238-147**	**238-160**	**238-174**	**238-188**		
22							
24	**238-987**	**238-148**	**238-161**	**238-175**	**238-189**		
26							
28	**238-988**	**238-149**	**238-162**	**238-176**	**238-190**		
30	**238-989**	**238-150**	**238-163**	**238-177**	**238-191**		
32	**238-990**	**238-151**	**238-164**	**238-178**	**238-192**	**238-017**	
36	**238-991**	**238-152**	**238-165**	**238-179**	**238-1008**	**238-1013**	
40	**238-992**	**238-153**	**238-166**	**238-180**	**238-193**	**238-268**	**238-273**
45	**238-993**	**238-154**	**238-167**	**238-181**	**238-194**	**238-269**	**238-1023**
50	**238-994**	**238-998**	**238-168**	**238-182**	**238-195**	**238-1014**	**238-1024**
55		**238-004**	**238-1003**	**238-1006**	**238-1009**	**238-1015**	
60	**238-995**	**238-155**	**238-169**	**238-183**	**238-196**	**238-1016**	**238-1025**
70	**238-996**	**238-156**	**238-170**	**238-184**	**238-197**	**238-1017**	**238-267**
80	**238-997**	**238-999**	**238-171**	**238-185**	**238-198**	**238-1018**	**238-1026**
90		**238-1000**	**238-1004**	**238-1007**	**238-1010**	**238-1019**	**238-1027**
100		**238-1001**	**238-172**	**238-186**	**238-199**	**238-1020**	**238-1028**
120		**238-1002**	**238-1005**	**238-187**	**238-1011**	**238-1021**	**238-1029**
	Unit Package - 100		*U.P. - 50*	*Unit Package - 25*		*Unit Package - 10*	

For Metric Dowel Pins with Internal Thread, See page E104.

Metric DOWEL PINS – Steel

NOT HARDENED – Not Plated

~ DIN 7 m6 Tolerance

~ DIN EN ISO 2338

Continued on next page...

E

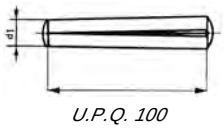
Nom. Dia.	1 mm	1.5 mm	2 mm	2.5 mm	3 mm	4 mm	5 mm
Length (mm)	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW						
6	*Continued on next page...*				238-200	238-211	
8	238-832			238-838	*238-201	238-848	238-860
10	238-833	238-928	238-1308	238-839	238-202	238-212	238-220
12				238-840	238-203	238-849	238-861
14				238-1304	238-204	238-213	238-221
16	238-834	238-835	238-1309	❑238-841	238-205	†238-850	238-222
18					238-843	238-214	238-862
20			238-836	238-842	238-206	238-215	238-223
24					238-207	238-851	238-224
25			238-837				
26						238-852	
28					238-844	238-216	238-863
30					238-208	238-217	238-225
32					238-845	238-218	238-864
35					238-871		
36					238-209	238-853	238-226
40					238-846	238-219	238-227
45						238-854	238-228
50						238-855	238-229
55							
60						238-856	238-865
70							238-866
80							
90							
100							
120							
	Unit Package - 100						

See page E91 for Assortment 805-473

See page E95 for additional materials.

Metric
Full length Taper
Grooved Pins

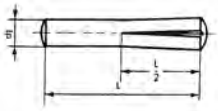
DIN 1471
~ DIN EN ISO 8744
Plain Steel



U.P.Q. 100

238-1302 4 mm x 32 mm

Metric
Half length Taper
Grooved Pins



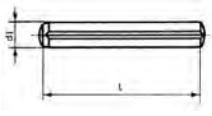
DIN 1472
~ DIN EN ISO 8745
Plain Steel

U.P.Q. 100
except 8 mm - U.P.Q. 50

238-1315	3 mm x 20 mm
238-1316	4 mm x 25 mm
238-1312	5 mm x 35 mm
238-1318	5 mm x 45 mm
238-1319	5 mm x 60 mm
238-1320	6 mm x 60 mm
238-1336	8 mm x 50 mm
238-1313	8 mm x 55 mm
238-1322	8 mm x 70 mm

Metric
Full length
Grooved Pins

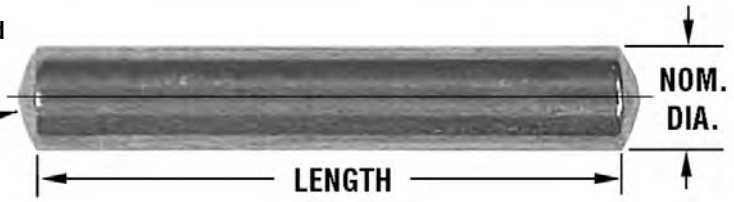
DIN 1473
~ DIN EN ISO 8740
Plain Steel



U.P.Q. 50

238-1311 8 mm x 50 mm

CATALOG 13



Dimensions shown are subject to normal commercial tolerances.

Nom. Dia.	6 mm	8 mm	10 mm	12 mm	16 mm	20 mm	24 mm
Length (mm)	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW						
6							
8	...*Continued from previous page*						
10	**238-230**	**238-243**					
12	**238-231**	**238-873**		**238-895**			
14	**238-232**	**238-244**					
16	**238-233**	**238-874**	**238-882**				
18	**238-234**	**238-245**	**238-883**				
20	**238-235**	**238-246**	**238-255**	**238-260**			
24	▲**238-236**	**238-875**	**238-884**				
25							
26							
28	**238-237**	**238-247**	**238-885**	**238-896**			
30	**238-238**	■**238-248**	**238-256**	**238-261**			
32	**238-239**	**238-876**	**238-886**	**238-897**	**238-906**		
35							
36	**238-868**	**238-249**	**238-887**	**238-898**	**238-907**		
40	**238-240**	**238-250**	**238-257**	**238-262**	**238-908**	**238-918**	
45	**238-241**	**238-251**	**238-888**	•**238-899**	**238-909**	**238-919**	
50	**238-869**	**238-252**	**238-889**	**238-900**	**238-910**	**238-920**	
55	**238-870**						
60	**238-242**	**238-877**	**238-258**	**238-263**	**238-911**	**238-921**	
70	**238-872**	**238-253**	**238-890**	**238-901**	**238-912**	**238-922**	
80		**238-878**	**238-891**	**238-902**	**238-913**	**238-923**	
90		**238-879**	**238-892**	**238-903**	**238-914**	**238-924**	
100		**238-254**	**238-259**	**238-264**	**238-915**	**238-925**	
120		**238-880**	**238-893**	**238-904**	**238-916**	**238-926**	
140						**238-927**	
	U.P. - 100	*Unit Package - 20*				*U.P. - 10*	

ADDITIONAL MATERIALS AVAILABLE IN DIN 7

A1 (303) STAINLESS STEEL h8 tolerance

***238-800** 3 x 8 mm *(U.P.Q. - 100)* •**238-828** 12 x 45 mm *(U.P.Q. - 20)*

A1 (4305) STAINLESS STEEL m6 tolerance

❑**238-858** 2.5 x 16 mm *(U.P.Q. - 100)* †**238-295** 4 x 16 mm *(U.P.Q. - 100)*

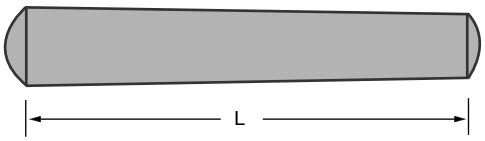
A2 (18-8) STAINLESS STEEL

▲**238-831** 6 x 24 mm *(U.P.Q. - 100)* ■**238-1307** 8 x 30 mm *(U.P.Q. - 100)*

MILLED STEEL TAPER PINS

Low Carbon Steel
Not Plated

Milled from solid bar STEEL.



DIAMETER IS MEASURED AT THE LARGE END

STANDARD TAPER
1/4" PER FOOT or .0208" PER INCH

Tolerance on Diameter
+0.0013" to -0.0007"

Length Tolerance ±0.030"

SIZE	7/0	6/0	4/0	000	00	0	1	2	3	4
Diameter Large End	.0625	.0780	.1090"	.125"	.141"	.156"	.172"	.193"	.219"	.250"
Approx. Fraction	1/16"	5/64"	7/64"	1/8"	9/64"	5/32"	11/64"	3/16"	7/32"	1/4"
5/8"			239-499							239-500
3/4"					239-501	239-462	239-465	239-468	239-472	239-476
7/8"							239-466			
1"					TP-601	TP-603	TP-605	239-469	239-473	
1-1/8"									239-474	
1-1/4"				239-502		239-463	239-494	TP-608	TP-611	239-477
1-1/2"	239-498	239-497			TP-602	TP-604	TP-606	TP-609	TP-612	TP-614
1-3/4"						239-464		239-470		239-478
2"			239-496		239-438	239-440	TP-607	TP-610	TP-613	TP-615
2-1/4"							239-467		239-475	239-479
2-1/2"			239-508	239-507	239-506	239-505	239-441	239-442	239-445	TP-616
2-3/4"								239-471		239-480
3"	*Unit Package 25*				239-439	239-433	239-434	239-443	239-446	239-448
3-1/2"								239-444	239-435	
4"									239-447	239-436

SIZE	5	6	7	8	9	10	11			
Diameter Large End	.289"	.341"	.409"	.492"	.591"	.706"	.860"			
Approx. Fraction	19/64"	11/32"	13/32"	1/2"	19/32"	23/32"	55/64"			
1"		239-482								
1-1/4"	239-481	239-483	239-486							
1-1/2"	TP-617	TP-600	239-487	*Unit Package 25*						
1-3/4"	TP-618	239-484	239-488							
2"	TP-619	TP-621	TP-631							
2-1/4"		239-485	239-489							
2-1/2"	TP-620	TP-622	TP-624	239-962						
2-3/4"		239-493	239-490					*Unit Package 10*		
3"	TP-632	TP-623	TP-625	239-454						
3-1/2"	239-449		239-491			239-459				
3-3/4"			239-495							
4"	TP-626	239-451	239-453	239-455	239-457					
4-7/8"			239-492							
5"	239-450	TP-627	239-437	239-456	239-458	239-460				
6"	239-504	239-452	TP-628	TP-629	TP-630	239-461	239-503			
7"						239-510		*Unit Package 1*		

See page P51 for Taper Pin Reamers.

ASSORTMENT / ASSORTIMENT **A-218**

Steel TAPER PINS

Not Plated

Regular Size welded STEEL drawer has hinged lid, SCOOPED bins, and is finished in Grey enamel. Drawer fits Slide Racks shown on page A2.

Shipping Weight: 4.08 kg (9 lbs.)

INCH SIZES

23 SIZES ***186 PIECES***

Sizes 00 x 1" to 7 x 3"

Full line shown on previous page.

Priced Singly

316 Stainless Steel TAPER PINS

Standard Taper Pins
1/4" per foot or .0208" per inch

Tolerance on Diameter +0.0013" to -0.0007"
Length Tolerance ±0.030"

SIZE	000	00	0	1	2	3	4	5	6	7	8	9	10
Diameter Large End	.125"	.141"	.156"	.172"	.193"	.219"	.250"	.289"	.341"	.409"	.492"	.591"	.706"
Approx. Fraction	1/8"	9/64"	5/32"	11/64"	3/16"	7/32"	1/4"	19/64"	11/32"	13/32"	1/2"	19/32"	23/32"
Length													
1/2"	**240-807**	**240-806**							**240-801**				
1"				**240-805**									
1-1/2"								**240-809**					
2"					**240-811**								
3"							**240-802**	**240-803**	**240-804**	**240-813**			
3-3/4"												**240-812**	
4"							**240-810**	**240-808**					
6"											**240-800**		**240-817**

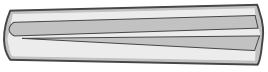
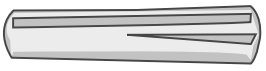
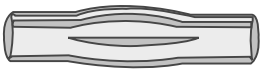
See Price List for Unit Package Quantities

GROOVED PINS

Case Hardened

Low Carbon STEEL
Zinc Chromate Plated

All grooved pins
Unit Package 100

Styles	*SPAENAUR No.*	Size
 **Type A (#1)** - Full-length taper. Does not require a reamed hole.	**239-196** **239-200** **239-201** **239-198**	1/8" x 1/4" 1/4" x 3/4" 1/4" x 1" 3/8" x 1-1/2"
 **Type B (#2)** - Half-length taper. Replaces the ordinary dowel pin.	**239-199**	1/16" x 3/4"
 **Type E (#5)** - Centre groove. Ideal for rod assemblies, also as a hinge pin.	**239-197** **GP-100**	3/32" x 1/2" 3/16" x 3/4"

Grooved Pins are a non-threaded press fit type fastener needing only a straight drilled hole without close tolerances or reaming. They are used as locking pins, pivots, locating devices, hinge pins or fulcrums. Recommended drill size is the same as the nominal diameter.

Sales Desk open 7 a.m. to 7 p.m. E.S.T., Monday to Friday.

Call (800) 265-8772 or (519) 744-3521.

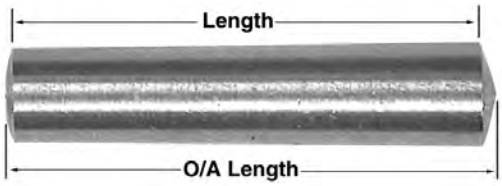
Metric TAPER PINS – Steel

DIN 1A

Ground Hardened Not Plated

PROPERTY CLASS 5.8 (72,500 PSI)

TAPER 1 : 50 (2%) Milled from solid bar STEEL



DIAMETER IS MEASURED AT THE SMALL END NOMINAL DIAMETER = SMALL END DIAMETER

E

Nom. Dia.	3 mm	4 mm	5 mm	6 mm	8 mm	10 mm	12 mm
Length (mm)	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW						
12	**238-400**						
14							
16		**238-408**					
20	**238-403**			**238-427**			
25	**238-404**			**238-428**			
26		**238-388**					
30	**238-405**	**238-411**	**238-420**	**238-429**	**238-436**		
35	**238-406**	**238-412**		**238-430**		**238-445**	
40	**238-407**	**238-413**	**238-422**	**238-431**		**238-446**	**238-454**
45			**238-423**	**238-432**	**238-439**	**238-447**	
50		**238-415**	**238-424**	**238-433**	**238-440**	**238-448**	**238-456**
60			**238-425**	**238-434**	**238-441**	**238-449**	**238-457**
70			***238-426**	**238-435**	**238-442**	**▲238-450**	**238-458**
80					**238-443**	**238-451**	**238-459**
100					**238-444**		**238-460**

***238-1388** O/A Lgth. 70 mm *Unit Package – 25* **▲238-1389** O/A Lgth. 70 mm

ASSORTMENT
ASSORTIMENT **805-474**

Metric
STEEL TAPER PINS

Turned, Not Hardened, Not Plated

24 SIZES — 200 PIECES

Sizes 3 mm dia. x 20 mm to 10 mm dia. x 60 mm

Regular size welded STEEL drawer has hinged lid, "scooped" bins, and is finished in Grey enamel.

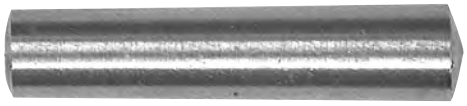
Drawer fits Slide Racks shown on page A2.

Shipping weight: 4.10 kg (9 lbs.)

See also Assortment No. A-218 of INCH Sizes (TAPER PINS) on Page E97.

~ DIN 1B

~ DIN EN 22339B
~ ISO 2339B

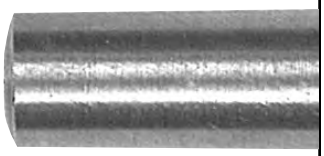


(See full line of DIN 1B on pages E100 and E101).

Metric TAPER PINS

TAPER 1 : 50
(2%)

FREE-CUTTING STEEL



~ DIN 1B

~ DIN EN 22339B
~ ISO 2339B

Turned Not Hardened Not Plated

DIAMETER IS MEASURED AT THE SMALL END NOMINAL DIAMETER = SMALL END DIAMETER

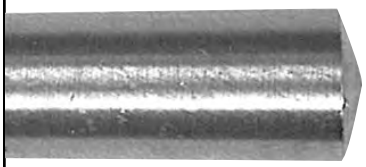
E

Nom. Dia.	1 mm	1.5 mm	2 mm	2.5 mm	3 mm	4 mm	5 mm
Length (mm)	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW						
8					238-931	*Continued on next page…*	
10		238-378	238-389	238-465		238-934	238-1328
12		238-379	238-390	238-466			
14	238-376		238-391	238-467	238-300	238-935	
16		238-381	238-392	238-468	238-301	238-312	238-938
18		238-382	238-393	238-469	238-481	238-313	
20		238-383	238-394	238-470	238-302	238-314	238-325
22					238-933	238-936	238-939
24		238-384	238-395	238-471	238-303	238-315	238-326
25			238-1326				
26		238-385	238-396	238-472	238-304	238-316	238-327
28		238-386	238-397	238-473	238-305	238-317	238-328
30		238-387	238-398	238-474	238-306	238-318	238-329
32			238-461	238-475	238-307	238-319	238-330
35							
36			238-462	238-476	238-308	238-320	238-331
40			238-463	238-477	238-309	238-321	238-332
45				238-478	238-482	238-322	238-333
50			238-464	238-479	238-310	238-323	238-334
55						238-937	
60					238-311	238-324	238-335
70					238-483	238-485	238-336
80					238-484	238-486	238-489
90						238-487	238-490
100							238-491
110							
120							
140							
150							
160							
	Unit Package – 50				*Unit Package – 25*		

For METRIC ~ DIN 1B Assortment, see page E99.

For INCH size TAPER PINS, see page E97.

TAPER 1 : 50
(2%)



Metric TAPER PINS

~ DIN 1B **FREE-CUTTING STEEL**

~ DIN EN 22339B
~ ISO 2339B

Turned Not Hardened Not Plated

DIAMETER IS MEASURED AT THE SMALL END NOMINAL DIAMETER = SMALL END DIAMETER

E

Nom. Dia.	6 mm	6.5 mm	8 mm	10 mm	12 mm	13 mm	16 mm	20 mm
Length (mm)	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW							
8	*…Continued from previous page*							
10								
12								
14								
16	**238-940**							
18								
20	**238-337**		**238-949**					
22								
24	**238-338**							
25		**238-950**				**238-375**		
26	**238-339**	**238-941**	**238-495**					
28	**238-492**		**238-350**					
30	**238-340**		**238-351**	**238-497**				
32	**238-493**		**238-951**	**238-362**				
35								
36	**238-341**		**238-352**	**238-498**	**238-756**	**238-955**		
40	**238-342**	**238-943**	**238-353**	**238-363**	**238-757**	**238-768**	**238-778**	
45	**▲238-343**		**238-496**	**238-499**	**238-758**			
50	**238-344**		**238-354**	**238-364**	**238-373**		**238-779**	**238-789**
55								
60	**238-345**		**238-355**	**238-365**	**238-759**	**238-770**	**238-780**	**238-790**
70	**238-346**	**238-946**	**238-356**	**238-366**	**238-760**		**238-781**	**238-791**
80	**238-347**		**238-357**	**238-367**	**238-761**	**238-772**	**238-782**	**238-792**
90	**238-348**		**238-358**	**238-368**	**238-762**	**238-773**	**238-783**	
100	***238-349**		**238-359**	**238-369**	**238-763**	**238-774**	**238-784**	
110			**238-360**	**238-370**	**238-764**	**238-775**		
120	**238-494**		**238-361**	**238-371**	**238-765**	**238-776**	**238-372**	**238-796**
130						**238-956**		
140				**238-755**	**238-766**	**238-777**	**238-786**	**238-797**
150				**238-952**				
160								
	Unit Package – 25					*U.P. – 10*	*Unit Package – 5*	

▲238-1390 O/A Lgth. 45mm ***238-929** A2 Stainless Steel

For METRIC ~ DIN 1B Assortment, see page E99.

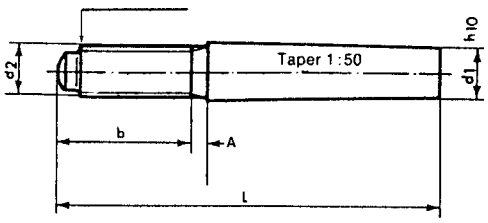
For INCH size TAPER PINS, see page E97.

Metric TAPER PINS
with External Parallel Thread*

STEEL Not Hardened, Not Plated

*Metric Regular (Coarse) Thread

Incomplete thread ≤ 2P



DIN 7977

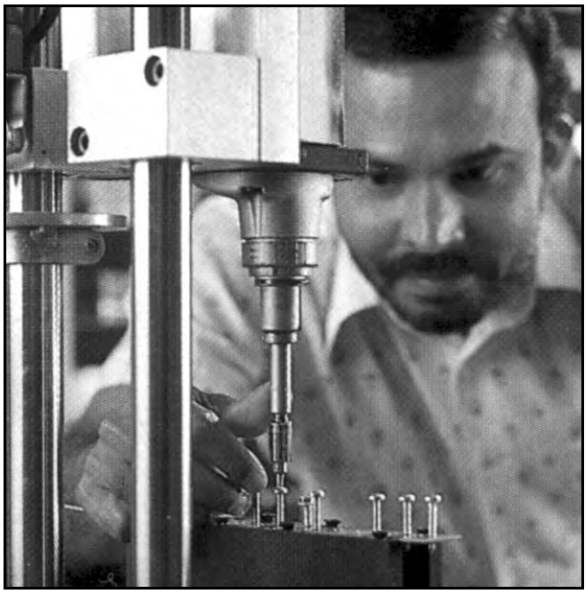
~ DIN EN 28737
~ ISO 8737

Ground to h10 tol. on pin dia.

E

d1 Dia.	5mm	6mm	8mm	10mm	12mm	14mm	16mm	20mm
d2	M5	M6	M8	M10	M12	M12	M16	M16
b	14mm	18mm	22mm	24mm	27mm	30mm	35mm	35mm
A	2.4mm	3mm	4mm	4.5mm	5.3mm	6mm	6mm	6mm

Length (L) mm	~inch	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW							
40	1-9/16"	238-1031	238-1036	238-1044					
45	1-3/4"	238-1032	238-1037	238-1045					
50	2"	238-1033	238-1038	238-1046	238-1054				
55	2-3/16"	238-1034	238-1039	238-1047					
60	2-3/8"	238-1035	238-1040	238-1048	238-1055				
65	2-9/16"		238-1041	238-1049	238-1056				
75	3"		238-1042	238-1050	238-1057	238-1061		238-1070	
85	3-3/8"		238-1043	238-1051	238-1058	238-1062	238-1066	238-1071	
100	4"			238-1052	238-1059	238-1063	238-1067	238-1072	238-1076
120	4-3/4"			238-1053	238-1060	238-1064	238-1068	238-1073	238-1077
140	5-1/2"					238-1065		238-1074	238-1078
160	6-1/4"							238-1075	238-1079
		Unit Package – 25					*U.P.–10*	*Unit Package – 5*	



THE BENEFITS OF BEING A SPAENAUR CUSTOMER

Our commitment to customer service goes well beyond the daily routine of filling orders. Our reputation for selling quality products, for example, is the result of dealing only with suppliers who meet our high standards. And we don't just take their word for it. Our Quality Assurance department operates a fully equipped testing laboratory where the products we sell meet strict regulations for safety and reliability including compliance with all applicable standards.

In anticipation of customer requirements, *SPAENAUR* continually searches worldwide for new and innovative fasteners and hardware components. Our aim is to uphold the principles laid down by our founders:

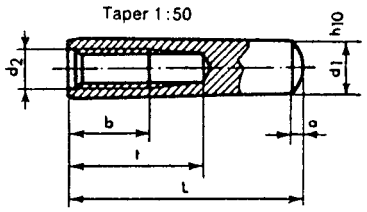
QUALITY PRODUCTS, COMPETITIVE PRICES,

FAST, COURTEOUS and DEPENDABLE SERVICE.

CATALOG 13

Metric TAPER PINS
with Internal Parallel Thread*

Free Cutting STEEL,
Not Hardened, Not Plated



DIN 7978A

~ DIN EN 28736
~ ISO 8736

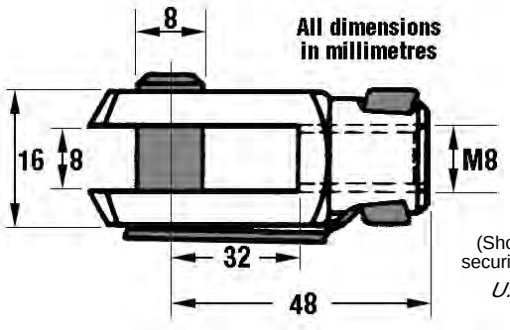
Ground to h10 tol.
on pin dia.

*Metric Regular (Coarse) Thread

E

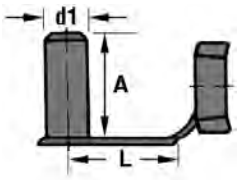
d1 Dia.	6mm	8mm	10mm	12mm	16mm	20mm
~a	0.8mm	1mm	1.2mm	1.6mm	2mm	2.5mm
d2	M4	M5	M6	M8	M10	M12
b	6mm	8mm	10mm	12mm	16mm	18mm
t min.	10mm	12mm	16mm	20mm	25mm	28mm

Length (L)	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW					
16 mm	**238-1080**					
20	**238-1081**	**238-1095**				
24	**238-1082**	**238-1096**				
26	**238-1083**	**238-1097**				
28	**238-1084**	**238-1098**	**238-1110**			
30	**238-1085**	**238-1099**	**238-1111**			
32	**238-1086**	**238-1100**	**238-1112**			
36	**238-1087**	**238-1101**	**238-1113**	**238-1123**		
40	**238-1088**	**238-1102**	**238-1114**	**238-1124**	**238-1133**	
45	**238-1089**	**238-1103**	**238-1115**	**238-1125**		
50	**238-1090**	**238-1104**	**238-1116**	**238-1126**	**238-1134**	**238-1142**
55	**238-1091**	**238-1105**	**238-1117**		**238-1135**	
60	**238-1092**	**238-1106**	**238-1118**	**238-1127**	**238-1136**	**238-1143**
70	**238-1093**	**238-1107**	**238-1119**	**238-1128**	**238-1137**	**238-1144**
80	**238-1094**	**238-1108**	**238-1120**	**238-1129**	**238-1138**	**238-1145**
90			**238-1121**	**238-1130**		
100		**238-1109**	**238-1122**	**238-1131**	**238-1139**	**238-1146**
120				**238-1132**	**238-1140**	**238-1147**
140					**238-1141**	**238-1148**
		Unit Package – 25			*Unit Package – 5*	



(Shown with securing collar.)
U.P.Q. 5

***SPAENAUR No.* 699-009ZP**
Metric Fork Heads (Yokes)
DIN 71752 – Steel – Zinc Plated



U.P.Q. 10

ES Bolts with securing collar
Steel – Zinc Plated
For use with DIN 71752

SPAENAUR No.	**Dimensions** (d1 x A x L)
086-013ZP	8 mm x 19 mm x 32 mm
086-014	10 mm x 23 mm x 20 mm (Plain finish)
086-014ZP	10 mm x 23 mm x 20 mm

Metric DOWEL PULL PINS

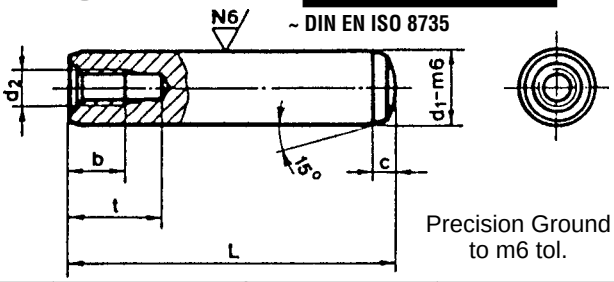
DIN 7979D

with internal thread
Flattened (or with longitudinal groove)

STEEL, Not Plated

Hardened to HRC 60 ± 2

***Metric Regular (COARSE) Thread**



Precision Ground to m6 tol.

E

d1 m6	**6** mm	**8** mm	**10** mm	**12** mm	**16** mm	**20** mm
~c	2.1 mm	2.6 mm	3 mm	3.8 mm	4.6 mm	6 mm
***d2**	M4	M5	M6	M6	M8	M10
b	6 mm	8 mm	10 mm	12 mm	16 mm	18 mm
t min.	10 mm	12 mm	16 mm	20 mm	25 mm	28 mm
Length (L)	**ORDER BY *SPAENAUR* NUMBERS LISTED BELOW**					
12 mm	**238-1175**					
16	**238-1176**					
20	**238-1177**	**238-1186**				
24	**238-1178**	**238-1187**	**238-1197**			
28	**238-1179**	**238-1188**	**238-1198**	**238-1208**		
30		**238-1189**				
32	**238-1180**	**238-1190**	**238-1199**	**238-1209**		
36	**238-1181**	**238-1191**	**238-1200**	**238-1210**		
40	**238-1182**	**238-1192**	**238-1201**	**238-1211**	**238-1219**	
45	**238-1183**	**238-1306**	**238-1202**	**238-1212**		
50	**238-1184**	**238-1193**	**238-1203**	**238-1213**	**238-1220**	**238-1226**
60	**238-1185**	**238-1194**	**238-1204**	**238-1214**	**238-1221**	**238-1227**
70		**238-1195**	**238-1205**	**238-1215**	**238-1222**	**238-1228**
80		**238-1196**	**238-1206**	**238-1216**	**238-1223**	**238-1229**
90			**238-1305**			
100			**238-1207**	**238-1217**	**238-1224**	**238-1230**
120				**238-1218**	**238-1225**	**238-1231**
	Unit Package – 25				*Unit Package – 10*	

CATALOG 13

See pages E92-E95 for Metric Dowel Pins.

STAINLESS STEEL

~ ISO 8752
~ DIN EN ISO 8752
~ DIN 1481

SLOTTED - Reusable, Shock-resistant, Vibration-proof Pins are oversize. Will contract to "Nominal Diameter" upon insertion.

Nom. Dia.	1 mm	1.5 mm	2 mm	2.5 mm	3 mm	3.5 mm	4 mm	4.5 mm	5 mm
OUTSIDE DIAMETER BEFORE INSERTION	mm 1.2	1.7	2.3	2.8	3.3	3.8	4.4	4.9	5.4
RECOMMENDED Max. HOLE SIZE	mm 1.1	1.6	2.1	2.6	3.1	3.65	4.15	4.65	5.15
Wall Thickness	mm 0.2	0.3	0.4	0.5	0.6	0.75	0.8	1.0	1.0
Lgth. in mm	**ORDER BY *SPAENAUR* NUMBERS LISTED BELOW**								
8	**240-536**								
12			**240-500**						
14				**240-502**	**240-504**				
16					**240-530**	**240-506**	**240-509**		
18			**240-501**		**240-505**			**240-512**	
20				**240-503**	**240-524**	**240-507**	**240-510**	**240-537**	**240-513**
22									
24					**240-525**		**240-511**		**240-514**
26					**240-531**				
28									
30					**240-527**		**240-529**		**240-526**
32									
36									
40					**240-532**		**240-528**		
	UNIT PACKAGE 100 (Diameters 1 mm to 5 mm)								

~ ISO 8752
Heavy-duty
All sizes listed on this page.

Nom. Dia.	6 mm	8 mm	10 mm	12 mm	13 mm	14 mm	16 mm
OUTSIDE DIAMETER	mm 6.4	8.5	10.5	12.5	13.5	14.5	16.5
Max. HOLE SIZE	mm 6.15	8.25	10.25	12.3	13.3	14.3	16.3
Wall Thickness	mm 1.25	1.5	2.0	2.5	2.5	3.0	3.0
Lgth. in mm	**ORDER BY *SPAENAUR* NUMBERS LISTED BELOW**						
16							
18							
20		**240-518**					
22			**240-521**				
24	**240-515**	**240-533**					
26		**240-519**	**240-522**				
30	**240-516**		**240-523**				
36		**240-520**	**240-535**				
40		**240-534**					
45							
50	**240-517**						
55							
	UNIT PACKAGE 50		*UNIT PACKAGE 25*				

Larger Sizes Available

Unlisted sizes usually available in min. lots of 500 or more, per size. Price & delivery upon request.

Slotted Spring Tension Pins

~ ISO 8752
~ DIN EN ISO 8752
~ DIN 1481

ASSORTMENT **ASSORTIMENT**	**805-479**	**STAINLESS STEEL** Metric 24 Sizes - 350 Pieces Dia.: 2 mm - 10 mm
ASSORTMENT **ASSORTIMENT**	**805-480**	Not Plated **SPRING STEEL** - Metric 24 Sizes - 350 Pieces Dia.: 2 mm - 12 mm

Regular size welded STEEL drawer is finished in Grey enamel.
Inside lid label shows Spaenaur No., size and data.
Drawer will fit into the Slide Racks shown on page A2. Assortment shipping wt. 2.95 kg (6-1/2 lbs.)

E

ASSORTMENT / ASSORTIMENT **805-518**

Slotted Spring Tension Pins

Chrome Stainless Steel – Inch Sizes
335 Tension Pins – 24 Sizes
Ranging from 3/32" x 1/2" to 3/8" x 2-1/2"

Regular Size grey enamelled steel drawer will fit slide racks shown on page A2.
Shipping Wgt. 2.90 kg (6-1/2 lbs.)

See facing page for full range of pins.

Priced Singly

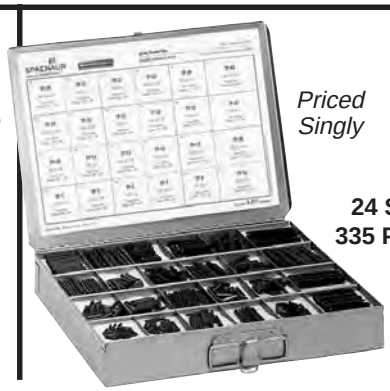
Plastikit / «Plastikit» **A-61**

TENSION PINS
(Slotted Spring Pins)
Steel - Plain Finish

24 SIZES
123 PIECES

Clear plastic box with hinged lid.
Size: 1" x 2-3/4" x 4-1/2"

Priced Singly



Priced Singly

ASSORTMENT / ASSORTIMENT **A-211**

TENSION PINS
(Slotted Spring Pins)
Steel - Plain Finish

24 SIZES
335 PIECES

Inch sizes from 3/32" dia. x 1/2" long
to 3/8" dia. x 2-1/2" long.

Regular Size Drawer: 13-3/8" x 9-1/4" x 2"
Shipping Wgt. 3.18 kg (7 lbs.)

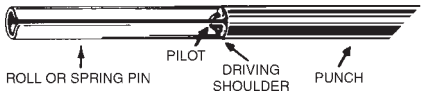
See page E108 for complete selection of High Carbon Spring Tension Pins.

Pilot Punches
FOR REMOVAL OF
(Rolled) Spring Tension Pins
PAT. NO. 3,099,876

Available individually or in handy sets in inch sizes.

These PILOT PUNCHES have been carefully designed:

- To speed up pin removal, safely
- To centre perfectly over pin
- To eliminate damage to pin or wall of hole
- To drive pin completely through hole without sticking punch



Available individually only in metric.

Twelve Inch sizes

Dia. Size	*SPAENAUR No.*	Unit Pkg.
1/16"	**876-688**	1
5/64"	**876-689**	1
3/32"	**876-690**	1
1/8"	**876-691**	1
5/32"	**876-692**	1
3/16"	**876-693**	1
7/32"	**876-694**	1
1/4"	**876-695**	1
5/16"	**876-696**	1
3/8"	**876-697**	1
7/16"	**876-698**	1
1/2"	**876-699**	1

Eleven Metric sizes

Dia. Size	*SPAENAUR No.*	Unit Pkg.
2 mm	**877-509**	1
2.5 mm	**877-510**	1
3 mm	**877-511**	1
3.5 mm	**877-512**	1
4 mm	**877-513**	1
4.5 mm	**877-514**	1
5 mm	**877-515**	1
6 mm	**877-516**	1
8 mm	**877-517**	1
10 mm	**877-518**	1
12 mm	**877-519**	1

Each Punch has a Pilot Point that fits into the hollow centre of the pin, holding the driving shoulder of the Punch in perfect contact position during the entire removal operation.

BENCH TOP SETS
Pilot Punches

876-700
INCH

1 each of sizes 1/16" to 1/2"

Sets packed singly

Vinyl Pouch Sets:

876-701
INCH
PILOT PUNCHES
Contains 1 each of the "Inch" sizes shown at left.

CATALOG 13

Corrosion Resistant

Slotted Spring Tension Pins

To ASME/ANSI B18.8.2 Specs. (Rolled Spring Pins)

Stainless Steel AISI 420 pins are excellent for applications up to 370°C (700°F), but should not be subjected to higher temperatures. They can be used in temperatures down to -45°C (-50°F).

Reusable - Shock resistant - Vibration-proof Pins are oversize; will contract to "nominal diameter" upon insertion.

Nominal Diameter	1/16"	5/64"	3/32"	1/8"	5/32"	3/16"	7/32"	1/4"	5/16"	3/8"	1/2"
Wall Thickness	.012	.018	.022	.028	.032	.040	.048	.048	.062	.077	.094
Outside dia. before insertion	.066-.069	.083-.086	.099-.103	.131-.135	.162-.167	.194-.199	.226-.232	.258-.264	.321-.330	.385-.395	.513-.524
Recommended Hole Size	.062-.065	.078-.081	.094-.097	.125-.129	.156-.160	.187-.192	.219-.224	.250-.256	.312-.318	.375-.382	.500-.510
Min. Double Shear Strength in lbs.	430	800	1,150	1,875	2,750	4,150	5,850	7,050	10,800	16,300	27,100
LENGTHS	**ORDER BY *SPAENAUR* NUMBERS LISTED BELOW**										
1/4"	**240-071**										
5/16"	**240-102**		**240-115**								
3/8"	**240-067**		**240-055**	**240-023**							
7/16"					**240-006**						
1/2"	**TP-2000**	**240-019**	**240-056**	**240-024**	**240-028**	**240-029**					
9/16			**240-073**								
11/16"				**240-070**							
5/8"	**240-018**	**240-020**	**240-075**	**240-008**		**240-030**	**240-061**	**240-035**			
3/4"	**TP-2003**	**TP-2005**	**240-057**	**240-025**	**TP-2004**	**240-009**	**240-062**	**240-036**	**240-044**		
7/8"				**240-007**		**240-031**	**240-063**	**240-037**			
1"	**240-114**	**240-021**	**240-058**	**TP-2002**	**240-068**	**TP-2001**	**240-064**	**240-012**	**240-045**	**240-038**	
1-1/8"											
1-3/16"			**240-074**								
1-1/4"			**240-059**	**240-026**	**240-101**	**240-032**	**240-065**	**240-039**	**240-046**	**TP-2006**	
1-3/8"								**240-072**			
1-1/2"		**240-022**	**240-060**	**240-027**		**240-033**	**240-066**	**240-040**	**240-047**	**240-011**	**240-052**
1-5/8"				**240-103**							
1-3/4"											
2"				**240-013**	**240-014**	**240-034**		**240-041**	**240-048**	**240-050**	**240-053**
2-1/4"								**240-042**			
2-1/2"								**240-043**	**240-049**	**240-051**	
3"								**240-015**	**240-016**	**240-017**	**240-054**
3-1/2"			*UNIT PACKAGE – 100*					**240-010**			
4"								**240-069**			
4-1/2"								**240-113** *(U.P. - 50)*			*U.P. - 25*

302 STAINLESS STEEL — Slotted Spring Tension Pins, May be slightly Magnetic

Nominal Diameter	1/16"	5/64"	3/32"	1/8"	5/32"	3/16"	7/32"	1/4"	5/16"	3/8"	1/2"
Wall Thickness	.012	.018	.022	.028	.032	.040	.048	.048	.062	.077	.094
Outside dia. before insertion	.066-.069	.083-.086	.099-.103	.131-.135	.162-.167	.194-.199	.226-.232	.258-.264	.321-.330	.385-.395	.513-.524
Recommended Hole Size	.062-.065	.078-.081	.094-.097	.125-.129	.156-.160	.187-.192	.219-.224	.250-.256	.312-.318	.375-.382	.500-.510
Min. Double Shear Strength in lbs.	250	460	670	1,090	1,600	2,425	3,400	4,100	6,300	9,500	15,800
LENGTHS	**ORDER BY *SPAENAUR* NUMBERS LISTED BELOW**										
1/4"											
5/16"				**240-104**							
1/2"						**240-110**		**240-108**			
5/8"				**240-100**							
3/4"			**240-002**	**240-003**							
1-1/8"				**240-107**				**240-106**			
1-1/4"						**240-109**					
1-5/8"								**240-111**			
1-3/4"			*UNIT PACKAGE – 100*					**240-112**			
2"								**240-105**			

See facing page for Assortment 805-518
Chrome Stainless Steel Slotted Spring Tension Pins.

High Carbon Spring Steel (Plain Finish) Slotted Spring Tension Pins

These pins replace more expensive fasteners such as dowel, straight solid, taper, and groove pins.

Re-usable - Shock resistant - Vibration-proof

Pins are oversize. Will contract to "nominal diameter" upon insertion.

Tension pins are used throughout the appliance, railroad, automotive, construction, farm, electronic, and general equipment industries to simplify design and reduce assembly costs.

To ASME/ANSI B18.8.2 Specs.

E

Nominal Diameter	1/16"	5/64"	3/32"	1/8"	5/32"	3/16"	7/32"	1/4"	5/16"	3/8"	7/16"	1/2"
Outside Diameter Before Insertion	.066-.069	.083-.086	.099-.103	.131-.135	.162-.167	.194-.199	.226-.232	.258-.264	.321-.330	.385-.395	.448-.459	.513-.524
Wall Thickness	.012	.018	.022	.028	.032	.040	.048	.048	.062	.077	.077	.094
Recommended Hole Size	.062-.065	.078-.081	.094-.097	.125-.129	.156-.160	.187-.192	.219-.224	.250-.256	.312-.318	.375-.382	.437-.445	.500-.510
Min. Double Shear Strength in lbs.	430	800	1,150	1,875	2,750	4,150	5,850	7,050	10,800	16,300	19,800	27,100
LENGTH	**ORDER BY *SPAENAUR* NUMBERS LISTED BELOW**											
3/16"	**TP-45**											
1/4"	**TP-46**	**TP-55**	**TP-84**	**239-008**								
5/16"	**TP-47**	**TP-56**	**TP-85**									
3/8"	**TP-48**	**TP-57**	**TP-81**	**TP-73**	**TP-168**				*Unit Package Quantity*			
7/16"	**TP-49**	**TP-58**	**TP-86**	**TP-93**					*100*			
1/2"	**TP-50**	**TP-59**	**TP-1**	**TP-8**	**TP-77**	**TP-113**						
9/16"	**TP-51**	**TP-60**	**TP-87**	**TP-94**	**TP-104**	**TP-114**						
5/8"	**TP-52**	**TP-61**	**TP-2**	**TP-9**	**TP-105**	**TP-72**		**TP-82**		**239-009**		
11/16"	**TP-53**	**TP-62**	**TP-88**	**TP-95**	**TP-106**	**TP-115**						
3/4"	**TP-54**	**TP-63**	**TP-3**	**TP-10**	**TP-15**	**TP-20**	**TP-121**	**TP-134**	**TP-83**	**TP-150**		
13/16"		**TP-64**	**TP-89**	**TP-96**	**TP-107**	**TP-116**						
7/8"		**TP-65**	**TP-4**	**TP-11**	**TP-16**	**TP-21**	**TP-122**	**TP-135**				
15/16"	**239-173**	**TP-66**	**▲TP-90**	**TP-97**	**TP-108**	**TP-117**						
1"		**TP-67**	**TP-5**	**TP-12**	**TP-17**	**TP-22**	**TP-123**	**TP-27**	**TP-32**	**TP-151**		
1-1/8"		**TP-68**	**TP-91**	**TP-98**	**TP-109**	**TP-118**	**TP-124**	**TP-136**				
1-1/4"		**TP-69**	**TP-6**	**TP-13**	**TP-18**	**TP-23**	**TP-125**	**TP-28**	**TP-33**	**TP-152**		**TP-158**
1-3/8"		**TP-70**	**TP-92**	**TP-99**	**TP-110**	**TP-75**	**TP-126**	**TP-74**				
1-1/2"		**TP-71**	**TP-7**	**TP-14**	**TP-19**	**TP-24**	**TP-127**	**TP-29**	**TP-34**	**TP-39**	**239-001**	**TP-159**
1-5/8"				**TP-100**	**TP-111**	**TP-119**	**TP-128**	**TP-137**		**239-005**		
1-3/4"				**TP-101**	**TP-112**	**TP-25**	**TP-129**	**TP-30**	**TP-35**	**TP-40**		
1-7/8"				**TP-102**		**TP-120**	**TP-130**	**TP-138**				
2"				**TP-103**	**239-004**	**TP-26**	**TP-131**	**TP-31**	**TP-36**	**TP-41**		**TP-160**
2-1/4"					**239-002**	**TP-76**	**TP-132**	**TP-139**	**TP-37**	**TP-42**		**TP-161**
2-1/2"					**239-010**	**TP-167**	**TP-133**	**TP-79**	**TP-38**	**TP-43**		**TP-78**
2-3/4"								**TP-140**	**TP-144**	**TP-153**		**TP-162**
3"						**239-007**	**239-003**	**TP-141**	**TP-145**	**TP-80**		**TP-163**
3-1/4"								**TP-142**	**TP-146**	**TP-154**		**TP-164**
3-1/2"								**TP-143**	**TP-147**	**TP-155**		**TP-165**
3-3/4"									**TP-148**	**TP-156**		**TP-166**
4"								**239-006**	**TP-149**	**TP-157**		***TP-44**
4-1/2"												***TP-170**
5"												***TP-171**
5-1/4"												***TP-172**
5-1/2"												***TP-169**
6"												
7"												***239-174**

Double up for…HEAVY DUTY applications.

Use one Spring Tension Pin inside another for additional strength. Install the smaller pin inside the larger pin, then insert into the application.

PIN	DIAMETERS					
INSIDE	3/32	1/8	5/32	3/16	7/32	5/16
OUTSIDE	5/32	7/32	1/4	5/16	3/8	1/2

▲TP-90ZP Zinc Plated

***U.P.Q. 10**

See page E106 for Plastikit A-61 and Assortment A-211.

High Carbon Spring Steel (Zinc Plated) Slotted Spring Tension Pins

These pins replace more expensive fasteners such as dowel, straight solid, taper, and groove pins.

Re-usable - Shock resistant - Vibration-proof

Pins are oversize. Will contract to "nominal diameter" upon insertion.

Tension pins are used throughout the appliance, railroad, automotive, construction, farm, electronic, and general equipment industries to simplify design and reduce assembly costs.

To ASME/ANSI B18.8.2 Specs.

P.C. 239

E

Nominal Diameter	1/16"	5/64"	3/32"	1/8"	5/32"	3/16"	7/32"	1/4"	5/16"	3/8"	7/16"	1/2"
Outside Diameter Before Insertion	.066-.069	.083-.086	.099-.103	.131-.135	.162-.167	.194-.199	.226-.232	.258-.264	.321-.330	.385-.395	.448-.459	.513-.524
Wall Thickness	.012	.018	.022	.028	.032	.040	.048	.048	.062	.077	.077	.094
Recommended Hole Size	.062-.065	.078-.081	.094-.097	.125-.129	.156-.160	.187-.192	.219-.224	.250-.256	.312-.318	.375-.382	.437-.445	.500-.510
Min. Double Shear Strength in lbs.	430	800	1,150	1,875	2,750	4,150	5,850	7,050	10,800	16,300	19,800	27,100
LENGTH	**ORDER BY *SPAENAUR* NUMBERS LISTED BELOW**											
3/16"	TP-45ZP											
1/4"	TP-46ZP	TP-55ZP	TP-84ZP	239-008ZP								
5/16"	TP-47ZP		TP-85ZP									
3/8"	TP-48ZP	TP-57ZP	TP-81ZP	TP-73ZP								
7/16"	TP-49ZP		TP-86ZP	TP-93ZP								
1/2"	TP-50ZP	TP-59ZP	TP-1ZP	TP-8ZP	TP-77ZP	TP-113ZP						
9/16"	TP-51ZP	TP-60ZP	TP-87ZP	TP-94ZP	TP-104ZP							
5/8"	TP-52ZP	TP-61ZP	TP-2ZP	TP-9ZP	TP-105ZP	TP-72ZP		TP-82ZP				
11/16"	TP-53ZP		TP-88ZP	TP-95ZP		TP-115ZP						
3/4"	TP-54ZP	TP-63ZP	TP-3ZP	TP-10ZP	TP-15ZP	TP-20ZP	TP-121ZP	TP-134ZP	TP-83ZP			
13/16"				TP-96ZP		TP-116ZP						
7/8"			TP-4ZP	TP-11ZP	TP-16ZP	TP-21ZP	TP-122ZP	TP-135ZP				
15/16"		TP-66ZP		TP-97ZP	TP-108ZP							
1"		TP-67ZP	TP-5ZP	TP-12ZP	TP-17ZP	TP-22ZP	TP-123ZP	TP-27ZP	TP-32ZP	TP-151ZP		
1-1/8"				TP-98ZP	TP-109ZP	TP-118ZP	TP-124ZP	TP-136ZP				
1-1/4"		TP-69ZP	TP-6ZP	TP-13ZP	TP-18ZP	TP-23ZP	TP-125ZP	TP-28ZP	TP-33ZP	TP-152ZP		TP-158ZP
1-3/8"			TP-92ZP	TP-99ZP	TP-110ZP	TP-75ZP	TP-126ZP	TP-74ZP				
1-1/2"		TP-71ZP	TP-7ZP	TP-14ZP	TP-19ZP	TP-24ZP	TP-127ZP	TP-29ZP	TP-34ZP	TP-39ZP	239-001ZP	TP-159ZP
1-5/8"				TP-100ZP	TP-111ZP	TP-119ZP	TP-128ZP	TP-137ZP				
1-3/4"				TP-101ZP	TP-112ZP	TP-25ZP	TP-129ZP	TP-30ZP	TP-35ZP	TP-40ZP		
1-7/8"				TP-102ZP		TP-120ZP	TP-130ZP	TP-138ZP				
2"				TP-103ZP	239-004ZP	TP-26ZP	TP-131ZP	TP-31ZP	TP-36ZP	TP-41ZP		TP-160ZP
2-1/4"					239-002ZP	TP-76ZP	TP-132ZP	TP-139ZP	TP-37ZP	TP-42ZP		TP-161ZP
2-1/2"						TP-167ZP	TP-133ZP	TP-79ZP	TP-38ZP	TP-43ZP		TP-78ZP
2-3/4"								TP-140ZP	TP-144ZP			TP-162ZP
3"							239-003ZP	TP-141ZP	TP-145ZP	TP-80ZP		TP-163ZP
3-1/4"									TP-146ZP	TP-154ZP		TP-164ZP
3-1/2"									TP-147ZP			TP-165ZP
3-3/4"									TP-148ZP			
4"									TP-149ZP			
4-1/2"												
5"												
5-1/4"												
5-1/2"												

Unit Package Quantity
100

Double up for...HEAVY DUTY applications.

Use one Spring Tension Pin inside another for additional strength. Install the smaller pin inside the larger pin, then insert into the application.

PIN	DIAMETERS					
INSIDE	3/32	1/8	5/32	3/16	7/32	5/16
OUTSIDE	5/32	7/32	1/4	5/16	3/8	1/2

SPAENAUR

Canada's leading supplier of industrial fasteners and components

~ ISO 8752

~ DIN EN ISO 8752
~ DIN 1481

HEAVY DUTY SPRING TENSION PINS

Spring Steel – Plain Finish (*Black)

SLOTTED - Reusable, Shock-resistant, Vibration-proof

Pins are oversize. Will contract to "Nominal Diameter" upon insertion.

Note: Diameters M1 to M4.5 are chamfered on **both** ends.
Larger diameters may be chamfered on **one** end only.

See Page E105 for ASSORTMENT

Continued on next page…

E

Nom. Dia.	1 mm	1.5 mm	2 mm	2.5 mm	3 mm	3.5 mm	4 mm	4.5 mm	5 mm	6 mm
MIN. O.D. BEFORE INSERTION (mm)	1.2	1.7	2.3	2.8	3.3	3.8	4.4	4.9	5.4	6.4
RECOMMENDED (Max.) HOLE SIZE	1.1	1.6	2.1	2.6	3.1	3.65	4.15	4.65	5.15	6.15
Wall Thick.	0.2	0.3	0.4	0.5	0.6	0.75	0.8	1.0	1.0	1.25
Length (mm)	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
4	**238-500**	**238-510**	**238-210**	**238-094**	**238-096**	**238-1149**	***238-1152**			
5	**238-501**	**238-511**	**238-520**	**238-095**	**238-097**	**238-1150**	***238-1153**		***238-1156**	
6	**238-502**	**238-512**	**238-521**	**238-534**	**238-098**	**238-1151**	**238-1154**		***238-1157**	
8	**238-503**	**238-513**	**238-522**	**238-535**	**238-550**	**238-565**	**238-1155**		**238-1158**	
10	**238-504**	**238-514**	**238-523**	**238-536**	**238-551**	**238-566**	**▲238-584**	**238-602**	**238-620**	**238-1163**
12	**238-505**	**238-515**	**238-524**	**238-537**	**238-552**	**238-567**	**238-585**	**238-603**	**238-621**	**238-638**
14	**238-506**	**238-516**	**238-525**	**238-538**	**238-553**	**238-568**	**238-586**	**238-604**	**238-622**	**238-639**
16	**238-507**	**238-517**	**238-526**	**238-539**	**238-554**	**238-569**	**238-587**	**238-605**	**238-623**	**238-640**
18	**238-508**	**238-518**	**238-527**	**238-540**	**238-555**	**238-570**	**238-588**	**238-606**	**238-624**	**238-641**
20	**238-509**	**238-519**	**238-528**	**238-541**	**238-556**	**238-571**	**238-589**	**238-607**	**238-625**	**238-642**
22			**238-529**	**238-542**	**238-557**	**238-572**	**238-590**	**238-608**	**238-626**	**238-643**
24			**238-530**	**238-543**	**238-558**	**238-573**	**238-591**	**238-609**	**238-627**	**238-644**
26			**238-531**	**238-544**	**238-559**	**238-574**	**238-592**	**238-610**	**238-628**	**238-645**
28			**238-532**	**238-545**	**238-560**	**238-575**	**238-593**	**238-611**	**238-629**	**238-1164**
30			**238-533**	**238-546**	**238-561**	**238-576**	**238-594**	**238-612**	**238-630**	**238-646**
32				**238-547**	**238-562**	**238-577**	**238-595**	**238-613**	**238-631**	**238-1165**
36				**238-548**	**238-563**	**238-578**	**238-596**	**238-614**	**238-632**	**238-647**
40				**238-549**	**238-564**	**238-579**	**238-597**	**238-615**	**238-633**	**238-648**
45					**238-078**	**238-580**	**238-598**	**238-616**	**238-634**	**238-649**
50							**238-599**	**238-617**	**238-635**	**238-650**
55							**238-600**	**238-618**	**238-636**	**238-651**
60						**238-583**	**238-601**	**238-619**	**238-637**	**238-652**
65									**238-1159**	**238-653**
70									**238-1160**	**238-654**
75									**238-1161**	**238-655**
80									**238-1162**	**238-1166**
85										**238-1167**
90										**238-1168**
95										**238-1169**
100										**238-754**
	Unit Package – 100						**▲239-749** DIN 7346 Light Duty.			*U.P. – 50*

Plastikit «Plastikit» 804-002

TENSION PINS

(Slotted Spring Pins)
Spring Steel - Plain Finish

24 SIZES
180 PIECES

Priced Singly

Metric sizes from 1 mm to 6 mm nominal diameters.

Clear plastic box with hinged lid.
Size: 1" x 2-3/4" x 4-1/2"

CATALOG 13

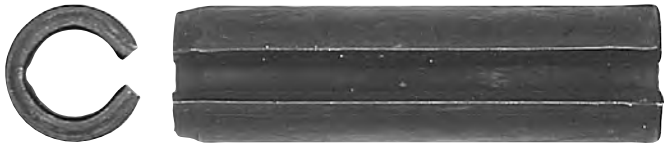
Metric HEAVY DUTY SPRING TENSION PINS

~ ISO 8752

~ DIN EN ISO 8752
~ DIN 1481

Spring Steel – Plain Finish (*Black)

SLOTTED - Reusable, Shock-resistant, Vibration-proof

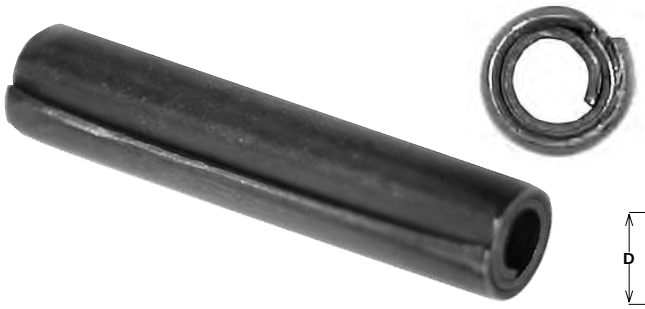


Pins are oversize. Will contract to "Nominal Diameter" upon insertion.
Note: Diameters M1 to M4.5 are chamfered on **both** ends.
Larger diameters may be chamfered on **one** end only.
See Page E105 for ASSORTMENT

…Continued from previous page

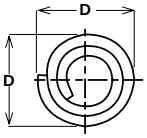
Nom. Dia.	8 mm	10 mm	12 mm	13 mm	14 mm	16 mm	18 mm	20 mm	21 mm	25 mm
MIN. O.D. BEFORE INSERTION (mm)	8.5	10.5	12.5	13.5	14.5	16.5	18.5	20.5	21.5	25.5
RECOMMENDED (Max.) HOLE SIZE	8.25	10.25	12.3	13.3	14.3	16.3	18.3	20.3	21.3	25.3
Wall Thick.	1.5	2.0	2.5	2.5	3.0	3.0	3.5	4.0	4.0	5.0
Length (mm)	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
4										
5										
6										
8										
10	238-1171	238-1235								
12	238-1172	238-1236	238-1246							
14	238-656	238-1237	238-1247							
16	238-657	238-673	238-1248							
18	238-658	238-674	238-691							
20	238-659	238-675	238-692	238-709		238-1261				
22	238-660	238-676	238-693	238-710	238-726	*238-1262				
24	238-661	238-677	238-694	238-711		238-736				
26	238-662	238-678	238-695	238-712	238-727	238-1263				
28	238-1173	238-1238	238-1249			*238-1264				
30	238-663	238-679	238-696	238-713	238-728	238-737		238-1275		
32	238-399	238-1239	238-1250			238-1265				
36	238-664	238-680	238-697	238-714	238-1259	238-1266				
40	238-665	238-681	238-698	238-715	238-729	238-738		238-1277		
45	238-666	238-682	238-699	238-716		*238-1267				
50	238-667	238-683	238-700	238-717	238-730	238-739	238-747	238-1279		238-1330
55	238-668	238-684	238-701	238-718		238-1268				
60	238-669	238-685	238-702	238-719	238-731	238-740		238-1280		238-1331
65	238-670	238-686	238-703	238-720						
70	238-671	238-687	238-704	238-721	238-732	238-741		238-1281		
75	238-672	238-688	238-705	238-722						
80	*238-1174	238-689	238-706	238-723	238-733	238-742	238-748	238-1282		238-1332
85		238-1240	*238-1251							
90	238-1232	238-690	238-707	238-724	238-734	238-753		238-1283		
95		238-1241	*238-1252							
100	238-1233	238-1242	238-708	238-725	238-735	238-743	238-749	238-751		238-1333
110			238-1253							
120	238-1234	238-1243	238-1254			238-744		238-1284		
130			238-1255			238-745				
140		238-1244	238-1256			238-746	238-750	238-752		
150						238-1269				
160		238-1245	238-1257					238-1285		
180			238-1258							
200										
	U.P. – 50		*Unit Package – 25*			*Unit Package – 10*				

For "BUTTite" Rolled Spacers, Spacer Sleeves and Self-Clinching STANDOFFS see pages G38 to G47.



Coiled Spring Pins

CARBON STEEL (1070-1095)
Standard Duty Plain Finish



"D" = EXPANDED DIAMETER

Continued on next page…

E

Nominal Diameter		1/16"	5/64"	3/32"	7/64"	1/8"	5/32"	3/16"	7/32"	1/4"
"D" Exp. Dia.		.072-.067	.088-.083	.105-.099	.120-.114	.138-.131	.171-.163	.205-.196	.238-.228	.271-.260
Hole Size		.065-.061	.081-.077	.097-.093	.112-.108	.129-.124	.160-.155	.192-.185	.224-.217	.256-.247
Mtrl. Thickness		.005	.006	.007	.008	.010	.012	.016	.018	.021
LENGTH	3/16"	**239-202**	**239-216**	**◆239-232**						
	1/4"	**239-203**	**◆239-217**	**239-308**						
	5/16"	**239-204**	**239-218**	**239-234**	**239-252**	**239-272**	**239-289**			
	3/8"	**239-205**	**239-219**	**239-235**	**239-253**	**239-273**	**239-290**	**◆239-339**		
	7/16"	**239-206**	**239-220**	**239-236**	**239-254**	**239-274**	**239-291**			
	1/2"	**239-207**	**239-221**	**239-311**		**239-312**	**239-292**	**239-341**		**239-376**
	9/16"	**239-208**	**239-222**	**239-237**	**239-256**	**239-275**	**239-293**	**239-342**	**239-359**	**◆239-377**
	5/8"	**239-209**	**239-223**	**239-238**	**239-257**	**239-276**	**239-294**	**239-343**	**239-360**	**239-378**
	11/16"	**239-210**	**239-224**	**239-239**		**239-277**	**239-295**	**239-344**	**239-361**	**239-379**
	3/4"	**239-211**	**239-225**	**239-240**	**239-326**	**239-278**	**239-304**	**239-345**	**239-362**	**239-388**
	13/16"	**239-212**	**239-226**	**239-241**	**239-259**	**239-279**	**239-296**		**239-363**	**239-389**
	7/8"	**239-213**	**239-227**	**239-242**		**239-280**	**239-297**	**239-347**	**239-364**	**239-390**
	15/16"	**239-214**	**239-228**	**239-243**	**239-261**	**239-281**	**239-298**	**239-348**	**239-365**	**239-391**
	1"	**239-215**	**239-229**	**†239-244**	**◆239-262**	**■239-325**	**239-299**	**239-318**	**239-366**	**239-319**
	1-1/8"		**239-230**	**239-245**	**239-263**	**239-282**	**239-306**	**239-349**	**239-367**	**239-392**
	1-1/4"		**239-231**	**239-246**	**239-264**	**239-305**	**239-330**	**239-350**	**239-368**	**239-393**
	1-3/8"			**239-247**		**239-283**	**239-331**	**239-351**	**239-369**	**239-328**
	1-1/2"			**239-248**	**239-266**	**239-284**	**239-332**	**239-303**	**239-307**	**239-394**
	1-5/8"			**239-249**	**239-267**	**239-285**	**239-333**	**239-352**	**239-370**	**239-329**
	1-3/4"			**239-250**	**239-268**	**239-286**	**239-334**	**239-353**	**239-371**	**239-395**
	1-7/8"					**239-287**	**239-335**	**239-354**	**239-372**	**239-396**
	2"				**239-270**	**239-288**	**239-336**	**239-355**	**239-373**	**239-316**
	2-1/4"							**239-356**	**239-374**	**239-397**
	2-1/2"						**239-338**	**239-357**	**239-375**	**239-398**
	2-3/4"									**239-399**
	3"			*Unit Package – 100*						**239-320**
	3-1/4"									**239-400**
	3-1/2"									**239-401**

†240-814 Type 302 Stainless Steel **■240-001** Type 302 Stainless Steel ◆Heavy Duty

Assortment / Assortiment 805-491

Coiled Spring Pins

CARBON STEEL, Plain Finish

24 Sizes – 350 Pieces

Inch Nom. Dia. Range - 5/64" to 3/8".

Regular Size drawer has hinged lid and 24 "Scooped" bins.

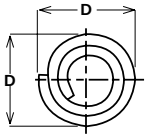
Drawer fits Slide Racks as shown on page A2.

Shipping weight: 3.06 kg (6-3/4 lbs.)

CATALOG 13

Coiled Spring Pins

CARBON STEEL (1070-1095)
Standard Duty Plain Finish



"D" = EXPANDED DIAMETER

…Continued from facing page

HARDNESS SPECIFICATIONS

Stock Thickness Range	Over	-	0.010"	0.025"	0.050"
	Thru	0.010"	0.025"	0.050"	-
Hardness Test		Tukon Knoop	Rockwell 15N	Rockwell A	Rockwell C
Material		Hardness Reading			
AISI 1070 to 1095 Steel		480 to 594	83.5 to 86.9	73.6 to 77.4	46 53

Nominal Diameter		5/16"	3/8"	7/16"	1/2"	5/8"	3/4"
"D" Exp.Dia.		.337-.324	.403-.388	.469-.452	.535-.516	.661-.642	.787-.768
Hole Size		.319-.308	.383-.370	.446-.431	.510-.493	.635-.618	.760-.743
Mtrl. Thickness		.025	.032	.038	.042	.052	.063
LENGTH	5/8"	**=239-402**					
	11/16"	**239-403**					
	3/4"	**239-322**	**239-422**				
	13/16"	**239-404**					
	7/8"	**239-405**					
	15/16"	**239-406**					
	1"	**239-407**	**239-423**				
	1-1/8"	**239-408**					
	1-1/4"	**239-409**	**239-424**		**239-616**		
	1-3/8"	**239-410**					
	1-1/2"	**239-411**	**239-425**	**239-605**	**239-617**		
	1-1/2"				**=239-310**		
	1-5/8"	**239-412**					
	1-3/4"	**239-413**	**239-315**	**239-606**			
	1-7/8"	**239-414**					
	2"	**239-300**	**239-426**	**239-607**	**239-317**		**+239-309**
	2-1/4"	**239-415**	**239-427**	**239-608**	**239-619**		
	2-1/2"	**239-302**	**239-428**	**239-609**	**▲239-620**	***239-314**	
	2-3/4"	**239-416**	**239-429**	**239-610**	**239-621**		
	3"	**239-417**	**239-313**	**239-611**	**239-622**		
	3-1/4"	**239-418**	**239-430**	**239-612**	**239-623**		
	3-1/2"	**239-419**	**239-431**	**239-321**	**239-624**		
	3-3/4"	**239-420**	**239-432**	**239-613**	**239-625**		
	4"	**239-421**	**239-600**	**239-327**	**239-626**		
	4-1/4"						
	4-1/2"		**239-602**		**239-628**		
	4-3/4"				**239-629**		
	5"				**239-630**		
	5-1/2"	*Unit Package 50*					
	5-1/2"						**+239-324**
	6"		*Unit Package 25*		*Unit Package 10*		***239-301**

* Alloy Steel 1650
+ Alloy Steel, Heavy Duty.
= Carbon Steel, Heavy Duty.

▲**239-631** Heavy Duty

Plastikit «Plastikit» 804-004

Clear plastic box with hinged lid.
Size: 1" x 2-3/4" x 4-1/2"

COILED SPRING PINS
Carbon Steel - Plain Finish

25 SIZES
210 PIECES

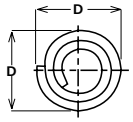
Inch sizes from 1/16" to 1/4" nominal diameters.

Priced Singly

Coiled Spring Pins

CARBON STEEL (1070-1095)

Standard Duty **Zinc Plated**



"D" = EXPANDED DIAMETER

HARDNESS SPECIFICATIONS

Stock Thickness Range	Over	-	0.010"	0.025"	0.050"
	Thru	0.010"	0.025"	0.050"	-
Hardness Test		Tukon Knoop	Rockwell 15N	Rockwell A	Rockwell C
Material		**Hardness Reading**			
AISI 1070 to 1095 Steel		480 to 594	83.5 to 86.9	73.6 to 77.4	46 53

E

Nominal Diameter		1/16"	5/64"	3/32"	1/8"	5/32"	3/16"	1/4"	5/16"	3/8"
"D" Exp. Dia.		.072-.067	.088-.083	.105-.099	.138-.131	.171-.163	.205-.196	.271-.260	.337-.324	.403-.388
Hole Size		.065-.061	.081-.077	.097-.093	.129-.124	.160-.155	.192-.185	.256-.247	.319-.308	.383-.370
Mtrl. Thickness		.005	.006	.007	.010	.012	.016	.021	.025	.032
LENGTH	1/4"	**239-203ZP**		**239-308ZP**						
	5/16"	**239-204ZP**			**239-272ZP**					
	3/8"	**239-205ZP**	**239-219ZP**	**239-235ZP**	**239-273ZP**					
	7/16"	**239-206ZP**	**239-220ZP**							
	1/2"	**239-207ZP**	**239-221ZP**	**239-311ZP**	**239-312ZP**		**239-341ZP**			
	9/16"	**239-208ZP**			**239-275ZP**		**239-342ZP**			
	5/8"			**239-238ZP**				**239-378ZP**		
	11/16"				**239-277ZP**					
	3/4"	**239-211ZP**	**239-225ZP**	**239-240ZP**	**239-278ZP**	**239-304ZP**	**239-345ZP**	**239-388ZP**	**239-322ZP**	
	7/8"			**239-242ZP**	**239-280ZP**					
	15/16"					**239-298ZP**				
	1"	**239-215ZP**		**239-244ZP**	**239-325ZP**	**239-299ZP**	**239-318ZP**	**239-319ZP**		
	1-1/8"				**239-282ZP**	**239-306ZP**	**239-349ZP**			
	1-1/4"		**239-231ZP**		**239-305ZP**	**239-330ZP**	**239-350ZP**	**239-393ZP**		
	1-3/8"								**239-410ZP**	
	1-1/2"				**239-284ZP**		**239-303ZP**	**239-394ZP**		
	1-3/4"						**239-353ZP**	**239-395ZP**		
	2"				**239-288ZP**		**239-355ZP**	**239-316ZP**	**239-300ZP**	
	2-1/4"								**239-415ZP**	
	2-1/2"						**239-357ZP**	**239-398ZP**	**239-302ZP**	
	3"							**239-320ZP**	**239-417ZP**	
		Unit Package – 100							*U.P. – 50*	

SPAENAUR

TELEPHONE:
24 hours a day, 365 days a year
(800) 265-8772
(519) 744-3521

FAX:
24 hours a day, 365 days a year
(519) 744-0818
(800) 252-6380

Counter Sales:
7 a.m. to 7 p.m. EST., Weekdays

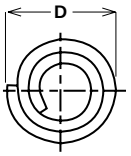
CATALOG 13

Coiled Spring Pins

~ ISO 8750

~DIN 7343
~DIN EN ISO 8750

CARBON STEEL (1070-1095)
Standard Duty Plain Finish



Rockwell "c" 46-53 (or equivalent)

"D" = EXPANDED DIAMETER

Widely preferred by design engineers.

Coiled means "Flexibility after insertion"; "uniform flexing in any direction"; "wider hole tolerances"; "rounder diameter" (best for axle & hinge applications; etc.)

Nominal Diameter		0.8 mm	1 mm	1.2 mm*	1.5 mm	2 mm	2.5 mm*	3 mm	4 mm	5 mm
"D" Exp. Dia.		0.91-0.85	1.15-1.05	1.35-1.25	1.73-1.62	2.25-2.13	2.78-2.65	3.30-3.15	4.40-4.20	5.50-5.25
Hole Size		.083-0.80	1.03-1.00	1.23-1.20	1.57-1.50	2.07-1.97	2.58-2.47	3.10-2.97	4.10-3.97	5.12-4.95
Mtrl. Thickness		0.07	0.08	0.10	0.13	0.17	0.21	0.25	0.33	0.42
LENGTH	4 mm	240-750	▲240-758	240-766		239-763				
	5	240-751	240-759	240-767		239-764				
	6	240-752	240-760	240-768	239-752	239-765	239-781	239-797		
	8	240-753	240-761	240-769	239-753	239-766	239-782	239-798	239-814	
	10	240-754	240-762	240-770	239-754	239-767	239-783	239-799	239-815	◆239-832
	12	240-755	240-763	240-771	239-755	239-768	239-784	239-800	239-816	239-833
	14	240-756	240-764	240-772	239-756	239-769	239-785	239-801	239-817	239-834
	16	240-757	240-765	240-773	239-757	239-770	239-786	239-802	239-818	239-835
	18				239-758	239-771	239-787	239-803	239-819	
	20	Above Nominal Diameters 0.8, 1. and 1.2 mm are furnished only in Type 420, Corrosion Resistant Steel.				239-772	239-788	239-804	239-820	239-837
	22				239-760	239-773	239-789	239-805	239-821	239-838
	24				239-761	239-774	239-790	239-806	239-822	239-839
	26				239-762	239-775	239-791	239-807	239-823	†239-840
	28					239-776	239-792	239-808	239-824	239-841
	30					239-777	239-793	239-809	239-825	239-842
	32	*DIN 7343 Max. "D" Dimension for 1.2 mm size is 1.30 mm, for 2.5 mm is 2.80 mm							239-720	
	35					239-778	239-794	239-810	239-826	239-843
	40						239-795	239-811	239-827	239-844
	45		▲Type 302 Stainless Steel †**240-774** 420 Stainless Steel				239-796		239-828	239-845
	50							239-813	239-829	239-846
	55								239-830	239-847
	60								239-831	239-848

Unit Package 100 - all above sizes.

Nominal Diameter		6 mm	6.3 mm	8 mm	10 mm	12 mm
"D" Exp. Dia.		6.50-6.25	6.83-6.55	8.63-8.30	10.80-10.35	12.85-12.40
Hole Size		6.13-5.95	6.45-6.25	8.17-7.93	10.20-9.93	12.22-11.90
Mtrl. Thickness		0.50	0.53	0.67	0.84	1.00
LENGTH	12 mm	239-849	239-868		*Unit Package 50*	
	14	239-850	239-869			
	16	239-851				
	18	239-852	239-871	239-887		
	20	239-853	239-872	239-888	239-906	
	22	239-854	239-873	239-889	239-907	
	24	239-855	239-874	239-890	239-908	
	26	239-856	239-875	239-891	239-909	239-925
	28	239-857	239-876	239-892	239-910	239-926
	30	239-858	239-877	239-893	239-911	239-927
	35	239-859	239-878	239-894	239-912	239-928
	36				239-721	
	40	239-860	239-879	239-895	239-913	239-929
	45	239-861	239-880	239-896	239-914	239-930
	50	239-862	239-881	239-897	239-915	239-931
	55	239-863	239-882	239-898	239-916	
	60	239-864	239-883	239-899	239-917	239-933
	65	239-865	239-884	239-900	239-918	239-934
	70	239-866	239-885	239-901	239-919	239-935
	75		239-886	239-902	239-920	239-936
	80			239-903	239-921	239-937
	90	*Unit Pkg. 50*		239-904	239-922	239-938
	100			239-905	239-923	239-939

Nom. Dia.		14 mm	16 mm	20 mm
"D" Exp. Dia.		14.95-14.45	17.00-16.45	21.10-20.40
Hole Size		14.25-13.85	16.25-15.85	20.25-19.85
Mtrl. Thickness		1.20	1.30	1.70
	(mm)	*Unit Package 25*		
LENGTH	30	239-940		
	35			
	40	239-941	239-947	
	45			
	50	239-942	239-948	239-955
	55			
	60	239-943	◆239-949	239-956
	65			
	70	239-944	239-950	239-957
	75			
	80	239-945		239-958
	90			
	100		239-952	239-959
	120		239-953	
	140			239-960
	160		239-954	239-961
		Unit Package 10		

◆Heavy Duty

Above Nominal Diameters 14, 16 & 20 mm are furnished only in Alloy Steel (6150).

For Assortment and Plastikit see page E116.

E

ASSORTMENT / ASSORTIMENT 805-440

Metric Coiled Spring Pins

24 Popular Items 350 Pieces

Sizes from 2 mm to 10 mm nominal diameters.

Carbon Steel - Plain Finish
STANDARD DUTY METRIC SIZES

Regular Size Welded STEEL drawer is finished in Grey enamel. Drawer will fit into the Slide Racks shown on page A2.

Shipping Wt. 2.85 kg (6-1/4 lbs.)

Priced Singly

Full range of Metric Coiled Spring Pins listed on page E115.

Plastikit «Plastikit» 804-003

Metric Coiled Spring Pins

Clear plastic box with hinged lid.
Size: 1" x 2-3/4" x 4-1/2"

Carbon Steel - Plain Finish
25 SIZES
205 PIECES
Metric sizes from 0.8 mm to 6 mm nominal diameters.

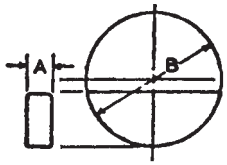
Priced Singly

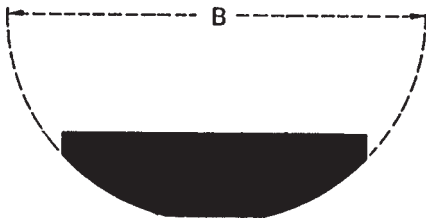
SPAENAUR

Your #1 Choice for Fasteners.

S.A.E. 1035

Carbon STEEL





Not Plated

also **Nickel Alloy (A-8630 Steel)**
Heat Treated RC-40/50

Used on armature shafts of starters, generators, etc.
Larger sizes used widely on farm implements, tractors, etc.

E

Dimensions in Inches

SPAENAUR No. Carbon Steel	*SPAENAUR No.* Nickel Alloy	SIZE (A) Width x Dia. (B)	Unit Package
WK-30		1/16 x 3/8	25
131-001		1/8 x 3/8	25
WK-1		1/16 x 1/2	25
WK-2		3/32 x 1/2	25
WK-3		1/8 x 1/2	25
WK-4		3/32 x 5/8	25
WK-5		1/8 x 5/8	25
WK-6		5/32 x 5/8	25
WK-6-1		3/16 x 5/8	25
WK-7		1/8 x 3/4	25
WK-8		5/32 x 3/4	25
WK-9		3/16 x 3/4	25
WK-9-1		1/4 x 3/4	25
WK-10		5/32 x 7/8	25
WK-11		3/16 x 7/8	25
WK-12		7/32 x 7/8	25
WK-12A		1/4 x 7/8	25
WK-13		3/16 x 1	25
WK-14		7/32 x 1	25
WK-15	**131-002**	1/4 x 1	25
WK-15B		5/16 x 1	25
WK-16		3/16 x 1-1/8	25
WK-17		7/32 x 1-1/8	25
WK-18	**131-003**	1/4 x 1-1/8	25
WK-18C		5/16 x 1-1/8	25
WK-19		3/16 x 1-1/4	25
WK-20		7/32 x 1-1/4	25
WK-21	**131-004**	1/4 x 1-1/4	25
WK-21D		5/16 x 1-1/4	25
WK-21-E		3/8 x 1-1/4	25
WK-22		1/4 x 1-3/8	25
WK-23		5/16 x 1-3/8	25
WK-23F		3/8 x 1-3/8	25
WK-24		1/4 x 1-1/2	25
WK-25		5/16 x 1-1/2	25
WK-25G		3/8 x 1-1/2	25
WK-27		1/4 x 2-1/8	25
WK-28		5/16 x 2-1/8	25
WK-29	**131-005**	3/8 x 2-1/8	25
WK-29S		5/16 x 2-3/4	25
WK-29TX		3/8 x 2-3/4	25
WK-31		3/4 x 3-1/2	10

ASSORTMENT
ASSORTIMENT
A-207

WOODRUFF KEYS
SAE 1035 CARBON STEEL - Not Plated

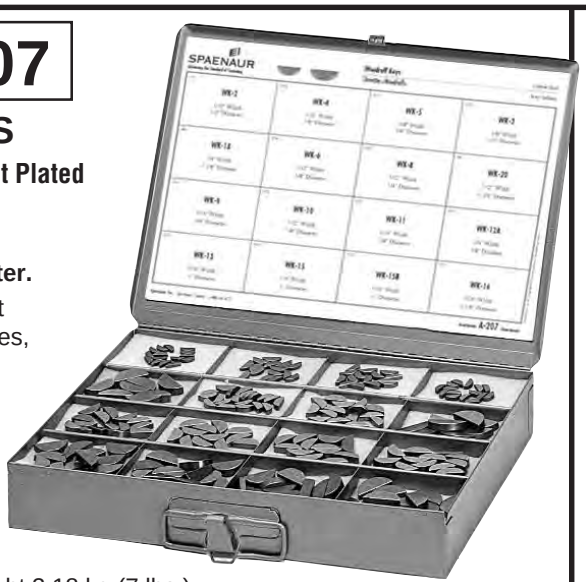
16 Sizes 210 Pieces

INCH SIZES from
1/2" diameter to 1-1/4" diameter.

A good general purpose assortment for garages, machine shops, factories, and implement maintenance.

Put up in a REGULAR SIZE grey enamelled STEEL drawer.
All bins are SCOOPED for easy removal of contents.

Drawer will fit into the Slide Racks shown on page A2.



Priced Singly Shipping weight 3.18 kg (7 lbs.)

Plastikit
«Plastikit»
A-56

SAE 1035 CARBON STEEL
Not Plated

INCH SIZES

Contains 100 WOODRUFF KEYS in 12 sizes, as used frequently in every garage.

Size: 1" x 2-3/4" x 4-1/2"

Priced Singly

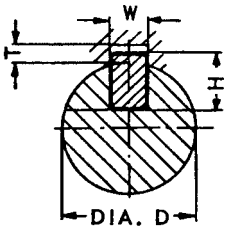
Carbon STEEL METRIC

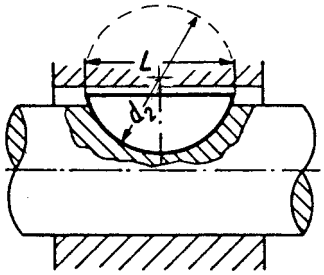
Woodruff Keys

Not Plated

Conforming to **DIN 6888**

Standard Tolerance: h9





SPAENAUR No.	Dimensions in Millimeters Nominal Size Width & Height (W) (H)	L	d2	T	Use with Shaft Dia. From - To	UNIT PKG.
132-001	1.5 x 2.6	6.76	7	2.	4-6	25
132-002	2 x 2.6	6.76	7	1.8	6-8	25
132-003	2 x 3.7	9.66	10	2.9	6-8	25
132-005	2.5 x 3.7	9.66	10	2.9	8-10	25
132-006	3 x 3.7	9.66	10	2.5	8-10	25
132-007	3 x 5	12.65	13	3.8	8-10	25
132-008	3 x 6.5	15.72	16	5.3	8-10	25
132-009	4 x 5	12.65	13	3.5	10-12	25
132-010	4 x 6.5	15.72	16	5.	10-12	25
132-011	4 x 7.5	18.57	19	6.	10-12	25
132-012	5 x 6.5	15.72	16	4.5	12-17	25
132-014	5 x 9	21.63	22	7.	12-17	25
132-015	6 x 7.5	18.57	19	5.1	17-22	25
132-016	6 x 9	21.63	22	6.6	17-22	25
132-017	6 x 10	24.49	25	7.6	17-22	25
132-018	6 x 11	27.35	28	8.6	17-22	25
132-019	8 x 9	21.63	22	6.2	22-30	25
132-020	8 x 11	27.35	28	8.2	22-30	25
132-021	8 x 13	31.43	32	10.2	22-30	25
132-022	10 x 11	27.35	28	7.8	29-38	25
132-023	10 x 13	31.43	32	9.8	29-38	25

Metric WOODRUFF KEYS

Plastikit / **«Plastikit»** **804-070**

Metric
WOODRUFF KEYS
Carbon Steel - Not Plated

Contains 100 Keys in an assortment of 12 sizes ranging from 3 x 3.7 mm to 6 x 10 mm.

Size: 1" x 2-3/4" x 4-1/2"
Priced Singly

ASSORTMENT / **ASSORTIMENT** **805-469**

DIN 6888

Carbon Steel - Not Plated
21 Sizes - 280 Pieces
(as listed above)

A good general purpose assortment for garages, machine shops, factories, and implement maintenance.

Furnished in a regular size grey enamelled steel drawer, with lid and scooped bins.

Drawer will fit the Slide Racks shown on Page A2.

Priced Singly

Shipping Wt. 3.4 kg (7-1/4 lbs.)

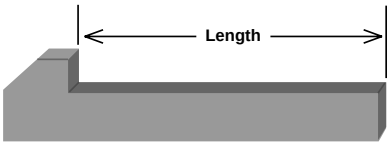
CATALOG 13

STANDARD GIB HEAD MACHINE KEYS

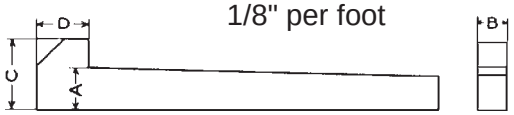
C-1018

STEEL

INCH SIZES



Gib Head Taper Key



Standard Taper
1/8" per foot

See Price List for Unit Package Quantity

E

	A and B SQUARE DIMENSION IMMEDIATELY UNDER HEAD										
	3/16"	**1/4"**	**5/16"**	**3/8"**	**7/16"**	**1/2"**	**9/16"**	**5/8"**	**3/4"**	**7/8"**	**1"**
C	5/16"	7/16"	1/2"	5/8"	11/16"	3/4"	7/8"	1"	1-1/8"	1-3/8"	1-5/8"
D	9/32"	3/8"	7/16"	1/2"	9/16"	5/8"	11/16"	3/4"	7/8"	1"	1-1/8"
Length											
1-1/2"	**131-115**										
2"		**131-116**	**131-100**								
2-1/2"											
3"		**131-118**		**131-101**		**131-117**				**131-128**	**131-102**
3-1/2"			**131-127**								
4"			**131-103**	**131-104**		**131-121**					**131-105**
4-1/2"						**131-122**			**131-123**		
5"				**131-106**		**131-107**					
5-1/2"					**131-108**						
6"					**131-124**	**131-109**		**131-110**	**131-111**	**131-125**	**131-126**
6-1/2"											
7"							**131-112**				
7-1/2"											
8"							**131-120**				
8-1/2"								**131-113**	**131-114**		**131-119**
9"											
9-1/2"											

MACHINE KEYS
Square Ends

C1018 Steel, Plain Finish

Oversize Tolerance Type

131-099

7/16" x 5/16" x 2-1/2"

131-129

7/16" x 5/16" x 1-1/4"

Unit Package Quantity 5

Finished MACHINE KEYS

The styles illustrated below are NOT STOCKED, but can be made to order. Please send a drawing with your enquiry.

Round end Taper Key

Round end Feather Key

Plain Taper Key

See also "Rectangular Key Stock" - Page E122.

SHAFT KEYS

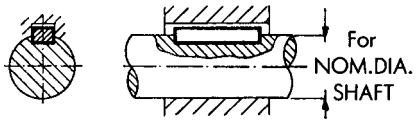
C45K

Carbon STEEL

Not Plated

METRIC

DIN 6885-A



UNIT PACKAGE 25

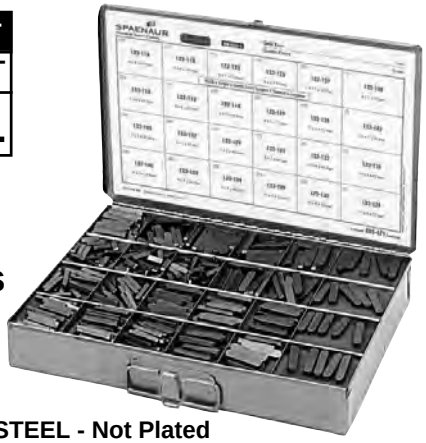
WIDTH mm	2	3	4	5	6		8		10	
HEIGHT mm	2	3	4	5	4	6	5	7	6	8
SHAFT DIA. mm	6-8	8-10	10-12	12-17	17-22	17-22	22-30	22-30	30-38	30-38
LENGTH mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW									
10	132-099					132-144				
14						132-150				
16					132-004					
20			132-100	132-105	132-110	132-112	132-163			
25			132-101	132-106	132-111	132-113	132-119	132-122		
28										
30			132-102	132-107		132-114		132-123		
32								132-145		132-130
36			132-103	132-108		132-115	132-120	132-124		132-131
40			132-104	132-109	132-149	132-116	132-121	132-125		132-132
45						132-117		132-126		132-133
50		132-154				132-118		132-127	132-129	132-134
60								132-128		132-135
63			132-155			132-157				132-146
65										
70										132-147
80								132-164		132-136
90								132-151		
100								132-159		132-160
125										

WIDTH mm	12		14	20
HEIGHT mm	6	8	9	12
SHAFT DIA. mm	38-44	38-44	44-50	65-75
LENGTH mm	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW			
20		132-152		
28		132-148		
36		132-137		
40		132-138		132-153
45		132-139		
50		132-140		
60		132-141		
70			132-162	
80		132-142		
90				
100		132-143		
125		132-158		

For METRIC Key Stock, see page E123.
For INCH Key Stock, see page E121 & E122.

ASSORTMENT
ASSORTIMENT
805-471

24 Sizes
345 Pieces



STEEL - Not Plated

Metric SHAFT KEYS

DIN 6885-A **Oblong - Rounded**

Most popular sizes - to 60 mm length

Put up in a REGULAR SIZE
grey enamelled STEEL drawer.
13-3/8" W. x 9-1/4" D. x 2" High.

Drawer fits Slide Racks shown on page A2.

Shipping Wt. 5.5 kg (12 lbs.)

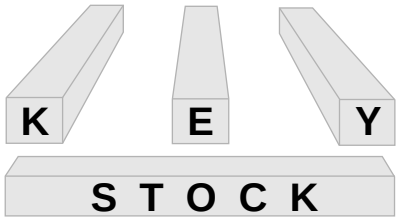
CATALOG 13

Square Machine Key Bars

SQUARE TOLERANCES

3/32" to 3/4" -0/+ .003"
13/16" to 1-1/2" -0/+ .004"
1-3/4" to 2-1/2" -0/+ .005"

(Stainless and Brass supplied with undersize tolerance)



JUST CUT, FILE, AND FIT

SMOOTH CUT BARS
CLEAN, GREASELESS

E

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW

Size Square	12" Lengths: Cold Drawn Zinc Plated STEEL C1018	12" Lengths: Cold Finished BRASS	12" Lengths: Type 303 STAINLESS STEEL	Unit Package Quantity	36" Lengths Zinc Plated STEEL U.P. – 1
1/16"	**131-450**			6	
3/32"	**131-451**			6	
1/8"	**131-452**	**131-500**	**131-550**	6	**131-471**
5/32"	**131-453**			6	
3/16"	**131-454**	**131-501**	**131-551**	6	**131-472**
7/32"	**131-455**			6	
1/4"	**131-456**	**131-502**	**131-552**	6	**131-473**
9/32"	**131-457**			6	
5/16"	**131-458**	**131-503**	**131-553**	6	**131-474**
11/32"	**131-459**			6	
3/8"	**131-460**	**131-504**	**131-554**	6	**131-475**
7/16"	**131-461**	**131-505**	**131-555**	3	
1/2"	**131-462**	**131-506**	**131-556**	3	**131-476**
9/16"	**131-463**		**131-557**	3	
5/8"	**131-464**	**131-507**	**131-558**	3	**131-477**
11/16"	**131-465**			3	
3/4"	**131-466**		**131-559**	3	**131-478**
13/16"	**131-467**			2	
7/8"	**131-468**		**131-560**	2	**131-479**
15/16"	**131-469**			2	
1"	**131-470**	**131-508**	**131-561**	2	**131-480**
1-3/16"					**131-481**
1-1/4"					**131-482**
1-3/8"					**131-483**
1-1/2"					**131-484**
2"					**131-486**

ASSORTMENT ASSORTIMENT	KEY BAR MATERIAL	SHIPPING WT.
805-460	Type 303 STAINLESS STEEL	6.35 kg (14 lbs.)

Regular size welded, grey-enamelled STEEL Drawers will fit the slide racks shown on page A2.

ASSORTMENT CONTENTS

	No. of 12" Bars
1/8" Square	5
3/16" Square	5
1/4" Square	5
5/16" Square	5
3/8" Square	5
7/16" Square	3
1/2" Square	3
TOTAL BARS	31

SPAENAUR No.			
131-485	**SQUARE KEY** SAE CI018 STEEL, Plain Finish	SIZE: .248" sq. x 13/16" long	*Unit Pkg. Qty. 25*

For Metric Sizes, see page E123.

RECTANGULAR KEY STOCK

INCH SIZES STEEL

Ready to use - just cut, file, and fit to keyway.

E

Manufactured from high quality, cold drawn low carbon, (C-1018) steel; meets Fed. Spec. QQS-634.

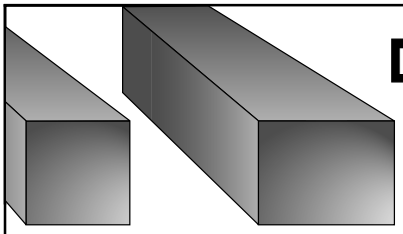
Electro-Zinc plated .00015" for clean handling and resistance to rust.

Size clearly marked on **each** bar for quick selection.

12" Lengths
for ease in storing and handling

TOLERANCES UP TO 3/4" INC.
MINUS .000" PLUS .003
OVER 3/4" TO 1-1/2" INC.
MINUS .000" PLUS .004

SPAENAUR No.	Dimensions in INCHES	No. of Bars per Unit Pkg.	Wt. (in lbs.) per Unit Pkg.
131-300	1/8" x 3/16"	6	.480
131-301	1/8" x 1/4"	6	.636
131-302	1/8" x 3/8"	6	.954
131-303	3/16" x 1/4"	6	.954
131-304	3/16" x 5/16"	6	1.19
131-305	3/16" x 3/8"	6	1.43
131-306	3/16" x 1/2"	6	1.914
131-307	1/4" x 5/16"	6	1.60
131-308	1/4" x 3/8"	6	1.914
131-309	1/4" x 1/2"	6	2.55
131-310	5/16" x 3/8"	6	2.39
131-311	5/16" x 1/2"	6	3.19
131-312	5/16" x 5/8"	6	3.98
131-313	3/8" x 1/2"	6	3.89
131-314	3/8" x 5/8"	6	4.78
131-315	3/8" x 3/4"	6	5.74
131-316	7/16" x 1/2"	6	4.5
131-317	1/2" x 5/8"	6	6.38
131-318	1/2" x 3/4"	6	7.65
131-319	5/8" x 3/4"	4	6.36
131-320	5/8" x 1"	4	8.52
131-321	3/4" x 1"	4	10.2



DIN 6880 METRIC KEY STOCK

Square & Rectangular **Available in:**

C45K Steel - Plain and Zinc Plated (Clear or Yellow, our option)

Brass – A2 Stainless Steel

C45K Steel Chemical Composition:

CARBON: 0.42-0.5 PHOSPHORUS: 0.040 SILICON: 0.17-0.37 SULPHUR: 0.040 MANGANESE: 0.50-0.80

Dimensions in mm Thick. x Width	C45 STEEL – Plain Tolerance: h9 1 metre lgth.	2 metre lgth.	3 metre lgth.	Approx. Weight kg/m	C45 STEEL - Zinc Plated Tolerance: h9 300 or 305mm length (Our Option)	1 metre lgth.	BRASS 1 metre lgth.	A2 STAINLESS ST. 1 metre lgth.
2 x 2	**132-503**	**132-521**	**132-563**	0.065				
3 x 3	**132-460**	**132-522**	**132-564**	0.07		**132-460ZP**		**132-800**
3 x 5	**132-470**	**132-523**	**132-566**	0.12		**132-470ZP**		
4 x 4	**132-461**	**132-524**	**132-565**	0.13	**132-450**	**132-461ZP**	**132-505**	**132-801**
4 x 6	**132-471**	**132-525**	**132-568**	0.19		**132-471ZP**		
5 x 5	**132-462**	**132-526**	**132-567**	0.20	**132-451**	**132-462ZP**		**132-802**
5 x 8	**132-472**	**132-527**	**132-571**	0.32	**132-498**	**132-472ZP**		**132-803**
6 x 6	**132-463**	**132-528**	**132-569**	0.28	**132-452**	**132-463ZP**		**132-804**
6 x 10	**132-474**	**132-529**	**132-574**	0.47		**132-474ZP**		**132-805**
6 x 12	**132-476**	**132-530**	**132-577**	0.57	**132-500**	**132-476ZP**		**132-806**
6 x 14	**132-478**		**132-581**	0.66		**132-478ZP**		
6 x 20	**132-504**	**132-531**	**132-589**	1.06				
7 x 7	**132-464**	**132-532**	**132-570**	0.38	**132-453**	**132-464ZP**		
7 x 8	**132-473**	**132-533**	**132-572**	0.41	**132-502**	**132-473ZP**		**132-807**
7 x 18	**132-481**	**132-534**	**132-586**	0.99		**132-481ZP**		**132-808**
8 x 8	**132-465**	**132-535**	**132-573**	0.50	**132-454**	**132-465ZP**		**132-809**
8 x 10	**132-475**	**132-536**	**132-575**	0.63	**132-499**	**132-475ZP**		**132-810**
8 x 12	**132-477**	**132-537**	**132-578**	0.75		**132-477ZP**		**132-811**
8 x 20	**132-483**	**132-538**	**132-590**	1.26	**132-497**	**132-483ZP**		**132-812**
9 x 14	**132-479**	**132-539**	**132-582**	0.99	**132-449**	**132-479ZP**		**132-813**
9 x 22	**132-485**		**132-594**	1.55	**132-425**	**132-485ZP**		
9 x 25	**132-486**		**132-597**	1.77		**132-486ZP**		
10 x 10	**132-466**	**132-540**	**132-576**	0.78		**132-466ZP**		**132-814**
10 x 12	**132-428**	**132-541**	**132-579**	0.94	**132-501**			
10 x 16	**132-480**	**132-542**	**132-584**	1.26		**132-480ZP**		**132-816**
10 x 28	**132-488**		**132-600**	2.20		**132-488ZP**		
11 x 18	**132-482**	**132-543**	**132-587**	1.56	**132-459**	**132-482ZP**		**132-818**
12 x 12	**132-467**	**132-544**	**132-580**	1.13		**132-467ZP**		**132-817**
12 x 20	**132-484**	**132-545**	**132-591**	1.26	**132-448**	**132-484ZP**		
14 x 14	**132-468**	**132-547**	**132-583**	1.54	**132-444**	**132-468ZP**		
14 x 22	**132-431**	**132-546**	**132-595**	2.42	**132-457**			
14 x 25	**132-487**	**132-551**	**132-598**	2.75	**132-491**	**132-487ZP**		
16 x 16	**132-469**	**132-548**	**132-585**	2.01	**132-608**	**132-469ZP**		
16 x 20		**132-549**	**132-592**	2.57				
16 x 28	**132-489**	**132-550**	**132-601**	3.52	**132-492**	**132-489ZP**		
18 x 18	**132-434**		**132-588**	2.54	**132-455**			
18 x 32	**132-435**	**132-553**	**132-603**	4.52	**132-458**			
20 x 20	**132-436**	**132-554**	**132-593**	3.14	**132-438**			
20 x 36	**132-446**	**132-555**	**132-605**	5.66	**132-495**			
22 x 22	**132-437**	**132-556**	**132-596**	3.80	**132-493**			
22 x 40	**132-442**	**132-557**	**132-607**	6.91	**132-494**			
25 x 25	**132-447**	**132-558**	**132-599**	5.44	**132-456**			
25 x 45	**132-443**	**132-559**	**132-609**	8.83	**132-445**			
28 x 28				6.04	**132-490**			
32 x 32	**132-440**	**132-561**	**132-604**	8.76	**132-496**			
36 x 36	**132-441**	**132-562**	**132-606**	10.73				

See Price List for Unit Package Quantities.

Drill Rod Rounds
Carbon Steel – Plain Finish

AISI W-1 TOOL STEEL
For Water Hardening

PRECISION GROUND & POLISHED
A Necessity For Any Machine Shop!

What's a machine shop without drill rod? Keep plenty on hand. Use for small tools and dies, keys, taps, arbors, special threaded rods, roller bearings, mandrels, punches, pinions, knock-out pins, dowel pins.

AISI W-1 TOOL STEEL
For Water Hardening

Furnished in annealed condition, ready for machining and heat treating.

Typical Analysis:

Carbon (C) 1.05% Manganese (Mn) 0.20% Silicon (Si) 0.20%

Also Available - Oil Hardening Grade on Special Order

Standard Manufacturing Tolerances

INCH SIZES	
SIZE RANGE	PLUS OR MINUS
Up to 0.124"	.0003"
0.125" to 0.499"	.0005"
0.500" to 2.000"	.001"

Standard Manufacturing Tolerances

METRIC SIZES			
SIZE RANGE	PLUS	MINUS	IN INCHES
1.00 - 1.50 mm	0	.012 mm	-.0005
2.00 - 3.00 mm	0	.014 mm	-.0006
3.50 - 6.00 mm	0	.018 mm	-.0007
6.50 - 10.00 mm	0	.022 mm	-.0009
10.50 - 18.00 mm	0	.027 mm	-.0010
19.00 - 30.00 mm	0	.033 mm	-.0013

INCH SIZES 36" Lengths (91.44 cm)

SPAENAUR No.	Diameter (inches)	Rods Per Unit Package
864-200	1/16"	10
864-201	5/64"	10
864-202	3/32"	10
864-203	7/64"	10
864-204	1/8"	10
864-205	9/64"	10
864-206	5/32"	10
864-207	3/16"	1
864-208	7/32"	1
864-209	1/4"	1
864-210	9/32"	1
864-211	5/16"	1
864-212	11/32"	1
864-213	3/8"	1
864-214	13/32"	1
864-215	7/16"	1
864-216	15/32"	1
—	1/2"	1
864-218	9/16"	1
864-219	5/8"	1
864-220	11/16"	1
864-221	23/32"	1
864-222	3/4"	1
864-223	13/16"	1
864-224	7/8"	1
864-225	15/16"	1
864-226	1"	1
—	1-1/8"	1
864-229	1-1/4"	1
864-228	1-3/8"	1

METRIC SIZES **DIN 175** **(Tolerance: h9)**
1 Metre Lengths (39.37")

SPAENAUR No.	Diameter (mm)	Rods Per Unit Package
—	2	10
—	2.2	10
865-203	2.5	10
—	2.6	10
—	2.8	10
865-204	3	10
865-208	5	10
865-210	6	10
865-212	7	1
—	8	1
865-214	9	1
865-216	11	1
865-217	12	1
—	13	1
—	16	1
865-223	18	1
—	19	1
865-224	20	1
—	21	1
865-225	22	1
—	23	1
865-226	24	1
865-227	25	1
—	26	1
—	27	1
—	28	1
—	29	1
865-228	30	1
—	32	1
—	33	1
865-198	35	1
—	36	1
—	40	1

Drill Rod Rounds
Chromium Vanadium Steel

PRECISION GROUND and POLISHED

METRIC SIZES **DIN 175** **(Tolerance: h9)**

Rod Dia. (mm)	300 mm (11.81") Length *SPAENAUR No.*	Rods per Unit Pkg.	1 METRE (39.37") Length *SPAENAUR No.*	Rods per Unit Pkg.	2 METRE (78.74") Length *SPAENAUR No.*	Rods per Unit Pkg.
1	—	—	**865-200**	10	—	—
1.5	—	—	**865-201**	10	—	—
2	—	—	**865-284**	10	**865-244**	5
2.2	—	—	**865-229**	10	**865-245**	5
2.5	—	—	**865-285**	10	**865-246**	5
2.6	—	—	**865-230**	10	**865-247**	5
2.8	—	—	**865-231**	10	**865-248**	5
3	—	—	**865-286**	10	**865-249**	5
3.5	—	—	**865-205**	10	**865-250**	5
4	—	—	**865-206**	10	**865-251**	5
4.5	—	—	**865-207**	10	**865-252**	5
5	—	—	**865-287**	10	**865-253**	5
5.5	—	—	**865-209**	10	—	—
6	—	—	**865-288**	10	**865-254**	5
6.5	—	—	**865-211**	10	—	—
7	—	—	**865-289**	1	**865-255**	1
8	—	—	**865-290**	1	**865-256**	1
9	—	—	**865-291**	1	**865-257**	1
10	—	—	**865-215**	1	**865-258**	1
11	—	—	**865-292**	1	**865-259**	1
12	—	—	**865-293**	1	**865-260**	1
13	**865-297**	1	**865-294**	1	**865-261**	1
14	**865-296**	1	**865-219**	1	**865-262**	1
15	—	—	**865-220**	1	**865-263**	1
16	—	—	**865-295**	1	**865-264**	1
17	—	—	**865-222**	1	**865-265**	1
18	—	—	**865-199**	1	**865-266**	1
19	—	—	**865-232**	1	**865-267**	1
20	—	—	**865-301**	1	**865-268**	1
21	—	—	**865-233**	1	**865-269**	1
22	—	—	**865-302**	1	**865-270**	1
23	—	—	**865-234**	1	**865-271**	1
24	—	—	**865-303**	1	**865-272**	1
25	—	—	**865-304**	1	**865-273**	1
26	—	—	**865-235**	1	**865-274**	1
27	—	—	**865-236**	1	**865-275**	1
28	—	—	**865-237**	1	**865-276**	1
29	—	—	**865-238**	1	**865-277**	1
30	—	—	**865-305**	1	**865-278**	1
32	**865-299**	1	**865-239**	1	**865-279**	1
33	—	—	**865-240**	1	**865-280**	1
35	—	—	**865-241**	1	**865-281**	1
36	—	—	**865-242**	1	**865-282**	1
40	—	—	**865-243**	1	**865-283**	1

MATERIAL: 115 CrV3 Chromium Vanadium Steel
CHEMICAL COMPOSITION: C 1.15% CR 0.65% V 0.10%
CONDITION: Up to dia. 1.99 mm, precision drawn – larger sizes are drawn, grounded and polished. Annealed max., hardness 98 HRB
HEAT TREATMENT SPECIFICATIONS:
Hot forming: 850 - 1050° C (1562 - 1922°F)
Annealing: 710 - 750°C (1310 - 1382°F)
Hardening: Up to dia. 12 mm, 810 - 840°C (1490 - 1544°F) quenched in oil. Above 12 mm, 760 – 810° C (1400 - 1490°F) quenched in water.
TEMPERING: 100 - 300°C (212 - 572°F)
MECHANICAL PROPERTY:
Approximate expected hardness – 64 HRC (related to 25 x 25 mm material thickness)
Approximate hardness after tempering:
Tempered to 100°C (212°F) = 65 HRC
Tempered to 200°C (392°F) = 62 HRC
Tempered to 300°C (572°F) = 57 HRC

Nylon 6/6 (101) Rod Rounds

Unthreaded – Natural Finish

... provide a good combination of high tensile and compressive strength, and resistance to abrasion and heat. General purpose nylon, 6/6 natural without fillers. It is an excellent high voltage insulator, but it is not suitable for high frequency applications. Its relative toughness, high strength, ability to hold a good thread, and short time resistance to soldering temperatures make it an ideal low frequency insulation. Nylon 101 may be machined, tapped, turned, threaded, drilled, sawed and centerless gound. This rod meets federal specification L-P-410a.

Dia. Tolerances: **1/16" to 1"** +/- .001"
1-1/8" to 2" +.005" to .000"

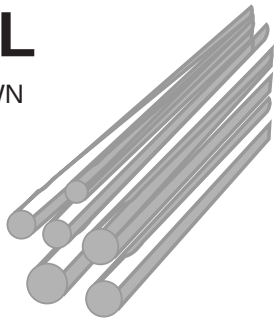
SPAENAUR No.	Diameter (inches)	Unit Pkg. Quantity
864-400	1/8"	10
864-401	3/16"	10
864-402	1/4"	10
864-403	5/16"	10
864-404	3/8"	10
864-405	7/16"	5
864-406	1/2"	5
864-407	5/8"	5
864-408	3/4"	5
864-409	7/8"	1
864-410	1"	1
864-411	1-1/8"	1
864-412	1 -1/4"	1
864-413	1-3/8"	1
864-414	1-1/2"	1
864-415	1-5/8"	1
864-416	1-3/4"	1
864-417	1-7/8"	1
864-418	2"	1

All Nylon Rods 8 Foot Length

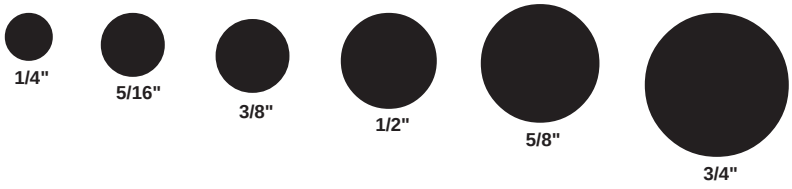
STEEL

COLD DRAWN

Zinc Plated Finish



ROUND BAR STOCK



E

Made from special bar-quality open-hearth steel. Can be cut, riveted and drilled. **(Not Tool Steel grade)**.
Tolerances will run plus .000" to minus .002".

Keep plenty on hand. Use for making arbors, axles, drive-shafts, mandrels, punches, knock-out pins, dowel pins, etc.

Tensile Strength: 65/75,000 lbs. per sq. inch
Yield: 50/60,000 lbs. per sq. inch.
Elongation in 2" 20/30%
Rd. of area 50/60%
Brinell Hardness ..... 147 AVG.

COLD DRAWN **Steel Rounds**

12" Lengths				36" Lengths			
SPAENAUR No.	DIAMETER Inch Sizes	DIAMETER Metric (mm)	Bars per Unit Package	*SPAENAUR No.*	DIAMETER Inch Sizes	DIAMETER Metric (mm)	Bars per Unit Package
131-350	3/16"	4.763	10	**866-100**	3/16"	4.763	10
131-351	1/4"	6.350	10	**866-101**	1/4"	6.350	10
131-352	5/16"	7.938	10	**866-102**	5/16"	7.938	5
131-353	3/8"	9.525	10	**866-103**	3/8"	9.525	5
131-354	7/16"	11.113	5	**866-104**	7/16"	11.113	5
131-355	1/2"	12.700	5	**866-105**	1/2"	12.700	5
131-356	5/8"	15.875	3	**866-106**	5/8"	15.875	1
131-357	3/4"	19.050	3	**866-107**	3/4"	19.050	1
131-358	7/8"	22.225	3	**866-108**	7/8"	22.225	1
131-359	1"	25.400	3	**866-109**	1"	25.400	1

ASSORTMENT
ASSORTIMENT **805-462**

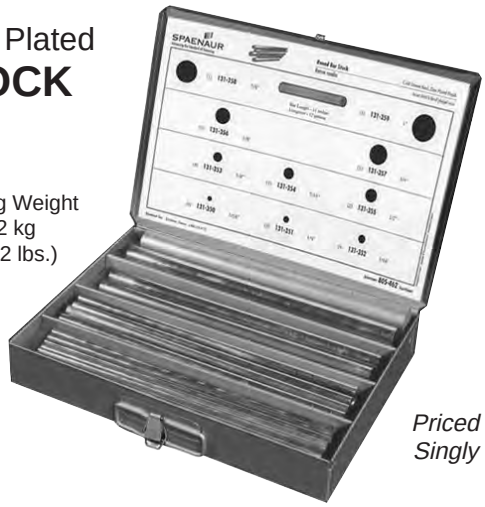
Cold-drawn STEEL - Zinc Plated
ROUND BAR STOCK

Assortment contains:

Bars	*SPAENAUR No.*	Dia.
6	**131-350**	3/16"
5	**131-351**	1/4"
4	**131-352**	5/16"
4	**131-353**	3/8"
3	**131-354**	7/16"

Bars	*SPAENAUR No.*	Dia.
2	**131-355**	1/2"
1	**131-356**	5/8"
1	**131-357**	3/4"
1	**131-358**	7/8"
1	**131-359**	1"

Shipping Weight
10.2 kg
(22-1/2 lbs.)



Priced Singly

Total Contents: 28 Bars - 12" long

REGULAR SIZE grey enamelled STEEL drawer fits the Slide Racks shown on page A2.

PLAIN
YELLOW BRASS RODS

Free-turning, for converting continuous hinges to "BP", Brass Pin style.

SPAENAUR No.	Diameter	Length
BR-1	3/16"	72"
BR-2	3/16"	96"
BR-3	1/4"	72"
BR-4	1/4"	96"
BR-5	3/8"	84"

See page L113 for Steel Pin Rods for Continuous Hinges.

P.C. 838

CATALOG 13

CLAMPING COLLARS with screw

ONE PIECE

Clamping design fully engages the shaft without marring or other shaft damage.

Effective on hard and soft shafts.

Full range of sizes available from 1/8" to 3" dia. shaft.
(Min. qty. purchase may apply.)

SPAENAUR No.			▲Mild Steel Black Oxide Finish			
▲STEEL	STAINLESS STEEL	ALUMINUM	*Bore Inch	O.D. Inch	Width Inch	Replacement Hex Socket Cap Screw Size
600-001	—	—	3/8	7/8	3/8	6-32 x 3/8"
600-002	—	—	1/2	1-1/8	13/32	8-32 x 1/2"
600-003	—	—	5/8	1-5/16	7/16	10-32 x 1/2"
600-004	—	—	3/4	1-1/2	1/2	1/4"-28 x 5/8"
600-005	—	—	7/8	1-5/8	1/2	1/4"-28 x 5/8"
600-006	—	—	1	1-3/4	1/2	1/4"-28 x 5/8"
600-007	—	—	1-1/4	2-1/16	1/2	1/4"-28 x 3/4"
600-008	—	—	1-3/8	2-1/4	9/16	1/4"-28 x 3/4"
600-009	—	—	1-1/2	2-3/8	9/16	1/4"-28 x 3/4"

*Tolerance +.003"/-.000"

CLAMPING COLLARS with screws

TWO PIECE

Two piece collars may be easily installed where major disassembly would otherwise be necessary.

Clamping design fully engages the shaft without marring or other shaft damage.

Effective on hard and soft shafts.

Full range of sizes available from 1/8" to 6" dia. shaft.
(Min. qty. purchase may apply.)

SPAENAUR No.			▲Mild Steel Black Oxide Finish			
▲STEEL	STAINLESS STEEL	ALUMINUM	*Bore Inch	O.D. Inch	Width Inch	Replacement Hex Socket Cap Screw Size
600-050	—	—	3/8	7/8	3/8	6-32 x 3/8"
600-051	—	—	1/2	1-1/8	13/32	8-32 x 1/2"
600-052	—	—	5/8	1-5/16	7/16	10-32 x 1/2"
600-053	—	—	3/4	1-1/2	1/2	1/4"-28 x 5/8"
600-054	—	—	7/8	1-5/8	1/2	1/4"-28 x 5/8"
600-055	—	—	1	1-3/4	1/2	1/4"-28 x 5/8"
600-056	—	—	1-1/4	2-1/16	1/2	1/4"-28 x 3/4"
600-057	—	—	1-3/8	2-1/4	9/16	1/4"-28 x 3/4"
600-058	—	—	1-1/2	2-3/8	9/16	1/4"-28 x 3/4"
600-059	—	—	2	3	11/16	5/16"-24 x 1"

*Tolerance +.003"/-.000"

THREADED CLAMPING COLLARS with screw

ONE PIECE

Clamping design fully engages the shaft thread for secure locking. Adjusts easily.

More Climax items on E128 and E129.

Full range of sizes available 10-32 thru 2"-12.
(Min. qty. purchase may apply.)

SPAENAUR No.					
▲STEEL	STAINLESS STEEL	Bore Thread	O.D. Inch	Width Inch	Replacement Hex Socket Cap Screw Size
600-070	—	10-32	11/16	5/16	4-40 x 3/8"
600-071	—	1/4"-20	11/16	5/16	4-40 x 3/8"
600-072	—	1/4"-28	11/16	5/16	4-40 x 3/8"
600-075	—	5/16"-18	11/16	5/16	4-40 x 3/8"
600-073	—	5/16"-24	11/16	5/16	4-40 x 3/8"
600-074	—	3/8"-16	7/8	3/8	6-32 x 3/8"
600-079	—	3/8"-24	7/8	3/8	6-32 x 3/8"
600-076	—	1/2"-13	1-1/8	13/32	8-32 x 1/2"
600-080	—	1/2"-20	1-1/8	13/32	8-32 x 1/2"
600-081	—	5/8"-11	1-5/16	7/16	10-32 x 1/2"
600-077	—	5/8"-18	1-5/16	7/16	10-32 x 1/2"
600-082	—	3/4"-10	1-1/2	1/2	1/4"-28 x 5/8"
600-083	—	7/8"-9	1-5/8	1/2	1/4"-28 x 5/8"
600-078	—	1"-8	1-3/4	1/2	1/4"-28 x 5/8"

▲Mild Steel Black Oxide Finish

Please call for quotation. All items this page *Priced Singly*. Technical information on E129.

Stainless Steel and Aluminum, where shown, available upon request.

Minimum qty. purchase may apply.

CLAMPING COUPLINGS with recessed screws

ONE PIECE

Clamping design fully engages the shaft for superior torque transmission and alignment. Recessed screw head provides an outside surface free of major projections.

Size range available 1/4" thru 1-1/2" and with keyway.

SPAENAUR No.	*Bore Inch	O.D. Inch	Length Inch	Replacement Hex Socket Cap Screw Size
600-150	3/8	1-1/16	1-5/8	6-32 x 3/8"
600-151	5/8	1-1/2	2-1/4	10-32 x 1/2"
600-152	3/4	1-3/4	2-5/8	1/4"-28 x 5/8"
600-153	1	2	3	1/4"-28 x 5/8"

Mild Steel Black Oxide Finish

*Tolerance
+.003"/-.000"

E

SET SCREW COUPLINGS with screws

Traditional rigid cost effective design provides torque transmission and alignment.

Available in other sizes up to 1-1/2" and with keyway.

SPAENAUR No.	*Bore Inch	O.D. Inch	Length Inch	Replacement Hex Socket Set Screw Size
600-160	1/4	1/2	3/4	10-32 x 1/8"
600-161	3/8	3/4	1	1/4"-20 x 3/16"
600-162	1/2	1	1-1/2	1/4"-20 x 1/4"
600-163	5/8	1-1/4	2	5/16"-18 x 5/16"
600-164	1	2	3	5/16"-18 x 1/2"

Mild Steel Black Oxide Finish

*Tolerance
+.0005"/+.0030"

SET SCREW COLLARS with screw

Inch

▲Mild Steel Zinc Plated

Traditional cost effective collar design.

Available in full range of sizes 1/8" thru 5-15/16"

Also available, two set screws at 90° and Lightweight Series.

(Min. qty. purchase may apply.)

*Bore Tolerance
1/4" to 1/2" +.0005"/+ .0025"
9/16" to 2" +.0005"/+ .0030"
Over 2" +.0010"/+ .0040"

SPAENAUR No.						
▲STEEL Zinc Plated	STEEL Unplated	STAINLESS STEEL	*Bore Inch	O.D. Inch	Width Inch	Replacement Hex Socket Set Screw Size
600-100	—	—	1/4	1/2	5/16	10-32 x 1/8"
600-101	—	—	3/8	3/4	3/8	1/4"-20 x 3/16"
600-102	—	—	1/2	1	7/16	1/4"-20 x 1/4"
600-103	—	—	5/8	1-1/8	1/2	5/16"-18 x 1/4"
600-104	—	—	3/4	1-1/4	9/16	5/16"-18 x 1/4"
600-105	—	—	7/8	1-1/2	9/16	5/16"-18 x 5/16"
600-106	—	—	15/16	1-1/2	9/16	5/16"-24 x 1/4"
600-107	—	—	1	1-1/2	5/8	5/16"-24 x 1/4"
600-108	—	—	1-1/4	2	11/16	3/8"-16 x 3/8"
600-109	—	—	1-3/8	2-1/8	3/4	3/8"-16 x 3/8"
600-110	—	—	1-1/2	2-1/4	3/4	3/8"-16 x 3/8"
600-111	—	—	1-5/8	2-1/2	13/16	3/8"-16 x 3/8"
600-112	—	—	1-3/4	2-5/8	7/8	1/2"-13 x 1/2"
600-113	—	—	1-15/16	3	7/8	1/2"-13 x 1/2"
600-114	—	—	2	3	7/8	1/2"-13 x 1/2"
600-115	—	—	2-1/2	3-1/2	1	1/2"-13 x 1/2"
600-116	—	—	2-15/16	4	1-1/8	1/2"-13 x 1/2"
600-117	—	—	3	4	1-1/8	1/2"-13 x 1/2"

Looking for a product not listed?

Call us at (800) 265-8772.

SPAENAUR

Metric SET SCREW COLLARS with screw

*Bore Tolerance
10 mm to 12 mm +.01mm/+ .06 mm
20 mm to 25 mm +.01 mm/+ .08 mm

Mild Steel
Black Oxide Finish

Traditional cost effective collar design.

Available sizes M2 thru M50 dia. shaft.
(Min. qty. purchase may apply.)

SPAENAUR No.	*Bore mm	O.D. mm	Width mm	Replacement Hex Socket Set Screw Size
600-125	10	20	10	M5 x 0.80 x 5 mm
600-126	12	22	12	M6 x 1.00 x 6 mm
600-127	20	32	14	M6 x 1.00 x 6 mm
600-128	25	40	16	M8 x 1.25 x 8 mm

Metric CLAMPING COLLARS with screw (■ 2 screws)

*Tolerance
+.08 mm/-.00 mm

Mild Steel
Black Oxide Finish

Clamping design fully engages the shaft.

Full range of sizes M3 thru M80.
(Min. qty. purchase may apply.)

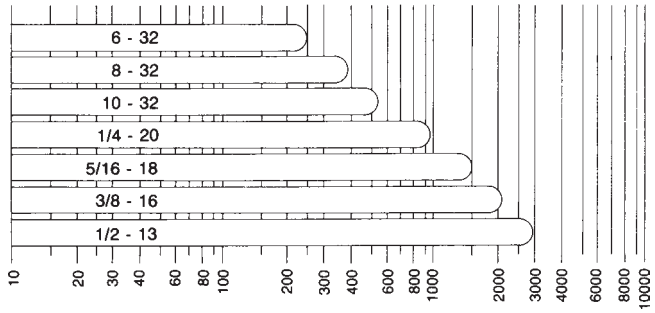
SPAENAUR No. ■ One Piece STEEL	SPAENAUR No. ■ Two Piece STEEL	*Bore mm	O.D. mm	Width mm	Replacement Hex Socket Cap Screw Size
600-140	600-142	20	40	15	M6 x 1.00 x 16 mm
600-141	600-143	25	45	15	M6 x 1.00 x 16 mm

ONE & TWO PIECE

Two piece collars may be easily installed where major disassembly would otherwise be necessary.

TECHNICAL INFORMATION

SET SCREW COLLAR - HEX SOCKET SET SCREWS

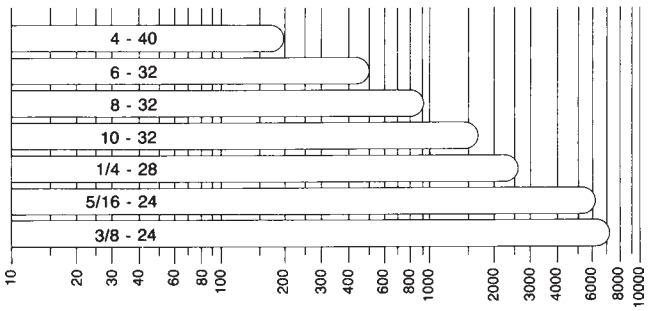


AXIAL LOAD, POUNDS, MAXIMUM

Hex Socket Set Screw Recommended Seating Torque, Inch - Pounds

Size	Steel	Stainless	Size	Steel	Stainless
6-32	10	7	5/16"-18	170	135
8-32	20	15	3/8"-16	300	235
10-32	35	25	1/2"-13	625	500
1/4"-20	90	70			

CLAMPING COLLAR - HEX SOCKET CAP SCREWS



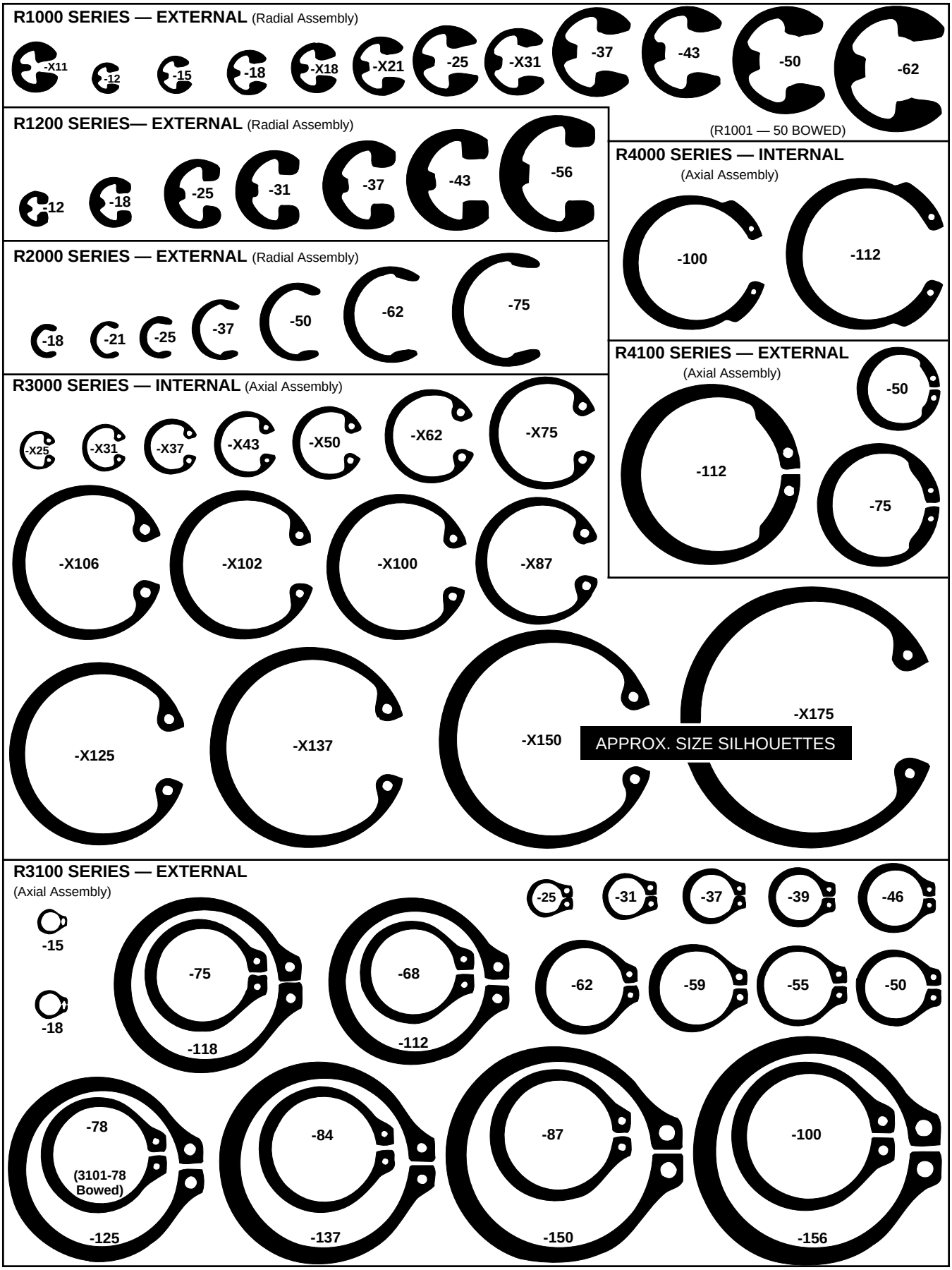
AXIAL LOAD, POUNDS, MAXIMUM

Hex Socket Cap Screw Recommended Seating Torque, Inch - Pounds

Size	Steel	Stainless	Size	Steel	Stainless
4-40	15	8	1/4"-28	175	115
6-32	25	15	5/16"-24	340	200
8-32	50	30	3/8"-24	600	350
10-32	75	45			

SPAENAUR

Quality fasteners – inspected, tested and certified!



E

CATALOG 13

For Assortments and Plastikits see pages E131 and E132.

ASSORTMENTS/ASSORTIMENTS

These handy assortment kits feature the most popular types and sizes of retaining rings. They are designed to save time in garages, factories, and agriculture, in maintenance and design development departments, and for all users of retaining rings.

Packed in a grey enamelled steel container. Chart inside hinged lid features actual size illustrations and part numbers. Easy to order refills.

RETAINING RINGS

Carbon Spring Steel,
Phosphate Coated or Plain, our option.

R1000 and R1200 Series
External - Radial Assembly

(See Pages E133 & E134)

Shipping Weight 2.27 kg (5 lbs.).

Priced Singly.

ASSORTMENT
ASSORTIMENT **805-404**

For shaft diameters 7/64" to 3/4".

Contains 795 Rings in 20 sizes.

Put up in “regular size” grey enamelled STEEL drawer 13-3/8" x 9-1/4" x 2".

All bins have “scooped” bottoms.

Drawer fits into Slide Racks shown on page A2.

RETAINING RINGS

Carbon Spring Steel,
Phosphate Coated or Plain, our option.

R3000 Series
Internal - Axial Assembly

(See Page E136)

Shipping Weight 2.04 kg (4.5 lbs.).

ASSORTMENT
ASSORTIMENT **805-406**

For housing diameters 1/4" to 1-3/4".

Contains 356 Rings in 16 sizes.

Put up in “regular size” grey enamelled STEEL drawer 13-3/8" x 9-1/4" x 2".

All bins have “scooped” bottoms.

Drawer fits into Slide Racks shown on page A2.

Priced Singly.

ASSORTMENT
ASSORTIMENT **805-430**

For shaft diameters 5/32" to 1-3/4".

Contains 225 Rings in 26 sizes.

Put up in “regular size” grey enamelled STEEL drawer 13-3/8" x 9-1/4" x 2".

All bins have “scooped” bottoms.

Drawer fits into Slide Racks shown on page A2.

Shipping Wt. 2.50 kg (5-1/2 lbs.)

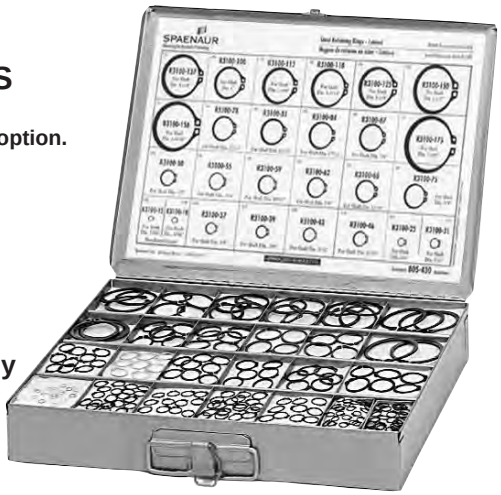
RETAINING RINGS

Carbon Spring Steel,
Phosphate Coated or Plain, our option.

R3100 Series
External - Axial Assembly

(See Page E138)

Priced Singly.



PLASTIKIT ASSORTMENTS OF RETAINING RINGS

Handy assortment kits packed in clear plastic boxes with hinged lids.
Size 1" x 2-3/4" x 4-1/2" *Priced Singly*

E

Plastikit «Plastikit» A-58

R1000 and R1200 Series
External - Radial Assembly
Contains 169 Rings in 19 popular sizes.
Carbon Spring Steel,
Phosphate Coated or Plain, our option.

Plastikit «Plastikit» A-59

R3000 Series
Internal - Axial Assembly
Contains 88 Rings in 16 popular sizes.
Carbon Spring Steel,
Phosphate Coated or Plain, our option.

Plastikit «Plastikit» A-60

R3100 Series
External - Axial Assembly
Contains 100 Rings in 26 popular sizes.
Carbon Spring Steel,
Phosphate Coated or Plain, our option.

Plastikit «Plastikit» 804-075

R1000 & R1200 Series – External – Radial Assembly
Contains 90 Rings in 18 popular sizes.
STAINLESS STEEL (PH 15-7 Mo)

Plastikit «Plastikit» 804-076

R3000 Series – Internal – Axial Assembly
Contains 43 Rings in 14 popular sizes.
STAINLESS STEEL (PH 15-7 Mo)

Plastikit «Plastikit» 804-074

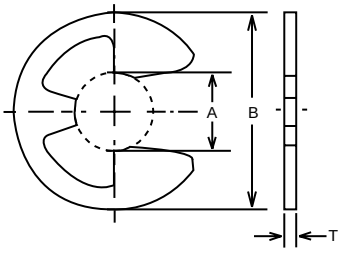
R3100 Series – External – Axial Assembly
Contains 46 Rings in 23 popular sizes.
STAINLESS STEEL (PH 15-7 Mo)

Plastikit «Plastikit» 804-077

R6100 Series – Self-Seating
Contains 245 Rings in 16 popular sizes.
Carbon Spring Steel,
Phosphate Coated or Plain, our option.

CATALOG 13

R1000 SERIES - External



Open-type Rings provide large shoulders on grooved shafts. Easily snapped on. Replace cotter pins, screw-fastened collars, machined shoulders, etc.

SPAENAUR Numbers listed below can usually be shipped immediately from stock.

Grey area on chart below indicates the available materials and sizes of rings, applicator tools and dispenser bases.

SHAFT DIA. Inch (frac.)	(dec.)	Free Dia. "A"	Ring Thick "T"	Ring O.D. "B"	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW: CARBON SPRING STEEL Phos. Coated or Plain our option.	CARBON SPRING STEEL Zinc Plated (Clear or Yellow Dichromate - our option.)	STAINLESS STEEL PH 15-7 Mo	BERYLLIUM COPPER	Applicator Tool No.	Dispenser Base
	.040	.025	.010	.079				R1000-4	876-411	
1/16	.062	.051	.010	.140	R1000-X6	R1000-X6ZP			876-412	
1/16	.062	.051	.010	.156	R1000-6	R1000-6ZP	250-804		876-413	
1/16	.062	.051	.020	.187						
3/32	.094	.073	.015	.187	R1000-9	R1000-9ZP	250-805		876-414	
3/32	.094	.069	.015	.230	R1000-X9	R1000-X9ZP			876-415	
7/64	.110	.076	.015	.375	R1000-X11	R1000-X11ZP			876-416	
1/8	.125	.094	.015	.230	R1000-12	R1000-12ZP	250-806		876-417	
9/64	.140	.100	.015	.203	R1000-X14	R1000-X14ZP			876-418	
9/64	.140	.109	.015	.250	R1000-A14	R1000-A14ZP			876-419	
9/64	.140	.102	.025	.270	R1000-14	R1000-14ZP			876-420	
5/32	.156	.114	.025	.282	R1000-15	R1000-15ZP	250-807		876-421	
11/64	.172	.125	.025	.312	R1000-X17	R1000-X17ZP			876-422	
3/16	.188	.145	.025	.335	R1000-18	R1000-18ZP	250-808		876-423	
3/16	.188	.122	.025	.375	R1000-X18	R1000-X18ZP			876-424	
7/32	.218	.185	.025	.437	R1000-X21	R1000-X21ZP	250-809		876-425	
1/4	.250	.207	.025	.527	R1000-25	R1000-25ZP	250-801		876-426	
5/16	.312	.243	.025	.500	R1000-X31	R1000-X31ZP	250-802		876-427	
3/8	.375	.300	.035	.660	R1000-37	R1000-37ZP	250-800		876-428	
3/8	.375	.300	.035	.660		R1000-37YZ (Yellow Zinc Pltd.)				
7/16	.437	.337	.035	.687	R1000-43	R1000-43ZP	250-803		876-429	
7/16	.437	.375	.035	.600	R1000-X43	R1000-X43ZP	250-813		876-437	
1/2	.500	.392	.042	.800	R1000-50	R1000-50ZP	250-810		876-438	
5/8	.625	.480	.042	.940	R1000-62	R1000-62ZP	250-811		876-439	
	.744	.616	.050	1.000	R1000-X74	R1000-X74ZP			876-440	
3/4	.750	.616	.050	1.00						
3/4	.750	.574	.050	1.120	R1000-75	R1000-75ZP	250-812		876-441	
7/8	.875	.668	.050	1.300	R1000-87	R1000-87ZP			876-442	
63/64	.985	.822	.050	1.500	R1000-X98	R1000-X98ZP			876-443	
1-3/16	1.188	1.066	.062	1.626	R1000-X118	R1000-X118ZP				
1-3/8	1.375	1.213	.062	1.87	(P.C. 250)					

SPAENAUR "CROSS-REFERENCE" CHART

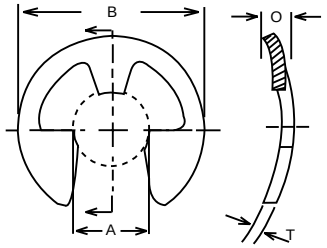
SPAENAUR Brand	Anderton Brand	Industrial Brand	Waldes/Truarc Brand	Military Standard
R1000	N1500	1000	5133	MS16633
R1001	N1501	1001	5131	MS16634
R1200	N1540	1200	5144	MS3215
R2000	N1800	2000	5103	MS16632
R3000	N1300	3000	5000	MS16625
R3100	N1400	3100	5100	MS16624
R3101	N1401	3101	5101	MS16628
R4000	N1308	4000	5008	MS16627
R4100	N1408	4100	5108	MS16626
R6100	N1405	6100	5105	N/A
5115	N1465	N/A	5115	N/A
5555	N1440	7100	5555	MS90707

NOTE: All rings are furnished "loose." "Stacked" rings are not stocked, but are available at extra cost.

Some examples of Approx. Size Silhouettes on page E130.

See Price List for Unit Package Quantities.

R1001 SERIES - External (Bowed)



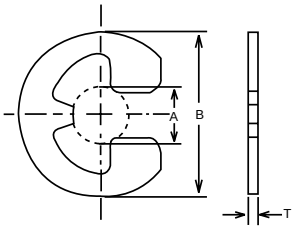
Bowed for resilient take-up of end play.
Provide large shoulders on grooved shaft

SPAENAUR Numbers listed below can usually be shipped immediately from stock.

Grey area on chart below indicates the available materials and sizes of rings and applicator tools.

SHAFT DIA. Inch (frac.)	(dec.)	Free Dia. "A"	Ring Thick. "T"	Ring O.D. "B"	Overall Bow Ht. "O"	Max. Take-Up	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW: CARBON SPRING STEEL Phos. Coated or Plain, our option	CARBON SPRING STEEL Zinc Plated (Clear or Yellow Dichromate - our option.)	STAINLESS STEEL PH 15-7 Mo	BERYLLIUM COPPER	Applicator Tool No.
7/64	.110	.076	.015	.375	.038-.048	.023	R1001-X11	R1001-X11ZP			
1/8	.125	.094	.010	.230	.025-.033	.015	R1001-12	R1001-12ZP			
9/64	.140	.100	.010	.203	.022-.032	.012	R1001-X14	R1001-X14ZP			
9/64	.140	.102	.015	.270	.028-.040	.013	R1001-14	R1001-14ZP			
5/32	.156	.114	.015	.282	.028-.040	.013	R1001-15	R1001-15ZP			
11/64	.172	.125	.015	.312	.032-.043	.017	R1001-X17	R1001-X17ZP			
3/16	.188	.145	.015	.335	.032-.043	.017	R1001-18	R1001-18ZP	251-802		
3/16	.188	.122	.015	.375	.038-.048	.023	R1001-X18	R1001-X18ZP			
7/32	.218	.185	.015	.437	.043-.058	.028	R1001-X21	R1001-X21ZP			
1/4	.250	.207	.025	.527	.050-.067	.025	R1001-25	R1001-25ZP	251-800		
5/16	.312	.243	.025	.500	.050-.067	.025	R1001-X31	R1001-X31ZP			
3/8	.375	.300	.035	.660	.060-.073	.025	R1001-37	R1001-37ZP			
7/16	.437	.337	.035	.687	.060-.073	.025	R1001-43	R1001-43ZP			
7/16	.437	.375	.035	.600	.060-.073	.025	R1001-X43	R1001-X43ZP			
1/2	.500	.392	.042	.800	.075-.093	.033	R1001-50	R1001-50ZP	251-801		
5/8	.625	.480	.042	.940	.080-.098	.038	R1001-62	R1001-62ZP			
	.744	.616	.050	1.000	.088-.112	.038	R1001-X74	R1001-X74ZP			
3/4	.750	.616	.050	1.000	.088-.112	.035					
3/4	.750	.574	.050	1.120	.088-.112	.038	R1001-75	R1001-75ZP			
7/8	.875	.668	.050	1.300	.088-.112	.038	R1001-87	R1001-87ZP			
63/64	.985	.822	.050	1.500	.088-.112	.038	R1001-X98	R1001-X98ZP			
1	1.000	.822	.050	1.500	.088-.112	.038					
1-3/16	1.188	1.066	.062	1.626	.109-.139	.044					
1-3/8	1.375	1.213	.062	1.875	.109-.139	.044	(P.C 251)				

R1200 SERIES - External



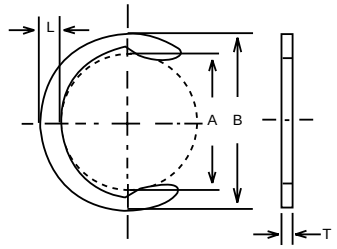
For greater-than-normal resistance to vibration or heavy shock leads.
SPAENAUR Numbers listed below can usually be shipped immediately from stock.

Grey area on chart below indicates the available materials and sizes of rings, applicator tools and dispenser bases.

See Assortments and Plastikits - Page E131 & E132.

Shaft Dia. Inch (frac.)	(dec.)	Free Dia. "A"	Ring Thick "T"	Ring O.D. "B"	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW: CARBON SPRING STEEL Phos. Coated or Plain, our option	CARBON SPRING STEEL Zinc Plated (Clear or Yellow Dichromate - our option.)	STAINLESS STEEL PH 15-7 Mo	BERYLLIUM COPPER	Applicator Tool No.	Dispenser Base
3/32	.094	.072	.015	.206	R1200-9	R1200-9ZP	252-800		876-445	
1/8	.125	.093	.015	.270	R1200-12	R1200-12ZP	252-801		876-446	
5/32	.156	.113	.025	.335	R1200-15	R1200-15ZP			876-447	
3/16	.188	.143	.025	.375	R1200-18	R1200-18ZP	252-802		876-448	
7/32	.219	.182	.025	.446	R1200-21	R1200-21ZP			876-449	
1/4	.250	.204	.025	.516	R1200-25	R1200-25ZP	252-803		876-450	
5/16	.312	.242	.025	.588	R1200-31	R1200-31ZP	252-804		876-451	
3/8	.375	.292	.035	.660	R1200-37	R1200-37ZP	252-805		876-452	
7/16	.438	.332	.035	.746	R1200-43	R1200-43ZP	252-806		876-453	
1/2	.500	.385	.042	.810	R1200-50	R1200-50ZP	252-807		876-444	
9/16	.562	.430	.042	.870	R1200-56	R1200-56ZP	252-808		876-454	

R2000 SERIES - External



For applications not requiring large shoulder, where space is limited or where axial access is difficult or impossible.

SPAENAUR Numbers listed below can usually be shipped immediately from stock.

Grey area on chart below indicates the available materials and sizes of rings, applicator tools and dispenser bases.

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW

SHAFT DIA. Inch (frac.)	(dec.)	Free Dia. "A"	Ring Thick "T"	Ring O.D. "B"	CARBON SPRING STEEL Phos. Coated or Plain, our option	CARBON SPRING STEEL Zinc Plated (Clear or Yellow Dichromate - our option.)	STAINLESS STEEL PH 15-7 Mo	BERYLLIUM COPPER	Applicator Tool No.	Dispenser Base
1/8	.125	.102	.015	.166	R2000-12	R2000-12ZP			876-455	
5/32	.156	.131	.015	.205	R2000-15	R2000-15ZP			876-456	
3/16	.188	.161	.015	.245	R2000-18	R2000-18ZP	253-303		876-457	
7/32	.219	.187	.025	.275	R2000-21	R2000-21ZP	253-804		876-458	
15/64	.236	.203	.025	.295	R2000-23	R2000-23ZP			876-459	
1/4	.250	.211	.025	.311	R2000-25	R2000-25ZP	253-304		876-460	
9/32	.281	.242	.025	.344	R2000-28	R2000-28ZP			876-461	
5/16	.312	.270	.025	.376	R2000-31	R2000-31ZP			876-462	
3/8	.375	.328	.025	.448	R2000-37	R2000-37ZP	253-800		876-463	
13/32	.406	.359	.025	.485	R2000-40	R2000-40ZP			876-464	
7/16	.437	.386	.025	.516	R2000-43	R2000-43ZP			876-465	
1/2	.500	.441	.035	.581	R2000-50	R2000-50ZP	253-801		876-466	
9/16	.562	.497	.035	.653	R2000-56	R2000-56ZP			876-467	
5/8	.625	.553	.035	.715	R2000-62	R2000-62ZP	253-802		876-468	
11/16	.687	.608	.042	.780	R2000-68	R2000-68ZP			876-469	
3/4	.750	.665	.042	.845	R2000-75	R2000-75ZP	253-803		876-470	
13/16	.812	.721	.042	.915	R2000-81	R2000-81ZP			876-471	
7/8	.875	.777	.042	.987	R2000-87	R2000-87ZP			876-472	
15/16	.937	.830	.042	1.054	R2000-93	R2000-93ZP			876-473	
1	1.000	.887	.042	1.127	R2000-100	R2000-100ZP			876-474	
1-1/8	1.125	.997	.050	1.267	R2000-112	R2000-112ZP				
1-3/16	1.188	1.031	.050	1.321	R2000-X118	R2000-X118ZP				
1-1/4	1.250	1.110	.050	1.410	R2000-125	R2000-125ZP				
1-3/8	1.375	1.220	.050	1.550	R2000-137	R2000-137ZP				
1-1/2	1.500	1.331	.050	1.691	R2000-150	R2000-150ZP				
1-3/4	1.750	1.555	.062	1.975	R2000-175	R2000-175ZP				
2	2.000	1.777	.062	2.257	R2000-200	R2000-200ZP				
					(P.C. 253)					

APPLICATOR TOOLS

For use with **R1000**, **R1001, R1200** and **R2000** series. A separate tool is needed for each ring size.

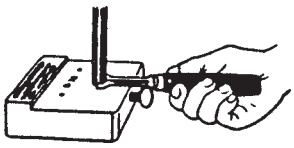
Style supplied will be determined by our present stock.

(See "Applicator Tool No." in tables on retaining ring pages.)

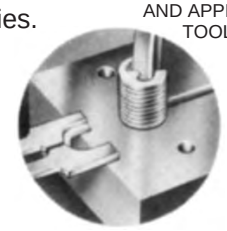
Eliminate ring juggling and reduce dispensing and application to one quick motion. Made of high-carbon steel, heat-treated to spring temper. Designed to have just enough tension to grasp a single ring at a time, whether loose or stacked.

Dispenser Bases are available,

but not stocked.
Spaenaur invites your inquiries.



DISPENSER BASE AND APPLICATOR TOOL IN USE.



Priced Singly

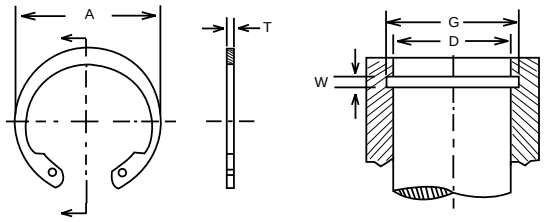
For use with **R1000**, **R1200** and **R2000** Series.

Specify **size** and **series** required, according to Ring Number.

NOTE: All rings are furnished "loose."

"Stacked" rings are not stocked, but are available at extra cost.

R3000 SERIES - Internal



Provide sturdy shoulders to support considerable thrust loads without displacement.

SPAENAUR Numbers listed below can usually be shipped immediately from stock.

Grey area on chart below indicates the available materials and sizes of rings.

E

HOUSING DIA. "D" (frac.)	HOUSING DIA. (Inch) (dec.)	Free Dia. "A"	Ring Thick. "T"	Groove Dia. "G"	Groove Width "W"	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW: CARBON SPRING STEEL Phos. Coated or Plain, our option	CARBON SPRING STEEL Zinc Plated (Clear or Yellow Dichromate - our option.)	STAINLESS STEEL PH 15-7 Mo	BERYLLIUM COPPER
1/4	.250	.280	.015	.268	.018	R3000-X25	R3000-X25ZP	254-801	
5/16	.312	.346	.015	.330	.018	R3000-X31	R3000-X31ZP	254-802	
3/8	.375	.415	.025	.397	.029	R3000-X37	R3000-X37ZP	254-803	
7/16	.438	.482	.025	.461	.029	R3000-X43	R3000-X43ZP	254-804	
29/64	.453	.498	.025	.477	.029	R3000-X45	R3000-X45ZP		
1/2	.500	.548	.035	.530	.039	R3000-X50	R3000-X50ZP	254-805	
-	.512	.560	.035	.542	.039	R3000-X51	R3000-X51ZP		
9/16	.562	.620	.035	.596	.039	R3000-X56	R3000-X56ZP	254-821	
5/8	.625	.694	.035	.665	.039	R3000-X62	R3000-X62ZP	254-806	
11/16	.688	.763	.035	.732	.039	R3000-X68	R3000-X68ZP		
3/4	.750	.831	.035	.796	.039	R3000-X75	R3000-X75ZP	254-807	
-	.777	.859	.042	.825	.046	R3000-X77	R3000-X77ZP		
13/16	.812	.901	.042	.862	.046	R3000-X81	R3000-X81ZP		
-	.866	.961	.042	.920	.046	R3000-X86	R3000-X86ZP		
7/8	.875	.971	.042	.931	.046	R3000-X87	R3000-X87ZP	254-808	
-	.901	1.000	.042	.959	.046	R3000-X90	R3000-X90ZP		
15/16	.938	1.041	.042	1.000	.046	R3000-X93	R3000-X93ZP		
1	1.000	1.111	.042	1.066	.046	R3000-X100	R3000-X100ZP	254-809	
-	1.023	1.136	.042	1.091	.046	R3000-X102	R3000-X102ZP		
1-1/16	1.062	1.180	.050	1.130	.056	R3000-X106	R3000-X106ZP		
1-1/8	1.125	1.249	.050	1.197	.056	R3000-X112	R3000-X112ZP		
-	1.181	1.319	.050	1.255	.056				
1-3/16	1.188	1.319	.050	1.262	.056	R3000-X118	R3000-X118ZP		
1-1/4	1.250	1.388	.050	1.330	.056	R3000-X125	R3000-X125ZP	254-800	
-	1.259	1.388	.050	1.339	.056				
1-5/16	1.312	1.456	.050	1.396	.056	R3000-X131	R3000-X131ZP	254-810	
1-3/8	1.375	1.526	.050	1.461	.056	R3000-X137	R3000-X137ZP	254-811	
-	1.378	1.526	.050	1.464	.056				
1-7/16	1.438	1.596	.050	1.528	.056	R3000-X143	R3000-X143ZP		
-	1.456	1.616	.050	1.548	.056	R3000-X145	R3000-X145ZP		
1-1/2	1.500	1.660	.050	1.594	.056	R3000-X150	R3000-X150ZP	254-812	
1-9/16	1.562	1.734	.062	1.658	.068	R3000-X156	R3000-X156ZP		
-	1.575	1.734	.062	1.671	.068				
1-5/8	1.625	1.804	.062	1.725	.068	R3000-X162	R3000-X162ZP	254-813	
-	1.653	1.835	.062	1.755	.068	R3000-X165	R3000-X165ZP		
1-11/16	1.688	1.874	.062	1.792	.068	R3000-X168	R3000-X168ZP		
1-3/4	1.750	1.942	.062	1.858	.068	R3000-X175	R3000-X175ZP	254-814	
1-13/16	1.812	2.012	.062	1.922	.068	R3000-X181	R3000-X181ZP		
-	1.850	2.054	.062	1.962	.068	R3000-X185	R3000-X185ZP		
1-7/8	1.875	2.072	.062	1.989	.068	R3000-X187	R3000-X187ZP		
1-15/16	1.938	2.141	.062	2.056	.068	R3000-X193	R3000-X193ZP		
2	2.000	2.210	.062	2.122	.068	R3000-X200	R3000-X200ZP		
-	2.047	2.280	.078	2.171	.086				
2-1/16	2.062	2.280	.078	2.186	.086	R3000-X206	R3000-X206ZP		
2-1/8	2.125	2.350	.078	2.251	.086	R3000-X212	R3000-X212ZP		
-	2.165	2.415	.078	2.295	.086				
2-3/16	2.188	2.415	.078	2.318	.086	R3000-X218	R3000-X218ZP		

Cont'd. on next page.

(P.C. 254)

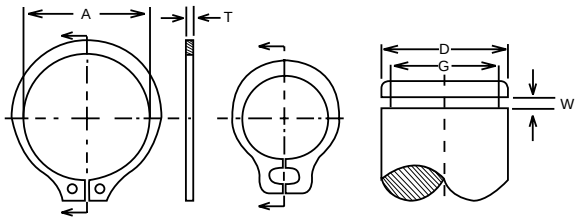
R3000 SERIES - Internal

HOUSING DIA. "D" (frac.)	HOUSING DIA. (Inch) (dec.)	Free Dia. "A"	Ring Thick. "T"	Groove Dia. "G"	Groove Width "W"	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW: CARBON SPRING STEEL Phos. Coated or Plain, our option	CARBON SPRING STEEL Zinc Plated (Clear or Yellow Dichromate - our option.)	STAINLESS STEEL PH 15-7 Mo	BERYLLIUM COPPER
2-1/4	2.250	2.490	.078	2.382	.086	R3000-X225	R3000-x225ZP		
2-5/16	2.312	2.560	.078	2.450	.086	R3000-X231	R3000-X231ZP		
2-3/8	2.375	2.630	.078	2.517	.086	R3000-X237	R3000-X237ZP	254-822	
2-7/16	2.440	2.702	.078	2.584	.086	R3000-X244	R3000-X244ZP		
2-1/2	2.500	2.775	.078	2.648	.086	R3000-X250	R3000-X250ZP		
2-17/32	2.513	2.775	.078	2.681	.086				
2-9/16	2.562	2.844	.093	2.714	.103				
2-5/8	2.625	2.910	.093	2.781	.103	R3000-X262	R3000-X262ZP		
-	2.677	2.980	.093	2.837	.103				
2-11/16	2.688	2.980	.093	2.848	.103	R3000-X268	R3000-X268ZP		
2-3/4	2.750	3.050	.093	2.914	.103	R3000-X275	R3000-X275ZP		
2-13/16	2.812	3.121	.093	2.980	.103	R3000-X281	R3000-X281ZP		
-	2.835	3.121	.093	3.006	.103				
2-7/8	2.875	3.191	.093	3.051	.103	R3000-X287	R3000-X287ZP		
-	2.953	3.325	.093	3.135	.103				
3	3.000	3.325	.093	3.182	.103	R3000-X300	R3000-X300ZP		
3-1/16	3.062	3.418	.109	3.248	.120	R3000-X306	R3000-X306ZP		
3-1/8	3.125	3.488	.109	3.315	.120	R3000-X312	R3000-X312ZP		
-	3.149	3.523	.109	3.341	.120				
3-5/32	3.156	3.523	.109	3.348	.120	R3000-X315	R3000-X315ZP		
3-1/4	3.250	3.623	.109	3.446	.120	R3000-X325	R3000-X325ZP		
3-11/32	3.346	3.734	.109	3.546	.120	R3000-X334	R3000-X334ZP		
3-15/32	3.469	3.857	.109	3.675	.120				
3-1/2	3.500	3.890	.109	3.710	.120	R3000-X350	R3000-X350ZP	254-820	
-	3.543	3.936	.109	3.755	.120	R3000-X354	R3000-X354ZP		
3-9/16	3.562	3.936	.109	3.776	.120				
3-5/8	3.625	4.024	.109	3.841	.120				
-	3.740	4.157	.109	3.964	.120				
3-3/4	3.750	4.157	.109	3.974	.120	R3000-X375	R3000-X375ZP		
3-7/8	3.875	4.291	.109	4.107	.120	R3000-X387	R3000-X387ZP		
3-15/16	3.938	4.358	.109	4.174	.120	R3000-X393	R3000-X393ZP		
4	4.000	4.424	.109	4.240	.120	R3000-400	R3000-400ZP		
4-1/8	4.125	4.558	.109	4.365	.120	R3000-X412	R3000-X412ZP		
4-1/4	4.250	4.691	.109	4.490	.120	R3000-X425			
-	4.331	4.756	.109	4.571	.120				
4-1/2	4.500	4.940	.109	4.750	.120	R3000-X450	R3000-X450ZP		
4-5/8	4.625	5.076	.109	4.865	.120				
4-3/4	4.750	5.213	.109	4.995	.120	R3000-475	R3000-475ZP		
5	5.000	5.485	.109	5.260	.120	R3000-500	R3000-500ZP		
5-1/4	5.250	5.770	.125	5.520	.139	R3000-525	R3000-525ZP		
5-3/8	5.375	5.910	.125	5.650	.139				
5-1/2	5.500	6.066	.125	5.770	.139	R3000-550	R3000-550ZP		
5-3/4	5.750	6.336	.125	6.020	.139	R3000-575	R3000-575ZP		
6	6.000	6.620	.125	6.270	.139	R3000-600	R3000-600ZP		
6-1/4	6.250	6.895	.156	6.530	.174				
6-1/2	6.500	7.170	.156	6.790	.174	R3000-650	R3000-650ZP		
6-5/8	6.625	7.308	.156	6.925	.174				
6-3/4	6.750	7.445	.156	7.055	.174	R3000-675	R3000-675ZP		
7	7.000	7.720	.156	7.315	.174				
7-1/4	7.250	7.995	.187	7.575	.209				
7-1/2	7.500	8.270	.187	7.840	.209				
7-3/4	7.750	8.545	.187	8.100	.209				
8	8.000	8.820	.187	8.360	.209	R3000-800	R3000-800ZP		
8-1/4	8.250	9.095	.187	8.620	.209				
8-3/4	8.750	9.558	.187	9.145	.209	R3000-875	R3000-875ZP		
9	9.000	9.830	.187	9.405	.209	R3000-900	R3000-900ZP		

E

See Price List for
Unit Package Quantities.

R3100 SERIES - External



May be used as artificial shoulder to position product components.

SPAENAUR Numbers listed below can usually be shipped immediately from stock.

Grey area on chart below indicates the available materials and sizes of rings.

E

SHAFT DIA. "D" (frac.)	SHAFT DIA. (Inch) (dec.)	Free Dia. "A"	Ring Thick. "T"	Groove Dia. "G"	Groove Width "W"	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW: CARBON SPRING STEEL Phos. Coated or Plain, our option	CARBON SPRING STEEL Zinc Plated (Clear or Yellow Dichromate - our option.)	STAINLESS STEEL PH 15-7 Mo	BERYLLIUM COPPER
1/8	.125	.112	.010	.117	.012				R3100-12
5/32	.156	.142	.010	.146	.012	R3100-15ST			R3100-15
3/16	.188	.168	.015	.175	.018	R3100-18ST			R3100-18
-	.197	.179	.015	.185	.018				R3100-19
7/32	.219	.196	.015	.205	.018				R3100-21
15/64	.236	.215	.015	.222	.018				R3100-23
1/4	.250	.225	.025	.230	.029	R3100-25	R3100-25ZP	255-300	
-	.276	.250	.025	.255	.029	R3100-27	R3100-27ZP		
9/32	.281	.256	.025	.261	.029	R3100-28	R3100-28ZP		
5/16	.312	.281	.025	.290	.029	R3100-31	R3100-31ZP	255-801	
11/32	.344	.309	.025	.321	.029	R3100-34	R3100-34ZP		
-	.354	.320	.025	.330	.029	R3100-35	R3100-35ZP		
3/8	.375	.338	.025	.352	.029	R3100-37	R3100-37ZP	255-802	
-	.394	.354	.025	.369	.029	R3100-39	R3100-39ZP	255-803	
13/32	.406	.366	.025	.382	.029	R3100-40	R3100-40ZP		
7/16	.438	.395	.025	.412	.029	R3100-43	R3100-43ZP	255-804	
15/32	.469	.428	.025	.443	.029	R3100-46	R3100-46ZP	255-805	
1/2	.500	.461	.035	.468	.039	R3100-50	R3100-50ZP	255-800	
-	.551	.509	.035	.519	.039	R3100-55	R3100-55ZP	255-806	
9/16	.562	.521	.035	.530	.039	R3100-56	R3100-56ZP	255-825	
19/32	.594	.550	.035	.559	.039	R3100-59	R3100-59ZP	255-807	
5/8	.625	.579	.035	.588	.039	R3100-62	R3100-62ZP	255-808	
-	.669	.621	.035	.629	.039	R3100-66	R3100-66ZP		
43/64	.672	.621	.035	.631	.039	R3100-67	R3100-67ZP		
11/16	.688	.635	.042	.646	.046	R3100-68	R3100-68ZP	255-809	
3/4	.750	.693	.042	.704	.046	R3100-75	R3100-75ZP	255-810	
25/32	.781	.722	.042	.733	.046	R3100-78	R3100-78ZP	255-811	
13/16	.812	.751	.042	.762	.046	R3100-81	R3100-81ZP	255-812	
27/32	.844	.780	.042	.791	.046	R3100-84	R3100-84ZP	255-813	
7/8	.875	.810	.042	.821	.046	R3100-87	R3100-87ZP	255-814	
15/16	.938	.867	.042	.882	.046	R3100-93	R3100-93ZP	255-815	
63/64	.984	.910	.042	.926	.046	R3100-98	R3100-98ZP		
1	1.000	.925	.042	.940	.046	R3100-100	R3100-100ZP	255-816	
-	1.023	.946	.042	.961	.046	R3100-102	R3100-102ZP		
1-1/16	1.062	.982	.050	.998	.056	R3100-106	R3100-106ZP	255-817	
1-1/8	1.125	1.041	.050	1.059	.056	R3100-112	R3100-112ZP	255-818	
1-3/16	1.188	1.098	.050	1.118	.056	R3100-118	R3100-118ZP	255-819	
1-1/4	1.250	1.156	.050	1.176	.056	R3100-125	R3100-125ZP	255-820	
1-5/16	1.312	1.214	.050	1.232	.056	R3100-131	R3100-131ZP		
1-3/8	1.375	1.272	.050	1.291	.056	R3100-137	R3100-137ZP	255-821	
1-7/16	1.438	1.333	.050	1.350	.056	R3100-143	R3100-143ZP		
1-1/2	1.500	1.387	.050	1.406	.056	R3100-150	R3100-150ZP	255-822	
1-9/16	1.562	1.446	.062	1.468	.068	R3100-156	R3100-156ZP	255-823	
1-5/8	1.625	1.503	.062	1.529	.068	R3100-162	R3100-162ZP		
1-11/16	1.687	1.560	.062	1.589	.068	R3100-168	R3100-168ZP		
1-3/4	1.750	1.618	.062	1.650	.068	R3100-175	R3100-175ZP	255-824	
-	1.772	1.637	.062	1.669	.068	R3100-177	R3100-177ZP		

Cont'd. on next page.

(P.C. 255)

CATALOG 13

R3100 SERIES - External

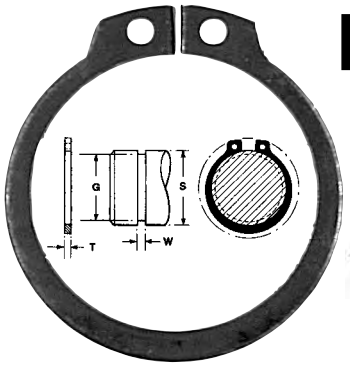
SHAFT DIA. "D" (frac.)	SHAFT DIA. (Inch) (dec.)	Free Dia. "A"	Ring Thick. "T"	Groove Dia. "G"	Groove Width "W"	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW: CARBON SPRING STEEL Phos. Coated or Plain, our option	CARBON SPRING STEEL Zinc Plated (Clear or Yellow Dichromate - our option.)	STAINLESS STEEL PH 15-7 Mo	BERYLLIUM COPPER
1-13/16	1.812	1.675	.062	1.708	.068	R3100-181	R3100-181ZP		
1-7/8	1.875	1.735	.062	1.769	.068	R3100-187	R3100-187ZP		
1-31/32	1.969	1.819	.062	1.857	.068	R3100-196	R3100-196ZP		
2	2.000	1.850	.062	1.886	.068	R3100-200	R3100-200ZP		
2-1/16	2.062	1.906	.078	1.946	.086	R3100-206	R3100-206ZP		
2-1/8	2.125	1.964	.078	2.003	.086	R3100-212	R3100-212ZP		
2-5/32	2.156	1.993	.078	2.032	.086	R3100-215	R3100-215ZP		
2-1/4	2.250	2.081	.078	2.120	.086	R3100-225	R3100-225ZP		
2-5/16	2.312	2.139	.078	2.178	.086	R3100-231	R3100-231ZP		
2-3/8	2.375	2.197	.078	2.239	.086	R3100-237	R3100-237ZP		
2-7/16	2.438	2.255	.078	2.299	.086	R3100-243	R3100-243ZP		
2-1/2	2.500	2.313	.078	2.360	.086	R3100-250	R3100-250ZP		
-	2.559	2.377	.078	2.419	.086	R3100-255	R3100-255ZP		
2-5/8	2.625	2.428	.078	2.481	.086	R3100-262	R3100-262ZP		
2-11/16	2.688	2.485	.078	2.541	.086	R3100-268	R3100-268ZP		
2-3/4	2.750	2.543	.093	2.602	.103	R3100-275	R3100-275ZP		
2-7/8	2.875	2.659	.093	2.721	.103	R3100-287	R3100-287ZP		
2-15/16	2.938	2.717	.093	2.779	.103	R3100-293	R3100-293ZP		
3	3.000	2.775	.093	2.838	.103	R3100-300	R3100-300ZP		
3-1/16	3.062	2.832	.093	2.898	.103	R3100-306	R3100-306ZP		
3-1/8	3.125	2.892	.093	2.957	.103	R3100-312	R3100-312ZP		
3-5/32	3.156	2.920	.093	2.986	.103	R3100-315	R3100-315ZP		
3-1/4	3.250	3.006	.093	3.076	.103	R3100-325	R3100-325ZP		
3-11/32	3.346	3.092	.093	3.166	.103	R3100-334	R3100-334ZP		
3-7/16	3.438	3.179	.093	3.257	.103	R3100-343	R3100-343ZP		
3-1/2	3.500	3.237	.109	3.316	.120				
-	3.543	3.277	.109	3.357	.120	R3100-354	R3100-354ZP		
3-5/8	3.625	3.352	.109	3.435	.120				
3-11/16	3.688	3.410	.109	3.493	.120				
3-3/4	3.750	3.468	.109	3.552	.120	R3100-375	R3100-375ZP		
3-7/8	3.875	3.584	.109	3.673	.120				
3-15/16	3.938	3.642	.109	3.734	.120	R3100-393	R3100-393ZP		
4	4.000	3.700	.109	3.792	.120	R3100-400	R3100-400ZP		
4-1/4	4.250	3.989	.109	4.065	.120	R3100-425	R3100-425ZP		
4-3/8	4.375	4.106	.109	4.190	.120				
4-1/2	4.500	4.223	.109	4.310	.120	R3100-450	R3100-450ZP		
4-3/4	4.750	4.458	.109	4.550	.120	R3100-475	R3100-475ZP		
5	5.000	4.692	.109	4.790	.120	R3100-500	R3100-500ZP		
5-1/4	5.250	4.927	.125	5.030	.139	R3100-525	R3100-525ZP		
5-1/2	5.500	5.162	.125	5.265	.139				
5-3/4	5.750	5.396	.125	5.505	.139	R3100-575			
6	6.000	5.631	.125	5.745	.139	R3100-600	R3100-600ZP		
6-1/4	6.250	5.866	.156	5.985	.174				
6-1/2	6.500	6.100	.156	6.225	.174				
6-3/4	6.750	6.335	.156	6.465	.174				
7	7.000	6.570	.156	6.705	.174	R3100-700	R3100-700ZP		
7-1/2	7.500	7.009	.187	7.180	.209				
8	8.000	7.478	.187	7.660	.209				

(P.C. 255)

R3100 Series Assortment and Plastikit shown on pages E131 & E132.

"RINGS CROSS-REFERENCE CHART" shown on page E133.

See Price List for Unit Package Quantities.



DIN 471

D1400 Retaining Rings

External Type

Carbon Spring Steel – Plain Finish

Parts according to DIN 471, lug hole style may vary.

CHART CONTINUES ON NEXT PAGE
See page E150 for Metric Retaining Ring Pliers and Assortment 805-441.

NOTE: Shaft sizes to 300 mm, also additional in-between sizes may be available. Delivery usually 8-10 weeks on unlisted sizes.

E

SPAENAUR No.	A.D.I. Part No.	Shaft (S) Diameter (mm)	Groove (G) Diameter (mm)	Groove Tolerance (mm)	Groove Width (W) (min.)	Ring Thickness (T) (max.) (mm)	Unit Package Quantity
255-559	—	3	2.8	-0.04	0.50	.40	100
255-500	D1400-4	4	3.8	-0.04	0.50	.40	100
255-501	D1400-5	5	4.8	-0.04	0.70	.60	100
255-502	D1400-6	6	5.7	-0.04	0.80	.70	100
255-503	D1400-7	7	6.7	-0.06	0.90	.80	100
255-504	D1400-8	8	7.6	-0.06	0.90	.80	100
255-505	D1400-9	9	8.6	-0.06	1.10	1.00	100
255-506	D1400-10	10	9.6	-0.06	1.10	1.00	100
***255-506ZP**	D1400-10	10	9.6	-0.06	1.10	1.00	100
255-507	D1400-11	11	10.5	-0.11	1.10	1.00	100
255-508	D1400-12	12	11.5	-0.11	1.10	1.00	100
255-560	—	13	12.4	-0.11	1.10	1.00	100
255-509	D1400-14	14	13.4	-0.11	1.10	1.00	100
255-510	D1400-15	15	14.3	-0.11	1.10	1.00	100
255-511	D1400-16	16	15.2	-0.11	1.10	1.00	100
255-512	D1400-17	17	16.2	-0.11	1.10	1.00	100
255-513	D1400-18	18	17.0	-0.11	1.30	1.20	100
255-514	D1400-19	19	18.0	-0.11	1.30	1.20	100
255-515	D1400-20	20	19.0	-0.13	1.30	1.20	100
255-561	—	21	20.0	-0.13	1.30	1.20	100
255-516	D1400-22	22	21.0	-0.13	1.30	1.20	100
255-562	—	23	22.0	-0.15	1.30	1.20	100
255-553	D1400-24	24	22.9	-0.21	1.30	1.20	100
255-517	D1400-25	25	23.9	-0.21	1.30	1.20	100
255-554	D1400-26	26	24.9	-0.21	1.30	1.20	100
▲255-554YZ	D1400-26	26	24.9	-0.21	1.30	1.20	100
255-552	D1400-27	27	25.6	-0.21	1.30	1.20	100
255-518	D1400-28	28	26.6	-0.21	1.60	1.50	100
255-563	—	29	27.6	-0.21	1.60	1.50	100
255-519	D1400-30	30	28.6	-0.21	1.60	1.50	100
255-564	—	31	29.3	-0.21	1.60	1.50	100
255-520	D1400-32	32	30.3	-0.25	1.60	1.50	100
255-565	—	34	32.3	-0.25	1.60	1.50	100
255-521	D1400-35	35	33.0	-0.25	1.60	1.50	100
255-567	—	36	34.0	-0.25	1.85	1.75	100
255-555	D1400-37	37	35.0	-0.25	1.85	1.75	100
255-522	D1400-38	38	36.0	-0.25	1.85	1.75	100
■255-523	D1400-40	40	37.5	-0.25	1.85	1.75	100
255-524	D1400-42	42	39.5	-0.25	1.85	1.75	100
255-525	D1400-45	45	42.5	-0.25	1.85	1.75	100
255-568	—	47	44.5	-0.25	1.85	1.75	100
255-526	D1400-48	48	45.5	-0.25	1.85	1.75	100
255-527	D1400-50	50	47.0	-0.25	2.15	2.00	100
255-528	D1400-52	52	49.0	-0.25	2.15	2.00	50

CATALOG 13

*ZP - Zinc Plated
▲YZ - Yellow Zinc Plated

Continued on next page…
■**255-523ZP** Zinc Plated

D1400 Retaining Rings

External Type

Carbon Spring Steel – Plain Finish

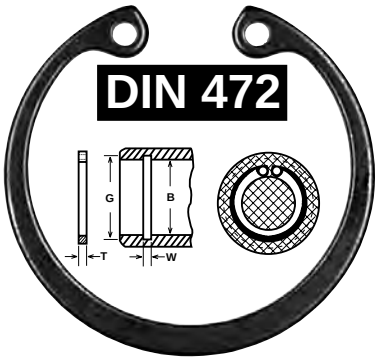
CHART CONTINUED FROM PREVIOUS PAGE
See page E150 for Metric Retaining Ring Pliers and Assortment 805-441.

NOTE: Shaft sizes to 300 mm, also additional in-between sizes may be available. Delivery usually 8-10 weeks on unlisted sizes.

E

SPAENAUR No.	**A.D.I. Part No.**	**Shaft (S)** Diameter (mm)	**Groove (G)** Diameter (mm)	**Groove** Tolerance (mm)	**Groove Width (W)** (min.)	**Ring Thickness (T)** (max.) (mm)	Unit Package Quantity
255-529	D1400-55	55	52.0	-0.30	2.15	2.00	50
255-569	—	56	53.0	-0.30	2.15	2.00	50
255-530	D1400-58	58	55.0	-0.30	2.15	2.00	50
255-531	D1400-60	60	57.0	-0.30	2.15	2.00	50
255-532	D1400-62	62	59.0	-0.30	2.15	2.00	50
▲255-532YZ	D1400-62	62	59.0	-0.30	2.15	2.00	50
255-570	—	63	60.0	-0.30	2.15	2.00	50
255-533	D1400-65	65	62.0	-0.30	2.65	2.50	50
255-534	D1400-68	68	65.0	-0.30	2.65	2.50	50
255-535	D1400-70	70	67.0	-0.30	2.65	2.50	50
255-536	D1400-72	72	69.0	-0.30	2.65	2.50	50
255-537	D1400-75	75	72.0	-0.30	2.65	2.50	50
255-538	D1400-78	78	75.0	-0.30	2.65	2.50	50
255-539	D1400-80	80	76.5	-0.30	2.65	2.50	50
255-540	D1400-82	82	78.5	-0.30	2.65	2.50	50
255-541	D1400-85	85	81.5	-0.35	3.15	3.00	50
▲255-541YZ	D1400-85	85	81.5	-0.35	3.15	3.00	50
255-542	D1400-88	88	84.5	-0.35	3.15	3.00	50
255-543	D1400-90	90	86.5	-0.35	3.15	3.00	50
255-571	—	92	—	-0.35	3.15	3.00	50
255-544	D1400-95	95	91.5	-0.35	3.15	3.00	25
255-572	—	97	—	-0.35	3.15	3.00	25
255-573	—	98	—	-0.35	3.15	3.00	25
255-545	D1400-100	100	96.5	-0.35	3.15	3.00	25
255-546	D1400-105	105	101.0	-0.54	4.15	4.00	25
255-547	D1400-110	110	106.0	-0.54	4.15	4.00	25
255-548	D1400-115	115	111.0	-0.54	4.15	4.00	10
255-549	D1400-120	120	116.0	-0.54	4.15	4.00	10
255-550	D1400-125	125	121.0	-0.63	4.15	4.00	10
255-551	D1400-130	130	126.0	-0.63	4.15	4.00	10
255-574	—	135	131.0	-0.63	4.15	4.00	10
255-556	D1400-140	140	136.0	-0.63	4.15	4.00	10
255-575	—	145	141.0	-0.63	4.15	4.00	1
255-557	D1400-150	150	145.0	-0.63	4.15	4.00	1
255-576	—	155	150.0	-0.63	4.15	4.00	1
255-577	—	160	155.0	-0.63	4.15	4.00	1
255-578	—	165	160.0	-0.63	4.15	4.00	1
255-558	–	190	185.0	-0.72	4.15	4.00	1
255-579	—	200	195.0	-0.72	4.15	4.00	1

▲**YZ** - Yellow Zinc Plated



D1300 Retaining Rings
Internal Type
Carbon Spring Steel – Plain Finish

CHART CONTINUES ON NEXT PAGE
See page E150 for Metric Retaining Ring Pliers. and Assortment 805-442.

NOTE: Shaft sizes to 300 mm, also additional in-between sizes may be available. Delivery usually 8-10 weeks on unlisted sizes.

E

SPAENAUR No.	A.D.I. Part No.	Bore (B) Diameter (mm)	Groove (G) Diameter (mm)	Groove Tolerance (mm)	Width (W) (min.) (mm)	Ring Thick. (T) (max.) (mm)	Unit Package Quantity
254-558	—	8	8.4	+0.09	0.90	0.80	100
254-559	—	9	9.4	+0.09	0.90	0.80	100
254-500	D1300—10	10	10.4	+0.11	1.10	1.00	100
254-501	D1300—11	11	11.4	+0.11	1.10	1.00	100
254-502	D1300—12	12	12.5	+0.11	1.10	1.00	100
254-503	D1300—13	13	13.6	+0.11	1.10	1.00	100
254-504	D1300—14	14	14.6	+0.11	1.10	1.00	100
254-505	D1300—15	15	15.7	+0.11	1.10	1.00	100
254-506	D1300—16	16	16.8	+0.11	1.10	1.00	100
254-507	D1300—17	17	17.8	+0.11	1.10	1.00	100
254-508	D1300—18	18	19.0	+0.13	1.10	1.00	100
254-509	D1300—19	19	20.0	+0.13	1.10	1.00	100
254-510	D1300—20	20	21.0	+0.13	1.10	1.00	100
254-511	D1300—21	21	22.0	+0.13	1.10	1.00	100
254-512	D1300—22	22	23.0	+0.13	1.10	1.00	100
254-513	D1300—24	24	25.2	+0.21	1.30	1.20	100
254-514	D1300—25	25	26.2	+0.21	1.30	1.20	100
254-515	D1300—26	26	27.2	+0.21	1.30	1.20	100
▲254-515YZ	D1300—26	26	27.2	+0.21	1.30	1.20	100
254-560	—	27	—	+0.21	1.30	1.20	100
254-516	D1300—28	28	29.4	+0.21	1.30	1.20	100
254-555	–	29	31.1	+0.50	1.30	1.20	100
254-517	D1300—30	30	31.4	+0.25	1.30	1.20	100
254-562	—	31	32.7	+0.25	1.30	1.20	100
254-518	D1300—32	32	33.7	+0.25	1.30	1.20	100
254-563	—	34	35.7	+0.25	1.60	1.50	100
254-519	D1300—35	35	37.0	+0.25	1.60	1.50	100
254-556	–	36	38.0	+0.25	1.60	1.50	100
254-520	D1300—37	37	39.0	+0.25	1.60	1.50	100
254-521	D1300—38	38	40.0	+0.25	1.60	1.50	100
254-522	D1300—40	40	42.5	+0.25	1.85	1.75	100
254-564	—	41	—	+0.25	1.85	1.75	100
254-523	D1300—42	42	44.5	+0.25	1.85	1.75	100
254-524	D1300—45	45	47.5	+0.25	1.85	1.75	100
254-561	—	46	—	+0.25	1.85	1.75	100
254-525	D1300—47	47	49.5	+0.25	1.85	1.75	100
254-526	D1300—48	48.	50.5	+0.30	1.85	1.75	100
254-527	D1300—50	50	53.0	+0.30	2.15	2.00	100
254-578 "Heavy Duty"	—	50	53.0	+0.30	2.65	2.50	100
254-528	D1300—52	52	55.0	+0.30	2.15	2.00	50
254-529	D1300—55	55	58.0	+0.30	2.15	2.00	50
254-565 "Heavy Duty"	D1300—55	55	58.0	+0.30	2.65	2.50	50
▲254-565YZ	—	55	58.0	+0.30	2.65	2.50	50
254-566	—	56	59.0	+0.30	2.15	2.00	50

▲Yellow Zinc Plated

Continued on next page…

D1300 Retaining Rings

Internal Type

Carbon Spring Steel – Plain Finish

CHART CONTINUED FROM PREVIOUS PAGE
See page E150 for Metric Retaining Ring Pliers and Assortment 805-442.

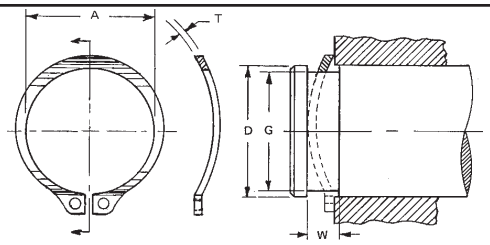
NOTE: Bore sizes to 300 mm, also additional in-between sizes may be available. Delivery usually 8-10 weeks on unlisted sizes.

E

SPAENAUR No.	A.D.I. Part No.	Bore (B) Diameter (mm)	Groove (G) Diameter (mm)	Groove Tolerance (mm)	Width (W) (min.) (mm)	Ring Thick. (T) (max.) (mm)	Unit Package Quantity
▲254-566YZ	—	56	59.0	+0.30	2.15	2.00	50
254-530	D1300—58	58	61.0	+0.30	2.15	2.00	50
254-531	D1300—60	60	63.0	+0.30	2.15	2.00	50
254-532	D1300—62	62	65.0	+0.30	2.15	2.00	50
254-567	—	63	66.0	+0.30	2.15	2.00	50
254-533	D1300—65	65	68.0	+0.30	2.65	2.50	50
254-534	D1300—68	68	71.0	+0.30	2.65	2.50	50
254-535	D1300—70	70	73.0	+0.30	2.65	2.50	50
254-536	D1300—72	72	75.0	+0.30	2.65	2.50	50
254-537	D1300—75	75	78.0	+0.35	2.65	2.50	50
254-538	D1300—78	78	81.0	+0.35	2.65	2.50	50
254-539	D1300—80	80	83.5	+0.35	2.65	2.50	50
254-540	D1300—82	82	85.5	+0.35	2.65	2.50	50
254-541	D1300—85	85	88.5	+0.35	3.15	3.00	50
254-542	D1300—88	88	91.5	+0.35	3.15	3.00	50
254-543	D1300—90	90	93.5	+0.35	3.15	3.00	50
254-544	D1300—92	92	95.5	+0.35	3.15	3.00	25
254-545	D1300—95	95	98.5	+0.35	3.15	3.00	25
254-546	D1300—98	98	101.5	+0.35	3.15	3.00	25
254-547	D1300—100	100	103.5	+0.35	3.15	3.00	25
254-568	—	102	106.0	+0.54	4.15	4.00	25
254-548	D1300—105	105	109.0	+0.54	4.15	4.00	25
254-569	—	107	—	+0.54	4.15	4.00	25
254-549	D1300—110	110	114.0	+0.54	4.15	4.00	10
254-571	—	112	116.0	+0.54	4.15	4.00	10
254-550	D1300—115	115	119.0	+0.54	4.15	4.00	10
254-551	D1300—120	120	124.0	+0.63	4.15	4.00	10
254-552	D1300—125	125	129.0	+0.63	4.15	4.00	10
254-553	D1300—130	130	134.0	+0.63	4.15	4.00	10
254-572	—	135	139.0	+0.63	4.15	4.00	1
254-557	—	140	144.0	+0.63	4.15	4.00	1
254-573	—	145	149.0	+0.63	4.15	4.00	1
254-574	—	150	155.0	+0.63	4.15	4.00	1
254-575	—	155	160.0	+0.63	4.15	4.00	1
254-576	—	160	165.0	+0.63	4.15	4.00	1
254-577	—	165	170.0	+0.63	4.15	4.00	1
254-580	—	170	175.0	+0.63	4.15	4.00	1
254-554	—	180	185.0	+0.72	4.15	4.00	1
254-581	—	225	231.0	+0.72	5.15	5.00	1

▲Yellow Zinc Plated

E



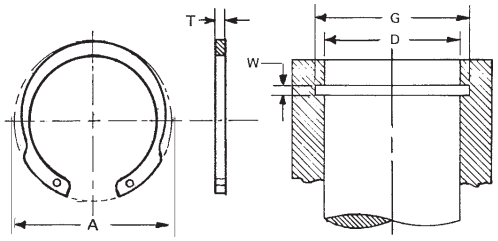
R3101 SERIES - External (Bowed)

For resilient take-up of end play. Applied axially to grooved shafts.

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW

Shaft Dia. "D" (frac.)	Shaft Dia. (Inch) (dec.)	Free Dia. "A"	Ring Thick. "T"	Groove Dia. "G"	Groove Width "W"	Max. Take-up	CARBON SPRING STEEL Phos. Coated or Plain, our option	CARBON SPRING STEEL Zinc Plated (Clear or Yellow Dichromate - our option.)	STAINLESS STEEL PH 15-7 Mo	BERYLLIUM COPPER
5/16	.312	.281	.025	.290	.040	.015	**R3101-31**	**R3101-31ZP**		
25/32	.781	.722	.042	.733	.062	.020	**R3101-78**	**R3101-78ZP**		
13/16	.812	.751	.042	.762	.062	.020	**R3101-81**	**R3101-81ZP**		
1-1/4	1.250	1.156	.050	1.176	.070	.020	**R3101-125**	**R3101-125ZP**		

(P.C. 256)



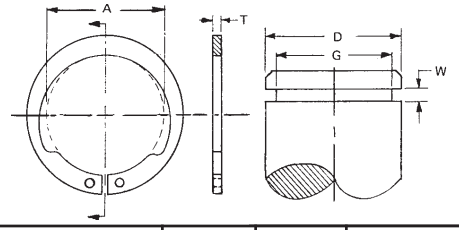
R4000 SERIES - Internal

Applied axially into housings for use as artificial shoulders or to position product components having relatively large chamfers.

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW

Housing Dia. "D" (frac.)	Housing Dia. (Inch) (dec.)	Free Dia. "A"	Ring Thick. "T"	Groove Dia. "G"	Groove Width "W"	CARBON SPRING STEEL Phos. Coated or Plain, our option	CARBON SPRING STEEL Zinc Plated (Clear or Yellow Dichromate - our option.)	STAINLESS STEEL PH 15-7 Mo	BERYLLIUM COPPER
3/4	.750	.808	.035	.796	.039	**R4000-75**	**R4000-75ZP**		
7/8	.875	.944	.042	.931	.046	**R4000-87**	**R4000-87ZP**		
1	1.000	1.081	.042	1.066	.046	**R4000-100**	**R4000-100ZP**		
1-1/16	1.062	1.150	.050	1.130	.056	**R4000-106**			
1-1/8	1.125	1.217	.050	1.197	.056	**R4000-112**	**R4000-112ZP**		
1-1/4	1.250	1.351	.050	1.330	.056	**R4000-125**	**R4000-125ZP**		

(P.C. 257)



R4100 SERIES - External

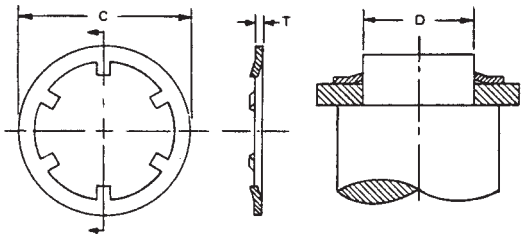
Used as artificial shoulders or to position product components having relatively large chamfers.

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW

Shaft Dia. "D" (frac.)	Shaft Dia. (Inch) (dec.)	Free Dia. "A"	Ring Thick. "T"	Groove Dia. "G"	Groove Width "W"	CARBON SPRING STEEL Phos. Coated or Plain, our option	CARBON SPRING STEEL Zinc Plated (Clear or Yellow Dichromate - our option.)	STAINLESS STEEL PH 15-7 Mo	BERYLLIUM COPPER
1/2	.500	.461	.035	.468	.039	**R4100-50**	**R4100-50ZP**	**258-800**	
5/8	.625	.579	.035	.588	.039	**R4100-62**	**R4100-62ZP**		
3/4	.750	.693	.042	.704	.046	**R4100-75**	**R4100-75ZP**	**258-801**	
7/8"	.875	.810	.042	.821	.046	**R4100-87**	**R4100-87ZP**		
1	1.000	.925	.042	.940	.046	**R4100-100**	**R4100-100ZP**	**258-802**	
1-1/8	1.125	1.041	.050	1.059	.056	**R4100-112**	**R4100-112ZP**		
1-1/4	1.250	1.156	.050	1.176	.056	**R4100-125**	**R4100-125ZP**		
1-5/16	1.313	1.214	.050	1.232	.056	**R4100-131**	**R4100-131ZP**		
1-3/8	1.375	1.272	.050	1.291	.056	**R4100-137**	**R4100-137ZP**		
1-1/2	1.500	1.387	.050	1.406	.056	**R4100-150**			
2-5/32	2.156	1.993	.078	2.032	.086	**R4100-215**	**R4100-215ZP**		

Additional Ring Sizes to those listed above are available, but not stocked. Our sales staff will be pleased to process your inquiries.

See pages E150 to E153 for Retaining Ring Pliers.
See Price List for Unit Package Quantities.



R6100 SERIES - External

SELF-SEATING RETAINING RINGS

For application on soft shaft material - low carbon steel, cast materials or plastics. Economical, needing no machined grooves. The necessary artificial shoulder is provided by slipping the ring over the shaft to the desired position. When a reverse force is applied, the prongs firmly embed themselves into the shaft.

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW

Shaft Diameter D NOM.	MIN.	MAX.	Ring Dimensions Material Thick. T	O.D. C	No. of Prongs	CARBON SPRING STEL Phos. Coated or Plain, our option	CARBON SPRING STEEL Zinc Plated (Clear or Yellow Dichromate - our option.)	STAINLESS STEEL PH 15-7 Mo	BERYLLIUM COPPER
3/32	.093	.095	.010	.250	3	**R6100-9**	**R6100-9ZP**	**260-100**	
1/8	.124	.126	.010	.325	4	**R6100-12**	**R6100-12ZP**	**260-101**	
5/32	.155	.157	.010	.356	4	**R6100-15**	**R6100-15ZP**	**260-102**	
3/16	.187	.189	.010	.387	6	**R6100-18**	**R6100-18ZP**	**260-103**	
7/32	.218	.220	.010	.418	6	**R6100-21**	**R6100-21ZP**	**260-104**	
	.239	.241	.015	.460	6	**R6100-24**	**R6100-24ZP**		
1/4	.249	.251	.010	.450	6	**R6100-25**	**R6100-25ZP**	**260-105**	
5/16	.311	.313	.010	.512	6	**R6100-31**	**R6100-31ZP**	**260-106**	
3/8	.374	.376	.010	.575	6	**R6100-37**	**R6100-37ZP**	**260-107**	
7/16	.437	.440	.015	.638	6	**R6100-43**	**R6100-43ZP**	**260-108**	
1/2	.498	.502	.015	.750	6	**R6100-50**	**R6100-50ZP**	**260-109**	
9/16	.560	.564	.015	.812	6	**R6100-56**	**R6100-56ZP**		
5/8	.623	.627	.015	.875	7	**R6100-62**	**R6100-62ZP**	**260-110**	
3/4	.748	.752	.015	1.000	8	**R6100-75**	**R6100-75ZP**	**260-111**	
7/8	.873	.877	.015	1.125	10	**R6100-87**	**R6100-87ZP**		
1	.998	1.002	.015	1.250	10	**R6100-100**	**R6100-100ZP**		

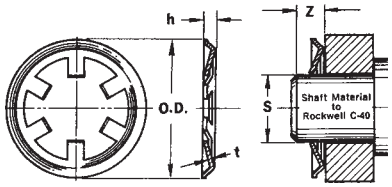
(P.C. 260)

For Steel, Retaining Ring Plastikit, see page E132.

E

EXTERNAL SERIES 5115

Carbon Spring Steel, Phosphate Coated, or Plain, our option.

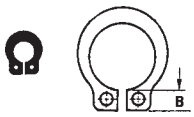


SPAENAUR No.	Shaft Dia.	t Thickness	O.D.	No. of Prongs	h Height	z Min.
259-003	3/16	.015	.444	6	.031	.062
R5115-31	5/16	.010	.584	–	–	–
R5115-50	1/2	.020	.828	10	.054	.108
259-001	9/16	.015	.889	12	.054	.108
259-002	5/8	.015	.951	12	.054	.108
R5115-75	3/4	.015	1.076	14	.054	.108

See also **W-420 Series,** Springrip Fasteners with internal teeth - Page E147.

GRIP RING

EXTERNAL SERIES **5555**



Carbon Spring Steel
Zinc Plated
Yellow or Clear Zinc, our option.

SPAENAUR No.	To Fit Shaft Dia. (Inches)	Free Diameter	Ring Thickness	Lug B
277-076	1/8 (.123-.127)	.120	.025	.078
R5555-18	3/16 (.185-.189)	.181	.035	.097
277-078	5/16 (.313)	.297	.042	.141
277-079	7/16 (.437)	.411	.050	.151
277-077	5/8 (.622-.628)	.593	.062	.180
277-080	3/4 (0.75)	.706	.062	.233

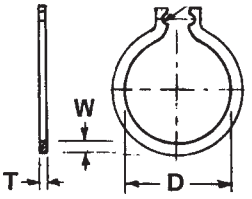
EXTERNAL PRONG RETAINING RING

B-1924

(Mfr's. No. YH-630)

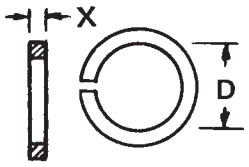
For 1-1/8" (1.125) Shaft Dia.
1.057 Free Dia.
.093 Width
.062 Thickness

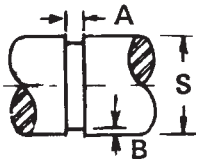
(P.C. 277)



Carbon Spring Steel - Plain Finish

EXTERNAL CLOSED TYPE XSC SQUARE WIRE RETAINING RING

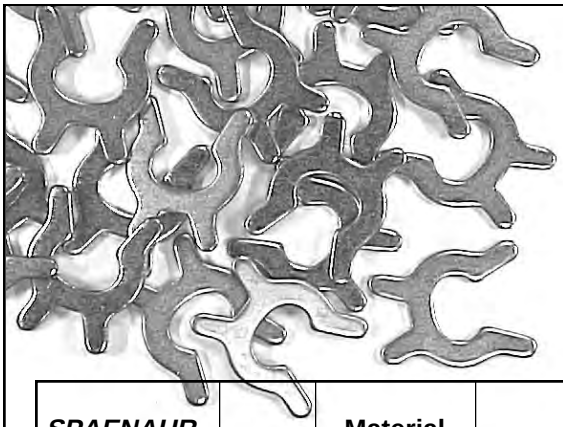




Carbon Spring Steel, Phosphate Coated or plain, our option.

(P.C. 277)

SPAENAUR No.	SHAFT DIAMETER S Dec.	S Inch	RING DIMENSIONS D In. Dia.	D Sq. Section	GROOVE DIMENSIONS A Width	A B Depth
RXSC-127	.625	5/8"	.579	.078	.085	.020

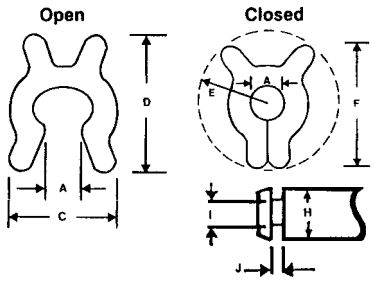


CRIMP RING RETAINERS

- **POSITIVE RETAINING RINGS**
- **EASY TO INSTALL**
- **MILD STEEL - Zinc Plated**

All Dimensions in Inches.

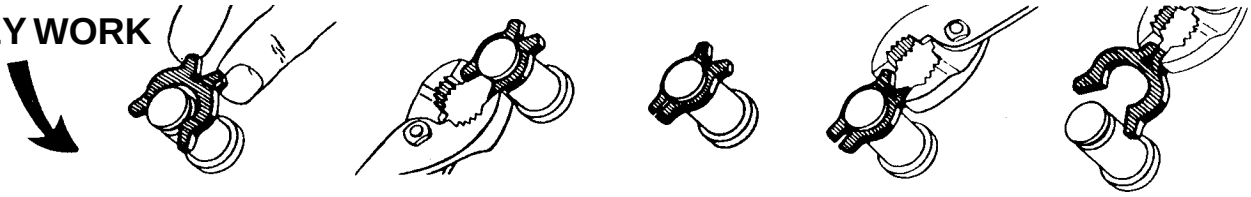
Unit Package Quantity 100



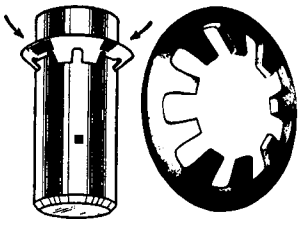
E

SPAENAUR No.	A	Material Thickness	C	D	E	F	Use on Shaft Size H	Groove Seat (Diameter) I	Groove Width J
277-200	.086	.025	.320	.406	.210	.406	.156	.086	.031
277-201	.098	.055	.364	.490	.297	.475	.187	.093	.062
277-202	.130	.055	.430	.575	.359	.556	.250	.125	.062
277-203	.164	.065	.523	.687	.422	.665	.312	.156	.075
277-204	.190	.065	.593	.745	.437	.730	.375	.187	.075
277-205	.222	.075	.622	.776	.469	.775	.437	.218	.083
277-206	.256	.075	.698	.905	.500	.890	.500	.250	.083
277-207	.285	.075	.822	.986	.563	.984	.562	.279	.083
277-208	.317	.089	.872	1.100	.609	1.078	.625	.311	.097
277-209	.347	.089	.948	1.190	.688	1.188	.687	.341	.097
277-210	.381	.089	1.060	1.297	.797	1.281	.750	.375	.097
					TOLERANCES		+.000 -.004	+.000 -.005	+.005 -.000

HERE'S HOW THEY WORK



APPLYING **CLAMPING** **360° ENCLOSURE** **REMOVING** **REMOVED**



Parkerized or Phosphate and Oil Finish, our option.

(See also Capped Style - Page C62)
For metal and plastic rods, studs and shafts
Unit Package 100

SPRINGRIP™ FASTENERS

WITH INTERNAL TEETH

SPAENAUR No.	For Shaft Dia.	Fastener Dimensions O.D.	I.D.	Thickness
261-001	.125"	.265"	.113/.118"	.010"
W-423	.187"	.402"	.181/.177"	.015"
W-424	.250"	.472"	.244/.239"	.015"
W-425	.312"	.603"	.304/.299"	.015"
W-426	.375"	.685"	.366/.361"	.015"
W-427	.500"	.781"	.490/.483"	.017"

W-420 Series is High-carbon Steel, Tempered.

P.C. 261

CATALOG 13

E

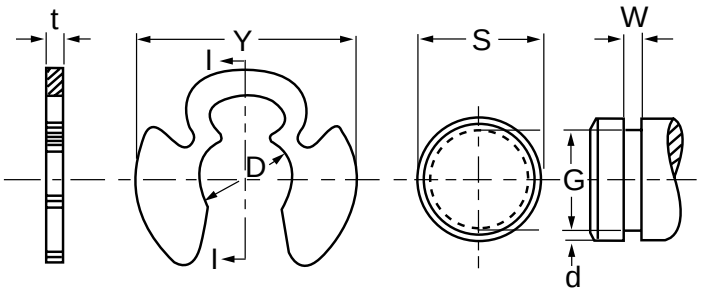
STEEL

Finish: Plain or Phosphate, at our option.

The Klipring is designed to be installed in a deep groove, having a larger diameter than the ring's free diameter. The ring also can be used as a spacer washer - it is merely slipped over a shaft of the same diameter as the ring's free diameter.

UNIT PACKAGE 100

Thickness **"t"** applies only to unplated rings. For plated rings, add .002" to the listed maximum thickness. Maximum ring thickness will be at least .0002" less than the listed minimum groove width (W).



KLIPRING

The Klipring is a unique heavy-duty radially-assembled ring which provides substantially greater gripping strength and load capacity than conventional E-rings and similar fasteners. It is thicker than conventional rings, and has tapered-section bending arms which exert very strong spring pressure when the ring is assembled.

Kliprings can be assembled easily with an ordinary pair of slip-joint pliers, or can be tapped into a groove with a mallet or hammer. A screw driver inserted under the tapered section can be used to pry the ring off the shaft quickly. The ring is reusable following disassembly.

*****Configuration of 277-062,-075, -100 and -010.

HEAVY DUTY SERIES

HEAVY-DUTY KLIPRING *SPAENAUR No.*	SHAFT DIAMETER Fract. equiv. inch S	SHAFT DIAMETER Dec. equiv. inch S	SHAFT DIAMETER (Approx. mm) S	RING DIMENSIONS (In Inches) FREE DIA. D	FREE DIA. tol.	THICKNESS t	THICKNESS tol.	Free outside Y	GROOVE DIMENSIONS (In Inches) DIAMETER G	DIAMETER tol.	WIDTH W	WIDTH tol.	Nominal groove depth d	ALLOW. THRUST LOAD (lbs.) Sharp Corner Abutment RINGS (Standard material) Safety factor =2-1/2 Important P_r	GROOVES (Cold rolled steel shafts) Safety factor =2 P_g
277-015	5/32	.156	(4.0)	.110	±.003	.035	±.002	.320	.120	±.004 .002 TIR	.039	+.006 -.000	.018	457	110
277-018	3/16	.188	(4.8)	.140		.035		.400	.148	±.005 .002 TIR	.039		.020	609	130
277-025	1/4	.250	(6.4)	.188		.035		.482	.210	±.006 .003 TIR	.039		.020	914	200
277-031	5/16	.312	(7.9)	.250		.042		.588	.272		.046		.020	1320	250
277-037	3/8	.375	(9.5)	.312	±.004	.042		.680	.331		.046		.022	1573	300
277-043	7/16	.438	(11.1)	.375		.050		.752	.390	±.008 .003 TIR	.056		.024	2233	400
277-050	1/2	.500	(12.7)	.406		.050		.826	.440	±.008 .004 TIR	.056		.030	2538	600
277-062*	5/8	.625	(15.9)	.500	±.005	.050		.966	.531		.056		.047	3045	1100
277-075*	3/4	.750	(19.0)	.594		.062	±.003	1.095	.632	±.010 .004 TIR	.068	+.008 -.000	.059	4669	1600
277-100*	1	1.000	(25.4)	.812	±.006	.078		1.415	.860		.086		.070	7613	2600
THIN SERIES KLIPRING															
277-001	5/32	.156	(4.0)	.110	±.003	.025	±.002	.320	.120	±.004 .002 TIR	.029	+.006 -.000	.018	325	110
277-002	3/16	.188	(4.8)	.140		.025		.400	.148	±.005 .002 TIR	.029		.020	436	130
277-003	1/4	.250	(6.4)	.188		.025		.482	.210	±.006 .003 TIR	.029		.020	650	200
277-004	5/16	.312	(7.9)	.250		.025		.588	.272		.029		.020	792	250
277-005	3/8	.375	(9.5)	.312	±.004	.035		.680	.331		.039		.022	1320	300
277-006	7/16	.438	(11.1)	.375		.035		.752	.390	±.008 .003 TIR	.039		.024	1878	400
277-007	1/2	.500	(12.7)	.406		.042		.826	.440	±.008 .004 TIR	.046		.030	2132	600
277-008	5/8	.625	(15.9)	.500	±.005	.042		.966	.531		.046		.047	2538	1100
277-009	3/4	.750	(19.0)	.594		.050		1.095	.632	±.010 .004 TIR	.056	+.008 -.000	.059	3756	1600
277-010*	1	1.000	(25.4)	.812	±.006	.050		1.415	.860		.056		.070	4872	2600

T.I.R. (total indicator reading) is the maximum allowable deviation of concentricity between groove and shaft.

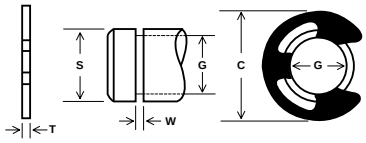
D1500 Retaining Rings

External Type Carbon Spring Steel

For Metric Retaining Ring Pliers and Ass't. 805-443, see following page.

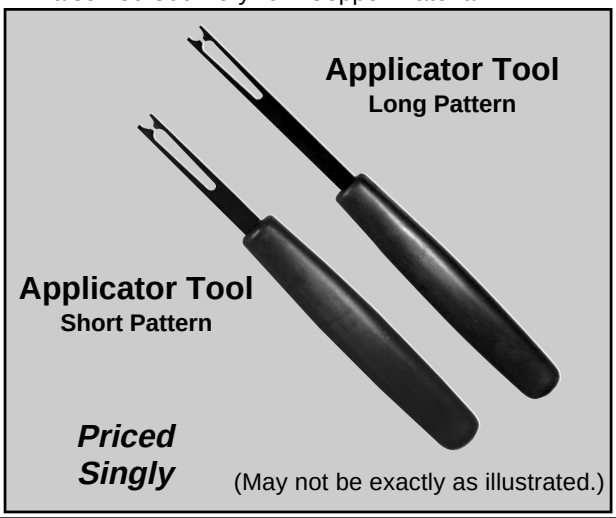
NOTE: Shaft sizes to 300 mm, also additional in-between sizes may be available. Delivery usually 8-10 weeks on unlisted sizes.

Unit Pkg. Qty. – 100 all sizes



SPAENAUR No.	A.D.I. Part No.	Shaft Diameter (S) Min. (mm)	Shaft Diameter (S) Max. (mm)	Groove Diameter (G) (mm)	Groove Tolerance (mm)	Groove Width (W) Min. (mm)	Ring Thickness (T) Max. (mm)	Ring Dia. (C) Filled Approx. (mm)
***250-517**	D1500-0.8	1.0	1.4	0.8	-0.04	0.24	0.22	2.25
250-501 / **▲250-501ZP**	D1500-1.2	1.4	2.0	1.2	-0.06	0.34	0.32	3.25
250-502	D1500-1.5	2.0	2.5	1.5	-0.06	0.44	0.42	4.25
250-503	D1500-1.9	2.5	3.0	1.9	-0.06	0.54	0.52	4.8
250-504	D1500-2.3	3.0	4.0	2.3	-0.06	0.64	0.62	6.3
250-505	D1500-3.2	4.0	5.0	3.2	-0.07	0.64	0.62	7.3
250-506	D1500-4	5.0	7.0	4.0	-0.07	0.74	0.72	9.3
250-507 / **▲250-507ZP**	D1500-5	6.0	8.0	5.0	-0.07	0.74	0.72	11.3
250-508 / **❖250-508BZ** / **■250-508YZ** / **▲250-508ZP**	D1500-6	7.0	9.0	6.0	-0.07	0.74	0.72	12.3
250-509 / **■250-509YZ** / **▲250-509ZP**	D1500-7	8.0	11.0	7.0	-0.09	0.94	0.92	14.3
250-510	D1500-8	9.0	12.0	8.0	-0.09	1.05	1.03	16.3
250-511	D1500-9	10.0	14.0	9.0	-0.09	1.15	1.13	18.8
250-512 / **▲250-512ZP**	D1500-10	11.0	15.0	10.0	-0.09	1.25	1.23	20.4
250-513	D1500-12	13.0	18.0	12.0	-0.11	1.35	1.33	23.4
250-514 / **▲250-514ZP**	D1500-15	16.0	24.0	15.0	-0.11	1.55	1.53	29.4
250-515	D1500-19	20.0	31.0	19.0	-0.13	1.85	1.78	37.6
250-516	D1500-24	25.0	38.0	24.0	-0.13	2.05	2.03	44.6
250-518	—	32.0	42.0	30.0	-0.13	2.55	2.53	52.6

*also **250-500** Beryllium Copper material ▲**ZP** - Zinc Plated, ■**YZ** - Yellow Zinc Plated, ❖**BZ** - Black Zinc Plated



Applicator Tools for DIN 6799

Groove Diameter	SHORT pattern *SPAENAUR No.*	SHORT pattern O/A Length	LONG pattern *SPAENAUR No.*	LONG pattern O/A Length
0.8	**877-320**	165	**877-333**	—
1.2	**877-321**	123	**877-334**	—
1.5	**877-322**	165	**877-335**	195
1.9	**877-323**	122	**877-336**	195
2.3	**877-324**	165	**877-337**	195
3.2	**877-325**	165	**877-338**	195
4	**877-326**	165	**877-339**	195
5	**877-327**	165	**877-340**	195
6	**877-328**	165	**877-341**	195
7	**877-329**	165	**877-342**	195
8	**877-330**	165	**877-345**	195
9	**877-331**	177	**877-343**	178
10			**877-344**	195
12			**877-305**	—

METRIC RETAINING RING ASSORTMENTS

Regular size grey enamelled STEEL drawer, 13-5/16" x 9-/14" x 2". Max. Shipping Wt. (each): 2.35 kg (5-1/5 lbs.)

ASSORTMENT / ASSORTIMENT 805-441 — EXTERNAL

DIN 471

28 SIZES - 300 PIECES

For shaft diameters 4 mm to 50 mm (Groove diameters 3.8 to 47 mm)
Carbon Spring Steel Plain Finish
See page E140 and E141.

Priced Singly

ASSORTMENT / ASSORTIMENT 805-442 — INTERNAL

DIN 472

28 SIZES - 300 PIECES

For bore diameters 10 mm to 50 mm (Groove diameters 10.4 to 53 mm)
Carbon Spring Steel Plain Finish
See page E142 and E143.

Priced Singly

ASSORTMENT / ASSORTIMENT 805-443 — EXTERNAL

DIN 6799

17 SIZES - 450 PIECES

For shaft diameters 1 mm to 25 mm (Groove diameters 0.8 to 24 mm)
Carbon Spring Steel
See page E149.

Priced Singly

Self-locking Ring, Spring Steel

259-004 for 17 mm shaft
Unit Package 100

Internal Circlips

Spring Steel

277-054	60 mm bore x 1.5 mm thick	*U.P. 50*
277-051	125 mm bore x 2.5 mm thick	*U.P. 10*
277-052	170 mm bore x 2.5 mm thick	*U.P. 1*
277-053	225 mm bore x 3.0 mm thick	*U.P. 1*

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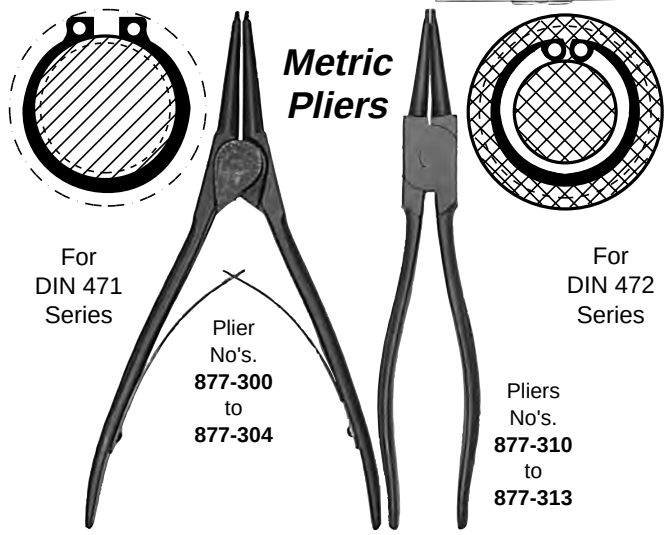
SPAENAUR

Metric Pliers



For DIN 471 Series

Plier No's. **877-300** to **877-304**

For DIN 472 Series

Pliers No's. **877-310** to **877-313**

RETAINING RING PLIERS

For External Rings		*For Internal Rings*	
SPAENAUR No.	**Ring Size Range**	***SPAENAUR No.***	**Ring Size Range**
877-300	8 mm to 17 mm	**877-310**	6 mm to 12 mm
877-301	10 mm to 22 mm	**877-311**	18 mm to 62 mm
877-302	23 mm to 35 mm	**877-312**	63 mm to 85 mm
877-303	36 mm to 102 mm	**877-313**	88 mm to 102 mm
877-304	105 mm to 140 mm		
Priced Singly		*Priced Singly*	

For more tools and accessories, see pages E151 to E153.

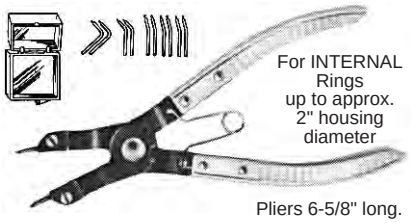
PLIERS for INTERNAL-TYPE RINGS

PLIERS for EXTERNAL-TYPE RINGS

One pliers for internal snap rings; another for external. Using different types and sizes of interchangeable points, a wide range of application is provided. Hexagonal points are automatically aligned and secured in hexagonal shaped jaws, secured by a round head screw in each tempered jaw plate...they cannot twist. Points are highest quality tool steel, accurately machined and tempered.

REGULAR SIZE - FOR MOST POPULAR RING SIZES

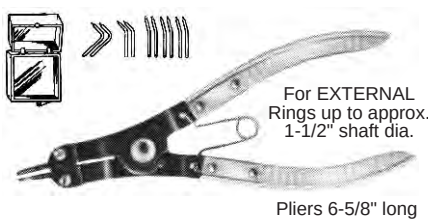
T-445 . . Internal Snap Ring Pliers



Pliers 6-5/8" long.

Complete with one T-447 Point Assortment, 5 pairs. *Packed Singly*

T-446 . . External Snap Ring Pliers



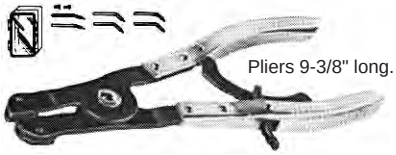
Pliers 6-5/8" long

Complete with one T-447 Point Assortment, 5 pairs. *Packed Singly*

LARGE SIZE - FOR MORE RANGE

These tools are designed to supplement the T-445 and T-446. By using the different types and sizes of interchangeable points, the mechanic now has a wider range of applications, both automotive and industrial. Pliers each 9-3/8" long with firm-grip handles, automatic ratchet-locking device built into handle.

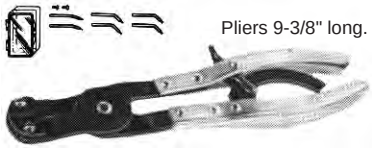
T-455 . . Internal Snap Ring Pliers



Pliers 9-3/8" long.

For INTERNAL Rings 2-7/16" to 3" housing diameter. Complete with one T-457 Point Assortment, 3 pairs. *Packed Singly.*

T-456 . . External Snap Ring Pliers

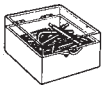


Pliers 9-3/8" long.

For EXTERNAL Rings 1-1/2" to 4-1/2" shaft diameter. Complete with one T-457 Point Assortment, 3 pairs. *Packed Singly.*

INTERCHANGEABLE POINTS ASSORTMENTS

T-447 - for use in pliers T-445 and T-446



5 pairs points in plastic box.
One pair each of the following:

- Point dia. - .039", angle 15°
- Point dia. - .047", angle 15°
- Point dia. - .074", angle 15°
- Point dia. - .039", angle 45°
- Point dia. - .047", angle 90°

P.C. 876

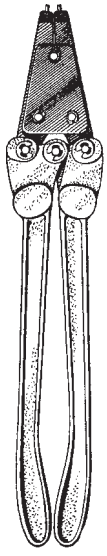
T-457 - for use in Pliers T-455 and T-456

Assortments Packed Singly

Plastic storage box containing 1 pair of jaw plate screws and 1 pair each of the following:

- Point dia. - .108", angle 15°
- Point dia. - .108", angle 45°
- Point dia. - .123", angle 45°

MAJOR and SUPER MAJOR Sizes - For the REALLY BIG ONES



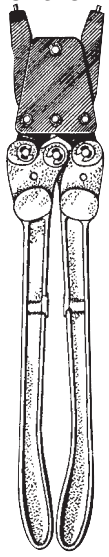
Internal Retaining Ring Pliers

T-3000
for Ring Sizes
3.50"-9.50"

876-756
for Ring Sizes
6.25"-10.00"

Priced Singly

Effortless Single-Handed Assembly



External Retaining Ring Pliers

T-3100
for Ring Sizes
2.75"-9.75"

876-757
for Ring Sizes
6.75"-10.00"

Priced Singly

876-523 TIPS ONLY for use with Pliers T-3000 & T-3100 *Unit Pkg. 1 Set - 2 Tips*
876-767 TIPS ONLY for use with Pliers 876-756 & 876-757 *Unit Pkg. 1 Set - 2 Tips*

INTERCHANGEABLE POINTS

Order by COMPLETE type number as listed below.

SERIES T-449P

For use in either T-445, T-446, or T-446X. Hex shapes automatically aligned and locked in hex jaws of pliers. Can't turn! Tips ground with slight reverse taper for more secure grip in ring hole.

TYPE NO.

.039 point identified by plain shank.
.047 point identified by one notch on shank.
.074 point identified by two notches on shank.
.090 point identified by three notches on shank.

15° Angle

- **T-449P-039-15** (Point diameter .039", angle 15°)
- **T-449P-047-15** (Point diameter .047", angle 15°)
- **T-449P-074-15** (Point diameter .074", angle 15°)

45° Angle

- **T-449P-039-45** (Point diameter .039", angle 45°)
- **T-449P-047-45** (Point diameter .047", angle 45°)
- **T-449P-074-45** (Point diameter .074", angle 45°)
- **T-449P-090-45** (Point diameter .090", angle 45°)

90° Angle

- **T-449P-039-90** (Point diameter .039", angle 90°)
- **T-449P-047-90** (Point diameter .047", angle 90°)
- **T-449P-074-90** (Point diameter .074", angle 90°)

Unit Package – 1 pair of one type.

Interchangeable Points Set T-448

for Internal / External Snap Ring Pliers

Set includes:

Dia.	Angle
.039"	15°
.047"	15°
.074"	15°
.039"	45°
.047"	45°
.074"	45°
.039"	90°
.047"	90°
.074"	90°

Includes 1 pair of each size listed at right

Set Priced Singly

SERIES T-459P

For T-455 and T-456. Hex shaped - cannot twist because they are automatically aligned and secured in hex jaws of the pliers. A round head screw on each tempered jaw plate locks points in place. Point tips are ground with slight reverse taper for more secure grip in ring holes.

T-459P-108-15 (Point diameter .108", angle 15°)

T-459P-108-45 (Point diameter .108", angle 45°)

T-459P-123-45 (Point diameter .123", angle 45°)

.108" Point identified by plain shank
.123" Point identified by one notch on shank

Unit Package: 1 pair of one type.

Note: Applicator Tools for RADIAL Assembly on page E135.

E

Pliers are precision stamped from high grade steel, bright Zinc plate finish, fitted with springs and plastic non-slip grips. Tips are heat-treated for maximum toughness and wear.

Retaining Ring MASTER PLIER KIT

Kit consists of two pliers, and a full set of tips (straight, 45 degree and 90 degree) — all in an attractive case.

Master Plier Kit No.	For INTERNAL Rings	For EXTERNAL Rings
876-561	Sizes:	Sizes:
UNIT PACKAGE: 1 KIT	X25 to X137	25 to 143

Components of above Master Plier Kit may also be purchased separately as follows:

No. 876-562	Plier for Internal Rings (with full set of tips as above)	*Priced Singly*
No. 876-563	Plier for External Rings. (with full set of tips as above)	

No. 876-564 Tip Set (16 tips)

Tips: Straight or Angle

Includes straight, 45 degree and 90 degree tips.

For use with Ring Styles:

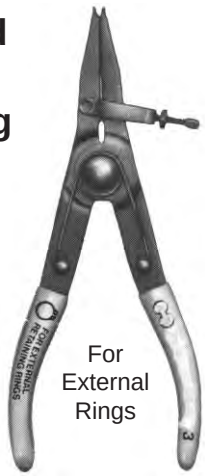
Internal: sizes X25 to X175
External: sizes 25 to 143

Tip Unit Package: 1 Set (16 tips) **876-564**

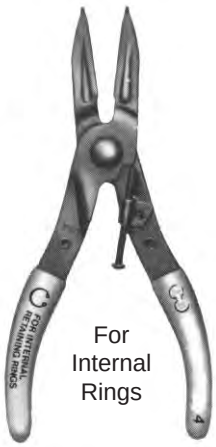
(Tips not sold individually or in pairs)

Standard Type Retaining Ring Pliers

Note: Tips not replaceable



For External Rings



For Internal Rings

Standard pliers have plastic non-slip, grips — easy on the hands and oil resistant.— plus stop screws for positive location, and springs for ease of operation. The plier for mass-production assembly.

3 Nose Styles **4 Plier Sizes**

For INTERNAL Rings

Ring Size Range	Straight Nose PLIER No.	45° Angle Nose PLIER No.	90° Angle Nose PLIER No.	Unit Pkg.
37 to 102	**876-565**	**876-568**	**876-571**	1
106 to 175	**876-566**	**876-569**	**876-572**	1
181 to 347	**876-567**	**876-570**	**876-573**	1

NOTE: For larger Rings, use T-3000 “Major” Pliers - see page E151.

For EXTERNAL Rings

Ring Size Range	Straight Nose PLIER No.	45° Angle Nose PLIER No.	90° Angle Nose PLIER No.	Unit Pkg.
25 to 87	**876-574**	**876-577**	**876-580**	1
93 to 143	**876-575**	**876-578**	**876-581**	1
150 to 350	**876-576**	**876-579**	**876-582**	1

For larger rings, use T-3100 “Major” Pliers - see page E151.

RETAINING RING PLIERS
(Convertible Style) For Axial Assembly

- ***To compress internal-type rings*** for insertion into a bore or housing, as shown in Fig. 1 below.
- ***To expand external-type rings*** for assembly over a shaft, as shown in Fig. 2.

Pliers will also set metric equivalent sizes.

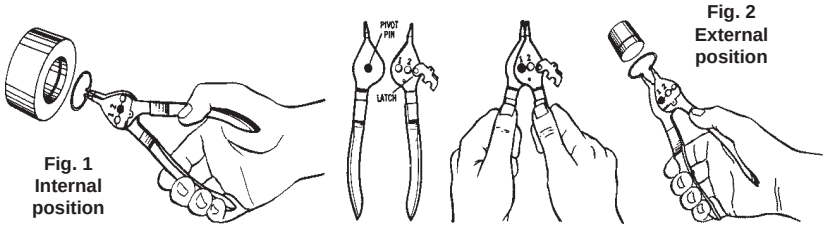


Fig. 1 Internal position

Fig. 2 External position

Changing pliers setting

P.C. 876

T-1120 Plier for small sizes. Will set R3000-37 to -102, and R3100-25 to -87.

T-1340 Plier for large sizes. Will set R3000-106 to -175, and R3100-93 to -143.

All Pliers Priced Singly.

Also see KNIPEX Professional Retaining Ring Pliers pages P158-P159. Hazet Special Lockring Pliers pages N48 to N50.

SPAENAUR

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Swivel Plates	Plaque tournantes	**F16**
Picture Hardware	Quincaillerie de tableau	**F17**
Gripper Clips	Pinces de serrage	**F19**

INSERT GLIDES of Black Polyethylene - for TUBING

ROUND Style

(1)

(2)

Unit Pkg. Qty. 25

SPAENAUR No.	Tubing Size Gauge x O.D.	Base O.D.	Same as
315-489	18 ga. x 5/8"	5/8"	(1)
315-663	16 ga. x 1"	1"	(1)
315-491	18 ga. x 3/4"	3/4"	(1)
315-657	18 ga. x 7/8"	7/8"	(2)
315-493	16 ga. x 1"	1"	(2)

RECTANGULAR Style

Unit Pkg. Qty. 25

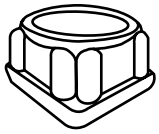
SPAENAUR No.	Tubing Size Gauge x O.D.	Base Dimensions
315-499	16 ga. x 1/2" x 1"	1/2" x 1"
315-628	16-18 ga. x 1/2" x 1 1/2"	1/2" x 1 1/2"
315-629	16-18 ga. x 3/4" x 1 1/2"	3/4" x 1 1/2"
315-630	16-18 ga. x 1" x 2"	1" x 2"

F

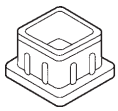
INSERT GLIDES, for SQUARE TUBING Polyethylene Material

Unit Pkg. Qty. 25

SQUARE Style



* Alternate Style



SPAENAUR No.	Tubing Size O.D. x Gauge	Base Dim.	Colour
315-664	1/2" x 16-18 ga.	1/2" sq.	Black
315-494*	5/8" x 18 ga.	5/8" sq.	Black
315-639	3/4" x 16-18 ga.	3/4" sq.	Black
315-640	3/4" x 16-18 ga.	3/4" sq.	White
315-495	3/4" x 16-18 ga.	49/64" sq.	Black
315-642	13/16" x 18 ga.	13/16" sq.	Black
315-641	13/16" x 16 ga.	13/16" sq.	Black
315-643	7/8" x 16-18 ga.	7/8" sq.	Black
315-497	1" x 16-18 ga.	1" sq.	Black
315-656	1" x 13 ga.	1" sq.	Black
315-644	1-1/8" x 16-18 ga.	1-1/8" sq.	Black
315-498	1-1/4" x 16-18 ga.	1-1/4" sq.	Black

SQUARE ANGLE BASE

Unit Pkg. Qty. 25

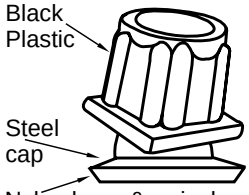
SPAENAUR No.	Tubing Size O.D.	Gauge	Overall Height	Base Angle	Colour
315-468	3/4"	16-18	7/8"	19°	Black
315-469	3/4"	16-18	7/8"	19°	White
315-470	13/16"	16	7/8"	19°	Black
315-471	13/16"	18	7/8"	19°	Black
315-472	7/8"	16-18	15/16"	19°	Black
315-473	7/8"	16-18	15/16"	19°	Grey

Furniture Glides

SWIVEL STYLE - for SQUARE TUBING

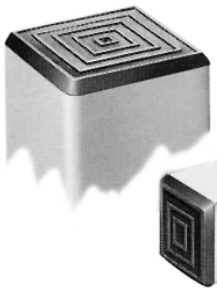
Unit Pkg. Qty. 50

Base Dia. 1-5/32"

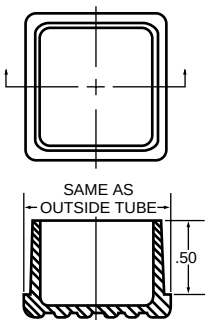


SPAENAUR No.	Square Tubing O.D.	Gauge	Finish
112-090	3/4"	16-18	Brass
112-091	3/4"	16-18	Chrome
112-092	7/8"	16-18	Brass
112-093	7/8"	16-18	Chrome
112-094	1"	16-18	Brass
112-095	1"	16-18	Chrome

Finishing Plugs for SQUARE METAL TUBING



View of plug installed.



MATERIAL/COLOUR:
Low Density Polyethylene/Black
Temp. Range -70° to 79°C (-94° to 175°F)

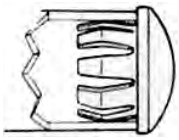
SPAENAUR No.	Will Plug Tube Size	Unit Pkg.
315-658	3/4" x 16 ga. (.063")	25
315-647	1" x 14 ga. (.072")	25
315-659	1" x 16 ga. (.063")	25
315-660	1" x 18 ga. (.049")	25
315-661	1" x 20 ga. (.035")	25
315-648	1-1/4" x 14 ga. (.072")	25
315-662	1-1/4" x 16 ga. (.063")	25
315-699	1-1/2" x 11 ga. (.125")	25
315-649	1-1/2" x 14 ga. (.072")	25
315-650	1-1/2" x 16 ga. (.063")	25
315-651	2" x 14 ga. (.072")	25
315-652	2" x 16 ga. (.063")	25

ROUND TUBING TYPE

Designed to fit tube ends in furniture tubing, etc. Provides a trim finished appearance, and protects floors from sharp tube ends.

HIGH CARBON STEEL

APPLICATION



More Metal Plug Buttons on pages H2 to H4. For Nylon Plug Button see pages J2 and J3.

Tube Size I.D.	Tube Size O.D.	O.D. of Plug Button Head	Plug Button Material	Bare Metal SPAENAUR No.	Bare Metal Mfr. No.	Finished SPAENAUR No.	Finished Finish	Unit Pkg. Qty.
.500-.562"	5/8"	5/8"	Steel	**B-1733**	HS-51355	**B-1733-N**	Nickel	50
.620-.680"	3/4"	3/4"	Steel	**B-1684-PS**	HS-51260	**B-1684**	Nickel	50
.796"	7/8"	7/8"	Steel	**243-009**	HS-51247	**243-010**	Nickel	50
.875-.900"	1"	63/64"	Steel	**B-1732-PS**	D-3031	**B-1732**	Nickel	50
1.092-1.150"	1-1/4"	1-15/64"	Steel	**B-1775**	HS-51328	**B-1775N**	Nickel	50
1.315-1.385"	1-1/2"	1-1/2"	Steel	**B-1734**	HS-51400	**B-1734-N**	Nickel	50

F

SQUARE TUBING TYPE

STEEL - NICKEL PLATED.

FIT SECURELY AND NEATLY.

Top View

B-1889

Bottom View

Fits in 1-1/8" O.D. No. 16 or No. 18 gauge square tubing.

P.C. 243

SPAENAUR No.	16-18 ga. Tubing O.D. Size
B-1974	3/4"
B-1975	13/16"
B-1976	7/8"

Unit Package 50 (One Number)

ASSEMBLED TUBE CLOSURES

Unit Package Quantity 20 (One Number)

Round Style

***Round Style** with washer

(Provides Flange on Tube End)

Square Style

SPAENAUR No.	Use With Tube O.D.	Tube Wall Thickness	Base Material	Base Finish
112-224	1" round	16-18 ga.	Black NYLON	—
112-227	5/8" round	16-18 ga.	Case Hardened Steel	Zinc Pltd.
112-228	3/4" round	16-18 ga.	Case Hardened Steel	Nickel Pltd.
112-230	13/16" round	16-18 ga.	Case Hardened Steel	Nickel Pltd.
112-232	7/8" round	16-18 ga.	Case Hardened Steel	Nickel Pltd.
112-234	1" round	16-18 ga.	Case Hardened Steel	Nickel Pltd.
112-236	1-1/8" round	16-18 ga.	Case Hardened Steel	Nickel Pltd.
112-237	1-1/4" round	16-18 ga.	Case Hardened Steel	Nickel Pltd.
***112-238** with 1-1/2" washer	1" round	14-16 ga.	Case Hardened Steel	Nickel Pltd.
***112-239** with 1-3/4" washer	1-1/4" round	16-18 ga.	Case Hardened Steel	Nickel Pltd.
112-225	1" square	16-18 ga.	Black NYLON	—
112-226	1-1/8" square	16-18 ga.	Black NYLON	—
112-229	3/4" square	16-18 ga.	Case Hardened Steel	Nickel Pltd.
112-231	13/16" square	16-18 ga.	Case Hardened Steel	Nickel Pltd.
112-233	7/8" square	16-18 ga.	Case Hardened Steel	Nickel Pltd.
112-235	1" square	16-18 ga.	Case Hardened Steel	Nickel Pltd.

SUPER-SILENT GLIDES for tubular metal furniture

SWIVEL-TYPE
Nickel Plated

Internal Retainer Style

With Square Metal Platform

Unit Package 40

SPAENAUR No.	Tubing Size	Base Dia.	Base Material
112-083	3/4" Square #16, #18 ga.	15/16"	Metal Base and Rubber Cushion
UH-84	3/4" Square #16, #18 ga.	15/16"	High-density Polyethylene Base and Rubber Cushion
UH-85	7/8" Square #16, #18 ga.	15/16"	Metal Base and Rubber Cushion

F

SWIVEL-TYPE

Unit Package 40

Strong, shock-absorbing action reduces noise that commonly results from moving furniture.

SPAENAUR No.	Base Dia.	Size Of Tubing Outside	Size Of Tubing Inside	Base Material
112-118	7/8"	5/8" Rd.	.495"-.527"	Nickel Pltd. Steel
112-080	7/8"	7/8" Rd.	.750"-.780"	Nickel Pltd. Steel
112-102	7/8"	1" Rd.	.870"-.902"	Nickel Pltd. Steel
112-082	7/8"	1" Rd.	.870"-.902"	Nylon, Natural

NON-SWIVEL TYPE
Nickel Plated Steel Base

Unit Package 40

SPAENAUR No.	Tubing Size	Retainer Style	Base Dia.
B-1892	1-1/8" Square #20 ga.	Internal	1-1/16"

SPAENAUR No. **112-117**

SWIVEL-TYPE
Nickel Plated Steel

Attractive, modern design.
Ball-swivel action to 34°.

DIAMETER OF TUBING
5/8" Ferrule with Outside Holding Clip to fit .625"-.636" O.D. Tubing

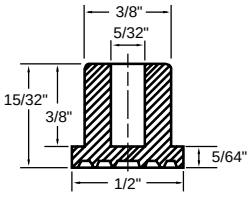
BASE DIAMETER 1-1/4"

Unit Package 40

THE GRIPPER

White, Non-staining

SPAENAUR No.
315-171

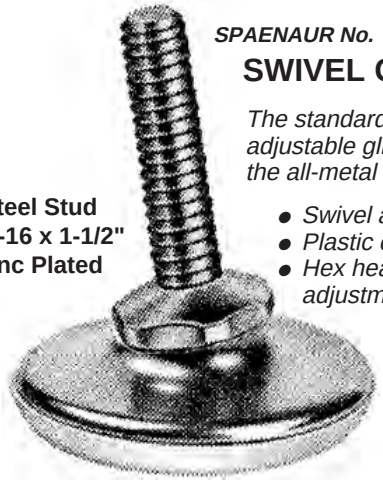


Non-walking Appliance Foot
(Suitable for Motorized Counter-top Appliances)
Made of FDA-approved polylastomer.

UNIT PACKAGE 100

CATALOG 13

SWIVEL ADJUSTABLE LEVELING GLIDES



***SPAENAUR No.* UH-80**
SWIVEL GLIDE

The standard swivel adjustable glide with the all-metal look.

- *Swivel action up to 16°*
- *Plastic contacts floor*
- *Hex head for easy adjustment*

Steel Stud
3/8"-16 x 1-1/2"
Zinc Plated

1-11/16" Dia. White Polyethylene Base
with nickel plated steel shell

***SPAENAUR No.* 112-113**
ECONOMICAL SWIVEL ADJUSTABLE GLIDE

Steel Stud
1/4"-20 x 1/2"
Zinc Plated

All-plastic base.

Swivels to 16° with hex head for easy adjustment.

White Base

1-1/8" Dia. Base

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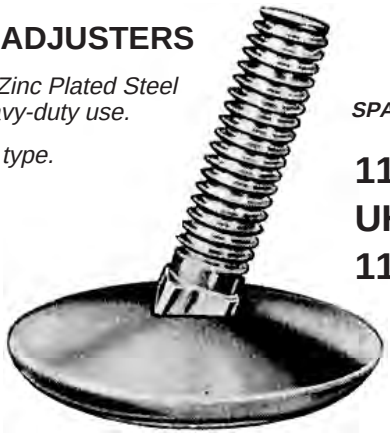
LEG ADJUSTERS

Bright Zinc Plated Steel for heavy-duty use.

Swivel type.



SPAENAUR No.

112-084 3/8"-16 x 1-1/2" shank
UH-28 3/8"-16 x 2" shank
112-081 5/16"-18 x 1-1/4" shank

1-3/4" Dia. Base

Swivel action may be stiff on some glides but that will not affect actual application.

ADJUSTABLE SWIVEL GLIDE

SPAENAUR No.

112-132
1/4"-20 x 1" Steel Stud

Engineered with exceptional versatility and strength.

Swivels to 30° angle

1-1/4" Dia. Base
Base is made of case hardened steel.
Nickel plated shell.

SWIVEL GLIDE

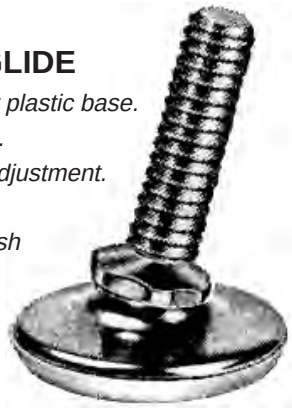
Floor is protected by plastic base.

Swivels to 16° angle.

Hex head for easy adjustment.

Base colour - white.

Base cover shell finish nickel-plated steel.



SPAENAUR No.

112-115
1/4"-20 x 1/2" Steel Stud

112-116
5/16"-18 x 1" Steel Stud

1-1/8" Dia. Base

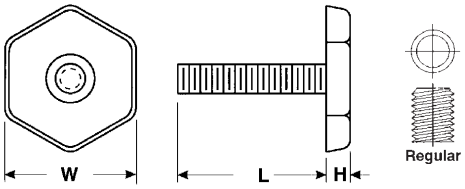
All Glides this page, Unit Package 50

See "J" Section for Heavy Machinery & Vibration Mounts.

LEG LEVELERS

C1008/1010 Steel, Zinc Plated

Two Piece Welded Construction.
Studs supplied with regular point.



Style 1W

Style 28

Style 35

Unit Package Quantity 25

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SPAENAUR No.	Thread Size	Overall Length Tol. ± .060"	Length from Top of Base to Point. "L" Tol. ± .060"	Base Style	Base Width W Tol. ± .010"	Base Height H Tol. ± .010"	Base Material Thickness Tol. +.004" to -.000"
112-240	1/4"-20	1.26"	1.08"	1W	1-1/16"	.180"	.039"
112-241	1/4"-20	1.292"	1.127"	35	1-3/8"	.165"	.071"
112-242	1/4"-20	1.76"	1.58"	1W	1-1/16"	.180"	.039"
112-134	1/4"-20	1.779"	1.467"	28	1-3/8"	.312"	.058"
112-243	1/4"-20	2.26"	2.08"	1W	1-1/16"	.180"	.039"
112-244	1/4"-20	2.279"	1.967"	28	1-3/8"	.312"	.058"
112-245	5/16"-18	1.26"	1.08"	1W	1-1/16"	.180"	.039"
112-246	5/16"-18	1.292"	1.127"	35	1-3/8"	.165"	.071"
112-139	5/16"-18	1.403"	1.238"	35	1-3/8"	.165"	.071"
112-300	5/16"-18	1.542"	1.377"	35	1-3/8"	.165"	.071"
112-247	5/16"-18	1.76"	1.58"	1W	1-1/16"	.180"	.039"
112-135	5/16"-18	1.779"	1.467"	28	1-3/8"	.312"	.058"
112-248	5/16"-18	2.26"	2.08"	1W	1-1/16"	.180"	.039"
112-249	5/16"-18	2.279"	1.967"	28	1-3/8"	.312"	.058"
112-250	5/16"-18	2.76"	2.58"	1W	1-1/16"	.180"	.039"
112-136	5/16"-18	2.779"	2.467"	28	1-3/8"	.312"	.058"
112-251	3/8"-16	1.760"	1.58"	1W	1-1/16"	.180"	.039"
112-137	3/8"-16	1.779"	1.467"	28	1-3/8"	.312"	.058"
112-252	3/8"-16	2.26"	2.08"	1W	1-1/16"	.180"	.039"
112-253	3/8"-16	2.279"	1.967"	28	1-3/8"	.312"	.058"
112-140	3/8"-16	2.292"	2.127"	35	1-3/8"	.165"	.071"
112-254	1/2"-13	1.784"	1.472"	28	1-3/8"	.312"	.058"
112-255	1/2"-13	2.284"	1.972"	28	1-3/8"	.312"	.058"
112-256	1/2"-13	2.784"	2.472"	28	1-3/8"	.312"	.058"
112-257	1/2"-13	2.797"	2.632"	35	1-3/8"	.165"	.071"
112-138	1/2"-13	3.284"	2.972"	28	1-3/8"	.312"	.058"

NON-SWIVEL ADJUSTABLE LEVELING GLIDES

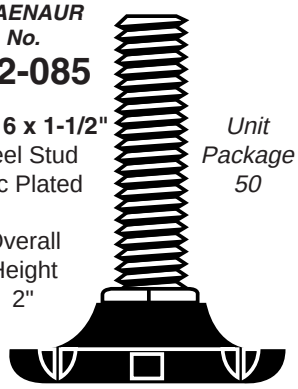
LEVELER GLIDE

SPAENAUR No.
112-085

3/8"-16 x 1-1/2"
Steel Stud
Zinc Plated

Overall Height 2"

Unit Package 50



Reduced Bottom Illustration

1-11/16" Dia
Black
Polyethylene
Base

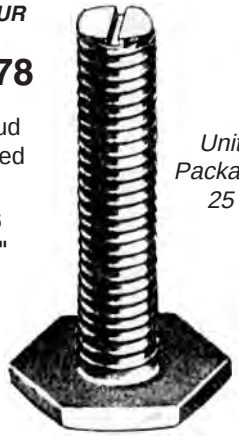
Slotted End for Adjusting

SPAENAUR No.
112-178

Steel Stud
Zinc Plated

3/8"-16 x 1-1/2"

Unit Package 25



Base - 7/8" Wide
Thickness - 9/64".

MOUNTING PLATE

Tapped 3/8"-16

Unit Pkg. 50

SPAENAUR No.
112-096
Steel, Zinc Pltd.
(Use with Leveller 112-097)

1-1/4" Dia.

LEVELER GLIDE

SPAENAUR No.
112-097

STEEL
Bright Zinc Plated

Overall Height 1-3/4"

3/8"-16 x 1-1/4" Thread Length

Self-aligning Pivot Base

Unit Package 50

1-5/8" Dia.

RUBBER CUSHION LEVELING SILENCER

Resilient cushion adjustable glide for straight legs. Stud moulded in to provide strength and silencing action. Available in nickel-plated finish only.

Unit Pkg. 50

SPAENAUR No.	BASE CAP DIAMETER	STUD SIZE & LENGTH
112-109	7/8"	1/4"-20 x 1/2"
112-110		1/4"-20 x 1"
112-112		5/16"-18 x 1"
112-087	1-1/16"	3/8"-16 x 1" less rubber cushion
112-086	1-3/16"	1/4"-20 x 1"

Features an all-metal look and extra strength for straight legs. Plastic base contacts floor. Base colour - white. Base cover shell available in satin-nickel finish.

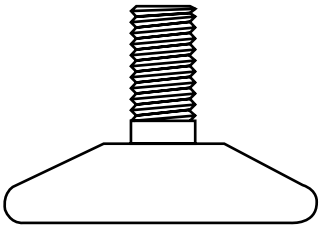
SPAENAUR No.	BASE & SHELL DIAMETER	STUD SIZE & LENGTH
112-105	1-1/8"	1/4"-20 x 1/2"
112-106		1/4"-20 x 1"
112-108		5/16"-18 x 1"

Unit Package 50

LEVELER GLIDE

Steel Stud
Zinc Plated

White Polyethylene Base (*Black)



1-5/8" Diameter

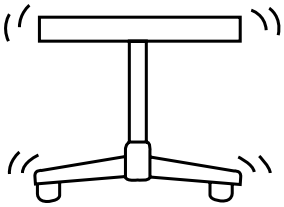
SPAENAUR No.	Shank Size
112-101	1/4"-20 x 3/4"
112-098	5/16"-18 x 3/4"
112-099	5/16"-18 x 1-1/4"
112-100	3/8"-16 x 1-1/4"
***112-121**	3/8"-16 x 1-1/4"

Unit Package 50

Looking for a product not listed?

Call us at (800) 265-8772.

SPAENAUR



SUPERLEVEL™

The Patented, Self-Adjusting Automatic Glide That Puts An End To Wobbly Woes

SUPERLEVEL table glides automatically adjust to uneven floor surfaces.

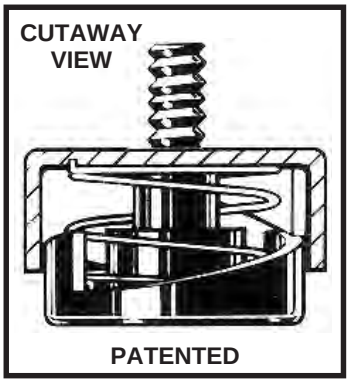
SUPERLEVELS, for new or existing tables, are inexpensive, easy to install, durable and rust free.

SUPERLEVELS work by using the table's weight to automatically adjust to a floor's surface every time the table is moved

The secret to **SUPERLEVELS'** effectiveness is its patented double cam and spring mechanism.

All **SUPERLEVELS** contain a hardened stainless steel spring, housed in a black super-tough nylon body and are guaranteed to keep your tables wobble-free without damaging floors or carpet. Use indoors or out.

SUPERLEVEL table glides are also installed as original equipment by many table manufacturers.



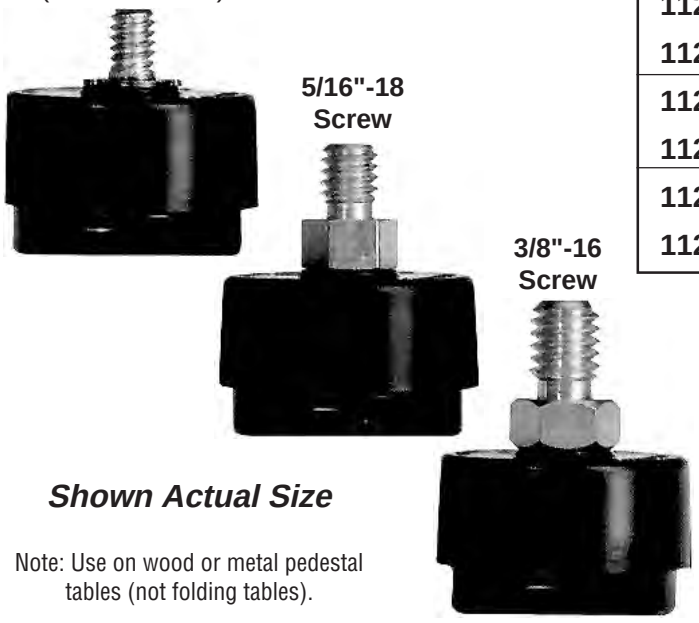
Determine Which Size Fits Your Table

To determine correct screw diameter, remove present glide from table and compare to sizes shown.

1/4"-20 Screw
(Standard Size)

5/16"-18 Screw

3/8"-16 Screw



Shown Actual Size

Note: Use on wood or metal pedestal tables (not folding tables).

SPAENAUR No.	Thread Size	Internal Spring Gauge	Table Weight Per Four Glides
112-001	1/4"-20	.049"	25 to 140 lbs.
112-002	1/4"-20	.054"	100 to 300 lbs.
112-003	5/16"-18	.049"	25 to 140 lbs.
112-004	5/16"-18	.054"	100 to 300 lbs.
112-005	3/8"-16	.049"	25 to 140 lbs.
112-006	3/8"-16	.054"	100 to 300 lbs.

Unit Package Quantity - Four Glides (all one size).

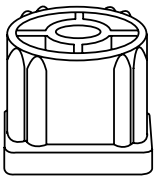
Installation Information

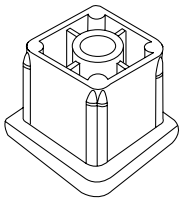
1/4"-20 thread sizes require a 3/16" A.F. hex key for install.
(Suggest *SPAENAUR No.* SS-67K or SS-67KL)

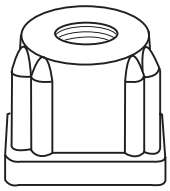
5/16"-18 thread sizes require a 7/16" A.F. wrench.
(Suggest *SPAENAUR No.* 990-260 3/8" x 7/16" A.F. Open End Wrench)

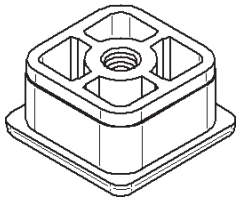
3/8"-16 thread sizes require a 1/2" A.F. wrench.
(Suggest *SPAENAUR No.* 990-262 1/2" x 9/16" A.F. Open End Wrench)

SQUARE PLUG ADAPTORS of Hi-Density Polyethylene


Style 1


Style 2


Style 3

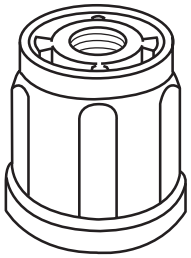

Style 4

SPAENAUR No.	Thread Size	For Tubing Gauge	Square Base Dimension	Style	Metal Insert	Colour	Unit Pkg. Qty.
112-153	1/4" - 20	16-18	3/4"	4	No	Natural	50
112-143	1/4" - 20	16-18	7/8"	3	Yes	Natural	50
112-157	1/4" - 20	16-18	1"	1	Yes	Natural	25
112-158	1/4" - 20	16-18	1"	1	Yes	Black	25
112-258	1/4" - 20	16-18	1"	4	No	Natural	25
112-162	1/4" - 20	16-18	1-1/4"	1	Yes	Natural	25
112-154	5/16" - 18	16-18	3/4"	3	No	Natural	50
112-155	5/16" - 18	16-18	7/8"	1	Yes	Natural	50
112-156	5/16" - 18	16-18	7/8"	1	Yes	Black	50
112-159	5/16" - 18	16-18	1"	1	Yes	Natural	25
112-160	5/16" - 18	16-18	1"	1	Yes	Black	25
112-161	5/16" - 18	16-18	1-1/8"	1	Yes	Natural	25
112-163	5/16" - 18	16-18	1-1/4"	1	Yes	Natural	25
112-164	5/16" - 18	16-18	1-1/4"	1	Yes	Black	25
112-165	5/16" - 18	16-18	1-1/2"	2	Yes	Natural	25
112-167	3/8" - 16	16-18	2"	2	Yes	Black	10

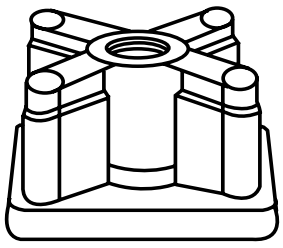
ROUND PLUG ADAPTORS of Hi-Density Polyethylene - without Metal Inserts

SPAENAUR No.	Thread Size	For Tubing Gauge	Base Outside Dia.	Colour	Unit Pkg. Qty.
112-168	1/4" - 20	16-18	5/8"	Natural	50
112-169	1/4" - 20	16-18	3/4"	Natural	50
112-171	1/4" - 20	16-18	7/8"	Natural	50
112-173	1/4" - 20	16-18	1"	Natural	25
112-170	5/16" - 18	16-18	3/4"	Black	50
112-172	5/16" - 18	16-18	7/8"	Natural	50
112-174	5/16" - 18	16-18	1"	Natural	25
112-175*	5/16" - 18	16-18	1-1/4"	Black	25
112-176*	5/16" - 18	16-18	1-3/4"	Black	25

(*****Except 112-175 & 112-176 with Metal Inserts)



ZINC DIE CAST ADAPTORS FOR SQUARE TUBING



SPAENAUR No.	Thread Size	For Tubing Gauge	Tubing O.D./ Square Base Dimension	Unit Pkg. Qty.
112-151	5/16" - 18	18	1"	25
112-152	3/8" - 16	18	1"	25
112-144	5/16" - 18	16	7/8"	25
112-146	5/16" - 18	16	1"	25
112-148	5/16" - 18	16	1-1/4"	25
112-145	3/8" - 16	16	7/8"	25
112-147	3/8" - 16	16	1"	25
112-149	3/8" - 16	16	1-1/4"	25
112-150	3/8" - 16	16	1-1/2"	25

Threaded insert and base are zinc plated.

ROUND METAL THREADED ADAPTERS

SPAENAUR No.	Use With Tube O.D.	Thread Dia.	Tube Wall Thickness	Unit Pkg. Qty.
112-207	7/8"	1/4"-20 UNC	16-18 ga.	20
112-208	7/8"	5/16"-18 UNC	16-18 ga.	20
112-209	7/8"	3/8"-16 UNC	16-18 ga.	20
112-210	1"	1/4"-20 UNC	16-18 ga.	20
112-211	1"	5/16"-18 UNC	16-18 ga.	20
112-212	1"	3/8"-16 UNC	16-18 ga.	20

F

Threaded insert and base are zinc plated.

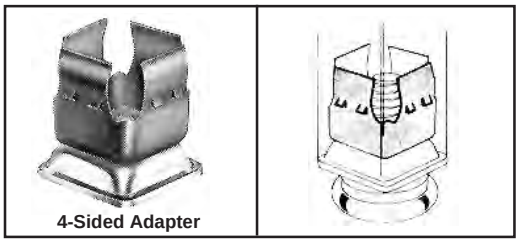
SQUARE METAL THREADED ADAPTERS

SPAENAUR No.	Use With Tube O.D.	Thread Dia.	Tube Wall Thickness	Unit Pkg. Qty.
112-213	7/8"	1/4"-20 UNC	16-18 ga.	20
112-214	7/8"	5/16"-18 UNC	16-18 ga.	20
112-215	1"	1/4"-20 UNC	16-18 ga.	20
112-216	1"	5/16"-18 UNC	16-18 ga.	20
112-217	1"	3/8"-16 UNC	16-18 ga.	20

Threaded insert and base are zinc plated.

SQUARE METAL THREADED ADAPTOR WITH ROUND CLIP

SPAENAUR No.	Use With Tube O.D.	Thread Dia.	Tube Wall Thickness	Unit Pkg. Qty.
112-202	7/8"	1/4"-20 UNC	16-18 ga.	20
112-203	7/8"	5/16"-18 UNC	16-18 ga.	20
112-204	1"	1/4"-20 UNC	16-18 ga.	20
112-205	1"	5/16"-18 UNC	16-18 ga.	20
112-206	1"	3/8"-16 UNC	16-18 ga.	20



4-Sided Adapter

Adapter inserts into square tubing.
Threaded hole accepts adjustable glide stud.

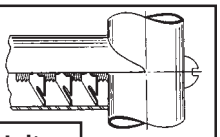
SQUARE METAL THREADED ADAPTOR

Threaded insert and base are zinc plated.

SPAENAUR No.	Use With Tube O.D.	Thread Dia.	Tube Wall Thickness	Unit Pkg. Qty.
112-119	1" Sq.	5/16"-18	16-18 ga.	40

Tall Style inserts 1" into tube.

LIGHT DUTY TUBE CONNECTORS



Several Clips can be lined up on screw for strength and alignment.

STEEL
Heat Treated
Plain Finish

Single Clip Style

SPAENAUR No.	Use With Tube O.D.	Thread Dia.	Tube Wall Thickness	Unit Pkg. Qty.
112-219	3/4" rd. or sq.	1/4"-20 UNC	16-18 ga.	20
112-220	13/16" rd. or sq.	1/4"-20 UNC	16-18 ga.	20
W-403	7/8" rd. or sq.	10-24 UNC	16-18 ga.	100
112-221	7/8" rd. or sq.	1/4"-20 UNC	16-18 ga.	20
112-222	1" rd. or sq.	1/4"-20 UNC	16-18 ga.	20
112-223	1-1/4" rd. or sq.	1/4"-20 UNC	16-18 ga.	20

F

HEAVY DUTY TUBE CONNECTORS

Round Style

STEEL
Heat Treated
Plain Finish

All threaded inserts are zinc plated.

***Square Style**

Double Clip with Staked-on Threaded Insert.

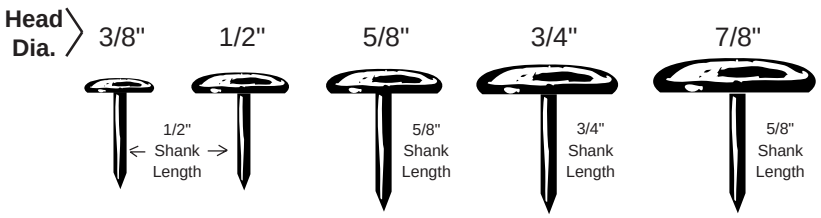
SPAENAUR No.	Use With Tube O.D.	Thread Dia.	Tube Wall Thickness	Unit Pkg. Qty.
112-194	5/8" rd. or sq.	1/4"-20 UNC	19 ga.	20
112-195	5/8" rd. or sq.	1/4"-20 UNC	25 ga.	20
112-196	3/4" rd. or sq.	1/4"-20 UNC	16-18 ga.	20
112-197	3/4" rd. or sq.	5/16"-18 UNC	16-18 ga.	20
112-198	7/8" rd. or sq.	1/4"-20 UNC	16-18 ga.	20
112-199	7/8" rd. or sq.	5/16"-18 UNC	16-18 ga.	20
112-180	1" rd. or sq.	1/4"-20 UNC	16-18 ga.	20
***112-200**	1" sq. only	1/4"-20 UNC	20 ga.	20
112-181	1" rd. or sq.	5/16"-18 UNC	16-18 ga.	20
***112-201**	1" sq. only	5/16"-18 UNC	20 ga.	20
112-182	1-1/8" rd. or sq.	1/4"-20 UNC	16-18 ga.	20
112-183	1-1/8" rd. or sq.	5/16"-18 UNC	16-18 ga.	20
112-184	1-1/4" rd. or sq.	1/4"-20 UNC	16-18 ga.	20
112-185	1-1/4" rd. or sq.	5/16" -18 UNC	16-18 ga.	20
112-186	1-3/8" rd. or sq.	1/4"-20 UNC	16-18 ga.	20
112-187	1-3/8" rd. or sq.	5/16"-18 UNC	16-18 ga.	20
112-188	1-1/2" rd. or sq.	1/4"-20 UNC	16-18 ga.	20
112-189	1-1/2" rd. or sq.	5/16"-18 UNC	16-18 ga.	20
112-190	1-3/4" rd. or sq.	1/4"-20 UNC	16-18 ga.	20
112-191	1-3/4" rd or sq.	5/16"-18 UNC	16-18 ga.	20
112-192	2" rd. or sq.	1/4"-20 UNC	20-22 ga.	20
112-193	2" rd. or sq.	5/16"-18 UNC	20-22 ga.	20

Visit us on the web at . . .

www.spaenaur.com

SINGLE-PRONG GLIDES

Steel - ZINC PLATED *Unit Package 400 (one size)*

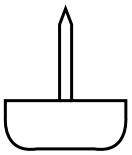


UH-68 **UH-55** **UH-56** **UH-57** **UH-58**

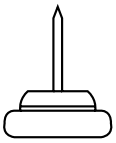
F

TACK GLIDES

(All nos. listed below - Unit Pkg. 100)

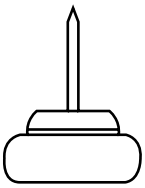


SPAENAUR No.	Base Dia.	Base Thickness	Base Colour	Base Material
112-122	1/2"	7/32"	White	Polyethylene
112-123	5/8"	1/4"	"	"
112-124	3/4"	1/4"	"	"
112-125	7/8"	1/4"	"	"



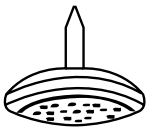
112-126 7/8" 1/4"

Cushioned style with chrome plated steel base.
Centre cushion is black.



112-127	7/8"	5/16"	White	Non-marking Polyethylene
112-128	1-1/8"	5/16"		
112-129	1-1/2"	5/16"		

Cushioned style with "non-marking" linear polyethylene base.
Centre cushion is black.



112-130 1-1/8" 1/4" Tan

Tack is moulded into Tan Base, and has a non-slip "Fly Paw Pad."

DRAWER GLIDES

PLAIN STEEL

7/16" Dia. 1/4" Shank **UH-73**

1/2" Dia. 3/8" Shank **UH-74** or **UH-74BP** Brass Plated

Unit Package 1,000

SPAENAUR No. **112-142**

#4 Thumb Tack

STEEL - Brass Plated

Unit Package 1,000

3/8" Head Diameter
9/32" Shank Length

NYLON BUTTON GLIDE

Stem: 3/16" Dia. x 1/4"
Colour: Natural (White)

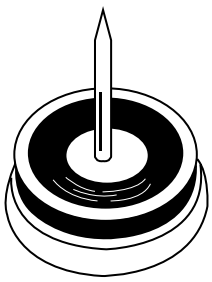
	Head Dia.	Head Thickness	Unit Pkg.
086-378	11/32"	1/16"	100
086-379	9/16"	1/16"	100

FELT FEET

Flat
NAIL TYPE Brown Felt
UH-29 7/16" Diameter
Unit Package 100

NAIL TYPE Black Felt
UH-30 1/2" Diameter
Unit Package 100

RUBBER INSULATED GLIDES



Nickel Plated
Unit Package 100

Case-hardened steel base with rubber cushion to deaden noise.

SPAENAUR No.	Dia.	Shank Length
UH-60	5/8"	11/16"
UH-24	7/8"	11/16"
***UH-25**	7/8"	11/16"
UH-61	1-1/16"	5/8"
UH-63	1-1/4"	5/8"
UH-64	1-1/2"	1"

*Brass Plated

THREE-PRONG GLIDES

3/4" Dia.

UH-72

Steel
Nickel or Zinc Plated (our option)

SPAENAUR No.	Dia.
UH-77	5/8"
UH-78	7/8"
UH-79	1"

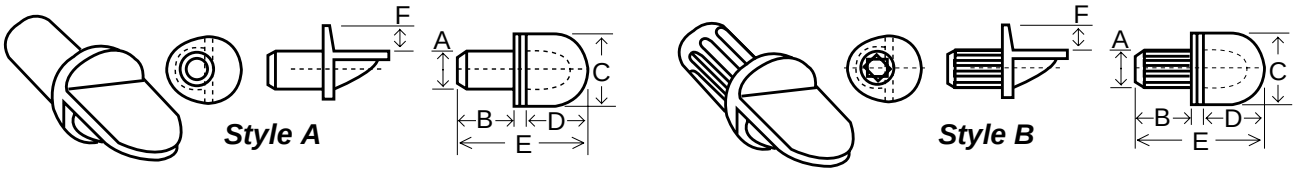
PLAIN STEEL

Unit Package 400 (one size)

CATALOG 13

Light Duty Shelf Supports

Light Duty Shelf Supports are designed to accommodate light to medium shelf loads. Manufactured from Clear Butyrate, these supports are durable yet attractive, and can be used in a wide range of shelf configurations.



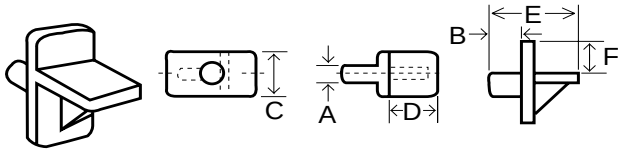
SPAENAUR No.	Style	Dimensions A	B	C	D	E	F	Unit Pkg. Quantity
699-404	A	.234"	13/32"	1/2"	29/64"	29/32"	3/16"	100
699-405	A	.234"	11/32"	1/2"	29/64"	27/32"	3/16"	100
699-406	A	.232"	.370"	1/2"	29/64"	7/8"	3/16"	100
699-407	B	.250"	13/32"	1/2"	29/64"	29/32"	1/4"	100
699-408	B	.250"	1/4"	1/2"	29/64"	3/4"	3/16"	100
699-409	A	.255"	13/32"	1/2"	15/32"	59/64"	3/16"	100

F

Heavy Duty Shelf Supports

Heavy Duty Shelf Supports are manufactured from durable Styrene and are designed for heavy loads and will provide years of economical and attractive support.

Available in beige colour only.



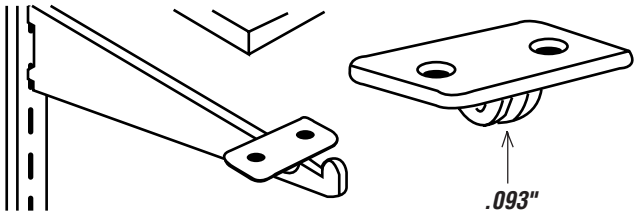
SPAENAUR No.	Dimensions A	B	C	D	E	F	Unit Pkg. Quantity
699-401	.234"	7/16"	1/2"	35/64"	1-1/16"	5/16"	100
699-402	.234"	1/4"	1/2"	35/64"	7/8"	5/16"	100

Glass Shelf Supports

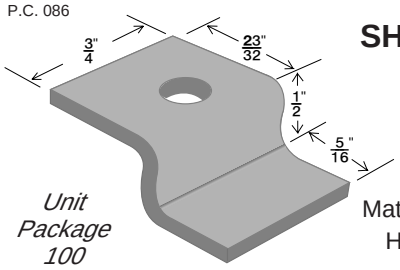
Glass Shelf Supports clamp on easily to metal brackets. Manufactured from Butyrate, Shelf Supports are glass like in appearance, as well as extremely stress and impact resistant.

Unit Pkg. Qty. 50

SPAENAUR No. **699-410**



P.C. 086



Unit Package 100

SHELF SUPPORT CLIP

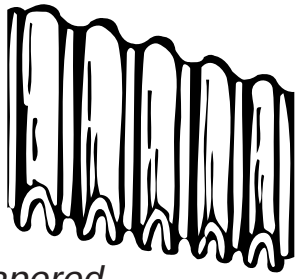
Steel-Zinc Plated

C-792

Style: 1/2" Offset
Material Thickness: 1/16" (.062")
Hole Diameter: 7/32" (.219")

CATALOG 13

CORRUGATED FASTENERS

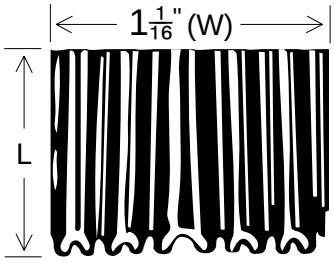


Steel - Plain Finish

For Soft WOOD Joints - Saw Edge Tapered

For fast, efficient wood assemblies and repairs of all kinds.

A regular hammer is all that is required for installation.



SPAENAUR No.	L Length	CORRUGATIONS Per Width (W)	Unit Pkg. Quantity
139-101	3/8"	5	100

SINGLE KEYHOLE PLATE

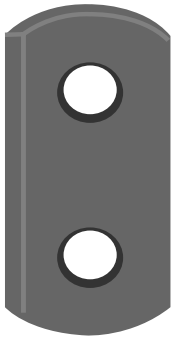
073-047

STEEL (Plain)

1-3/4" x 19/32" x .105" gauge

Countersunk for No. 6 Flat Head Screws

Unit Package 25



DESK TOP FASTENER

073-049

STEEL (Plain)

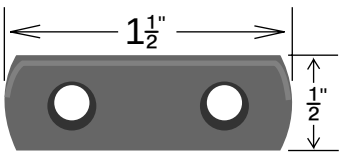
1-3/8" x 5/8" x .125" gauge

Countersunk for No. 7 Flat Head Screws

Unit Package 25

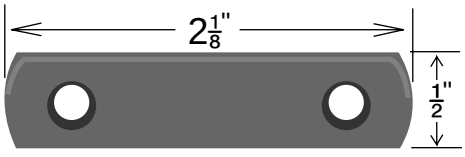
Illustrations are approx. actual size.

STEEL MENDING PLATES



073-012

073-050



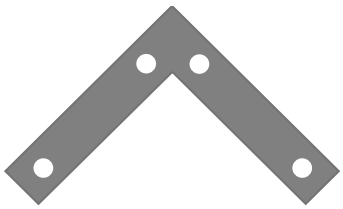
073-013

SPAENAUR No.	Countersunk for Flat Hd. Screw	Gauge	Finish	Unit Pkg. Quantity
073-012	#5	.063"	Zinc Pltd.	25
073-013	#6	.063"	Plain	25
073-050	*23/64"	.093"	Zinc Pltd.	25
*Hole Dia. - Not Countersunk				

All items: **STEEL**
Finish: **Zinc Plated**

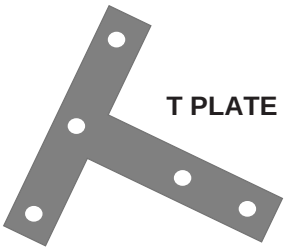
SPAENAUR No.	Size	Total Holes	Ctsk. Hole Size	Strap Width	Gauge of Metal
073-016	1" x 1"	2	#6	1/2"	.074"
073-017	1-1/2" x 1-1/2"	4	#8	1/2"	.083"
073-018	2" x 2"	4	#8	5/8"	.104"
073-019	2-1/2" x 2-1/2"	4	#8	5/8"	.119"
073-020	3" x 3"	4	#9	3/4"	.119"
073-021	3-1/2" x 3-1/2"	4	#9	3/4"	.150"
073-022	4" x 4"	4	#10	7/8"	.105"
073-023	5" x 5"	6	#10	1"	.190"
073-024	6" x 6"	6	#12	1"	.187"
073-025	8" x 8"	8	#12	1-1/8"	.179"
073-026	1-1/2" x 1-1/2"	4	#5	3/8"	.064"
073-027	2" x 2"	4	#5	3/8"	.064"
073-028	2-1/2" x 2-1/2"	4	#6	1/2"	.064"
073-029	3" x 3"	4	#6	5/8"	.074"
073-030	3-1/2" x 3-1/2"	4	#7	1/2"	.074"
073-031	4" x 4"	4	#7	3/4"	.074"
073-032	5" x 5"	4	#8	7/8"	.074"
073-033	6" x 6"	6	#8	7/8"	.095"
073-034	8" x 8"	6	#9	1-1/2"	.089"
073-035	2" x 5/8"	2	#6	5/8"	.074"
073-036	2-1/2" x 5/8"	4	#6	5/8"	.074"
073-037	3" x 3/4"	4	#7	3/4"	.074"
073-038	3-1/2" x 3/4"	4	#7	3/4"	.085"
073-039	4" x 7/8"	4	#8	7/8"	.083"
073-040	5" x 1"	4	#8	1"	.109"
073-041	6" x 1-1/8"	4	#9	1-1/8"	.104"
073-042	8" x 1-1/4"	4	#10	1-1/4"	.134"
073-043	10" x 1-1/4"	6	#10	1-1/4"	.154"
073-052	3" x 3"	5	#8	3/4"	.095"
073-045	4" x 4"	5	#8	3/4"	.083"
073-046	5" x 5"	5	#9	1"	.083"

INSIDE CORNER BRACE



FLAT CORNER BRACE

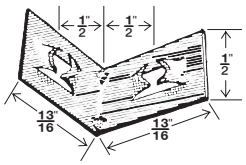
STRAIGHT MENDING PLATE



T PLATE

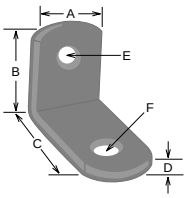
▲ *All above items 10 per package.*

202-259
"Spring Nut" CORNER BRACKET

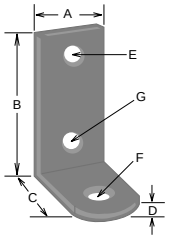


10-24 Thread
Phos. & Oil Finish
Unit Pkg. 100

ANGLE OR CORNER BRACKETS - OF STEEL



TYPICAL TWO-HOLE CORNER BRACKET

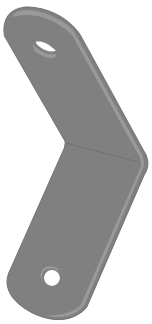


TYPICAL THREE-HOLE CORNER BRACKET

SPAENAUR No.	WIDTH A	OVERALL ARM LENGTHS B	C	GAUGE D	HOLE DETAIL E	F	G	FINISH
Two-hole Style								
073-010	1/2"	9/16"	1/2"	.062"	.165"(P)	6-32(T)	-	Zinc Pl.
073-008	1/2"	9/16"	1/2"	.062"	.165"(P)	8-32(T)	-	Tin Pl.
073-053	1/2"	3/4"	3/4"	.060"	.164"(P)	.164"(P)	-	Zinc Pl.
***073-001**	1/2"	1 1/16"	1 1/16"	.062"	.156"(P)	.156"(P)	-	Zinc Pl.
073-004	5/8"	1 1/16"	1 1/16"	.120"	.250"(C)	.250"(C)	-	Zinc Pl.
073-007	3/4"	11/16"	1 1/16"	.075"	.187"(P)	.187"(P)	-	Zinc Pl.
***073-006**	3/4"	1 1/2"	1 1/2"	.072"	.218"(P)	.218"(P)	-	Zinc Pl.
Three-hole Style								
073-005	5/8"	1 9/16"	11/16"	.083"	.218"(C)	.218"(C)	.218"(C)	Zinc Pl.

See Price List for Unit Package Quantities

(P) Plain (T) Tapped
(C) Countersunk



*073-001
*073-006
Rib Reinforced Angle

F

MAGNETIC CATCH and STRIKE SETS

ALUMINUM CASE
2" x 1" x 5/8"

STRIKE
1-1/8" x 3/4"

096-352 Aluminum Case (Plain Finish) with Steel Strike and Screws.

Unit Package 12 Sets

PLASTIC CASE
White

096-342 40 x 19 mm Case (1.57" x 0.74")
22 x 11 mm Steel Strike (0.86" x 0.43")

096-343 46 x 24 mm Case (1.81" x 0.94")
25 x 21 mm Steel Strike (0.98" x 0.82")

Note: Each Magnetic Catch includes Strike & Screws.

Unit Package 12 Sets

ALUMINUM SECURITY SASH LOCKS

Heavy Gauge Springs for Long-wearing Action.

Base Size 15/16" x 2-5/8"
Strike Size 5/8" x 2-5/8"

SPAENAUR No.

096-349	Bright Brass
096-350	Natural
096-351	Bright Nickel

Unit Package 5 Sets
(With Screws)

SASH LOCK

CAM TYPE, Manual Action
Draws Sash Together

096-451 Steel, Brass Plated

Base Size 2-9/16" x 1-3/8"
Strike Size 2-3/16" x 9/16"

Unit Package 1 Set (With Screws)

Revolving, Steel, SWIVEL PLATES

For TV Furniture, etc.

All swivels are made of cold rolled steel, with a non-metalic spacer holding 3/8" carbon steel bearings in place, and have a washer under the rivet head for smooth operation.

MP-31
6-3/4" Flat Swivel
(13/16" O.A. Thickness)

Made of 12 ga. plain steel, with 6 bearings. Square Plates have slotted corner holes, 4-13/16" to 5-5/8" centre to centre, for mounting with 1/4" screws.
Max. Load 200 lbs.

All swivels priced singly.

699-024
10-1/4" Flat Swivel
(15/16" O.A. Thickness)

Steel, black finish, with 6 bearings. Square plates have four 1/4" square holes, 7-7/8" centre to centre.

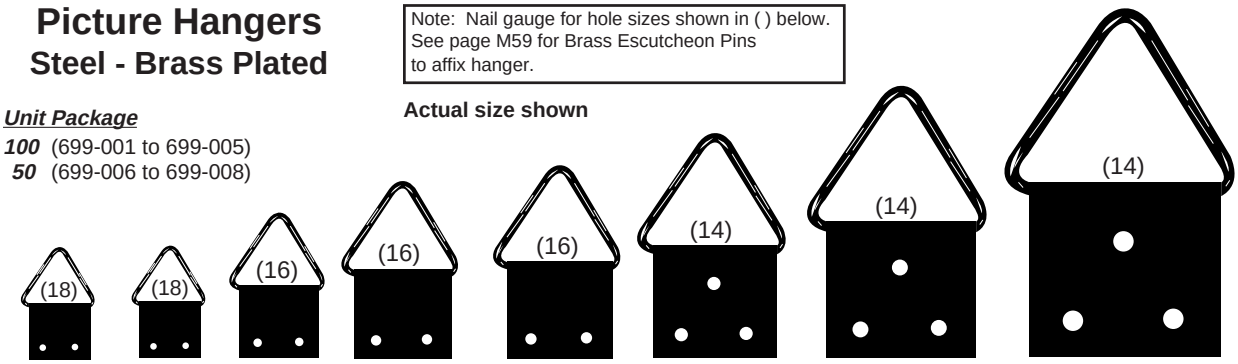
CATALOG 13

Picture Hangers
Steel - Brass Plated

Note: Nail gauge for hole sizes shown in ( ) below. See page M59 for Brass Escutcheon Pins to affix hanger.

Unit Package
100 (699-001 to 699-005)
50 (699-006 to 699-008)

Actual size shown



#00	#0	#1	#2	#3	#4	#5	#6
699-001	**699-002**	**699-003**	**699-004**	**699-005**	**699-006**	**699-007**	**699-008**

Priced Singly

Plastikit «Plastikit» 804-072

Picture Hangers
Steel - Brass Plated

7 Sizes - 156 Pieces

Contains all sizes of hooks shown above.

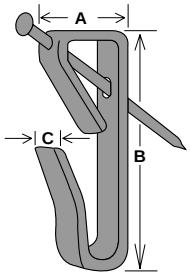
24 pieces 699-001
24 pieces 699-002
24 pieces 699-003
24 pieces 699-004
24 pieces 699-005
12 pieces 699-006
24 pieces 699-008

Put up in a clear, durable plastic container with hinged lid.
Size: 1" x 2-3/4" x 4-1/2"

F

HOOK AND NAIL
Steel - Zinc Plated or Plain (our option)

SPAENAUR No.	Load Capacity	A	B	C	Nail Lgth.
699-051	1 lb.	1/4"	1/2"	5/32"	1"
699-052	5 lbs.	1/4"	9/16"	5/32"	1"
699-053	10 lbs.	1/4"	3/4"	5/32"	1"
699-055	30 lbs.	5/16"	1-1/32"	7/32"	1-1/4"
699-056	40 lbs.	11/32"	1-3/16"	7/32"	1-1/4"
699-057	50 lbs.	3/8"	1-7/16"	1/4"	1-1/2"
699-058	100 lbs.	1/2"	1-13/16"	3/8"	2"



Unit Package 100

PICTURE/MIRROR HANGERS

699-015

Steel - Zinc Plated
Overall Width: 3/4"
Gauge: 1/32"
Overall Height: 13/16"
I.D. of hole: 3/8"
Unit Package 100

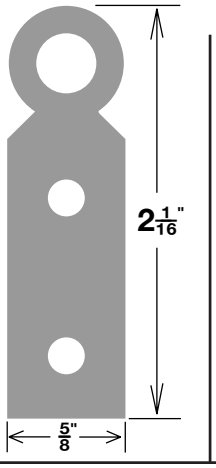
073-011

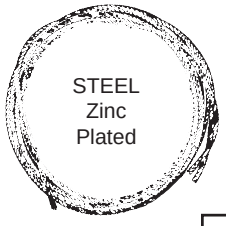
STEEL

Plain Finish

Holes for No. 8 Round-Head Screws.

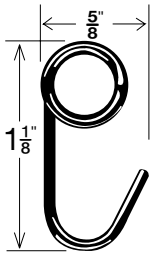
Unit Package 25





Braided PICTURE WIRE

SPAENAUR No.	No. of Strands	Unit Package Quantity
697-200	8	2,200 ft.
697-201	12	1,440 ft.
697-202	16	1,080 ft.

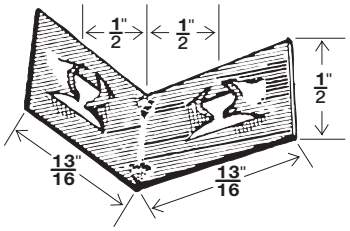


121-001

WIRE HOOK

for Flower Pot Holder, etc.
Made from .0625" Diameter Mechanical Bright Hard Drawn Wire - Yellow Zinc Chromate Finish

Unit Package 100



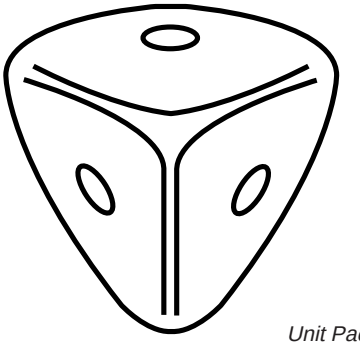
202-259

"Spring Nut" CORNER BRACKET

#10-24 UNC
Machine Screw Thread
Spring Steel - Heat Treated
Phosphate & Oil Finish

Unit Package 100

F



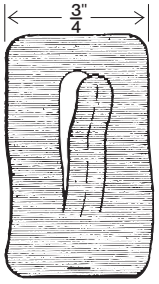
CHEST CORNER

121-210

Steel - Brass Finish

Size: 1-5/16" x 1-5/16"
3 Mounting Holes - 5/32" dia.

Unit Package 50



Stainless Steel

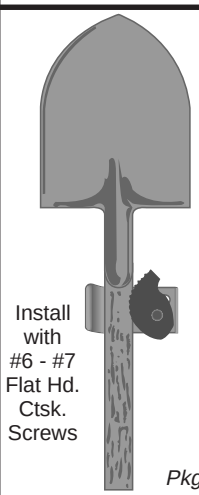
SHELF EDGE CLIP

Slips into price channel on edge of supermarket shelves. Provides a hook on which to hang pads of contest entry blanks, recipes, coupons, etc.

C-757	Standard style, to fit 1-1/4" high Price Ticket Moulding
C-757J	Narrow style to fit 1" high Price Ticket Moulding

Unit Package 100

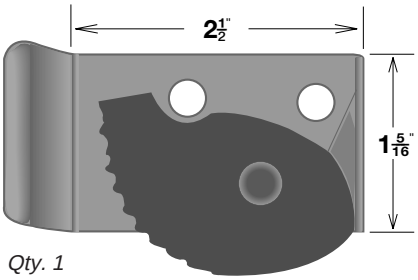
P.C. 086



Install with #6 - #7 Flat Hd. Ctsk. Screws

086-036 HAND-L-HOLD

Holds Mops, Brooms, Shovels etc.
Spring Action Rubber Gripper with Zinc Dichromate Pltd. Steel Frame.



Pkg. Qty. 1

ASSORTMENT / ASSORTIMENT **805-505**

Gripper Clips

TEMPERED STEEL

HOLD EVERYTHING!

Contents...

9 Clip No's. - 125 Pieces

(Includes all Clips shown on page F19, except 086-011)

Plus 131 Screws, to attach.

KEEP THINGS IN THEIR PLACE

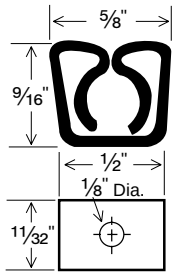
- TOOL CRIBS • TRUCKS • CARTS
- SHOVELS • LABS • BRUSHES
- MOPS • BROOMS • JIGS
- MACHINE PARTS
- ASSEMBLY FIXTURES
- CLEANING EQUIPMENT • TUBES
- HOSES • FIXTURES • PIPES *and* FLASHLIGHTS!

Priced Singly

REGULAR SIZE grey enamelled drawer fits the Slide Racks shown on page A2.

Shipping Weight
3.06 kg (6-3/4 lbs.)

CATALOG 13



SPAENAUR No.
C-914
Capacity: 7/32"-1/2" dia.

Material: Polypropylene
Colour: Natural
Mounting Hole: .125" dia.

Unit Package 50

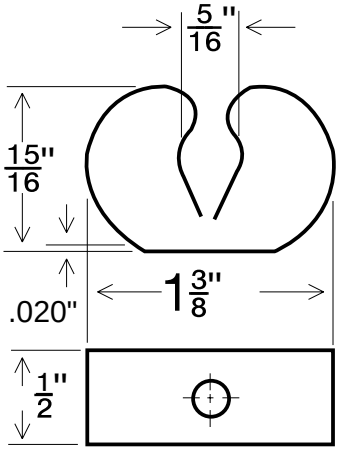
GRIPPER CLIPS - Tempered Steel

● MATERIAL: 1065 Spring Steel ● FINISH: Bright Zinc with Chromate Dip
● MOUNTING HOLES: .188" dia.

Uncoated **Half-coated** **Fully coated**

Coating: Black PVC (Poly Vinyl Chloride) approximately .009" thick

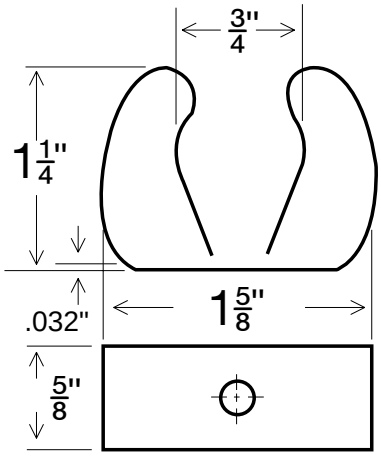
ILLUSTRATIONS ARE APPROXIMATE SIZE.



SPAENAUR No. **C-915**
Capacity: 3/8"-5/8" dia.
SPRING STEEL - Bright Zinc Plated

SPAENAUR No. **086-003**
Fully Coated

Unit Package 50

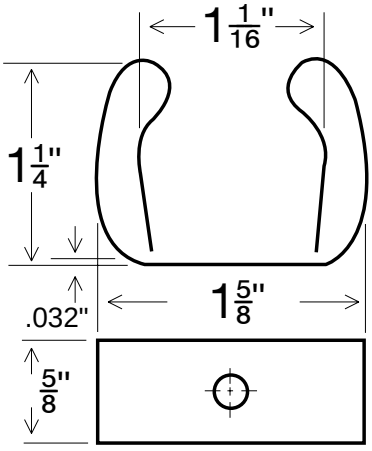


SPAENAUR No. **C-916**
Capacity: 3/4" - 1-1/8" dia.
SPRING STEEL - Bright Zinc Plated

SPAENAUR No. **086-005**
Half-coated

SPAENAUR No. **086-004**
Fully Coated

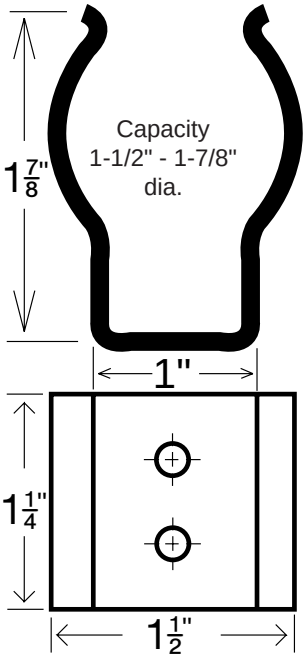
Unit Package 25



SPAENAUR No. **C-917**
Capacity: 1" - 1-1/2" dia.
SPRING STEEL - Bright Zinc Plated

SPAENAUR No. **086-006**
Half-coated

Unit Package 25



FLASHLIGHT CLIP

SPAENAUR No.
086-007

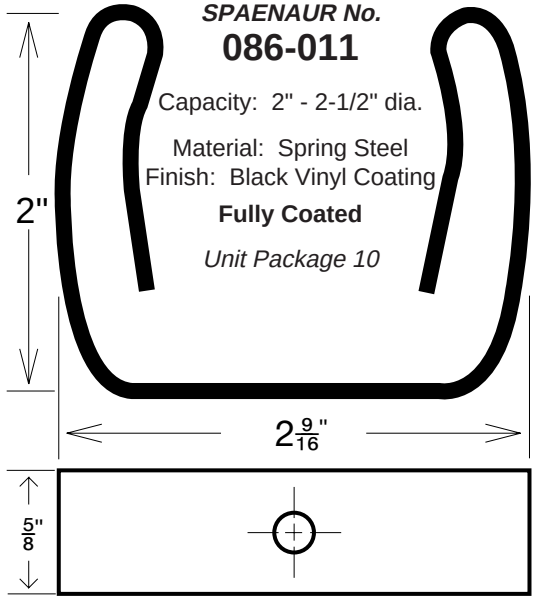
WATERPROOF
SPRING STEEL
Fully Coated
with approximately .009" thick Black PVC coating

Unit Package 10

SPAENAUR No.
086-011

Capacity: 2" - 2-1/2" dia.
Material: Spring Steel
Finish: Black Vinyl Coating
Fully Coated

Unit Package 10



CATALOG 13

Hose Clamps	Colliers de serrage	**G2**
Flexible Plastic Tubing & Fittings	Armatures et tubes flexibles en plastique	**G15**
Locking Cable Ties	Colliers pour câbles	**G23**
Tubing & Wiring Fasteners	Attaches de tuyaux et de câblage	**G27**
Braided Expandable Sleeving	Manchon tressé extensible	**G36**
Spacers & Standoffs	Entretoises et supports auto-clenchant	**G38**
Solderless and Soldering Terminals	Bornes sans soudure et à souder	**G50**
Heat Shrink Tubing & Connectors	Tuyaux et raccords «Heat Shrink»	**G59**
Battery Terminals & Lugs	Ergots et terminaux de piles	**G62**
Connector Housings	Logements des raccords	**G65**

GEAR-TYPE HOSE CLAMPS

HS SERIES

301 Stainless Steel band and housing with a 1018 Steel, case-hardened, zinc plated & chromate treated screw.

HAS SERIES "ALL STAINLESS"

301 Stainless Steel band and housing with a 305 Stainless Steel screw.

P.C. 079

Unit Package 10

SPAENAUR No. HS Series	HAS Series	Nominal Inside Dia. Inch	I.D. Range Inch Min.-Max.	I.D. Range Metric mm Min.-Max.
HS-4	***079-101**	**†5/16**	1/4 - 5/8	6-16
HS-6	***079-102**	**†3/8**	5/16 - 7/8	8-22
HS-8	**HAS-8**	**1/2**	7/16 - 1	11-25
HS-10	**HAS-10**	**5/8**	9/16 - 1-1/16	14-27
HS-12	**HAS-12**	**3/4**	9/16 - 1-1/4	14-32
HS-16	**HAS-16**	**1**	11/16 - 1-1/2	17-38
HS-20	**HAS-20**	**1-1/4**	3/4 - 1-3/4	19-44
HS-24	**HAS-24**	**1-1/2**	1-1/16 - 2	27-51
HS-28	**HAS-28**	**1-3/4**	1-5/16 - 2-1/4	33-57
HS-32	**HAS-32**	**2**	1-9/16 - 2-1/2	40-63
HS-36	**HAS-36**	**2-1/4**	1-13/16 - 2-3/4	46-70
HS-40	**HAS-40**	**2-1/2**	2-1/16 - 3	52-76
HS-44	**HAS-44**	**2-3/4**	2-5/16 - 3-1/4	59-82
HS-48	**HAS-48**	**3**	2-9/16 - 3-1/2	65-89
HS-52	**HAS-52**	**3-1/4**	2-13/16 - 3-3/4	71-95
HS-54	**HAS-54**	**3-1/2**	3-1/16 - 4	78-101
HS-60	**HAS-60**	**3-3/4**	3-5/16 - 4-1/4	84-107
HS-64	**HAS-64**	**4**	2-1/2 - 4-1/2	64-114
HS-72	**HAS-72**	**4-1/2**	4-1/16 - 5	103-127
HS-84	**HAS-84**	**5-1/4**	4-15/16 - 5-3/4	125-146
HS-88	**HAS-88**	**5-1/2**	4-1/16 - 6	104-152
HS-96	**HAS-96**	**6**	4-1/2 - 6-1/2	114-165
HS-104	**HAS-104**	**6-1/2**	5 - 7	127-178
—	**HAS-128**	**8**	6-1/2 - 8-1/2	165-216
—	**HAS-144**	**9-1/2**	8 - 10	203-254
—	**HAS-192**	**12-1/2**	11 - 13	280-330
—	**HAS-224**	**14**	12-1/2 - 14-1/2	318-368

*410 Stainless Steel Screw †Micro Series
†5/16" and 3/8" Nominal Dia. have a band width of 5/16" (8 mm).
1/2" to 12-1/2" Nominal Dia. have a band width of 1/2" (13 mm).

CHOOSE FROM TWO ASSORTMENTS

HS SERIES

ASSORTMENT / ASSORTIMENT **805-623**

HAS SERIES "ALL STAINLESS"

ASSORTMENT / ASSORTIMENT **805-639**

GEAR-TYPE HOSE CLAMPS
of Stainless Steel

10 SIZES - 58 CLAMPS

To fit hose sizes ranging from 7/32" to 4-1/2" diameter.

Priced Singly

Put up in Grey enamelled STEEL Drawer, with hinged lid and "Adjusta-bins".

Drawer will fit into our Slide Racks, as shown on page A3.

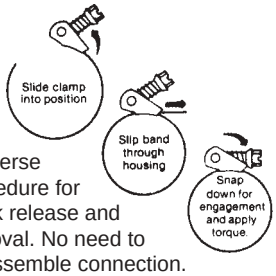
LARGE SIZE DRAWER
Shipping Wt. 4.42 kg (9-3/4 lbs.)

QUICK RELEASE CLAMPS

Where the clamp must be opened for installation, the answer is a quick release clamp. They open, close, engage and tighten quickly. No time is lost in achieving a leak-proof connection.

The hexagon-head screw with the screwdriver slot facilitates the use of either an ordinary screwdriver or a 5/16" (8 mm) nut runner..

EASY ON . . . EASY OFF . . . IN 3 SIMPLE STEPS



*Reverse procedure for quick release and removal. No need to disassemble connection.

LS & LAS (Quick Release) Series

LS:

9/16" (14 mm) wide band with slotted hex head swivel screw allows for quick engage and release. Constructed from stainless steel materials in combination with treated carbon steel. Not recommended for underground applications.

LAS:

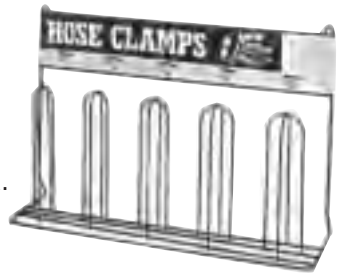
1/2" or 9/16" (13 or 14 mm) (our option) wide band with slotted hex head swivel screw allows for quick engage and release. Constructed from stainless steel materials for corrosion resistance.

G

LS Series *SPAENAUR No.*	LAS Series *SPAENAUR No.*	Size Range Inches			Size Range mm		Unit Package Quantity
		Nom.	Min.	Max.	Min.	Max.	
—	**079-103**	**2-1/4**	1	2-3/4	25	70	*Each number has 10 clamps per package*
—	**079-104**	**3**	1-1/2	3-1/2	38	89	
079-005	**079-105**	**3-1/2**	1	4	25	101	
—	**079-106**	**4-1/2**	2	5	51	127	
—	**079-107**	**5-1/2**	2-1/16	6	52	152	
079-008	**079-108**	**6**	3-1/2	6-9/16	89	166	
—	**079-109**	**6-1/2**	2-7/8	7	73	178	
	079-110	**8**	4-1/2	8-9/16	114	217	
—	**LAS-136**	**8-1/2**	7-1/8	9	181	229	
—	**079-111**	**9-1/2**	2	10	51	254	
—	**079-112**	**11-3/4**	2-1/16	12-5/16	52	312	

HOSE CLAMP RACK
814-783

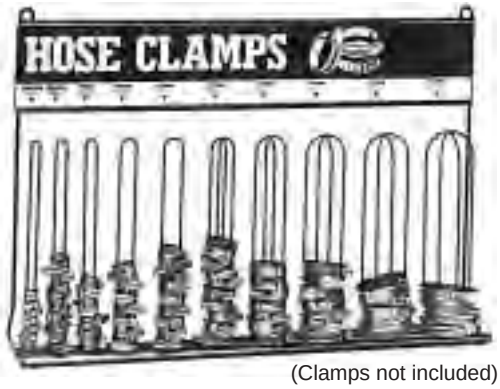
Not Stocked P.O.R.



This 5 post model holds from the 2-1/16" diameter #40 to the 5" #72.
For countertop use or may be wall-mounted using two built-in hanger loops provided. Sign panel lists clamp diameters.
23-1/4" wide x 15-3/4" high x 5-3/8" deep.

HOSE CLAMP RACK
814-703

Sturdy Wire Construction



(Clamps not included)

Accommodates hose clamps from the smallest mini clamp up to the 2-3/4" dia., #36 clamp.
10 column

CATALOG 13

INNER SHIELD CLAMPS

Designed for applications involving soft hose material such as silicone rubber. The inner shield protects the hose from damage by preventing it from coming in direct contact with the notched band.

Unit Package Quantity 10

MATERIAL

Band and Housing
301 Stainless Steel

Screw
Carbon Steel, Zinc Plated and Chromate treated (clear or yellow)

MICRO SERIES

1/4" (5 mm) Slotted Hexagon Head and 5/16" (8 mm) Wide Band.

Micro Series *SPAENAUR No.*	Size Range Inches			Size Range mm	
	Nom.	Min.	Max.	Min.	Max.
079-025	**7/16**	5/16	9/16	8	14
079-026	**11/16**	9/16	7/8	14	22
079-029	**1-1/8**	15/16	1-1/4	24	32

FULL SERIES

5/16" (8 mm) Slotted Hexagon Head and 1/2" (14 mm) Wide Band.

Full Series *SPAENAUR No.*	Size Range Inches			Size Range mm	
	Nom.	Min.	Max.	Min.	Max.
079-013	**1/2**	7/16	1	11	25
079-014	**7/8**	23/32	1	18	25
079-015	**7/8**	3/4	1-1/8	19	28
079-016	**1**	13/16	1-3/8	21	34
079-017	**1-1/4**	1-1/8	1-5/8	28	41
079-018	**1-1/2**	1-3/16	1-15/16	30	49
079-019	**1-3/4**	1-5/16	2-1/4	33	57
079-020	**2**	1-9/16	2-1/2	40	63
079-021	**2-1/4**	1-13/16	2-3/4	46	70
079-022	**2-1/2**	2-1/16	3	52	76
079-023	**2-3/4**	2-5/16	3-1/4	59	82
079-024	**3**	2-9/16	3-1/2	65	89

Priced Singly

ASSORTMENT
ASSORTIMENT
805-645

INNER SHIELD HOSE CLAMPS

16 Sizes - 94 Clamps

Contains various quantities of all sizes listed above plus 079-878.

Shipping Wt.
5.21 kg
(11-1/2 lbs.)

Furnished in a LARGE SIZE grey enamelled STEEL Drawer, with scooped bins. Drawer will fit into the Slide Racks shown on page A3.

ALL 316 STAINLESS STEEL Hose Clamps

Unit Package Quantity 10

Designed and engineered for corrosive environments and applications such as water treatment plants, pulp and paper and chemical industries, marine and ship-building, underground piping, sprinkler systems, and swimming pools.

*MICRO SERIES

1/4" (5 mm) Slotted Hexagon Head and 5/16" (8 mm) Wide Band.

FULL SERIES

5/16" (8 mm) Slotted Hexagon Head and 1/2" (14 mm) Wide Band.

SPAENAUR No.	Nominal Dia. Inch	I.D. Range Inch Min.-Max.	I.D. Range Metric mm Min.-Max.
***079-800**	**1/4**	0.22-0.62	6-16
***079-801**	**3/8**	0.31-0.87	8-22
079-802	**5/8**	0.56-1.06	15-27
079-803	**3/4**	0.56-1.25	15-32
079-804	**1**	0.68-1.50	18-38
079-805	**1-1/4**	0.75-1.75	19-44
079-806	**1-1/2**	1.06-2.00	27-51
079-807	**1-3/4**	1.31-2.25	34-57
079-808	**2**	1.56-2.50	40-63
079-809	**2-1/4**	1.81-2.75	46-69
079-810	**2-3/4**	2.31-3.25	59-82
079-811	**3-1/4**	2.81-3.75	72-95
079-812	**3-3/4**	3.31-4.25	84-108
079-813	**4-1/2**	4.06-5.00	104-127
079-814	**5-1/2**	4.09-6.00	104-152
079-815	**6-1/2**	5.00-7.00	127-177

ASSORTMENT
ASSORTIMENT
805-646

Priced Singly

ALL 316 STAINLESS STEEL

HOSE CLAMPS

15 Sizes - 131 Clamps

Contains various quantities of all sizes listed above, except 079-815.

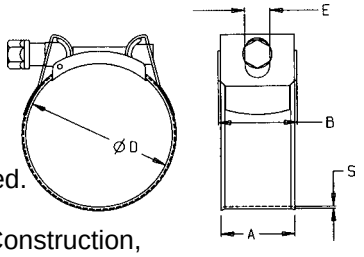
Shipping Wt.
6.12 kg
(13-1/2 lbs.)

Furnished in a grey enamelled LARGE SIZE STEEL Drawer, with hinged lid and "Adjusta-bins". Drawer will fit into our Slide Racks as shown on page A3.

Supra®

Heavy Duty Hose Clamp

Worldwide patented:
EEC, USA, Canada, Japan, Brazil and others.



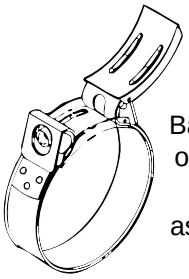
Material of Band and Band Arch:
STAINLESS STEEL X8 Cr17.

Screw, Nut and screw side support strength and finish:
Property Class 8.8, Zinc plate - chromate yellow passivated.

Applicable in Agriculture, Industrial Trucks, Building and Construction, Heavy Machinery, Chemical and Food Processing Industries, Municipal Services, etc.

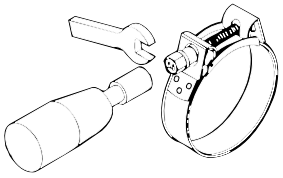
Bold Type *SPAENAUR* Numbers in stock. Light Type Numbers - Available but not stocked.

Features:

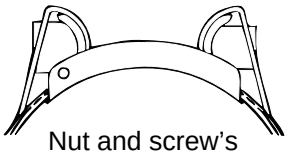


Band arch opens for easy assembly.

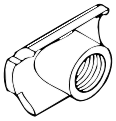
Bevel-edged band to protect hose.



Hex head screw strength to Property Class 8.8.



Nut and screw's side support integrally attached.

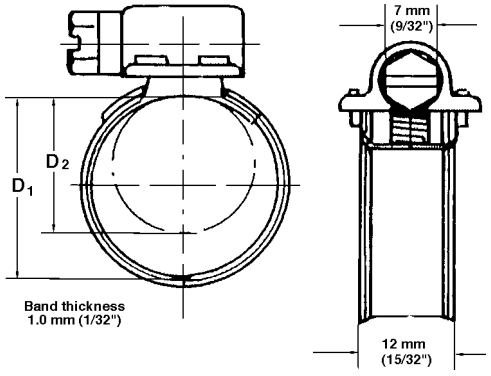


Nut strength to Property Class 8.8.

SPAENAUR No.	D Range mm	D (Approx. Inch Equivalent)	THREAD	General Dimensions E mm	A mm	B mm	S mm	Max. Val. (*) TORQUE inch pds.	PRESS. pds./sq in	Unit Pkg. Qty.
079-200	17-19	11/16 - 3/4"	M6	8	18 (+0.2)	19.8	0.6	22.5	735	10
079-201	19-21	3/4 - 53/64"								10
079-202	21-23	53/64 - 29/32"							705	10
079-203	23-25	29/32 - 63/64"								10
079-204	25-27	63/64 - 1-1/16"							661	10
079-205	27-29	1-1/16 - 1-9/64"								10
079-206	29-31	1-9/64 - 1-7/32"								10
079-207	31-34	1-7/32 - 1-11/32"	M7	10	20 (+0.3)	22	0.8	40	617	10
079-208	34-37	1-11/32 - 1-29/64"								10
079-209	37-40	1-29/64 - 1-37/64"							588	10
079-210	40-43	1-37/64 - 1-45/64"								10
079-211	43-47	1-45/64 - 1-55/64"							558	10
079-212	47-51	1-55/64 - 2-1/64"					1.0	50		10
079-213	51-55	2-1/64 - 2-11/64"							529	10
079-214	55-59	2-11/64 - 2-21/64"								10
079-215	59-63	2-21/64 - 2-1/2"							500	10
079-216	63-68	2-1/2 - 2-43/64"								10
079-217	68-73	2-43/64 - 2-7/8"	M8	13	25 (+0.4)	27.5	1.2	125	412	10
079-218	73-79	2-7/8 - 3-7/64"								10
079-219	79-85	3-7/64 - 3-11/32"								10
079-220	85-91	3-11/32 - 3-37/64"								10
079-221	91-97	3-37/64 - 3-13/16"							294	10
079-222	97-104	3-13/16 - 4-3/32"								10
079-223	104-112	4-3/32 - 4-13/32"								10
079-224	112-121	4-13/32 - 4-49/64"							176	10
079-225	121-130	4-49/64 - 5-1/8"								10
079-226	130-140	5-1/8 - 5-33/64"	M10	15	28 (+0.4)	31	1.5	250	132	1
079-227	140-150	5-33/64 - 5-29/32"								1
079-228	150-162	5-29/32 - 6-3/8"								1
079-229	162-174	6-3/8 - 6-27/32"								1
079-230	174-187	6-27/32 - 7-23/64"							88	1
079-231	187-200	7-23/64 - 7-7/8"								1
079-232	200-213	7-7/8 - 8-25/64"								1
079-233	213-226	8-25/64 - 8-57/64"							44	1
079-234	226-239	8-57/64 - 9-13/32"								1
079-235	239-252	9-13/32 - 9-59/64"								1

(*) We recommend working at 75% of the maximum values.

ACID-RESISTANT WORM DRIVE HOSE CLAMPS



STANDARD DIMENSIONS FOR AWAB ACID-RESISTANT HOSE CLAMPS.

SPAENAUR No.	Range D2-D1 mm	(Inch Equiv.) Min.-Max.	Unit Pkg. Qty.
079-875	8-14	5/16" - 9/16"	10
079-876	11-17	7/16" - 11/16"	10
079-877	13-20	1/2" - 13/16"	10
079-878	15-24	5/8" - 15/16"	10
079-879	19-28	3/4" - 1-1/8"	10
079-880	22-32	7/8" - 1-1/4"	10
079-881	26-38	1-1/16" - 1-1/2"	10
079-882	32-44	1-1/4" - 1-3/4"	10
079-883	38-50	1-1/2" - 2"	10
079-884	32-57	1-1/4" - 2-1/4"	10
079-885	38-64	1-1/2" - 2-1/2"	10
079-886	51-76	2" - 3"	10
079-887	57-83	2-1/4" - 3-1/4"	5
079-888	70-95	2-3/4" - 3-3/4"	5
079-889	89-114	3-1/2" - 4-1/2"	5
079-890	102-140	4" - 5-1/2"	5
079-891	127-165	5" - 6-1/2"	5
079-892	140-178	5-1/2" - 7"	5
079-893	180-206	7-3/32" - 8-1/8"	1
079-894	194-232	7-5/8" - 9-1/8"	1
079-895	219-257	8-5/8" - 10-1/8"	1
079-896	244-283	9-5/8" - 11-1/8"	1
079-897	270-308	10-5/8" - 12-1/8"	1

Material:
Band, housing and screw
in acid-resistant stainless steel,
quality BSI 316 S16 equal to AISI 316

AWAB acid-resistant hose clamp, a specially stable and reliable hose clamp, designed for severe working conditions in extremely difficult environments. It conforms to the requirements of Swedish Standards SMS 2298 and 2299 and other European and U.S. standards. The slotted hexagonal screw head for both screwdrivers and 7 mm (9/32") A.F. sockets is standard for all sizes.

The hose clamps are easy to fit using hand tools or screw/nut tightening devices. The joining of the band to the housing is arranged in such a manner that least possible deviation from circular shape arises, while the clamp is being tightened. An unperforated band with correctly dimensioned edge radii eliminates the risk of damage to the hose.

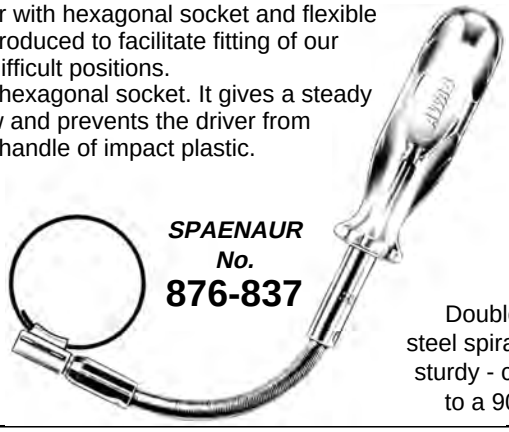
DRIVER WITH HEXAGONAL SOCKET

THIS ONE TOOL WILL FIT ALL HOSE CLAMPS LISTED ABOVE.
7 mm (9/32") A.F. HEX SOCKET HEAD x 10" LONG DRIVER.

Typical Installation

The AWAB driver with hexagonal socket and flexible shaft has been produced to facilitate fitting of our hose clamps in difficult positions.
Equipped with a hexagonal socket. It gives a steady grip on the screw and prevents the driver from slipping. Robust handle of impact plastic.

Priced Singly
(Clamp not Included)



SPAENAUR No.
876-837

Double-wound steel spiral shank-sturdy - can bend to a 90° angle.

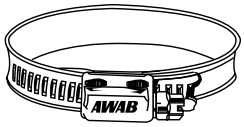
CATALOG 13

AWAB

ASSORTMENT / ASSORTIMENT **805-656**

Shipping Weight: 5.90 kg (13 lbs.)
Priced Singly

ACID-RESISTANT WORM DRIVE HOSE CLAMP ASSORTMENT



Contents of Assortment

SPAENAUR No.	Range D2-D1 mm	(Inch Equiv.) Min.-Max.	Assortment Qty.
079-875	8-14	5/16" - 9/16"	10
079-877	13-20	1/2" - 13/16"	10
079-878	15-24	5/8" - 15/16"	10
079-879	19-28	3/4" - 1-1/8"	10
079-881	26-38	1-1/16" - 1-1/2"	10
079-883	38-50	1-1/2" - 2"	10
079-885	38-64	1-1/2" - 2-1/2"	7
079-886	51-76	2" - 3"	7
079-888	70-95	2-3/4" - 3-3/4"	5
079-889	89-114	3-1/2" - 4-1/2"	4
079-890	102-140	4" - 5-1/2"	4
876-837	Flexible Hex. Socket Driver (see page G6)		1

Furnished in grey enamelled LARGE SIZE Steel Drawer with hinged lid and 'Adjusta-bins'.

Drawer will fit into Slide Racks shown on page A3.

SPAENAUR

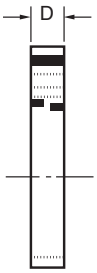
Proudly serving you since 1936.
Thank you for your business.

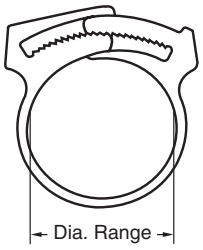
NYLON 6/6 HOSE CLAMPS *CORROSION-RESISTANT*

Install by hand in seconds — Strong yet lightweight

A non-metallic clamp that will not rust, is non-conducting, not corroded by sea-water, and is stable in a wide variety of chemical salts, bases, alcohols, oils, and grease, gasoline, etc.

Pat. No. 4,128,918





These clamps are applied by a quick ratchet closure, even after the hose is in place. A lateral effort disengages the clamps.

G

SPAENAUR No.	Mfr. No.	Clamp Range Inch Min.-Max. ±.01"	Clamp Range Metric Min.-Max. ±.25 mm	D Clamp Width	Unit Package
078-001	16	.246 - .290	6.25 - 7.37	7/32" (5.56 mm)	100
078-002	23	.360 - .406	9.14 - 10.31	7/32" (5.56 mm)	100
078-003	26	.410 - .468	10.41 - 11.89	1/4" (6.35 mm)	100
078-004	30	.475 - .536	12.07 - 13.61	7/32" (5.56 mm)	100
078-005	32	.538 - .608	13.67 - 15.44	1/4" (6.35 mm)	100
078-006	38	.597 - .665	15.16 - 16.89	1/4" (6.35 mm)	100
078-007	44	.670 - .780	17.02 - 19.81	7/32" (5.56 mm)	100
078-008	50	.730 - .830	18.54 - 21.08	7/32" (5.56 mm)	100
078-009	56	.870 - .975	22.10 - 24.77	7/32" (5.56 mm)	100
078-010	62	.953 - 1.094	24.21 - 27.76	5/16" (7.94 mm)	50
078-011	68	1.031 - 1.188	26.19 - 30.15	5/16" (7.94 mm)	50
078-012	80	1.250 - 1.425	31.75 - 36.20	5/16" (7.94 mm)	25
078-013	92	1.406 - 1.610	35.71 - 40.89	11/32" (8.73 mm)	25
078-014	104	1.594 - 1.813	40.46 - 46.02	11/32" (8.73 mm)	25
078-015	114	1.790 - 2.110	45.47 - 53.59	11/32" (8.73 mm)	25
078-016	124	1.870 - 2.125	47.50 - 53.98	13/32" (10.32 mm)	10
078-017	134	2.120 - 2.390	53.85 - 60.71	13/32" (10.32 mm)	10

RAW MATERIAL SPECIFICATIONS

Property	Test Method	Unit of Measure	Nylon 6/6
Tensile Strength at Yield	D638	psi	9,000
Elongation at Fail	D638	%	200
Flexural Modulus	D790	psi	190,000
Izod Impact	D756	ft.-lb./in.	3.0
Deflection Temperature	D648	66 psi °F	430
Deflection Temperature	D648	264 psi °F	160
Dielectric Strength	D149	Volts/Mil	550
Volume Resistivity	D257	ohm/cm	2 x 10^{13}

Property	Test Method	Unit of Measure	Nylon 6/6
Water Absorption	D570	24 hrs., %	1.1
Flammability Rating/ Thickness	UL94	in.	V-2/.028
Hardness			R105
U.L. Yellow Card File			E70062
UL Continuous Use Temperature	w/impact w/o impact	°C	75 @.058 85

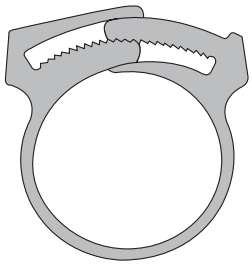
NOTE: These Raw Material Specifications shall not be construed as creating an express warranty of description. The specifications are approximate and intended to serve only as guides and not as the basis of any sale, agreement or contract of any goods sold by SPAENAUR Inc.

NYLON 6/6: Nylon resins are resistant to a variety of organic and inorganic substances. They are not affected by aliphatic and aromatic hydrocarbons, including conventual fuel. Nylon resins are also resistant to a wide variety of organic compounds including aldehydes, ketones, mono-hydroxyl alcohols, most esters and most chlorinated aliphatic and aromatic materials. Organic materials which do affect nylon include phenols, formic acid, trichloroacetic acid, fluroalcohols, acetic acid and other organic acids. Salts, such as calcium chloride, calcium bromide and similar materials should be avoided, especially at high concentration and temperature.

ASSORTMENT
ASSORTIMENT **805-514**

HOSE CLAMP ASSORTMENT
NYLON 6/6

17 SIZES - 120 CLAMPS



To fit hose sizes ranging from 1/4" to 2-1/8" diameter.

Priced Singly

See page G8 for more information.

Contents of Assortment

SPAENAUR No.	Clamp Range Inch Min.-Max. ±.01"	Ass't. Qty.
078-001	.246 - .290	15
078-002	.360 - .406	15
078-003	.410 - .468	10
078-004	.475 - .536	10
078-005	.538 - .608	10
078-006	.597 - .665	10
078-007	.670 - .780	5
078-008	.730 - .830	5
078-009	.870 - .975	5
078-010	.953 - 1.094	5
078-011	1.031 - 1.188	5
078-012	1.250 - 1.425	5
078-013	1.406 - 1.610	4
078-014	1.594 - 1.813	4
078-015	1.790 - 2.110	4
078-016	1.870 - 2.125	4
078-017	2.120 - 2.390	4

Shipping Weight: 3.96 kg (8-3/4 lbs.)

Put up in a grey enamelled REGULAR SIZE Steel Drawer with hinged lid and 'Adjusta-bins'.
Drawer will fit into Slide Racks shown on page A2.

Need a product not listed?

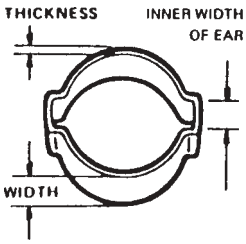
Just call us
1-800-265-8772

SPAENAUR
Advancing the Standard of Fastening

2-Ear Clamps

Oetiker 2-Ear Clamps are especially suited for factory maintenance or heavily vibrating equipment. This is a medium pressure clamp widely used for maintenance and OEM applications. Rubber hose, plastic tubing, coaxial and electrical cable, rope etc. are all easily clamped. These clamps are installed on air, fluid gas and steam lines. The one piece design offers a positive, tamper-proof seal without damage to the hose. Oetiker 2-Ear Clamps assure adequate closure and compensate for tolerance variations in hose sizes. Closing both ears builds strength into the clamp in spring-like action to hold against pressure, vibrations and hose shrinkage due to temperature changes or aging. Also suitable for low-pressure hydraulic applications.

When ordering, select nominal clamp size nearest to, but always larger than O.D. of material to be clamped after insert has been fitted. ***(Stainless steel clamps have slightly thinner wall thickness.)**



Material:

1008 Carbon Steel Tubing, Zinc-Plated

or

300 Series Stainless Steel tubing.

For Unit Package Quantities See Price List.

SPAENAUR No's C-1008 STEEL	*STAINLESS ST.	Nominal Size	Inches closed-open	mm closed-open	Width Inches	Width mm	*Thickness Inches	*Thickness mm	Inner Width of Ear Inches	Inner Width of Ear mm
079-050	**079-850**	5/32"	.122-.161	3.1-4.1	.138	3.5	.0197	0.5	.0591	1.5
079-051	**079-851**	11/64"	.138-.177	3.5-4.5	.138	3.5	.0236	0.6	.0591	1.5
079-052	**079-852**	3/16"	.118-.197	3-5	.197	5.0	.0276	0.7	.0980	2.5
079-053	**079-853**	1/4"	.197-.276	5-7	.236	6.0	.0276	0.7	.118	3.0
079-054	**079-854**	5/16"	.276-.354	7-9	.276	7.0	.0394	1.0	.126	3.2
079-055	**079-855**	3/8"	.315-.433	8-11	.276	7.0	.0394	1.0	.177	4.5
079-057	**079-857**	1/2"	.433-.512	11-13	.276	7.0	.0394	1.0	.138	3.5
079-058	**079-858**	9/16"	.512-.591	13-15	.295	7.5	.0394	1.0	.158	4.0
079-059	**079-859**	19/32"	.591-.669	15-17	.315	8.0	.0473	1.2	.197	5.0
079-060	**079-860**	5/8"	.591-.708	15-18	.315	8.0	.0473	1.2	.197	5.0
079-061	**079-861**	3/4"	.669-.787	17-20	.335	8.5	.0473	1.2	.236	6.0
079-062	**079-862**	13/16"	.748-.866	19-22	.354	9.0	.0591	1.5	.256	6.5
079-063	**079-863**	7/8"	.787-.905	20-23	.354	9.0	.0591	1.5	.256	6.5
079-064	**079-864**	15/16"	.866-.984	22-25	.394	10.0	.0591	1.5	.256	6.5
079-065	**079-865**	1"	.905-1.063	23-27	.394	10.0	.0591	1.5	.276	7.0
079-066	**079-866**	1-1/16"	.984-1.102	25-28	.394	10.0	.0591	1.5	.256	6.5
079-067	**079-867**	1-1/8"	1.063-1.220	27-31	.394	10.0	.0591	1.5	.295	7.5
079-069	**079-869**	1-5/16"	1.220-1.339	31-34	.394	10.0	.0591	1.5	.295	7.5
079-070	**079-870**	1-7/16"	1.339-1.457	34-37	.394	10.0	.0591	1.5	.315	8.0
079-071	**079-871**	1-1/2"	1.457-1.575	37-40	.394	10.0	.0591	1.5	.315	8.0
079-072	**079-872**	1-5/8"	1.575-1.693	40-43	.394	10.0	.0591	1.5	.335	8.5
079-073	**079-873**	1-3/4"	1.693-1.811	43-46	.394	10.0	.0591	1.5	.335	8.5

Installation Pincers

876-852
Standard Jaw Pincers

Priced Singly

This dual purpose side jaw design allows clamps to be applied or removed in confined areas with pincers held parallel to the hose. Also used like Standard Pincers.

876-853
Side Jaw Pincers

INSTALLATION

An incorrectly made installaton may impair the best connection. A clamp installed too tightly can collapse or deform the parts to be connected or can cut the material to be clamped, thus causing leakage.

When the clamp ears can be closed all the way, the clamp size selected is normally too big and the next smaller size clamps should be ordered.

Installation: when installing Oetiker 2-Ear Clamps, close first ear, then the second. Once second ear is closed, first one opens up slightly and may be squeezed again. Each Clamp ear should not be squeezed more than twice.

HOW TO APPLY:

Position clamp on hose as illustrated.

Give each ear a firm squeeze with your OETIKER Pincers

Where access to ear is difficult, use OETIKER's Side Jaw Pincers Model 876-853

HOW TO REMOVE:

Grip the outer edge of ear firmly and cut through it with either pincers.

Cut the ear by taking several small bites at its base with either pincers.

Then grip ear firmly and twist it off.

See page G11 for Assortments and more Ear Clamps.

OETIKER®

2-EAR CLAMP ASSORTMENTS

Both Assortments are similar except for the clamp material.

ASSORTMENT / ASSORTIMENT 805-655

PLATED STEEL CLAMPS
22 Sizes

Shipping Weight: 5.76 kg. (12.70 lbs.)

ASSORTMENT / ASSORTIMENT 805-654

300 Series STAINLESS STEEL CLAMPS
22 Sizes

Shipping Weight: 5.22 kg. (11.50 lbs.)

2-EAR CLAMPS plus INSTALLATION TOOL in each assortment.

Contents of Assortments

SPAENAUR ASSORTMENTS 805-655 STEEL	805-654 STAINLESS ST.	Nominal Size	Range (Inches) closed - open	Assortment Qty.
079-050	**079-850**	5/32"	.122-.161	10
079-051	**079-851**	11/64"	.138-.177	10
079-052	**079-852**	3/16"	.118-.197	20
079-053	**079-853**	1/4"	.197-.276	20
079-054	**079-854**	5/16"	.276-.354	10
079-055	**079-855**	3/8"	.315-.433	10
079-057	**079-857**	1/2"	.433-.512	10
079-058	**079-858**	9/16"	.512-.591	10
079-059	**079-859**	19/32"	.591-.669	10
079-060	**079-860**	5/8"	.591-.708	10
079-061	**079-861**	3/4"	.669-.787	10
079-062	**079-862**	13/16"	.748-.866	10
079-063	**079-863**	7/8"	.787-.905	10
079-064	**079-864**	15/16"	.866-.984	10
079-065	**079-865**	1"	.905-1.063	10
079-066	**079-866**	1-1/16"	.984-1.102	10
079-067	**079-867**	1-1/8"	1.063-1.220	10
079-069	**079-869**	1-5/16"	1.220-1.339	10
079-070	**079-870**	1-7/16"	1.339-1.457	10
079-071	**079-871**	1-1/2"	1.457-1.575	10
079-072	**079-872**	1-5/8"	1.575-1.693	10
079-073	**079-873**	1-3/4"	1.693-1.811	10
876-852	**876-852**	Standard Installation Pincer		1

See page G10 for more information.

Each Assortment is furnished in a Large Size grey enamel steel drawer with hinged lid and catch.

Drawers have scooped bins for easy access and will fit into Slide Racks shown on page A29.

1-EAR CLAMPS

Zinc Plated Steel & *304 Stainless Steel

For applications where a strong clamp is required.

These clamps are formed from steel tubing.

Also available in Nom. Sizes from 13/32" to 3-7/8"

SPAENAUR No.	Nom. Size	Inches closed-open	mm closed-open	Pkg. Qty.
***079-874**	3/8"	.318 - .374	8.1 - 9.5	100
079-074	13/32"	.358 - .413	9.1 - 10.5	100

STEPLESS™ -EAR CLAMPS

304 Stainless Steel

This clamp guarantees a 360° closure around the object being clamped. The inner circumference is “STEPLESS”.

Also available in Nom. Sizes from 1/4" to 4".

SPAENAUR No.	Nom. Size	Inches closed-open	mm closed-open	Pkg. Qty.
079-075	4-3/16"	4.087 - 4.213	103.8 - 107.0	10

OTHER AVAILABLE OETIKER ITEMS.

SPAENAUR invites your inquiries.

MAKE-A-CLAMP KITS®

All 300 Stainless Steel Components

except Hex Head Screw which is 400 Series.

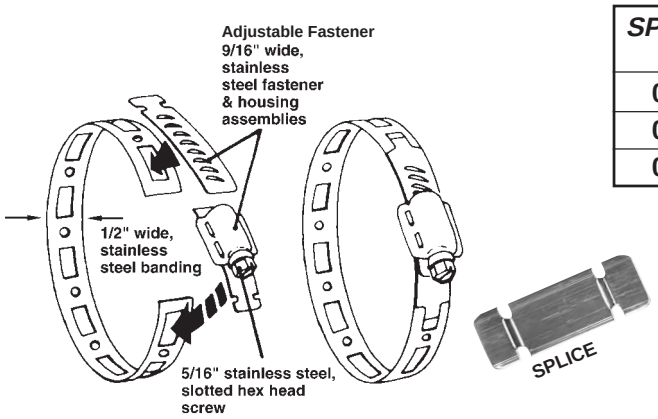
079-818 / 079-817

079-816

Minimize "down" time. Minimize repair time. Minimize your hose clamp inventory in sizes, dollars and shelf space. **Make-A-Clamp** gives you a total maintenance clamp system in a kit, consisting of a continuous roll of stainless steel banding (which you cut to the size diameter you need) and adjustable worm-gear assembly fasteners.

Make-A-Clamp makes every size clamp that you may need, from 2" diameter up, on the spot. It's a key addition to a conventional clamp inventory.

- Use for temporary or permanent repairs for securing, mounting, strapping, clamping, and positioning.
- Hang, strap, or secure anything to poles, beams, pipes, etc.
- Hold or clamp units together during welding or assembly.



Contents of Kit *(Kits Priced Singly)*

SPAENAUR No.	Band Length	Adjustable Fasteners	Band Splices
079-816	8-1/2 ft. (2.59 m)	3	1
079-818	50 ft. (15.2 m)	10	5
079-817	100 ft. (30.5 m)	25	10

Extra Components

SPAENAUR No.	Description	Unit Pkg. Quantity
079-819	Adjustable Fasteners	25
079-820	Splices	10

No Broken Pkgs. supplied on above two items.

4 Simple Steps To Make Any Size Clamp

1. Cut band length

2. Engage fastener

3. Insert into band

4. Tighten

BAND LENGTH TABLE

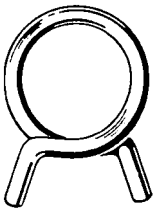
(Allows for insertion of adjustable fastener.)

Band should always be cut midway on small round hole for smooth fastener-fit. The table, at right, is accurate for the diameters indicated.

To determine lengths of Make-A-Clamp band material, multiply diameter in inches x π (3.1416), minus 4.5" for the adjustable fastener end, or determine circumference by measurement, less 4.5" for adjustable fastener end.

Dia.	Length to cut on mark	Dia.	Length to cut on mark	Dia.	Length to cut on mark	Dia.	Length to cut on mark
2"	2-1/2"	9"	24-1/8"	16"	46-7/8"	26"	77-1/4"
3"	5-1/16"	10"	27-7/8"	17"	49-7/16"	28"	83-5/8"
4"	8-7/8"	11"	30-3/8"	18"	53-1/8"	30"	89-7/8"
5"	11-7/16"	12"	34-3/16"	19"	55-3/4"	32"	96-3/8"
6"	15-3/16"	13"	36-3/4"	20"	59-1/2"	34"	102-5/8"
7"	17-3/4"	14"	40-1/2"	22"	65-7/8"	36"	108-7/8"
8"	21-1/2"	15"	43-1/16"	24"	72-1/8"	38"	115-1/4"

SPRING-GRIP HOSE CLAMPS



P.C. 080

SPRING STEEL, Zinc Plated
Dichromate Finish - Colour at Our Option

Unit Package 25

Priced Singly

P.C. 876

T-428 HOSE CLAMP PLIERS

For removing or installing self-tightening wire hose clamp.

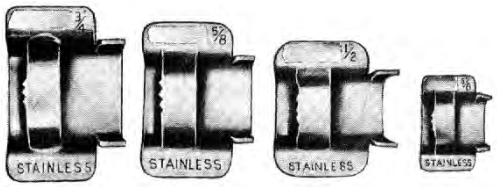
Use T-428 Hose Clamp Pliers

SPAENAUR No.	For Hose Size O.D.	Wire Diameter
B-1695	5/16"	.062"
B-1695X	5/16"	.083"
B-1909	3/8"	.083"
B-1910	7/16"	.088"
B-1911	1/2"	.093"
B-1912	9/16"	.093"
B-1600	5/8"	.108"
B-1601	11/16"	.112"
B-1913	3/4"	.112"
B-1661	13/16"	.118"
B-1947	7/8"	.122"
B-1602	15/16"	.122"
B-1603	1"	.132"
B-1604	1-1/16"	.142"

SPAENAUR No.	For Hose Size O.D.	Wire Diameter
B-1948	1-1/8"	.152"
B-1949	1-3/16"	.152"
080-001	1-1/4"	.105"
B-1605	1-1/4"	.152"
B-1950	1-5/16"	.162"
B-1606	1-3/8"	.162"
B-1952	1-1/2"	.162"
B-1607	1-5/8"	.172"
B-1953	1-3/4"	.172"
B-1609	1-15/16"	.177"
B-1610	2-1/8"	.182"
B-1611	2-3/16"	.182"
B-1612	2-1/4"	.182"
B-1637	2-5/8"	.202"

G

ONE-PIECE BUCKLES



BAND CLAMP

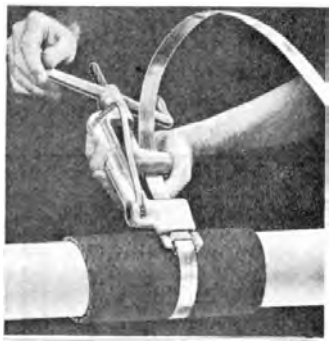
MAKES ANY SIZE CLAMP

Tackles any job - any diameter pipe or hose from 30 feet down to 1/2 inch.

Priced Singly

T-244
BAND CLAMP TOOL

Made from chromo-vanadium drop-forged steel, with machine threaded Tension Screw. Finish is specially treated to resist corrosion.



Band Clamp is made in 100 ft. rolls of both Stainless Steel and Hi-carbon Steel.

Buckles are supplied in appropriate sizes to fit the band widths.

Available in Stainless Steel or Hi-carbon Steel

Band Width	201 Stainless Steel Band No.	201 Stainless Steel Buckle No.	Hi-carbon (Plated) Band No.	Hi-carbon (Plated) Buckle No.	Package Quantities
1/4" (6.4 mm)	**079-001**	**079-002**	—	—	Band Stock
3/8" (9.5 mm)	**MP-2000**	**B-2000**	**MP-90**	**B-1966**	All sizes
1/2" (12.7 mm)	**MP-2001**	**B-2001**	**MP-91**	**B-1967**	100 feet
5/8" (15.9 mm)	**MP-2002**	**B-2002**	—	**B-1968**	All Buckles
3/4" (19.1 mm)	**MP-2003**	**B-2003**	—	**B-1969**	100 only

All parts packed separately. Be sure to order BUCKLES, as required, for use with BAND stock.

P.C. 079

CATALOG 13

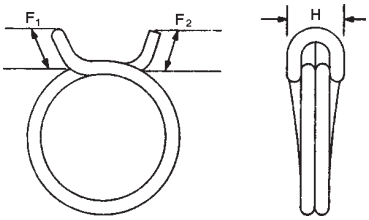
STEEL

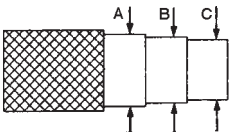
High Tensile Wire
Zinc Plated with
colour coded dye.

DOUBLE STRAND DESIGN

HOSE CLAMPS

- Easy to install.
- Wider based radial load.
- No special tools needed.





Inch Sizes

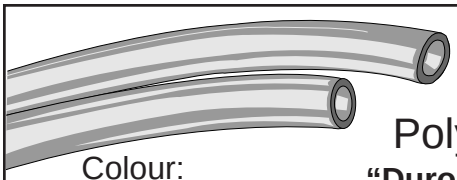
SPAENAUR No.	Clamp Diameter A Max.	B Nom.	C Min.	Wire Dia.	Reference Dimensions F1	F2	H	Unit Package Quantity
080-030	.307"	.299"	.287"	.039"	.250"	.190"	.250"	100
080-031	.380"	.375"	.370"	.039"	.250"	.190"	.250"	100
080-032	.442"	.438"	.432"	.059"	.250"	.190"	.250"	100
080-033	.510"	.500"	.490"	.059"	.380"	.250"	.280"	100
080-034	.573"	.562"	.551"	.070"	.425"	.250"	.325"	100
080-035	.640"	.625"	.610"	.070"	.425"	.250"	.325"	50
080-036	.703"	.688"	.671"	.070"	.425"	.250"	.325"	50
080-037	.770"	.750"	.730"	.078"	.500"	.325"	.360"	50
080-038	.832"	.812"	.792"	.078"	.500"	.325"	.360"	50
080-039	.900"	.875"	.850"	.086"	.550"	.375"	.400"	50
080-040	.968"	.938"	.906"	.086"	.550"	.375"	.400"	50
080-041	1.031"	1.000"	.969"	.098"	.560"	.375"	.450"	25
080-042	1.090"	1.062"	1.034"	.098"	.560"	.375"	.450"	25
080-043	1.150"	1.125"	1.100"	.098"	.560"	.375"	.450"	25
080-044	1.218"	1.188"	1.156"	.110"	.660"	.450"	.480"	25
080-045	1.280"	1.250"	1.219"	.110"	.660"	.450"	.480"	25
080-046	1.344"	1.312"	1.281"	.110"	.660"	.450"	.480"	25
080-047	1.405"	1.377"	1.335"	.118"	.750"	.500"	.540"	25
080-048	1.500"	1.465"	1.425"	.118"	.750"	.500"	.540"	25
080-049	1.531"	1.500"	1.469"	.126"	.750"	.500"	.560"	25
080-050	1.592"	1.561"	1.530"	.126"	.750"	.500"	.560"	25
080-051	1.692"	1.625"	1.578"	.126"	.750"	.500"	.560"	25
080-052	1.797"	1.750"	1.703"	.126"	.750"	.500"	.560"	25

Metric Sizes

(Dimensions below are shown in millimetres)

080-100	8.80	8.70	8.60	1.00	6.35	4.80	6.35	100
080-101	14.10	13.73	13.36	1.50	9.65	6.35	7.10	100
080-102	15.93	15.60	15.11	1.70	10.80	6.35	8.25	100
080-103	16.81	16.41	15.93	1.70	10.80	6.35	8.25	50
080-104	18.69	18.19	17.70	1.98	12.70	8.26	9.14	50
080-105	20.62	20.19	19.61	1.98	12.70	8.26	9.14	50
080-106	23.57	23.09	22.40	2.19	13.97	9.53	10.16	50
080-107	28.12	27.48	26.67	2.49	14.22	9.53	11.43	25
080-108	32.00	31.29	30.38	2.80	16.76	11.43	12.19	25
080-109	36.40	35.59	34.59	3.00	19.00	12.70	13.72	25

Fasteners of All Types—
Right off the shelf!
When you want them —



POLYURETHANE TUBING

Colour:
Natural, Clear

Polyether-Based
"Durometer 85 Shore A"

Polyether-based polyurethane tubing offers excellent resistance to kinking, abrasion, hydrolysis, oxidation, and ozone. Polyether-based polyerethane tubing offers high resillience, good energy-absorption, good all around chemical resistance.

Excellent in applications requiring superior toughness and resistance to tear, abrasion, ozone, oxidation, fungus, and humidity. Excels in cold temperature, impact and flexibility.

SPAENAUR No.	INSIDE DIA.	OUTSIDE DIA.	WALL THICK.	UNIT PKG. 1 REEL
825-200	1/16"	1/8"	1/32"	2,500 ft.
825-201	3/32"	5/32"	1/32"	2,500 ft.
825-202	1/8"	3/16"	1/32"	2,000 ft.
825-203	1/8"	1/4"	1/16"	1,000 ft.
825-204	3/16"	1/4"	1/32"	1,000 ft.
825-205	3/16"	5/16"	1/16"	500 ft.
825-206	1/4"	5/16"	1/32"	100 ft.
825-207	1/4"	3/8"	1/16"	100 ft.
825-235	3/8"	1/2"	1/16"	50 ft.
825-218	Same as above except Black Polyethylene, 55 Duro.			250 ft.

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FLEXIBLE VINYL (PVC) TUBING

"Durometer 68 Shore A"
Colour: Natural, Clear.

Natural Vinyl Tubing is plasticized from non-toxic flexible PVC. This tubing offers a wide range of chemical resistance which makes problems involving the handling of corrosive, pure or sensitive solutions. This tubing will not offer the kink resistance or strength of our poly-urethane tubing, but is an excellent alternative choice when cost is an over riding priority.

SPAENAUR No.	INSIDE DIA.	OUTSIDE DIA.	WALL THICK.	UNIT PKG. 1 REEL
825-208	1/16"	1/8"	1/32"	4,000 ft.
825-209	1/16"	1/4"	3/32"	1,000 ft.
825-210	3/32"	5/32"	1/32"	2,500 ft.
825-211	1/8"	3/16"	1/32"	500 ft.
825-212	1/8"	1/4"	1/16"	1,000 ft.
825-213	3/16"	1/4"	1/32"	1,000 ft.
825-214	3/16"	5/16"	1/16"	500 ft.
825-215	1/4"	3/8"	1/16"	500 ft.
825-216	1/4"	7/16"	3/32"	500 ft.

Inch and Metric

Additional Plastic Tubing - Available but not stocked.

Polyurethane Tubing, Polyester-Based "Durometer 95 Shore "A"

Coiled Polyurethane Tubing, Polyether-Based, Flexible Vinyl Tubing "Durometer 90 Shore "A", Polyurethane Tubing, Polyether-Based, "Durometer 90 Shore "A", Polyethylene Tubing, Natural, "Durometer 55 Shore "D", Vyplas Tubing "Durometer 80 Shore "A"

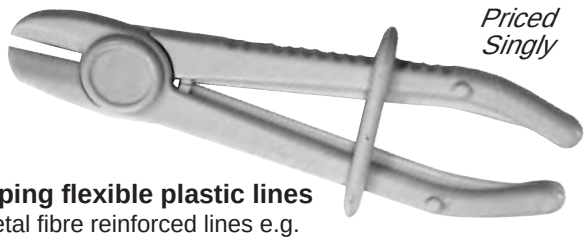
Polyethylene Tubing, Black, "Durometer 55 Shore "D" **UV RESISTANT FOR OUTDOOR USE**

Many of the above listed tubings can be supplied in various colours.

Flexible Line Clamps of Yellow Plastic

(easily seen on the project)

Priced Singly



For clamping flexible plastic lines
(except metal fibre reinforced lines e.g. fuel injection and brake lines).

SPAENAUR No.	Clamps line dia. up to:	Overall Length
993-980	37/64" (15 mm)	6" (150 mm)
993-981	1-5/32" (30 mm)	7-1/4" (180 mm)

CATALOG 13

Miniature Nylon Fittings for use with tubing shown above are on the following pages.

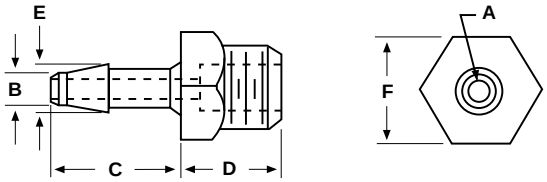
MINIATURE FITTINGS

Our high-quality, leak-proof fittings are for use with Polyurethane tubing. Our close tolerance fittings maintain a sharp barb which makes a leak-proof seal. In addition no special tools or ferrules are required for fitting insertions. Fittings are stocked in Nylon, natural colour. Other materials, colours and sizes are available.

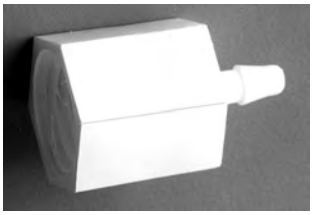
Please call for special material pricing and delivery information.

Miniature Barbed Fittings

Dimensions in Inches

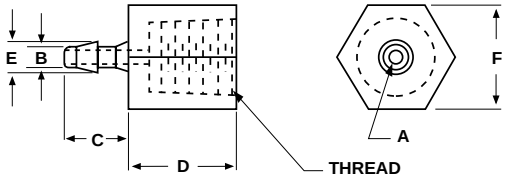


SPAENAUR No.	TUBING ID	THREAD	A	B	C	D	E	F	Unit Pkg.
210-200	1/16 ID	10-32 UNF	.046	.075	.275	.285	.108	.245	25
210-201	1/8 ID	10-32 UNF	.078	.125	.375	.250	.175	.245	25
210-202	1/8 ID	1/4-28 UNF	.078	.125	.453	.375	.175	.312	25
210-203	1/4 ID	1/4-28 UNF	.140	.250	.765	.375	.359	.312	25
210-204	1/16 ID	1/8-27 NPT	.046	.068	.285	.610	.105	.438	25
210-205	1/8 ID	1/8-27 NPT	.078	.125	.453	.625	.175	.438	25
210-206	3/16 ID	1/8-27 NPT	.125	.187	.625	.625	.281	.438	25
210-207	1/4 ID	1/8-27 NPT	.187	.250	.766	.625	.359	.438	25
210-199	3/8 ID	1/8-27 NPT	.250	.375	.937	.619	.472	.434	25
210-208	1/16 ID	1/4-18 NPT	.046	.070	.290	.530	.107	.531	25
210-209	1/8 ID	1/4-18 NPT	.080	.125	.307	.700	.175	.531	25
210-210	3/16 ID	1/4-18 NPT	.130	.187	.525	.700	.250	.531	25
210-211	1/4 ID	1/4-18 NPT	.187	.250	.700	.700	.345	.560	25



Miniature Barbed Fittings

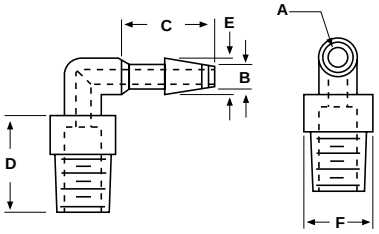
Dimensions in Inches



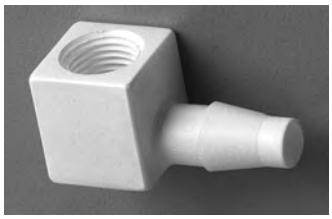
SPAENAUR No.	TUBING ID	THREAD	A	B	C	D	E	F	Unit Pkg.
210-212	1/8 ID	1/8-27 FPT	.078	.125	.375	.659	.175	.625	25
210-213	1/8 ID	1/4-18 FPT	.078	.125	.375	.659	.175	.625	25

90 Degree Barbed Fittings

Dimensions in Inches

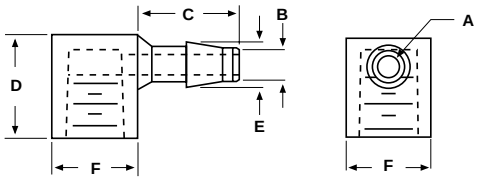


SPAENAUR No.	TUBING ID	THREAD	A	B	C	D	E	F	Unit Pkg.
210-214	1/16 ID	10-32 UNF	.045	.062	.290	.262	.105	.240	25
210-215	1/8 ID	10-32 UNF	.078	.125	.310	.250	.175	.245	25
210-216	1/8 ID	1/8-27 NPT	.078	.125	.280	.617	.175	.430	25
210-217	3/16 ID	1/8-27 NPT	.125	.187	.630	.630	.250	.440	25
210-218	1/4 ID	1/8-27 NPT	.180	.250	.685	.630	.345	.430	25

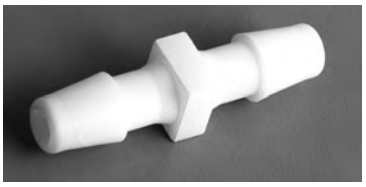


90 Degree Barbed Fittings

Dimensions in Inches

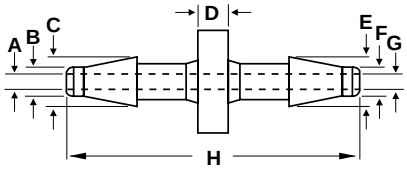


SPAENAUR No.	TUBING ID	THREAD	A	B	C	D	E	F	Unit Pkg.
210-219	3/16 ID	1/8-27 FPT	.125	.187	.625	.625	.250	.562	25
210-220	1/4 ID	1/8-27	.190	.242	.680	.615	.340	.560	25

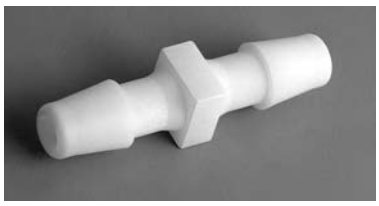


Miniature Barbed Connectors

Dimensions in Inches

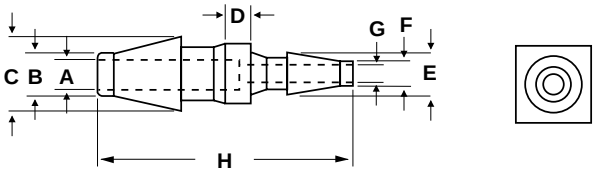


SPAENAUR No.	TUBING ID	A	B	C	D	E	F	G	H	Unit Pkg.
210-221	1/16 ID to 1/16 ID	.047	.068	.125	.100	.125	.068	.047	.770	25
210-222	1/8 ID to 1/8 ID	.080	.125	.185	.100	.185	.125	.080	.832	25
210-225	3/16 ID to 3/16 ID	.120	.218	.275	.125	.275	.218	.120	1.175	25
210-226	1/4 ID to 1/4 ID	.187	.250	.355	.200	.355	.250	.187	2.002	25



Barbed Reducing Connectors

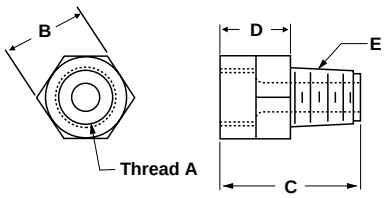
Dimensions in Inches



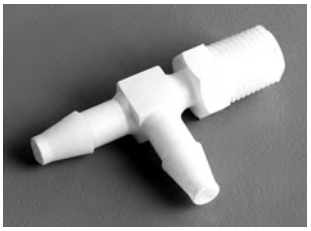
SPAENAUR No.	TUBING ID	A	B	C	D	E	F	G	H	Unit Pkg.
210-227	1/16 ID to 3/32 ID	.060	.095	.145	.100	.125	.068	.047	.740	25
210-223	1/16 ID to 1/8 ID	.080	.125	.175	.100	.125	.068	.047	.830	25
210-224	3/16 ID to 1/8 ID	.125	.182	.292	.125	.187	.125	.086	1.250	25
210-228	1/4 ID to 5/32 ID	.187	.250	.350	.200	.229	.154	.100	1.540	25
210-229	1/4 ID to 3/16 ID	.135	.250	.350	.125	.275	.187	.135	1.560	25

Threaded Connector

Dimensions in Inches

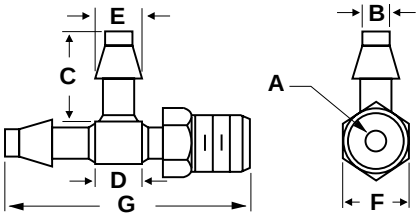


SPAENAUR No.	A	B	C	D	E	Unit Pkg.
210-230	1/8-27 FPT	.555	.875	.500	1/8-27 NPT	25



Miniature Branch Elbow

Dimensions in Inches



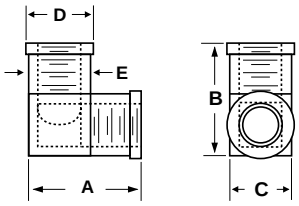
SPAENAUR No.	TUBING ID	THREAD	A	B	C	D	E	F	G	Unit Pkg.
210-231	3/16 ID	1/8-27 NPT	.135	.190	.635	.305	.280	.430	1.687	25

G

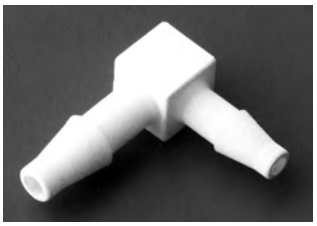
CATALOG 13

Internally Threaded Elbow

Dimensions in Inches

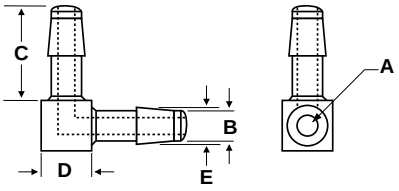


SPAENAUR No.	THREAD	A	B	C	D	E	Unit Pkg.
210-232	1/4-18 FPT x 1/4-18 FPT	1.218	1.218	.680	.720	.680	25

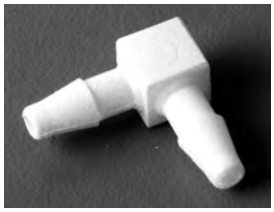


Barbed Elbows

Dimensions in Inches

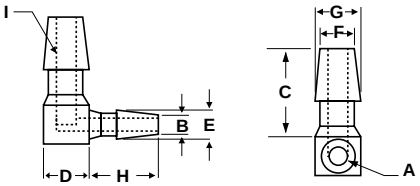


SPAENAUR No.	TUBING ID	A	B	C	D	E	Unit Pkg.
210-233	1/16 ID	.046	.068	.328	.125	.105	25
210-234	3/32 ID	.060	.095	.375	.187	.145	25
210-235	1/8 ID	.078	.125	.375	.250	.175	25
210-236	3/16 ID	.115	.187	.600	.345	.275	25
210-237	1/4 ID	.187	.250	.906	.375	.350	25



Barbed Reducing Elbows

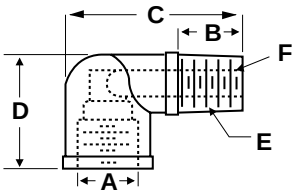
Dimensions in Inches



SPAENAUR No.	TUBING ID	A	B	C	D	E	F	G	H	I	Unit Pkg.
210-238	3/32 ID x 1/16 ID	.050	.055	.257	.125	.090	.091	.145	.206	.060	25
210-239	1/8 ID x 1/16 ID	.080	.130	.308	.250	.189	.096	.125	.390	.060	25

Elbow

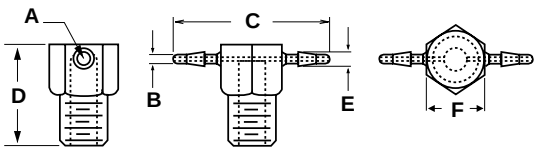
Dimensions in Inches



SPAENAUR No.	THREAD A	B	C	D	THREAD E	F	Unit Pkg.
210-240	1/8-27 FPT	.531	1.310	1.059	1/4-18 NPT	.245	25
210-241	1/4-18 FPT	.531	1.310	1.059	1/4-18 NPT	.245	25

Miniature Branch Trees

Dimensions in Inches



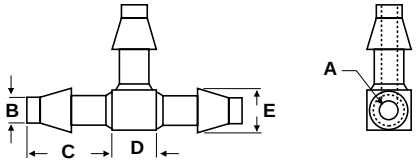
SPAENAUR No.	TUBING ID	THREAD	A	B	C	D	E	F	Unit Pkg.
210-242	1/8 ID	10-32 UNF	.080	.125	.990	.560	.180	.250	25
210-243	1/16 ID	1/8-27 NPT	.045	.065	1.13	.880	.120	.430	25
210-244	1/4 ID	1/8-27 NPT	.185	.250	1.655	1.053	.345	.430	25

G

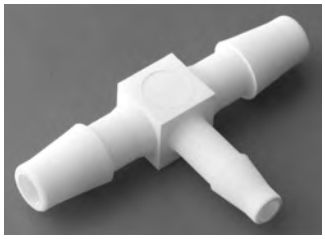
CATALOG 13

Miniature Barbed Tees

Dimensions in Inches

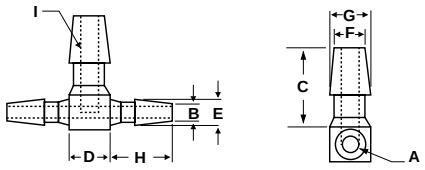


SPAENAUR No.	TUBING ID	A	B	C	D	E	Unit Pkg.
210-245	1/16 ID 1/16 ID 1/16 ID	.046	.068	.328	.125	.107	25
210-246	1/8 ID 1/8 ID 1/8 ID	.078	.125	.395	.250	.175	25
210-247	3/16 ID 3/16 ID 3/16 ID	.120	.187	.605	.307	.240	25
210-248	1/4 ID 1/4 ID 1/4 ID	.187	.250	.906	.375	.350	25
210-294	3/8 ID 3/8 ID 3/8 ID	.250	.375	.925	.500	.365	25



Barbed Reducing Tees

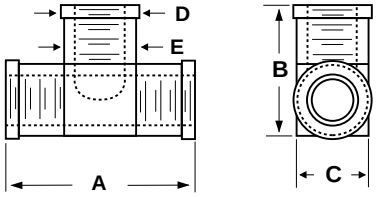
Dimensions in Inches



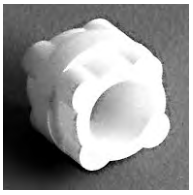
SPAENAUR No.	TUBING ID	A	B	C	D	E	F	G	H	I	Unit Pkg.
210-249	1/16 ID 1/16 ID 3/32 ID	.050	.055	.295	.125	.089	.097	.145	.180	.060	25
210-250	3/32 ID 3/32 ID 1/16 ID	.059	.098	.305	.187	.148	.067	.107	.386	.046	25

Internally Threaded Tee

Dimensions in Inches

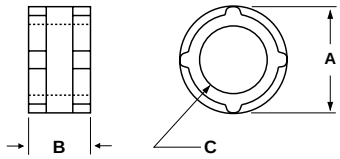


SPAENAUR No.	THREAD	A	B	C	D	E	Unit Pkg.
210-251	1/8-27 FPT	1.50	1.00	.525	.560	.531	25
210-252	1/4-18 FPT	1.75	1.218	.680	.718	.687	25



Locking Sleeves

Dimensions in Inches

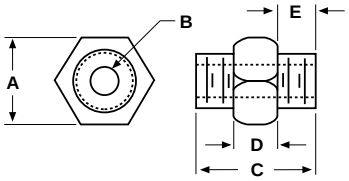


Locking sleeves enable barbed fittings to be used in to 100% of the rated burst pressure of the flexible plastic tubing. To use, simply slide appropriate sleeve over suggested O.D. tubing. Insert miniature barbed fitting into tubing, slide sleeve back over barb, locking soft tubing onto the self sealing barb. **Locking sleeves** are recommended for thin wall flexible vinyl (PVC) tubing and other very soft grades tubing with little elastic memory.

SPAENAUR No.	TUBING OD	A	B	C	Unit Pkg.
210-253	1/8 OD	.310	.245	.147	25
210-254	5/32 OD	.375	.281	.176	25
210-255	3/16 OD	.400	.300	.215	25
210-256	1/4 OD	.435	.315	.260	25

Miniature Nipple

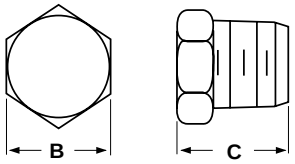
Dimensions in Inches



SPAENAUR No.	THREAD	A	B	C	D	E	Unit Pkg.
210-257	10-32 UNF to 10-32 UNF	.250	.078	.375	.175	.250	25

Miniature Plugs

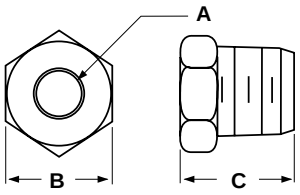
Dimensions in Inches



SPAENAUR No.	THREAD	B	C	Unit Pkg.
210-258	10-32 UNF	.250	.275	25
210-259	1/8-27 NPT	.440	.575	25
210-260	1/4-18 NPT	.525	.700	25

Reducers

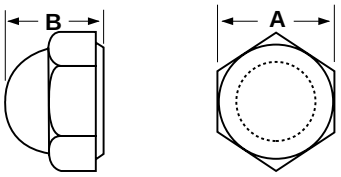
Dimensions in Inches



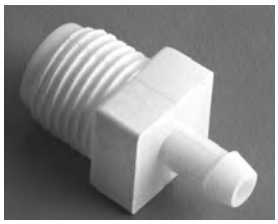
SPAENAUR No.	THREAD	THREAD A	B	C	Unit Pkg.
210-261	1/8-27 NPT	10-32 UNF	.440	.575	25
210-262	1/8-27 NPT	1/4-28 UNF	.440	.575	25
210-263	1/4-18 NPT	10-32 UNF	.525	.700	25
210-264	1/4-18 NPT	1/4-28 UNF	.525	.700	25
210-265	1/4-18 NPT	1/8-27 FPT	.525	.700	25

Dome Nuts

Dimensions in Inches

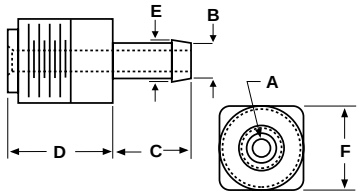


SPAENAUR No.	DESCRIPTION	A	B	Unit Pkg.
210-266	1/8-27 FPT	.662	.710	25
210-267	1/4-18 FPT	.750	.810	25
210-268	3/8-18 FPT	.935	1.00	25

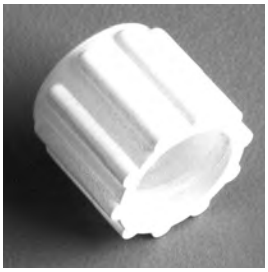


Special Fittings Automotive

Dimensions in Inches



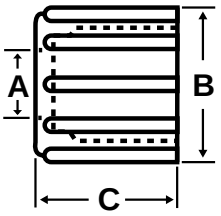
SPAENAUR No.	DESCRIPTION	A	B	C	D	E	F	Unit Pkg.
210-269	5/32 ID 3/8-24 UNF	.110	.173	.380	.580	.230	.380	25



Locking Nut

Dimensions in Inches

(Use with high pressure application
Male Luer fittings.)



SPAENAUR No.	A	B	C	Unit Pkg.
210-277	.190	.440	.390	25

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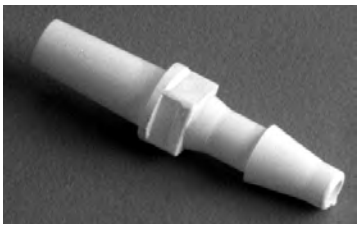
CATALOG 13

QUICK DISCONNECT LUER FITTINGS

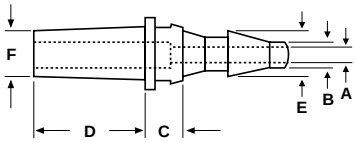
STOCKED IN NATURAL NYLON



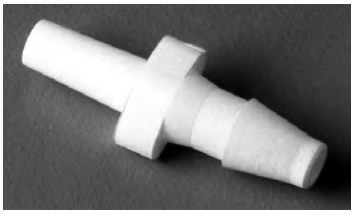
Male Luer

Recommended for high pressure applications. Fittings require the use of a Locking Nut. (See previous page.)

Dimensions in Inches



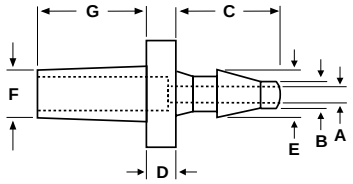
SPAENAUR No.	TUBING ID	A	B	C	D	E	F	Unit Pkg.
210-270	1/16 ID	.046	.068	.265	.380	.105	.155	25
210-271	3/32 ID	.060	.095	.350	.380	.145	.155	25
210-272	1/8 ID	.078	.125	.450	.380	.187	.155	25



Male Luer

For use in low pressure or vacuum applications. No lock nut required.

Dimensions in Inches



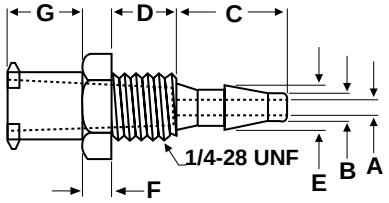
SPAENAUR No.	TUBING ID	A	B	C	D	E	F	G	Unit Pkg.
210-273	1/16 ID	.046	.068	.265	.130	.105	.155	.380	25
210-274	3/32 ID	.060	.095	.350	.130	.145	.155	.380	25
210-275	1/8 ID	.078	.125	.450	.130	.187	.155	.380	25
210-276	5/32 ID	.100	.156	.480	.130	.232	.155	.380	25

Bulkhead Quick Disconnect Luer Fittings are shipped complete with stamped 1/4 UNF Hex Nut.

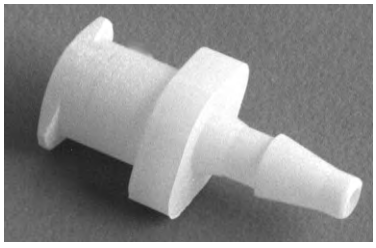
Female Luer

Bulkhead mounting
External
1/4-28 UNF Thread

Dimensions in Inches

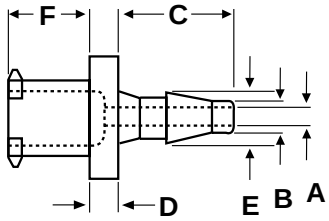


SPAENAUR No.	TUBING ID	A	B	C	D	E	F	G	Unit Pkg.
210-278	1/16 ID	.046	.068	.265	.250	.105	.100	.250	25
210-279	3/32 ID	.060	.095	.350	.250	.145	.100	.250	25
210-280	1/8 ID	.078	.125	.450	.250	.187	.100	.250	25



Female Luer

Dimension in Inches



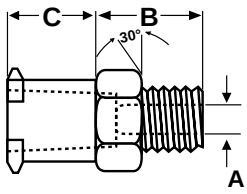
SPAENAUR No.	TUBING ID	A	B	C	D	E	F	Unit Pkg.
210-281	1/16 ID	.046	.068	.265	.100	.105	.250	25
210-282	3/32 ID	.060	.095	.350	.100	.145	.250	25
210-283	1/8 ID	.078	.125	.450	.100	.187	.250	25
210-284	5/32 ID	.100	.156	.480	.100	.232	.250	25

G

STOCKED IN NATURAL NYLON

Female Luer for use with Threaded Ports

Dimensions in Inches

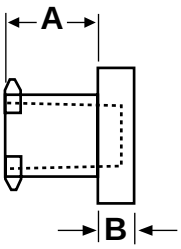


SPAENAUR No.	TUBING ID	A	B	C	Unit Pkg.
210-285	10-32 UNF	.078	.260	.250	25
210-286	1/4-28 UNF	.100	.350	.250	25

Female Luer Plug

Dimensions in Inches

SPAENAUR No.	A	B	Unit Pkg.
210-287	.250	.100	25

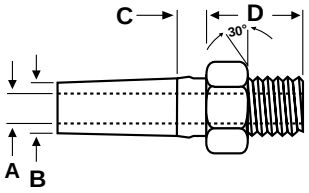


G

Male Luer

Male Luer is for use with Locking Nut.

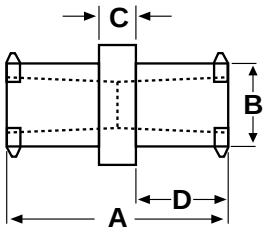
Dimension in Inches



SPAENAUR No.	THREAD	A	B	C	D	Unit Pkg.
210-288	10-32 UNF	.100	.155	.380	.300	25
210-289	1/4-28 UNF	.100	.155	.380	.350	25

Female Luer Connector

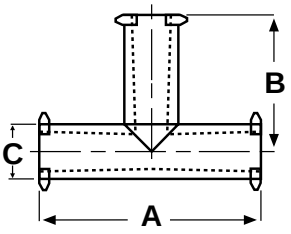
Dimensions in Inches



SPAENAUR No.	A	B	C	D	Unit Pkg.
210-290	.631	.230	.127	.245	25

Female Luer Tee

Dimension in Inches



SPAENAUR No.	A	B	C	Unit Pkg.
210-291	.940	.476	.230	25

Hose Fitting Adapter

***SPAENAUR No.* 210-292**

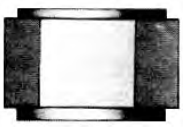
1/4" Tube I.D. Male Type Hose Fitting Adapter with wings.

Unit Pkg. 50

Swivel Nut

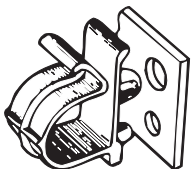
for Adapter Hose Fittings

SPAENAUR No.
210-293
1/4" F.P.T.



Unit Pkg. 50

CATALOG 13

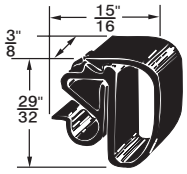


C-973

White Nylon HOSE CLIP

For 3/4" dia., max., condenser or cable. Requires hole 1/4" dia. material from .025" to .085" thick, max.

Unit Package 100



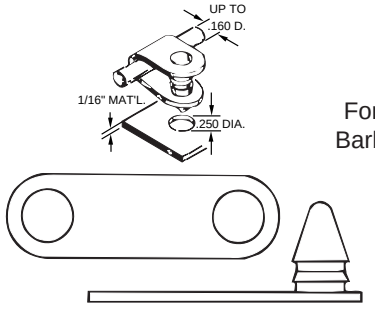
C-749P

Black PLASTIC

(375849-S)

Adjustable Snap Lock Type Wiring Clip.

Unit Package 25



C-1054P

CABLE STRAP

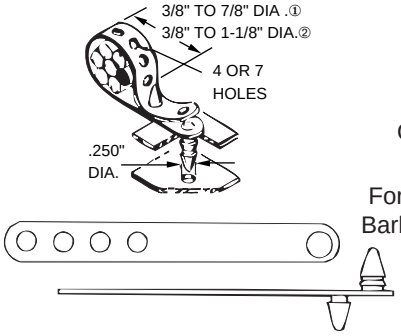
Polyethylene

For cable .160" dia., max. Barbed shank for 1/4" hole.

(G.M. No. 581932)

Overall length 1-1/2"

Unit Package 100



C-579P

ADJUSTABLE CABLE STRAP

4 Hole Style

Overall length 3-5/8"

Polyethylene

For 3/8" to 7/8" dia. cable, Barbed shank for 1/4" hole.

G.M. No. 1348340
Chry. No. 6015149
2097188

C-1053P

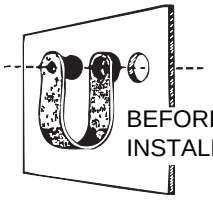
As above, but with 9 holes for 3/8" to 1-1/8" dia. cable.

Overall length 5-5/8"

Unit Package 25

BLIND HOLE STRAPS

Made of polyethylene.



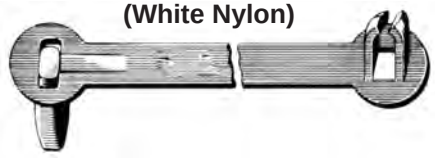
SPAENAUR No.	Mounting Hole Dia.	Max. Wire or Cable Dia. Accommodated
C-784P	3/16"	1/4"
C-785P	1/4"	1/4"
C-786P	1/4"	7/16"
C-787P	1/4"	5/8"

Unit Package 50

For Mounting in 1/16" thick (approx.) panel.

WIRING STRAP

(White Nylon)

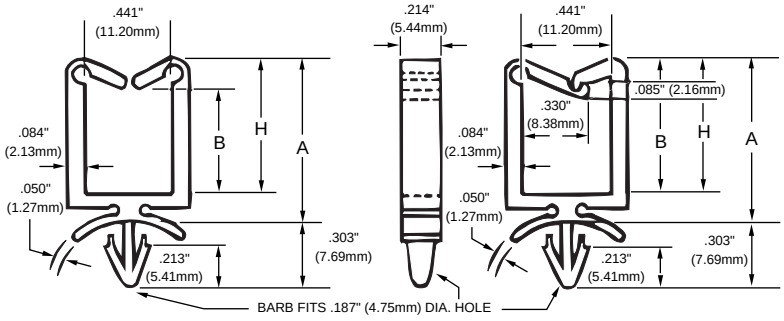


SPAENAUR No.	Distance Centre to Centre	Max. Wire or Cable Dia. Accommodated	Mounting Hole Dia.	Panel Range
086-387	2.75"	.69"	1/4"	.036" - .125"

Unit Package 100

PUSH MOUNT WIRE SADDLE CLIPS

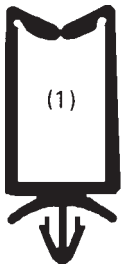
Nylon 6/6



(1) TENSION RETAINER STYLE (2) SELF-LOCKING RETAINER STYLE

One-piece, self-retaining wire clip, just pops in place by hand. Wire bundles load fast through opening at top, and are easily removed for service. Stand-Off base prevents wire contact. A snug, reliable attachment.

Unit Package100



086-002 Natural
086-377 Black

086-376 Black

SPAENAUR No.	DIM A	DIM B	DIM H
086-002	1.065" 27.05 mm	.752" 19.10 mm	.930" 23.62 mm
086-377	1.065" 27.05 mm	.752" 19.10 mm	.930" 23.62 mm
086-376	.716" 18.19 mm	.366" 9.30 mm	.581" 14.76 mm

G

GALVANIZED STEEL

PERFORATED ANCHOR STRAPPING

Galvanized Steel for nails or bolts

SPAENAUR No.	Material	Width	Thick-ness	HOLE Dia.	HOLE Centres	Unit Pkg.	Breaking Load
859-001	Steel	3/4"	24 ga.	5/32" & 9/32"	9/16"	1-25' lgth.	600 lbs.
859-002	Steel	7/8"	20 ga.	5/32" & 9/32"	9/16"	1-25' lgth.	1200 lbs.

Perforated Anchor Strapping of NYLON

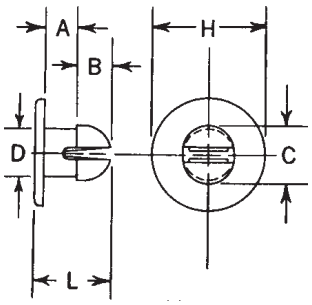
SPAENAUR No.	Material	Width	Thick-ness	HOLE Dia.	HOLE Centres	Unit Pkg.	Suggested Fasteners
859-008	Nylon (Black)	9/32"	.032"	.096"	3/16"	100 ft.	086-200 Stud

G

NYLON PUSH-IN FASTENERS

NATURAL COLOUR (*Black P.V.C.) (†Black Nylon)

Push-in Fasteners provide an inexpensive, fast, convenient method to join plastic, light sheet metal, insulating materials, circuit boards, or any other thin, lightweight material. They can also be used as push-in glides or as bumpers. Special designed legs provide compression and expansion to lock fastener into pre-punched holes. These fasteners are vibration, abrasion and corrosion resistant and feature large heads for easier assembly and can be used over and over.



▲Unslotted

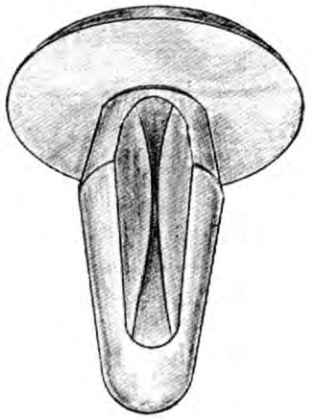
Dimensions in Inches

SPAENAUR No.	H	A	B	C	D	L	Unit Pkg.
▲*086-366	15/64	.094	.078	.150	.090	.203	100
▲086-200	9/32	.093	.078	.105	.093	.206	100
086-465	11/32	.125	.137	.202	.165	.297	100
***086-202**	11/32	.125	.137	.202	.165	.297	100
086-463	15/32	.156	.153	.238	.200	.359	100
†086-201	15/32	.156	.153	.238	.200	.359	100
086-464	19/32	.171	.187	.300	.260	.418	100
086-691	19/32	.250	.187	.300	.245	.497	100

NYLON "DART" CLIPS

EASY TO INSERT - THEY HOLD!

Snap securely in place with finger pressure to hold panels, gaskets, and other assemblies formerly fastened by screws or rivets.



Unit Package 100

The stud section is hollowed out, similar to a canoe, with a low entering ramp angle for ease of insertion. Due to the resiliency of the material and the high removal ramp angle, the items fastened are held snugly together. Being plastic, problems of rust and paint scratching are eliminated.

Dimensions in Inches

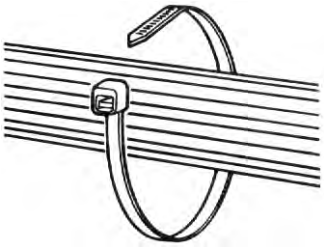
SPAENAUR No.	Colour	Nominal Hole Size	Panel Thickness Range	Head Dia.	Head Height	Length under Head
086-371	Natural	.135-.140 Dia.	.060-.070	.300	.060	.330
086-372	Natural	.131-.141 Dia.	.060-.090	.406	.150	.275
086-373	Natural	.131-.141 Dia.	.080-.125	.406	.100	.365
086-374	Natural	.131-.141 Dia.	.115-.160	.406	.100	.437
086-375	Natural	.131-.141 Dia.	.035-.075	.406	.100	.437
086-130	Black	.182-.192 Dia.	.100-.160	.375	.060	.437
086-183	Natural	.250 Dia.	.095-.218	.500	.055	.630

Plain Head

Nylon

Self-locking cable ties

speed harness tying



SPAENAUR No. Natural Colour	*SPAENAUR No.* Black Colour	Max Wire Bundle Dia.	Approx. O/A Length	Approx. Strap Width	Minimum Tensile Strength	Pkg. Qty.
086-436		3/4"	4"	.100"	18 lbs.	100
086-438		1-1/4"	6"	.140"	30 lbs.	100
086-439	**086-452**	2"	8-1/2"	.150"	40 lbs.	100
086-440		2"	8"	.140"	30 lbs.	100
086-442		3"	11-1/2"	.150"	40 lbs.	100
086-444		4"	14-1/2"	.150"	40 lbs.	100
086-445		4"	15-1/4"	.300"	120 lbs.	100
086-446		8-3/4"	29-3/4"	.300"	120 lbs.	50

Material meets applicable Military Standards. Will resist fungus, corrosion, salt and fresh water, oil, grease, etc. Temperature Range: -54° to +150°C.

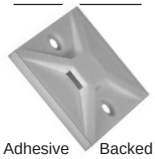
G

Nylon Cable Tie-mounting Devices

For Fastening Plain Head Cable Ties to Wall or Panel

Cable Tie Mount

with screw or rivet hole



Adhesive Backed 4-Way Mount

SPAENAUR No.	Used with These Cable Ties*	Screw Hole Size	Unit Package
086-455	M, I, S	#6	100
086-456	M, I, S	#8	100
086-458	M, I, S, H	#8	100
086-459	M, I, S, H	#10	100
086-460	M, I, S, H	1/4"	100
086-462	M, I, S	Adhesive Backed (with two holes 3/16" for #8 Screw or Rivet)	100

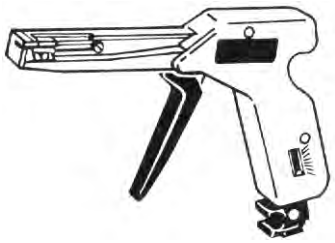
*Tie Cross Section: M = Miniature, I = Intermediate, S = Standard, H = Heavy

SPAENAUR No.

876-900

Hand-operated Cable Tie

INSTALLATION TOOL



Installs Miniature, Intermediate, and Standard Cable Ties

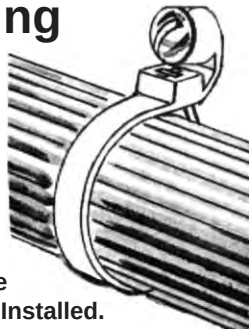
PRICED SINGLY

NATURAL COLOUR

Nylon Self-locking Cable Ties

With Flexible

Mounting Head



Speeds fastening of bundle to wall.

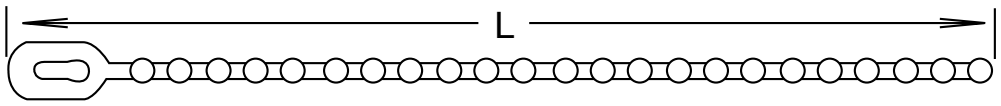
All ties can be Tool or Hand Installed.

SPAENAUR No.	Wire Bundle Range	Approx. O/A Length	Strap Thickness and Width	Screw OR Stud Size	Style	Pkg. Qty.
086-447	1/16" - 3/4"	4-3/8"	.038" x .087"	#4	Miniature	100
086-448	1/16" - 1-1/4"	6-3/8"	.045" x .140"	#8	Intermediate	100
086-450	1/16" - 1-3/4"	7-1/2"	.048" x .177"	#10	Standard	100
086-449	1/16" - 1-3/4"	8-1/2"	.048" x .177"	#10	Standard	100
086-451	3/16" - 4"	15-1/4"	.065" x .300"	1/4"	Heavy	50

Will meet all applicable Military Specifications.
General Specifications same as for Plain Head, shown on previous page.

G

BEADED TIES - NYLON AND HEAVY DUTY POLYETHYLENE



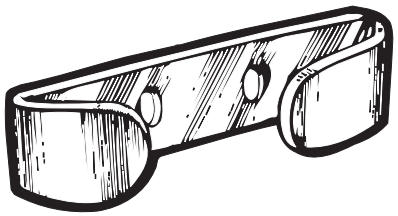
Unit Package Quantity 100 (One number)

Beaded Ties provide economical temporary or permanent bundling, harnessing, tagging and identification marking.

Their smooth, rounded configuration eliminates damage to wire and cable insulation.

Installation tools are not necessary and ties can be disassembled and reused.

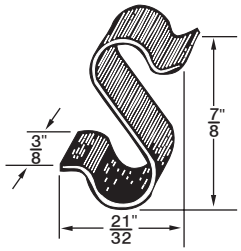
SPAENAUR No.	Description	Length	Max. Bundle Diameter	Max. Tensile Strength
086-429	White Nylon	4-1/4"	1-1/8"	35 lbs.
086-430	White Nylon	6"	1-3/4"	40 lbs.
086-431	White Nylon	8"	2-1/4"	40 lbs.
086-432	White Nylon	10"	3-5/16"	40 lbs.
086-433	Yellow Polyethylene	10"	3-5/16"	25 lbs.



HOSE BRACKET

***SPAENAUR No.* 699-100**

Overall length 4-1/2" x 1" high.
Will accommodate up to 1" hose O.D.
Made of Sheet Steel 1/8" thick - Zinc Plated
Unit Package 10



Unit Package 100

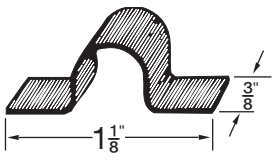
086-341
"S" TYPE, STEEL CLIP

For cable, tubing, or wiring applications.

Will secure .315/.325" dia. to .375/390" dia.

Material .020" thick.

Black, Phosphate & Oil Finish.



TO FIT 3/8" DIA. ROUND ROD

Unit Package 100

086-340
WELD-ON HANGER CLIP

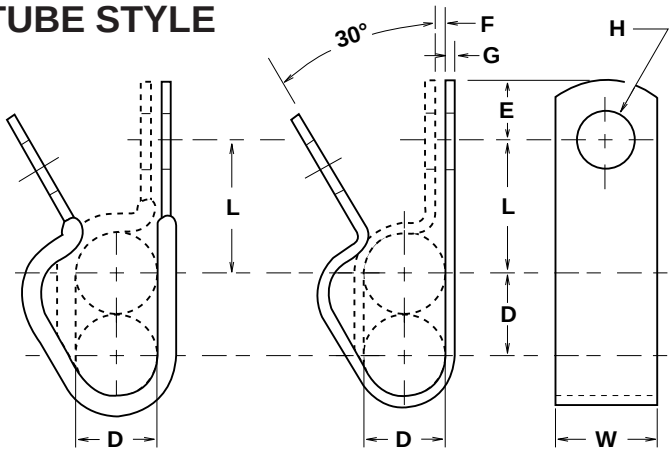
.012" Mild Steel
Plain Finish
Used in assembly line process.

CATALOG 13

More Cable Ties shown on page G25.

DOUBLE TUBE STYLE

INSULATED
with
Black P.V.C.
Plastic 1/32" Thick



MATERIAL - Steel, SCR, C-1010
FINISH - Zinc Plated or
Hot Dipped Galvanized Steel
our option.

CLOSED TYPE
Furnished Open

NOT INSULATED

UNIT PACKAGE 100 - ALL ITEMS ON THIS PAGE.

For inspection of these parts, close around mandrel the same size as inside dimensions of clamp.

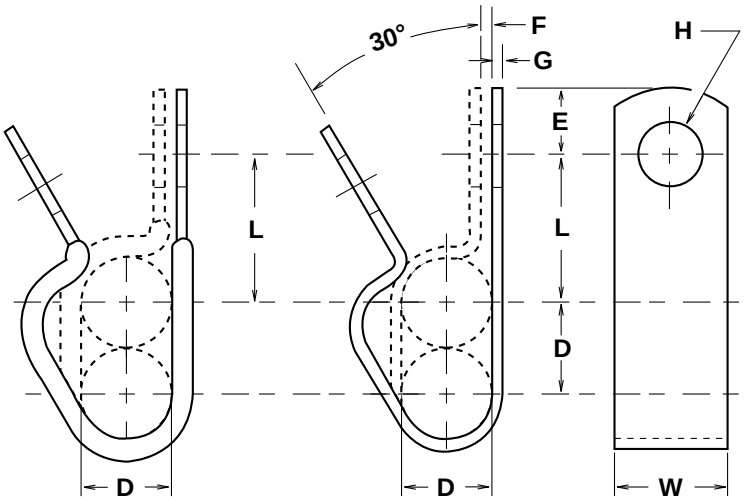
	INSULATED		NOT INSULATED						
D		L		L	H	W	E	F	G
Diameter of Tubes	*SPAENAUR No.*	Holes to Tube Centre	*SPAENAUR No.*	Holes to Tube Centre	Diameter of Holes	Steel Width	Hole Centre To End	Gap	Steel Gauge
3/16"	086-530	15/32"	086-471	7/16"	7/32"	1/2"	7/32"	1/32"	.032"
	086-531	1/2"	086-472	15/32"	9/32"	1/2"	1/4"	1/32"	.032"
	086-532	9/16"	086-473	17/32"	11/32"	5/8"	5/16"	1/32"	.032"
	086-533	5/8"	086-474	19/32"	13/32"	3/4"	3/8"	1/32"	.032"
1/4"	086-534	1/2"	086-475	15/32"	7/32"	1/2"	7/32"	1/32"	.032"
	086-535	17/32"	086-476	1/2"	9/32"	1/2"	1/4"	1/32"	.032"
	086-536	19/32"	086-477	9/16"	11/32"	5/8"	5/16"	1/32"	.032"
	086-537	21/32"	086-478	5/8"	13/32"	3/4"	3/8"	1/32"	.032"
5/16"	086-538	9/16"	086-479	17/32"	9/32"	1/2"	1/4"	1/32"	.032"
	086-539	5/8"	—	19/32"	11/32"	5/8"	5/16"	1/32"	.032"
	086-540	11/16"	086-481	21/32"	13/32"	3/4"	7/16"	1/32"	.032"
3/8"	086-541	19/32"	086-482	9/16"	9/32"	1/2"	1/4"	1/16"	.032"
	086-542	21/32"	086-483	5/8"	11/32"	5/8"	5/16"	1/16"	.032"
	086-543	23/32"	086-484	11/16"	13/32"	3/4"	3/8"	1/16"	.032"
	086-544	25/32"	086-485	3/4"	15/32"	7/8"	7/16"	1/16"	.032"
	086-545	27/32"	086-486	13/16"	17/32"	1"	1/2"	1/16"	.032"
7/16"	086-546	5/8"	086-487	19/32"	9/32"	1/2"	1/4"	1/16"	.032"
	086-547	11/16"	086-488	21/32"	11/32"	5/8"	5/16"	1/16"	.032"
	086-548	3/4"	086-489	23/32"	13/32"	3/4"	3/8"	1/16"	.032"
	086-549	13/16"	086-490	25/32"	15/32"	7/8"	7/16"	1/16"	.032"
	086-550	7/8"	086-491	27/32"	17/32"	1"	1/2"	1/16"	.032"
1/2"	086-551	21/32"	086-492	5/8"	9/32"	1/2"	1/4"	1/16"	.048"
	086-552	23/32"	086-493	11/16"	11/32"	5/8"	5/16"	1/16"	.048"
	086-553	25/32"	086-494	3/4"	13/32"	3/4"	3/8"	1/16"	.048"
	086-554	27/32"	086-495	13/16"	15/32"	7/8"	7/16"	1/16"	.048"
	086-555	29/32"	086-496	7/8"	17/32"	1"	1/2"	1/16"	.048"
9/16"	086-556	11/16"	086-497	21/32"	9/32"	1/2"	1/4"	1/16"	.048"
	086-557	3/4"	086-498	23/32"	11/32"	5/8"	5/16"	1/16"	.048"
	086-558	13/16"	086-499	25/32"	13/32"	3/4"	3/8"	1/16"	.048"
	086-559	7/8"	086-500	27/32"	15/32"	7/8"	7/16"	1/16"	.048"
	086-560	15/16"	086-501	29/32"	17/32"	1"	1/2"	1/16"	.048"

DOUBLE TUBE STYLE

MATERIAL - Steel, SCR, C-1010
FINISH - Zinc Plated
or
Hot Dipped
Galvanized Steel
our option.

INSULATED
with
Black P.V.C.
Plastic 1/32" Thick

Furnished "Open"



CLOSED TYPE
Furnished Open

NOT INSULATED

UNIT PACKAGE 50 - ALL ITEMS ON THIS PAGE.

For inspection of these parts, close around mandrel the same size as inside dimensions of clamp.

	INSULATED		NOT INSULATED						
D		L		L	H	W	E	F	G
Diameter of Tubes	*SPAENAUR No.*	Holes to Tube Centre	*SPAENAUR No.*	Holes to Tube Centre	Diameter of Holes	Steel Width	Hole Centre To End	Gap	Steel Gauge
5/8"	086-561	25/32"	086-502	3/4"	11/32"	5/8"	5/16"	1/16"	.048"
	086-562	27/32"	086-503	13/16"	13/32"	3/4"	3/8"	1/16"	.048"
	086-563	29/32"	086-504	7/8"	15/32"	7/8"	7/16"	1/16"	.048"
	086-564	31/32"	086-505	15/16"	17/32"	1"	1/2"	1/16"	.048"
11/16"	086-565	13/16"	086-506	25/32"	11/32"	5/8"	3/8"	1/16"	.048"
	086-566	7/8"	086-507	27/32"	13/32"	3/4"	3/8"	1/16"	.048"
	086-567	15/16"	086-508	29/32"	15/32"	7/8"	7/16"	1/16"	.048"
	086-568	1"	086-509	31/32"	17/32"	1"	1/2"	1/16"	.048"
3/4"	086-569	27/32"	086-510	13/16"	11/32"	5/8"	5/16"	1/16"	.048"
	086-570	29/32"	086-511	7/8"	13/32"	3/4"	3/8"	1/16"	.048"
	086-571	31/32"	086-512	15/16"	15/32"	7/8"	7/16"	1/16"	.048"
	086-572	1-1/32"	086-513	1"	17/32"	1"	1/2"	1/16"	.048"
13/16"	086-573	7/8"	086-514	27/32"	11/32"	5/8"	5/16"	1/16"	.060"
	086-574	15/16"	086-515	29/32"	13/32"	3/4"	3/8"	1/16"	.060"
	086-575	1"	086-516	31/32"	15/32"	7/8"	7/16"	1/16"	.060"
	086-576	1-1/16"	086-517	1-1/32"	17/32"	1"	1/2"	1/16"	.060"
7/8"	086-577	29/32"	086-518	7/8"	11/32"	5/8"	5/16"	1/16"	.060"
	086-578	31/32"	086-519	15/16"	13/32"	3/4"	3/8"	1/16"	.060"
	086-579	1-1/32"	086-520	1"	15/32"	7/8"	7/16"	1/16"	.060"
	086-580	1-3/32"	086-521	1-1/16"	17/32"	1"	1/2"	1/16"	.060"
15/16"	086-581	15/16"	086-522	29/32"	11/32"	5/8"	5/16"	1/16"	.060"
	086-582	1"	086-523	31/32"	13/32"	3/4"	3/8"	1/16"	.060"
	086-583	1-1/16"	086-524	1-1/32"	15/32"	7/8"	7/16"	1/16"	.060"
	086-584	1-1/8"	086-525	1-3/32"	17/32"	1"	1/2"	1/16"	.060"
1"	086-585	31/32"	086-526	15/16"	11/32"	5/8"	5/16"	1/16"	.060"
	086-586	1-1/32"	086-527	1"	13/32"	3/4"	3/8"	1/16"	.060"
	086-587	1-3/32"	086-528	1-1/16"	17/32"	1"	9/16"	1/16"	.060"
	086-588	1-5/32"	086-529	1-1/8"	17/32"	1"	1/2"	1/16"	.060"

STANDARD

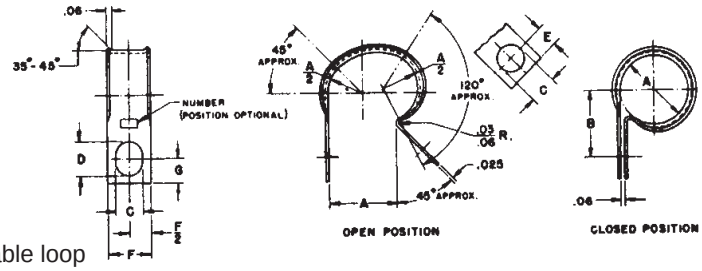
CABLE AND WIRE CLIPS

CLOSED TYPE - FURNISHED OPEN

LIGHT DUTY

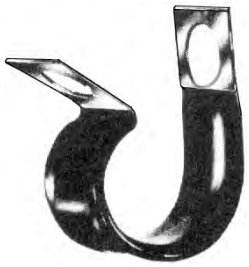
Material - S.A.E. 1010 1/4 hard C.R. Steel

Plating - Zinc (.0002")



Furnished as illustrated above, or insulated all around cable loop with approximately 1/32"-thick Black PVC plastic. PVC (Poly Vinyl Chloride) insulation has high dielectric, and is resistant to wear, weathering, gasolines, and most chemicals. *Capacity A is correct for Insulated and Non-insulated Clips as allowances have been compensated for in manufacturing.

SPAENAUR No. Non-insulated	*SPAENAUR No.* Insulated with P.V.C.	*CAPACITY A	BOLT SIZE	LENGTH Centre to Centre B	WIDTH F	UNIT PKG. QTY.
C-948	**C-948PC**	3/16"	1/4"	15/32"	1/2"	100
C-949	**C-949PC**	1/4"	1/4"	1/2"	1/2"	100
C-986 (Plain Steel)		1/4"	3/8"	19/32"	5/8"	100
C-950	**C-950PC**	5/16"	1/4"	17/32"	1/2"	100
C-951	**C-951PC**	3/8"	1/4"	9/16"	1/2"	100
C-952	**C-952PC**	7/16"	1/4"	19/32"	1/2"	100
C-953	**C-953PC**	1/2"	1/4"	5/8"	1/2"	100
C-954	**C-954PC**	9/16"	1/4"	21/32"	1/2"	100
C-955	**C-955PC**	5/8"	1/4"	11/16"	1/2"	100
C-956	**C-956PC**	3/4"	1/4"	3/4"	1/2"	50
C-957	**C-957PC**	7/8"	1/4"	13/16"	1/2"	50
C-958	**C-958PC**	1"	1/4"	7/8"	1/2"	50



SPAENAUR
CABLE CLIP
with 1/32"
PVC
Insulation

See also pages G30 and G31.

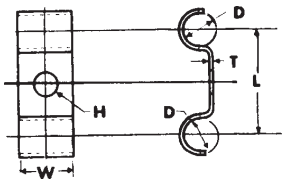
STANDARD

DOUBLE TUBE CLAMPS

OPEN TYPE

MEDIUM DUTY

STEEL - ZINC PLATED



SPAENAUR No.	INSIDE DIAMETER D	HOLE SIZE H	LENGTH C. to C. L	THICK-NESS T	WIDTH W	UNIT PKG. QTY.
C-962	3/16"	7/32"	7/8"	.050"	5/8"	100
C-1033	1/4"	9/32"	15/16"	.050"	5/8"	100
086-018	3/8"	.218"	1"	.060"	3/4"	100
086-001	3/8"	9/32"	1-1/4"	.050"	5/8"	100
C-1036	7/16"	11/32"	1-3/8"	.050"	3/4"	100
C-1037	1/2"	11/32"	1-5/8"	.062"	7/8"	100
C-1038	5/8"	13/32"	1-7/8"	.078"	7/8"	50
C-1039	3/4"	13/32"	2-1/8"	.097"	1"	50

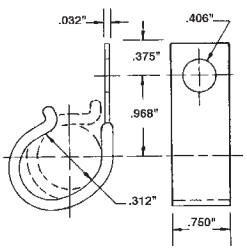
P.C. 086

"J" Clip Cable Clamp

OPEN STYLE
with P.V.C. Insulation

C-1008-1010 Steel
Zinc Plated

SPAENAUR No.
086-030

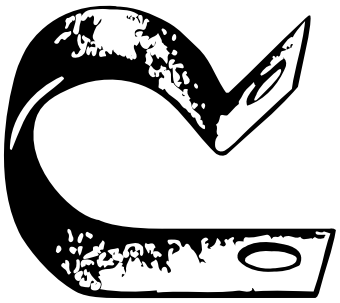


Unit Package 100

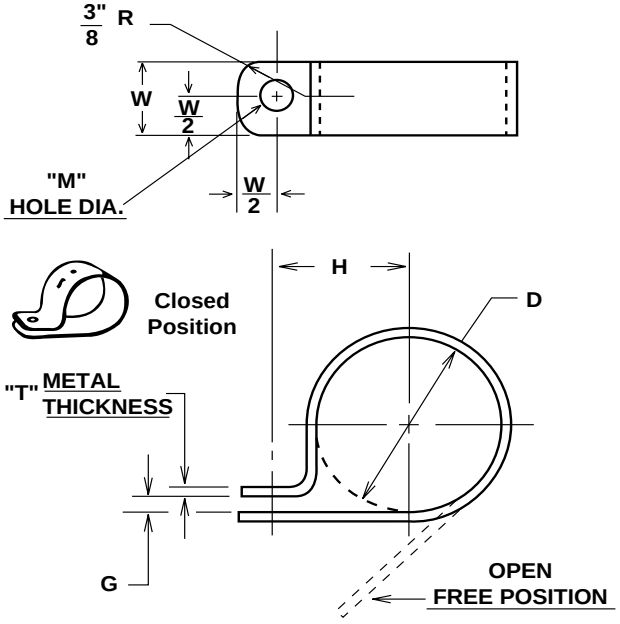
Lightweight — Uninsulated

TUBING CLAMPS

For Commercial use

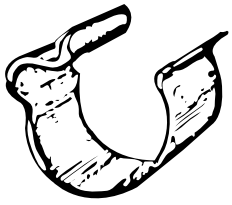


All Clamps Furnished "OPEN" as shown at right.



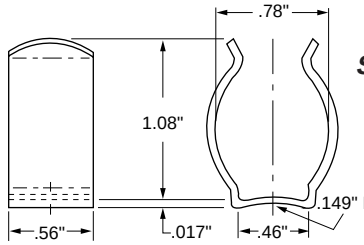
G

SPAENAUR No's.			METAL								
			Thickness T		Width	For Tube Dia.	Holes (2) to Tube centre		Holes (2) Dia.		
Pre-Galvanized STEEL	321 Stainless STEEL	Alum. ALLOY	STEEL	ALUM.	W	D	H	Gap. G	M	W/2	Unit Package Quantity
703-204	**703-802**		.031"	.032"	3/8"	1/4"	.360"	.031"	.199"	3/16"	100
703-206	**703-800**		.031"	.032"	3/8"	3/8"	.410"	.031"	.199"	3/16"	100
703-208	**703-801**		.031"	.032"	3/8"	1/2"	.470"	.031"	.199"	3/16"	100
703-210			.031"	.064"	3/8"	5/8"	.500"	.062"	.199"	3/16"	50
703-212			.031"	.064"	1/2"	3/4"	.720"	.062"	.199"	1/4"	50
703-216			.031"	.064"	1/2"	1"	.790"	.062"	.199"	1/4"	50
703-220			.031"	.064"	1/2"	1-1/4"	1.000"	.093"	.199"	1/4"	25
703-224			.031"	.064"	1/2"	1-1/2"	1.094"	.093"	.199"	1/4"	25
703-228			.031"	.064"	1/2"	1-3/4"	1.200"	.093"	.199"	1/4"	10
703-232			.031"	.064"	1/2"	2"	1.410"	.093"	.199"	1/4"	10



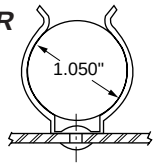
BOWDEN WIRE CLAMPS
SPRING STEEL — ZINC PLATED

SPAENAUR No.	Clamping Diameter	Unit Pkg.
086-434	7/8"	50
086-435	1"	50



TUBING CLAMP

SPAENAUR No.
C-1031



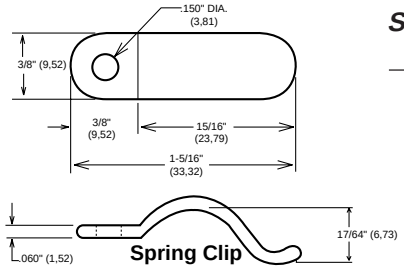
TYPICAL ASSEMBLY

Unit Package 100

Spring Steel - Heat Treated, Phosphate Oil Finish.

White
NYLON SPRING AND WIRE CLIP

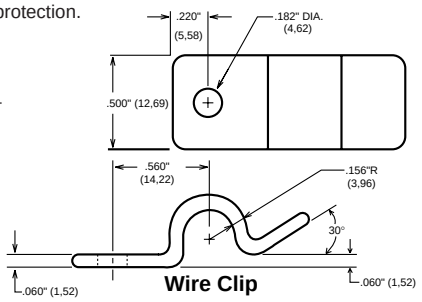
Spaenaur nylon Spring Clip and Wire Clip provide fast, secure assembly and routing of wires, standard round cable, flat cable and tubing. The Spring Clip can also be used to mount panels, glass, displays, or signs. To inspect, add or replace wires simply pull back clip to allow placement. The tough, flexible nylon clip will spring back to hold the material securely. All contact edges are rounded for product protection.



SPAENAUR No.	Description	Size
086-688	WIRE CLIP	1/2" x .312"
086-687	SPRING CLIP	3/8" x .132"

Unit Package 100

Inch
(millimetre)



CATALOG 13

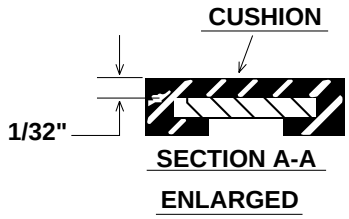
See page G32 for more Nylon Wiring Clips.

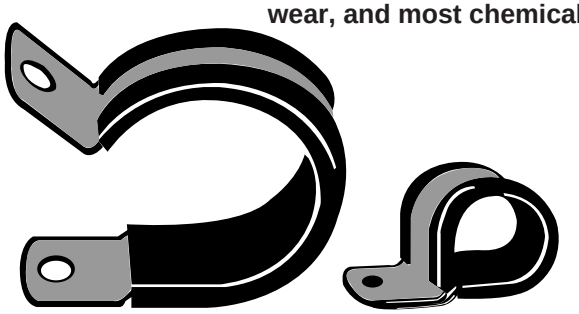
Lightweight - Insulated

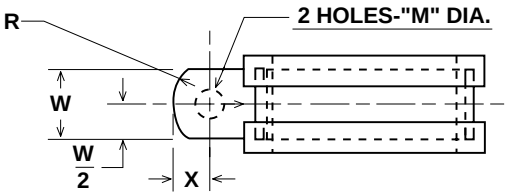
For

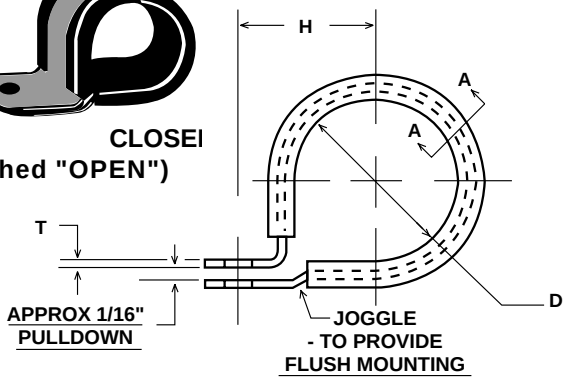
- ***INDUSTRIAL USE***
- ***AIR-CONDITIONING***
- ***AUTOMOTIVE***
- ***MARINE***

All clamps have uniform, 1/32" thick, grey, black or beige Polyvinyl Cushion (Temp. range - 25°F to +160°F.) **and are resistant to gasolines, weathering, wear, and most chemicals.**





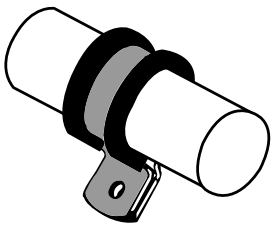




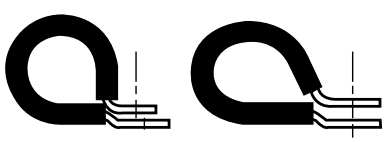
SPAENAUR No's. Pre-Galvanized STEEL	Metal Thick. T	Metal Width W	Tube Dia. D	Holes to Tube Centre H	Hole Dia. M	Dimensions W/2	Dimensions X	End Radius R	Unit Pkg. Qty.
703-003	.040"	1/2"	3/16"	.455"	.203"	1/4"	7/32"	3/8"	100
703-004	.040"	1/2"	1/4"	.486"	.203"	1/4"	7/32"	3/8"	100
703-005	.020"	1/2"	5/16"	.517"	.203"	1/4"	7/32"	3/8"	100
703-006	.040"	1/2"	3/8"	.548"	.203"	1/4"	7/32"	3/8"	100
703-007	.040"	1/2"	7/16"	.580"	.203"	1/4"	7/32"	3/8"	50
703-008	.040"	1/2"	1/2"	.611"	.203"	1/4"	7/32"	3/8"	50
703-009	.040"	1/2"	9/16"	.642"	.203"	1/4"	7/32"	3/8"	50
703-010	.040"	1/2"	5/8"	.673"	.203"	1/4"	7/32"	3/8"	50
703-011	.020"	1/2"	11/16"	.705"	.203"	1/4"	7/32"	3/8"	50
703-012	.040"	1/2"	3/4"	.736"	.203"	1/4"	7/32"	3/8"	50
703-013	.025"	1/2"	13/16"	.772"	.203"	1/4"	7/32"	3/8"	50
703-014	.025"	1/2"	7/8"	.803"	.203"	1/4"	7/32"	3/8"	50
703-015	.025"	1/2"	15/16"	.835"	.203"	1/4"	7/32"	3/8"	25
703-016	.025"	1/2"	1"	.866"	.203"	1/4"	7/32"	3/8"	25
703-018	.040"	1/2"	1-1/8"	.928"	.203"	1/4"	7/32"	3/8"	25
703-019	.025"	1/2"	1-3/16"	.960"	.203"	1/4"	7/32"	3/8"	25
703-020	.040"	1/2"	1-1/4"	.991"	.203"	1/4"	7/32"	3/8"	20
703-024	.040"	1/2"	1-1/2"	1.116"	.203"	1/4"	7/32"	3/8"	20
703-028	.032"	1/2"	1-3/4"	1.248"	.203"	1/4"	7/32"	3/8"	10
703-032	.054"	1/2"	2"	1.313"	.203"	1/4"	7/32"	3/8"	10

All clamps furnished “Open”

Three things to watch!



1. To properly inspect a clip or clamp, it should be installed on a bar or tube having an outside diameter equal to that of the tube or cable to be supported. Following this procedure, the bolt holes will align. When the two ends are pulled together to the applicable gap shown on the drawing, all other dimensions will then be within tolerance.



2. Closing ends without first inserting tube or bar of proper diameter, holes do not align.

3. Closing ends without first inserting tube or bar of proper diameter, but forcing holes to align, an elliptical shape results.

See also page G29.

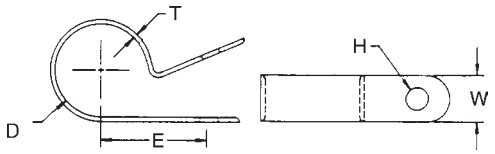
NYLON because it's tough; resilient; light-weight; resistant to aging and most chemicals; excellent insulation.

6/6 NYLON
(Natural)

Two Materials
to meet ***your*** *needs*

PROPIONATE
(Propionate will be discontinued when present stock is sold.)

Smoke tinted or clear, at our option.



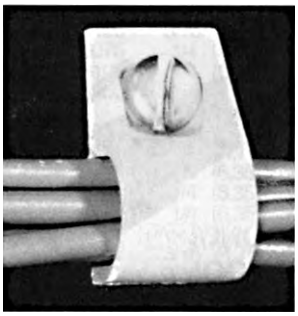
CABLE CLAMPS

SPAENAUR No. NYLON WHITE	BLACK	PROPIONATE	All Dimensions Shown in Inches. D	E	T	W	H	PKG. QTY.
086-660	–	–	1/8	.315	.050	1/2	13/64	100
086-661	–	–	3/16	.425	.050	1/2	13/64	100
086-662	086-662BK	–	1/4	.410	.050	1/2	13/64	100
086-663	086-663BK	–	5/16	.500	.050	1/2	13/64	100
086-664	086-664BK	–	3/8	.530	.050	1/2	13/64	100
086-047	–	–	7/16	.574	.050	3/8	13/64	100
086-665	–	–	7/16	.560	.050	1/2	13/64	100
086-666	086-666BK	–	1/2	.595	.050	1/2	13/64	100
086-667	–	–	9/16	.606	.050	1/2	13/64	100
086-668	086-668BK	–	5/8	.665	.050	1/2	13/64	100
086-669	–	–	11/16	.755	.050	1/2	13/64	100
086-670	086-670BK	–	3/4	.780	.050	1/2	13/64	100
086-671	–	–	7/8	.845	.050	1/2	13/64	100
086-672	–	C-1008	1	.910	.050	1/2	13/64	50
086-673	–	C-1009	1-1/8	.970	.050	1/2	13/64	50
086-674	–	–	1-3/16	1.000	.050	1/2	13/64	50
086-675	–	–	1-1/4	1.060	.050	1/2	13/64	50
086-676	–	C-1012	1-3/8	1.125	.050	1/2	13/64	50
086-677	–	C-1013	1-1/2	1.190	.050	1/2	13/64	50

TYPE 6/6

NYLON HEAVY-DUTY CABLE CLIPS

NATURAL COLOUR

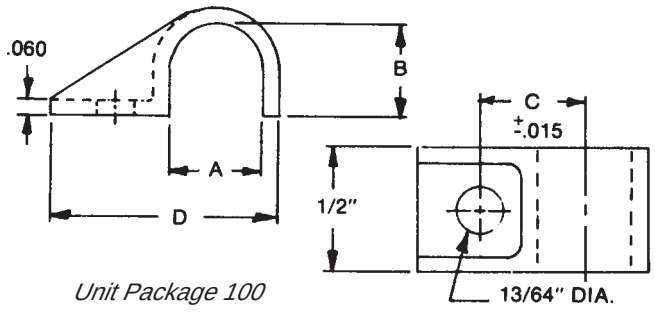


Nylon Heavy-Duty Cable Clamps are designed for cable and wire applications involving greater than usual loads or connections of critical nature.

The rugged clip has reinforced side flanges for additional strength and rigidity. Compact design allows this clip to be used on corners, edges, or where space is limited. Clip has hole for screw mounting.

Available in size range for 1/8" to 1/2" diameter cable.

GOOD ELECTRICAL INSULATION.



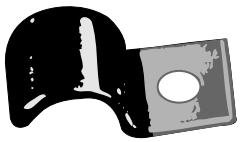
Unit Package 100

SPAENAUR No.	Description	Dimensions in Inches A	B	C	D
086-680	1/8" Hvy.-duty Clip	.115	.115	.307	.675
086-681	3/16" Hvy.-duty Clip	.172	.172	.328	.732
086-682	1/4" Hvy.-duty Clip	.234	.234	.366	.793
086-683	5/16" Hvy.-duty Clip	.297	.297	.400	.859
086-684	3/8" Hvy.-duty Clip	.359	.359	.430	.910
086-685	7/16" Hvy.-duty Clip	.422	.422	.460	.980
086-686	1/2" Hvy.-duty Clip	.484	.484	.492	1.044

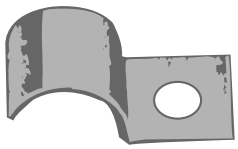
"HALF" CLIPS

MATERIAL — Steel, SCR, C-1010

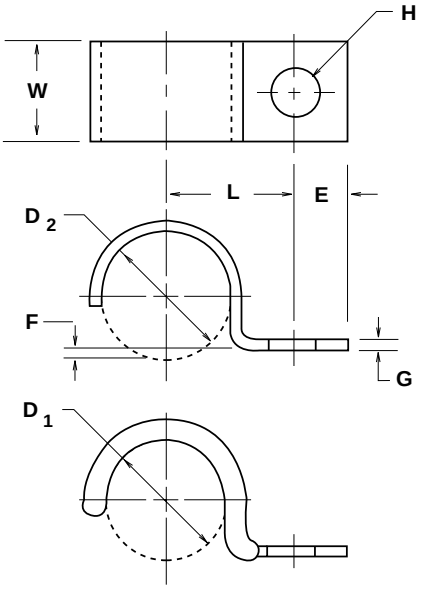
FINISH — Zinc Plated or Hot Dipped Galvanized Steel - our option



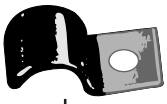
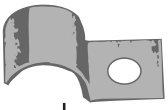
CUSHION—Black Vinyl, (P.V.C.) 1/32" Thick



NOT CUSHIONED



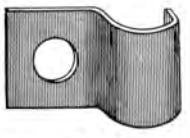
EXCEPT FOR CLAMPING DIAMETER, DIMENSIONS OF CUSHIONED AND PLAIN PARTS ARE IDENTICAL

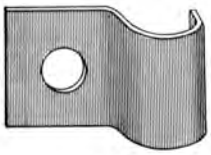
CUSHIONED (Insulated)		NOT CUSHIONED (Non-insulated)		*UNIT PACKAGE 50*					
				H	L	W	E	F	G
D-1 Clamping Diameter	*SPAENAUR No.*	D-2 Clamping Diameter	*SPAENAUR No.*	Diameter of Hole	Centre to Centre	Width	Hole Centre to End	Gap	Gauge
—	—	3/16"	**086-589**	7/32"	7/16"	1/2"	1/4"	1/32"	.032"
3/16"	**086-599**	1/4"	**086-590**	7/32"	7/16"	1/2"	1/4"	1/16"	.032"
1/4"	**086-600**	5/16"	**C-621**	7/32"	1/2"	1/2"	1/4"	1/16"	.048"
5/16"	**086-601**	3/8"	**C-622**	7/32"	17/32"	5/8"	5/16"	1/16"	.048"
	086-602		**086-591**	9/32"	17/32"	5/8"	5/16"	1/16"	.048"
3/8"	**086-603**	7/16"	**086-592**	7/32"	9/16"	5/8"	5/16"	1/16"	.048"
	086-604		**C-623**	9/32"	9/16"	5/8"	5/16"	1/16"	.048"
7/16"	**086-605**	1/2"	**086-593**	7/32"	5/8"	5/8"	5/16"	1/16"	.060"
	086-606		**C-624**	9/32"	5/8"	5/8"	5/16"	1/16"	.060"
1/2"	**086-607**	9/16"	**086-594**	7/32"	11/16"	5/8"	5/16"	1/16"	.060"
	086-608		**C-625**	9/32"	11/16"	5/8"	5/16"	1/16"	.060"
9/16"	**086-609**	5/8"	**C-626**	7/32"	3/4"	5/8"	5/16"	1/16"	.060"
	086-610		**C-627**	9/32"	3/4"	5/8"	5/16"	1/16"	.060"
5/8"	**086-611**	11/16"	**086-595**	7/32"	13/16"	5/8"	5/16"	1/16"	.060"
	086-612		**086-596**	9/32"	13/16"	5/8"	5/16"	1/16"	.060"
11/16"	**086-613**	3/4"	**086-597**	7/32"	13/16"	5/8"	5/16"	1/16"	.060"
	086-614		**C-628**	9/32"	13/16"	5/8"	5/16"	1/16"	.060"
3/4"	**086-615**	13/16"	**086-598**	7/32"	7/8"	5/8"	5/16"	1/16"	.060"
	086-616		—	9/32"	7/8"	5/8"	5/16"	1/16"	.060"

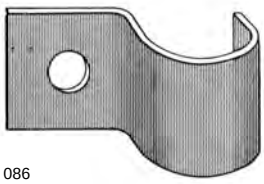
STANDARD TUBE CLAMPS

OPEN TYPE — MEDIUM DUTY

Zinc Plated STEEL
(*Zinc or Cad plated, our option)


C-621


C-622


C-626

UNIT PACKAGE 50 ONLY

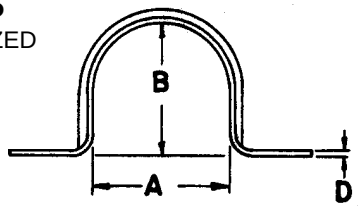
P.C. 086

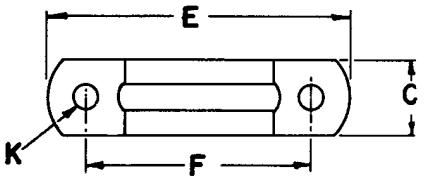
SPAENAUR No.	TO FIT CABLE DIA.	WIDTH	LENGTH OVER-ALL	HOLE DIA.	THICKNESS OF STEEL
***C-1021**	1/8"	3/8"	5/8"	.169"	.031"
R-306	3/16"	3/8"	13/16"	7/32"	.035"
R-307	1/4"	3/8"	3/4"	5/32"	.035"
R-307A	1/4"	1/2"	7/8"	7/32"	.035"
C-621	5/16"	1/2"	31/32"	7/32"	.048"
C-622	3/8"	5/8"	1-3/32"	7/32"	.050"
C-623	7/16"	5/8"	1-5/32"	9/32"	.050"
R-308	1/2"	3/8"	1"	5/32"	.033"
C-624	1/2"	5/8"	1-7/32"	9/32"	.060"
C-625	9/16	5/8"	1-9/32"	9/32"	.060"
C-626	5/8"	5/8"	1-3/8"	7/32"	.060"
C-627	5/8"	5/8"	1-3/8"	9/32"	.060"
C-628	3/4"	5/8"	1-9/16"	9/32"	.060"

G

PIPE and ROMEX STRAPS

2-HOLE TYPE STEEL—PRE-GALVANIZED





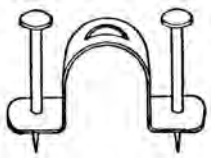
E.M.T.—Electric Metallic Tubing or Thinwall Conduit.
I.P.S.—Iron Pipe Size or Rigid Conduit.

No sharp edges.
Pipe or conduit size stamped on each strap.

Pipe or Conduit Size	*SPAENAUR No.*	A	B	C	D	E	F	K	Unit Pkg. Quantity
Romex	**C-772**	.406"	.375"	5/8"	.028"	1-5/8"	1-3/16"	3/16"	100
1/4" I.P.S. & BX	**C-773**	.540"	.510"	5/8"	.029"	1-7/8"	1-1/4"	3/16"	100
3/8" I.P.S.	**C-775**	.675"	.645"	5/8"	.029"	2-1/32"	1-13/32"	3/16"	100
1/2" E.M.T.	**C-776**	.706"	.676"	5/8"	.029"	2-1/16"	1-7/8"	3/16"	50
1/2" I.P.S.	**C-777**	.840"	.810"	5/8"	.029"	2-7/16"	1-11/16"	3/16"	50
3/4" E.M.T.	**C-778**	.922"	.892"	3/4"	.035"	2-3/4"	1-7/8"	17/64"	50
3/4" I.P.S.	**C-779**	1.050"	1.020"	3/4"	.035"	2-7/8"	2-3/32"	17/64"	50
1" E.M.T.	**C-780**	1.164"	1.134"	3/4"	.035"	3-1/16"	2-19/64"	17/64"	25
1" I.P.S.	**C-781**	1.315"	1.285"	3/4"	.035"	3-9/64"	2-25/64"	17/64"	25
1-1/4" E.M.T.	**C-782**	1.510"	1.480"	7/8"	.048"	3-1/2"	2-5/8"	17/64"	25
1-1/4" I.P.S.	**C-783**	1.660"	1.630"	7/8"	.048"	4-11/16"	3-1/4"	17/64"	25
1-1/2" I.P.S.	**C-941**	1.900"	1.850"	1-1/4"	.062"	4-5/8"	3-17/64"	17/64"	25
2" I.P.S.	**C-942**	2.375"	2.325"	1-1/4"	.062"	5"	4-21/64"	17/64"	25
2-1/2" I.P.S.	**C-943**	2.875"	2.825"	1-1/4"	.062"	5"	4-5/8"	17/64"	10
3" I.P.S.	**C-944**	3.50"	3.450"	1-1/4"	.062"	6-3/8"	5-13/16"	17/64"	10
3-1/2" I.P.S.	**C-945**	4.00"	3.950"	1-1/4"	.062"	6-7/16"	5-13/16"	17/64"	10
4" I.P.S.	**C-946**	4.50"	4.450"	1-1/4"	.062"	6-5/8"	6"	17/64"	10

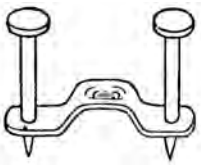
"NAILON" CABLE STRAPS

Pre-assembled, Aluminum Straps and Nails
For supporting Electrical Cable.
Patented and C.S.A. approved.



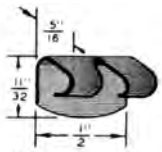
C-768
For 14/2, 14/3, 12/2
Flex, Armoured Cable
Unit Pkg. 50

"REAL TIME-SAVERS"



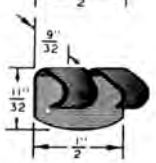
C-769
For 14/2, 12-2
Non-Metallic Cable
Unit Pkg. 50

Unit Package 100 (One Number)



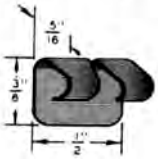
No. C-789
Fits pint (American Can Co.)
Fits 1/2 pint (Continental Can)

Approved by Canadian Postmaster General.



No. C-790
Fits 1/2 pint (American Can)
Fits quart (Continental Can)
Fits 1 litre

Makes lids secure despite roughest handling.

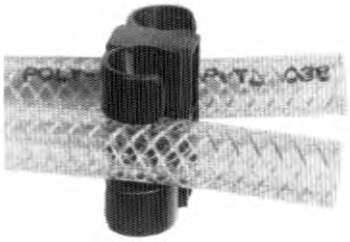


No. C-791
Fits gallon (American Can Co.)
Fits gallon (Continental Can)
Fits 4 litre

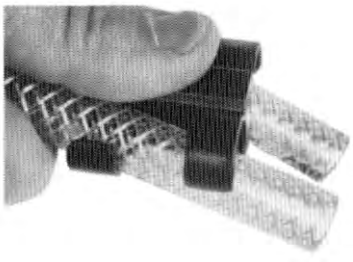
CATALOG 13

T-CLIPS Fastening System

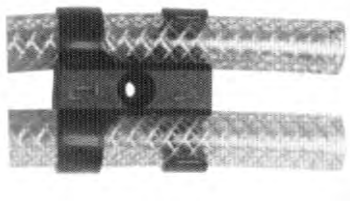
For fast, easy securing and routing of dual run wire, tubing, hose, pipe conduit, BX, etc.



1. Place open sides of T-Clip between tubes.



2. Snap T-Clip onto tubes with a quick quarter-turn.



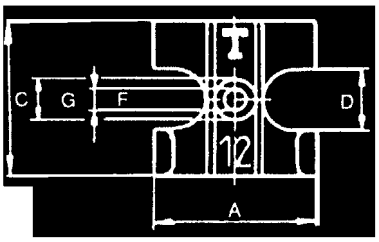
3. T-Clip is ready for mounting with tubes held in a uniform spacing.

T-Clips provide a quick, adaptable and inexpensive answer to securing, attaching, and routing of tubes, wires, hose and pipe. They are not only easy to use by the most inexperienced personnel, but allow your installations to look extremely neat and professional. T-Clips provide an exact, uniform spacing to dual runs, and can be mounted on walls, cabinets, boards, enclosures, and bulkheads. T-Clips are available in a wide range of sizes to fit almost any circular-sectioned item. A countersunk centre hole is provided in each T-Clip for the fastener of your choice.

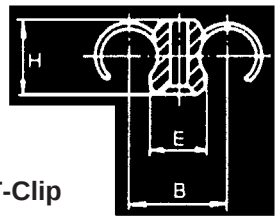
Many commercial applications, such as the installations of hydraulic hoses, electrical conduits and wires, telephone and fibre optics, liquid and gas tubings and pipes, and automotive hoses, can benefit from the ease of installation, safety, and the final appearance of the job.

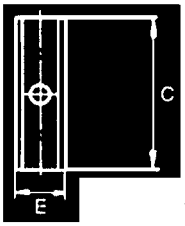
Spacers for T-Clips from 086-102 to 086-107 allow for additional spacing between the mounting face and the items to be secured. As many spacers as necessary to provide required clearance can be used as the design allows stacking.

T-Clips and Spacers must be ordered separately.



T-Clip



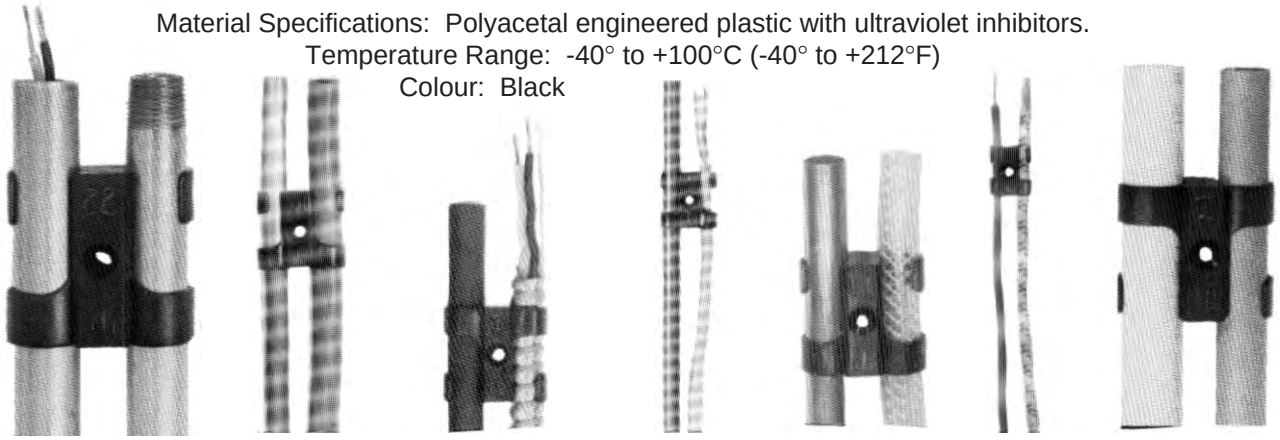


Spacer

*.25" for 086-113

SPAENAUR No.		Holding	All dimensions in Inches								UNIT
T-Clip	Spacer	Range	A	B	C	D	E	F	G	H	PKG.
086-100	**-**	5/32 - 1/4"	.60	.40	.70	.24	.28	.12	.25	.36	50
086-101	**-**	1/4 - 5/16"	.80	.48	.80	.32	.32	.12	.26	.36	50
086-102	**086-108**	5/16 - 3/8"	1.00	.60	.96	.40	.40	.16	.32	.48	50
086-103	**086-109**	3/8 - 1/2"	1.20	.74	1.10	.47	.44	.16	.32	.57	50
086-104	**086-110**	1/2 - 5/8"	1.36	.82	1.33	.56	.46	.17	.36	.64	50
086-105	**086-111**	5/8 - 3/4"	1.68	1.04	1.61	.68	.56	.20	.40	.80	50
086-106	**086-112**	3/4 - 7/8"	2.20	1.24	1.88	.78	.64	.22	.44	.92	25
086-107	**086-113**	7/8 - 1"	2.48	1.56	2.40	.92	.80	.25	.50	1.10	25

Material Specifications: Polyacetal engineered plastic with ultraviolet inhibitors.
Temperature Range: -40° to +100°C (-40° to +212°F)
Colour: Black



A COMPLETE LINE of braided sleevings designed to offer maximum protection, design flexibility and return-on-investment for all your sleeving applications.

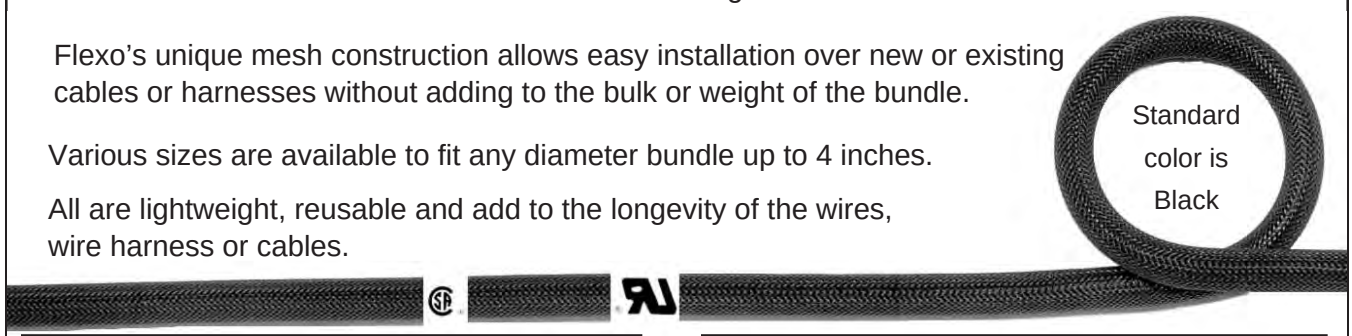
FLEXIBILITY

FLEXO expandable monofilament sleevings are designed for bundling and protecting hoses, cables and wire harnesses from abrasion and damage in both routine and extreme conditions.

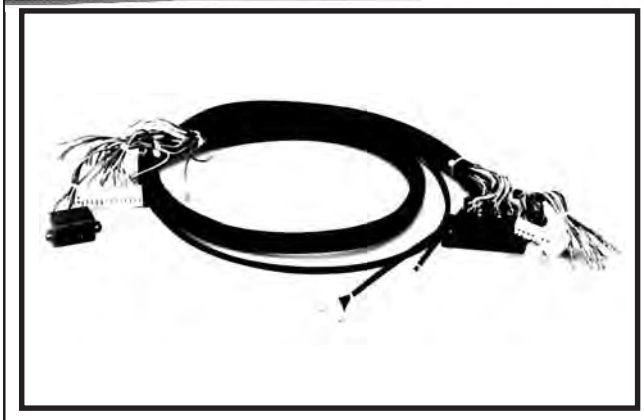
Flexo's unique mesh construction allows easy installation over new or existing cables or harnesses without adding to the bulk or weight of the bundle.

Various sizes are available to fit any diameter bundle up to 4 inches.

All are lightweight, reusable and add to the longevity of the wires, wire harness or cables.



G



Grade PET Standard

Braided from .010" polyester monofilament yarns with a continuous operating temperature of 125°C. Commonly used in electronics and industrial applications where economy and durability are involved.

SPAENAUR No.	Dimensions in Inches Nom. Dia.	Min. Dia.	Max. Dia.	Weight Lbs./ 100 Ft.	U.P.Q. Feet/ Spool
810-011	1/8	3/32	1/4	.16	1,000
810-012	1/4	1/8	7/16	.24	1,000
810-013	1/2	1/4	3/4	.77	500
810-014	3/4	1/2	1-1/4	1.20	250
810-015	1-1/4	3/4	1-3/4	1.60	250
810-030	1-1/2	1	2-1/2	1.96	200
810-016	1-3/4	1-1/4	2-3/4	2.70	200
810-017	2	1-1/2	3-1/2	3.30	200
810-018	2-1/2	1-3/4	4-1/2	3.80	200

Colour: Black

Grade FR Flame Retardant

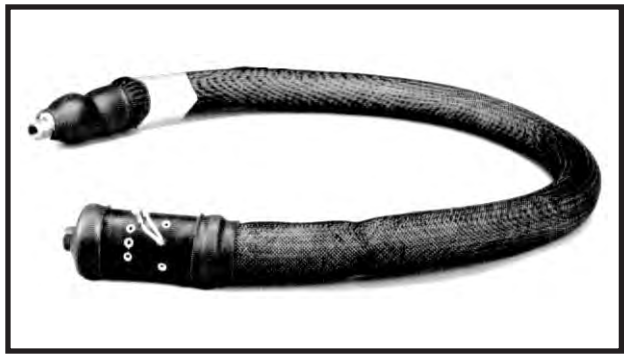
Braided from .010" flame retardant polyester yarn. Continuous operating temperature of 125°C. Commonly used in electronic and industrial applications where flammability and durability are involved.

SPAENAUR No.	Dimensions in Inches Nom. Dia.	Min. Dia.	Max. Dia.	Weight Lbs./ 100 Ft.	U.P.Q. Feet/ Spool
810-036	1/8	3/32	1/4	.16	1,000
810-037	1/4	1/8	7/16	.24	1,000
810-038	1/2	1/4	3/4	.77	500
810-039	3/4	1/2	1-1/4	1.20	250
810-040	1-1/4	3/4	1-3/4	1.60	250
810-041	1-3/4	1-1/4	2-3/4	2.70	200
810-042	2	1-1/2	3-1/2	3.30	200
810-043	2-1/2	1-3/4	4-1/2	3.80	200

Colour: Black/White tracer

Melt Temp: 250°C

CATALOG 13

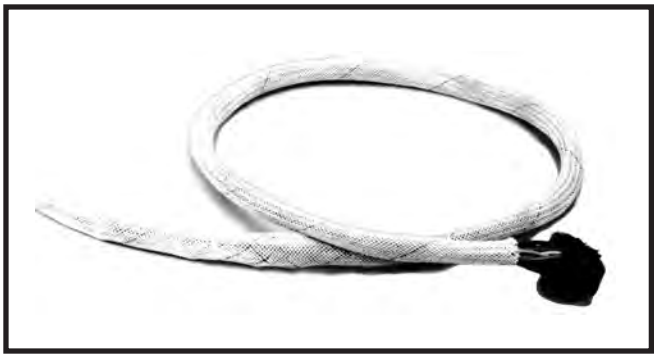


Grade HW Heavy Wall

Braided from .015" polyester monofilament yarn. Continuous operating temperature of 125°C. Commonly used in industrial applications where abrasion protection is critical.

SPAENAUR No.	Dimensions in Inches Nom. Dia.	Min. Dia.	Max. Dia.	**Weight** Lbs./ 100 Ft.	**U.P.Q.** Feet/ Spool
810-024	3/8	3/16	3/4	.82	500
810-025	5/8	5/16	1	1.1	500
810-026	1	1/2	1-1/2	1.6	250
810-027	1-1/2	3/4	2	2.5	250
810-028	2	1-1/2	3	3.4	200
810-029	3	2	4	4.2	200

Colour: Black



Grade HT Halar

Braided from .011" Halar (E-CTFE) fluoropolymer yarns. Because of its high temperature and flame retardant properties, and excellent chemical resistance, is commonly used in aerospace and vital military applications.

Grade HT is not currently stocked by *SPAENAUR,* but is available in nominal sizes of 1/8", 1/4", 3/8", 1/2", 3/4", 1-1/4", 1-3/4" and 2".

We invite your inquiries.

G

BENCH MOUNT HOT KNIFE

876-850

This tool enables the operator to draw the sleeving down across the knife blade - under tension. Both hands are then free to manipulate the sleeving and to seal and flare the ends.

APPROXIMATE SIZE: 6" height x 4" x 6-1/2" base.

Tool should be used in well ventilated area.

- *Warms up in less than 30 seconds.*
- *Will cut through a 1" nylon line in 10 seconds.*

INCH SIZES

LOW CARBON (1010) STEEL
ZINC PLATED FINISH

- **Reduce costs with BUTTite Rolled Spacers.**
- **Precision and uniformity allow trouble-free automated assembly.**
- **Consistent quality from run to run.**

NO BURRS . . .
Burr-free edges on O.D. and I.D. for smooth installation and scratch-free finishes.
SQUARE ENDS . . .
Specially designed equipment produces square ends for maximum bearing surface and stronger distortion-free assemblies.
Length Tolerance:
A = ±.005" **B** = ±.010" **C** = ±.015"
Intermediate lengths can be made to order in minimum quantity of 5000 pieces per item.

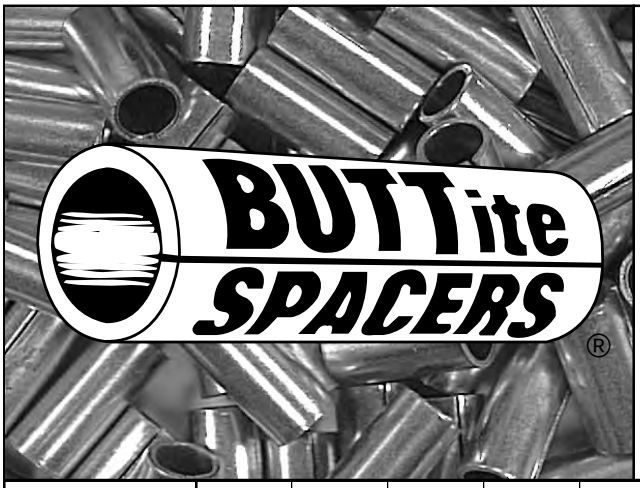
G

For BOLT SIZE		#4	#6	#8	#10	1/4"	5/16"	3/8"	7/16"	1/2"	5/8"	3/4"	7/8"	1"
I.D.	Min.	.118"	.144"	.172"	.198"	.260"	.322"	.385"	.449"	.512"	.637"	.767"	.892"	1.017"
	Max.	.124"	.150"	.180"	.206"	.268"	.332"	.395"	.464"	.532"	.657"	.792"	.922"	1.047"
Wall Thickness		.021"	.021"	.027"	.027"	.036"	.042"	.048"	.048"	.062"	.072"	.078"	.083"	.094"
O.D. Ref. only		.172"	.187"	.234"	.266"	.344"	.422"	.500"	.562"	.656"	.797"	.937"	1.062"	1.250"
Length		ORDER BY *SPAENAUR* NUMBERS LISTED BELOW												
3/16"			607-233											
1/4"		607-029	607-041	607-054										
5/16"		607-030	607-042	607-055	607-067									
3/8"		607-031	607-043	607-056	607-068	607-083								
13/32"							607-232							
7/16"		607-032	607-044	607-057	607-069	607-084	607-098							
1/2"		607-033	607-045	607-058	607-070	607-085	607-099	607-115						
5/8"		607-034	607-046	607-059	607-071	607-086	607-100	607-116	607-131	607-148				
3/4"		607-035	607-047	607-060	607-072	607-087	607-101	607-117	607-132	607-149	607-167			
7/8"		607-036	607-048	607-061	607-073	607-088	607-102	607-118	607-133	607-150	607-168	607-185		
1"		607-037	607-049	607-062	607-074	607-089	607-103	607-119	607-134	607-151	607-169	607-186	607-202	
1-1/8"		607-038	607-050	607-063	607-075	607-090	607-104	607-120	607-135	607-152	607-170	607-187	607-203	
1-1/4"		607-039	607-051	607-064	607-076	607-091	607-105	607-121	607-136	607-153	607-171	607-188	607-204	607-218
1-1/2"		607-040	607-052	607-065	607-077	607-092	607-106	607-122	607-137	607-154	607-172	607-189	607-205	607-219
1-3/4"			607-053	607-066	607-078	607-093	607-107	607-123	607-138	607-155	607-173	607-190	607-206	607-220
1-7/8"					607-079	607-094	607-108	607-124	607-139	607-156	607-174	607-191	607-207	607-221
2"					607-080	607-095	607-109	607-125	607-140	607-157	607-175	607-192	607-208	607-222
2-1/8"					607-081	607-096	607-110	607-126	607-141	607-158	607-176	607-193	607-209	607-223
2-1/4"					607-082	607-097	607-111	607-127	607-142	607-159	607-177	607-194	607-210	607-224
2-1/2"							607-112	607-128	607-143	607-160	607-178	607-195	607-211	607-225
2-3/4"							607-113	607-129	607-144	607-161	607-179	607-196	607-212	607-226
3"							607-114	607-130	607-145	607-162	607-180	607-197	607-213	607-227
3-1/4"									607-146	607-163	607-181	607-198	607-214	607-228
3-1/2"									607-147	607-164	607-182	607-199	607-215	607-229
3-3/4"										607-165	607-183	607-200	607-216	607-230
4"										607-166	607-184	607-201	607-217	607-231

UNIT PACKAGE QUANTITIES: Lengths up to 3/8" inclusive - 100 13/32" to 5/8" inclusive - 50 Over 5/8" - 25

CATALOG

CATALOG 13



METRIC SIZES
LOW CARBON (1010) STEEL
ZINC PLATED FINISH

- **Reduce costs with BUTTite Rolled Spacers.**
- **Precision and uniformity allow trouble-free automated assembly.**
- **Consistent quality from run to run.**

NO BURRS . . .
Burr-free edges on O.D. and I.D. for smooth installation and scratch-free finishes.
SQUARE ENDS . . .
Specially designed equipment produces square ends for maximum bearing surface and stronger distortion-free assemblies.
Length Tolerance:
A = ±0.15 mm **B** = ±0.25 mm **C** = ±0.4 mm ✱ = ±0.5 mm
Intermediate lengths can be made to order in minimum quantity of 5000 pieces per item.

FOR BOLT SIZE		M3	M3.5	M4	M5	M6	M6.3	M8	M10	M12	M14	M16	M20
I.D.	Min.	3.15	3.65	4.15	5.20	6.20	6.60	8.20	10.20	12.25	14.25	16.25	20.40
	Max.	3.30	3.80	4.30	5.40	6.40	6.80	8.50	10.50	12.70	14.80	16.80	21.00
Wall Thickness		0.5	0.5	0.7	0.7	0.9	0.9	1.1	1.2	1.6	1.6	1.8	2.0
O.D. Ref. Only		4.4	4.9	5.8	6.9	8.2	8.6	10.7	13.0	15.9	18.4	20.4	25.0

Length (mm)	*SPAENAUR* NUMBERS											
6	607-250	607-269	607-288	607-314	607-340	607-366	*UNIT PACKAGE 50*				*UNIT PACKAGE 25*	
8	607-251		607-289	607-315	607-341	607-367						
10	607-252	607-271	607-290	607-316	607-342	607-368	607-393	607-420				
12	607-253	607-272	607-291	607-317	607-343	607-369	607-394	607-421	607-446			
14	607-254	607-273	607-292	607-318	607-344	607-370	607-395	607-422	607-447			
16	607-255	607-274	607-293	607-319	607-345	607-371	607-396	607-423	607-448	607-471	607-483	
18	607-256	607-275	607-294	607-320	607-346	607-372	607-397	607-424	607-449			
20	607-257	607-276	607-295	607-321	607-347	607-373	607-398	607-425	607-450	607-472	607-484	607-495
22	607-258	607-277	607-296	607-322	607-348	607-374	607-399	607-426	607-451			
24	607-259	607-278	607-297	607-323	607-349	607-375		607-427	607-452		607-485	607-496
26	607-260	607-279	607-298	607-324	607-350	607-376	607-401	607-428	607-453			
28	607-261	607-280	607-299	607-325	607-351	607-377	607-402	607-429	607-454	607-474	607-486	607-497
30	607-262	607-281	607-300	607-326	607-352	607-378	607-403	607-430	607-455			
35	607-263	607-282	607-301	607-327			607-404	607-431	607-456	607-475	607-487	607-498
40	607-264	607-283	607-302	607-328	607-354	607-380	607-405	607-432	607-457			
45	607-265	607-284	607-303	607-329	607-355	607-381	607-406	607-433	607-458	607-476	607-488	
50	607-266	607-285	607-304	607-330	607-356	607-382	607-407	607-434	607-459			
55	607-267	607-286	607-305	607-331	607-357	607-383	607-408	607-435	607-460	607-477	607-489	
60	607-268	607-287	607-306	607-332	607-358	607-384	607-409	607-436	607-461			
65	*Other lengths furnished 'to order' in lots of 5,000 or more, per size*		607-307	607-333	607-359	607-385	607-410	607-437	607-462	607-478	607-490	607-500
70			607-308	607-334	607-360	607-386	607-411	607-438	607-463			
75			607-309	607-335	607-361	607-387	607-412	607-439	607-464	607-479	607-491	
80			607-310	607-336	607-362	607-388	607-413	607-440	607-465			
85			607-311	607-337	607-363	607-389	607-414	607-441	607-466	607-480	607-492	607-501
90			607-312	607-338	607-364	607-390	607-415	607-442	607-467			
95			607-313	607-339	607-365	607-391	607-416	607-443	607-468	607-481	607-493	
100	*UNIT PACKAGE 100*				607-418	607-392	607-417	607-444	607-469			
120							607-419	607-445	607-470	✱607-482	✱607-494	✱607-502

ASSORTMENT 805-634
ASSORTIMENT

STEEL Zinc Plated
48 Sizes - 715 Pieces, Metric Buttite Spacers (as above)
(For bolt sizes M3 dia. x 6 mm to M6 dia. x 85 mm)
Just the thing for Model Design & Prototype work.

ASSORTMENT 805-635
ASSORTIMENT
Large Size Drawers 18" x 12" x 3"

STEEL Zinc Plated
48 Sizes - 510 Pieces, Metric Buttite Spacers
(For bolt sizes M6.3 dia. x 10 mm to M16 dia. x 75 mm)
Steel Drawers Fit Slide Racks shown on page A3.

ALUMINUM SPACERS

Aluminum Alloy 2011T3 • Plain Finish

G

ROUND TUBULAR (Not tapped)

Unit Package 50		3/16" O.D.		1/4" O.D.			5/16" O.D.
	INSIDE DIA.	**No.2** (.093")	**No.4** (.115")	**No.4** (.115")	**N0.6** (.140")	**N0.8** (.171")	**No.10** (.192")
	LENGTH	**ORDER BY *SPAENAUR* NUMBERS LISTED BELOW**					
	.125"	**608-168**	**608-016**	**608-031**	**608-046**	**608-061**	**608-076**
	.187"	**608-169**	**608-017**	**608-032**	**608-047**	**608-062**	**608-077**
	.250"	**608-170**	**608-018**	**608-033**	**608-048**	**608-063**	**608-078**
	.312"	**608-171**	**608-019**	**608-034**	**608-049**	**608-064**	**608-079**
	.375"	**608-005**	**608-020**	**608-035**	**608-050**	**608-065**	**608-080**
	.437"	**608-006**	**608-021**	**608-036**	**608-051**	**608-066**	**608-081**
	.500"	**608-007**	**608-022**	**608-037**	**608-052**	**608-067**	**608-082**
	.562"	**608-008**	**608-023**	**608-038**	**608-053**	**608-068**	**608-083**
	.625"	**608-009**	**608-024**	**608-039**	**608-054**	**608-069**	**608-084**
	.687"	**608-010**	**608-025**	**608-040**	**608-055**	**608-070**	**608-085**
	.750"	**608-011**	**608-026**	**608-041**	**608-056**	**608-071**	**608-086**
	.812"	**608-012**	**608-027**	**608-042**	**608-057**	**608-072**	**608-087**
	.875"	**608-013**	**608-028**	**608-043**	**608-058**	**608-073**	**608-088**
	.937"	**608-014**	**608-029**	**608-044**	**608-059**	**608-074**	**608-089**
	1.000"	**608-015**	**608-030**	**608-045**	**608-060**	**608-075**	**608-090**
	1.500"	—	—	—	**608-196**	—	—

ROUND THREADED

* Round and hex threaded spacers are tapped through on lengths up to 1". Over 1" lengths are tapped 3/8" from each end or through, at our option.

	1/4" O.D.			5/16" O.D.
	THREAD SIZE*			
LENGTH	**4-40**	**6-32**	**8-32**	**10-32**
.125"	**608-091**	**608-101**	**608-111**	**608-121**
.187"	—	—	—	**608-122**
.250"	**608-092**	**608-102**	**608-112**	**608-123**
.312"	—	—	—	**608-124**
.375"	**608-093**	**608-103**	**608-113**	**608-125**
.437"	—	—	—	**608-126**
.500"	**608-094**	**608-104**	**608-114**	**608-127**
.562"	—	—	—	**608-128**
.625"	**608-095**	**608-105**	**608-115**	**608-129**
.687"	—	—	—	**608-130**
.750"	**608-096**	**608-106**	**608-116**	▲**608-131**
.875"	**608-097**	**608-107**	**608-117**	—
1.000"	**608-098**	**608-108**	**608-118**	—
1.250"	**608-099**	**608-109**	**608-119**	—
1.500"	**608-100**	**608-110**	**608-120**	—

Normal Commercial Tolerance, all sizes.

▲Threads not subject to normal gauging.

HEX THREADED

1/4" O.D.

(Across Flats)

	Thread Size *		
LENGTH	**4-40**	**6-32**	**8-32**
.125"	**608-132**	**608-144**	**608-156**
.250"	**608-133**	**608-145**	**608-157**
.375"	**608-134**	**608-146**	**608-158**
.500"	**608-135**	**608-147**	**608-159**
.625"	**608-136**	**608-148**	**608-160**
.750"	**608-137**	**608-149**	**608-161**
.875"	**608-138**	**608-150**	**608-162**
1.000"	**608-139**	**608-151**	**608-163**
1.125"	**608-140**	**608-152**	**608-164**
1.250"	**608-141**	**608-153**	**608-165**
1.375"	**608-142**	**608-154**	**608-166**
1.500"	**608-143**	**608-155**	**608-167**

CATALOG 13

Steel Brass Aluminum

These spacers are the most popular sizes used in the electronic industry. For raising condensers, transformers, sub panels, spacing of dial assemblies, etc.

SEAMLESS TYPE

ROUND STEEL SPACERS

NOT TAPPED
ZINC PLATED

Unit Package 50

P.C. 607

O.D.	3/16"	7/32"	1/4"	9/32"	3/8"	7/16"	5/8"
I.D. For Screw Size	No. 4	No. 6	No. 8	No. 10	1/4"	5/16"	1/4"
Length	**ORDER BY *SPAENAUR* NUMBERS LISTED BELOW**						
5/32"					**607-002**		
3/16"	**SPA-1**	**SPA-6**	**SPA-14**				
1/4"	**SPA-2**	**SPA-7**	**SPA-15**	**SPA-22**			
5/16"	**SPA-3**	**SPA-8**	**SPA-16**	**SPA-23**			
3/8"	**SPA-4**	**SPA-9**	**SPA-17**	**SPA-24**			**607-003**
13/32"						**607-001**	
1/2"	**SPA-5**	**SPA-10**	**SPA-18**	**SPA-25**			
5/8"		**SPA-11**	**SPA-19**	**SPA-26**			
3/4"		**SPA-12**	**SPA-20**	**SPA-27**			
1"		**SPA-13**	**SPA-21**	**SPA-28**			

ROUND BRASS SPACERS

NOT TAPPED
NICKEL PLATED

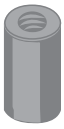
Unit Package 50

P.C. 605

O.D.	3/16"	7/32"	1/4"	9/32"			
I.D. For Screw Size	No. 4	No. 6	No. 8	No. 10			
Length	**ORDER BY *SPAENAUR* NUMBERS LISTED BELOW**						
3/16"	**SPA-30**	**SPA-35**	**SPA-43**				
1/4"	**SPA-31**	**SPA-36**	**SPA-44**	**SPA-51**			
5/16"	**SPA-32**	**SPA-37**	**SPA-45**	**SPA-52**			
3/8"	**SPA-33**	**SPA-38**	**SPA-46**	**SPA-53**			
1/2"	**SPA-34**	**SPA-39**	**SPA-47**	**SPA-54**			
5/8"		**SPA-40**	**SPA-48**	**SPA-55**			
3/4"		**SPA-41**	**SPA-49**	**SPA-56**			
1"		**SPA-42**	**SPA-50**	**SPA-57**			

ROUND TAPPED BRASS SPACERS

MACHINED FROM BRASS ROD
NICKEL PLATED



Unit Package 25

P.C. 605

O.D.	3/16"	1/4"	1/4"				
Threaded	4-40	6-32	8-32				
Length	**ORDER BY *SPAENAUR* NUMBERS LISTED BELOW**						
3/16"	**SPA-60**	**SPA-65**	**SPA-73**				
1/4"	**SPA-61**	**SPA-66**					
5/16"	**SPA-62**	**SPA-67**	**SPA-75**				
3/8"	**SPA-63**	**SPA-68**	**SPA-76**				
1/2"	**SPA-64**	**SPA-69**	**SPA-77**				
5/8"	**SPA-104**	**SPA-70**	**SPA-78**				
3/4"	**SPA-105**	**SPA-71**	**SPA-79**				
1"	**SPA-106**	**SPA-72**	**SPA-80**				

HEXAGON TAPPED BRASS SPACERS

MACHINED FROM BRASS ROD
NICKEL PLATED

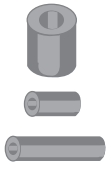
P.C. 605 1/4" Hex *U.P. 25*

	1/4" Hexagon Width Across Flats Dimension						
Threaded	6-32	8-32					
Length	**ORDER BY *SPAENAUR* NUMBERS LISTED BELOW**						
1/4"	**SPA-81**	**SPA-86**					
3/8"	**SPA-82**	**SPA-87**					
1/2"	**SPA-83**	**SPA-88**					
3/4"	**SPA-84**	**SPA-89**					
1"	**SPA-85**	**SPA-90**					

SPAENAUR No.
SPA-103
ROUND
SLOTTED BRASS TAPPED SPACER

P.C. 605

Tapped 5-40 UNC 2B
O.D. 1/4"
Length 1/2"
Slot 1/32" wide x 1/16" deep.
Corners Chamfered 45°
(Plain Finish)
Unit Package 100



ROUND ALUMINUM SPACERS

Not Tapped

SPAENAUR No.	I.D. For Screw Size	O.D.	Length	Unit Pkg.
SPA-108	8	.204"	1/4"	100

SPECIAL HEAVY, ROUND
BRASS SPACERS

Not Tapped

(Plain Finish)
Material ASTM-B16

605-001	10	1/2"	3/8"	25
605-002	10	1/2"	1/2"	25

G

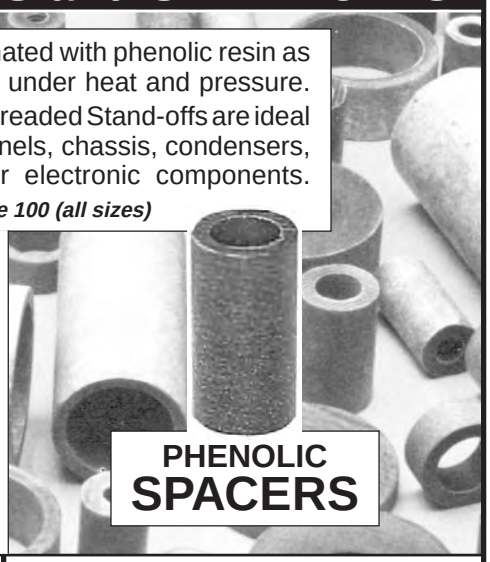
CATALOG 13

Phenolic SPACERS and STAND-OFFS

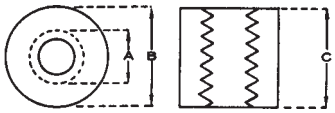
Base material is impregnated with phenolic resin as it is wound on mandrels under heat and pressure. Phenolic Spacers and Threaded Stand-offs are ideal for use in raising sub-panels, chassis, condensers, transformers, and other electronic components.

Unit Package 100 (all sizes)

THREADED PHENOLIC STAND-OFFS

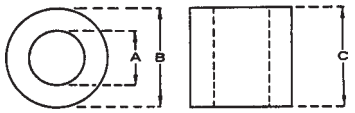


PHENOLIC SPACERS



Thread A	*SPAENAUR No.*	O.D. B	Length C
4-40	606-111	.250"	.250"
	606-112		.375"
	606-113		.500"
	606-114		.750"
	606-115		1.000"
6-32	606-116	.250"	.250"
	▲606-117		.375"
	*606-118		.500"
	606-119		.750"
	606-120		1.000"
8-32	606-121	.250"	.250"
	606-122		.375"
	606-123		.500"
	606-124		.750"
	606-125		1.000"
10-32	606-126	.3125"	.250"
	606-127		.375"
	606-128		.500"
	606-129		.750"
	606-130		1.000"

***606-230** 6/6 Nylon ▲**606-229** 6/6 Nylon



For Screw Size	*SPAENAUR No.*	I.D. A Tol.±.008	O.D. B	Length C
4	606-131	.125"	.250"	.250"
	606-132			.375"
	606-133			.500"
	606-134			.750"
	606-135			1.000"
6	606-136	.145"	.250"	.250"
	606-137			.375"
	606-138			.500"
	606-139			.750"
	606-140			1.000"
8	606-141	.171"	.250"	.250"
	606-142			.375"
	606-143			.500"
	606-144			.750"
	606-145			1.000"
10	606-146	.196"	.3125"	.250"
	606-147			.375"
	606-148			.500"
	606-149			.750"
	606-150			1.000"

NYLON SPACERS

Moulded from corrosion-resistant

Type **Nylon 6/6 UL 94V2**

Tough and resilient nylon spacers are ideal for use in electrical and electronic assemblies. They also can be used as bushings, bearings, rollers, and glides. Natural colour.

Tolerances: O.D. ± .010"
Length ± .015" I.D. ± .005"

Unit Package 100
(except O.D. 1/2" - U.P. 50)

For Screw Size	*SPAENAUR No.*	O.D.	I.D.	Length
2	606-200	3/16"	.091"	3/16"
	606-201	3/16"	.091"	1/4"
	606-202	3/16"	.091"	3/8"
	606-203	3/16"	.091"	1/2"
4	606-204	1/4"	.115"	1/4"
	606-205	1/4"	.115"	3/8"
	606-206	1/4"	.115"	1/2"
	606-207	1/4"	.115"	3/4"
	606-208	1/4"	.115"	1"
6	606-209	1/4"	.140"	1/4"
	606-210	1/4"	.140"	3/8"
	606-211	1/4"	.140"	1/2"
	606-212	1/4"	.140"	3/4"
	606-213	1/4"	.140"	1"
8	606-214	5/16"	.171"	1/4"
	606-215	5/16"	.171"	3/8"
	606-216	5/16"	.171"	1/2"
	606-217	5/16"	.171"	3/4"
	606-218	5/16"	.171"	1"
10	606-219	3/8"	.194"	1/4"
	606-220	3/8"	.194"	3/8"
	606-221	3/8"	.194"	1/2"
	606-222	3/8"	.194"	3/4"
	606-223	3/8"	.194"	1"
1/4"	606-224	1/2"	.260"	1/4"
	606-225	1/2"	.257"	3/8"
	606-226	1/2"	.257"	1/2"
	606-227	1/2"	.260"	3/4"
	606-228	1/2"	.257"	1"

Fibre Spacers

NOT TAPPED

MACHINED FROM FIBRE TUBING
Low in Moisture Absorption, with High Dielectric Strength.

(†Phenolic Material)

Unit Package 100

P.C. 606

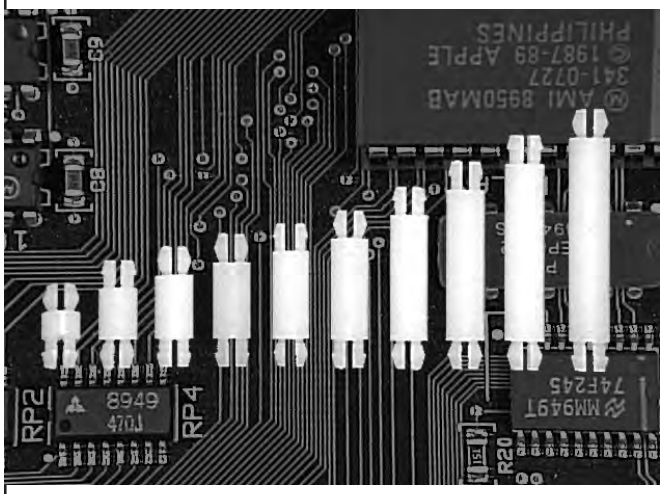
O.D.	1/4"	1/4"
I.D. for Screw Size	No. 6	No. 8
Length ▼	*SPAENAUR No.*	*SPAENAUR No.*
1/4"	†SPA-91	SPA-97
3/8"	SPA-92	SPA-98
1/2"	SPA-93	SPA-99
5/8"	†SPA-94	SPA-100
3/4"	SPA-95	SPA-101
1"	SPA-96	SPA-102

More STAND-OFFS, SPACERS and SPACER SLEEVES are featured on pages G38 to G47.

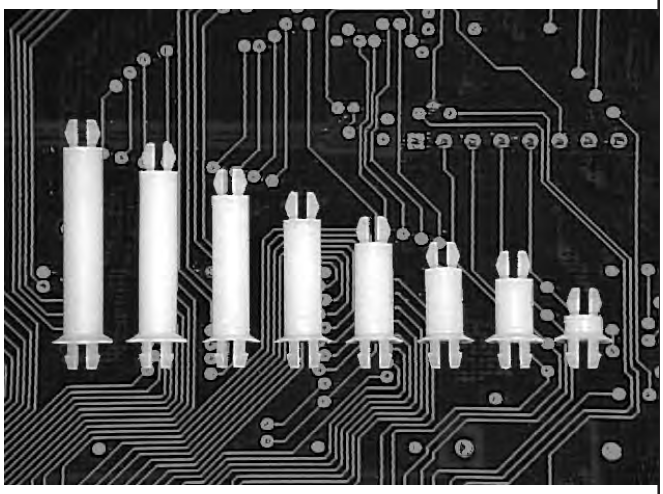
NYLON 6/6

STANDOFFS FOR TERMINAL BOARDS

NYLON 6/6



614-430 SERIES



614-450 SERIES

Economical locking spacers eliminate screws, nuts and lock washers in mounting P.C. Boards on metal chassis or stacking in multiple tiers.

Unique locking clips provide a mechanically secure, reusable connection in predrilled or punched holes while saving considerable assembly time.

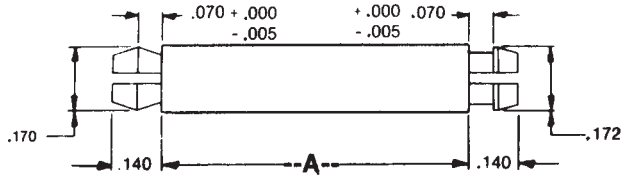
The new improved **"-450"** series greatly increases stability and integrity of the printed circuit board assembly, while improving the pull-out strength of the connection.

NEW IMPROVED!

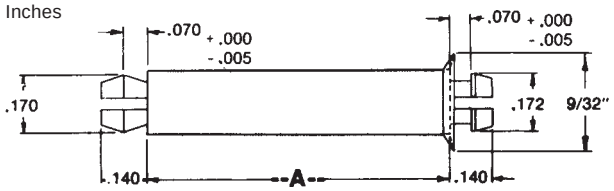
GREATER STABILITY

IMPROVED PULL OUT STRENGTH

Dimensions in Inches



NATURAL COLOUR



NATURAL COLOUR

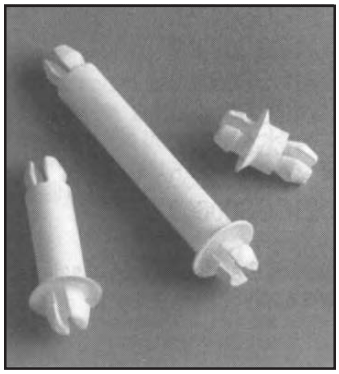
RECOMMENDED HOLE SIZE IS .152 ± .002

"-430" SERIES

SPAENAUR No.	—A— Length
614-430	.125"
614-431	.250"
614-432	.312"
614-434	.375"
614-435	.437"
614-436	.500"
614-437	.625"
614-438	.750"
614-439	.875"
614-440	1.00"

UNIT PACKAGE – 100

"-450" SERIES



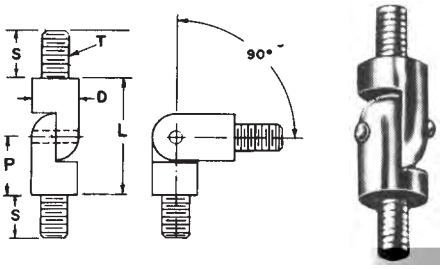
UNIT PACKAGE – 100

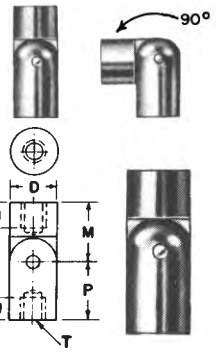
SPAENAUR No.	—A— Length
614-450	.125"
614-451	.250"
614-452	.312"
614-453	.375"
614-454	.500"
614-455	.625"
614-456	.750"
614-457	.875"
614-458	1.00"

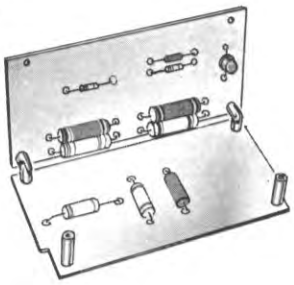
HINGED STANDOFFS FOR TERMINAL BOARDS

APPLICATIONS UNLIMITED • TIME SAVING • CUT COST OF SERVING • SPACE SAVER
INTERCONNECT CIRCUITS OR SERVICES WITHOUT DANGER OF SHORTING • WIRING EXPOSED FOR EASY TEST

MATERIAL: **MADE OF BRASS** MIL SPEC. QQ-B-626A COMP. 22-1/2 HARD.
FINISH: Cadmium Plate per QQ-P-416 Class 2, Type 2 and gold Iridite.







Only 2 screws used to fasten board in place or open the hinged board.

G

HINGE *SPAENAUR No.*	Thread T	Length L	Dia. D	S	P	Unit Pkg.
605-009	4-40	1/2"	.187"	1/4"	1/4"	25
—	—	—	—	—	—	—
605-010	6-32	1/2"	.250"	5/16"	1/4"	25
—	—	—	—	—	—	—
605-011	8-32	1/2"	.250"	5/16"	1/4"	25
—	—	—	—	—	—	—

HINGE *SPAENAUR No.*	Thread T	Dia. D	Length L	U	M	P	Unit Pkg.
605-003	4-40	.187"	3/4"	.172"	.375"	.375"	25
605-004	4-40	.187"	1"	.250"	.375"	.625"	25
605-005	6-32	.250"	3/4"	.172"	.375"	.375"	25
605-006	6-32	.250"	1"	.250"	.375"	.625"	25
605-007	8-32	.250"	3/4"	.172"	.375"	.375"	25
605-008	8-32	.250"	1"	.250"	.375"	.625"	25

TAPPED BRASS SPACERS
Nickel Plated

These standoffs mount at front of board.

STANDOFF ONLY
For Front of Board

SPAENAUR No.	Thread	O.D.	Lgth.	Unit Pkg.
SPA-64	4-40	3/16"	1/2"	25
—	—	—	—	—
SPA-69	6-32	1/4"	1/2"	25
—	—	—	—	—
SPA-77	8-32	1/4"	1/2"	25
—	—	—	—	—

P.C. 605

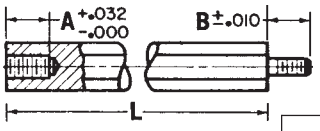
TAPPED BRASS SPACERS
Nickel Plated

These standoffs mount at front of board.

STANDOFF ONLY
For Front of Board

SPAENAUR No.	Thread	O.D.	Lgth.	Unit Pkg.
SPA-105	4-40	3/16"	3/4"	25
SPA-106	4-40	3/16"	1"	25
SPA-71	6-32	1/4"	3/4"	25
SPA-72	6-32	1/4"	1"	25
SPA-79	8-32	1/4"	3/4"	25
SPA-80	8-32	1/4"	1"	25

P.C. 605



1/4" O.D.
(±.005")
width across flats

HEX MALE/FEMALE THREADED SPACERS

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW

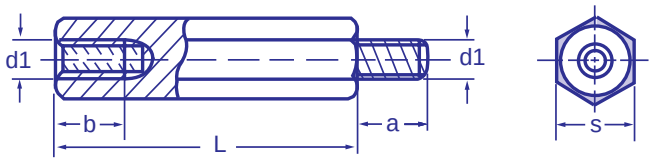
L Length in Inches	THREAD SIZE 4-40 HOLE A: 1/4" STUD B: 3/16" Nickel Plated BRASS	4-40 2011T3 ALUMINUM	6-32 HOLE A: 3/8"(▲.130/.150") STUD B: 1/4" Nickel Plated BRASS	6-32 2011T3 ALUMINUM	8-32 HOLE A: 7/16" (†3/8") STUD B: 3/8" Nickle Plated BRASS	8-32 2011T3 ALUMINUM
1/4" (.250")	—	—	▲**605-038**	—	—	—
1/2" (.500")	**605-012**	**608-174**	**605-020**	**608-182**	†**605-028**	†**608-188**
5/8" (.625")	**605-013**	**608-175**	**605-021**	**608-172**	**605-029**	**608-189**
3/4" (.750")	**605-014**	**608-176**	**605-022**	**608-173**	**605-030**	**608-190**
1" (1.000")	**605-015**	**608-177**	***605-023**	**608-183**	**605-031**	**608-191**
1-1/4" (1.250")	**605-016**	**608-178**	**605-024**	**608-184**	**605-032**	**608-192**
1-3/8" (1.375")	**605-017**	**608-179**	**605-025**	**608-185**	**605-033**	**608-193**
1-1/2" (1.500")	**605-018**	**608-180**	**605-026**	**608-186**	**605-034**	**608-194**
2" (2.000")	**605-019**	**608-181**	**605-027**	**608-187**	**605-035**	**608-195**

*** 605-037** with thread relief under head.

More Standoffs, Spacers and Spacer Sleeves featured on pages G38 to G47.

METRIC
Threaded Hex Spacers
with Internal and External Thread
STEEL and BRASS

All dimensions in millimetres.



SPAENAUR No.	L Spacer Body Length	d1 Thread Dia. x Pitch	Thread Length a (±0.2)	Thread Length b	S Across Flats (tol. h11)	Material and Finish	Unit Pkg. Qty.
607-600	8 mm	M3 x 0.5 mm	5 mm	6 mm*	5.5 mm	STEEL, Zinc Plated	25
607-601	10 mm	M4 x 0.7 mm	6 mm	7 mm*	7.0 mm	STEEL, Zinc Plated	25
607-602	20 mm	M4 x 0.7 mm	6 mm	7 mm	7.0 mm	STEEL, Zinc Plated	25
605-036	15 mm	M4 x 0.7 mm	10 mm	10 mm	6.5 mm	BRASS, Nickel Pltd.	25

*Threaded length may be less.

G

SPAENAUR

We source from 1,200 domestic and international suppliers, and are proud to represent the finest names in the industry.

Agrati
Allen®
Armstrong®
AVK®
Avdel Cherry Textron
AWAB
Boteco®
Buttite®
Disc-Lock®
Dodge®
Dot®
Durham
Eberhard®
Emhart
E-Z Lok
Flexo™
FEW
Fujilok®
Gripco®
Hazet®
Heli-Coil
Holo-Krome®
Infasco
ITW
Knipex®
L•9®
Loctite®
Mago
Mikalor®
Molex®
Molly®
Nord-Lock®
Novibra
On-the-Level
Oetiker®
Palnut®
PEquality®
POP®
Rubig®
Shear-Loc®
Southco®
Swivel Quick
TamperProof
Tamper-Pruf
Tapcon®
Teks®
Tinnerman®
Two-Way
Velcro®
Wera

Steel / Stainless Steel / Aluminum

MATERIALS:

Carbon Steel, Heat Treated, Zinc or Cadmium Plated per QQ-P-416, Type I, Class 3.

300 Series Stainless Steel, Passivated, QQ-P-35, Type I.

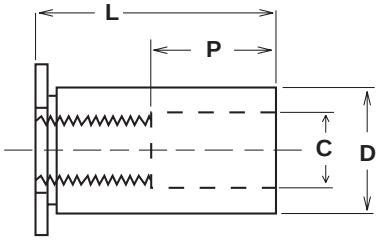
7075-T6 Aluminum, No Finish

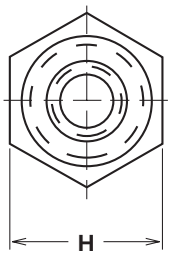
FOR USE IN:

Materials with Rockwell Hardness of B-80 or less

Materials with Rockwell Hardness of B-70 or less

Materials with Rockwell Hardness of B-50 or less



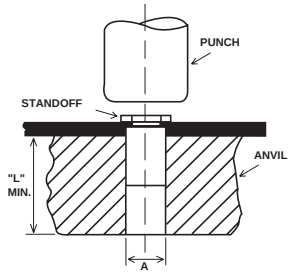


INSTALLATION PROCEDURE

1. Insert Standoff through hole in sheet into anvil.
2. Apply only sufficient squeezing force be - tween parallel surfaces of punch and anvil to embed hex head flush in sheet. Avoid excessive pressures.

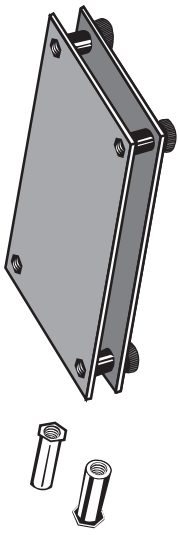
THREAD: Class 2B (MIL-S-7742)

"C" Dimension	"A" Hole in Anvil
.165"	.169"-.172"
.212"	.216"-.219"
.280"	.284"-.288"



For assembly of spaced panels, circuit boards and electronic components. Easily mounted, captive to panel, by squeezing into punched or drilled round holes. Use any hydraulic or mechanical press (not scissor action). Squeezing action embeds hexagonal head into ductile metal panel for high torque resistance. Displaced metal flows smoothly into undercut, to lock standoff securely into panel, flush with one surface.

Inch Sizes



Unit Package 100

THREAD SIZE			4-40	4-40	6-32	6-32	8-32	10-32
PANEL HOLE CODE SIZE			.166/.169"	.213/.215"		.281/.284"		
D			.160/.165"	.207/.212"		275/.280"		
H			3/16"	1/4"		5/16"		
C			1/8"	1/8"	5/32"	5/32"	3/16"	13/64"
MIN. EDGE DISTANCE TO CENTRE OF HOLE			15/64"	17/64"		5/16"		
PANEL THICKNESS			.040" and up			.050" and up		
Length L	**Dim. P**	Kind of Metal	***SPAENAUR* NUMBERS:**			**Through Thread Style**		
1/8"	NONE	STEEL S.S ALUM.						
3/16"	NONE	STEEL S.S. ALUM	**614-108** 614-400	614-100	614-103			**614-919**
1/4"	NONE	STEEL S.S. ALUM	**614-401**	**614-903**	614-104	**614-910**	**614-914**	**614-917**
5/16"	NONE	STEEL S.S. ALUM	**614-109** 614-402	**614-101**	**614-906**	**614-911**		
3/8"	3/16"	STEEL S.S. ALUM	**614-403**	614-102	614-105 **614-907**	**614-912**	**614-110** **614-915**	
7/16"	3/16"	STEEL S.S. ALUM	**614-920**	**614-904**				
1/2"	3/16"	STEEL S.S. ALUM	**614-918** 614-404	**614-905**	**614-908**	**614-913**	**614-916**	
9/16"	3/16"	STEEL S.S. ALUM						
5/8"	5/16"	STEEL S.S. ALUM	**614-900**		**614-909**			
11/16"	5/16"	STEEL S.S.						
3/4"	5/16"	STEEL S.S.	**614-901**		614-106			
13/16"	5/16"	STEEL S.S.						
1"	7/16"	STEEL			**614-107**			
INSTALLATION (LB)			**2000**	**2000**	**2000**	**2000**	**2500**	**2500**
PUSH-OUT (LB)			**160**	**160**	**160**	**300**	**400**	**400**
TORQUE-OUT (IN-LB)			**11**	**11**	**20**	**45**	**45**	**45**
AXIAL PULL-THRU (LB)			**175**	**200**	**250**	**300**	**450**	**450**
▲TORQUE (IN-LB)			**4-3/4**	**4-3/4**	**8-3/4**	**8-3/4**	**18**	**32**

Bold Type: Regular Stock No's.
Light Type: Min. order 5000
Del. approx. 4 wks.

▲ Torque values are for reference only.

CATALOG 13

Steel / Stainless Steel / Aluminum

MATERIALS:

Carbon Steel, Heat Treated, Zinc or Cadmium Plated per QQ-P-416, Type I, Class 3.

300 Series Stainless Steel, Passivated, QQ-P-35, Type I.

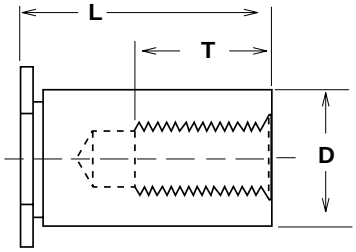
7075-T6 Aluminum, No Finish

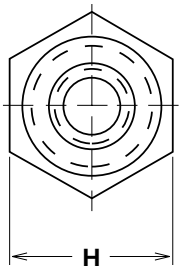
FOR USE IN:

Materials with Rockwell Hardness of B-80 or less

Materials with Rockwell Hardness of B-70 or less

Materials with Rockwell Hardness of B-50 or less



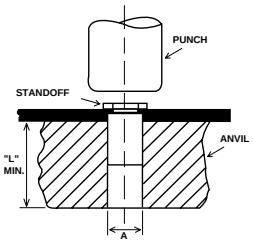


INSTALLATION PROCEDURE

1. Insert Standoff through hole in sheet into anvil.
2. Apply only sufficient squeezing force be - tween parallel surfaces of punch and anvil to embed hex head flush in sheet. Avoid excessive pressures.

THREAD: Class 6H 1SO Metric

"D" Dimension	"A" Hole in Anvil
4.19 mm	4.3 mm
5.38 mm	5.5 mm
7.11 mm	7.2 mm

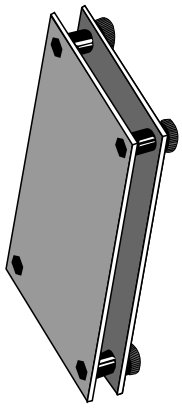


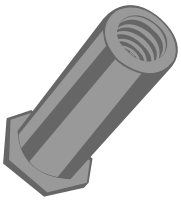
G

METRIC

For assembly of spaced panels, circuit boards and electronic components. Easily mounted, captive to panel, by squeezing into punched or drilled round holes. Use any hydraulic or mechanical press (not scissor action). Squeezing action embeds hexagonal head into ductile metal panel for high torque resistance. Displaced metal flows smoothly into undercut, to lock standoff securely into panel, flush with one surface.

Blind Thread Style





Metric Blind Thread Style

THREAD SIZE			M3	M3	M4	M5
PANEL HOLE CODE SIZE			4.20 mm	5.40 mm	7.20 mm	
D			4.19 mm	5.38 mm	7.11 mm	
H			4.8 mm	6.4 mm	7.9 mm	
MIN. EDGE DISTANCE TO CENTRE OF HOLE			6.0 mm	6.8 mm	8.0 mm	
PANEL THICKNESS			1. mm and up		1.3 mm and up	
Length L	**Dim. T**	Kind of Metal	ORDER BY *SPAENAUR* NUMBERS			
(mm) **8**	(mm) 4.0	STEEL S.S. ALUM	**615-900**			
10	4.0	STEEL S.S. ALUM		**615-903****		
12	5.0	STEEL S.S. ALUM	**615-901**		**615-906**	
14	6.5	STEEL S.S. ALUM	**615-910■**	**615-904***		
16	6.5	STEEL S.S. ALUM	**615-902**			
18	9.5	STEEL S.S. ALUM		**615-905**		
20	9.5	STEEL S.S. ALUM				
22	9.5	STEEL S.S. ALUM			**615-907**	
25	9.5	STEEL S.S. ALUM				

UNIT PKG. QTY. 100

Note:
Other sizes and materials are available 'to order' in minimum lots of 2500 per item. Delivery approx. 10 weeks.

***615-909** THROUGH THREAD STYLE

****615-908** THROUGH THREAD STYLE

■ THROUGH HEAD STYLE

INSTALLATION & PERFORMANCE DATA

INSTALLATION (kN)	**6.7 - 8.9**	**6.7 - 8.9**	**8.9 - 11.1**	**8.9 - 11.1**
PUSH-OUT (N)	**710**	**890**	**1780**	**1780**
TORQUE-OUT (N•M)	**1.24**	**1.35**	**5.08**	**5.08**
AXIAL PULL-THRU (N)	**780**	**890**	**2000**	**2000**
▲TORQUE (N•M)	**0.55**	**0.55**	**2.0**	**3.6**

▲ Torque Values are for reference only.

Tel: **1-800-265-8772** Fax: **519-744-0818**

AMERACE LTD.

the ideal Switching Device

industrial solid state
miniature in-line
timing module

The AGASTAT VTM-1 In-Line Timing Module provides, in a single compact design, remarkable economy, exceptional simplicity, and unprecedented application flexibility. Wired in series into a load circuit, it will control inductive loads of up to 1A, RMS AC or DC. The current drain of this unique new device is extremely low: no more than 2 mA is drawn by the module at any time — only 0.2% of its load current rating. Connecting a resistor of a predetermined value across the centre terminals provides tamper-proof selection of the delay period.

The VTM-1 will accommodate power-circuit voltages from 24V to 240V, RMS AC or DC, all at 1A RMS or DC load current. The delay range is wide: 1 to 1000 seconds, linearly proportional to the programming resistor, at 10KΩ/second above a 1 second minimum time. Reset time is 0.1 second maximum, with a repeat accuracy of ±2%.

The remarkably small size (less than that of a power relay) and simple, encapsulated construction of the VTM-1 underscore its unusual reliability. Quite literally, it is designed as a "wire-it-in-and-forget-it" component for demanding industrial environments.

SPAENAUR No.

707-185

UNIT PACKAGE 1

specifications

Time Delay Range
The time delay period is determined by the connection of a resistor across the centre two terminals. As supplied, the unit provides a nominal 1 second delay. Add 10KΩ of resistance for every additional second of delay required.
For example: 5 seconds = 40 KΩ
10 seconds = 90 KΩ

Repeat Accuracy
± 2% — (Maximum deviation from the average of 100 consecutive time delays at any time setting and at any fixed combination of operating temperature and operating voltage, provided the reset time requirement is met.)

Input
Any voltage from 24 to 240 volts, AC or DC.

Output
Solid state SPNO, 1 ampere inductive at nominal operating voltage.

Reset Time
100 milliseconds maximum, in the timing or timed out condition.

Operating Temperature Range
-30°C to +65°C.

Life Expectancy
10 million operatings at rated load.

Transient Protection
MOV across input. 2000 volts for 100 microseconds on line side of load.

Dielectric Withstand
1480 VAC for 1 minute for active terminals to outside of case.
NOTE: Maximum leakage during timing, 2 mA at any combination of voltage and time delay.

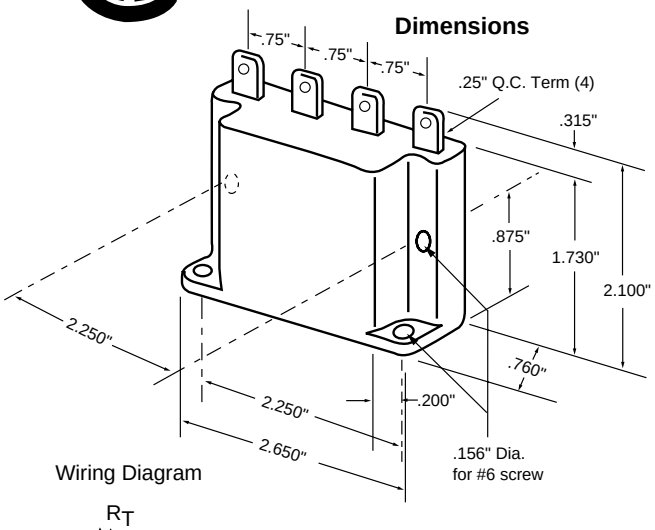
Current Drain
2 mA (max.)

Weight
80 grams

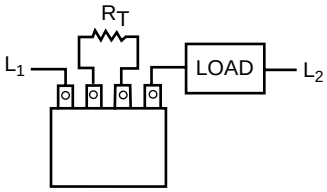
NOTE
AMERACE LTD.
cannot recommend the use of its Products in the containment areas of Nuclear Power Generating Stations.

Note: For a 1 second time delay the centre 2 terminals must be jumped (connected) together, or unit will not operate.

Dimensions



Wiring Diagram



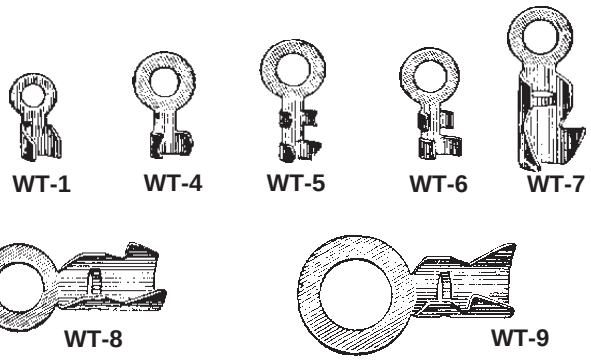
NOTE: Do not operate timer without connecting load in series with line voltage.

ON DELAY

VTM-1 In-Line timing module is wired in series with load circuit. Time delay is initiated when power is applied to the series network. Connecting a resistor across the centre terminals provides tamper-proof setting of time delay from 1 - 1000 secs.

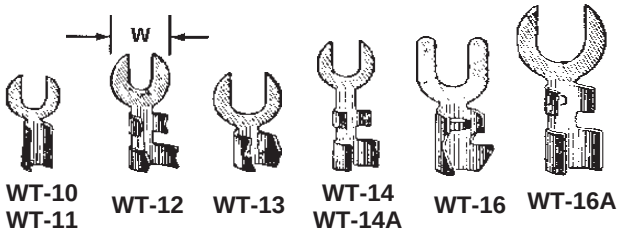
NON-INSULATED
RING TERMINALS
BRASS - HOT TINNED

SPAENAUR No.	Screw Size	Style	Clamp Inside Width	Overall Length	Package Quantity
WT-1	No. 4		3/32"	1/2"	50
WT-4	No. 8	Short	5/32"	9/16"	50
WT-5	No. 8	Long	7/64"	3/4"	50
WT-7	No. 10	Long	7/32"	15/16"	50
WT-8	1/4"		3/16"	1-1/8"	50
WT-9	3/8"		1/4"	1-1/4"	50



SPADE TERMINALS
BRASS - HOT TINNED

SPAENAUR No.	Screw Size	Style	Clamp Inside Width	W	Overall Length	Package Quantity
WT-10	No. 4		3/32"	17/64"	1/2"	50
WT-11	No. 6	Short	3/32"	5/16"	9/16"	50
WT-12	No. 6	Long	7/64"	5/16"	5/8"	50
WT-13	No. 8	Short	3/32"	5/16"	9/16"	50
WT-14	No. 8	Long	7/64"	11/32"	11/16"	50
WT-14A	No. 8	Long	7/64"	19/64"	3/4"	50
WT-16A	No. 10		7/64"	15/32"	15/16"	50
WT-16	No. 10		3/16"	13/32"	1-1/32"	50



PLASTIKIT «Plastikit» A-49

A handy assortment of
GENERAL PURPOSE NON-INSULATED SOLDERING WIRING TERMINALS

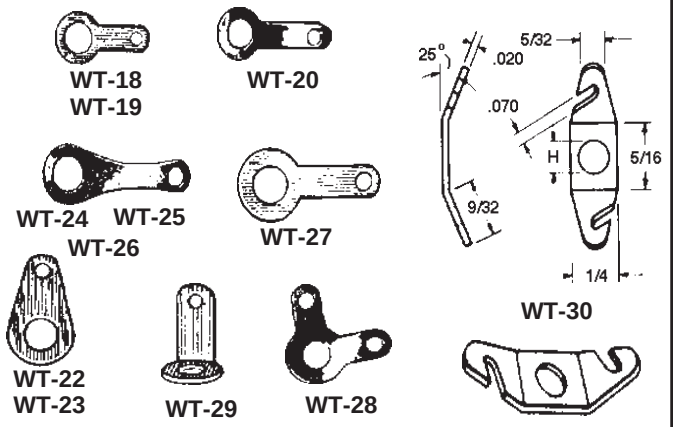
Contains 14 varieties, 100 pieces, in both ring type and spade type as featured above.

Packed in durable, clear plastic box with hinged lid.
Size: 1" x 2-3/4" x 4-1/2"

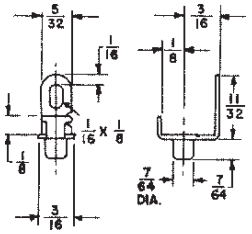
Priced Singly

SOLDERING FLAT TERMINALS
BRASS - HOT TINNED

SPAENAUR No.	Type	Screw Size	Wire Hole	Overall Length	Package Quantity
WT-18	Flat	No. 2 & 3	.072"	1/2"	50
WT-19	Flat	No. 4	.072"	1/2"	50
WT-20	Flat	No. 6	5/64"	11/16"	50
WT-22	Flat	No. 6	.078"	17/32"	50
WT-24	Flat	No. 6	.087"	7/8"	50
WT-25	Flat	No. 8	.087"	7/8"	50
622-194	Flat	No. 8	.093"	7/8"	100
WT-26	Flat	No. 10	.087"	7/8"	50
WT-27	Flat	1/4"	5/64"	3/4"	50
WT-28	Flat	No. 6	5/64"	9/16"	50
WT-29	Bent	No. 6	1/16"	13/32"	50
WT-30	Bent	No. 6	.144"	7/8"	50

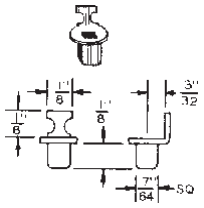


SOLDERING LUGS — BRASS - HOT TINNED

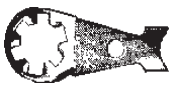


WT-79
.016 Brass
Unit Package 100

WT-79A
.020" Brass
Unit Package 100



WT-82
.020 Brass
Unit Package 50



HOT TINNED

622-163
Phosphor Bronze
For No. 8 Screw
Unit Package 100

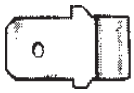
CATALOG 13

NON-INSULATED Pure Electrolytic Copper Heavy Tin Plating

QUICK CONNECT TERMINALS

WT-56
1/4" Male Tab
Wire Size - 16-14 ga.

WT-57
Female Tab Socket
Wire Size - 16-14 ga.



WT-58
1/4" Angle Male Tab
Wire Size - 18-14 ga.

WT-59
Angle Female Tab Socket
Wire Size - 16-14 ga.

FLAG TYPE TERMINALS

WT-50
Hole Dia. - 13/64"
Stud Size - 8-10
Wire Size - 22-18 ga.

WT-51
Hole Dia. - 13/64"
Stud Size - 8-10
Wire Size - 16-14 ga.

WT-52
Hole Dia. - 13/64"
Stud Size - 8-10
Wire Size - 12-10 ga.

SPADE FLAGS

	For Studs	22-18 AWG
622-173	#6	Brass,
622-174	#8	Tin Plated
622-140	#10	

	For Studs	16-14 AWG
622-175	#6	Copper,
622-176	#8	Tin Plated
622-141	#10	

	For Studs	12-10 AWG
622-177	#6	Copper,
622-178	#8	Tin Plated
622-142	#10	

SNAP TERMINAL CONNECTORS

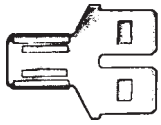
WT-64
Snap Terminal (Standard)
For use with
16-14 gauge wire

622-125
Snap Terminal Connector
Fits No. WT-64
Furnished with Insulation Tubing

WT-65
Snap Terminal (Large)
For use with
16-14 gauge wire

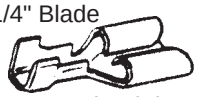
WT-67
Snap Terminal Connector
Fits No. WT-65
Furnished with Insulation Tubing

622-148
Double
(Male-Female)
ADAPTER
For 1/4" mating parts



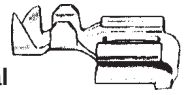
Brass

622-144 For 1/4" Blade
Economy,
Female Disconnect
Wire Range 16-14



Brass, Tin Pltd.

622-147 Brass, Tin Plated
Female
Piggyback
Disconnect Terminal
Wire Range 20-14



For 1/4" blade

SPADE TONGUE TERMINALS

WT-45
Hole Dia. - 9/64"
Stud Size - 4-6
Wire Size - 22-18 ga.
(with flange)

WT-46
Hole Dia. - 9/64"
Stud Size - 4-6
Wire Size - 22-18 ga.

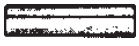
WT-47
Hole Dia. - 9/64"
Stud Size - 4-6
Wire Size - 16-14 ga.

WT-48
Hole Dia. - 13/64"
Stud Size - 10
Wire Size - 16-14 ga.

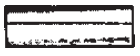
WT-49
Hole Dia. - 13/64"
Stud Size - 10
Wire Size - 12-10 ga.

BUTT CONNECTORS

WT-53
Wire Size - 22-18 ga.

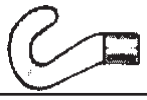


WT-54
Wire Size - 16-14 ga.



WT-55
Wire Size - 12-10 ga.

HOOK TYPE TERMINAL



WT-75
Hole Dia. - 11/64"
Stud Size - 4-8
Wire Size - 22-18 ga.

INSULATION TUBING

WT-68
Tubing for Terminals
Wire Size - 16-14 ga.
(Black)
Lgth: 5/8"

WT-70
Tubing for Butt Connectors
Wire Size - 16-14 ga.
(Black)
Lgth: 1-1/4"

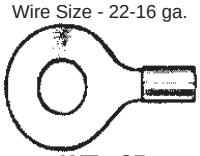
WT-71
Tubing for Butt Connectors
Wire Size - 12-10 ga.
(Orange)
Lgth: 1-1/4"

RING TONGUE TERMINALS

WT-32
Hole Dia. - 9/64"
Stud Size - 5-6
Wire Size 22-18 ga.

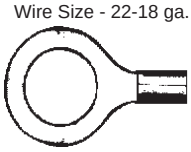
WT-33
Hole Dia. - 9/64"
Stud Size - 5-6
Wire Size - 22-16 ga.

WT-17
Hole Dia. - 9/64"
Stud Size - 5-6
Wire Size - 22-18 ga.

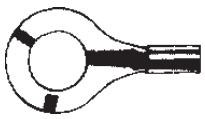


WT - 35
Hole Dia. - 17/64:
Stud Size - 12-1/4"
Wire Size - 22-18 ga.

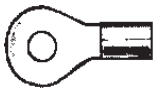
WT-34
Hole Dia. - 13/64"
Stud Size - 10
Wire Size - 22-18 ga.



WT-36
Hole Dia. - 13/32"
Stud Size - 3/8"
Wire Size - 22-18 ga.

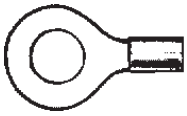


622-186
Hole Dia. - .256"
Stud Size - 1/4"
Wire Size - 22-18 ga.



WT-38
Hole Dia. - 9/64"
Stud Size - 5-6
Wire Size - 16-14 ga.

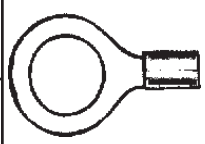
WT-37
Hole Dia. - 9/64"
Stud Size - 5-6
Wire Size - 16-14 ga.



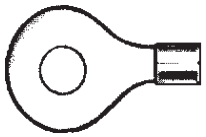
WT-40
Hole Dia. - 17/64"
Stud Size - 12-1/4"
Wire Size - 16-14 ga.

WT-39
Hole Dia. - 13/64"
Stud Size - 10
Wire Size - 16-14 ga.

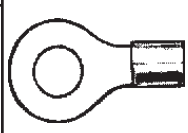
WT-42
Hole Dia. - 13/64"
Stud Size - 10
Wire Size - 12-10 ga.



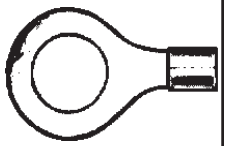
WT-41
Hole Dia. - 13/32"
Stud Size - 3/8"
Wire Size - 16-14 ga.



622-185
Hole Dia. - 17/64"
Stud Size - 12-1/4"
Wire Size - 12-10 ga.



WT-43
Hole Dia. - 17/64"
Stud Size - 12-1/4"
Wire Size - 12-10 ga.



WT-44
Hole Dia. - 13/32"
Stud Size - 3/8"
Wire Size - 12-10 ga.

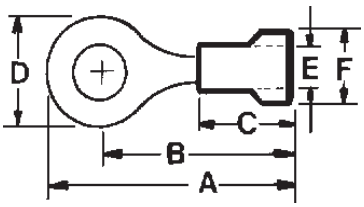
G

CATALOG 13

All items on this page.
Unit Package 50

Illustrations on this page are approximate size.
Stock may differ slightly from that shown.

INSULATED



Unit Package 100 — All items on this page.

SINGLE-GRIP

Pure Electrolytic Copper
Heavy Bright Tin Plating

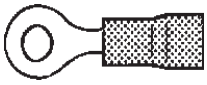
Heavy plastic sleeve has been added to basic terminal to provide insulation from tongue to wire insulation. Sleeve also prevents wire from flexing at the crimp for greater strength.

Colour Coded Insulation

22-18 Red **16-14 Blue** **12-10 Yellow**

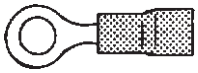
RING TONGUE TERMINALS

WT-86
Wire 22-18, Stud 5-6, A = 25/32,
B = 43/64, C = 7/16, D = 7/32,
E = 1/8, F = 15/64

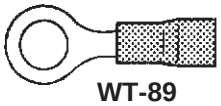


WT-87
Wire 22-18, Stud 5-6, A = 27/32,
B = 23/32, C = 7/16, D = 9/32,
E = 1/8, F = 15/64

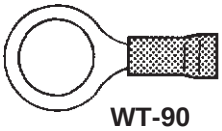
622-187
Wire 22-18, Stud 8, A = 59/64,
B = 47/64, C = 15/32, D = 13/32,
E = 11/64, F - 15/64



WT-88
Wire 22-18, Stud 10, A = 55/64,
B = 45/64, C = 7/16, D = 21/64,
E = 1/8, F = 15/64

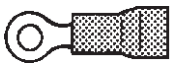


WT-89
Wire 22-16, Stud 12-1/4, A = 1-7/64,
B = 57/64, C = 7/16, D = 15/32,
E - 1/8, F = 15/64

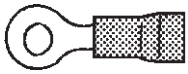


WT-90
Wire 22-18, Stud 3/8, A = 1-1/4,
B = 63/64, C = 7/16, D = 17/32,
E = 1/8, F = 15/64

All Dimensions in Inches

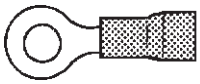


WT-91
Wire 16-14, Stud 5-6, A = 3/4,
B = 41/64, C = 7/16, D = 15/64,
E = 5/32, F = 1/4

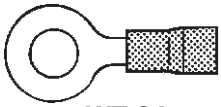


WT-92
Wire 16-14, Stud 5-6, A = 55/64,
B = 45/64, C = 7/16, D = 21/64,
E = 5/32, F = 1/4

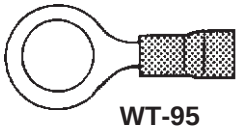
622-188
Wire 16-14, Stud 8, A = 61/64,
B = 3/4, C = 31/64, D = 13/32,
E = 3/16, F = 1/4



WT-93
Wire 16-14, Stud 10, A = 29/32,
B = 47/64, C = 7/16, D = 21/64,
E = 5/32, F = 1/4



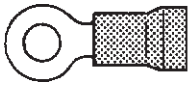
WT-94
Wire 16-14, Stud 12-1/4, A = 1-7/64,
B = 57/64, C = 7/16, D = 15/32,
E - 5/32, F = 1/4



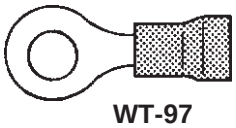
WT-95
Wire 16-14, Stud 3/8, A =1-1/4,
B = 63/64, C = 7/16, D = 17/32,
E = 5/32, F = 1/4

622-190
Wire 12-10, Stud 6, A = 63/64,
B = 13/16, C = 9/16, D = 23/64,
E = 17/64, F = 21/64

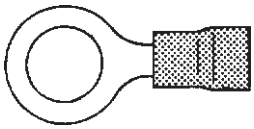
622-189
Wire 12-10, Stud 8, A = 63/64,
B = 13/16, C = 9/16, D = 23/64,
E = 17/64, F = 21/64



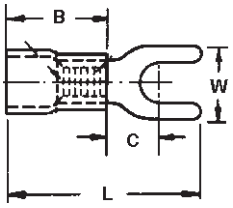
WT-96
Wire 12-10, Stud 10, A = 59/64,
B = 47/64, C = 7/16, D = 3/8,
E = 13/64, F = 21/64



WT-97
Wire 12-10, Stud 12-1/4, A = 1-11/64,
B = 59/64, C = 7/16, D = 33/64,
E = 13/64, F = 21/64



WT-98
Wire 12-10, Stud 3/8, A = 1-9/32,
B = 63/64, C = 7/16, D = 19/32,
E = 13/64, F = 21/64



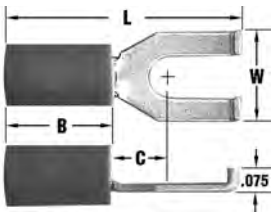
INSULATED
FORK TONGUE TERMINALS
Pure Electrolytic Copper
Heavy Bright Tin Plating

Colour Code:

22-18 Wire Size	Red
16-14 Wire Size	Blue
12-10 Wire Size	Yellow

Unit Package 100

SPAENAUR No.	WIRE RANGE	MAX. INSUL DIA. OF WIRE	FOR STUD SIZE	HOLE SIZE	C	W	B	L	ILLUSTRATION
WT-100	22-18	.160"	6	.144"	5/16"	5/16"	1/2"	1"	
622-108	22-18	.160"	6	.144"	1/4"	19/64"	1/2"	29/32"	
622-191	22-18	.160"	8	.169"	1/4"	19/64"	1/2"	29/32"	
WT-101	16-14	.185"	6	.144"	1/4"	19/64"	1/2"	29/32"	
622-109	16-14	.185"	6	.144"	9/32"	23/64"	1/2"	31/32"	
622-192	16-14	.185"	8	.169"	9/32"	23/64"	1/2"	31/32"	
WT-102	16-14	.185"	10	.196"	9/32"	23/64"	1/2"	31/32"	
622-193	12-10	.260"	8	.169"	9/32"	3/8"	1/2"	1"	
WT-103	12-10	.260"	10	.196"	9/32"	3/8"	1/2"	1"	



FLANGED FORK TONGUE TERMINALS — Insulated

Unit Package 100 (Except 622-165, U.P. 50)

SPAENAUR No.	Wire Size	Max. Insul. Dia. of Wire	Stud Size	Hole Size	C	W	B	L
WT-99	22-18	.160"	6	.144"	1/4"	19/64"	1/2"	29/32"
622-164	16-14	.185"	6	.144"	1/4"	19/64"	1/2"	29/32"
622-165	16-14	.185"	8	.169"	1/4"	19/64"	1/2"	29/32"

See page G58 for CRIMPING TOOLS.

Also see pages G50, G55, G56 and G58 for TERMINAL ASSORTMENTS.

Pages D74 and D75 feature NYLON MACHINE SCREW INSULATORS and NYLON SHOULDER WASHERS, very useful in isolating and reducing corrosion in electrical applications.

WIRE RANGE 22-18 (RED)
(Metric .3-1.3 mm)

622-110 Parallel — Connector

WT-83 Butt — Connector

622-116 1/4" F.Q.D.

622-119 1/4" M.Q.D.

622-122 3/16" F.Q.D.

	For Stud	Hook
622-127	#6	
622-170	#8	
622-159	#10	

	For Stud
622-168	#6
622-169	#8
622-130	#10

Locking Spade

622-158 Insulating Boot
For 1/4" blade, Disconnect terminal

WIRE RANGE 16-14 (BLUE)
(Metric 1.3-2.5 mm)

622-111 Parallel — Connector

WT-84 Butt — Connector

622-117 1/4" F.Q.D.

622-120 1/4" M.Q.D.

622-123 3/16" F.Q.D.

622-124 3/16" M.Q.D.

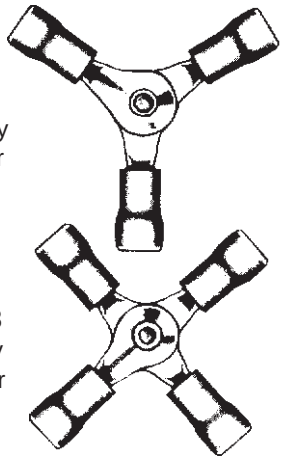
	For Stud	Hook
622-128	#6	
622-167	#8	
622-160	#10	

	For Stud
622-172	#6
622-166	#8
622-131	#10

Locking Spade

622-135
Three-way connector

622-138
Four-way connector



WIRE RANGE 12-10 (YELLOW)
(Metric 2.5-6 mm)

622-112 Parallel — Connector

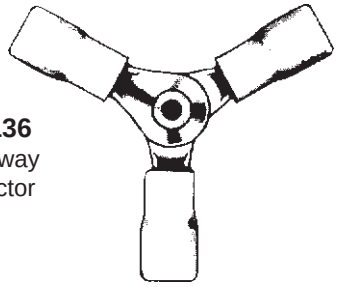
WT-85 Butt — Connector

622-118 1/4" F.Q.D.

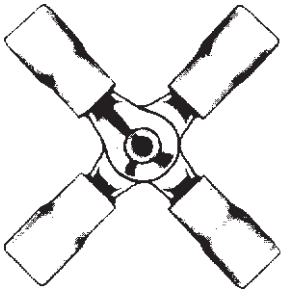
622-121 1/4" M.Q.D.

	For Stud
622-129	#6
622-171	#8
622-161	#10

622-136
Three-way connector



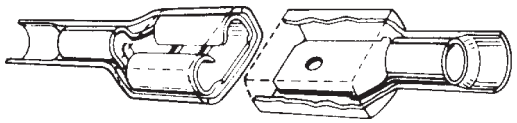
622-139
Four-way connector



FULLY INSULATED

NYLON COUPLER

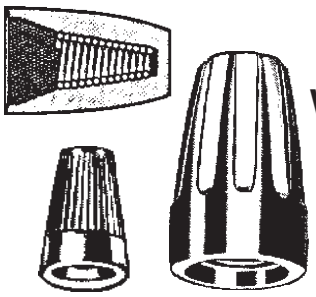
A male and a female slip-on encased in nylon, that when connected form a fully insulated assembly.
- Eliminates post-insulation
- Helps prevent shorting or flash over when disconnected with power on



SPAENAUR No.		Wire Range	*SPAENAUR No.*		Wire Range	Max. Temp Rating
622-132	Female	22-18	**622-133**	Male	22-18	105°C
622-134	Female	16-14	**622-137**	Male	16-14	105°C
622-179	Female	12-10	**622-180**	Male	12-10	105°C
		Will take 1/4" blade			Have 1/4" blade	

622-126
1/4" M.Q.D.
Adapter
Clear Nylon

CATALOG 13



TWIST-ON NYLON WIRE CONNECTORS

Black connectors have Steel Insert

Unit Package Quantity 50

SPAENAUR No.	Colour	Wire Combinations
622-151	Black	2 #20 or 2 #18
622-152	Ivory	2 or 3 #18, 2 #16
622-153	Black or Orange	2, 3 or 4 #18 2 or 3 #16, 2 #14
622-154	Yellow	5 or 6 #18 2 or 3 #14 or 2 #12
622-155	Red	12 #18, 2, 3 or 4 #12 or 2 or 3 #10

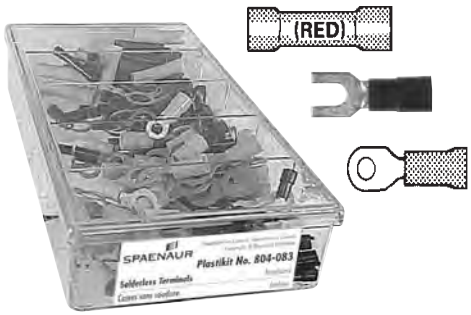
PLASTIKIT «Plastikit» 804-083

Insulated SOLDERLESS TERMINALS

16 Sizes - 160 Pieces

Put up in a translucent polypropylene plastic container.

Priced Singly



Size: 7" x 3-1-2" x 1-1/4"

Contents of Plastikit

SPAENAUR No.	Ass't. Qty.	*SPAENAUR No.*	Ass't. Qty.
WT-83	10	WT-94	10
WT-84	10	WT-96	10
WT-85	10	WT-97	10
WT-86	10	WT-98	10
WT-88	10	WT-100	10
WT-90	10	WT-101	10
WT-91	10	WT-102	10
WT-93	10	WT-103	10

G

TERMINAL CUP WASHERS FOR BINDING HEAD SCREWS

P.C. 643

BRASS
Plain and Nickel Plated

Unit Package Quantity 100

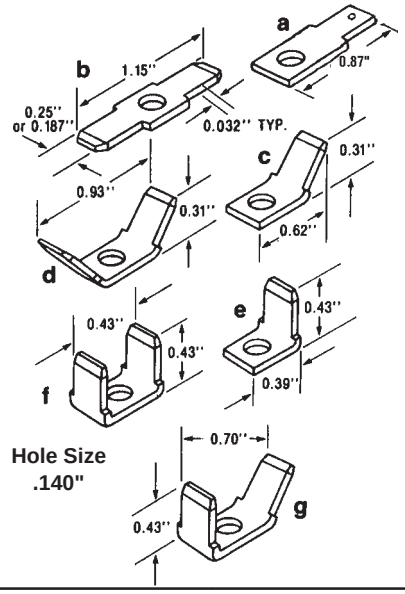
SPAENAUR No. Plain Brass	*SPAENAUR No.* Nickel Plated	Screw Size	Outside Diameter
W-533	**W-533N**	6	21/64"
W-534	**W-534N**	8	.450"
W-535	**W-535N**	10	.498"- .512"
W-536	**W-536N**	12	9/16"
W-537	**W-537N**	14	37/64"

C-WASHERS

Steel - Zinc Plated

P.C. 641

SPAENAUR No.	A	B	Thick.	Pkg. Qty.
W-82C	1/8"	1/4"	.028"	100
W-83C	5/32"	5/16"	.032"	100



QUICK CONNECTS

BRASS, Zinc plated

The following selection of .187" and .25" quick-connect blades are available for connecting wire terminated with female quick connects. Single and double sided types in flat, 45°, and 90° angle bends can be supplied. Material is Brass with Zinc plating. Various quick-connects can be combined.

	Style	*SPAENAUR No.* Blade Width **0.187"**	*SPAENAUR No.* Blade Width **0.25"**
b	Flat, Two-Sided	622-302	**622-303**
d	45°, Two-Sided	622-306	**622-307**
f	90°, Two-Sided	622-310	—
a	Flat, Single-Sided	**622-300**	**622-301**
c	45°, Single-Sided	**622-304**	**622-305**
e	90°, Single-Sided	—	**622-309**
g	90°-45°, Two-Sided	—	622-313

Unit Package Quantity 100

Bold Type No's. in Stock.
Light Type No's. Special Order.

CATALOG 13

For ASSORTMENTS and PLIERS
See pages G56 & G58.

Snap Terminal Connectors

622-125
.156
Bullet Adapter

Clear Nylon

622-145
.156 Bullet (Blue)

16-14 AWG

622-143
Fully insulated
Bullet Receptacle (Blue)
(Mates with 622-145 & WT-64 Bullet)

WT-67
.180
Bullet Adapter

(Mates with 622-146 & WT-65)
Furnished with Insulation Tubing

622-146
.180 Bullet (Blue)

16-14 AWG

622-162
Bullet Receptacle
(Mates with 622-146 & WT-65 Bullet)

Closed -end Connectors
Clear Nylon with Tinned Copper

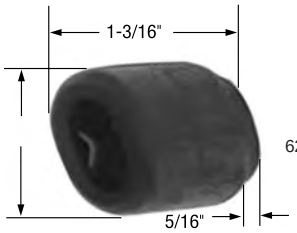
622-150 22-18 AWG
622-149 18-10 AWG

622-156

Trailer
Connector
(Blue)

18-14
AWG

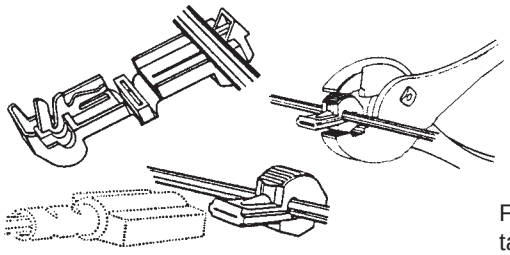
Rubber Covered Wire Connector



RB-36
Accepts 4
.180" Bullet
Terminals
(*SPAENAUR No.*
622-146 and WT-65)

Unit Pkg. 25

P.C. 315



Male terminal not included.

FEMALE T-TAP CONNECTORS (Fully Insulated)

Electrolytic Copper - Tin Plated Finish

622-181	**622-182**	**622-183**
For 22-18 gauge wire	For 16-14 gauge wire	For 12-10 gauge wire
Use with 1/4" M.Q.D. Nos. 622-119 & 622-133	Use with 1/4" M.Q.D. Nos. 622-120 & 622-137	Use with 1/4" M.Q.D. Nos. 622-121 & 622-180

For tapping current from lead wire. No stripping is required. Place wire to be tapped in locating notch, and close with common pliers. Tap is fully installed and ready to accept 1/4" blade insulated male terminal.

UNIT PACKAGE 50 ONLY - on all above items except RB-36 U.P.Q 25

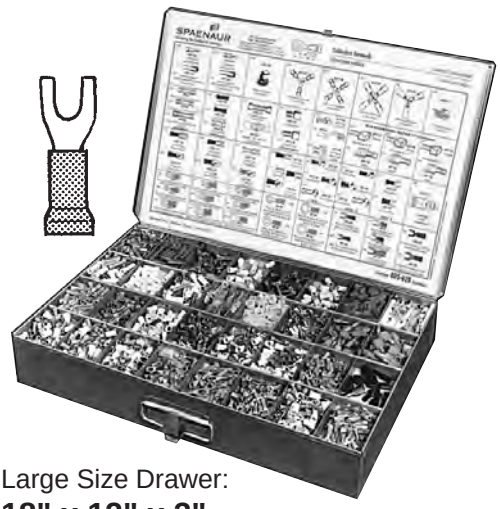
ASSORTMENT / ASSORTIMENT **805-628**

Large size

SOLDERLESS TERMINAL

Assortment

67 popular items **Total: 1010 terminals**



Includes insulated Standard Ring, Spade, Hook, Three-way and Four-way Terminals, Quick-disconnect, Butt, Trailer, and T-type connectors.

Contains most popular items featured above and on pages G52 and G54.

Most complete "Terminal" Kit available

Large Size Drawer:
18" x 12" x 3"

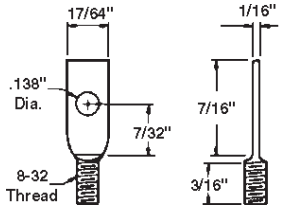
With 32 SCOOPED compartments.
Drawer fits Slide Racks on page A3.

Shipping Weight 5.70 kg (12-1/2 lbs.)

For more Assortments and Plastikits see pages G50, G55 and G58.

SPADE BOLTS

STEEL - CADMIUM PLATED



R-328
Straight Type
8-32 x 3/16" Thread
9/64" (.138) Hole Dia.
43/64" O/A Length

Unit Package 100

P.C. 248

CONTROL KNOB SPRINGS

Unit Package Quantity 100

R-323
5/16" x 5/16"

R-324
1/4" x 35/64"

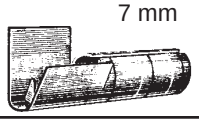
P.C. 248

IGNITION REPAIR PARTS

WT-106
Spark Plug Clip (Angle)
Uninsulated
7 mm
Unit Pkg. 100

NOTE: Use No. T-138 or No. 876-1836 Pliers for Crimping (See page G58.)

WT-107
Spark Plug Clip (Straight)
Uninsulated
7 mm
Unit Pkg. 100



P.C. 622

Distributor Cap Terminal

(Heavy Duty)

WT-105

Unit Package 100

P.C. 622

Double Type Solid Copper

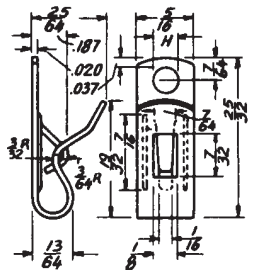
C-242
Spring Clip

3/8" W x 2" L
Hole = .187"

Unit Pkg. 50

P.C. 086

P.C. 086



SPRING CLIPS

Made of Spring Brass Nickel Plated

C-240
H = .144"

Unit Package 50

RB-62
Distributor Cap
Rubber Hood

P.C. 315

Unit Pkg. 25

SPAENAUR

TELEPHONE:
24 hours a day, 365 days a year
(800) 265-8772
(519) 744-3521

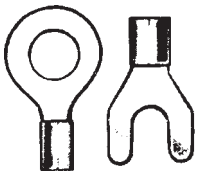
FAX:
24 hours a day, 365 days a year
(519) 744-0818
(800) 252-6380

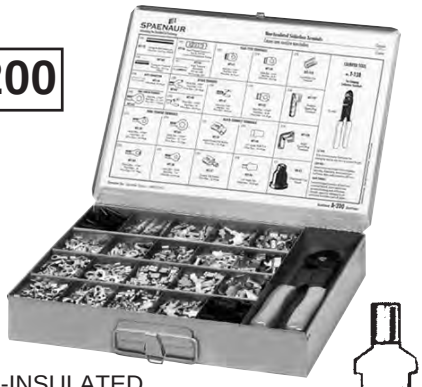
Counter Sales:
7 a.m. to 7 p.m. EST., Weekdays

CATALOG 13

G

ASSORTMENT A-200
ASSORTMENT





NON-INSULATED

SOLDERLESS TERMINALS

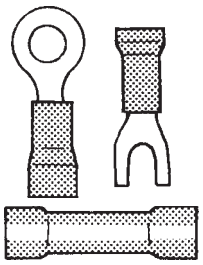
Contains 24 Most Popular Sizes
Total: 497 Pieces
(as shown on page G51.)
Plus one (T-138) Crimping Tool.

REGULAR SIZE welded STEEL Drawer has hinged lid, "scooped" bins, and is finished in Grey enamel. Drawer will fit into Slide Racks shown on page A2.

Priced Singly
Shipping Wt. 2.84 kg (6-1/4 lbs.)

P.C. 805

ASSORTMENT A-215
ASSORTMENT



PLASTIC INSULATED

SOLDERLESS TERMINALS

Contains 20 Most Popular Sizes
Total: 540 Terminals
(as shown on page G52.)
Plus one (876-1836) Crimping Tool.

REGULAR SIZE welded STEEL Drawer has hinged lid, "scooped" bins and is finished in Grey enamel. Drawer will fit into Slide Racks shown on page A2.

Priced Singly
Shipping Wt. 2.95 kg (6-1/2 lbs.)

Priced Singly

T-138
SOLDERLESS TERMINAL CRIMPER

Ideal for use on non-insulated solderless terminals. Special crimping dies designed to provide strong, secure bond between terminal and wire. Stripping dies will handle 22 to 10 gauge cable easily, without nicking wire. Bolt cutting dies handle five popular-sized bolts - 4-40, 6-32, 8-32, 10-24 and 10-32. Black oxide finish with deep etched markings. Jumbo cushion grip handles for added comfort - puts more power into the squeeze.

Priced Singly

876-1836
ALL PURPOSE ELECTRICIAN'S TOOL

Has two wire cutters, cuts and strips 8 to 18 AWG solid wire or 10 to 22 AWG stranded wire, crimps insulated and non-insulated terminals, lugs and splices.

WIRE STRIPPER AND CUTTER

Strips six standard wire sizes without nicking wire: No. 10 through 20 AWG (2.6 through .8 mm) Scissors action of 1/2" wide cutter makes clean cuts with little effort. Serrated nose jaws to bend, shape, or pull wire; holes for looping wire ends. Compact; only 6" long. Coil-spring opening action reduces fatigue. Comfortable, plastic covered handles.

876-1794
Multi-Purpose

Length 6"
(152 mm)

Priced Singly

ELECTRICIANS' SCISSORS

876-528

Hot drop-forged. Fully nickel plated. Commercial finish.
Double stripping notch for 19 gauge (.035) and 23 gauge (.022) wire.
Scraper and file on back edge of blade.

Full length 5"
Length of cut 1-7/8"

Priced Singly

CATALOG 13

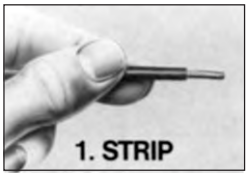
See pages N51 and P153 for more crimping and wire stripping pliers.

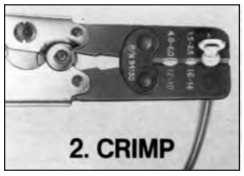
Crimp 'N Seal®

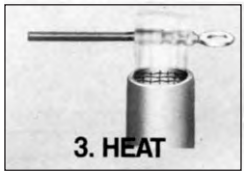
Waterproof HEAT SHRINK Connectors

Crimp 'N Seal® waterproof connectors provide an environmental seal and offer superior strain relief. When heat is applied, the tough polymer jacket shrinks while simultaneously activating the adhesive inside the tubing to completely encapsulate the connection.

Easy Installation steps:







G

Electric Heat Gun

115 VOLTS AC

Two temperature settings 750°F & 1100°F. Cool down time not required. Fold down stand for hands free operation.

SPAENAUR No. **876-194**

Priced Singly

Overall Height 5-3/4"

Priced Singly

(Butane not included.)

Power Torch

Portable Butane Heat Tool

Ideal for heat shrinkable connectors and tubing, soldering, and a variety of other applications.
This versatile heat tool is fast and light weight, and will stand alone for hands-free operation. The self-igniting torch uses butane fuel, and is refillable. The tank capacity provides approximately 70 minutes of continuous usage. Two special attachments are included for use with heat shrinkable products.

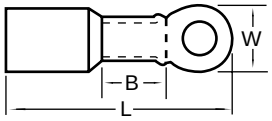
SPAENAUR No.
876-1574

Heat Shrink Tubing

Heat Shrink Connectors

Soldering

Crimp 'N Seal® Waterproof HEAT SHRINK Connector Rings

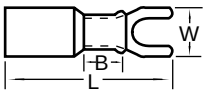


SPAENAUR No.	Wire Range	Stud Size	"B"	"W"	"L"	Max. Wire Insulation	Unit Pkg.
622-001	22-18	6	.250"	.25"	1.06"	.170"	10
622-002	22-18	10	.250"	.31"	1.08"	.170"	10
622-003	16-14	6	.250"	.31"	1.00"	.190"	10
622-004	16-14	8	.250"	.31"	1.03"	.190"	10
622-005	16-14	10	.250"	.31"	1.03"	.190"	10
622-006	16-14	1/4"	.250"	.46"	1.27"	.190"	10
622-007	16-14	5/16"	.250"	.46"	1.27"	.190"	10
622-008	16-14	3/8"	.250"	.53"	1.30"	.190"	10
622-009	12-10	8	.250"	.37"	1.22"	.240"	10
622-010	12-10	10	.250"	.37"	1.20"	.240"	10
622-011	12-10	1/4"	.250"	.52"	1.41"	.240"	10
622-012	12-10	3/8"	.250"	.59"	1.47"	.240"	10
622-013	12-10	1/2"	.250"	.72"	1.54"	.240"	10

Crimp 'N Seal®

Waterproof HEAT SHRINK Connectors

Forks



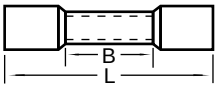
SPAENAUR No.	Wire Range	Stud Size	"B"	"W"	"L"	Max. Wire Insulation	Unit Pkg.
622-014	22-18	6	.250"	.32"	1.04"	.170"	10
622-015	22-18	10	.250"	.32"	1.04"	.170"	10
622-016	16-14	6	.250"	.38"	1.07"	.190"	10
622-017	16-14	8	.250"	.38"	1.07"	.190"	10
622-018	16-14	10	.250"	.38"	1.07"	.190"	10
622-019	12-10	10	.250"	.38"	1.20"	.240"	10

G

3 & 4 Way Splices

SPAENAUR No.	Wire Range	Style	Stud Size	Overall Dia.	Max. Wire Insulation	Unit Pkg.
622-020	22-18	3 WAY	.15"	1.60"	.170"	10
622-021	22-18	4 WAY	.15"	1.60"	.170"	10
622-022	16-14	3 WAY	.15"	1.75"	.190"	10
622-023	16-14	4 WAY	.15"	1.75"	.190"	10
622-024	12-10	3 WAY	.15"	2.15"	.240"	10
622-025	12-10	4 WAY	.15"	2.15"	.240"	10

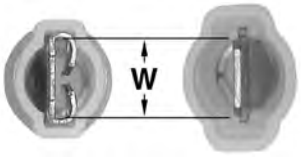
Butt Splices



SPAENAUR No.	Wire Range	"B"	"L"	Max. Wire Insulation	Unit Pkg.
622-026	22-18	.58"	1.45"	.170"	10
622-027	16-14	.58"	1.45"	.190"	10
622-028	12-10	.74"	1.64"	.240"	10

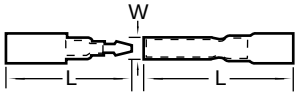
Quick Disconnects Fully Insulated

FEMALE MALE



SPAENAUR No.	Wire Range	Style	"W"	"L"	Max. Wire Insulation	Unit Pkg.
622-029	22-18	MALE	.25"	1.50"	.170"	10
622-030	22-18	FEMALE	.25"	1.42"	.170"	10
622-031	16-14	MALE	.25"	1.50"	.190"	10
622-032	16-14	FEMALE	.25"	1.42"	.190"	10
622-033	12-10	MALE	.25"	1.45"	.240"	10
622-034	12-10	FEMALE	.25"	1.40"	.240"	10

Bullets



SPAENAUR No.	Wire Range	Style	"W"	"L"	Max. Wire Insulation	Unit Pkg.
622-035	16-14	MALE	.157"	1.21"	.190"	10
622-036	16-14	FEMALE	.156"	1.82"	.190"	10

CATALOG 13

Heavy Wall HEAT SHRINK Tubing

With Sealant

Heavy Wall Polyolefin Heat Shrinkable Tubing has a 3:1 shrink ratio. Application of heat causes an adhesive liner to melt and form intimate contact with all underlying surfaces and voids, yielding a watertight seal suitable for underground applications.

Heavy Wall Tubing is recommended for protecting and insulating splices and terminations and meets UL Standard 486D requirements.

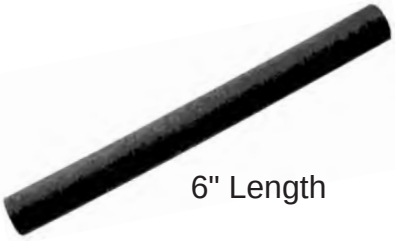
SPAENAUR No.	Wire Range	Colour	Max. Wall Thickness	I.D. in Inch *Exp.	I.D. in Inch †Rec.	Length	Unit Pkg.
622-037	8-1	BLACK	.105"	.750"	.220"	1-1/2"	10
622-038	8-1	RED	.105"	.750"	.220"	1-1/2"	10
622-039	2-4/0	BLACK	.120"	1.100"	.375"	1-1/2"	10
622-040	14-6	BLACK	.060"	.400"	.150"	6"	5
622-041	14-6	RED	.060"	.400"	.150"	6"	5
622-042	2-4/0	BLACK	.120"	1.100"	.375"	6"	5
622-043	2-4/0	RED	.120"	1.100"	.375"	6"	5
622-044	2-4/0	BLACK	.120"	1.100"	.375"	12"	5
622-045	2-4/0	RED	.120"	1.100"	.375"	12"	5

***Exp. = Expanded †Rec. = Recovered**

Thin Wall HEAT SHRINK Tubing

Thin Wall Heat Shrinkable Tubing is opaque tubing with a 2:1 shrink ratio. It can be used as electrical insulation over cable splices and terminations, and for wire harness covering, bundling and wire marker identification. It may also be easily assembled over components, connectors or other irregular shapes.

Thin Wall products meet or exceed the requirements of MIL-1-23053D/5, Class I, II, and III, AMS 3636C and AMS 3637B, are U.L. recognized, and CSA certified.



6" Length

Bulk Roll - 100 Ft.

Cut Lengths and Bulk Roll - BLACK

SPAENAUR No. 6" Length	Unit Pkg.	*SPAENAUR No.* Bulk Roll	Unit Pkg.	Max. Wall Thickness	I.D. in Inches *Exp.	I.D. in Inches †Rec.
622-046	10	**622-059**	100 ft. rl.	.020"	.125"	.062"
622-047	10	**622-056**	100 ft. rl.	.020"	.187"	.093"
622-048	10	**622-057**	250 ft. rl.	.025"	.250"	.125"
622-049	10	**—**	—	.025"	.312"	.156"
622-050	10	**622-058**	200 ft. rl.	.025"	.375"	.187"
622-051	10	**—**	—	.025"	.500"	.250"
622-052	10	**—**	—	.035"	1.000"	.500"

Cut Lengths and Bulk Roll - COLOUR CODED

SPAENAUR No. 6" Length	Unit Pkg.	*SPAENAUR No.* Bulk Roll	Unit Pkg.	Colour	Wire Range	Max. Wall Thickness	I.D. in Inches *Exp.	I.D. in Inches †Rec.
622-053	10	**—**	—	RED	22-18	.020"	.125"	.062"
622-054	10	**—**	—	BLUE	16-14	.025"	.250"	.125"
622-055	10	**—**	—	YELLOW	12-10	.025"	.312"	.156"

***Tubing is supplied in expanded inside diameter (I.D.) dimensions.**

Post Top Battery Terminals

Copper construction provides a low resistance connection while tin plating offers extended life in non-gaseous environments. Cable size, polarity, and tool die codes are in raised characters for increased legibility.

Tin Plate Straights

SPAENAUR No.	Cable Size	Polarity	Tool Die Codes	Unit Pkg.
622-200	4	NEGATIVE	GREEN J-H	1
622-201	4	POSITIVE	GREEN J-H	1
622-203	4	UNIVERSAL	GREEN J-H	1
622-204	1-2	NEGATIVE	PINK H-H	1
622-205	1-2	POSITIVE	PINK H-H	1
622-206	1/0	NEGATIVE	BLACK E-A	1
622-207	1/0	POSITIVE	BLACK E-A	1
622-208	2/0	NEGATIVE	ORANGE A-C	1
622-209	2/0	POSITIVE	ORANGE A-C	1
622-210	3/0	NEGATIVE	PURPLE A-B	1
622-211	3/0	POSITIVE	PURPLE A-B	1
622-212	4/0	NEGATIVE	YELLOW A-A	1
622-213	4/0	POSITIVE	YELLOW A-A	1

Tin Plated Right Elbows

SPAENAUR No.	Cable Size	Polarity	Tool Die Codes	Unit Pkg.
622-214	1/0	NEGATIVE	BLACK E-A	1
622-215	1/0	POSITIVE	BLACK E-A	1
622-216	2/0	NEGATIVE	ORANGE A-C	1
622-217	2/0	POSITIVE	ORANGE A-C	1
622-218	3/0	NEGATIVE	PURPLE A-B	1
622-219	3/0	POSITIVE	PURPLE A-B	1
622-220	4/0	NEGATIVE	YELLOW A-A	1
622-221	4/0	POSITIVE	YELLOW A-A	1

Tin Plated Left Elbows

SPAENAUR No.	Cable Size	Polarity	Tool Die Codes	Unit Pkg.
622-222	1/0	NEGATIVE	BLACK E-A	1
622-223	1/0	POSITIVE	BLACK E-A	1
622-224	2/0	NEGATIVE	ORANGE A-C	1
622-225	2/0	POSITIVE	ORANGE A-C	1
622-226	3/0	NEGATIVE	PURPLE A-B	1
622-227	3/0	POSITIVE	PURPLE A-B	1
622-228	4/0	NEGATIVE	YELLOW A-A	1
622-229	4/0	POSITIVE	YELLOW A-A	1

Post Top Battery Terminals

Tin Plated Flags

SPAENAUR No.	Cable Size	Polarity	Tool Die Codes	Unit Pkg.
622-230	1/0	NEGATIVE	BLACK E-A	1
622-231	1/0	POSITIVE	BLACK E-A	1
622-232	2/0	NEGATIVE	ORANGE A-C	1
622-233	2/0	POSITIVE	ORANGE A-C	1
622-234	3/0	NEGATIVE	PURPLE A-B	1
622-235	3/0	POSITIVE	PURPLE A-B	1
622-236	4/0	NEGATIVE	YELLOW A-A	1
622-237	4/0	POSITIVE	YELLOW A-A	1

G

Stud Top Battery Terminals

Copper, Crimp-Type, Tin Plated

Copper construction provides a low resistance connection, while tin plating offers extended life in non-gaseous environments. Cable size, polarity, and tool die codes are in raised characters for increased legibility.

Tin Plated Terminal

SPAENAUR No.	Cable Size	Polarity	Tool Die Codes	Unit Pkg.
622-238	4	UNIVERSAL	GREEN J-H	1
622-239	1	UNIVERSAL	PINK H-H	1
622-240	1/0	UNIVERSAL	BLACK E-A	1
622-241	2/0	UNIVERSAL	ORANGE A-C	1
622-242	3/0	UNIVERSAL	PURPLE A-B	1
622-243	4/0	UNIVERSAL	YELLOW A-A	1

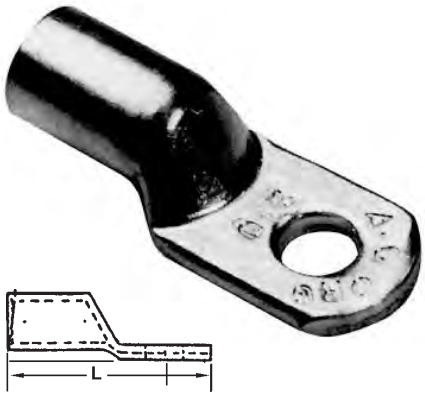
Tin Plated Splice (Double)

SPAENAUR No.	Cable Size	Polarity	Tool Die Codes	Unit Pkg.
622-244	1/0	UNIVERSAL	BLACK E-A	1
622-245	2/0	UNIVERSAL	ORANGE A-C	1
622-246	3/0	UNIVERSAL	PURPLE A-B	1
622-247	4/0	UNIVERSAL	YELLOW A-A	1

Visit us on the web at . . .

www.spaenaur.com

Starter Lugs & Splices - Copper

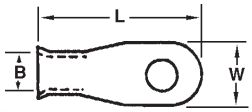


Heavy Duty Power Lug - Tin Plated

Increased wall thickness yields greater strength and conductivity. Tin plating offers corrosion resistance. Crimps with the same die setting as corresponding size battery terminal.

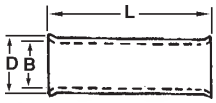
SPAENAUR No.	Cable Size	Stud Size	"B"	"L"	"W"	Unit Pkg.
622-248	1/0	3/8"	.583"	2.00"	.84"	5
622-249	1/0	1/2"	.583"	2.00"	.84"	5
622-250	2/0	3/8"	.640"	2.25"	.91"	5
622-251	2/0	1/2"	.640"	2.25"	.91"	5
622-252	3/0	3/8"	.715"	2.25"	1.03"	5
622-253	3/0	1/2"	.715"	2.25"	1.03"	5
622-254	4/0	3/8"	.780"	2.40"	1.14"	5
622-255	4/0	1/2"	.780"	2.40"	1.14"	5

Starter Lugs Light Duty Lugs (Unplated)



SPAENAUR No.	Cable Size	Stud Size	"B"	"L"	"W"	Unit Pkg.
622-256	6	1/4"	.232"	1.32"	.54"	10
622-257	6	3/8"	.232"	1.32"	.54"	10
622-258	6	1/2"	.232"	1.32"	.54"	10
622-259	4	1/4"	.286"	1.51"	.56"	10
622-260	4	5/16"	.286"	1.51"	.56"	10
622-261	4	3/8"	.286"	1.51"	.56"	10
622-262	2	1/4"	.336"	1.61"	.64"	10
622-263	2	3/8"	.336"	1.61"	.64"	10
622-264	1	1/4"	.360"	1.72"	.645"	10
622-265	1	3/8"	.360"	1.72"	.645"	10
622-266	1	1/2"	.360"	1.72"	.645"	10
622-267	1/0	3/8"	.407"	1.82"	.725"	10
622-268	1/0	1/2"	.407"	1.82"	.745"	10
622-269	2/0	3/8"	.461"	2.04"	.82"	10
622-270	2/0	1/2"	.461"	2.04"	.82"	10
622-271	3/0	3/8"	.511"	2.20"	.970"	10
622-272	3/0	1/2"	.511"	2.20"	.970"	10
622-273	4/0	3/8"	.559"	2.45"	1.09"	10
622-274	4/0	1/2"	.625"	2.45"	1.09"	10

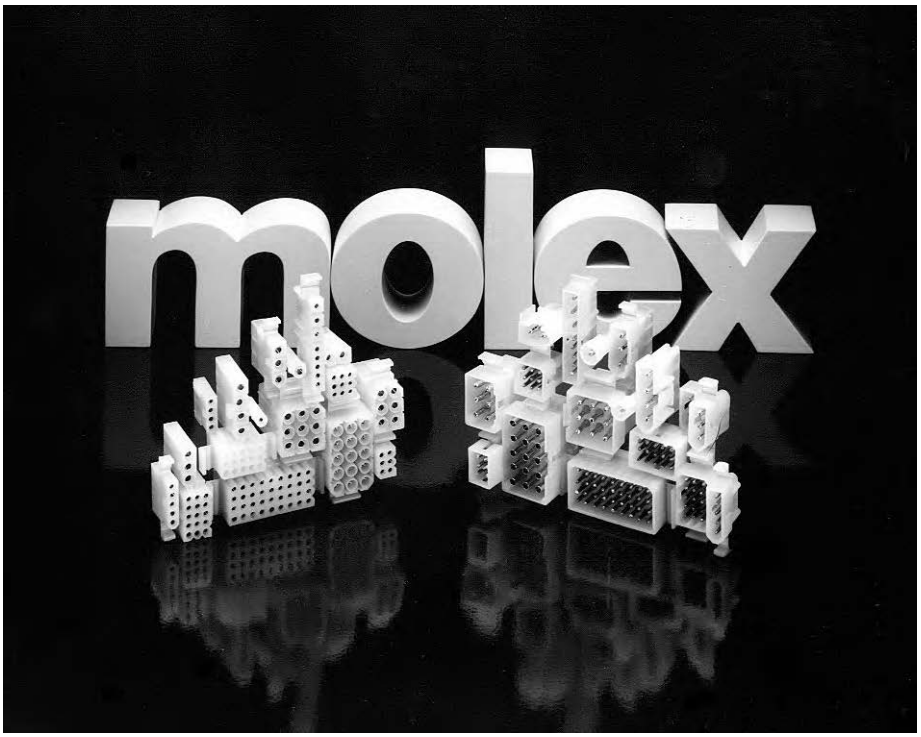
Cable Splices Tin Plated



SPAENAUR No.	Cable Size	"B"	"D"	"L"	Unit Pkg.
622-275	6	.232"	.312"	1.078"	5
622-276	4	.286"	.375"	1.219"	5
622-277	2	.336"	.437"	1.344"	5
622-278	1	.360"	.465"	1.344"	5
622-279	1/0	.407"	.515"	1.630"	5
622-280	2/0	.461"	.570"	1.797"	5
622-281	3/0	.511"	.630"	1.906"	5
622-282	4/0	.590"	.720"	2.000"	5

Featuring

.062" (1,58 mm) 5025 Series & **.093"** (2,36 mm) 3191 Series



FOLLOWING PAGES G66 TO G77 CONTAIN INFORMATION ON

- **.062" (1,58 mm) and .093" (2,36 mm) Connector Housings and Terminals**
- **.100" (2,54 mm) and .156" (3,96 mm) KK® Modular Interconnection Systems**
- **Assortments**
- **Crimp Tools and Extractors**
- **Plating Specifications**
- **Technical Data References**

NOTE	
	Pages G65 to G77 inclusive, indicate the mm equivalent in (brackets) following the inch dimensions.
	Illustrations have the mm equivalent in (brackets) below the inch dimension.

AREAS OF SERVICE APPLICATION

ELECTRONIC DESIGN INDUSTRIES
TRUCK AND AUTOMOTIVE RELATED INDUSTRIES
AIR, MARINE AND RAILWAY SERVICE AND REPAIR
HOME, FARM AND INDUSTRIAL REPAIR AND MAINTENANCE
ENTERTAINMENT AND RECREATIONAL EQUIPMENT REPAIR

.093" (2,36 mm) Plug and Receptacle Housings	.093" STANDARD* SERIES *.198" Grid Spacing*	3191 SERIES *.264" Grid Spacing*
APPROVALS:		
U.L.	Yes	Yes
C.S.A.	Yes	Yes
V.D.E.	N/A	Yes
Japanese (EAMCL)	N/A	Yes
250 V.A.C.	Yes	Yes
600 V.A.C.	1812 - 2, 3 and 4 only	Yes
Current Rating	1-3 circuits - 12 amps 4-9 circuits - 9 amps 12-15 circuits - 7.5 amps	1-2 circuits - 12 amps 9 circuits - 8 amps 3 circuits - 11 amps 12 circuits - 7 amps 4 & 6 circuits - 9 amps 15 circuits - 6 amps
FEATURES: **Not all circuit sizes		
Both housings fully insulate terminals	No	Yes
Pin and socket terminals used in either housing	Yes	Yes
Accepts .093" crimp terminals	Yes	Yes
Accepts .093" P.C. tail terminals	Yes	Yes
U.L. 94V-2 rating	Yes	Yes
Positive locking	1816 & 2629 only**	Yes
Passive locking	Yes, except 1816 & 2629 only**	No
Circuit sizes available	1-6, 9, 12, and 15	1-4, 6, 9, 12, and 15
Fully polarized	Yes	Yes
Dual locking tangs	Yes	Yes
OPTIONS:		
Mounting ears	Yes	Yes (Receptacle available only with ears)
Dyed for color code	Yes	Yes
94V-0	No	Yes
Pull tabs for gripping	15 circuits and less receptacles only	No

.062" (1,58 mm) Plug and Receptacle Housing	5025 SERIES *.180" Grid Spacing*	1625/1649/1772/2004 SERIES *.145" Grid Spacing**
APPROVALS:		
U.L.	Yes	Yes
C.S.A.	Yes	Yes
V.D.E.	Yes	No
Japanese (EAMCL)	Yes	No
250 V.A.C. Rating	Yes	Yes
5 amp Rating	Yes	Yes 4 amps on 24 and 36 circuit
FEATURES:		
Circuit Sizes	2, 3, 4, 6, 9, 12, and 15	1-6, 8, 9, 12, 15, 24, and 36
Both housings fully insulate terminals	Yes	No - Receptacle only
Pin and socket terminals used in either housing	Yes	No
Accepts .062" crimp terminals	Yes	Yes
Accepts .062" P.C. tail terminals	No	Yes - No current rating
U/L 94 V2 housing	Yes	Yes
Positive locking	Yes	No
Passive locking	No	Yes
Fully polarized	Yes	Yes
Dual locking tangs	Yes	Yes
Accepted wire gauges	#14-28 AWG	#18-30 AWG
OPTIONS:		
Mounting Ears	Yes	Yes
Dyed for color code	Yes	Yes
Accepts 5005/5006/5206 terminals	Yes	N/A
*36 circuit has .165" grid spacing		

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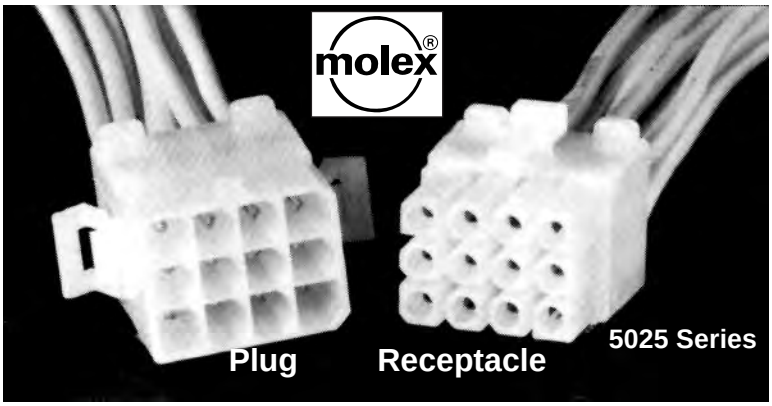
CATALOG 13

NYLON Mini-Fit Pin & Socket Connector Housings

250 V.A.C. / 5 Amp. Rating

Features/Dimensions:

- .062" (1,58 mm) diameter pin and socket
- 2, 3, 4, 6, 9, 12 and 15 circuits
- Positive lock
- UL 94V-2 material - natural color
- Meets international specifications of UL (USA), CSA (Canadian), VDE (Germany) and EAMCL (Japan)



Example of complete (12 circuit) CONNECTOR made from **Plug** and **Receptacle** parts listed on pages G68 and G69 (and below,) plus the appropriate wire.

G

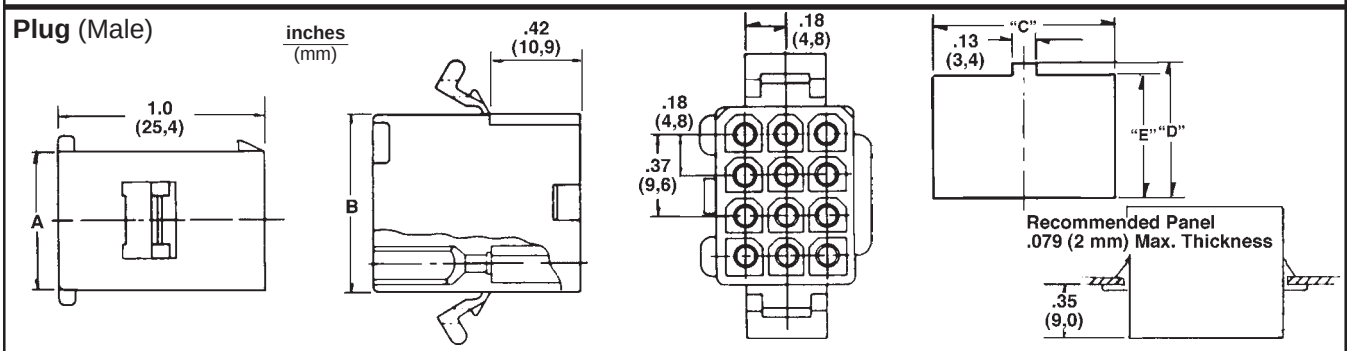
Shielding sleeve design on both plug and receptacle isolates each terminal and assures a .16" (4 mm) over-surface and .12" (3 mm) through-air spacing between terminals. Spacing between the back of the terminals' crimped section and the closest point to which it could meet a metal panel is .16" (4 mm) Terminals used are the standard .062" (1,58 mm) diameter pin and socket, except for the P.C. tail version, which is not adaptable. 5005/5006 International terminals also can be used.

Fully Polarized

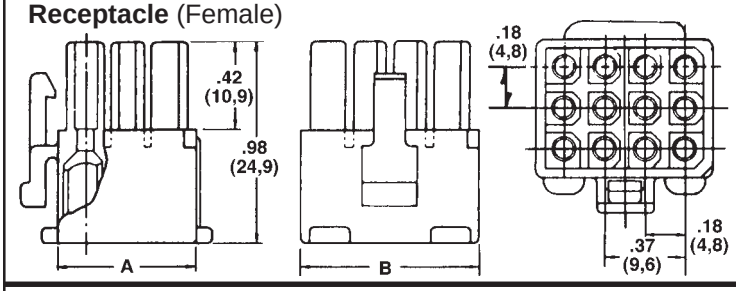
The 5025 Mini-Fit connectors are available with intergrally molded mounting ears for fast snap-lock panel mounting. They are designed so that the connectors cannot be misconnected. For additional polarity, the pin and socket terminals can be inserted in either a plug or receptacle.

5025 Mini-Fit connectors have been developed to meet the demands of miniaturization, high reliability and safety requirements.

Plug (Male)



Receptacle (Female)



Have a question?

Call (800) 265-8772 or (519) 744-3521.

NYLON

UL 94V-2

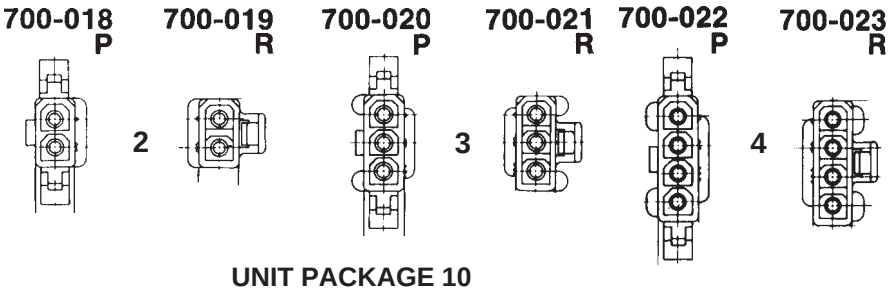
5025 Mini-Fit Pin & Socket Connector Housings

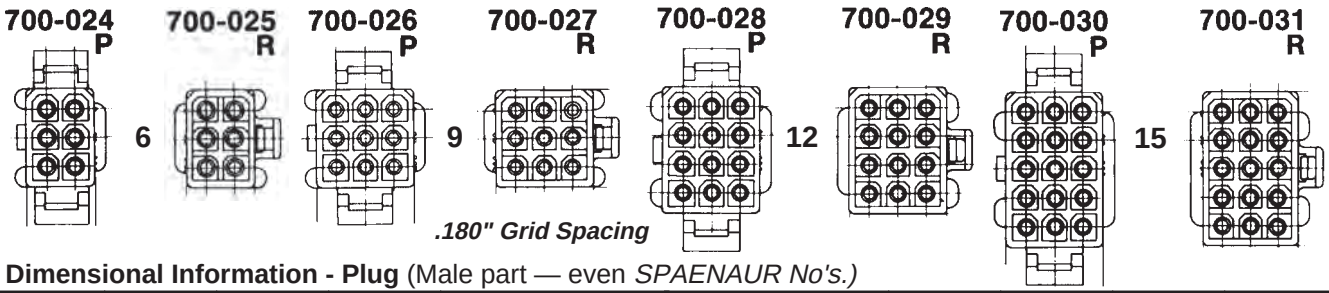
5025 Series

ORDER BY *SPAENAUR* NUMBERS LISTED BELOW

250 V.A.C. / 5 Amp. Rating

UNIT PACKAGE 10





.180" Grid Spacing

Dimensional Information - Plug (Male part — even *SPAENAUR No's.)*

Circuits	Dim A	Dim. B	Dim. C	Dim. D	Dim. E	Circuits	Dim. A	Dim. B	Dim. C	Dim. D	Dim. E
2	.28 (7,2)	.47 (12,0)	.62 (15,8)	.35 (8,9)	.30 (7,8)	9	.66 (16,8)	.66 (16,8)	.81 (20,6)	.72 (18,5)	.68 (17,4)
3	.28 (7,2)	.66 (16,8)	.81 (20,6)	.35 (8,9)	.30 (7,8)	12	.66 (16,8)	.85 (21,6)	1.0 (25,4)	.72 (18,5)	.68 (17,4)
4	.28 (7,2)	.85 (21,6)	1.0 (25,4)	.35 (8,9)	.30 (7,8)	15	.66 (16,8)	1.03 (26,4)	1.18 (30,2)	.72 (18,5)	.68 (17,4)
6	.47 (12,0)	.66 (16,8)	.81 (20,6)	.53 (13,7)	.50 (12,6)						

Ordering Information - Plug (Male part — even *SPAENAUR No's.)*

Circuits	*SPAENAUR No.*	Circuits	*SPAENAUR No.*	Circuits	*SPAENAUR No.*	Circuits	*SPAENAUR No.*
2	**700-018**	4	**700-022**	9	**700-026**	15	**700-030**
3	**700-020**	6	**700-024**	12	**700-028**		

Dimensional Information - Receptacle (Female part) - See page G67 for A, B, C, D & E.

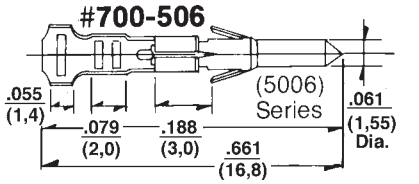
Circuits	Dim A	Dim. B	Circuits	Dim. A	Dim. B	Circuits	Dim. A	Dim. B	Circuits	Dim. A	Dim. B
2	.28 (7,2)	.47 (12,0)	4	.28 (7,2)	.85 (21,6)	9	.66 (16,8)	.66 (16,8)	15	.66 (16,8)	1.03 (26,4)
3	.28 (7,2)	.66 (16,8)	6	.47 (12,0)	.66 (16,8)	12	.66 (16,8)	.86 (21,6)			

Ordering Information - Receptacle (Female part — odd *SPAENAUR No's.)*

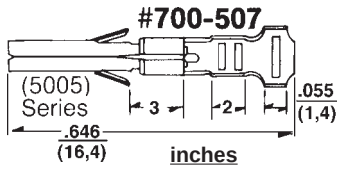
Circuits	*SPAENAUR No.*	Circuits	*SPAENAUR No.*	Circuits	*SPAENAUR No.*	Circuits	*SPAENAUR No.*
2	**700-019**	4	**700-023**	9	**700-027**	15	**700-031**
3	**700-021**	6	**700-025**	12	**700-029**		

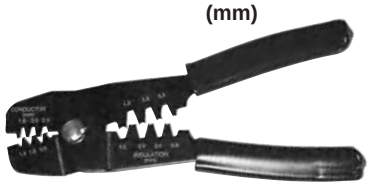
5005/5006 Mini Fit Series Terminals (for 5025 Housings)

Tin Plated Brass Terminal



876-481 Extraction Tool
Mfr. #HT-2023





876-482 Hand Crimper
Mfr. #63811-1000

Loose Terminals Male	Loose Terminals Female	Unit Package	Wire Size	Insulation Diameter
SPAENAUR NUMBERS LISTED BELOW				
700-506	**700-507**	**200**	AWG #18-24	(ø 3.0 Max.)
700-508	**700-509**	**200**	AWG #24-28	(ø 2.4 Max.)

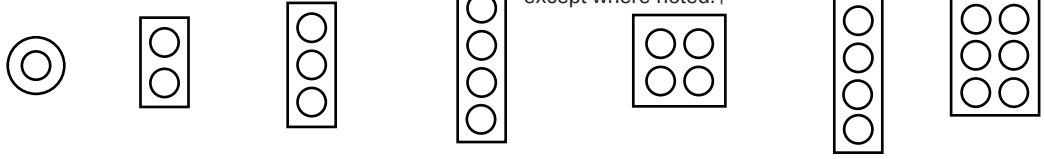
CATALOG 13

MOLEX Series No's.
1625, 1649, 1772,
2004

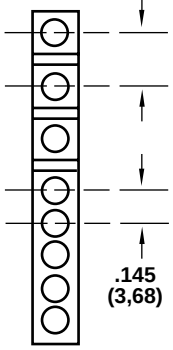
inches
(mm)

Grid Patterns

.145" grid pattern
except where noted.†



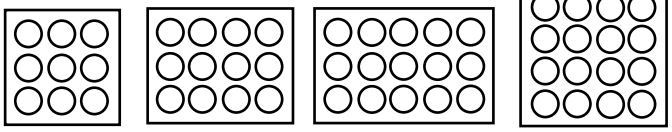
Series No. → **1625-1** **1625-2** **1625-3** **1625-4** **2004** **1625-5** **1625-6**



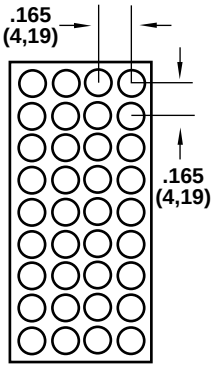
1649 Series

NYLON

UL
94V - 2



Series No. → **1625-9** **1625-12** **1625-15** **1625-24**



Series No. → **1772-36**

Please order by SPAENAUR No's.

(See below)

G

Specifications and Ordering Information

***SPAENAUR* NUMBERS LISTED BELOW**

Circuits	Series No.	**Receptacle** (Female Part — Odd No's.) With Mtg. Ears Only	W/O Mtg. Ears W/O Detent	With Mtg. Ears and Detent	With Detent Only	**Plug** (Male Part — Even No's.) With Mtg. Ears & Detent Window	With Detent Window	With Detent Window and Tab
1	1625-1	—	—	—	—	—	—	—
2	1625-2	—	—	—	**700-037**	—	**700-036**	—
3	1625-3	—	—	—	**700-041**	—	**700-040**	—
4	1625-4	—	—	**700-043**	—	**700-042**	—	—
4 (a)	2004	—	—	—	—	—	—	—
5	1625-5	—	—	—	—	—	—	—
6	1625-6	—	—	—	—	—	—	—
8 (b)	1649	—	—	**700-057**	—	—	—	**700-058**
9	1625-9	—	—	—	—	—	—	—
12	1625-12	—	—	**700-065**	—	**700-064**	—	—
15	1625-15	—	—	—	—	—	—	—
24	1625-24	—	—	—	—	—	—	—
36 (c)	1772	—	**700-079**	—	—	**700-076**	—	—
36 (d)	1772	—	—	—	—	—	—	—

(a) Four circuits in square matrix.
(b) Terminal center spacing
Circuits 1, 2, 3, 4 - .235"†
Circuits 5, 6 7, 8 - .145"
(c) All versions have pull tabs. Locking feature not available.
(d) All versions have pull tabs. Unique locking feature used.

Unit Pkg. 10

Plating Specifications

Tin Plating
Description
Electro Tin Plate .000300" / .000200 Over .000130" / .000100 Copper (Post Plate)

Gold Plating
Description
Gold Plate .000030" / .000020 Over .000060" / .000030 Nickel (Post Plate)

The standard stock finish of all MOLEX Terminals of BRASS material, also the BRASS content of all Connectors, Wafers, etc., is Electro Tin Plate, to the Plating information shown above. Other finishes including Gold Plating, are available to special order. We will be pleased to quote upon request.

NYLON

Rated 94V-2

3191 Series

molex®

1 cir.

2 cir.

3 circuits

4 cir.

6 cir.

9 cir.

12 cir.

15 cir.

Current Rating: **250 V.A.C. or 600 V.A.C.**

Connector Circuit Grid Patterns
.264" (6,71 mm) grid spacing

Unit Package 10

See Page G71 for Dimensional Information 3191.

Circuits	Receptacle Available only without Mounting Ears	Plug with Mounting Ears	Plug without Mounting Ears	Electrical Max. Amps.	Electrical Max. Volts
	SPAENAUR No.				
1	**700-003**	**700-002**		12	600
2	**700-005**	**700-004**		12	600
3	**700-007**	**700-006**		11	600
4	**700-009**	**700-008**		9	600
6	**700-011**	**700-010**		9	600
9	**700-013**	**700-012**		8	600
12	**700-015**	**700-014**		7	600
15	**700-017**	**700-016**		6	600

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.093" (2,36 mm) Diameter Terminals

.010" Brass, Crimp Type
Tin Plated

Unit Pkg. 200

.093" (2,36 mm) Diameter, Terminal Information

Please order by SPAENAUR No's.

Wire Size	Insulation Diameter	Model No.	Wire Size	Insulation Diameter	Model No.
14-20	.065/.160 (1,65/4,06)	1189 - Female 1190 - Male	22-24 (a)	.050/.070 (1,27/1,78)	2871 - Female 2870 - Male
18-22	.060/.120 (1,52/3,05)	1381 - Female 1380 - Male	24-30	.030/.060 (0,76/1,52)	1433 - Female 1434 - Male

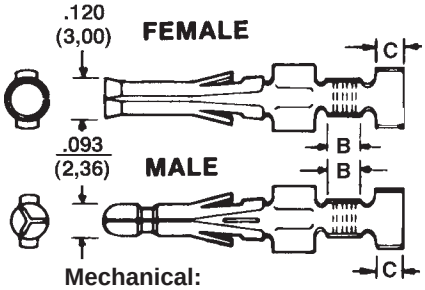
(a) For fire retardant insulated wire.

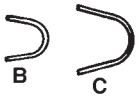
SPAENAUR No's. (six-digit)

Female Terminals							Male Terminals					
Finish	**Form**	**Dimple**	**1189-F**	**1381-F**	**2871-F**	**1433-F**	**Finish**	**Form**	**1190-M**	**1380-M**	**2870-M**	**1434-M**
Tin	Loose	Yes	**700-503**	**700-505**			Tin	Loose	**700-502**	**700-504**		

Specifications - Electrical:

Resistance - MV voltage drop per amp, ±10%: ● 1st engagement 3.0 ● 10th engagement 3.1 Probe about 1" (2,54 cm) from crimp barrel on 18 AWG stranded wire. Voltage drop includes mated terminals and both crimps. Brass material and tin plating.
High Voltage Test - Withstands 1500 volts RMS applied between adjacent terminals for 60 seconds mounted in all housings.
Temperature Rise/Operating Range - 30° maximum for all connectors at maximum rated current.
Temperature range - 40°C to 105°C
Current Rating - Amperage rating up to 12 amps on some sizes.





Hand-Crimp Tool
B - Conductor Crimp area
C - Insulation Crimp Area

Mechanical:

Terminal Crimp Strength - Minimum pull-out force in pounds (kilograms) for AWG wire sizes:

14-35 (15,9)	24-8 (3,63)
16-30 (13,6)	26-5 (2,27)
18-20 (9,07)	28-3 (1,36)
20-15 (6,80)	30-2 (0,91)
22-10 (4,54)	

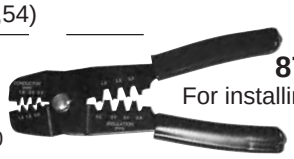
Engage/Disengage Forces - Standard terminal of .010" (0,25 mm) stock 70/30 brass. Average engage/disengage forces in plug/receptacle connector with +30% tolerance in pounds (kilograms) by circuit:

1-circuit	3.5/2.75	(1,59/1,25)
2 -circuit	7.0/5.5	(3,18/2,50)
3-circuit	9.5/8.26	(4,77/3,75)
4-circuit	14.0/11.02	(6,36/5,00)
5-circuit	17.5/13.7	(7,95/6,24)
6-circuit	21.0/16.5	(9,53/7,50)
9-circuit	31.5/24.8	(14,30/11,24)
12-circuit	42.0/33.07	(19,06/15,00)
15-circuit	52.5/41.3	(23,84/18,73)

Mfr. #HT - 2038

876-483 Extractor Tool
(for removing .093" Terminals)

Hand-Crimp Tool
Mfr. #63811-1000



876-482
For installing .093 terminals

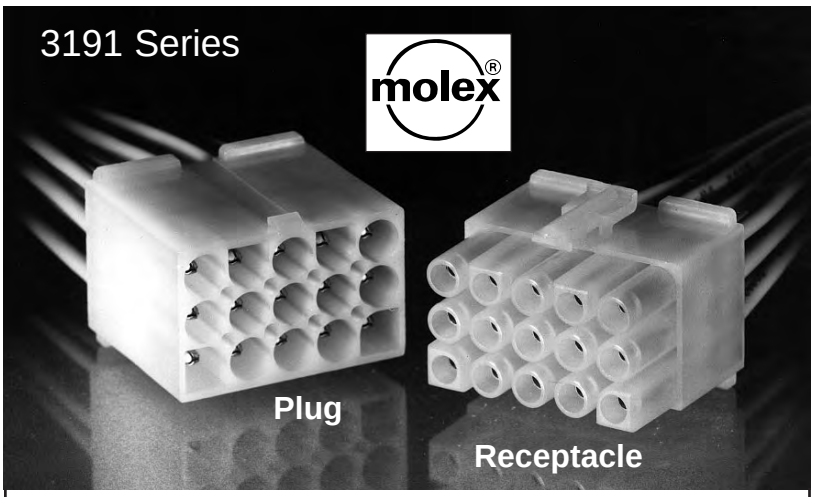
Hand Tools Priced Singly

CATALOG 13

NYLON

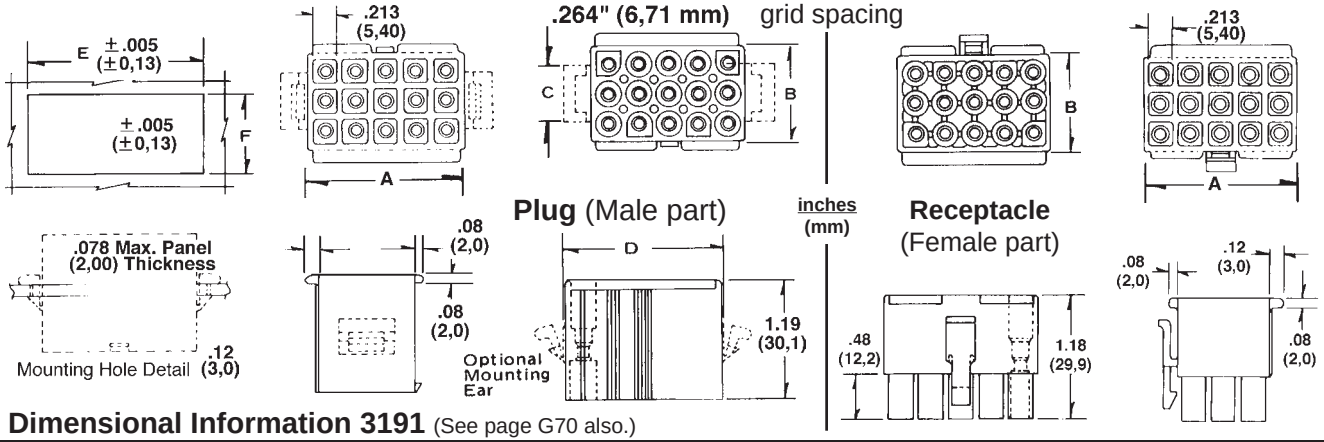
Current Rating
250 V.A.C.
or 600 V.A.C.

- Integrally molded polarization
- 94V-2 rated nylon
- Accepts Molex .093" (2,36 mm) crimp type or P.C. tail terminals
- Meets current and future European, Japanese and American Specs.
- .093" (2,36 mm) Pin & Socket dia.
- 2, 3, 4, 6, 9, 12, 15 circuit versions
- Positive locking
- Integrally molded mounting ears available
- .16" (4 mm) over surface and .12" (3 mm) through air spacing between terminals.
- Standard color white can be color coded in black, brown, green, gray, orange, amber, red or yellow.
- .264" (6,71 mm) grid pattern.



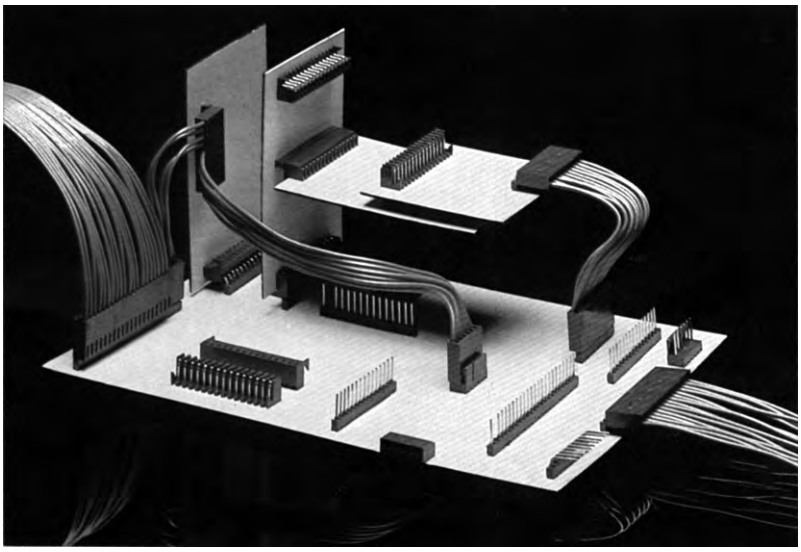
Example of complete (15 circuit) **CONNECTOR** made from **Plug** and **Receptacle** parts listed on page G70 and below, plus the appropriate wire.

G



Dimensional Information 3191 (See page G70 also.)

Cir-cuits	Receptacle A	Receptacle B	Plug A	Plug B	Plug C	Plug D	Plug E	Plug F
1	.300 (7,6)	.300 (7,6)	.32 (8,1)	.32 (8,1)	.32 (8,1)	.32 (8,1)	2.065 (12,31)	3.43 (68,7)
2	.56 (14,3)	.300 (7,60)	.58 (14,7)	.32 (8,1)	.32 (8,1)	.635 (16,13)	.800 (20,32)	.365 (9,27)
3	.83 (21,0)	.300 (7,60)	.848 (21,59)	.32 (8,1)	.32 (8,1)	.862 (21,80)	1.022 (25,96)	.365 (9,27)
4	1.09 (27,7)	.300 (7,60)	1.11 (28,2)	.321 (8,15)	.321 (8,15)	1.109 (28,17)	1.270 (32,26)	.365 (9,27)
6	.83 (21,0)	.56 (14,3)	.85 (21,6)	.604 (15,2)	.58 (14,7)	.888 (22,55)	1.048 (26,62)	.658 (16,71)
9	.83 (21,0)	.83 (21,0)	.85 (21,6)	.868 (22,05)	.58 (14,7)	.883 (28,96)	1.048 (33,02)	.909 (23,11)
12	1.09 (27,7)	.83 (21,0)	1.112 (28,3)	.868 (22,05)	.58 (14,7)	1.140 (28,96)	1.300 (33,02)	.910 (23,11)
15	1.35 (34,4)	.83 (21,0)	1.38 (35,0)	.868 (22,05)	.58 (14,7)	1.392 (35,56)	1.552 (39,42)	.910 (23,11)



G

Introduction

The Molex KK® Interconnection System

The proven KK® system of “building block” connectors can be used to create thousands of different configurations, thereby allowing each user to build a system that is precisely suited to any application on .098" (2,5 mm), .100" (2,54 mm), .156" (3,96), and .200" (5,08 mm) centres.

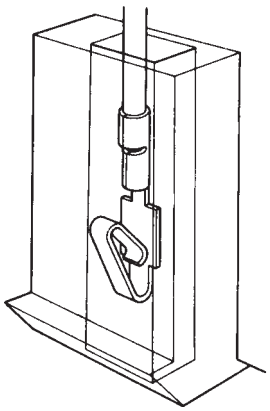
The system offers interconnection in a number of modes; cable-to-board, board-to-board, both parallel and perpendicular; and board-or cable-to-chassis. Features include a friction lock to secure connectors to wafer, polarizing wall or location pegs to assure correct assembly, and a chassis mount option for mounting to sheet metal panels. Various methods of securely holding the connectors to a P.C. board are available.

The Molex KK® interconnect system can provide all the options necessary to complement P.C. board interconnection design requirements. For this reason KK® has become known as a versatile interconnecting system developed to meet the challenge of modularization. For specifications or design information please contact our sales office.

To complement the KK® System Molex has developed a full line of application tooling. This includes both manual and semi-automatic crimp tooling, and also some of the fastest and most economical pinsetting equipment in the industry. The Molex Vibrator Multi-Pinsetter® can set 12,000 pins in three minutes. For Application Tooling contact our sales office.

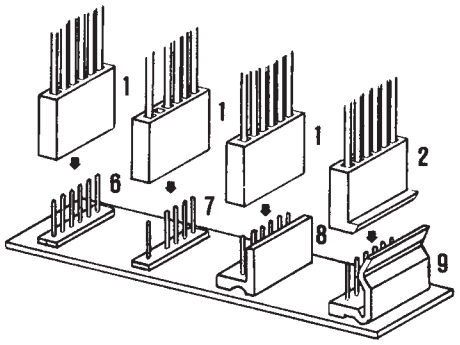
Molex KK® Concept

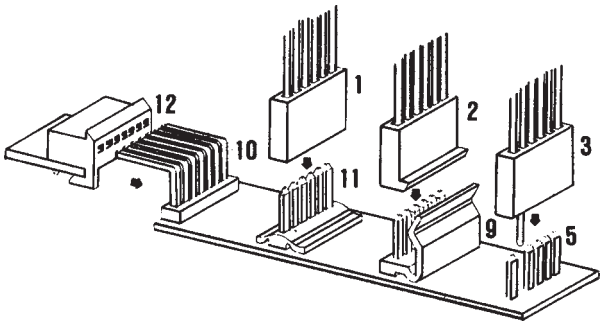
The Molex KK concept utilizes a double cantilever contact design in mating with P.C. board pins. The proven double cantilever design provides a high uniform contact pressure for a reliable connector interface. The high pressure creates many contact points at a microscopic level, thereby providing a lower contact resistance. The wiping action of the double cantilever design tends to clean oxides and film when the connector is mated.

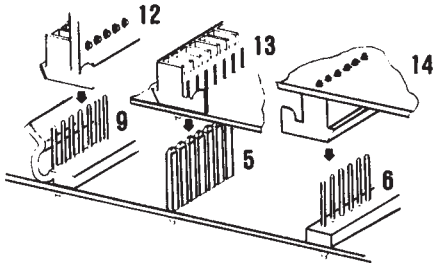


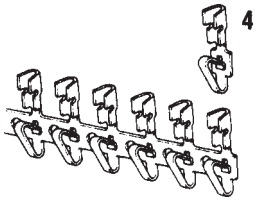
CATALOG 13

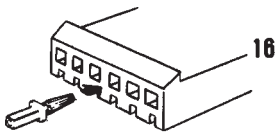
Molex Series No's. (for reference use only)

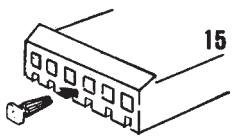












.100" (2,54 mm) - .156" (3,96 mm) CENTRE SPACING REFERENCE CHART

No.	Description	Centre Spacing	
		.100 (2,54)	.156 (3,96)
1	Connector housing for use with crimp-type terminals	2695 6471 7880	2139 6442
2	Connector housing with locking ramp	2695 6471	2139 3069 6345
3	Connector with polarizing peg	-	-
4	Terminals for use with above housings	2759 4809 7879	2478 2578 6838 7258
5	Male pins	2766 4166	2161 2173
6	Straight wafer	4030	2402 2461 3192
7	Standard wafer with pin omitted for polarization	Contact Factory	
8	Polarizing wafer	6410 6373 7478	2403 2534 6393
9	Locking wafer	6410 6373 7478	2391 2420 4042
10	Right angle wafer	4094	2373 3246
11	Chassis mount wafer	-	2220 4737
12	(Right angle) Connector to interconnect perpendicular P.C. boards	4455	2145 3243
13	Connector to interconnect parallel bottom entry P.C. boards	4455	2145
14	Connector to interconnect parallel P.C. boards	4455	2145
15	Polarizing key without peg	4161-1	2560-1
16	Polarizing key with peg	4161-2	2560-2

Pages G75 and G77 show *SPAENAUR No's.*

Please order by SPAENAUR No.

SPAENAUR

ASSORTMENT 805-502
ASSORTIMENT

Drawer Size:
13-3/8" x 9-1/4" x 2"

235 CONNECTORS 350 TERMINALS

PRICED SINGLY

Each Assortment includes
1 Hand Crimper **876-482**
1 Extraction Tool **876-485**

Assortment Contains Molex Series Nos. 2759, 4030, 4455-AC, BC, CC, 6410, 6471 & 7478. 2 to 10 circuit range

As listed below and on page G75.

REGULAR SIZE welded STEEL drawers finished in Grey enamel.

Drawers will fit into the Slide Racks shown on page A2.

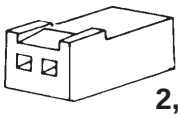
For Maintenance of Electrical Equipment
also
Used by Designers & Engineers
For Prototype Work

molex®

KK® Interconnection System
.100" (2,54 mm) Centre Spacing

Typical Components of above Assortment

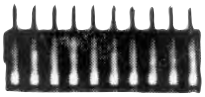
Crimp Terminal Housings



6471 Series
Circiuts
2, 3, 4, 5, 6, 7, 8, 10

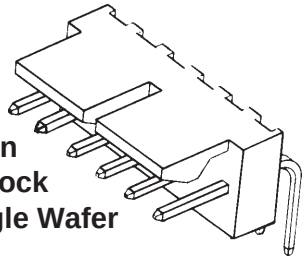
4030 Series
Square Pin Straight Wafer

4455-AC Series
P.C. Board Connector
Right Angle Mount



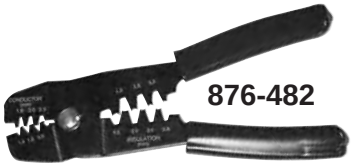
4455-BC Series
P.C. Board
Bottom Entry Connector

Series 7478
Typical Square Pin Friction Lock Right Angle Wafer



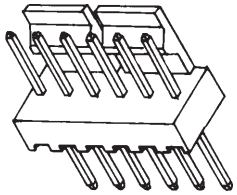
Housings are of UL 94V-0 Flame Retardant NYLON (Pins are BRASS, Tin Plated)

4455-CC Series
P.C. Board
Top Entry Connector



876-482
Hand Crimper
Mfr. #63811-1000

6410 Series
Typical Square Pin Friction Lock Wafer



Crimp Terminals
Tin Plated Brass
2759 Series
#22 to 30 AWG

876-485

Extraction Tool
Mfr. No. HT-2759

CATALOG 13

Molex components of Assortment 805-502, shown on facing Page G74.
Housing Material: UL 94V-0 NYLON (Flame Retardant Red or White - our option.)

SPAENAUR No.	Molex Series	Circuits	Description	*UNIT PKG.
700-093	6471	**2**	Crimp Terminal Housing (With Locking Ramp)	**15**
700-094	6471	**3**	ditto	**15**
700-095	6471	**4**	"	**15**
700-096	6471	**5**	"	**15**
700-138	6471	**6**	"	**15**
700-098	6471	**7**	" (Used with No. 700-510 Crimp Terminal (below))	**10**
700-099	6471	**8**	"	**10**
700-100	6471	**10**	"	**10**
700-101	4455-AC	**10**	P.C. Board Connector Rt. Angle Mount	**10**
700-102	4455-BC	**10**	P.C. Board Bottom Entry Connector	**10**
700-103	4455-CC	**10**	P.C. Board Top Entry Connector	**10**
700-104	4030	**10**	Square Pin Straight Wafer - Short	**15**
700-105	4030	**10**	Square Pin Straight Wafer - Long	**15**
700-106	7478	**2**	Square Pin Friction Lock, Rt. Angle Wafer	**5**
700-107	7478	**3**	ditto	**5**
700-108	7478	**4**	"	**5**
700-109	7478	**5**	"	**5**
700-110	7478	**6**	"	**5**
700-111	7478	**7**	"	**5**
700-112	7478	**8**	"	**5**
700-113	7478	**10**	"	**5**
700-114	6410	**2**	Square Pin Friction Lock Wafer	**5**
700-115	6410	**3**	ditto	**5**
700-116	6410	**4**	"	**5**
700-117	6410	**5**	"	**5**
700-118	6410	**6**		**5**
700-119	6410	**10**	"	**5**
700-510	2759	**1**	Crimp Terminal - Tin Plated, BRASS	**350**
876-482	63811-1000		Hand Crimper - for Terminal No's. 700-510, - 511 and -512	**1**
876-485	HT-2759		Extractor Tool - for removing Terminals from Housings	**1**

***NOTE: The "UNIT PKG." Quantity is identical to the quantity in Assortment.**

KK® Technical Data Reference

KK® .100" (2,54 mm) UL Recognized (File #29179) CSA Recognized (File 19980)

Voltage Rating - 250 VAC maximum *Temperature Range* -40°C to +105°C *Dielectric Withstanding Voltage* - 1500 VAC for 60 seconds
Current Rating - 3.5 Amps maximum (with 22 AWG wire)
Resistance - 20 milliohms maximum (after testing per MIL STD 202E)

Insulation Resistance - Greater than 500K megohms (75°F and 50% R.H.)

Engagement Force - 7 oz. (199g) maximum with tin plated .025" (0,64 mm) square pin
Disengagement Force - 2 oz. (57g) minimum for first cycle with tin plated .025" (0,64 mm) square pin

Terminal Retention to Housing - 8 lbs. (3,63 kg) minimum
Wire Pullout Forces (Crimp) - 22 AWG - 10 lbs. (4,54 kg)
24 AWG - 8 lbs. (3,63 kg)
26 AWG - 6 lbs. (2,72 kg)
28 AWG - 4 lbs. (1,81 kg)
30 AWG - 3 lbs. (1,36 kg)

Note: Enquiries invited for MOLEX items other than those listed here.

SPAENAUR

ASSORTMENT / ASSORTIMENT 805-506

Drawer Size:
13-3/8" x 9-1/4" x 2"

135 CONNECTORS 700 TERMINALS

PRICED SINGLY

Each Assortment includes
1 Hand Crimper **876-480**
1 Extraction Tool **876-486**

Assortment Contains Molex Series No's. 2139, 2145-A, B, C, 2220, 2373, 2391, 2420, 2461, 2478, 2560, 2578. 3 to 10 circuit range.

30 only, No. 700-137 Polarizing Keys
As listed below and on page G77.

Shipping Weight 2.49 kg (5-1/2 lbs.)

REGULAR SIZE welded STEEL drawers finished in Grey enamel.

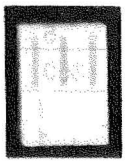
Drawers will fit into the Slide Racks shown on page A2.

For Maintenance of Electrical Equipment
also
Used by Designers & Engineers
For Prototype Work

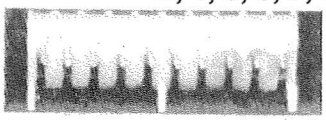
molex®

KK® Interconnection System
.156" (3,96 mm) Centre Spacing

Typical Components of above Assortment

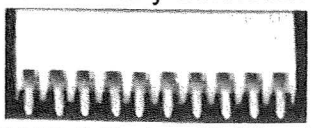


Crimp Terminal Housings
2139 Series
Circuits
3, 4, 5, 6, 7, 10

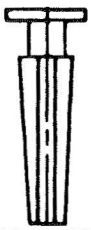


2145-A Series **10 Circuit**
P.C. Board Connector
Right Angle Mount

2145-B Series **10 Circuit**
P.C. Board
Bottom Entry Connector



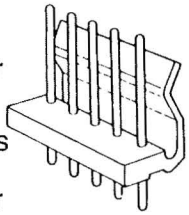
2145-C Series **10 Circuit**
P.C. Board
Top Entry Connector



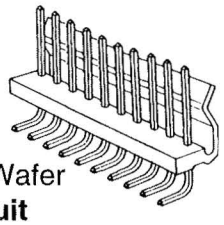
#700-137

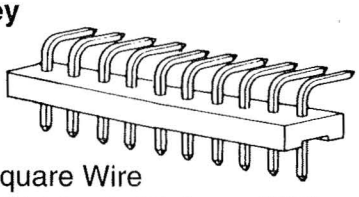
Polarizing Key

Round Pin
Friction Lock Wafer
5 Circuit 2391 Series
Round Pin
Friction Lock Wafer
10 Circuit



2420 Series
Square Wire
Right Angle
Friction Lock Wafer
10 Circuit



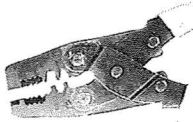


Square Wire
Right Angle Wafer 2373 Series
10 Circuit

Crimp Terminals
Tin Plated Brass

2578 Series
#22 to 26 AWG

2478 Series
#18 to 24 AWG

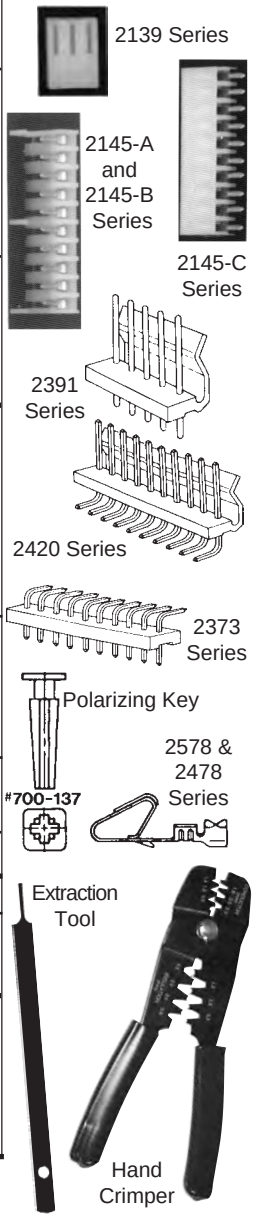


876-480
Hand Crimper

876-486 Extraction Tool
Mrf. No. HT-2174

CATALOG 13

SPAENAUR No.	Molex Series	Circuits	Description	UNIT PKG.
	Housing Material: UL 94V-0 NYLON (Flame Retardant-white)			
700-121	2139	3	Crimp Terminal Housing (With Locking Ramp)	10
700-122	2139	4	ditto	10
700-123	2139	5	"	10
700-124	2139	6	"	10
700-125	2139	7	"	10
700-127	2139	10	"	10
			Used with No. 700-511 and No. 700-512 Crimp Terminal listed below.	
	Housing Material: UL 94V-2 NYLON (White Colour) Pin Material: BRASS, Tin Plated (to Spec. #842-102)			
700-128	2145-A	10	P.C. Board Connector, Rt. Angle Mount	5
700-129	2145-B	10	P.C. Board Connector, for Bottom Entry	5
700-130	2145-C	10	P.C. Board Connector, for Top Entry	5
700-131	2461	10	Square Pin, Straight Wafer	10
700-132	2373	10	Square Pin, Rt. Angle Wafer	5
700-133	2420	10	Square Pin, Rt. Angle Friction Lock Wafer	5
700-136	2220	10	Square Pin, Chassis Mount Wafer	5
700-134	2391	5	Round Pin, Friction Lock Wafer	10
700-135	2391	10	ditto	5
700-137	2560-1	1	Polarizing Key	30
			CRIMP TERMINALS — BRASS, Tin Plated	
700-511	2478	1	#18 to #24 AWG Crimp Terminals	350
700-512	2578	1	#22 to #26 AWG ditto	350
			HAND TOOLS	
876-482	63811-1000		Hand Crimper — for Terminals 700-510, -511, and -512.	1
876-486	HT-2174		Extraction Tool — for removing Terminals from Housings	1



KK® Technical Data Reference

KK® .156" (3,96 mm) and .200" (5,08 mm) UL Recognized (File #29179) CSA Recognized (File 19980)

Voltage Rating - 250 VAC maximum
Temperature Range -40°C to +105°C
Current Rating - 7 Amps maximum (with 18 AWG wire)
Resistance - 20 milliohms maximum (after testing per MIL STD 202E)
Insulation Resistance - Greater than 500K megohms (75°F and 50% R.H.)
Dielectric Withstanding Voltage - 1500 VAC for 60 seconds

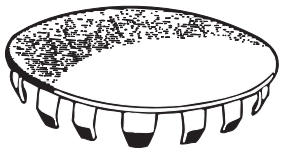
Engagement Force - 24 oz. (680 g) maximum with tin plated .045" (1,14 mm) square pin or round pin; 27 oz. for Trifurcon® terminal
Disengagement Force - 4 oz. (113 g) minimum with .045" (1,14 mm) square or round pin. Model 2145-B is 2 oz. (57 g) minimum

Terminal Retention to Housing
8 lbs. (3,63 kg) minimum

Wire Pullout Forces (Crimp)
18 AWG - 20 lbs. (9,07 kg)
20 AWG - 15 lbs. (6,81 kg)
24 AWG - 8 lbs. (3,63 kg)
26 AWG - 5 lbs. (2,27 kg)

Steel Hole Plugs	Bouchons en acier	**H2**
Air Nozzles / Pneumatic Silencers	Buses d'air / silencieux pneumatiques	**H5**
Threaded Plugs	Bouchons filetés	**H6**
Lubrication Fittings	Armatures à lubrifié	**H11**
Utility Springs	Ressorts tout usage	**H16**
Music Wire	Fil à ressort	**H21**
Auto Molding Clips	Pinces pour moulures d'automobiles	**H22**
Tubing & Wiring Clips	Attaches de tuyauterie et de câblage	**H30**
Auto Glaziers Trim Clips	Pinces pour vitrerie d'automobiles	**H32**
Nylon Panel Ratchet Clips	Pinces «ratchet» en nylon	**H36**
Headlamp Adjusting Screw Assemblies	Vis de phares etc.	**H37**
Auto Trim Supplies	Fournitures pour les garnitures d'automobile	**H42**

Standard Type



For Round and Square Tubing Type, Steel Plug Button's - See Page F3

BRASS or STEEL snap-in covers for holes in metal, plastics, or fibreboard.

For Use In		O.D. of Plug Button Head	Plug Button Material	Bare Metal		Finished		Unit Pkg. Qty.
Hole Dia. (Inches)	Approximate Thickness Min.-Max.			*SPAENAUR No.*	Mfr. No.	*SPAENAUR No.*	Finish	
1/8	.050-.062	21/64	Brass	**B-1834**	BS-48148	**B-1834N**	Nickel	100
13/64	.037-.046	11/32	Steel	**B-1832**	SS-48150	**B-1832-CH**	Nickel	100
7/32	.062-.078	11/32	Brass	**B-1835**	BS-50711	**B-1835N**	Nickel	100
1/4	.035-.062	13/32	Brass	**B-1688PB**	D-2587	**B-1688**	Nickel	50
1/4	.035-.062	13/32	Steel	**B-1725-PS**	D-2587	**B-1725-N**	Nickel	50
9/32	.020-.062	13/32	Steel	**243-001**	D-2666	**243-002**	Nickel	100
9/32	.032-.046	13/32	Brass	**69-SNPB**	BS-50627	**69-SN**	Nickel	50
9/32	.032-.078	13/32	Steel	**B-1836**	SS-51071	**B-1836N**	Nickel	100
5/16	.020-.062	7/16	Brass	**B-1689PB**	D-5076	**B-1689**	Nickel	50
5/16	.062-.078	7/16	Steel	**B-1833**	D-2730	**B-1833-N**	Nickel	100
21/64	.037-.062	7/16	Brass	**B-1789**	BS-51564	**B-1789N**	Nickel	50
11/32	.037-.062	1/2	Steel	**B-1837**	D-4161	**B-1837N**	Nickel	100
11/32	.093-.125	17/32	Steel	**B-1790**	SS-48149	**B-1790N**	Nickel	50
23/64	.025-.093	9/16	Steel	**B-1838**	SS-51087	**B-1838N**	Nickel	100
3/8	.037-.078	17/32	Brass	**80-SNPB**	BS-48192	**80-SN**	Nickel	50
3/8	.050-.062	1/2	Steel	**B-1786**	SS-48192	**B-1786-N**	Nickel	50
3/8	.093-.171	17/32	Steel	**B-1758**	SS-48154	**B-1758-N**	Nickel	50
25/64	.078-.090	1/2	Brass	**—**	BS-51003	**B-1764N**	Nickel	50
25/64	.078-.090	1/2	Steel	**B-1765**	D-3160	**B-1765N**	Nickel	50
13/32	.062-.078	1/2	Steel	**B-1691**	SS-48182	**B-1691-N**	Nickel	50
13/32	.078-.094	1/2	Brass	**B-1272PB**	D-3629	**B-1272**	Nickel	50
7/16	.032-.062	21/32	Steel	**243-003**	D-2783	**243-004**	Nickel	50
7/16	.037-.047	21/32	Brass	**B-1723PB**	BS-51043	**B-1723**	Nickel	50
7/16	.037-.047	21/32	Steel	**B-1873**	SS-51043	**B-1873N**	Nickel	50
7/16	.050-.078	3/4	Brass	**B-1840**	BS-51117	**B-1840N**	Nickel	100
29/64	.050-.062	21/32	Brass	**B-1735**	BS-48187	**B-1735-N**	Nickel	50
15/32	.083-.125	5/8	Steel	**B-1736**	SS-51051	**B-1736-N**	Nickel	50
15/32	.125-.156	5/8	Brass	**81-SNPB**	D-2724	**81-SN**	Nickel	50
31/64	.125-.156	5/8	Steel	**B-1737**	HS-51163	**B-1737-N**	Nickel	50
1/2	.037-.062	21/32	Brass	**84-SNPB**	BS-48152	**84-SN**	Nickel	50
1/2	.037-.062	21/32	Steel	**B-1793**	SS-48152	**B-1793-N**	Nickel	50
1/2	.125-.156	5/8	Brass	**B-1841**	D-5071	**B-1841N**	Nickel	100
33/64	.037-.062	21/32	Steel	**B-1842**	SS-50662	**B-1842N**	Nickel	100
17/32	.050-.062	21/32	Steel	**B-1751-PS**	SS-51074	**B-1751**	Nickel	50
17/32	.125-.156	11/16	Steel	**B-1273-PS**	D-4037	**B-1273**	Nickel	50
9/16	.046-.093	23/32	Brass	**244-005**	D-3558-B	**244-006**	Nickel	50
9/16	.062-.078	23/32	Steel	**B-1788**	D-3558-S	**B-1788-N**	Nickel	50
5/8	.062-.078	51/64	Brass	**85-SNPB**	BS-48172	**85-SN**	Nickel	50
5/8	.062-.093	13/16	Brass	**244-003**	D-2859	**244-004**	Nickel	50
5/8	.062-.109	51/64	Steel	**B-1794**	SS-51142	**B-1794-N**	Nickel	50
11/16	.032-.093	7/8	Brass	**244-001**	D-4728	**244-002**	Nickel	50
11/16	.037-.062	7/8	Brass	**B-1690PB**	BS-50727	**B-1690**	Nickel	50
23/32	.078-.093	7/8	Steel	**B-1843**	SS-51176	**B-1843N**	Nickel	100
3/4	.037-.093	15/16	Brass	**86-SNPB**	D-2690	**86-SN**	Nickel	50
3/4	.037-.093	15/16	Steel	**B-1745-PS**	SS-51026	**B-1745N**	Nickel	50
3/4	.078-.109	15/16	Steel	**B-1716-PS**	D-2690	**B-1716**	Nickel	50
25/32	.125-.187	15/16	Steel	**B-1739**	SS-51334	**B-1739-N**	Nickel	50

Cont'd.

See pages J2 and J3 for Nylon Plug Buttons.

For Use In		O.D. of		Bare Metal		Finished		
Hole Dia. (Inches)	Approximate Thickness Min.-Max.	Plug Button Head	Plug Button Material	*SPAENAUR No.*	Mfr. No.	*SPAENAUR No.*	Finish	Unit Pkg. Qty.
13/16	.046-.062	1-1/16	Steel	**B-1844**	SS-51045	**B-1844N**	Nickel	100
7/8	.062-.093	1-1/16	Steel	**87-SNPS**	SS-48155	**87-SNS**	Nickel	50
7/8	.062-.093	1-1/16	Brass	**87-SNPB**	BS-48155	**87-SN**	Nickel	50
7/8	.125-.171	1-1/16	Steel	**B-1728-PS**	D-5393	**B-1728-N**	Nickel	50
29/32	.031-.062	1	Steel	**B-1757**	D-3992	**B-1757-N**	Nickel	50
15/16	.062-.078	1-5/32	Brass	**B-1845**	BS-51351	**B-1845N**	Nickel	100
1	.031-.093	1-9/64	Steel	**243-007**	D-4290	**243-008**	Nickel	50
1	.062-.078	1-5/32	Brass	**88-SNPB**	BS-48143	**88-SN**	Nickel	50
1	.062-.078	1-5/32	Steel	**B-1797**	SS-48143	**B-1797-N**	Nickel	50
1	.109-.125	1-5/32	Steel	**B-1740**	SS-48166	**B-1740-N**	Nickel	50
1-1/16	.062-.075	1-5/16	Steel	**B-1815**	SS-51149	**B-1815-N**	Nickel	50
1-3/32	.070-.086	1-5/16	Steel	**B-1741**	SS-51276	**B-1741-N**	Nickel	50
1-1/8	.036-.078	1-5/16	Steel	**B-1556-PS**	SS-48174	**B-1556**	Nickel	50
1-3/16	.031-.093	1-7/16	Steel	**B-1846**	D-3557	**B-1846N**	Nickel	50
1-1/4	.062-.093	1-7/16	Steel	**B-1055-PS**	SS-50726	**B-1055**	Nickel	50
1-5/16	.037-.062	1-9/16	Steel	**B-1770**	SS-48162	**B-1770N**	Nickel	50
1-3/8	.037-.078	1-9/16	Steel	**B-1555-PS**	SS-51058	**B-1555**	Nickel	50
1-3/8	.125-.140	1-9/16	Steel	**B-1759**	SS-48132	**B-1759-N**	Nickel	50
1-7/16	.125-.156	1-39/64	Steel	**B-1742**	D-3839	**B-1742-N**	Nickel	50
1-1/2	.037-.062	1-41/64	Steel	**B-893-PS**	D-3632	**B-893**	Nickel	50
1-5/8	.031-.125	1-13/16	Steel	**243-005**	D-4212	**243-006**	Nickel	50
1-5/8	.062-.078	1-51/64	Steel	**B-1563**	SS-50841	**B-1563N**	Nickel	50
1-3/4	.037-.093	1-15/16	Steel	**B-1564**	SS-50890	**B-1564-N**	Nickel	50
1-7/8	.062	2-3/16	Steel	**B-1351-PS**	D-3933	**B-1351**	Nickel	10
2	.037-.187	2-5/16	Steel	**B-1565**	SS-48175	**B-1565-N**	Nickel	50
2	.037-.062	2-1/4	Steel	**B-1941**	D-3103	**B-1941N**	Nickel	50
2-3/32	.046-.062	2-9/16	Steel	**B-1771**	XS-51171	**B-1771N**	Nickel	50
2-1/4	.037-.078	2-9/16	Steel	**B-1594-PS**	XS-51056	—	Nickel	50
2-1/2	.037-.062	2-25/32	Steel	**B-1595-PS**	SS-51111	**B-1595**	Nickel	50

P.C. 243 and 244

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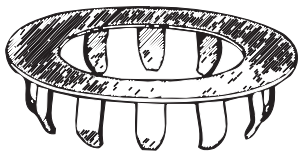
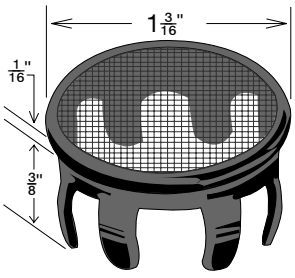
PLUG BUTTONS - MISCELLANEOUS



Pierced Cap Type

For Use In		O.D.			Bare Metal		Finish		
Hole Dia. (Inches)	Approx. Thick. Min. - Max.	of Plug	Hole Dia. in Cap	Button Material	*SPAENAUR No.*	Mfr. No.	*SPAENAUR No.*	Finish	Unit Pkg.
1-3/8"	.125 - .140"	1-9/16"	1"	Steel	**B-1767**	SS-51066	**B-1767-N**	Nickel	50



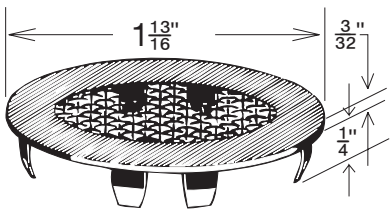
Screen Ventilator Type

B-1630
STEEL - NICKEL PLATED
For 1" Dia. Hole

Unit Package 50

For 1-5/8" Dia. Hole in .062" - .078" Material Thickness.

Unit Package 50



B-1816 (Plain Steel)
B-1816N (Steel - Nic. Pl.)

CATALOG 13

ASSORTMENT
ASSORTIMENT
A-206

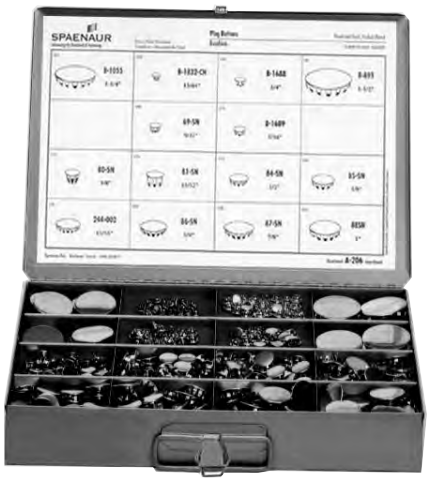
BRASS and STEEL*
PLUG BUTTONS

Nickel Plated Finish.

14 Sizes - 312 Pieces

Furnished in Regular Size grey enamelled steel drawer with scooped bins for easy access.

Drawer will fit into Slide Racks shown on page A2.



Shipping Weight: 2.49 kg (5-1/2 lbs.)

Priced Singly

Contents of Assortment

SPAENAUR No.	For Hole Diameter	Ass't. Qty.
B-1832-CH*	13/64"	30
B-1688	1/4"	30
69-SN	9/32"	25
B-1689	5/16"	25
80-SN	3/8"	35
81-SN	15/32"	25
84-SN	1/2"	35
85-SN	5/8"	20
244-002	11/16"	20
86-SN	3/4"	20
87-SN	7/8"	15
88SN	1"	12
B-1055*	1-1/4"	12
B-893 *	1-1/2"	8

*Steel - Nickel Plated

H

Plastikit
«Plastikit»
1708

PLUG BUTTONS
BRASS - Nickel Plated
7 Sizes — 65 Plugs

SPAENAUR No.	For Hole Diameter	Ass't. Qty.
80-SN	3/8"	9
81-SN	15/32"	9
84-SN	1/2"	9
85-SN	5/8"	10
86-SN	3/4"	10
87-SN	7/8"	9
88SN	1"	9

Plastikit
«Plastikit»
804-084

PLUG BUTTONS
STEEL - Nickel Plated
7 Sizes — 56 Plugs

SPAENAUR No.	For Hole Diameter	Ass't. Qty.
B-1786-N	3/8"	8
243-004	7/16"	8
B-1793-N	1/2"	8
B-1794-N	5/8"	8
B-1745-N	3/4"	8
87-SNS	7/8"	8
B-1797-N	1"	8

Priced Singly

Furnished in a 1" x 2-3/4" x 4-1/2" handy clear plastic box with hinged lid.

See pages H2 and H3 for full line of metal Plug Buttons.

See pages J2 and J3 for Nylon Plug Buttons.

Looking for a product not listed?

Call us at (800) 265-8772.

SPAENAUR

CATALOG 13

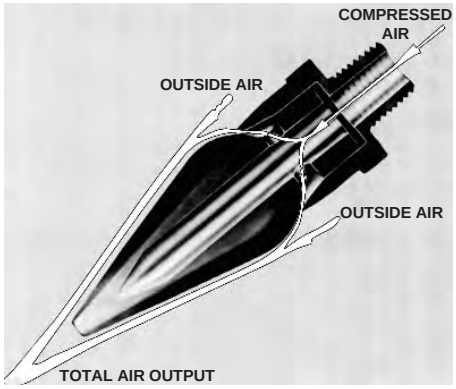
High Thrust Air Nozzles
Buses d'air à pression élevée

Description

High Thrust Air Nozzles are designed for low noise, high thrust, and maximum efficiency. Low compressed air use saves energy while producing extremely high thrust and back pressure. Outside air is entrained to the extent that the air output is more than 45 times the compressed air input . Noise is reduced as much as 25 dB (A) when compared to a 3 inch long open tube at 120 psi . All units are precision set at the factory and have no moving parts.

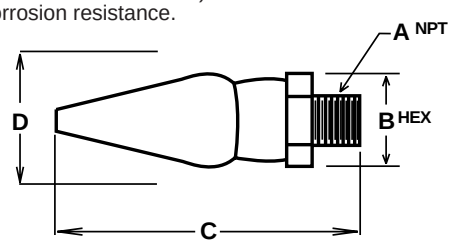
Application

Maximum efficiency is provided by Nozzles at pressures up to 150 psig, making them ideal for use in parts ejection conveying, drying, and cleaning operations. (Filter separators are necessary in lines where nozzles are used.) Aluminum construction is strong, yet lightweight, and affords corrosion resistance.



314-505 (1/8" NPT)
Air Entrainment is more than 45 times compressed air input

314-506 (1/4" NPT)
Air Entrainment is more than 50 times compressed air input.



— reduce noise — increase pressure

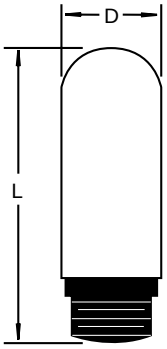
BACK PRESSURE		
As expressed by exhaust time to reduce the pressure in a one cubic foot vessel from 100 psi to 20 psi through a wide open nozzle.	1/8" NPT	24 sec.
	1/4" NPT	17.5 sec.

THRUST		
Typical thrust as measured 8 inches from the nozzle on a 6 inch diameter target at 60 psi.	1/8" NPT	5.2 oz.
	1/4" NPT	6.1 oz.

UNIT PACKAGE 1

SPAENAUR No.	A	B	C	D	Weight
314-505	1/8"	11/16"	2-7/16"	.7"	3/4 oz.
314-506	1/4"	7/8"	3-1/8"	.9"	1-1/2 oz

Available but not stocked -
Model 54006 High Thrust Air Nozzle.
Safe for Food and Drug Contact.
Construction: Strong, lightweight polyvinyl chloride plastic with no moving parts.



Pneumatic Silencers
Silencieux pneumatiques

Reduce Air Noise !

Available in Five Sizes

Pneumatic Air Silencers reduce air valve noise in a safe manner, and at a low a cost.

These silencers are made of Porex, a tough, high-density polyethylene. This porous material allows expanding air to escape at noise levels below OSHA standards, reducing air blast to a whisper. Safety is afforded by resilient plastic which will not shatter.Threaded base is made of solid, high-density polyethylene.

Pneumatic Air Silencers can be used on any equipment discharging air.They operate at pressures up to 150 psi and are designed to fit most air valves. Silencers are easily cleaned with industrial cleaners, and are unaffected by water and oil usually present in air lines.

SPAENAUR No.	NPT Size	Approx. Dia. L	Approx. Dia. D	Wt. Grams
314-500	1/8"	1-3/8"	5/8"	3
314-501	1/4"	1-5/8"	3/4"	5
314-502	3/8"	2-3/4"	1"	10
314-503	1/2"	2-7/8"	1"	12
314-504	3/4"	5-1/2"	1-1/2"	40

Unit Package 1

Test Description

For discharge time and sound pressure level tests the silencers were attached to the end of a 1/2 inch diameter pipe, 6 inches long which was attached through a valve to a one cubic foot cylindrical air tank. The tank was charged to 120 P.S.I. and then by suddenly opening the valve was allowed to discharge through the silencer.

Discharge time was measured using a stopwatch and was defined as the time for the tank back pressures to decrease from 100 P.S.I. to 20 P.S.I. Maximum A-weighted sound pressure levels and discharge times were recorded simultaneously for all tests.

Insertion loss is the difference between the noise that is generated by the tank being exhausted through a three inch long pipe and through a silencer having the same NPT size.

Test Data
Total discharge of 1 ft. tank (120 P.S.I. to 0 P.S.I.)

NPT Size	3" Long Pipe dB(A)	Pneumatic Silencer	Insertion Loss dB(A)
1/8"	119	85	34
1/4"	120	85	35
3/8"	120	88	32
1/2"	118	80	38

PIPE THREAD MAGNETIC PLUGS

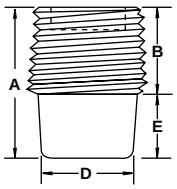
Magnet removes from circulating oil or hydraulic fluid ferrous particles which might cause damage to the motor or product.

Removed for Inspection and Cleaning

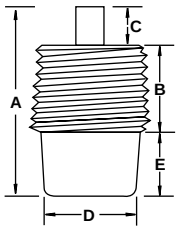
Typical applications:

- cars and trucks
- commercial and military aircraft
- aircraft accessory drives
- road machinery
- farm machinery
- stationary engines
- marine motor & equipment
- hydraulic systems
- industrial machinery and other systems
- air conditioning and refrigeration equipment
- printing presses
- pumps
- gear boxes
- compressors
- mining machinery

DISC STYLE MAGNET



BAR STYLE MAGNET



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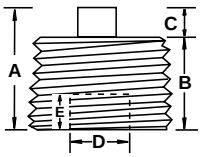
SQUARE HEAD

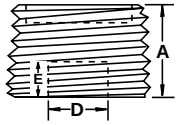
All Dimensions in Inches

SPAENAUR No.	Pipe Thread	Magnet Style	Magnet Material	A Overall Nominal Length	B Body Length	C Magnet Projection	D Head Size	E Head Depth	Body Material
246-111	1/8"-27 NPTF	Bar	Alnico V	.83	.35	.225	.28	.25	Steel
246-112	1/4"-18 NPTF		Alnico V	.96	.45	.23	.37	.28	
246-135	1/4"-18 NPTF		Neodymium	1.0	.47	.225	.37	.30	
246-100	3/8"-18 NPTF		Alnico V	1.07	.525	.215	.44	.33	
246-113	3/8"-18 NPTF	Disc	Ferrite	.80	.47	—	.43	.34	Steel
246-101	1/2"-14 NPTF			.96	.57	—	.56	.38	
246-102	3/4"-14 PTF			1.11	.62	—	.62	.45	
246-114	1"-11-1/2 NPTF	Disc	Ferrite	1.52	.75	—	.81	.52	Mall. Iron
246-115	1-1/4"-11-1/2 NPTF			1.37	.81	—	.94	.56	Cast Iron
246-116	1-1/2"-11-1/2 NPTF	Bar	Ferrite	1.85	.97	.25	1.12	.62	Cast Iron
246-117	2"-11-1/2 NPTF			1.81	.88	.25	1.37	.68	

BAR STYLE MAGNET



DISC STYLE MAGNET



HEX RECESSED

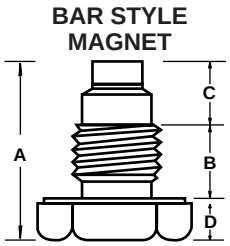
246-118	1/8"-27 NPTF	Bar	Alnico V	.58	.37	.22	.19	.12	Steel
246-128	1/4"-18 NPTF	Bar	Alnico V	.84	.46	.38	.25	.19	
246-132	1/4"-18 NPTF	Bar	Neodymium	.738	.47	.26	.25	.19	
246-103	3/8"-18 NPTF	Bar	Alnico V	.66	.47	.19	.31	.19	
246-129	3/8"-18 NPTF	Disc	Ferrite	.52	.46	.06	.31	.19	
246-133	1/2"-14 NPTF	Bar	Neodymium	.845	.63	.215	.38	.25	
246-130	1/2"-14 NPTF	Disc	Ferrite	.61	.61	—	.38	.25	
246-131	3/4"-14 NPTF	Bar	Neodymium	.84	.62	.19	.56	.31	
246-134	3/4"-14 NPTF	Bar	Neodymium	.78	.64	.14	.56	.31	

SQUARE RECESSED

246-106	1/2"-14 NPTF	Disc	Ferrite	.63	.63	—	.38	.25	Steel
246-107	3/4"-14 NPTF	Disc	Ferrite	.62	.62	—	.51	.31	

All Plugs Priced Singly.

STRAIGHT THREAD MAGNETIC PLUGS



CAP SCREW TYPE

Priced Singly

Gaskets Only	*Unit Package 50*
SPAENAUR No.	**Description**
246-308	Copper-Asbestos for 1/2" Plug
W-53F	Vulcanized Fibre for 5/8" Plug
W-57F	Vulcanized Fibre for 3/4" Plug

Also see page D11 - Flat Fibre Washers

SPAENAUR No. Plug & Gasket	***SPAENAUR No.*** Plug Only	Thread Size & Class	Magnet Style	Magnet Material	A Overall Nominal Length	B Thread Length	C Magnet Projection	Hex Across Flats	D Head Thick-ness	Body Material
246-108	**246-208**	1/2"-20 UNF3A	Bar	Alnico V	.87	.34	.32	.75	.22	
246-109	**246-209**	5/8"-18 UNF2A	Bar	Alnico V	.78	.38	.19	.87	.21	Steel
246-110	**246-210**	3/4"-16 UNF2A	Bar	Alnico V	.92	.41	.25	.93	.26	

H

Self-tapping

EACH DRAIN PLUG IS SUPPLIED WITH A FIBRE GASKET

CRANKCASE, TRANSMISSION, AND DIFFERENTIAL

SELF-TAPPING OVERSIZE DRAIN AND FILLER PLUGS FOR ALL CARS AND TRUCKS USING 1/2" TO 7/8" PLUGS. PLUGS ARE LOW CARBON STEEL, CASE HARDENED, ZINC PLATED.

This plug provides an efficient means of repair, and eliminates a costly labour charge when threads are stripped. No drills or taps required; simply screw plug into position with socket or end wrench. (Hold plug in a straight position while threading.) Then remove plug and clean metal chips from slots and replace.

N.B. Thread style at time of shipping - our option.

OVERSIZE DRAIN PLUGS

(Not Magnetic)

INCH SIZES

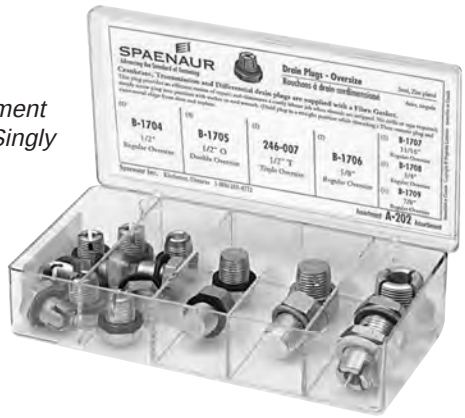
SPAENAUR No.	UNF Size	Particulars	Unit Pkg.
B-1704	1/2"	Regular Oversize	6
B-1705	1/2" O	Double Oversize	6
246-007	1/2" T	Triple Oversize	6
B-1706	5/8"	Regular Oversize	6
B-1707	11/16"	Regular Oversize	6
B-1708	3/4"	Regular Oversize	6
B-1709	7/8"	Regular Oversize	6

ASSORTMENT / ASSORTIMENT	A-202

Assortment Priced Singly

Contents of Assortment

SPAENAUR No.	Qty.	***SPAENAUR No.***	Qty.
B-1704	6	**B-1708**	1
B-1705	4	**B-1709**	1
B-1706	2	**246-007**	2
B-1707	1		



In a translucent polypropylene box 7" x 3-1/2" x 1-1/4"

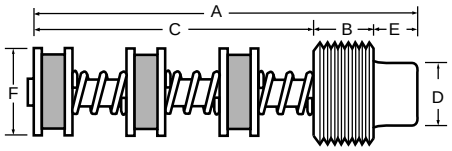
Shipping Wt. .850 kg (1.87 lbs.)

DEEP-REACH ASSEMBLIES

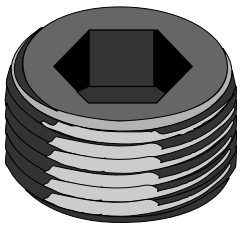
DEEP-REACH ASSEMBLIES are designed to provide magnetic protection for large capacity lube or hydraulic systems. Greater magnetic capability is accomplished by stacking several magnets on a post or inside a thin stainless steel or brass tube. This type of construction projects the chip collection area farther into the system and closer to the areas of chip generation.

The tube method of construction is used primarily on applications that require frequent inspection and cleaning. The "magnetic tube" is easily wiped off. Spacers between the magnets in the tube concentrate the magnetic fields and increase the holding capacity of the unit.

Assemblies Priced Singly.



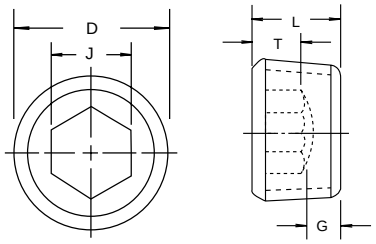
SPAENAUR No.	Thread Size & Class	No. of Magnets Style & Material	A Overall Nominal Length In. (mm)	B Thread Length In. (mm)	C Magnet Projection In. (mm)	D Head Size In. (mm)	E Head Height In. (mm)	F Magnet Assembly Diameter In. (mm)	Body Material
246-211	3/4"-14 NPTF	3-Disc,Ferrite	4-3/16" (106.3)	5/8" (15.9)	3" (76.2)	5/8" (15.9)	7/16" (11.1)	7/8" (9.7)	Steel
246-212	1"-11-1/2 NPTF	3-Disc, Ferrite	4-1/4" (108.0)	3/4" (19.1)	3" (76.2)	13/16" (20.6)	17/32" (13.5)	7/8" (9.7)	Cast Iron
246-213	1-1/4"-11-1/2 NPTF	3-Disc, Ferrite	4-11/32" (110.3)	13/16" (20.6)	3" (76.2)	15/16" (23.8)	17/32" (13.5)	7/8" (9.7)	Cast Iron



Hex Socket Pressure Pipe Plugs

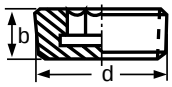
Dryseal - NPTF - 3/4" Taper Per Foot

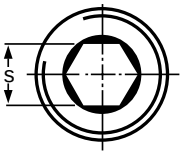
Alloy Steel, Stainless Steel and Brass



Material	*SPAENAUR No.*	Nom. Size	D Nom. O.D.	Threads Per Inch	J Hex-Socket Size Nom.	T Key Engagement Min.	G Wall Thickness Min.	L Overall Length Nom.	L Overall Length *Max.	L Overall Length Min.	Unit Pkg. Qty.
Alloy Steel	**246-120**	1/16"	.312"	27	5/32"	.140"	.062"	5/16"	.324"	.300"	100
	246-121	1/8"	.405"	27	3/16"	.140"	.062"	5/16"	.324"	.300"	100
	246-122	1/4"	.540"	18	1/4"	.218"	.073	7/16"	.457"	.417"	100
	246-123	3/8"	.675"	18	5/16"	.250"	.084"	1/2"	.520"	.480"	100
	246-124	1/2"	.840"	14	3/8"	.312"	.095"	9/16"	.583"	.542"	50
	246-125	3/4"	1.050"	14	9/16"	.312"	.125"	5/8"	.645"	.605"	25
	246-126	1"	1.315"	11-1/2	5/8"	.375"	.125"	3/4"	.770"	.730"	10
	246-127	1-1/4"	1.660"	11-1/2	3/4"	.437"	.156"	13/16"	.832"	.792"	5
Stainless Steel	**246-800**	1/16"	.312"	27	5/32"	.140"	.062"	17/64"	.270"	.250"	10
	246-801	1/8"	.405"	27	3/16"	.140"	.062"	17/64"	.280"	.260"	10
	246-802	1/4"	.540"	18	1/4"	.218"	.073	13/32"	.425"	.395"	10
	246-803	3/8"	.675"	18	5/16"	.250"	.084"	13/32"	.425"	.395"	5
	246-804	1/2"	.840"	14	3/8"	.312"	.095"	35/64"	.560"	.520"	1
Brass	**246-500**	1/16"	.312"	27	5/32"	.140"	.062"	19/64"	.310"	.290"	100
	246-501	1/8"	.405"	27	3/16"	.140"	.062"	19/64"	.310"	.290"	10
	246-502	1/4"	.540"	18	1/4"	.218"	.073	15/32"	.475"	.445"	10
	246-503	3/8"	.675"	18	5/16"	.250"	.084"	15/32"	.475"	.445"	10
	246-504	1/2"	.840"	14	3/8"	.312"	.095"	5/8"	.630"	.590"	5

DIN 906





Hexagon Socket
PIPE PLUGS

SHORT TYPE
with Metric Fine Tapered Threads
(In accordance with DIN 158)
Plain STEEL*

**SPAENAUR No.* suffix letters indicate:
YZ - Yellow Zinc Plated, ZP - Zinc Plated

Hexagon Socket PIPE PLUGS

SHORT TYPE
with Whitworth Tapered Threads
(In accordance with DIN 3858)
Plain STEEL*

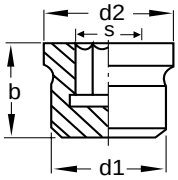
DIMENSIONS IN MILLIMETRES

SPAENAUR No.	d Dia. x Pitch	b Thickness	s Width A/F	Unit Pkg. Quantity
246-220	M8 x 1	8	4	100
246-221	M10 x 1	8	5	100
246-222	M12 x 1.5	10	6	100
246-223	M14 x 1.5	10	7	50
246-224	M16 x 1.5	10	8	50
246-224YZ	M16 x 1.5	10	8	50
246-224ZP	M16 x 1.5	10	8	50
246-225	M18 x 1.5	10	8	25
246-226	M20 x 1.5	10	10	25
246-227	M22 x 1.5	10	10	10
246-228	M24 x 1.5	12	12	10
246-229	M26 x 1.5	12	12	5
246-230	M30 x 1.5	12	17	5
246-231	M36 x 1.5	15	19	5
246-232	R 1/8	8	5	100
246-233	R 1/4	10	7	50
246-234	R 3/8	10	8	25
246-235	R 1/2	10	10	10
246-236	R 3/4	12	12	5
246-237	R 1	12	17	5

H

DIN 908

With Shoulder



Hexagon Socket
SCREW PLUGS

with Parallel Screw Threads
Metric Fine Thread
(In accordance with DIN 13)
Plain STEEL*
(See box at top of page for plating)

Hexagon Socket
SCREW PLUGS

with Parallel Screw Threads
Whitworth Pipe Thread
(In accordance with DIN ISO 228)
Plain STEEL*

DIMENSIONS IN MILLIMETRES

SPAENAUR No.	d1 Dia. x Pitch	d2 Shoulder	b Thickness	s Width A/F	Unit Pkg. Qty.
246-240	M8 x 1	12	10	4	100
246-241	M10 x 1	14	11	5	100
246-242	M12 x 1.5	17	15	6	100
246-243	M14 x 1.5	19	15	6	50
246-244	M16 x 1.5	21	15	8	50
246-244YZ	M16 x 1.5	21	15	8	50
246-244ZP	M16 x 1.5	21	15	8	50
246-245	M18 x 1.5	23	16	8	25
246-246	M20 x 1.5	25	18	10	25
246-246ZP	M20 x 1.5	25	18	10	25
246-247	M22 x 1.5	27	18	10	10
246-248	M24 x 1.5	29	18	12	10
246-249	M26 x 1.5	31	20	12	5
246-250	M30 x 1.5	36	20	17	5
246-251	M36 x 1.5	42	21	19	5
246-252	G 1/8 A	14	11	5	100
246-253	G 1/4 A	18	15	6	50
246-254	G 3/8 A	22	15	8	25
246-255	G 1/2 A	26	18	10	10
246-255ZP	G 1/2 A	26	18	10	10
246-256	G 3/4 A	32	20	12	5
246-257	G 1 A	39	21	17	5
246-258	G 1-1/4 A	49	21	22	5

DIN 7604 A

HEX HEAD PIPE PLUGS

with Shoulder

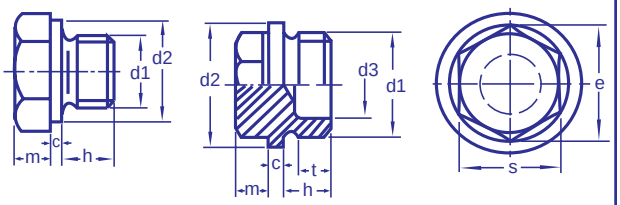
Class 5.8 STEEL, Plain Finish*

Parallel Metric Fine Thread

*Suffix: ZP = Zinc Plated
YZ = Yellow Zinc Plated

A = Short Thread

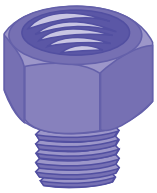
Metric / Métrique



DIN 7604A Short Thread

SPAENAUR No.	d1 Dia. x Pitch	c	d2	d3	t	h short	h long	m	s	e	Unit Pkg. Quantity
246-119	M12 x 1.5	1.5	17	—	—	9	—	6	17	18.9	10
246-119ZP	M12 x 1.5	1.5	17	—	—	9	—	6	17	18.9	10
246-332	M14 x 1.5	1.5	19	—	—	9	—	6	19	21.1	1
246-332ZP	M14 x 1.5	1.5	19	—	—	9	—	6	19	21.1	1
246-333ZP	M16 x 1.5	1.5	21	—	—	9	—	6	22	24.49	1
246-309ZP	M30 x 1.5	2.5	36	20	10	9	—	8	22	24.49	1
246-309YZ	M30 x 1.5	2.5	36	20	10	9	—	8	22	24.49	1

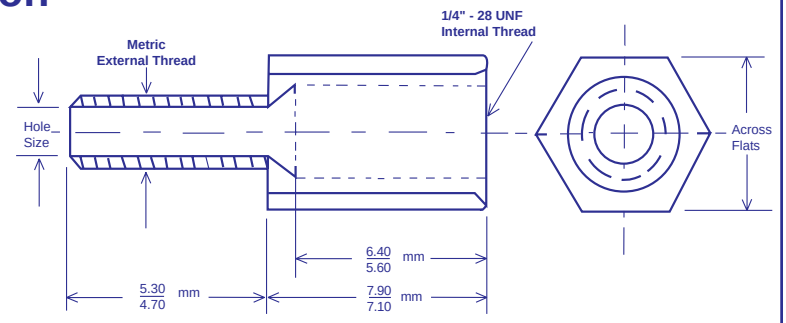
H



Metric Conversion Adapters

STEEL - Zinc Plated

Fit Metric Threads listed below converting them to 1/4" - 28 UNF Standard Internal Thread.



SPAENAUR No.	External Thread Dia. x Pitch	Across Flat (mm)	Stud Hole Size (mm)	Unit Pkg. Quantity
113-010	M6 x 1.00 mm	9.24 / 8.79	3.00 / 2.90	25
113-011	M8 x 1.00 mm	9.24 / 8.79	3.40 / 3.20	25
113-012	M10 x 1.00 mm	11.55 / 10.95	3.80 / 3.60	25

SPAENAUR

Your #1 Choice for Fasteners.

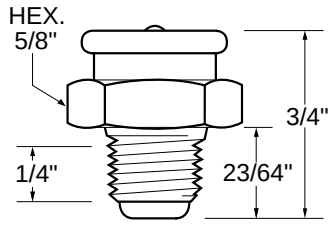
All Fittings on this page are Steel, Zinc Plated.
More Inch Hydraulic Grease Fittings on pages H12 and H13.

Unit Package 10 (Any One Number)

STANDARD BUTTON HEAD

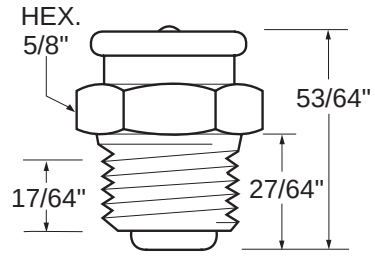
Standard button head lubrication fittings are designed for use where volume flow of lubricant is required. They are used on bearings of earth moving equipment, conveyors, mining machinery and other heavy machinery. The head provides a smooth working surface for easy coupler engagement and removal. The head diameter is 5/8".

113-023



1/8"-27 NPTF

113-087

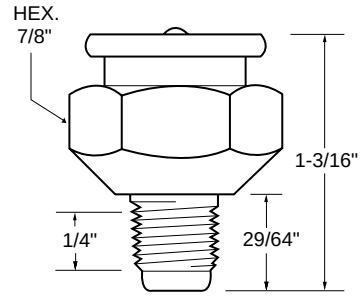


1/4"-18 NPTF

GIANT BUTTON HEAD

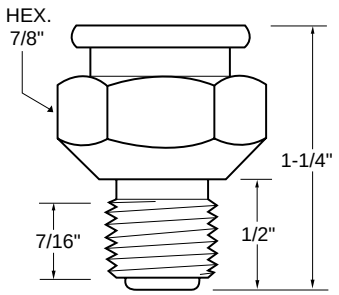
Similar to standard button head, except that the head diameter is bigger (7/8"). The flat smooth top assures a quick coupler attachment and avoids wear and cutting of the coupler washer. Designed for heavy duty usage, on earth moving equipment, construction machinery and generally in all kinds of equipment where long service life and high lubricant flow are important.

113-021



1/8"-27 NPTF

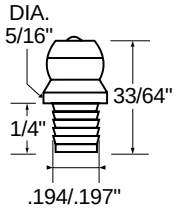
113-022



1/4"-18 NPTF

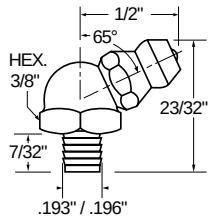
DRIVE FITTINGS

113-019



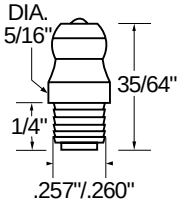
Hole Size: 3/16"

113-018



Hole Size: 3/16"

113-020



Hole Size: 1/4"

Drive type fittings are designed for fast production line installation in untapped holes, to avoid thread tapping costs. The hole sizes and shank dimensions are for reference use only. Test applications should be conducted to determine the correct hole size, which varies depending on the type and hardness of the metal. They have a serrated shank, which facilitates the substitution of damaged fittings in old or oversize holes. Although they grip securely, they are recommended only for low and medium pressures.

Push-on Coupler for Standard Button Head Grease Fitting

Steel, Zinc Plated

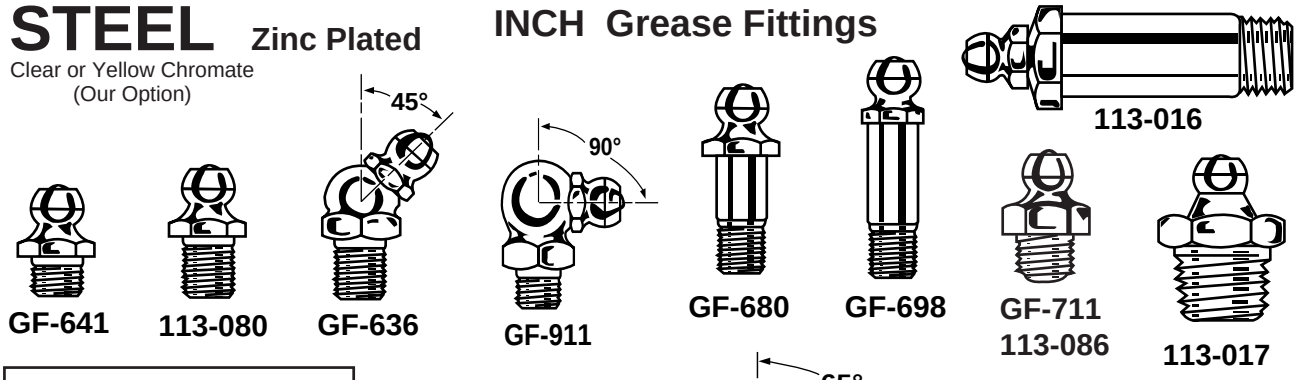
SPAENAUR No.
113-081
Unit Package 1

1/8" NPTF Thread

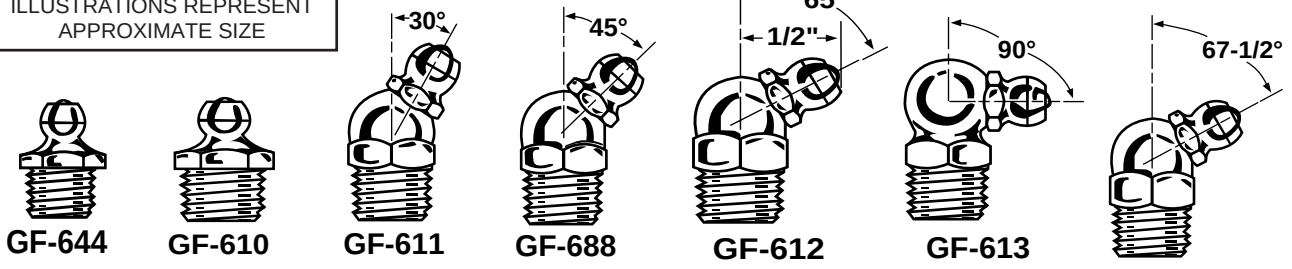
STEEL Zinc Plated

Clear or Yellow Chromate (Our Option)

INCH Grease Fittings



ILLUSTRATIONS REPRESENT APPROXIMATE SIZE



SPAENAUR No.	Thread	Approximate O.A. Lgth.	Approximate Hex A/F	Comparison Numbers Alemite	Lincoln	Aro.	G.M.
GF-641	1/4"-28 N.F. TAPER	35/64"	5/16"	1641-B	5010	6009	5791992
113-080		11/16"	5/16"	1652-B	5013		
GF-636		57/64"	.354" (9 mm)	1636-B	5212	6012	
GF-911		3/4"	3/8"	1911-B	5410	6013	
GF-680		31/32"	5/16"	1680-B	5014		
GF-698		1-1/8"	.276" (7 mm)	1698-B	5017		
GF-711	5/16"-24 U.N.F.	21/32"	3/8"	1711	5061	6023	
113-086		19/32"	23/64"				
GF-644	1/8" PIPE THREAD	9/16"	7/16"	1644	5005		
113-085		.602"	7/16"				
GF-610		11/16"	7/16"	1610-B	5000	6000	5791988
GF-611		29/32"	7/16"	1611-B	5100	6004	5791989
GF-688		57/64"	7/16"	1688-B	5200	6005	5791993
GF-612		27/32"	7/16"	1612-B	5300	6006	5791990
GF-613		27/32"	7/16"	1613-B	5400	6007	5791994
113-016		1-3/4"	7/16"	1669-B			
***113-084**	1/4" PIPE THREAD	11/16"	9/16"				
***113-017**		53/64"	9/16"				
113-015		31/32"	9/16"	1629-B			

Above Grease Fittings - Unit Package 12 (One Number)
*(Except 113-084 and 113-017 U.P. 10)

T-145
HYDRAULIC CONNECTOR
(Threaded 1/8" N.P.T.)
Fits all sizes shown at left.
Unit Pkg. 1

ASSORTMENT ASSORTIMENT B-599

INCH Grease Fittings

STEEL - Zinc Plated

Furnished in Regular Size grey enamel Steel drawer with scooped bins for easy access.

Drawer will fit into Slide Racks shown on page A2.

Priced Singly

12 Sizes - 145 Fittings

Contents SPAENAUR No.	Ass't Qty.	SPAENAUR No.	Ass't Qty.
GF-610	20	**GF-644**	15
GF-611	10	**GF-680**	10
GF-612	10	**GF-688**	10
GF-613	10	**GF-698**	10
GF-636	5	**GF-711**	15
GF-641	25	**GF-911**	5

Shipping Weight 2.85 kg (6-1/4 lbs.)

STAINLESS STEEL INCH Grease Fittings

Unit Pkg. Qty. 10

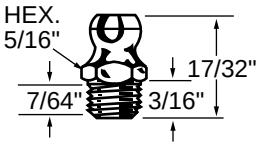
Material: BODY - Type 303 Stainless Steel
BALL - Type 404 Stainless Steel
TEMPERED SPRING — Type 302 Stainless Steel

NOTE: **SAE-LT** - conforms to Society of Automotive Engineers Lubrication Thread Specifications.

( ) Military Specification Standard Drawing Number.

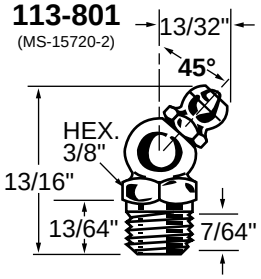
ILLUSTRATIONS REPRESENT APPROXIMATE SIZE

113-800
(MS-15720-1)



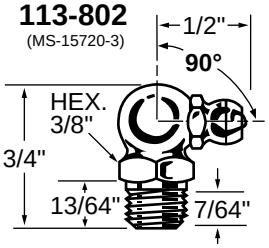
1/4"-28 TAPER THRD.
SAE-LT

113-801
(MS-15720-2)



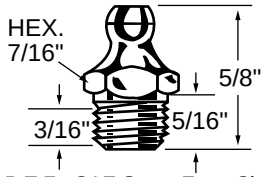
1/4"-28 TAPER THRD.
SAE-LT

113-802
(MS-15720-3)



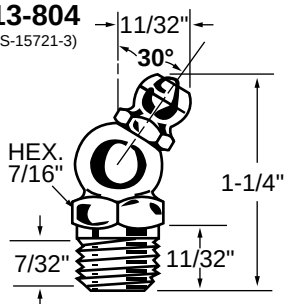
1/4"-28 TAPER THRD.
SAE-LT

113-803



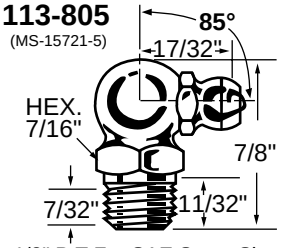
1/8" P.T.F.- SAE Spec. Extra Short

113-804
(MS-15721-3)



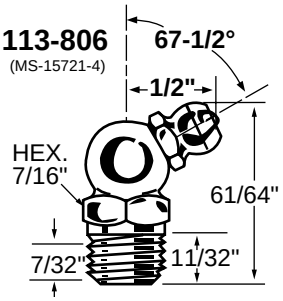
1/8" P.T.F.-SAE Spec. Short

113-805
(MS-15721-5)



1/8" P.T.F. - SAE Spec. Short

113-806
(MS-15721-4)



1/8" P.T.F. - SAE-LT

H

Each Plastikit is put up in a clear durable plastic container with hinged lid.

Size: 1" x 2-3/4" x 4-1/2"

PRICED SINGLY

Plastikit «Plastikit» 804-079

INCH Grease Fittings

STAINLESS STEEL

See top of page for information on Stainless Steel Fittings.

7 Sizes - 19 Grease Fittings

Contents			
SPAENAUR No.	**Ass't. Qty.**	***SPAENAUR No.***	**Ass't. Qty.**
113-800	3	**113-804**	2
113-801	3	**113-805**	3
113-802	3	**113-806**	2
113-803	3		

Plastikit «Plastikit» A-55

INCH Grease Fittings

STEEL - Zinc Plated

See page H12 for information on Steel, Zinc Plated Fittings.

9 Sizes - 52 Grease Fittings

Contents			
SPAENAUR No.	**Ass't. Qty.**	***SPAENAUR No.***	**Ass't. Qty.**
GF-610	15	**GF-641**	12
GF-611	3	**GF-644**	5
GF-612	3	**GF-688**	5
GF-613	3	**GF-911**	3
GF-636	3		

Visit us on the web at . . .

www.spaenaur.com

METRIC GREASE NIPPLES

STEEL
Zinc Plated
(*Plain Finish)

All Dimensions, except Dia. x Pitch, are nominal.
All Dimensions below in millimetres (except "R" threads).

H1
Straight

SPAENAUR No.	THREAD Dia. x Pitch	WIDTH A/F	THREAD Length	Approx. O/A Lgth.
113-042	M6 x 0.75	7	5.5	15
113-001	M6 x 1.00	7	5.5	15
113-043	M7 x 1.00	9	6	17
113-044	M8 x 0.75	9	5.5	15
113-002	M8 x 1.00	9	5.5	15
113-014	M8 x 1.25	9	5.5	15
113-003	M10 x 1.00	11	5.5	15
113-013	M10 x 1.50	11	5.5	15
113-046*	M12 x 1.50	14	6.0	17.5
113-035	R 1/8	11	5.5	15
113-049	R 1/4	14	6.5	19

SPAENAUR No.	THREAD Dia. x Pitch	WIDTH A/F	THREAD Length	Approx. O/A Lgth.
H1 LONG				
113-047	M6 x 1.00	7	5.5	29
H1a DRIVE TYPE with Collar (No Threads)				
	Shank Dia.	Collar Dia.		
113-064	6 mm	8 mm	5.5	15
113-065	8 mm	10 mm	5.5	15
113-038	10 mm	12 mm	5.5	15

No Threads
H1a

H2
45°

SPAENAUR No.	THREAD Dia. x Pitch	WIDTH A/F	THREAD Length	Approx. O/A Lgth.
113-050	M6 x 0.75	9	5.5	20
113-004	M6 x 1.00	9	5.5	20
113-051	M7 x 1.00	9	5.5	25
113-036	M8 x 0.75	9	5.5	20
113-005	M8 x 1.00	9	5.5	20
113-052	M8 x 1.25	9	5.5	20

SPAENAUR No.	THREAD Dia. x Pitch	WIDTH A/F	THREAD Length	Approx. O/A Lgth.
113-006	M10 x 1.00	11	5.5	20
113-045	M10 x 1.25	11	5.5	20
113-053	M10 x 1.50	11	5.5	20
113-054	M12 x 1.50	14	6.5	24
113-055	R 1/8	11	5.5	20
113-056	R 1/4	14	7	23

H3
90°

SPAENAUR No.	THREAD Dia. x Pitch	WIDTH A/F	THREAD Length	Approx. O/A Lgth.
113-057	M6 x 0.75	9	5.5	18
113-007	M6 x 1.00	9	5.5	18
113-058	M7 x 1.00	9	5.5	18
113-059	M8 x 0.75	9	5.5	18
113-008	M8 x 1.00	9	5.5	18
113-060	M8 x 1.25	9	5.5	18

SPAENAUR No.	THREAD Dia. x Pitch	WIDTH A/F	THREAD Length	Approx. O/A Lgth.
113-009	M10 x 1.00	11	5.5	18
113-037	M10 x 1.50	11	5.5	18
113-061	M12 x 1.50	14	5.5	18
113-062	R 1/8	11	5.5	18
113-063	R 1/4	14	6.5	22

LUBRICATING NIPPLES - Cup Type

STEEL, Zinc Plated

D1

Straight
D1a

SPAENAUR No.	THREAD Dia. x Pitch	WIDTH A/F	SHANK Length	Approx. O/A Lgth.
113-039	M6 x 1.00	7	5.5	8.5
113-066	M8 x 1.00	9	6.5	9.5
113-040	M8 x 1.25	9	6.5	9.5
113-067	M10 x 1.00	11	6.5	9.5

SPAENAUR No.	THREAD Dia. x Pitch	WIDTH A/F	SHANK Length	Approx. O/A Lgth.
D1a DRIVE TYPE with Collar (No Threads)				
	Shank Dia.	Collar Dia.		
113-068	8 mm	10 mm	6.5	9.5

Unit Package Quantity 10 - All items this page.

LUBRICATING NIPPLES - Button Head

STEEL
Zinc Plated
Unit Package 10
(One Number)

All Dimensions, except Dia. x Pitch, are nominal.
All Dimensions below in millimetres (except "R" and N.P.T. threads).

M1

SPAENAUR No.	THREAD Dia. x Pitch	HEAD Dia.	HEAD A/F	THREAD Length	Approx. O/A Lgth.
113-026	M6 x 1.00	16	17	6.0	16.2
113-027	M8 x 1.00	16	17	5.7	17.5
113-028	M8 x 1.25	16	17	5.7	17.5
113-029	M10 x 1.00	16	17	5.7	17.5

SPAENAUR No.	THREAD Dia. x Pitch	HEAD Dia.	HEAD A/F	THREAD Length	Approx. O/A Lgth.
113-030	R 1/8	16	17	2.25	16.2
113-031	R 3/8	16	17	3.50	18.5
113-032	R 1/8 GAS	16	17	5.70	17.5
113-041	1/4 N.P.T.	16.5	17	11	22

ASSORTMENT / ASSORTIMENT **805-444**

Metric Grease Nipples

STEEL - Zinc Plated

Fine Thread

12 Sizes - 120 Pieces

Comes in a REGULAR SIZE grey enamelled STEEL drawer which will fit Slide Racks shown on page A2.

Style - H1, H2, H3.

Priced Singly.

Shipping Weight 2.60 kg (5-3/4 lbs.)

— COMPONENTS —

Grease Nipples - 10 Each.

113-001	113-004	113-007
113-002	113-005	113-008
113-003	113-006	113-009

Conversion Fittings - 10 Each.

113-010	113-011	113-012

COUPLINGS for pipe extensions, armoured hoses and piston grease guns.

ILLUSTRATION *Priced Singly*	*SPAENAUR No.*	THREAD	DESCRIPTION	For use with Nipples
	113-078	M10 x 1	4 jaw hydraulic coupling	Type H DIN 71412
	113-070 **113-072**	M9 x 1 M10 x 1	hollow adaptor	Type K DIN 3402
	113-073	M10 x 1	pointed adaptor	Type D DIN 3405
	113-071 **113-074**	M9 x 1 M10 x 1	universal adaptor	Type K DIN 3402 Type H- DIN 71412
	113-075	M10 x 1	sliding coupling 16 mm Ø	Type M 1 DIN 3404
	113-069	M10 x 1	sliding coupling 22 mm Ø	Type 22 DIN 3404A
	113-076	M10 x 1	sliding coupling 10 mm Ø	Type 10
	113-077	M10 x 1	turning device for sliding couplings	

Plastikit / «Plastikit» **804-078**

Metric Grease Nipples

STEEL - Zinc Plated

11 Sizes - 77 Pieces

Styles H1, H2 and H3

Contains 7 each of *SPAENAUR No's:*

113-001	113-004	113-007	113-013*
113-002	113-005	113-008	113-014*
113-003	113-006	113-009	

All Metric Fine Thread (except * Coarse).

Put up in a clear durable plastic container with hinged lid.

Size: 1" x 2-3/4" x 4-1/2"

Priced Singly

Hand Lever Grease Gun

with solid pipe extension

Priced Singly

SPAENAUR No.
877-1241

Thread size M10 x 1.0
Capacity size 500 ccm

Flex-Hose Extension

High pressure rubber hose (bursting pressure 1000 bar)

SPAENAUR No's.	*Priced Singly*
877-1242	M10 x 1.0 – 300 mm long
877-1243	M10 x 1.0 – 500 mm long

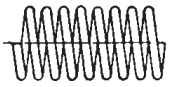
H

CATALOG 13

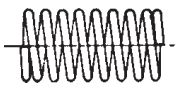
STEEL

A compression spring is an open-coil helical spring that offers resistance to a compressive force applied axially. Compression springs are usually coiled as a constant-diameter cylinder.

*P Plain Ends



*S Squared or Closed Ends

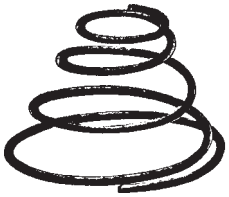


COMPRESSION SPRINGS - IN STOCK LENGTHS TO CUT AS REQUIRED

SPAENAUR No.	SPECIFICATIONS Outside Dia.	Length Overall	Gauge of Wire	Coils per Inch	*Style of Ends	Finish	Unit Package Quantity
610-035	11/64"	11"	.026"	19.5	P	Bl. Japan	10
B-618	7/32"	11-1/2"	.041"	12	S	Zinc	10
610-034	15/64"	11"	.032"	14.6	P	Bl. Japan	10
B-619	5/16"	11-1/2"	.047"	10	S	Zinc	10
610-017	3/8"	10"	.047"	8	S	Plain	10
610-017ZP	3/8"	10"	.047"	8	S	Zinc	10
B-620	3/8"	11-1/2"	.047"	8	S	Bl. Japan	10
610-029	7/16"	11"	.080"	8	P	Bl. Japan	10
610-033	15/32"	11"	.062"	7.3	P	Bl. Japan	10
B-621	1/2"	11-1/2"	.062"	6	S	Zinc	10
610-032	9/16"	11"	.062"	5.5	P	Bl. Japan	10
610-026	9/16"	11"	.092"	6.3	P	Bl. Japan	10
610-031	5/8"	11"	.062"	4.8	P	Bl. Japan	10
B-623	5/8"	10"	.062"	6	S	Zinc	10
610-047	5/8"	10"	.080"	6	S	Zinc	10
B-624	11/16"	10"	.062"	3.5	S	Zinc	10
610-025	11/16"	11"	.092"	5	P	Bl. Japan	10
610-030	23/32"	11"	.062"	3.8	P	Bl. Japan	10
610-022	47/64"	11"	.105"	4.7	P	Bl. Japan	10
B-625	3/4"	10"	.091"	3.5	S	Zinc	10
610-028	27/32"	11"	.080"	3.5	P	Bl. Japan	10
B-626†	7/8"	10"	.080"	3	S	Galvanized	10
610-024	7/8"	11"	.092"	3.5	P	Bl. Japan	10
610-021	7/8"	11"	.105"	3.8	P	Bl. Japan	10
610-027	31/32"	11"	.080"	2.8	P	Bl. Japan	10
610-020	1-1/16"	11"	.120"	3	P	Bl. Japan	10
610-023	1-3/16"	11"	.092"	2.2	P	Bl. Japan	10
610-019	1-3/16"	11"	.120"	2.5	P	Bl. Japan	10

CONICAL SPRING

	B-662 Zinc Plated	1267 Plain
Gauge:	.065"	.092"
Height:	1-1/4"	1-1/2"
Base O.D.:	1-5/8"	1-13/16"



Unit Package 25

†Wire ends may not be galvanized

EXTENSION SPRINGS — UNIVERSAL STYLE

(With Extended Ends)

SPAENAUR No.	Outside Dia.	Length Overall	Length of Coil	Gauge of Wire	Finish	Unit Package Quantity
B-694	9/32"	6"	1-7/8"	.054"	Zinc	10
B-650	3/8"	5"	9/16"	.041"	Black	10
B-676▲	13/32"	9-3/8"	1-7/8"	.041"	Black	10
B-651	7/16"	6"	1-1/16"	.054"	Black	10
B-652	7/16"	9-1/2"	3-1/4"	.047"	Black	10
B-654	1/2"	9-1/4"	3-1/4"	.047"	Black	10
610-009	35/64"	7-1/4"	1-3/8"	.062"	Black	10
B-653	9/16"	7-1/4"	1-1/4"	.062"	Black	10
B-655	9/16"	9-1/4"	3-1/4"	.054"	Black	10

Cut ends to required length and Hook to suit individual applications.

▲**B-676** has
1 end 1-3/8" L., w. dble. loop
1 end 6" L.,with hook

EXTENSION SPRINGS

Plain ends, without hooks or loops.

610-046	1/4"	11"		.020"	Black	10
610-045	1/4"	11"		.026"	Black	10
610-043	1/4"	11"		.032"	Black	10
610-044	5/16"	11"		.026"	Black	10
610-042	5/16"	11"		.032"	Black	10
610-041	3/8"	11"		.032"	Black	10
610-040	5/8"	11"		.062"	Black	10
610-037	3/4"	11"		.105"	Black	10
610-038	1"	11"		.092"	Black	10
610-036	1"	11"		.105"	Black	10

Extension springs are springs which absorb and store energy by offering resistance to a pull-force. Various types of ends are used to attach the extension spring to the source of the force.

STEEL INCH Sizes	SPAENAUR No.	SPECIFICATIONS Outside Dia.	Length Overall	Gauge of Wire	*End Loops	Finish	Unit Package Quantity
See Page H19 for Spring Assortments	**B-659**	3/32"	1/2"	.014"	SC	Brt. Zinc	25
	B-660	1/8"	5/8"	.018"	SC	Brt. Zinc	25
	B-665	5/32"	1-5/16"	.018"	SSL	Brt. Zinc	25
	610-002†	5/32"	4-9/32"	.018"	SC	Brt. Zinc	10
	SP-1	5/32"	84"	.035"	HC,SC	Plain	10
	B-656	3/16"	1"	.022"	SC	Brt. Zinc	25
	B-603	3/16"	7-1/4"	.025"	DS	Black	10
	B-664	7/32"	1-1/4"	.028"	SSL	Brt. Zinc	25
	B-667	7/32"	2"	.025"	SSL	Brt. Zinc	25
	B-604	7/32"	9"	.031"	DS	Black	10
	B-657	1/4"	1"	.022"	SC	Brt. Zinc	25
	B-693	1/4"	2-1/2"	.024"	SC,SS	Brt. Zinc	25
	B-699	1/4"	1-13/16"	.025"	SC	Plain	25
	B-605	1/4"	5-3/4"	.025"	DC	Black	10
	SP-10	9/32"	1"	.031"	SC	Plain	25
	B-606	9/32"	5-1/4"	.042"	DC	Black	10
	B-607	9/32"	6-5/8"	.034"	DC	Black	10
	B-666	5/16"	1-9/32"	.023"	SSL	Brt. Zinc	25
	B-608	5/16"	6-3/4"	.047"	DC	Black	10
	B-610	11/32"	5-1/2"	.047"	DC	Black	10
	B-611	3/8"	1-5/8"	.054"	SC	Brt. Zinc	10
	B-612	3/8"	10"	.054"	DC	Black	10
	B-675	13/32"	3-13/16"	.047"	SS	Brt. Zinc	10
	B-695	7/16"	2"	.041"	SS	Black	25
	B-614	7/16"	5-3/8"	.062"	DC	Black	10
	B-615	7/16"	6-3/8"	.047"	DC	Zinc	10
	B-627	7/16"	9"	.062"	DC	Black	10
	B-671	1/2"	2"	.058"	HC	Plain	100
	B-672	1/2"	3"	.058"	HC	Plain	100
Expanded Style	**B-673**	1/2"	4"	.058"	HC	Plain	100
	B-668	1/2"	2"	.072"	HC	Plain	100
	B-669	1/2"	3"	.072"	HC	Plain	100
	B-670	1/2"	4"	.072"	HC	Plain	100
	B-616	1/2"	4-7/8"	.072"	DC	Zinc	10
	B-661	1/2"	5-1/2"	.047"	SS	Plain	10
	B-689	1/2"	6"	.062"	HC	Plain	10
	610-052	1/2"	3"	.072"	SC	Plain	10
	B-698	9/16"	1-5/8"	.062"	HC	Brt. Zinc	25
	610-049	9/16"	3-5/8"	.062	HC	Plain	10
	B-617	9/16"	5-1/4"	.080"	DC	Black	10
	B-600	9/16"	9"	.080"	DC	Zinc	10
	B-690	5/8"	3"	.080"	DC	Plain	25
	B-601	5/8"	9"	.080"	DC	Black	10
	B-684	23/32"	16"	.109"	SS	Brt. Zinc	10
	B-602	13/16"	9"	.080"	DC	Black	10

*SC Single Loop Centred

*DC Double Loop Centred

*SS Single Loop on Side
*DS Double Loop on Side

*SSL Single Loop on Side at Inward Angle of 45°

*HC Hook, Centred. *HS Hook, on Side.

*LLC Long Loop Centred

†610-002 (Actual Size)

STEEL

INCH SIZES

▲ 302 Stainless Steel

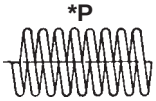
†Wire ends may not be galvanized

610-003

SPAENAUR No.	SPECIFICATIONS						Unit Package Quantity
	Outside Dia.	Length Overall	Gauge of Wire	Total Coils	*Style of Ends	Finish	
B-648	1/8"	5/16"	.015"	5	S	Brt. Zinc	25
610-051	.128/.133"	.360/.340	.014"	12	SG	Plain	25
610-050	.140/.147"	.740/.700	.016"	20	SG	Plain	25
610-053	3/16"	3/8"	.032"	5	S	Black Oxide	25
610-014	3/16"	7/16"	.032"	6	S	Plain	50
610-003	3/16"	33/64"	.029"	9	P	Plain	25
B-643	7/32"	11/16"	.032"	7	S	Brt. Zinc	25
B-681	7/32"	1-3/32"	.013"	25	S	Brt. Zinc	25
B-647	7/32"	2-3/8"	.016"	22	S	Brt. Zinc	25
B-677	.220"	13/16"	.025"	10-1/4	S	Brt. Zinc	25
SP-2000▲	1/4"	3/8"	.025"	5	SG	302 S. Stl.	25
B-682	1/4"	3/8"	.032"	5	S	Brt. Zinc	50
B-646†	1/4"	3/4"	.018"	8	S	Galvanized	25
B-679	1/4"	15/16"	.015"	13	S	Brt. Zinc	25
B-678	1/4"	1"	.013"	11	S	Brt. Zinc	25
B-645	1/4"	1-1/2"	.032"	18	S	Brt. Zinc	25
B-687	9/32"	1-1/16"	.032"	10	SG	Brt. Zinc	50
B-642	9/32"	1-5/8"	.034"	16	S	Brt. Zinc	25
B-644	9/32"	1-7/8"	.028"	14	S	Brt. Zinc	25
B-640	11/32"	5/8"	.028"	4-1/2	S	Brt. Zinc	25
610-054†	11/32"	11/16"	.016"	5	S	Galvanized	25
SP-7	11/32"	1-7/32"	.047"	10	SG	Brt. Zinc	25
B-685	3/8"	7/8"	.062"	6	SG	Brt. Zinc	50
B-639	3/8"	1-7/8"	.034"	16	S	Brt. Zinc	25
B-686	25/64"	1-7/32"	.035"	9	SG	Brt. Zinc	25
110-027	.400"	.700"	.040"	7	S	Brt. Zinc	100
B-638	13/32"	1-1/2"	.047"	10-1/2	S	Brt. Zinc	25
B-692	13/32"	1-17/32"	.035"	9	SG	Brt. Zinc	25
610-403▲	27/64"	1"	.039"	7	SG	302 S. Stl.	25
B-637	7/16"	3/4"	.047"	5-1/2	S	Brt. Zinc	25
B-696	7/16"	15/16"	.054"	7-3/4	S	Brt. Zinc	25
B-636	7/16"	2-1/4"	.062"	14	SG	Brt. Zinc	10
610-013	7/16"	2-1/2"	.035"	18	S	Plain	25
610-018	7/16"	7-3/4"	.054"	48-1/4	S	Brt. Zinc	10
B-674	15/32"	1"	.047"	8	S	Brt. Zinc	10
B-697	15/32"	1-1/2"	.062"	8	SG	Brt. Zinc	25
SP-2001▲	.480"	1"	.055"	5	S	302 S. Stl.	25
110-031	.490"	.720"	.062"	6-3/4	S	Brt. Zinc	100
B-634	1/2"	7/8"	.047"	5	S	Brt. Zinc	25
B-635	1/2"	3-1/8"	.041"	22	S	Brt. Zinc	10
B-691	17/32"	4"	.072"	28	SG	Plain	25
SP-6	35/64"	7/8"	.105"	6	SG	Plain	10
B-633	19/32"	9/16"	.054"	3-1/2	S	Brt. Zinc	25
B-680	5/8"	1-3/8"	.062"	7-1/2	S	Brt. Zinc	25
B-663	5/8"	1-3/8"	.100"	7	S	Brt. Zinc	10
B-632	5/8"	2"	.105"	10	SG	Brt. Zinc	25
B-622	5/8"	3"	.080"	15	SG	Brt. Zinc	10
B-631	11/16"	27/32"	.054"	5	S	Brt. Zinc	25
610-048	11/16"	2"	.092	10	SG	Brt. Zinc	25
610-016	.707"	1"	.041"	5	SNG	Plain	25
B-688▲	.720"	2"	.067"	8	SG	302 S. Stl.	10
610-015	.733"	1"	.054"	5	SNG	Plain	25
B-683	3/4"	13/16"	.1875"	3	SG	Plain	10
B-630	7/8"	2"	.054"	7	SG	Brt. Zinc	10
B-629	1"	1-15/16"	.062"	6-1/4	S	Brt. Zinc	10
B-628	1-3/32"	1-1/2"	.054"	7	SG	Brt. Zinc	10

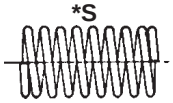
***CODE EXPLAINING STYLE OF ENDS**

***P**



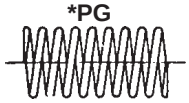
Plain Ends

***S**



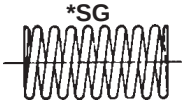
Squared or Closed Ends

***PG**



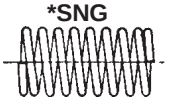
Plain Ends - Ground

***SG**



Squared and Ground Ends

***SNG**



Squared - Not Ground

H

CATALOG 13

LARGE SIZE Welded STEEL Drawer
Shipping Weight 5.10 kg (11-1/4 lbs.)

Priced Singly

ASSORTMENT / ASSORTIMENT B-550-M

EXTENSION & COMPRESSION SPRINGS

STEEL - Black & Zinc Finish

58 Sizes 262 Pieces

Features an exceptionally wide range of diameters, lengths and gauges, in both extension and compression-style springs, as listed on pages H16 - H18.

Furnished in strong metal case, with hinged lid, and finished in green enamel.

Illustrated inside label shows size and data of each spring. Refills can be ordered by ***SPAENAUR No.*** as required.

H

A Most Practical Assortment For-

GARAGES and SERVICE STATIONS
TRUCK FLEET OPERATORS
BUS TRANSPORTATION SYSTEMS
GENERAL REPAIR SHOPS
HARDWARE STORES
INDUSTRIAL PLANTS
AGRICULTURAL IMPLEMENT DEALERS
PROGRESSIVE FARM ESTABLISHMENTS

ASSORTMENT / ASSORTIMENT 805-632

COMPRESSION SPRINGS

STEEL - Zinc Plated

30 Sizes 435 Pieces

Put up in a LARGE SIZE grey enamelled Steel Drawer, with hinged lid and "Adjusta-bins."

Drawer will fit into our Slide Racks, as shown on page A3.

Priced Singly Shipping Weight 6.12 kg (13-1/2 lbs.)

ASSORTMENT / ASSORTIMENT 805-633

EXTENSION SPRINGS

STEEL - Black & Zinc Finish

30 Sizes 268 Pieces

Put up in a LARGE SIZE grey enamelled Steel Drawer, with hinged lid and "Adjusta-bins."

Drawer will fit into our Slide Racks, as shown on page A3.

Priced Singly Shipping Weight 8.39 kg (18-1/2 lbs.)

See page H20 for Spring "Plastikit" Assortments.

PLASTIKITS

Size:
1" x 2-3/4" x 4-1/2"

Clear PLASTIC CONTAINERS - durable and practical. Hinged lids - all plastic - no metal pins to rust or break. Positive gripping clasp - no spilling of contents.

Priced Singly

A-26

Steel - Zinc Plated
Extension Springs Only
10 Sizes 45 Pieces

A-27

Steel - Zinc Plated
Compression Springs Only
17 Sizes 44 Pieces

A-28

25 Sizes 54 Pieces

Steel - Zinc Plated
Extension and Compression Springs

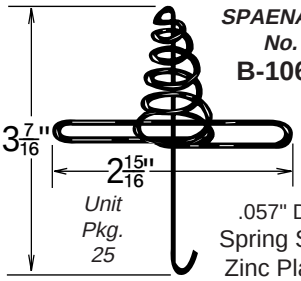
H

Miscellaneous Springs

B-1278 **Black Finish**
Headlamp Reflector Retaining Spring
Coil O.D.: 19/64" **Wire Gauge:** .049"
Tip to Tip: 2-3/8" *Unit Package 25*

B-613
Carburetor Spring **Zinc Plated**
Coil O.D.: 3/8" **Wire Gauge:** .037"
Coil Lgth.: 1-5/8" *Unit Package 10*

GRILLE COVER FASTENER



SPAENAUR No.
B-1067

Unit Pkg. 25

.057" Dia.
Spring Steel
Zinc Plated

SPAENAUR

Proudly serving you since 1936.
Thank you for your business.

High Carbon Steel Music Wire (Plain) and Stainless Steel Spring Wire Type 302, (Full Hard)

Another of those essentials in the plant. Unlimited applications, including prototype spring usage, control linkages, gauging, or where long life and fatigue resistance are required. All sizes from .012" to .148" dia. are furnished in 1 lb. cartons or packages. Smaller sizes come in 1/4 lb., and larger diameters come in 5 lb. packs. Convenient to store and use.

CARBON SPRING WIRE	
Tolerances	**Analysis**
.006-.029 ±.0003 .030-.079 ±.0005 .080-Larger ±.001	C-.80-1.00 Mg-.20-.60 P-.025 MAX S-.030 MAX Si-.12-.30
Specifications: Spring Temper Mil-W-6101 QQW-470A ASTM-A228 AISI-C1085-C1095	

STAINLESS STEEL WIRE	
Tolerances	**Analysis**
.006-.013 ±.0003 .014-.029 ±.0005 .030-.043 ±.0006 .044-Larger ±.001	C-.08-.020 Mg-2.00 MAX P-.040 MAX S-.030 MAX Si-1.00 MAX Ni-8.00-10.00 Cr-17.00-19.00
Specifications: AMS-5688-D QQW-423 ASTM-313-95	

Music Wire tensile strength runs from approximately 250,000 psi for .180" dia. wire to 450,000 psi for .006" dia. wire.

H

*****Sizes available on special order

In Convenient Packages

SPAENAUR No's. STEEL MUSIC WIRE	*SPAENAUR No's.* TYPE 302 STAINLESS STEEL	Music Wire Gauge	Inch Wire Dia.	Feet per Lb.	*UNIT PACKAGE*
697-001	—	—	.006	10415	1/4 lb. (.113 kg) Carton
697-003	*	—	.008	5858	
697-004	*	—	.009	4629	
697-005	**697-842▲**	1	.010	3749	▲ 1 lb. (.453 kg)
697-006	**697-802**	2	.011	3175	
697-007	**697-803**	3	.012	2604	1 lb. (.453 kg) Carton
697-008	**697-804**	4	.013	2218	
697-009	**697-805**	5	.014	1913	
697-010	**697-806**	6	.016	1465	
697-011	**697-807**	7	.018	1157	
697-012	**697-808**	8	.020	937	
697-013	**697-809**	9	.022	774	
697-014	**697-810**	10	.024	650	
697-015	**697-811**	11	.026	575	
697-016	**697-812**	12	.029	450	
697-017	**697-813**	13	.031	400	
697-018	**697-814**	14	.033	346	
697-019	**697-815**	15	.035	306	
697-020	**697-816**	16	.037	280	
697-021	**697-817**	17	.039	250	
697-022	**697-818**	18	.041	223	
697-023	**697-819**	19	.043	207	
697-024	**697-820**	20	.045	190	
697-025	**697-821**	21	.047	172	

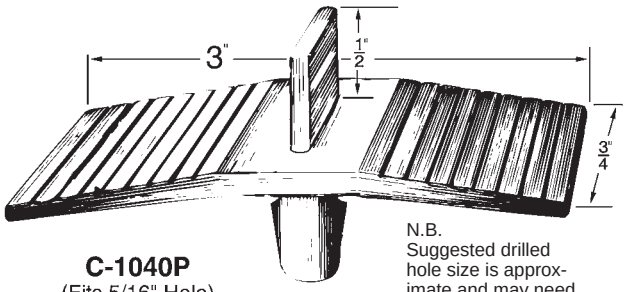
SPAENAUR No's. STEEL MUSIC WIRE	*SPAENAUR No's.* TYPE 302 STAINLESS STEEL	Music Wire Gauge	Inch Wire Dia.	Feet per Lb.	*UNIT PACKAGE*
697-026	—	22	.049	156	1 lb. (.453 kg) Carton
697-027	**697-823**	23	.051	145	
697-028	**697-824**	24	.055	123	
697-029	**697-825**	25	.059	110	
697-030	**697-826**	26	.063	95	
697-031	**697-827**	27	.067	85	
697-032	**697-828**	28	.071	75	
697-033	**697-829**	29	.075	71	
697-034	**697-830**	30	.080	58	
697-035	**697-831**	31	.085	53	1 lb. (.453 kg) Pack
697-036	**697-832**	32	.090	45	
697-037	**697-833**	33	.095	41	
697-038	**697-834**	34	.100	37	
697-039	**697-835**	35	.106	34	
697-040	**697-836**	36	.112	30	
697-041	**697-837**	37	.120	27	
697-042	**697-838**	38	.125	24	
697-043	—	39	.130	22.0	
697-044	**697-840**	40	.135	19.7	
697-045	**697-841**	41	.148	17.3	
697-046	—	42	.154	16.0	5 lb. (2.27 kg) Pack
697-047	—	43	.162	14.3	
697-049	—	45	.177	11.5	
697-050	—	3/16"	.187	9.0	

Galvanized Soft Steel Wire
for general purpose use.

SPAENAUR No.	WIRE SIZE	UNIT PACKAGE
697-102	18 gauge (.048" dia.)	5 lb. Coil (2.27kg) (±10%)

See page M74 for Wire Rope. (Aircraft Cable)

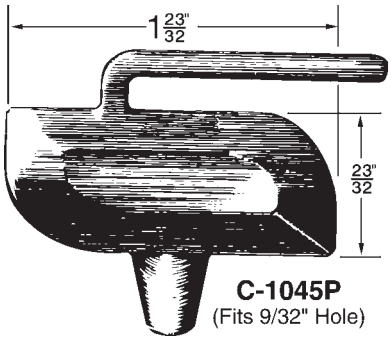
SPAENAUR No. 805-622 Discontinued



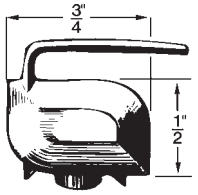
C-1040P
(Fits 5/16" Hole)

N.B.
Suggested drilled hole size is approx-imate and may need slight dia. resizing depending on material thickness involved.

Universal Moulding Fastener:
For: 1-1/4" to 1-3/4" Moulding
ALL CARS, ALL MODELS

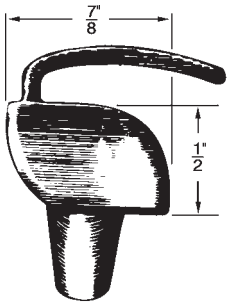


C-1045P
(Fits 9/32" Hole)

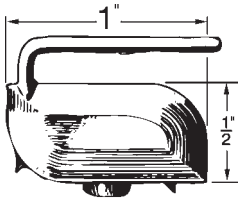


C-1046P
(Fits 1/4" Hole)
(4886720 - 4417599)

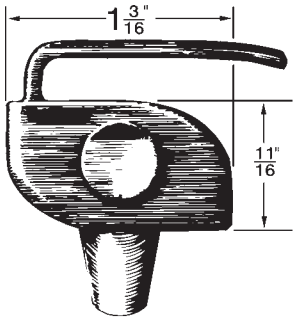
ILLUSTRATIONS ACTUAL SIZE



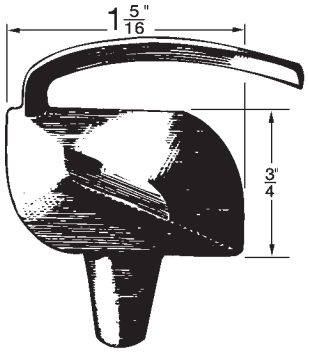
C-1043P
(Fits 5/16" Hole)
(4853108)



C-1047P
(Fits 1/4" Hole)
(4879481)

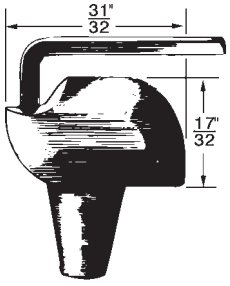


C-1044P
(Fits 5/16" Hole)
(4883164)

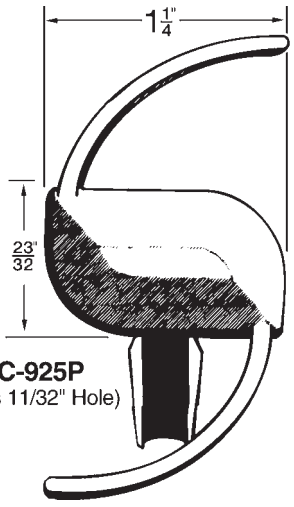


C-1042P
(Fits 5/16" Hole)
(4877001)

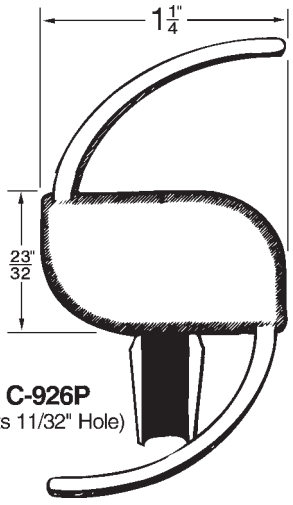
See Price List For Unit Package Quantities



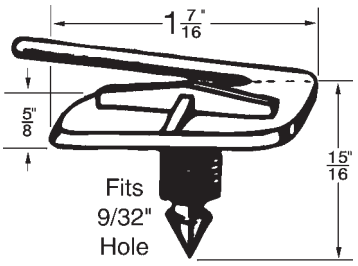
C-1041P
(Fits 5/16" Hole)
(4877000)



C-925P
(Fits 11/32" Hole)



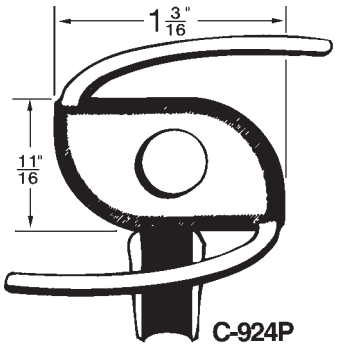
C-926P
(Fits 11/32" Hole)



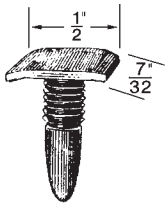
086-651
(D4ZB-17C756AC)

Moulding Fastener
- Plastic

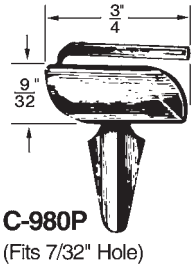
Ford '75 - '80



C-924P
(Fits 11/32" Hole)

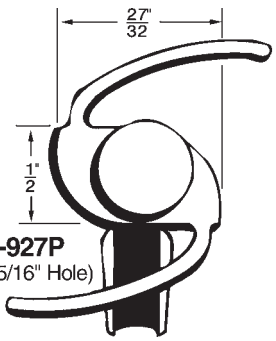


C-982P
(Fits 3/16"Hole)
(C5AB-6220586-A)



C-980P
(Fits 7/32" Hole)

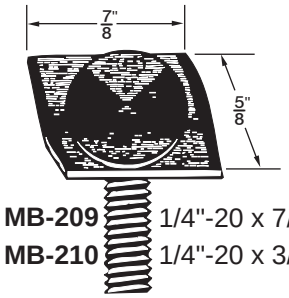
Fits 1/2" to 5/8" Mouldings
VOLKSWAGEN ALL MODELS



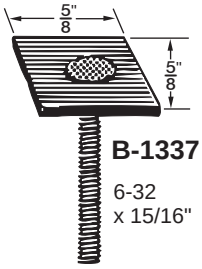
C-927P
(Fits 5/16" Hole)

P.C. 046

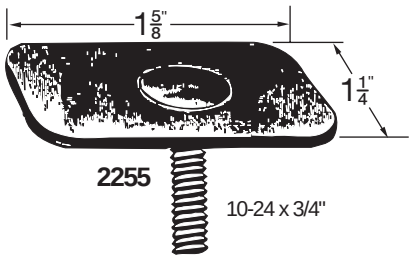
H



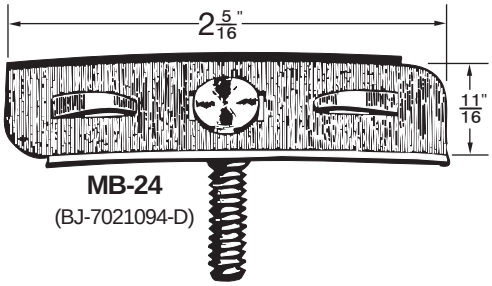
MB-209 1/4"-20 x 7/16"
MB-210 1/4"-20 x 3/4"



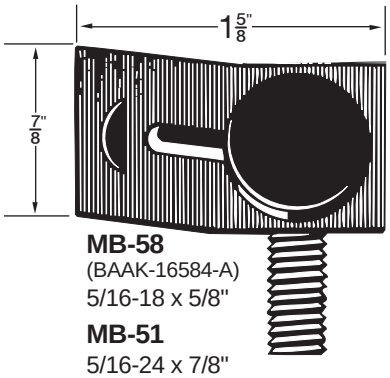
B-1337
6-32
x 15/16"



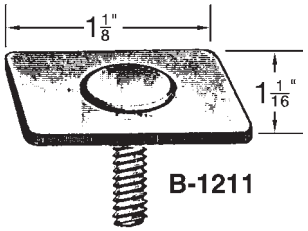
2255
10-24 x 3/4"



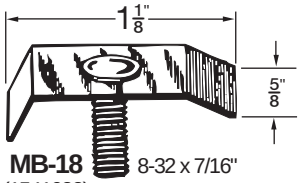
MB-24
(BJ-7021094-D)
10-24 x 5/8"



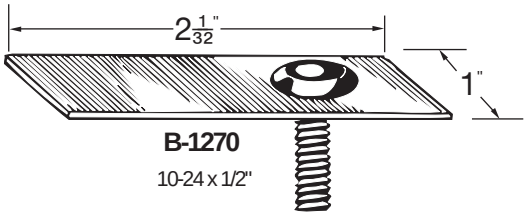
MB-58
(BAAK-16584-A)
5/16-18 x 5/8"
MB-51
5/16-24 x 7/8"



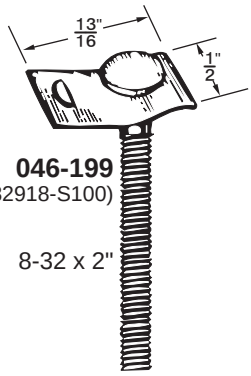
B-1211
10-24 x 1/2"



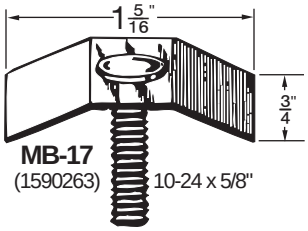
MB-18
(1541082)
8-32 x 7/16"



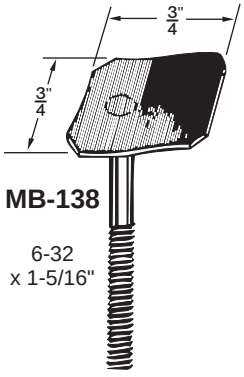
B-1270
10-24 x 1/2"



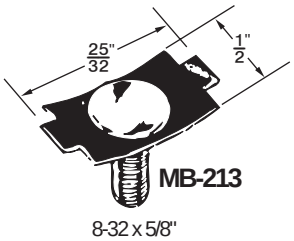
046-199
(382918-S100)
8-32 x 2"



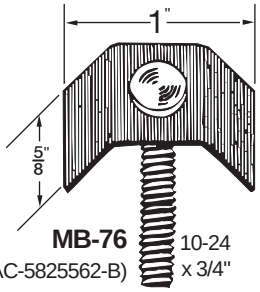
MB-17
(1590263) 10-24 x 5/8"



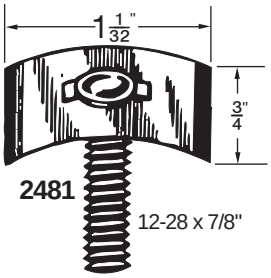
MB-138
6-32
x 1-5/16"



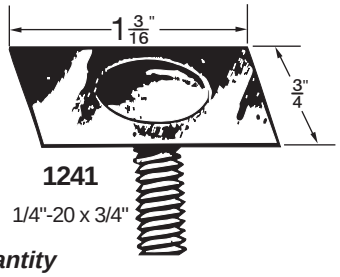
MB-213
8-32 x 5/8"



MB-76
(BAC-5825562-B) 10-24
x 3/4"



2481
12-28 x 7/8"



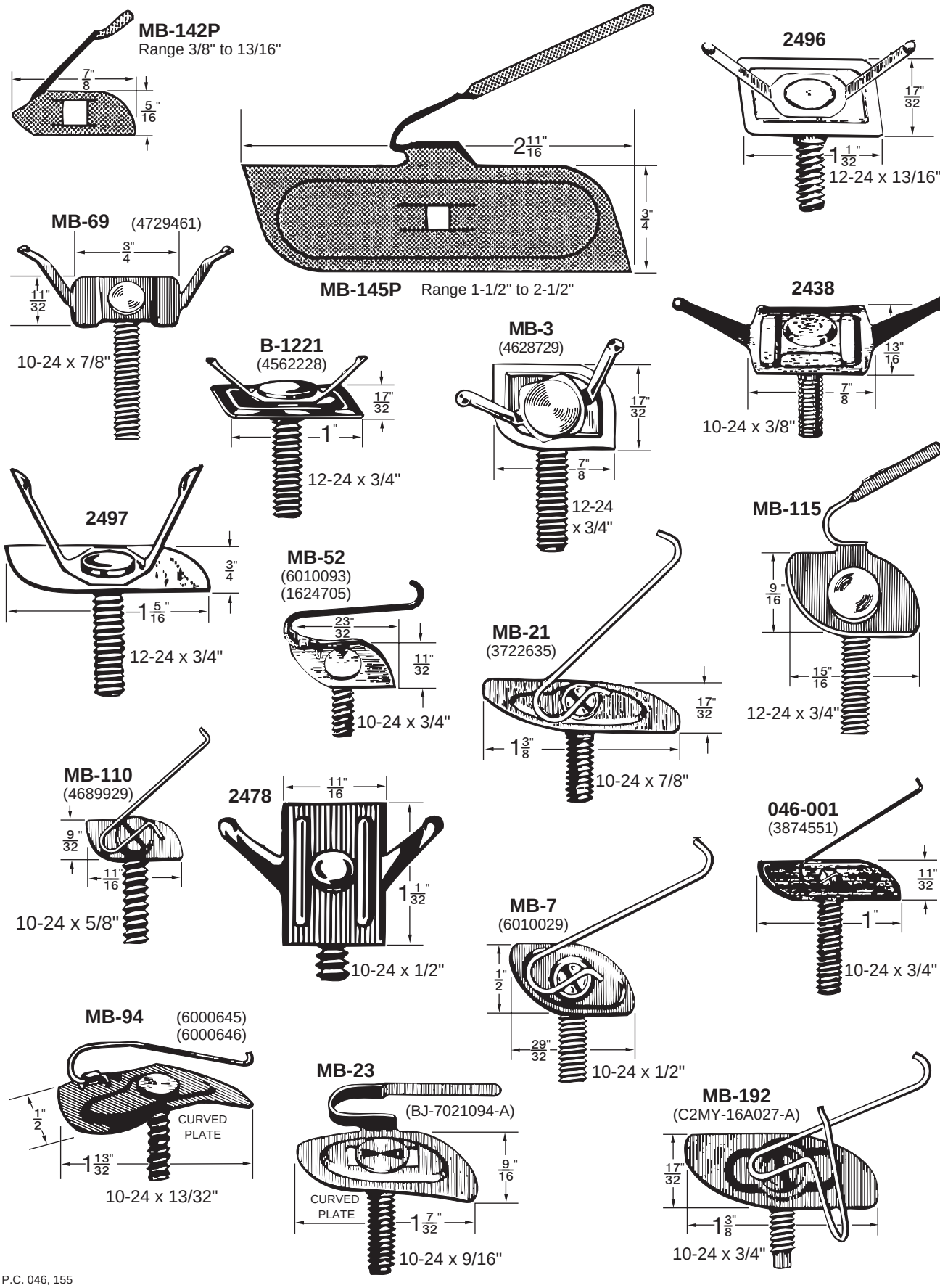
1241
1/4"-20 x 3/4"

P.C. 046

See Price List For Unit Package Quantity

H

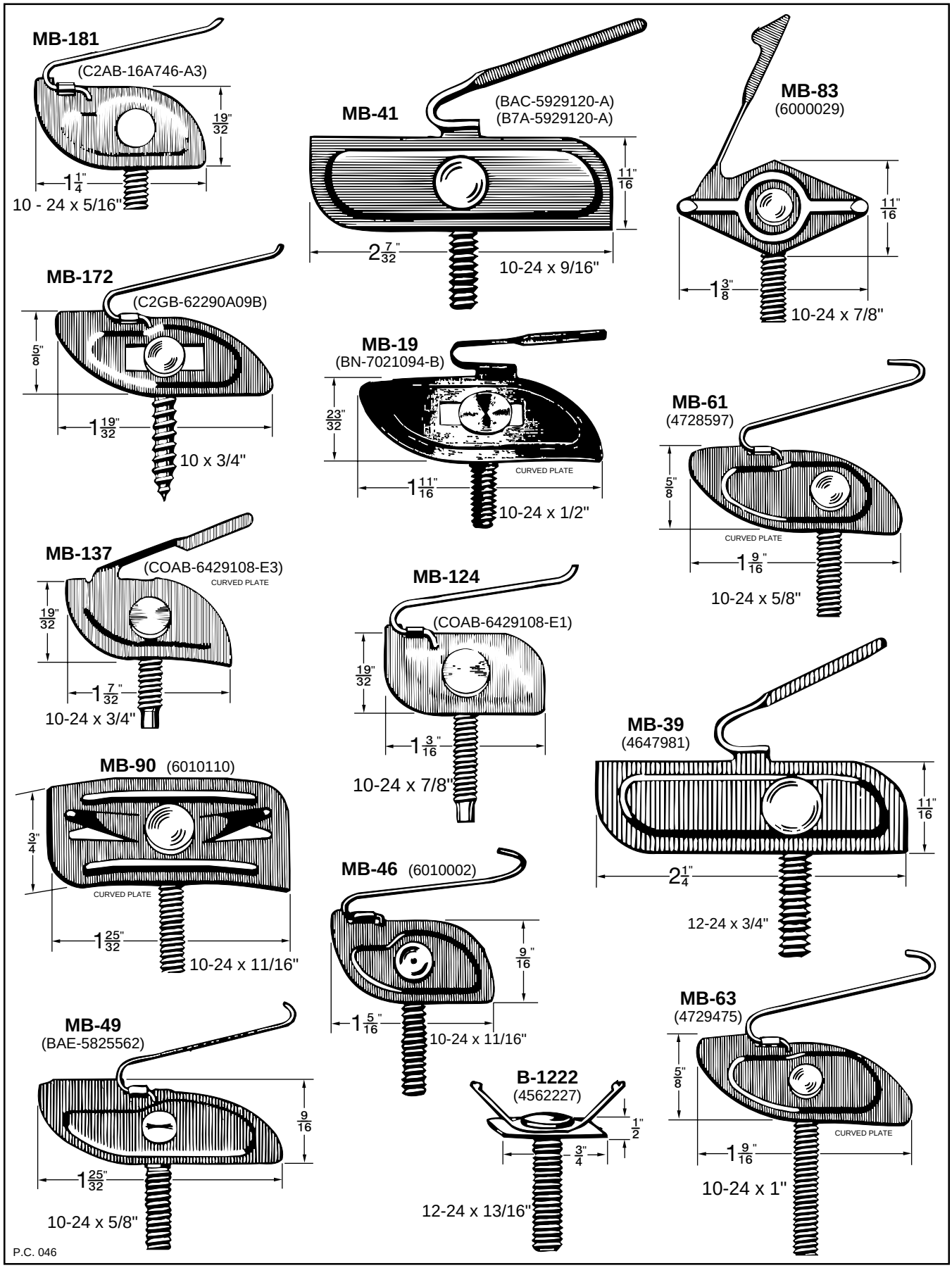
CATALOG 13



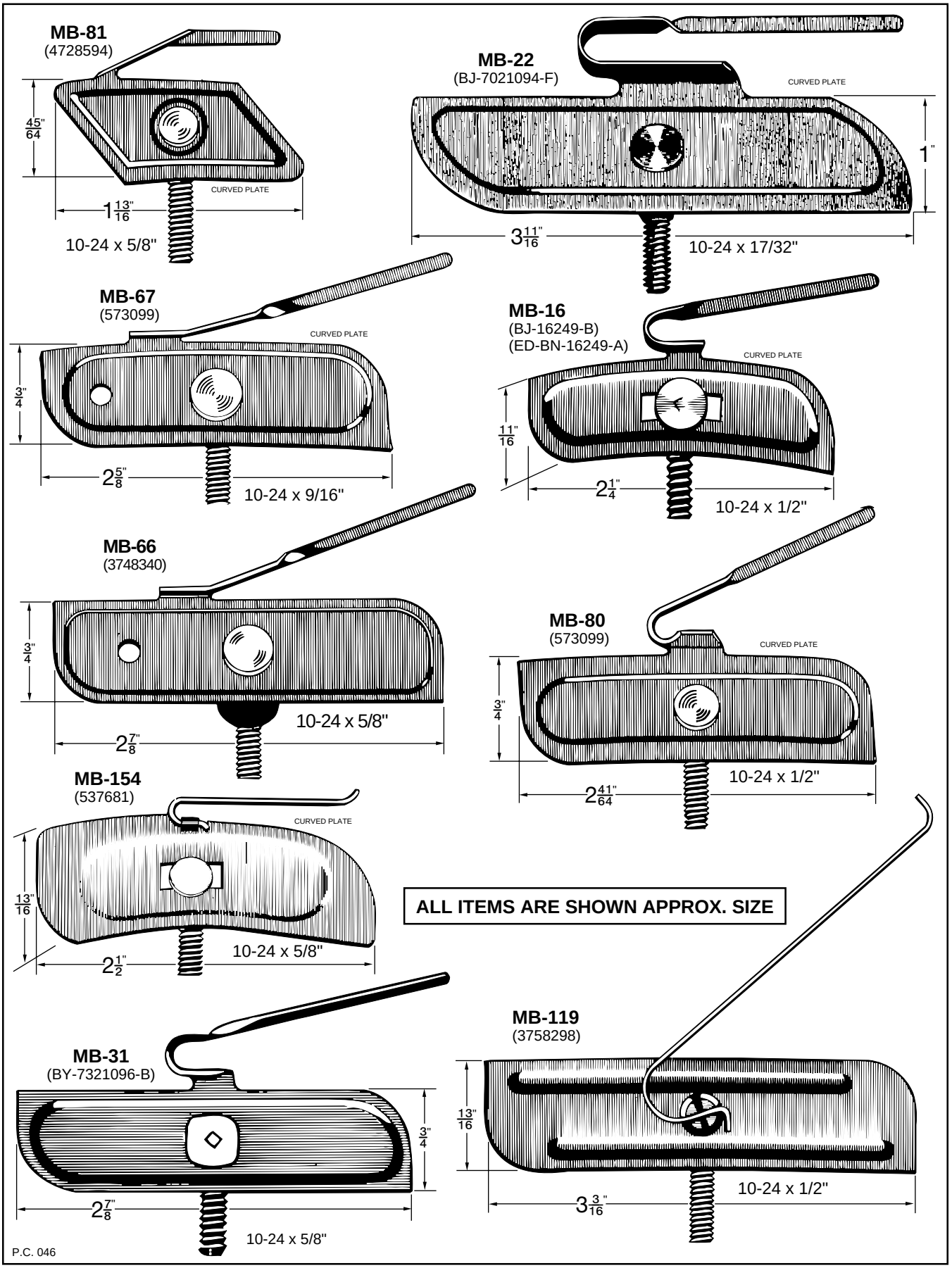
P.C. 046, 155

H

CATALOG 13


MB-181
(C2AB-16A746-A3)
19/32"
1 1/4"
10 - 24 x 5/16"
MB-41
(BAC-5929120-A)
(B7A-5929120-A)
11/16"
2 7/32"
10-24 x 9/16"
MB-83
(6000029)
11/16"
1 3/8"
10-24 x 7/8"
MB-172
(C2GB-62290A09B)
5/8"
1 19/32"
10 x 3/4"
MB-19
(BN-7021094-B)
23/32"
CURVED PLATE
1 11/16"
10-24 x 1/2"
MB-61
(4728597)
5/8"
CURVED PLATE
1 9/16"
10-24 x 5/8"
MB-137
(COAB-6429108-E3)
CURVED PLATE
19/32"
1 7/32"
10-24 x 3/4"
MB-124
(COAB-6429108-E1)
19/32"
1 3/16"
10-24 x 7/8"
MB-39
(4647981)
11/16"
2 1/4"
12-24 x 3/4"
MB-90 (6010110)
3/4"
CURVED PLATE
1 25/32"
10-24 x 11/16"
MB-46 (6010002)
9/16"
1 5/16"
10-24 x 11/16"
MB-49
(BAE-5825562)
9/16"
1 25/32"
10-24 x 5/8"
B-1222
(4562227)
1/2"
3/4"
12-24 x 13/16"
MB-63
(4729475)
5/8"
CURVED PLATE
1 9/16"
10-24 x 1"

P.C. 046



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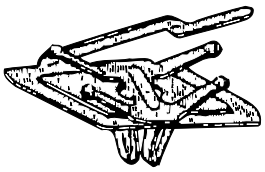
CATALOG 13

See Price List For Unit Package Quantity

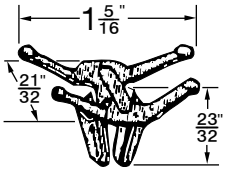
UNIVERSAL MOULDING CLIPS

Shown Approx. 1/2 Size.

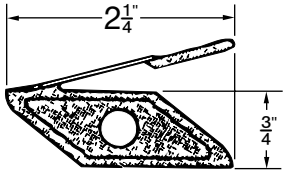


C-583

Panel Range to 5/32"
USE IN 11/32" BODY PANEL HOLE

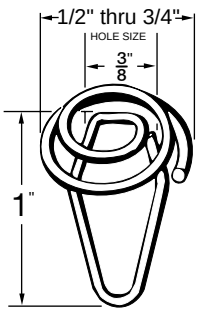


C-580-U



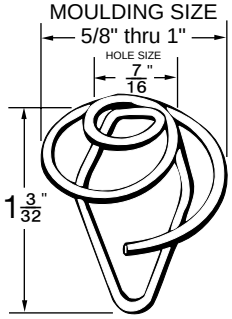
C-583-P

MOULDING SIZE
1/2" thru 3/4"



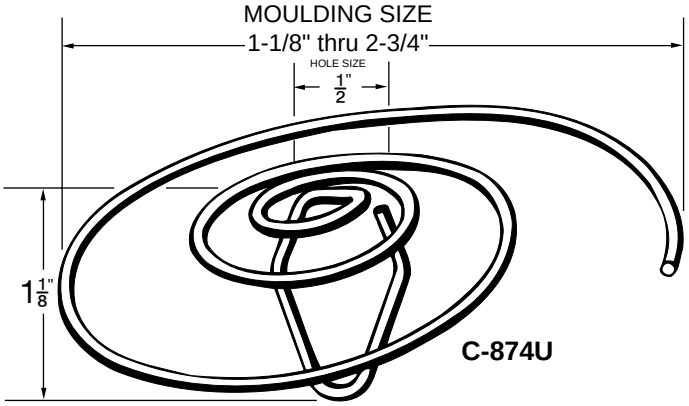
C-872U

MOULDING SIZE
5/8" thru 1"



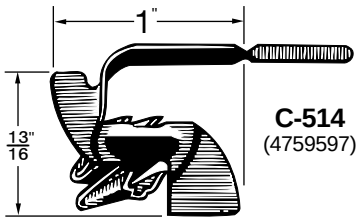
C-873U

MOULDING SIZE
1-1/8" thru 2-3/4"



C-874U

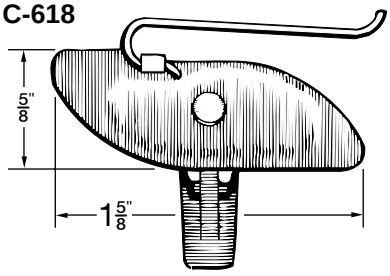
Panel Range to 1/4" on these three Spring Moulding items.



C-514
(4759597)

Panel Range to 5/32"
Fits 11/32" Hole

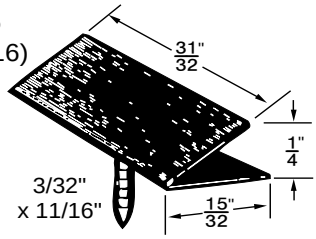
C-618



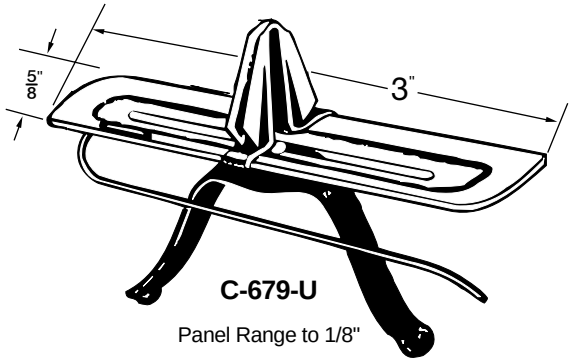
Panel Range to 5/32"

Fits 9/32" Hole

7585
(4635016)



P.C. 123



C-679-U

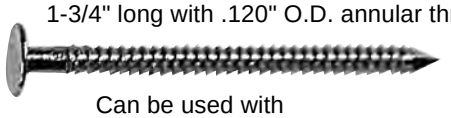
Panel Range to 1/8"

Fits 1/2" Hole

P.C. 086

7598

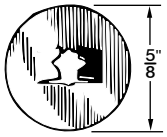
1-3/4" long with .120" O.D. annular thrds.

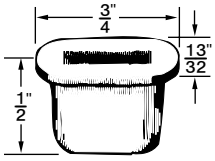


Can be used with
TN-44 and C-877P.

TN-44

Fits
3/32"
Stud



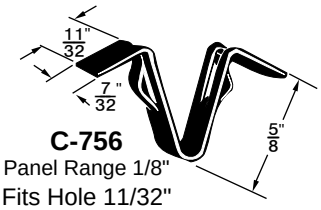


C-877P
(6280765)
Plastic

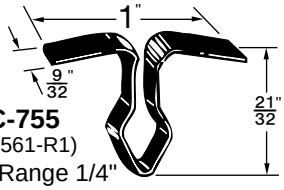
P.C. 086

H

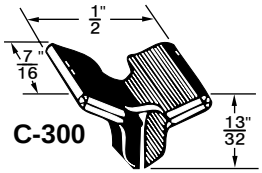
CATALOG 13



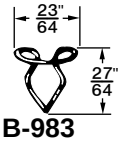
C-756
Panel Range 1/8"
Fits Hole 11/32"



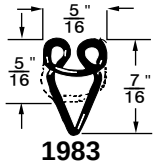
C-755
(43561-R1)
Panel Range 1/4"
Fits Hole 3/16"



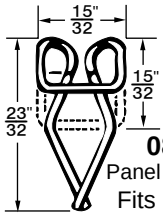
C-300



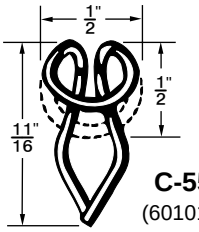
B-983
Panel Range 3/32"
Fits Hole 3/16"



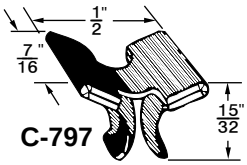
1983
Panel Range 1/8"
Fits Hole 7/32"



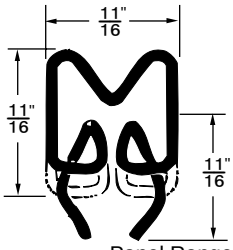
086-360
Panel Range 3/16"
Fits Hole 7/32"



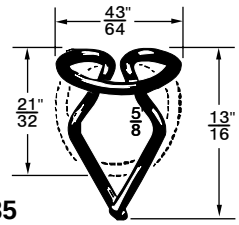
C-557
(6010192)
Panel Range 3/16"
Fits Hole 1/4"



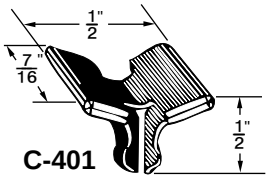
C-797



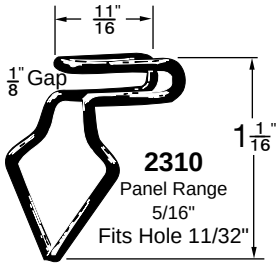
086-258 Panel Range 5/16"
Fits Hole 11/32"



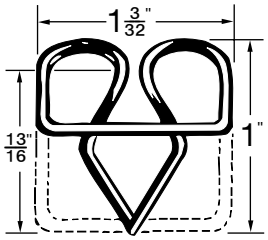
1985
Panel Range 7/32"
Fits Hole 1/4"



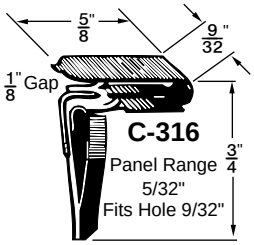
C-401



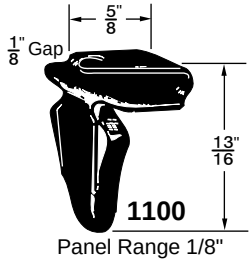
2310
Panel Range
5/16"
Fits Hole 11/32"



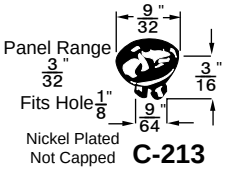
B-946 Panel Range 1/4"
Fits Hole 11/32"



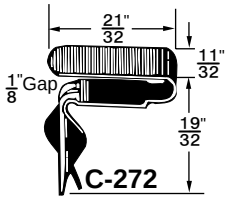
C-316
Panel Range
5/32"
Fits Hole 9/32"



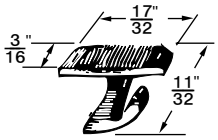
1100
Panel Range 1/8"
Fits Hole 5/16"



C-213
Nickel Plated
Not Capped

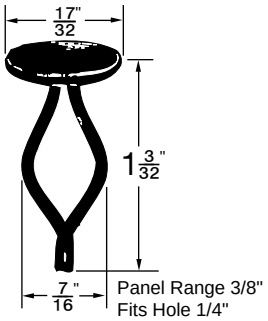


C-272
Panel Range 3/16"
Fits Hole 9/32"

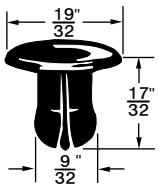


C-981P (2664040)
(NYLON)

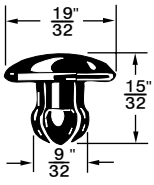
More Nylon Studs on page G24.



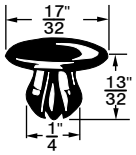
1202 (Dark Brown Cap)
Panel Range 3/8"
Fits Hole 1/4"



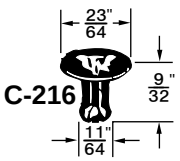
C-225N
(Nickel Plated)
Panel Range 1/4"
Fits Hole 1/4"



C-332N
(GM. 4583318)
(Nickel Plated)
Panel Range 7/32"
Fits Hole 1/4"



C-218
(Nickel Plated)
Panel Range 3/16"
Fits Hole 7/32"

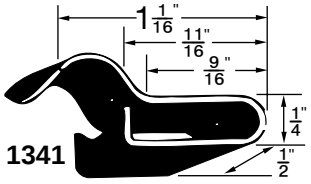


C-216
Panel Range 5/32"
Fits Hole 9/64"

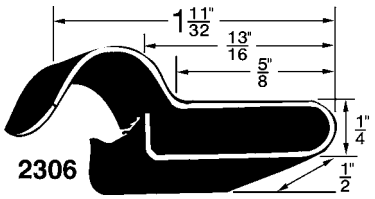
See Price List For Unit Package Quantity

H

CATALOG 13



1341



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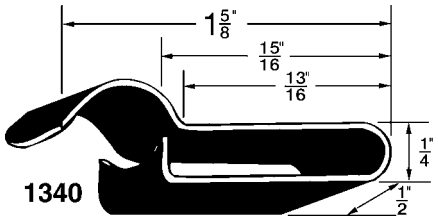

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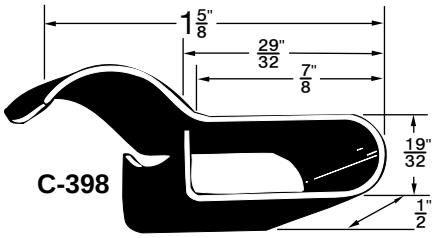
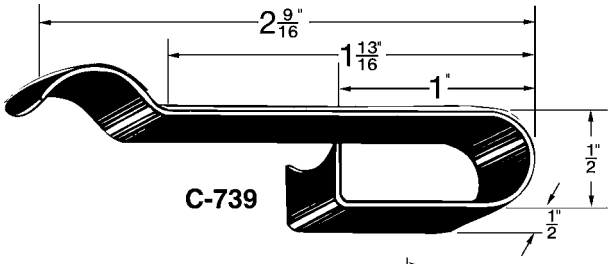
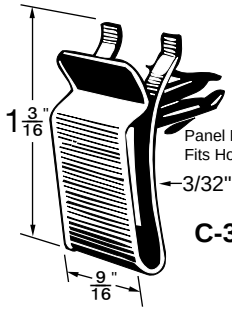


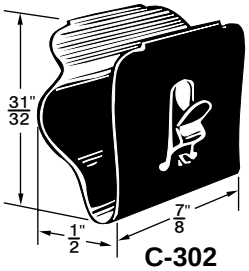
C-398



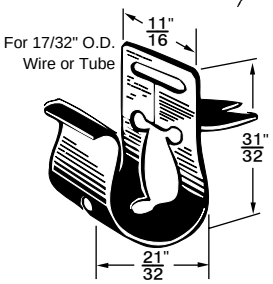
C-739



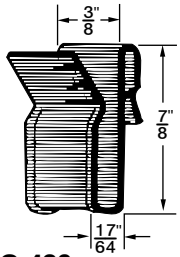
C-340



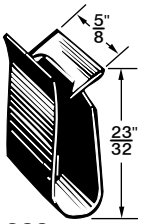
C-302



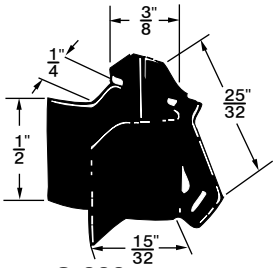
B-1255 Panel Range 3/16"
Fits Hole 5/16"



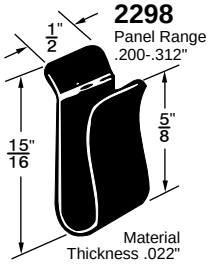
C-439 (6015118)

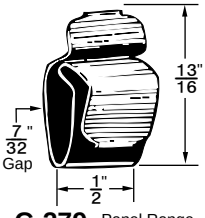


C-322 (358561-S3)
Panel Range .140 - .200"

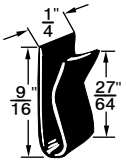


C-222 (357866-S8)
Panel Range 7/64"

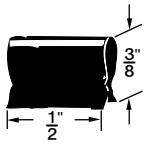




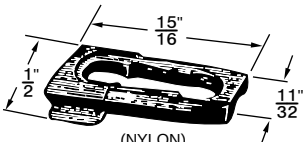
C-279 Panel Range 1/8"
(562264)



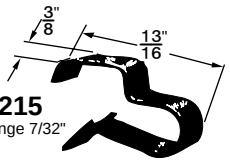
202-006
Panel Range
.050-.094"



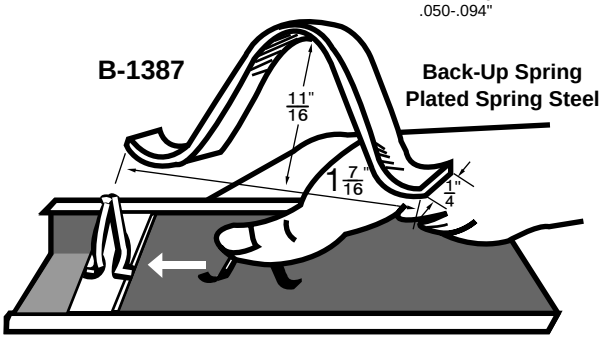
C-253 (358372-S3)
Panel Range .060- .090"



***C-1023** (NYLON)
(C7SB-6540248-A)



B-1215
Panel Range 7/32"
Supports Two 3/16"
Dia. Wires



Press Down and Push Under
For use on very wide or deep mouldings

*** See page K30 for 876-024 Moulding Clip Remover Tool used with C-1023 and similar clips.**

P.C. 086, 202

H

CATALOG 13

THROTTLE ROD CLIPS

For 3/32" dia. rod
086-645 RIGHT
086-646 LEFT

For 5/32" dia. rod
C-760 RIGHT
C-761 LEFT

For 3/16" dia. rod
C-764 RIGHT
C-765 LEFT

For 1/4" dia. rod
C-766 RIGHT
C-767 LEFT

Hardened Spring Steel — Right and Left Hand Styles
Unit Package 50 (One number) (Left Styles Shown)

086-644
(179-829-527)

Unit Package 50
4 mm Rod

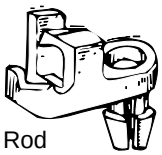
Clip, Tail-Gate Lock Rod End:
Volkswagen Pick-Up
Truck '79/.

P.C. 086

CARBURETOR LINKAGE CLIPS

SPAENAUR No.	Rod Diameter	Lever Thickness	Unit Pkg.
C-1056	1/8"	.039"-.044"	100
C-1055	1/8"	.064"-.070"	100
C-1058	1/8"	.117"-.123"	100

086-643
(469716)
(3081052)



3/16" Dia. Rod

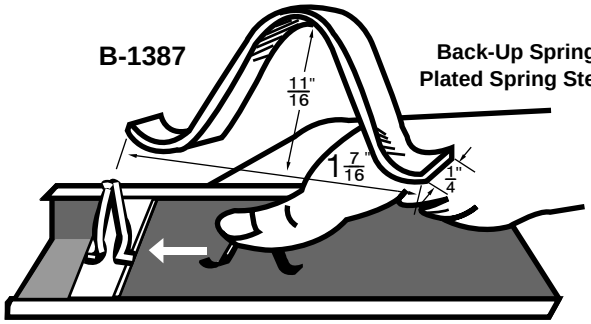
Clip, Door Lock Rod End:
Chevrolet Vans '78/.
Unit Package 50

086-649
(3904442)

Unit Package 50
1/4" Rod

Air Vent Valve Opening Rod End Clip:
CHEVROLET '67-'71.
Carburetor Linkage Clip:
GMC Trucks '67-'69.

B-1387

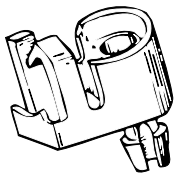


Back-Up Spring
Plated Spring Steel

Press Down and Push Under
For use on very wide or deep mouldings

P.C. 086
Unit Package 50

086-641
(3796071)



086-642
(3796070)

1/16" Panel Thickness
Clip, Door Lock Rod End:
Chrysler Products.
Unit Package 50

5/32" Rod

1/8" Panel Thickness
Clip, Door Lock Rod End:
Chrysler Products.
Unit Package 50

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SPAENAUR

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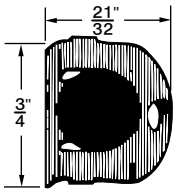
For GENERAL MOTORS CARS

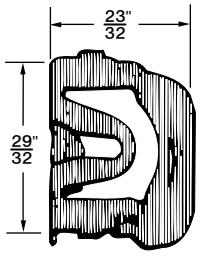


C-1080

Clip, Quarter Window Reveal Moulding

Chevrolet '68-'70 Station Wagon
Oldsmobile '69-'70 Station Wagon
Buick '69-'71

Unit Package 50

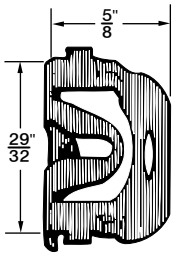


C-1082
(9854717)

Windshield and Rear Window Reveal Moulding clip

General Motors Cars '71

Unit Package 50

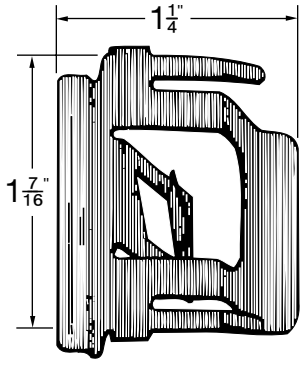


C-1086
(9808241)

Clip, Windshield or Back Window Reveal Moulding

Buick '71
Chev. Pass, Camaro '70-'71,
Pontiac Tempest '70-'71

Unit Package 50

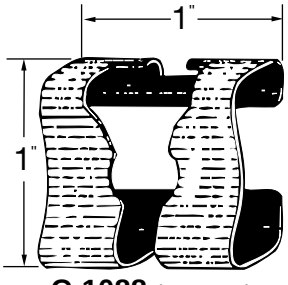


C-1081
(9851875)

Clip, Windshield Side Moulding

General Motors Cars '71

Unit Package 50

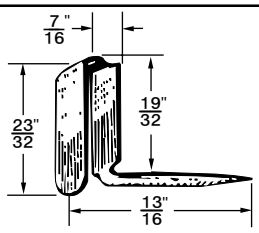


C-1088 (4542715)

Window Regulator to Channel Clip

G.M. Cars 1965 - '71

Unit Package 50

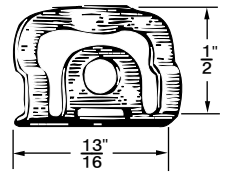


086-628
(20119536)

Fasteners, Door and Quarter Trim Panel:

General Motors '79/.

Unit Package 50

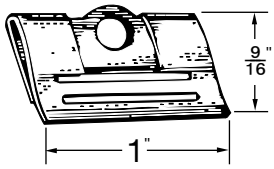


C-1121
(8736587)

Quarter Window Reveal Moulding Clip

G.M. Compact Cars
(Except Olds.) '69-'70

Unit Package 50

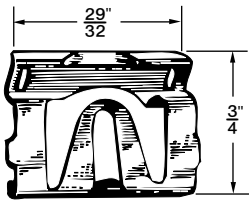


C-1119
(3936399)

Windshield Reveal Moulding Clip

Corvette '68-'72

Unit Package 50

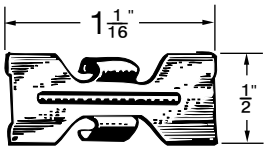


C-1091
(9606232)

Windshield Reveal Moulding Clip

General Motors Cars,
"A" Bodies '72

Unit Package 100

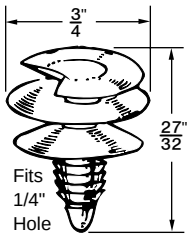


C-1090
(9880449)

Rear Window Reveal Moulding Clip, Glued Directly to Back Glass

'71-'72 Vega

Unit Package 50

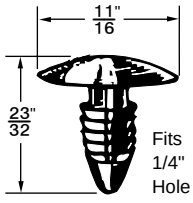


C-1096
(9818648)

Panel Fastener, Nylon

General Motors Cars '71-'72

Unit Package 100

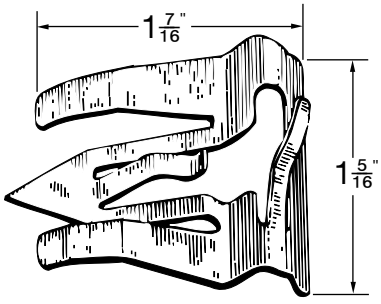


C-1130
(332364 & 4004569)

Clip. Plastic Shield Fenders and Engine Compartment

Chevrolet and
American Motors '73

Unit Package 100



C-1128
(9827569)

Roof Rail Garnish Moulding Clip

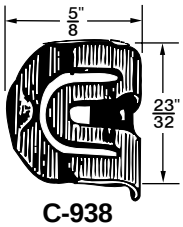
G.M. Cars '71

Unit Package 25

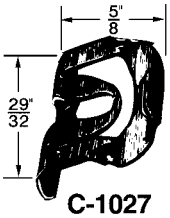
H

CATALOG 13

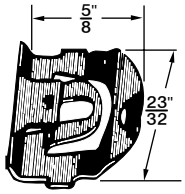
Windshield and Rear Window Reveal Moulding Clips
For GENERAL MOTORS CARS



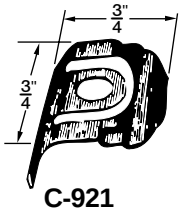
C-938
(4506041)
Unit Package 50



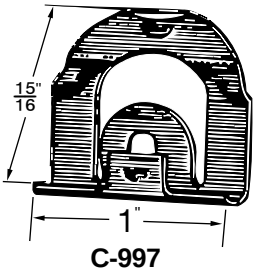
C-1027
(7698976)
1967 - '68
Unit Package 50



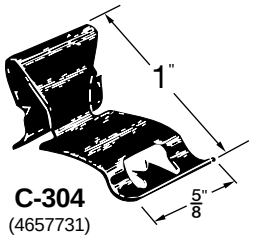
086-247
(4533699)
Unit Package 50



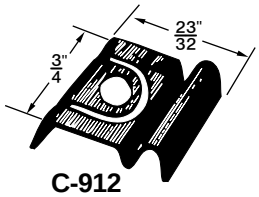
C-921
(4474354)
Unit Package 50



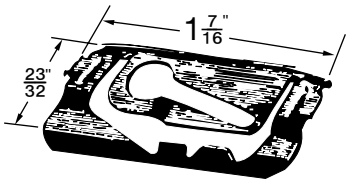
C-997
(7634583)
Unit Package 50



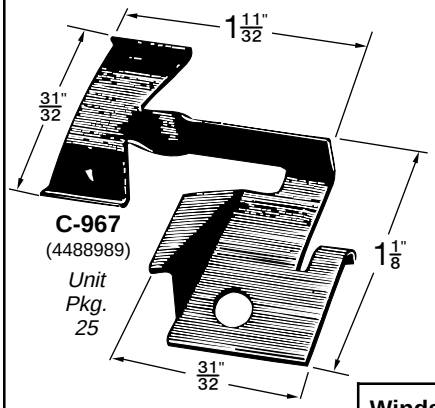
C-304
(4657731)
Unit Package 50



C-912
(4871329) (4422660)
Unit Package 50

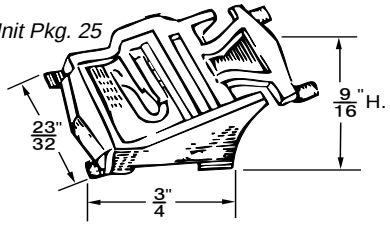


C-1030
(7730788)
1968 Models
Unit Package 50

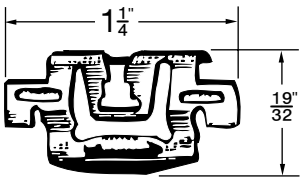


C-967
(4488989)
Unit Pkg. 25

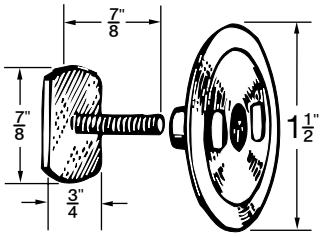
Unit Pkg. 25



086-636
(20141575)
Clip, Reveal Moulding Lower, Back Window
General Motors '79/.



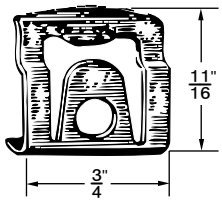
086-635
(20092675)
Clip, Reveal Moulding Windshield and Rear Glass
General Motors '78/.
Unit Package 100



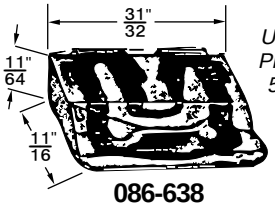
046-198

Bolt and Nut Assembly, for cars using Bolt-On Sash Method on quarter panel and rear door windows
G.M. Cars '65-'70
Unit Package 10

Windshield and Rear Window Reveal Moulding Clips
For AMERICAN MOTORS CARS

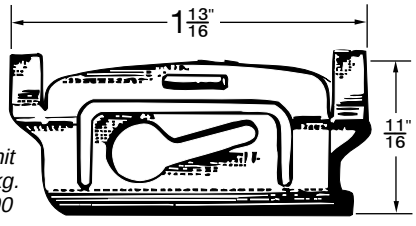


C-1120
(4002129)
Windshield Reveal Moulding Clip
American Motors Javelin '67-'69
Unit Package 50



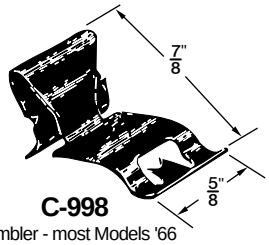
Unit Pkg. 50

086-638
(4006260)
Retainer, Windshield and Backlite Reveal Moulding
American Motors '79/.



Unit Pkg. 100

086-639
(4006211)
Nylon Clip, Windshield and Rear Glass Reveal Moulding — American Motors '78/.

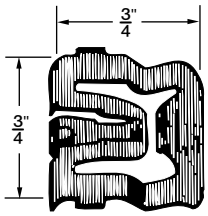


C-998
Rambler - most Models '66
Unit Package 50

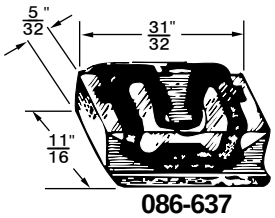
H

CATALOG 13

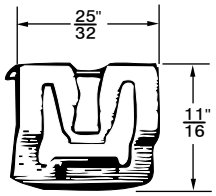
Windshield and Rear Window Reveal Moulding Clips
For FORD PRODUCTS CARS



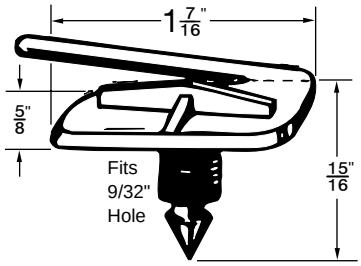
C-1084
(D0DZ-6203174-C)
Windshield and Rear Window Reveal Moulding Fastener:
FORD '69-'71 Including Maverick
FORD '71 Pinto
Unit Package 50



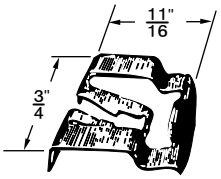
086-637
(D8VZ-6003166-A)
Clip, Windshield and Rear Glass Reveal Moulding, Used to Reduce Glass Breakage:
Ford Products '78/.
Unit Package 100



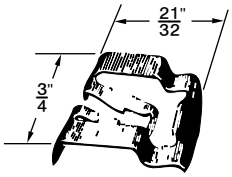
C-1122
(C8AB6342413C)
Unit Package 100
Clip, Reveal Moulding Back Glass:
Ford, Fairlane, Mercury, Meteor,
Comet '66-'71, Datsun '70-'72.



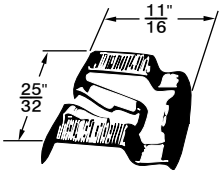
086-651
(D4ZB-17C756AC)
Plastic
Moulding Fastener
Ford '75-'80
Unit Package 25



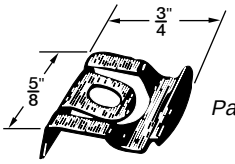
C-984
(C5ZZ-6542413-B)
1966 - '73
Unit Package 50



C-1025
(C6AB-6242413-A)
1967 - '74
Unit Package 50

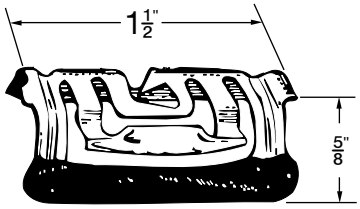


C-1068
(C8AZ-6342413-A)
1968 - '79
Unit Package 100

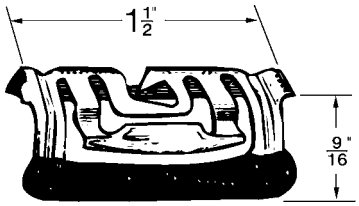


Unit Package 50

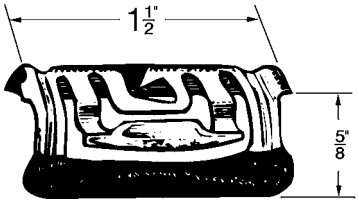
C-991
(C5AZ-6242413-A)
Ford '65 Galaxie
Mercury & Comet '65-'70



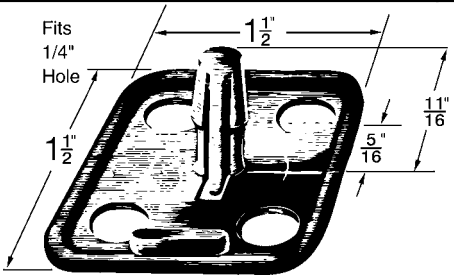
086-632
(D9BZ-5403556-A)
Clip, Windshield Reveal Moulding:
Ford Vans '78/.
Unit Package 50



086-633
(D9EZ-6203556-A)
Clip, Windshield Lower Moulding:
Ford '79/.
Unit Package 25



086-634
(D9DZ-6603556A)
Clip, Windshield Lower Moulding:
Ford '79/.
Unit Package 25

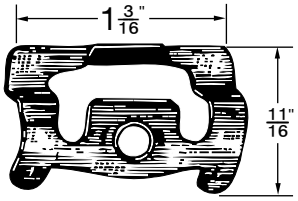


086-650
(C6GY-16776-A)
Nylon Hood
Insulation Retainer:
Ford '66-'79
Mercury & Comet '66-'79
Unit Package 50

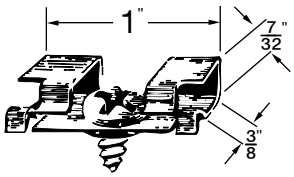
H

CATALOG 13

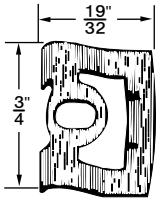
Windshield and Rear Window Reveal Moulding Clips
For CHRYSLER PRODUCTS CARS



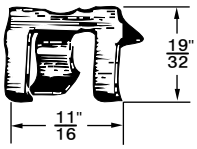
C-1089
Windshield
Reveal Moulding Clip
Upper Corners
Chrysler Products '71-'72
Unit Package 50



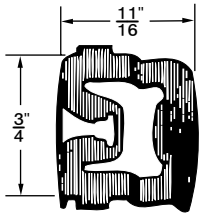
C-989
(6000966)
Unit Package 50



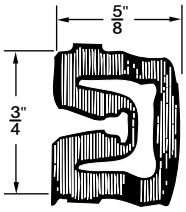
C-1074
Chrysler 1969
Unit Package 100



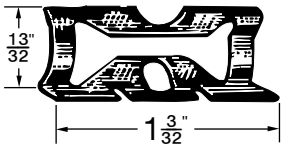
C-1095
(2217508)
Clip, Outer Weatherstrip,
Door & Quarter Window
Chrysler Products '67-'71
Unit Package 100



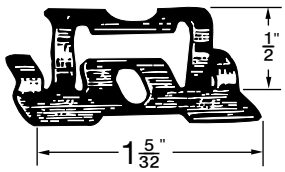
C-1083
(6003238)
Clip, Quarter
Window Moulding
Chrysler Products '71
Unit Package 50



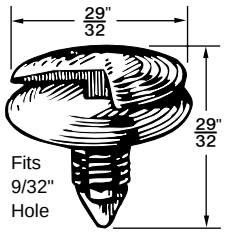
C-1085
(6002893)
Rear Window Reveal
Moulding Clip
Barracuda '69-'70
Chrysler Products '71
Unit Package 50



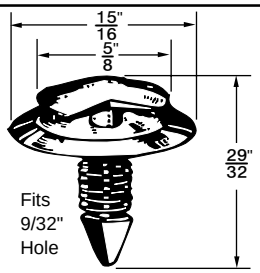
C-1092
(6003302)
Windshield Reveal Moulding
Clip Sides and Lower
Dodge Truck '72
Unit Package 50



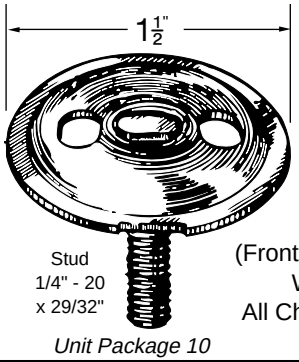
C-1093
(6003301)
Windshield Reveal Moulding
Clip, Upper
Dodge Truck '72
Unit Package 50



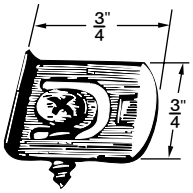
C-1115 (6003349)
Door Trim Panel Fastener, Nylon
(Used on Cardboard Panels)
'72-'73 Chrysler Products,
Valiant, Dart, Duster, Demon
Unit Package 100



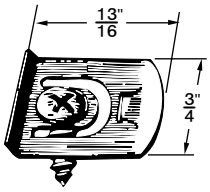
C-1116 (6003368)
Door Trim Panel Fastener, Nylon
(Used on Plastic Panels)
'72-'73 Chrysler Products,
Dodge, Plymouth and Chrysler
Unit Package 100



698-094
(6029998)
Stud & Washer
Assembly
Steel
Phosphate Finish
(Front Door Glass, Lift Stud &
Washer Assembly)
All Chrysler Products '76-'78
Unit Package 10



C-992
(6002076)
Screw Size
#8 x 3/8"
Unit Package 50



C-993
(6001648)
Screw Size
#8 x 3/8"
Unit Package 25

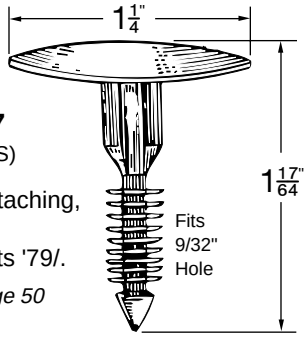
H

CATALOG 13

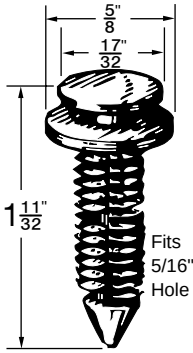
See Pages K29 - K31 For
Trim Fastener Tools.

H

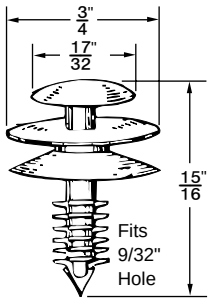
For FORD PRODUCTS CARS



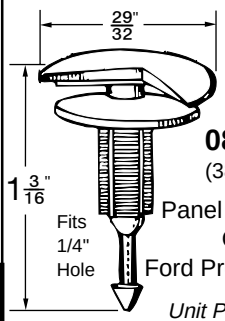
086-617
(N-800387-S)
Dashboard Attaching, Clip:
Ford Products '79/.
Unit Package 50



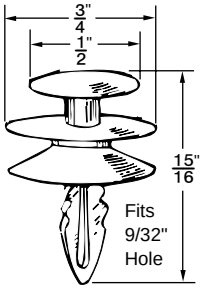
086-621
(387182-S)
Seat Back Panel Retainer:
Ford Products '77/.
Unit Package 25



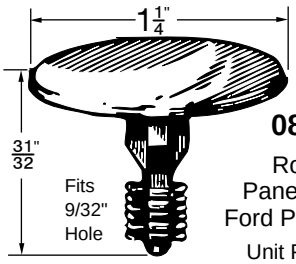
086-618
(388499-S)
Inside Door Panel Attaching, Clip:
Ford Products '78/.
Unit Package 50



086-622
(387496-S)
Panel Retaining Clip:
Ford Products '78/.
Unit Package 50

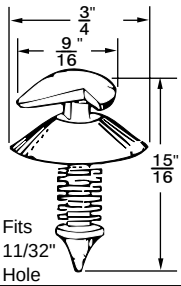


086-619
(387477-S)
Clip, Trim Panel
Ford Products '77/.
Unit Package 100



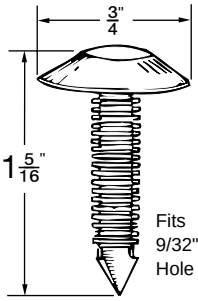
086-620
Roof Trim Panel Retainer:
Ford Products '76/.
Unit Package 25

VOLKSWAGEN



086-629
(175-867-299)
Clip, Door Trim Panels:
Volkswagen '79/.
Unit Package 50

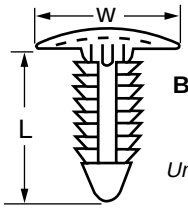
For GENERAL MOTORS CARS



086-624
(1699250)
Clip, Trim Panels:
General Motors Cars '77/.
Unit Package 50

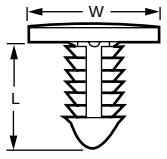
086-041
Hood Insulation Clip,
2" Head Dia.
1/4" Hole Dia.
.125/.3125" Panel
9/16" Lgth. Under Head
Unit Package 25

RATCHET FASTENERS



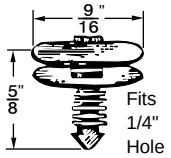
Black Nylon
(*White)
Unit Package 25

▲ Different Style Head

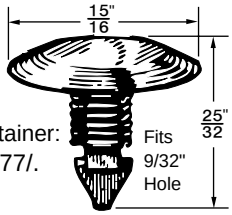


SPAENAUR No.	Lgth.	Wdth.	Hole Dia.	Panel Thick
086-008	.437"	.750"	.250"	.290-.030"
086-038*	.437"	.750"	.250"	.290-.030"
086-040▲	.480"	.437"	.187"	.312-.030"
086-010	.800"	.700"	.250"	.560-.110"
086-009	.820"	1.00"	.406"	.565-.115"

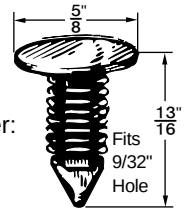
For CHRYSLER PRODUCTS CARS



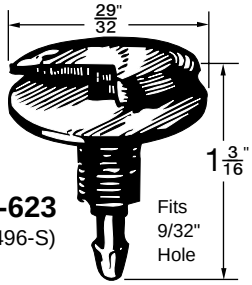
086-625
(6003654)
Clip, (Plastic) Door Trim also Front and Rear Bumper:
Chrysler Products '78/.
Unit Package 100



086-627
(6003423)
Interior Trim Panel Retainer:
Chrysler Products '77/.
Unit Package 50



086-631
(6003587)
Headlining Trim Retainer:
Chrysler Products '77/.
Unit Package 50



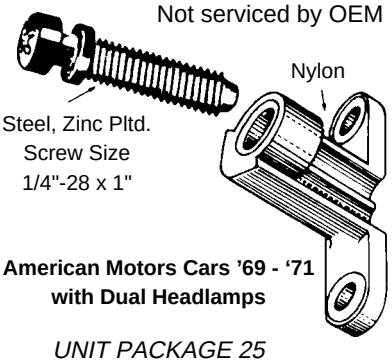
086-623
(387496-S)
Trim Panel Clip:
Chrysler Products '76/.
Unit Package 50

See Pages K29 - K31 For Trim Fastener Tools.

Headlight Adjusting Screw and Nut

599-001

Not serviced by OEM



American Motors Cars '69 - '71 with Dual Headlamps

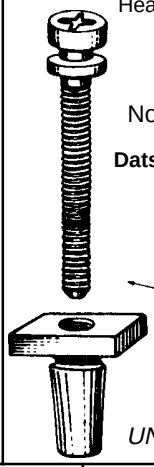
UNIT PACKAGE 25

Headlamp Adjusting Nut and Screw

599-003

Not Serviced by OEM

Datsun, Toyota '69 - '72



UNIT PACKAGE 25

ZINC PLATED

Headlight Adjusting Screw

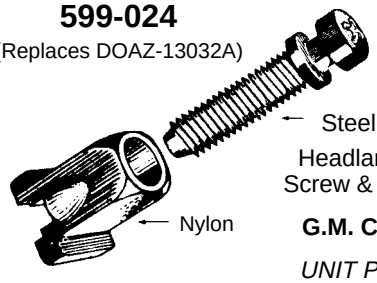
			UNIT PACKAGE
2118-A	1/4"-28 x 1"	**All Cars**	25
2118-B	1/4"-28 x 1-1/2"	**GM Cars** (5956686)	25
B-1946	1/4"-28 x 1-5/8"	**Ford Line** (C6SZ-13032-A)	50

P.C. 599

599-024

(Replaces DOAZ-13032A)

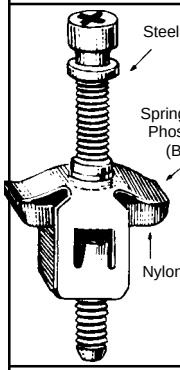
Screw Size 1/4"-28 x 1"



Headlamp Adjusting Screw & Nut Assembly

G.M. Cars '62 - '64

UNIT PACKAGE 25



599-006

Screw Size 1/4"-28 x 1-1/2"

(Replaces 1235816)

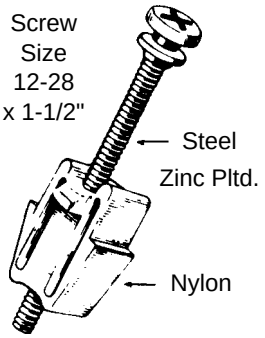
Headlamp Adjusting Screw and Nut

Buick '69 - '73
Cadillac '71 - '73
Pontiac '68 - '69 All
'70 - '72 Firebird, '73 All

UNIT PACKAGE 10

599-008

(Replaces 3574084)



Headlamp Adjusting Screw and Nut

Chrysler Products '72 Monaco Only

UNIT PACKAGE 25

C-643

Headlamp Screw Assembly

(5948838)
(with 2118-A Screw and mounting screws & nuts)

UNIT PKG. 5 Sets

G.M. Cars

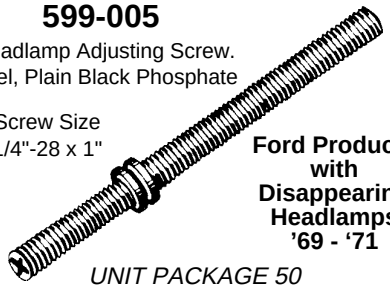
Adjusting Screw Size 1/4"-28 x 1"

P.C. 086

599-005

Headlamp Adjusting Screw. Steel, Plain Black Phosphate

Screw Size 1/4"-28 x 1"



Ford Products with Disappearing Headlamps '69 - '71

UNIT PACKAGE 50

599-014

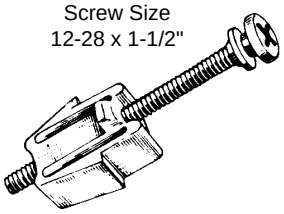
(Replaces 3573797)

Headlight Beam Adjusting Screw and Nut Assembly

Chrysler Products '71

UNIT PACKAGE 25

Screw Size 12-28 x 1-1/2"

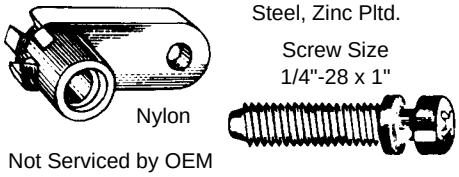


599-002

Headlight Adjusting Screw and Nut

Steel, Zinc Pltd.

Screw Size 1/4"-28 x 1"



Not Serviced by OEM

American Motors Cars '69 - '71 with Single Headlight

UNIT PACKAGE 25

ST-2010P

Parking and Tail Lamp Screws

Stainless Steel - Type "F"
Screw Size 8-32 x 1-3/8"

Used on Ford '56 - '60
(Mfrs. No. 372678-S100)

UNIT PACKAGE 50

P.C. 531

599-011

Headlamp Adjusting Screw and Stop

Screw Size 1/4"-28 x 1-1/2"

Black Nylon

Chrysler Cricket 1972

UNIT PACKAGE 25

H

CATALOG 13

599-026
Replaces D8TZ-13032A

Headlamp Adjusting
Screw and Nut Assembly
Ford Trucks '78/.

UNIT PACKAGE 25

599-028
Replaces D7AZ-13032A

Headlamp Adjusting
Screw and Nut Assembly
Ford Light Trucks '76/.

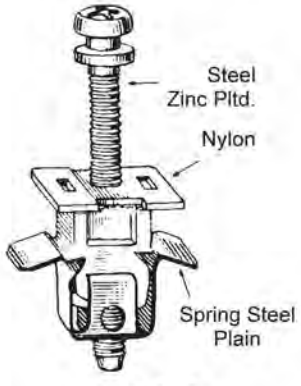
UNIT PACKAGE 25

H

599-029
Replaces 3868551

Headlight Screw and Nut Assembly
Chrysler Le Baron and Dodge Diplomat '77/.

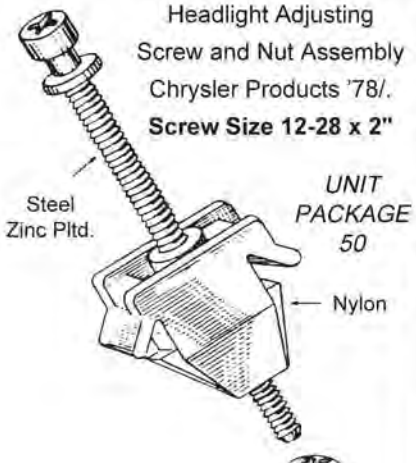
UNIT PACKAGE 25



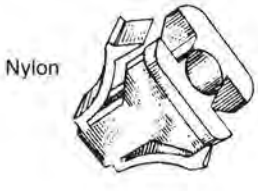
599-030
Replaces 2785842
Screw Size 12-28 x 1-1/2"
Headlight Adjusting
Screw and Nut Assembly
Chrysler Products '68/.
UNIT PACKAGE 25

599-031
Replaces 5201269 (Green)

Headlight Adjusting
Screw and Nut Assembly
Chrysler Products '78/.
Screw Size 12-28 x 2"



UNIT PACKAGE 50



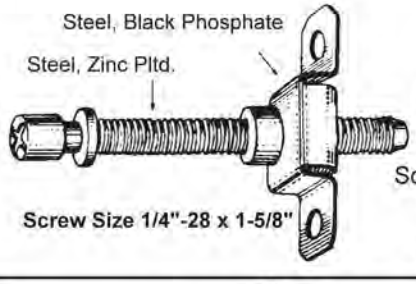
599-035
Replaces 365270
For 12-28 Screws
Nut, Headlamp Adjusting
For use on fibreglas panels
General Motors Cars

UNIT PACKAGE 50

599-032
Replaces 3868985
(Black)

Headlight Adjusting
Nut and Screw Assembly
Chrysler Products, Diplomat and
Le Baron '78/.

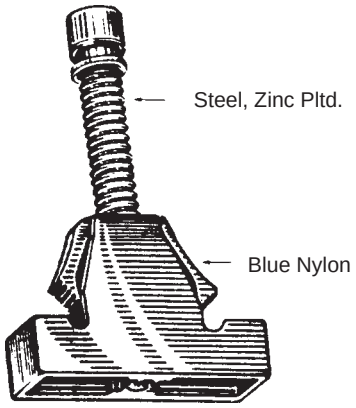
UNIT PACKAGE 50



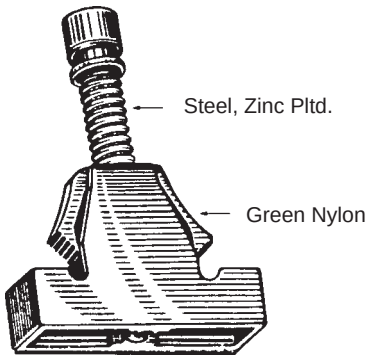
599-033
Replaces 1252690

Headlight Adjusting
Screw and Nut Assembly
Buick

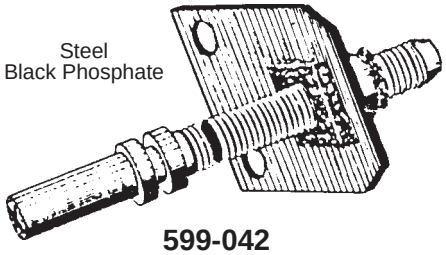
UNIT PACKAGE 25



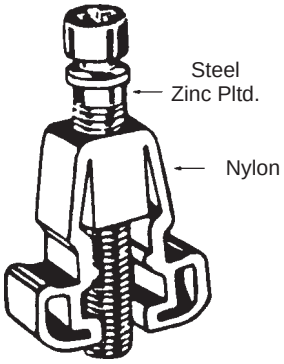
599-045
(557057)
Thread Size 12-28 x 1-3/4"
Headlamp Adjusting
Nut & Screw Assembly
OLDSMOBILE:
All Models - '76-'79
UNIT PACKAGE 25



599-047
(556539)
Thread Size 12-28 x 1-3/8"
Headlamp Adjusting
Screw & Nut Assembly
BUICK: '77-'79
OLDSMOBILE: '77-'79
(All A-body Models)
UNIT PACKAGE 25

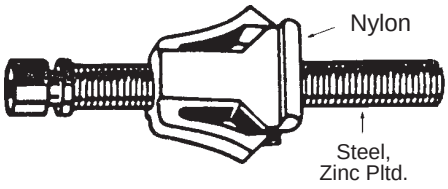


599-042
(DOOZ-13032-A)
Thread Size 1/4"-28 x 1-1/2"
Headlamp Adjusting
Screw and Nut Assembly
FORD: '70-'71
UNIT PACKAGE 25

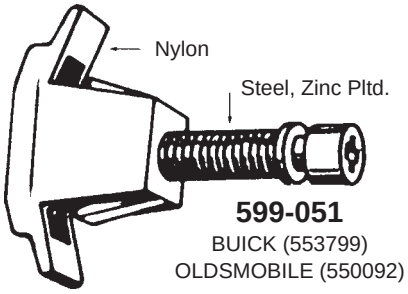


599-049
(1606642)
Thread Size 1/4-28 x 1-7/8"
Headlamp Adjusting
Nut & Screw Assembly
CADILLAC: '76-'79
OLDSMOBILE: '77-'79
UNIT PACKAGE 10

599-050
CHEVROLET (343543)
BUICK (354076)



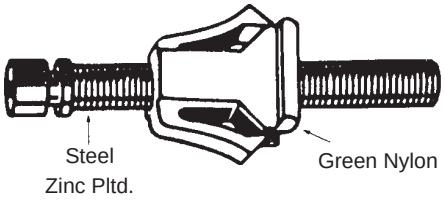
Thread Size 1/4"-28 x 2"
Headlight Adjusting
Screw and Nut Assembly
CHEVROLET, BUICK: '75-'77
UNIT PACKAGE 10



599-051
BUICK (553799)
OLDSMOBILE (550092)
Thread Size 1/4"-28 x 1-3/8"
Headlamp Adjusting
Nut Assembly
BUICK:
Riviera, Century, Regal - '75-'77
OLDSMOBILE:
Toronado, Cutlass, Delta 88 - '75-'77
UNIT PACKAGE 10

599-053
Thread Size 1/4"-28 x 2"
Zinc Plated
CHEVROLET: (343543)
BUICK: (354076)
UNIT PACKAGE 25

599-052
(365270)

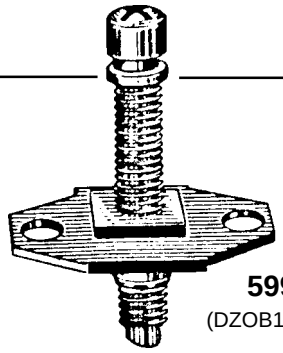


Thread Size 1/4"-28 x 2"
Headlamp Adjusting Nut
with Screw
Cars with Fiberglass Panels
GM Cars: 1977-79
UNIT PACKAGE 25

H

CATALOG 13

INCH SIZES



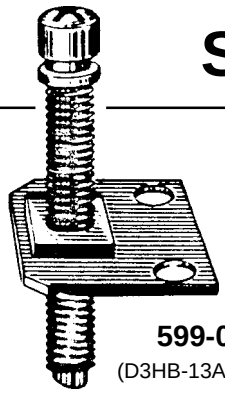
599-037
(DZOB13A-093-AA)

Phosphate

Size 1/4"-28 x 1-1/2"

Headlamp Adjusting
Nut & Screw Assembly
FORD: Maverick, Pinto,
Comet, Ranchero, & medium
trucks '76-'79

UNIT PACKAGE 10



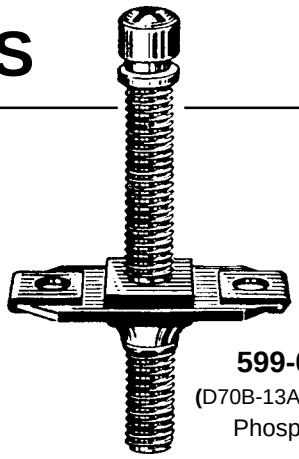
599-038
(D3HB-13A093-AB)

Phosphate

Size 1/4"-28 x 1-3/4"

Headlamp Adjusting
Nut & Screw Assembly
FORD: Bravada, Monarch,
Mustang II, and heavy trucks
'77-'79

UNIT PACKAGE 10



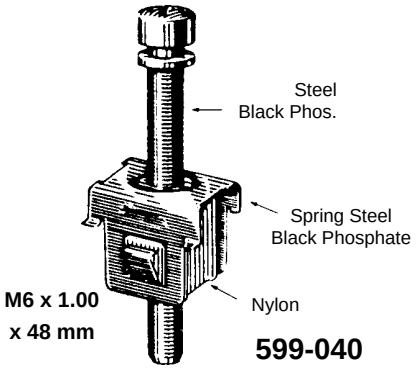
599-039
(D70B-13A-093-AA)
Phosphate

Size 1/4"-28 x 2"

Headlamp Adjusting
Nut & Screw Assembly
FORD: LTD, Cougar
and Marquis '76-'79

UNIT PACKAGE 10

METRIC SIZES



599-040
(D7AB-13A093AA)

Phos. - Nylon - Steel

Headlight Screw & Nut
FORD PROD.: Lt. & med.
truck '77-'78 and
Econoline

UNIT PACKAGE 10

599-009
(Replaces 311-941-141A)

SIZE: M5 x 38 mm

Steel, Zinc Plated
Headlamp Adjusting Screw
Volkswagen: '67-'73

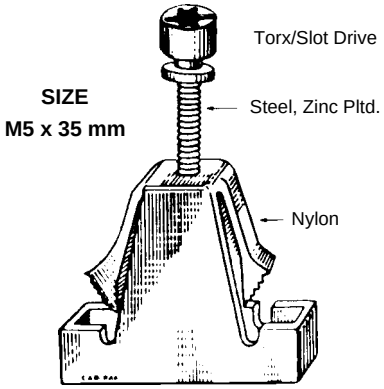
UNIT PACKAGE 25

599-013
(Replaces 311-941-195A)

SIZE: M5 x 51 mm

Steel, Zinc Plated
Headlamp Door Screw
Volkswagen: '67-'73

UNIT PACKAGE 25



599-055
(Replaces 22512857 - Green)
Headlamp Adjusting
Screw and Nut Assembly
General Motors: '82/.

UNIT PACKAGE 25

599-043
(311 941 141A)

Size M5 x 40 mm

Dog Point
Zinc Plated
Metric Headlamp
Adjusting Screw
Volkswagen: '69-'77

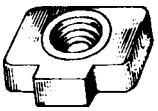
UNIT PACKAGE 10

599-044
(211 941 141)

Size M4 x 65 mm

Slotted Oval Head
Chrome Plated
Metric Headlamp
Adjusting Screw
Volkswagen: '69-'77

UNIT PACKAGE 10



225-027
(Replaces 311-941-145)

For M5 Screws

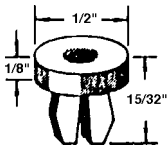
Headlamp Adjusting Nut
(Nylon)

Volkswagen: '67-'73

UNIT PACKAGE 25

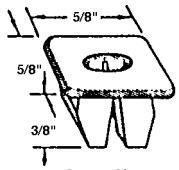
NYLON - License Fastener Parts

Suggested Screw Size is for Tapping Screws.



N-164P
(3783006)
Unit Package 50

Use Screw Size No. 8
License Plate Nut
CHEV. '61-'63



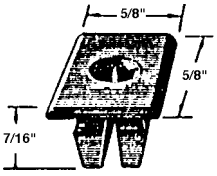
C-688P
(1196781)
Unit Package 50

Screw Size No. 14 or 1/4"
Plastic Rear License Plate Nut
BUICK '61

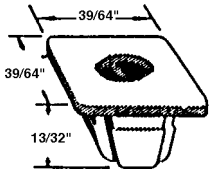
NYLON FLAT WASHERS

SPAENAUR No.	Bolt Size
W-5002	No. 8
W-5003	No. 10
W-5004	1/4"

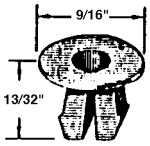
Unit Package 100



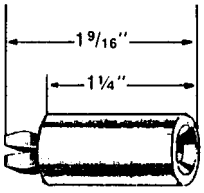
N-267P
(4755299)
Screw Size No. 14 or 1/4"
Front & Rear License Plate Nut
PONTIAC '59, '63-'65
CADILLAC '65
Rear License Plate Nut
Grille to Radiator Nut
CHEVROLET '60-'61
Unit Package 50



N-264P
(6023925)
Screw Size No. 12 or 14
License Plate Nut
Use with B-1399 Screw
ALL CHRYSLER PRODUCTS '63-'64
Unit Package 50



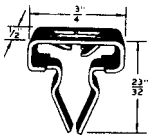
N-266P
(380370)
Screw Size No. 14
License Plate Nut
Use with
No. 14 x 1/2"
(ST-464-P)
Unit Package 50



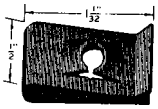
N-222P
(3863669)
Screw Size No. 8 or 10
License Plate Spacer
Unit Package 25

See also...Nylon Screws, Pages B26, B27, B61 to B63.
Nylon Hex Nuts, Page C8. Nylon Washers, page D10.

METALLIC - License Fastener Parts



TN-108
14A
Fits 3/8" hole



2293
1/4"-20
U-type Speednut

B-1544 (1/2")
B-1545 (3/4")
1/4"-20 Truss Hd.
Bolt

B-1546 (3/8")
B-1524 (1/2")
1/4"-20 Washer
Head Bolt

Thread-cutting Screw

B-478
Pan Head
10-24 x 1/2"

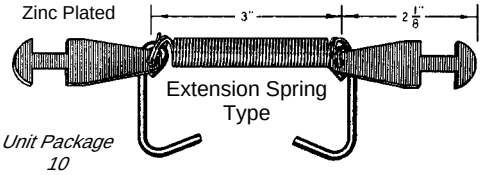
ST-486P
Truss Head
10-24 x 3/8"

Pan Head
Tapping Screw
B-1336
14 x 2-1/4"
ST-11P
14 x 2-1/2"

B-1209
LOCKNUT
1/4"-20

B-1714
STEEL
Zinc Plated

"QUICK-CHANGE" FASTENERS FOR DEALERS' LICENSE PLATES



Extension Spring
Type

Unit Package 10

ST-464P
14 x 1/2"
Pan Head
Tapping Screw

43-143
14 x 5/8"
Pan Head
Tapping Screw

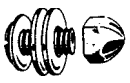
B-1399
14 x 5/8"
Truss Head
Tapping Screw

WN-11
LOCKNUT
1/4"-20

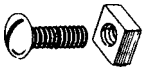
For Unit Package Quantities not listed, refer to Price List.

COMPLETE - License Fastener Assemblies

(Will be discontinued when present stock is sold.)



B-1525 ASSEMBLY
Zinc Pltd.
Bolt Size 1/4"-20 x 1/2"
Washers 1/4" I.D. - 5/8" O.D.
Acorn Locknut 1/4"-20 Thread



2472
Bolt
1/4"-20
x 3/4"
long

B-1243

Bolt
1/4"-20
x 3/8"
long

2018
Bolt Size 1/4"-20 x 1/2"
Zinc Plated
Speed Nut 1/4"-20 Thread
Spring Steel
Phosphate & Oil Finish

B-1550
Bolt
1/4"-20 x 1/2"

All above SPAENAUR Assembly Numbers - UNIT PKG. 100

H

CATALOG 13

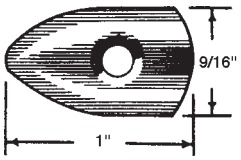
FENDERWELT
(EXTRUDED BLACK VINYL)

SPAENAUR No.	Bead O.D.	Leg or Flange	Height O/A	Unit Pkg.
RW-136	7/32"	3/4"	31/32"	100'
825-305	1/4"	1-1/2"	1-3/4"	150'

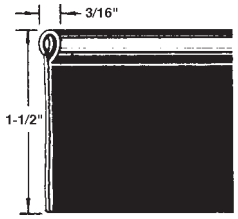
END TIPS — Nickel on Brass

P.C. 123 **7181**

Unit Package 100 (One Style)



B-1683



810-008

FLEXIBLE FENDERWELT
of
Chrome Mylar

1-1/2" wide – with 3/16" bead
Unit Package 75 ft.

H

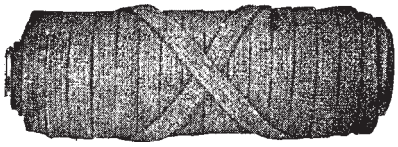
P.C. 895

HOOD LACING
(Woven, Treated Fabric)

Channel Type - 3/16" Thick

SPAENAUR No.	Width
B-139	1/2"
B-142*	7/8"
TS-150	1-3/32" x 5/16"

*Unit Package 50 ft. (*100 ft.)*

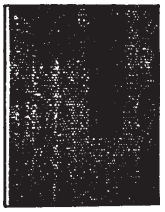


Flat Type – 1/8" Thick

SPAENAUR No.	Width
4192-S	3/4"
4192-SA	7/8"
4193-S	1"

Unit Pkg. 50 ft.

BODY CUSHION ANTI-SQUEAK



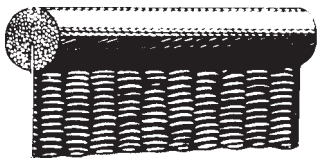
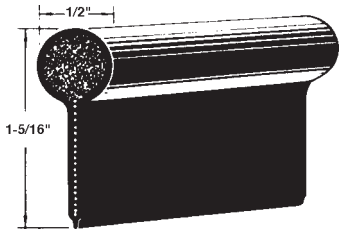
WOVEN TREATED FABRIC
Used as an anti-squeak between body and chassis of Trucks and Passenger Cars.

SPAENAUR No.	Width	Thick-ness
4198-S	2"	1/8"
B-159*	3"	1/8"
B-161	3"	1/4"
TS-191	4"	1/8"
B-768	5"	1/8"

P.C. 895 *Unit Package 50 ft. (*100 ft.)*

P.C. 810

WINDCORD

	Description	*SPAENAUR No.*	Colour
	Rubberized waterproof (Innerseal), no cover, sponge rubber bead 1/2" diameter, plain leg with stiff wire insert, height overall 1-1/4". *Unit Pkg.100 ft. rolls*	**M-71**	Black
	Black rubber covered, waterproof. Fullly enclosed sponge rubber core, bead 1/2" diameter, height overall 1-5/16", stiff wire insert in leg. *Unit Pkg.100 ft. rolls*	**TS-159** **TS-294**	Black (1/2" dia. bead) Black (9/16" dia. bead)

CATALOG 13

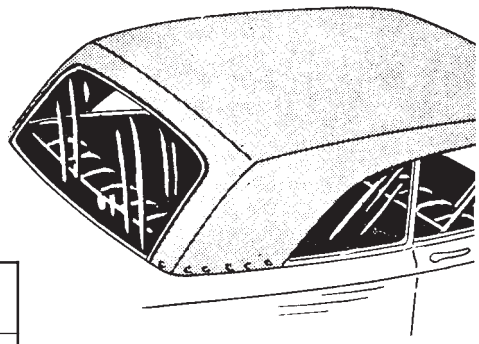
FLEXIBLE CLEAR "VINYLITE" ROLL STOCK

For full-view rear windows in convertible car tops, rear and side windows in boat canopies, construction shelters, tents, etc.

"Vinylite" is flexible, and may be readily folded or sewn. Will hold stitching indefinitely. May be used for a wide variety of purposes.

Resists discolouration to a much greater degree than ordinary celluloid. Flexibility improves with high temperatures but it can be used at -34°C (-30°F) without risk of breakage, and at much lower temperatures if not subjected to sudden pressure or shock.

"Vinylite" should be washed with a soft cloth, using soap and water.



IN ROLLS OR BY THE YARD AS FOLLOWS:

Seat Cover Material

SPAENAUR No.	Thick-ness	Width	Yds. in Roll	Style
889-001	.012"	54"	105	Gold Star
889-002	.012"	54"	105	Gold Fleur-de-Lys

H

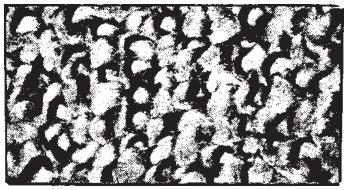
"BRUSSELETTE" AUTO CARPET

Durable Woven Jute

SPAENAUR No.	Colour
883-050	Desert Sand, Mottled

Shipping Wt: 32 kg (70.5 lbs.)

1/8" Thick
36" Wide



In 50 yard rolls.

For USED CAR Reconditioning and General Purpose

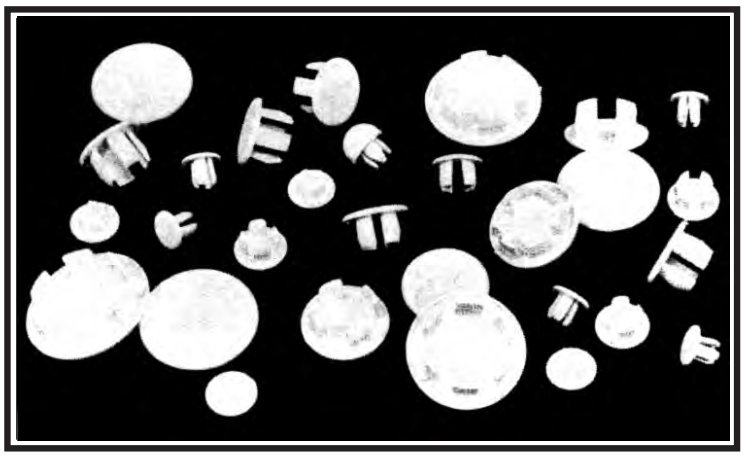
SPAENAUR

We're your complete source for all your fastener needs.

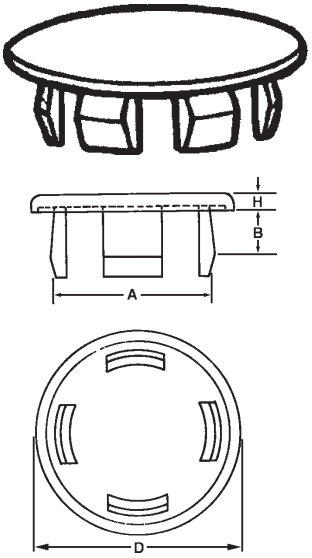
CATALOG 13

See pages K30 and K31 for Auto Glass Tools.

Nylon Hole Plugs	Bouchons en nylon	**J2**
Anti-Vibration Mounts	Amortisseurs de vibration	**J4**
Plastic Caps & Plugs	Capuchons et bouchons de plastique	**J28**
Decorative Screw Cover Caps	Capuchons décoratifs en plastique	**J44**
Bumpers & Tips	Butoirs et embouts	**J46**
Washers, Suction Cups & Bushings	Rondelles, ventouses et manchons	**J57**
Grommets & Misc.	Rondelles isolantes et articles divers	**J67**
Boteco® Plastic Hardware	Quincaillerie en plastique Boteco®	**J74**
Plastic Knobs	Boutons en plastique	**J88**
O-Ring Seals	Joints toriques «O-Ring»	**J90**



Nylon 6/6 HOLE PLUGS



UNIT PKG. 100

To close unneeded chassis holes, wiring outlets, accessory openings. Use as tube-end caps, appliance feet. Nylon 6/6 resists abrasion and vibration. Tapered prongs lock into place with finger pressure, but can be removed and reused when necessary.

J

SPAENAUR No.				For HOLE SIZE A		PANEL RANGE Thickness B		Head Size D (Dia.)		Head HEIGHT H	
BLACK	NATURAL	Head Style	Finish	inch	(mm)	inch	(mm)	inch	(mm)	inch	(mm)
245-115	**245-114**	Binder	Smooth	.125	(3.18)	.031/.094	(0.79/2.39)	13/64	(5.16)	.040	(1.02)
245-117	**245-116**	Binder	Smooth	.150	(3.81)	.031/.094	(0.79/2.39)	1/4	(6.35)	.040	(1.02)
245-101	**245-100**	Binder	Smooth	.187	(4.75)	.031/.140	(0.79/3.56)	11/32	(8.74)	.040	(1.02)
245-103	**245-102**	Binder	Matte	.187	(4.75)	.031/.140	(0.79/3.56)	11/32	(8.74)	.040	(1.02)
245-105	**245-104**	Dome	Smooth	.218	(5.54)	.031/.062	(0.79/1.58)	3/8	(9.53)	.250	(6.35)
245-107	**245-106**	Binder	Smooth	.250	(6.35)	.031/.062	(0.79/1.58)	27/64	(10.72)	.040	(1.02)
245-109	**245-108**	Binder	Matte	.250	(6.35)	.031/.062	(0.79/1.58)	27/64	(10.72)	.040	(1.02)
245-111	**245-110**	Binder	Smooth	.312	(7.93)	.031/.140	(0.79/3.56)	29/64	(11.51)	.050	(1.27)
245-113	**245-112**	Binder	Matte	.312	(7.93)	.031/.140	(0.79/3.56)	29/64	(11.51)	.050	(1.27)
245-119	**245-118**	Binder	Smooth	.375	(9.53)	.031/.140	(0.79/3.56)	43/64	(17.07)	.062	(1.58)
245-121	**245-120**	Binder	Smooth	.375	(9.53)	.031/.140	(0.79/3.56)	37/64	(14.68)	.050	(1.27)
245-123	**245-122**	Binder	Matte	.375	(9.53)	.031/.140	(0.79/3.56)	37/64	(14.68)	.050	(1.27)
245-125	**245-124**	Binder	Smooth	.437	(11.10)	.031/.171	(0.79/4.34)	39/64	(15.47)	.050	(1.27)
245-127	**245-126**	Binder	Matte	.437	(11.10)	.031/.171	(0.79/4.34)	39/64	(15.47)	.050	(1.27)
245-129	**245-128**	Binder	Smooth	.500	(12.70)	.031/.140	(0.79/3.56)	43/64	(17.07)	.062	(1.58)
245-131	**245-130**	Binder	Matte	.500	(12.70)	.031/.140	(0.79/3.56)	43/64	(17.07)	.062	(1.58)
245-133	**245-132**	Binder	Smooth	.562	(14.28)	.031/.140	(0.79/3.56)	47/64	(18.64)	.062	(1.58)
245-135	**245-134**	Binder	Matte	.562	(14.28)	.031/.140	(0.79/3.56)	47/64	(18.64)	.062	(1.58)
245-137	**245-136**	Binder	Smooth	.625	(15.88)	.031/.072	(0.79/1.83)	51/64	(20.24)	.062	(1.58)
245-139	**245-138**	Binder	Matte	.625	(15.88)	.031/.072	(0.79/1.83)	51/64	(20.24)	.062	(1.58)
245-141	**245-140**	Binder	Smooth	.687	(17.45)	.031/.109	(0.79/2.77)	57/64	(22.63)	.062	(1.58)
245-143	**245-142**	Binder	Matte	.687	(17.45)	.031/.109	(0.79/2.77)	57/64	(22.63)	.062	(1.58)
245-145	**245-144**	Binder	Smooth	.750	(19.05)	.031/.109	(0.79/2.77)	63/64	(25.00)	.062	(1.58)
245-147	**245-146**	Binder	Matte	.750	(19.05)	.031/.109	(0.79/2.77)	63/64	(25.00)	.062	(1.58)
245-149	**245-148**	Binder	Smooth	.787	(20.00)	.059/.080	(1.50/2.03)	63/64	(25.00)	.062	(1.58)
245-151	**245-150**	Binder	Matte	.787	(20.00)	.059/.080	(1.50/2.03)	63/64	(25.00)	.062	(1.58)
245-153	**245-152**	Binder	Smooth	.812	(20.63)	.031/.109	(0.79/2.77)	1-1/32	(26.19)	.062	(1.58)
245-155	**245-154**	Binder	Matte	.812	(20.63)	.031/.109	(0.79/2.77)	1-1/32	(26.19)	.062	(1.58)
245-157	**245-156**	Binder	Smooth	.875	(22.23)	.031/.109	(0.79/2.77)	1-5/64	(27.38)	.062	(1.58)
245-159	**245-158**	Binder	Matte	.875	(22.23)	.031/.109	(0.79/2.77)	1-5/64	(27.38)	.062	(1.58)
245-161	**245-160**	Binder	Smooth	1.000	(25.40)	.031/.109	(0.79/2.77)	1-7/32	(30.96)	.062	(1.58)
245-163	**245-162**	Binder	Matte	1.000	(25.40)	.031/.109	(0.79/2.77)	1-7/32	(30.96)	.062	(1.58)

See pages H2, H3 and F3 for METALLIC Plug Buttons.

More Plastic Plugs on pages J31 to J38.

Shipping Weight
2.38 kg (5-1/4 lbs.)

Furnished in Large Size, 18" x 12" x 3" Grey enamelled STEEL Drawers, with scooped bins.
Drawer will fit into Slide Racks shown on page A3.

ASSORTMENT / ASSORTIMENT 805-642

Nylon 6/6 HOLE PLUGS

SMOOTH or MATTE FINISH

COLOURS **BLACK & NATURAL**

64 Items - 860 Pieces

as listed on facing page J2, with INCH and METRIC DIMENSIONS.

They're NYLON!

Assortment 805-642 contains quantities of ALL *SPAENAUR* Numbers listed on facing page.

For Inch Sizes - see Black type. Metric Dimensions - see Blue type.

J

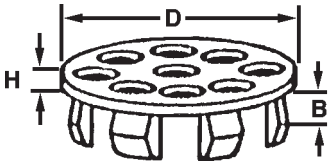
A wide selection of plastic caps, plugs, bushings, etc. are featured in SECTION J.

VENT HOLE PLUGS

Black Nylon 6/6

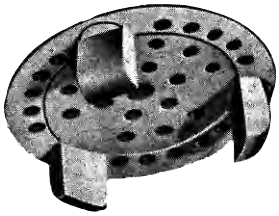
Head Style - Binder **Finish - Matte**

9 vent holes



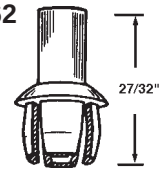
SPAENAUR No.	Hole Size	B Panel Thickness	D Head Size	H Head Height
315-379	.875"	.031"/.109"	1-5/64"	.062"
315-380	1.000"	.031"/.109"	1-7/32"	.062"

Unit Package 100



315-377
VENT HOLE PLUG
(White Polystyrene)
For hole size: 1" dia.
For panel thickness: .031-.109"
Head Size: 1.125" Dia. x .109" H.
Unit Package 100

B-1662
For 3/8" hole

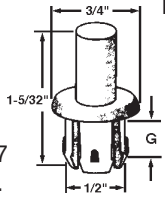


NYLON DRIVE PLUGS

Natural Nylon

Unit Package 50

See page E46 and E47 for Nylon Drive Rivets.

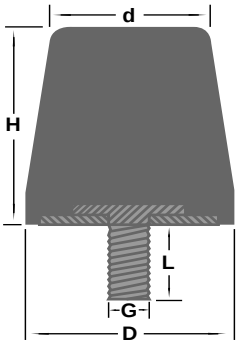


Binder Head
C-867P
For 1/2" hole
Grip: .257"-.317"

P.C. 245 P.C. 086

Vibration Mounts OF VULCANIZED NR (NATURAL RUBBER) DUROMETER 50-60

THE STEEL COMPONENTS ARE ZINC OR CADMIUM PLATED, USUALLY WITH DICHROMATE FINISH



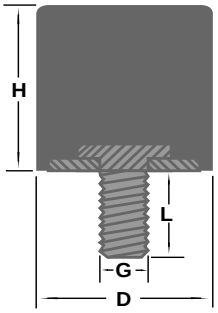
Style No. 3

SINGLE-ENDED Tapered

Metric Coarse Thread

Style No. 4

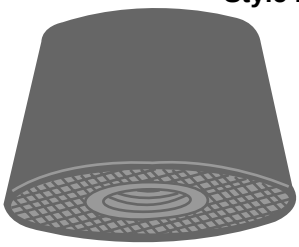
SINGLE-ENDED Cylindrical

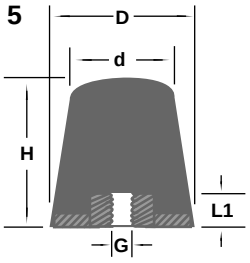


SPAENAUR No.	STYLE No.	D Diameter mm	d Dia. mm	H Height mm	G Thread	L Length mm	Unit Package
316-017	3	25	20	20	M6 x 1.00	15	25
316-032	3	50	35	27	M10 x 1.50	20	10
316-033	3	50	38	52	M10 x 1.50	20	10
316-020	4	15	-	15	M4 x 0.70	10	25
316-021	4	20	-	20	M6 x 1.00	15	25
316-063	4	30	-	15	M8 x 1.25	20	25
316-022	4	30	-	30	M8 x 1.25	20	20

J

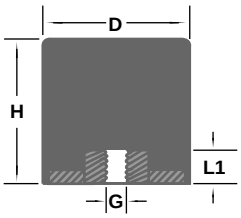
Style No. 5



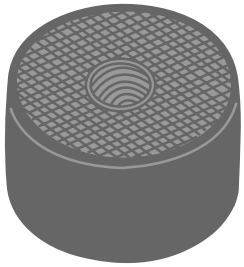


SINGLE INSERT - Tapered

Metric Coarse Thread

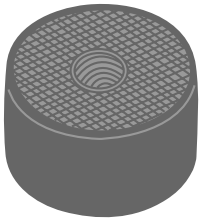


Style No. 6



SINGLE INSERT - Cylindrical

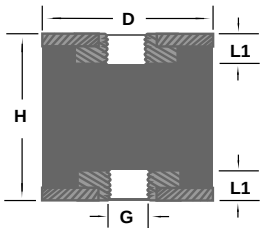
						L1 mm	
316-023	5	50	35	27	M10 x 1.50	11	10
316-024	5	50	38	52	M10 x 1.50	11	10
316-025	6	20	-	15	M6 x 1.00	6	25
316-026	6	30	-	30	M8 x 1.25	7	20



Metric Coarse Thread

Style No. 7

Cylindrical with TWIN INSERTS



316-057	7	10	-	10	M4 x 0.70	4	25
316-058	7	10	-	15	M4 x 0.70	4	25
316-027	7	15	-	15	M4 x 0.70	4	25
316-028	7	25	-	25	M6 x 1.00	7	20
316-059	7	25	-	30	M6 x 1.00	7	20
316-029	7	30	-	30	M8 x 1.25	7	20
316-030	7	40	-	40	M8 x 1.25	7	10
316-060	7	40	-	30	M10 x 1.50	10	10
316-061	7	50	-	30	M10 x 1.50	11	10
316-067	7	100	-	55	M16 x 2.00	16	1

CATALOG 13

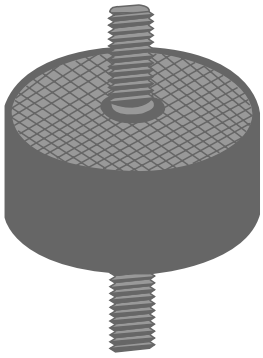
ALL MOUNTS ON THIS PAGE ARE OF VULCANIZED NR NATURAL RUBBER, IN DUROMETER 50-60

Vibration Mounts

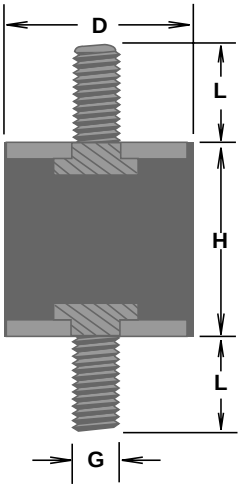
THE STEEL COMPONENTS ARE ZINC OR CADMIUM PLATED, USUALLY WITH DICHROMATE FINISH

All Dimensions in Millimetres — Metric Coarse Thread

SPAENAUR No.	D Diameter	H Height	G Thread	L Length	Unit Package
316-001	10	10	M4 x 0.70	10	25
316-036	10	15	M4 x 0.70	10	25
316-002	15	12	M4 x 0.70	10	25
316-034	15	15	M4 x 0.70	10	25
316-039	15	15	M5 x 0.80	15	25
316-040	15	15	M6 x 1.00	15	25
316-041	20	8	M6 x 1.00	11	25
316-003	20	20	M6 x 1.00	15	25
316-042	20	40	M6 x 1.00	15	10
316-043	25	10	M6 x 1.00	20	4
316-044	25	15	M6 x 1.00	20	25
316-004	25	25	M6 x 1.00	15	20
316-045	25	30	M6 x 1.00	15	10
316-046	25	30	M8 x 1.25	20	10
316-047	25	40	M6 x 1.00	20	10
316-005	30	20	M8 x 1.25	20	20
316-031	30	30	M8 x 1.25	20	10
316-048	30	45	M8 x 1.25	20	10
316-006	40	30	M8 x 1.25	20	10
316-007	50	20	M10 x 1.50	30	10
316-008	50	30	M10 x 1.50	30	10
316-049	65	35	M10 x 1.50	25	10
316-050	75	20	M10 x 1.50	25	10
316-051	75	40	M12 x 1.75	37	2
316-064	75	50	M12 x 1.75	37	2
316-009	75	55	M12 x 1.75	37	2
316-010	100	60	M16 x 2.00	37	1



Style No. 1
DOUBLE-ENDED



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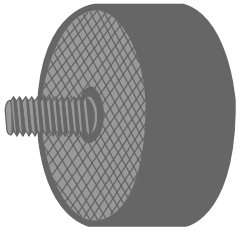
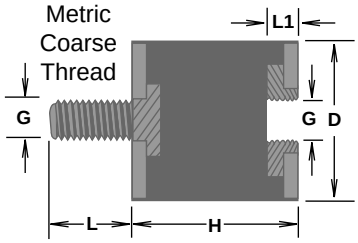


Vibration Mounts
Style No. 2
SINGLE ENDED
Plus
Threaded Insert



This style has threaded insert opposite stud end

All Dimensions in Millimetres

SPAENAUR No.	D Diameter	H Height	G Thread	L Length	L1 Length	Unit Package
316-011	15	15	M4 x 0.70	10	4	25
316-065	20	15	M6 x 1.00	15	6	25
316-012	20	20	M6 x 1.00	15	6	25
316-013▲	30	20	M8 x 1.25	20	7	20
316-018	30	30	M8 x 1.25	20	7	4
316-014	40	30	M8 x 1.25	20	7	10
316-052	50	20	M10 x 1.50	30	11	10
316-015	50	40	M10 x 1.50	30	11	4
316-053	65	35	M10 x 1.50	25	10	4
316-055	75	45	M10 x 1.50	37	13	2
316-054	75	40	M12 x 1.75	37	13	2
316-016	75	50	M12 x 1.75	37	13	2
316-056	75	55	M12 x 1.75	37	13	2

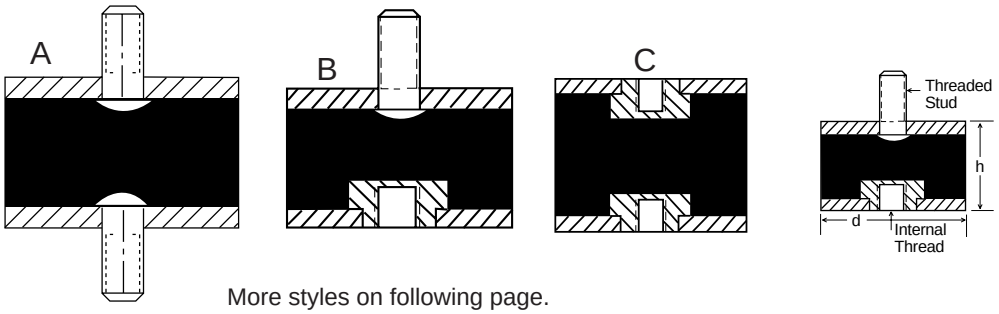
Note:
Other sizes and styles are available on a custom-made basis in production quantities.

More VIBRATION MOUNTS, RUBBER BUMPERS, GROMMETS, etc., in this Section.

▲Without Internal Base Plate Stop.

CATALOG 13

External and Internal Threads are Inch U.N.C.



Materials

Black Vulcanized Natural Rubber 57 Durometer

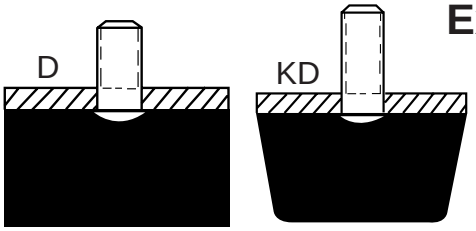
Steel, Zinc Plated Mountings

More styles on following page.

TYPE	*SPAENAUR No.*	Thread x Approx. Length Stud	Internal	Dim. in inches d x h	Dim. in mm d x h	Load (lbs.)	Shear (lbs.)	Pkg. Qty.
A	**315-201**	8-32 x 13/32	—	3/8 x 3/8"	10 x 10	6-1/2	2	4
	315-202	8-32 x 13/32"	—	9/16 x 5/16"	15 x 8	8-1/2	3	4
	315-203	8-32 x 13/32"	—	9/16 x 9/16"	15 x 15	9	3-1/2	4
	315-204	1/4-20 x 19/32"	—	25/32 x 9/16"	20 x 15	20	6-1/2	4
	315-205	1/4-20 x 19/32"	—	25/32 x 25/32"	20 x 20	20	6-1/2	4
	315-206	1/4-20 x 23/32"	—	1 x 25/32"	25 x 20	33	13	4
	315-207	5/16-18 x 13/16"	—	1-3/16 x 1-3/16"	30 x 30	46-1/2	20	1
	315-208	5/16-18 x 29/32"	—	1-9/16 x 1-3/16"	40 x 30	66	33	1
	315-209	5/16-18 x 29/32"	—	1-9/16 x 1-9/16"	40 x 40	66	33	1
	315-210	3/8-16 x 1-3/32"	—	1-31/32 x 1-3/16"	50 x 30	132-1/2	44	1
	315-211	3/8-16 x 1-3/32"	—	1-31/32 x 2-5/32"	50 x 55	132-1/2	44	1
	315-212	1/2-13 x 1-1/2"	—	2-15/16 x 1-31/32"	75 x 50	264-1/2	99	1
	315-213	1/2-13 x 1-1/2"	—	2-15/16 x 2-11/32"	75 x 60	264-1/2	99	1
	315-214	5/8-11 x 1-13/16"	—	3-7/8 x 2-5/32"	100 x 55	441	165-1/2	1
	315-215	5/8-11 x 1-13/16"	—	3-7/8 x 2-11/32"	100 x 60	441	165-1/2	1
B	**315-216▲**	8-32 x 13/32"	8-32 x .150"	3/8 x 3/8"	10 x 10	6-1/2	2	10
	315-217	8-32 x 13/32"	8-32 x .150"	9/16 x 9/16"	15 x 15	9	3-1/2	10
	315-218	1/4-20 x 19/32"	1/4-20 x .250"	25/32 x 9/16"	20 x 15	20	6-1/2	10
	315-219▲	1/4-20 x 19/32"	1/4-20 x .250"	25/32 x 25/32"	20 x 20	20	6-1/2	10
	315-220	1/4-20 x 23/32"	1/4-20 x .250"	1 x 25/32"	25 x 20	33	13	10
	315-221	5/16-18 x 13/16"	5/16-18 x .310"	1-3/16 x 1-3/16"	30 x 30	46-1/2	20	10
	315-247	5/16-18 x 0.88"	5/16-18 x .310"	1-3/16 x 1-3/16"	30 x 30	46-1/2	20	4
	315-222	5/16-18 x 29/32"	5/16-18 x .310"	1-9/16 x 1-3/16"	40 x 30	66	33	4
	315-223	5/16-18 x 29/32"	5/16-18 x .310"	1-9/16 x 1-9/16"	40 x 40	66	33	4
	315-224	3/8-16 x 1-3/32"	3/8-16 x .375"	1-31/32 x 1-3/16"	50 x 30	132-1/2	44	4
	315-225	3/8-16 x 1-3/32"	3/8-16 x .375"	1-31/32 x 2-5/32"	50 x 55	132-1/2	44	4
	315-226	1/2-13 x 1-5/8"	1/2-13 x .500"	2-15/16 x 1-31/32"	75 x 50	264-1/2	99	1
	315-227	1/2-13 x 1-7/16"	1/2-13 x .500"	2-15/16 x 2-11/32"	75 x 60	264-1/2	99	1
	315-228	5/8-11 x 1-13/16"	5/8-11 x .560"	3-7/8 x 2-5/32"	100 x 55	441	165-1/2	1
	315-229	5/8-11 x 1-13/16"	5/8-11 x .560"	3-7/8 x 2-11/32"	100 x 60	441	165-1/2	1
C	**315-230*▲**	—	8-32 x .125"	3/8 x 3/8"	10 x 10	4	1	10
	315-231▲	—	1/4-20 x .250"	25/32 x 25/32"	20 x 20	20	6-1/2	10
	315-232	—	1/4-20 x .250"	1 x 25/32"	25 x 20	33	13	4
	315-233	—	5/16-18 x .310"	1-3/16 x 1-3/16"	30 x 30	46-1/2	20	10
	315-234	—	3/8-16 x .375"	1-31/32 x 1-3/16"	50 x 30	132-1/2	44	4
	315-235	—	1/2-13 x .500"	2-15/16 x 2-11/32"	75 x 60	264-1/2	99	1

*45±5 Durometer

▲Without Internal Base Plate Stop.

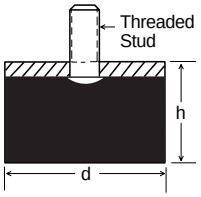


More styles on previous page.

External and Internal Threads are Inch U.N.C.

Materials
Black Vulcanized Natural Rubber
57 Durometer

Steel, Zinc Plated Mountings



TYPE	*SPAENAUR No.*	Thread x Approx. Length Stud	Internal	Dim. in inches d x h	Dim. in mm d x h	Load (lbs.)	Shear (lbs.)	Pkg. Qty.
D	**315-236**	8-32 x 13/32"	—	3/8 x 3/8"	10 x 10	3-1/2	—	10
	315-237	1/4-20 x 19/32"	—	25/32 x 15/32"	20 x 12	20	—	10
	315-238	1/4-20 x 23/32"	—	1 x 25/32"	25 x 20	33	—	4
	315-239	5/16-18 x 13/16"	—	1-3/16 x 11/16"	30 x 17	33	—	1
	315-240	5/16-18 x 29/32"	—	1-9/16 x 1-3/32"	40 x 28	33	—	10
	315-241	3/8-16 x 1-3/32"	—	1-31/32 x 13/16"	50 x 21	132-1/2	—	4
	315-242	1/2-13 x 1-5/8"	—	2-15/16 x 1"	75 x 25	264-1/2	—	1
KD	**315-244**	1/4-20 x 23/32"	—	1 x 11/16"	25 x 17	33	—	10
	315-245	3/8-16 x 1-3/32"	—	1-31/32 x 23/32"	50 x 18	132-1/2	—	4
	315-243	5/8-11 x 1-13/16"	—	4-29/32 x 1-3/4"	125 x 45	661-1/2	—	1

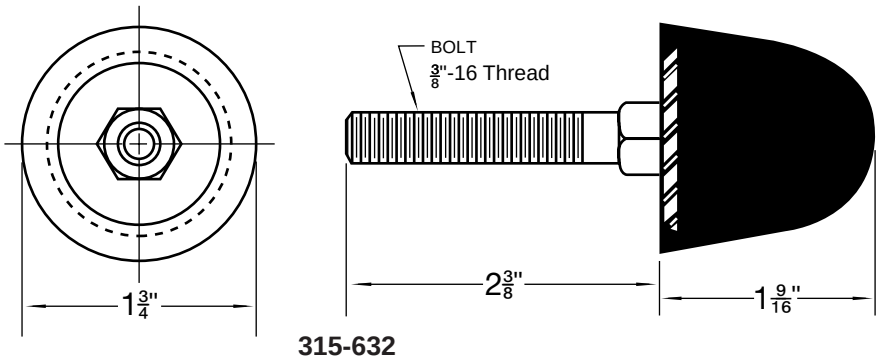
J

SPAENAUR

Our Mission

- We are a Team of Professionals
- We Listen to our Customers
- We Grow Ourselves

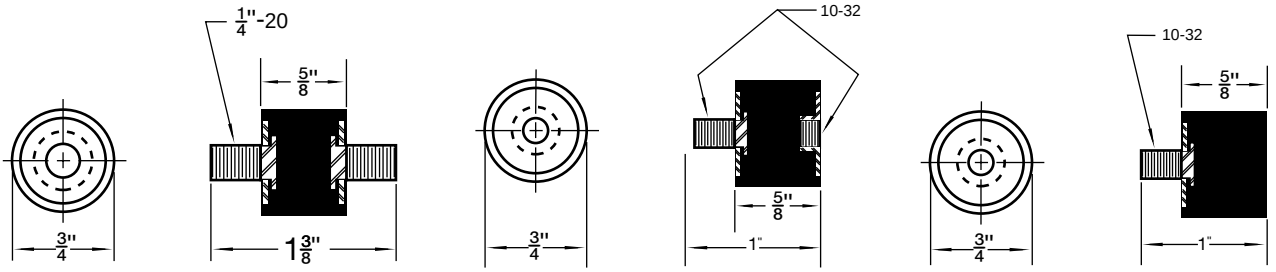
Proudly serving you since 1936.



315-632

ALL MOUNTS ON THIS PAGE ARE OF VULCANIZED SBR (BUNA S) SYNTHETIC RUBBER, IN DUROMETER 40-50. (Unless otherwise shown)

THE STEEL COMPONENTS ARE ZINC OR CADMIUM PLATED, USUALLY WITH DICHROMATE FINISH.



315-635 **315-637** **315-631**

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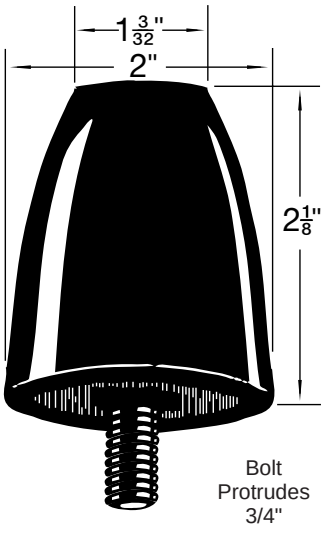
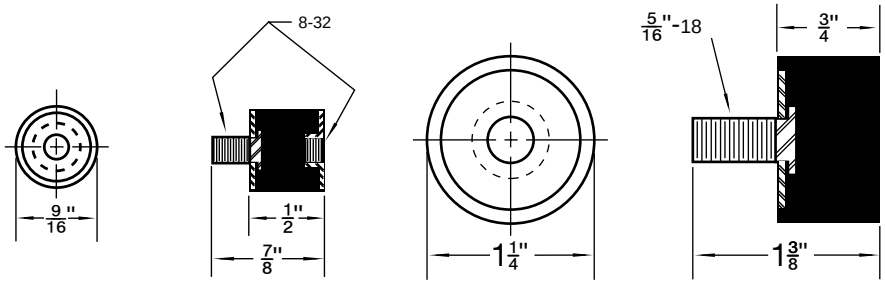
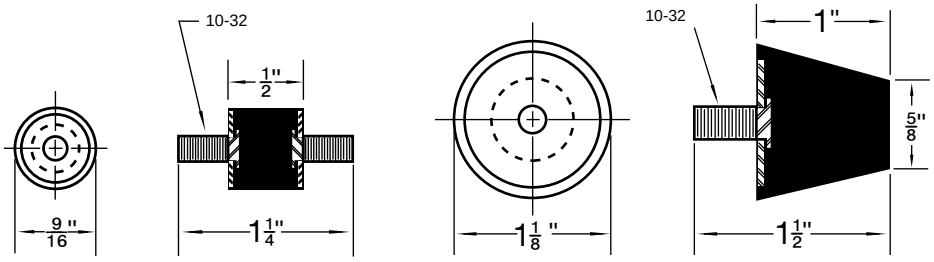


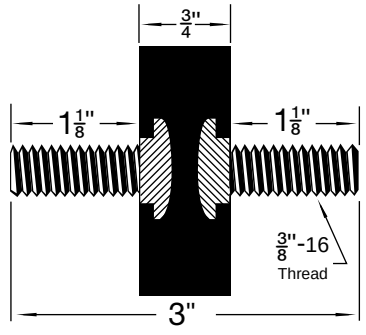
RB-345 3/8"-16 Thread
315-043 3/8"-24 Thread



315-638 **315-634**



315-636 **315-633**



315-654

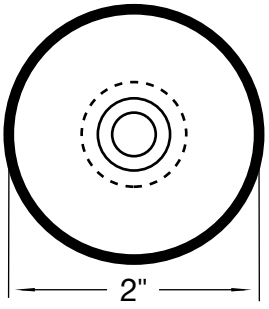
50 Durometer

BLACK NEOPRENE

2" Dia. x 3" Overall Length

STEEL STUDS (ZINC PLATED)

3/8"-16 Thread x 1-1/8" Protruding



P.C. 315

CATALOG 13

Natural
Rubber & Steel

BUMPER

Novibra
shockbuffer
type ANB

Features

Novibra buffer type ANB consists of a cylindrical rubber body bonded to a square baseplate of steel. Each corner of the base plate has a fixing hole.
Special high-hysteresis rubber compound is used to ensure as much energy absorption as possible so that the volume of the rubber is used at an optimum efficiency. It permits that for new machine developments simpler designs and lighter calculated forces can be considered which means lower costs.

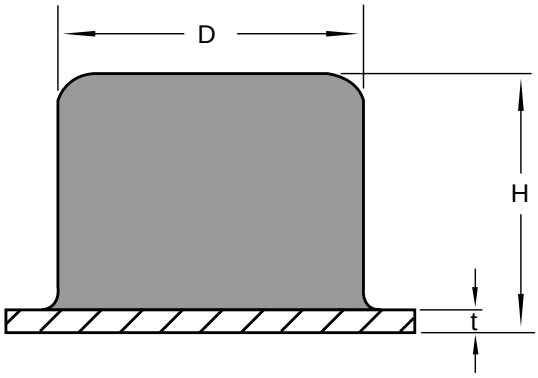
Application

The Novibra shockbuffer type ANB is used to effectively damp movements of machines or machine components which need to be slowed down or stopped.

Typical field applications would be:

- Wagons
- Traverse cranes
- Lifting cranes
- Working beams
- Cabinets
- Forestry vehicles
- Off-road material handling equipment
- Falling goods

Through the excellent resilience of the rubber a high degree of energy absorption can be achieved. The rubber is stiffer for rapid dynamic processes than for slow static applications. With the same deformation this means that more energy is absorbed in fast processes than in slow ones. Figure 1 shows the impact of the energy factor.



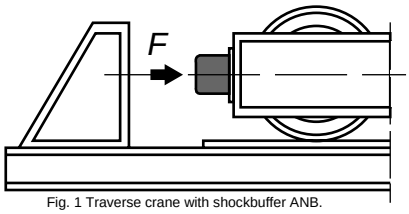


Fig. 1 Traverse crane with shockbuffer ANB.

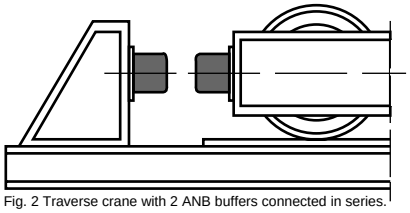
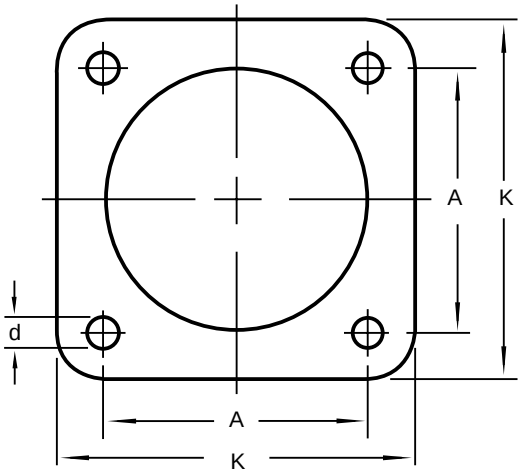


Fig. 2 Traverse crane with 2 ANB buffers connected in series.



Hardness B 60° IRH MEDIUM (Black) *Spaenaur No.*	*UNIT PACKAGE 1*								*F* MAXIMUM FORCE Per Bumper in kN
	Novibra Type	DIMENSIONS (in millimetres)						Approx. Weight kg	
		K	A	D	d	H	t		
314-097	ANB 50	70	50	50	7	43	3	0.2	8
314-098	ANB 75	100	75	75	9	63	3	0.5	20
314-099	ANB 100	130	100	100	11	84	4	1.2	41
314-100	ANB150	185	150	150	13.5	126	6	3.9	90
314-101	ANB 200	240	200	200	13.5	168	8	9.1	180

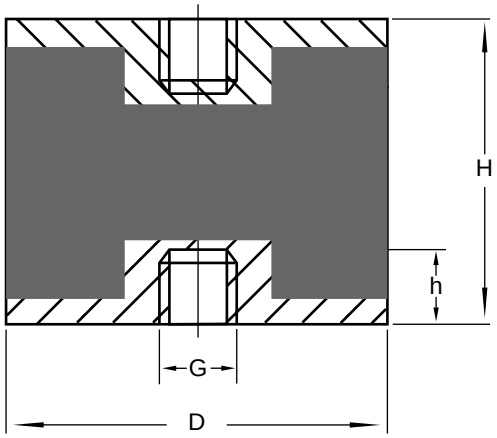
Operating Temperature Range: -35° to +70°C. (-30° to +158°F.)

Dynamic Characteristic Charts for mounting are available on request.

Natural
Rubber & Steel

MOUNT

Novibra cylindrical mounting type C



Type C MOUNTS — to isolate FANS, CONVERTERS, ELECTRICAL MACHINERY, PUMPS, etc.

Features:
Novibra antivibration mounting type C consists of a cylindrical rubber body with steel plates securely bonded to both ends. Each plate has a threaded central hole for attachment. The top steel plate is bolted to the machine foot or baseplate and the bottom steel plate is secured to the floor — for instance, with an expansion-shell bolt. In some cases a steel dowel pin may suffice.

Applications:
Novibra type C is primarily suitable for vertically loaded machines which make only slight sideways movements in operation. It provides relatively flexible machine mounting which, if necessary, can be made more flexible by tilting the isolator. In this way isolation is achieved by a combination of compression and shear instead of by compression alone.

J

Operating Temperature Range -35° to +70°C.

Unit Package Quantity 1

*Threads not subject to gauging.

Hardness A 40° IRH SOFT (Green or Plated Plates our option) *Spaenaur No.*	*Hardness* B 60° IRH MEDIUM (Black Plates) *Spaenaur No.*	Novibra Type	DIMENSIONS (in millimetres) D	H	h	*G Thread (Coarse)	Approx. Weight kg	Compression Load (in N) Hardness "A"	Compression Load (in N) Hardness "B"
314-007	**314-008**	C 20/20	20	20	6	M6	0.020	112	238
314-009	**314-010**	C 20/30	20	30	6	M6	0.024	104	226
314-011	**314-012**	C 30/28	30	28	8	M8	0.046	256	544
314-013	**314-014**	C 30/36	30	36	8	M8	0.056	241	521
314-015	**314-016**	C 50/36	50	36	10	M10	0.150	774	1603
314-017	**314-018**	C 50/42	50	42	10	M10	0.163	726	1533
314-019	**314-020**	C 50/48	50	48	10	M10	0.180	697	1490
314-021	**314-022**	C 75/36	75	36	12	M12	0.346	2247	4363
314-023	**314-024**	C 75/42	75	42	12	M12	0.377	1987	3975
314-025	**314-026**	C 75/48	75	48	12	M12	0.410	1828	3738
314-027	**314-028**	C 100/42	100	42	16	M16	0.735	4750	8321
314-029	**314-030**	C 100/48	100	48	16	M16	0.780	3750	7573
314-031	**314-032**	C 100/54	100	54	16	M16	0.840	3250	7083
314-033	**314-034**	C 140/42	140	42	12.5	M20	1.420	12000	22201
314-035	**314-036**	C 140/48	140	48	12.5	M20	1.520	10000	19146
314-037	**314-038**	C 140/60	140	60	20	M20	1.725	7500	15804

Dynamic Characteristic Charts for mounting are available on request.

CATALOG 13

Natural
Rubber & Steel

MOUNT

Novibra
type RA

Features:

RA uses the rubber profile in shear and compression obtaining good vertical flexibility with the advantage of horizontal stability. For normal speeds of approx. 1500 rpm the RA type provides a degree of isolation of 75-85%. For even better isolation, the alternative RAEM or M can be chosen.

Its unique construction and the latest production methods make Novibra type RA a high performance mounting having a number of advantages:

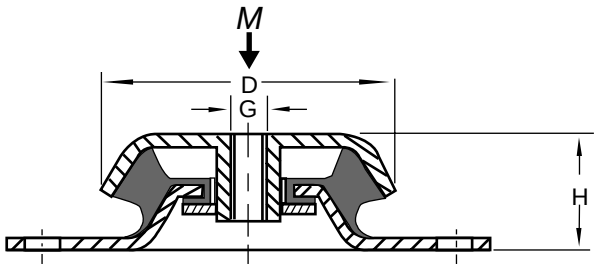
- Rubber features are utilized effectively combining compression and shear.
- Tight tolerances on dynamic stiffness rate for accurate vibration calculations.
- Corrosion protected to cope with arduous environments on land or marine applications (Fe/Zn 8C as per ISO 2081).
- Stronger base metal withstands high shock loads without deformation.
- Fitted as standard with a shock-proof device (up to 5 g) with resilient stop, making RA ideal for use on mobile or marine applications.
- Clear and durable product marking so that mountings can be identified even after several years in operations.
- Domed shape cover to protect against oil contamination.

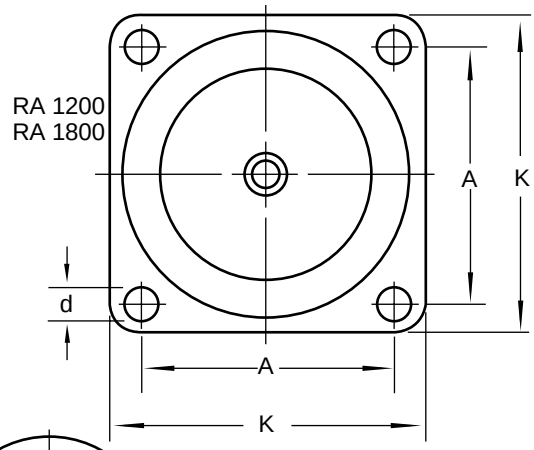
Applications:

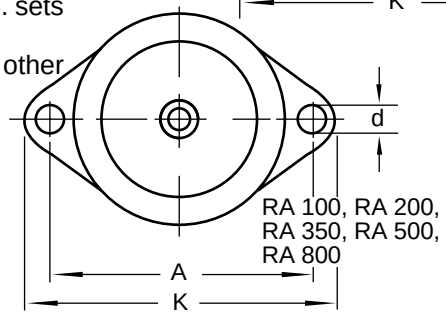
For the effective isolation of vibration and noise on different machines with rotating movements, like:

- Compressors - Pumps
- Combustion engines - Industrial and marine gen. sets
- Generators - Fans

Also suitable for use with presses, punches and other workshop machines.







Operating Temperature Range -35° to +70°C.

Unit Package Quantity 1

*****Threads not subject to gauging.

Hardness											
A **40° IRH SOFT (Green)**	**B** **60° IRH MEDIUM (Black)**	**Novibra**	**DIMENSIONS (in millimetres)**					***G**	**Approx.**	***M*** **Max. Load (in kg) Hardness**	
Spaenaur No.	***Spaenaur No.***	**Type**	**D**	**A**	**K**	**H**	**d**	**Thread (Coarse)**	**Weight kg**	**"A"**	**"B"**
314-039	**314-040**	RA 100	79	110	130	30	9	M10	0.330	95	190
314-041	**314-042**	RA 200	94	124	150	35	10	M10	0.470	180	270
314-043	**314-044**	RA 350	101	144	175	38	14	M16	0.737	250	450
314-045	**314-046**	RA 500	123	158	192	42	14	M16	1.020	400	600
314-047	**314-048**	RA 800	144	182	216	48	14	M16	1.589	750	1300
314-049	**314-050**	RA 1200	161	140	170	58	14	M20	2.188	900	1600
314-051	**314-052**	RA 1800	181	160	190	66.5	14	M20	2.325	1300	2100

Dynamic Characteristic Charts for mounting are available on request.

Natural Rubber & Steel

MOUNT

Novibra type RAEM

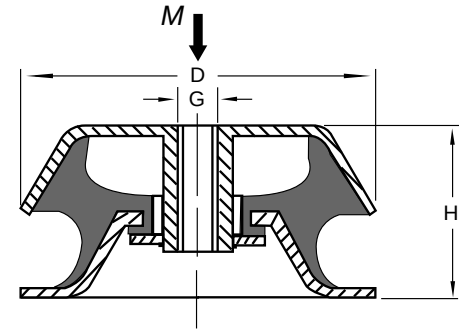
Features:

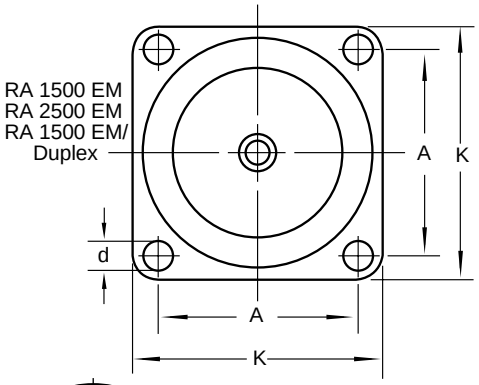
RAEM is a universal mounting for applications demanding maximum isolation. It is a further development of RA, where EM stands for "extra soft". Suitable for both light and heavy machines.

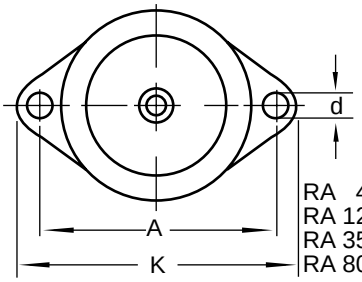
For normal speeds of approx. 1500 rpm the RAEM type provides a degree of isolation of 85-95%, and gives a good isolation even with low frequency machines.

Its unique construction and the latest production methods make Novibra type RAEM a high performance mounting having a number of advantages:

- Rubber features are utilized effectively combining compression and shear.
- Tight tolerances on dynamic stiffness rate for accurate vibration calculations.
- Wide load rating options, 10-3400 kg.
- Corrosion protected to cope with arduous environments on land or marine applications (Fe/Zn 8C as per ISO 2081).
- Stronger base metal withstands high shock loads without deformation.
- Fitted as standard with a shock-proof device (up to 5g) with resilient stop, making RAEM ideal for use on mobile or marine applications.
- Clear and durable product marking so that mountings can be identified even after several years in operation.
- Domed shape cover to protect against oil contamination.







*Threads not subject to gauging.

Applications:

For the effective isolation of vibration and noise on different machines with rotating movements, like:

- Compressors
- Industrial fans
- Generator
- Defibrators
- Refiners
- Large milling machinery
- Combustion engines
- Industrial and marine gen. sets
- Emergency power sets
- AC Units

Operating Temperature Range -35° to +70°C.

Unit Package Quantity 1

Hardness A 40° IRH SOFT (Green) *Spaenaur No.*	***Hardness*** B 60° IRH MEDIUM (Black) *Spaenaur No.*	Novibra Type	DIMENSIONS (in millimetres) D	A	K	H	d	*G Thread (Coarse)	Approx. Weight kg	*M* Max. Load (in kg) Hardness "A"	"B"
314-053	**314-054**	RA40EM	64	88	110	35.5	9	M10	0.255	25	45
314-055	**314-056**	RA125EM	84	110	135	35.5	11	M10	0.372	70	150
314-057	**314-058**	RA350EM	110	144	175	42	14	M16	0.800	200	400
314-059	**314-060**	RA800EM	155	182	216	54	14	M16	1.784	500	800
314-061	**314-062**	RA1500EM	182	146	180	85	14	M20	3.000	900	1700
314-063	**314-064**	RA2500EM	224	180	220	105.5	17.5	M24	4.620	1700	3400
—	**314-066**	RA1500EMD	248	146	180	115	14.5	M20	6.445	900	1700

Dynamic Characteristic Charts for mounting are available on request.

Natural Rubber & Steel

MOUNT

Novibra type M

Features:

Novibra type M is specifically designed to give high resilience at low loads. Although the mount design allows high deflection, they are compact in weight and easy to install.

Its unique construction and the latest production methods make Novibra type M a high performance antivibration mounting having a number of advantages:

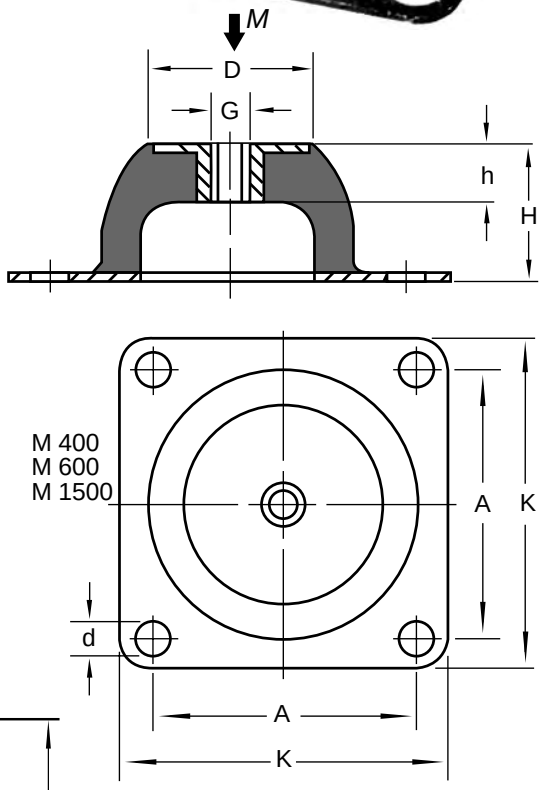
- Tight tolerances on dynamic stiffness rate for accurate vibration calculations.
- Wide load rating options, 3.5-2500 kg.
- Corrosion protected to cope with arduous environments on land or marine applications (Fe/Zn 8C_3 as per ISO 2081).
- Clear and durable product marking so that mountings can be identified even after several years in operation.

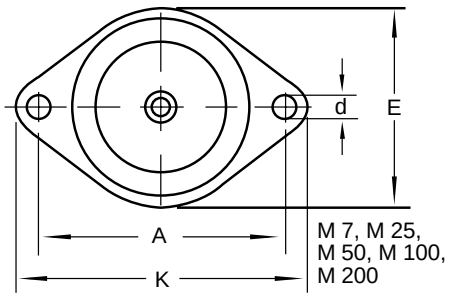
Applications:

Type M is ideal for applications involving isolation of low frequency vibrations in all planes. Also suitable for shock attenuation due to the designed ability to give large deflections while providing passive vibration on electronic instruments, measuring equipment, test cells.

Specific fields of application are:

- Compressors
- Refrigerators
- AC units
- Noise control units
- Ventilators
- Powder handling machinery
- Vibratory screens
- Electric motors
- Fans
- Weighing scales
- Pumps
- Test cell equip.
- Food processing equip.
- Packaging applications





Operating Temperature Range -35° to +70°C.

Unit Package Quantity 1

*Threads not subject to gauging.

Hardness A 40° IRH SOFT (Green) *Spaenaur No.*	*Hardness* B 60° IRH MEDIUM (Black) *Spaenaur No.*	Novibra Type	DIMENSIONS (in millimetres) D	E	A	K	H	d	h	*G Thread (Coarse)	Approx. Weight kg	*M* Max. Load (in kg) Hardness "A"	"B"
—	—	M7	18	43	50	64	20	7	7	M6	0.02	3.5	9
314-067	**314-068**	M25	33	56	66	85	25	8	11	M8	0.07	20	40
314-069	**314-070**	M50	45	76	92	114	35	10	14	M10	0.16	40	65
314-071	**314-072**	M100	53	96	110	136	40	11.5	15	M10	0.26	70	130
314-073	**314-074**	M200	58	101	124	151	45	11.5	13	M10	0.42	130	220
314-075	**314-076**	M400	78	—	120	150	63	14.5	18	M12	1.06	280	500
314-077	**314-078**	M600	100	—	160	200	85	14.5	25	M16	2.35	380	750
314-079	**314-080**	M1500	186	—	250	310	160	18	43	M24	9.43	1400	2500

Dynamic Characteristic Charts for mounting are available on request.

Natural
Rubber & Steel

MOUNT

Novibra
type SAW

Features:

Novibra type SAW mountings consist of a cylindrical shaped rubber section with integrally bonded interleaf metal plates which are bonded to two square heavy duty outer metal fixing plates. It has been designed for large compressive thrust forces with minimum deformation, while providing low shear stiffness rates.

The combination of a stable low installation height, high compressive strength and low shear stiffness makes Novibra type SAW a versatile high performance antivibration mounting. Installation is easy due to only 4 clearance holes in each fixing plate.

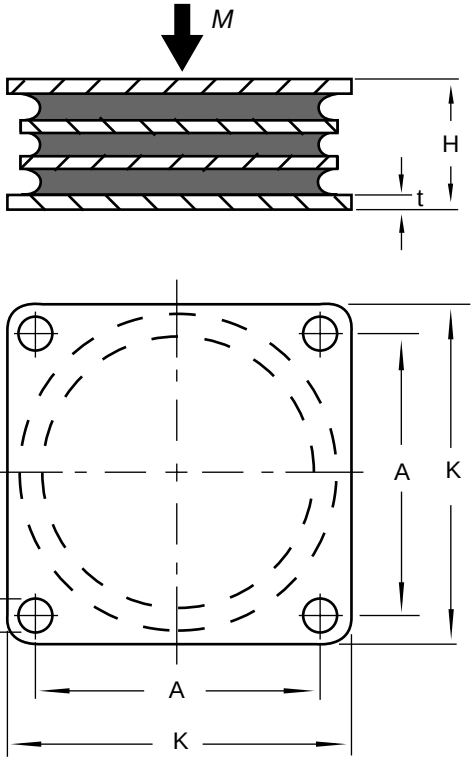
By connecting 2 SAW elements in series i.e. one on top of another, an increased isolation efficiency is achieved in both shear and compression planes to isolate very low frequencies. Where large deflections are required in the vertical plane Novibra type SAW mountings can be mounted at a calculated angle configuration to provide the optimum spring rate between shear and compression stiffness.

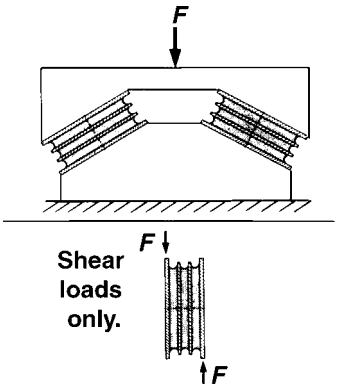
Applications:

Novibra elements type SAW are heavy duty mountings for high vertical static and shock loads in compression, while at the same time providing high isolation values in the horizontal shear direction.

Typical fields of application are:

- Crushers
- Edge runners
- Hoppers and feeders
- Other very heavy machines and equipment
- Vibration rollers
- Screens
- Grinders
- Mills





Operating Temperature Range
-35° to +70°C.

Unit Package Quantity 1

Hardness A 40° IRH SOFT (Green) *Spaenaur No.*	*Hardness* B 60° IRH MEDIUM (Black) *Spaenaur No.*	Novibra Type	DIMENSIONS (in millimetres) K	H	A	d	t	Approx. Weight kg.	*M* Compression Max. (in kg) Hardness A	B	*F* Approx. Shear Max. (in kg) Hardness A	B
314-081	**314-082**	SAW 125	148	52	118	13.5	5	2.580	2250	4500	249	599
314-083	**314-084**	SAW 150	166	63	136	13.5	6	4.145	3750	7500	317	816
314-085	**314-086**	SAW 200	220	82	184	17	8	9.225	6000	12000	544	1293

Dynamic Characteristic Charts for mounting are available on request.

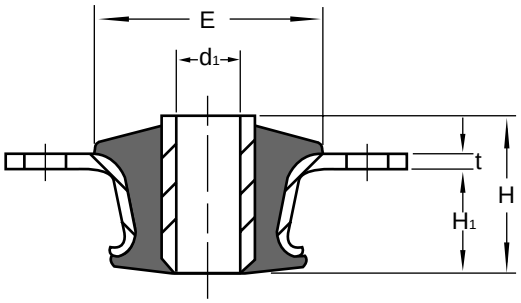
Natural
Rubber & Steel

MOUNT

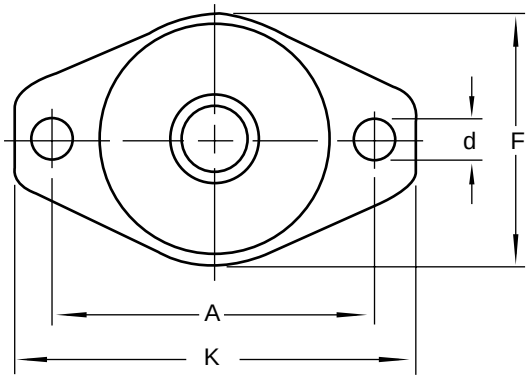
Novibra
type HK

HK

HKEM



HK 85, HK 85 EM
HK 115, HK 115 EM



Applications:

Its special resilient nature and impact resistance make Novibra type HK ***suitable for isolating the cabs of heavy construction vehicles and tractors against vibration and for isolating machinery in ships or other mobile units.***

Features:

Novibra antivibration mounting type HK is designed to permit high compression under vertical load but is at the same time stable in the horizontal direction. The conical shape makes the rubber mount work in both shear and compression stresses. HKEM also has recesses in the rubber, which make the part extra soft. Fitting the part with a flat washer provides impact resistance preventing deflection beyond the permitted limit.

UNIT PACKAGE QUANTITY 1

Operating Temperature Range -35° to +70°C.

Hardness A 40° IRH SOFT (Green) Spaenaur No.	Hardness B 60° IRH MEDIUM (Black) Spaenaur No.	Novibra Type	DIMENSIONS (in millimetres) K	A	F	H	H1	E	d	d1	t	Approx. Weight kg	Max. Load (in kg) Hardness A	B
314-089	**—**	HK85	105	85	65	41	27	60	11	18	3	0.303	100	200
314-091	**314-092**	HK85EM	105	85	65	41	27	60	11	18	3	0.288	59	118
314-093	**314-094**	HK115	140	115	90	71	55	85	14	22	4	0.880	190	379
314-095	**314-096**	HK115EM	140	115	90	71	55	85	14	22	4	0.853	109	220

Dynamic Characteristic Charts for mounting are available on request.

Have a question?
Call (800) 265-8772 or (519) 744-3521.

Natural Rubber & Steel

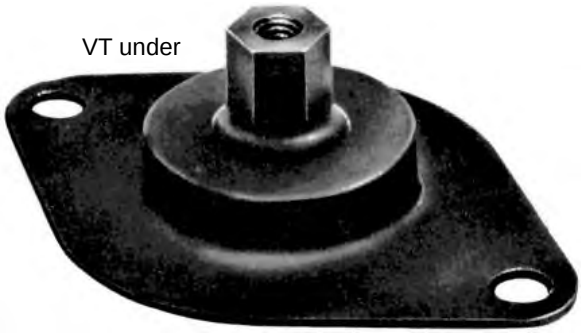
MOUNT

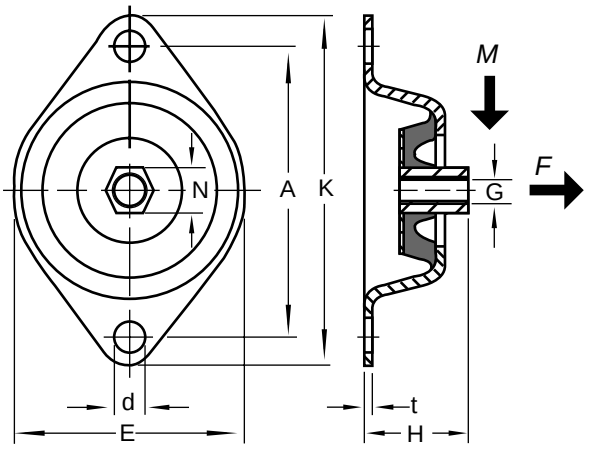
Novibra type VT

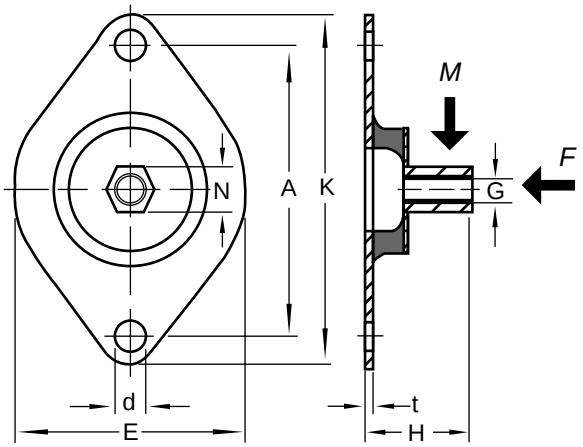
(See Facing Page for Type TK)

VT over

VT under







J

Features:

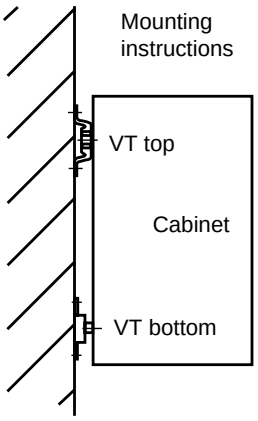
Novibra type VT has been designed in such a way that upon installation the rubber section is subjected to shear loads, thus providing high deflection even at low loads. Two different parts are available, of which the "over" part provides for protection against tension preventing the isolated unit from falling down if overloading occurs. VT "under" is designed to accept compression loads and permits shear deflection mainly.

Applications:

Novibra type VT protects wall-mounted instrument cabinets from vibrations and shocks generated by nearby engines, workshop machinery, etc. It is also suitable to isolate light wall-mounted machines, fans, refrigerating units, etc.

Mounting type VT "over" can also be used for ceiling suspension e.g. fittings, fans, music speakers, etc.

Note:
The "VT over" (or top) part, should always be used with the "VT under" (or bottom) part, when assembling to wall surfaces.



Operating Temperature Range -35° to +70°C.

*Threads not subject to gauging.

Dynamic Characteristic Charts for mounting are available on request.

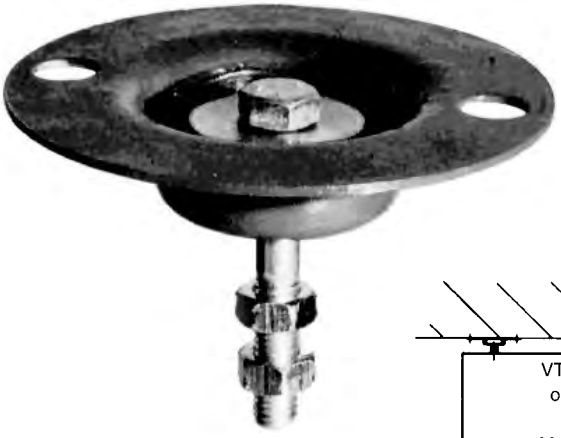
Hardness A 40° IRH SOFT (Green) *Spaenaur No.*	*Hardness* B 60° IRH MEDIUM (Black) *Spaenaur No.*	Novibra Type	*UNIT PACKAGE QUANTITY 1* DIMENSIONS (in millimetres) E	K	A	H	d	t	*G	N	Approx. Weight kg	*F* Compression Max. (in kg) A	B
314-103	**314-104**	VT over	75	114	96	33	9	1.5	M8	15	.149	30	70
314-105	**314-106**	VT under	75	114	96	33	9	1.5	M8	15	.104	30	70
		No's. 314-103 to 314-106 — *M* SHEAR (Max.) →										25	25

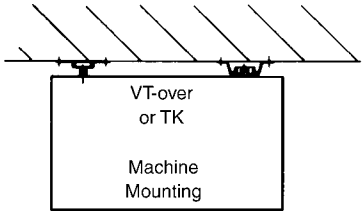
CATALOG 13

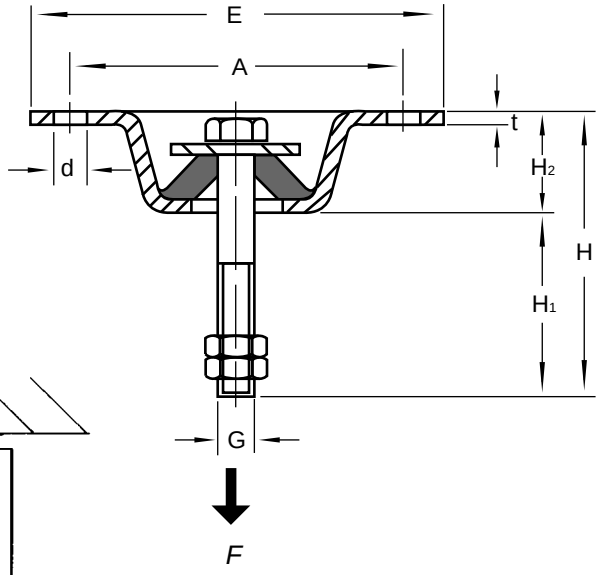
Natural
Rubber & Steel

Novibra type TK

MOUNT







Operating Temperature Range
-35° to +70°C.

J

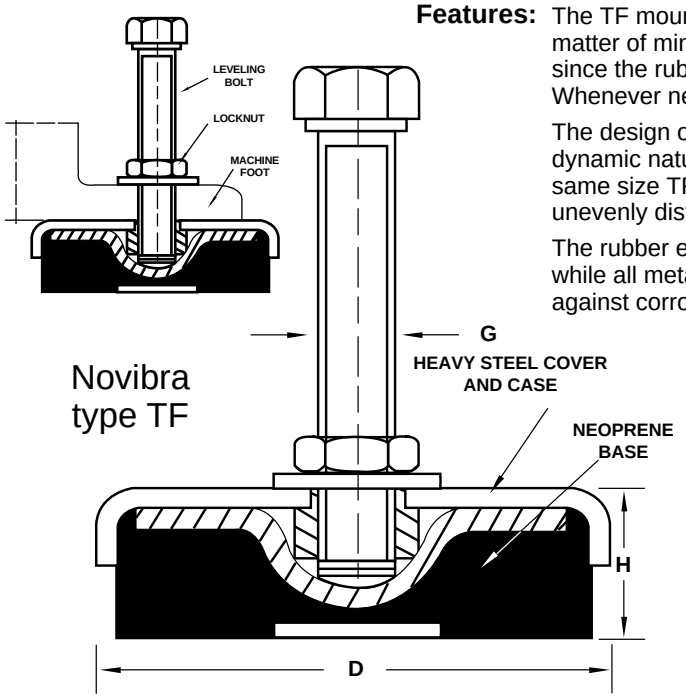
The design of Novibra mounting type TK makes it specifically suitable for ceiling installation. Its function is basically identical to VT-under (shown on previous page), but is intended for lighter load applications.

Hardness A 40° IRH SOFT (Green) *Spaenaur No.*	*Hardness* B 60° IRH MEDIUM (Black) *Spaenaur No.*	*UNIT PACKAGE QUANTITY 1* Novibra Type	DIMENSIONS (in millimetres) E	A	H	H1	H2	d	t	G	Approx. Weight kg	*F* Max. Load (in kg) A	B
314-107	**314-108**	TK	58	46	12	22	12	7	1	M5	.036	2	5

Dynamic Characteristic Charts for mounting are available on request.

Sales Desk open 7 a.m. to 7 p.m. E.S.T., Monday to Friday.

Call (800) 265-8772 or (519) 744-3521.



Features: The TF mounting is of simple construction and can be installed in a matter of minutes. There is no need to fix the machines to the floor since the rubber sole of the mounting keeps the machine in place. Whenever necessary, a machine can easily be re-positioned.

The design of the TF mounting allows an approximate constant dynamic natural frequency irrespective of loading. This means that the same size TF can be used under a machine even if the total weight is unevenly distributed over the mounting points.

The rubber element of the TF mounting is oil and chemical resistant while all metal parts are zinc plated and chromated for protection against corrosion.

Applications:

Novibra type TF with level adjuster is a modern machine mounting suitable for a wide range of free standing workshop machines, like:

- Lathes
- Grinding machines
- Carpentry machines
- Nibbling machines
- Presses
- Milling machines
- Multiple operation machinery
- Plate shears
- Punches and cutters
- Plastic moulding machinery

Unit Package Quantity 1.

Operating Temperature Range -35° to +70°C.

J

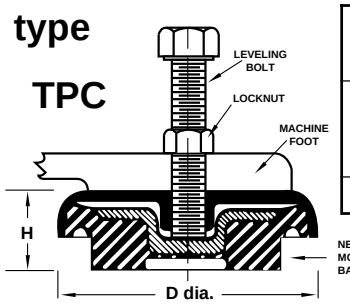
Spaenaur No.	Novibra Type	Dimensions in Millimetres D	HEIGHT H Min.	RANGE Max.	OVERALL SCREW LENGTH	G THREAD (Metric Coarse)	Max. Load (in kg)
314-109	TF 250	69	23		100 mm	M12 x 1.75	250
314-110	TF 600	81	25	Leveling is	100 mm	M12 x 1.75	600
314-111	TF 1200	108	29	possible along	100 mm	M16 x 2.00	1200
314-112	TF 3000	151	35	whole length	120 mm	M20 x 2.50	3000
314-113	TF 4000	170	38	of screw.	120 mm	M20 x 2.50	4000
314-114	TF 6000	205	44		150 mm	M24 x 3.00	6000

reduce noise, control vibration

Loading range per mount (kg)

Type of mounting	TYPE OF MACHINE: General workshop machines	Presses and punches Number of strokes per minute 1-125	126-175	176-225	226-275
TF 250	-250	25-125	20-100	15-85	10-60
TF 600	251-600	126-300	101-240	86-200	61-150
TF 1200	601-1200	301-600	241-480	201-400	151-300
TF 3000	1201-3000	601-2400	481-1600	401-1000	301-750
TF 4000	3001-4000	2401-3200	1601-2100	1001-1300	751-1000
TF 6000	4001-6000	3201-4800	2101-3200	1301-2000	1001-1500

type TPC



Spaenaur No.	TYPE	MIN. LOAD	MAX. LOAD	BOLT SIZE & LENGTH	DIMENSIONS D	H	Unit Package
314-004	TPC-1	300 lb.	1000 lb.	1/2"-13 x 5"	4-3/4"	1-1/2"	1
314-005	TPC-2	500 lb.	4500 lb.	3/4"-10 x 5"	6-1/4"	1-5/8"	1
314-006	TPC-3	4000 lb.	12000 lb.	1"-8 x 6"	8"	2"	1

(Max.) height adjustments is 1/2". Use blocks or shims for more adjustment.

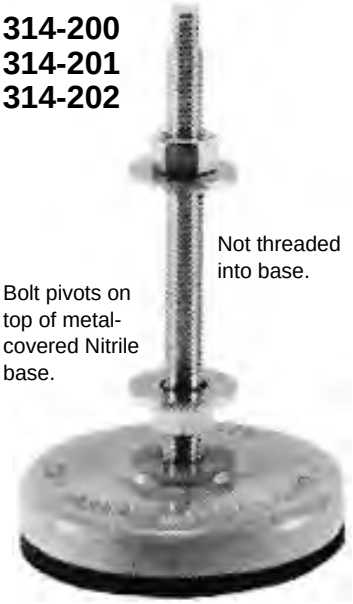
Height dimensions indicate free height of mount under no load.

NATURAL FREQUENCY IS APPROXIMATELY 12 HERTZ AT MAXIMUM LOAD.

CATALOG 13

314-205

314-200
314-201
314-202



Not threaded into base.

Bolt pivots on top of metal-covered Nitrile base.

Bolt is threaded only into Nitrile encased washer at top of base.

314-204
314-208

Hollow base encloses Nitrile insulated thread-receiver.

J

SPAENAUR No.	MAX LOAD in LBS. Non-impact Machinery	Impact Machinery	LEVEL ADJUSTMENT (above loaded hgt.)	LEVELING STUD Size	MOUNT BASE Size	Base Free Height Under NO LOAD	Finish	Net Weight kg
314-200	500	350	1"	1/2"-13 x 6"	4" dia.	1"	Grey	0.90
314-201	1000	700	1"	1/2"-13 x 6"	4" dia.	1"	Grey	0.90
314-202	2000	1400	1"	5/8"-11 x 8"	4" dia.	1"	Yellow	0.90
314-204	1500	1000	1/2"	1/2"-13 x 6"	3-1/2" dia	1-7/8"	Zinc Pltd.	1.25
314-208	4500	3000	1/2"	5/8"-11 x 8"	5-1/2" dia.	2-1/4"	Zinc Pltd.	3.20
314-205	8000	5000	1/2"	5/8"-11 x 8"	5-3/4" dia	2"	Black	2.30

Natural Rubber
68 Durometer

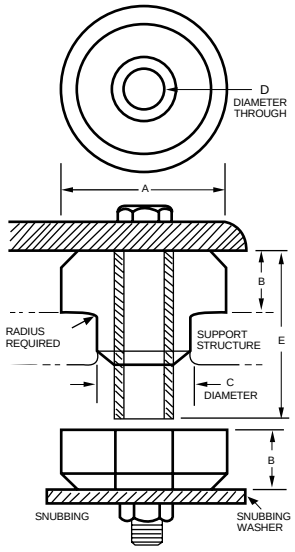
TRELLCAN H SERIES RUBBER MOUNTS
• Off-the-road equipment • Trucks • Cars
• Construction equipment • Radiators

(43 and 57 Durometer available but not stocked.)

Dimensions in Inches

SPAENAUR No.	A	B	C	D	E	Recommended Support Structure Thickness	Recommended Support Structure Hole Dia.	Axial Load Max. (lbs.)
314-115	1.87	0.78	1.28	0.52	1.96	0.50	1.25	400
314-116	2.52	0.90	1.55	0.65	2.45	0.875	1.50	500
314-117	3.50	1.00	2.28	0.94	2.88	1.125	2.25	1,100

This mount consists of two pieces. One piece fitting into the other as shown in diagram.



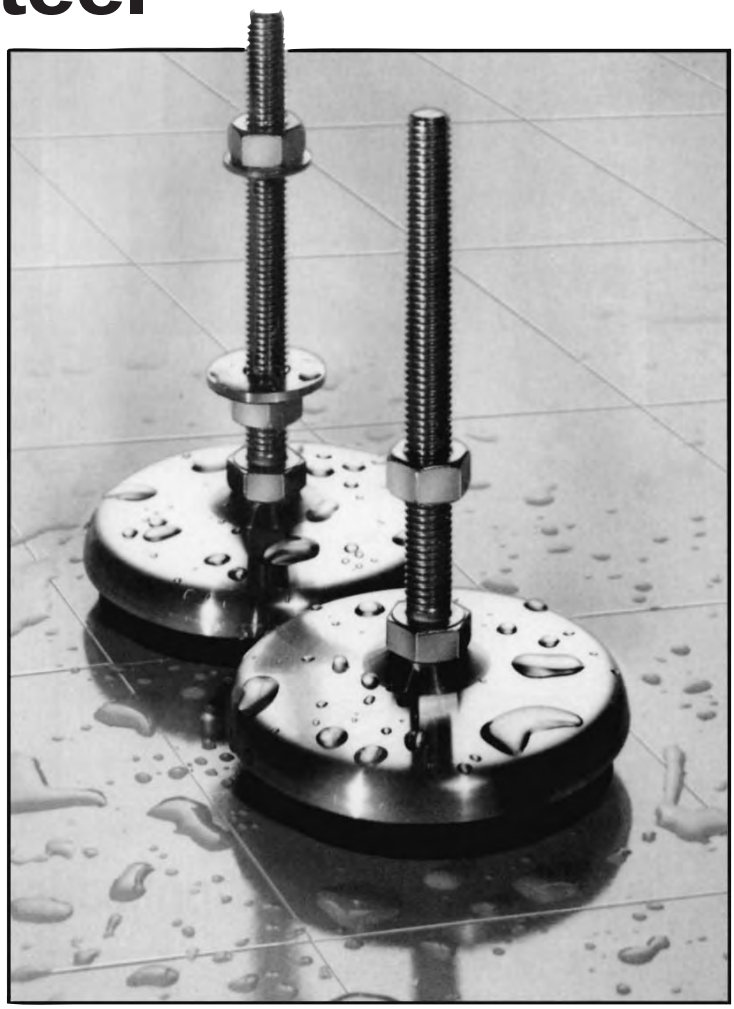
Should be used with a snubbing washer. Washer and Fastener not included.

CATALOG 13

All items this page Priced Singly.

Stainless Steel Leveling Mounts

For industries requiring stringent hygienic standards



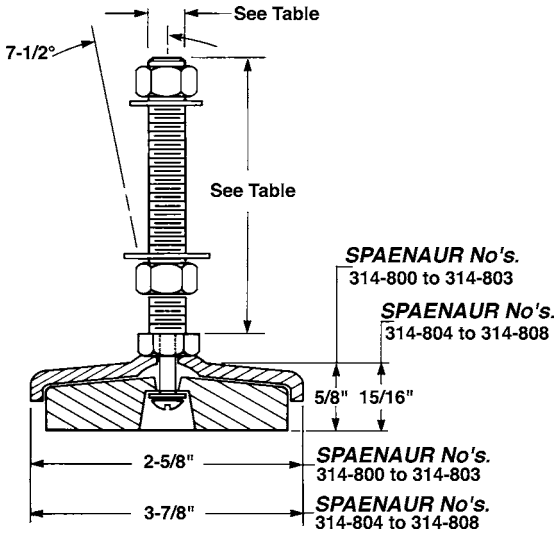
J

- Food
- Dairy
- Beverage
- Chemical
- Pharmaceutical

Stainless Steel Machine Mounts have no hidden pockets where dirt and moisture can collect. They are designed for industries where equipment is constantly being cleaned with strong chemical agents in order to maintain a high standard of hygiene or for applications where corrosion of standard steel leveling mounts may be a problem.

- Fast and precise leveling of machinery and equipment
- Compensate for pitched and uneven floors
- Rugged, creep-free, noise-deadening
- Reduce shock and vibration
- Simple, fast relocation
- Easy to maintain a high hygienic standard
- Simple to retrofit

STAINLESS STEEL LEVELING MOUNTS



Housing and hardware of Type 18-8 Stainless Steel with Neoprene rubber pad.

Note: One nut and one washer included with each mount.

Unit Package Quantity 1.

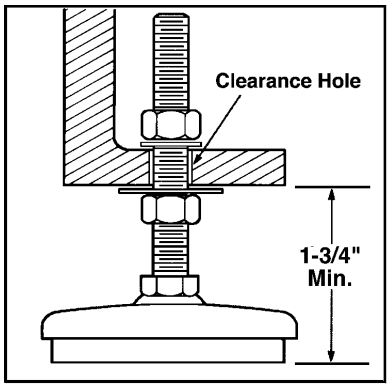
To calculate load per mount:

$$\frac{\text{Total weight of equipment}}{\text{Number of mounts}} = \text{lbs. per mount}$$

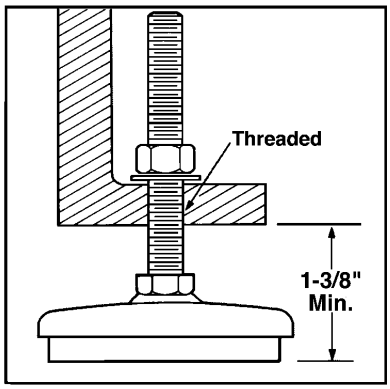
J

Load Range	50-250 lbs.	200-500 lbs.	400-1000 lbs.	900-2000 lbs.
Mount Dia.	2-5/8"	2-5/8"	3-7/8"	3-7/8"
Pad Hardness	60 Shore A	80 Shore A	60 Shore A	80 Shore A
Leveling Bolt	ORDER BY ***SPAENAUR*** NUMBERS LISTED BELOW			
1/2"-13 x 2"	**314-800**	**314-802**	—	—
1/2"-13 x 4"	**314-801**	**314-803**	—	—
5/8"-11 x 4"	—	—	**314-804**	**314-806**
5/8"-11 x 6"	—	—	**314-805**	**314-808**
3/4"-10 x 4"	—	—	—	**314-807**

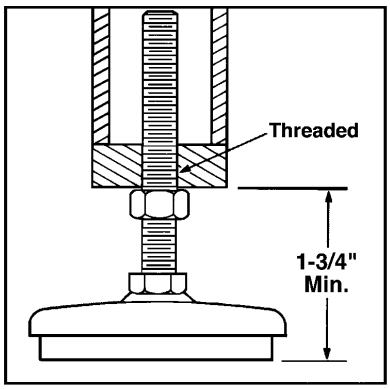
APPLICATIONS



Flange Mounting
(Clearance Hole)



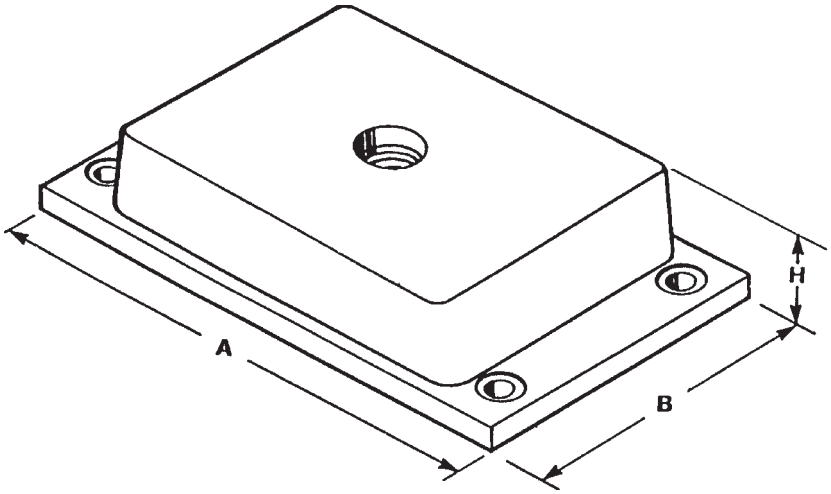
Flange Mounting
(Threaded Hole)

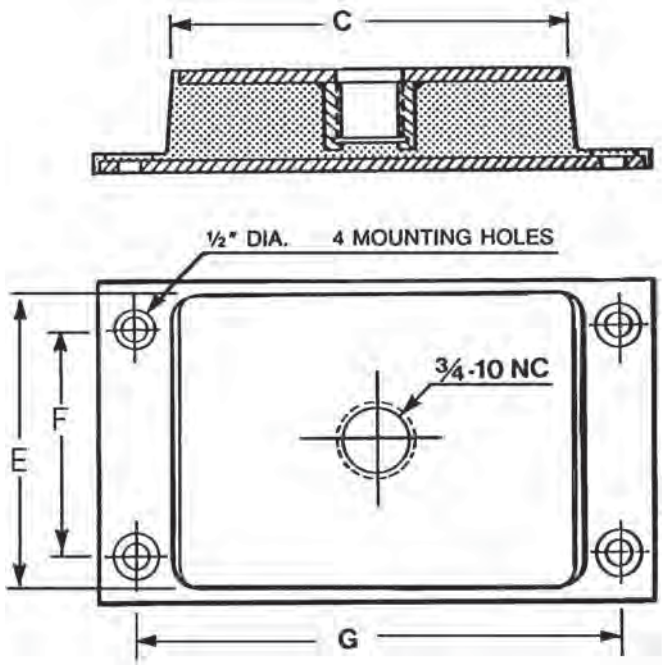


Closed Leg Mounting
(Threaded Hole)

HEAVY INDUSTRIAL COMPRESSION MOUNT

MODEL: VTM ™





DESIGN

- Consists of rectangular elastomer component bonded with two steel plates.
- Low installation height provides good stability.
- Effectively isolated against horizontal and vertical vibrations.
- Oil and grease resistant.
- Meets OSHA anchoring standards.

APPLICATIONS

- Presses
- Blowers
- Motors
- Pumps
- Vibrators
- Rolling Mills
- Radial Drill Presses
- Machine Shop Equipment
- Injection Moulding Machines, etc.

SPAENAUR No.	MAX. LOAD in LBS.		SPECIFICATIONS in INCHES							
	Non-Impact Machinery	Impact Machinery	A	B	C	E	F	G	H	HARDNESS
314-214	10,000	7,000	12	7-1/8	8-1/2	6-1/2	5	10-3/8	2-1/4	60 A Duro
314-215	15,000	10,500	12	7-1/8	8-1/2	6-1/2	5	10-3/8	2-1/4	80 A Duro

Priced Singly

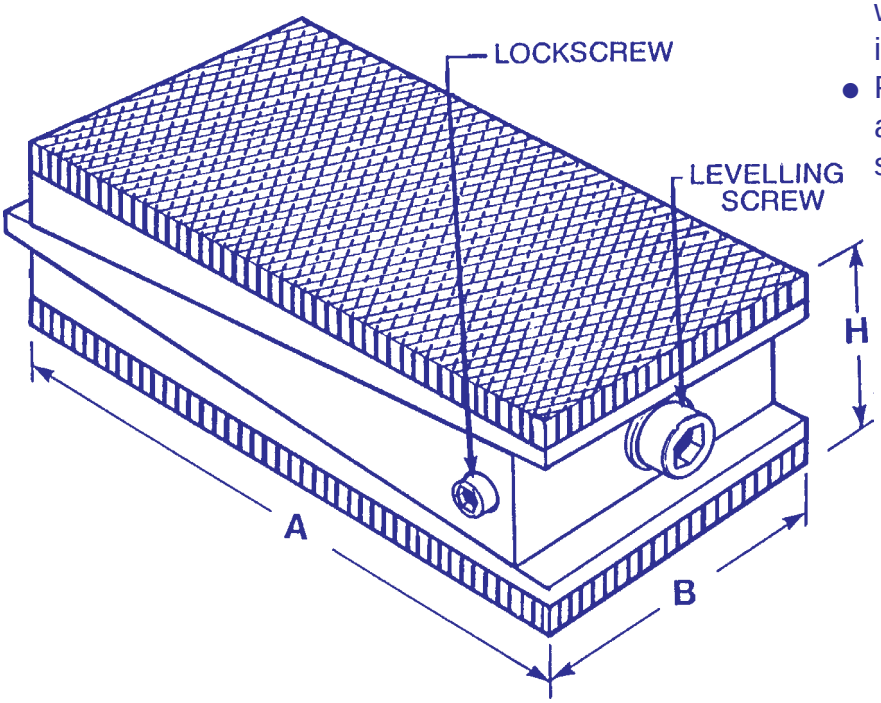
VIBRO-WEDGE™

Vibro-Wedge for installation and precision levelling of any machine without anchor bolt or cement.

TYPE: VW™

DESIGN

- 3 machine wedges mounted and held together by a horizontal adjusting bolt.
- Lockscrew secures mount in level position.
- Key in the wedges sliding surfaces insure rigidity within the mount construction.
- Permits accurate precision and easy levelling, no shimming is necessary.



NOTE: Maximum levelling is 6 mm (1/4").
If more height is required, use shim plate.

SPAENAUR No.	SPECIFICATIONS in mm A	B	H	MAX. LOAD in LBS. Non-Impact Machinery	Impact Machinery	Vibro-Wedge supplied with neoprene top and bottom for increased reduction in shock, vibration and noise.
314-210	150	100	40 ±5	15,000	7,000	No
314-211	150	100	50 ±5	9,000	4,200	Yes
314-212	220	110	65 ±5	18,000	12,600	No

Priced Singly

MAGO-ROTULA

Vibration isolators

Available in 8 Sizes

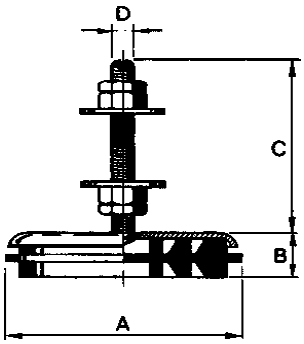
Colour-Coded Metal Top Covers indicate different insulator materials.

GOLD TOP COVER

Butyl rubber for maximum vibration absorbtion.

GREEN TOP COVER

Synthetic rubber for applications where petroleum, oils, solvents or greases are prevalent.



Leveling Screw has a rounded pivot end which is retained in a cup in the metal cover. This acts as a knee joint to level machinery on uneven floors.

J

Diameters & Lengths in Millimetres

GOLD COLOUR *SPAENAUR No.*	GREEN COLOUR *SPAENAUR No.*	Ø A	B	SCREW ØD	SCREW LENGTH C	LOADS IN KG PER EACH PIECE
314-150	**314-159**	50 mm	20 mm	M10	70 mm	0 - 60 kg
314-151	**314-160**	75 mm	25 mm	M12	100 mm	60 - 125 kg
314-152	**314-161**	100 mm	26 mm	M12	100 mm	125 - 200 kg
314-153	**314-162**	125 mm	30 mm	M16	150 mm	200 - 400 kg
314-154	**314-163**	175 mm	36 mm	M16	150 mm	400 - 700 kg
314-155	**314-164**	175 mm	44 mm	M16	150 mm	700 - 1400 kg
314-156	**314-165**	225 mm	42 mm	M20	175 mm	1400 - 2000 kg
314-157	**314-166**	225 mm	50 mm	M20	175 mm	2000 - 3000 kg
314-158	**314-167**	225 mm	50 mm	M20	175 mm	3000 - 4000 kg

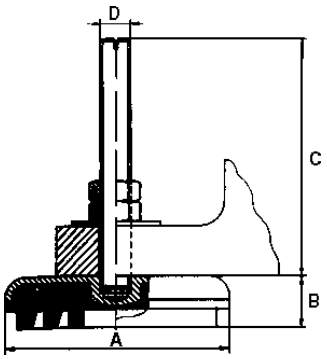
UNIT PACKAGE 1 (Mounting hardware included)

Isolates more than 80% of the vibrations transmitted.

Reduces mechanical stress to both floor and machine.

Not necessary to anchor the machine to the floor, cutting installation costs.

CATALOG 13

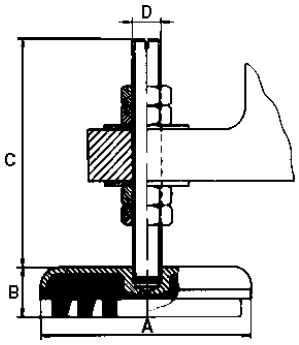


MAGO-FIX®

AVAILABLE IN 6 DIFFERENT SIZES

BUTYL RUBBER
SPECIAL ANTI-VIBRANT COMPOSITION

BOLT SCREWS INTO THE COVER,
CREATING A RIGID ONE-PIECE MOUNT.



DIMENSIONS (in millimetres)

SPAENAUR No.	Approx. Ø A	B	SCREW Ø D	SCREW LENGTH C	LOADS IN KG PER EACH PIECE
314-168	45 mm	20 mm	M8	60 mm	0 - 70 kg
314-169	75 mm	25 mm	M12	90 mm	70 - 200 kg
314-170	100 mm	30 mm	M12	90 mm	200 - 400 kg
314-171	125 mm	30 mm	M16	150 mm	400 - 700 kg
314-172	175 mm	36 mm	M16	150 mm	700 - 1500 kg
314-173	215 mm	44 mm	M20	175 mm	1500 - 3000 kg

UNIT PACKAGE 1 (Mounting hardware included)

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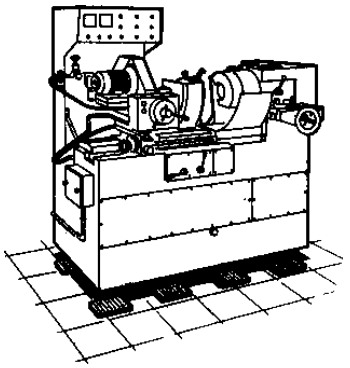
MAGO-BLOK®

Anti-vibration Pads



For use on heavy machines with flat bases which do not require leveling or anchoring to the floor, or for heavy machinery which has to be anchored to blocks of isolated concrete.
Excellent vibration and resonance absorption.
Reduces mechanical stress to shafts, bearings, gearings, etc., to avoid premature wear.

BUTYL RUBBER
SPECIAL ANTI-VIBRANT COMPOSITION

SPAENAUR No.	DIMENSIONS (in millimetres) LENGTH	WIDTH	HEIGHT	LOADS IN KG PER EACH PIECE
899-001	125 mm	65 mm	18 mm	0 - 150 kg
899-002	200 mm	85 mm	18 mm	150 - 300 kg
899-003	230 mm	115 mm	18 mm	300 - 500 kg
899-004	260 mm	155 mm	18 mm	500 - 700 kg
899-005	125 mm	65 mm	35 mm	0 - 250 kg
899-006	200 mm	85 mm	35 mm	250 - 500 kg
899-007	150 mm	130 mm	35 mm	500 - 700 kg
899-008	230 mm	115 mm	35 mm	600 - 750 kg
899-009	260 mm	155 mm	35 mm	750 - 1000 kg

Colour - BLACK
Bottom of pad has across-tread grip pattern.

UNIT PACKAGE 1

CATALOG 13

MAGO-SUSPEND

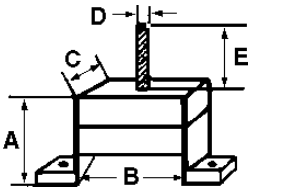
Anti-Vibrating Isolators

This mounting is specially designed to withstand the maximum strains from use with machinery, fixtures, or apparatus that is fixed to the floor or suspended from ceilings and beams. It has a wide range of applications, where the stability of the mount is essential.

BUTYL RUBBER
SPECIAL ANTI-VIBRANT COMPOSITION

DIMENSIONS (in millimetres)

SPAENAUR No.	A	B	C	D	E	*LOADS IN KG PER EACH PIECE
314-174	95mm	74mm	40mm	M12	118mm	0 - 400 kg
314-175	110mm	117mm	60mm	M14	150mm	400 - 1250 kg
314-176	137mm	140mm	100mm	M16	215mm	1250 - 2000 kg



UNIT PACKAGE 1
(Mounting hardware included)

*Important: For suspended equipment, the load in kilos for each mount is 50% less than indicated.

J

MAGO-FLEX®

Anti-Vibration Supports

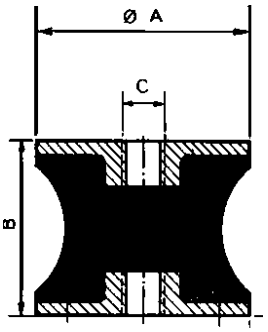
Available in 11 different sizes.

A wide range of applications from sensitive precision appliances to heavy machinery.

Material: Natural Rubber

UNIT PACKAGE 1

SHORE A55/60°		SHORE A75/80°		DIMENSIONS (in millimetres)		
SPAENAUR No.	Load Kg Per Piece	*SPAENAUR No.*	Load Kg Per Piece	A	B	C
314-188	40 - 60 kg	—	50 - 90 kg	35mm	30mm	M5
314-189	60 - 80 kg	**314-178**	90 - 120 kg	45mm	35mm	M8
314-190	80 - 120 kg	**314-179**	120 - 170 kg	55mm	44mm	M8
314-191	100 - 130 kg	**314-180**	140 - 190 kg	60mm	60mm	M10
314-192	120 - 175 kg	**314-181**	170 - 250 kg	69mm	50mm	M10
314-193	175 - 260 kg	**314-182**	250 - 375 kg	85mm	60mm	M12
314-194	210 - 420 kg	**314-183**	300 - 600 kg	96mm	54mm	M14
314-195	240 - 490 kg	**314-184**	350 - 700 kg	98mm	59mm	M14
314-196	490 - 1050 kg	**314-185**	700 - 1500 kg	125mm	65mm	M16
314-197	850 - 1300 kg	**314-186**	1200 - 1800 kg	175mm	75mm	M16
314-198	1300 - 1800 kg	**314-187**	1500 - 2200 kg	225mm	75mm	M18



NOTE: Bolt and nut hardware must be ordered separately.

CATALOG 13

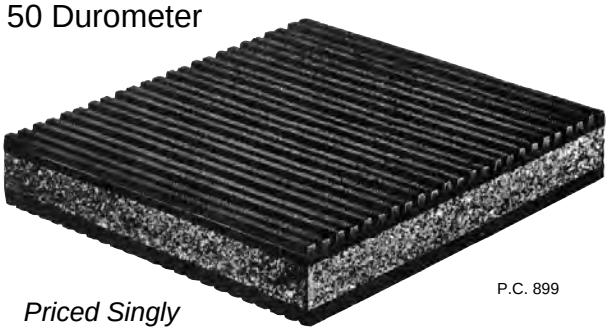
TYPICAL USES:
Refrigeration
Air Conditioners
Presses
Generators
Pumps
Business Machines
Compressors
Fans
Motors

PROLONGS MACHINE LIFE / DAMPENS VIBRATION REDUCES MAINTENANCE COST

SPAENAUR Anti-Vibration Pads are available in a neoprene ribbed pad with a 1/2" cork centre. These pads are made from a high quality neoprene elastomer, compounded with excellent resistance to aging, compression set, water and oil.

Additional vibration isolation is obtained with both high and low weight loads by alternate rib height construction. Recommended maximum loading capacity of 50 pounds PSI.

50 Durometer



P.C. 899

Priced Singly

CORK & NEOPRENE PAD

SPAENAUR No.	Dimensions Lgth. x Wdth.	Thick.	Weight
AVP-2	18" x 18"	7/8"-1"	3.06 kg (6-3/4 lbs.)
AVP-3	6" x 6"	7/8"-1"	.255 kg (9 oz.)
AVP-4	4" x 4"	7/8"-1"	.113 kg (4 oz.)
AVP-5	3" x 3"	7/8"-1"	.056 kg (2 oz.)

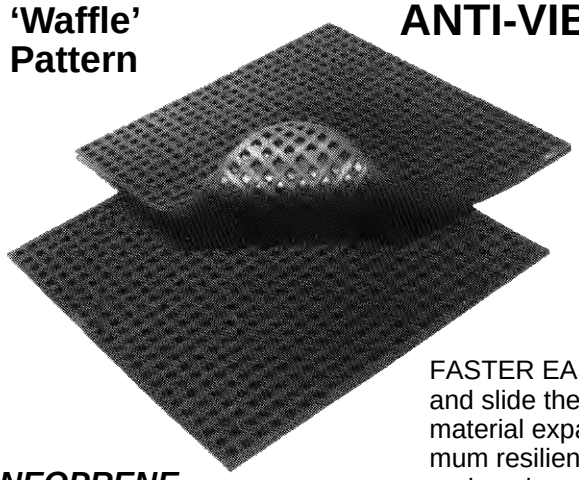
J

INSTALLATION DATA

SPAENAUR Anti-vibration Pads should be measured and cut so that there is not more than 50 pounds per square inch of machine weight on it when installed . Since most machinery is designed with approximately 50 pounds PSI maximum base loading, cutting a pad the size of each foot on the machine allowing for 1/2" overlap all around, will generally insure proper loading.

'Waffle' Pattern

ANTI-VIBRATION NEOPRENE PADS



NEOPRENE – for maximum life and oil resistance

SPAENAUR No.	DIMENSIONS	Max. Load	DURO-METER	Weight kg.	Weight lbs.
***899-050**	18" x 18" x 5/16"	50 PSI	50	2.0	4.3
***899-100**	18"x 18" x 5/16"	100 PSI	75	2.0	4.3
†899-200	18" x 18" x 1/2"	200 PSI	65	2.5	5.5
†899-300	18" x 18" x 1/2"	300 PSI	80	2.5	5.5

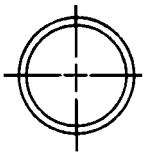
* Plain (no pattern) on one side.
† Waffle pattern on both sides

Priced Singly

FASTER EASIER INSTALLATION. Simply lift the machine to be mounted and slide the pads under each leg. The waffle moulded design allows material expansion and highest deflection without loss of stability, maximum resilience and minimum of creep, providing firm footing to both floor and equipment.

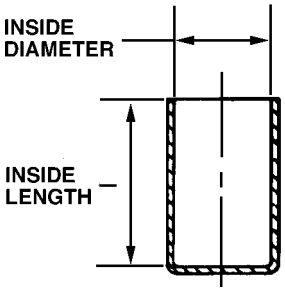
Note: When installing allow 1/2" margin all around feet of machine.

Shallow, medium and long Tube Caps to fit most every size tubing diameter with a snug friction fit. Closures are primarily used to cap fittings, threaded studs, machined parts and tubes used in packaging drill bits and other tools.



Colour:
Orange

Material:
Low Density
POLYETHYLENE



Tube Caps

SPAENAUR No.	INSIDE DIA.	INSIDE LENGTH	STANDARD PACKAGE
317-001	3/32"	5/8"	250
317-002	1/8"	5/8"	250
317-003	1/8"	3/4"	250
317-004	5/32"	19/32"	250
317-005	11/64"	5/8"	250
317-006	3/16"	5/8"	250
317-007	13/64"	5/8"	200
317-008	7/32"	3/4"	200
317-010	1/4"	7/8"	200
317-011	9/32"	3/4"	200
317-012	5/16"	7/8"	100
317-013	3/8"	7/8"	100
317-014	7/16"	7/8"	100
317-015	1/2"	7/8"	100
317-016	9/16"	7/8"	100
317-017	9/16"	5/8"	100
317-018	5/8"	7/8"	100
* **317-019**	5/8"	7/8"	100
317-020	5/8"	15/16"	100
317-021	11/16"	7/8"	100
317-022	3/4"	7/8"	100
317-023	3/4"	15/16"	100
317-024	13/16"	11/16"	100
317-025	13/16"	7/8"	100
† **317-026**	7/8"	5/8"	100
317-027	7/8"	5/8"	100
317-028	7/8"	7/8"	100
317-029	29/32"	3/4"	100
317-030	29/32"	7/8"	100
317-031	1"	3/4"	50
317-104	1"	1"	10
317-032	1-1/8"	7/8"	50

For a reference chart on plastics properties see section R.

See Page J30 for RIBBED Style, also "LONG" Tube Caps

* 3 Internal Rings

† .067" Wall Thickness

Continued on page J29.

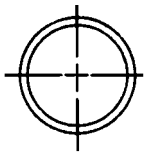
Tube Caps (Cont'd from page J28)

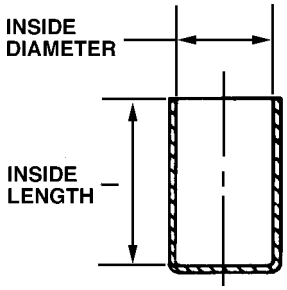
SPAENAUR No.	INSIDE DIAMETER	INSIDE LENGTH	STANDARD PACKAGE
317-033	1-1/4"	1"	25
317-034	1-3/8"	5/8"	25
317-035	1-3/8"	7/8"	25
317-036	1-1/2"	1"	25
317-037	1-5/8"	1"	25
317-038	1-23/32"	1"	25
■ **317-039**	1-3/4"	7/8"	25
317-040	1-3/4"	7/8"	25
317-042	2"	1"	25
317-043	2-1/8"	7/8"	25
317-044	2-1/4"	7/8"	20
317-045	2-1/4"	1"	20
317-046	2-1/2"	7/8"	20
317-047	2-19/32"	1"	20
317-048	2-5/8"	1"	20
317-049	2-3/4"	1"	20
317-050	3"	1"	20
317-051	3-1/8"	1-3/8"	20
317-052	3-1/4"	1"	20
317-053	3-7/16"	1"	20
317-054	3-1/2"	1"	10
317-055	4"	1-1/8"	10
317-056	4-1/8"	1-1/2"	10
317-058	4-13/16"	41/64"	10
317-059	4-7/8"	59/64"	10

Colour:
Orange

Material:
Low Density
POLYETHYLENE

■ .085" Wall Thickness





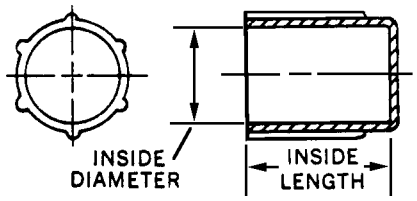
Shallow Tube Caps

317-063	3/32"	1/4"	100
317-064	3/16"	15/32"	100
317-065	1/4"	1/2"	100
▲ **317-066**	5/16"	3/8"	100
317-067	3/8"	15/32"	100
317-068	7/16"	7/32"	100
317-069	7/16"	1/2"	100
317-070	1/2"	1/2"	100
317-071	9/16"	3/32"	100
317-072	5/8"	3/8"	100
317-073	5/8"	11/32"	100
317-074	23/32"	15/32"	100
317-075	1"	5/8"	50
317-076	1-1/4"	1/2"	50
317-077	1-3/8"	11/32"	50
317-078	1-27/64"	1/2"	50
317-079	2-1/8"	1/2"	25
317-080	2-5/32"	15/32"	25

▲Black Only

See also our Ribbed Tube Caps (Page J30) for added ease of application.

Continued on page J30.



Continued from Pages J28 and J29.

Ribbed Type Caps

SPAENAUR No.	INSIDE DIAMETER	INSIDE LENGTH	STANDARD PACKAGE
317-082	3/8"	3/8"	100
317-083	3/8"	3/4"	100
317-084	7/16"	3/8"	100
317-085	7/16"	5/8"	100
317-086	15/32"	3/4"	100
317-087	1/2"	7/16"	100
317-088	9/16"	27/64"	100
317-089	9/16"	3/4"	100
317-090	11/16"	3/4"	50

Colour:
Orange

Material:
Low Density POLYETHYLENE

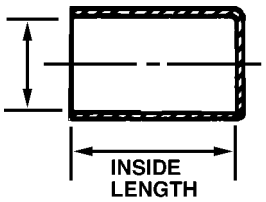
J

Long Tube Caps

SPAENAUR No.	INSIDE DIAMETER	INSIDE LENGTH	STANDARD PACKAGE
317-091	15/64"	1-1/8"	100
317-093	3/8"	1-1/8"	50
317-094	27/64"	1-1/4"	50
317-095	7/16"	1-1/2"	50
317-098	5/8"	1-1/2"	25
***317-099**	5/8"	2-1/2"	20
317-100	3/4"	2-15/32"	10
317-101	7/8"	1-3/4"	10
317-102	7/8"	2"	10
317-103	63/64"	1"	10
317-105	1"	1-3/4"	10
317-107	1-1/16"	1"	10
317-109	1-1/4"	1-1/2"	10
317-110	1-1/4"	1-3/4"	10
317-111	1-3/8"	1-1/2"	10
317-112	1-3/8"	1-19/32"	10
317-113	1-1/2"	1-3/4"	5
317-114	1-5/8"	1-1/4"	5
317-115	1-27/32"	1-7/32"	5
317-116	2"	1-1/2"	5

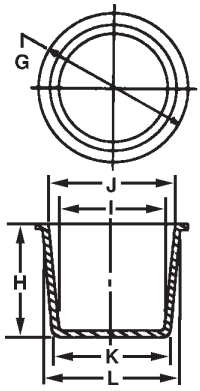
Colour:
Orange
(*Yellow)

Material:
Low Density POLYETHYLENE



CATALOG 13

Tapered and flexible to install easily, remove easily, for a snug fit as either a cap or plug. Perfect for easy access locations to protect threads and keep dirt and moisture out of pipes, castings, valves, tubes, most everything...an ideal paint mask.



Colour:
Orange

Material:
Low Density
POLYETHYLENE

Tapered Caps & Plugs

SPAENAUR No.	N.P.T. SIZES CAP	N.P.T. SIZES PLUG	STANDARD THREAD SIZES PLUG	STANDARD THREAD SIZES CAP	METRIC THREAD SIZES CAP	METRIC THREAD SIZES PLUG	DIMENSIONS G	H	I	J	K	L	STD. PKG.
317-117			10-32		M2 M2.5	M5	5/16"	13/32"	.052"	.117"	.116"	.181"	100
317-118			1/4"		M3 M3.5	M6	3/8"	13/32"	.110"	.177"	.174"	.241"	100
317-119					M4		29/64"	11/32"	.146"	.211"	.210"	.275"	100
317-120					M4.5	M7	3/8"	11/32"	.150"	.210"	.209"	.269"	100
317-121			5/16"		M5	M8 M8 x 1	15/32"	3/8"	.175"	.239"	.239"	.303"	100
317-122					M6		15/32"	13/32"	.205"	.273"	.267"	.335"	100
317-123			3/8"	5/16"	M7	M10 M10 x 1.25	1/2"	13/32"	.235"	.303"	.299"	.367"	100
317-124		1/8"					9/16"	3/8"	.267"	.333"	.331"	.397"	100
317-125			7/16"		M8 M8 x 1	M12	9/16"	13/32"	.298"	.364"	.362"	.428"	100
317-126							11/16"	29/32"	.375"	.375"	.437"	.437"	100
317-127				3/8"		M12 x 1.25	19/32"	13/32"	.328"	.395"	.392"	.459"	100
317-128	1/8"	1/4"	1/2"		M10 M10 x 1.25	M14	5/8"	13/32"	.358"	.422"	.422"	.486"	100
317-129				7/16"		M14 x 1.5	21/32"	13/32"	.384"	.448"	.448"	.512"	100
317-130			9/16"	1/2"			11/16"	5/16"	.415"	.485"	.477"	.547"	100
317-131			9/16"	1/2"			11/16"	15/32"	.408"	.484"	.472"	.548"	100
317-132					M12 M12 x 1.25	M16	23/32"	15/32"	.436"	.504"	.500"	.568"	100
317-134							3/4"	11/32"	.490"	.550"	.552"	.612"	100
317-135	1/4"		5/8"				3/4"	15/32"	.469"	.544"	.533"	.608"	100
317-136		3/8"		9/16"		M18	25/32"	1/2"	.487"	.569"	.551"	.633"	100
317-137				5/8"	M14 M14 x 1.5	M18 x 1.5	27/32"	17/32"	.518"	.606"	.590"	.674"	100
317-138							27/32"	17/32"	.549"	.634"	.610"	.695"	100
317-140			3/4"			M20	7/8"	1/2"	.578"	.665"	.642"	.729"	100
317-141	3/8"				M16 M16 x 1.5	M20 x 1.5	7/8"	17/32"	.614"	.691"	.678"	.755"	100
317-142							7/8"	3/16"	.677"	.701"	.741"	.765"	100
317-143		1/2"				M22	15/16"	19/32"	.627"	.723"	.691"	.787"	100
317-144							55/64"	3/16"	.688"	.743"	.750"	.805"	100

For **CAP** applications, the **"I"** dimension should be at least .020" **less** than diameter to be capped.
For **PLUG** applications, the **"L"** dimension should be at least .020" **larger** than the opening.

Continued on page J32.

...Cont'd. from page J31.

Colour: Orange

Material: Low Density POLYETHYLENE

SPAENAUR No.	N.P.T. SIZES		STANDARD THREAD SIZES		METRIC THREAD SIZES		DIMENSIONS						STD. PKG.
	CAP	PLUG	PLUG	CAP	CAP	PLUG	G	H	I	J	K	L	
317-145				3/4"		M22 x 1.5	1"	19/32"	.663"	.761"	.727"	.825"	100
317-146			7/8"		M18 M18 x 1.5	M24	1"	19/32"	.668"	.785"	.752"	.849"	100
317-147	1/2"		15/16"			M24 x 2	1-1/16"	21/32"	.739"	.848"	.803"	.912"	100
317-148			1"	7/8"	M20 M20 x 1.5		1-1/8"	5/8"	.755"	.869"	.819"	.933"	100
317-149		3/4"					1-1/8"	21/32"	.790"	.894"	.854"	.958"	50
317-150		3/4"				M27	1-1/8"	3/4"	.805"	.909"	.869"	.973"	50
317-151		3/4"					1-1/8"	21/32"	.805"	.909"	.869"	.973"	50
317-152							1-5/32"	1/2"	.878"	.971"	.942"	1.035"	50
317-153			1-1/16"		M22 M22 x 1.5	M27 x 2	1-5/32"	23/32"	.855"	.980"	.915"	1.040"	50
317-155							1-5/16"	7/8"	.940"	.960"	1.020"	1.040"	50
317-156							1-1/4"	1/2"	.918"	.985"	.980"	1.049"	50
317-157							1-1/4"	1-1/32"	.890"	1.030"	.950"	1.090"	50
317-158	3/4"				M24 M24 x 2	M30	1-9/32"	3/4"	.903"	1.028"	.967"	1.092"	50
317-159				1-1/16"		M30 x 2	1-5/16"	25/32"	.933"	1.080"	.997"	1.144"	50
317-160		1"	1-1/4"		M27 M27 x 2	M33	1-13/32"	25/32"	1.029"	1.155"	1.093"	1.219"	50
317-161							1-7/16"	21/32"	1.116"	1.223"	1.180"	1.280"	50
317-162			1-5/16"			M33 x 2 M36	1-7/16"	3/4"	1.115"	1.222"	1.179"	1.286"	50
317-163							1-3/8"	9/16"	1.155"	1.190"	1.276"	1.312"	50
317-164					M30 M30 x 2		1-1/2"	3/4"	1.162"	1.290"	1.226"	1.354"	50
317-165	1"			1-5/16"		M36 x 3	1-1/2"	27/32"	1.175"	1.300"	1.233"	1.358"	50
317-166							1-1/2"	3/4"	1.228"	1.292"	1.292"	1.356"	50
—							—	—	—	—	—	—	—
317-168			1-1/2"				1-5/8"	17/32"	1.286"	1.401"	1.350"	1.465"	50
317-169							1-5/8"	3/4"	1.248"	1.401"	1.312"	1.465"	50
317-170					M33 M33 x 2	M39 M39 x 3	1-3/4"	51/64"	1.340"	1.420"	1.435"	1.500"	50
317-171							1-49/64"	15/16"	1.282"	1.450"	1.344"	1.507"	50
317-172			1-9/16"				1-3/4"	7/8"	1.384"	1.537"	1.447"	1.600"	50
317-173		1-1/4"			M36 M36 x 3		1-3/4"	3/4"	1.387"	1.537"	1.451"	1.601"	50
317-174			1-5/8"				1-25/32"	3/4"	1.455"	1.538"	1.519"	1.602"	50
317-175	1-1/4"			1-5/8"	M39 M39 x 3		1-7/8"	25/32"	1.498"	1.620"	1.560"	1.682"	50
317-176	1-1/4"			1-5/8"			1-7/8"	5/8"	1.514"	1.628"	1.574"	1.688"	50
317-177							1-15/16"	3/4"	1.569"	1.686"	1.633"	1.750"	50
317-178		1-1/2"	1-7/8"				2"	25/32"	1.688"	1.818"	1.752"	1.882"	25
—							PULL PLUG ONLY, SEE PAGE J35						
317-179	1-1/2"			1-7/8"			2-5/32"	1"	1.743"	1.874"	1.807"	1.938"	25
317-180							2-3/8"	43/64"	1.785"	1.895"	1.865"	1.975"	25
317-181							2-1/8"	1"	1.783"	1.936"	1.847"	2.000"	25
317-182							2-5/32"	1/2"	1.860"	1.970"	1.920"	2.030"	25
317-183							2-13/64"	3/4"	1.885"	2.000"	1.950"	2.065"	25
317-184							2-1/4"	1"	1.839"	2.014"	1.903"	2.078"	25
317-185							2-1/4"	1"	1.917"	2.069"	1.981"	2.133"	25
317-186							2-19/32"	3/8"	2.036"	2.076"	2.100"	2.140"	25
317-187							2-5/16"	3/4"	1.953"	2.083"	2.017"	2.147"	25
317-188			2-1/4"				2-7/16"	1-1/32"	2.000"	2.174"	2.070"	2.244"	25
—		2"					PULL PLUG ONLY, SEE PAGE J35						
317-189				2-1/4"			2-19/32"	1"	2.093"	2.265"	2.157"	2.329"	25
317-190							2-51/64"	3/4"	2.216"	2.336"	2.280"	2.400"	25
317-191							2-17/32"	1"	2.065"	2.344"	2.129"	2.408"	25
317-192	2"						2-5/8"	1"	2.236"	2.400"	2.300"	2.464"	25

For **CAP** applications, the **"I"** dimension should be at least .020" **less** than diameter to be capped.
For **PLUG** applications, the **"L"** dimension should be at least .020" **larger** than the opening.

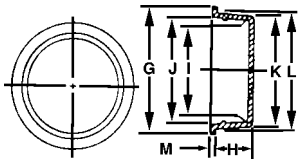
Cont'd. on page J33.

	SPAENAUR No.	N.P.T. SIZES CAP	N.P.T. SIZES PLUG	STANDARD THREAD SIZES PLUG	STANDARD THREAD SIZES CAP	DIMENSIONS G	H	I	J	K	L	STD. PKG.
Cont'd. from pages J31 & J32	317-193					2-21/32"	3/4"	2.220"	2.383"	2.300"	2.464"	10
	317-194				2-1/2"	2-13/16"	1-5/32"	2.332"	2.540"	2.396"	2.604"	10
	317-195					2-25/32"	3/4"	2.418"	2.581"	2.482"	2.645"	10
	317-196					2-25/32"	1"	2.247"	2.586"	2.311"	2.650"	10
	317-197					2-7/8"	3/4"	2.497"	2.626"	2.561"	2.690"	10
	317-198					2-7/8"	1"	2.393"	2.686"	2.457"	2.750"	10
	317-199		2-1/2"			2-31/32"	25/32"	2.579"	2.727"	2.643"	2.791"	10

FOR COMPLETE LISTING OF PLASTIC ITEMS IN THIS SECTION

SEE PAGES J28 to J43.

Extra Large Tapered Caps & Plugs



Colour: Orange

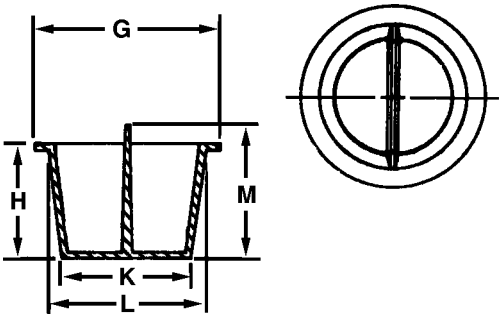
Material: Low Density POLYETHYLENE

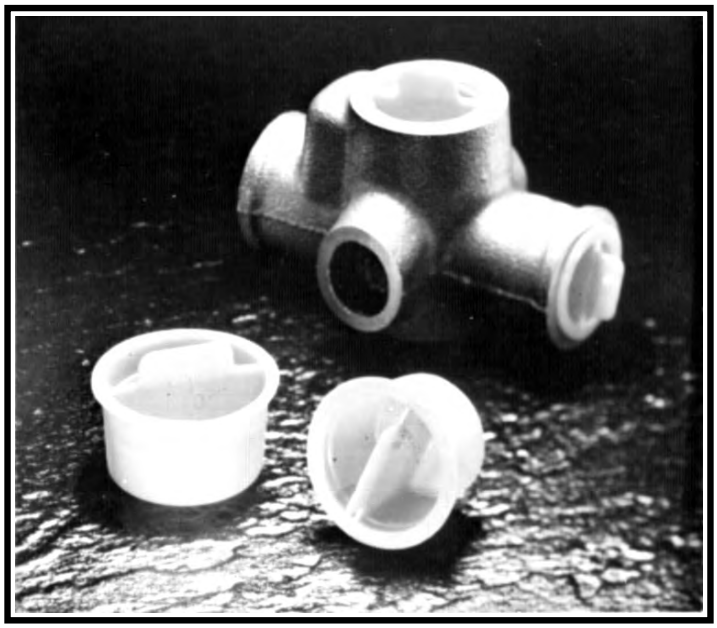
SPAENAUR No.	N.P.T. SIZES CAP	N.P.T. SIZES PLUG	DIMENSIONS G	H	I	J	K	L	M	STD. PKG.
317-200			3-1/16"	23/32"	2.626"	2.790"	2.706"	2.870"	.040"	10
317-201			3-1/4"	3/4"	2.786"	2.918"	2.850"	2.982"	.030"	10
317-202	2-1/2"		3-1/8"	1"	2.656"	2.926"	2.720"	2.990"	.032"	10
317-203			3-13/32"	15/32"	2.916"	3.079"	2.996"	3.159"	.045"	10
317-204			3-7/16"	23/32"	2.920"	3.120"	3.000"	3.200"	.035"	10
317-205			3-3/8"	1"	2.910"	3.174"	2.980"	3.244"	.035"	10
317-206			3-1/2"	1"	3.018"	3.297"	3.088"	3.367"	.035"	10
317-207		3"	3-5/8"	3/4"	3.250"	3.382"	3.320"	3.452"	.035"	10
317-208	3"		3-11/16"	1-1/8"	3.200"	3.492"	3.270"	3.562"	.035"	10
317-209			3-7/8"	3/4"	3.406"	3.542"	3.466"	3.602"	.045"	10
317-210			4"	3/4"	3.596"	3.722"	3.676"	3.802"	.040"	10
317-211	3-1/2"	3-1/2"	4-1/8"	3/4"	3.710"	3.840"	3.790"	3.920"	.040"	10
317-212			4-3/8"	3/4"	3.848"	3.994"	3.928"	4.074"	.040"	10
317-213			4-17/32"	3/4"	3.940"	4.060"	4.020"	4.140"	.040"	10
317-214		4"	4-15/16"	15/16"	4.134"	4.379"	4.214"	4.459"	.060"	10
317-215	4"		5"	1"	4.288"	4.502"	4.368"	4.622"	.060"	10
317-216			5-1/4"	7/8"	4.568"	4.782"	4.638"	4.852"	.060"	10
317-217			5-7/16"	11/16"	4.900"	5.020"	4.980"	5.100"	.060"	10
317-218		5"	5-7/8"	7/8"	5.206"	5.374"	5.326"	5.494"	.065"	10
317-219	5"		6-1/8"	1"	5.386"	5.544"	5.466"	5.624"	.040"	10
317-220			6-1/4"	1"	5.606"	5.794"	5.696"	5.874"	.065"	5
317-221			6-5/8"	1"	5.918"	6.094"	6.008"	6.184"	.045"	5
317-222	6"	6"	6-15/16"	7/8"	6.328"	6.494"	6.398"	6.564"	.065"	5
317-223			7-3/16"	1-1/2"	6.528"	6.634"	6.668"	6.774"	.065"	5
317-224			7-5/8"	1"	6.968"	7.044"	7.048"	7.124"	.065"	5
317-225			7-15/16"	1"	7.254"	7.580"	7.338"	7.656"	.065"	5
317-226			8-1/8"	1"	7.574"	7.762"	7.658"	7.846"	.070"	5
317-227			8-3/8"	1"	7.874"	8.052"	7.968"	8.146"	.070"	5
317-228			9-1/8"	1-1/2"	8.534"	8.602"	8.668"	8.736"	.070"	5

J

Easy-in, easy-out pull tab design are especially convenient where access for insertion and removal is difficult. Flexible, tapered body insures a tight pressure fit to keep dirt and moisture out of pipes, castings, valves, tubes, etc...an ideal paint mask.

See pages J31 to J33, Tapered Caps & Plugs when pull tab is not preferred. (Comparable sizes available.)





Colour: Orange **Material:** Low Density POLYETHYLENE

Pull Plugs

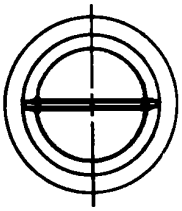
SPAENAUR No.	N.P.T. SIZE	UNIFIED THREAD SIZE	METRIC THREAD SIZE	DIMENSIONS					STD. PKG.
				G	H	K	L	M	
317-230			M7	3/8"	11/32"	.209"	.269"	19/32"	100
317-231		5/16"-24	M8 M8 x 1	15/32"	3/8"	.239"	.303"	5/8"	100
317-232				15/32"	13/32"	.267"	.335"	25/32"	100
317-234				3/8"	5/16"	.315"	.350"	9/16"	100
317-235		3/8"-24	M10 M10 x 1.25	17/32"	3/8"	.299"	.367"	3/4"	100
317-237	1/8"			9/16"	3/8"	.331"	.397"	5/8"	100
317-238		7/16"-20	M12	19/32"	3/8"	.362"	.428"	3/4"	100
317-239			M12 x 1.25	5/8"	3/8"	.392"	.459"	3/4"	100
317-240	1/4"	1/2"-20	M14	5/8"	13/32"	.422"	.486"	25/32"	100
317-242			M14 x 1.5	21/32"	13/32"	.448"	.512"	17/32"	100
317-243		9/16"-18		11/16"	15/32"	.472"	.548"	13/16"	100
317-244		9/16"-18		23/32"	3/8"	.498"	.548"	5/8"	50
317-245			M16	23/32"	15/32"	.500"	.568"	13/16"	50
317-247		5/8"-18		3/4"	15/32"	.533"	.608"	23/32"	50
317-248	3/8"		M18	25/32"	7/32"	.580"	.625"	11/32"	50
317-249	3/8"		M18	25/32"	1/2"	.551"	.633"	3/4"	50
317-250			M18 x 1.5	13/16"	17/32"	.580"	.668"	3/4"	50
317-251				27/32"	17/32"	.610"	.695"	25/32"	50
317-252				3/4"	1/2"	.645"	.695"	3/4"	50
317-253		3/4"-16	M20	7/8"	1/2"	.642"	.729"	3/4"	50
317-254			M20 x 1.5	7/8"	17/32"	.678"	.755"	25/32"	50
317-255	1/2"		M22	55/64"	7/32"	.725"	.770"	11/32"	50
317-256	1/2"		M22	15/16"	19/32"	.691"	.787"	3/4"	50
317-257			M22 x 1.5	1"	19/32"	.727"	.825"	27/32"	50

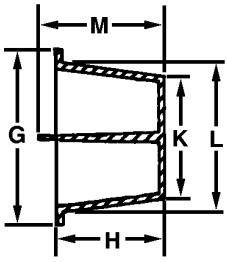
Pull Plugs
Cont'd.

Colour:
Orange

Material:
Low Density

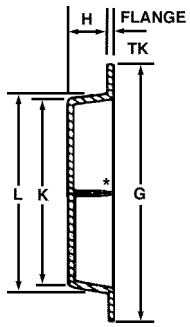
POLYETHYLENE





SPAENAUR No.	N.P.T. SIZE	UNIFIED THREAD SIZE	METRIC THREAD SIZE	DIMENSIONS G	H	K	L	M	STD. PKG.
317-258		7/8"-14	M24	1"	19/32"	.752"	.849"	3/4"	50
317-259			M24 x 2	1-3/32"	21/32"	.803"	.912"	29/32"	50
317-261	3/4"		M27	1-1/8"	3/4"	.869"	.973"	1"	50
317-262	3/4"		M27	1-5/32"	5/8"	.869"	.973"	7/8"	50
317-264		1-1/16"-12	M27 x 2	1-5/32"	23/32"	.915"	1.040"	29/32"	25
317-265			M30	1-9/32"	3/4"	.967"	1.092"	1"	25
317-266			M30 x 2	1-11/32"	3/4"	1.003"	1.144"	1"	25
317-267	1"		M33	1-11/32"	1/2"	1.100"	1.210"	5/8"	25
317-268	1"		M33	1-13/32"	25/32"	1.093"	1.219"	1"	25
317-269		1-5/16"-12	M33 x 2 M36	1-7/16"	3/4"	1.179"	1.286"	1"	25
317-270				1-1/2"	3/4"	1.226"	1.354"	1"	25
317-271			M36 x 3	1-17/32"	3/4"	1.234"	1.361"	1"	25
317-272				1-23/32"	17/32"	1.360"	1.420"	21/32"	25
317-273			M39 M39 x 3	1-5/8"	3/4"	1.312"	1.465"	1"	25
317-274				1-3/4"	7/8"	1.344"	1.527"	1"	25
317-276	1-1/4"			1-3/4"	3/4"	1.451"	1.601"	1"	25
317-278				1-29/32"	3/4"	1.563"	1.686"	1"	25
317-279				1-15/16"	25/32"	1.633"	1.750"	1-5/32"	25
317-280				1-15/16"	1/2"	1.735"	1.784"	3/4"	25
317-281				1-15/16"	1/2"	1.754"	1.798"	3/4"	25
317-282		1-7/8"-12		2-1/32"	3/4"	1.752"	1.882"	1"	25
317-283				2-5/32"	1"	1.807"	1.938"	1-1/4"	10
317-284	1-1/2"			2-1/32"	1/2"	1.820"	1.835"	3/4"	10
317-285		2-1/4"-12		2-15/32"	1"	2.070"	2.244"	1-1/4"	10
317-286	2"			2-17/32"	1/2"	2.232"	2.262"	3/4"	10
317-287		2-1/2"-12		2-21/32"	1"	2.300"	2.464"	1-1/4"	10
317-288				2-27/32"	1"	2.396"	2.604"	1-1/4"	10
317-289	2-1/2"			2-31/32"	1/2"	2.643"	2.791"	3/4"	10
317-290				3-9/32"	3/4"	2.850"	2.982"	1"	10
317-292	3"			3-5/8"	3/4"	3.320"	3.452"	1"	10

Wide Flange Pull Plugs



SPAENAUR No.	UNIFIED THREAD SIZE	METRIC THREAD SIZE	HOLE SIZE	DIMENSIONS G	H	K	L	FLANGE TK.	STD. PKG.
317-293	* 9/16"		1/2"	1-1/4"	1/2"	.480"	.540"	.030"	25
317-294	11/16"	M18x1.5	5/8"	1-1/16"	1/2"	.590"	.647"	.030"	25
317-295	3/4"			1-5/32"	1/2"	.642"	.729"	.040"	25
317-296	*		3/4"	1-1/2"	1/2"	.730"	.790"	.030"	25
317-297	7/8"	M24		1-5/16"	1/2"	.752"	.849"	.030"	25
317-299	1-1/16"	M27x2		1-19/32"	11/16"	.921"	1.075"	.060"	25
317-300				1-3/4"	3/4"	1.003"	1.144"	.070"	25
317-301	1-5/16"	M33x2/M36		1-7/8"	11/16"	1.202"	1.297"	.062"	25
317-302	*		1-1/4"	2"	1/2"	1.230"	1.290"	.040"	25
317-303	*		1-1/2"	2-3/8"	3/4"	1.460"	1.550"	.050"	10
317-304	1-5/8"			2-1/4"	3/4"	1.519"	1.602"	.055"	10
317-305	1-7/8"			2-17/32"	3/4"	1.752"	1.882"	.045"	10
317-306	*		2"	2-3/4"	3/4"	1.960"	2.050"	.050"	10
317-307	*		2-1/2"	3-1/4"	3/4"	2.460"	2.550"	.050"	10

* Asterisked Plugs have tab flush with flange as in drawing.

J

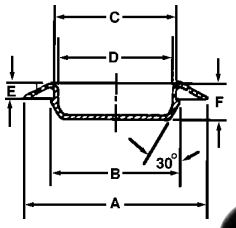
Type 1, Flush front.
Type 2, Recessed front.

Snap-In Plugs are tough, flexible "finishing" plugs used extensively in all sheet metal work to seal access holes. Insertion is a snap, bead retention is strong. Snap-In Plugs are used by auto rustproofers, on refrigeration units, water heaters, steel doors, paint cans, lawn mowers...even piggy banks!

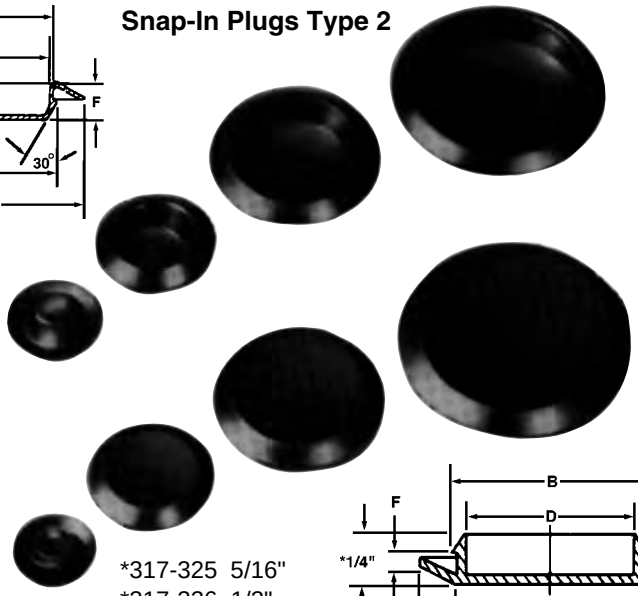
To fit 14 to 26 gauge material.

Colour: Black

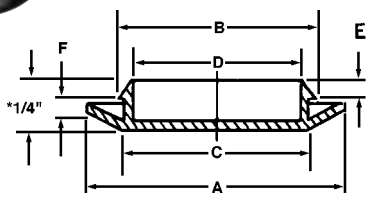
Material: Low Density POLYETHYLENE



Snap-In Plugs Type 2



*317-325 5/16"
*317-326 1/2"



Snap-In Plugs Type 1

Snap-In Plugs

J

	SPAENAUR No.	HOLE SIZE	DIMENSIONS A	B	C	D	E	F	STD. PKG.
Type 1	**317-308**	3/8"	3/4"	.410"	.375"	.305"	.090"	.125"	100
	317-309	1/2"	7/8"	.540"	.500"	.400"	.110"	.090"	100
	317-310	5/8"	13/16"	.675"	.625"	.545"	.140"	.080"	100
	317-311	11/16"	1-1/16"	.710"	.680"	.556"	.094"	.094"	100
	317-312	3/4"	1"	.790"	.750"	.625"	.100"	.090"	100
▲**317-399** (White)	▲**317-313**	7/8"	1-5/32"	.910"	.875"	.750"	.100"	.090"	50
	317-314	1"	1-3/8"	1.070"	1.010"	.875"	.110"	.094"	50
	317-315	1-3/32"	1-5/16"	1.150"	1.090"	1.000"	.125"	.080"	50
	317-316	1-3/16"	1-9/16"	1.240"	1.200"	1.050"	.100"	.100"	50
	317-317	1-1/4"	1-5/8"	1.290"	1.250"	1.125"	.110"	.090"	50
	317-318	1-1/2"	1-7/8"	1.540"	1.500"	1.400"	.110"	.090"	25
	317-319	1-3/4"	2-1/8"	1.790"	1.750"	1.620"	.105"	.094"	25
	317-320	2"	2-7/16"	2.080"	2.020"	1.875"	.100"	.094"	25
	317-321	2-1/2"	3"	2.580"	2.520"	2.375"	.100"	.094"	25
	317-322	2-5/8"	3-1/8"	2.705"	2.645"	2.500"	.100"	.094"	10
	317-323	3"	3-3/8"	3.060"	3.000"	2.850"	.110"	.090"	10
	***317-325**	4"	4-1/2"	4.100"	4.020"	3.900"	.150"	.080"	5
	***317-326**	4"	4-1/2"	4.100"	4.020"	3.900"	.090"	.340"	5
	†**317-327**	1/2"	7/8"	.538"	.500"	.430"	.125"	.285"	100
†**317-519** (Orange)	**317-328**	3/4"	1-5/32"	.800"	.750"	.660"	.170"	.360"	50
	317-520	7/8"	1-1/4"	.915"	.875"	.795"	.155"	.350"	50
	317-329	1"	1-3/8"	1.050"	1.000"	.930"	.160"	.350"	50
	317-330	1-1/4"	1-5/8"	1.308"	1.250"	1.170"	.140"	.350"	50
Type 2	**317-331**	1-1/2"	1-7/8"	1.550"	1.500"	1.420"	.150"	.370"	25
	317-332	1-3/4"	2-1/8"	1.800"	1.750"	1.670"	.160"	.350"	25
	317-333	2"	2-3/8"	2.050"	2.000"	1.910"	.180"	.360"	25
	317-334	2-1/2"	3"	2.570"	2.500"	2.400"	.160"	.380"	10
	317-335	3"	3-1/2"	3.060"	3.000"	2.910"	.190"	.410"	10

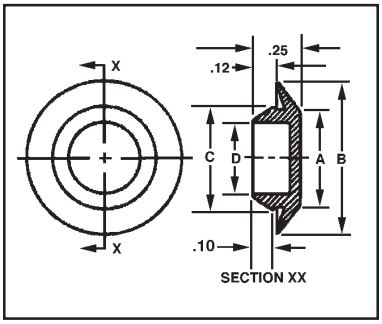
CATALOG 13

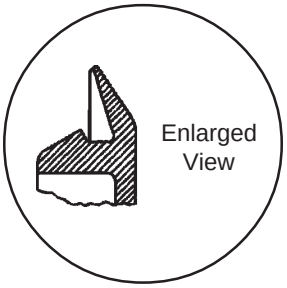
FLUSH TYPE HEAD STYLE

MATERIAL: Polyethylene (Black)
Conforms to Fed. Spec. L-P-390

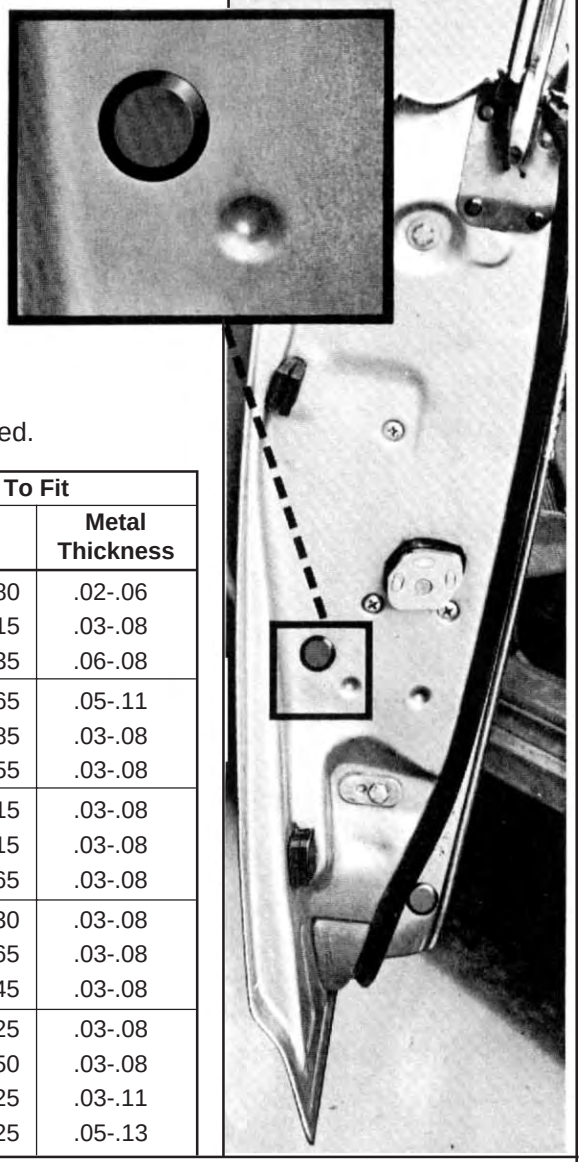
Used for plugging holes in equipment made of sheet metal such as automobile bodies, tanks, refrigeration units, etc.

Note: These plug buttons are impervious to solvents, sterilizing agents, caustic and acid baths and are vermin and fungus proof. They will not chip, break or shred under most severe conditions and will retain form stability, under stress, at temperatures ranging from -70°C up to + 79.4°C.





FLUSH TYPE HEADS



UNIT PACKAGE QUANTITIES SHOWN IN PRICE LIST.

SPAENAUR Plastic Plug Buttons can be snapped into holes easily and are held in place by a bead until deliberately removed.

SPAENAUR No.	Nom. Hole Size	Dimensions—Inches				To Fit	
		A	B	C	D	Hole Size	Metal Thickness
245-003	3/8"	.38	.75	.41	.31	.370-.380	.02-.06
245-004	1/2"	.50	.86	.54	.42	.490-.515	.03-.08
245-005	5/8"	.62	.81	.67	.54	.610-.635	.06-.08
245-006	3/4"	.75	1.01	.79	.63	.735-.765	.05-.11
245-007	7/8"	.87	1.16	.91	.73	.860-.885	.03-.08
245-008	15/16"	.94	1.31	.98	.78	.922-.955	.03-.08
245-009	1"	1.00	1.37	1.04	.84	.980-1.015	.03-.08
245-010	1-3/16"	1.20	1.56	1.24	1.05	1.176-1.215	.03-.08
245-011	1-1/4"	1.25	1.62	1.29	1.09	1.225-1.265	.03-.08
245-012	1-5/16"	1.32	1.68	1.36	1.16	1.295-1.330	.03-.08
245-013	1-3/4"	1.75	2.13	1.79	1.61	1.735-1.765	.03-.08
245-014	2-1/8"	2.13	2.49	2.17	1.97	2.105-2.145	.03-.08
245-015	3"	3.00	3.36	3.06	2.84	2.975-3.025	.03-.08
245-016	3-1/8"	3.12	3.52	3.18	2.96	3.100-3.150	.03-.08
245-017	3-1/2"	3.50	3.86	3.56	3.34	3.475-3.525	.03-.11
245-018	4"	4.01	4.37	4.13	3.85	3.975-4.025	.05-.13

SEE PAGES F3, H2, H3, J2, J3 and J38
FOR MORE METALLIC, NYLON
AND PLASTIC PLUG BUTTONS.

For a reference chart on Plastics Properties see Section R.

Hole Plugs and Vent Plugs

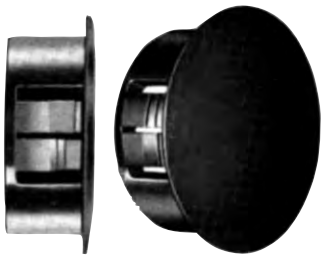
Nylon

These will close your unneeded chassis holes quickly, easily and at low cost. Nylon material makes them suitable for use at elevated temperatures. 24 sizes for use in 3/16" to 3" diameter holes are available.

They lock firmly in chassis up to 1/4" thick. The convex matte finish head tapers to a thin edge and assures good appearance. Three sizes are also available with holes in their head for ventilation.

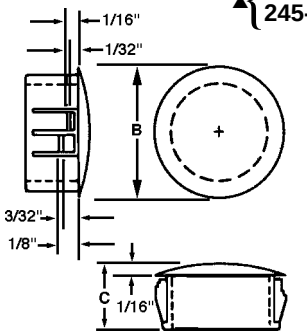
Recognized under the Component Program of Underwriters' Laboratories File #E-15331

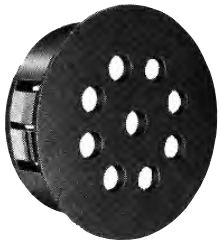
Certified by Canadian Standards Association File #LR-8919



DP
HOLE PLUG

▲ **245-055** (Grey)
245-066 (Beige)





VP
Vent Plug
For 7/8", 1" and 2-1/2" holes.

Mounting Hole Dia. up to 4" available on DP and VP styles. Price on Request.

CHASSIS DIMENSIONS		SPAENAUR No.				PART DIMENSIONS	
Maximum Thickness	Mounting Hole Diameter	BLACK	WHITE	Unit Pkg. Qty.	Description	B Head Diameter	C Overall Height
.062"	.187"	**245-019**■	**245-042**	100	DP	1/4"	15/64"
	.250"	**245-020**■	**245-041**	100	DP	5/16"	5/16"
	.312"	**245-021**■	**245-043**	100	DP	3/8"	
.125"	.375"	**245-053**	**245-022**■	100	DP	15/32"	13/32"
	.437"	**245-049**	**245-023**■	100	DP	17/32"	
	.500"	▲**245-044**	**245-024**■	100	DP	37/64"	
	.562"	**245-047**	**245-025**■	100	DP	21/32"	
	.625"	**245-056**	**245-026**■	100	DP	23/32"	
	.687"	**245-027**■		100	DP	25/32"	
	.750"	**245-045**	**245-028**■	100	DP	59/64"	
	.812"	**245-029**■		100	DP	57/64"	
	.875"	**245-030**■	**245-048**	100	DP	1-1/64"	29/64"
		245-031■		100	VP		
	1.000"	**245-046**	**245-032**■	100	DP	1-13/64"	
		245-033■	**245-060**	100	VP		
	1.093" to 1.125"	**245-034**■		100	DP	1-7/32"	
	1.187"	**245-035**■		50	DP	1-5/16"	
	1.250"	**245-058**	**245-036**■	50	DP	1-3/8"	
	1.375"	**245-037**■		50	DP	1-1/2"	
	1.500"	**245-038**■	**245-062**	50	DP	1-43/64"	
	1.750"	**245-039**■	**245-050**	50	DP	1-29/32"	
	2.000"	**245-054**	**245-040**■	25	DP	2-9/64"	
.250"	2.093" to 2.125"	**245-059**		10	DP	2.343"	3/4"
	2.500"	**245-051**	**245-052**	10	DP	2.775"	
	2.500"		**245-061**	10	VP	2-23/32"	
	3.000"	**245-057**		10	DP	3-11/64"	

■ **Indicates a component of Assortment No. 805-627, shown below.**

HOLE PLUG & BUSHING ASSORTMENTS

A must for product design departments, experimental labs and for all prototype work. Pertinent information on each size is shown on inside lid label.

Priced Singly

ASSORTMENT
ASSORTIMENT

805-627

DESCRIPTION

Nylon HOLE & VENT PLUGS
22 Sizes 475 Total Pieces
Large Size Grey Enamelled Drawer fits the Slide Racks shown on Page A3.

Shipping weight 4.60 kg (10-1/4 lbs.)

805-626

Black Nylon SNAP BUSHINGS
32 Sizes 693 Total Pieces
Most popular items from page J63.
Priced Singly

Shipping weight 5.44 kg (12 lbs.)

Rod-End Protective Caps

Specially designed cap protects threaded ends of rods from impact damage. Made of durable high-strength plastic, they have multiple reinforcing ribs to enhance wear life,

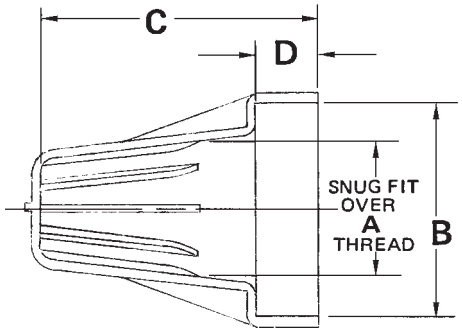
and a tapered interior to insure a tight fit. The caps are also used to provide a paint mask for rod threads.

For protecting from damage in transit or in storage, the threaded ends of Piston-like oil extraction rods. These rods, usually some 7-1/2 metres (approx. 25 ft.) long and known as 'sucker-rods', are used extensively in oil fields for extracting oil from the ground.

Colour: Black

Material: Durable POLYETHYLENE

Stock Sizes: *To accommodate 5/8", 3/4", 7/8" and 1" threads.*



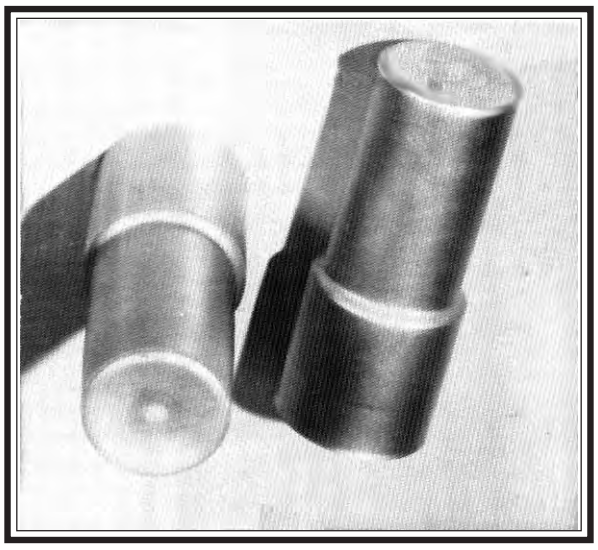
*Special Series NPT-10TPI

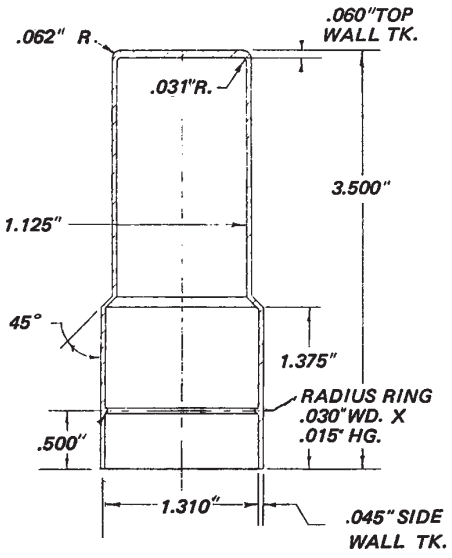
SPAENAUR No.	Nominal *Thread Size	DIMENSIONS A	B	C	D	Unit Pkg.
317-515	5/8"	15/16"	1-1/4"	1-5/8"	5/16"	50
317-516	3/4"	1-1/16"	1-1/2"	1-7/8"	11/32"	25
317-517	7/8"	1-3/16"	1-5/8"	2-1/16"	3/8"	20
317-518	1"	1-3/8"	2"	2-13/32"	7/16"	10

Temperature Range: -48°C to +82°C

J

Diesel Fuel Injector Cap





SPAENAUR No.

317-514

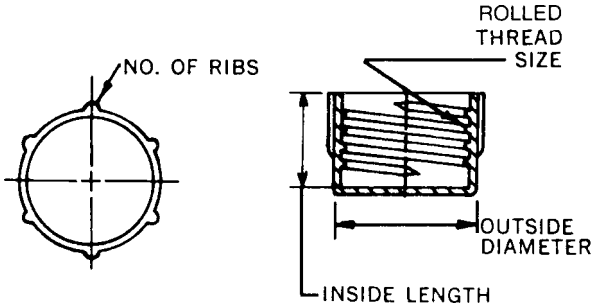
Colour: Blue

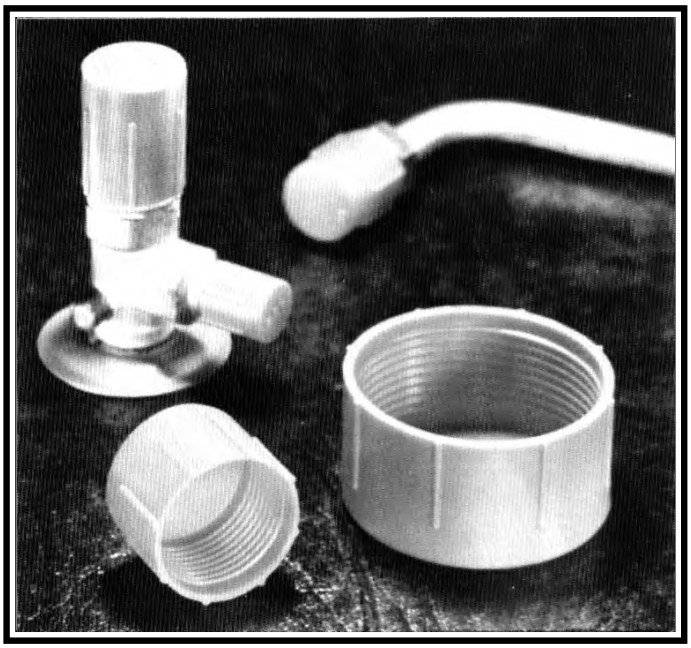
Material: Low Density POLYETHYLENE

Temperature Range: -35°C to +85°C

Unit Package 10

Ribbed, threaded cap provides durable protection for male threads on Standard threaded studs and fittings. Because of its excellent seal, the TC Series is a popular mask for painting and plating.





TC Series
Standard Threaded Caps

J

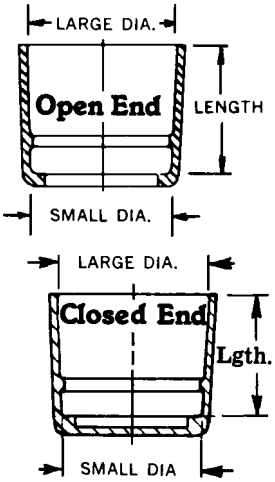
Colour:
Orange

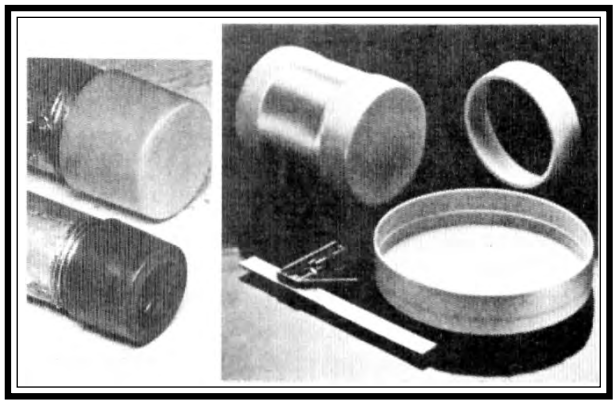
*Orange or Red, our option.

Material:
Low Density POLYETHYLENE

SPAENAUR No.	UNIFIED THREAD SIZE	NOM. TUBING SIZE	DIMENSIONS			STD. PKG.
			OUTSIDE DIAMETER	INSIDE LENGTH	NO. RIBS	
317-336	3/8"-24	3/16"	7/16"	7/16"	6	100
317-337	7/16"-20	1/4"	1/2"	15/32"	6	50
317-338	7/16"-24	1/4"	1/2"	5/16"	6	50
317-339	1/2"-20	5/16"	9/16"	5/16"	6	50
317-340	1/2"-20	5/16"	9/16"	1/2"	6	50
317-341	1/2"-20	5/16"	9/16"	7/8"	6	50
317-342	9/16"-18	3/8"	5/8"	1/2"	6	50
317-343	5/8"-18	3/8"	11/16"	15/32"	6	50
317-344	5/8"-20	-	11/16"	5/8"	6	50
317-345	5/8"-18	3/8"	11/16"	19/32"	6	50
317-346	5/8"-18	3/8"	11/16"	3/4"	6	50
317-347	5/8"-24	-	11/16"	3/8"	6	50
317-348	3/4"-16	1/2"	13/16"	1/2"	6	25
317-349	3/4"-16	1/2"	13/16"	9/16"	6	25
317-350	3/4"-16	1/2"	13/16"	1"	6	25
317-351	3/4"-18	-	13/16"	11/16"	6	25
***317-352**	3/4"-20	-	13/16"	7/16"	6	25
317-353	7/8"-14	5/8"	15/16"	23/32"	6	25
317-354	7/8"-18	5/8"	15/16"	25/32"	6	25
317-355	7/8"-20	5/8"	15/16"	23/32"	6	25
317-356	1"-14	-	1-1/16"	25/32"	8	25
317-357	1"-20	-	1-1/16"	25/32"	8	25
317-358	1-1/16"-12	3/4"	1-5/32"	13/16"	8	25
317-359	1-1/16"-14	3/4"	1-5/32"	13/16"	8	25
317-360	1-1/8"-18	-	1-7/32"	15/32"	8	10
317-361	1-3/16"-12	7/8"	1-9/32"	15/16"	8	10
317-362	1-1/4"-18	-	1-3/8"	15/32"	8	10
317-363	1-5/16"-12	1"	1-7/16"	7/8"	8	10
317-364	1-3/8"-18	1"	1-1/2"	15/32"	8	10
317-365	1-5/8"-12	1-1/4"	1-3/4"	29/32"	8	10
317-366	1-7/8"-12	1-1/2"	2-1/32"	1"	8	5

Both Open-End and Closed- End Protectors are made to completely cover the threads of conduit pipe.
Smooth sided caps are designed to work well with automatic vibrating feeders...and utilize an internal bead to hold on tight when the handling gets rough.
Major producers of iron, steel and aluminum pipe and tubing use these unique protectors for safer, damage-free shipments.





Open-End Pipe Thread Protectors

Material: Low Density POLYETHYLENE

SPAENAUR No.	N.P.T. SIZE	DIMENSIONS				STD. PKG.
		SMALL DIA.	LARGE DIA.	LENGTH	COLOR	
317-501	1/2"	.810"	.830"	.775"	Black	50
317-502	3/4"	1.025"	1.050"	.775"	Red	50
317-503	1"	1.283"	1.315"	.980"	Blue	50
317-505	1-1/4"	1.627"	1.650"	1.000"	Red	25
317-506	1-1/2"	1.866"	1.890"	1.090"	Black	25
317-507	2"	2.328"	2.363"	1.170"	Blue	10
317-508	2-1/2"	2.820"	2.875"	1.500"	Black	10
317-509	3"	3.441"	3.500"	1.575"	Blue	10
317-510	3-1/2"	3.938"	4.000"	1.625"	Black	10
317-511	4"	4.434"	4.500"	1.725"	Blue	5
317-512	5"	5.448"	5.563"	1.825"	Blue	5
317-513	6"	6.546"	6.625"	1.825"	Blue	5

Closed-End Pipe Thread Protectors

317-482	1/4"	.522"	.540"	.625"	Orange	50
317-483	3/8"	.656"	.675"	.590"	Orange	50
317-484	1/2"	.810"	.830"	.775"	Black	50
317-485	3/4"	1.025"	1.050"	.775"	Red	50
317-486	1"	1.283"	1.315"	.980"	Blue	50
317-487	1-1/4"	1.627"	1.650"	1.000	Red	25
317-488	1-1/2"	1.866"	1.890"	1.090"	Black	25
317-489	2"	2.328"	2.363"	1.060"	Blue	10
317-491	2-1/2"	2.820"	2.875"	1.500"	Black	10
317-492	3"	3.441"	3.500"	1.575"	Blue	10
317-493	3-1/2"	3.938"	4.000"	1.625"	Black	10
317-494	4"	4.390"	4.500"	1.750"	Blue	5
317-496	5"	5.448"	5.563"	1.825"	Blue	5
317-497	6"	6.546"	6.625"	1.825"	Blue	5
317-498	8"	8.507"	8.625"	1.875"	Blue	5
317-499	10"	10.624"	10.750"	2.000"	Blue	5
317-500	12"	12.608"	12.750"	2.250"	Blue	5

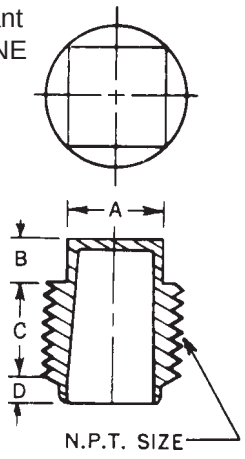
Square Head

Hollow threaded plug prevents damage to tapped holes, and provides low cost protection, (less than metal), during low pressure testing, shipping, or in-plant handling. Durable plug is easily tightened with fingers or wrench.

TP Series Square Head

Colour: Black

Material: Oil and Heat (121°C) Resistant High Density POLYETHYLENE



SPAENAUR No.	N.P.T. SIZE	DIMENSIONS				STD. PKG.
		A	B	C	D	
317-367	1/8"-27	9/32"	1/4"	5/16"	1/16"	100
317-368	1/4"-18	3/8"	1/4"	3/8"	1/16"	50
317-369	3/8"-18	7/16"	1/4"	7/16"	1/16"	50
317-370	1/2"-14	9/16"	1/4"	1/2"	1/16"	50
317-371	3/4"-14	5/8"	1/4"	9/16"	3/32"	25
317-372	1"-11-1/2	13/16"	1/4"	5/8"	3/32"	25
317-373	1-1/4"-11-1/2	1"	3/8"	7/8"	1/8"	10
317-374	1-1/2"-11-1/2	1-1/4"	3/8"	7/8"	1/8"	10

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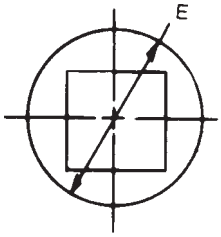
Flanged Square Head

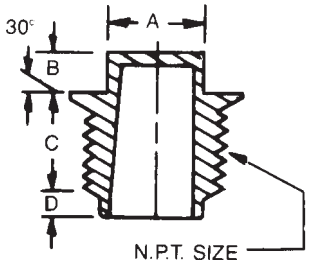
Hollow threaded plug locks into position for an extra tight seal due to flanged sealing surface and cannot be forced thru opening. Plug will withstand testing at a higher pressure than standard threaded plug and offers low cost protection against damage of tapped holes.

TP-F Series Flanged Square Head

Colour: Black

Material: Oil and Heat (121°C) Resistant High Density POLYETHYLENE





SPAENAUR No.	N.P.T. SIZE	DIMENSIONS					STD. PKG.
		A	B	C	D	E	
***317-375**	1/8"-27	7/16"	3/16"	9/32"	3/32"	9/16"	100
317-376	1/4"-18	7/16"	1/4"	11/32"	3/32"	11/16"	50
317-377	3/8"-18	7/16"	1/4"	13/32'	3/32"	13/16"	50
317-378	1/2"-14	9/16"	1/4"	13/32"	3/32"	1"	25
317-379	3/4"-14	5/8"	1/4"	17/32"	1/8"	1-1/4"	25

*Across Flats - Hexagonal Head Style.

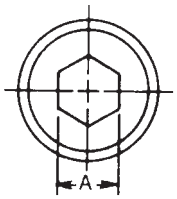
Hexagonal Socket

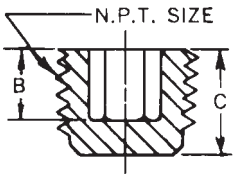
A solid threaded plug offering exceptional strength as a temporary or permanent closure. Hex socket receives standard Allen wrench sizes for easy tightening.

TH Series Hexagonal Socket

Colour: Black

Material: Oil and Heat (121° C) Resistant High Density POLYETHYLENE



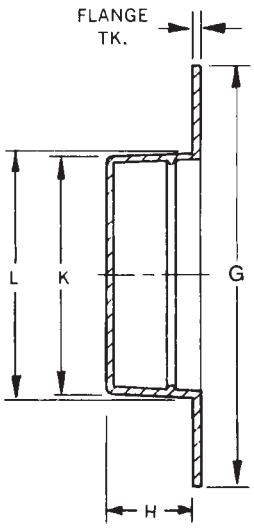


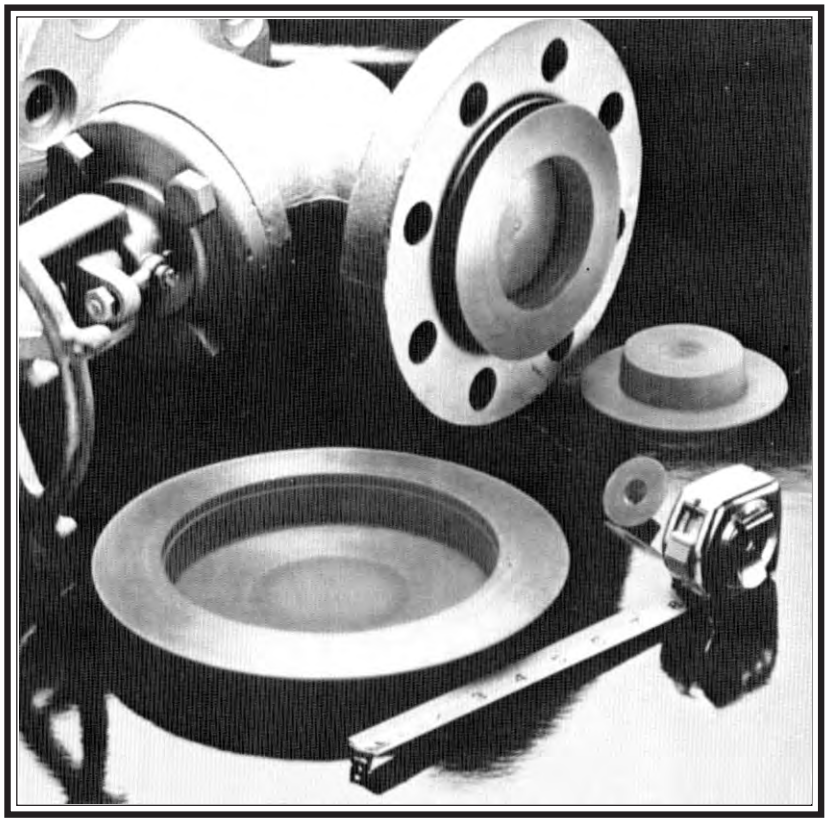
SPAENAUR No.	N.P.T. SIZE	DIMENSIONS			STD. PKG.
		A	B	C	
317-380	1/4"-18	1/4"	5/16"	1/2"	100
317-381	3/8"-18	5/16"	3/8"	9/16"	100
317-382	1/2"-14	3/8"	3/8"	9/16"	50
317-383	3/4"-14	9/16"	1/2"	5/8"	25
***317-384**	3/4"-14	1/2"	1/2"	5/8"	25
317-385	1"-11-1/2	5/8"	17/32"	3/4"	10

*Square Socket

CATALOG 13

Protector's wide rim is designed to cover the entire machined sealing surface of a valve flange threads. Protector is ideal for most petroleum, water and gas type valves with NPT sizes to fit most valve poundages (150-600 lbs.). Tapered body fits tight to seal against dirt or damage.





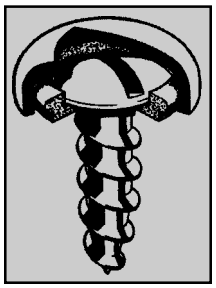
Colour: Orange
Material: Low Density POLYETHYLENE

Valve Flange Protectors

SPAENAUR No.	PIPE FLANGE SIZE	FLANGE TK.	DIMENSIONS				STANDARD PACKAGE
			G	H	K	L	
317-386	1/2"	.030"	1-7/16"	1/2"	.540"	.585"	50
317-387	3/4"	.030"	1-3/4"	1/2"	.710"	.755"	25
317-388	1"	.030"	3-1/16"	5/8"	.940"	.995"	10
317-389	1-1/4"	.040"	3-9/16"	5/8"	1.375"	1.440"	10
317-390	1-1/2"	.040"	2-15/16"	3/4"	1.610"	1.675"	10
317-391	2"	.050"	4-11/16"	3/4"	2.060"	2.165"	10
317-392	2-1/2"	.050"	4-1/4"	3/4"	2.460"	2.570"	10
317-393	2-1/2"	.050"	5-1/4"	3/4"	2.455"	2.560"	10
317-394	3"	.050"	6-1/8"	3/4"	3.045"	3.195"	10
317-395	3-1/2"	.060"	5-5/8"	3/4"	3.530"	3.650"	10
317-396	4"	.060"	6-5/16"	1"	3.965"	4.190"	10
317-397	5"	.060"	7-1/2"	1"	5.015"	5.230"	5
317-398	6"	.060"	8-11/16"	1"	6.000"	6.230"	5

For a reference chart on Plastics Properties see Section R.

Snapcaps



Attractively conceal screw heads of all types, nails, rivets, washers, pop rivets and bolts.

HOW TO ORDER

1. Select by screw gauge size appropriate washer base, either flat or countersunk, from charts at right. (Base colour is not important as cap will completely cover.)
2. Select colour of Snapcap from chart below, using same screw gauge size as for washer base.

Snapcaps and washers must be ordered separately.
UNIT PACKAGE 100

Made in colours, to match leather, vinyl, wood and metals.

Material: UV Stabilized Polypropylene

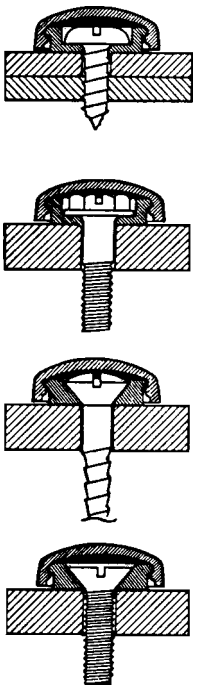
Temperature Range: -40°C to +150°C.

Flat Washer Base

For Screw Dia.	*SPAENAUR No.*
2 to 3 ga. or M3	**315-904** 7/32" I.D.
4 to 5 ga. or M3.5	**315-905** 17/64" I.D.
6 to 8 ga. or M4	**315-906** 5/16" I.D.
10 ga. or M5	**317-472** 29/64" I.D.
12 to 14 ga. or M6	**315-907** 29/64" I.D.

Ctsk. Washer Base

4 to 5 ga. or M3.5	**315-909**
6 to 8 ga. or M4	**315-910**
10 to 12 ga. or M5	**315-911**



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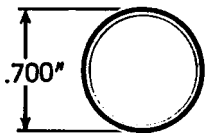
Colours and Sizes not listed - available as SPECIAL ORDER

COLOUR of CAPS	**2 ga. to 3 ga.** or M3 25/64" O.D., 1/8" O.H.	**4 ga. to 5 ga.** or M3.5 7/16" O.D., 11/64" O.H.	**6 ga. to 8 ga.** or M4 17/32" O.D., 13/64" O.H.	**10 ga. to 14 ga.** or M5 to M6 41/64" O.D., 15/64" O.H.
	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW			
White Satin	**315-900**	**315-901**	**315-902**	**315-903**
White Antique	-	-	**315-912**	**315-926**
Canary Yellow	-	-	**315-913**	**315-927**
Pastel Gold	-	-	**315-914**	**315-928**
Honey Maple	-	**315-940**	**315-915**	**315-929**
Mahogany	-	-	**315-916**	**315-930**
Sandalwood	-	-	**315-917**	**315-931**
Olive Green	-	-	**315-918**	**315-932**
Royal Blue	-	-	**315-919**	**315-933**
Smith Red	-	-	**315-920**	**315-934**
Black Satin	**315-941**	-	**315-921**	**315-935**
Teak	-	-	**315-922**	**315-936**
Silver Metallic	-	-	**315-923**	**315-937**
Gold Metallic	-	-	**315-924**	**315-938**
Copper Metallic	-	-	-	-
Cream	-	-	**315-943**	**315-966**

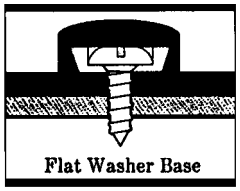
POP-ON SCREW COVERS and BASES for 1/4" (M6) Dia. Screws

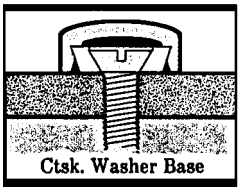


*Allow approx. .020" additional for assembled height.

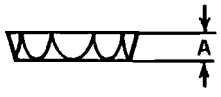
SCREW COVERS

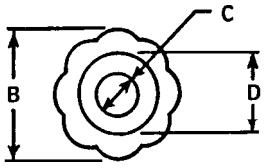
SPAENAUR No.	Colour	*SPAENAUR No.*	Colour
315-953	White	**315-960**	Tan
315-954	Cream	**315-961**	Choc. Brown
315-955	Light Beige	**315-962**	Med. Brown
315-956	Oyster White	**315-963**	Black
315-957	Light Grey	**315-964**	Pacific Blue
315-958	Dark Grey	**315-965**	Chrome
315-959	Indus. Beige	**Cover Material:** UV Stabilized Polypropylene	





SCREW BASES





Washer Base Material is Nylon - Natural Colour

Flat Washer Base for Round and Pan Head Screws

SPAENAUR No.	A	B	C	D
315-951	.125"	.620"	.245"	.490"

Ctsk. Washer Base for Countersunk Screws

315-952	.130"	.620"	.245"	-

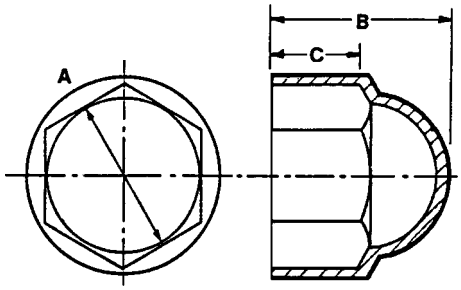
Pop-on Covers and Bases must be ordered separately.
Unit Package 100

CATALOG 13

INCH & METRIC SIZES

Bolt and Nut Protection Caps

White/Black Low Density Polyethylene



SPAENAUR No. Black	White	To fit Bolt & Nut Size	A Width Across Flats	B Overall Height	C Inside Hex Height	Unit Pkg. Qty
INCH SIZES						
315-101	**315-102**	1/4"	.425"	1/2"	.210"	100
315-103	**315-104**	5/16"	.484"	5/8"	9/32"	100
315-105	**315-106**	3/8"	.544"	11/16"	5/16"	100
METRIC SIZES			Dimensions in Millimeters			
315-819	**315-688**	M5	7.9	9.2	4.3	100
315-820	**315-689**	M6	9.8	13.0	5.7	100
315-821	**315-690**	M8	12.8	15.0	7.9	100
315-822	**315-691**	M10	16.8	19.5	8.8	100
315-823	**315-692**	M12	18.8	21.2	11.1	100
315-824	**315-693**	M14	21.8	23.8	11.6	100
315-825	**315-694**	M16	23.8	26.8	14.3	100
315-826	**315-695**	M18	26.8	29.3	16.8	50
315-827	**315-696**	M20	29.8	32.0	18.3	50
315-828	**315-697**	M22	31.8	35.7	19.2	50
315-829	**315-698**	M24	35.7	40.2	20.7	25

For use with No. 10 Pan Head Screws or M5 (Metric) North American IFI Pan Head Screws

Inch Sizes

Screw Head Cap 315-950

Fits directly on screw head. (Washers not required)

Colour and Material:
White Low Density Polyethylene

I.D.	O.D.	O/A Ht.
3/32"	27/64"	11/64"

Unit Package 100

FASTENER HEAD COVERS & WASHERS

UV Stabilized Polypropylene

Note:
This line of covers and washers is being gradually phased out.

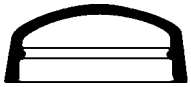
Size No. 8
For use with 8 ga. (Inch) Screws or M4 (Metric) Screws.

13/64" H. x 33/64" O.D.
COVER

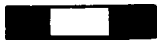
FLAT Bottom WASHER

CTSK. Bottom WASHER

Size No. 10
For use with 10 ga. (Inch) Screws or M5 (Metric) Screws.



15/64" H. x 19/32" O.D.
COVER



FLAT WASHER

Colour:	**Red**	**Orange**
	317-402	**317-404**
315-906		
315-910		
	317-452	**317-454**
654-005		

The Washer **Colour** is not important.
The cover completely hides it.

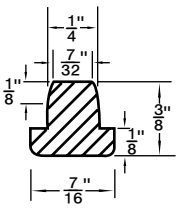
All items Unit Package 100

CATALOG 13

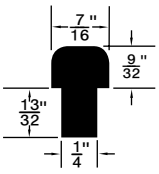
J

Material: SBR, Natural Rubber or as noted.

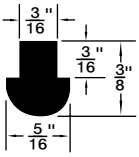
Hardness: 50 to 65 Durometer **Colour:** Black, unless otherwise shown.



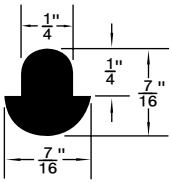
RB-67 (White)
Duro 60-70



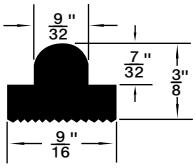
315-467
Polyethylene
(Rigid)



315-012



315-015



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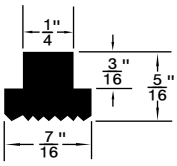

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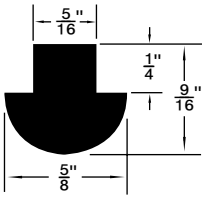

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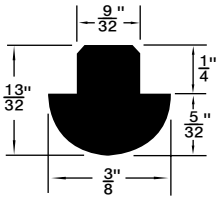
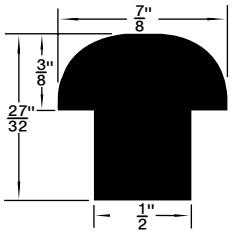
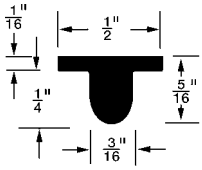


315-053



4034

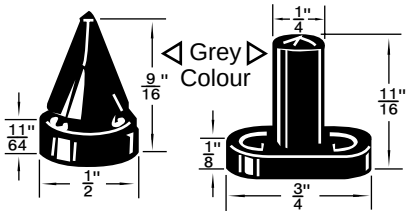


315-250

J

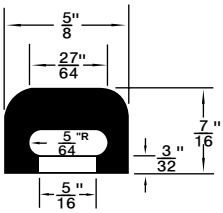
Door Silencers

RB-155 **RB-156**

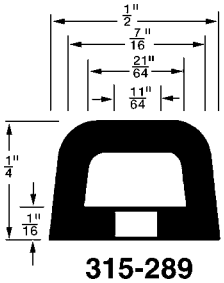


Used on Steel Door Frames | Used on Wood Door Frames

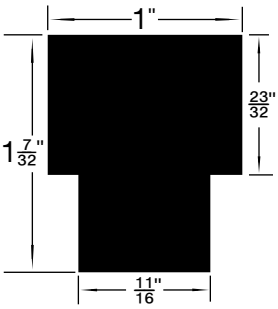
BOLT CAP BUMPER



RB-30
Fits #12 Pan Head



315-289
Fits #8 Pan Head



RB-326

Priced Singly

Shipping wt. 6.19 kg (13-1/2 lbs.)

32 Styles
700 Pieces

ASSORTMENT 805-621
ASSORTIMENT

General Purpose
RUBBER BUMPERS

"Most Popular Selected Sizes"

Large Size Grey enamelled Steel Drawer will fit Slide Racks, shown on page A3.

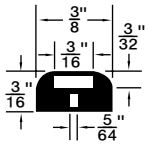
CATALOG 13

Material: SBR, or as noted.

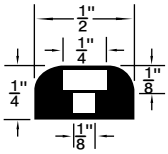
Hardness: 60 to 70 Durometer. **Colour:** Black, unless otherwise shown.

RECESS TYPE —No Insert

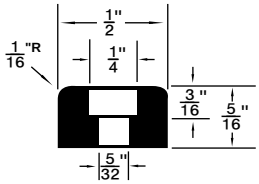
See Price List for Unit Package Quantities.



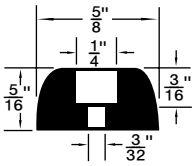
RB-61



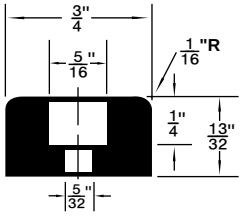
RB-42



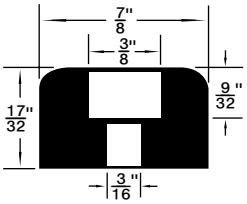
315-042



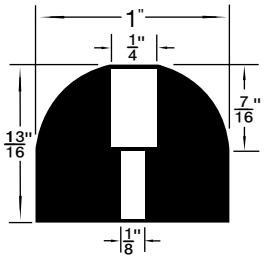
315-046



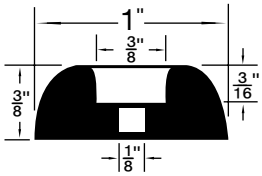
315-010



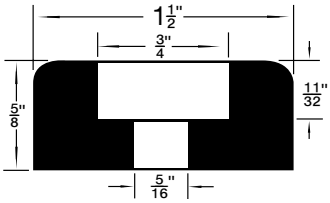
4243



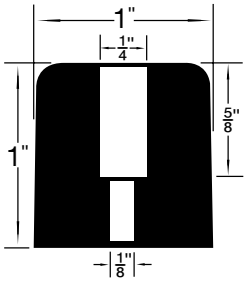
315-044



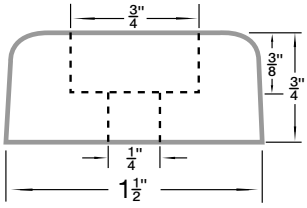
RB-180 White
RB-181 Black
(Both Cloth Backed)



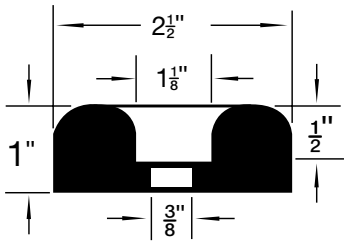
315-288



RB-172



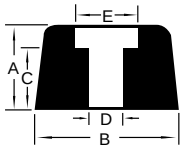
315-166
White



315-267

Plastic Feet and Case Bumpers (Recess Style)

Non-marking



UNIT PACKAGE 50

MATERIAL

Polyethylene = 1

Polylastomer = 2

*Grey

SPAENAUR No. Colour Black	White	Material	DIMENSIONS (in inches) A	B	C	D	E
***315-646**	—	2	1/4	1/2	1/8	1/8	9/32
315-475	**315-476**	1	1/4	1/2	3/32	9/64	1/4
315-477	**315-478**	2	1/4	1/2	1/8	5/32	9/32
315-479	**315-480**	1	3/8	3/4	1/4	5/32	3/8
315-481	**315-482**	2	7/16	5/8	1/4	5/32	21/64
315-483	—	1	1/2	7/8	3/8	3/16	3/8
315-484	—	1	1/2	7/8	3/8	5/32	3/8
315-485	**315-575**	1	5/8	7/8	3/16	3/16	3/8
315-486	—	1	5/8	1	5/16	13/64	11/32
315-487	—	1	1	1-1/8	9/16	1/4	15/32
315-645	—	1	3/4	1-1/8	5/16	13/64	17/32

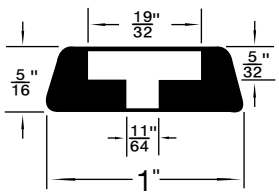
315-653
UNIT PACKAGE 50

POLYLASTOMER

Brown Colour

Duro 75

Type 2



SPAENAUR No.

315-171

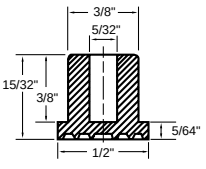
THE GRIPPER

Non-walking Appliance Foot

(Suitable for Motorized Counter-top Appliances)

Made of FDA-approved polylastomer.

UNIT PACKAGE 100



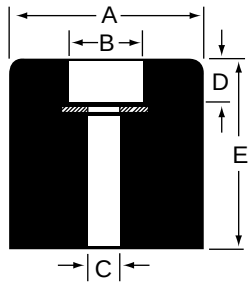
White, Non-staining

Material: SBR
Hardness: 60 Durometer ±5. **Colour:** Black, unless otherwise shown.

RECESS TYPE — WITH STEEL WASHER INSERT

Listed by 1) Outside Dia.
2) Height.

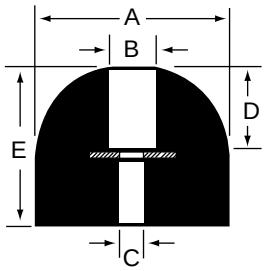
STYLE A
Flat Top



SPAENAUR No.	A O.D.	B Recess Dia.	C Bore Dia.	D Recess Depth	E O/A Height
315-321	1/2"	5/16"	5/32"	3/16"	3/8"
315-007	17/32"	1/4"	1/8"	5/32"	9/32"
315-038	5/8"	9/32"	5/32"	1/8"	9/32"
315-008*	5/8"	9/32"	5/32"	1/4"	13/32"
RB-182	5/8"	9/32"	5/32"	1/4"	13/32"
RB-183	21/32"	5/16"	5/32"	1/4"	1/2"
RB-306*	21/32"	5/16"	5/32"	1/4"	1/2"
315-009	23/32"	5/16"	3/16"	3/16"	13/32"
RB-185	23/32"	1/4"	1/8"	7/32"	7/16"
315-055	3/4"	5/16"	5/32"	1/4"	13/32"
315-466	3/4"	3/8"	3/16"	1/4"	9/16"
RB-187	3/4"	3/8"	5/32"	1/4"	1"
RB-186	51/64"	11/32"	11/64"	1/4"	25/32"
4055	1"	5/16"	5/32"	1/8"	1/4"
RB-301*	1"	5/16"	5/32"	1/8"	1/4"
315-261	1"	1/2"	7/32"	1/4"	1/2"
315-255	1"	17/32"	9/32"	5/16"	9/16"
315-011	1"	3/8"	5/32"	1/4"	1"
RB-115	1-1/2"	3/4"	5/16"	11/32"	5/8"
315-006	1-1/2"	3/4"	1/4"	3/8"	3/4"
RB-188	1-1/2"	3/4"	1/4"	3/8"	1-1/2"

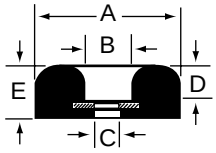
*White Colour

STYLE B
Rounded Top



SPAENAUR No.	A O.D.	B Recess Dia.	C Bore Dia.	D Recess Depth	E O/A Height
315-302	1/2"	1/4"	1/8"	3/16"	11/32"
B-871	1"	1/4"	1/8"	7/16"	13/16"
315-253	1"	5/16"	5/32"	5/8"	1"
315-256	1-3/32"	7/16"	3/16"	13/32"	5/8"

STYLE C
Rounded RecessTop



SPAENAUR No.	A O.D.	B Recess Dia.	C Bore Dia.	D Recess Depth	E O/A Height
RB-184	3/4"	1/4"	1/8"	11/64"	17/64"
315-272	1"	3/8"	3/16"	3/16"	7/16"
RB-9	1"	3/8"	3/16"	1/4"	17/32"

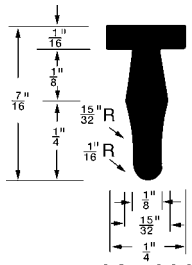
See Price List for Unit Package Quantities.

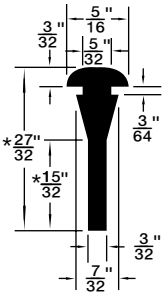
Material: SBR
Hardness: 50 to 65 Durometer, unless otherwise indicated.
Colour: Black, unless otherwise shown.

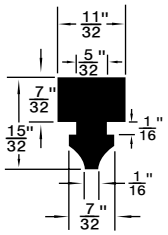
Listed by 1) Groove Dia. 2) O/A Head Dia.

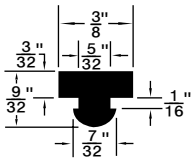
* Dimension preceeded by an asterisk are for reference only, as tab to set them may vary in length.

MUSHROOM OR BUTTON TYPE


315-292


RB-126


315-020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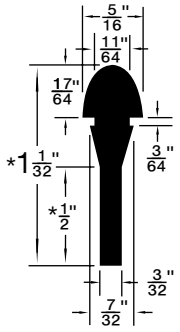
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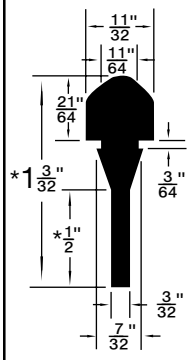
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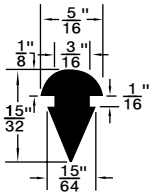
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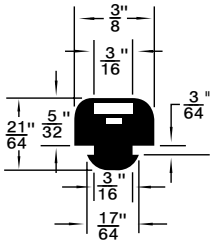
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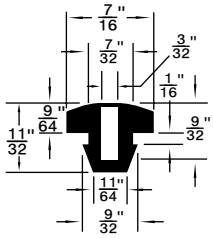
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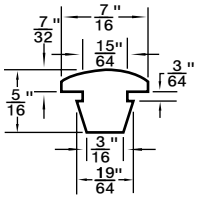
RB-116
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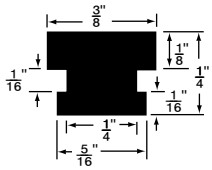
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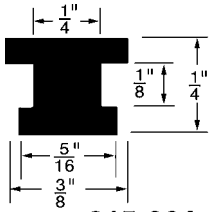
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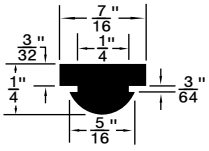
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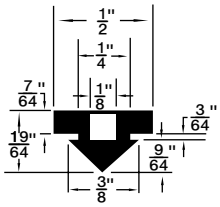
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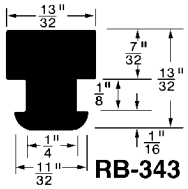
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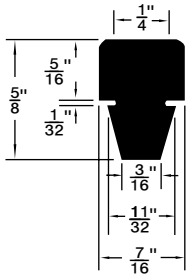
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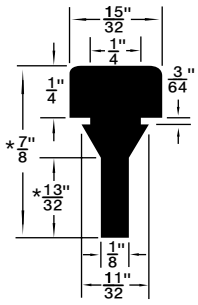
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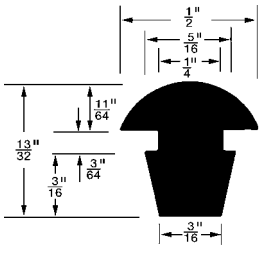
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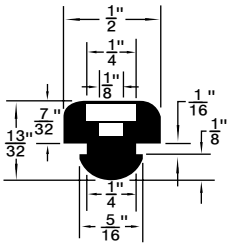
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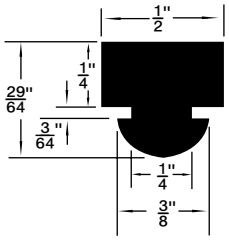
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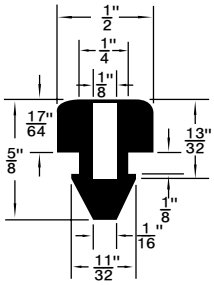
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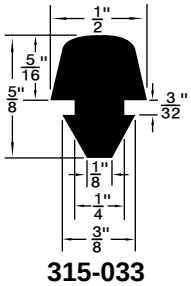
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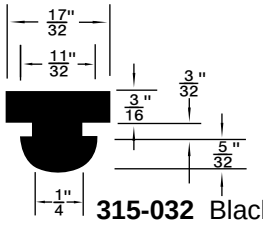

315-032 Black
315-037 Grey

J

CATALOG 13

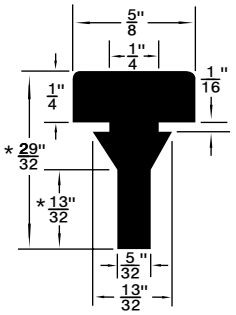
Material: SBR
Hardness: 50 to 65 Durometer, unless otherwise indicated.
Colour: Black, unless otherwise shown.

* Dimension preceeded by an asterisk are for reference only, as tab to set them may vary in length.

Continued…

MUSHROOM OR BUTTON TYPE

Listed by 1) Groove Dia. 2) O/A Head Dia.



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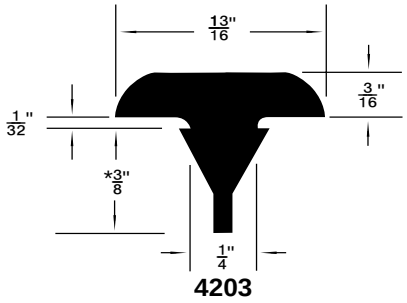

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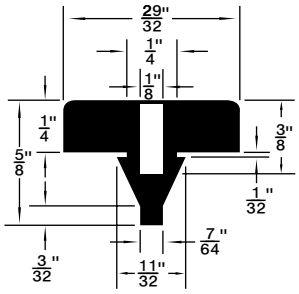
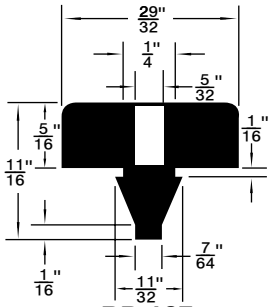
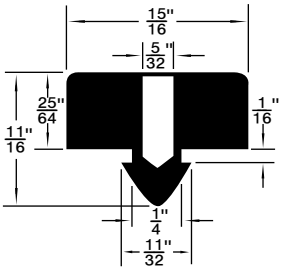


RB-73



RB-127



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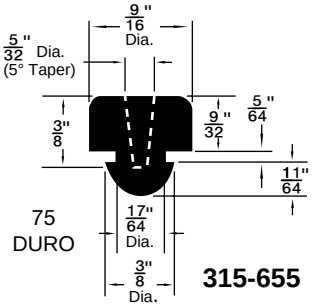
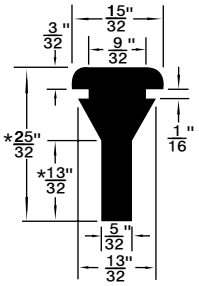
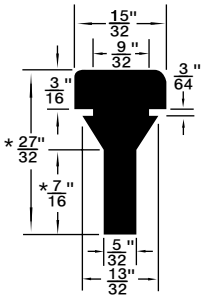


315-655



B-1335
Duro 40± 5



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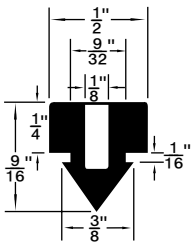
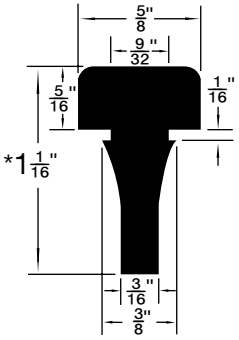
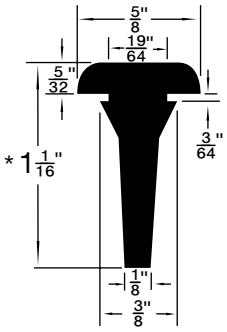


315-001



4244
Duro 40 ± 5



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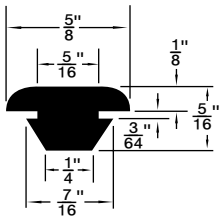

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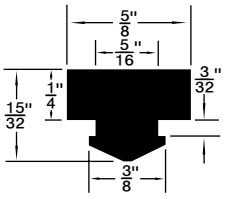

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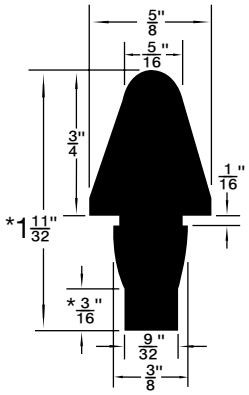


RB-21

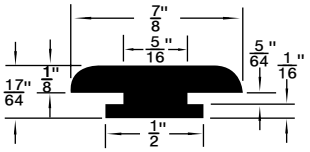
See Price List for Unit Package Quantities.

CATALOG 13

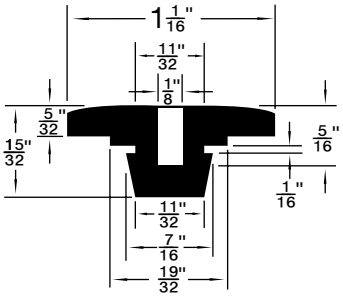
…Continued

MUSHROOM OR BUTTON TYPE - SBR

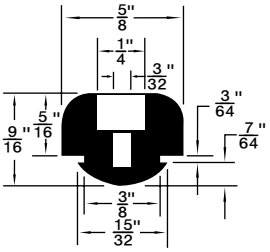
* Dimension preceeded by an asterisk are for reference only, as tab to set them may vary in length.



RB-302
No-hole Plug Type

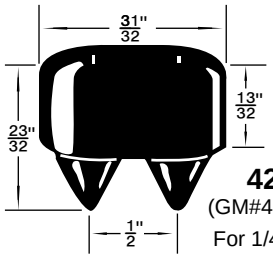


RB-120

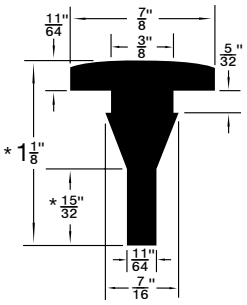


RB-45

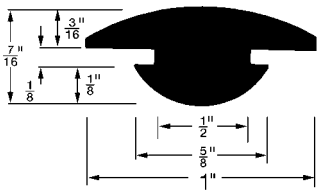
Listed by 1) Groove Dia.
2) O/A Head Dia.



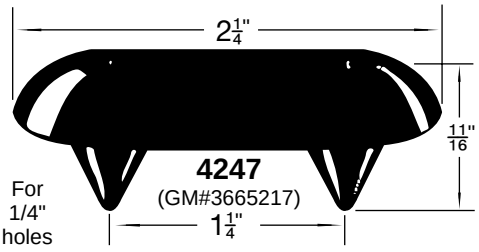
4232
(GM#4565589)
For 1/4" holes



B-1220



315-271

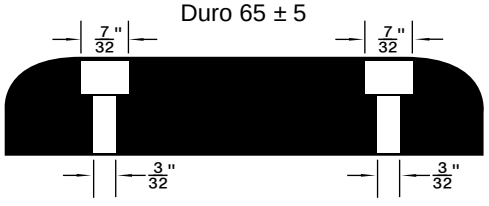


4247
(GM#3665217)
For 1/4" holes

See Price List for Unit Package Quantities.

BAR PATTERN BUMPERS

Duro 65 ± 5



White	Black
315-030	**315-077**

Length	Width	Height
2-1/2"	1/2"	1/2"

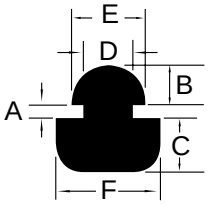
Continued…

Continued…

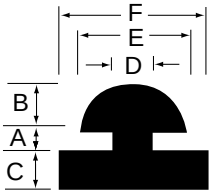
Material: SBR
Hardness: 50 to 65 Durometer, unless otherwise indicated.
Colour: Black, unless otherwise shown.

ADDITIONAL MUSHROOM OR BUTTON TYPE

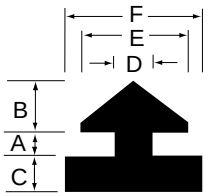
Listed by 1) Groove Dia.
2) Head Dia.



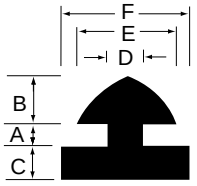
SPAENAUR No.	A Groove Width	B Stem Length	C Head Height	D Groove Dia.	E Stem Dia.	F Head Dia.
315-301	1/16"	1/8"	5/32"	1/4"	5/16"	1/2"
RB-344	1/8"	11/64"	11/32"	9/32"	7/16"	5/8"



315-082	1/32"	1/8"	3/32"	5/32"	7/32"	3/8"
315-295	1/16"	7/64"	3/32"	5/32"	7/32"	3/8"
315-277	1/16"	1/8"	1/4"	1/4"	5/16"	1/2"
315-273	1/8"	1/8"	1/8"	1/4"	11/32"	9/16"
315-290	5/64"	5/32"	1/8"	9/32"	3/8"	9/16"
315-278	1/16"	3/32"	5/32"	11/32"	13/32"	9/16"
315-048	3/16"	3/16"	5/16"	1/2"	11/16"	1



315-280	3/64"	3/32"	1/8"	3/16"	1/4"	5/16"
315-275	3/64"	1/8"	3/32"	1/4"	5/16"	7/16"
315-279	3/64"	1/8"	3/16"	1/4"	5/16"	7/16"



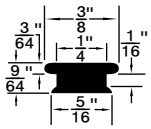
315-293	1/16"	3/16"	3/32"	3/16"	1/4"	1/2"

See Price List for Unit Package Quantities.

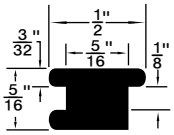
Looking for a product not listed?
Call us at (800) 265-8772.

SPAENAUR

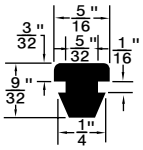
Material: P.V.C. (Polyvinyl Chloride) Plastic
Hardness: 55 Durometer
Colour: All items furnished in BLACK, unless otherwise shown.



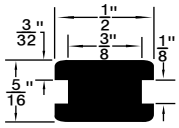
315-556



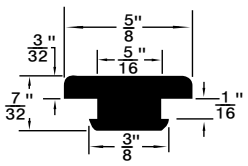
315-563



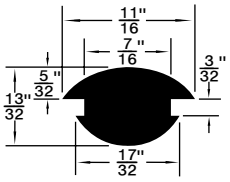
315-582



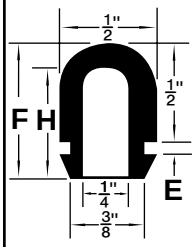
315-568
315-569 (White)



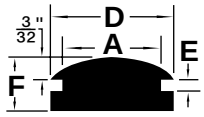
315-560 (Black)
315-561 (Grey)



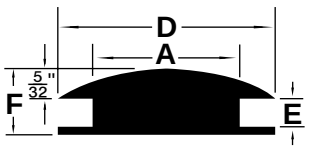
315-463



SPAENAUR No.	E	F	H
315-573	1/16"	11/16"	9/16"
315-574	1/32"	21/32"	17/32"

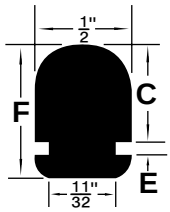


SPAENAUR No.	A	D	E	F
315-552	3/16"	3/8"	1/32"	7/32"
315-553	3/16"	3/8"	1/16"	1/4"
315-555	1/4"	3/8"	1/16"	7/32"
315-584	1/2"	5/8"	1/16"	1/4"



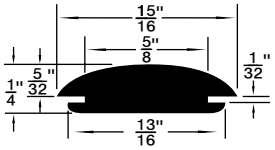
315-590
(Shown)

SPAENAUR No.	A	D	E	F
315-585	5/8"	3/4"	1/16"	1/4"
315-589	3/4"	1-1/8"	3/64"	15/64"
315-590	3/4"	1-1/8"	5/32"	11/32"
315-591	7/8"	1-1/8"	1/32"	7/32"

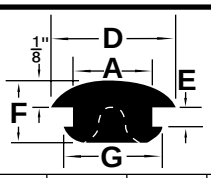


*Grey

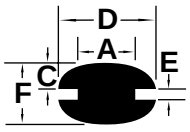
SPAENAUR No.	C	E	F
315-564	1/2"	3/32"	11/16"
315-565	1/4"	3/32"	13/32"
315-566	1/4"	3/64"	23/64"
315-567*	1/4"	3/64"	23/64"



315-587

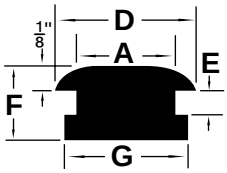


SPAENAUR No.	A	D	E	F	G
315-576	15/32"	11/16"	3/64"	9/32"	5/8"
315-583	13/32"	5/8"	7/64"	5/16"	1/2"



*Grey

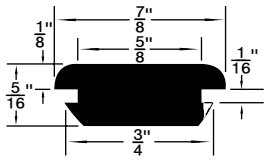
SPAENAUR No.	A	C	D	E	F
315-551	1/8"	3/32"	7/32"	1/32"	7/32"
315-554	7/32"	5/64"	9/32"	1/16"	7/32"
315-558	9/32"	1/8"	1/2"	1/16"	5/16"
*315-559	9/32"	1/8"	1/2"	1/16"	5/16"



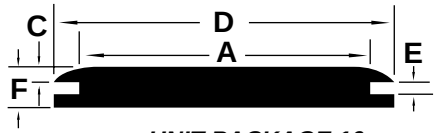
*Grey
+White

SPAENAUR No.	A	D	E	F	G
315-557	19/64"	7/16"	3/64"	17/64"	21/64"
315-570	3/8"	19/32"	1/16"	9/32"	1/2"
315-571	3/8"	19/32"	1/8"	11/32"	1/2"
315-572	3/8"	5/8"	1/16"	5/16"	15/32"
315-577	1/2"	23/32"	1/16"	5/16"	5/8"
*315-578	1/2"	23/32"	1/16"	5/16"	5/8"
+315-579	1/2"	23/32"	1/16"	5/16"	5/8"
315-580	1/2"	23/32"	1/8"	3/8"	5/8"
315-581	1/2"	23/32"	3/16"	7/16"	5/8"

ALL ITEMS ON THIS PAGE *UNIT PACKAGE 100* Except as noted.



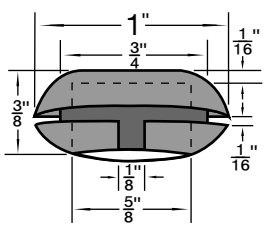
315-586



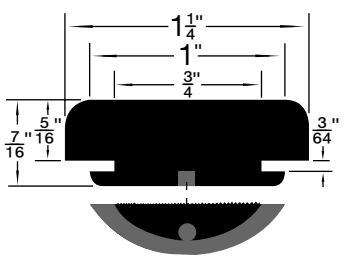
315-592
(shown)

UNIT PACKAGE 10

SPAENAUR No.	A	C	D	E	F
315-592	1-1/2"	1/16"	1-3/4"	1/16"	3/16"
315-593	1-1/2"	1/16"	1-3/4"	1/32"	5/32"
315-594	2"	1/8"	3"	1/32"	5/16"



315-508 Black
315-509 Grey
315-510 Red

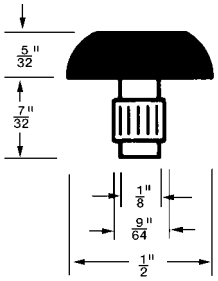


315-588

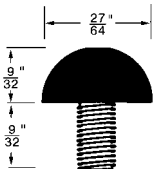
J

CATALOG 13

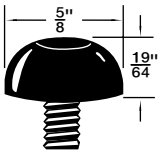
RUBBER BUMPERS - with Moulded in Screw, Stud or Tacks
- Black, unless otherwise shown. SBR, 70 Durometer



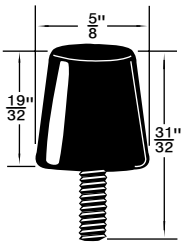
315-291
Knurled Stud



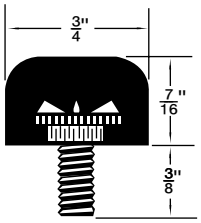
315-283
6-32 x 1/4"



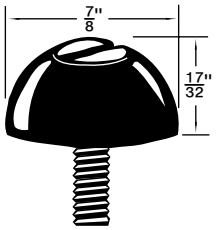
RB-51
8-32 x 1/4"



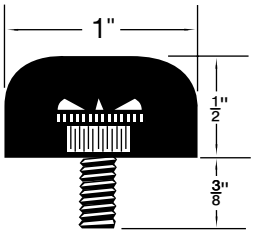
4253
8-32 x 3/8"



315-024
8-32 x 3/8"

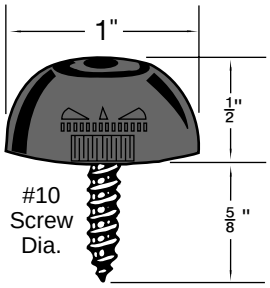


RB-52
10-32 x 1/2"
Slotted



315-025
10-24 x 3/8"

Wood Screw Style
Colour: White
SBR Duro 70



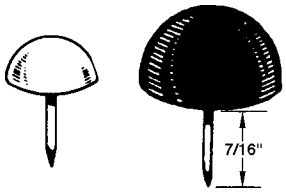
RB-273

See Pages J4 to J8
for larger Bolt Bumpers

Unit Package 25

J

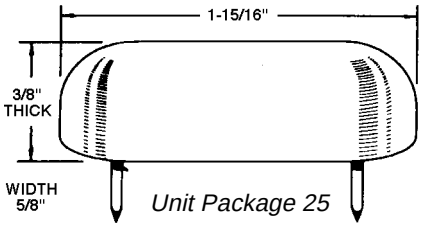
RUBBER TACK BUMPERS **(Elastomeric Polyethylene)**



Unit Package 100

SPAENAUR No.		Size	
Black	**White**	**Dia.**	**Height**
B-407	**RB-174**	3/8"	7/32"
B-408	**RB-96**	1/2"	1/4"
B-409	**RB-175**	5/8"	5/16"
RB-179	**RB-176**	3/4"	11/32"

Tacks Protrude 3/8" min. to 7/16" **max.**



Unit Package 25

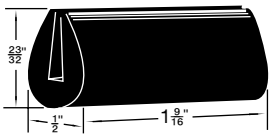
RB-177— White Polyethylene

GLIDES and TUBING INSERT PLUGS
on pages F2 to F10 & H2-H4.

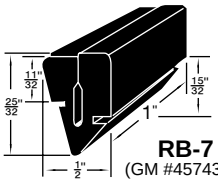
Sales Desk open 7 a.m. to 7 p.m. E.S.T., Monday to Friday.

Call (800) 265-8772 or (519) 744-3521.

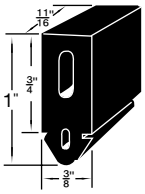
Material: SBR or Natural Rubber.
Hardness: 50 to 65 Durometer, unless otherwise indicated.
Colour: All items furnished in BLACK, unless otherwise shown.



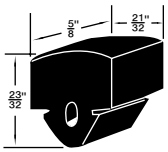
RB-70



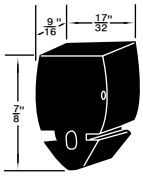
RB-7
(GM #4574347)



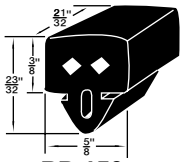
RB-159
(Chry. #1954393)



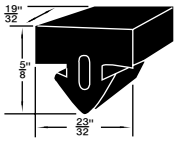
RB-139
(Chry. #1883740)



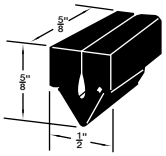
RB-104
(Chry. #1836147)



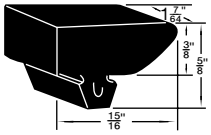
RB-150
(Chry. #2080201)



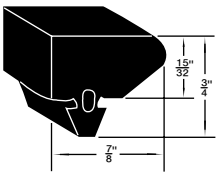
RB-84
(Chry. #1492626)



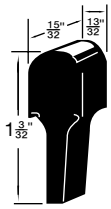
315-474
(GM #4565415)



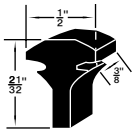
RB-119
(Chry. #1846560)



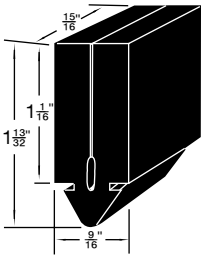
RB-102
(Chry. #1836185)



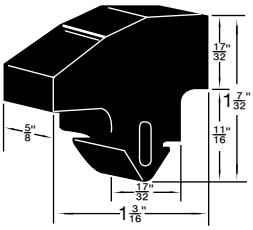
RB-118
(Chry. #1883970)



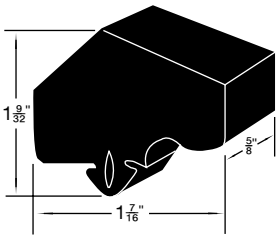
RB-82
(Chry. #1599325)



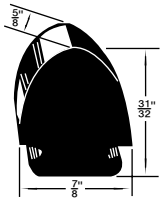
RB-162
(GM #4810219)



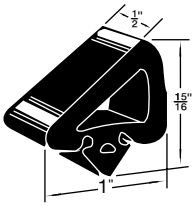
RB-117
(Chry. #1863598)



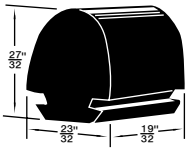
RB-140
(Chry. #1903455)



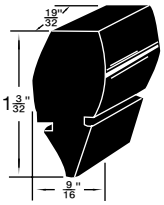
RB-17
(Ford #MA-7583-17)



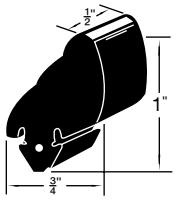
RB-91
(Chry. #1624079)



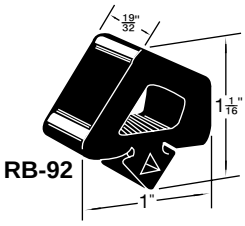
RB-69
(GM #3711238)



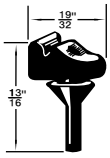
RB-50



RB-85
(Chry. #1499401)



RB-92



4251
(Chry. #1346731)
(Chry. #1373053)

See Price List for Unit Package Quantities.

J

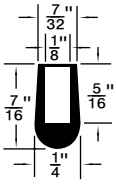
CATALOG 13

RUBBER TIPS

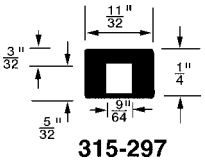
Unit Package Quantities shown in Price List.

SBR Compound - Black
65 DUROMETER
Unless otherwise noted

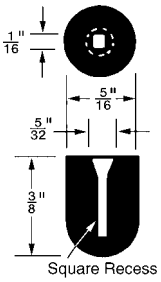
(See Extruded Channels on K2 and K3)



RB-191

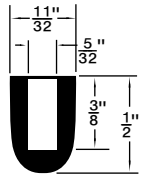


315-297

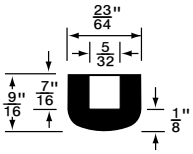


Square Recess

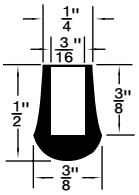
315-251



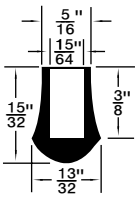
315-026



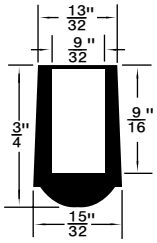
315-294



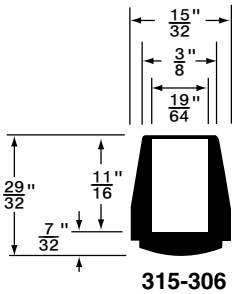
RB-192 (Duro 50)
RB-192W (White) (Duro 70)



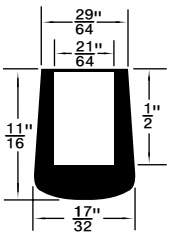
RB-193



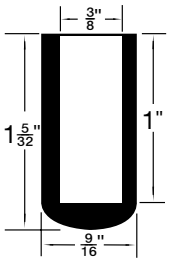
RB-194



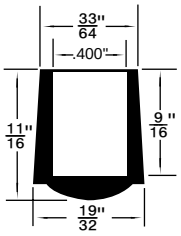
315-306



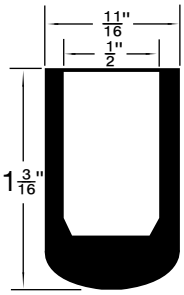
RB-195



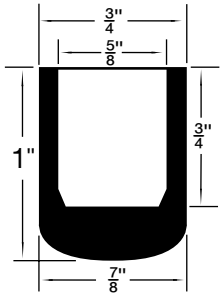
RB-196
Neoprene Duro 60



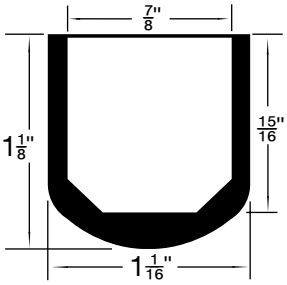
RB-197



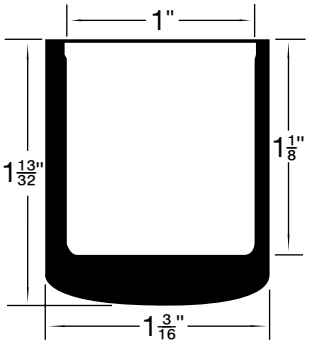
***RB-353**
Neoprene Duro 60



RB-199



RB-201
Neoprene Duro 65



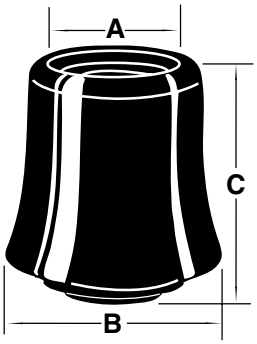
RB-202

*Also **315-027** I.D. 31/64" /O.D. 5/8" Top, 11/16" Base /O/A Ht. 25/32"

J

CRUTCH-TYPE TIPS

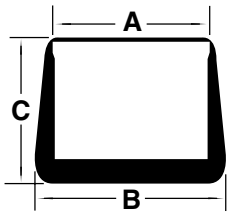
Durometer 60

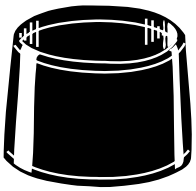


SPAENAUR No.	SIZE No.	A	B	C
RB-203	15	3/8"	3/4"	1-3/16"
RB-204	16	1/2"	1"	1-1/2"
RB-205	17	5/8"	1-1/8"	1-3/8"
RB-206	18	3/4"	1-1/4"	1-3/8"
RB-207	19	7/8"	1-5/16"	1-7/16"
RB-208	20	1"	1-7/16"	1-7/16"
***315-079**	20	1"	1-7/16"	1-7/16"
***RB-294**	21	1-1/8"	1-11/16"	1-13/16"
RB-340	22	1-1/4"	1-11/16"	1-1/2"

Colour: Black (*White) *Unit Package 25*

TUBING CAP (Black Polyethylene)

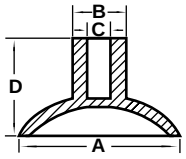




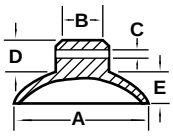
U.P. 50	A	B	C
RB-347	7/8"	15/16"	25/32"
315-036	1"	1-3/16"	13/16"
315-051	1-1/8"	1-9/32"	25/32"

CATALOG 13

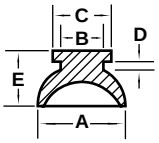
SUCTION CUPS - CLEAR or BLACK PVC - 55 Durometer



Style 1



Style 2

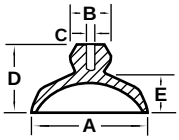


Style 3

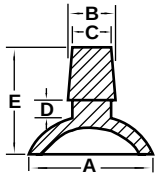
These suction pads are used in a wide variety of applications from toys and games to posters and sun blinds.

METRIC SIZES

SPAENAUR No. Clear PVC	Black PVC	Dimensions (mm) A	B	C	D	E	Style	Unit Pkg. Qty.
315-669	315-800	39.7	13.3	-	23.0	-	1	25
315-671	—	38.1	15.9	4.8	19.0	-	1	25
315-673	—	46.0	12.7	6.4	23.8	-	1	25
315-674 (Red)	—	25.4	7.9	6.4	19.0	-	1	50
315-676	315-807	25.4	9.5	7.6	19.0	-	1	50
315-677 (White)	—	38.1	15.9	3.2	9.5	9.5	2	25
315-678	315-809	34.9	12.7	6.4	19.0	9.5	2	50
—	**315-810**	12.7	6.4	9.5	1.6	9.5	3	100
315-681 (Pale Blue)		38.1	11.1	15.9	2.4	17.4	3	25
315-682	315-813	31.8	9.5	12.7	11.1	14.3	3	50
315-684	—	25.4	7.9	1.6	17.5	7.9	5	50
—	**315-818**	16.0	5.7	5.0	3.0	14.5	8	100



Style 5



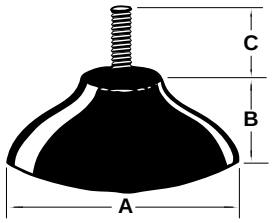
Style 8

Light Type Numbers - Minimum Order 2,500 P.O.R.

J

INCH SIZES

SUCTION CUPS of 50 Durometer, Isoprene (IR)



SPAENAUR No.	A O.D.	B Height	C Screw Size	Colour	Unit Package
RB-349	1"	7/16"	8-32 x 1/4"	Black	25
RB-350	1-1/4"	1/2"	8-32 x 1/4"	Black	25
†RB-121	1-3/4"	5/8"	8-32 x 3/8"	Black	10
***315-165**	3"	1-7/16"	1/4"-20 x 1/2"	Black	10

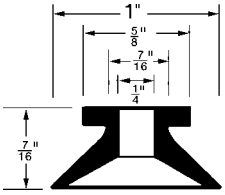
† **SBR Material**

*of E.P.T. (Ethylene Propylene Terpolymer) in 55 Duro. Temperature range: -51°C to +177°C (-60°F to +350°F) "Outdoor resistant"

Suction Cup

Tan Isoprene
30 Durometer

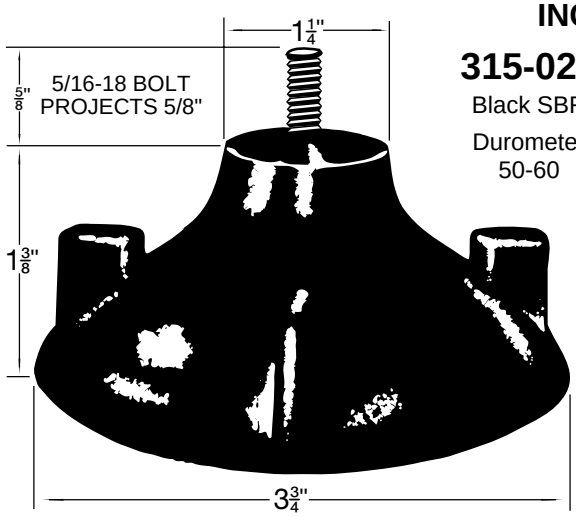
315-258



Unit Package 25

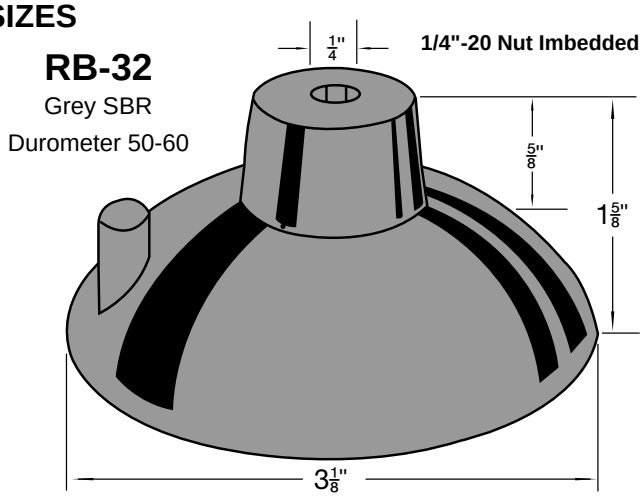
INCH SIZES

315-029
Black SBR
Durometer 50-60

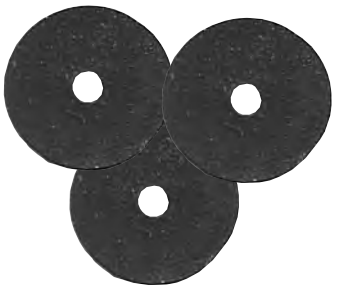


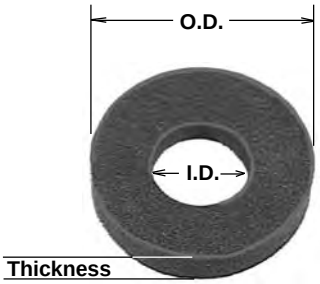
Unit Package 4

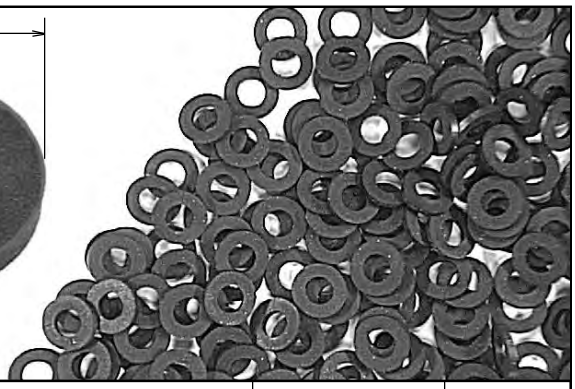
RB-32
Grey SBR
Durometer 50-60



For luggage or car-top carriers, ski racks, boat racks, etc. Non-staining GREY colour. *Unit Package 4*







UNIT PACKAGE QUANTITIES SHOWN IN PRICE LIST.

SPAENAUR No.	I.D.	O.D.	Thickness	Material	Durometer	Colour
RB-374	3/32"	1/2"	1/8"	Neoprene	60-70	Black
315-286	9/64"	3/8"	1/4"	SBR	60	Black
RB-290	5/32"	5/16"	1/32"	Neoprene	75-85	Black
RB-170	5/32"	1/2"	1/4"	Natural Rubber	65-70	Black
RB-291	11/64"	33/64"	3/32"	Neoprene	65-70	Black
RB-146	3/16"	5/8"	3/32"	Neoprene	65-70	Black
315-052	3/16"	3/4"	1/8"	Nitrile	75-85	Black
B-1253	3/16"	3/4"	9/32"	SBR	65-75	Black
RB-72	3/16"	1"	1/8"	SBR	55-60	Black
RB-114	7/32"	5/8"	3/32"	SBR	70-75	Black
315-005	7/32"	7/16"	1/16"	Neoprene	60-65	Black
RB-351	15/64"	1-1/4"	1/4"	Neoprene	60-65	Black
315-040	1/4"	1/2"	1/8"	SBR	55-65	Black
RB-145	1/4"	5/8"	7/64"	Neoprene	60-70	Black
RB-318	9/32"	15/16"	1/16"	SBR	55-65	Black
315-002	5/16"	7/16"	1/16"	Neoprene	60-70	Black
315-003	5/16"	5/8"	1/8"	Neoprene	60-70	Black
315-100 (Metric)	7.93 mm	30 mm	6 mm	Neoprene	70-80	Black
4163	5/16"	1-1/2"	1/4"	SBR	65-70	Black
RB-86	3/8"	1/2"	1/16"	SBR	65-75	Black
RB-352	3/8"	5/8"	3/64"	Neoprene	60-70	Black
315-039	3/8"	5/8"	1/8"	SBR	50-60	Black
RB-292	3/8"	1"	1/8"	Neoprene	65-75	Black
RB-64	3/8"	1"	19/32"	Neoprene	85-95	Black
315-035	25/64"	15/16"	9/16"	EPDM	65-75	Black
315-034	.498/.485"	.781/.812"	.125"	SBR	60-70	Black
RB-167	1/2"	1"	5/16"	SBR	65-75	Black
RB-135	1/2"	1-3/16"	1/2"	SBR	75-85	Black
315-170	5/8"	1-1/2"	1/4"	Neoprene	60-65	Black
315-076	5/8"	25/32"	3/16"	SBR	70	Black
RB-307	13/16"	1-3/32"	3/32"	Neoprene	60-65	Black
4228	7/8"	2"	3/8"	Closed Cell Neoprene Sponge	-	Black
RB-372	1.625"	2.854"	.060"	Nitrile	75-80	Black

More Rubber (E.P.D.M.) and Silicone Washers on following page.

RUBBER (E.P.D.M.) WASHER

Colour - Black **Standard Thickness is 3/32"** Durometer 70 ±5

SPAENAUR No.	Screw Size	Inside Diameter	Outside Diameter	Unit Pkg. Quantity
315-056	#6 Standard	.120"	1/4"	100
315-057	#6 Optional	.120"	3/8"	100
315-058	#8 Standard	.150"	5/16"	100
315-059	#8 Optional	.150"	7/16"	100
315-078	#8 Optional	.152"	3/8"	100
315-060	#10 Standard	.170"	3/8"	100
315-061	#10 Optional	.170"	1/2"	100
315-062	#12 Standard	.195"	7/16"	100
315-063	#12 Optional	.195"	9/16"	100
315-064	#14 Standard	.230"	1/2"	100

SPAENAUR No.	Screw Size	Inside Diameter	Outside Diameter	Unit Pkg. Quantity
315-065	#14 Optional	.230"	5/8"	50
315-066	5/16" Standard	.290"	9/16"	50
315-067	5/16" Optional	.290"	11/16"	50
315-068	3/8" Standard	.355"	5/8"	50
315-069	3/8" Optional	.355"	13/16"	50
315-070	1/2" Optional	.490"	1-1/16"	25
315-071	5/8" Optional	.615"	1-5/16"	25
315-072	3/4" Optional	.740"	1-1/2"	25
315-073	1" Optional	.990"	2"	25

SILICONE WASHER

Colour - Red

"Hi/Low Temp"

Excellent Heat Resistance - Extreme Low Temperature
-62°C to 230°C (-80°F to 450°F)
Low Compression Set

Durometer 60 ±5

SPAENAUR No.	Inside Diameter	Outside Diameter	Thickness	Unit Pkg. Quantity
315-400	.125"	.375"	.062"	100
315-401	.156"	.437"	.062"	100
315-402	.187"	.500"	.093"	100
315-403	.250"	.625"	.093"	50

SPAENAUR No.	Inside Diameter	Outside Diameter	Thickness	Unit Pkg. Quantity
315-404	.312"	.687"	.125"	50
315-405	.375"	.750"	.125"	50
315-406	.500"	1.00"	.125"	25

J

SPAENAUR

Our Quality Policy

To satisfy our commitments to our Customer for both Product and Service -

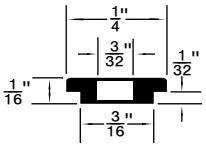
Accurately,

On Time,

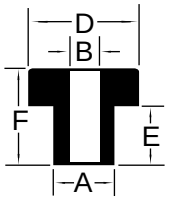
Every Time.

Material: P.V.C. (Polyvinyl Chloride) Plastic
Hardness: 55 Durometer
Colour: All items furnished in BLACK, unless otherwise shown.

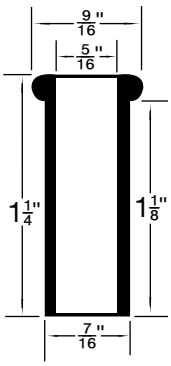
All Dimensions shown in Inches.



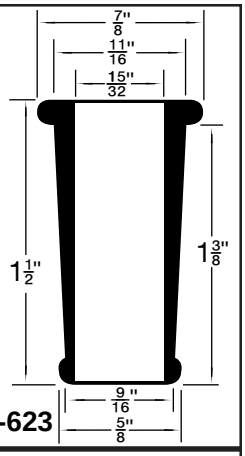
315-595



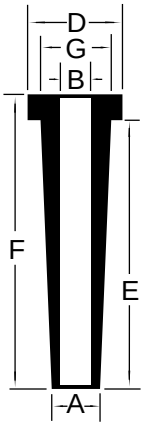
SPAENAUR No.	A	B	D	E	F
315-596	1/4	3/16	1/2	3/8	7/16
315-604	5/16	3/16	9/16	5/16	1/2
315-605	5/16	9/64	9/16	5/16	1/2
315-621	5/8	15/64	13/16	9/32	13/32
315-622	21/32	7/16	1	5/16	7/16



315-615

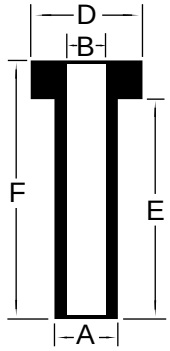


315-623



SPAENAUR No.	A	B	D	E	F	G
315-598	3/16	1/8	7/16	1-1/4	1-5/16	1/4
315-599	3/16	5/32	3/8	7/8	1.0	9/32
*315-600	3/16	5/32	3/8	7/8	1.0	9/32
+315-601	3/16	5/32	3/8	7/8	1.0	9/32
315-602	7/32	5/32	13/32	1-17/32	1-5/8	19/64
315-606	1/4	3/32	1/2	9/16	5/8	5/16
315-609	1/4	5/32	1/2	1-3/8	1-1/2	3/8
*315-610	1/4	5/32	1/2	1-7/16	1-9/16	3/8

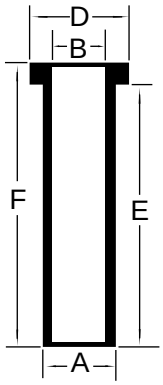
*Grey
+White

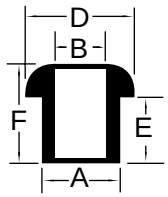


SPAENAUR No.	A	B	D	E	F
315-603	5/16	3/16	37/64	1-11/32	1-15/32
315-611	3/8	1/4	5/8	19/32	25/32
315-620	5/8	1/2	13/16	7/8	15/16

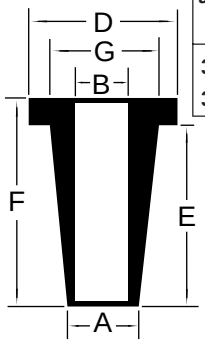
Plastic Sleeves and Bushings
Unit Package 100

SPAENAUR No.	A	B	D	E	F
315-607	11/32	1/4	7/16	1-1/2	1-19/32
315-612	3/8	9/32	1/2	1-3/8	1-15/32
315-616	7/16	5/16	9/16	1-15/32	1-9/16

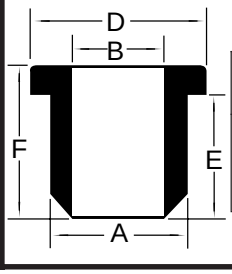




SPAENAUR No.	A	B	D	E	F
315-608	3/8	3/16	9/16	11/32	1/2
315-614	13/32	1/4	9/16	11/32	1/2
315-618	1/2	13/32	11/16	1/4	5/16



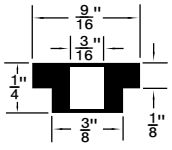
SPAENAUR No.	A	B	D	E	F	G
315-617	11/32	3/16	19/32	1-11/32	1-15/32	15/32
315-619	3/8	9/32	25/32	31/32	1-3/32	9/16



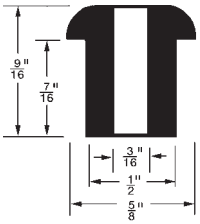
SPAENAUR No.	A	B	D	E	F
315-625	3/4	1/2	31/32	11/16	27/32

RUBBER BUSHINGS

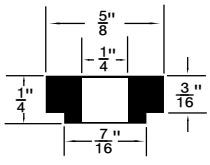
RB-46



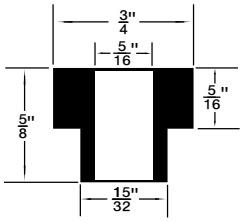
Unit Package 25



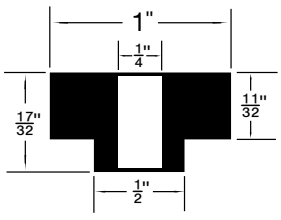
315-252



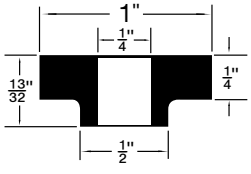
RB-47



RB-48



RB-49



RB-74

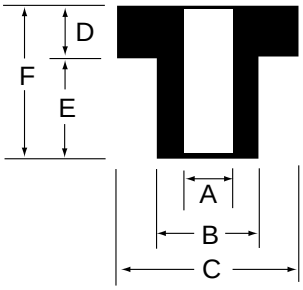
Hardness: 50 Durometer (approximately). **Material:** SBR, Black.

J

CATALOG 13

Material: SBR
Hardness: 60 Durometer ±5. **Colour:** Black

FLANGE
PLAIN BORE

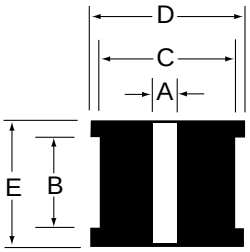


SPAENAUR No.	A Inside Dia.	B Stem Dia.	C Flange Dia.	D Flange Height	E Stem Height	F Total Height
315-285	1/8"	1/4"	3/8"	7/64"	17/64"	3/8"
315-281	11/64"	9/32"	1/2"	3/32"	7/64"	13/64"
315-303	1/4"	13/32"	5/8"	3/32"	5/16"	13/32"
***315-268**	5/16"	1/2"	3/4"	1/8"	9/32"	13/32"
†315-254	5/16"	5/8"	1"	1/4"	11/32"	19/32"

***Rounded edge †Buna N, 50 Durometer

Unit Package Quantity 25

PLAIN BORE
SQUARE SHOULDERS



SPAENAUR No.	A Bore Dia.	B Groove Width	C Groove Dia.	D Outside Dia.	E Overall Thickness
315-260	5/16"	3/8"	3/8"	9/16"	1/2"
315-265	3/8"	1/8"	1/2"	5/8"	13/32"

Unit Package Quantity 25

J

ASSORTMENT / ASSORTIMENT 805-626

Priced Singly

Black Nylon SNAP BUSHINGS

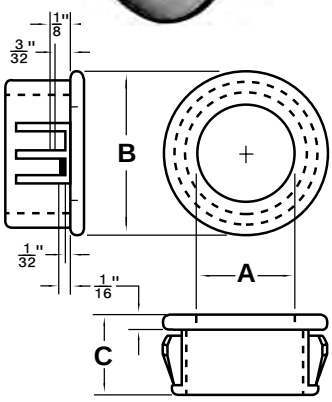
32 Sizes 693 Total Pieces

Most popular items from page J63.

Shipping weight 5.44 kg (12 lbs.)

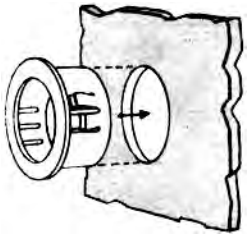
Visit us on the web at . . .

www.spaenaur.com



Maximum temperature on the part shall not exceed 105° C.

Melting point 265° C.



SNAP BUSHINGS

Nylon Snap Bushings are used to convert sharp-edged metal holes to smooth, neat, insulated holes. They snap-assemble with fingertip pressure, and withstand 35 lb. pushback test. Available in 50 sizes for 1/4" to 2-1/2" diameter holes with various inside diameters.

Designed to meet specifications for insulation and mechanical protection of electric cords and cables, as well as protection of tubing, hose, rope and chain.

Snap Bushings are used in hundreds of products ranging from small appliances to air conditioners and furnaces. On production lines, they assemble and lock to product at the touch of a finger.

See page J62 for
805-626
Snap Bushing Assortment.

Of Black and White Nylon for sharp-edged holes in metal.

Recognized under the Component Program of Underwriters' Laboratories
File #E15331 & Canadian Standards Association File #LR-8919

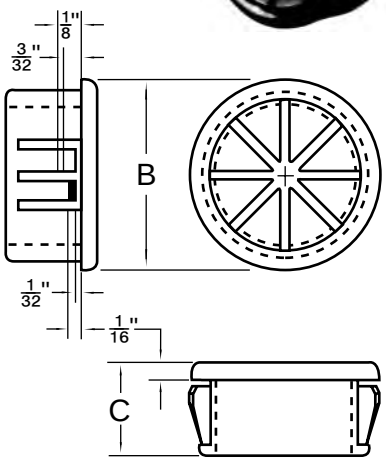
Mounting Hole Diameter	SPAENAUR No.		DIMENSIONS				
	Black Nylon	White Nylon	Inside Diameter A	Head Diameter B	O/A Height C	Maximum Chassis Thickness	Unit Pkg. Qty.
.250"	315-700†		1/8"	5/16"	5/16"	.062"	100
.312"	315-701†		3/16"	3/8"	5/16"	.062"	100
.375"	315-702		3/16"	15/32"	13/32"	.125"	100
	315-703†	315-712	1/4"	15/32"	13/32"	.125"	100
.437"	315-704		.243" +.015 -.000	17/32"	13/32"	.125"	100
	315-705		1/4"	17/32"	13/32"	.125"	100
	315-706†		5/16"	17/32"	13/32"	.125"	100
.500"	315-707		1/4"	37/64"	13/32"	.125"	100
	315-708†	315-776	5/16"	37/64"	13/32"	.125"	100
	315-709†	315-772	3/8"	37/64"	13/32"	.125"	100
		315-778	.375"	9/16"	1/4"	.062"	100
.562"	315-710		5/16"	21/32"	13/32"	.125"	100
	315-711†		3/8"	21/32"	13/32"	.125"	100
	315-713†	315-773	7/16"	21/32"	13/32"	.125"	100
.625"	315-714†		1/4"	23/32"	13/32"	.125"	100
	315-715†		7/16"	23/32"	13/32"	.125"	100
	315-716†		1/2"	23/32"	13/32"	.125"	100
	315-717		.500" +.015 -.000	45/64"	17/32"	.250"	100
.687"	315-719		1/2"	25/32"	13/32"	.125"	100
	315-720†		9/16"	25/32"	13/32"	.125"	100
.750"	315-721		3/8"	27/32"	13/32"	.125"	100
	315-722†		1/2"	27/32"	13/32"	.125"	100
	315-723		9/16"	27/32"	13/32"	.125"	100
	315-724†		39/64"	27/32"	13/32"	.125"	100
	315-725	315-774	.625" +.015 -.000	53/64"	17/32"	.250"	100
.781"	*315-780		.625"	55/64"	1/4"	.062"	100
.812"	315-726†		9/16"	57/64"	13/32"	.125"	100
	315-727		39/64"	57/64"	13/32"	.125"	100
.875"	315-728		3/8"	61/64"	29/64	.125	100
	315-729		7/16"	61/64"	29/64"	.125"	100
	315-730†		1/2"	61/64"	29/64"	.125"	100
	315-731†		9/16"	61/64"	29/64"	.125"	100
	315-732†		5/8"	61/64"	29/64"	.125"	100
	315-733		11/16"	61/64"	29/64"	.125"	100
1.000"	315-734†	315-775	3/4"	1-1/8"	29/64"	.125"	100
1.093" to 1.125"	315-735†		13/16"	1-7/32"	29/64"	.125"	100
	315-736†	315-771	7/8"	1-7/32"	29/64"	.125"	100
	315-737†		15/16"	1-7/32"	29/64"	.125"	100
1.187"	315-739†		15/16"	1-5/16"	29/64"	.125"	100
1.250"	315-740†		15/16"	1-23/64"	29/64"	.125"	100
1.375"	315-742†		1"	1-15/32"	29/64"	.125"	100
1.500"	315-744†		1-1/16"	1-39/64"	29/64"	.125"	50
	315-745†		1-1/8"	1-39/64"	29/64"	.125"	50
	315-746†		1-5/16"	1-39/64"	29/64"	.125"	50
1.750"	315-748†		1-3/8"	1-7/8"	29/64"	.125"	50
2.000"	315-749†	315-783†	1-5/8"	2-1/8"	29/64"	.125"	50
2.500"	315-750†		1-31/32"	2-21/32"	23/32"	.250"	50

† Indicates a component of Assortment No. 805-626.
* Shorty Bushing Style.

Unlisted White can be furnished in minimum quantities of 1000 per size, usually with one week delivery.

J

UNIVERSAL BUSHINGS
of Black Nylon



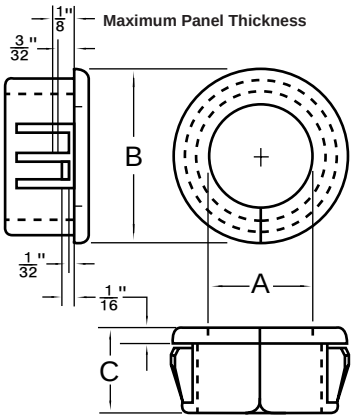
SPAENAUR No.	DIMENSIONS				
	Mounting Hole Diameter A	Head Diameter B	Overall Height C	Maximum I.D.	
315-751	.625"	23/32"	13/32"	7/16"	*UNIT PKG. 100*
315-752	.750"	55/64"	25/64"	1/2"	
315-753	.812"	57/64"			
315-754	.875"	15/16"	29/64"	9/16"	
315-755	1.000"	1-1/16"		3/4"	
315-756	1.093/1.125"	1-5/32"		13/16"	

Nylon bushing used to absorb vibration, cushion and position a single or group of cables, tubes, hoses or shafts. The flexible insulated hole supports and protects even at angle entry. Snap-lock into panels up to 1/8" in thickness, not affected by oils, suitable for wide temperature variations. Because of its unique design, one bushing will solve a multitude of insulating problems. Flexible Nylon shutters adjust to accommodate any shape from 1/8" to maximum diameter of 13/16".

J

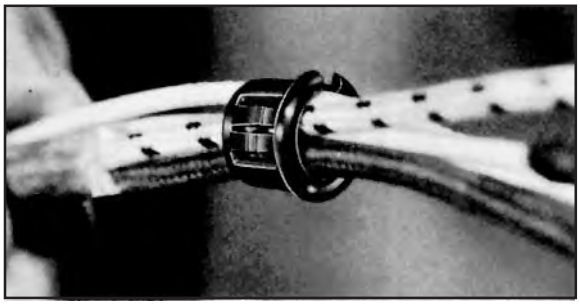
OPEN/CLOSED BUSHINGS
of Black Nylon

Open/Closed Bushings are used to convert sharp edged metal holes to smooth neat insulated holes. They assemble and snap-lock with fingertip pressure. The Open/Closed Bushing features a split body which can be placed around wires or tubes and closes, when inserted into the proper size hole, to form a perfect circle and a complete insulation barrier. The split feature will permit protection of preassembled harnesses or capillary tubes which might not thread thru a regular nylon Snap Bushing. Typical applications are insulation and mechanical protection for electric wires and cable, metal or plastic tubing, hose and rope.



SPAENAUR No.	DIMENSIONS				
	Mounting Hole Diameter	Inside Diameter A	Head Diameter B	Overall Height C	
315-757	.375"	17/64"	27/64"	13/32"	*UNIT PACKAGE 100*
315-777	.437"	5/16"	31/64"		
315-758	.500"	5/16"	9/16"		
315-759	.625"	29/64"	11/16"		
315-760	.750"	33/64"	13/16"		
315-761	.875"	43/64"	59/64"		

Typical Applications



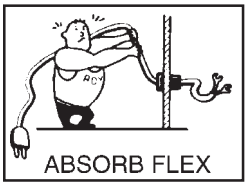
Recognized Under the Component Program of Underwriters' Laboratories File #E-15331 & Canadian Standards Association File #LR-8919.

Bell-Mouth Strain Relief Bushings

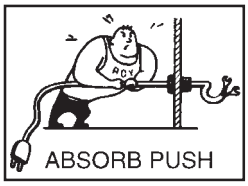
Nylon

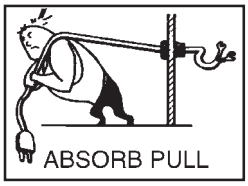
These nylon Bushings not only have Strain Relief protection but also provide an important innovation — a widely flared exit hole for the cable so as to help you meet the new and more demanding cable flexing requirements.

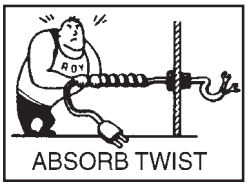
These parts have the basic Strain Relief Bushings design — fit the same cable sizes and use the same mounting holes. Then, the flared extension prevents your cable from bending sharply, eases the cable into a lazy bend assuring longer life for the cable and your product.

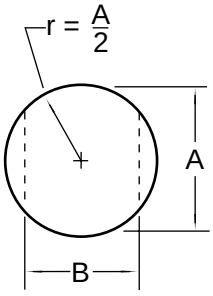


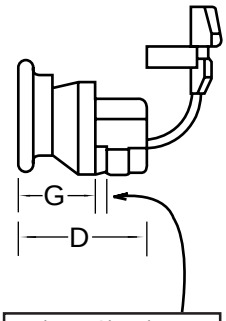
Recognized under the Component Program of Underwriters' Laboratories
File #E-15331 & Canadian Standards Association File #LR-8919











Maximum Chassis Thickness—Part actually has additional clearance

UNIT PACKAGE 50

FOR FLAT CABLES

SPAENAUR No. and Color	UL/CSA DESCRIPTION	WILL FIT THESE WIRES TYPE	Gauge/ Conductors	SIZE	CHASSIS DIMENSIONS A Mounting Hole Dia.	B To Prevent Rotation	MAXIMUM THICKNESS	D BODY LENGTH	G HEAD LENGTH
315-762 (Black)	SR-2P-5	**CLOCK**	20/2	.09" x .18"	.375"	.330"	.062"	5/8"	3/8"
315-763 (White)		**SPT-1**	18/2	.11" x .21"					
315-764 (Black)	SR-3P-5	**SPT-1**	18/2	.12" x .22"	.437"	.390"			
315-765 (White)									
315-766 (Black)	SR-4N-5	**SPT-1**	18/3	.12" x .30"	.500"	.465"	.062"	45/64"	13/32"
315-767 (White)		**SPT-2 & HPN**	18/2	.15" x .28"					
			16/2	.16" x .30"	.500/.515"				

FOR ROUND CABLES

315-768 (Black)	SR-5N-5	**SV & SVT**	18/2	.250"	.500"	.450"	.062"	11/16"	13/32"
315-769 (White)			18/3	.255"	.500/.515"				
		HPD	18/2	.270"	.500"				
			16/2	.290"	.500/.515"				
315-779 (Black)	SR-6N3-5	**SJ, SJO & SJT**	16/2	.325"	.625"	.550"	.062	13/16"	13/32"
			18/3	.330"					
			14/2	.350"					
			16/3	.355"					
			18/4	.360"					

Many other sizes available on special order.

876-196 HAND PLIERS

Adjustable for all Strain Relief Bushings that assemble into holes up to 7/8" diameter.

Priced Singly

876-399

Replacement Spring only for Hand Plier 876-196.

Priced Singly

876-197 HAND PLIERS

For use with Strain Relief Bushings that assemble into 3/4" and larger diameter holes. Pliers are adjustable.

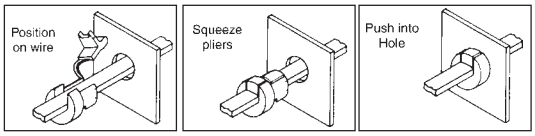
Priced Singly.

Straight-Thru Strain Relief Bushings

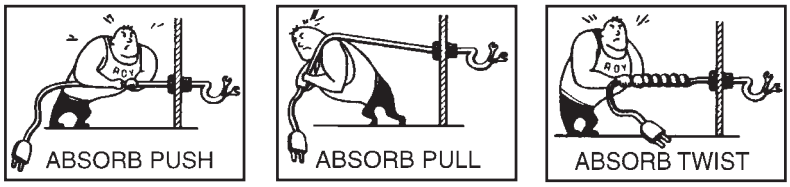
Nylon

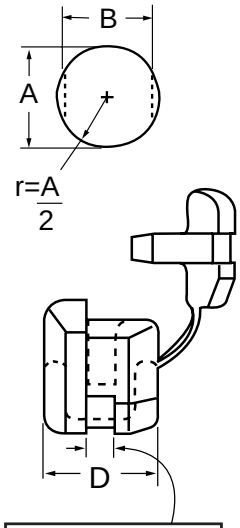
Protect the life of your electric/electronic products by absorbing forces of pull, push and twist.

Securely anchor, insulate and protect cables at chassis entry points.



Recognized under the Component Program of Underwriters' Laboratories
File #E-15331 & Canadian Standards Association File #LR-8919





UNIT PACKAGE 50

FOR FLAT CABLES

SPAENAUR No. and Color	UL/CSA DESCRIPTION	WILL FIT THESE WIRES TYPE	Gauge/ Conductors	SIZE	CHASSIS DIMENSIONS A Mounting Hole Dia.	B To Prevent Rotation	MAXIMUM THICKNESS	D BODY LENGTH
315-741 (Black)	SR-3P-4	**SPT-1**	18/2	.12" x .22"	.437"	.390"	.062"	13/32"
315-781 (Black)	SR-4N-4	**SPT-2 & HPN**	18/2	.15" x .28"	.500"	.465"		

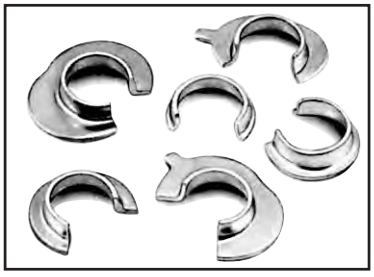
FOR ROUND CABLES

315-770 (Black)	SR-5N-4	**SV & SVT**	18/2	.250"	.500"	.450"	.062"	7/16"
			18/3	.255"	.500/.515"			
		HPD	18/2	.270"	.500"			
			16/2	.290"	.500/.515"			
315-782 (Black)	SR-6P-4	**SJ, SJO & SJT**	18/2	.300"	.625"	.550"	.125"	37/64"
315-784 (Black)	SR-6L-1	**SJ, SJO & SJT**	18/2	.300"	.625"	.550"	.156"	11/16"
			16/2	.325"	.656"			
			18/3	.330"				
			16/3	.355"	.687"			

Many other sizes and styles available on special order.

Metal Strain Relief Bushings

Other Styles Available



UNIT PACKAGE 100

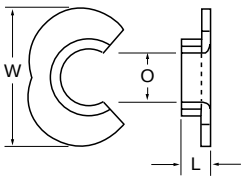
Absorb pull force only, to help meet UL and CSA requirements.

Designed to be attached to wire and cable inside of the chassis.

Permanent grip, non-slip design.

Easy assembly with recommended hand plier.

Made of zinc plated steel.

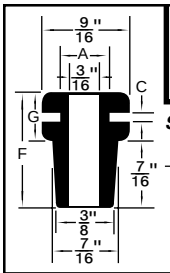


FOR ROUND CABLES

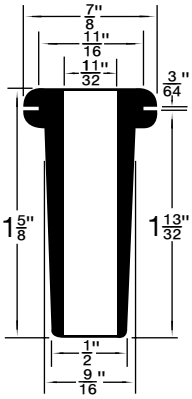
SPAENAUR No.	Description	WILL FIT THESE CABLES Type	Approximate Diameter	PART DIMENSIONS O	W	L
656-500	MSR-2A	**SJ**	.300/.343"	13/64"	25/32"	11/64"

Pliers available, but not stocked.
Inquiries invited.

Material: PVC (Polyvinyl Chloride) Plastic **Hardness:** 55 durometer
Colour: All items furnished in BLACK, unless otherwise shown.

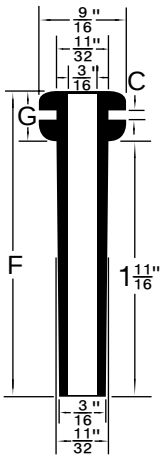


SPAENAUR No.	A	C	F	G
315-529	5/16	1/16	3/4	5/16
315-530	5/16	1/8	13/16	3/8

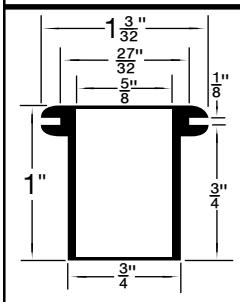


315-548

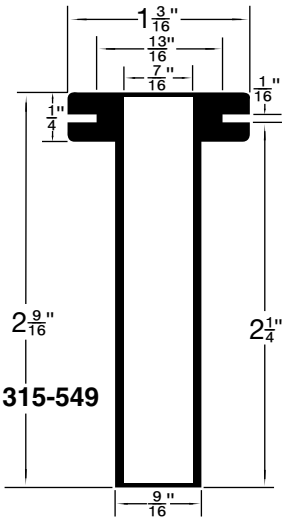
SPAENAUR No.	C	F	G
315-531	1/16	2.0	5/16
315-533	1/32	1-59/64	15/64



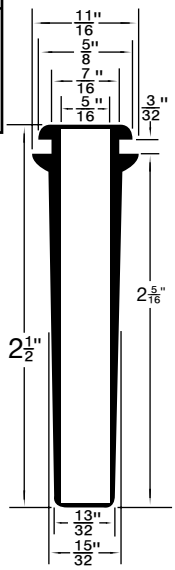
Dimensions shown in inches.
All Plastic Sleeved Grommets
Unit Package 100



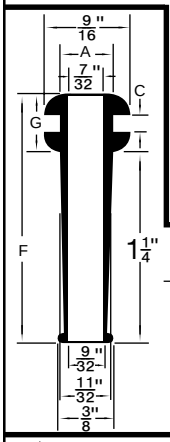
315-550



315-549

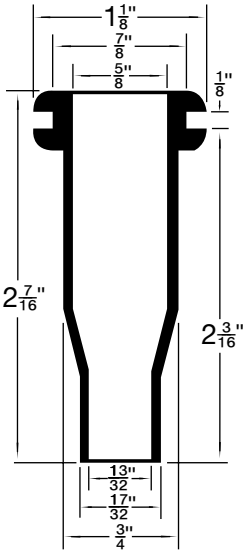


315-539

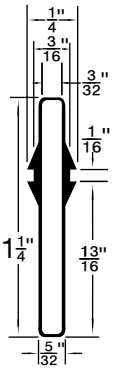


SPAENAUR No.	A	C	F	G
315-534	11/32	1/8	1-5/8	3/8
*315-535	11/32	1/8	1-5/8	3/8
315-536	3/8	1/16	1-9/16	5/16
315-537	5/16	1/8	1-9/32	11/32

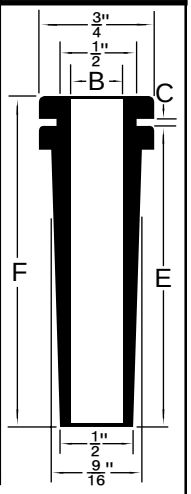
* White



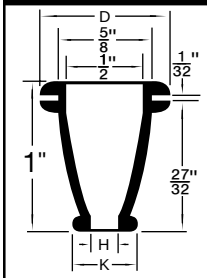
315-544



315-528



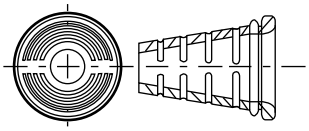
SPAENAUR No.	B	C	E	F
315-540	5/16	5/32	1-13/16	2-1/4
315-541	1/4	5/32	1-13/16	2-1/4
315-542	5/16	1/16	1-13/16	2-5/32
315-543	11/32	3/32	1-3/4	2-5/32



SPAENAUR No.	D	H	K
315-546	27/32	5/32	3/8
315-547	7/8	9/32	1/2

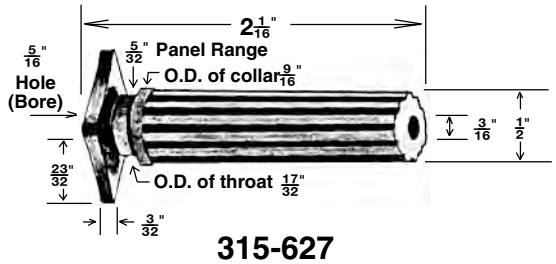
Black PVC

METRIC SIZES
Multi-cable Grommet
315-665



Max. Panel Thick. 2 mm **O/A Lgth. 34 mm**

This new grommet is designed to take a range of cable sizes from 8 mm up to 17 mm diameter. The sleeve is graduated so it can be cut to the appropriate size when the grommet is fitted into a 20 mm hole. *Unit Package 100*



315-627
CORD PROTECTOR SLEEVE

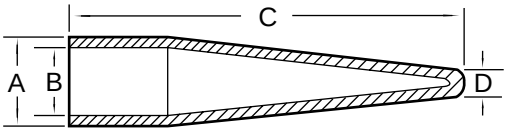
For use on electric lawn mowers, drills, irons, etc.

Made of PVC (Polyvinyl Chloride) 65 Durometer, Black Colour

Unit Package 1

Cable Shrouds. These flexible PVC shrouds are designed to provide protection for cable connections to junction boxes, trunking, security systems, etc.

Black PVC (*Orange)



Unit Package 50 **METRIC SIZES**

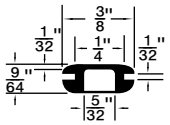
SPAENAUR No.	Dimensions (mm) A	B	C	D
*315-666	24.0	20.0	130.0	7.0
315-667	24.0	20.0	90.0	15.0
315-668	34.0	30.0	90.0	13.0

J

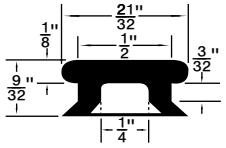
CATALOG 13

Material: P.V.C. (Polyvinyl Chloride) Plastic (except No's. RB-283 and RB-305)
Hardness: 55 Durometer (all P.V.C. items)
Colour: All items furnished in BLACK, unless otherwise shown.

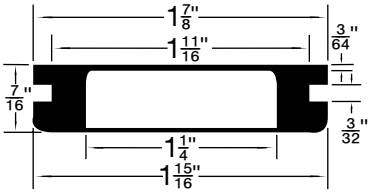
All Dimensions shown in Inches



315-500

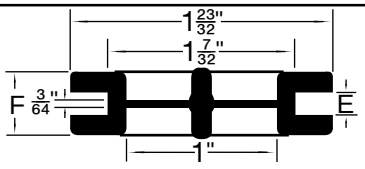


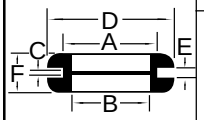
315-503



315-507

SPAENAUR No.	E	F
315-522	3/32	11/32
315-524	5/32	13/32

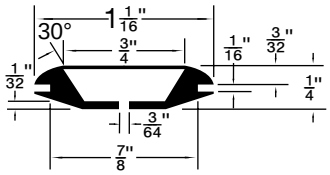




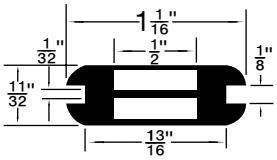
SPAENAUR No.	A	B	C	D	E	F
315-504	5/8	1/2	1/16	7/8	5/64	5/16
315-505	5/8	1/2	7/64	7/8	1/8	23/64
315-511	3/4	5/8	1/32	1.0	5/64	5/16
315-512	3/4	5/8	5/64	1.0	1/8	23/64
315-520	31/32	3/4	5/64	1-27/64	3/32	3/8

RB-283

Black
Neoprene



Durometer 60

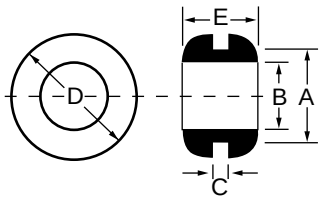


RB-305

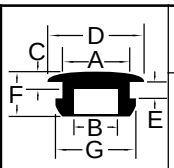
Black
Buna S (SBR)
Durometer
50 to 55

315-545

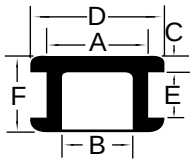
Black PVC - 329
Durometer 55
Open Grommet



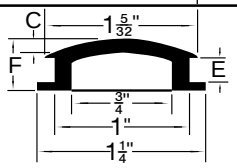
DIMENSIONS	A	B	C	D	E
In Inches	5/8	1/2	3/64	13/16	13/64
(Equiv. in mm)	15.9	12.7	1.2	20.6	5.1



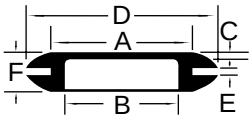
SPAENAUR No.	A	B	C	D	E	F	G
315-501	3/8	1/4	3/32	17/32	3/32	1/4	7/16
315-502	7/16	3/8	3/64	19/32	3/64	1/8	1/2
315-514	25/32	5/8	1/16	29/32	1/32	13/64	27/32



SPAENAUR No.	A	B	C	D	E	F
315-506	1-1/16	1/2	3/32	1-9/32	7/64	7/16
315-513	3/4	1/2	3/16	31/32	5/32	13/32
315-527	21/32	15/32	3/32	7/8	9/32	1/2



SPAENAUR No.	C	E	F
315-518	5/64	1/16	3/16
315-519	13/64	3/16	5/16



SPAENAUR No.	A	B	C	D	E	F
315-515	7/8	3/4	1/8	1-1/4	3/8	19/32
315-516	15/16	3/4	3/64	1-1/4	3/64	1/4
*315-517	15/16	3/4	3/64	1-1/4	3/64	1/4
315-521	1-1/8	15/16	3/64	1-3/8	3/64	1/4
315-525	1-3/8	1-1/8	1/8	1-3/4	3/32	5/16
315-526	1-1/2	1-1/8	1/8	1-3/4	3/32	5/16

* White

ASSORTMENT / ASSORTIMENT B-580

RUBBER GROMMETS & BUSHINGS

32 Sizes
687 Pieces

Priced Singly

To fit Panel Holes 1/4" to 1-1/4" dia.
Grommet I.D. from 1/8" to 3/4"

Furnished in Large Size, Grey Enamelled STEEL Drawer, with scooped bins.

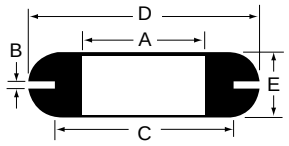
Drawer will fit into the Slide Racks shown on page A3.

Shipping Wt. 6.01 kg. (13-1/4 lbs.)

See pages J69 to J72.

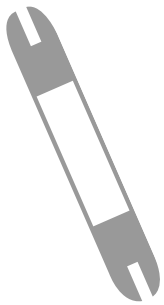
Material: SBR unless otherwise indicated.
Hardness: 60 Durometer ± 5.
Colour: Black, unless otherwise stated.

NOTE: The SPAENAUR Grommets listed on pages J69 to J71 are invariably made from SBR stock in 60 Durometer ± 5. This stock has excellent dielectric strength, good dynamic properties, set and abrasion resistance. It rates excellent as electrical insulation, has excellent heat and cold resistance, and very good heat aging. It is NOT recommended for applications where the grommet will be in contact with oil, gasoline or lacquer solvents. Many of these grommets are similar *in size and shape only*, to AN931 Grommets. Oil and coolant resistant grommets can be made "to order", in manufacturing quantities.



Listed by 1) Hole Dia. 2) Groove Width.

SPAENAUR No.	A Inside Dia.	B Groove Width	C Groove Dia.	D O.D.	E O/A Thick.	Material/ Compound
B-1030	1/8"	1/16"	1/4"	11/32"	3/16"	SBR
RB-209	1/8"	1/16"	9/16"	3/4"	3/16"	SBR
RB-210	1/8"	1/8"	9/16"	3/4"	1/4"	SBR
B-1325	9/64"	3/32"	5/16"	15/32"	9/32"	SBR
315-296	5/32"	1/16"	1/4"	3/8"	3/16"	SBR
B-1200	5/32"	3/32"	1/4"	7/16"	3/8"	SBR
315-172	3/16"	1/32"	5/16"	7/16"	3/16"	SBR
RB-38	3/16"	1/16"	5/16"	7/16"	7/32"	SBR
RB-211	3/16"	1/16"	5/16"	7/16"	3/16"	SBR
315-300	3/16"	1/32"	5/16"	1/2"	5/32"	SBR
315-304	3/16"	3/32"	9/32"	7/16"	7/32"	SBR
315-177	3/16"	3/32"	5/16"	1/2"	9/32"	SBR
RB-55	3/16"	1/8"	13/32"	9/16"	3/8"	SBR
RB-212	3/16"	1/8"	5/16"	7/16"	1/4"	SBR
RB-213	3/16"	3/16"	5/16"	7/16"	5/16"	SBR
RB-214	3/16"	1/4"	5/16"	7/16"	3/8"	SBR
RB-130	3/16"	1/4"	5/16"	7/16"	3/8"	BUNA N
RB-130W*	3/16"	1/4"	5/16"	7/16"	3/8"	BUNA N
315-298	7/32"	1/16"	5/16"	7/16"	3/16"	SBR
RB-53	15/64"	3/16"	3/8"	5/8"	3/8"	SBR
315-355	1/4"	1/16"	3/8"	1/2"	7/32"	SBR
RB-215	1/4"	1/16"	7/16"	5/8"	3/16"	SBR
315-257	1/4"	1/16"	7/16"	5/8"	3/16"	BUNA N
315-318	1/4"	3/32"	3/8"	1/2"	1/4"	SBR
315-830	1/4"	1/8"	3/8"	1/2"	1/4"	SBR
RB-346	1/4"	1/8"	3/8"	5/8"	3/8"	SBR
315-168	1/4"	1/8"	3/8"	5/8"	3/8"	NEOPRENE
315-317	1/4"	1/8"	7/16"	5/8"	1/4"	BUNA N
RB-216	1/4"	1/8"	7/16"	5/8"	1/4"	SBR
315-316	1/4"	3/16"	7/16"	5/8"	5/16"	BUNA N
RB-217	1/4"	3/16"	7/16"	5/8"	5/16"	SBR
RB-218	1/4"	1/4"	7/16"	5/8"	3/8"	SBR
4177	9/32"	1/16"	3/8"	9/16"	1/4"	SBR
315-174	9/32"	1/16"	7/16"	5/8"	1/4"	SBR
RB-190	9/32"	3/32"	1/2"	21/32"	27/64"	SBR
RB-54	9/32"	1/4"	15/32"	11/16"	7/16"	SBR
315-263	5/16"	1/16"	7/16"	5/8"	9/32"	SBR
4071	5/16"	1/16"	1/2"	21/32"	1/4"	SBR
RB-219	5/16"	1/16"	9/16"	13/16"	5/16"	SBR



*****White

Continued…

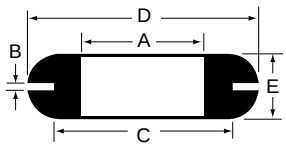
J

CATALOG 13

See Price List for Unit Package Quantities.

Material: SBR unless otherwise indicated.
Hardness: 60 Durometer ± 5.
Colour: Black, unless otherwise stated.

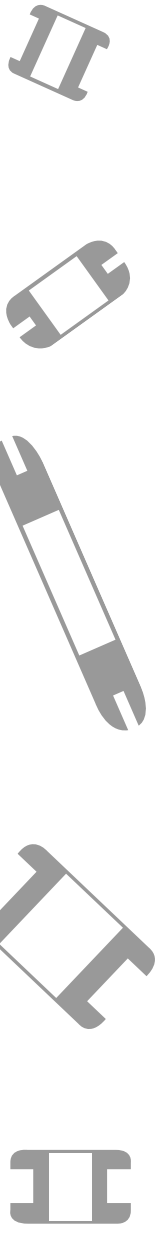
NOTE: The SPAENAUR Grommets listed on pages J69 to J71 are invariably made from SBR stock in 60 Durometer ± 5. This stock has excellent dielectric strength, good dynamic properties, set and abrasion resistance. It rates excellent as electrical insulation, has excellent heat and cold resistance, and very good heat aging. It is NOT recommended for applications where the grommet will be in contact with oil, gasoline or lacquer solvents. Many of these grommets are similar *in size and shape only*, to AN931 Grommets. Oil and coolant resistant grommets can be made "to order", in manufacturing quantities.



Continued…

Listed by 1) Hole Dia. 2) Groove Width.

SPAENAUR No.	A Inside Dia.	B Groove Width	C Groove Dia.	D O.D.	E O/A Thick.	Material/ Compound
315-307	5/16"	1/16"	9/16"	13/16"	5/16"	SBR
315-308	5/16"	1/16"	3/4"	1"	5/16"	BUNA N
RB-223	5/16"	1/16"	3/4"	1"	5/16"	SBR
315-313	5/16"	3/32"	7/16"	5/8"	5/16"	SBR
315-314	5/16"	3/32"	7/16"	5/8"	5/16"	BUNA N
315-309	5/16"	3/32"	15/32"	3/4"	11/32"	SBR
RB-220	5/16"	1/8"	9/16"	13/16"	3/8"	SBR
RB-224	5/16"	1/8"	3/4"	1"	3/8"	SBR
RB-221	5/16"	3/16"	9/16"	13/16"	7/16"	SBR
RB-225	5/16"	3/16"	3/4"	1"	7/16"	SBR
315-173	5/16"	1/4"	1/2"	11/16"	7/16"	SBR
RB-222	5/16"	1/4"	9/16"	13/16"	1/2"	SBR
RB-226	5/16"	1/4"	3/4"	1"	1/2"	SBR
315-259	3/8"	1/16"	1/2"	5/8"	1/4"	SBR
RB-39	3/8"	1/16"	1/2"	11/16"	9/32"	SBR
4072	3/8"	1/16"	21/32"	13/16"	5/16"	SBR
RB-227	3/8"	1/16"	5/8"	7/8"	5/16"	SBR
315-050	3/8"	1/16"	5/8"	7/8"	11/32"	SBR
RB-228	3/8"	1/8"	5/8"	7/8"	3/8"	SBR
315-284	3/8"	3/16"	9/16"	13/16"	3/8"	SBR
RB-229	3/8"	3/16"	5/8"	7/8"	7/16"	SBR
315-175	3/8"	1/4"	1/2"	11/16"	7/16"	SBR
RB-169	3/8"	1/4"	1/2"	3/4"	1/2"	SBR
RB-230	3/8"	1/4"	5/8"	7/8"	1/2"	SBR
RB-297	7/16"	1/16"	9/16"	3/4"	1/4"	SBR
RB-324	7/16"	3/32"	5/8"	7/8"	5/16"	SBR
RB-231	7/16"	1/16"	11/16"	15/16"	5/16"	SBR
RB-232	7/16"	1/8"	11/16"	15/16"	3/8"	SBR
RB-233	7/16"	3/16"	11/16"	15/16"	7/16"	SBR
RB-234	7/16"	1/4"	11/16"	15/16"	7/16"	SBR
315-163	7/16"	1/4"	11/16"	1"	1/2"	SBR
4050	1/2"	1/16"	3/4"	1-1/16"	5/16"	SBR
RB-235	1/2"	1/16"	13/16"	1-1/16"	5/16"	SBR
B-992	1/2"	1/16"	1"	1-1/4"	1/4"	SBR
315-262	1/2"	3/32"	3/4"	7/8"	11/32"	SBR
315-305	1/2"	3/32"	3/4"	31/32"	9/32"	SBR
315-269	1/2"	1/8"	3/4"	1"	1/2"	SBR
RB-236	1/2"	1/8"	13/16"	1-1/16"	3/8"	SBR
RB-237	1/2"	3/16"	13/16"	1-1/16"	7/16"	SBR
RB-238	1/2"	1/4"	13/16"	1-1/16"	1/2"	SBR
315-464	1/2"	3/8"	3/4"	1"	5/8"	SBR



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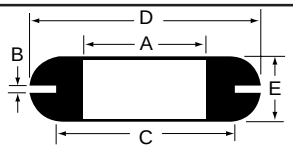


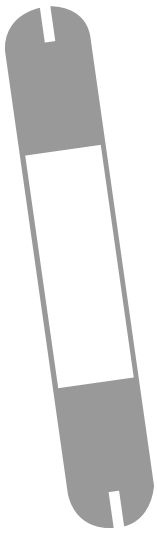
Plastikit «Plastikit» A-32

12 Sizes — 52 Pieces

Selected from pages J69 - J71.

…Continued

SPAENAUR No.	A Inside Dia.	B Groove Width	C Groove Dia.	D O.D.	E O/A Thick.	Material/ Compound
RB-239	9/16"	1/16"	13/16"	1-1/16"	5/16"	SBR
RB-240	9/16"	1/8"	13/16"	1-1/16"	3/8"	SBR
RB-241	9/16"	3/16"	13/16"	1-1/16"	7/16"	SBR
315-312	9/16"	3/16"	7/8"	1-1/16"	7/16"	SBR
RB-242	9/16"	1/4"	13/16"	1-1/16"	1/2"	SBR
RB-173	9/16"	1/4"	13/16"	1-1/16"	1/2"	SBR
RB-243	5/8"	1/16"	7/8"	1-1/8"	5/16"	SBR
RB-244	5/8"	1/8"	7/8"	1-1/8"	3/8"	SBR
RB-245	5/8"	3/16"	7/8"	1-1/8"	7/16"	SBR
RB-246	5/8"	1/4"	7/8"	1-1/8"	1/2"	SBR
B-1057	11/16"	1/16"	1"	1-5/16"	3/8"	SBR
315-080	11/16"	1/8"	1"	1-5/16"	7/16"	SBR
RB-34	11/16"	3/16"	1"	1-5/16"	1/2"	SBR
315-315	11/16"	1/4"	1"	1-5/16"	9/16"	SBR
RB-247	3/4"	1/16"	1-1/16"	1-3/8"	3/8"	SBR
RB-23	3/4"	1/16"	1-1/4"	1-5/8"	1/4"	SBR
RB-22	3/4"	1/8"	1-1/4"	1-5/8"	5/16"	SBR
RB-248	3/4"	1/8"	1-1/16"	1-3/8"	7/16"	SBR
RB-249	3/4"	3/16"	1-1/16"	1-3/8"	1/2"	SBR
RB-250	3/4"	1/4"	1-1/16"	1-3/8"	9/16"	SBR
RB-251	7/8"	1/16"	1-1/4"	1-5/8"	7/16"	SBR
RB-252	7/8"	1/8"	1-1/4"	1-5/8"	1/2"	SBR
RB-147	7/8"	5/32"	1-1/4"	1-5/8"	17/32"	SBR
RB-253	7/8"	3/16"	1-1/4"	1-5/8"	9/16"	SBR
RB-254	7/8"	1/4"	1-1/4"	1-5/8"	5/8"	SBR
RB-105	1"	3/32"	1-3/8"	1-3/4"	3/8"	SBR
RB-255	1"	1/16"	1-3/8"	1-3/4"	7/16"	SBR
RB-256	1"	1/8"	1-3/8"	1-3/4"	1/2"	SBR
RB-257	1"	3/16"	1-3/8"	1-3/4"	9/16"	SBR
RB-258	1"	1/4"	1-3/8"	1-3/4"	5/8"	SBR
RB-100	1-1/8"	3/64"	1-3/8"	2"	3/8"	SBR
RB-106	1-1/4"	3/32"	1-1/2"	1-7/8"	3/8"	SBR
RB-259	1-1/4"	1/16"	2-3/8"	2-3/4"	7/16"	SBR
RB-260	1-1/4"	1/8"	2-3/8"	2-3/4"	1/2"	SBR
315-049	1-5/16"	1/8"	1-5/8"	2"	7/16"	SBR
RB-263	1-1/2"	1/16"	1-3/4"	2-1/8"	7/16"	SBR
RB-107	1-1/2"	3/32"	2"	2/3/8"	3/8"	SBR
RB-264	1-1/2"	1/8"	1-3/4"	2-1/8"	1/2"	SBR
RB-265	1-1/2"	3/16"	1-3/4"	2-1/8"	9/16"	SBR
RB-266	1-1/2"	1/4"	1-3/4"	2-1/8"	5/8"	SBR
RB-267	1-3/4"	1/16"	3-1/4"	3-3/4"	1/2"	SBR
RB-268	2"	1/16"	3-1/2"	4"	1/2"	SBR
RB-153	2-1/8"	1/8"	2-1/2"	2-7/8"	1/2"	SBR
RB-299	2-3/8"	1/4"	2-3/4"	3"	3/4"	SBR

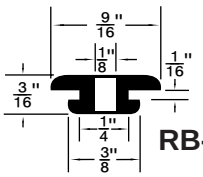


J

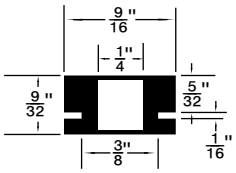
CATALOG 13

See Price List for Unit Package Quantities.

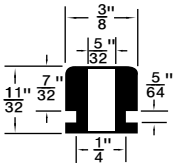
Material: SBR unless otherwise indicated.
Hardness: 60 Durometer ± 5 unless otherwise noted.
Colour: Black, unless otherwise stated.



RB-57



RB-58



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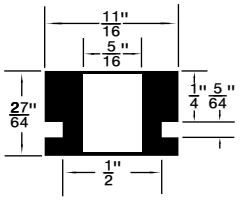
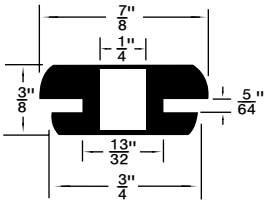
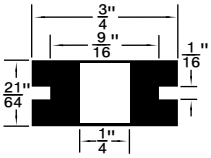


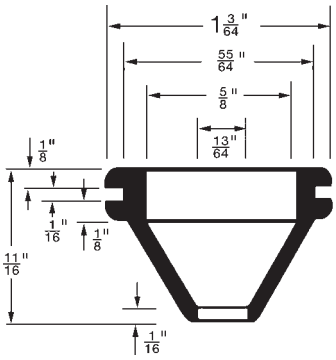
RB-60



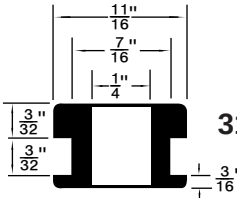
RB-189



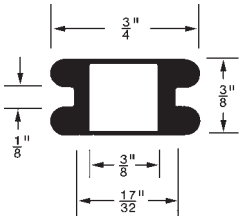
315-169
Durometer: 55



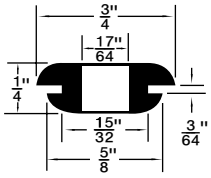
315-320



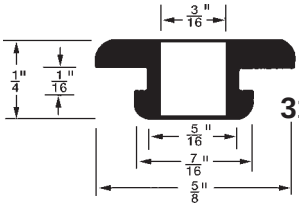
315-270



315-266

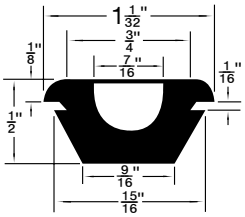


RB-171



315-282

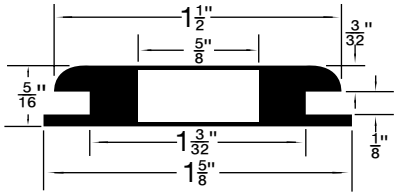
J



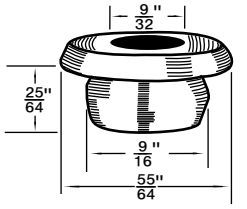
RB-288
Black
Material: Natural Rubber
Durometer: 65

Unit Package 25

To use as a waterproof grommet for electrical wires, pierce hole through centre and force wire through.



RB-99 **Material - Isoprene Duro 65-70**

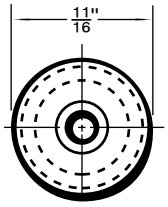


315-378

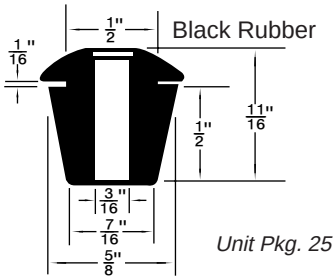
Material: Natural Rubber
Durometer: 50-55
Taupe Colour

Unit Package 100

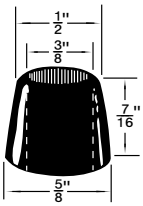
Material: SBR
Durometer: 65



4160



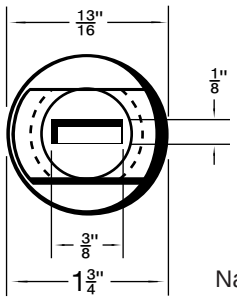
Unit Pkg. 25



315-375
Grey Rubber - Beveled Cone
SLIP JOINT WASHER
Material: SBR Duro.: 50
Used by Plumbing trade

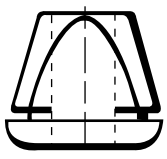
Unit Package 25

Overall thickness 11/16"
Width of groove 1/16"



Unit Pkg. 25

4215
Black
Natural Rubber
Duro 70



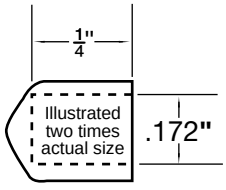
SPAENAUR No.

315-462

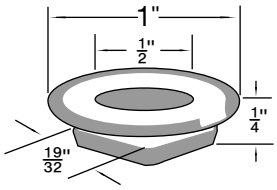
Clear Vinyl Cap
(Plastisol)

Actual Size

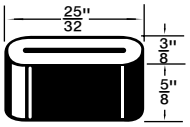
Unit Package 100



CATALOG 13



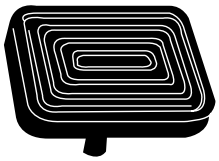
315-354
White
Polyethylene Grommet
For 9/16" square hole in .025/.060" Panel
Takes 1/2" dia. Cable or Tube
Unit Package 100



4159
Black
Natural Rubber Duro 55-60
Unit Package 25

Note: No. 4159 has a 1/16" wall and is easily applied to a number of different shapes varying from round to rectangular.

Replacement Pedal Pad



B-1377
1/4" x 2-1/2" x 3-1/2"
Bolt-on Type
Bolt 3/8"-24 x 3/4"
(Bolt is in offset position)

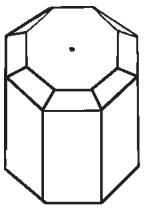
UNIVERSAL TYPE
BLACK RUBBER

Unit Package 2

TRAILER HITCH BALL COVER
879-008

SOFT BLACK VINYL

Not Affected by
—Sun
—Water
—Salt
—Grease

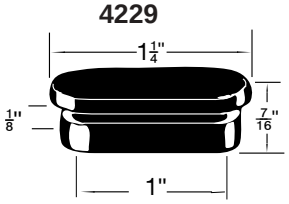


• Fits 1-7/8" and 2" Ball

Unit Package 10

J

4229



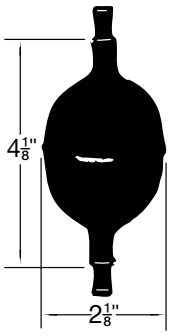
RUBBER PLUG for brake adjusting screw hole.

Unit Package 25

RB-62
Black only

UNIVERSAL

Distributor Nipple
SBR Material Duro 70 ± 5
Unit Package 25



315-200
Gas Collecting Bulb
with double valve.
For use with 1/4" I.D. tubing.
Black (Natural) Rubber
Capacity: 75 ml (2-2/3 oz.)
Unit Package 5

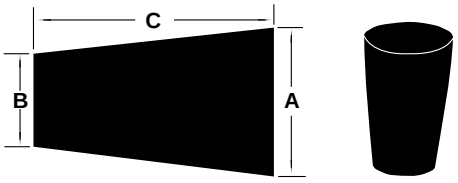
RUBBER LABORATORY STOPPERS

Black Natural Rubber (NR) Duro: 50

SPAENAUR No. (no hole)	SIZE	A Top	B Bottom	C Length	*SPAENAUR No.* (with hole)	Hole Dia.	Unit Pkg. Qty.
RB-304	00	9/16"	3/8"	1"			100
RB-325	0	5/8"	1/2"	1"			100
RB-327	1	3/4"	9/16"	1"			100
315-081	-	13/16"	5/8"	1"			50
RB-329	3	15/16"	3/4"	1"			50
RB-330	4	1"	13/16"	1"			50
***315-967**	5	1-1/16"	29/32"	1"			50
RB-332	6	1-1/4"	1"	1"	**315-045**	1/4"	50
RB-333	7	1-3/8"	1-1/8"	1"			25
RB-334	8	1-9/16"	1-5/16"	1"			25
315-075	9	1-3/4"	1-1/2"	1"	**315-074**	1/4"	10
RB-336	10	1-15/16"	1-5/8"	1"			10
RB-338	12	2-1/2"	2-1/8"	1"			10
RB-339	13	2-3/4"	2-5/16"	1"			10

*Black SBR, 35-45 Duro

(Also available with holes, to order, in min. quantities of 1,000 or more, per item.)

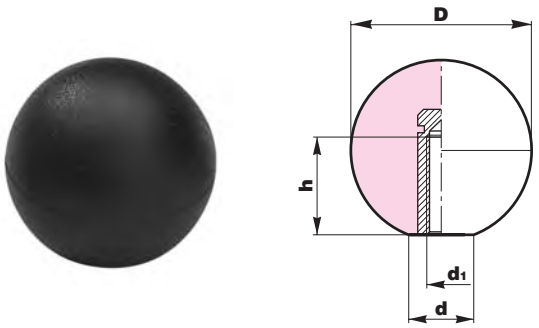


BALL KNOB

with Brass Insert

SPAENAUR No.	D	d	h	d1
135-168	0.98	0.55	0.63	10-32
135-169	0.98	0.55	0.63	1/4-20
135-001	1.18	0.55	0.79	1/4-20
135-002	1.18	0.55	0.79	5/16-18
135-170	1.38	0.63	0.91	1/4-20
135-171	1.38	0.63	0.91	5/16-18
135-003	1.58	0.63	1.10	5/16-18
135-172	1.58	0.63	1.10	3/8-16
135-004	1.97	0.71	1.42	3/8-16
135-005	1.97	0.71	1.42	1/2-13

• Thermoplastic Material

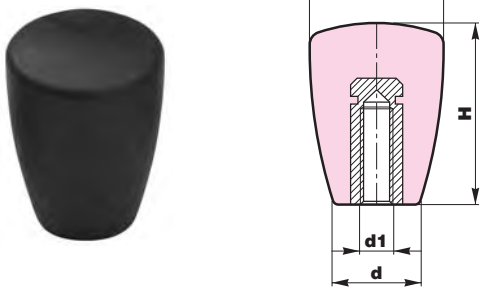


TAPERED KNOB

with Brass Insert

SPAENAUR No.	D	d	h	d1
135-006	0.99	0.63	1.34	1/4-20
135-007	1.26	0.79	1.69	5/16-18
135-173	1.26	0.79	1.69	3/8-16
135-174	1.26	0.79	1.69	1/2-13
135-008	1.69	1.06	2.29	3/8-16

• Thermoplastic Material

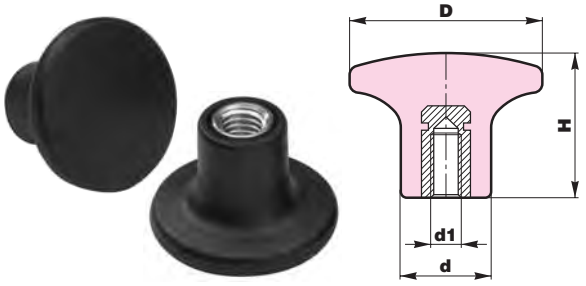


MUSHROOM KNOB

with Brass Insert

SPAENAUR No.	D	d	h	d1
135-175	0.87	0.41	0.65	10-32
135-009	0.87	0.41	0.65	1/4-20
135-010	1.26	0.59	0.95	5/16-18

• Thermoplastic Material

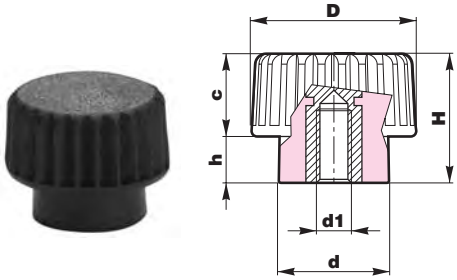


THUMB KNOB

with Brass Insert

SPAENAUR No.	D	d	H	c	h	d1
135-011	0.59	0.39	0.45	0.30	0.16	1/4-20

• Thermoplastic Material

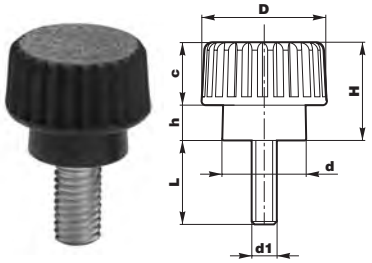


THUMB KNOB

Male

SPAENAUR No.	D	d	H	c	h	L	d1
135-176	0.59	0.39	0.45	0.30	0.16	0.50	1/4-20
135-012	0.59	0.39	0.45	0.30	0.16	1.00	1/4-20

• Thermoplastic Material

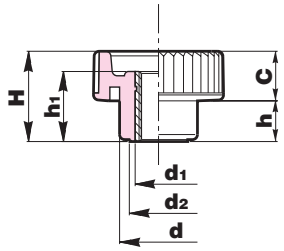


J

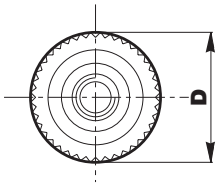
CATALOG 13

THUMB KNOB

Tapped Right Through



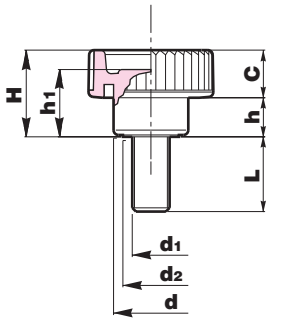
SPAENAUR No.	D	H	d	d1	d2	C	h	h1
135-013	0.83	0.59	0.51	1/4-20	0.37	0.33	0.26	0.49
135-014	1.02	0.71	0.63	5/16-18	0.47	0.37	0.33	0.59



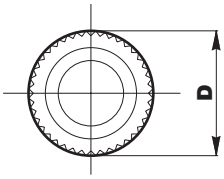
• Thermoplastic Material

KNURLED THUMB KNOB

Male



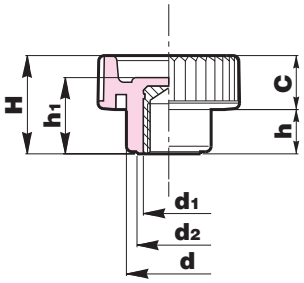
SPAENAUR No.	D	H	d	d1	d2	C	h	h1	L
135-177	0.83	0.59	0.51	1/4-20	0.37	0.33	0.26	0.49	0.50
135-015	0.83	0.59	0.51	1/4-20	0.37	0.33	0.26	0.49	1.00
135-016	1.02	0.71	0.63	5/16-18	0.47	0.37	0.33	0.59	1.00
135-178	1.02	0.71	0.63	5/16-18	0.47	0.37	0.33	0.59	1.25



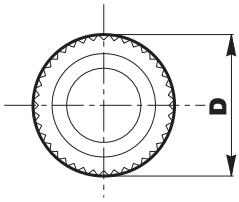
•Thermoplastic Material

KNURLED THUMB KNOB

Female



SPAENAUR No.	D	H	d	d1	d2	C	h	h1
135-017	0.83	0.59	0.51	1/4-20	0.37	0.33	0.26	0.49
135-018	1.02	0.71	0.63	5/16-18	0.47	0.37	0.33	0.59
135-179	1.30	0.91	0.79	3/8-16	0.59	0.49	0.41	0.71

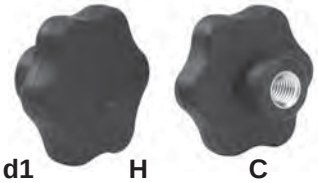


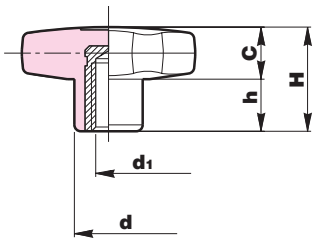
•Thermoplastic Material

A tolerance of ± 0.125" is possible on Boteco non-critical measurements.

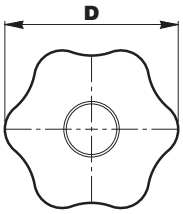
6-LOBE HANDWHEEL

Female





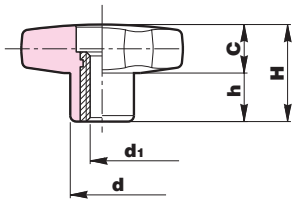
SPAENAUR No.	D	d	d1	H	C	h
135-019	1.18	0.59	1/4-20	0.79	0.39	0.39
135-180	1.18	0.59	5/16-18	0.79	0.39	0.39
135-181	1.18	0.59	3/8-16	0.79	0.39	0.39
135-182	1.58	0.67	1/4-20	0.95	0.45	0.49
135-183	1.58	0.67	5/16-18	0.95	0.45	0.49
135-020	1.58	0.67	3/8-16	0.95	0.45	0.49
135-021	1.97	0.79	5/16-18	1.12	0.55	0.57
135-184	1.97	0.79	3/8-16	1.12	0.55	0.57
135-022	1.97	0.79	1/2-13	1.12	0.55	0.57
135-023	2.36	0.95	3/8-16	1.30	0.59	0.71
135-185	2.36	0.95	1/2-13	1.30	0.59	0.71



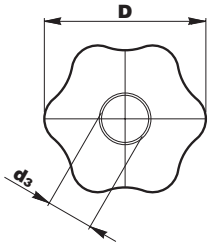
• Thermoplastic Material

6-LOBE HANDWHEEL

Tapped Right Through



SPAENAUR No.	D	d	d1	d3	H	C	h
135-186	1.18	0.59	1/4-20	0.45	0.79	0.39	0.39
135-187	1.18	0.59	5/16-18	0.45	0.79	0.39	0.39
135-024	1.58	0.67	1/4-20	0.47	0.95	0.45	0.49
135-025	1.58	0.67	5/16-18	0.47	0.95	0.45	0.49
135-026	1.58	0.67	3/8-16	0.47	0.95	0.45	0.49
135-189	1.97	0.79	5/16-18	0.55	1.12	0.55	0.57
135-190	1.97	0.79	3/8-16	0.55	1.12	0.55	0.57
135-027	2.36	0.95	3/8-16	0.63	1.30	0.59	0.71
135-028	2.36	0.95	1/2-13	0.63	1.30	0.59	0.71

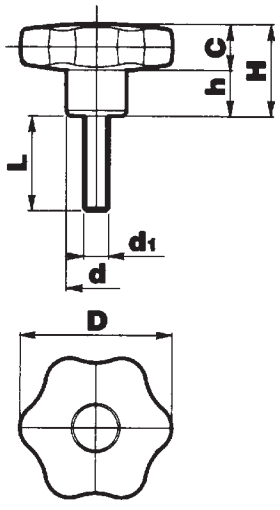


•Thermoplastic Material

6-LOBE

Male

SPAENAUR No.	D	d	d1	H	L	C	h
135-191	1.18	0.59	1/4-20	0.79	0.50	0.39	0.39
135-192	1.18	0.59	1/4-20	0.79	1.00	0.39	0.39
135-193	1.18	0.59	5/16-18	0.79	0.50	0.39	0.39
135-194	1.18	0.59	5/16-18	0.79	1.00	0.39	0.39
135-029	1.58	0.67	1/4-20	0.95	1.25	0.43	0.49
135-237	1.58	0.67	1/4-20	0.95	1.00	0.43	0.49
135-030	1.58	0.67	1/4-20	0.95	1.50	0.43	0.49
135-238	1.58	0.67	5/16-18	0.95	1.00	0.43	0.49
135-031	1.58	0.67	5/16-18	0.95	1.25	0.43	0.49
135-032	1.58	0.67	5/16-18	0.95	1.50	0.43	0.49
135-239	1.97	0.79	5/16-18	1.12	1.00	0.55	0.57
135-033	1.97	0.79	5/16-18	1.12	1.25	0.55	0.57
135-034	1.97	0.79	5/16-18	1.12	1.50	0.55	0.57
135-240	1.97	0.79	3/8-16	1.12	1.00	0.55	0.57
135-035	1.97	0.79	3/8-16	1.12	1.25	0.55	0.57
135-036	1.97	0.79	3/8-16	1.12	1.50	0.55	0.57
135-241	2.36	0.95	1/2-13	1.30	1.25	0.59	0.71
135-242	2.36	0.95	1/2-13	1.30	1.50	0.59	0.71
135-243	2.36	0.95	1/2-13	1.30	2.00	0.59	0.71



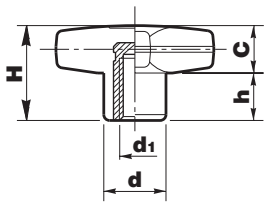
•Thermoplastic Material

J

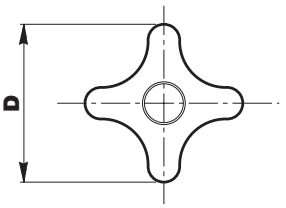
CATALOG 13

CROSS HANDWHEEL

Female



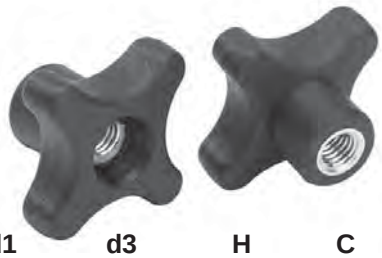
SPAENAUR No.	D	d	d1	H	C	h
135-037	1.58	0.63	1/4-20	0.95	0.45	0.49
135-244	1.58	0.63	5/16-18	0.95	0.45	0.49
135-038	1.97	0.79	5/16-18	1.12	0.55	0.57
135-039	1.97	0.79	3/8-16	1.12	0.55	0.57
135-040	1.97	0.79	1/2-13	1.12	0.55	0.57

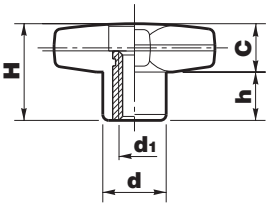


• Thermoplastic Material

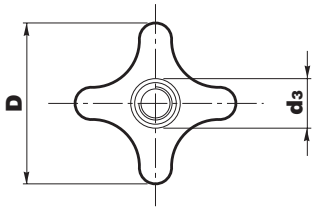
CROSS HANDWHEEL

Tapped Right Through





SPAENAUR No.	D	d	d1	d3	H	C	h
135-041	1.58	0.63	1/4-20	0.51	0.95	0.45	0.49
135-042	1.97	0.79	5/16-18	0.59	1.12	0.55	0.57
135-043	1.97	0.79	3/8-16	0.59	1.12	0.55	0.57
135-044	2.36	0.95	1/2-13	0.67	1.30	0.59	0.71

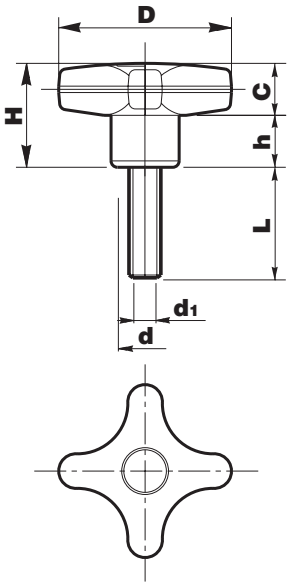


•Thermoplastic Material

CROSS HANDWHEEL

Male

SPAENAUR No.	D	d	d1	H	L	C	h
135-245	1.58	0.63	1/4-20	0.95	0.50	0.45	0.49
135-045	1.58	0.63	1/4-20	0.95	1.00	0.45	0.49
135-246	1.58	0.63	5/16-18	0.95	1.00	0.45	0.49
135-046	1.58	0.63	5/16-18	0.95	1.25	0.45	0.49
135-047	1.58	0.63	3/8-16	0.95	0.75	0.45	0.49
135-247	1.58	0.63	3/8-16	0.95	1.00	0.45	0.49
135-249	1.97	0.79	5/16-18	1.12	1.00	0.55	0.57
135-048	1.97	0.79	5/16-18	1.12	1.50	0.55	0.57
135-248	1.97	0.79	3/8-16	1.12	1.00	0.55	0.57
135-049	1.97	0.79	3/8-16	1.12	2.00	0.55	0.57
135-050	2.36	0.95	5/16-18	1.30	0.75	0.59	0.71
135-250	2.36	0.95	3/8-16	1.30	1.00	0.59	0.71
135-051	2.36	0.95	3/8-16	1.30	1.25	0.59	0.71
135-251	2.36	0.95	3/8-16	1.30	2.00	0.59	0.71
135-052	2.36	0.95	1/2-13	1.30	1.25	0.59	0.71
135-252	2.36	0.95	1/2-13	1.30	1.00	0.59	0.71
135-253	2.36	0.95	1/2-13	1.30	2.00	0.59	0.71



• Thermoplastic Material

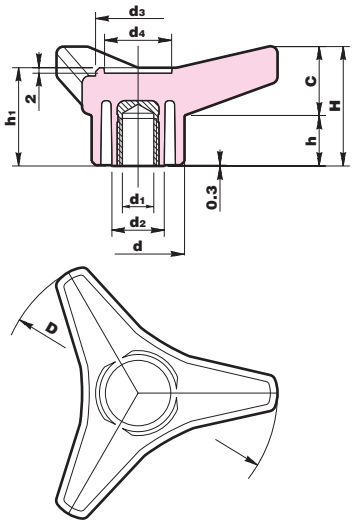
J

CATALOG 13

A tolerance of ± 0.125" is possible on Boteco non-critical measurements.

3 - LOBE HANDWHEEL

Female

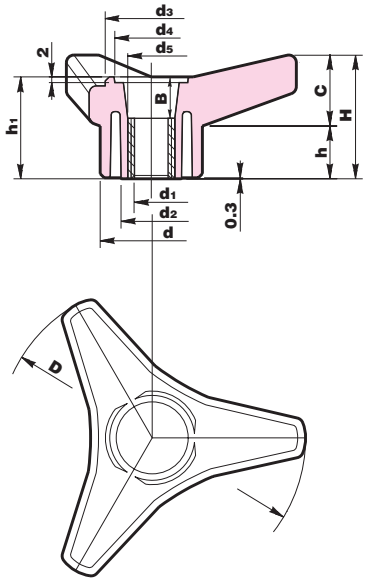


SPAENAUR No.	D	d	d1	d2	d3	d4	h	h1	H	C
135-053	1.77	0.63	1/4-20	-	0.57	0.39	0.39	0.69	0.83	0.43
135-254	1.77	0.63	5/16-18	-	0.57	0.39	0.39	0.69	0.83	0.43
135-255	2.56	0.87	5/16-18	-	0.83	0.59	0.47	0.91	1.10	0.63
135-256	2.56	0.87	3/8-16	-	0.83	0.59	0.47	0.91	1.10	0.63
135-054	3.35	1.18	5/16-18	0.71	1.06	0.79	0.59	1.18	1.42	0.83
135-055	3.35	1.18	3/8-16	0.71	1.06	0.79	0.59	1.18	1.42	0.83
135-056	4.14	1.38	3/8-16	0.79	1.26	0.95	0.75	1.46	1.77	1.02
135-057	4.93	1.65	1/2-13	1.02	1.58	1.06	0.87	1.73	2.09	1.20

• Thermoplastic Material

3 - LOBE HANDWHEEL

Tapped Right Through

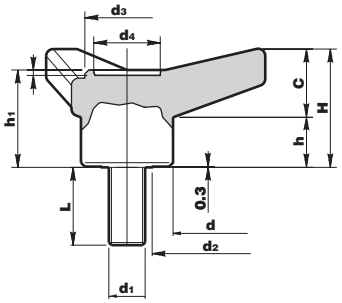


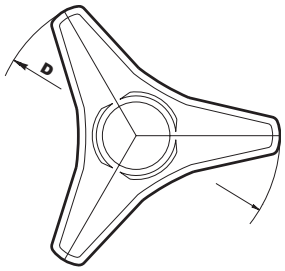
SPAENAUR No.	D	d	d1	d2	d3	d4	d5	h	h1	H	C	B
135-058	1.77	0.63	1/4-20	-	0.57	0.39	0.39	0.39	0.69	0.83	0.43	0.20
135-059	1.77	0.63	3/8-16	-	0.57	0.39	0.39	0.39	0.69	0.83	0.43	0.20
135-060	3.35	1.18	5/16-18	0.71	1.06	0.79	0.55	0.59	1.18	1.42	0.83	0.47
135-061	3.35	1.18	1/2-13	0.71	1.06	0.79	0.55	0.59	1.18	1.42	0.83	0.47
135-062	4.14	1.38	3/8-16	0.79	1.26	0.95	0.67	0.75	1.46	1.77	1.02	0.63
135-063	4.93	1.65	1/2-13	1.02	1.58	1.06	-	0.89	1.73	2.09	1.20	0.47

•Thermoplastic Material

3 - LOBE HANDWHEEL

Male





SPAENAUR No.	D	d	d1	d2	d3	d4	h	h1	H	C	L
135-258	1.77	0.63	1/4-20	-	0.57	0.39	0.39	0.69	0.83	0.43	0.50
135-257	1.77	0.63	1/4-20	-	0.57	0.39	0.39	0.69	0.83	0.43	1.00
135-064	1.77	0.63	1/4-20	-	0.57	0.39	0.39	0.69	0.83	0.43	1.25
135-259	1.77	0.63	5/16-18	-	0.57	0.39	0.39	0.69	0.83	0.43	0.50
135-260	1.77	0.63	5/16-18	-	0.57	0.39	0.39	0.69	0.83	0.43	1.00
135-261	2.56	0.86	5/16-18	-	0.83	0.59	0.47	0.91	1.10	0.63	1.00
135-065	2.56	0.86	5/16-18	-	0.83	0.59	0.47	0.91	1.10	0.63	1.25
135-262	2.56	0.86	3/8-16	-	0.83	0.59	0.47	0.91	1.10	0.63	1.00
135-066	2.56	0.86	3/8-16	-	0.83	0.59	0.47	0.91	1.10	0.63	1.25
135-264	3.35	1.18	3/8-16	0.71	1.06	0.78	0.59	1.18	1.41	0.83	1.00
135-263	3.35	1.18	3/8-16	0.71	1.06	0.78	0.59	1.18	1.41	0.83	1.50
135-265	3.35	1.18	1/2-13	0.71	1.06	0.78	0.59	1.18	1.41	0.83	1.00
135-266	3.35	1.18	1/2-13	0.71	1.06	0.78	0.59	1.18	1.41	0.83	1.50

•Thermoplastic Material

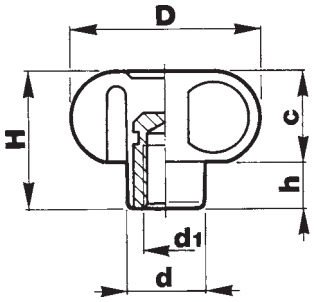
J

4 - LOBE HANDWHEEL

Female

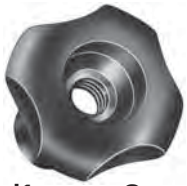
SPAENAUR No.	D	H	d	d1	C	h
135-067	0.79	0.51	0.43	1/4-20	0.32	0.20
135-267	0.98	0.59	0.47	1/4-20	0.35	0.24
135-268	0.98	0.59	0.47	5/16-18	0.35	0.24
135-068	1.18	0.86	0.59	5/16-18	0.55	0.32
135-269	1.18	0.86	0.59	3/8-16	0.55	0.32
135-270	1.58	1.10	0.63	5/16-18	0.75	0.35
135-069	1.58	1.10	0.63	3/8-16	0.75	0.35
135-271	1.97	1.26	0.79	3/8-16	0.87	0.39
135-272	1.97	1.26	0.79	1/2-13	0.87	0.39
135-070	2.36	1.50	0.91	5/16-18	0.95	0.55
135-273	2.36	1.50	0.91	1/2-13	0.95	0.55

•Thermoplastic Material



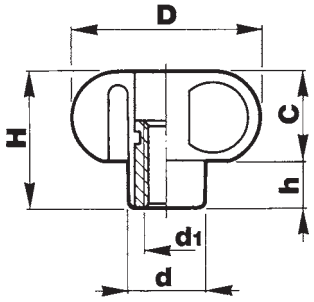
4 - LOBE HANDWHEEL

Tapped Right Through



SPAENAUR No.	D	H	d	d1	C	h
135-071	1.57	1.10	0.63	1/4-20	0.75	0.35
135-072	1.57	1.10	0.63	5/16-18	0.75	0.35
135-274	1.57	1.10	0.63	3/8-16	0.75	0.35

•Thermoplastic Material



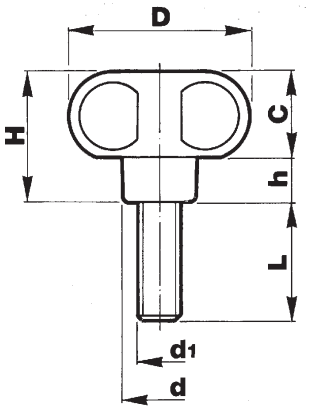
CATALOG 13

A tolerance of ± 0.125" is possible on Boteco non-critical measurements.

4 - LOBE HANDWHEEL

Male

SPAENAUR No.	D	H	d	d1	L	C	h
135-276	0.99	0.59	0.47	1/4-20	0.50	0.35	0.24
135-275	0.99	0.59	0.47	1/4-20	1.00	0.35	0.24
135-073	1.18	0.87	0.59	1/4-20	1.00	0.55	0.32
135-195	1.18	0.87	0.59	1/4-20	1.25	0.55	0.32
135-074	1.18	0.87	0.59	5/16-18	1.00	0.55	0.32
135-196	1.18	0.87	0.59	5/16-18	1.25	0.55	0.32
135-198	1.18	0.87	0.59	3/8-16	1.00	0.55	0.32
135-197	1.18	0.87	0.59	3/8-16	1.25	0.55	0.32
135-199	1.58	1.10	0.63	5/16-18	1.00	0.75	0.35
135-200	1.58	1.10	0.63	5/16-18	1.50	0.75	0.35
135-075	1.58	1.10	0.63	3/8-16	1.00	0.75	0.35
135-201	1.58	1.10	0.63	3/8-16	1.25	0.75	0.35
135-202	1.97	1.26	0.79	3/8-16	1.00	0.87	0.39
135-076	1.97	1.26	0.79	3/8-16	1.50	0.87	0.39
135-204	1.97	1.26	0.79	1/2-13	1.00	0.87	0.39
135-203	1.97	1.26	0.79	1/2-13	1.50	0.87	0.39
135-077	2.36	1.49	0.91	1/2-13	1.50	0.95	0.55
135-205	2.36	1.49	0.91	1/2-13	2.00	0.95	0.55



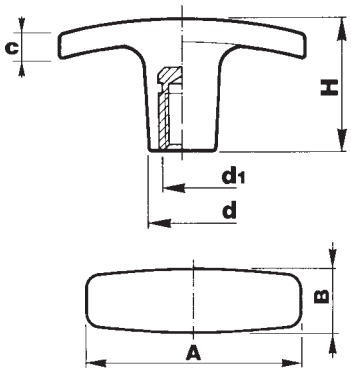
•Thermoplastic Material

J

"T" HANDLE

Female

SPAENAUR No.	A	H	c	d	d1	B
135-078	1.97	0.95	0.20	0.55	1/4-20	0.59
135-079	2.36	1.26	0.24	0.59	5/16-18	0.67

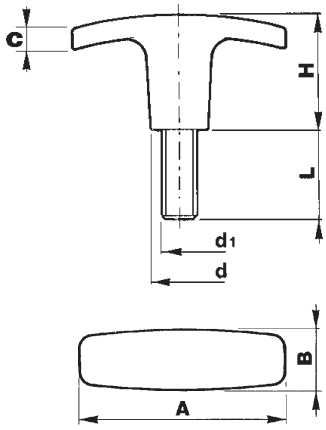


• Thermoplastic Material
Also available with a moulded thread. P.O.R.

"T" HANDLE

Male

SPAENAUR No.	A	H	c	d	d1	B	L
135-080	2.36	1.26	0.24	0.59	1/4-20,	0.67	.75

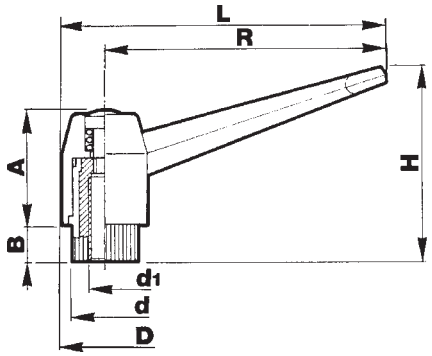


• Thermoplastic Material

CATALOG 13

INDEXED CLAMPING LEVER

Female (with Metal Insert)



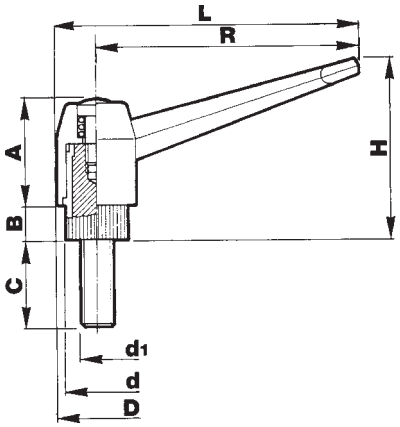
SPAENAUR No.	R	L	H	D	A	d	B	d1
135-081	1.69	2.05	1.38	0.71	0.79	0.47	0.24	1/4-20
135-082	2.56	3.03	1.81	0.91	1.06	0.59	0.32	1/4-20
135-083	2.56	3.03	1.81	0.91	1.06	0.59	0.32	5/16-18
135-084	3.27	3.82	2.25	1.10	1.30	0.75	0.39	5/16-18
135-085	3.27	3.82	2.25	1.10	1.30	0.75	0.39	3/8-16
135-086	4.10	4.73	2.76	1.30	1.54	0.95	0.43	3/8-16
135-206	4.10	4.73	2.76	1.30	1.54	0.95	0.43	1/2-13

• Thermoplastic Material

J

INDEXED CLAMPING LEVER

Male



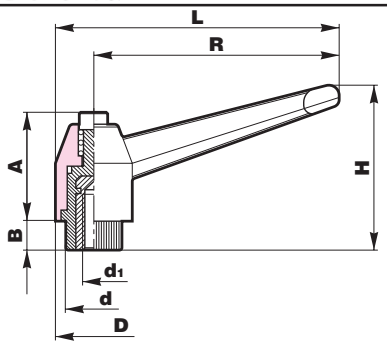
SPAENAUR No.	R	L	H	D	A	d	B	d1	C
135-087	1.69	2.05	1.38	0.71	0.79	0.47	0.24	1/4-20	0.75
135-088	1.69	2.05	1.38	0.71	0.79	0.47	0.24	1/4-20	1.00
135-089	1.69	2.05	1.38	0.71	0.79	0.47	0.24	1/4-20	1.25
135-209	2.56	3.03	1.81	0.91	1.06	0.59	0.32	1/4-20	0.75
135-208	2.56	3.03	1.81	0.91	1.06	0.59	0.32	1/4-20	1.00
135-207	2.56	3.03	1.81	0.91	1.06	0.59	0.32	1/4-20	1.25
135-090	2.56	3.03	1.81	0.91	1.06	0.59	0.32	5/16-18	0.75
135-091	2.56	3.03	1.81	0.91	1.06	0.59	0.32	5/16-18	1.00
135-092	2.56	3.03	1.81	0.91	1.06	0.59	0.32	5/16-18	1.25
135-210	3.27	3.82	2.25	1.10	1.30	0.75	0.39	5/16-18	0.75
135-211	3.27	3.82	2.25	1.10	1.30	0.75	0.39	5/16-18	1.00
135-212	3.27	3.82	2.25	1.10	1.30	0.75	0.39	5/16-18	1.25
135-093	3.27	3.82	2.25	1.10	1.30	0.75	0.39	3/8-16	0.75
135-094	3.27	3.82	2.25	1.10	1.30	0.75	0.39	3/8-16	1.00
135-095	3.27	3.82	2.25	1.10	1.30	0.75	0.39	3/8-16	1.25
135-213	3.27	3.82	2.25	1.10	1.30	0.75	0.39	1/2-13	1.50
135-214	3.27	3.82	2.25	1.10	1.30	0.75	0.39	1/2-13	2.00

• Thermoplastic Material

Attaching screws supplied slotted or hex socket drive at mfr's. option.

CLAMPING LEVER

Push Button (Metal Insert)



SPAENAUR No.	R	L	H	D	A	d	B	d1
135-096	1.69	2.05	1.38	0.71	0.79	0.47	0.24	1/4-20
135-215	2.56	3.03	1.81	0.91	1.06	0.59	0.32	1/4-20
135-097	2.56	3.03	1.81	0.91	1.06	0.59	0.32	5/16-18
135-098	3.27	3.82	2.25	1.10	1.30	0.75	0.39	5/16-18
135-216	3.27	3.82	2.25	1.10	1.30	0.75	0.39	3/8-16
135-217	4.10	4.73	2.76	1.30	1.54	0.95	0.43	3/8-16
135-099	4.10	4.73	2.76	1.30	1.54	0.95	0.43	1/2-13

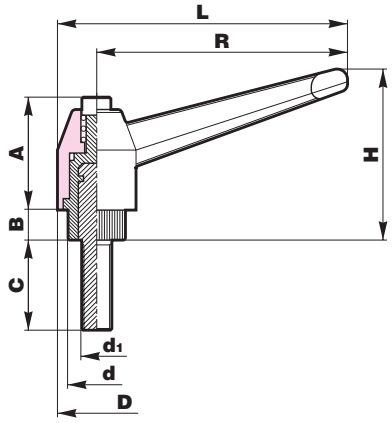
• Black Thermoplastic Material

The push button can be special ordered in the following colours: Red - RAL 3000, Orange - RAL 2004, Blue - RAL 5015, Yellow - RAL 1007. Price on Request.

J

CLAMPING LEVER

Push Button (Male Thread) with zinc plated steel stud.



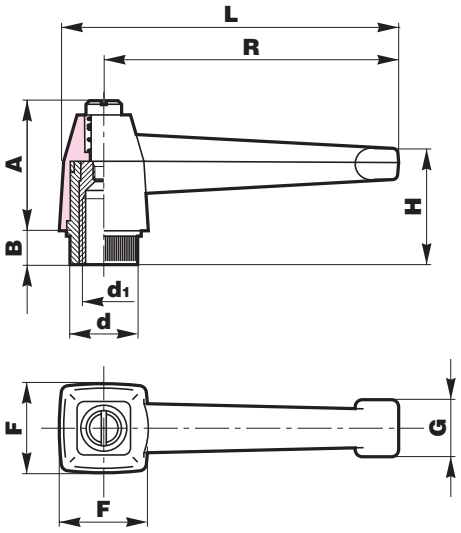
SPAENAUR No.	R	L	H	D	A	d	B	C	d1
135-100	1.69	2.05	1.38	0.71	0.79	0.47	0.24	0.75	1/4-20
135-101	1.69	2.05	1.38	0.71	0.79	0.47	0.24	1.00	1/4-20
135-220	2.56	3.03	1.81	0.91	1.06	0.89	0.32	0.75	1/4-20
135-219	2.56	3.03	1.81	0.91	1.06	0.89	0.32	1.00	1/4-20
135-102	2.56	3.03	1.81	0.91	1.06	0.89	0.32	1.25	1/4-20
135-103	2.56	3.03	1.81	0.91	1.06	0.89	0.32	0.75	5/16-18
135-104	2.56	3.03	1.81	0.91	1.06	0.89	0.32	1.00	5/16-18
135-221	2.56	3.03	1.81	0.91	1.06	0.89	0.32	1.25	5/16-18
135-222	3.27	3.82	2.25	1.10	1.30	0.75	0.39	0.75	5/16-18
135-223	3.27	3.82	2.25	1.10	1.30	0.75	0.39	1.00	5/16-18
135-105	3.27	3.82	2.25	1.10	1.30	0.75	0.39	1.25	5/16-18
135-106	3.27	3.82	2.25	1.10	1.30	0.75	0.39	1.00	3/8-16
135-107	3.27	3.82	2.25	1.10	1.30	0.75	0.39	1.25	3/8-16
135-224	3.27	3.82	2.25	1.10	1.30	0.75	0.39	1.50	1/2-13
135-225	3.27	3.82	2.25	1.10	1.30	0.75	0.39	2.00	1/2-13

• Thermoplastic Material

The push button can be special ordered in the following colours: Red - RAL 3000, Orange - RAL 2004, Blue - RAL 5015, Yellow - RAL 1007. Price on Request.

CLAMPING LEVER WITH 90° ARM

Female (with Steel Insert)



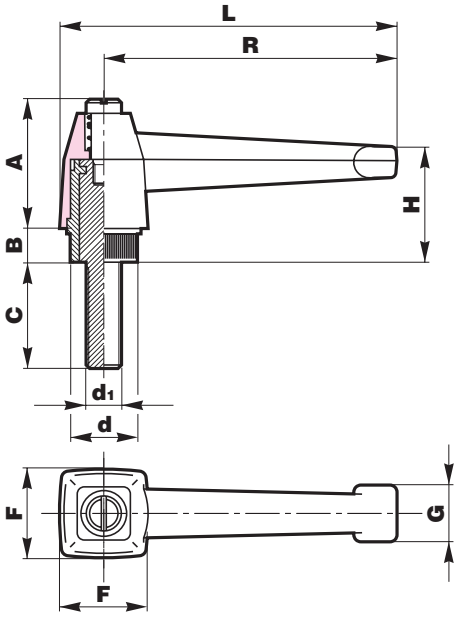
SPAENAUR No.	R	L	H	d	A	B	F	G	d1
135-108	3.27	3.70	0.95	0.75	1.46	0.39	0.99	0.63	5/16-18

• Thermoplastic Material

J

CLAMPING LEVER WITH 90° ARM

Male



SPAENAUR No.	R	L	H	d	A	B	F	G	C	d1
135-109	3.27	3.70	0.95	0.75	1.46	0.39	0.99	0.63	1.25	5/16-18

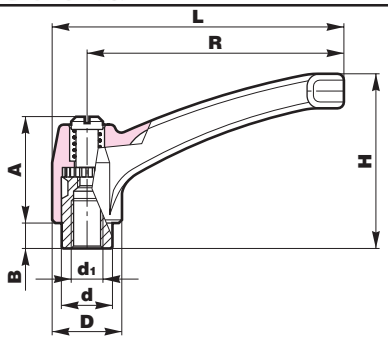
• Thermoplastic Material

CATALOG 13

Attaching screws supplied slotted or hex socket drive at mfgr's. option.

ZINC DIE CAST INDEXED

Clamping Lever
Female, with Steel Insert



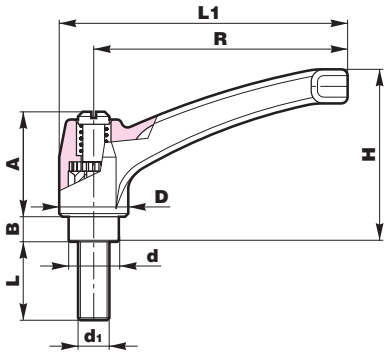
SPAENAUR No.	R	L	H	A	B	D	d	d1
135-130	1.69	1.97	1.20	0.95	0.20	0.55	0.39	1/4-20
135-226	2.56	2.96	1.77	1.10	0.28	0.75	0.55	1/4-20
135-131	2.56	2.96	1.77	1.10	0.28	0.75	0.55	5/16-18
135-132	3.15	3.59	2.21	1.32	0.33	0.87	0.63	5/16-18
135-133	3.15	3.59	2.21	1.32	0.33	0.87	0.63	3/8-16
135-134	3.70	4.22	2.56	1.54	0.39	1.02	0.79	3/8-16
135-227	3.70	4.22	2.56	1.54	0.39	1.02	0.79	1/2-13

Colour: Chemical Black
Other colours and finishes can be special ordered as follows: Black - RAL 9011 gloss finish, Black - RAL 1/4-209005 matt finish, Orange - RAL 2004 gloss finish, Grey - RAL 7031 gloss finish. Price on Request.

J

ZINC DIE CAST INDEXED

Clamping Lever
Male



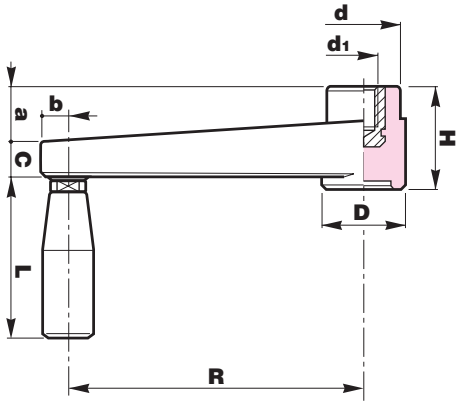
SPAENAUR No.	R	L1	H	L	A	B	D	d	d1
135-110	1.69	1.97	1.20	0.75	0.95	0.20	0.55	0.39	1/4-20
135-111	1.69	1.97	1.20	1.00	0.95	0.20	0.55	0.39	1/4-20
135-228	1.69	1.97	1.20	1.25	0.95	0.20	0.55	0.39	1/4-20
135-229	2.56	2.96	1.77	1.00	1.06	0.28	0.75	0.55	1/4-20
135-112	2.56	2.96	1.77	1.25	1.06	0.28	0.75	0.55	1/4-20
135-113	2.56	2.96	1.77	0.75	1.06	0.28	0.75	0.55	5/16-18
135-114	2.56	2.96	1.77	1.00	1.06	0.28	0.75	0.55	5/16-18
135-230	2.56	2.96	1.77	1.25	1.06	0.28	0.75	0.55	5/16-18
135-231	2.56	2.96	1.77	1.00	1.06	0.28	0.75	0.55	3/8-16
135-232	2.56	2.96	1.77	1.25	1.06	0.28	0.75	0.55	3/8-16
135-115	3.15	3.59	2.21	1.25	1.32	0.33	0.87	0.63	5/16-18
135-116	3.15	3.59	2.21	1.00	1.32	0.33	0.87	0.63	1/2-13
135-117	3.15	3.59	2.21	1.25	1.32	0.33	0.87	0.63	1/2-13

• Thermoplastic Material
Colour: Chemical Black
Other colours and finishes can be special ordered as follows: Black - RAL 9011 gloss finish, Black - RAL 9005 matt finish, Orange - RAL 2004 gloss finish, Grey - RAL 7031 gloss finish. Price on Request.

CATALOG 13

CRANK HANDLE

Female, with Metal Insert

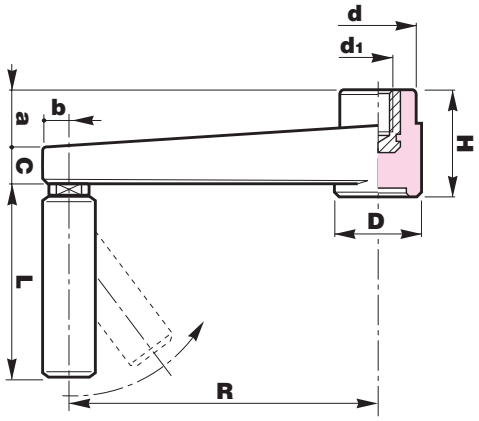


SPAENAUR No.	R	H	d	D	d1	C	a	L	b
135-118	3.15	1.30	1.02	1.22	5/16-18	0.51	0.71	2.21	0.43
135-119	4.33	1.54	1.14	1.34	3/8-16	0.55	0.99	2.60	0.47
135-120	5.52	1.93	1.38	1.69	1/2-13	0.63	1.38	2.99	0.51

• Thermoplastic Material

CRANK HANDLE

With Folding Handle
Female, with Metal Insert

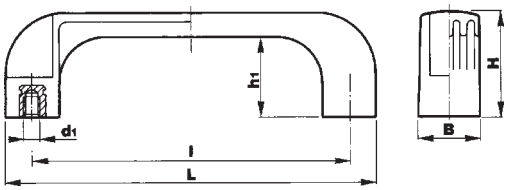


SPAENAUR No.	R	H	d	D	d1	C	a	L	b
135-121	3.15	1.30	1.02	1.22	5/16-18	0.51	0.71	2.21	0.43
135-122	4.33	1.54	1.14	1.34	3/8-16	0.55	0.99	2.60	0.47
135-123	5.52	1.93	1.38	1.69	1/2-13	0.63	1.38	2.99	0.51

• Thermoplastic Material

BRIDGE HANDLE

Female Insert

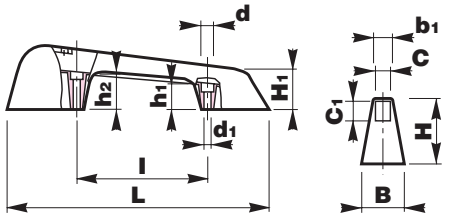


SPAENAUR No.	L	l	B	H	h1	d	d1
135-236	4.33	3.70	0.83	1.46	1.14	0.43	1/4-20
135-124	5.51	4.61	0.95	1.58	1.20	0.55	1/4-20
135-125	5.95	5.20	1.02	1.69	1.30	0.55	5/16-18
135-126	10.24	9.26	1.26	2.09	1.62	0.67	3/8-16

• Thermoplastic Material

A tolerance of ± 0.125" is possible on Boteco non-critical measurements.

BRIDGE HANDLE



SPAENAUR No.	L	l	B	b1	H	H1	h1	h2	d	d1	C	C1
135-127	10.56	5.20	1.73	0.79	2.52	1.81	3.39	1.34	0.53	0.33	0.61	0.81

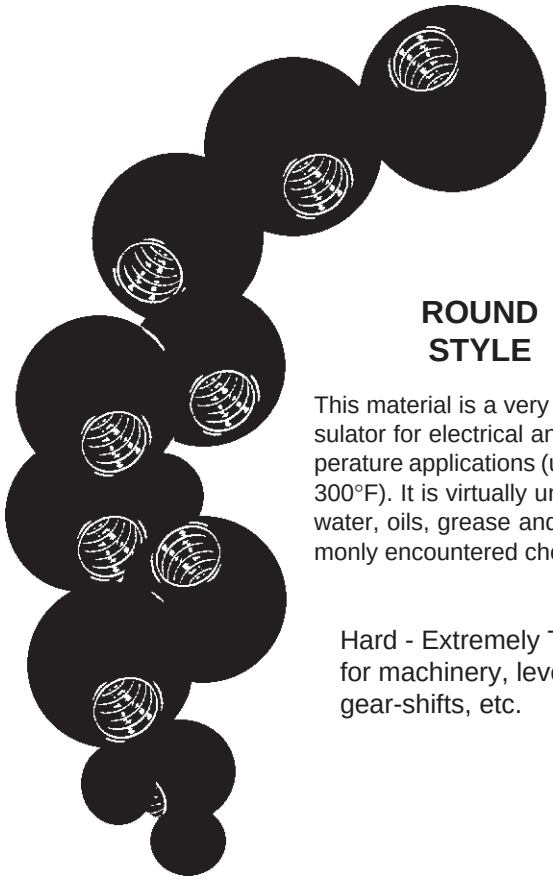
• Thermoplastic Material

A tolerance of ± 0.125" is possible on Boteco non-critical measurements.

J

See pages L109-0 and L109-1 for Boteco Plastic Hinges.

J



ROUND STYLE

This material is a very effective insulator for electrical and high-temperature applications (up to 149°C, 300°F). It is virtually unaffected by water, oils, grease and most commonly encountered chemicals.

Hard - Extremely Tough for machinery, levers, gear-shifts, etc.

See page J89 for Round Style with Tapped Brass Inserts.

BLACK PHENOLIC BALL KNOBS

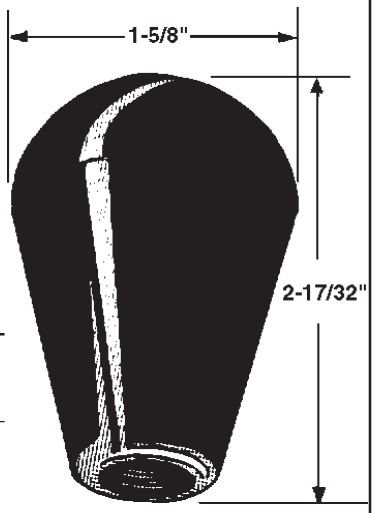
Inch Sizes

SPAENAUR No.	Outside Dia.	Thread Size	Depth of Thread
134-208	1"	10-24	1/2"
134-209	1"	1/4"-20	1/2"
K-51-1	1"	5/16"-18	1/2"
K-51	1"	3/8"-16	1/2"
134-210	1-1/4"	5/16"-18	1/2"
K-52	1-1/4"	3/8"-16	3/4"
134-067	1-1/4"	1/2"-13	27/32"
134-068	1-1/4"	5/8"-11	29/32"
134-066	1-3/8"	1/4"-20	1/2"
134-069	1-3/8"	5/16"-18	1/2"
K-53	1-3/8"	3/8"-16	3/4"
134-199	1-1/2"	1/4"-20	1/2"
134-212	1-1/2"	1/2"-13	1"
134-207	1-5/8"	5/16"-18	1"
134-211	1-5/8"	5/16"-24	1"
134-200	1-5/8"	3/8"-16	1"
134-202	1-5/8"	5/8"-11	1"
K-54	1-7/8"	3/8"-16	1-1/4"
K-54-2	1-7/8"	1/2"-13	1"
134-073	1-7/8"	5/8"-11	3/4"
K-54-1	1-7/8"	5/8"-18	7/8"

Metric (Coarse) Thread

134-615	1-1/4"	M8	3/4"
134-600	1-1/4"	M10	3/4"
134-601	1-3/8"	M10	3/4"
134-603	1-5/8"	M12	7/8"
134-604	1-5/8"	M16	1"
134-605	1-7/8"	M12	1"
134-606	1-7/8"	M14	7/8"
134-607	1-7/8"	M16	7/8"

PEAR SHAPE

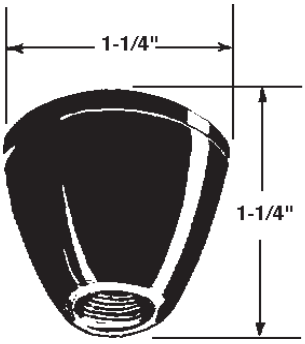


Inch Sizes

SPAENAUR No.	Outside Dia.	Thread Size	Depth of Thread
134-204	1-5/8"	3/8"-16	1-1/8"
134-205	1-5/8"	1/2"-13	1-1/8"
134-203	1-5/8"	5/8"-11	1-1/8"

Metric (Coarse) Thread

134-608	1-5/8"	M14	1-1/8"
134-609	1-5/8"	M16	1-1/8"



ACORN SHAPE

Inch Sizes

SPAENAUR No.	Outside Dia.	Thread Size	Depth of Thread
134-206	1-1/4"	3/8"-16	5/8"

Metric (Coarse) Thread

134-610	1-1/4"	M10	5/8"

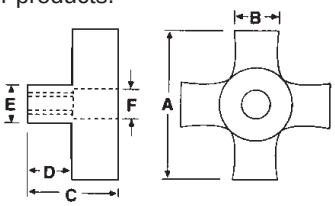
All items on this page Unit Package 10.

4-PRONG PLASTIC KNOBS

Black Phenolic with Brass insert

Excellent gripping action. Widely used for machines, components, clamping and consumer products.

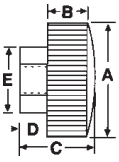
Thru Hole Brass Insert



SPAENAUR No.	A	B	C	D	E	Insert Thread	Insert Depth	F	Pkg. Qty.
134-021	1-1/4"	1/4"	7/8"	3/8"	5/8"	1/4"-20	1/2"	11/32"	10
134-022	1-3/4"	1/4"	1"	1/2"	13/16"	5/16"-18	5/8"	5/8"	10
134-019	1-3/4"	1/4"	1"	1/2"	13/16"	5/16"-24	5/8"	7/16"	10
134-018	1-3/4"	1/4"	1"	1/2"	13/16"	3/8"-16	5/8"	7/16"	10
134-023	2-1/4"	5/16"	1-1/8"	9/16"	1"	1/2"-13	5/8"	5/8"	10
134-020	2-1/4"	5/16"	1-1/8"	9/16"	1"	1/2"-20	5/8"	5/8"	10

KNURLED PLASTIC KNOB

Black Phenolic with Brass insert

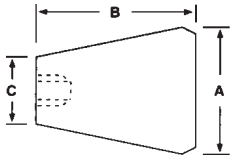


Ideally suited for medium and light duty applications.

SPAENAUR No.	A	B	C	D	E	Insert Thread	Insert Depth	Pkg. Qty.
134-016	1-7/8"	5/16"	1"	1/2"	1"	3/8"-16	1/2"	10

TAPERED PLASTIC KNOB

Black Phenolic with Brass insert



Ideal for finger tip levers and push-pull or lid knobs.

SPAENAUR No.	A	B	C	Insert Thread	Insert Depth	Pkg. Qty.
134-017	3/4"	7/8"	3/8"	8-32	5/16"	10

POLYETHYLENE (Plastic) BUSHING

for *SPAENAUR No.* K-27 Gear Shift Knob

EASY TO INSERT, JUST TURN THEM IN.

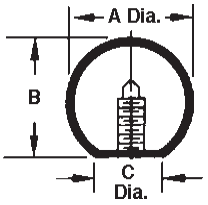
Unit Package 12

SPAENAUR No.	Size
K-34	for 5/16" Shafts
K-35	for 3/8" Shafts

BLACK PHENOLIC BALL KNOBS

This material is a very effective insulator for electrical and high-temperature applications (up to 149°C, 300°F). It is virtually unaffected by water, oils, grease and most commonly encountered chemicals.

With... Tapped Brass Inserts for greater thread strength.



ROUND STYLE

Inch Sizes

SPAENAUR No.	Thread Size	Dimensions A	B	C
134-015	1/4"-20	3/4"	11/16"	3/8"
134-001	10-24	1"	31/32"	1/2"
134-004	1/4"-20	1"	31/32"	1/2"
134-002	5/16"-18	1"	31/32"	1/2"
134-003	3/8"-16	1"	31/32"	1/2"
134-005	1/4"-20	1-3/8"	1-19/64"	5/8"
134-006	5/16"-18	1-3/8"	1-19/64"	5/8"
134-007	3/8"-16	1-3/8"	1-19/64"	5/8"
134-008	5/16"-18	1-5/8"	1-37/64"	11/16"
134-009	3/8"-16	1-5/8"	1-37/64"	11/16"
134-010	1/2"-13	1-5/8"	1-37/64"	11/16"
134-011	3/8"-16	1-7/8"	1-51/64"	3/4"
134-012	1/2"-13	1-7/8"	1-51/64"	3/4"
134-014	5/8"-11	1-7/8"	1-51/64"	3/4"
Metric (Coarse) Thread				
134-611	M10	1-3/8"	1-19/64"	5/8"
134-612	M12	1-3/8"	1-19/64"	5/8"
134-613	M12	1-7/8"	1-51/64"	3/4"
134-614	M16	1-7/8"	1-51/64"	3/4"

All above items, Unit Package 10.

UNIVERSAL GEARSHIFT KNOB

SPAENAUR No. **K-27**

Black Plastic

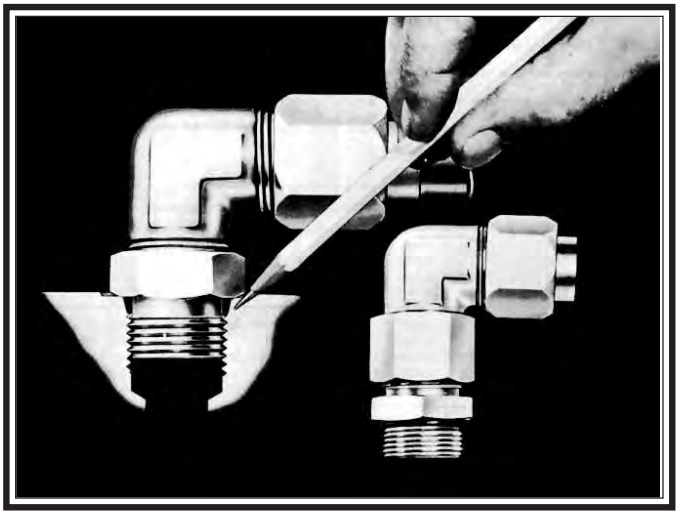
Tapped 5/8"-18.
Will take plastic bushings to fit 1/4", 5/16", 3/8", and 7/16" dia. shafts.

Unit Package 12

For more KNOBS, see pages B335, B336, C54 & J74-J80.

J

FOR TUBE FITTINGS



SPAENAUR can supply the right NITRILE O-Ring to suit YOUR purpose.

The Nitrile O-Rings listed below are made especially for use with internal straight fluid connection bosses and tube fittings.

Temperature Range -40 to +121°C (-40 to +250°F) 70 Durometer *SPAENAUR No.*	Temperature Range -34 to +121°C (-30 to +250°F) 90 Durometer *SPAENAUR No.*	TUBE SIZE		O-RING SIZE Thread	
		Tube O.D.	Size	I.D.	W.
OR-901N	OR-901NA	3/32"		.185"	.056"
OR-902N	OR-902NA	1/8"	5/16"-24	.239"	.064"
OR-903N	OR-903NA	3/16"	3/8"-24	.301"	.064"
OR-904N	OR-904NA	1/4"	7/16"-20	.351"	.072"
OR-905N	OR-905NA	5/16"	1/2"-20	.414"	.072"
OR-906N	OR-906NA	3/8"	9/16"-18	.468"	.078"
OR-907N	OR-907NA	7/16"		.530"	.082"
OR-908N	OR-908NA	1/2"	3/4"-16	.644"	.087"
OR-909N	OR-909NA	9/16"		.706"	.097"
OR-910N	OR-910NA	5/8"	7/8"-14	.755"	.097"
OR-911N	OR-911NA	11/16"		.863"	.116"
OR-912N	OR-912NA	3/4"	1-1/16"-12	.924"	.116"
OR-913N	OR-913NA	13/16"		.986"	.116"
OR-914N	OR-914NA	7/8"	1-3/16"-12	1.047"	.116"
OR-916N	OR-916NA	1"	1-5/16"-12	1.171"	.116"
OR-918N	OR-918NA	1-1/8"		1.355"	.116"
OR-920N	OR-920NA	1-1/4"	1-5/8"-12	1.475"	.118"
OR-924N	OR-924NA	1-1/2"	1-7/8"-12	1.720"	.118"
OR-928N	OR-928NA	1-3/4"	2-1/2"-12	2.090"	.118"
OR-932N	OR-932NA	2		2.337"	.118"

UNIT PACKAGE QUANTITIES SHOWN IN PRICE LIST.

STOCKED O-RINGS in SPECIAL COMPOUNDS

SPAENAUR No.	O-RING SIZE I.D.	O.D.	W.	TYPE OF COMPOUND	TEMPERATURE RANGE (°C)	DURO-METER	UNIT PKG.
OR-006-N-H	1/8"	1/4"	1/16"	N299-50 Nitrile, Black	-54 to +107	50	100
324-001	11/16"	15/16"	1/8"	C557-7 Neoprene, CR, Black	-54 to +149	70	100
324-002	1/2"	5/8"	1/16"	C557-7 Neoprene, CR, Black	-54 to +149	70	100

From Stock - the FULL RANGE . . . .

INCH SIZES

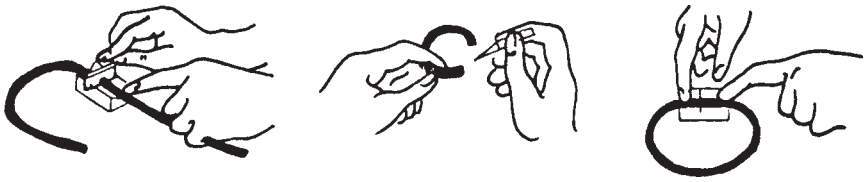
See pages J91 to J95.

METRIC SIZES

See pages J98 & J99.

OR - "Make Your Own" - See below

INCH
O-RING
SPLICING CORD
Nitrile



Solve that problem of LARGE O-Ring availability. Use the ***SPAENAUR No.* 805-457** Splicing Kit to make practically any (inch) size O-Ring right on the job. Instructions, adhesive, razor blade, cutting & splicing jig, also 5 sizes of 70 durometer Nitrile cord, all included in kit. Or, you can purchase the cord in continuous lengths, as listed below, along with tubes of the rapid-set adhesive, etc.

SPAENAUR No.
805-457
O-RING SPLICING KIT
Priced Singly

Kit comes in a Regular Size Grey Enamelled STEEL drawer, and will fit the Slide Racks as shown on page A2.

Drawer: $13^3/_8$" x $9^1/_4$" x 2"

Shipping Weight 1.93 kg (4-1/4 lbs.)

Kit contains:	Diameter
5 ft. Nitrile Cord	0.070"
5 ft. Nitrile Cord	0.103"
5 ft. Nitrile Cord	0.139"
5 ft. Nitrile Cord	0.210"
5 ft. Nitrile Cord	0.275"

Contents of Assortment 805-457 are 5 ft. lengths of cord selected from Spaenaur Numbers, listed in the chart at right, indicated by a triangle (▲), plus items shown below.

Also Included in Kit

1 Cutting & Splicing Jig (877-505), 1 Razor Blade (877-504), 1 Tube Adhesive 3g (800-001), and Instructions

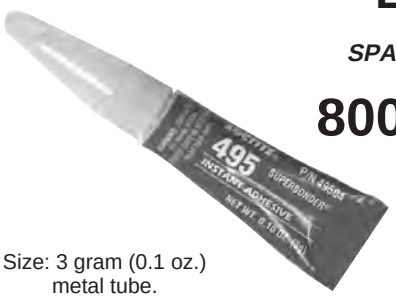
O-RING SPLICING CORD
INCH SIZES

70 Durometer Nitrile (Buna N)

For general purpose, mineral & petroleum oil, air and water.
Operating temp: -40° to +121°C

SPAENAUR No.	Diameter	Unit Pkg. Quantity
▲825-173	0.070"	100 ft.
▲825-174	0.103"	100 ft.
▲825-175	0.139"	100 ft.
825-507	0.1875"	100 ft.
▲825-176	0.210"	100 ft.
▲825-177	0.275"	50 ft.
825-178	0.313"	50 ft.
825-179	0.375"	50 ft.

LOCTITE® Super Bonder® Adhesive



Size: 3 gram (0.1 oz.) metal tube.

Priced Singly.

SPAENAUR No.
800-001

General purpose instant adhesive designed to bond rubber, metal, and plastics parts with gap to 0.004".

Note: Store in a dry, cool place. Better still, refrigerate until needed.

Caution: Contains
Ethyl cyanoacrylate
Poly (methyl methacrylate)
HYDROQUINONE

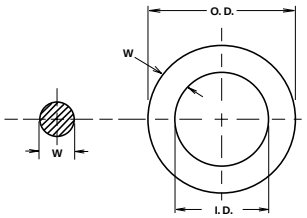
Technical Information:

Colour:	Clear	**Temperature Range:**	-65° to 180°F (-54° to 82°C)
Gap Fill:	.004"	**Cure Speed*:**	
Resin Base:	Ethyl	Fixture:	20 - 40 sec.
Viscosity cP:	40	Full:	24 Hours
Strength psi Tensile Shear:**	2,500	**Specific Gravity:**	1.05

** Grit-blasted steel. *Varies with substrates.

See page J98 for METRIC O-Ring Splicing Cord.

Colour: **BLACK**



O-Rings of NITRILE (BUNA N)

All "N" suffixed rings listed on pages J92 and J93 are furnished in 70 Shore A Durometer, NITRILE (Buna N). They are recommended for general purpose sealing, and particularly for use with petroleum oils and fluids, water, silicone greases and oils, di-ester base lubricants, and ethylene glycol base fluids.

O-Rings are also widely used for power transmission from small motors. All measurements are in inches and are subject to commercial tolerances.
Temperature Range -40° to +121°C (-40° to +250°F).

SPAENAUR No.	I.D.	Nom. O.D.	W.	*SPAENAUR No.*	I.D.	Nom. O.D.	W.	*SPAENAUR No.*	I.D.	Nom. O.D.	W.	*SPAENAUR No.*	I.D.	Nom. O.D.	W.
OR-001N	.029	3/32	.040	**OR-043N**	3.489	3-5/8	.070	**OR-141N**	2.300	2-1/2	.103	**OR-211N**	.796	1-1/16	.139
OR-002N	.041	9/64	.050	**OR-044N**	3.739	3-7/8	.070	**OR-142N**	2.362	2-9/16	.103	**OR-212N**	.859	1-1/8	.139
				OR-045N	3.989	4-1/8	.070	**OR-143N**	2.425	2-5/8	.103	**OR-213N**	.921	1-3/16	.139
OR-003N	.056	3/16	.060	**OR-046N**	4.239	4-3/8	.070	**OR-144N**	2.487	2-11/16	.103	**OR-214N**	.984	1-1/4	.139
OR-004N	.070	13/64	.070	**OR-047N**	4.489	4-5/8	.070	**OR-145N**	2.550	2-3/4	.103	**OR-215N**	1.046	1-5/16	.139
OR-005N	.101	7/32	.070	**OR-048N**	4.739	4-7/8	.070	**OR-146N**	2.612	2-13/16	.103	**OR-216N**	1.109	1-3/8	.139
OR-006N	.114	1/4	.070	**OR-049N**	4.989	5-1/8	.070	**OR-147N**	2.675	2-7/8	.103	**OR-217N**	1.171	1-7/16	.139
OR-007N	.145	9/32	.070	**OR-050N**	5.239	5-3/8	.070	**OR-148N**	2.737	2-15/16	.103	**OR-218N**	1.234	1-1/2	.139
OR-008N	.176	5/16	.070					**OR-149N**	2.800	3	.103	**OR-219N**	1.296	1-9/16	.139
OR-009N	.208	11/32	.070	**OR-104N**	.112	5/16	.103	**OR-150N**	2.862	3-1/16	.103	**OR-220N**	1.359	1-5/8	.139
OR-010N	.239	3/8	.070	**OR-106N**	.174	3/8	.103	**OR-151N**	2.987	3-3/16	.103	**OR-221N**	1.421	1-11/16	.139
OR-011N	.301	7/16	.070	**OR-108N**	.237	7/16	.103	**OR-152N**	3.237	3-7/16	.103	**OR-222N**	1.484	1-3/4	.139
OR-012N	.364	1/2	.070	**OR-110N**	.362	9/16	.103	**OR-153N**	3.487	3-11/16	.103	**OR-223N**	1.609	1-7/8	.139
OR-013N	.426	9/16	.070	**OR-111N**	.424	5/8	.103	**OR-154N**	3.737	3-15/16	.103	**OR-224N**	1.734	2	.139
OR-014N	.489	5/8	.070	**OR-112N**	.487	11/16	.103	**OR-155N**	3.987	4-3/16	.103	**OR-225N**	1.859	2-1/8	.139
OR-015N	.551	11/16	.070	**OR-113N**	.549	3/4	.103	**OR-156N**	4.237	4-7/16	.103	**OR-226N**	1.984	2-1/4	.139
OR-016N	.614	3/4	.070	**OR-114N**	.612	13/16	.103	**OR-157N**	4.487	4-11/16	.103	**OR-227N**	2.109	2-3/8	.139
OR-017N	.676	13/16	.070	**OR-115N**	.674	7/8	.103	**OR-158N**	4.737	4-15/16	.103	**OR-228N**	2.234	2-1/2	.139
OR-018N	.739	7/8	.070	**OR-116N**	.737	15/16	.103	**OR-159N**	4.987	5-3/16	.103	**OR-229N**	2.359	2-5/8	.139
OR-019N	.801	15/16	.070	**OR-117N**	.799	1	.103	**OR-160N**	5.237	5-7/16	.103	**OR-230N**	2.484	2-3/4	.139
OR-020N	.864	1	.070	**OR-118N**	.862	1-1/16	.103	**OR-161N**	5.487	5-11/16	.103	**OR-231N**	2.609	2-7/8	.139
OR-021N	.926	1-1/16	.070	**OR-119N**	.924	1-1/8	.103	**OR-162N**	5.737	5-15/16	.103	**OR-232N**	2.734	3	.139
OR-022N	.989	1-1/8	.070	**OR-120N**	.987	1-3/16	.103	**OR-163N**	5.987	6-3/16	.103	**OR-233N**	2.859	3-1/8	.139
OR-023N	1.051	1-3/16	.070	**OR-121N**	1.049	1-1/4	.103	**OR-164N**	6.237	6-7/16	.103	**OR-234N**	2.984	3-1/4	.139
OR-024N	1.114	1-1/4	.070	**OR-122N**	1.112	1-5/16	.103	**OR-165N**	6.487	6-11/16	.103	**OR-235N**	3.109	3-3/8	.139
OR-025N	1.176	1-5/16	.070	**OR-123N**	1.174	1-3/8	.103	**OR-166N**	6.737	6-15/16	.103	**OR-236N***	3.234	3-1/2	.139
OR-026N	1.239	1-3/8	.070	**OR-124N**	1.237	1-7/16	.103	**OR-167N**	6.987	7-3/16	.103	**OR-237N**	3.359	3-5/8	.139
OR-027N	1.301	1-7/16	.070	**OR-125N**	1.299	1-1/2	.103	**OR-168N**	7.237	7-7/16	.103	**OR-238N**	3.484	3-3/4	.139
OR-028N	1.364	1-1/2	.070	**OR-126N**	1.362	1-9/16	.103	**OR-169N**	7.487	7-11/16	.103	**OR-239N**	3.609	3-7/8	.139
OR-029N	1.489	1-5/8	.070	**OR-127N**	1.424	1-5/8	.103	**OR-170N**	7.737	7-15/16	.103	**OR-240N**	3.734	4	.139
OR-030N	1.614	1-3/4	.070	**OR-128N**	1.487	1-11/16	.103	**OR-171N**	7.987	8-3/16	.103	**OR-241N**	3.859	4-1/8	.139
OR-031N	1.739	1-7/8	.070	**OR-129N**	1.549	1-3/4	.103	**OR-172N**	8.237	8-7/16	.103	**OR-242N**	3.984	4-1/4	.139
OR-032N	1.864	2	.070	**OR-130N**	1.612	1-13/16	.103	**OR-173N**	8.487	8-11/16	.103	**OR-243N**	4.109	4-3/8	.139
OR-033N	1.989	2-1/8	.070	**OR-131N**	1.674	1-7/8	.103	**OR-174N**	8.737	8-15/16	.103	**OR-244N**	4.234	4-1/2	.139
OR-034N	2.114	2-1/4	.070	**OR-132N**	1.737	1-15/16	.103	**OR-175N**	8.987	9-3/16	.103	**OR-245N**	4.359	4-5/8	.139
OR-035N	2.239	2-3/8	.070	**OR-133N**	1.799	2	.103	**OR-176N**	9.237	9-7/16	.103	**OR-246N**	4.484	4-3/4	.139
OR-036N	2.364	2-1/2	.070	**OR-134N**	1.862	2-1/16	.103	**OR-177N**	9.487	9-11/16	.103	**OR-247N**	4.609	4-7/8	.139
OR-037N	2.489	2-5/8	.070	**OR-135N**	1.925	2-1/8	.103	**OR-178N**	9.737	9-15/16	.103	**OR-248N**	4.734	5	.139
OR-038N	2.614	2-3/4	.070	**OR-136N**	1.987	2-3/16	.103					**OR-249N**	4.859	5-1/8	.139
OR-039N	2.739	2-7/8	.070	**OR-137N**	2.050	2-1/4	.103	**OR-205N**	.421	11/16	.139	**OR-250N**	4.984	5-1/4	.139
OR-040N	2.864	3	.070	**OR-138N**	2.112	2-5/16	.103	**▲318-004**	7/16	11/16	1/8	**OR-251N**	5.109	5-3/8	.139
OR-041N	2.989	3-1/8	.070	**OR-139N**	2.175	2-3/8	.103	**▲318-005**	1/2	3/4	1/8	**OR-252N**	5.234	5-1/2	.139
OR-042N	3.239	3-3/8	.070	**OR-140N**	2.237	2-7/16	.103	**OR-210N**	.734	1	.139	**OR-253N**	5.359	5-5/8	.139

SEE PRICE LIST FOR UNIT PACKAGE QUANTITIES.

See page J96 for O-Ring ASSORTMENT A-216
See page J97 for O-Ring Plastikit 804-069

▲Cross-section of Quad Rings 318-004 & 318-005

***OR-236EA** - Ethylene Propylene

continued next page…

…Cont'd.

O-Rings of NITRILE (BUNA N)

SPAENAUR No.	I.D.	Nom. O.D.	W.	SPAENAUR No.	I.D.	Nom. O.D.	W.	SPAENAUR No.	I.D.	Nom. O.D.	W.	SPAENAUR No.	I.D.	Nom. O.D.	W.
OR-254N	5.484	5-3/4	.139	**OR-333N**	2.475	2-7/8	.210	**OR-373N**	8.975	9-3/8	.210	**OR-441N**	6.975	7-1/2	.275
OR-255N	5.609	5-7/8	.139	**OR-334N**	2.600	3	.210	**OR-374N**	9.225	9-5/8	.210	**OR-442N**	7.225	7-3/4	.275
OR-256N	5.734	6	.139	**OR-335N**	2.725	3-1/8	.210	**OR-375N**	9.475	9-7/8	.210	**OR-443N**	7.475	8	.275
OR-257N	5.859	6-1/8	.139	**OR-336N**	2.850	3-1/4	.210	**OR-376N**	9.725	10-1/8	.210	**OR-444N**	7.725	8-1/4	.275
OR-258N	5.984	6-1/4	.139	**OR-337N**	2.975	3-3/8	.210	**OR-377N**	9.975	10-3/8	.210	**OR-445N**	7.975	8-1/2	.275
OR-259N	6.234	6-1/2	.139	**OR-338N**	3.100	3-1/2	.210	**OR-378N**	10.475	10-7/8	.210	**OR-446N**	8.475	9	.275
OR-260N	6.484	6-3/4	.139	**OR-339N**	3.225	3-5/8	.210	**OR-379N**	10.975	11-3/8	.210	**OR-447N**	8.975	9-1/2	.275
OR-261N	6.734	7	.139	**OR-340N**	3.350	3-3/4	.210	**OR-380N**	11.475	11-7/8	.210	**OR-448N**	9.475	10	.275
OR-262N	6.984	7-1/4	.139	**OR-341N**	3.475	3-7/8	.210	**OR-381N**	11.975	12-3/8	.210	**OR-449N**	9.975	10-1/2	.275
OR-263N	7.234	7-1/2	.139	**OR-342N**	3.600	4	.210	**OR-382N**	12.975	13-3/8	.210	**OR-450N**	10.475	11	.275
OR-264N	7.484	7-3/4	.139	**OR-343N**	3.725	4-1/8	.210	**OR-383N**	13.975	14-3/8	.210	**OR-451N**	10.975	11-1/2	.275
OR-265N	7.734	8	.139	**OR-344N**	3.850	4-1/4	.210	**OR-384N**	14.975	15-3/8	.210	**OR-452N**	11.475	12	.275
OR-266N	7.984	8-1/4	.139	**OR-345N**	3.975	4-3/8	.210	**OR-385N**	15.955	16-3/8	.210	**OR-453N**	11.975	12-1/2	.275
OR-267N	8.234	8-1/2	.139	**OR-346N**	4.100	4-1/2	.210	**OR-386N**	16.955	17-3/8	.210	**OR-454N**	12.475	13	.275
OR-268N	8.484	8-3/4	.139	**OR-347N**	4.225	4-5/8	.210	**OR-387N**	17.955	18-3/8	.210	**OR-455N**	12.975	13-1/2	.275
OR-269N	8.734	9	.139	**OR-348N**	4.350	4-3/4	.210	**OR-388N**	18.955	19-3/8	.210	**OR-456N**	13.475	14	.275
OR-270N	8.984	9-1/4	.139	**OR-349N**	4.475	4-7/8	.210	**OR-389N**	19.955	20-3/8	.210	**OR-457N**	13.975	14-1/2	.275
OR-271N	9.234	9-1/2	.139	**OR-350N**	4.600	5	.210	**OR-390N**	20.955	21-3/8	.210	**OR-458N**	14.475	15	.275
OR-272N	9.484	9-3/4	.139	**OR-351N**	4.725	5-1/8	.210	**OR-391N**	21.955	22-3/8	.210	**OR-459N**	14.975	15-1/2	.275
OR-273N	9.734	10	.139	**OR-352N**	4.850	5-1/4	.210	**OR-392N**	22.940	23-3/8	.210	**OR-460N**	15.475	16	.275
OR-274N	9.984	10-1/4	.139	**OR-353N**	4.975	5-3/8	.210	**OR-393N**	23.940	24-3/8	.210	**OR-461N**	15.955	16-1/2	.275
OR-275N	10.484	10-3/4	.139	**OR-354N**	5.100	5-1/2	.210	**OR-394N**	24.940	25-3/8	.210	**OR-462N**	16.455	17	.275
OR-276N	10.984	11-1/4	.139	**OR-355N**	5.225	5-5/8	.210	**OR-395N**	25.940	26-3/8	.210	**OR-463N**	16.955	17-1/2	.275
OR-277N	11.484	11-3/4	.139	**OR-356N**	5.350	5-3/4	.210					**OR-464N**	17.455	18	.275
OR-278N	11.984	12-1/4	.139	**OR-357N**	5.475	5-7/8	.210	**OR-425N**	4.475	5	.275	**OR-465N**	17.955	18-1/2	.275
OR-279N	12.984	13-1/4	.139	**OR-358N**	5.600	6	.210	**OR-426N**	4.600	5-1/8	.275	**OR-466N**	18.455	19	.275
OR-280N	13.984	14-1/4	.139	**OR-359N**	5.725	6-1/8	.210	**OR-427N**	4.725	5-1/4	.275	**OR-467N**	18.955	19-1/2	.275
OR-281N	14.984	15-1/4	.139	**OR-360N**	5.850	6-1/4	.210	**OR-428N**	4.850	5-3/8	.275	**OR-468N**	19.455	20	.275
OR-282N	15.955	16-1/4	.139	**OR-361N**	5.975	6-3/8	.210	**OR-429N**	4.975	5-1/2	.275	**OR-469N**	19.955	20-1/2	.275
OR-283N	16.955	17-1/4	.139	**OR-362N**	6.225	6-5/8	.210	**OR-430N**	5.100	5-5/8	.275	**OR-470N**	20.955	21-1/2	.275
OR-284N	17.955	18-1/4	.139	**OR-363N**	6.475	6-7/8	.210	**OR-431N**	5.225	5-3/4	.275	**OR-471N**	21.955	22-1/2	.275
				OR-364N	6.725	7-1/8	.210	**OR-432N**	5.350	5-7/8	.275	**OR-472N**	22.940	23-1/2	.275
OR-325N	1.475	1-7/8	.210	**OR-365N**	6.975	7-3/8	.210	**OR-433N**	5.475	6	.275	**OR-473N**	23.940	24-1/2	.275
OR-326N	1.600	2	.210	**OR-366N**	7.225	7-5/8	.210	**OR-434N**	5.600	6-1/8	.275	**OR-474N**	24.940	25-1/2	.275
OR-327N	1.725	2-1/8	.210	**OR-367N**	7.475	7-7/8	.210	**OR-435N**	5.725	6-1/4	.275	**OR-475N**	25.940	26-1/2	.275
OR-328N	1.850	2-1/4	.210	**OR-368N**	7.725	8-1/8	.210	**OR-436N**	5.850	6-3/8	.275				
OR-329N	1.975	2-3/8	.210	**OR-369N**	7.975	8-3/8	.210	**OR-437N**	5.975	6-1/2	.275				
OR-330N	2.100	2-1/2	.210	**OR-370N**	8.225	8-5/8	.210	**OR-438N**	6.225	6-3/4	.275				
OR-331N	2.225	2-5/8	.210	**OR-371N**	8.475	8-7/8	.210	**OR-439N**	6.475	7	.275				
OR-332N	2.350	2-3/4	.210	**OR-372N**	8.725	9-1/8	.210	**OR-440N**	6.725	7-1/4	.275				

See page J96 for

ASSORTMENT / **ASSORTIMENT** **A-216**

— For reference only —

COMPARISON CHART FOR WIDTH OF O-RING MATERIAL

Nominal		Actual	
1/32"	=	.040"	
3/64"	=	.050"	
1/16"	=	.060"	(If I.D. is .056")
1/16"	=	.070"	(If I.D. is .070")
3/32"	=	.103"	
1/8"	=	.139"	
3/16"	=	.210"	
1/4"	=	.275"	

SEE PRICE LIST FOR UNIT PACKAGE QUANTITIES.

In addition to the regular stock numbers listed above, O-Rings are also available in compounds for specialized applications. Delivery on non-stock items will usually run from 6 to 8 weeks. Prices upon application.

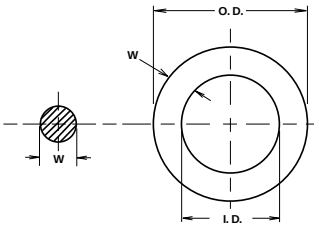
If you need a special O-Ring for a special purpose, we will do our utmost to supply exactly what you need.

NOTE: Always lubricate the O-Ring and all metal parts which will contact the O-Ring. Generally, the liquid being sealed will provide adequate lubrication. See “O-Ring Lubricants” - page J97.

P.C. 318

Colour: **GREEN or BLACK**

(Our Option)



O-Rings of VITON

The rings listed on pages J94 and J95 are furnished in 75 Shore A Durometer, Viton. These versatile elastomers have excellent mechanical and physical properties for general-purpose sealing, and outstanding resistance to aromatic fuels, HIGH TEMPERATURE synthetic lubricants, and many of the new fire-resistant industrial fluids.

Temperature Range: -29° to +204°C (-20° to +400°F).
All measurements are in inches and are subject to commercial tolerances.

SPAENAUR No.	I.D.	Nom. O.D.	W.	*SPAENAUR No.*	I.D.	Nom. O.D.	W.	*SPAENAUR No.*	I.D.	Nom. O.D.	W.	*SPAENAUR No.*	I.D.	Nom. O.D.	W.
320-001	.029	3/32	.040	**320-045**	3.989	4-1/8	.070	**320-146**	2.612	2-13/16	.103	**320-218**	1.234	1-1/2	.139
320-002	.041	9/64	.050	**320-046**	4.239	4-3/8	.070	**320-147**	2.675	2-7/8	.103	**320-219**	1.296	1-9/16	.139
320-003	.056	3/16	.060	**320-047**	4.489	4-5/8	.070	**320-148**	2.737	2-15/16	.103	**320-220**	1.359	1-5/8	.139
320-004	.070	13/64	.070	**320-048**	4.739	4-7/8	.070	**320-149**	2.800	3	.103	**320-221**	1.421	1-11/16	.139
320-005	.101	7/32	.070	**320-049**	4.989	5-1/8	.070	**320-150**	2.862	3-1/16	.103	**320-222**	1.484	1-3/4	.139
320-006	.114	1/4	.070	**320-050**	5.239	5-3/8	.070	**320-151**	2.987	3-3/16	.103	**320-223**	1.609	1-7/8	.139
320-007	.145	9/32	.070					**320-152**	3.237	3-7/16	.103	**320-224**	1.734	2	.139
320-008	.176	5/16	.070					**320-153**	3.487	3-11/16	.103	**320-225**	1.859	2-1/8	.139
320-009	.208	11/32	.070	**320-110**	.362	9/16	.103	**320-154**	3.737	3-15/16	.103	**320-226**	1.984	2-1/4	.139
320-010	.239	3/8	.070	**320-111**	.424	5/8	.103	**320-155**	3.987	4-3/16	.103	**320-227**	2.109	2-3/8	.139
320-011	.301	7/16	.070	**320-112**	.487	11/16	.103	**320-156**	4.237	4-7/16	.103	**320-228**	2.234	2-1/2	.139
320-012	.364	1/2	.070	**320-113**	.549	3/4	.103	**320-157**	4.487	4-11/16	.103	**320-229**	2.359	2-5/8	.139
320-013	.426	9/16	.070	**320-114**	.612	13/16	.103	**320-158**	4.737	4-15/16	.103	**320-230**	2.484	2-3/4	.139
320-014	.489	5/8	.070	**320-115**	.674	7/8	.103	**320-159**	4.987	5-3/16	.103	**320-231**	2.609	2-7/8	.139
320-015	.551	11/16	.070	**320-116**	.737	15/16	.103	**320-160**	5.237	5-7/16	.103	**320-232**	2.734	3	.139
320-016	.614	3/4	.070	**320-117**	.799	1	.103	**320-161**	5.487	5-11/16	.103	**320-233**	2.859	3-1/8	.139
320-017	.676	13/16	.070	**320-118**	.862	1-1/16	.103	**320-162**	5.737	5-15/16	.103	**320-234**	2.984	3-1/4	.139
320-018	.739	7/8	.070	**320-119**	.924	1-1/8	.103	**320-163**	5.987	6-3/16	.103	**320-235**	3.109	3-3/8	.139
320-019	.801	15/16	.070	**320-120**	.987	1-3/16	.103	**320-164**	6.237	6-7/16	.103	**320-236**	3.234	3-1/2	.139
320-020	.864	1	.070	**320-121**	1.049	1-1/4	.103	**320-165**	6.487	6-11/16	.103	**320-237**	3.359	3-5/8	.139
320-021	.926	1-1/16	.070	**320-122**	1.112	1-5/16	.103	**320-166**	6.737	6-15/16	.103	**320-238**	3.484	3-3/4	.139
320-022	.989	1-1/8	.070	**320-123**	1.174	1-3/8	.103	**320-167**	6.987	7-3/16	.103	**320-239**	3.609	3-7/8	.139
320-023	1.051	1-3/16	.070	**320-124**	1.237	1-7/16	.103	**320-168**	7.237	7-7/16	.103	**320-240**	3.734	4	.139
320-024	1.114	1-1/4	.070	**320-125**	1.299	1-1/2	.103	**320-169**	7.487	7-11/16	.103	**320-241**	3.859	4-1/8	.139
320-025	1.176	1-5/16	.070	**320-126**	1.362	1-9/16	.103	**320-170**	7.737	7-15/16	.103	**320-242**	3.984	4-1/4	.139
320-026	1.239	1-3/8	.070	**320-127**	1.424	1-5/8	.103	**320-171**	7.987	8-3/16	.103	**320-243**	4.109	4-3/8	.139
320-027	1.301	1-7/16	.070	**320-128**	1.487	1-11/16	.103	**320-172**	8.237	8-7/16	.103	**320-244**	4.234	4-1/2	.139
320-028	1.364	1-1/2	.070	**320-129**	1.549	1-3/4	.103	**320-173**	8.487	8-11/16	.103	**320-245**	4.359	4-5/8	.139
320-029	1.489	1-5/8	.070	**320-130**	1.612	1-13/16	.103	**320-174**	8.737	8-15/16	.103	**320-246**	4.484	4-3/4	.139
320-030	1.614	1-3/4	.070	**320-131**	1.674	1-7/8	.103	**320-175**	8.987	9-3/16	.103	**320-247**	4.609	4-7/8	.139
320-031	1.739	1-7/8	.070	**320-132**	1.737	1-15/16	.103	**320-176**	9.237	9-7/16	.103	**320-248**	4.734	5	.139
320-032	1.864	2	.070	**320-133**	1.799	2	.103	**320-177**	9.487	9-11/16	.103	**320-249**	4.859	5-1/8	.139
320-033	1.989	2-1/8	.070	**320-134**	1.862	2-1/16	.103	**320-178**	9.737	9-15/16	.103	**320-250**	4.984	5-1/4	.139
320-034	2.114	2-1/4	.070	**320-135**	1.925	2-1/8	.103					**320-251**	5.109	5-3/8	.139
320-035	2.239	2-3/8	.070	**320-136**	1.987	2-3/16	.103					**320-252**	5.234	5-1/2	.139
320-036	2.364	2-1/2	.070	**320-137**	2.050	2-1/4	.103					**320-253**	5.359	5-5/8	.139
320-037	2.489	2-5/8	.070	**320-138**	2.112	2-5/16	.103	**320-210**	.734	1	.139	**320-254**	5.484	5-3/4	.139
320-038	2.614	2-3/4	.070	**320-139**	2.175	2-3/8	.103	**320-211**	.796	1-1/16	.139	**320-255**	5.609	5-7/8	.139
320-039	2.739	2-7/8	.070	**320-140**	2.237	2-7/16	.103	**320-212**	.859	1-1/8	.139	**320-256**	5.734	6	.139
320-040	2.864	3	.070	**320-141**	2.300	2-1/2	.103	**320-213**	.921	1-3/16	.139	**320-257**	5.859	6-1/8	.139
320-041	2.989	3-1/8	.070	**320-142**	2.362	2-9/16	.103	**320-214**	.984	1-1/4	.139	**320-258**	5.984	6-1/4	.139
320-042	3.239	3-3/8	.070	**320-143**	2.425	2-5/8	.103	**320-215**	1.046	1-5/16	.139	**320-259**	6.234	6-1/2	.139
320-043	3.489	3-5/8	.070	**320-144**	2.487	2-15/16	.103	**320-216**	1.109	1-3/8	.139	**320-260**	6.484	6-3/4	.139
320-044	3.739	3-7/8	.070	**320-145**	2.550	2-3/4	.103	**320-217**	1.171	1-7/16	.139	**320-261**	6.734	7	.139

SEE PRICE LIST FOR UNIT PACKAGE QUANTITIES

continued next page…

See page J97 for Plastikit 804-001.

…Cont'd.

O-Rings of VITON - Green or Black (Our Option)

SPAENAUR No.	I.D.	Nom. O.D.	W.	SPAENAUR No.	I.D.	Nom. O.D.	W.	SPAENAUR No.	I.D.	Nom. O.D.	W.	SPAENAUR No.	I.D.	Nom. O.D.	W.
320-262	6.984	7-1/4	.139	**320-345**	3.975	4-3/8	.210	**320-389**	19.955	20-3/8	.210	**320-461**	15.955	16-1/2	.275
320-263	7.234	7-1/2	.139	**320-346**	4.100	4-1/2	.210	**320-390**	20.955	21-3/8	.210	**320-462**	16.455	17	.275
320-264	7.484	7-3/4	.139	**320-347**	4.225	4-5/8	.210	**320-391**	21.955	22-3/8	.210	**320-463**	16.955	17-1/2	.275
320-265	7.734	8	.139	**320-348**	4.350	4-3/4	.210	**320-392**	22.940	23-3/8	.210	**320-464**	17.455	18	.275
320-266	7.984	8-1/4	.139	**320-349**	4.475	4-7/8	.210	**320-393**	23.940	24-3/8	.210	**320-465**	17.955	18-1/2	.275
320-267	8.234	8-1/2	.139	**320-350**	4.600	5	.210	**320-394**	24.940	25-3/8	.210	**320-466**	18.455	19	.275
320-268	8.484	8-3/4	.139	**320-351**	4.725	5-1/8	.210	**320-395**	25.940	26-3/8	.210	**320-467**	18.955	19-1/2	.275
320-269	8.734	9	.139	**320-352**	4.850	5-1/4	.210					**320-468**	19.455	20	.275
320-270	8.984	9-1/4	.139	**320-353**	4.975	5-3/8	.210	**320-425**	4.475	5	.275	**320-469**	19.955	20-1/2	.275
320-271	9.234	9-1/2	.139	**320-354**	5.100	5-1/2	.210	**320-426**	4.600	5-1/8	.275	**320-470**	20.955	21-1/2	.275
320-272	9.484	9-3/4	.139	**320-355**	5.225	5-5/8	.210	**320-427**	4.725	5-1/4	.275	**320-471**	21.955	22-1/2	.275
320-273	9.734	10	.139	**320-356**	5.350	5-3/4	.210	**320-428**	4.850	5-3/8	.275	**320-472**	22.940	23-1/2	.275
320-274	9.984	10-1/4	.139	**320-357**	5.475	5-7/8	.210	**320-429**	4.975	5-1/2	.275	**320-473**	23.940	24-1/2	.275
320-275	10.484	10-3/4	.139	**320-358**	5.600	6	.210	**320-430**	5.100	5-5/8	.275	**320-474**	24.940	25-1/2	.275
320-276	10.984	11-1/4	.139	**320-359**	5.725	6-1/8	.210	**320-431**	5.225	5-3/4	.275	**320-475**	25.940	26-1/2	.275
320-277	11.484	11-3/4	.139	**320-360**	5.850	6-1/4	.210	**320-432**	5.350	5-7/8	.275				
320-278	11.984	12-1/4	.139	**320-361**	5.975	6-3/8	.210	**320-433**	5.475	6	.275				
320-279	12.984	13-1/4	.139	**320-362**	6.225	6-5/8	.210	**320-434**	5.600	6-1/8	.275				
320-280	13.984	14-1/4	.139	**320-363**	6.475	6-7/8	.210	**320-435**	5.725	6-1/4	.275				
320-281	14.984	15-1/4	.139	**320-364**	6.725	7-1/8	.210	**320-436**	5.850	6-3/8	.275				
320-282	15.955	16-1/4	.139	**320-365**	6.975	7-3/8	.210	**320-437**	5.975	6-1/2	.275				
320-283	16.955	17-1/4	.139	**320-366**	7.225	7-5/8	.210	**320-438**	6.225	6-3/4	.275				
320-284	17.955	18-1/4	.139	**320-367**	7.475	7-7/8	.210	**320-439**	6.475	7	.275				
				320-368	7.725	8-1/8	.210	**320-440**	6.725	7-1/4	.275				
320-325	1.475	1-7/8	.210	**320-369**	7.975	8-3/8	.210	**320-441**	6.975	7-1/2	.275				
320-326	1.600	2	.210	**320-370**	8.225	8-5/8	.210	**320-442**	7.225	7-3/4	.275				
320-327	1.725	2-1/8	.210	**320-371**	8.475	8-7/8	.210	**320-443**	7.475	8	.275				
320-328	1.850	2-1/4	.210	**320-372**	8.725	9-1/8	.210	**320-444**	7.725	8-1/4	.275				
320-329	1.975	2-3/8	.210	**320-373**	8.975	9-3/8	.210	**320-445**	7.975	8-1/2	.275				
320-330	2.100	2-1/2	.210	**320-374**	9.225	9-5/8	.210	**320-446**	8.475	9	.275				
320-331	2.225	2-5/8	.210	**320-375**	9.475	9-7/8	.210	**320-447**	8.975	9-1/2	.275				
320-332	2.350	2-3/4	.210	**320-376**	9.725	10-1/8	.210	**320-448**	9.475	10	.275				
320-333	2.475	2-7/8	.210	**320-377**	9.975	10-3/8	.210	**320-449**	9.975	10-1/2	.275				
320-334	2.600	3	.210	**320-378**	10.475	10-7/8	.210	**320-450**	10.475	11	.275				
320-335	2.725	3-1/8	.210	**320-379**	10.975	11-3/8	.210	**320-451**	10.975	11-1/2	.275				
320-336	2.850	3-1/4	.210	**320-380**	11.475	11-7/8	.210	**320-452**	11.475	12	.275				
320-337	2.975	3-3/8	.210	**320-381**	11.975	12-3/8	.210	**320-453**	11.975	12-1/2	.275				
320-338	3.100	3-1/2	.210	**320-382**	12.975	13-3/8	.210	**320-454**	12.475	13	.275				
320-339	3.225	3-5/8	.210	**320-383**	13.975	14-3/8	.210	**320-455**	12.975	13-1/2	.275				
320-340	3.350	3-3/4	.210	**320-384**	14.975	15-3/8	.210	**320-456**	13.475	14	.275				
320-341	3.475	3-7/8	.210	**320-385**	15.955	16-3/8	.210	**320-457**	13.975	14-1/2	.275				
320-342	3.600	4	.210	**320-386**	16.955	17-3/8	.210	**320-458**	14.475	15	.275				
320-343	3.725	4-1/8	.210	**320-387**	17.955	18-3/8	.210	**320-459**	14.975	15-1/2	.275				
320-344	3.850	4-1/4	.210	**320-388**	18.955	19-3/8	.210	**320-460**	15.475	16	.275				

SEE PRICE LIST FOR UNIT PACKAGE QUANTITIES.

See page J96 for

ASSORTMENT	805-606
ASSORTIMENT	

Please see page J93 for Comparison Chart for Width of O-Ring Material.

NOTE (1):

Viton O-Ring Seals in Green or Black colours (our option) are now indexed as above with *SPAENAUR No's.* Please allow 2-3 weeks delivery on your initial order.

NOTE (2):

Always lubricate the O-Ring and all metal parts which will contact the O-Ring. Generally, the liquid being sealed will provide adequate lubrication. See "O-Ring Lubricants" - page J97.

Contents for Assortments A-216 & 805-606	
I.D. x O.D. x W.	**Qty.**
.114" x 1/4" x .070"	30
.145" x 9/32" x .070"	30
.176" x 5/16" x .070"	30
.208" x 11/32" x .070"	30
.239" x 3/8" x .070"	30
.301" x 7/16" x .070"	20
.364" x 1/2" x .070"	20
.426" x 9/16" x .070"	15
.489" x 5/8" x .070"	15
.551" x 11/16" x .070"	15
.614" x 3/4" x .070"	15
.362" x 9/16" x .103"	10
.424" x 5/8" x .103"	10
.487" x 11/16" x .103"	10
.549" x 3/4" x .103"	10
.612" x 13/16" x .103"	10
.674" x 7/8" x .103"	10
.737" x 15/16" x .103"	10
.734" x 1" x .139"	6
.796" x 1-1/16" x .139"	6
.859" x 1-1/8" x .139"	6
.921" x 1-3/16" x .139"	6
.984" x 1-1/4" x .139"	6
1.046" x 1-5/16" x .139"	6
1.109" x 1-3/8" x .139"	6
1.171" x 1-7/16" x .139"	6
1.234" x 1-1/2" x .139"	6
1.296" x 1-9/16" x .139"	6
1.359" x 1-5/8" x .139"	6
1.421" x 1-11/16" x .139"	6
1.484" x 1-3/4" x .139"	6
1.609" x 1-7/8" x .139"	6
1.734" x 2" x .139"	6
1.475" x 1-7/8" x .210"	6
1.600" x 2" x .210"	6
1.725" x 2-1/8" x .210"	6

O-RING SEALS

ASSORTMENT
ASSORTIMENT **A-216**

Made of Nitrile (Buna N)

- for sealing applications involving mineral oils and greases, hydraulic fluids, gasolenes, denatured alcohol, propane and many other substances.

Temperature Range: -40° to +121°C (-40° to +250°F).

36 Varieties — 428 Pieces

Sizes range from 1/8" to 1-3/4" Inside Dia.
Sections (W) from 1/16" to 3/16" Dia.

Furnished in Large Size Grey enameled STEEL Drawer,with scooped bins.

Size: 18" x 12" x 3"

Drawer will fit into the Slide Racks, shown on page A3.

Priced Singly

Shipping Wt. 3.96 kg (8-3/4 lbs.)

O-RING SEALS

ASSORTMENT
ASSORTIMENT **805-606**

Made of Viton

- excellent mechanical and physical properties for general purpose sealing and outstanding resistance to aromatic fuels, HIGH TEMPERATURE synthetic lubricants and many of the new fire-resistant industrial fluids.

Temperature Range: -29° to +204°C (-20° to +400°F).

36 Varieties — 428 Pieces

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CATALOG 13

Plastikit «Plastikit» 804-069

O-RING SEALS of Nitrile

19 sizes — 78 pieces
from 1/8" to 3/4" I.D.

Priced Singly

Size: 4-1/2" x 2-3/4" x 1"

Plastikit «Plastikit» 804-001

O-RING SEALS of Viton

19 sizes — 78 pieces
from 1/8" to 3/4" I.D.

Recommended
O-RING Lubricants

(LUBRICANTS NOT SUPPLIED BY SPAENAUR)

Note: When installing O-Ring seals, it is important to lubricate the O-Ring and all the metal parts which will be in contact with same.

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* May be used in systems having micronic filters.
† Will not pass through micronic filters.

LUBRICANT	TEMPERATURE RANGE	SEAL USE	BEST USED WITH
Petroleum Base Petrolatum *	-20 to +180°F -29 to +82°C (may vary between sources)	Assembly of petroleum system components i.e.fuel and hydraulic	Nitrile, Neoprene, Viton
Barium grease Parker O-Lube †	-20 to +300°F -29 to +149°C	Pneumatic (low pressure-200 psi max)	Nitrile, Neoprene, Viton and most other petroleum oil resistant rubbers
Silicone oil * (200,000 centi-stokes only)	-65 to +440°F -64 to +227°C	Pneumatic-High pressures and speeds	Some Nitrile, Neoprene, Viton (will cause shrinkage of some compounds)
Cellulose ester & castor oil Celvacene	-40 to +266°F -40 to +130°C	Vacuum Static 1×10^{-7} Torr	Silicone, Nitrile, Neoprene, Viton, Butyl, Ethylene-Propylene
Silicone Grease Versilube	-100 to +400°F -73 to +204°C	Pneumatic 3000 psi and high speed	Nitrile, Neoprene,Viton (will shrink some compounds and will dissolve some silicone rubber)
Silicone Grease DC55 (MIL-G- 4343)	-65 to +400°F -54 to +204°C	Vacuum, EXTREME TEMPERATURE Lub.	Nitrile, Butyl, Ethylene, Propylene,Viton, Neoprene
Apiezon N Made in England	+60 to +85°F +15 to +30°C	Vacuum 1×10^{-8}	Nitrile, Butyl, Ethylene Propylene, Viton, Neoprene
Skydrol Base Grease Allube	-65 to +200°F -64 to +93°C	Assembly phospate ester systems	Butyl, Ethylene, Propylene

ASSORTMENT
ASSORTIMENT
805-625

Metric - Métrique
O-RING SEALS

36 Sizes - 439 Pieces

I.D.'S range from 3 mm to 44 mm
(2 mm to 5 mm Section Dia.)

Made of Nitrile
for wide range of uses.

For sealing applications involving mineral oils and greases, hydraulic fluids, gasolines, denatured alcohol, propane, and many other substances.

Furnished in Large Size, Grey enamelled STEEL Drawer, with scooped bins.

Drawer will fit into the Slide Racks, shown on page A3.

Priced Singly

See page J99 for full range of Metric O-Rings

Size: 18" x 12" x 3"

Shipping Weight 4.10 kg (9 lbs.)

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O-RING
Metric SPLICING KITS

Solve that problem of LARGE Metric O-Ring availability. Now YOU can make any standard size in **German** or **Swedish** cross-section.

Kit comes in Grey enamelled STEEL Drawer.

Drawer will fit into the Slide Racks, as shown on page A2.

Buy your refills by the foot.

Size:
13-3/8" x 9-1/4" x 2"

Priced Singly

Kit No.	For Making	Shipping Weight
805-455	**German Metric O-Rings**	1.8 kg (4 lbs.)
805-456	**Swedish Metric O-Rings**	1.9 kg (4-1/4 lbs.)

Kits contain 5' each of related Cord Stock sizes as listed at right.

O-RING
NITRILE (BUNA-N) Metric CORD STOCK

German Metric Sizes

SPAENAUR No.	Dia. mm	UNIT PKG.
825-181	2.	100'
825-182	2.5	100'
825-183	3.	100'
825-184	3.5	100'
825-185	4.	100'
825-186	5.	50'

70 Durometer

Intended Service:
General Purpose
Mineral Oil
Petroleum Oil
Air and Water
Operating Temp.:
-40° to +121°C

Kit #**805-455** contains 5 ft. each (6 sizes)

Swedish Metric Sizes

SPAENAUR No.	Dia. mm	UNIT PKG.
825-187	1.6	100'
825-188	2.4	100'
825-183	3.0	100'
825-190	5.7	50'
825-191	8.4	50'

Service range: same as for German Metric sizes, listed above.

Kit #**805-456** contains 5 ft. each (5 sizes)

Kits also include ONE EACH of items at right
#877-504 Razor Blade
#877-505 Cutting-Splicing Jig (Plastic)
#800-001 Rapid-Set Adhesive (3 grams)

Shipping Weight
.252 kg (1/4 lb.)

Plastikit
«Plastikit»
804-071

O-Ring Seals
German Metric Sizes

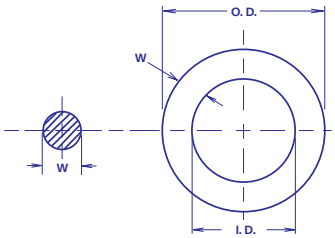
23 Sizes - 112 Pieces

Section Diameters from 1.5 mm to 5 mm
Inside Diameters from 3 mm to 50 mm

Selected from O-Ring Seals shown on page J99.

Put up in a clear durable plastic container with hinged lid.
Size: 4-1/2" x 2-3/4" x 1" *Priced Singly*

CATALOG 13



Metric O-Ring Seals of NITRILE (BUNA N)

All rings listed on this page are furnished in 70 Shore A Durometer, NITRILE (Buna N). They are recommended for general purpose sealing, and particularly for use with petroleum oils and fluids, water, silicone greases and oils, di-ester base lubricants and ethylene glycol base fluids. Temperature Range -40°C to +135°C. O-Rings are also widely used for power transmission from small motors. All measurements are in millimetres, and subject to commercial tolerances.

"W" dimension 1.5 mm			Unit
SPAENAUR No.	I.D.	O.D.	Pkg.
206-004	4 mm	7 mm	100
206-005	5 mm	8 mm	100
206-006	6 mm	9 mm	100
206-007	7 mm	10 mm	100
206-008	8 mm	11 mm	100
206-009	9 mm	12 mm	100
206-010	10 mm	13 mm	100
206-011	11 mm	14 mm	100
206-012	12 mm	15 mm	100
206-013	13 mm	16 mm	100
206-014	14 mm	17 mm	100
206-015	15 mm	18 mm	100
206-016	16 mm	19 mm	100

"W" dimension 2 mm			
204-003	3 mm	7 mm	100
204-004	4 mm	8 mm	100
204-005	5 mm	9 mm	100
204-006	6 mm	10 mm	100
204-007	7 mm	11 mm	100
204-008	8 mm	12 mm	100
204-009	9 mm	13 mm	100
204-010	10 mm	14 mm	100
204-011	11 mm	15 mm	100
204-012	12 mm	16 mm	100
204-013	13 mm	17 mm	100
204-014	14 mm	18 mm	100
204-015	15 mm	19 mm	100
204-016	16 mm	20 mm	50
204-017	17 mm	21 mm	50
204-018	18 mm	22 mm	50
204-019	19 mm	23 mm	50
204-020	20 mm	24 mm	50
***204-021**	32 mm	36 mm	50

***VITON, Black, Duro 75

"W" dimension 2.5 mm			Unit
SPAENAUR No.	I.D.	O.D.	Pkg.
206-123	7 mm	12 mm	100
206-121	8 mm	13 mm	100
206-109	9 mm	14 mm	100
206-110	10 mm	15 mm	100
206-111	11 mm	16 mm	100
206-112	12 mm	17 mm	100
206-113	13 mm	18 mm	100
206-114	14 mm	19 mm	100
206-115	15 mm	20 mm	100
206-116	16 mm	21 mm	50
206-117	17 mm	22 mm	50
206-118	18 mm	23 mm	50
206-119	19 mm	24 mm	50
206-120	20 mm	25 mm	50
206-122	29 mm	34 mm	50

"W" dimension 3 mm			
206-324	10 mm	16 mm	100
206-320	17 mm	23 mm	50
206-321	20 mm	26 mm	50
206-323	23 mm	29 mm	50
206-325	25 mm	31 mm	50
206-327	27 mm	33 mm	50
206-329	29 mm	35 mm	50
206-330	30 mm	36 mm	50
—	31 mm	37 mm	
206-332	32 mm	38 mm	25
206-333	33 mm	39 mm	25
—	35 mm	41 mm	25
206-337	37 mm	43 mm	25
206-339	39 mm	45 mm	25
—	40 mm	46 mm	
206-341	41 mm	47 mm	25
206-348	42 mm	48 mm	25
206-343	43 mm	49 mm	25
206-345	45 mm	51 mm	25
206-347	47 mm	53 mm	25

See Metric O-Ring Assortment on page J98.

"W" dimension 3.5 mm			Unit
SPAENAUR No.	I.D.	O.D.	Pkg.
206-569	19 mm	26 mm	50
206-570	20 mm	27 mm	50
206-571	21 mm	28 mm	50
206-572	22 mm	29 mm	50
206-573	23 mm	30 mm	50
—	24 mm	31 mm	
206-575	25 mm	32 mm	50
—	26 mm	33 mm	
206-577	27 mm	34 mm	50
206-578	28 mm	35 mm	50
206-579	29 mm	36 mm	50
206-580	30 mm	37 mm	50
206-581	31 mm	38 mm	25
—	32 mm	39 mm	
206-583	33 mm	40 mm	25
206-584	34 mm	41 mm	25
—	35 mm	42 mm	
206-586	36 mm	43 mm	25
206-587	37 mm	44 mm	25
206-588	38 mm	45 mm	25

"W" dimension 4 mm			
204-120	20 mm	28 mm	50
204-122	22 mm	30 mm	50
204-124	24 mm	32 mm	50
204-125	25 mm	33 mm	50
—	26 mm	34 mm	25
204-128	28 mm	36 mm	25
204-130	30 mm	38 mm	25

"W" dimension 5 mm			
204-638	38 mm	48 mm	25
204-641	41 mm	51 mm	25
204-644	44 mm	54 mm	25
204-647	47 mm	57 mm	10
204-650	50 mm	60 mm	10
204-651	53 mm	63 mm	10
204-652	56 mm	66 mm	10

German Metric popular SIZES have been listed above. These are regularly stocked.

Larger or smaller and intermediate sizes are also available. Special materials such as Silicone Rubber, Neoprene Viton, etc., can usually be furnished, subject to special order delay. British BS 4518, Swedish and French Metric range also available.
If you need a special O-Ring for a special purpose, we will do our utmost to supply exactly what you need.

NOTE: Always lubricate the O-Ring and all metal parts which come in contact with it. Generally, the liquid being sealed will provide adequate lubrication. See "O-Ring Lubricants" — Page J97.

See also O-Ring Splicing Cord and Kits - on Pages J91 and J98.

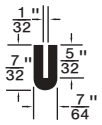
Millimetres 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150

For Inch sizes, see Pages J92 to J95.

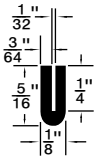
Extruded Channels	Rainures extrudés	**K2**
Extruded Shapes	Profils extrudés	**K6**
Extruded Seals	Collants extrudés	**K10**
Quick-Edge Trim	Bordures «Quick-Edge»	**K14**
Glass Run Channels & Weatherstrips	Rainures de vitres et bandes d'étanches	**K16**
Sponge Extruded Shapes & Seals	Profils et joints extrudés en éponge	**K20**
Auto Glaziers Items	Articles pour vitrerie d'automobile	**K26**
Rubber & Vinyl Matting	Tapis en caoutchouc et en vinyl	**K32**
Foam Cushioning	Amortissement en mousse	**K35**

Material: EPDM, Santoprene®, SBR, Neoprene, PVC, Vinyl, etc., as indicated.
(Please refer to "Elastomer Compound Characteristics" — page T19.)
Hardness: Durometer shown under profile and No., subject to ±5.
Colour: Black.

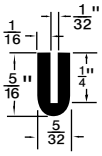
Order of items shown on this page and top of page K3:
① by Gap Width.
② by Overall Height.
③ by Overall Width.



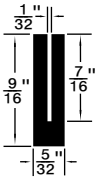
RW-73
EPDM
Duro 70



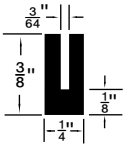
RW-102
SBR
Duro 70



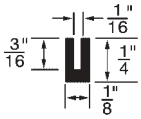
825-081
EPDM
Duro 70



RW-45
SBR
Duro 65



RW-60
SBR
Duro 70

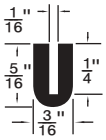


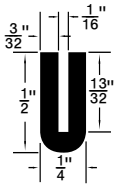
825-224
Neoprene
Duro 60

825-350
Neoprene
Duro 70

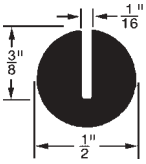
825-351
EPDM
Duro 65-75

RW-25
SBR
Duro 65-75

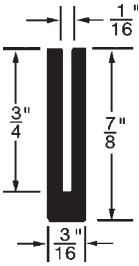




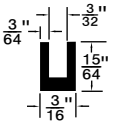
RW-26
Santoprene®
Duro 70



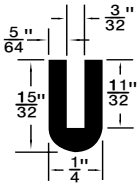
825-227
Neoprene
Duro 60



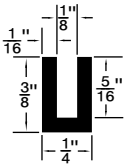
825-225
Neoprene
Duro 60



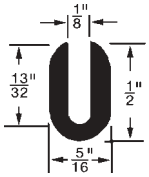
RW-18
SBR
Duro 70



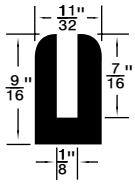
RW-131
Santoprene®
Duro 70



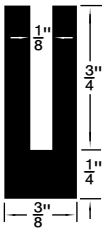
4511
SBR
Duro 70



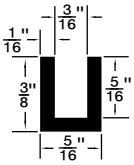
825-228
Neoprene
Duro 55



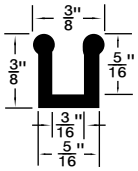
RW-35
SBR
Duro 70



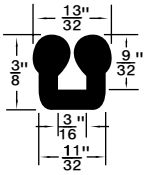
825-042
Neoprene
Duro 60



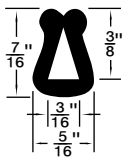
4511-A
EPDM
Duro 70



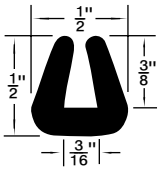
4612
SBR
Duro 70



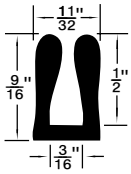
4685
SBR
Duro 70



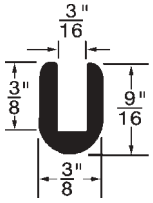
4516
SBR
Duro 70



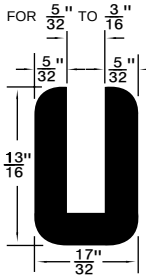
4512
SBR
Duro 70



4514
SBR
Duro 70

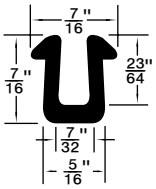


825-229
EPDM
Duro 50

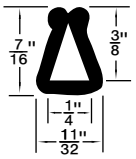


RW-129
PVC Vinyl
Duro 65

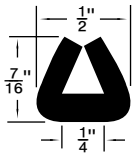
825-013
PVC Vinyl
Duro 95



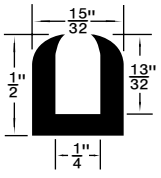
RW-40
SBR
Duro 70



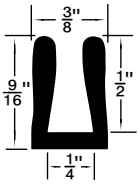
4517
SBR
Duro 50



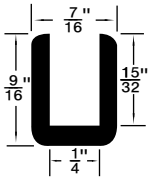
C-26
SBR
Duro 70



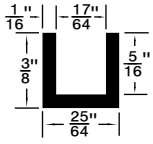
4513
Santoprene®
Duro 70



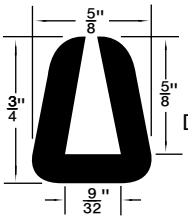
4515
Santoprene®
Duro 70



4588
SBR
Duro 70



RW-44
SBR
Duro 70



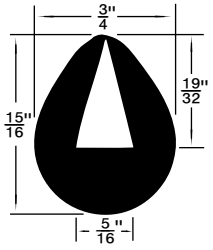
C-19
SBR
Duro 70

Continued on page K3...

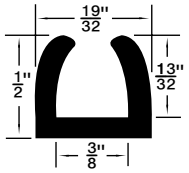
...Continued from previous page.

Colour: Black, unless otherwise indicated.

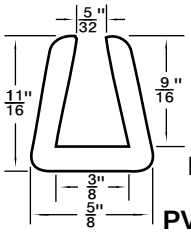
See Price List for Unit Package Quantities



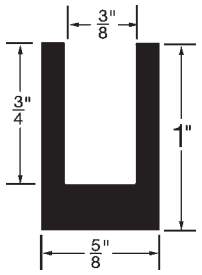
RW-19
SBR
Duro 70



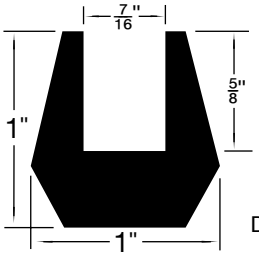
C-22
SBR
Duro 70



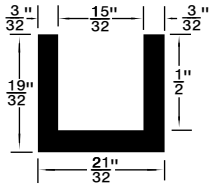
RW-78
White
PVC Vinyl
Duro 60



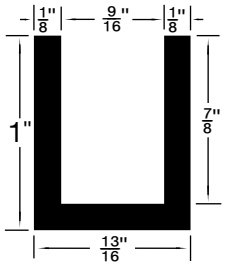
825-230
EPDM
Duro 55



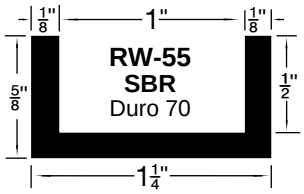
C-30
SBR
Duro 70



RW-37
SBR
Duro 70



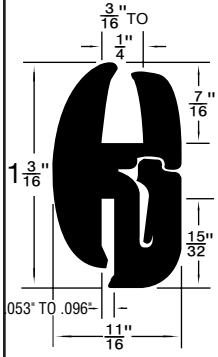
RW-75
SBR
Duro 75



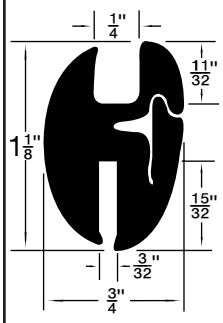
RW-55
SBR
Duro 70

ONE PIECE SELF-SEALING WEATHERSTRIPS

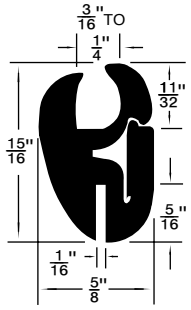
Material: EPDM, or SBR as indicated.



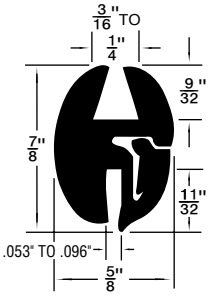
RW-24
Black
EPDM Duro 60
Unit Pkg.
4-11-1/2' Lgths.



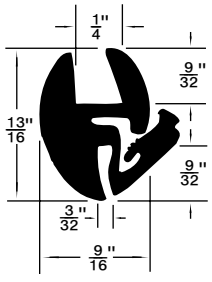
RW-49
Black
EPDM Duro 70
Unit Pkg. 75 Feet



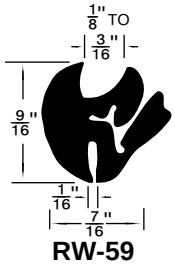
RW-77
Black
SBR Duro 70
Unit Pkg. 50 Feet



RW-74
Black
SBR Duro 80
Unit Pkg. 50 Feet



825-036
Black
EPDM Duro 70
Unit Pkg. 50 Feet

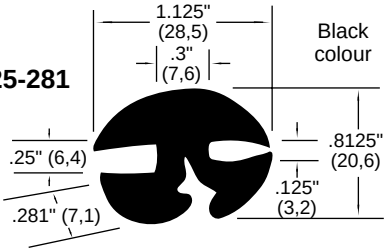


RW-59
Black
EPDM Duro 70
Unit Pkg. 50 Feet

TWO PIECE SELF-SEALING WEATHERSTRIPS

See following page for more "WEDGE-TITE" Rubber Channels.)

825-281



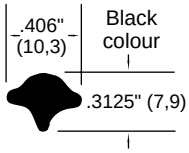
Compound: SBR 70 Duro

825-281 Weatherstrip Channel only

Unit Pkg. 150 Feet

Locking Strip

B-900W



Compound: EPDM 80 Duro

B-900W
Wedge Only
Unit Pkg. 75 Feet

"WEDGE-TITE"

COMPLETE PACKAGE
Two-Piece Weatherstrip

825-282 *Pkg: 150 ft.*

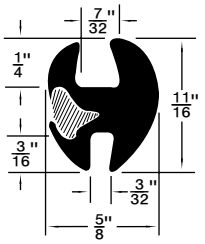
Pkg. contains: Parts as shown at left
150' - 825-281 channel only
150' - B-900W wedge only

(Helpful Hint: Brush liquid soap into wedge recess before installing wedge section).

See section 'T' for Compound Selection Guide

TWO PIECE SELF-SEALING WEATHERSTRIPS

See "Elastomer Compound characteristics" - page R19.



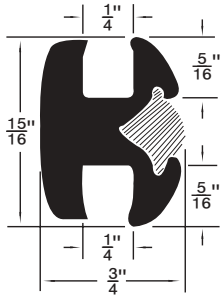
825-039

Mat: EPDM Duro 70
Black
Channel & Wedge
Unit Pkg. 100 Feet

825-035 Channel only
Mat: SBR Duro 70
Unit Pkg. 100 Feet

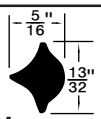
C-36W Black Wedge Only

SBR Duro 80
Unit Pkg. 50 Feet



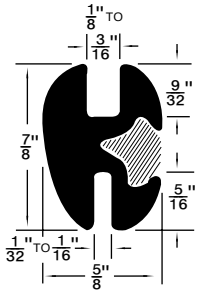
RW-90G
is no longer available. The wedges shown below will be available until our stock is depleted.

Wedge Only For above SBR Duro 60



RW-90GW Grey
Unit Pkg. 50 Feet

825-012 Chrome
Vinyl Duro 80
Unit Pkg. 200 Feet

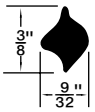


C-37

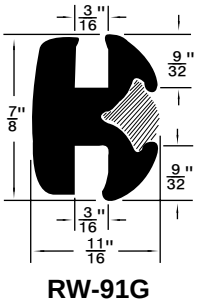
Mat: SBR Duro 70
Black
Channel & Wedge
Unit Pkg. 50 Feet

825-283 Channel only
Mat: SBR Duro 70
Unit Pkg. 50 Feet

C-37W Black Wedge Only



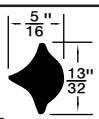
Santoprene® Duro 70
Unit Pkg. 50 Feet



RW-91G
Mat: SBR Duro 75
Grey
Channel & Wedge
Unit Pkg. 50 Feet

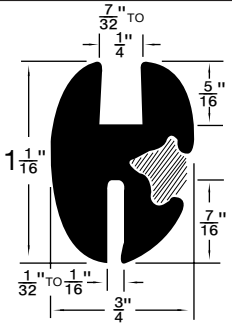
825-292 Channel only
Mat: SBR Duro 75
Unit Pkg. 50 Feet

Wedge Only For above SBR Duro 60



RW-90GW Grey
Unit Pkg. 50 Feet

825-012 Chrome
Vinyl Duro 80
Unit Pkg. 200 Feet



B-900

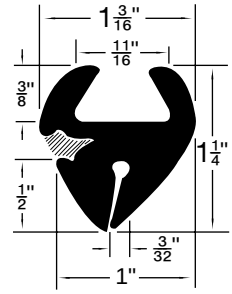
Mat: EPDM Duro 70
Black
Channel & Wedge
Unit Pkg. 75 Feet

825-286 Channel only
Mat: EPDM Duro 70
Unit Pkg. 75 Feet

Wedge Only For above **B-900W Black**

EPDM Duro 80
Unit Pkg. 75 Feet

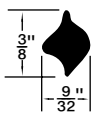
825-012 Chrome
Vinyl Duro 80
Unit Pkg. 200 Feet



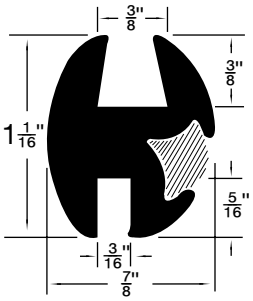
825-041
Mat: EPDM Duro 70
Black
Channel & Wedge
Unit Pkg. 65 Feet

825-038 Channel only
Mat: EPDM Duro 70
Unit Pkg. 65 Feet

Wedge Only For above **C-37W** Black



Santoprene® Duro 70
Unit Pkg. 50 Feet



RW-92

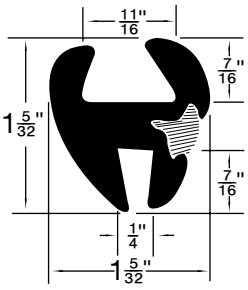
Mat: SBR Duro 70
Black
Channel & Wedge
Pkg. 4-11-1/2' Lengths

825-294 Channel only
Mat: SBR Duro 70
Pkg. 4-11-1/2' Lengths

Wedge Only For above **B-900W Black**

EPDM Duro 80
Unit Pkg. 75 Feet

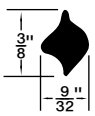
825-012 Chrome
Vinyl Duro 80
Unit Pkg. 200 Feet



825-040
Mat: EPDM Duro 70
Black
Channel & Wedge
Unit Pkg. 75 Feet

825-037 Channel only
Mat: EPDM Duro 70
Unit Pkg. 75 Feet

Wedge Only For above **C-37W** Black



EPDM Duro 70
Unit Pkg. 50 Feet

Material and Durometer
Shown under profile

Helpful Hint:
Brush liquid soap into wedge recess before installing wedge section.

K

CATALOG 13

"WEDGE-TITE"

WEDGE INSERTER TOOL

For installing two-piece self-sealing rubber weather-strip.
Improved style with longer handle.

M-82A

Straight

6" Overall Length.

M-82 WEDGE INSERTER

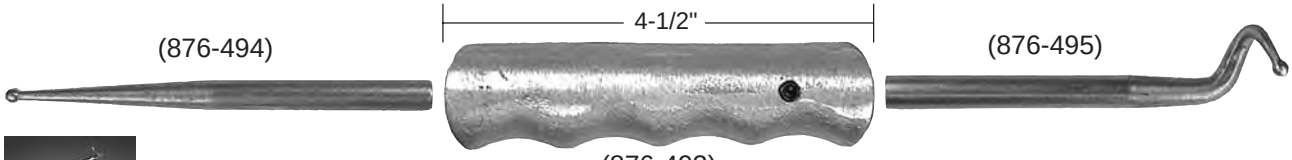
5/8" TUBE, LENGTH 5"

T-235 LOCKING STRIP TOOL

6-1/2" O/A

Inserts the **Wider** locking rectangular shaped rubber stripping used on '73 - '77 GMC back glass panels.

E-Z Lock Tools



FOR INTEGRAL LOCK, ONE PIECE SELF-SEALING WEATHERSTRIPS

876-493 Aluminum Handle
876-494 Straight Bit
876-495 Cornering Bit (Left Hand)
876-591 Cornering Bit (Right Hand)

Please Note: Above items are NOT sold as a unit, but must be ordered separately.

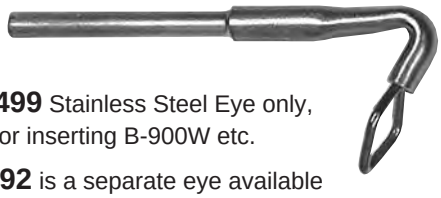
876-496 Nylon Spatula for glass insertion into rubber channel, tucking in cut ends, etc.

8" Overall Length.

TOOL PULLS THE LOCKING STRIP INTO THE RETAINER CHANNEL

876-491 Aluminum Handle & Stainless Steel Eye for inserting B-900W, C-37W or RW-90GW wedge, shown on pages K3 and K4.

FOR TWO PIECE SECTIONS WITH SEPARATE LOCK STRIPS

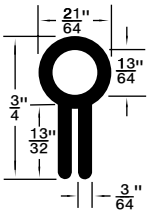


876-499 Stainless Steel Eye only, for inserting B-900W etc.

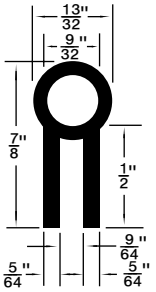
876-492 is a separate eye available for smaller wedge section C-36W, also shown on page K4.

All items on this page
Priced Singly.

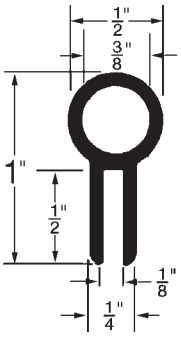
Material: EPDM, Santoprene®, SBR, Neoprene, PVC, Vinyl, Silicon, etc., as indicated.
(Please refer to "Elastomer Compound Characteristics" — page R19.)
Hardness: Durometer shown under profile and No., subject to ±5.
Colour: Black, unless otherwise indicated.



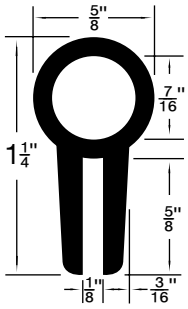
RW-97
Santoprene®
Duro 60
U.P. 10-11-1/2' L.



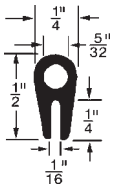
RW-124
SBR
Duro 80
U.P. 5-11-1/2' L.



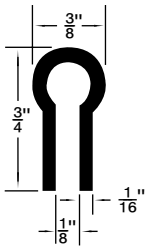
825-223
Neoprene
Duro 50
U.P. 50 Ft.



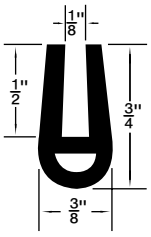
RW-100
SBR
Duro 70
U.P. 75 Ft.



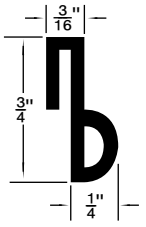
825-226
Neoprene
Duro 50
U.P. 50 Ft.



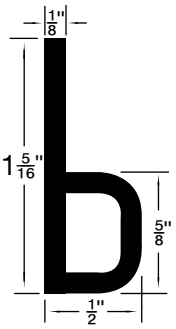
825-043
Neoprene
Duro 60
U.P. 50 Ft.



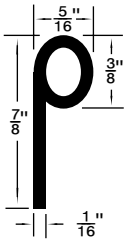
825-045
EPDM
Duro 70
U.P. 50 Ft.



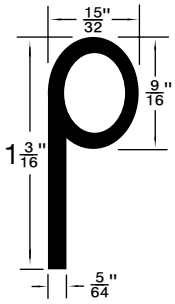
825-046
EPDM
Duro 70
U.P. 3-16' L.



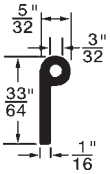
RW-23
SBR
Duro 65
U.P. 4-11-1/2' L.



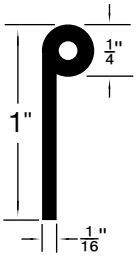
4686
SBR
Duro 70
U.P. 50 Ft.



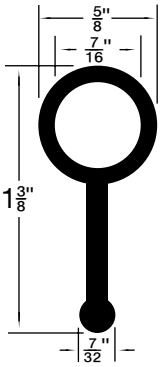
C-95
Santoprene®
Duro 65
U.P. 4-11-1/2' L.



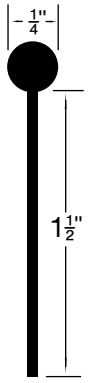
825-234
Grey Silicon
Duro 40
U.P. 60 Ft.



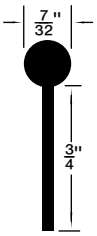
825-044
EPDM
Duro 70
U.P. 50 Ft.



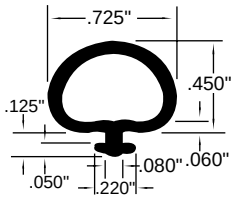
4690
SBR
Duro 55
U.P. 5-10' L.



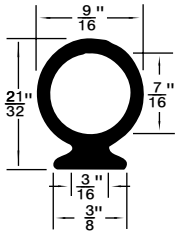
825-305
Vinyl
Duro 65
U.P. 150 Ft.



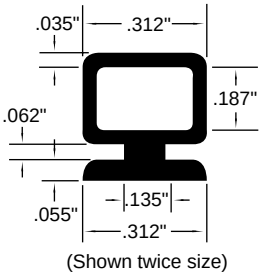
RW-136
Vinyl
Duro 75
U.P. 100 Ft.



825-079
PVC
Duro 70
U.P. 50 Ft.



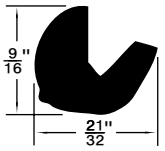
4625
SBR
Duro 70
U.P. 5-10' L.



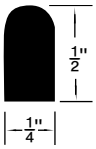
(Shown twice size)

825-078
PVC
Duro 65
U.P. 100 Ft.

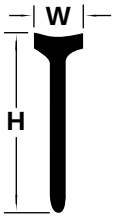
Material: EPDM, SBR, Neoprene, Vinyl, etc., as indicated.
(Please refer to "Elastomer Compound Characteristics" — page T19.)
Hardness: Durometer shown under profile and No., subject to ±5.
Colour: Black.



B-857
SBR
Duro 70
Unit Pkg. 50 Feet.



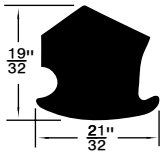
RW-29
SBR
Duro 75
Unit Pkg. 50 Feet.



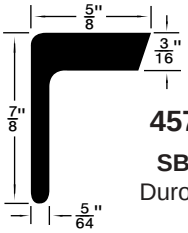
SPAENAUR

No.	W	H
4530	1/4"	3/4"
4531	1/4"	1"

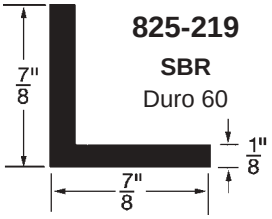
"T" Shapes
SBR Duro 65
Unit Pkg. 50 Feet



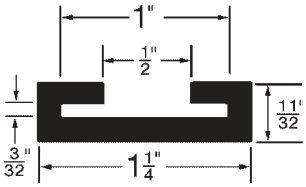
4626
SBR
Duro 70
Unit Pkg. 50 Feet.



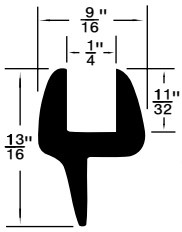
4576
SBR
Duro 70
Unit Pkg. 50 Feet



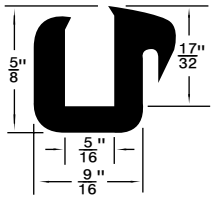
825-219
SBR
Duro 60
Unit Pkg. 50 Feet



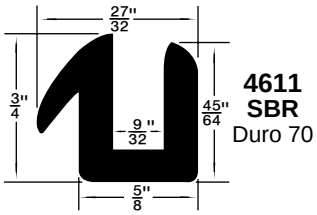
825-231
Neoprene Duro 50
Unit Pkg. 50 Feet



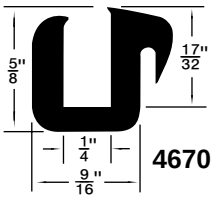
4581
SBR
Unit Pkg. 50 Feet



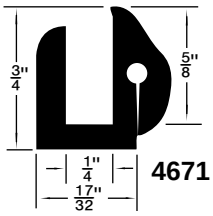
825-056
SBR Duro 60
Unit Pkg. 50 Feet



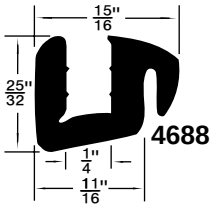
4611
SBR
Duro 70
Unit Pkg. 5-10' L.



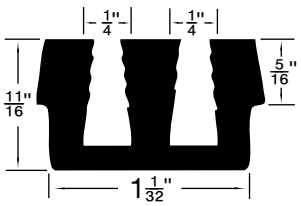
4670
SBR
Duro 60
Unit Pkg. 5-10' L.



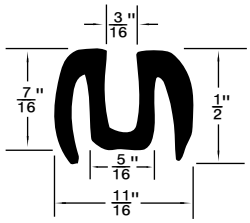
4671
SBR Duro 60
Unit Pkg. 50 Feet



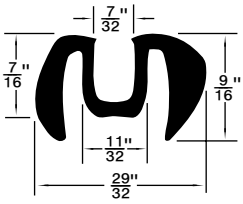
4688
SBR Duro 60
Unit Pkg. 5-10' L.



RW-115
SBR Duro 50
Unit Pkg. 4-16' L.



LC-36
SBR Duro 80
Unit Pkg. 6-96" L.

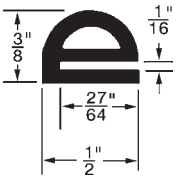


LC-37
SBR Duro 80
Unit Pkg. 6-96" L.

See section 'T' for
Compound Selection Guide

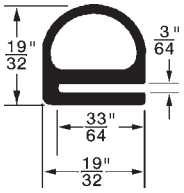
Material: EPDM, SBR, Neoprene, Nitrile, Buna-N, Vinyl, etc., as indicated.
(Please refer to "Elastomer Compound Characteristics" — page R19.)
Hardness: Durometer shown under profile and No., subject to ±5.
Colour: Black, unless otherwise indicated.

825-220



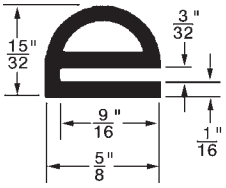
Neoprene Duro 50
Unit Pkg. 50 Feet

825-221



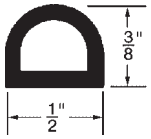
Buna-N Duro 60
Unit Pkg. 50 Feet

825-222



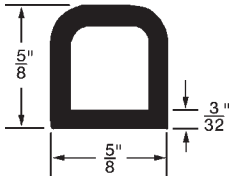
Neoprene Duro 40
Unit Pkg. 50 Feet

825-232

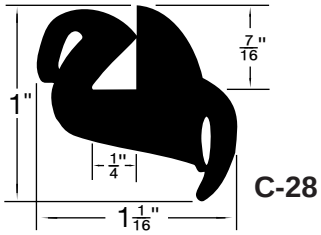


Buna-N Duro 40
Unit Pkg. 50 Feet

825-233

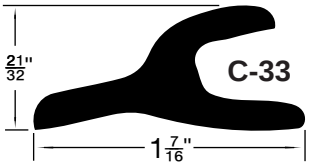


Neoprene Duro 60
Unit Pkg. 50 Feet



C-28

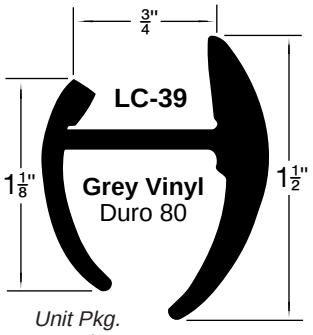
SBR Duro 50
Unit Pkg. 4-11-1/2' L.



SBR Duro 65
Unit Pkg. 4-11-1/2' L.

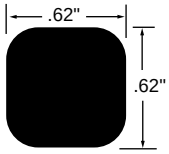
RW-36A
SBR Duro 70
Unit Pkg. 5-8' L.

K



Unit Pkg.
4-11-1/2' L.

825-349



Neoprene Duro 70
Unit Pkg. 50 Feet

FUEL LINE HOSE

RW-86
Shown

Highly resistant to gas/oil mixtures and weathering.
For Outboard Motors, Lawnmowers, Chain Saws, etc.

SPAENAUR No.	I.D.	O.D.	Material	Duro ±5	U.P.
RW-87	.1120"	.225"	Nitrile	70	100'
RW-139	.1120"	9/32"	Nitrile	70	100'
825-031	3/16"	5/16"	Neoprene	70	50'
RW-86	1/4"	1/2"	Nitrile*	70	50'

*with fabric insert.

DOOR WINDLACE TUBING

SBR Material Duro 70
No Insert

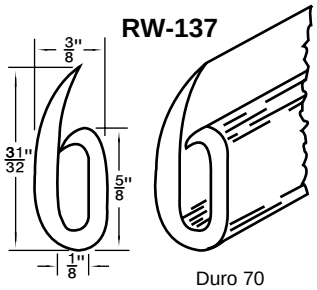
Unit Pkg. 50 Feet

4635-S

CAR DOOR EDGE GUARD

(Clear Flexible Vinyl)

RW-137



Duro 70

Unit Pkg. 6-96" Lgths.

SOLID BLACK NEOPRENE CORD

Durometer 70

Unit Package
100 Feet

(See page K20
for Sponge Cord)

SPAENAUR No.
825-063
1/8" diameter cord.

SPAENAUR No.
RW-138
1/4" diameter cord.

Other cord diameters & materials available on application.

SOLID NEOPRENE STRIP

60 Duro

1/16" Thick x 3/4" Wide

SPAENAUR No.
825-352
Unit Package 1-9 Ft. roll.

SPAENAUR No.
825-054
Unit Package 1-50 Ft. roll.

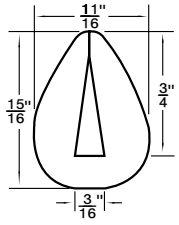
CATALOG 13

Extruded Special Shapes

Material: EPDM, SBR, Vinyl, etc., as indicated.
Hardness: Duro shown subject to ±5. **Colour:** White, unless otherwise indicated.

For "Elastomer Compound Characteristics" chart see page R19.

PVC BOAT GUNWALE STRIPPING

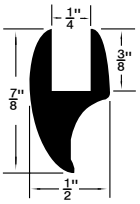


825-346 BLACK *U.P.Q. 200 ft.*

RW-107 WHITE *U.P.Q. 250 ft.*

Flexible, Inert.
Resistant to Chemicals, Salt Water, etc.
Continuous Length Vinyl
Duro 70

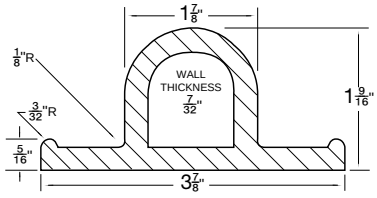
BOAT DECK WINDSHIELD CHANNEL



Duro 65 to 85

SPAENAUR No.	Colour	Material	Unit Pkg.
C-21	Black	SBR	50' roll
C-21PG	Green	Vinyl	250' roll
C-21-P3	Grey	Vinyl	250' roll

WHITE RUB RAIL



825-309

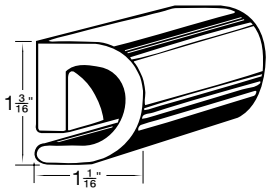
For Boat Docks, Hospital Corridors, etc.
PVC
Duro 85A

U.P.Q. 25 ft.

GUNWALE GUARD STRIP

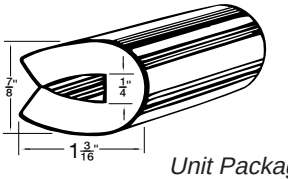
(Concealed screw-on type)
For Boats

Unit Package100 ft.



SPAENAUR No.	Colour	Material	Duro
RW-50P	Black	Vinyl	85

GUNWALE GUARD STRIP



For Boats — "Friction Fit"

RW-56 Off-White Vinyl 70 Durometer

Unit Package 1 - 105 ft. length.

K

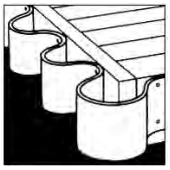
Smooth, Protective, Safer Docking

Grey Marine-grade PVC

- Easy to install and maintenance-free
- Contains fungicide to retard mould and mildew
- Cuts easily to desired lengths
- Environmentally safe in fresh and salt water
- UV inhibitors prevent warping and cracking in extreme temperatures

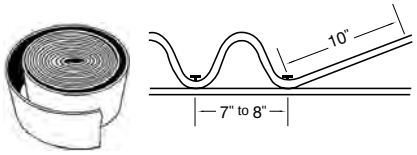
825-504

A heavy-duty, marine-grade bumper



Coverage
17'-18' (from 25' Roll)

Your best insurance against unnecessary boat damage. Easy to install, all it takes is a hammer, broadhead nails, and a sharp knife. Just mark the strip for 10-inch nail spacing, and the dock for 7 to 8-inch spacing. The result is an S-shape installation—a wave of protection, providing maximum shock absorbency.



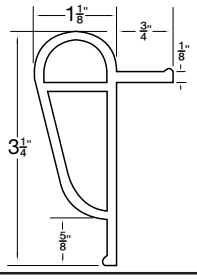
Width 5"
Thickness 1/4"

Unit Pkg. Qty
1-25 ft. roll

825-505

Edge-Guard bumpers

An innovative, reinforced P-shaped design adds a protective lip over the dock edge—taking high impact in stride.
These heavy-duty, shock-absorbent, marine-grade PVC bumpers are easy to install, and can be easily cut to any length.
No doubt about it, Edge-Guard bumpers definitely provide the edge you need for superior protection of your boat and dock.



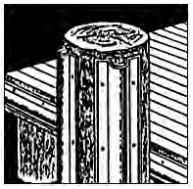
Width 1-7/8"
Thickness 1/8"
Height 3-1/4"

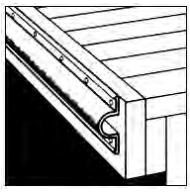
Unit Pkg. Qty.
15-6 ft. lengths

825-506
825-508

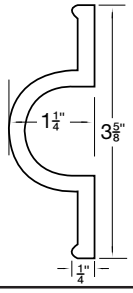
C - Shaped bumpers

Same as above except white





C-Shapes are specifically designed for use on straight-up verticals or pilings, while still providing outstanding horizontal protection. Economical and easy to install, the tough, shock-absorbent PVC will provide years of safer docking.

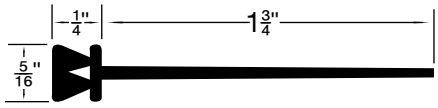


Width 3-5/8"
Thickness 1/4"
Height 1-1/4"

— *Unit Pkg. Qty.* —
825-506 15-6 ft. lengths
825-508 1-6 ft. length

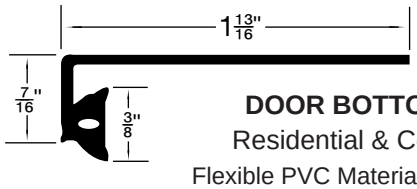
C-Shapes bumpers can also be used in non-marine applications for added protection.

More . . .
Garage Door Bottom Seals and Retainers of Polyvinyl Chloride (PVC) Material.



825-027

DOOR BOTTOM SEAL — Residential
Flexible PVC Material — Duro 70 ±5
Grey Colour *Unit Pkg. 200' Roll*



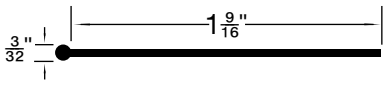
825-028

DOOR BOTTOM SEAL
Residential & Commercial
Flexible PVC Material — Duro 70 ±5
Grey Colour *Unit Pkg. 200' Roll*

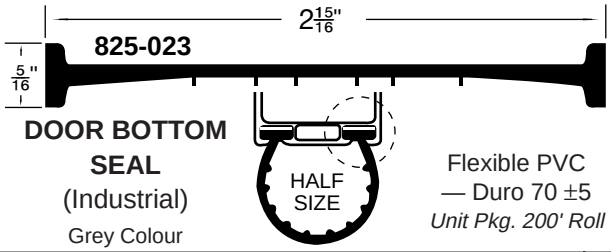
825-022

DOOR BOTTOM SEAL — Residential
Flexible PVC Material — Duro 70 ±5
Grey Colour *Unit Pkg. 200' Roll*

825-029



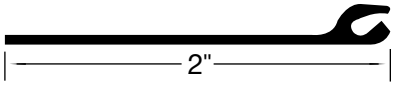
DOOR BOTTOM SEAL — Residential
Flexible PVC Material — Duro 70 ±5
Grey Colour *Unit Pkg. 500' Roll*



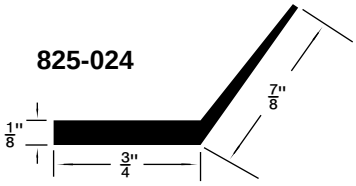
DOOR BOTTOM SEAL
(Industrial)
Grey Colour

Flexible PVC — Duro 70 ±5
Unit Pkg. 200' Roll

825-030
Grey Colour



RETAINER for 825-029
RIGID PVC Material — Duro 85 ±5
Unit Pkg. 8—4-1/2' Lengths



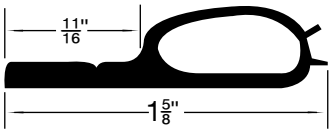
Black Colour
Top and Slide
FLAP SEAL

Flexible PVC Material — Duro 60 ±5
For LOW TEMPERATURE use
Unit Pkg. 500' Roll

825-034
Grey Colour, W= 3-5/16"

825-090
Black Colour, W= 3-3/16"

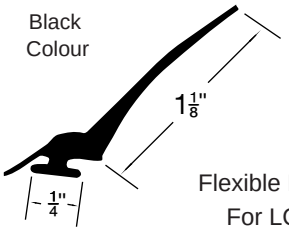
DOOR BOTTOM SEAL — Industrial
Flexible PVC Material — Duro 70 ±5
Unit Pkg. 200' Roll



825-025
Top and Slide
BULB SEAL

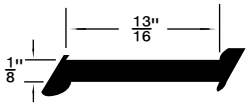
Flexible PVC Material — Duro 60 ±5
For LOW TEMPERATURE use
Black Colour *Unit Pkg. 250' Roll*

Black Colour



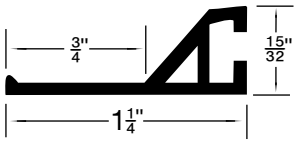
825-032
Top and Slide
FLAP SEAL

Flexible PVC Material — Duro 60 ±5
For LOW TEMPERATURE use
Unit Pkg. 500' Roll



825-026
RETAINER

For use with 825-025
RIGID, PVC Material — Duro 85 ±5
Black Colour
Unit Pkg. 8—4-1/2' Lengths



Grey Colour

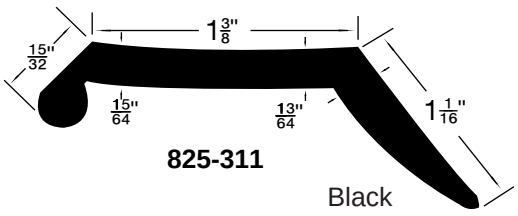
825-033
RETAINER
For use with
825-032 Flap Seal

RIGID, PVC Material — Duro 85 ±5
Unit Pkg. 8—4-1/2' Lengths

K

CATALOG 13

Note: All drawings on this page are actual size.

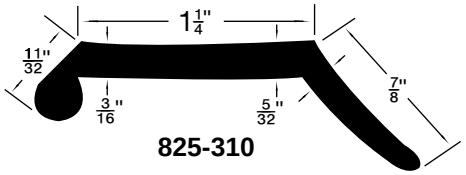


825-311

Black

Unit Package
50' Coil

GARAGE DOOR BOTTOM SEALS
Material: **EPDM**
Durometer: **65-75**

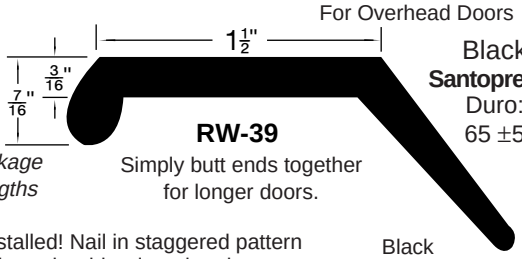


825-310

Black

Unit Package
50' Coil

For Overhead Doors



Black
Santoprene®
Duro:
65 ±5

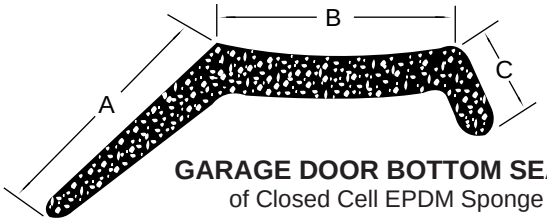
RW-39

Simply butt ends together for longer doors.

Unit Package
4-8' Lengths

Simply Installed! Nail in staggered pattern every 3" through rubber into door bottom. Use galvanized nails (roofing nails).

Black only



GARAGE DOOR BOTTOM SEALS
of Closed Cell EPDM Sponge

SPAENAUR No.	A	B	C	Colour	Pkg.
825-324	1.26	1.38	.45	Black	50'

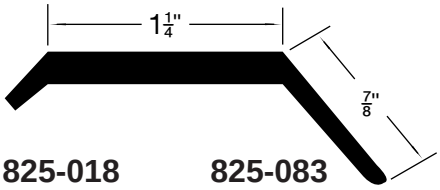
Shown below are . . .

Garage Door Bottom Seals

of Flexible Polyvinyl Chloride (PVC) Material

Widely used on WOOD DOORS, for Residential, Commercial and Industrial applications

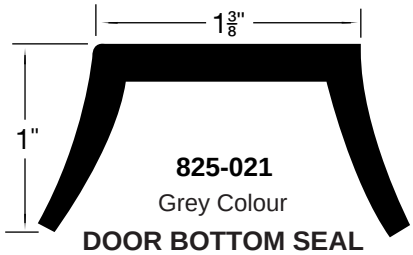
K



825-018 Grey Colour
825-083 Black Colour

DOOR BOTTOM SEAL
(Residential)
PVC Material — Duro 70 ±5

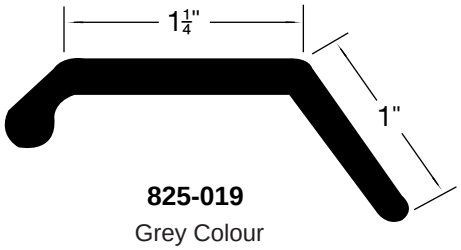
Unit Package 50' Roll



825-021
Grey Colour

DOOR BOTTOM SEAL
(Residential/Commercial)
PVC Material — Duro 70 ±5

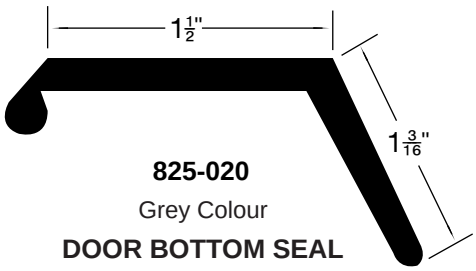
Unit Package 50' Roll



825-019
Grey Colour

DOOR BOTTOM SEAL
(Commercial)
PVC Material — Duro 70 ±5

Unit Package 50' Roll



825-020
Grey Colour

DOOR BOTTOM SEAL
(Industriall)
PVC Material — Duro 70 ±5

Unit Package 50' Roll

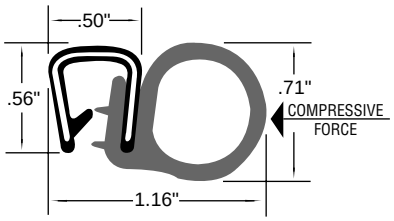
CATALOG 13

Note: All drawings on this page are actual size.

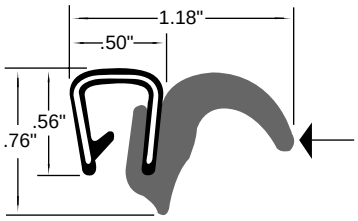
PUSH-ON TRIM SEALS TO WEATHERSTRIP AND DECORATE VEHICLE DOORS

Push-on trim seals offer a fast, easy way to weatherstrip and trim vehicle doors and windows. They install by simply pushing them over raw edges or flanges.

VINYL AND SPONGE RUBBER PARTS "ST" Sections

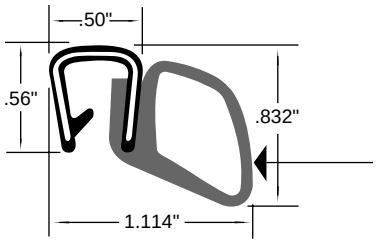


825-300
Bulb Seal

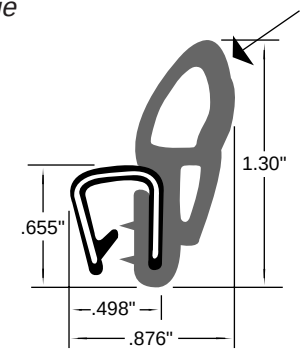


825-301
Lip Seal

Unit Package 25 feet.

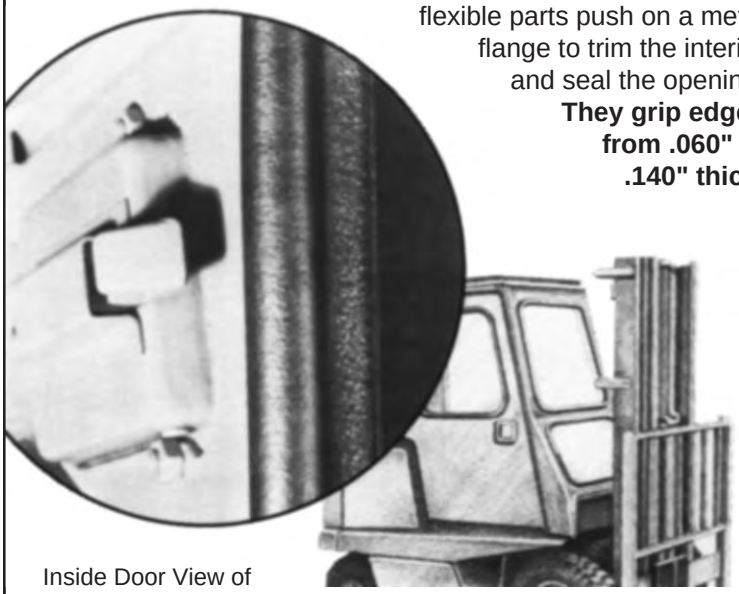


825-302
Half Bulb Seal



825-303
Vertical Wedge

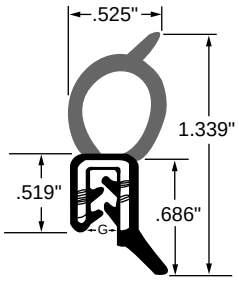
"ST" Section parts are made of EPDM sponge seal which is attached to a black leather-grain vinyl trim with a segmented steel core. These flexible parts push on a metal flange to trim the interior and seal the opening. **They grip edges from .060" to .140" thick.**



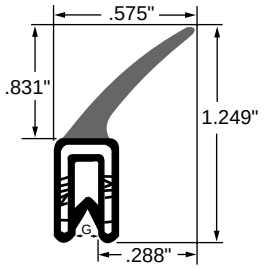
Inside Door View of 825-300

DUAL DUROMETER SPONGE AND SOLID RUBBER PARTS

"BZ" Sections are dual durometer EPDM flexible rubber extrusions. The sponge bulb seals the opening, and the durable solid rubber base, with a flexible wire core, provides high strength gripping power.



SPAENAUR No.	(G) Grip Range
825-085	.060"-.079"



SPAENAUR No.	(G) Grip Range
825-086	.079"-.099"

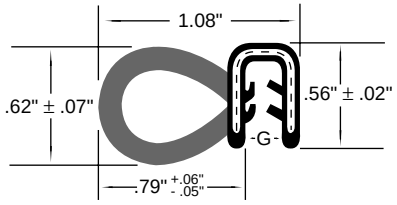
Unit Package 82 feet.

PUSH-ON TRIM SEALS

DUAL DUROMETER SPONGE AND SOLID RUBBER PARTS

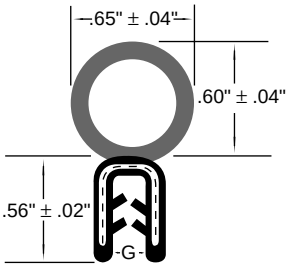
"RS" Sections

"RS" Sections are dual durometer flexible rubber extrusions. The sponge rubber EPDM bulb seals the opening. The durable solid rubber EPDM base has a flexible wire carrier that provides high strength gripping power.

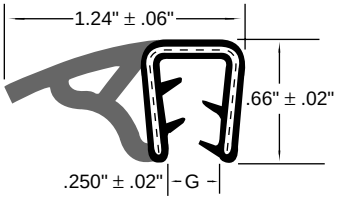


Unit Package
25 feet.

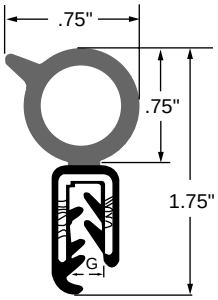
SPAENAUR No.	(G) Grip Range
825-067	.040"-.070"
825-068	.065"-.095"
825-069	.090"-.120"



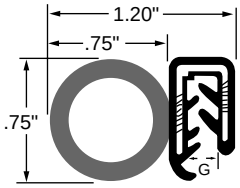
SPAENAUR No.	(G) Grip Range
825-064	.040"-.070"
825-065	.065"-.095"
825-066	.090"-.120"



SPAENAUR No.	(G) Grip Range
825-017	.250"±.02"



SPAENAUR No.	(G) Grip Range
825-087	.110"-.130"



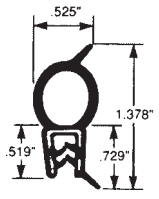
SPAENAUR No.	(G) Grip Range
825-088	.110"-.130"

K

ADDITIONAL STYLES AVAILABLE (Drawings not to scale)

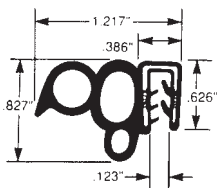
Styles C, F and G are dual durometer EPDM flexible rubber extrusions. The sponge bulb seals the opening and the durable solid rubber base with a flexible wire core provides high-strength gripping power.

C



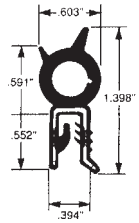
Flange Thickness .060" to .079"

F



Flange Thickness .071" to .111"

G



Flange Thickness .079" to .119"

Above styles are available, but not stocked.

Contact our order desk for more information and delivery time.

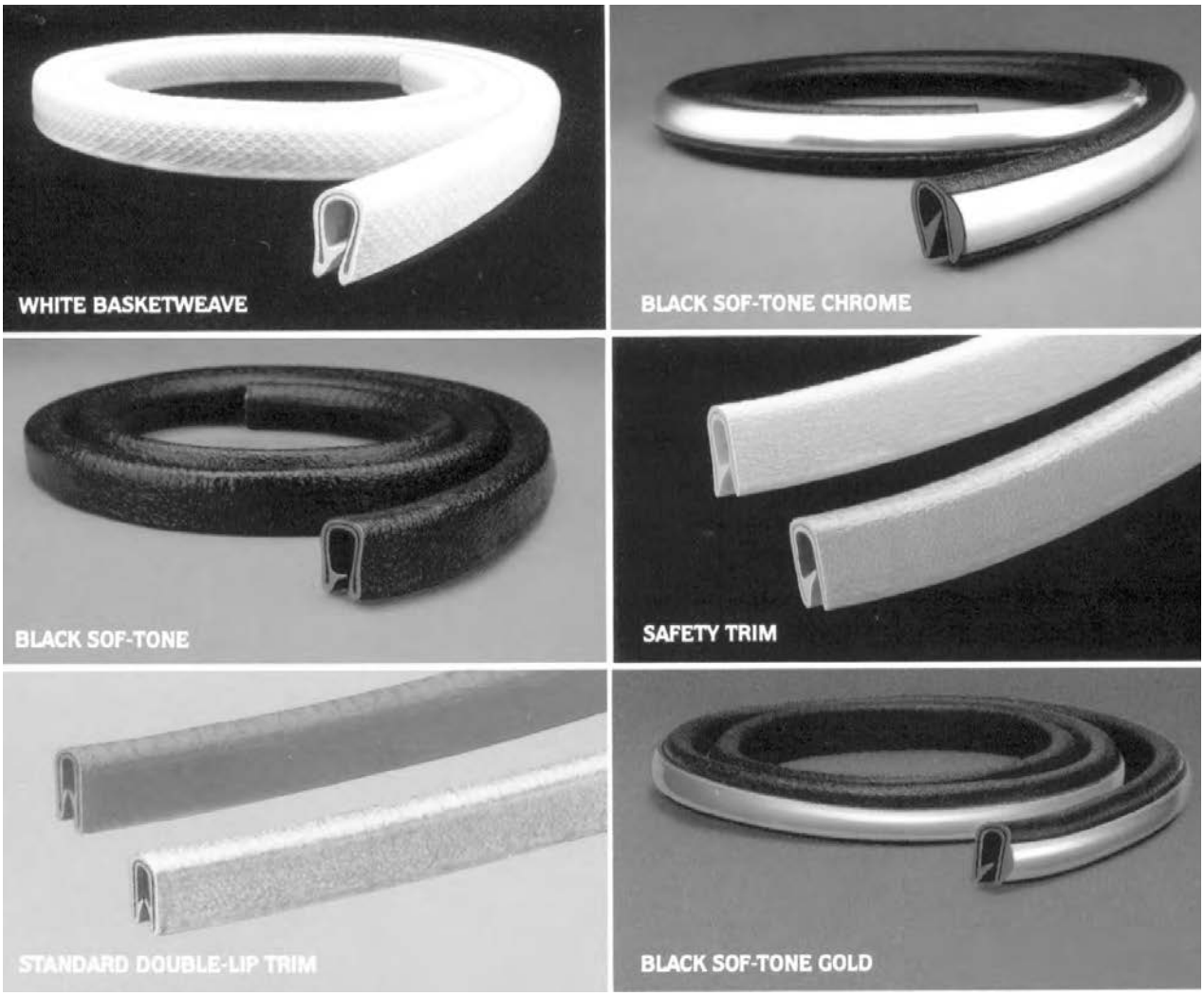
QUICKEDGE®

Quickedge® Trims' rugged, vinyl construction assures dependable performance, long life and easy use. The patented Quickedge® segmented metal core provides the strongest and most resilient gripping power.

Quickedge® Trims are available in decorative engineered designs to enhance your product with a variety of plastic, chrome and coloured trims.

Hundreds of consumer and industrial product applications.

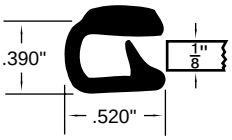
Quickedge® Trims are available in both aluminum and steel core.



Spaenaur is an Authorized Distributor of QUICKEDGE® Trim. Please contact the Spaenaur sales desk at 1-800-265-8772 for more information.

QUICKEDGE®

PHYSICAL CHARACTERISTICS: Vinyl (PVC) embossed extrusion with segmented metal core .018" thick cold rolled steel, no. 2 temper. All parts are 65 durometer except Standard Double Lip Trims which are 80 durometer hardness (Shore A 15 second delay.) Tensile strength: 2200 P.S.I./min. Elongation: 300%/min. Cold Impact: Will withstand 1-1/2 foot-pound impact at - 29°C. Heat resistance: 66°C max. for continuous use. Flammability: Self extinguishing, passes Federal Spec. FSS-302.

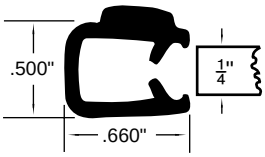


DECORATIVE SINGLE LIP TRIM

for 1/8" to 3/16" Edges.

Grips Edges from .090" to .190" Thick.

		Unit Pkg.
825-007	White Sof-Tone Woodgrain (Dark Teak) Pad	300 ft.
825-008	Beige Sof-Tone Woodgrain (Light Teak) Pad	300 ft.
825-009	Black Sof-Tone Chrome Pad	300 ft.

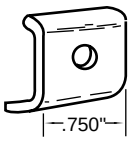


1/4" CHROME PAD TRIM

for 3/16" to 1/4" Edges.

Grips Edges from .150" to .300" Thick.

		Unit Pkg.
825-011	Black Sof-Tone Chrome Pad	200 ft.



END OR SPLICE CAP RIGID VINYL

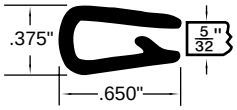
Fits Standard Size Trims Only.

		Unit Pkg.
086-652	White Smooth	50 pcs.

All kinds of extrusions, sponge rubber items, channels, weatherstrips can be found on pages K2 to K25.

FLEXIBLE EMBOSSED VINYL STEEL CORE TRIMS

Simply push on exposed edges — metal, fiberglass, plastic, plywood, glass — positive gripping power locks trim in place.

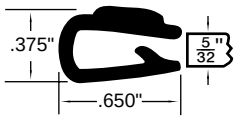


LONG LEG SINGLE LIP TRIM

Trim for 1/8" to 3/16" Edges.

Grips Edges from .085" to .210" Thick.

		Unit Pkg.
825-080	Black Sof-Tone	400 ft.

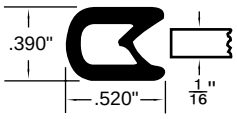


DECORATIVE LONG LEG TRIM

for 1/8" to 3/16" Edges.

Grips Edges from .085" to .210" Thick.

		Unit Pkg.
825-010	Black Sof-Tone Chrome Pad	300 ft.



STANDARD DOUBLE LIP TRIM

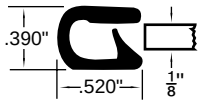
for 1/32" to 1/8" Edges.

Grips Edges from .032" to .125" Thick.

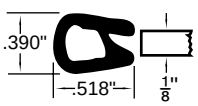
			Unit Pkg.
825-002	Black-Sof-Tone	(also see RW-83)	100 ft.
RW-80	Aqua Sof-Tone		100 ft.
RW-84	Grey Sof-Tone		100 ft.
RW-93	Fawn Sof-Tone		100 ft.
RW-94	Off-White Sof-Tone		100 ft.
RW-81	Red Sof-Tone		100 ft.
825-003	Blue Sof-Tone		100 ft.
825-004	Brown Sof-Tone		100 ft.
RW-83	Black Sof-Tone	(also see 825-002)	400 ft.
825-005	Black Basketweave		400 ft.

SNAP-ON WEATHERSEAL

FLEXIBLE PLASTIC (Flexible Metal Core) (also available with an Aluminum core – contact our order desk for more information)



STANDARD SINGLE LIP TRIM
Basketweave



PINCH TOP SINGLE LIP TRIM
Sof-Tone

MINITRIM DOUBLE LIP TRIM
Sof-Tone

SPAENAUR No.	Colour	Panel Thickness	Unit Pkg.
RW-85	White	.032" to .125"	400'
RW-85B	Black	.032" to .125"	400'
825-306	Black	.060" to .170"	400'
825-049	Black	.060" to .170"	20'
825-050	White	.060" to .170"	20'
825-509	Black	.010" to .050"	250'

"Q" TRIM for 1/4" Edges

Grips edges from .135" to .250" thick.

825-312	Black
825-313	White

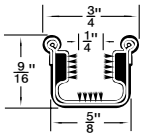
(With Flexible Metal or Aluminum core.)

Unit Package 250 ft.

4908 96" long

Wool pile lined sides, felt bottom.

Aluminum Beads (Bright). Rubber covered.
Flexible steel core with solid bottom for extra sharp bending.

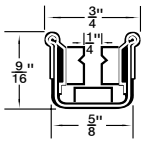


HIGHEST QUALITY
General Purpose.

Unit Package Quantity: 4 lengths.

4908A 96" long

Wool felt lined, sides and bottom. Stainless steel beads (Bright). Black Fabric Back.
Flexible steel core with solid bottom for extra sharp bending.

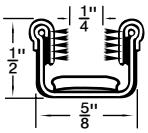


STANDARD QUALITY
General purpose.

Unit Package Quantity: 4 lengths.

4910A 96" long

Wool pile lined sides, felt bottom.
Beadless. Rubber covered.
Flexible steel core - perforated.



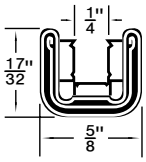
HIGHEST QUALITY
General Purpose.

Unit Package Quantity: 4 lengths.

LC-2 96" long

Wool felt lined, sides and bottom. Beadless. Cloth covered. Flexible steel core.

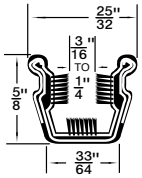
A universal type.



Unit Package Quantity: 1 length.

LC-14 96" long

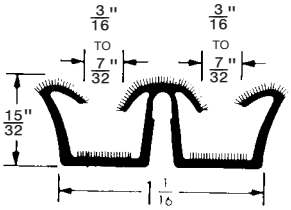
Stainless steel beads.
Rubber covered.
Wool pile lined.
Flexible steel core.



Unit Package Quantity: 4 lengths.

825-015 96" long

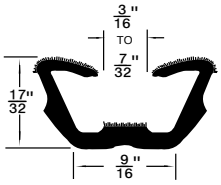
All-Rubber Flocked Lining Flexible



Unit Package Quantity: 4 lengths.

LC-17 96" long

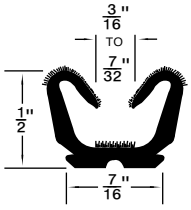
All rubber channel with flock-coated lining.



Unit Package Quantity: 4 lengths.

LC-27 96" long

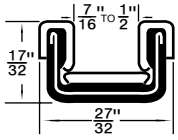
All rubber channel with flock-coated lining.



Unit Package Quantity: 4 lengths.

C-8 96" long

Wool felt lined, sides and bottom. Beadless. Rubber covered. Extra heavy, flexible steel, core-perforated.



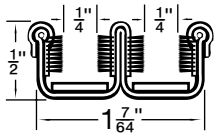
Unit Package Quantity: 6 lengths.

FLEXIBLE TWIN CHANNEL

Designed for double sliding windows, as in station wagons, truck cabs, aircraft and buses.

C-5 96" long

Beadless. Wool pile lined sides, felt bottom.
Rubber covered.
Flexible steel core - perforated.

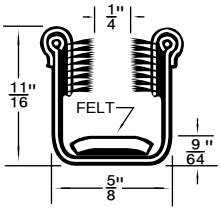


Unit Package Quantity: 6 lengths.

RW-63 96" long

FLEXIBLE UNBEADED RUBBER COVERED CHANNEL
Wool Pile Fabric Lining,
Felt bottom.

Used wherever extra high leg (11/16") and pile side lining are desired.

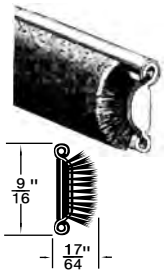


Unit Package Quantity: 4 lengths.

P.C. 825

K

CATALOG 13

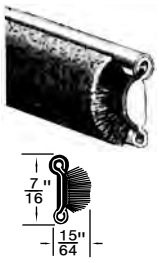


C-9 CONTOUR WEATHERSTRIPS WITH STAINLESS STEEL BEAD

Flexible steel core. Rubber covered. Wool pile fabric. Used on many cars and trucks since 1945, especially on hardtops.

Top bead is stainless steel.
Bottom bead is galvanized steel.

Unit Package 6 - 96" lengths.

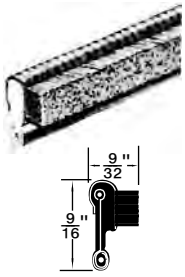


4912 CONTOUR WEATHERSTRIPS WITH STAINLESS STEEL BEAD

Flexible steel core. Rubber covered. Wool pile fabric. Used on many cars and trucks since 1945, especially on hardtops.

Top bead is stainless steel.
Bottom bead is black plated.

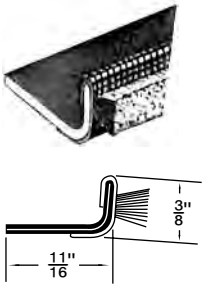
Unit Package 6 - 96" lengths.



C-54
CONTOUR WEATHERSTRIPS

Flexible steel core. Rubber covered. Wool pile fabric. Top edge is beadless. Bottom edge has black bead. Used as belt and contour weatherstrips on many cars since 1935.

Unit Package 6 - 96" lengths.



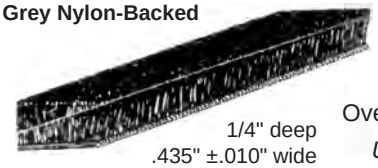
C-55 96" long
CONTOUR WEATHERSTRIPS FLEXIBLE DRAFT STRIP

For automotive, industrial, construction and household usage. Forms draft-proof cushion between glass and lower garnish moulding.

Wool pile fabric. Rubber covered. Flexible steel core. Beadless.

Unit Package 6 - 96" lengths.

FOR BUS WINDOWS
Grey Nylon-Backed

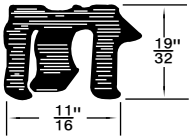


CONTOUR WEATHERSTRIP
Grey Colour

C-11

Vertical Side Window
Overlap Space Weatherstrip

Unit Package 50 Yards



P.C. 086

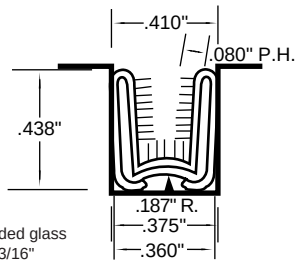
C-1095
(2217508)

Clip, Outer Weatherstrip, Door & Quarter-Window

Chrysler Products '67-'71

Unit Package 100

For use in: Cabs, combines, earth moving equipment, trucks, bus windows, boat windows, delivery trucks, curved windows, recreational windows and sashless windows. ● Flexible in all directions ● Economical and easy to use ● Installs easily ● Guaranteed long life ● Replaces rigid channels ● Rot, mildew and corrosion resistant.



Recommended glass size is 3/16"

Flexible Steel Core

Woven Black Pile Lining

Black Cloth Covering

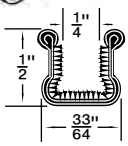
825-314 *Unit Package 500 feet*

825-347 *Unit Package 100 feet*

Looking for those "Hard to Find" products?

Call us at (800) 265-8772.

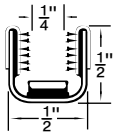
SPAENAUR



C-6 36" long
C-6L 96" long

Wool pile fabric lined all round.
Galvanized steel beaded channel.
No exterior cover. Rigid steel core.

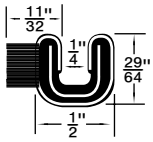
Unit Package Quantity:
C-6 25 - 36" lengths.
C-6L 6 - 96" lengths.



LC-7 96" long

Wool pile lined sides, felt bottom.
Rubber covered. Beadless.
Rigid steel core.

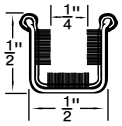
Unit Package Quantity:
6 lengths.



LC-1 96" long
825-299 18" long

Wool pile fabric on outside of one leg.
Cotton fabric covers outside over heavy rubber covered rigid steel core.
Rigid glass run channel and weatherstrip for insulation between parallel panes with channel fitted to edge of one.

Unit Package Quantity:
LC-1 6 lengths.
825-299 1 lengths.

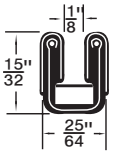


4902 96" long

Wool pile lined all round. Rigid galvanized steel channel with stainless trim beads.

A popular multi-purpose rigid type channel.

Unit Package Quantity:
6 lengths.

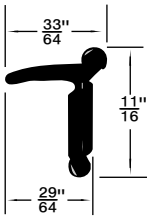


LC-8 96" long

"Velvet" cloth covered sides, felt lined on bottom inside, rubber covered on bottom outside. Rigid steel core.
Beadless.

A popular division bar channel for a wide range of cars. Also used on front door as lower rear channel.

Unit Package Quantity:
6 lengths.

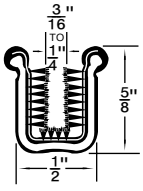


825-501 96" long

Rigid Weatherstrip
Stainless Steel Bead
Rubber lip
Rubber covered Steel Core

Used on Doors, Tail-gate & Quarter Windows.

Unit Package Quantity:
6 lengths.



LC-30 96" long

Stainless steel beads.
Wool pile lined.

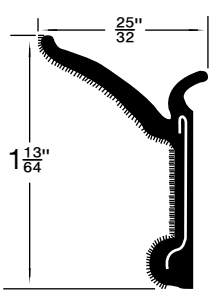
Rigid Steel Core.

Unit Package Quantity:
4 lengths.

Have a question?

Call (800) 265-8772 or (519) 744-3521.

For General Motors "B" Body Cars

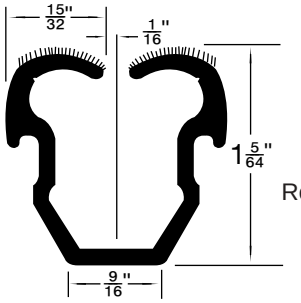


825-076

"B" Body
Station-wagon
Belt Weatherstrip
Quarter-window

"B" 4-door
Belt Weatherstrip
Rear Door - Outer

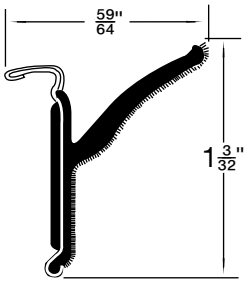
Unit Pkg. 15 - 96" Lengths



825-072

"B" Body Channel
Rear Door B & C Pillar

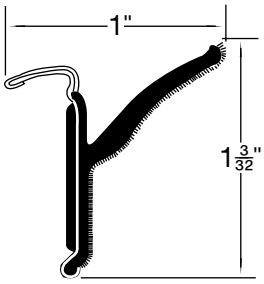
Unit Pkg. 25 - 96" Lengths



825-074

"B" Body 4-door
Belt Weatherstrip
Inner Front Door

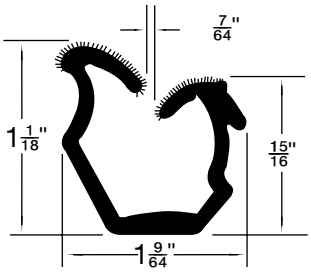
Unit Pkg. 15 - 96" Lengths



825-075

"B" - Station-wagon
Belt Weatherstrip
Inner Front Door
Can be formed into U-

Unit Pkg. 15 - 96" Lengths

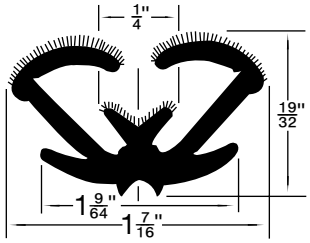


825-071

"B" Body Channel

Front Door B-Pillar

Unit Pkg. 1 - 96" Length



825-070

"B" Body Channel

Rear Door-header
Section

"B" Body 4-door Channel
Front Door A-Pillar
Header Section

Unit Pkg. 1 - 96" Length

For replacing worn-out linings on various types of rigid glass run channels on buses, trucks, boats, etc.

SPAENAUR No. **C-27**

Felt with 5/16" wide Aluminum back

shaped channel

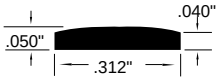
1/16" thick x 1" wide

Unit Package 75 Feet

EASY-WAY CHANNEL RELINER-RENEWER

Black semi-rigid vinyl stripping. Slides into bottom of glass run channel. Stops rattles and drafts. Tightens up glass. Glass slides easily and quietly. Easily cut to required length.

SPAENAUR No. **RW-79**



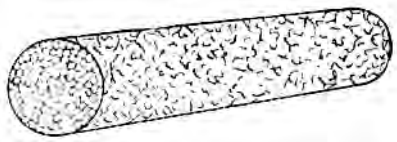
END VIEW (TWICE SIZE)

Unit Package 100 Feet

K

CATALOG 13

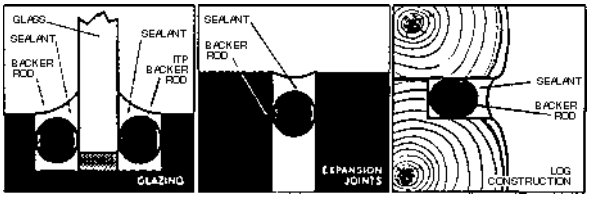
Flextite POLYFOAM CORD
(Also known as BACKER ROD)



Chemically inert, resists oil, gas, solvents.
Non-staining, non-sticking, non-exuding.

Polyfoam Cord is not stocked.
Delivery is 1 to 2 weeks.

Common Applications of Backer Rod

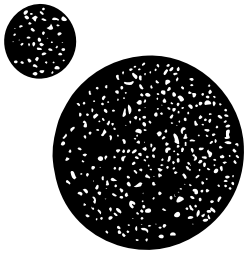


Composition and Material: An extruded round, closed cell, low density polyethylene foam material with a skin-like outer texture. It is highly flexible and compressible for easy installation.
Compatibility: It is compatible with butyl, polysulphide, acrylic, polyurethane, silicone and most other cold sealant compositions.
Basic Uses: It is an ideal non-absorbent compressible backup material inserted into a joint to control sealant depth, create a backstop to allow proper sealant tooling, to allow proper sealant wetting of the joint surfaces, and yield proper bond breaker between the backup material and the sealant. It can also be used as a tempory joint seal.
Specific Uses: Commonly used in glazing operations, window and door applications, expansion joints, curtain wall joints, partitions, log construction, pavement joints and repairs, precast units and copings.

P.C. 825

SPAENAUR No.	DIAMETER	UNIT PKG. QTY.
RW-114	1/4"	4000 ft./roll
RW-110	3/8"	2100 ft./roll
RW-111	1/2"	2500 ft./roll
RW-112	3/4"	1100 ft./roll
RW-113	1"	600 ft./roll

ROUND SPONGE CORD
SBR Open Cell



SPAENAUR No.	CORD DIA.	UNIT PKG. QTY.
4654	1/4" Dia.	50 ft.
4655A	7/16" Dia.	50 ft.
4657	5/8" Dia.	50 ft.
4658*	3/4" Dia.	50 ft.

*(Closed Cell Neoprene)

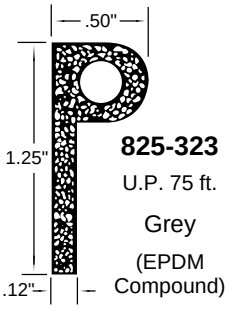
(See page K8 for Solid Neoprene Cord)

P.C. 825

Closed Cell Neoprene

RW-132
Black
1" × 3/8"
U.P. 100 ft.

RW-38
Black
1" × 1/2"
U.P. 100 ft.



825-323
U.P. 75 ft.
Grey
(EPDM Compound)

SBR OPEN AND CLOSED CELL SPONGE RUBBER SHEETS

Priced Singly

P.C. 853

SPAENAUR No.	THICKNESS	SIZE	STYLE
4537-R	1/4"	28" x 48"	Open Cell Soft Grade
B-185-R	1/2"	28" x 48"	
RW-122	3/16"	23" x 44"	Closed Cell Soft Grade

SBR OPEN CELL SPONGE RUBBER STRIPS

Firm Grade

P.C. 825

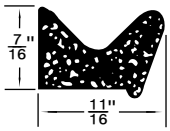
SPAENAUR No.	SIZE	UNIT PKG. QUANTITY
4552-S	3/8" x 1/2"	7—92" lengths
4552-A	1/2" x 1"	5—108" lengths

See page K35 for
Foam Rolls and Sheets.
(Luxurfoam)

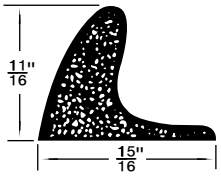
Substance & Structure

The Profiles shown on this page, unless indicated otherwise, are extruded of CLOSED CELL NEOPRENE/EPDM BLEND.

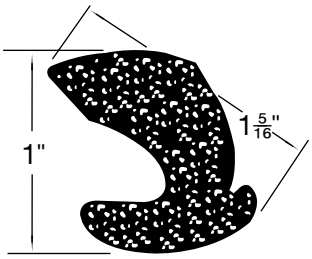
FOR GENERAL MOTORS CARS



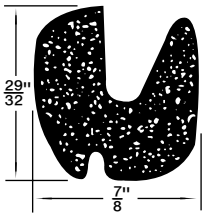
825-058 (50')



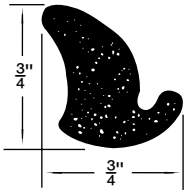
825-053 (50')



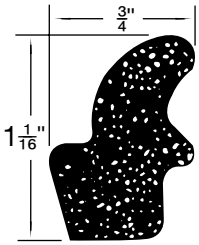
825-062 (50')



RW-4 (35')



RW-3 (50')

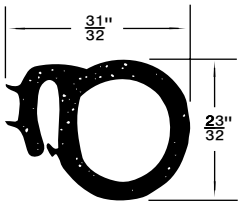


825-052 (50')

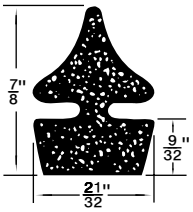
Rear Deck Weatherstrip.

FOR FORD PRODUCTS CARS

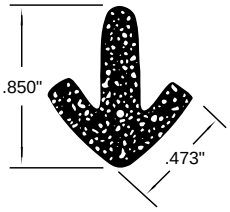
Attach Weatherstrips with LOCTITE® Adhesive 800-119.



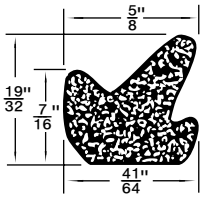
Used on Maverick & Pinto
825-307 (50')
(Neoprene)



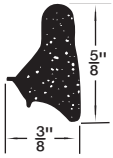
RW-6 (50')



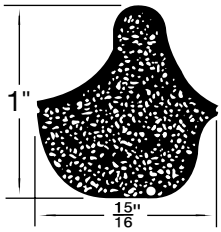
4707 (50')



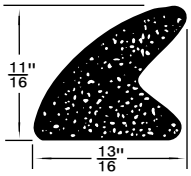
825-055 (50')



RW-121 (50')
(POLYISOPRENE)



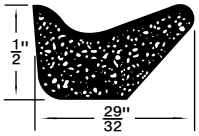
RW-109 (50')
(POLYISOPRENE)



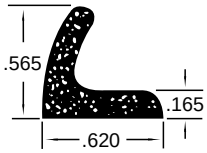
RW-2 (50')

FOR CHRYSLER CORP. CARS

Door Weatherstrip.



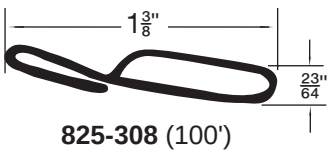
RW-43 (50')



825-057 (50')

MISCELLANEOUS TYPES

Closed Cell Neoprene



825-308 (100')

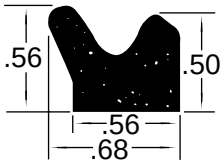
K

CATALOG 13

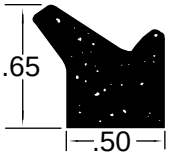
EXTRUSIONS — of Closed Cell **NEOPRENE** Sponge

Heat and Cold resistance — Minus 45°C to Plus 150°C (-50°F to +300°F)

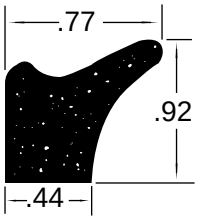
Colour, Black
unless shown otherwise



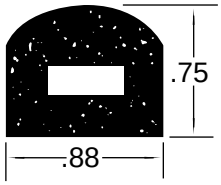
825-319
Neoprene



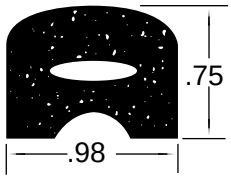
RW-21
Neoprene



825-320
Neoprene

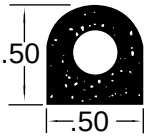


825-321
Neoprene

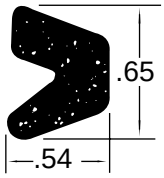


825-322
Neoprene

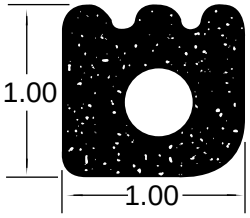
SUN ROOF SEAL
(Black)



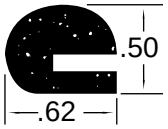
825-325
Neoprene



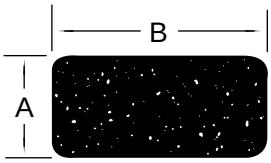
825-333
Neoprene



825-332
Neoprene



825-334
Neoprene

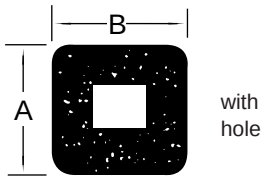


RECTANGLE

SPAENAUR No.	A	B
825-335	.25"	1.25"
825-336	.25"	1.00"
825-337	.25"	.75"
825-338	.25"	.50"
825-340	.38"	.75"
825-343	.50"	1.00"
825-344	.50"	.75"
Neoprene		

UNIT PACKAGE — ALL ITEMS 50 FEET

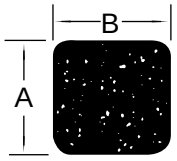
(3 random lengths, or less, to pkg.)



with hole

RECTANGLE & SQUARE

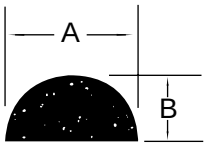
SPAENAUR No.	A	B
825-329	.62"	1.00"
825-330	.50"	1.00"
825-331	.75"	.75"
Neoprene		



SQUARE

SPAENAUR No.	A	B
825-326	.38"	.38"
825-327	.50"	.50"
825-328	.62"	.62"
Neoprene		

HALF ROUNDS



SPAENAUR No.	A	B
825-059	.25"	.12"
825-060	.38"	.19"
825-061	.50"	.25"
Neoprene		

NEOPRENE and NEOPRENE/EPDM EXTRUDED CLOSED CELL SPONGE

Ideal for applications requiring a lightweight seal with insulation and cushioning.

Advantages:

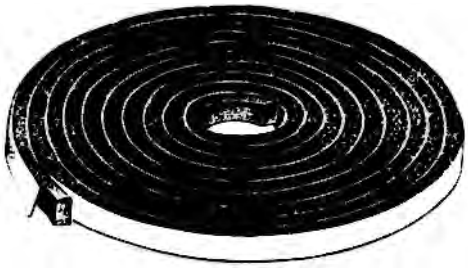
- Clean, smooth skin for a tight seal.
- Low water absorbtion.
- Resistance to structural collapse.
- Excellent insulator with good temperature range (-45°C to +150°C).
- Ability to conform to curves, corners, varying cross sections, and irregular surfaces.

Attach Weatherstrips with LOCTITE® Adhesive 800-119.

A Quality Engineered Product.

EASY AND SIMPLE TO APPLY

This wonder strip is always ready to be applied to any clean surface by simply removing the linen tape which protects the adhesive surface.



PEEL and STICK

Pressure-sensitive adhesive on one side.

SBR OPEN CELL SPONGE

Medium density - Low deflection
2 to 5 lbs. per square inch.

SPAENAUR No.	Thickness	Width	Unit Package Quantity
360	5/32"	3/8"	200 Feet
377		1/2"	150 Feet
378		5/8"	100 Feet
361		3/4"	100 Feet
362		1"	100 Feet
373		1-3/4"	50 Feet
892-021	1/4"	3/8"	100 Feet
363	5/16"	3/8"	100 Feet
364		1/2"	75 Feet
365		5/8"	50 Feet
366		3/4"	50 Feet
367		1"	50 Feet
379		1-1/2"	25 Feet
375		2"	25 Feet
368	7/16"	3/8"	100 Feet
369		1/2"	75 Feet
370		3/4"	50 Feet
371		1"	50 Feet
376		2"	25 Feet

NEOPRENE/EPT/SBR BLEND

CLOSED CELL SPONGE Medium density

SPAENAUR No.	Thickness	Width	Unit Package Quantity
892-382	1/8"	3/8"	50 Feet
892-360		1/2"	50 Feet
892-361		3/4"	50 Feet
892-362	3/16"	3/8"	50 Feet
892-374		1/2"	50 Feet
892-363		3/4"	50 Feet
892-364		1"	50 Feet
892-378	1/4"	1/4"	25 Feet
892-365		3/8"	25 Feet
892-366		1/2"	25 Feet
892-383		3/4"	25 Feet
892-367		1"	25 Feet
892-368	5/16"	3/8"	25 Feet
892-369		1/2"	25 Feet
892-380		9/16"	25 Feet
892-370		3/4"	25 Feet
892-371		1"	25 Feet
892-372	3/8"	1/2"	25 Feet
892-373		3/4"	25 Feet
892-377		1"	25 Feet
892-375	7/16"	1/2"	25 Feet
892-381		3/4"	25 Feet
892-376		1"	25 Feet
892-384	1/2"	3/4"	25 Feet

Polyester URETHANE Foam Sponge
Pressure-sensitive adhesive on one side

OPEN CELL — GREY COLOUR
SOFT AND RESILIENT
Used as cushioning, and as draft, dust or light seal.

SPAENAUR No.	Thickness	Width	Unit Package Quantity
892-393	1/4"	1/4"	40 Feet
892-394		3/8"	40 Feet
892-462	1/2"	3/4"	500 Feet

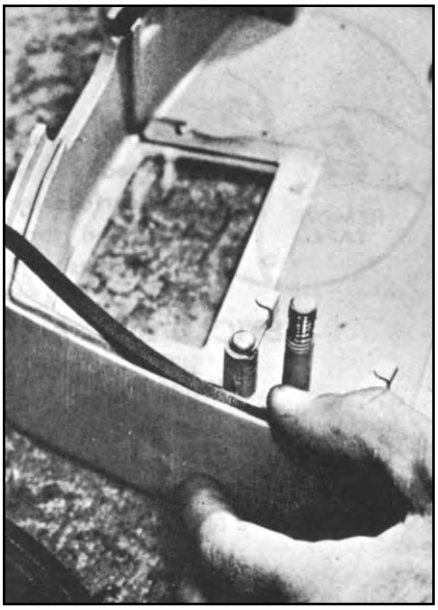
"EASY-OPEN"

GREY COLOUR (8 lb. density)

Closed Cell – P.V.C. (Polyvinyl Chloride)

FOAM TAPE SEALANT

With Non-Clinging Top Surface

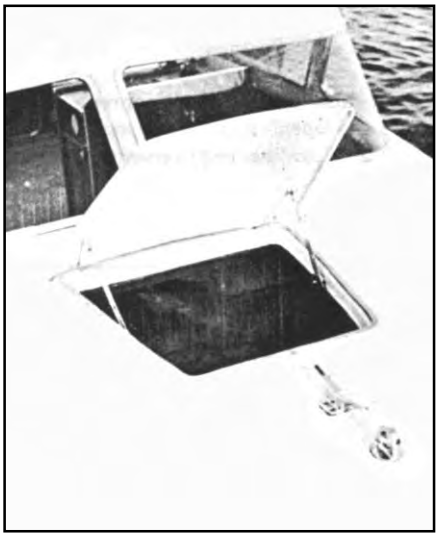


Pressure-sensitive, with aggressive adhesive coating on one side.

Flame retardant and fungus resistant.

Mar-resistant, smooth, non-clinging top surface.

For exterior or interior closures which are subject to PERIODIC OPENING AND CLOSING, such as instrument panels and switch-gear, commercial and residential doors.



SPAENAUR No.	Thickness	Width	Package Quantity
892-475	**1/8"** (3.2 mm)	1/4"	100 feet
892-476		3/8"	100 feet
892-477		1/2"	100 feet
892-478		3/4"	100 feet
892-479	**1/4"** (6.4 mm)	3/8"	50 feet
892-480		1/2"	50 feet
892-481		19/32"	50 feet
892-482		3/4"	50 feet
892-483	**3/8"** (9.6 mm)	1/2"	30 feet
892-484		3/4"	30 feet
892-485		1"	30 feet

K

Performance Data & Properties (Typical Data for 6.4 mm material)	
Density:	8 lbs./cu. ft.
Test Method	ASTM D-1667
Ultimate Tensile Strength:	9 lbs./in. width
Test Method	PSTC-31
Elongation:	100 % min.
Test Method	PSTC-31
Peel Adhesion: @90°	1.5 lbs./in. width
Test Method	PSTC 1A

For "SEAL-KING" Foam Tape Sealant, see page K25.

Load at 50% Compression:	5 lbs./sq.in.
Test Method	ASTM D-1667
Compression Set:	8%
Test Method	ASTM D-1667
Flammability:	Self-extinguishing
Test Method	ASTM D-1692

Service Temperature:		**Intermittently**
Min.	**Max.**	**up to**
-29°C (-20°F	+71°C + 160°F	93°C 200°F)

Recommended Application Temperature:	18°C to 52°C (65°F to 125°F)

Resistance To:	
Weather	Excellent
Fungi	Excellent
Combustion	Excellent
Oxidation	Excellent
Salt Water	Good
Weak Acids	Good
Weak Bases	Good
Solvents	Poor
Petrol	Fair
Lacquer Mar	Excellent

CATALOG 13

"SEAL-KING" FOAM TAPE SEALANT

P.V.C.
(Polyvinyl Chloride)

CLOSED CELL - GENERAL PURPOSE

This is a low density, very aggressive adhesive foam sealant, used extensively in the automotive and other industries for permanently sealing against air, water, dust, vibration and noise.

ADHESIVE
(Acrylic Type)

Pressure Sensitive
ON ONE SIDE

BLACK colour only.

SPAENAUR No.	Thickness	Width	Package Quantity
892-450	**1/8"** (3.2 mm)	3/8"	100 feet
892-451		1/2"	100 feet
892-452		3/4"	100 feet
892-453		1"	100 feet
892-454	**3/16"** (4.8 mm)	1/2"	50 feet
892-456	**1/4"** (6.4 mm)	1/2"	50 feet
892-457		3/4"	50 feet
892-458		1"	50 feet
892-459	**3/8"** (9.6 mm)	3/4"	25 feet
892-460		1"	25 feet
892-461	**1/2"** (12.7 mm)	3/4"	25 feet

K

Performance Data and Properties

Density:	6.75 ± 1.0 lb./ft ^{3}
Test Method	ASTM-D-1667
Service Temperature:	
Min. -29°C (-20°F	Max. +71°C +160°F — Intermittently up to 93°C 200°F)
Recommended Application Temperature:	16°C to 38°C (60°F to 100°F)
Resistance To:	
Weather	Excellent
Fungi	Excellent
Combustion	Poor
Oxidization	Excellent
Salt Water	Good
Weak Acids	Good
Weak Bases	Good
Solvents	Poor
Petrol	Fair

Tensile Strength:	2.0 lbs./in. width min.
Test Method	PSTC-31 STP-7
Elongation:	100% minimum
Test Method	PSTC-31 STP-7
Peel Adhesion:	@ 90° stronger than internal strength of foam
Test Method	PSTC-1A STP-6
Compression/ Deflection:	50% .75 +.5 — .25 psi
Test Method	ASTM-D-1667 STP-10
Minimum Compression to Seal at Ambient Temperature:	30%
Vinyl Release:	0.15 lbs./in. width max.
Test Method	STP-2
Adhesive to Liner Release:	0.20 lbs./in. width max.
Test Method	STP-2

NOTE:

"SEAL-KING"
is really a **SEALER** Foam Tape and may cling to the opposite surface if in a fixed position, over a long time.

"EASY-OPEN"
(shown on page K24 has a non-clinging top surface.

All-Rubber SealStrip®

Special Strength - Tough cotton fibres make SealStrip® amazingly strong, but it trims easily without special tools. **Uniform Tackiness** - Clings to glass during application, holds tight when glass is set. Yet it peels off the roll easily, without tearing. **No Oil required** - Applies easily, without oil. For special applications, SealStrip will absorb oil and swell sufficiently to ensure extra-strong grip. **Resists Age** - Thousands of applications prove that SealStrip® holds its physical characteristics, including tackiness throughout its life. Even moisture cannot affect the setting. **Won't Discolour Glass** - Laminated safety glass is safe from discolouration, because the specially compounded rubber used in SealSrip® will not bleed.

SPAENAUR No.	THICK-NESS	WIDTH	Feet Per Roll
B-168	1/32"	1-1/2"	100
B-169	3/64"	1-1/2"	100
B-167	1/16"	1-1/2"	75
GP-11	3/32"	1-1/2"	50

GLASS-PAK

Absolutely waterproof. Easily compressed. Swells after setting. Trims easily, with a neat black edge. No threads to fray out.

SPAENAUR No.	THICK-NESS	WIDTH	*Feet Per Roll
C-97	1/32"	1-3/8"	480
GP-5	3/64"	2-1/4"	345
B-787	1/16"	2"	250
C-20	1/16"	2-1/2"	260
C-18	3/32"	1-1/2"	170
GP-12	3/32"	2-1/2"	165

***Jumbo Rolls - Not Boxed.**

IMPORTANT!

When setting "Safety-Glass", brush inside of steel channel with light motor oil, place **GLASSPAK** over glass-edge and insert in channel. Oil will cause **GLASSPAK** to swell when set, forming a perfect, watertite seal.

P.C.834

K

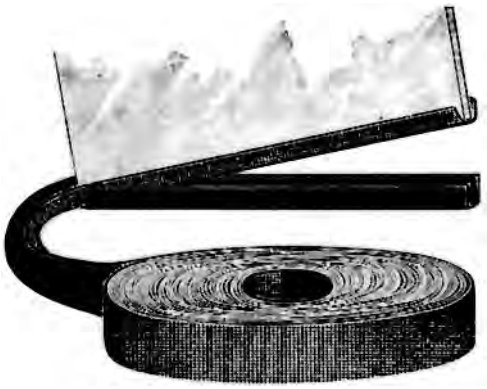
CORK AND RUBBER STRIPPING

Used for setting automobile door and windshield glass. Made of highest quality pure ground cork set in active rubber, coated on strong fabric backing. Absolutely waterproof. All rolls full gauge, full width and full length.

UNIT PACKAGE ONE 100' Roll

SPAENAUR No.	Width	Thickness
6002-S	1-1/2"	1/32"
6007-S	1-1/2"	1/16"

P.C.834

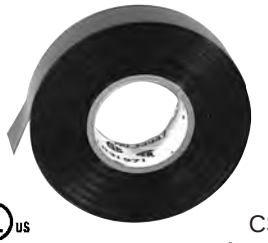


Black PVC ELECTRICAL TAPE

SPAENAUR No.	Tape Thickness	Size of Roll
TS-302	7.0 mil	3/4" x 66'
892-007	8.0 mil	3/4" x 66'

Adhesive backed. Replaces rubber and friction tape. Resists water, oil, acids and corrosive chemicals. Strong. For neat, lasting splices.

Priced Singly



c UL us LISTED

CSA Approved

DUCT TAPE - General Purpose

Dull Silver Colour

SPAENAUR No.	Width	Roll Length
892-006	1-7/8" (48mm)	180' (55 metres)

Benefits:
Good flat surface for excellent tack.
Conformable.
Very good adhesion.
Temp. resistance to 122°F (50°C).

UNIT PKG. 1 ROLL

Applications:
Excellent for all duct sealing applications.
Attaching insulation to duct work and pipes. Used for patching fiberglass and metal.
Used for holding down wiring in trade show and television industry.

CATALOG 13

- **Self-adhering (forms a solid piece of rubber in minutes).**
- **Stretch to activate.**
- **Air-tight and water-tight (use it under water).**
- **Works from -20°C to 100°C (-5°F to 212°F).**
- **Suitable for high voltage applications (meets ASTM D-69).**
- **Flexible, conforms to irregular surfaces and shapes.**
- **Withstands air pressure up to 100 psi / 689 kPa.**
- **Easy to use – hundreds of applications.**

***SPAENAUR No.* 892-005**

1" wide x 16 ft. / roll
(2.5 cm x 4.9 m)

Unit Package - 1 Roll

Black Colour – Blister Packed
Made of Butyl Rubber/Polyethylene

GLAZING CLIPS

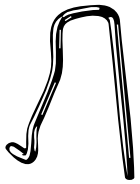
(SASH CLIPS)
Made fo high-tensile, spring-tempered, steel wire. All clips have *copper-coated finish.

UNIT PACKAGE 100 ONLY

Used in glazing Truscon, Ceco, Fenestra, Vento, Mesker and other well-known industrial steel sash. C-974 and 120-004 are also commonly used in glazing double strength and picture windows.

18 GA. CASEMENT CLIPS

120-007



For aluminum sash.

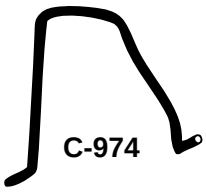
18 GA. RESIDENTIAL

120-006

For steel sash.

16 GA. INDUSTRIAL

C-974



For commercial steel sash.

120-004

For commercial steel sash.

16-1/2 GA. INDUSTRIAL

120-005

For commercial aluminum sash.

*Copper-coated or galvanized finish at our option.

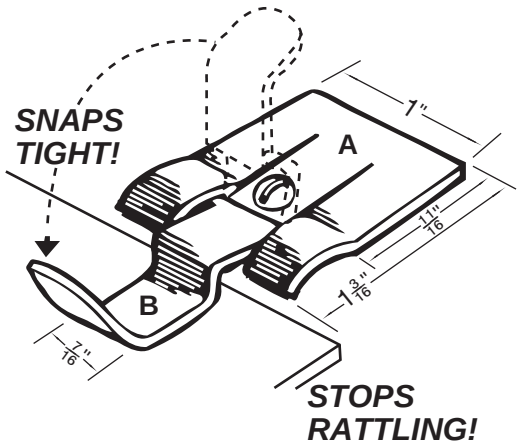
K

it's a Snap . . .

when you use

Snap Fastening Retainers

For many holding applications:



- Retains removable panels, grills, access doors, covers, filters, screens, windows, placards, etc.
- Quick, positive, easy to install

***Zinc Plated, Carbon Steel**

Data: "A" Dimensions as shown in drawing, — same on all numbers. (Hole dia. .203")

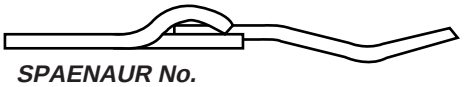
"B" Movable Arm is 7/16" wide, but configuration differs, number to number.

UNIT PACKAGE 50 ONLY

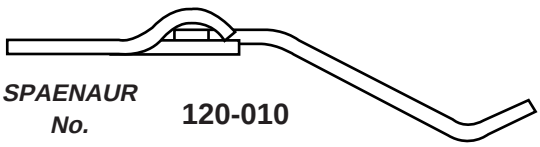
***Other shapes and Stainless Steel available. Quote on request.**

SPAENAUR No.
120-009

120-800 SAME AS 120-009 EXCEPT 2 HOLES AND 18-8 STAINLESS STEEL



SPAENAUR No.
120-008



SPAENAUR No. **120-010**

CATALOG 13

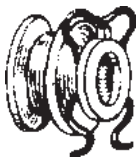
SOME VINTAGE CAR ITEMS

See pages H22 to H43 for more Auto Attachment parts and miscellaneous items.

WINDOW REGULATOR ROLLERS AND PARTS

RP-87
Window Regulator Roller
Steel Washer, Coil Spring.
Unit Package 10

B-1370
5/16" - 24 x 3/4"
Window Regulator Adjusting Screw Assembly
Unit Package 10



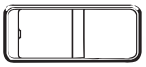
RP-88

Window Regulator Roller:
Ford, Mercury, Edsel '59-'63
Unit Package 10

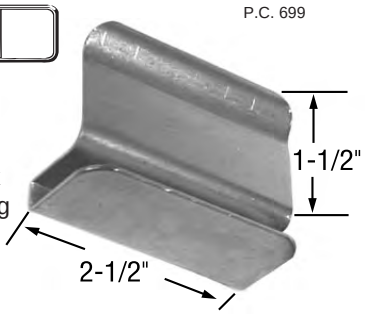
RP-89
(Nylon)

Window Regulator Roller
Unit Package 10

Priced Singly



P.C. 699



B-1580
Finger Pull
Use with panel truck and travel van sliding window units.

Steel, Zinc Plated

P.C. 699

Priced Singly

B-1581
Spring Lock-Set
Steel, Zinc Plated

2198
Window Regulator Arm Stud Clip.
(Use with 2078 Washer)
Unit Package 50

2078
Window Regulator Arm Stud Washer:
(Use with 2198 Clip)
Unit Package 50

7/16" I.D. x 3/4" O.D. x 3/64" Thick

2446
Window Regulator Arm Stud Clip:
(Use with 2473 Washer)
Unit Package 50

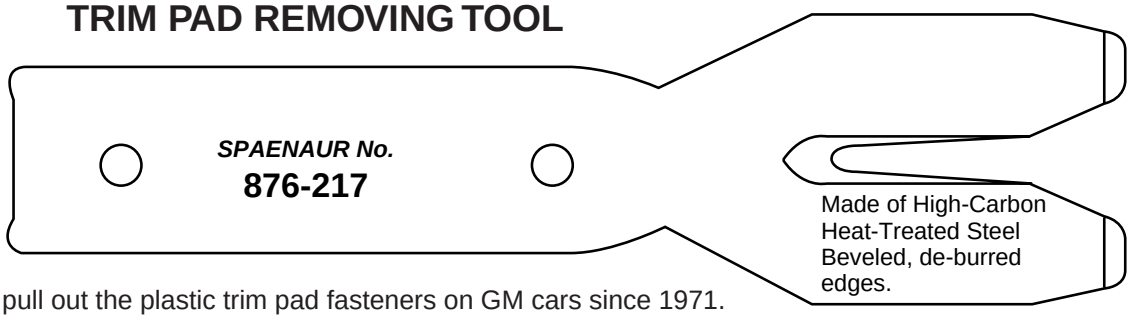
2473
Window Regulator Arm Stud Washer:
(Use with 2446 Clip)
Unit Package 50

41/64" I.D. x 7/8" O.D. x 1/32" Thick

C-723
Window Regulator Arm Stud Fastener:
All Chrysler Cars '57 - '62
Unit Package 50

P.C. 090, 656, 671, 698, 699.

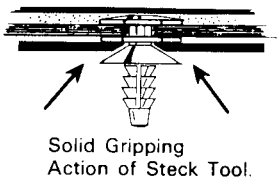
TRIM PAD REMOVING TOOL



SPAENAUR No.
876-217

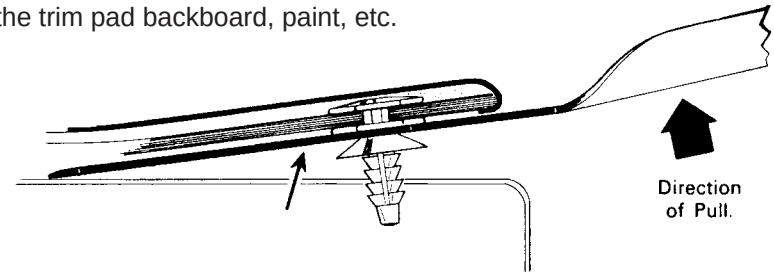
Made of High-Carbon Heat-Treated Steel
Beveled, de-burred edges.

Used to pull out the plastic trim pad fasteners on GM cars since 1971.
Saves the fastener and avoids damage to the trim pad backboard, paint, etc.



Solid Gripping Action of Steck Tool.

PRICED SINGLY



For Windshield Work

COLD CUT-OUT TOOL

SPAENAUR No.

876-210

PRICED SINGLY

Instructions for the proper use of the 876-210 Tool

Remove trim mouldings, wiper blades and any obstructions from around the glass. Starting at the bottom, push the cutting blade through the sealant staying as close to the bottom surface of the glass as possible. Now, begin pulling with a steady motion ... still keeping the blade against the bottom surface of the glass. Always take care to avoid damage to moulding clips and vinyl tops. Where there is a buildup of sealant (corners) a slight rocking motion will help. The cutting edges should always be kept as sharp as possible. A bench grinder or glass belt sander works very nicely. After several sharpenings the old blade should be discarded and replaced with a new one.

FOR BEST RESULTS KEEP CUTTING EDGES SHARP AT ALL TIMES.

REPLACEMENT BLADE

SPAENAUR No.

876-211

PRICED SINGLY

Blade is identical to the original which is part of Tool No. 876-210. After several sharpenings, cutting blade is easily replaced.

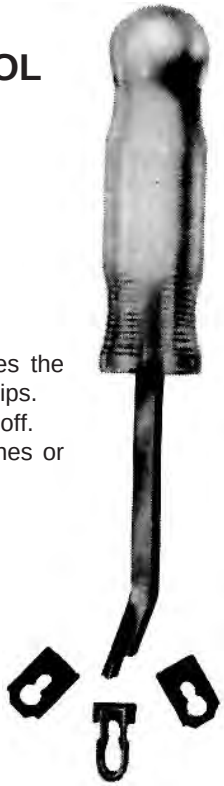
MOULDING CLIP TOOL

SPAENAUR No.

876-024

This clever tool installs and removes the Plastic Clips which hold Moulding Strips. Just press down and slide Clip on or off. Helps avoid scratches on new finishes or injury to workers' hand.

PRICED SINGLY



GLASS RETAINER CLIP INSTALLER

SPAENAUR No.

876-139

A practical tool for placing trim retainer clips over headed studs welded around the body window shields and rear window openings. This tool reduces the risk of chips and scratches to glass windows put in by make-shift tools. This tool is specifically designed to fit trim clips over the studs and virtually eliminates glass breakage. It also dispenses with the need to remove rubber-like sealant surrounding the studs.

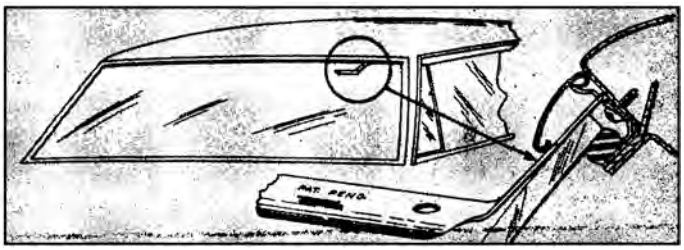
PRICED SINGLY

K

CATALOG 13

T-236 (Mfr. #MR215)

UNIVERSAL MOULDING RELEASE TOOL



RELEASES MOULDING ON ALL CARS WITH CEMENTED GLASS!

No need for an assortment of tools, the heavy-duty T-236 releases both Ford and GM mouldings. It instantly lifts clips and releases windshield and rear vision mouldings on all cars with the new cemented glass. The front edge of tool is beveled for easy entry under moulding. Angled points permit pulling tool at a slight angle for easiest possible manipulation of the tool.

Right and left release points are on same end of tool. No need to turn tool end for end or to change tools. The T-236 releases mouldings from either side. Removes mouldings in a fraction of the time required with any other tool. Heat treating makes the Universal Moulding Release Tool extremely resistant to wear, but will permit a certain amount of reshaping to suit individual requirements. This wide tool lays flat on glass, feels right, works right.

T-227 WINDSHIELD KNIFE —

Blade fits under glass from outside. Cuts old adhesives on rubberless windshield jobs.

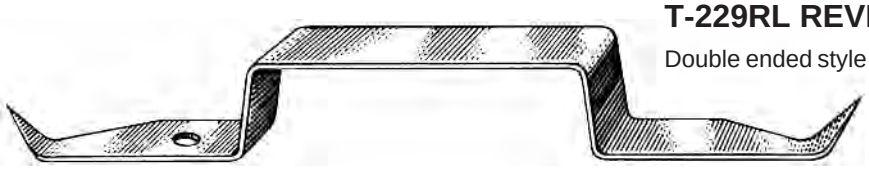
T-227B REPLACEMENT BLADE

T-226L (Left) T-226R (Right) REVEAL MOULDING CLIP TOOL

Removes moulding from retaining clips on rubberless windshield installations.

T-238R (Right)
T-238L (Left)

Clip Tool for W/S and back glass using rubber mounting.



T-229RL REVEAL MOULDING TOOL —

Double ended style combining right and left hand, for removal of windshield reveal moulding on rubberless installations.

T-235 LOCKING STRIP TOOL

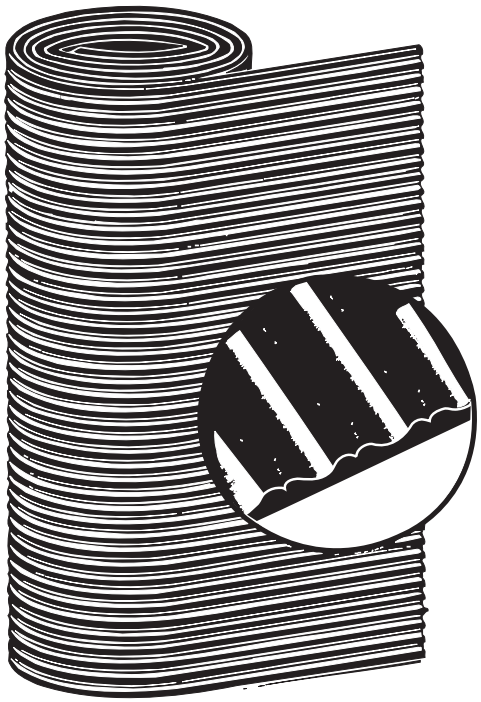
Inserts the wider locking strip in self-sealing rubber weatherstrip as used on a Valliant.

See page K5 for Weatherstrip Installation Tools.

All items on this page are PRICED SINGLY.

NOTE: Due to the nature of the usage and the thinness of the material required for these tools, they cannot be guaranteed against breakage.

Made of a special highly-resistant rubber compound that outwears many other types of flooring materials because of its resilience. Its toughness assures the most economical service under severe traffic conditions. Provides a quiet cushion that reduces noise. Truly a heavy duty flooring for long, hard service without need for maintenance attention once installed.



In rolls of approximately 10 yards each.

TRANS-ISLE RIBBED RUNNERS

For aisles. Virtually slip-proof. Heavy ribbed construction presents a constant gripping action even when wet.

High ribs give quick drainage and self-cleaning action.

P.C. 841

TRANS-FLOR SMOOTH RUNNERS

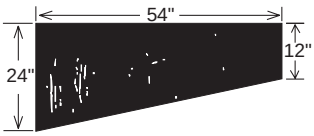
For areas where smooth flooring is desired (under seats, etc.).

BLACK BUS MATTING

SPAENAUR No.	Style	Gauge	Width
BM-8	TRANS-ISLE	3/16"	18"
BM-4	RIBBED	3/16"	22-1/2"
BM-6	RUNNERS	3/16"	38"
BM-12	TRANS-FLOR SMOOTH	1/8"	36"

SPAENAUR No. M-55

MECHANICS' PROTECTIVE FENDER COVERS



Made of Black Sponge Rubber with "Tantex" back

Thickness 3/32" NON-SLIP

Unit Package 2 Covers as shown at left.

P.C. 853

K

CATALOG 13

VINYL SOFT-FOOT™ ANTI-FATIGUE FLOOR MATTING

1/4" (6 mm)

3/8" (9 mm)

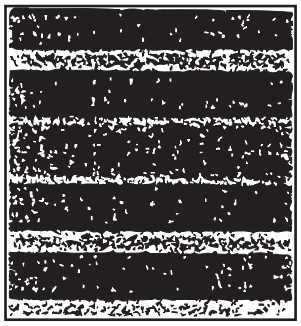
All Mat Sizes Have Safety Edging.

STANDARD EMBOSSED Anti-Fatigue Matting

1/4" (6 mm) Thickness SPAENAUR No's.	3/8" (9 mm) Thickness SPAENAUR No's.	Size	Colour
–	841-010	2 ft. x 3 ft.	Black
841-002	841-011	2 ft. x 3 ft.	Grey
841-003	841-012	2 ft. x 3 ft.	Brown
841-004	841-013	3 ft. x 5 ft.	Black
841-005	841-014	3 ft. x 5 ft.	Grey
841-006	841-015	3 ft. x 5 ft.	Brown
841-007	–	3 ft. x 12 ft.	Black
841-008	–	3 ft. x 12 ft.	Grey
841-009	841-018	3 ft. x 12 ft.	Brown

PEBBLE EMBOSSED Anti-Fatigue Matting

1/4" (6 mm) Thickness SPAENAUR No's.	3/8" (9 mm) Thickness SPAENAUR No's.	Size	Colour
841-019	841-028	2 ft. x 3 ft.	Black
841-020	–	2 ft. x 3 ft.	Grey
841-021	841-031	2 ft. x 3 ft.	Brown
841-022	841-032	3 ft. x 5 ft.	Black
841-023	841-033	3 ft. x 5 ft.	Grey
841-024	841-034	3 ft. x 5 ft.	Brown
841-026	841-036	3 ft. x 12 ft.	Grey
841-027	–	3 ft. x 12 ft.	Brown



Standard

These special “Soft-Foot” Anti-fatigue floor mats are recommended for work areas where people are required to stand and work for long hours.

“Soft-Foot” mats will help to eliminate and ease tired feet, foot cramps and sore backs.

They are available in two thicknesses, 1/4" (6 mm) and 3/8" (9 mm), three colours, black, grey and brown and two surface choices, Standard or Pebble.

Pebble

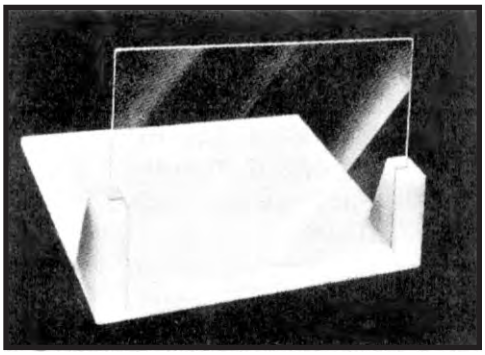
PROPERTY	SPECIFICATIONS	PROPERTY
Tensile Strength ASTM D-412	Minimum 120 Lbs Per Square Inch.	Flammability Rating - CPSC FF 1-70
Tear Strength ASTM D-624	Minimum 25 Lbs Per Inch.	Oil Resistance - ASTM D-1056 Class C
Compression Deflection, 25% ASTM D-1667	8.2 Lbs Per Square Inch.	Resistance to Acids, Alkali and Organic Materials. (5% H2S04, 5% NAOH, 2% NA4P207)
Water Absorption ASTM D-1667	Maximum 0.1 Lbs Per Sq. Foot.	Federal Standard 501-A, Method 9311
		Expanded (Closed-Cell)

Average Shipping Weight Per Sq. Ft. in Lbs - 0.49 for 1/4" (6 mm) thickness and 0.75 for 3/8" (9 mm) thickness.

K

CATALOG 13

All items on this page
Priced Singly



Tough and *Non-inflammable

Approved in the U.S.A. as complying with item 6 of the A.S.A. Safety Code.

*Will char when placed in a flame, but this ceases when flame is removed.

See page H43 for FLEXIBLE CLEAR "VINYLITE" SHEETING, in sheets or rolls. For full-view rear windows in convertible car tops, rear and side windows in boat canopies, construction shelters, tents, etc.

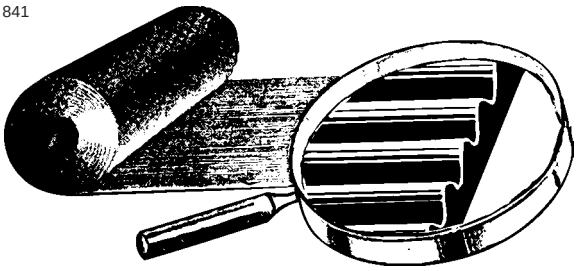
P.V.C.
POLYVINYL CHLORIDE SHEETS

Clear - Transparent - Rigid
Sheet Size - 21" x 51"

SPAENAUR No.	Thickness	Sheets in Pkg.
818-059	.020"	25
818-060	.030"	15
818-061	.040"	10
818-062	.050"	10
818-063	.060"	6

P.V.C. Sheets resist attack by a wide range of chemicals, and are particularly resistant to the action of inorganic acids, alkalis and aqueous salt solutions up to 60° centigrade. Concentrated nitric acid, etc., will attack.

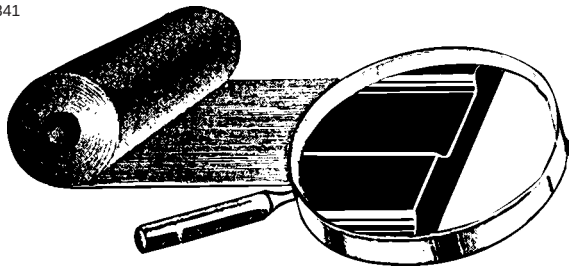
P.C. 841



RUBBER MATTING
NARROW GROOVE CORRUGATED
1/8" Thick — 25 Yard Rolls

SPAENAUR No's. Black	*SPAENAUR No's.* Brown	Width	Shipping Weight
7441-AN	**7442-AN**	24"	51 kg (112 lbs.)
7441-BN	—	36"	77 kg (170 lbs.)
7441-CN	**7442-CN**	48"	103 kg (227 lbs.)

P.C. 841



RUBBER MATTING
WIDE GROOVE CORRUGATED
1/8" Thick — 25 Yard Rolls

SPAENAUR No's. Black	*SPAENAUR No's.* Brown	Width	Shipping Weight
7441-AW	**7442-AW**	24"	61 kg (135 lbs.)
7441-BW	**7442-BW**	36"	92 kg (203 lbs.)
7441-CW	**7442-CW**	48"	122 kg (270 lbs.)

SPAENAUR No.

841-030 10 Yard Roll Shipping Wt. 27 kg (60 lbs.)
841-038 25 Yard Roll Shipping Wt. 71 kg (175 lbs.)

BLACK VINYL MATTING
'TWIST' PATTERN

3/32" Thick — 36" Wide

Many uses. Ideal for car floors, trunks, home and office uses.

P.C. 841

P.C. 847

BLACK RUBBER (SBR) SHEET PACKING

Top Grade — 36" Wide — in 12 Yard Rolls

SPAENAUR No.	Width	Thick-ness	Construction	Shipping Weight
B-807	36"	1/16"	All-rubber (S.B.R.)	24 kg (53 lbs.)
B-807A	36"	1/16"	Single cloth insert	38 kg (84 lbs.)

LUXURFOAM

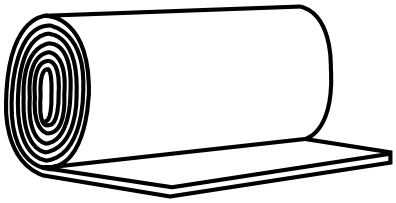
URETHANE FOAM CUSHIONING

"LUXURFOAM" — The chemical miracle of many uses. Unexcelled resilience — no after sag — rapid return to full shape — retains strength — soft buoyancy with strong support. Superior load bearing, compression and deflection qualities — millions of air cells act as miniature box springs — no lumps — no flattening — no creeping or wrinkling — no wear from friction, tearing or shredding. Healthy — hygenic — resists mildew, rot, insects, moths, acids, detergents, etc. Easy to fabricate — light weight — non-allergic to humans.

All stock is
MEDIUM FIRM
both ROLLS and SHEETS

LUXURFOAM IS AVAILABLE AS FOLLOWS

ROLLS — Not available in cut lengths.



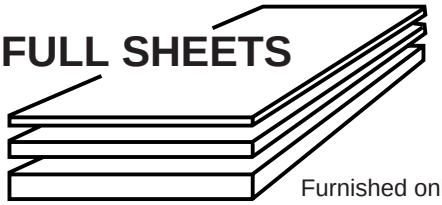
6 Thicknesses — 2 Widths

Grade 1035

FULL ROLLS ONLY — WHITE Colour

Thickness	*SPAENAUR* NUMBERS 27" Wide	54" Wide	Approx. Feet Per Roll
1/4"	**987-001**	**987-002**	480
1/2"	**987-015**	**987-006**	245
3/4"	**987-008**	**987-009**	160
1"	**987-011**	**987-012**	35
1-1/2"	**987-018**	**987-024**	35
2"	**987-020**	**987-021**	35
Minimum Order – 1 Roll			

FULL SHEETS



4 Thicknesses

6 Sheet sizes

Furnished only in **FULL BALE LOTS.**
( ) Bracketed No's. indicate Sheets in Bale.

WARNING

URETHANE FOAM IS FLAMMABLE

DO NOT EXPOSE URETHANE FOAM TO ANY INTENSE RADIANT HEAT OR OPEN FLAMES SUCH AS WELDING OPERATIONS, BURNING CIGARETTES, NAKED LIGHTS, SPACE HEATERS, ELECTRIC SPARKS OR OTHER IGNITION SOURCES.

ONCE IGNITED, URETHANE FOAMS WILL BURN RAPIDLY, RELEASING GREAT HEAT AND CONSUMING OXYGEN AT A HIGH RATE IN AN ENCLOSED SPACE. THE RESULTING DEFICIENCY OF OXYGEN WILL PRESENT A DANGER OF SUFFOCATION TO THE OCCUPANTS. HAZARDOUS GASES RELEASED BY THE BURNING FOAM CAN BE INCAPACITATING OR FATAL TO HUMAN BEINGS IF INHALED IN SUFFICIENT QUANTITIES.

K

Grade 1441

WHITE

Thick-ness	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW. 24" x 72"	30" x 72"	36" x 72"	48" x 72"	54" x 72"	60" x 72"
1"	**987-056** (20)	**987-074** (20)	**987-080** (15)	**987-092** (5)	**987-057** (5)	**987-050** (5)
2"	**987-060** (12)	**987-075** (10)	**987-081** (8)	**987-093** (3)	**987-061** (3)	**987-051** (3)
3"	**987-064** (8)	**987-076** (6)	**987-082** (5)	**987-094** (2)	**987-065** (2)	**987-052** (2
4"	**987-068** (6)	**987-077** (5)	**987-083** (4)	**987-095** (1)	**987-069** (1)	**987-053** (1)

*Grade 1835-FR

FIRE RETARDANT

Thick-ness	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW. 24" x 72"	30" x 72"	36" x 72"	48" x 72"	54" x 72"	60" x 72"
1"	**987-300** (20)	**987-306** (20)	**987-312** (15)	**987-324** (5)	**987-330** (5)	**987-336** (5)
2"	**987-301** (12)	**987-307** (10)	**987-313** (8)	**987-325** (3)	**987-331** (3)	**987-337** (3)
3"	**987-302** (8)	**987-308** (6)	**987-314** (5)	**987-326** (2)	**987-332** (2)	**987-338** (2)
4"	**987-303** (6)	**987-309** (5)	**987-315** (4)	**987-327** (1)	**987-333** (1)	**987-339** (1)

NOTE: Luxurfoam Rolls and Sheets are not carried as stock items. Please allow extra time for delivery. Shipments usually made within 10 days of order arrivals.

**Material supplied under this specification meets the requirements for Flamability as set out in Federal Motor Vehicle Safety Standard #302 (US). Burn rate when measured by this method will not exceed 4 inchers per minute. Since this is a small scale test, no implication is made as to the performance of this material in an actual Fire Situation.*

Multi-Purpose Handles & Locks	Poignées et serrures multi-usage	**L2**
Cam Latches & Locks	Loquets à came et serrures	**L11**
Magnetic Catches & Sash Locks	Attaches magnétiques et serrures de fenêtres	**L18**
Clamp & Draw Latches	Grenouillères	**L20**
Quarter-Turn Fasteners	Attaches à quart de tour	**L35**
Grab Handles & Pulls	Poignées automatiques	**L41**
Compartment Locks & Latches	Loquets et serrures de compartiments	**L52**
Flush Mount Slam Latches	Loquets affleurant à claquer	**L62**
Rotary Latches	Loquets à claquer	**L68**
Van & Compartment Door Hardware	Quincaillerie pour portes de fourgonette et compartiment	**L74**
Refrigeration Hinges & Locks	Serrures et charnières de réfrigération	**L93**
Hinges	Charnières	**L96**
Hood Clamps & Fasteners	Attaches pour capots	**L115**
Southco® Hardware	Quincaillerie Southco®	**L121**

General Information

(Pages L2 to L12 incl.)

Suitable for use on all types of cabinets and equipment. Zinc base diecastings, finished in flawless heavy chrome plate, hand polished. (D-1410 Series has Satin Chrome finish — page L10.)
Flat escutcheon bases for attachment to flat surface. Two keys with each locking handle or lock.

LOCKS: Brass disc tumbler mechanism, corrosion-free phosphor bronze springs, in die-cast barrel. Polished stainless cap.

DIFFERING: Each lock is available with 200 different combinations.

SUITING: Most locking devices shown on pages L3, L4, L5, L8, L9, L10, (except D-1415 Series), L11 and L12 can be supplied suited with each other (i.e. with the same key number) on a special order basis. Prices on request.

***** MASTER KEYING: Available as shown. Master keys (available from stock) to be ordered separately.

****** EXTRA KEYS: Available to special order.

****** BLANK KEYS: Available from stock.

PACKING: All items packed singly.

***Master Keying**

Description	Master Lock Series	Page No.	Master Key
Lever Handles	D-1408RMK D-1408LMK	L3	When ordering Master Key **D-1406-8KM92** please specify the master key lock number on pages specified.
Tee Handles	D-1406RMK D-1406LMK	L9	
Locking Knobs	D-1410RMK D-1410LMK	L10	
Cam Locks	D-1411MK D-1413MK D-3006MK	L11	
Cam Locks	D-1414MK	L12	

Series 92 designations are shown on pages L3, L4, L9, L10, L11 and L12.

The design, finish, appearance, durability and all-round quality of these *SPAENAUR* locking devices are second to none ---- yet the prices are remarkably reasonable.

****Extra Keys — Blank Keys**

(Extra Keys)

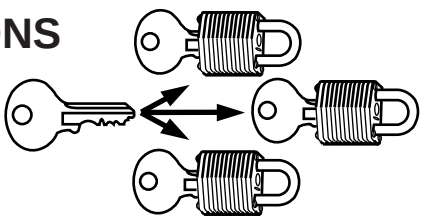
How to order: When ordering, please specify the number which is stamped on your key and also include the *SPAENAUR* number of the handle or lock. If key number is unavailable then submit just the handle number or lock number.

Order blank key by Series No.: **D-1406-8KB92** Key Blank — For Series 92.

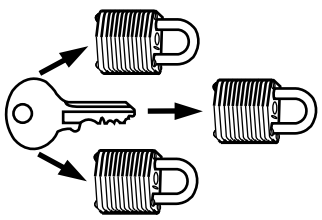
KEY LOCK OPTIONS

Keyed to Differ Mastered

Keyed to Differ Non-mastered



Keyed Alike



D-1408 Series LEVER HANDLES

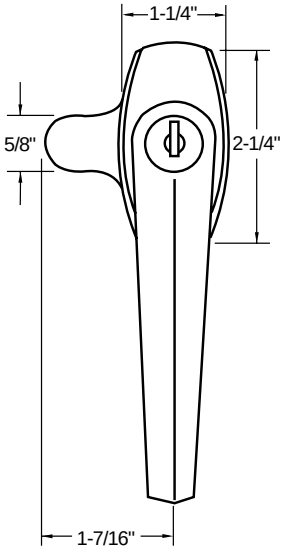
For steel lockers, cupboards, office furniture, electrical cabinets and equipment panels.

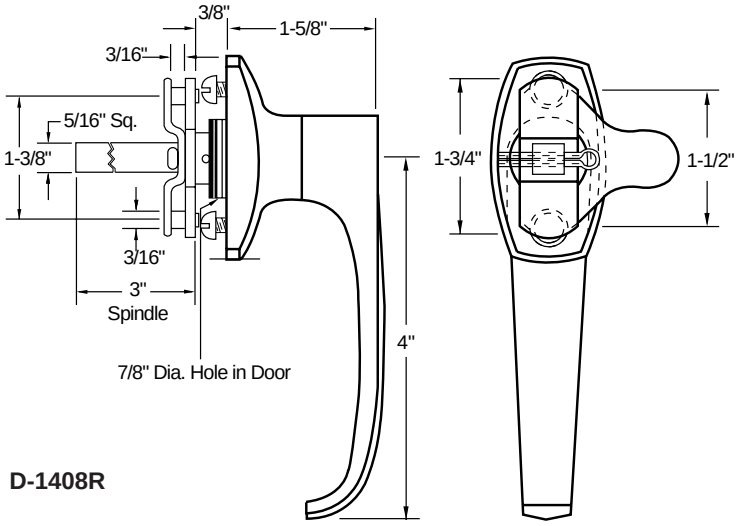
3-point locking mechanism (removable): a plated steel cam and bolt pick-up mechanism is supplied to enable espagnolette bolt action to be used. (Locking rods are not supplied.)

Each handle has a 3" long spindle which may be cut down by user to required length. (Special spindle lengths may be supplied on a special order basis. Minimum quantity 500 one number or assorted in D-1408 Series.)

ZINC BASE DIECASTINGS

Chrome Plated Finish





D-1408R

For More Handles see Pages L41 to L68.

SPAENAUR No.	Description
D-1408R	Locking handle, with 2 keys, all to differ, for fixing to **left** edge of right door. Action 90° anti-clockwise to open.
D-1408L	Locking handle, with 2 keys, all to differ, for fixing to **right** edge of left door. Action 90° clockwise to open.
D-1408RKA	Locking handle, with 2 keys, all keyed alike, for fixing to **left** edge of right door. Action 90° anti-clockwise to open.
D-1408LKA	Locking handle, with 2 keys, all keyed alike, for fixing to **right** edge of left door. Action 90° clockwise to open.
D-1408RMK	Locking handle, master keyed, with 2 keys, all to differ, for fixing to **left** edge of right door. Action 90° anti-clockwise to open.
D-1408LMK	Locking handle, master keyed, with 2 keys, all to differ, for fixing to **right** edge of left door. Action 90° clockwise to open.
D-1408NR	Non-locking handle, for fixing to **left** edge of right door. Action 90° anti-clockwise to open.
D-1408NL	Non-locking handle, for fixing to **right** edge of left door. Action 90° clockwise to open.
D-1408D	Dummy fixed handle, non-operating, no spindle, no locking mechanism. Acts as a door pull, or to give a balance to the operating handle.

Priced Singly. Order Master Keys separately. See Page L2.

P.C. 096

Series 92

CATALOG 13

L

LEVER HANDLES

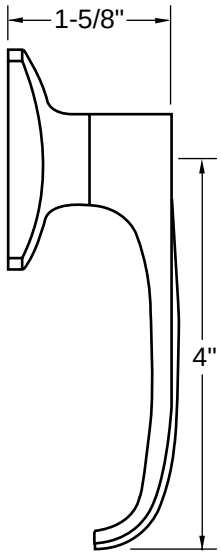
For Automotive and Multi-Purpose Use

Each handle has a 5" long spindle which may be cut down by user to required length. (Special spindle lengths may be supplied on a special order basis. Minimum quantity 500 one number on special spindle length orders.)

Spindle is 5/16" square

Flat Escutcheon

Escutcheon Holes
1-3/4" Centre to Centre



ZINC BASE DIE-CASTINGS

Chrome Plated Finish

For More Handles see Pages L41 to L68.

SPAENAUR No.	DESCRIPTION
096-233	Locking handle, with 2 keys, all to differ, for fixing to **left** edge of right door. Action 90° anti-clockwise to open.
096-234	Locking handle, with 2 keys, all to differ, for fixing to **right** edge of left door. Action 90° clockwise to open.
096-235	Locking handle with 2 keys, all keyed alike, for fixing to **left** edge of right door. Action 90° anti-clockwise to open.
096-236	Locking handle, with 2 keys, all keyed alike, for fixing to **right** edge of left door. Action 90° clockwise to open.
096-237	Non-locking handle, for fixing to **left** edge of right door. Action 90° anti-clockwise to open.
096-238	Non-locking handle, for fixing to **right** edge of left door. Action 90° clockwise to open.
096-273	Same as 096-238 except spindle is 1-1/2" long.
096-232	Locking handle SET OF TWO (one left and one right handle) with same key (2 Keys included). Each SET is keyed to differ.

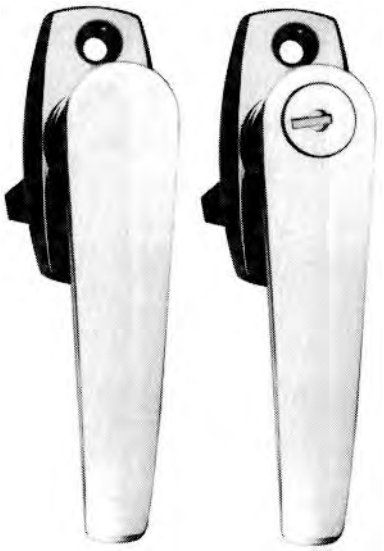
*Priced Singly (*except **096-232** Set has 1 L.H. & 1 R.H.)

To order Master Keys and for Additional Data see Page L2.

Rotary Handles - “Lever L”

DIE-CAST - CHROME PLATED FINISH

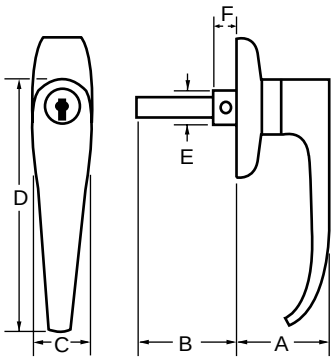
PLAIN SHAFT - MILD STEEL



Non-Locking **096-337**

Locking **096-336**

No. 096-336 comes with 2 locking keys. All to differ.



Priced Singly

Max. Dimensions of escutcheon: 1-1/4" x 2-1/2"
Escutcheon fixing centres: 1-1/2" standard

A. Max. height 1.6" (41 mm)
B. Standard shaft 4.5" (115 mm)
C. Max. width 1.0" (25 mm)
D. Max. length 4.5" (115 mm)
E. Fixing detail 0.55" (14 mm)
F. Fixing detail 0.4" (10 mm)

Shaft is 5/16" (7.94 mm) square.

For fixing to **right** or **left** edge of door. Action 180° clockwise to open.

These elegant die-cast handles are intended as a simple and versatile method for securing industrial cabinets and enclosures, and in certain cases may also be suitable for vehicle uses. The handles can be used to operate our slam or compartment latch (‘dead bolt’) products, or will take a simple locking tongue, or cam, illustrated on page L48 in this catalog.

L

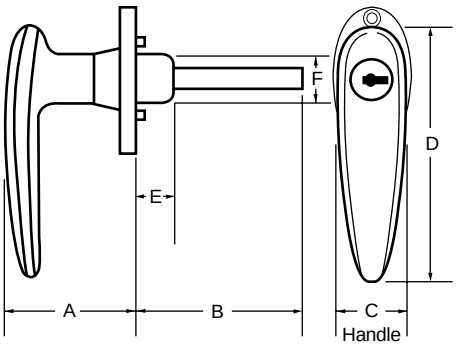
Rotary Handles

DIE-CAST - CHROME PLATED FINISH

PLAIN SHAFT - MILD STEEL

For fixing to **right** or **left** edge of door.

Action 360° clockwise or anti-clockwise to open.



A. Max. height 2.0" (51 mm)
B. Standard shaft 5.0" (127 mm)
C. Max. width 1.0" (25 mm)
D. Max. length 4.1" (105 mm)
E. Fixing detail 0.7" (17 mm)
F. Fixing detail 0.9" (21 mm)

Shaft is 5/16" (7.94 mm) square.

Escutcheon fixing centres: 1-1/2" standard.

096-338
Non-Locking

Priced Singly

D-316
Locking

No. D-316 comes with 2 locking keys. All to differ.

A most popular handle, fitted as original equipment upon all types of vehicles worldwide.

Strong, smoothly-styled with no sharp projections, the distinctive ‘elongated pear-shape’ is seen upon tractors and excavators, on rear-opening vans and trailers, and also mounted in a vertical position for sliding slam-type doors and shutters.

Useful for ‘industrial’ purposes, i.e. electrical consoles and cabinets particularly in black powder-coated finish.

Garage Door Handles

Greater choice - with these smart, new handles for garage doors, caravans and similar applications.

Die Cast with Polyester powder coating in silver finish.

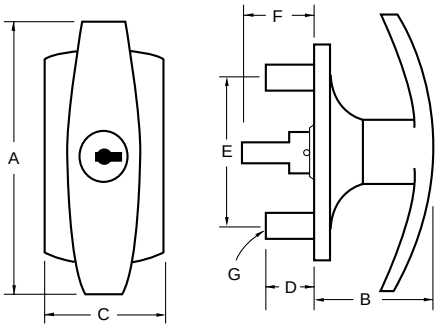
Keyhole is shuttered for weather protection. Two keys supplied.

Rotation: Handles turn 90°.

096-008
Locking 'L' Handle

(Shown with handle in line with escutcheon.)

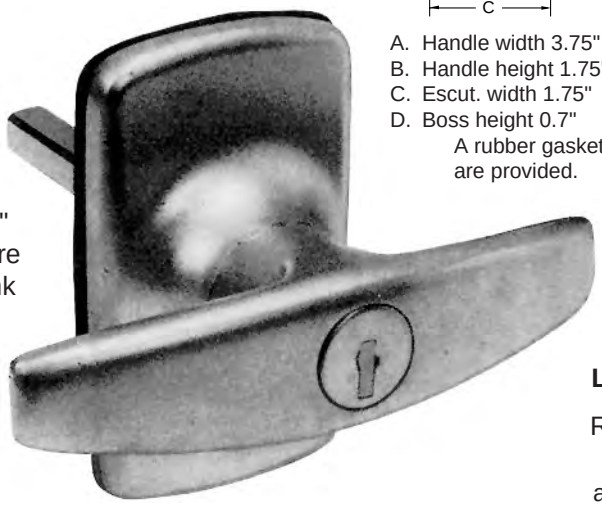
Locking 'T' Handle shown.



A. Handle width 3.75"
B. Handle height 1.75"
C. Escut. width 1.75"
D. Boss height 0.7"
E. Hole centres 2.0"
F. Shaft length 2.5"
G. Hole sizes M6 x 0.75"

A rubber gasket and two fixing bolts are provided.

Note: The 'L' handle maximum length is 4.5".



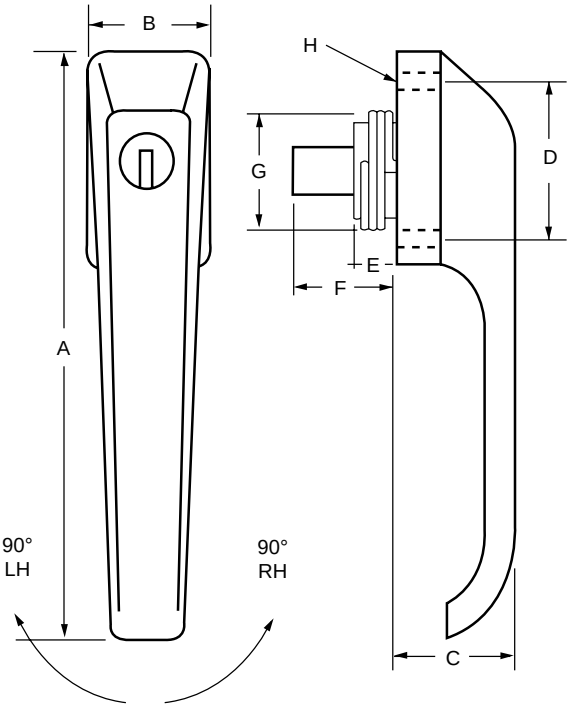
5/16" Square Shank

096-007
Locking 'T' Handle

Right Hand Rotation

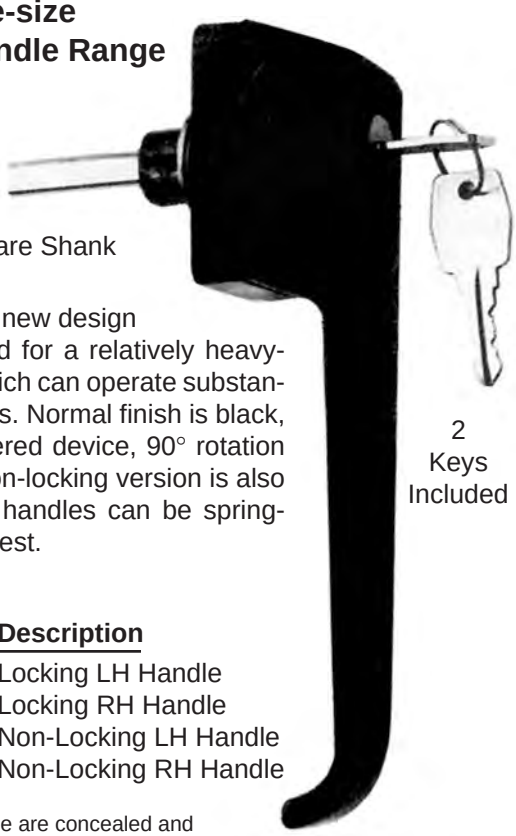
(Shown with handle at 90° to escutcheon.)

L



A. Length 7.25" (185 mm)
B. Width 1.45" (37 mm)
C. Height 1.55" (39 mm)
D. Hole centres 1.75" (44 mm)
E. Projection 0.50" (13 mm)
F. Shaft length 5.0" (125 mm)
G. Clearance 1.1" (28 mm)
H. Hole dia. 0.21" (5.5 mm)

Large-size Modern Handle Range



5/16" Square Shank

This attractive, new design meets the need for a relatively heavy-duty handle which can operate substantial mechanisms. Normal finish is black, with 'FT' shuttered device, 90° rotation LH or RH. A non-locking version is also available. The handles can be spring-loaded on request.

2 Keys Included

SPAENAUR No.	Description
096-011	Locking LH Handle
096-012	Locking RH Handle
096-013	Non-Locking LH Handle
096-014	Non-Locking RH Handle

Note: The escutcheon contains open mounting holes for exterior fixing: however, these are concealed and inaccessible when handle is in a locked position. Drawing shows handle with return-spring fitted.

CATALOG 13

"DB Series"

"Traditional" Handle Designs

Elegant and functional, these handles have many applications.

Available in Locking or Non-Locking, Chrome or Black finish.

Material: Zinc based alloy die-cast.

096-001 Key-Locking, Chrome Finish
096-002 Non-Locking, Chrome Finish

096-003 Key-Locking, Black Finish
096-004 Non-Locking, Black Finish

Locking models supplied with two keys.

"Boot T" Series

The "Boot T" is so called because it suits a great many vehicle uses. It can also be used as a neat, stylized handle for any other "rotary" functions.

Material: Zinc based alloy die-cast.

Finish: Chrome.

096-005 Key-Locking
096-006 Non-Locking

Mounting Holes c. to c. 1.75" (above two no's.)

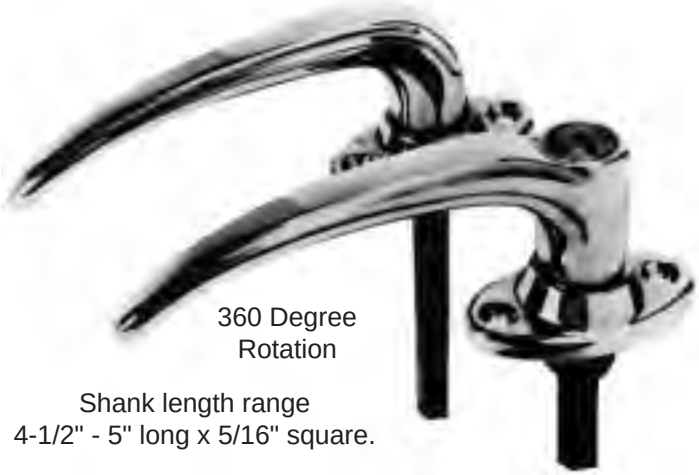
096-021 Key-Locking

Mounting Holes c. to c. 1.50" (above no.)

Locking models supplied with two keys.

Shank 5" long x 5/16" square.

"Arched"-Style Handles



A slim, tapered handle design, this handle is slightly larger than the "DB" series, at 5.2" (130 mm).

Material: Zinc based alloy die-cast.

Finish: Chrome.

096-015 Key-Locking
096-017 Non-Locking
Mounting Holes c. to c. 1.75"

096-019 Key-Locking
096-020 Non-Locking
Mounting Holes c. to c. 1.50"

096-016 Key-Locking
096-018 Non-Locking
Mounting Holes c. to c. 1.43"

Locking models supplied with two keys. Keyed to Differ.

L

CATALOG 13

All items on this page
Priced Singly.

P.C. 096

Escutcheon Base 2-1/4" with 1-1/2" Hole Centres.
Shaft is 5/16" square x 4" long.
Handle Grip 3-3/4"

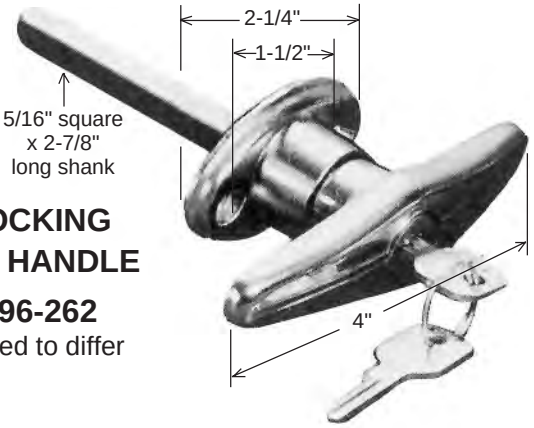
LOCKING TEE HANDLE D-1022

Keyed to differ

Action 90° clockwise to open.

Zinc Base Die-Cast
CHROME PLATED

Priced Singly



LOCKING TEE HANDLE 096-262

Keyed to differ

Zinc Base Die-Cast
CHROME PLATED

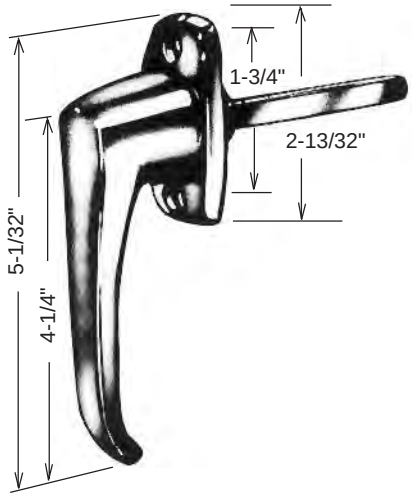
Action 90° clockwise to open.

Priced Singly

LEVER LATCH HANDLE 096-335

Zinc Base Die-Cast
CHROME PLATED

Priced Singly



Shank is 5/16" square x 3-3/4" long.

Action 360° rotation.

Handles - For Vintage Cars

For Chrysler Cars

096-260
1940-'54

ALL CHROME PLATED

096-257

Holes 1-3/4"
Centre to Centre

3-5/8" Notched Shank
Tapped 8-32

1940-'47

Priced Singly

For G.M. Cars

096-252
1941-'47

ALL CHROME PLATED

DOOR HANDLE CLIPS

Round Wire

Round Wire
2288X Long Eared Style

FORD PROD. CARS	1960-'61
G.M. CARS	1960-'61

Unit Package 50

Square Wire
2451 Regular Style

FORD PROD. CARS	1949-'57
G.M. CARS	1949-'58

Unit Package 100

Square Wire
P.C. 086

L

CATALOG 13

D-1406 Series TEE HANDLES

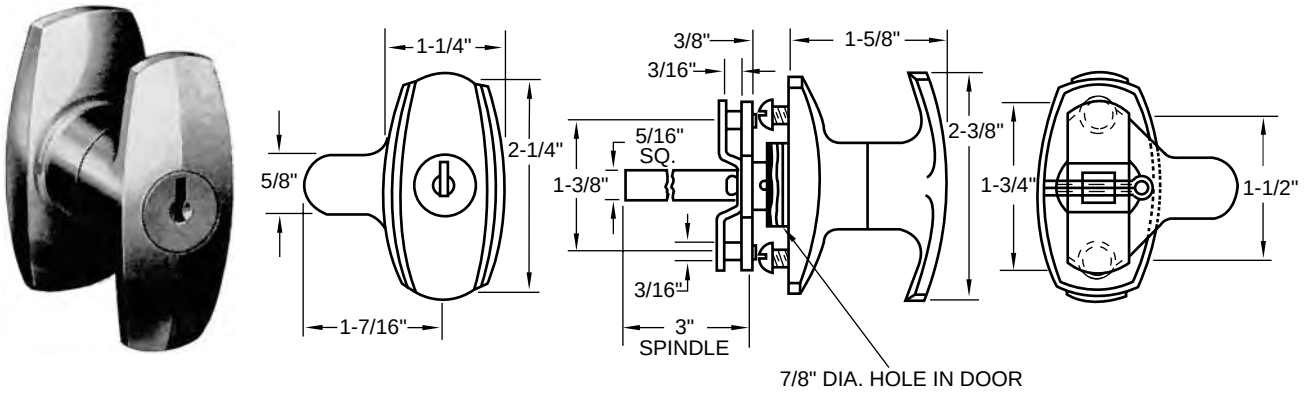
For steel lockers, cupboards, office furniture, electrical cabinets and equipment panels.

3-point locking mechanism (removable): a plated steel cam and bolt pick-up mechanism is supplied to enable espagnolette bolt action to be used. (Locking rods are not supplied.)

Each handle has a 3" long spindle which may be cut down by user to required length. (Special spindle lengths may be supplied on a special order basis. Minimum quantity 500 one number or assorted in D-1406 Series.)

ZINC BASE DIE-CASTINGS

Chrome Plated Finish



D-1406R

For MORE HANDLES
See Pages L41 to L68.

L

SPAENAUR No.	DESCRIPTION
D-1406R	Locking handle, with 2 keys, all to differ, for fixing to **right** edge of left door. Action 90° anti-clockwise to open.
D-1406L	Locking handle, with 2 keys, all to differ, for fixing to **left** edge of right door. Action 90° clockwise to open.
D1406RKA	Locking handle, with 2 keys, all keyed alike for fixing to **right** edge to left door. Action 90° anti-clockwise to open.
D-1406LKA	Locking handle, with 2 keys, all keyed alike, for fixing to **left** edge of right door. Action 90° clockwise to open.
D-1406RMK	Locking handle, master keyed, with 2 keys, all to differ, for fixing to **right** edge of left door. Action 90° anti-clockwise to open.
D-1406LMK	Locking handle, master keyed, with 2 keys, all to differ, for fixing to **left** edge of right door. Action 90° clockwise to open.
D-1406NR	Non-locking handle, for fixing to **right** edge of left door. Action 90° anti-clockwise to open.
D-1406NL	Non-locking handle, for fixing to **left** edge of right door. Action 90° clockwise to open.
D-1406D	Dummy fixed handle, non-operating, no spindle, no locking mechanism. Acts as a door pull or to give balance to the operating handle.

Series 92

Priced Singly. **To order Master Keys and for Additional Data see page L2.**

The quality and appearance of your product will be greatly enhanced by the use of these elegant SPAENAUR handles.

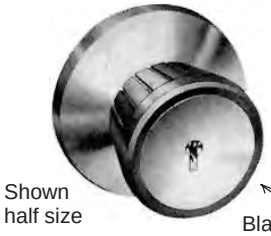
See page L12 for more Tee Handles.

D-1410 Series LOCKING KNOBS

For steel lockers, cupboards, office furniture, electrical cabinets and equipment panels.

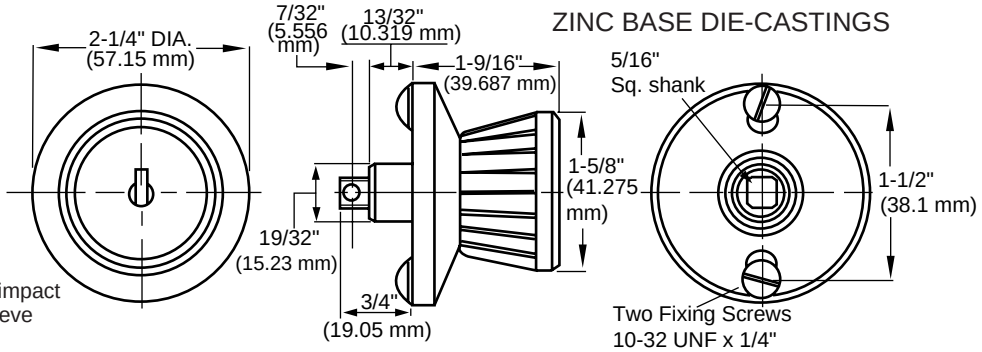
3-point locking mechanism (removable): a plated steel cam and bolt pick-up mechanism is supplied to enable espagnolette bolt action to be used. (Locking rods are not supplied.)

Satin Chrome Finish
(Escutcheon & Knob)



Shown half size

Black high-impact Styrene sleeve



SPAENAUR No.	DESCRIPTION
D-1410R	Locking knob, with 2 keys, all to differ, for fixing to **right** edge of left door. Action 90° anti-clockwise to open.
D-1410L	Locking knob, with 2 keys, all to differ, for fixing to **left** edge of right door. Action 90° clockwise to open.
D-1410RKA	Locking knob, with 2 keys, all keyed alike, for fixing to **right** edge of left door. Action 90° anti-clockwise to open.
D-1410LKA	Locking knob, with 2 keys, all keyed alike, for fixing to **left** edge of right door. Action 90° clockwise to open.
D-1410RMK	Locking knob, master keyed, with 2 keys, all to differ, for fixing to **right** edge of left door. Action 90° anti-clockwise to open.
D-1410LMK	Locking knob, master keyed, with 2 keys, all to differ, for fixing **left** edge of right door. Action 90° clockwise to open.
D-1410D	Dummy fixed knob, non-operating, no spindle or locking mechanism. Acts as a door pull, or to give a balance to the operating knob.

Series 92

Priced Singly

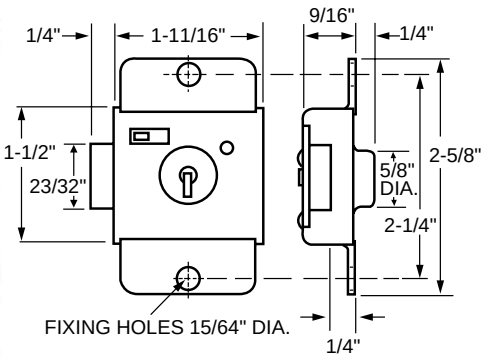
To order Master Keys and for Additional Data see page L2.

D-1415 Series LOCKER LOCKS

For use on metal and wooden lockers, cabinets, drawers, etc.

7-lever master keyed mechanism operating an extruded brass bolt. The lock bolt protrudes 1/4" when shot. Die-cast cap and nozzle, with a plated steel back plate. The lock has a chromatised finish. Two nickel-plated steel keys are supplied with each lock. 1,800 key changes are available.

Also available keyed alike.



Priced Singly

Variations from the standard locks listed hereon are available on a special order basis (minimum quantity 500 one number or assorted) as follows, (prices on request):

(1) With lock bolt protrusion of 19/64" when shot, the bolt standing 3/64" proud when withdrawn.

(2) With a riveted-on back.

SPAENAUR No.	Description
D-1415MK	Locker lock, master keyed, with 2 keys, all to differ.
D-1415KA	Locker lock, master keyed, with 2 keys, all keyed alike.

Order Master Keys Separately.

D-1415KM Master key

P.C. 096

CATALOG 13

D-1411,-12-13 Series CAM LOCKS

For steel cabinets, lockers, drawers, office equipment, control panels, vending machines, meters, etc. Featuring attractive square escutcheon design. 3/4" long under escutcheon to locking cam. Locking cams can be assembled in four different positions by the user: 90°-180°-270°-360°. Standard straight cam as shown. (Other cams available to special order.)

180° movement of key one way, either clockwise or anti-clockwise as required, key being free in both positions. (Other movements available to special order.)

FIXING: The lock is fixed by means of a double pronged spring clip, specially designed to permit secure fixing by the quickest possible means and without having to take off the locking cam. The lock is offered to a fixing hole (formed to the dimensions on the drawing) and pushed home. The lock can be used on any material thicknesses from .024" to .080". (.61 mm to 2.03 mm). A special removal tool may be supplied if required (to special order).

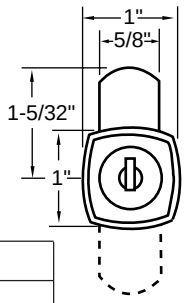
ZINC BASE DIE-CASTINGS

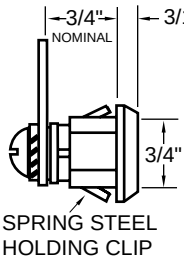
Chrome Plated Finish

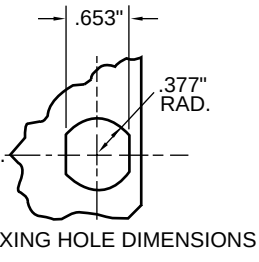
P.C. 096

To order Master Keys *and* for Additional data see Page L2.

All items *Priced Singly*







	SPAENAUR No. For Material Thickness			
	.024"-.048"	.048"-.072"	.073"-.080"	**Description**
Series 92	**D-1411**	**D-1412**	**D-1413**	Cam lock, with 2 keys, all to differ.
	D-1411KA	**D-1412KA**	**D-1413KA**	Cam lock, with 2 keys, all keyed alike.
	D-1411MK		**D-1413MK**	Cam lock, master keyed, with 2 keys, all to differ.

L

D-3006 Series CAM LOCKS

For steel and wooden cabinets, lockers, drawers, office furniture and equipment, cubicles, control panels, vending machines, meters, etc. Manufactured to English standards. 3/4" long under escutcheon to locking cam. Locking cams can be assembled in four different positions by the user: 90°-180°-270°-360°. Standard straight cam as shown. (Other cams available to special order). 90° clockwise movement of the key from the locked position. **Key is retained in lock in unlocked position.** (Other movements available to special order.)

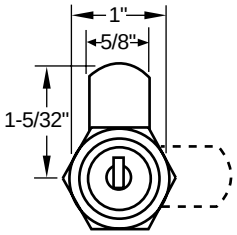
ZINC BASE DIE-CASTINGS

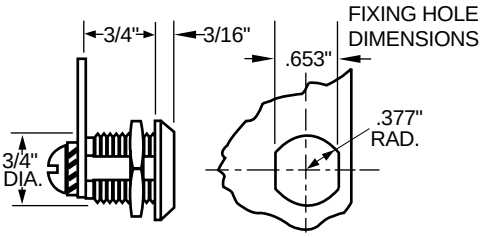
Chrome Plated Finish

P.C. 096

To order Master Keys and for Additional data see Page L2.

All Items *Priced Singly.*





SPAENAUR No.	**Description**
D-3006	Cam lock, with 2 keys, all to differ.
D-3006KA	Cam lock, with 2 keys, all keyed alike.
D-3006MK	Cam lock, master keyed, with 2 keys, all to differ.

Series 92

Cam will fit Cam Lock Series:

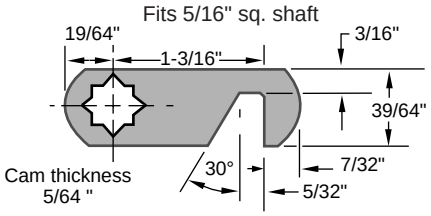
D-1411, See this page.
D-1414, on following page.
D-3006, See this page.
110-154, See page L15.

SPAENAUR No. **110-155**

Straight Notched Cam

Steel, Heat Treated, Zinc (Yellow) Pltd.

Unit Pkg. Qty. 10



D-1414 Series CAM LOCKS (Utility Locks)

For steel and wooden cabinets, lockers, drawers, office furniture and equipment, cubicles, control panels, vending machines, meters, etc. Manufactured to North American standards.

5/8" long under escutcheon to locking cam. Locking cams can be assembled in four different positions by the user: 90° - 180° - 270° - 360°. Standard straight cam as shown. (Others cams available to special order).

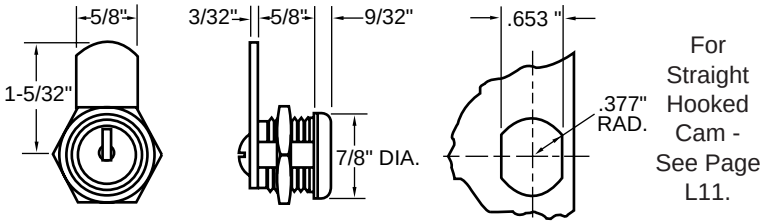
180° movement of key one way, either clockwise or anti-clockwise as required, key being free in both positions. (Other movements available to special order.)

Additional data on Page L2.

FIXING: The lock is fixed by means of a nut.

ZINC BASE DIE-CASTINGS

Chrome Plated Finish



For Straight Hooked Cam - See Page L11.

FIXING HOLE DIMENSIONS

Series 92

SPAENAUR No.	DESCRIPTION
D-1414	Cam lock, with 2 keys, all to differ.
D-1414KA	Cam lock, with 2 keys, all keyed alike.
D-1414MK	Cam lock, master keyed, with 2 keys, all to differ.

P.C. 096

All Items Priced Singly.

To order Master Keys see page L2.

L

TEE HANDLES

For Automotive and Multi-Purpose Applications

Each handle has a 5" long spindle which may be cut by user to required length. (Special spindle lengths may be supplied on a special order basis. Minimum quantity 500 of one number on special spindle length orders.)

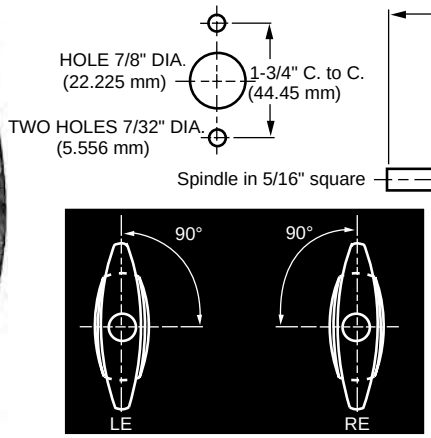
For additional data see page L2.

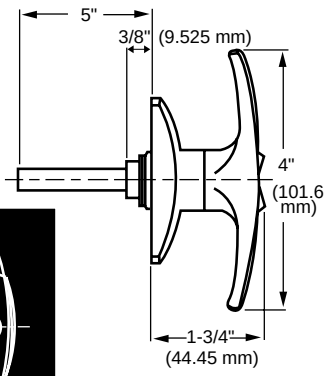
Chrome Plated

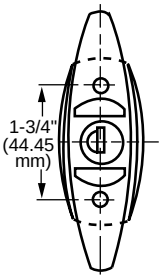
Flat Escutcheon

Escutcheon Holes 1-3/4" Centre to Centre

ZINC BASE DIE-CASTINGS







HANDLE OPERATES 90° CLOCKWISE LOCKED IN VERTICAL POSITION SHOWN

Series 92

SPAENAUR No.	DESCRIPTION
096-240	Locking handle, with 2 keys, all to differ. Action 90° clockwise to open.
096-242	Locking handle, with 2 keys, all keyed alike. Action 90° clockwise to open.

Priced Singly

All above No's. for fixing to **Right** or **Left** edge.

CATALOG 13

See page L9 for more Tee Handles.

COMBINATION CAM LOCK™

This lock can be used to replace any standard 3/4" diameter keyed cam lock. It fits in your existing key cylinder mounting cutouts, so you do not have to redesign your product just to change lock security.

The Combination Cam Lock installs easily in metal or wood up to 7/8" thick, with a grip range up to 1-1/2". The vault knob styling can enhance the appearance of your product. The lock secures cabinets, drawers, lockers, and other storage compartments the same way a safe does.

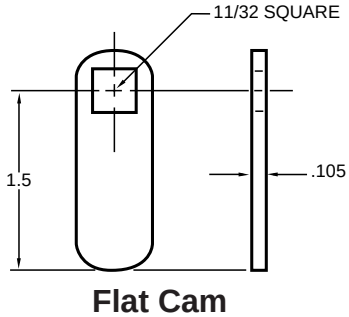
You will like the easy-to-remember, 3-digit combination because there are no keys to lose or fumble with. Plus, there are over 1,250 available combinations. Locks are also available in sets of like combination numbers. (P.O.R.).

The lock has been performance-tested to operate in highly corrosive environments.

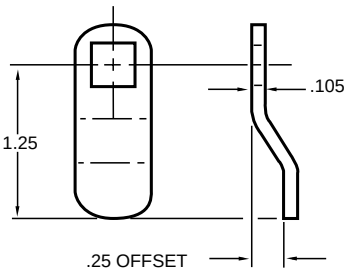
It's construction resists picking and other forms of vandalism.

Actual size of face.

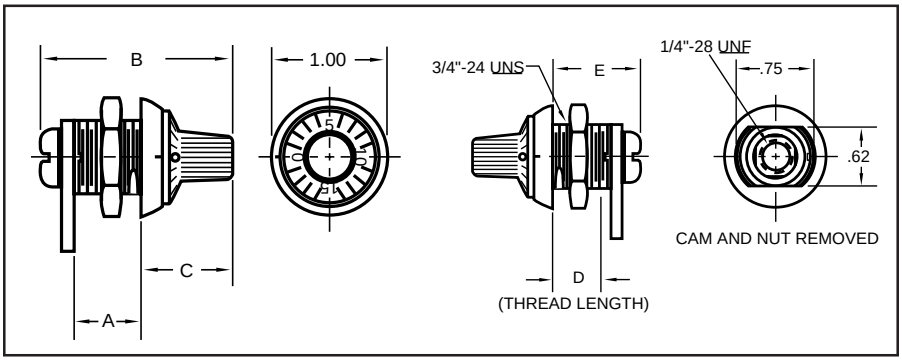
Illustration Dimensions in Inches.



Flat Cam



Offset Cam



SPAENAUR No.	Mfr. No.	Cam Style	A	B	C	D	E
099-223	C2003 O	Offset & Flat	5/8"	1-5/8"	3/4"	1/2"	7/8"
099-224	C3003 F	Flat	7/8"	1-7/8"	3/4"	3/4"	1-1/8"
099-225	C3003 O	Offset					
099-226	C4003 F	Offset & Flat	1-1/8"	2-1/8"	3/4"	1"	1-3/8"

Unit Package Quantity
1 Lock with Cam(s)

(Lock and Cam cannot be ordered separately.)

Materials and Finishes

Vault Knob: Die-cast zinc; zinc and yellow chromate-finished, then black polyurethane painted, plus over painted white numbers.

Shell: Die-cast zinc; polished plus copper and nickel-plated.

Plug & Mounting Nut: Die-cast zinc; zinc and clear chromate-finished.

Combination Discs: Carbon steel; case-hardened and nickel-plated.

Spacer Washers: Full hard brass.

Locking Pin: Carbon steel; nickel-plated.

Spring: Carbon steel.

Retaining Ring: High carbon steel; zinc-plated.

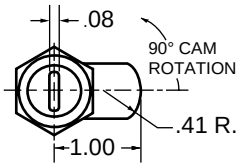
Stop Washer & Cam: Carbon steel; zinc and clear chromate-finished.

Screw/Lock Washer: Carbon steel; zinc-plated.

These attractive, low-profile latches have universal use because of their clean, modern appearance. For use on light cabinet doors and panels, up to 1/4" thick, they have a detent to help the user to know when the latch is fully open or fully closed. Each latch is supplied with a loose locking nut. The standard latching cam is straight. Other latching cams, including offset, can be supplied.

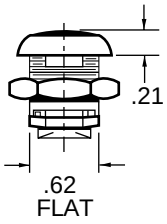
110-144 (Mfr. #520-XA) Quarter-Turn LATCH ASSEMBLY

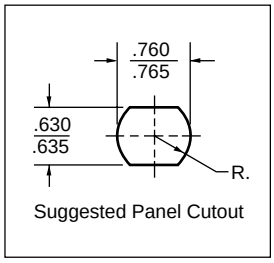
Priced Singly

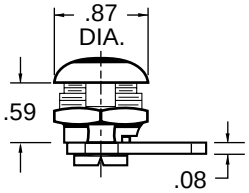


Has a slot for use with a screwdriver.

Finish:
Chrome & Zinc Plate

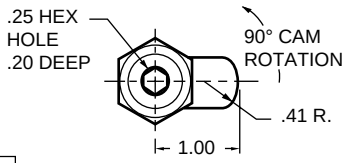






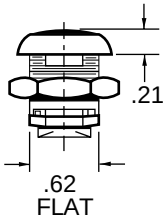
110-145 (Mfr. #521-XA) Quarter-Turn LATCH ASSEMBLY

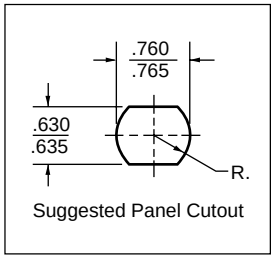
Priced Singly

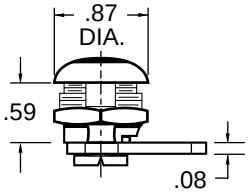


Has a 1/4" hex receptacle for use with a hex tool.

Finish:
Chrome & Zinc Plate

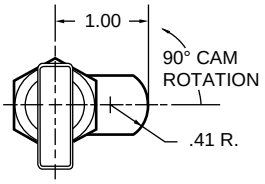




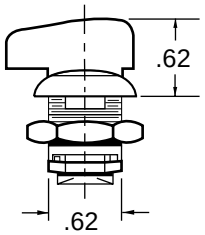


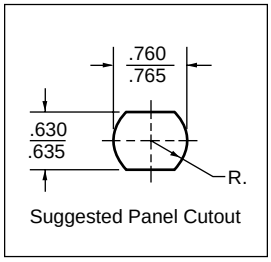
110-146 (Mfr. #522-XA) Quarter-Turn LATCH ASSEMBLY

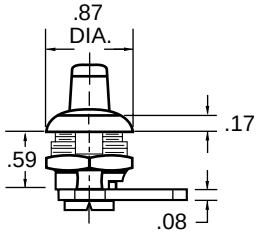
Priced Singly



Has black zinc die-cast knob for finger actuation.







Plated Steel Parts

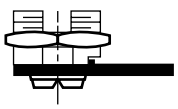
Extra Locking Nut
155-373

Latching Cams Available

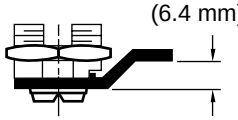
(for above latches)

Zinc Plated Steel

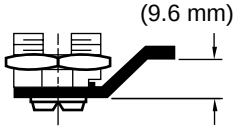
Unit Package 10



110-147
Straight Latching Cam
(Included with above Latches)



110-148
1/4" offset Cam



110-149
3/8" offset Cam

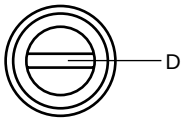
Slot-type Lock - 90° Rotation

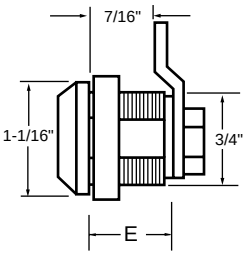
This model is with a diecast slotted plug instead of locking device. This enables the lock to be opened with a coin, or screwdriver. Finish is bright chromium plated.

110-154
(Chrome Plated)

See page L11 for Straight Notched Cam

Slot-type Lock





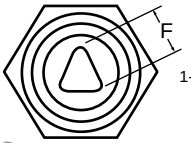
D. Slot detail 0.1" x 0.2" max. depth
E. Body depth 0.75"

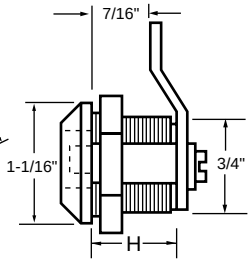
Triangular or Square Key Lock 90° Rotation

Ideal for fairly rugged, outdoor applications, this lock provides reasonable security at low cost with cranked latch bar as standard. Finish is black plug and housing or bright Chromium plated. The lock rotates through 90° as standard.

110-151 **(Black Finish)**

Triangular Key Locks





F. Plug detail 0.312" (8 mm)
H. Body depth 0.75"

876-799
Triangular Key for
SPAENAUR No.
110-151

STEEL - Zinc Pltd.

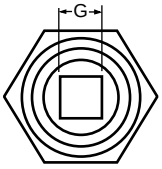
876-1133
Square Key for
SPAENAUR No.
110-032 or 110-033

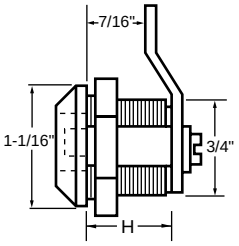
STEEL
Zinc Pltd.

Locks and Keys Priced Singly

110-032 **(Black Finish)**
110-033 **(Chrome Plated)**

Square Key Locks



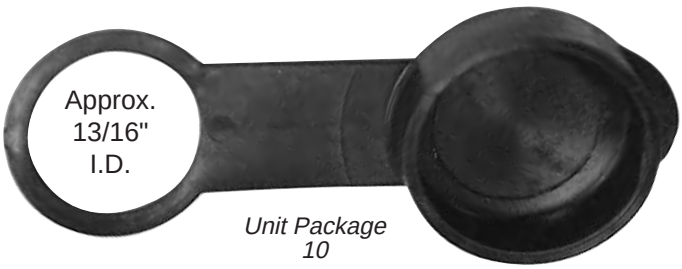


G. Plug detail 0.312" (8 mm)
H. Body depth 0.75"
Cams can be set at 8 different positions and reversed angle.

SPAENAUR No.
317-522
Waterproof Cover for Compartment Locks

Black Polyethylene

(Fits Quarter-Turn Latches above.)



Unit Package 10

Inside Cap
Approx.
1" I.D.

Outside Cap
Approx.
1-1/8" O.D.

Have a question?
Call (800) 265-8772 or (519) 744-3521.

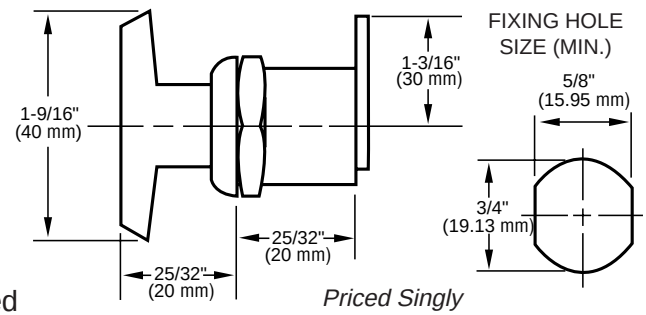
Mini Handle

with 90° movement

Black Matt Finish

096-036 keyed alike

096-037 keyed to differ, non-mastered



Priced Singly

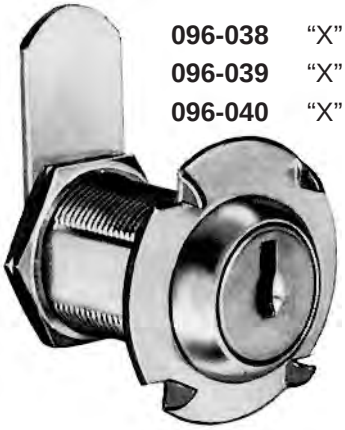
Cam and Housing Nut included.
Two keys supplied with each lock.

For Metal Cabinets, electrical enclosures and electrical panels.

CAM LOCK

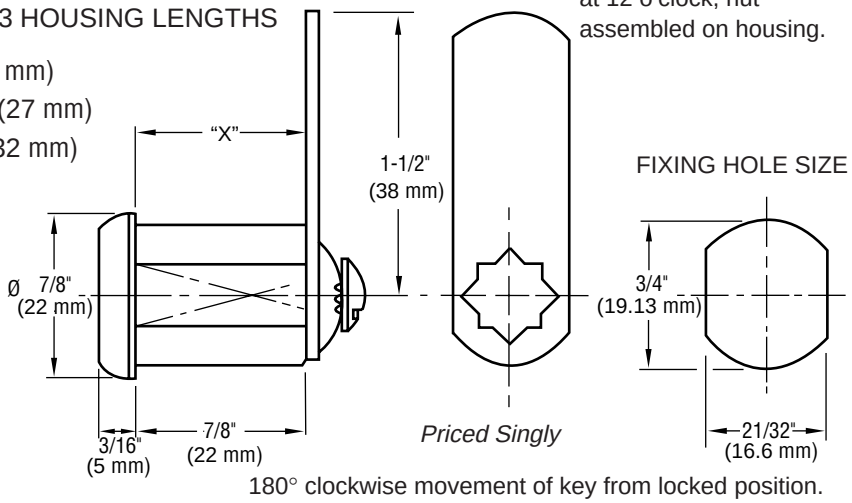
AVAILABLE IN
3 HOUSING LENGTHS

Supplied with cam locked at 12 o'clock, nut assembled on housing.



096-038 "X" =7/8" (22 mm)
096-039 "X" =1-1/16" (27 mm)
096-040 "X" =1-1/4" (32 mm)

STEEL, Chrome Plated Finish



Priced Singly

We recommend the use of a washer when fitting lock in wooden panels.
WASHER MUST BE ORDERED SEPARATELY.
(See 096-041 below.)

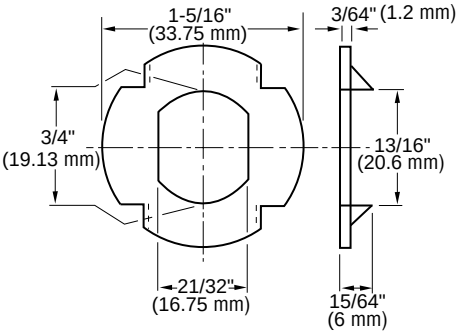
180° clockwise movement of key from locked position.
Key free in both locked and unlocked positions.
Two keys supplied with each lock. Keyed to differ.

PRONGED WASHER

STEEL - Zinc Dichromate Plated Finish

SPAENAUR No.
096-041

Priced Singly



Can be used on Cam Lock above and others listed in this catalog, especially when used on wood panels.

Thin Hexagon Locknut

SPAENAUR No.
155-373

STEEL - Zinc Plated

Thread: 3/4"-24
Across Flat: 7/8"
Thickness: 3/16"

Unit Pkg. Qty. 10

Above locknut 155-373 will fit *SPAENAUR* Cam Locks 099-222 to 099-227 (pg. L13) and 110-144 to 110-146 (pg. L14).

Nylon Hex Jam Nut **163-058** 3/4"-27 (pg.C8) will fit *SPAENAUR* Cam Locks listed below.

D-1414 Series (pg. L12)

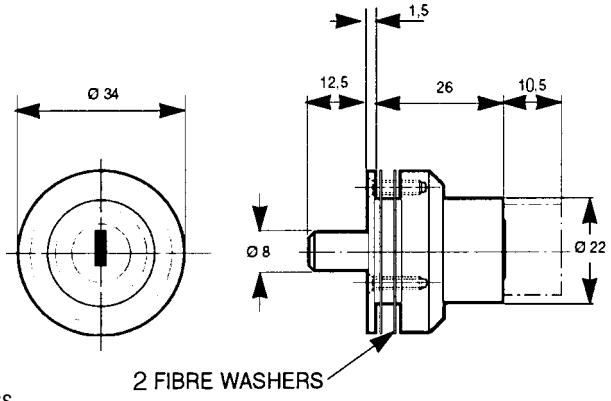
D-3006 Series (pg. L11)

096-036 to 096-040 (pg. L16)

Glass Sliding Door Pin Lock

SPAENAUR No.
096-245
2 Keys included.
(keyed to differ)

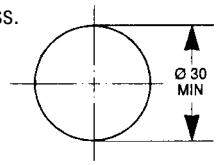
Steel
Bright Chrome



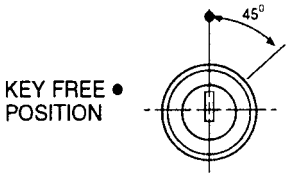
Priced Singly

The lock is suitable for fixing to glass panels 3.0 mm - 6.0 mm in thickness.

Push to engage lock.
Use key that is supplied to release lock.



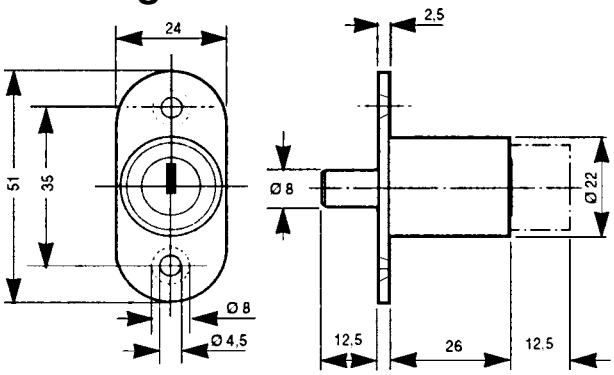
FIXING HOLE SIZE



STANDARD MOVEMENT
(SPRING RETURN)

Dimensions in mm.

Sliding Door Pin Lock



Dimensions in mm.

SPAENAUR No.
096-246
2 Keys included.
(keyed to differ)

Steel
Bright Chrome

STANDARD MOVEMENT
(SPRING RETURN)

Priced Singly

Push to engage lock. Use key that is supplied to release lock.

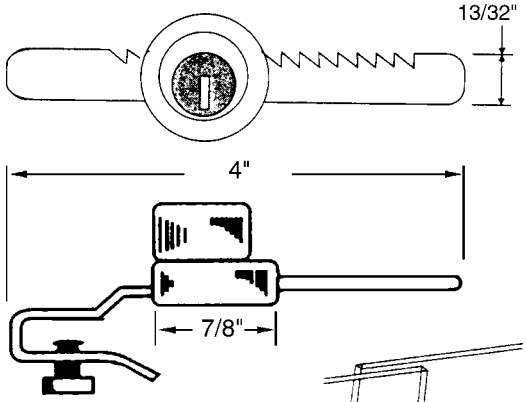
Sliding Door Ratchet Lock

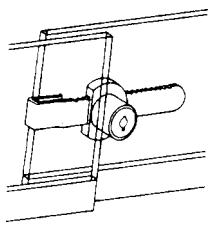
SPAENAUR No.
096-247

Steel
Polished Nickel

Priced Singly

2 Keys included.
(keyed to differ)





Ratchet locks are specifically designed for sliding cabinet doors. This useful lock has a screw-adjustable bar for thicker glass or other materials, up to 1/4" thick.

Operation - Standard key may be removed in locked & unlocked position.

L

CATALOG 13

MAGNETIC CATCH and STRIKE SETS

ALUMINUM CASE
2" x 1" x 5/8"

STRIKE
1-1/8" x 3/4"

096-352 Aluminum Case (Plain Finish) with Steel Strike and Screws.

Unit Package 12 Sets

PLASTIC CASE
White

096-342 40 x 19 mm Case (1.57" x 0.74")
22 x 11 mm Steel Strike (0.86" x 0.43")

096-343 46 x 24 mm Case (1.81" x 0.94")
25 x 21 mm Steel Strike (0.98" x 0.82")

Note: Each Magnetic Catch includes Strike & Screws.

Unit Package 12 Sets

ALUMINUM SECURITY SASH LOCKS

Heavy Gauge Springs for Long-wearing Action.

Base Size 15/16" x 2-5/8"
Strike Size 5/8" x 2-5/8"

SPAENAUR No.

096-349	Bright Brass
096-350	Natural
096-351	Bright Nickel

Unit Package 5 Sets
(With Screws)

SASH LOCK

CAM TYPE, Manual Action
Draws Sash Together

096-451 Steel, Brass Plated

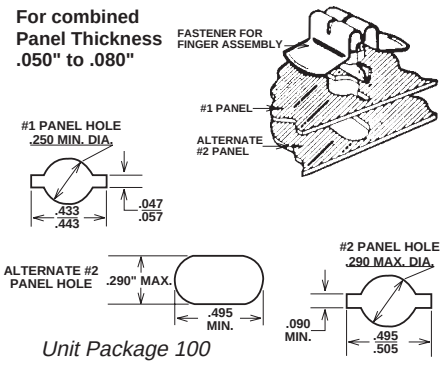
Base Size 2-9/16" x 1-3/8"
Strike Size 2-3/16" x 9/16"

Unit Package 1 Set (With Screws)

QUARTER TURN FASTENER No. C-1075

Steel Zinc Plated

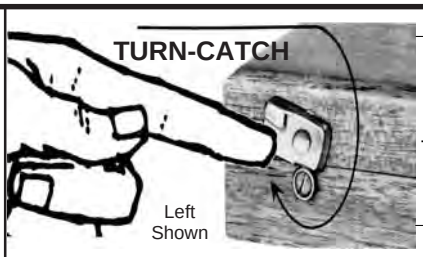
For combined Panel Thickness .050" to .080"

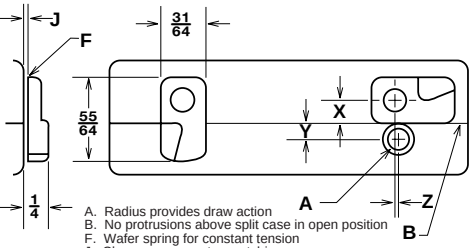


Unit Package 100

P.C. 110

TURN-CATCH





A. Radius provides draw action
B. No protrusions above split case in open position
F. Wafer spring for constant tension
J. Clearance prevents scratching case

Ideal for small cases...any box with wood or solid type shell.

- Stays closed, opens easily
- Fast, fingertip control
- 31/64" x 55/64" x 1/4"
- Standard finishes
- Constant, rattle-proof tension
- Right and left hand styles

Description	Steel Brass Pltd.	Steel Nickeled	Unit Pkg.
Turn Catch, Rt.	**096-267**	**096-270**	100
Turn Catch, Lt.	**096-268**	**096-271**	100
Round Strike	**096-269**	**096-272**	100

Recommended Mounting Dimensions

I. Rivet Application 1/8" dia.
Punch or Drill 2 holes .125"-129". Dim. "X"= .250". "Y"= .156", "Z" = .045"

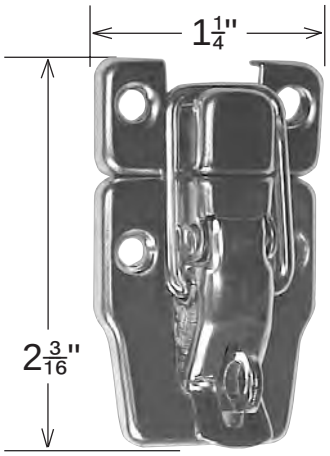
II. Screw (with strike):
One #5 x 1/2" pan head sheet metal screw for lever (Pan head preferred for appearance). One #4 x 1/2" flat head wood screw for strike. Dim. "X"= .250", "Y"= .156", "Z"= .045"

III. Screw (without strike):
(using screw instead of strike) Two #5 x 1/2" pan head sheet metal screws. Dim. "X"= .250", "Y"= .170", "Z"= .085"

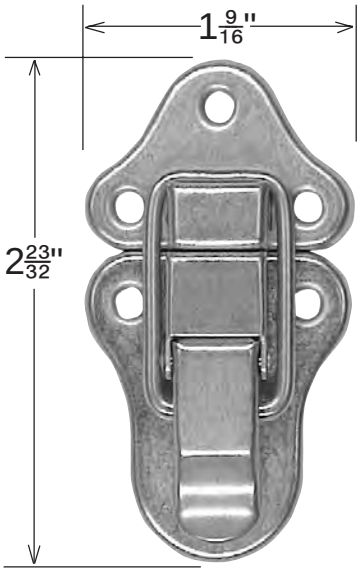
When one moulded shell is used for top and bottom of case, and holes equidistant from split with same vertical line, the catch will not be vertical. You can convert it with a simple operation. Dim. "X"= .210", "Y"= .210", No "Z" dim.

L

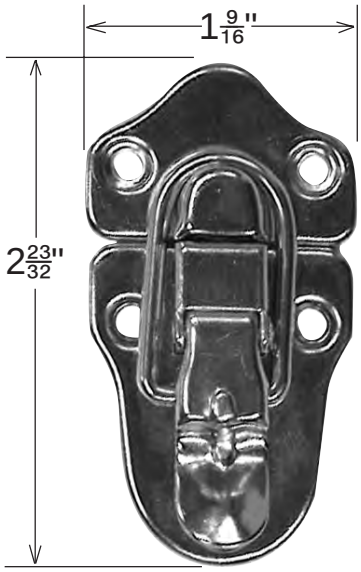
CATALOG 13



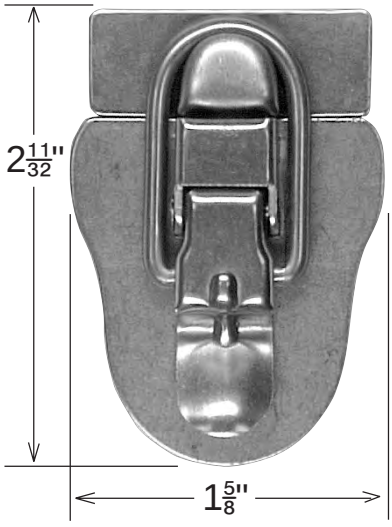
096-644
Steel, Nickel Plated
(with Padlock Eye)
Unit Package 2



For Suitcases, Chests, etc.
096-617 Steel, Brass Plated
Unit. Pkg. 10



096-603 Steel, Nickel Plated
Unit. Pkg. 10
096-605 Steel, Brass Plated
Unit. Pkg. 1

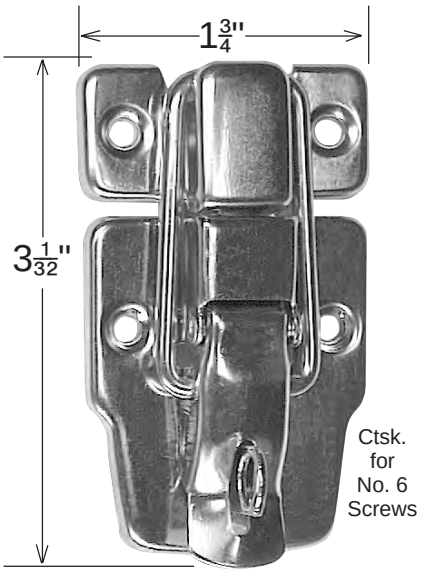


096-614

Plain Steel

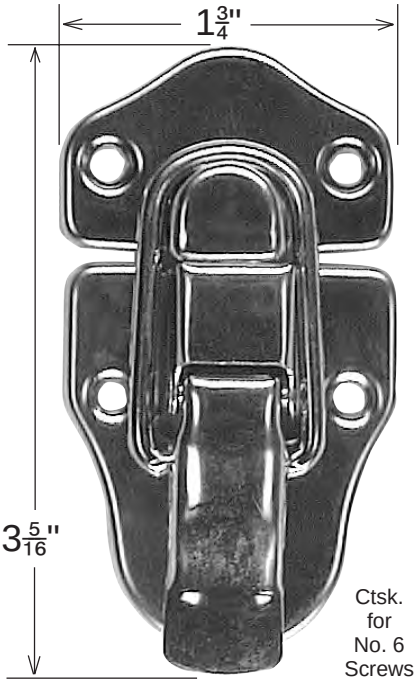
For spot welding - Suitable for use on Tool Boxes, Utility Chests, etc.

Unit Package 10



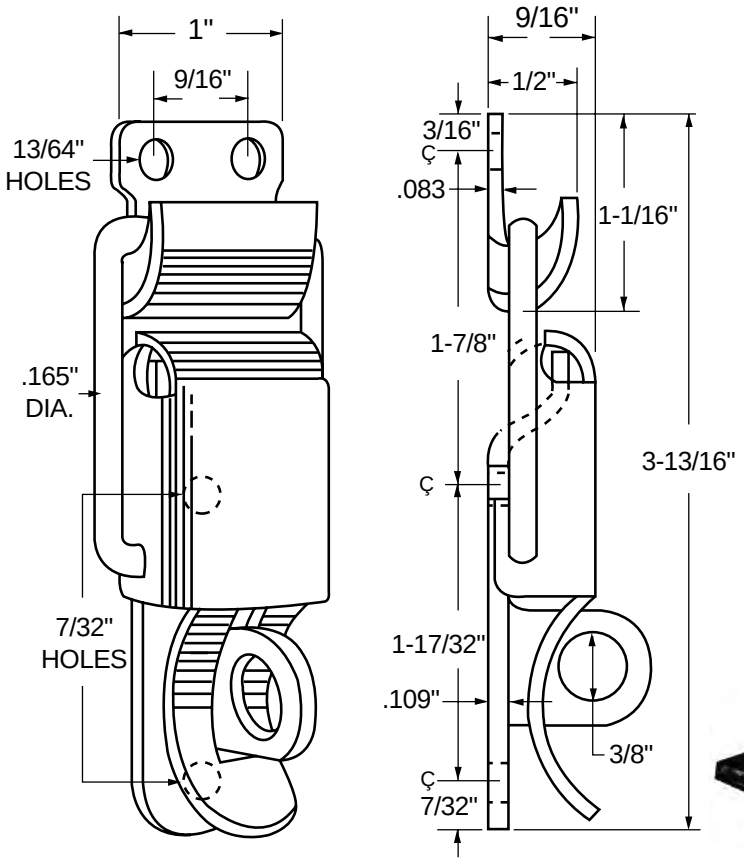
096-615 Steel, Nickel Plated
096-616 Steel, Brass Plated
(above no's. with Padlock Eye)
Unit Package 10

096-643 Steel, Nickel Plated
(without Padlock Eye)
Unit Package 2



096-647 Steel, Brass Plated
(without Padlock Eye)
096-648 Steel, Brass Plated
(with Padlock Eye)
Unit Package 2

L



CLAMP FASTENERS with Padlock Eye

PLAIN and ZINC PLATED STEEL
and 300 STAINLESS STEEL

Dimensions are to centre lines of attaching holes.

Approx. Actual Size

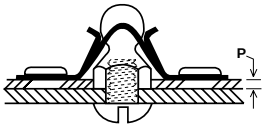
The preferred lockable fastener for Tool Kits, Chests, etc.

L

PLAIN STEEL for Spot-Welding (no holes)		ZINC PLATED with riveting holes		300 STAINLESS STEEL with riveting holes	
096-602	Strike and Catch	**096-601**	Strike and Catch	**096-810**	Strike and Catch
096-596	Strike only	**096-598**	Strike only	**096-809**	Strike only
096-597	Catch only	**096-599**	Catch only	**096-808**	Catch only
Unit Package 10 (one number)				*Unit Package 1*	

SPRING CATCH and STUD ASSEMBLIES

TYPICAL ASSEMBLY



P (Panel Range)
.133" - .160"

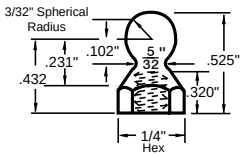
Note:
Components must be ordered separately.

(See page C116 for more information.)

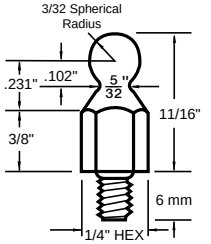
P.C. 086

BALL STUDS - Steel, Zinc Plated.

SPAENAUR No.
C-968
Internal Thread
6-32 NC2



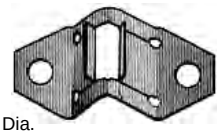
SPAENAUR No.
086-689
External Thread
METRIC Coarse
M4 x 0.70 Pitch
6 mm Long.



Unit Package 100

STEEL SPRING CATCHES

Catches are dimensionally identical.
Material thickness and pull-out tensions differ.

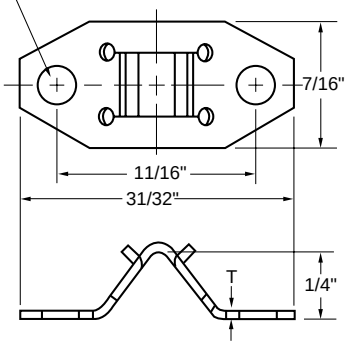


SPAENAUR No's.

086-692
Zinc Plated
T = .017"
Pull-out Tension 8 lbs.

C-788
Phosphate Finish
T = .022"
Pull-out Tension 12 lbs.

086-690
Phosphate Finish
T = .031"
Pull-out Tension 30 lbs.

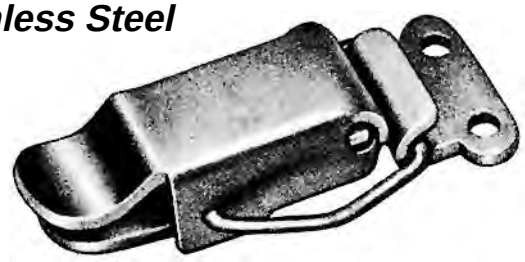


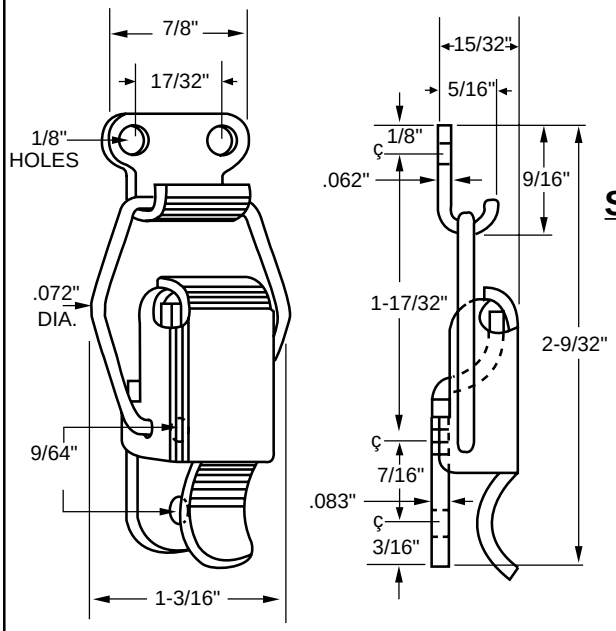
Unit Package 100

CATALOG 13

HEAVY DUTY PULL-DOWN CATCH

Available in Zinc Plated and Stainless Steel





Steel, Zinc Pltd.		Stainless Steel
096-654	Strike and Catch	**096-806**
096-652	Catch only	**096-802**
096-653	Strike only	**096-803**

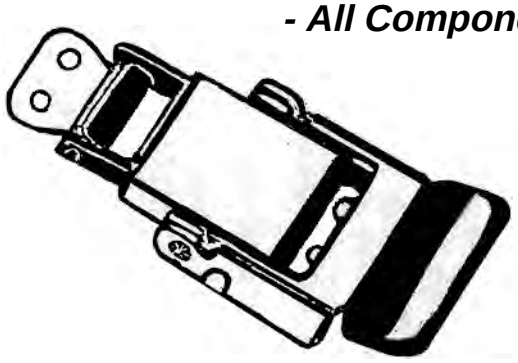
Two riveting holes in
Strike and Catch.

All numbers on this page,
Unit Package 10 (one number).

L

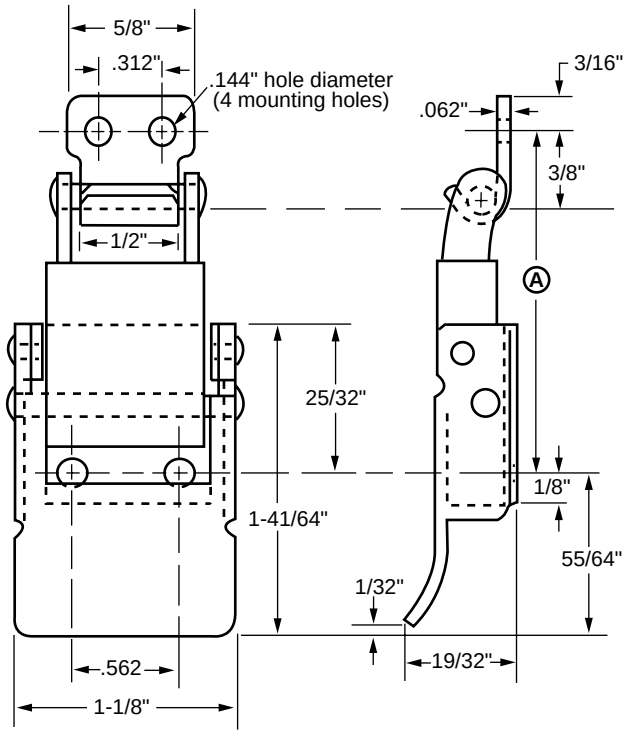
COMPRESSION SPRING DRAW-PULL CATCH

- All Components are Stainless Steel -



096-807 Strike and Catch
096-804 Catch only
096-805 Strike only

Two riveting holes in
Strike and Catch.



Ⓐ = Length c. to c. for mounting holes

1-13/16" apart = 30 lbs. holding tension.
1-7/8" apart = 50 lbs. holding tension.
1-15/16" apart = 70 lbs. holding tension.

CATALOG 13

Clamp Fastener with Padlock Eye

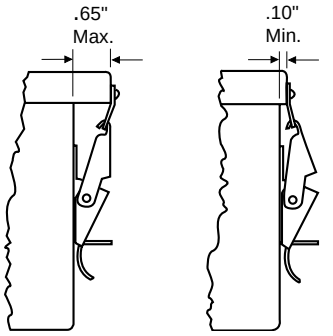
All Components are
Corrosion Resistant 316 STAINLESS STEEL

096-813 Strike and Catch
096-812 Strike only
096-811 Catch only

Featuring:
*** Sleek appearance.**
*** Padlockable security.**
*** Smooth action.**

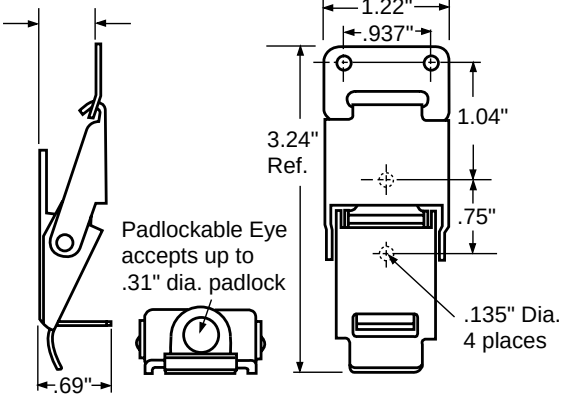
All numbers Unit Package 1

Designed for Overlapping Covers.



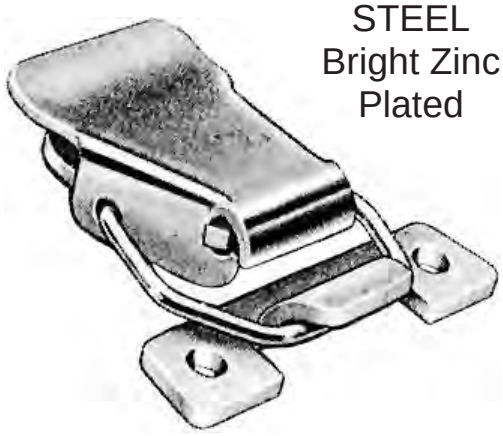
Dimensions shown are as mounted.
For increased tension, increase catch/strike separation.

Designed for use with overlapping covers from .10" to .65"

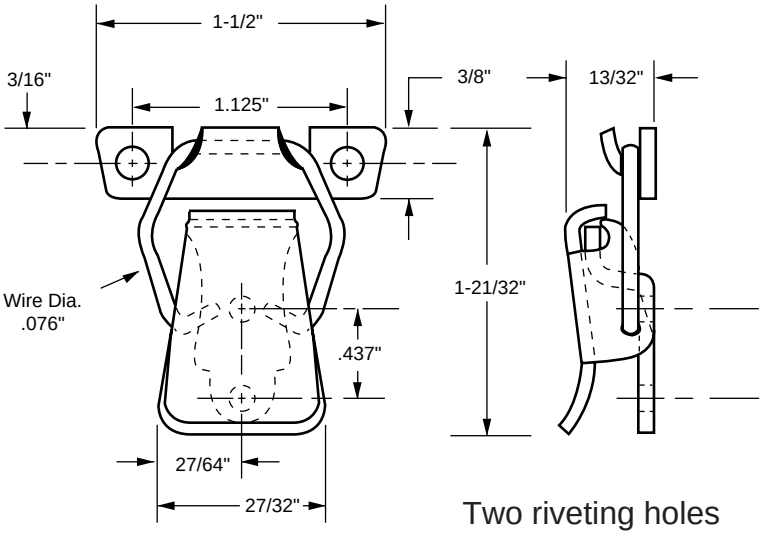


L

PULL-DOWN CATCH



STEEL
Bright Zinc
Plated



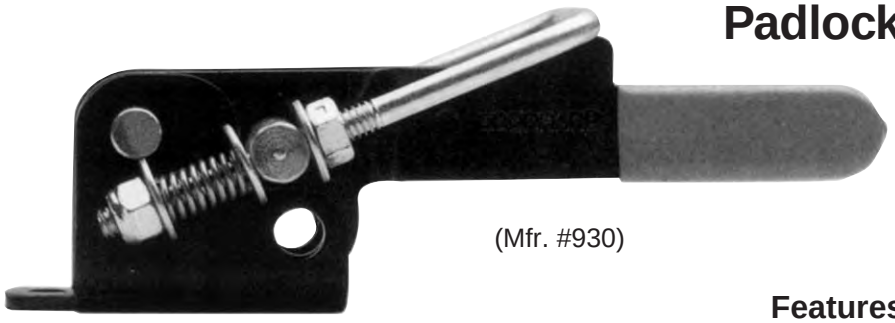
096-651 Strike and Catch
096-650 Catch only
096-649 Strike only

All numbers Unit Package 10 (one number).

Two riveting holes (.143 DIA.) in Strike and Catch.

CATALOG 13

Padlockable Draw Latch



(Mfr. #930)

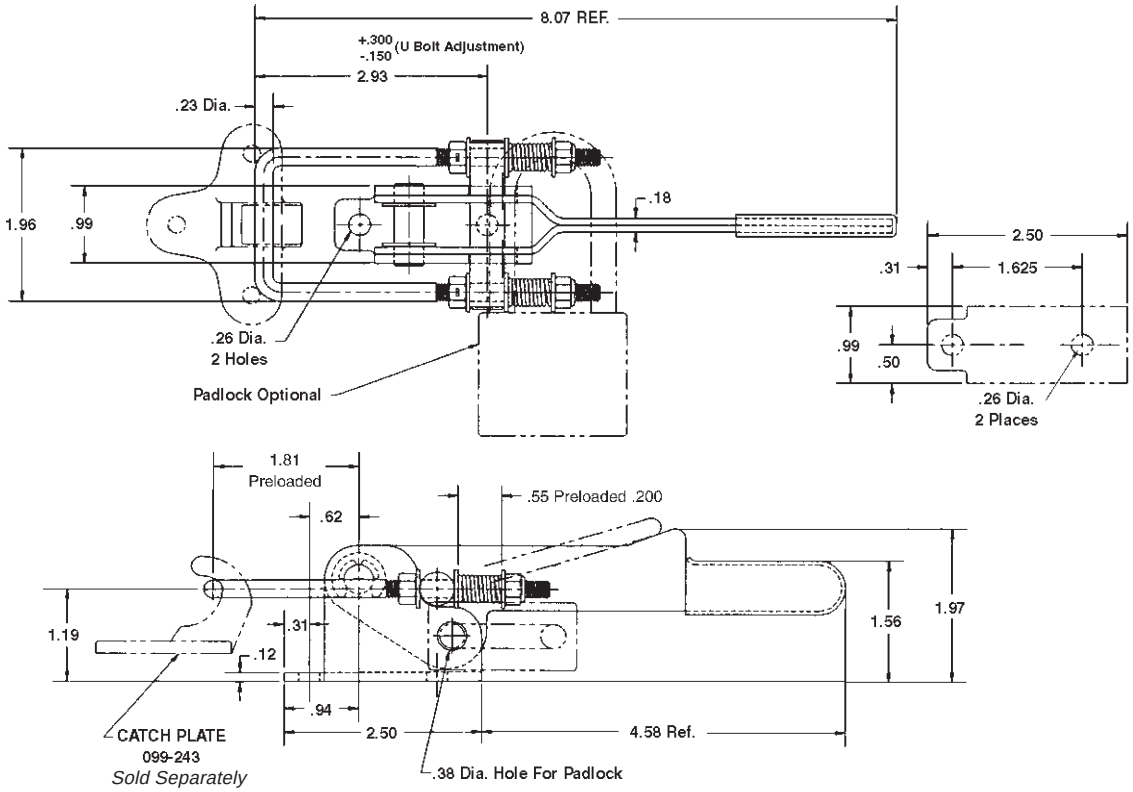
SPAENAUR No.
099-241

Priced Singly

The Padlockable Draw Latch can be used in a wide variety of applications. Rated up to **1500 LBS.** maximum pull.

Finish
Body parts: Steel - "E" coat (Black powder coat).
Fasteners, loop and thumb release: Zinc Plated.

Features:
- Up to 7/16" U-bolt adjustment.
- Padlock eye provides for up to a 3/8" diameter padlock shackle.
- Self-adjusting, stainless steel tension springs help maintain balanced load forces.



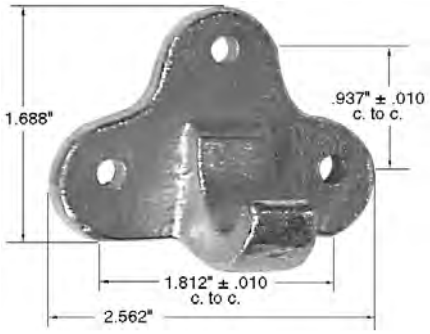
Catch Plate

SPAENAUR No.
099-243

Priced Singly

For use with Padlockable Draw Latch 099-241.

Cast Malleable Iron, Zinc Plated
Order Separately



See following page for
Extra Heavy Duty Draw Latch.

Extra Heavy Duty Draw Latch

Patent Pending

The Extra Heavy Duty Draw Latch can be used in a wide variety of applications. It offers strength and durability, and is rated at **8000 LBS.** maximum pull.

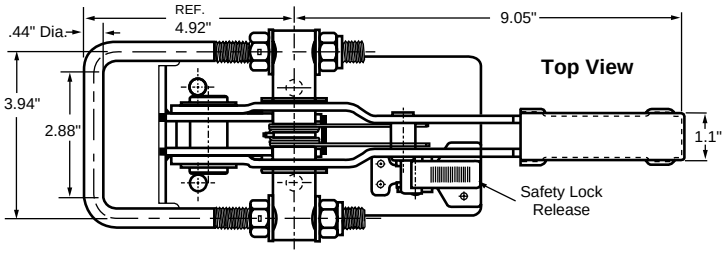
(Mfr. #960)

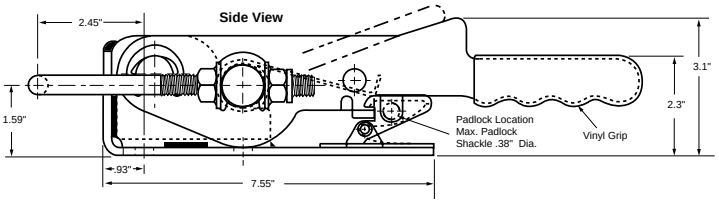
Priced Singly

***SPAENAUR No.* 099-230**

Features:

- Up to 1" loop length adjustment.
- Safety thumb release helps ensure full locked engagement; provides a padlock eye for up to a 3/8" diameter padlock shackle.
- Stainless steel torsion spring automatically retracts the loop to prevent damage when not in use.





Finish

Body parts: Steel - "E" coat (Black powder coat).
Fasteners, loop and thumb release: Zinc Plated.
Weight: 6.9 lbs. each.

Note: Hook not included.

L

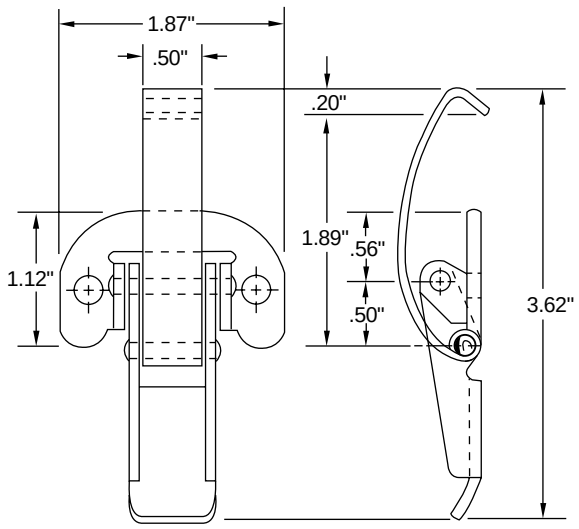
SPAENAUR

Our Mission

- We are a Team of Professionals
- We Listen to our Customers
- We Grow Ourselves

Proudly serving you since 1936.

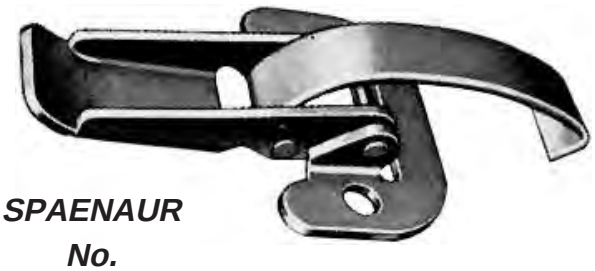
CATALOG 13



.218" Hole Dia.
1-3/8" C. to C.

HOOK TYPE CLAMP

Steel, Zinc Plated



SPAENAUR No.

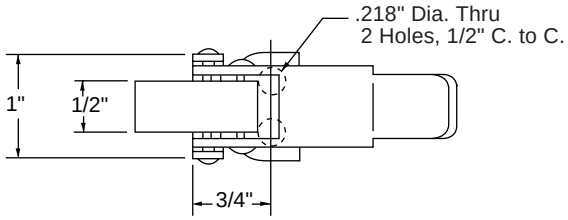
D-2000

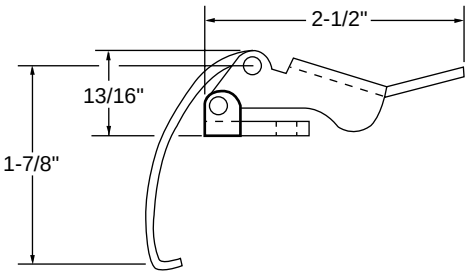
Heavy duty high-tensile spring exerts a closing force of 50 to 75 lbs. - enough to keep container closed, even under severe usage.

096-042 Standard Duty Clamp. Similar to above except for lighter applications.

RIGHT ANGLE CLAMP

Steel, Zinc Plated





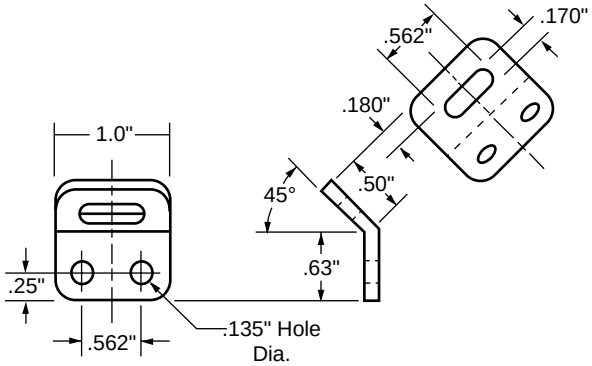
SPAENAUR No.

D-2001

A 90° clamping device for application where a top-mounted fastener is desirable. Ideal for use where space limitations exist.

The spring exerts a closing pressure of 50 to 75 lbs. - enough to maintain closure of the container under severe usage.

STRIKES



D-2050 Rivet type Strike
(with 2 holes) .096" thickness.
Steel, Zinc Plated

D-2051 Weld type Strike
(no holes) .098" thickness.
Steel, Plain Finish

Note:
Strike #D-2050 and #D-2051
for Clamps #D-2000 and #D-2001
shown above.

Order Clamp and Strike separately.

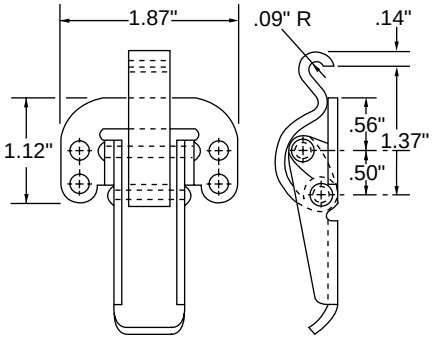
P.C. 096

CATALOG 13

L

HINGE TYPE CLAMP

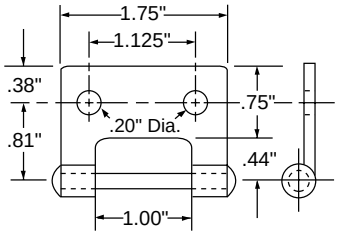
Steel, Zinc Plated



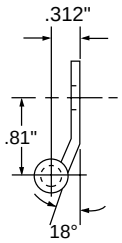
SPAENAUR No.
D-2002

Ideal for use as a clamp-hinge combination.
Allows trouble-free opening and secure fastening.

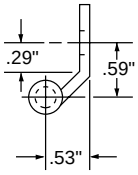
For use with D-2002 Clamp.



D-2052



D-2053



D-2054

STRIKES

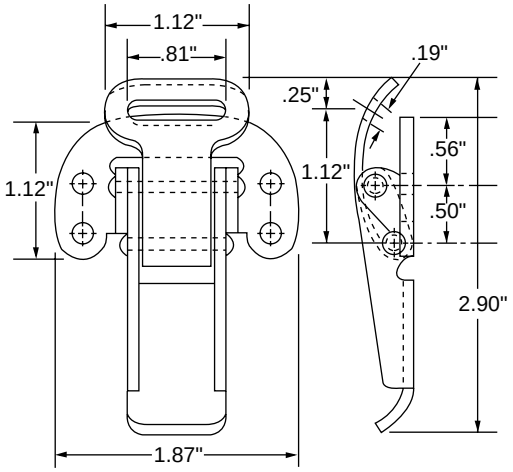
Steel, Zinc Plated

D-2052 Rivet type Strike (.085" thickness)
D-2053 Rivet type Strike (.084" thickness)
D-2054 Rivet type Strike (.084" thickness)

L

LOOP TYPE CLAMP

Steel, Zinc Plated

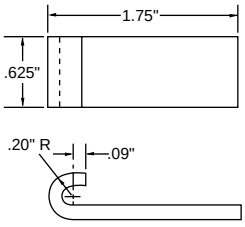


SPAENAUR No.
D-2003

General purpose, resilient design, similiar to other types shown above. In place of the hook-spring mechanism, a loop-spring is supplied.

A closing force of 50 to 75 lbs. is exerted by the high-tensile alloy steel spring.

For use with D-2003 Clamp.



STRIKES

Steel, Zinc Plated

D-2056 Weld type Strike
(no holes) .094" thickness

P.C. 096

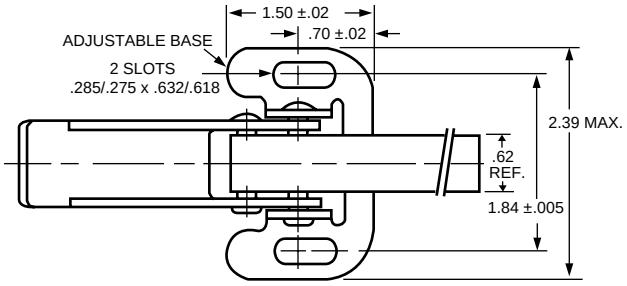
For more CLAMP FASTENERS - Heavier Styles, see the following pages.

CATALOG 13

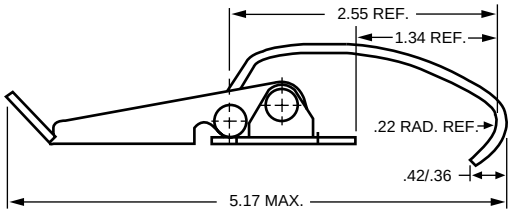
096-604 TENSION LATCH

Similar to the very popular Style No. D-2000 (Page L25) but in a larger size and with greater reach.

Strength: 250 lbs. ultimate; 150 lbs. working.



Top View



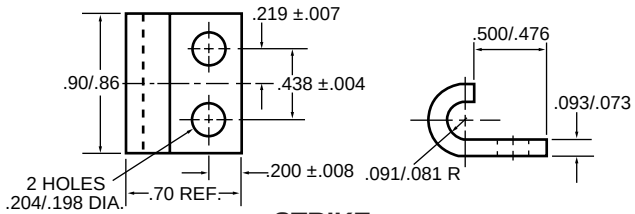
Side View

Steel - Zinc Plated

SPAENAUR No.

096-604

Adjustable Mounting Type



STRIKE

Steel - Zinc Plated

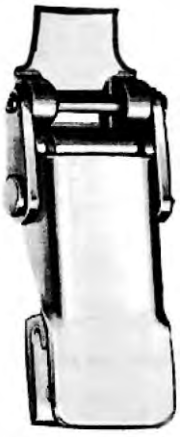
SPAENAUR No.

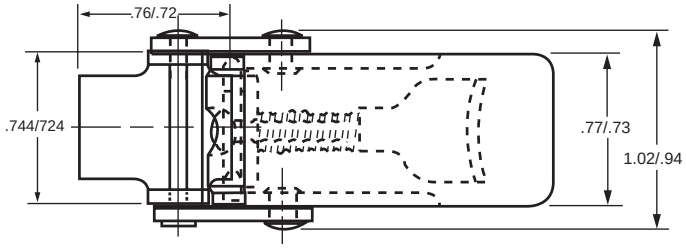
096-613

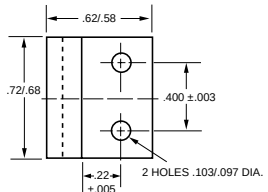
Rivet Mounting Type

L

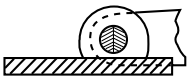
TENSION LATCH 096-606

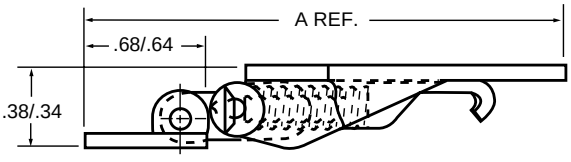






Strike 096-609





A low silhouette latch that is only 3/8" high. Adjustable through approximately .200" with over a take up of .400". Ultimate strength, 300 lbs.

SPAENAUR No.	Description	Finish	A Ref.	Type Mounting
096-606	Latch, Steel	Zinc (except plain base)	2.43"	Weld
096-609	Strike, Alum.	Plain	—	Rivet

All items this page
Unit Package 10.

Order Clamp and Strike separately.

DRAW LATCH - Key-Locking

099-159

Priced Singly

This draw latch combines panel take-up capabilities with the added security of a key-locking tumbler mechanism!

Holds lids, hoods and doors secure from vibration or rattle and helps to keep out dust.

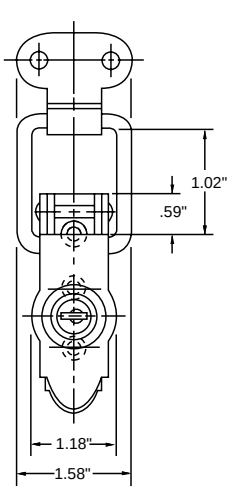
To latch, simply position the wire bale over the hook and press down on the lever.

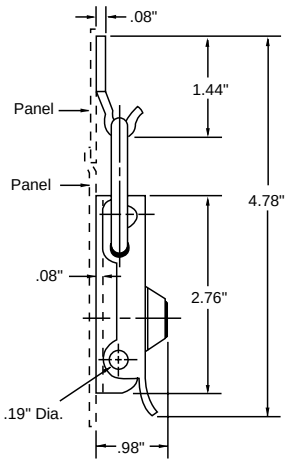
The key-locking feature can then be used to assure security without the need of any other locking device. However, a seal hole is provided if evidence of tampering is desired.

Material:
Latch assembly and hook are zinc plated carbon steel.
Key cylinder body is a zinc die casting.

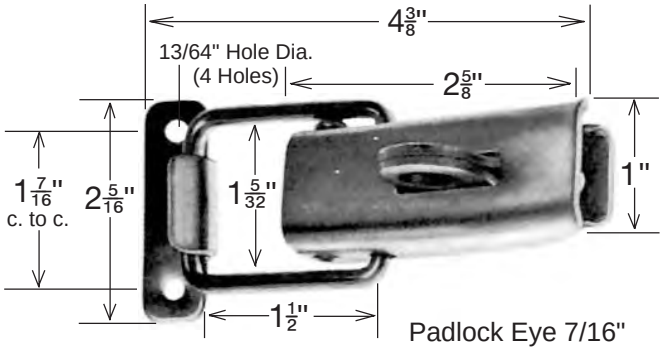
Furnished complete with two keys and hook. Fasteners must be supplied by customer.

Recommended fasteners:
#10 flat head screws for latch.
#10 round or pan head screws for hook.





Throwover Catch with Striker Plate

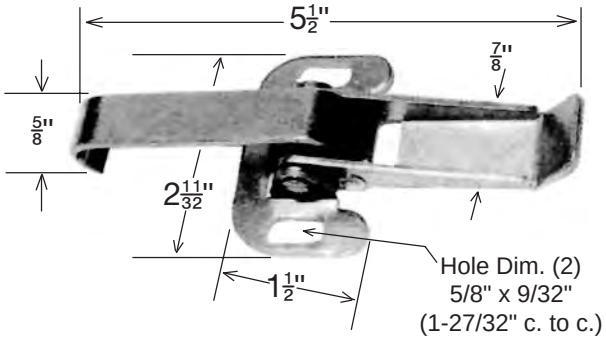


096-022
Unit Package 1

Catch with striker plate and loop for padlock fitting. Zinc Plated.

Throwover Catch - Hooked Style

(Striker Plate not included)*



096-025
Unit Package 1

STEEL - Yellow Dichromate Plated Finish Catch with hooked engagement, 0.75" travel. *Suits rod-type of striker (not supplied, can use D-2052, D-2053, or D-2054, shown on page L26).

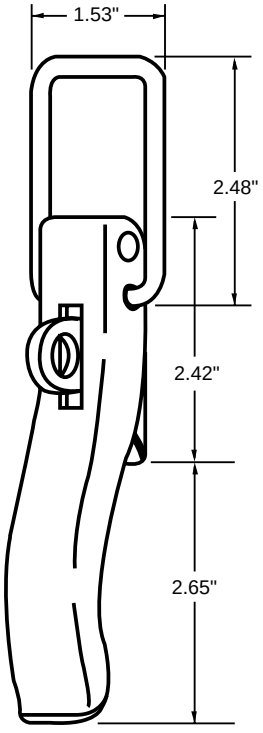
Throwover Catch - Padlocking

STEEL - Black Polycoat Finish

An attractive, padlockable long-lever latch with a wide range of applications. Particularly suited for light hatch covers, fiber glass tops on pickup trucks and control cabinets. Includes black polycoated flat hook.

099-158

Priced Singly

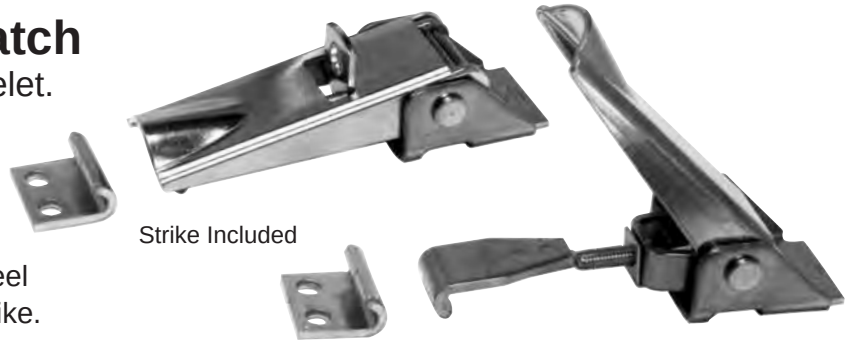


L

CATALOG 13

Adjustable Draw Latch

without or with padlock eyelet.



Strike Included

Features:

- Rugged all metal construction.
- Zinc Plated Steel or Stainless Steel
- Assembly includes Latch and Strike.
- Working load: 600 lbs.
- Ultimate load: 800 lbs.
- Weight: 0.2 lbs.

Unit Package 1 (Latch and Strike)

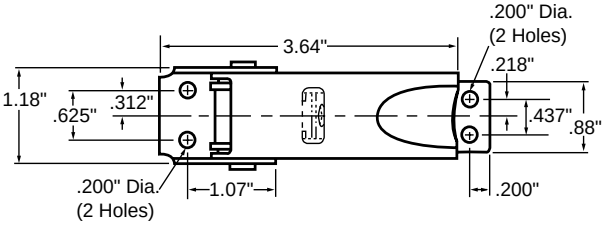
SPAENAUR No.

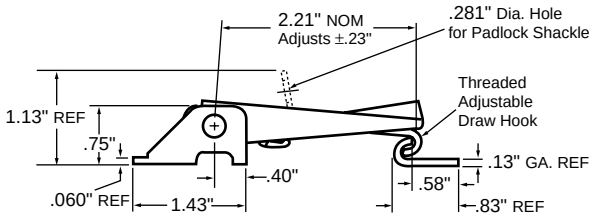
099-330 **Steel, Zinc Plated** without padlock eyelet

099-331 **Steel, Zinc Plated** with padlock eyelet

099-816 300 Series **Stainless Steel** without padlock eyelet

099-817 300 Series **Stainless Steel** with padlock eyelet





L

Adjustable Draw Latch

without or with padlock eyelet.

Strike Included

Features:

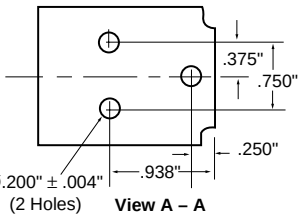
- All Stainless Steel construction.
- Positive, over-centre latching.
- Assembly includes Latch and Strike**.**
- Working load: 800 lbs.
- Ultimate load: 1000 lbs.
- Weight: 0.5 lbs.

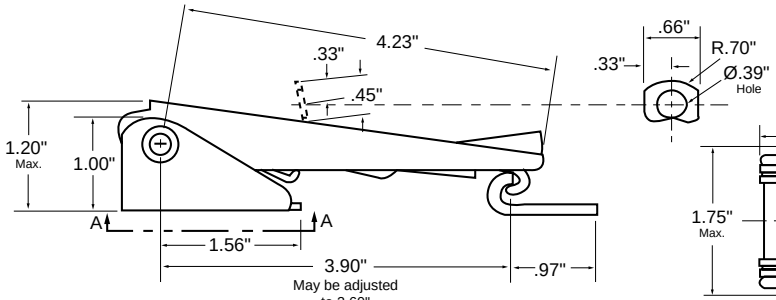
Unit Package1 (Latch and Strike)

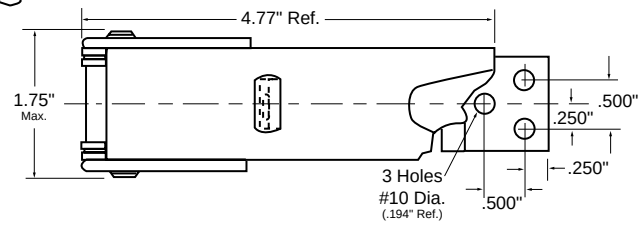
SPAENAUR No.

099-818 300 Series **Stainless Steel** without padlock eyelet

099-819 300 Series **Stainless Steel** with padlock eyelet







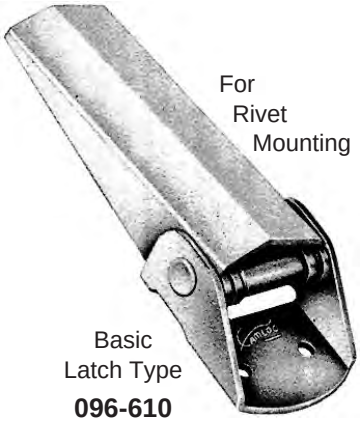
CATALOG 13

TENSION LATCHES

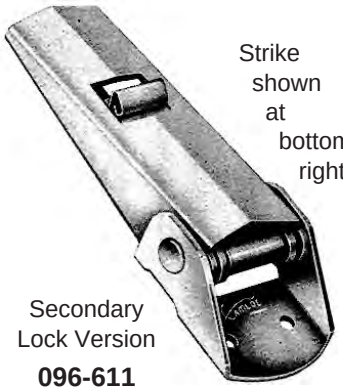
STEEL MATERIAL
Bright Zinc Plated

800 lb. Ultimate Strength **600 lb. Working Strength**

Unit Package 10
All Styles



Basic Latch Type
096-610



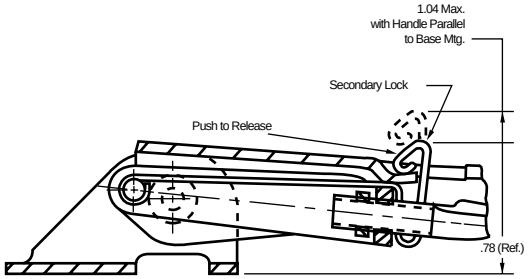
Secondary Lock Version
096-611

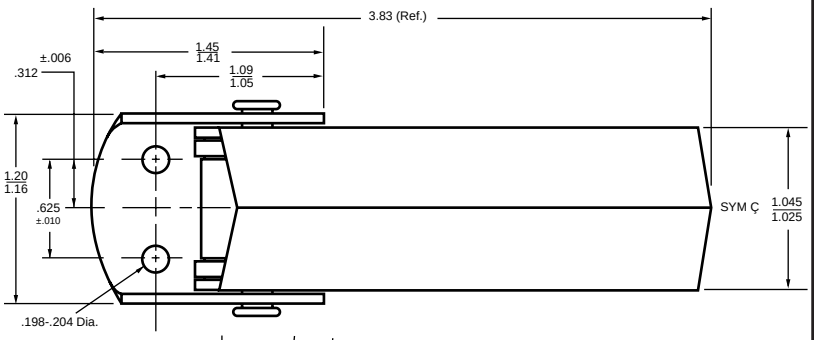
Hasp Securing Latch
096-612

They're built for positive performance in a variety of types for specialized applications including campers, transit cases, shipping containers, leisure vehicles, storage units and transportation equipment. Reliability, versatility and value are yours in these latches.

SPAENAUR No.	Description
096-610	Tension Latch, Basic Type
096-611	Tension Latch, Secondary Lock Type
096-612	Tension Latch, Hasp Securing
096-613	Strike (See bottom of page)

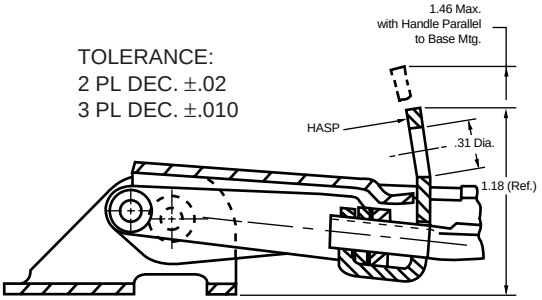
GENERAL INFORMATION



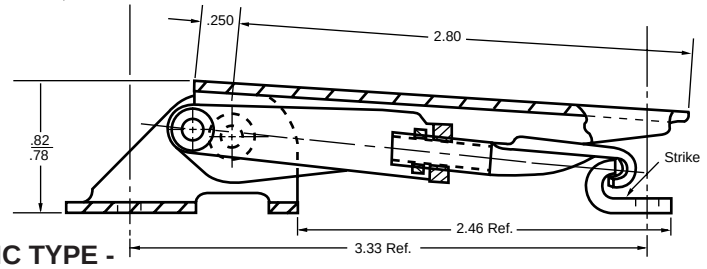


SECONDARY LOCK TYPE - 096-611

TOLERANCE:
2 PL DEC. ±.02
3 PL DEC. ±.010



HASP TYPE - 096-612



BASIC TYPE - 096-610

APPROX. .21 DRAWHOOK ADJUSTMENT
IN EITHER DIRECTION FOR BASIC & SECONDARY LOCK TYPE
APPROX. .17 FOR HASP TYPE

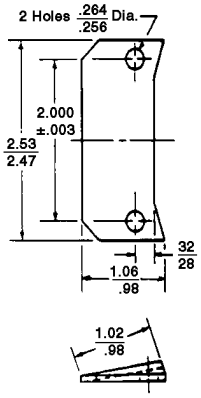
HEAVY DUTY STRIKE 096-631

Latch is no longer available

Steel - Cadmium Plated

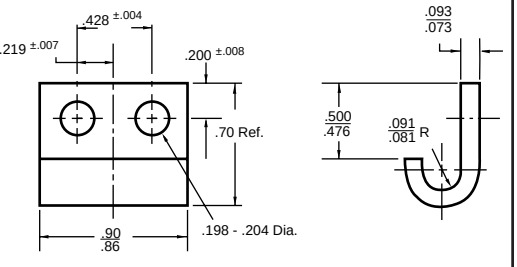
For Rivet Mounting

Priced Singly.



SPAENAUR No. 096-613

Unit Package 10



STRIKE for 096-610, 11, 12 Latches

Finish	Material	Type Mounting	Hole Dia.
Zinc	Steel	Rivet	.198-.204"

Order Clamp and Strike separately.

CATALOG 13

Draw Latches • Overcentre • Adjustable

Carbon Steel and **Stainless Steel**

All items on this page Priced Singly.

Latch and Keeper must be ordered separately.

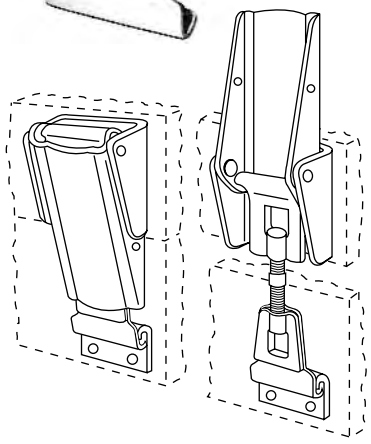
099-160 Draw Latch, **Steel - Zinc Plated** (Mfr. #750)
099-161 Keeper, **Steel - Zinc Plated** (Mfr. #750-10)

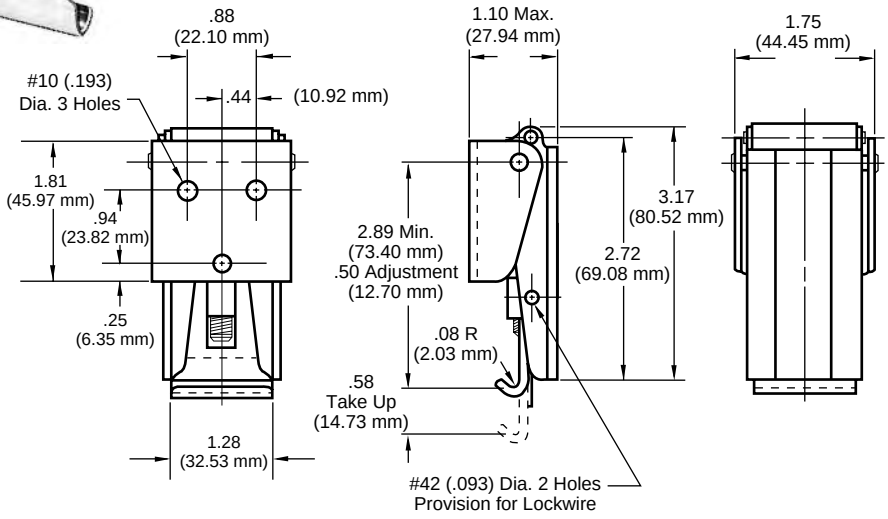
099-162 Draw Latch, **Stainless Steel** (Mfr. #750SS)
099-163 Keeper, **Stainless Steel** (Mfr. #750SS-10)

Latches listed below have padlocking eye feature.

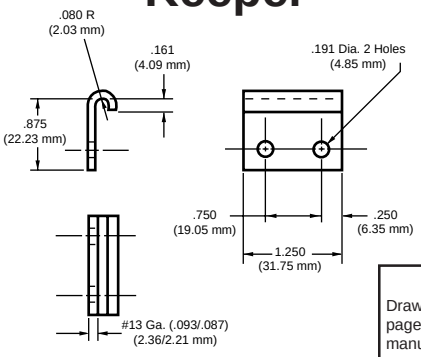
099-165 Draw Latch, Steel - **Zinc Plated** (Mfr. #750P)
099-166 Draw Latch, **Stainless Steel** (Mfr. #750SSP)

- Ideal for use on heavy gasketed lids.
- 1/2" adjustment allows for variations in alignment.
- 1/2" take-up capability.
- Slim profile.
- Provision for use of a lockwire to prevent inadvertent opening or tampering.

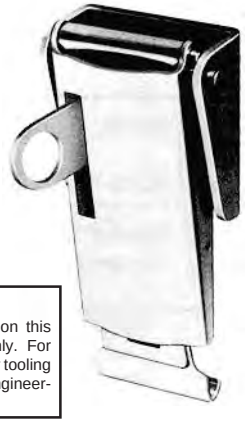


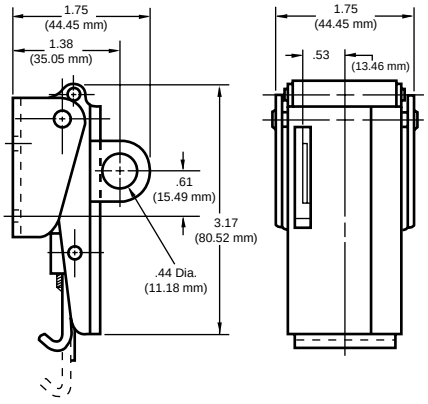


Keeper



Padlocking





NOTE
Drawings and dimensions on this page are for reference only. For manufacturing production or tooling purposes, obtain current engineering print from SPAENAUR.

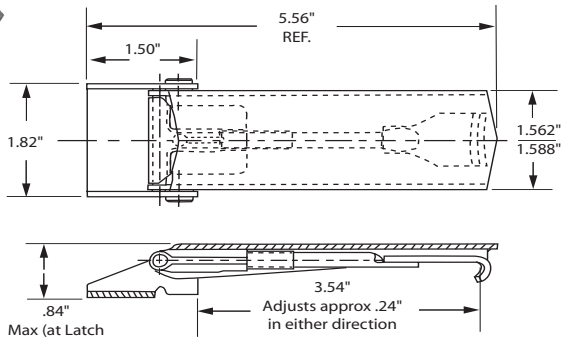
L

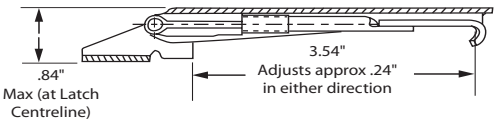
CATALOG 13

Adjustable Tension Latches Designed To Save You Time.

Ultimate strength 1000 lbs.
Working strength 650 lbs.

STEEL BASE
WELD MOUNTING





WELD TYPE:
NO HOLES

TOLERANCE:
2 PL DEC. ± .02
3 PL DEC. ± .010

ADVANTAGES:

- Adjustment range of approximately .48"
- All metal construction
- Vibration proof, overcentre toggle geometry assures positive lock
- Handle design permits storage of the drawhook within the handle for protection when in the open position

SPAENAUR No.	Base	Drawhook, Tee-nut Pivot pin & pivot Rivets	Handle	Weight
096-620	Carbon Steel Zinc Plated	Stainless Steel	Cadmium Plated per QQ-P-416 Class 2, Type II	.38 lb

096-620, *Unit Package 1*
096-622, *Unit Package 5*

STRIKE

STEEL -
WELD MOUNTING

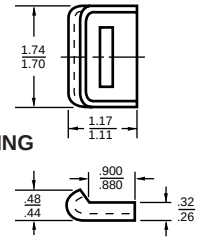


Illustration Dimensions in Inches.

SPAENAUR No.	Material	Finish
096-622	Steel	Zinc Plated

Adjustable Tension Latch

STAINLESS STEEL

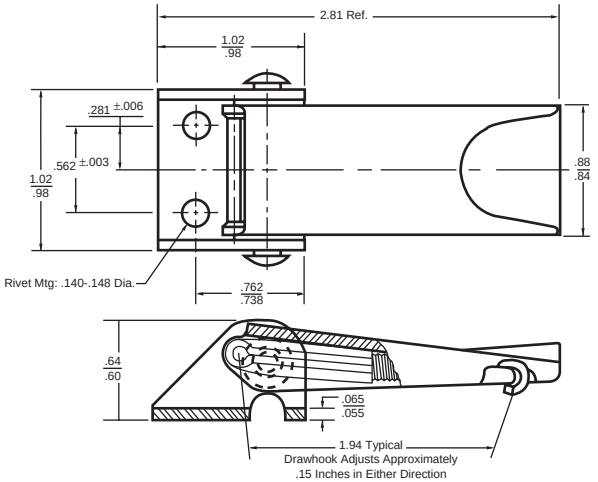


Illustration Dimensions in Inches.

Mechanical Attachment
(See below)

SPAENAUR No.
096-800

Priced Singly

Strength: 500 lbs. ultimate; 350 lbs. working.

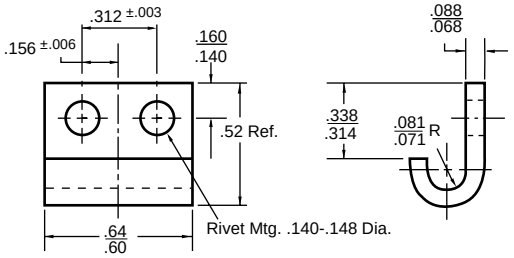
Grade 18-8 (Series 300)
STAINLESS STEEL
(Passivated)

Operating Action: Under-Centre Take-up: .500" minimum.
Adjustment: Threaded drawhook: up to .300"

***SPAENAUR No.* 096-801**

Unit Package 5

STAINLESS STEEL STRIKE
(Use with No. 096-800 Latch)



Mechanical Attachment:

1. Locate and form holes for latch and strike.
2. Attach latch and strike with screws or rivets (not supplied).

See the complete range of *SPAENAUR* Clamp Fasteners: Pages L20 to L33.

Order Latch and Strike separately.

Illustration Dimensions in Inches.

EXTRA Strong Tension Latch

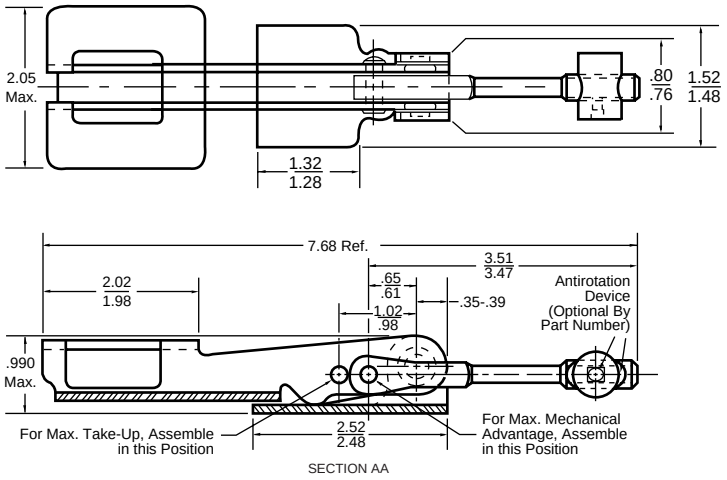
The extra strong of our latch line with an ultimate strength up to 4500 lbs., 5/16" adjustment range.

Where RUGGED STRENGTH is needed, these latches have it!

LONG HANDLE, STEEL BASE, WELD TYPE

4500 LBS. ULTIMATE STRENGTH
3000 LBS. WORKING STRENGTH

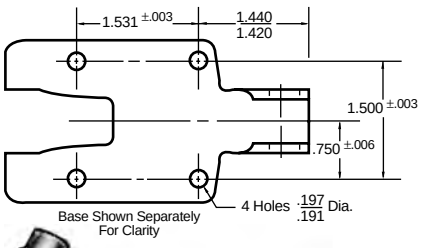
Measurements expressed in inches.

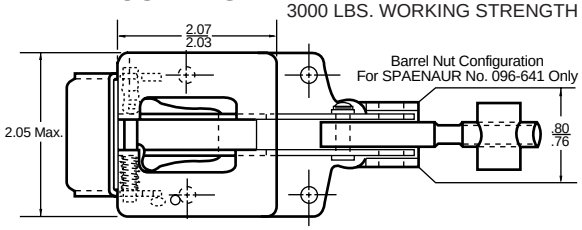


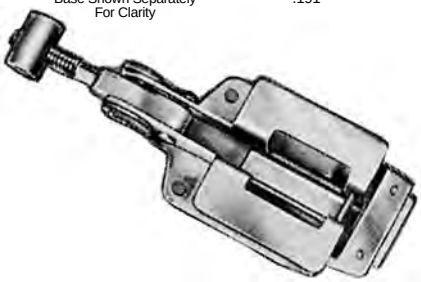
SPAENAUR No.	Material and Finish	Mounting	Wt./lbs.
096-640	Steel, Zinc DiChromate Finish	Weld	.450

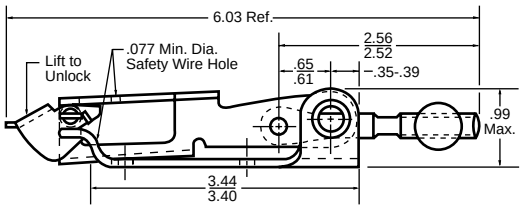
SHORT HANDLE, STEEL BASE, RIVET MOUNTING

4500 LBS. ULTIMATE STRENGTH
3000 LBS. WORKING STRENGTH



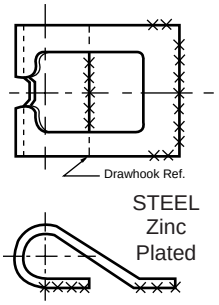






SPAENAUR No.	Material and Finish	Mounting	Wt./lbs.
096-641	Steel, Zinc DiChromate Finish	Weld or Rivet	.426

STRIKER



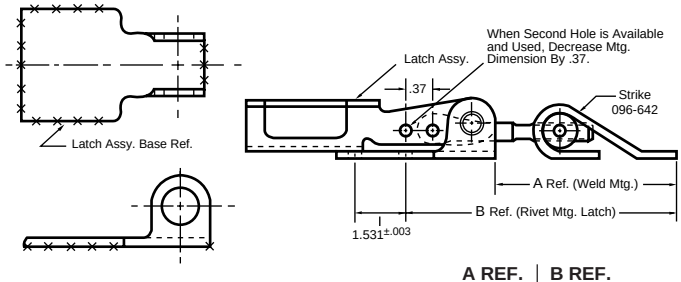
X INDICATES WELD SEAM

***SPAENAUR No.* 096-642**

Striker is used with 096-640 & -641. Must be ordered separately.

INSTALLATION DATA

WELD AS SHOWN (X)



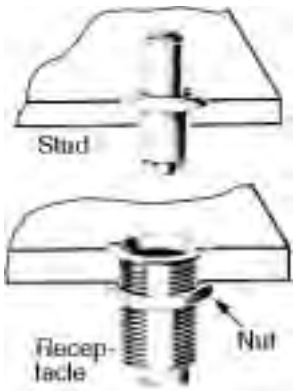
A REF.	B REF.
2.86	4.29

All Above Items Priced Singly.

Order Latch and Strike separately.

CATALOG 13

L



4-Part PUSH BUTTON FASTENER

A totally new kind of fastener that is as easy to install as it is to operate. One push of the button releases - one push locks. Single hole mounting cuts installation costs. No rivet holes, no riveting, no expensive tooling - for rapid production line installation. 300 lbs. ultimate tensile strength.

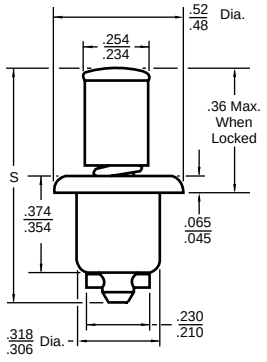
STUD INFORMATION

SPAENAUR No.	G = Grip Range	S ±.02	
110-001	.030-.089"	.91	G = Outer Panel P plus gaskets, paint, etc. + .015 (clearance)
110-003	.090-.149"	.97	
110-007	.210-.269"	1.09	
110-009	.270-.329"	1.15	
110-011	.330-.389"	1.21	
110-013	.390-.449"	1.27	
110-015	.450-.509"	1.33	
110-017	.510-.569"	1.39	

Finish: Bright Nickel Plate

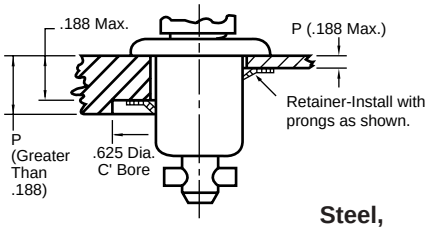
INSTALLATION DATA For STUD

Outer Panel: Drill .323 dia. hole. For panels thicker than .188, back counterbore to a remaining thickness of .188 max. Install stud and retainer as shown.



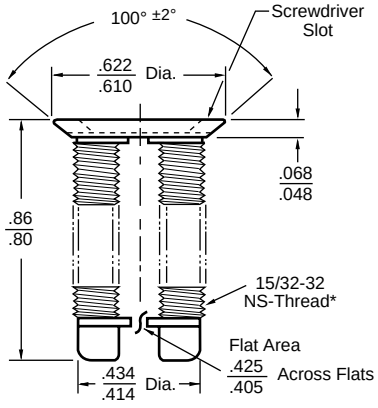
Be sure to order all four separate parts, i.e.:

1. Stud - from above table
2. Retainer - **#110-019**
3. Receptacle - **#110-018**
4. Nut - **#110-020**



Steel, Nickel Plated

L



RECEPTACLE - Zinc Alloy

RECEPTACLE

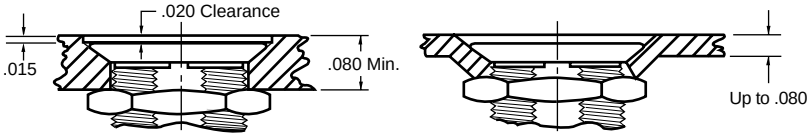
SPAENAUR No.	FINISH	WT. - LB./100
110-018	Cadmium Plated W/Clear Chromate	.987

INSTALLATION DATA For RECEPTACLE

Inner Frame: For frames thicker than .080, drill .484 dia. (31/64 drill) hole and countersink 100° to .625" dia. x .015 deep.

For frames thinner than .081, drill .406 dia. (13/32 drill) hole, dimple 100° to .670 dia. with .484 dia. clearance hole.

Place receptacle in hole and secure with nut as shown.



RETAINING NUT

* Non-Standard Thread

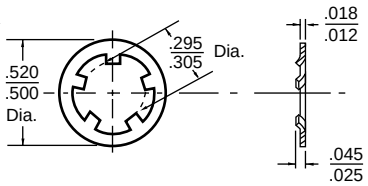
15/32"-32 NS-THREAD*

Width A.F. - 9/16"

Thickness - 3/32"

SPAENAUR No.	MATERIAL	FINISH	WT.-LB./100
110-020	Steel	Cad, Gold Chromate Pltd.	.13

RETAINER



SPAENAUR No.	FINISH	WT.-LB./100
110-019	Zinc Plated with Chromate Finish	.045

Stud, Retainer and Nut: Steel Receptacle: Zinc Alloy

SPECIFICATIONS: Vibration: Meets Spec. Mil-F-5591 with 25 lb. load. Endurance: Meets Spec. Mil-F-5591

Operable after 50 hours salt spray test.

All items this page are Unit Package 10 except 110-019 Retainer is Unit Package 100.

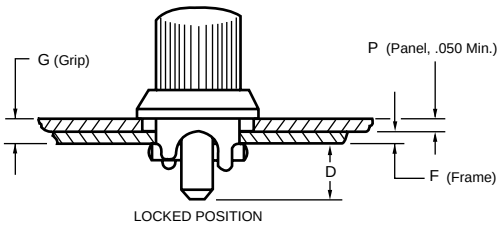
ONE PIECE QUARTER TURN FASTENER (Metallic)

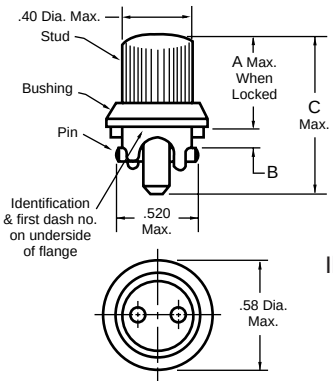
approx. 1-1/4 size

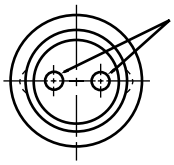
SPAENAUR No.	Grip Range	A Max.	B	C Max.	D Max.	Wt. lbs./100
110-021	.081-.130"	.540"	.073-.081"	.77"	.19"	1.56
110-022	.131-.180"	.540"	.123-.131"	.87"	.24"	1.68

Unit Package 10

MATERIAL:	Stud & Bushing Pin	Zinc Alloy High Carbon Steel
FINISH:	Stud & Bushing Pin	Zinc Plated with Clear Chromate Cadmium Plated

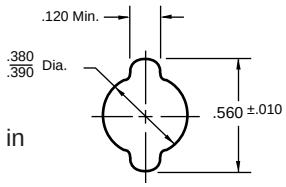




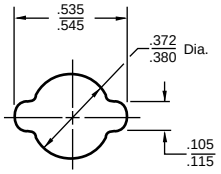


Common ç of dots coincides with the ç of the cross pin. This may be used as an indication of when the fastener is locked.

Illustration Dimensions in Inches.



FRAME MOUNTING HOLE
Preparation (See Note 2)



PANEL MOUNTING HOLE
Preparation (See Note 2)

1. To install fastener assembly into panel; insert fastener assembly into mounting hole with lugs fitting into lug hole. Press down and rotate stud 1/4 turn CCW. This installs the fastener captive to the outer panel. To fasten panel to frame; insert fastener assembly into frame mounting hole, press down and rotate 1/4 turn CW.
2. If close ç alignment is maintained the frame mounting hole preparation may be the same as the panel mounting hole, except that the common ç of the frame lug holes is located 90° from the common ç of the panel lug holes. If any mis-alignment condition is anticipated, the frame mounting hole should be as shown.

L

PLASTIC QUARTER TURN FASTENER

approx. size

SPAENAUR No.	Grip Range	Colour	Min. Panel Thk.
110-023	.081-.260"	White	.050"
110-024	.081-.260"	Black	.050"

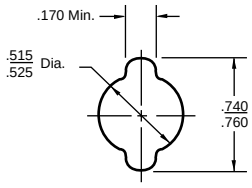
Illustration Dimensions in Inches.

Material: Acetal-copolymer

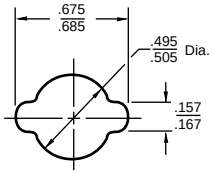
Unit Package 10

FEATURES

1. ONE SIZE COVERS ENTIRE GRIP RANGE OF .081" THRU .260".
2. ONE PIECE FASTENER (NO SEPARATE RECEPTACLE NEEDED).
3. ACCOMMODATES "BLIND-HOLE" INSTALLATION.
4. FINGER INSTALLED IN SECONDS (NO TOOLS REQUIRED).



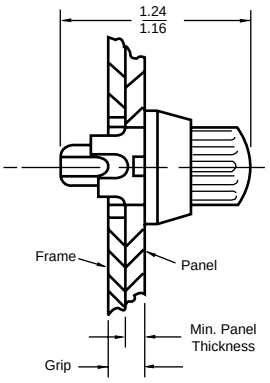
FRAME MOUNTING HOLE
Preparation (See Note 2)



PANEL MOUNTING HOLE
Preparation (See Note 2)

INSTALLATION DATA

1. To install fastener assembly into panel; insert fastener assembly into mounting hole with lugs fitting into lug hole. Press down and rotate stud 1/4 turn CCW. This installs the fastener captive to the outer panel. To fasten panel to frame; insert fastener assembly into frame mounting hole, press down and rotate 1/4 turn CW.
2. If close ç alignment is maintained the frame mounting hole preparation may be the same as the panel mounting hole, except that the common ç of the frame lug holes is located 90° from the common ç of the panel lug holes. If any mis-alignment condition is anticipated, the frame mounting hole should be as shown.

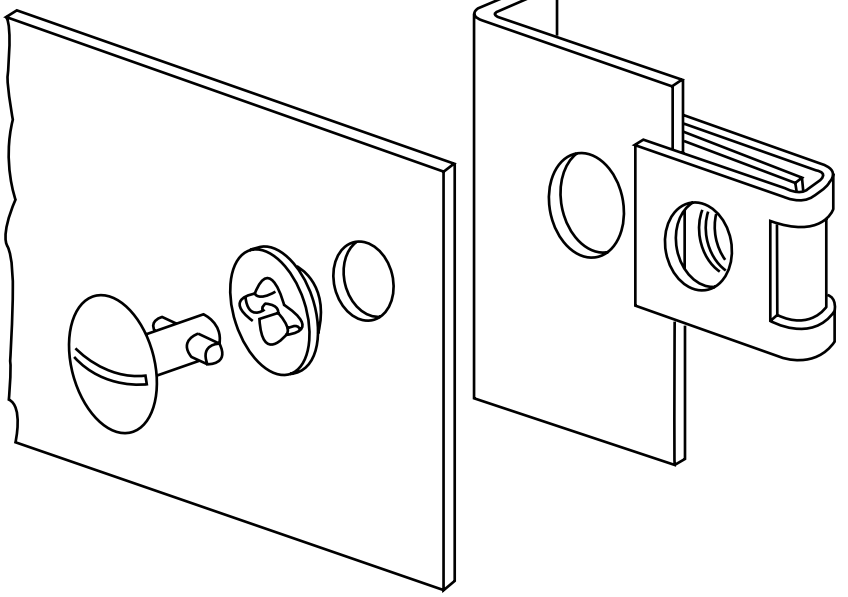


See table for grip and minimum panel thickness

Eliminate Hang-ups with this Compact "50F" Clip-on Quarter Turn Assembly

- **EASY TO INSTALL**
- **LOW PROFILE**
- **SAVE ON INSTALLATION COSTS**
- **EASY TO REMOVE**
- **NO SPECIAL TOOLS**

STEEL
with Zinc Plated
Gold Chromate Finish



See Page L37

3 Styles
- Slotted
- Wing
- Offset wing

STUD

STUD RETAINER
5 Sizes - See Below

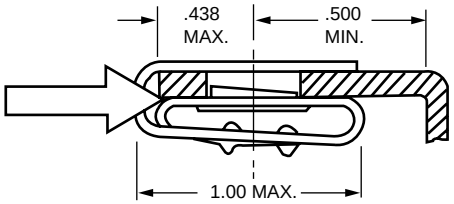
CLIP-ON RECEPTACLE
***SPAENAUR No.* 110-050**
Only one size needed
Unit Package 100

This new "50F" clip-on quarter-turn receptacle eliminates annoying stud hang-up when you open your panel. There's no interference from protruding edges in the housing. The stud meets only rounded metal as you twist it out. This gives you the smooth operation you can really appreciate.

The receptacle is easy and economical to install. You simply slide it on over your prepunched hole. Install the stud and retainer in your panel (all it takes is a push of your thumb) and you're ready. It's easy to remove the clip-on receptacle too. Just pry it off with a screwdriver.

The 50F 1/4 Turn Receptacle is the most compact clip-on fastener you can buy and its low profile takes up less space in those tight places.

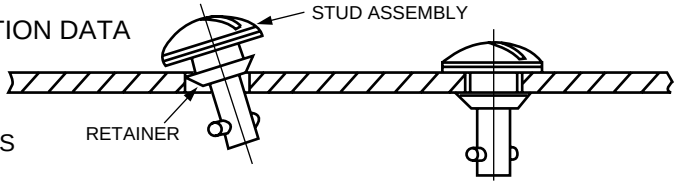
* Patent Pending



Pry or lift apart as shown by arrow to disengage retaining lip from hole and slide off.

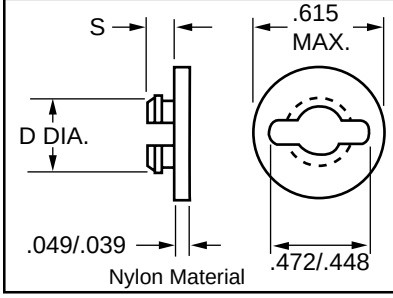
INSTALLATION DATA

DIMENSIONS
IN INCHES



INSTALLING STUD ASSEMBLY

1. Insert Stud thru Retainer then thru Panel.
2. Tap Stud with Hammer to Seat Retainer in Panel.



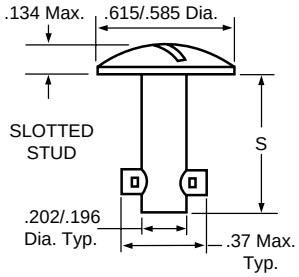
Unit Package 100

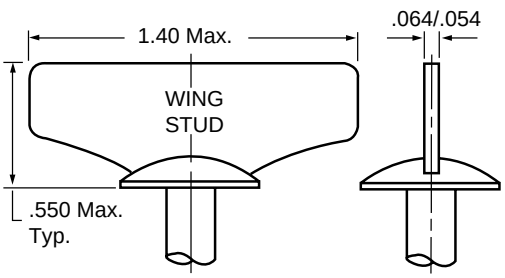
STUD RETAINER SELECTION

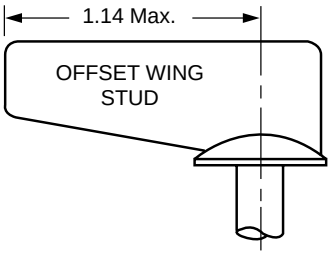
Retainer *SPAENAUR No.*	D Max.	S Max.	P Panel Max.	Panel + Frame P + F Min.	Installation Mounting Hole Dia.
110-051	.348"	.140"	.062"	.032"	.315-.320"
110-052	.390"	.202"	.112"	.094"	.357-.362"
110-053		.252"	.162"	.144"	
110-054		.302"	.212"	.194"	
110-055		.352"	.262"	.244"	

CATALOG 13

STUD HEAD STYLE VARIATIONS



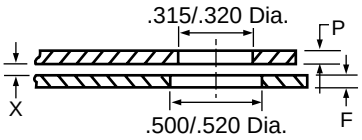




Total Grip "G"	S ±.010	Order by *SPAENAUR No.* Listed Below SLOTTED Stud	WING Stud	OFFSET WING Stud	MATERIAL and FINISH
.020-.043"	.567"	**110-060**	**110-070**	**110-080**	**STEEL** with Zinc Plated Clear Chromate Dip Finish
.044-.066"	.591"	**110-061**	**110-071**	**110-081**	
.067-.090"	.614"	**110-062**	**110-072**	**110-082**	
.091-.114"	.638"	**110-063**	**110-073**	**110-083**	
.115-.137"	.661"	**110-064**	**110-074**	**—**	
.138-.161"	.685"	**110-065**	**110-075**	**110-085**	*All items Unit Package 10.*
.162-.185"	.709"	**110-066**	**110-076**	**110-086**	
.186-.208"	.732"	**110-067**	**110-077**	**110-087**	
.209-.232"	.756"	**110-068**	**110-078**	**110-088**	
.233-.256"	.779"	**110-069**	**110-079**	**110-089**	

To select proper stud length, determine which example below represents your panel arrangement and use formula indicated. Select correct stud from *SPAENAUR No.'s* listed above.

GENERAL INFORMATION

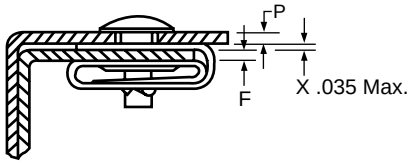


FRAME (F) THICKNESS RANGE:
.062" TO .188" RECOMMENDED
.032" TO .219" EXTREME

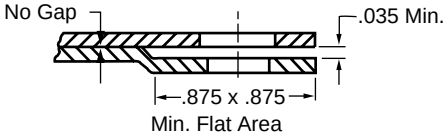
X = .035"

When "X"* (gap between outer panel and frame) is .035" or less, total material thickness (grip of stud), G, equals:

G = P + F



DIMPLED OR RECESSED FRAME

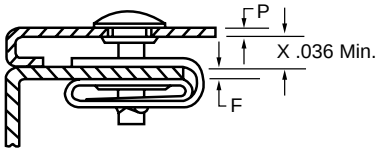


IF NO GAP IS DESIRED a dimpled recess of .875 long x .875 wide x .035 min. depth, can be provided for receptacle as part of the hole punching operation.

X = .036" OR GREATER

When "X"* (gap between outer panel and frame) is .036" or greater, total material thickness (grip of stud) equals:

G = P + F + X - .035"



DIMPLED OR RECESSED FRAME

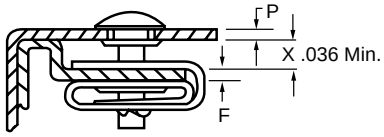


Illustration Dimensions in Inches.

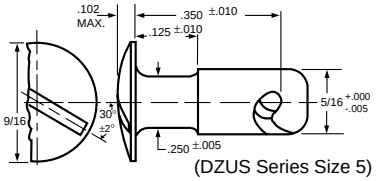
*"X" = Space between outer panel and frame at ç of fastener with door closed before fastener is installed. After installation, panel and frame will be separated by a minimum of .035" (.035" thick receptacle leg.) If no gap is desired frame must be dimpled as noted.

DZUS Quarter Turn Fastener

Slotted Truss Head Stud

***SPAENAUR No.* 110-156**

Steel, Bright Zinc Plated



(DZUS Series Size 5)

DZUS #AJ5-35 *Unit Package 10.*

Slip-On Type SL5 Receptacle

Steel, Zinc Plated

***SPAENAUR No.* 110-158**

For 110-156

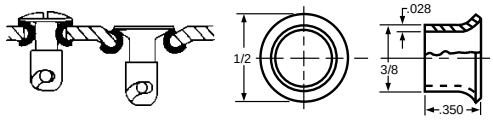
Unit Package 10.

For support panel thicknesses: .036/.128".
Other panel ranges available.
Call for Quotation and Min. Quantities.

Full Grommet - Aluminum

DZUS Type GA5-350

***SPAENAUR No.* 110-157**



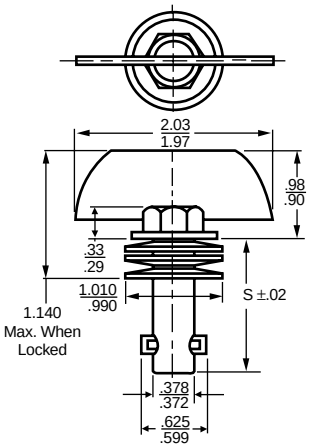
Unit Package 10. For Panel .063/.094"

Prevent panel hole wear, protect panel finish, reduce stud play.

L

CATALOG 13

Stud Assembly with **WING HEAD**



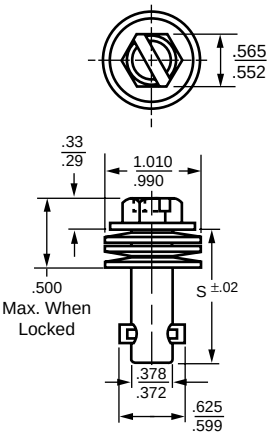
APPROX. HALF SIZE

110-091 SERIES Bigger—Stronger Quarter Turns

Wing Head *SPAENAUR No.*	Unit Pkg.	Total Range Thickness "G"	S ±.02"	Slotted Hex. Head *SPAENAUR No.*	Unit Pkg.
110-091	10	.035-.064"	.67"	**110-115**	10
110-092	10	.065-.094"	.70"	**110-116**	10
110-093	10	.095-.124"	.73"	**110-117**	10
110-094	10	.125-.154"	.76"	**110-118**	10
110-095	10	.155-.184"	.79"	**110-119**	10
110-096	10	.185-.214"	.82"	**110-120**	10
110-097	10	.215-.244"	.85"	**110-121**	10
–	–	.245-.274"	.88"	**110-122**	10
110-099	10	.275-.304"	.91"	**110-123**	10
110-100	10	.305-.334"	.94"	**110-124**	10
110-101	10	.335-.364"	.97"	**–**	–
110-103	10	.395-.424"	1.03"	**110-127**	10
110-104	10	.425-.454"	1.06"	**110-128**	10
110-105	10	.455-.484"	1.09"	**110-129**	10
110-106	10	.485-.514"	1.12"	**110-130**	10
110-107	10	.515-.544"	1.15"	**110-131**	10
110-108	10	.545-.574"	1.18"	**110-132**	10
110-109	10	.575-.604"	1.21"	**110-133**	10
110-110	10	.605-.634"	1.24"	**110-134**	10
110-111	5	.635-.664"	1.27"	**110-135**	5
110-112	5	.665-.694"	1.30"	**110-136**	5
110-113	5	.695-.724"	1.33"	**110-137**	5
–	–	.725-.754"	1.36"	**110-138**	5

Illustration Dimensions in Inches.

Stud Assembly with **SLOTTED HEXAGON HEAD**



APPROX. HALF SIZE

Note:
Longer studs available.

Material: STEEL
Finish: Zinc Plated & gold irridite
Temperature Range: to 232°C (450°F)

1800 lbs. ultimate shear & tensile strength.
1200 lbs. rated shear & tensile strength.

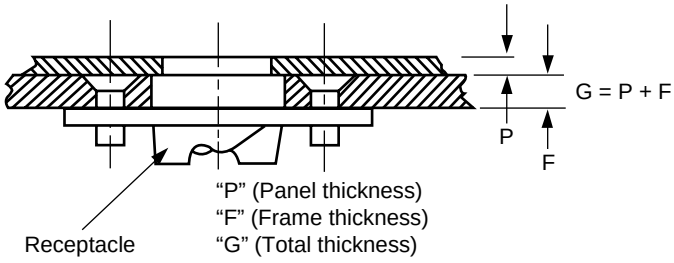
approx. 3/4 size

110-091 Series

A rugged heavy duty quarter turn designed for those tough applications like farm and construction equipment, material handling equipment and more. Slotted, Wing, and Offset Wing head styles available. Higher clamping force with 1800 lbs. ultimate shear and tensile strength.

GENERAL INFORMATION

TOTAL MATERIAL THICKNESS, "G" is comprised of the thickness of ALL materials to be fastened. This must include the thickness of the material, "P" to which the stud assembly is attached; the material, "F", to which the receptacle is attached PLUS gaskets (if used) and allowance for paint or other protective finishes.



NOTE: Hole preparations are simple and provide 3/32" float in all directions to permit wide tolerances between outer panel and inner frame.

L

CATALOG 13

110-091 Series - Continued

Illustration Dimensions in Inches.

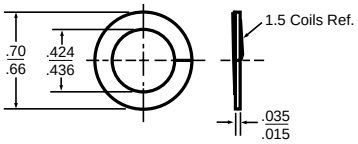
NOTE: Three parts are required for a complete assembly, i.e.:

1. **STUD (selected from page L38)**
2. **RETAINING WASHER (110-139 — left, below)**
3. **RECEPTACLE (see below)**

RETAINING WASHER

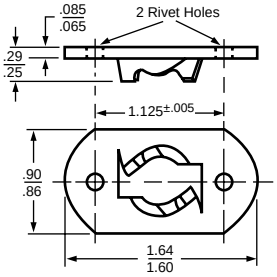
SPAENAUR No.
110-139

Unit Package 10

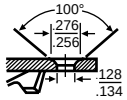


Material: STAINLESS STEEL
Temperature Range: to 288° C.

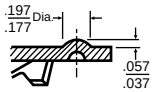
RECEPTACLES



PLAIN RIVET



COUNTERSUNK RIVET



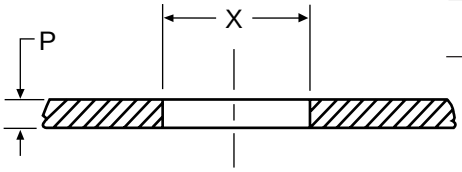
SPOTWELDING NIBS

SPAENAUR No.	Material	Temp.	Rivet Hole	Style	Unit Pkg.
110-140	Steel	232°C	.128-.134"	PLAIN RIVET	10
110-141	Steel	232°C	.159-.165"		10
110-142	Steel	232°C		COUNTERSUNK RIVET	10
110-143	Steel	232°C		SPOTWELDING NIBS	10

Receptacle Finish: Zinc plating, with gold irridite finish.

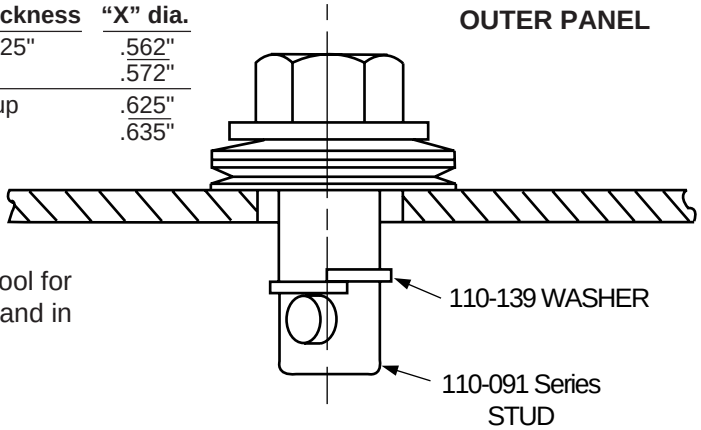
L

INSTALLATION DATA



"P" panel thickness	"X" dia.
.001" to .125"	.562" / .572"
.126" & up	.625" / .635"

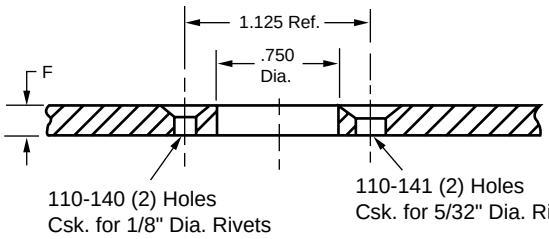
OUTER PANEL



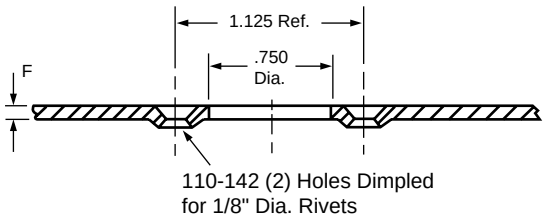
On custom installations, a hole-saw is the optimum tool for cutting the required circular holes in the outer panel and in the inner frame.

INNER FRAME

PLAIN Rivet Holes



DIMPLED Rivet Holes



Versatile, Low - Cost, for Sheet Metal Applications

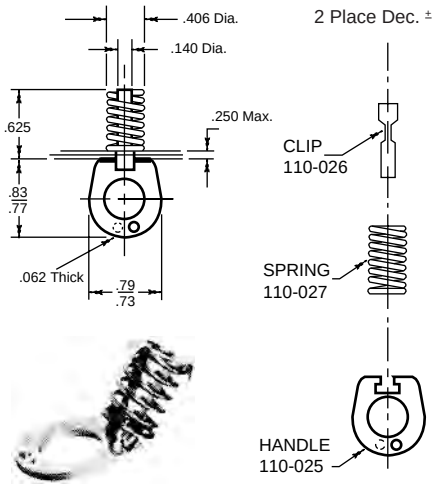
LIGHT DUTY STYLE

With Folding Handle

Available as separate parts or assembled.

SPAENAUR No.	Description
110-025	Handle
110-026	Clip
110-027	Spring
110-028	Assembled, complete (Handle, Clip & Spring)

Components: STEEL
Finish: Cadmium Chromate
Unit Package 100



All Dimensions in Inches.

MEDIUM DUTY STYLE

With Folding Handle

Available unassembled only.

SPAENAUR No.	Description
110-029	Handle
110-030	Clip
110-031	Spring

Components: STEEL
Finish: Cadmium Chromate
Unit Package 100

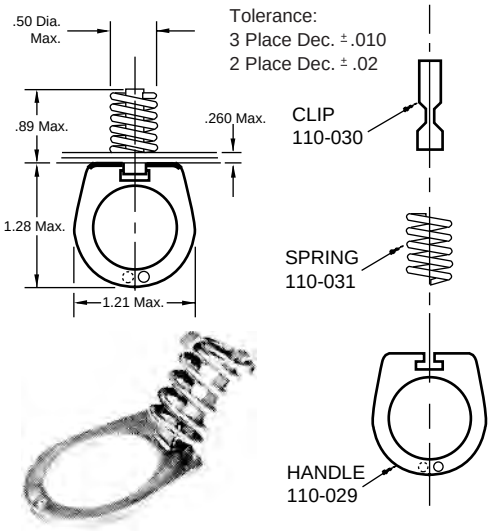


Figure A

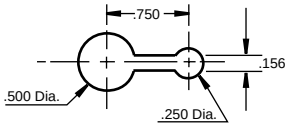


Figure B

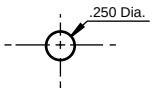
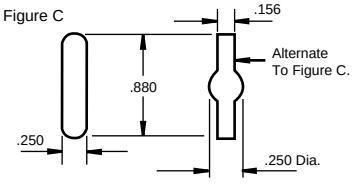


Figure C



INNER PANEL (BRACKET OR FRAME) PREPARATION
FOR ASSEMBLED FASTENER: (Figure A)
TO INSTALL:

1. Pass assembled fastener thru .500 dia. hole until base of handle is flush with surface of panel.
2. Pull handle & move fastener laterally thru .156 wide slot to .250 dia. hole.

INNER PANEL (BRACKET OR FRAME) PREPARATION
FOR UNASSEMBLED FASTENER: (Figure B)
TO INSTALL: (No's. 110-025, -026 & -027)

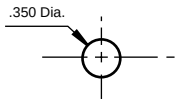
1. Insert clip into spring.
2. Compress spring & pass clip into .250 dia hole.
3. Compress spring to solid height & install handle to clip at narrow portion of clip.

OUTER PANEL PREPARATION: (Figure C)
TO FASTEN:

1. When attaching outer panel to inner panel, handle will pass thru outer panel in vertical position.
2. Pull Handle & rotate 90° to secure to outer panel.

INNER PANEL (BRACKET OR FRAME) PREPARATION FOR UNASSEMBLED FASTENER: (Figure A)
TO INSTALL:
(Same as at left except for hole diameter of .350.)

Figure A



OUTER PANEL PREPARATION: (Figure B)
TO FASTEN:
(Same as at left.)

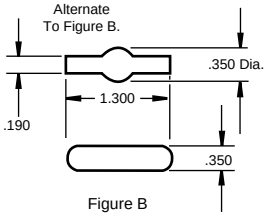
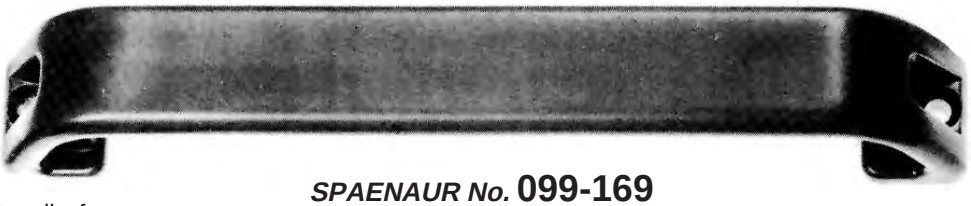


Figure B

L

CATALOG 13

Zinc Die Cast
Black Powder
Coat Finish



SPAENAUR No. 099-169

Priced Singly

An immensely strong handle for exterior use.

Fixing is by external screws, but holes are countersunk within recesses at each end.

Overall Length: 10"
Holes (c. to c.): 9.4"
Dia. of Holes: .258"
Height Under Grip: 1"
Section Dimensions: 1.3" width x 0.35" thickness
Weight 21.75 oz

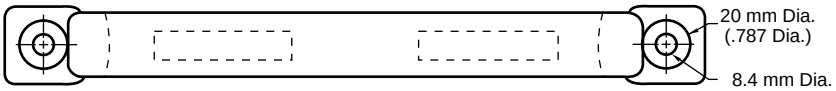
These durable stamped steel handles are covered with a heavy corrosion-resistant, black, polyurethane coating.

SPAENAUR No. 099-135 - with plugs

SPAENAUR No. 099-244 - with plugs (Mfr. #4303)

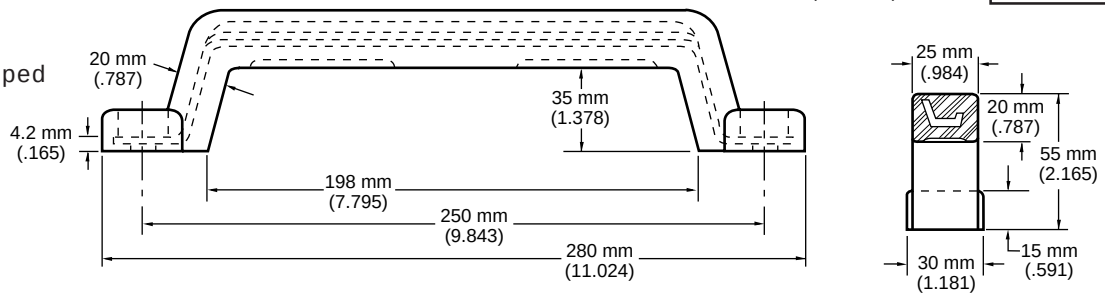
Priced Singly

Overall Length: 11"
Holes (C to C): 9-3/4"



Dimensions: mm (Inch)

Durable stamped steel handle.

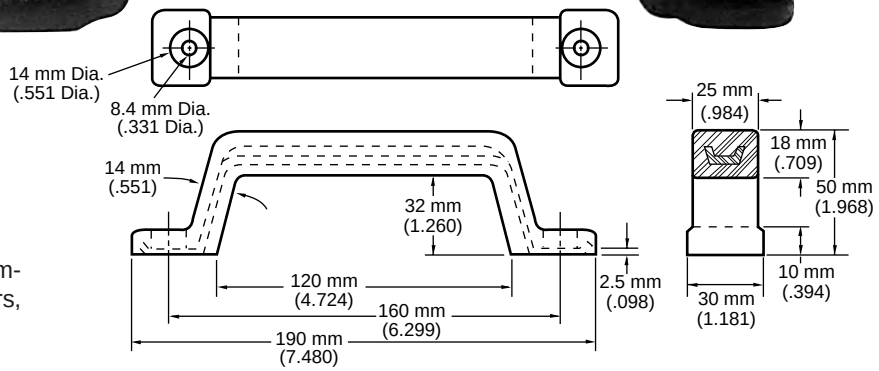


Attractive Textured Plugs are included to conceal fixing holes.

SPAENAUR No. 099-134

Priced Singly

Overall Length: 7-1/2"
Holes (C to C): 6-5/16"



Ideal for roll-up doors, engine housings, compartments, compressors, refrigerators, etc.

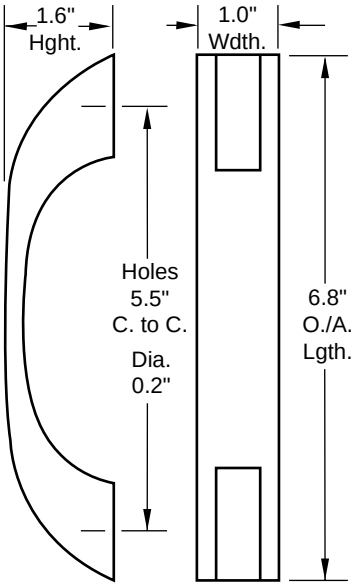
L

CATALOG 13

Concealed Fix Grab Handles –

moulded, in polypropylene with textured finish and integral "snap-shut" panels to conceal fixing holes.

SPAENAUR No.	Colour
099-130	White
099-170	Black
099-127	Red



Note: Under proof test conditions, these handles withstood loads of over 250 kg before serious deformation, across a temperature range of -50°C to +50°C.

Priced Singly

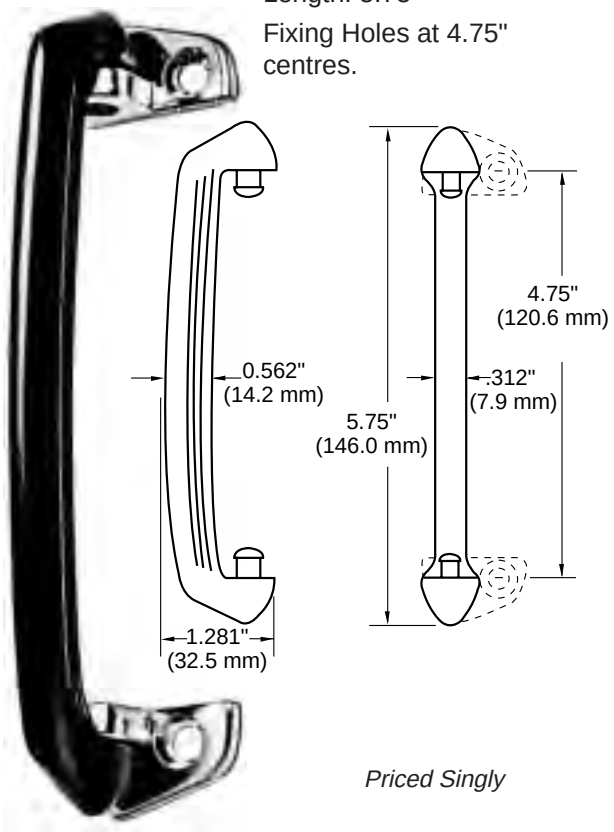
SPAENAUR No. 099-187

Swivel-type Grab Handle

Black ABS moulded handle on chromium plated diecast brackets.

Length: 5.75"

Fixing Holes at 4.75" centres.



Priced Singly

PULL HANDLES

SPAENAUR No.
099-167
STEEL - Plain Finish

SPAENAUR No.
099-168
STEEL - Nickel Plated

Overall Length: 4.688"
Overall Height: 1.406"
Depth Under Handle: 1.04"
Holes (C to C): 4.06"
Dia. of Holes: .213"
Unit Package 10

L

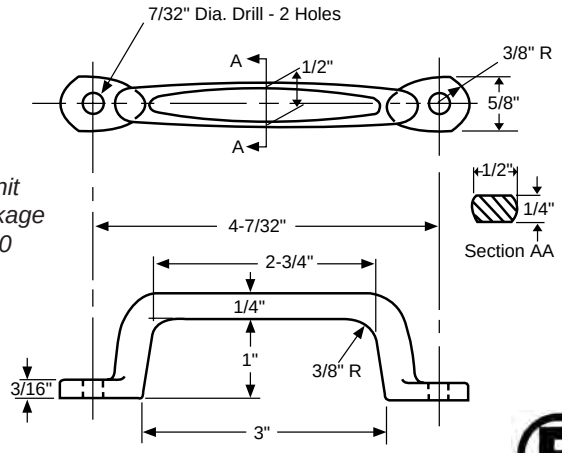
CATALOG 13

GRAB HANDLE

SPAENAUR No. **099-253**

Overall Length: 5" Holes (C to C): 4-7/32"

Formed Steel - Zinc Plated



Unit Package 10

(Weld On) No Holes.

(4) 13/64" dia. mounting

Formed Steel Handles

Overall Size: 1-1/2" x 5-3/4"

Weld On Type

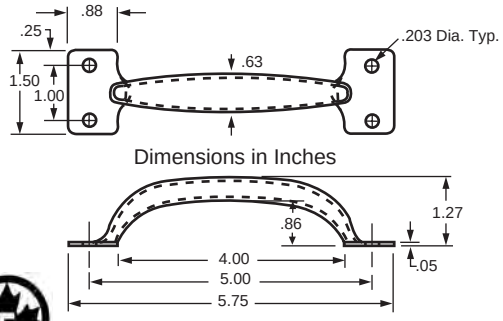
099-195 - Plain Finish

099-196 - Zinc Finish

Mounting Hole Type

099-204 - Plain Finish

099-205 - Zinc Finish



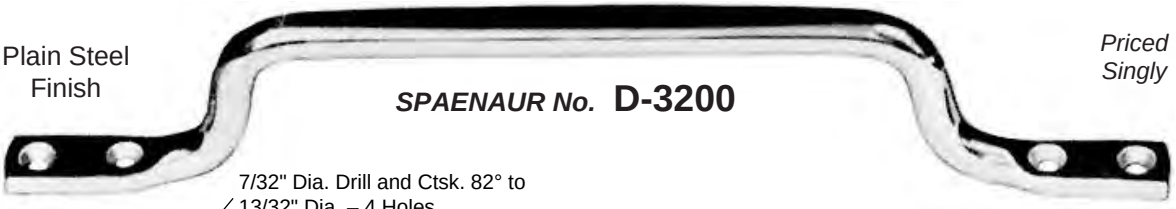
Dimensions in Inches

Priced Singly

Weight: .13 lbs.

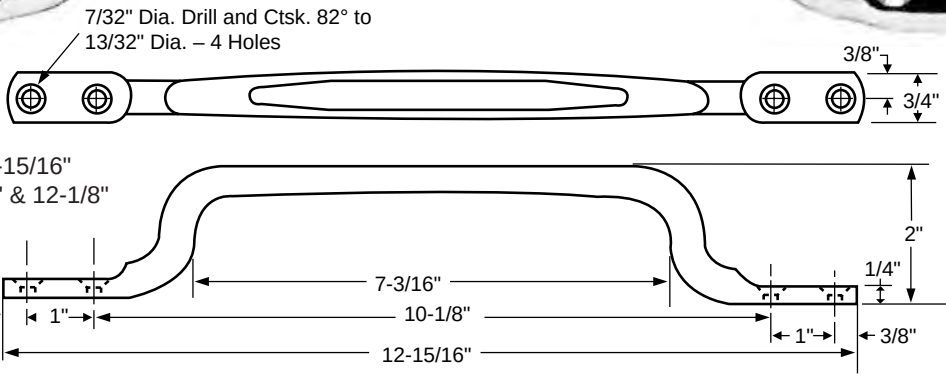
BODY GRAB HANDLE

Plain Steel Finish



SPAENAUR No. **D-3200**

Priced Singly



Overall Length: 12-15/16"
Holes (C to C): 10-1/8" & 12-1/8"

GRAB HANDLES

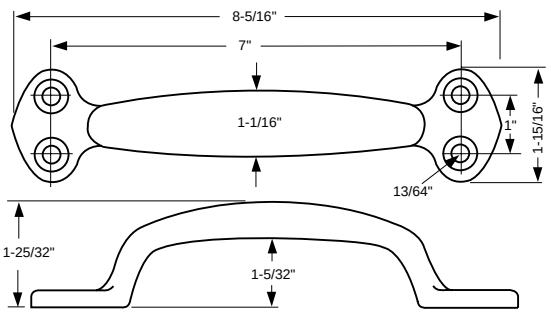
Overall Length: 8-5/16"
Holes (C to C): 7"

D-4032 - Steel, Chrome Finish

D-4032PS - Plain Steel

Priced Singly

A heavy-duty, ruggedly constructed handle for commercial, industrial and marine use. Generally used wherever heavy lifting or pulling are a necessity.



L

CATALOG 13

Diecast Handles

Two popular “traditional” handles supplied to a high standard of chromium plated finish.

SPAENAUR No.	**099-232**	**099-233**
Overall Length:	6-1/2" (165mm)	6-1/2" (165mm)
Fixing Centres:	5-1/2" (140mm)	5-1/2" (140mm)
Height (max):	1-13/16" (46mm)	1-1/4" (32mm)

Priced Singly

Diecast Handle

Exceptionally strong “C Type” design with uniform width section to avoid points of weakness. Hand polished for a high standard of chromium plated finish.

SPAENAUR No.	**099-234**	**099-235**
Overall Length:	6" (152mm)	10" (254mm)
Fixing Centres:	4-1/4" (107mm)	8" (203mm)
Height (max):	1-7/8" (48mm)	1-7/8" (48mm)

Priced Singly

Grab Rails

099-237
is polished Steel, chromium plated.

Useful grab rails 3/8" (9.5mm) dia. rod. Each rail is supplied with two M5 x 0.80 x 10mm fixing screws.

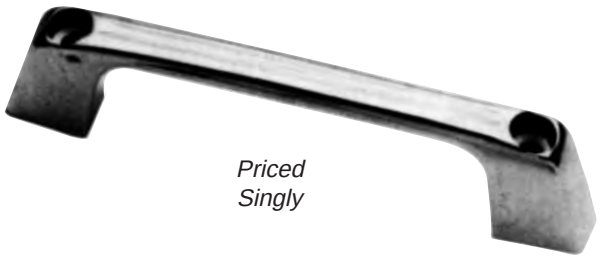
099-820 and 099-821
are Stainless Steel, polished.

SPAENAUR No.	**099-821**	**099-237 and 099-820**
Overall Length:	4-1/8" (104mm)	6-1/2" (165mm)
Fixing Centres:	3-25/32" (96mm)	6-1/4" (157mm)
Height (max):	1-31/32" (50mm)	1-31/32" (50mm)

Priced Singly

Open-fix Diecast Handles

A comparatively high-standing design, this handle has modern lines and no sharp projecting edges. Normal finish is bright chrome, but matt black is also very effective. Fixing is through deep-recessed holes in the top of the handle.



Priced Singly

SPAENAUR No. **099-116**
Open-fix handle, chromium plated finish

SPAENAUR No. **099-117**
Open-fix handle, matt black finish

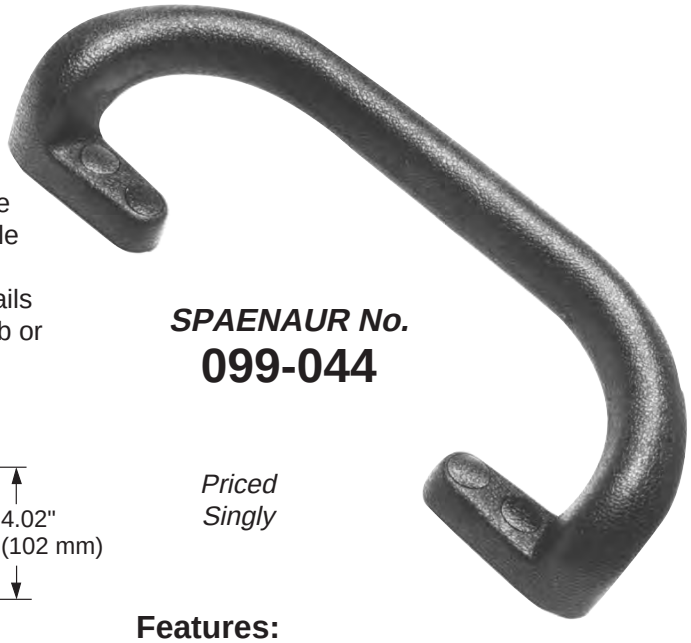
Overall length: 6.0"
Hole centres: 4.5"
Height under grip: 1.1"
Holes: 0.2" dia. within 0.4" recess

SPAENAUR

We're your complete source for all your fastener needs.

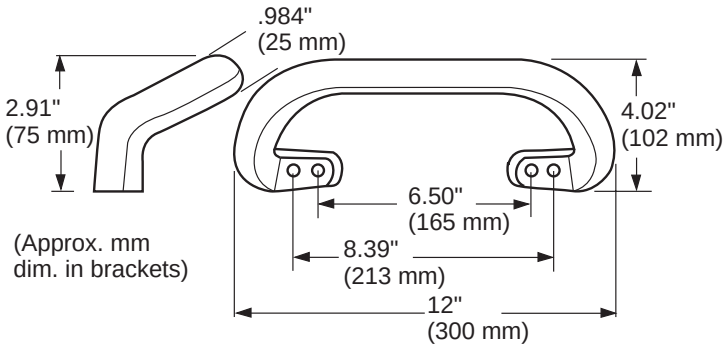
'Foamed' Steel-Cored Grab Rail

Moulded in expanded polyurethane foam, this handle has a soft, resilient surface and no sharp edges, while the steel core provides strength and rigidity. This modern design replaces traditional steel stanchion rails and ensures safety and comfort when used as a grab or entry assist rail.



SPAENAUR No.
099-044

Priced Singly



Plug diameter 15 mm accepting bolts to 12 mm head diameter x 7 mm shank.

Note: Rigid steel core means that handle cannot be 'flexed' to accomodate deviations in fixing holes.

Features:

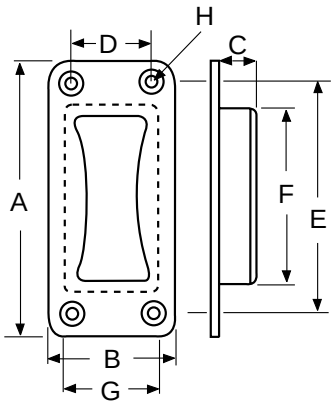
- Soft, padded surface. No sharp edges, for maximim safety. Triangular section for good grip. Mounting holes concealed by 'snap-in' plugs
- Attractive textured black finish. Other colours can be moulded subject to batch-quantity requirements.
- Fixing by bolting through four holes in steel core. Handle cannot be 'flexed'
- Moulded in expanded polyurethane foam around solid, 10 mm steel rod.

L

Moulded Recess Grab Handle

Attractive, flush design in glass-filled nylon material with black textured finish. Face plate is shaped to provide comfortable grip. Suits sliding doors, roller-shutters.

SPAENAUR No. **099-276**

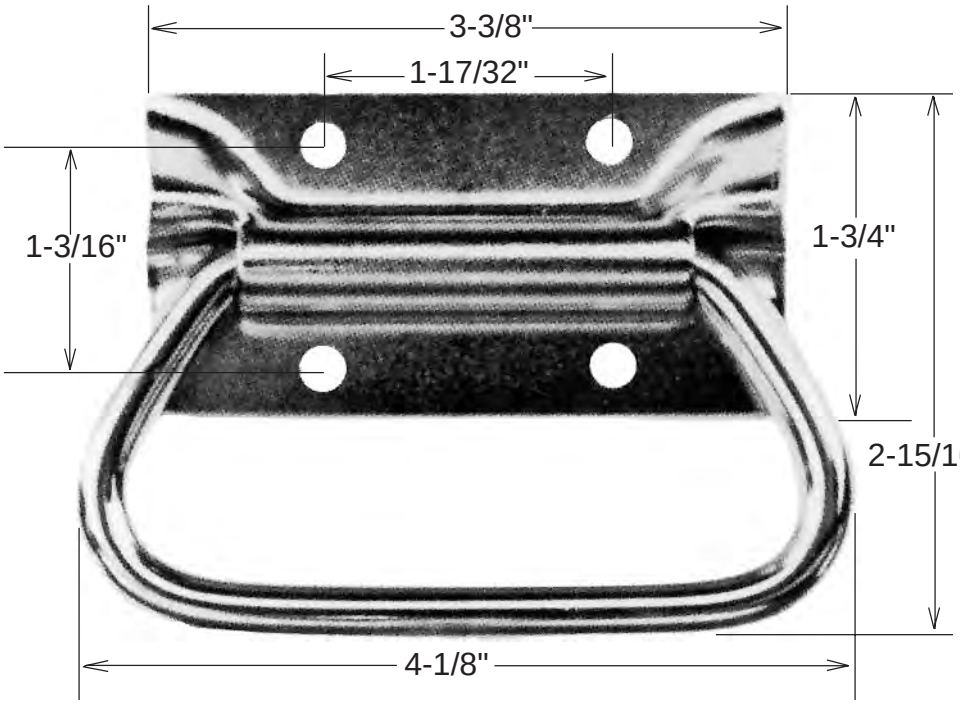


Dimensions
A. Length 5-15/64" (133 mm)
B. Width 2-23/64" (60 mm)
C. Depth 13/16" (21 mm)
D. Hole centres 1-39/64" (41 mm)
E. Hole centres 4-31/64" (114 mm)
F. Recess length 3-47/64" (95 mm)
G. Recess width 1-49/64" (45 mm)
H. Hole sizes 15/64" (6 mm) countersunk to 25/64" (10 mm)

Priced Singly

Specifications:
Moulded in glass-filled nylon with textured finished, cover & recess plate utlrasonically welded.

CATALOG 13



DROP HANDLES

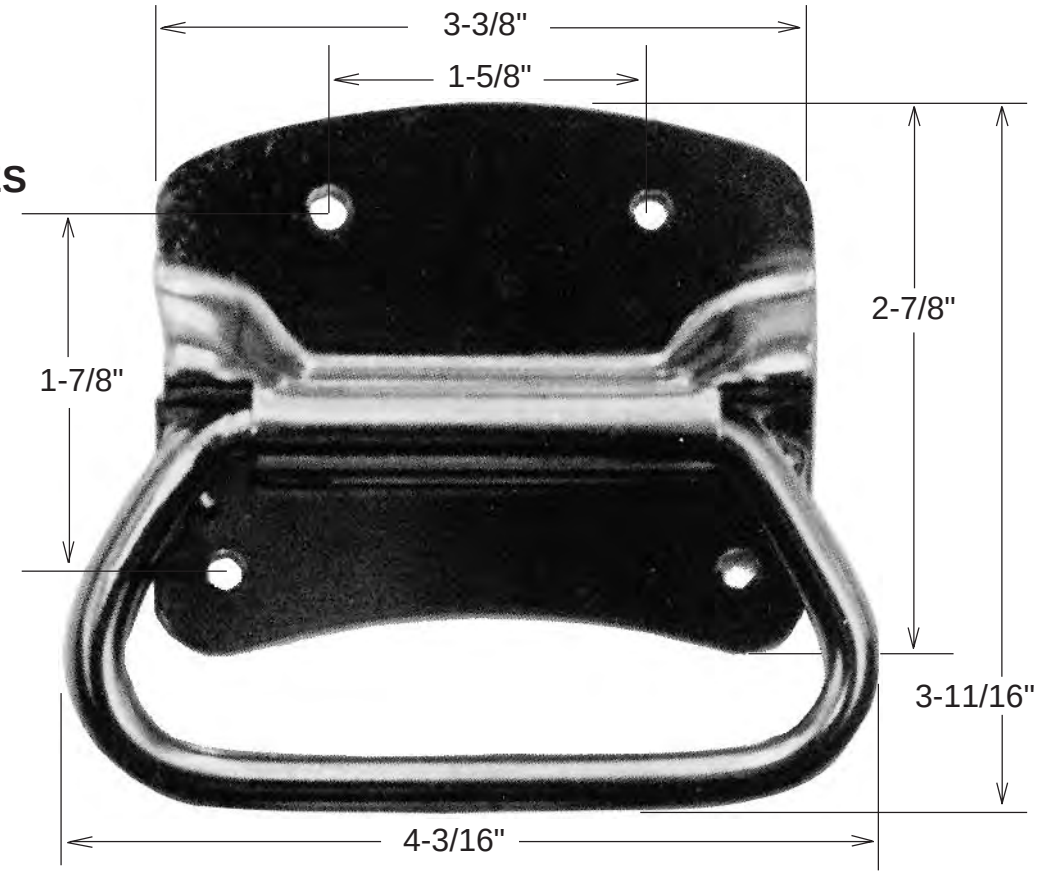
16 gauge steel base
5/16" dia. ring wire

099-139
Plain Finish
Weld-on Style
(no holes)

099-140
Zinc Plated
4 holes - 3/16" dia.
For screw or rivet
attachment
(illustrated)

**OPEN 90°
TO STOP.**

Handles on this page illustrated approximately full size.



DROP HANDLES

16 gauge steel base
5/16" dia. ring wire

099-141
Plain Finish
Weld-on Style
(no holes)

099-142
Nickel Plated
4 holes - .249" dia.
For screw or rivet
attachment
(illustrated)

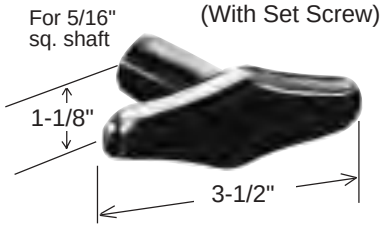
L

CATALOG 13

Unit Package Quantity 2
All handles this page.

096-264 "T" HANDLE

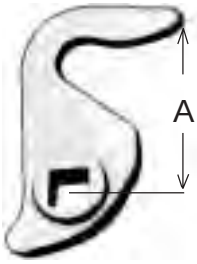
(With Set Screw)



Zinc Die Cast - Bright Chrome Plated

Use with any type of lock cam arrangement. *Priced Singly*

HOOKED BARS -for Latches



099-181
A=1.2" (30 mm)

099-182
A=1.375" (35 mm)

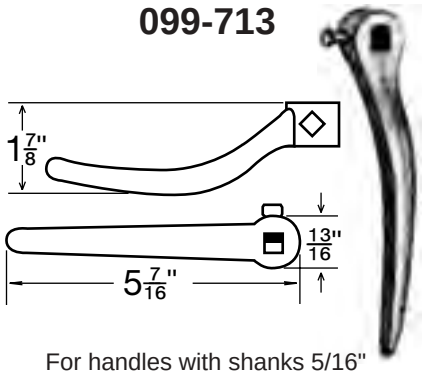
STEEL - Yellow Dichromate Finish

Supplied with 5/16" (8 mm) square hole, double-thickness units, welded together, with raised centre-boss, which acts as a useful bush for location on handle shafts.

Unit Package 10

INSIDE RELEASE HANDLE

099-713



For handles with shanks 5/16" (8 mm) square.

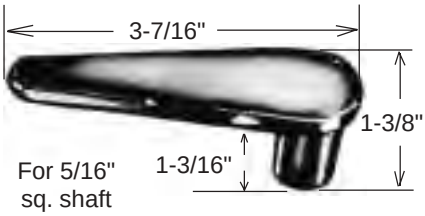
Material: Zinc Die-cast

Finish: Kasonized (Grey Enamelled)

Unit Package 10

INSIDE HANDLE

096-266 (With Set Screw)



Zinc Die Cast - Chrome Plated

Priced Singly

INSIDE HANDLE

An excellent general use item where an inside handle is required. Made of durable malleable iron.

D-4038

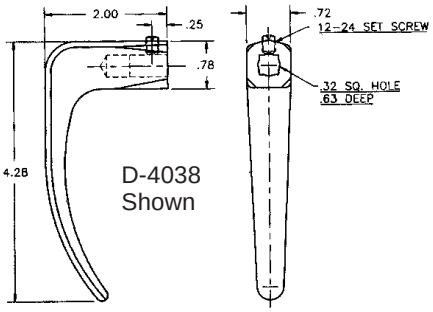
(Mfr. #1-5653A)

With Flush Set Screw

D-4038H

(Mfr. #3-5653-AU)

Same as D-4038 except with **1/8" hole and Groov-Pin** furnished loose.



Priced Singly

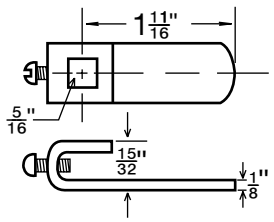
Weight: .25 lbs.
Finish: Plated

P.C. 099

ADJUSTABLE CAMS

Steel, Zinc Plated

096-333



Priced Singly

Screw Included

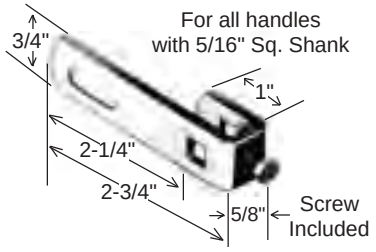
LOCKING CAMS (2 Sizes)

These diecast cams take 0.312" (8 mm) shafts and are secured by a fitted grub-screw. The cam form provides a simple and fast way of securing cabinet doors against a gasket.

Priced Singly

ADJUSTABLE SINGLE POINT LATCH

D-4024 (Mfr. #5559)



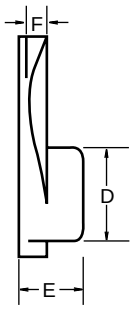
Priced Singly

P.C. 099

110-153

Large Cam

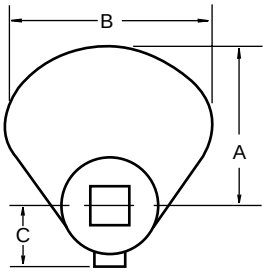
A. Length 2.5"
B. Width 1.6"
C. Location 0.45"
D. Boss width 0.75"
E. Boss height 0.625"
F. Cam movement 0.25"



110-152

Standard Cam

A. Length 1.25"
B. Width 1.6"
C. Location 0.45"
D. Boss width 0.75"
E. Boss height 0.5"
F. Cam movement 0.15"



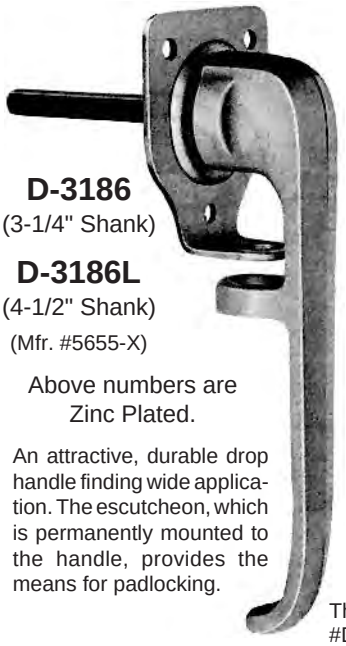
More Cams on pages L11 and L14.

PADLOCK TYPE DROP HANDLES

Malleable Drop Handle for Padlock

MEDIUM DUTY

Stamped Steel Drop Handle for Padlock

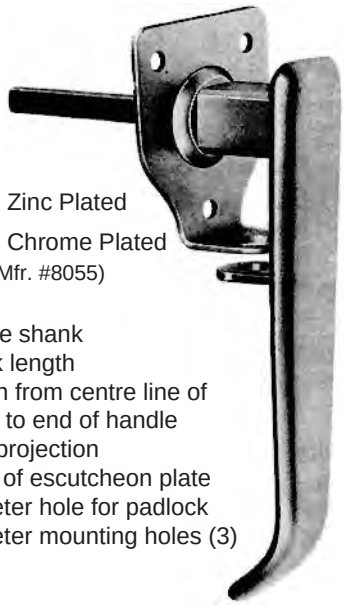


D-3186
(3-1/4" Shank)

D-3186L
(4-1/2" Shank)
(Mfr. #5655-X)

Above numbers are Zinc Plated.

An attractive, durable drop handle finding wide application. The escutcheon, which is permanently mounted to the handle, provides the means for padlocking.



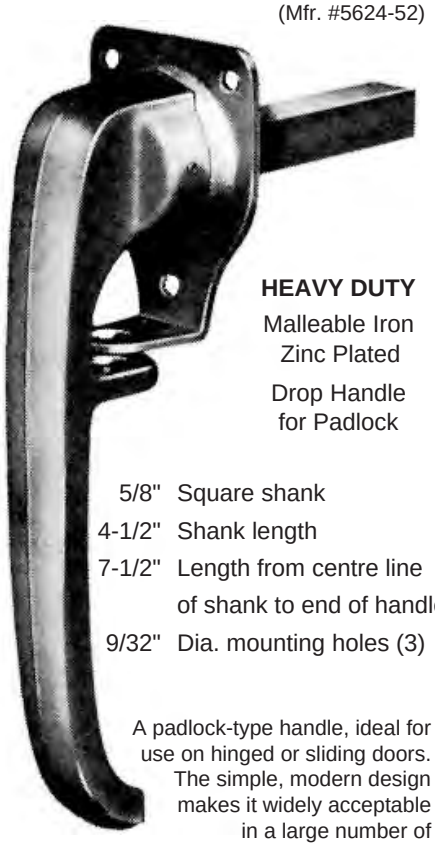
099-048 Zinc Plated
099-049 Chrome Plated
(Mfr. #8055)

5/16" Square shank
3-1/4" Shank length
6" Length from centre line of shank to end of handle
1-3/4" Total projection
2-1/4" Width of escutcheon plate
1/2" Diameter hole for padlock
7/32" Diameter mounting holes (3)

The above all-steel handles are similar to the #D-3186, except the stamped steel handle has simpler lines.

P.C. 099

D-3220
(Mfr. #5624-52)



HEAVY DUTY
Malleable Iron Zinc Plated
Drop Handle for Padlock

5/8" Square shank
4-1/2" Shank length
7-1/2" Length from centre line of shank to end of handle
9/32" Dia. mounting holes (3)

A padlock-type handle, ideal for use on hinged or sliding doors. The simple, modern design makes it widely acceptable in a large number of applications. The flush escutcheon plate is mounted to the door or panel face. The 5/8" square shank is permanently affixed to the malleable handle by a 1/4" diameter chrome-vanadium steel Groov-Pin.

P.C. 099

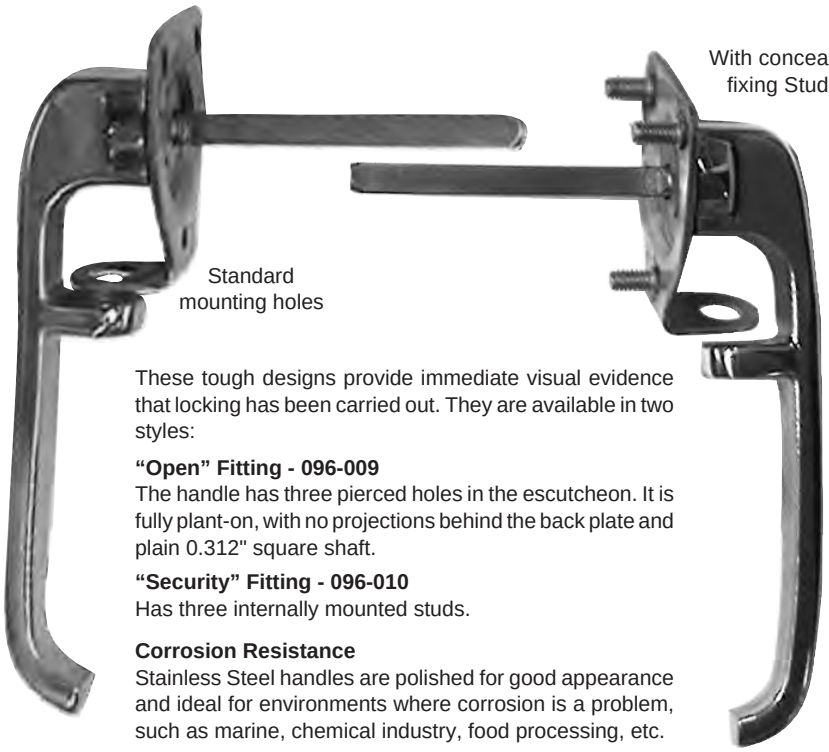
NEW CONCEPT! STAINLESS STEEL

Padlock Handles

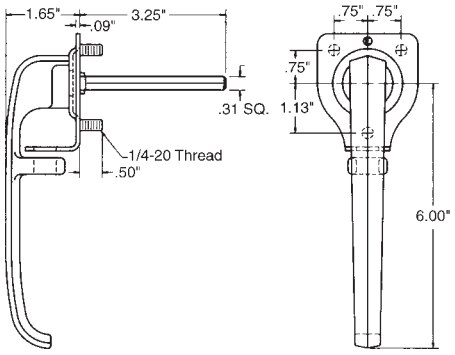
096-009

096-010

With concealed fixing Studs



Standard mounting holes



These tough designs provide immediate visual evidence that locking has been carried out. They are available in two styles:

"Open" Fitting - 096-009
The handle has three pierced holes in the escutcheon. It is fully plant-on, with no projections behind the back plate and plain 0.312" square shaft.

"Security" Fitting - 096-010
Has three internally mounted studs.

Corrosion Resistance
Stainless Steel handles are polished for good appearance and ideal for environments where corrosion is a problem, such as marine, chemical industry, food processing, etc.

L

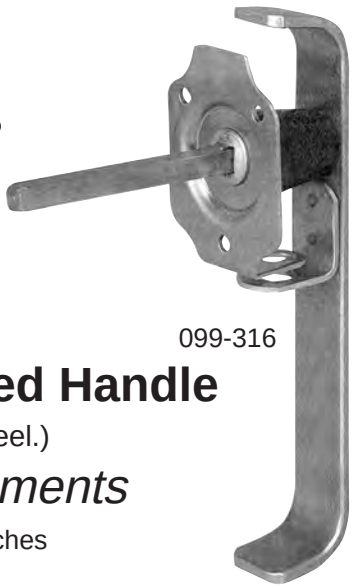
CATALOG 13

All handles on this page are Priced Singly.

099-315

8060 Series Padlockable Handles

Available in STEEL – Zinc Plated and 304 STAINLESS STEEL with Brushed Handle



099-316

(All non-rubber components are 304 stainless steel.)

Ideal for Tough Corrosive Environments

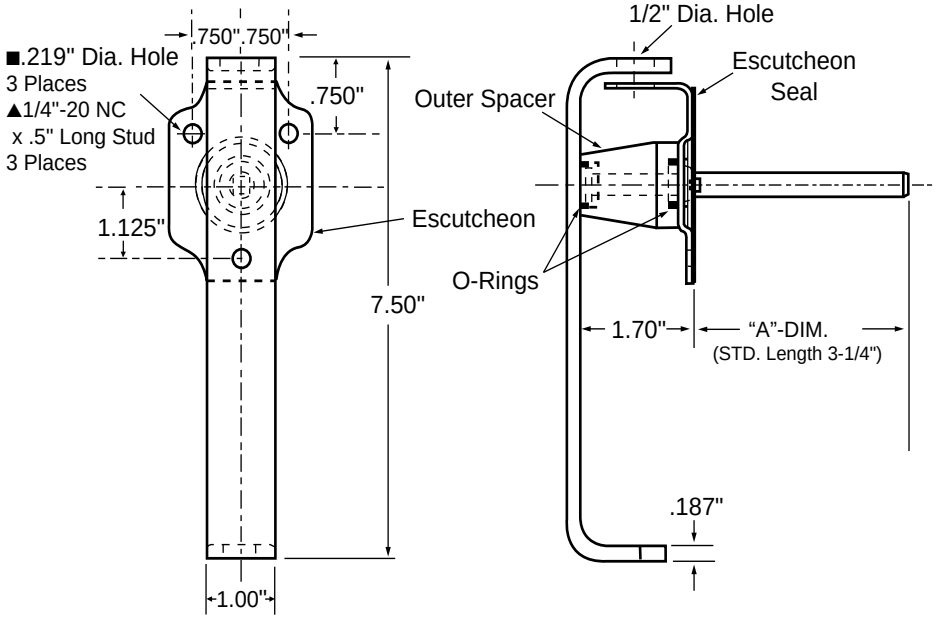
Padlockable Handle may be used with multi-point latches which utilize a 5/16" square drive mechanism.

***SPAENAUR* Numbers Listed Below**

STEEL Zinc Plated	304 STAINLESS STEEL	*Optional Escutcheon Seal Only	Mfr. #	Shank - "A" – DIM. 5/16" SQ. Standard	Shank - "A" – DIM. 3/8"-16 NC Threaded (on sq. shank)	MOUNTING Face■	MOUNTING Blind▲	PADLOCK EYE Above	PADLOCK EYE Below
099-312	**099-803**	**099-417**	45-8061	✓		✓		✓	
099-313	**099-804**	**099-417**	47-8061		✓	✓		✓	
099-314	**099-805**	**099-418**	55-8061	✓			✓	✓	
099-315	**099-806**	**099-418**	57-8061		✓		✓	✓	
099-316	**—**	**099-419**	45-8062	✓		✓			✓
099-317	**099-808**	**099-419**	47-8062		✓	✓			✓
099-318	**—**	**099-420**	55-8062	✓			✓		✓
099-319	**099-810**	**099-420**	57-8062		✓		✓		✓

All above items Priced Singly.

(Illustration below is Padlock Eye above handle.)



OUTER SPACER
Black Polypropylene

O-RINGS
Black Buna-N

ESCUTCHEON SEAL
(*Sold Separately.)
Black Buna Nitrile, .06" thick

L

CATALOG 13

SPAENAUR

Proudly serving you since 1936.
Thank you for your business.

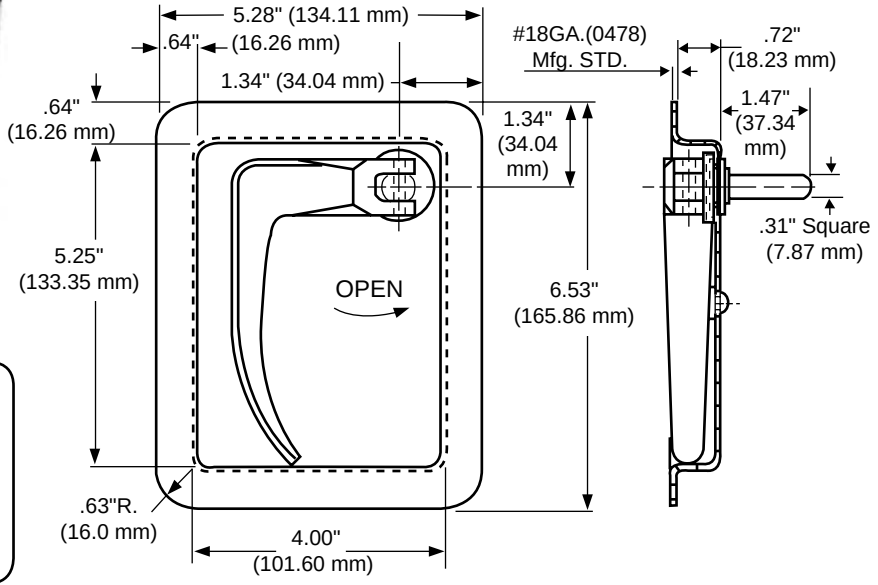
L

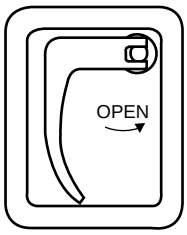
Tel: **1-800-265-8772** Fax: **519-744-0818**

Folding L-Handle Assembly

A sturdy handle assembly which incorporates a recessed centre pan in combination with a folding L-handle and a 5/16" square shank. The L-handle may be folded flat into the recessed pan to provide the lowest possible projection. The shank may be inserted into any multi-point centre mechanism which accepts such a shank.

Rubber pad in pan reduces vibration noise with handle folded.





099-057
Mfr. #15-5560
ZINC PLATED

*SLIDING DOOR LOCK

*WARNING: This Sliding Door Lock should NOT be used for personal restraint applications.

(Hold Door in Open or Closed Position)

D-3178 (Mfr. #5696)

Plain Finish

4-1/8"	length of lock
2"	width of lock
5/8"	thickness of case
5/16"	sq. hole for handle shank
.69 lbs.	weight each

D-3211 (Mfr. #5696½)

With thumb latch to lock door from inside.

Weight: .74 lbs. each

D-3180
(Mfr. #10-5690X)

Zinc Plated

Weight:
3 lbs. each

Inside Handle

Zinc Die Cast

Chrome Plated

Dimensions:

5-5/16"	length of case
2-1/2"	width of case
2-3/4"	end of hook bolt to c. of lock case
3/4"	thickness of lock case
5/16"	sq. hole for handle shank
4-3/4"	mounting hole centre dim. - length
2"	mounting hole centre dim. - width
17/64"	mounting hole dia. - 4 holes

This heavy duty sliding door lock has a firm spring action which latches the door securely, requires but a slight turn of the handle to release it and open the door. This ease of operation is due to the independent latches hinged from a shoulder pin in centre of lock case. The double latches permit the lock to be used for right or left hand doors as well as for the two-fold purpose of holding door in both open and closed positions. This mechanism permits locking the doors from the inside by merely pushing in the locking thumb latch. **However, this does not automatically unlock by turning the inside handle. To unlock, the thumb latch must be released manually.**

MAY BE USED IN PASSENGER RESTRAINT APPLICATIONS.

L

CATALOG 13

099-701
Locking Handle
(With Escutcheon)

099-707
Handle
w/o Cylinder Lock

Specifications:

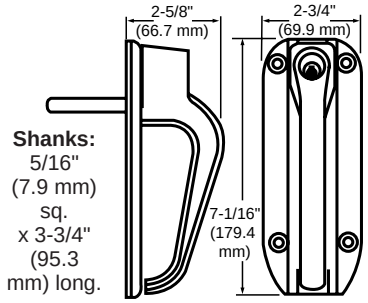
Material: Die-cast zinc handle and escutcheon plate, cylinders are brass.

Finish: Highly polished chromium plated.

Weight: 2 lbs. (.9 kg) per handle.

099-701 Keyed differently.
With Push-Button Cylinder.
Equipped with push-button cylinder lock; the cylinder-head emerges when the lock is keyed open. A finger-push, depressing the cylinder-head, is all that is needed to lock the latch.

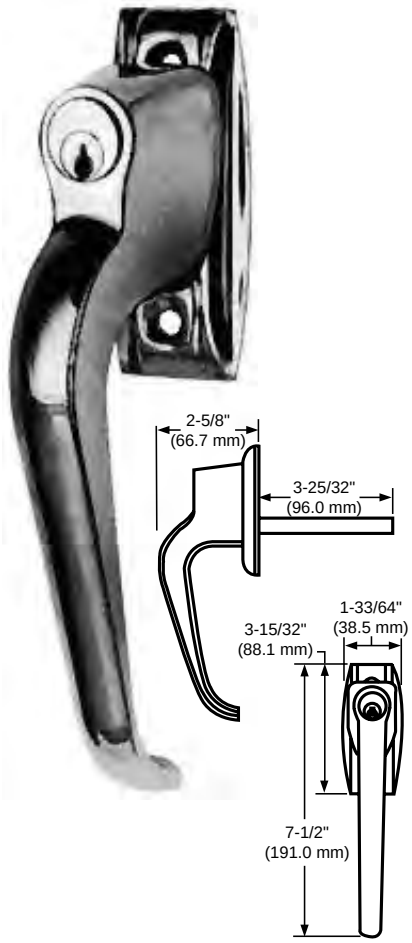
099-707
Handle Without Cylinder Lock.



Shanks:
5/16"
(7.9 mm)
sq.
x 3-3/4"
(95.3
mm) long.

Drilled and countersunk for 1/4" (6.0 mm) machine screws.

Handles For Use With Heavy Duty Latches



With Push-Button Cylinder
099-708 Keyed differently.

099-711 Handle
Same specifications as the #099-708, less locking cylinder.

Specifications

Material: Die-cast zinc handle, cylinder is brass.

Finish: Highly polished chromium plated.

Shanks: 5/16" sq. x 3-25/32". (8 mm) x (96.0 mm)

Weight: **099-708** 1-1/4 lbs. (.57 kg)
099-711 1-1/2 lbs. (.68 kg)

All items this page Priced Singly.

L

Compartment Latch
(Right Illustrated)

-with Spoon Handle

Mfr. #5669

For 5/16" square shank

Plain Steel	**D-3084**	Right
	D-3085	Left
Zinc Plated	**099-039**	Right
	099-042	Left
304 Stainless Steel, Plain Fin.	**099-801**	Right
	099-802	Left

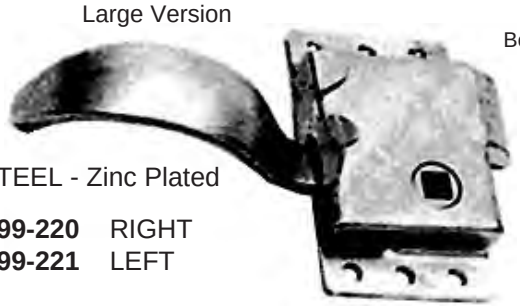
Dimensions:
3-3/8" length of case
2" width of case
5/8" thickness of case
3/4" edge of door to centre of sq. hole (5/16")
4-3/4" handle length from centre of sq. hole (5/16")
17/64" mounting hole diameter - 4 holes
17/64" x 1/2" mounting slot - 2 slots
Stainless Steel Spring
Durable Metal Bolt and Tumbler

WARNING
This product must not be used for personal restraint applications.

Shipping Weight .226 kg (1/2 lb.)

Compartment Latch
Mfr. # 56A

Large Version



Bolt extends approx. 1/2" from case.

STEEL - Zinc Plated

099-220 RIGHT
099-221 LEFT

For 5/16" square shank

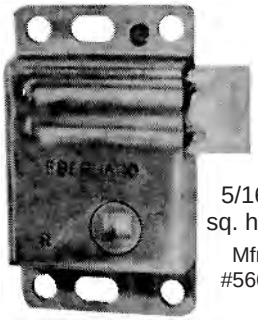
-with Spoon Handle and Inside Locking Feature

(Right Illustrated)

Dimensions:
4-3/8" length of case
2-3/8" width of case
11/16" thickness of case
3/4" edge of door to centre of sq. hole (5/16")
3-3/4" handle extends from case
1/4" mounting hole diameter - 4 holes
1 lb. weight (each)

WARNING
This product must not be used for personal restraint applications.

New Style Compartment Lock



5/16" sq. hole

Mfr. #5667

D-3198R RIGHT
D-3198L LEFT
(Right Illustrated)

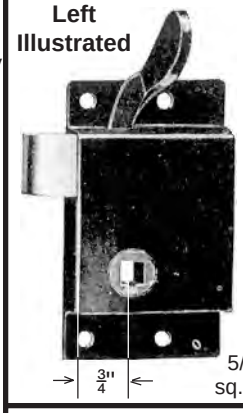
Especially designed for tool compartment on utility trucks and tank-truck lockers.

Dimensions:
3-3/8" length of case
2" width of case
5/8" thickness of case
3/4" edge of door to centre of sq. hole
5/16" square hole for handle
17/64" mounting hole diameter - 4 holes
17/64" x 1/2" mounting slot - 2 slots
6-3/4 oz. weight (each)
Stainless Steel Spring
Durable Metal Bolt and Tumbler

Finish - Plain Steel or Zinc Plated, our option.

Cab Lock

Left Illustrated



5/16" sq. hole

D-3215-L LEFT
D-3216-R RIGHT

Mfr. #57

CAB LOCK (left-hand), with inside handle. Compact, sturdy, simple. This lock is widely used for application to doors in limited space. Size: 2" wide, 3-3/8" long, 3/4" striker bolt. Can be applied to door frame 2" wide. No mortising or blocking. Die-formed bushing. Weight - 1/2 lbs.

Finish - Plain

099-279
Right hand
099-278
Left hand
(as shown)

5/16" sq. hole

Mfr. #5671

Steel Case Lock
-with Thumb Latch Handle

Zinc Plated

Dimensions:
3-3/8" length of case
2" width of case
5/8" thickness of case
3/4" edge of door to centre of sq. hole
5/16" square hole for handle
17/64" mounting hole diameter-4 holes
17/64" x 1/2" mounting slot - 2 slots
8 oz. weight (each)
Stainless Steel Spring
Fiber-Filled Nylon Bolt and Tumbler for self-lubrication and close fitting tolerance.

Carriage Keys

Shaped to suit the standard 5/16" square follow bush, these carriage keys are available in choice of three lengths.

Combined with suitable latches, these keys provide a cheap, simple way to secure compartments of every description.

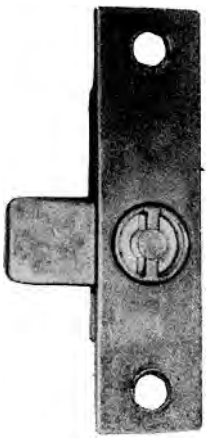
099-175 3.5" length
D-3228 3.7" length
099-176 5.0" length

Material - Malleable Iron

L

CATALOG 13

Priced Singly

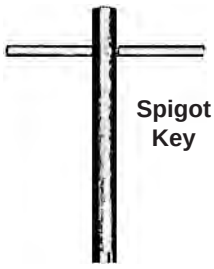


099-171
"Universal" Type
(All Steel)

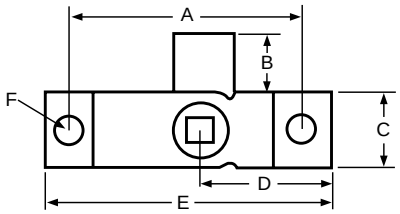
099-173
Nylon Tongue

099-172
"Security" Type

Used with carriage key or fitted handle, taking a standard 5/16" square shaft. A striker plate is available.



876-811



A. Hole centres 2.62"
B. Bolt height 0.7"
C. Width 0.87"
D. Location 1.5"
E. Length 3.25"
F. Hole size 0.25" dia.

"Universal" Latch - Not "handed", since bolt can rotate through 180° and turns completely through body of the latch.

Nylon Tongue - Identical to the "universal" latch, but with moulded nylon bolt.

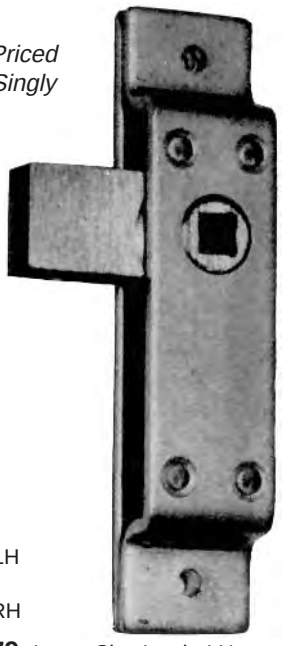
"Security" Latch - Incorporates a brass, stamped bolt into the "universal" latch steel case, to give a blind, dust-proof centre boss that requires a special "spigot" key to operate, thus giving much greater security than the normal square follow-bush.

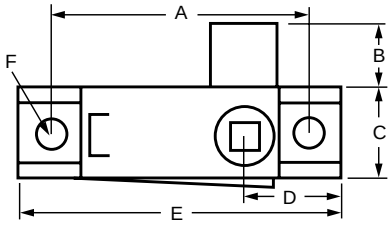
"Miniature" Latches, useful for confined spaces where limited bolt projection is sufficient.

Large-Size Latches, heavily constructed latch in 11 gauge (2.9 mm) steel, with forged brass bolt and secured with four pillar rivets.

Both styles accept 5/16" shank.

Priced Singly





"Miniature" Latch

A. Hole centres 2.1"
B. Bolt height 0.3"
C. Width 0.87"
D. Location 1.0"
E. Length 2.55"
F. Hole size 0.18" dia.

Large-Size Latches

A. Hole centres 4.25"
B. Bolt height 1.0"
C. Width 1.1"
D. Location 1.87"
E. Length 5.0"
F. Hole size 0.2"
G. Height 0.625"

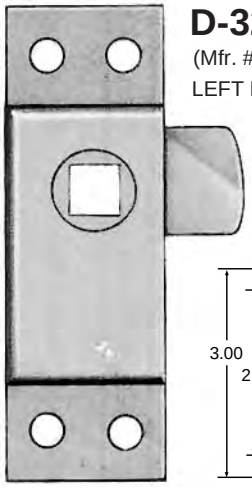
099-177
Miniature Latch, LH
099-178
Miniature Latch, RH

099-179 Large-Size Latch, LH
099-180 Large-Size Latch, RH

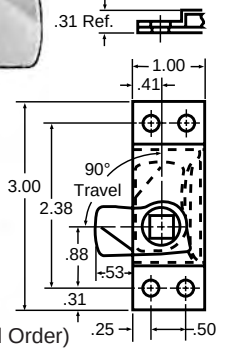
COMPARTMENT LOCK

D-3227
(Mfr. #5605)
LEFT HAND

Zinc Plated



Accepts 5/16" sq. shank.



(Right Hand - Special Order)

Use on small doors, access panels, motor compartments, oil can compartments, and tool boxes. Attached by screws or rivets.

Weight 2 oz. each *Priced Singly*

PADDLE LOCK SAFETY STRIKER

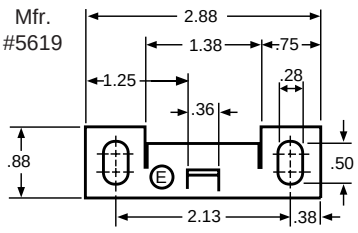
D-4050
Without slots
Finish - Zinc

Double Catch
STEEL
Unit Package 10

099-155
With slots
Finish - Zinc

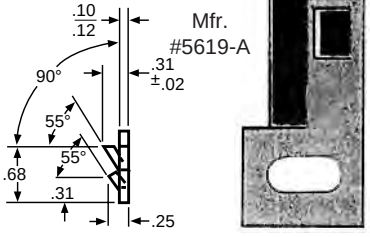
Has both a long primary catch and shorter secondary catch.

Mfr. #5619



Weight 1 oz. each

Mfr. #5619-A



Weight 1 oz. each

Mfr. #5620

099-156
Malleable Iron Strike

Dimensions

2-1/2" length of plate
3/4" width of plate
5/32" thickness of plate
15/16" width of catch
9/16" thickness of heel of catch

Weight 2 oz. each

Unit Package 10

L

CATALOG 13

SLEEK, CONTEMPORARY ... Eclipse® adds value to cabinets, consoles, panels, controls enclosures, etc., with SEVEN different styles from which to choose. Low profile appearance.

THE ECLIPSE® LATCHES are available from stock in non-locking and key-locking versions (furnished with 2 keys).

Photographs shown are actual size. Latches available in BLACK MATTE FINISH.

LATCH MATERIALS

HOUSINGS and HANDLES — Made of thermoplastic alloy. A polycarbonate-based polymer blend providing strength, light weight and excellent head and chemical resistance.

SLIDE BOLT and PIVOT LEVERS — Made of nylon with 30% fiberglass reinforcement for wear resistance and a smooth operation.

METAL STAMPINGS and FASTENERS — 300 Series Stainless Steel.

KEY CYLINDERS — Zinc die cast.

FEATURES & BENEFITS

Installation is fast with the use of the mounting bracket and (2) screws, which are provided. No external fasteners. No weld marks to mar finish. Elipse® latches can be assembled on finished panels. An oil-resistant flange gasket is also provided. All Eclipse® series latches fit the same size cutout.

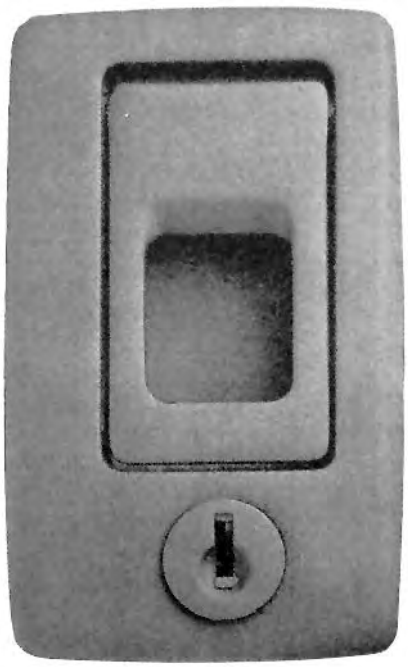
ECLIPSE® LATCHES CONTINUE ON PAGES L57 TO L59.

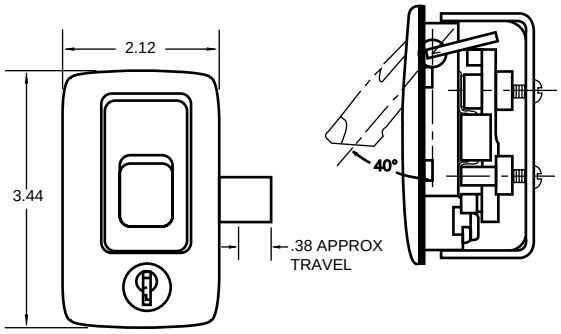
L

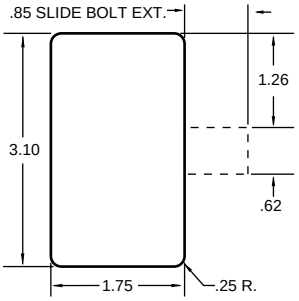
Pull Ring Latch

(Slam Latch)

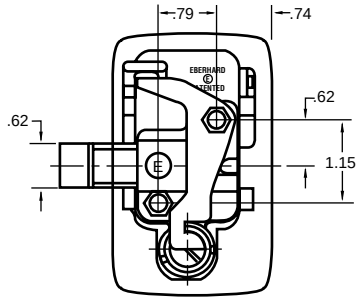
The Eclipse® pull ring handle offers a simple, one-finger activation.

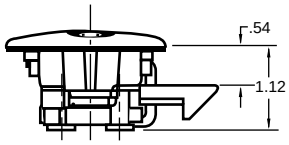






Suggested Cutout





Paddle Handle

same as 099-400 and 099-401 (At left) except supplied with paddle handle instead of pull ring.

(Illustration half size)

099-400 Non-Locking

Mfr. #ECL-130-P8

099-401 Key Locking

Mfr. #ECL-130-KP8

099-410 Non-Locking

Mfr. #ECL-730-P8

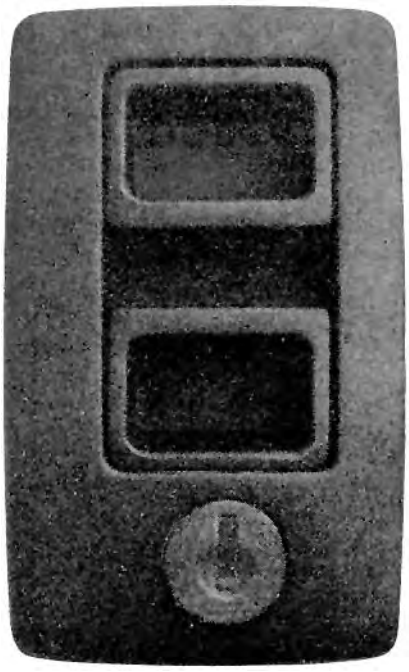
099-411 Key Locking

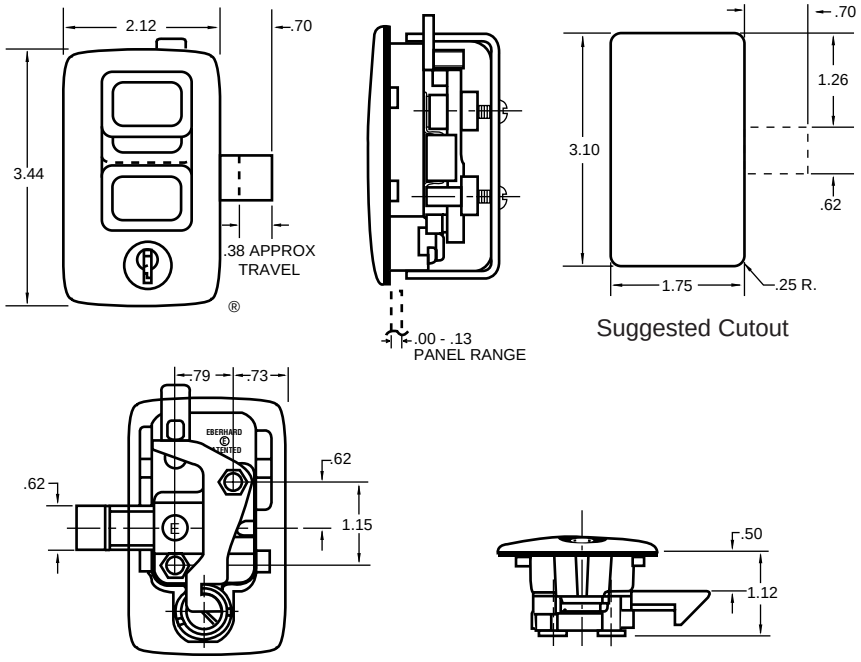
Mfr. #ECL-730-KP8

CATALOG 13

Squeeze Latch
(Slam Latch)

The Eclipse® squeeze latch features a distinctive "pinch" method of activation for specialized use in such applications as electronic, food service and medical enclosures.





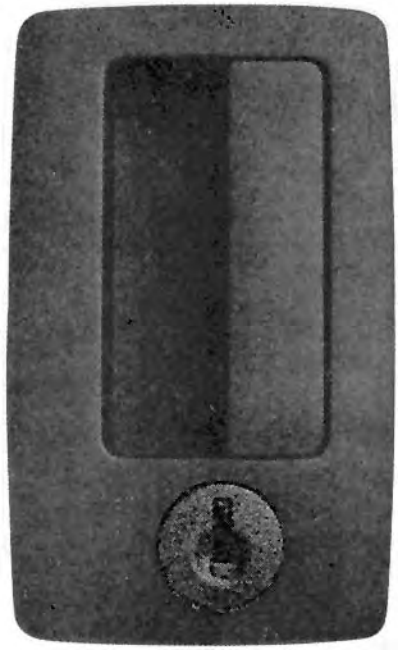
099-402 Non-locking Mfr. #ECL-230-P8

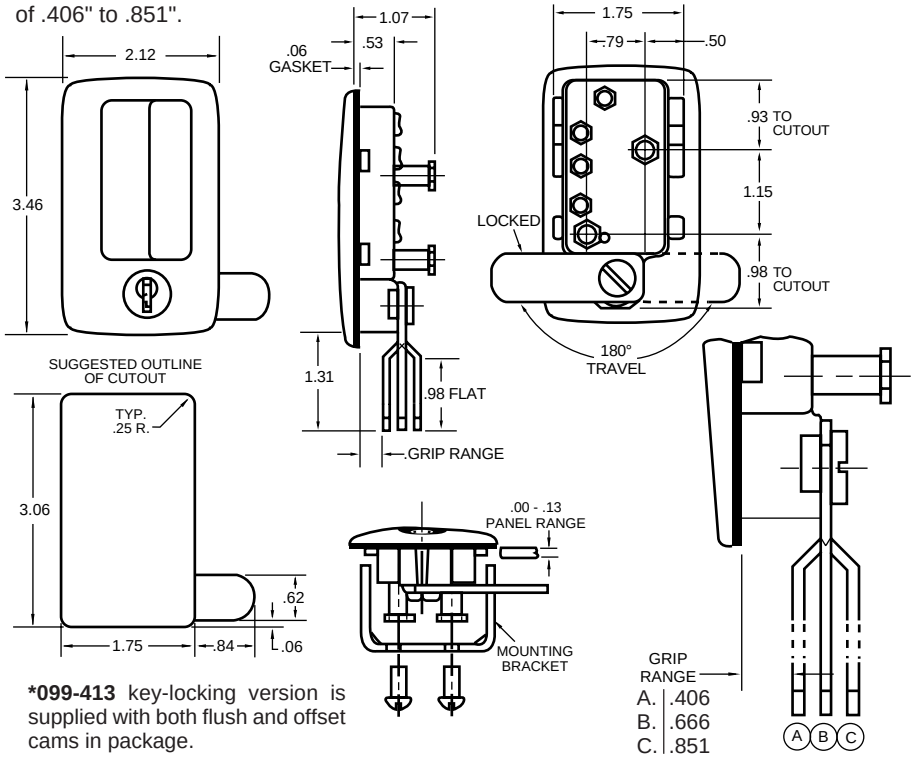
099-403 Key Locking Mfr. #ECL-230-KP8

L

Handle Grab Latch

The Eclipse® recess handle latch features a stylish handle grab in the non-key-locking version, and an additional key cylinder in the locking version. The recess latch handle, plus a low installation profile make this an especially good latch for panels, enclosures and control boxes where space is limited. The locking models offer a grip range of .406" to .851".





099-412 Non-locking
Mfr. #ECL-630-P8

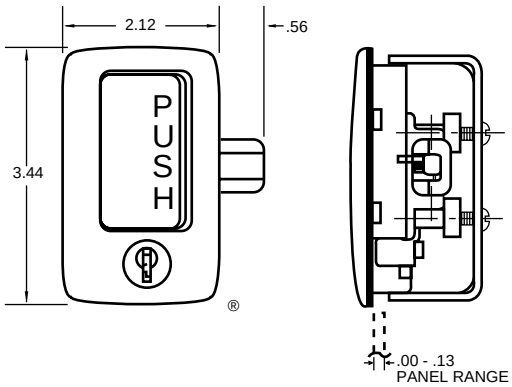
***099-413 Key locking**
Mfr. #ECL-630-KP8

***099-413** key-locking version is supplied with both flush and offset cams in package.

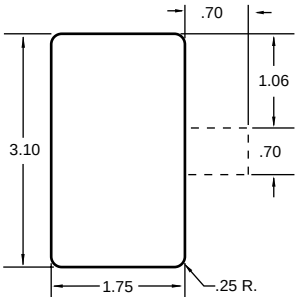
CATALOG 13

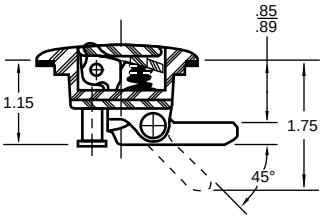
Push Latch

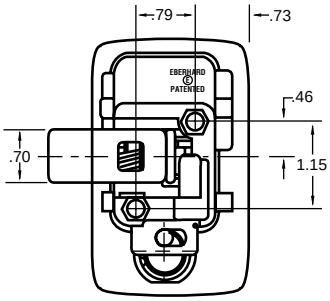
The Eclipse® push latch requires only a slight depression of the push button to pop open the door, To latch, simply push the door closed. Ideal for electronic enclosures, electrical switching systems, industrial cabinets and vehicular applications.



Suggested Cutout







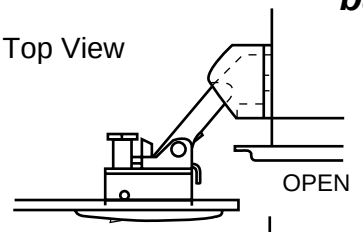
099-406 Non-locking Mfr. #ECL-430-P8

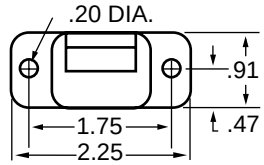
099-407 Key locking Mfr. #ECL-430-KP8

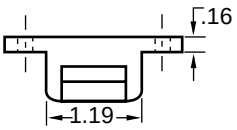
L

Strikes shown below are used with Push Latches above, but must be purchased separately.

Top View

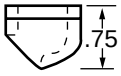




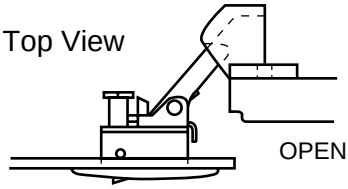


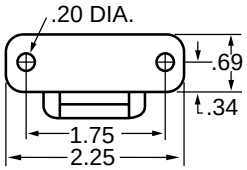
Side Mount

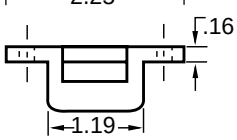
099-415
Mfr. #ECL-19



Top View

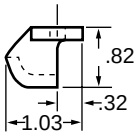






Front Mount

099-416
Mfr. #ECL-20



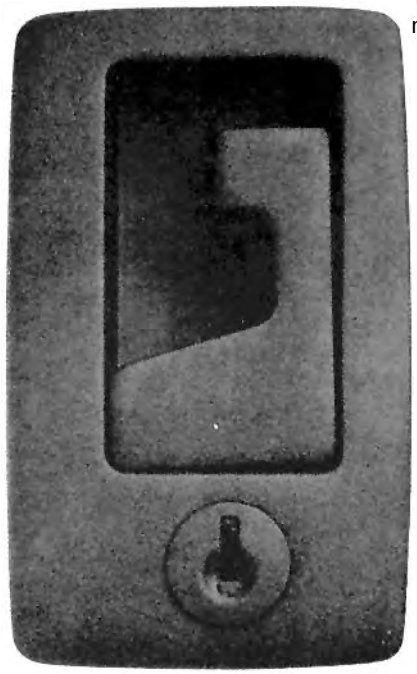
For more information on ECLIPSE® Latches see page L56.

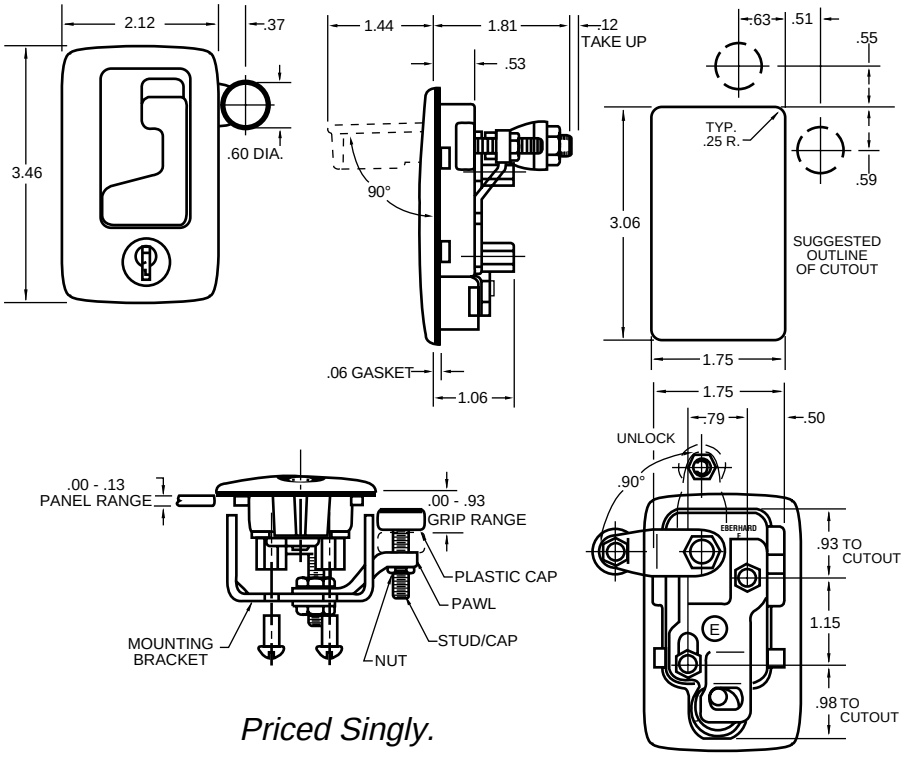
All Eclipse® Latches and Strikes Priced Singly.

CATALOG 13

Lift & Turn Latch

The Eclipse® lift & turn latches feature unique take-up capability, up to 1/8" compression. This enables the door gasket to be compressed against the door when temperature, noise or vibration are important considerations. The lift & turn latches also offer an adjustable bolt depth for shallow or deep-fitting doors. Up to 1-1/2" adjustments is available.





099-408 Non-locking
Mfr. #ECL531U

099-409 Key locking
Mfr. #ECL531KU

Priced Singly.

L

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not listed?

Just call us
1-800-265-8772

SPAENAUR
Advancing the Standard of Fastening

Trigger • Low Profile • Adjustable • Push Button

This sturdy, durable latch has many of the attributes of the Trigger Latches shown above. It finds wide use for installation on cabinetry panels where a low profile is desirable.

With this model Trigger Latch, the mechanism is contained in a pan. The pan is attached to a panel by blind mounting. All components are die-cast. The unit is supplied with a chrome finish. Total weight is only 4-1/2 oz.

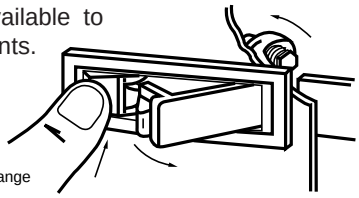
An added feature is the adjustment available to accommodate various latching requirements.

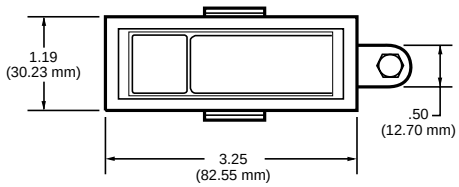
Chrome Flash Finish.

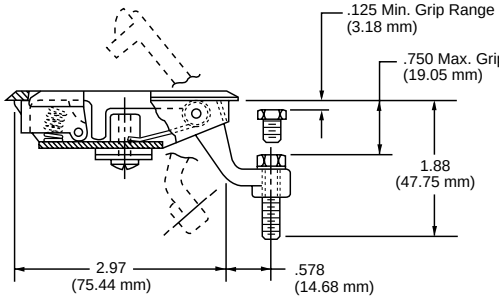
099-143

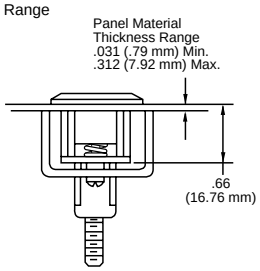
Mfr. #534
Trigger Latch with
Raised Button

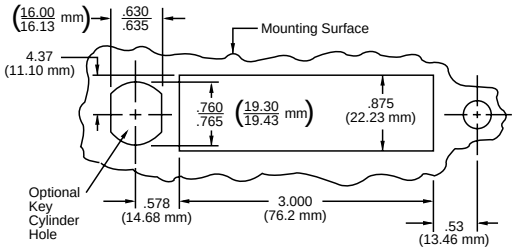
Priced Singly.







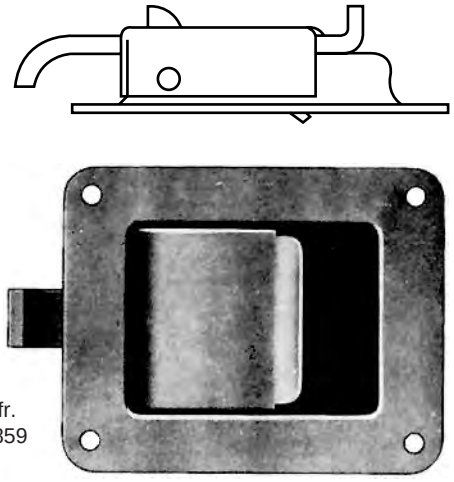




NOTE: Drawings and dimensions on this page are for reference only. For manufacturing, production, or tooling purposes, obtain current engineering print from SPAENAUR.

L

CATALOG 13



RECESSED PADDLE HANDLE LOCK

Non-Locking

SPAENAUR No.

D-4043	Plain Steel
D-4043N	Steel, Nickel Plated
099-008	Steel, Zinc Plated
099-001	Stainless Steel (300 Series)

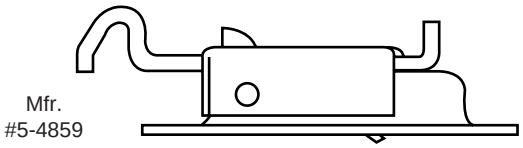
For small doors, electrical panels, cabinets, lockers, etc.

Installed with screws, rivets or by welding.

Note: Mounting screws and striker plates not included.

Dimensions

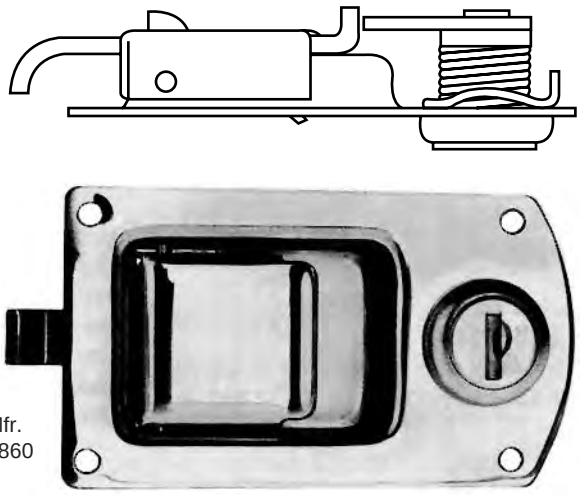
2-5/8"	case outside length	3/8"	slide bolt width
2"	case outside width	1/8"	slide bolt clearance from mounting surface
1-1/2"	overall width of receptacle		
1-7/8"	overall length of receptacle	3/8"	slide bolt extension beyond mounting flange
11/16"	overall thickness of housing		
1-5/8" x 2-1/4"	hole centres	5/16"	slide bolt travel
9/64"	mounting holes (4)	Weight:	3 oz. each



SPAENAUR No.

099-006	Steel, Nickel Plated
099-133	Steel, Zinc Plated
099-007	Stainless Steel (300 Series)

099-006 (side view) - Same as D-4043, except with **hook type slide bolt** with clearance of 3/8" from mounting surface.



RECESSED PADDLE HANDLE LOCK

Locking

SPAENAUR No.

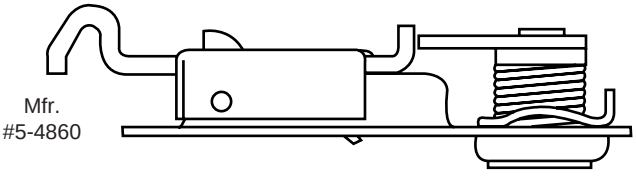
D-4044	Plain Steel

Same as D-4043, except equipped with a rugged key locking cylinder where secure latching and locking is desired with a flush installation. Uses key cylinder 099-041 (Mfr. #4901-51). One key furnished.

Note: Mounting screws and striker plates not included.

Dimensions

3-1/2"	case outside length	3/8"	slide bolt width
2"	case outside width	1/8"	slide bolt clearance from mounting surface
1-1/2"	overall width of receptacle		
3-5/32"	overall length of receptacle (not rectangular)	3/8"	slide bolt extension beyond mounting flange
11/16"	overall thickness of housing	5/16"	slide bolt travel
1-5/8" x 2-7/8"	hole centres	Weight:	4-3/4 oz. each
9/64"	mounting holes (4)		



SPAENAUR No.

099-010	Steel, Nickel Plated
099-011	Stainless Steel (300 Series)

099-010 (side view) - Same as D-4044, except with **hook type slide bolt** with clearance of 3/8" from mounting surface.

L

CATALOG 13

NOTE: Drawings and dimensions on this page are for reference only. For manufacturing production or tooling purposes, obtain current engineering print from SPAENAUR.

Flush Mounted • Paddle Handle

099-017
Zinc Plated Steel
Mfr. #4890
Non-Locking

A slam-action lock for single point engagement.
Easily operated by pulling paddle handle outward.

Easy to install. Simply cut hole close to edge of door and attach by screws, rivets, or welding. Can be used on either right or left hand doors.

(Some outside case dimensions may be 4-1/2" x 3-1/2", but, cut-out size stays the same.)

Dimensions:

4-3/4"	case outside length	3/4"	width slide bolt
3-3/4"	case outside width	7/16"	projected thickness of slide bolt
1-1/4"	overall depth		
13/16"	bottom of flange slide bolt	7/16"	slide bolt travel
1"	slide bolt projection from slide bolt case		Weight: 13 oz. each

See cut-out diagram at bottom of page.

099-012 Same as 099-255, except made of 300 Series St. Steel & four 11/64" mounting holes (Mfr. #4891SS) Outside case dimensions are 4-3/4" x 3-3/4".

099-013 Same as 099-255 (at right), except with inside knob release. Zinc Plated. (Mfr. #1-4891)

099-136 Same as 099-017, except has long angle slam bolt. Zinc Plated Steel. (Mfr. #6-4890 (25))

099-189 Same as 099-017, except with inside release handle. Zinc Pltd. (Mfr. #3-4890) 4-3/4" L. x 3-3/4" W.

099-014 Same as 099-017, except made of 300 Series Non-Corrosive Stainless Steel. (Mfr. #4890SS)

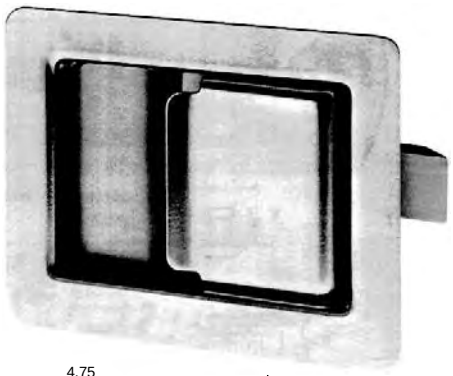
099-015 Same as 099-017, except flange has four 11/64" mounting holes with 3 x 3-3/16" hole centres. Made of 300 Series Non-Corrosive Stainless Steel. (Mfr. #2-4890SS (10))

099-255
Zinc Plated
Mfr. #4891

Key Locking (Keyed to differ)

099-255 is the same as 099-017 lock (upper left), but with a key-locking mechanism. Replacement key cylinder **099-040**. (Mfr. #4901-61)
One key furnished. Weight: 1 lb., 2 oz. each

NOTE
Drawings and dimensions on this page are for reference only. For manufacturing, production, or tooling purposes, obtain current engineering print from SPAENAUR.



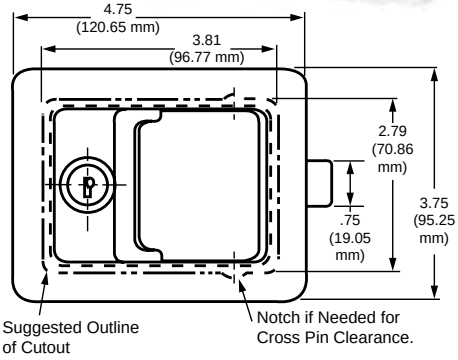
099-147
(Mfr. #4820)
Non Key-Locking

Flush Mounted • Paddle Handle

A slam-action latch for single point engagement. Easily operated by pulling paddle handle outward.

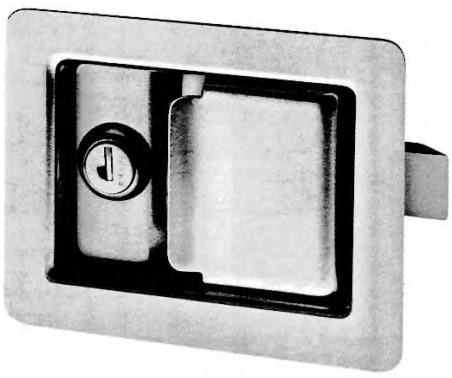
Can be installed in the same cut-out as the latches shown above, but has a wider flange with a smaller corner radius. In addition, the paddle handle and trigger for the bolt are an integral unit. Another important feature is the fact that the key cylinder on 099-148 is placed in the recessed pan rather than the handle. This provides additional protection to the key cylinder while minimizing maintenance.

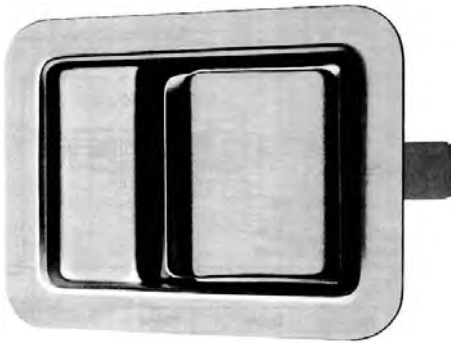
Material: STEEL
Electro Zinc Finish



All latches this page use this cut-out.

099-148
Mfr. #4821
Key Locking





Non Key-Locking
(Mfr. #4907)

SPAENAUR No.

099-019 Plain Steel
099-021 Zinc Plated
099-023 Stainless Steel (300 Series) with four mounting holes and integral trigger construction.
(Mfr. No. 3-4907 SS)

All items PRICED SINGLY.

Slam-Action

Flush Mounted Paddle Handles

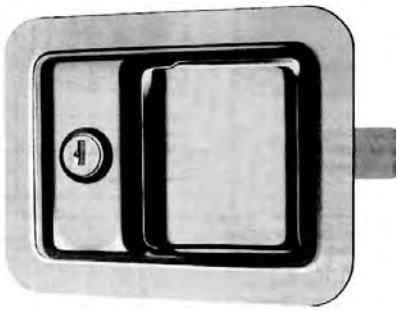
A slam-action lock for single point engagement. Easily operated by pulling paddle handle outward. Easy to install.

Dimensions:

5-1/2" case outside length
4-1/4" case outside width
1-13/32" overall depth
57/64" bottom of flange to slide bolt
1" bolt projection from case edge
3/4" bolt width
7/16" slide bolt travel

Suggested cut-out:
4-5/8" x 3-3/8"

Weight 1 lb. 2-1/2 oz. each

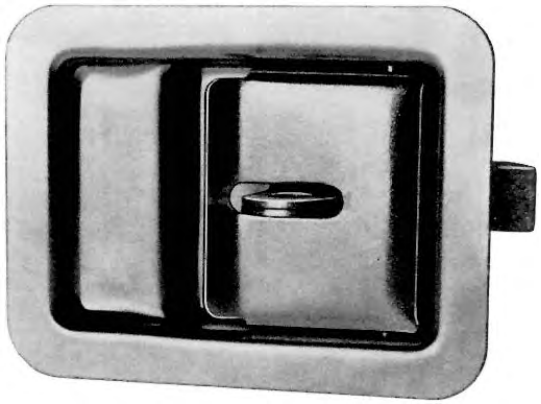


Key-Locking (Mfr. #4906)

SPAENAUR No.

099-018 Plain Steel (One key furnished.)
099-020 Zinc Plated
099-219 Zinc Plated (Mfr. #1-4906) with added inside release.
099-022 (Mfr. No. 3-4906 SS) Stainless Steel (300 Series) with four mounting holes and integral trigger construction.
099-239 Zinc Plated with long angle slide bolt.

Replacement key cylinder **099-024**
(Mfr. #4901-51) (See page L74.)



Padlockable Paddle Handles

Material: STEEL
Electro Zinc Finish

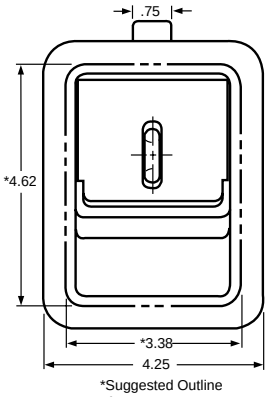
099-149 (Mfr. #89-4907)
With Padlock Eye
Standard Slide Bolt

099-150 (Mfr. #88-4907)
With Padlock Eye
and Long Angle Slide Bolt

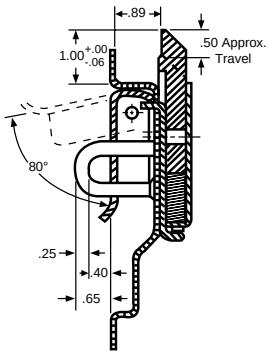
Priced Singly

This slam latch is identical in all dimensions and functions to the slam latch shown above, except that it has a padlocking loop which is welded to the pan and which protrudes through the paddle handle.

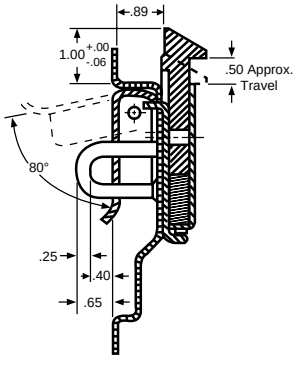
® Handle/Housing Assembly Reg. Trademark



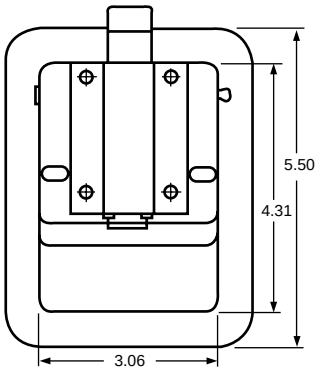
*Suggested Outline of Cutout



Standard Slide Bolt



Long Angle Slide Bolt



Easier slam and greater tolerance at strike surface.

Flexible Black Nitrile Gasket for above Latches
SPAENAUR No. **099-240**

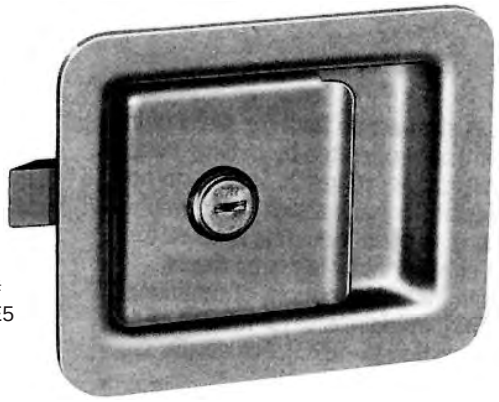
NOTE
Drawings and dimensions on this page are for reference only. For manufacturing, production, or tooling purposes, obtain current engineering print from *SPAENAUR*.

L

CATALOG 13

Universal

FLUSH MOUNT Paddle Handle Latches & Locks



Mfr. #
4895-E5

Locking Style

SPAENAUR No.		
D-4017P	Plain Steel	Keyed to differ
D-4017	Zinc Plated	Keyed to differ

(099-188 latch is no longer available, however, replacement locking cylinders are still available. See below.)

L

Has a universal mounting feature that makes right or left hand mounting possible. Cylinder is installed in the centre of the paddle handle, simplifying installation.

Measures only 5-1/2" x 4-1/4" at pan edges. Simply cut a hole near door edge and install with screws, rivets or by welding. Stainless steel spring.

EXCLUSIVE ... This lock can be slam-locked after locking and removal of key. One key furnished.

Weight: 1 lb. 3 oz. each

Replacement Locking Cylinders Only

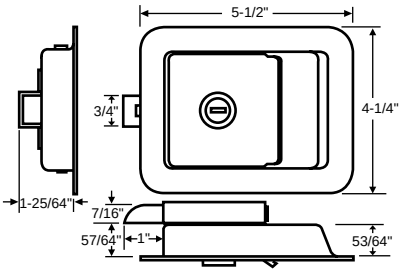
D-4017L	Keyed to differ	Fits D-4017 or D-4017P
D-4017LA	Keyed alike	Fits 099-188 - no longer available.

SPAENAUR No's.

D-4017 and D-4017P

as listed above.

Lock is easily operated by pulling paddle handle outward. Illustration shows complete retraction of latch for easy disengagement when paddle handle is raised.

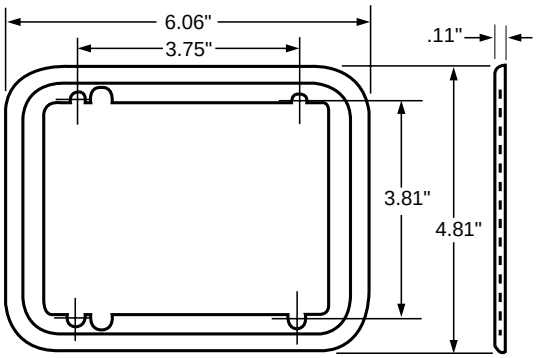


Suggested cut-out: 4-5/8" x 3-3/8"

Flange Gasket

SPAENAUR No. **099-414**

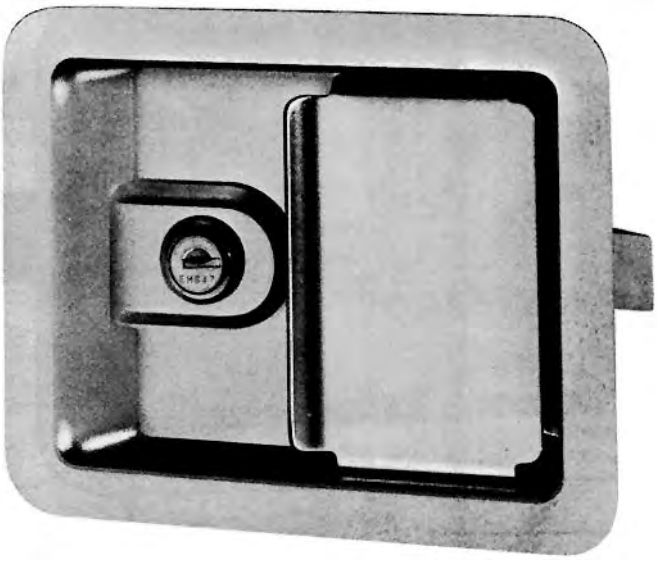
Spacer for paddle lock series with standard 4-1/4" x 5-1/2" pans.

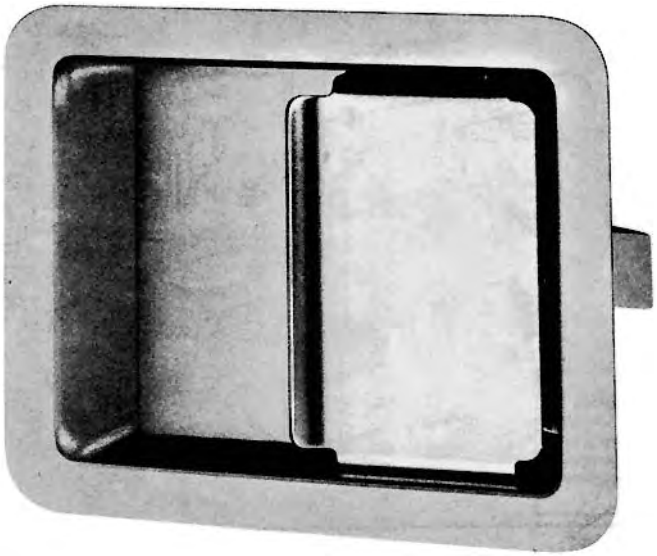


Material: Black Plastic

CATALOG 13

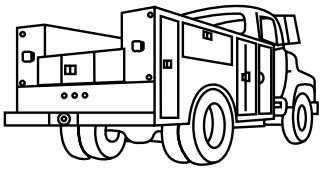
Flush Mounted • Large Paddle Handle



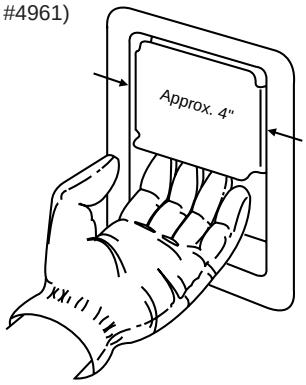


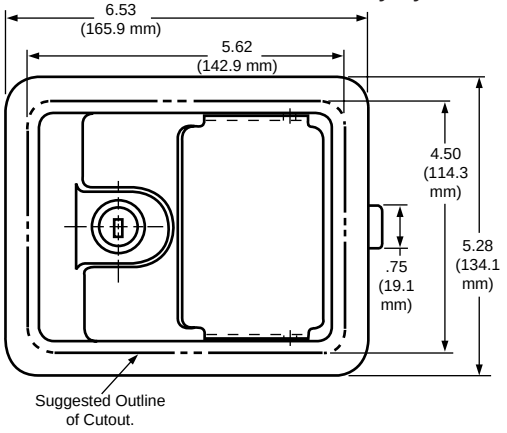
099-151 *Key-Locking* **Zinc Plated** **099-152** *Non Key-Locking*

(Mfr. #4960) (Mfr. #4961)

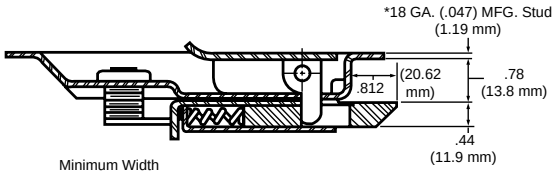


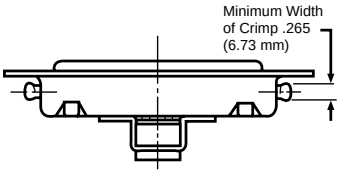
A heavy-duty slam-action latch for single point engagement. The largest in the family of slam-action latches, this model is especially designed with more generous space under the paddle handle. Under adverse weather conditions, a gloved hand can easily lift the paddle handle to open the latch. The paddle handle and trigger are welded construction for heavy-duty use. This key-locking version uses key cylinder 099-041 (Mfr. #4901-51).





WARNING
This product must not be used for personal restraint applications.





NOTE
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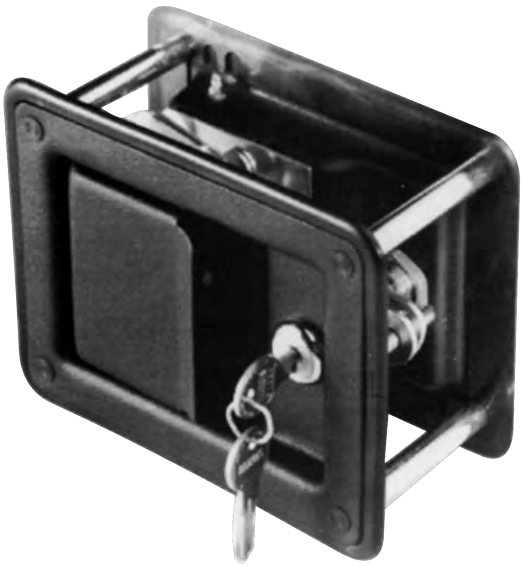
SPAENAUR

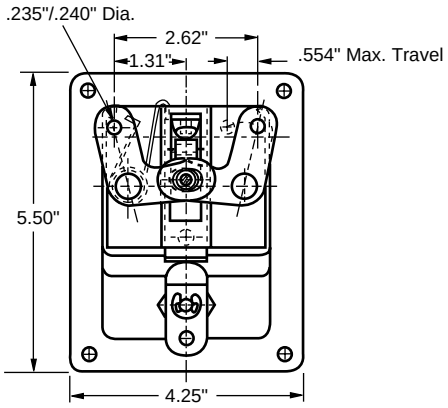
Back to Back Paddle Lock System

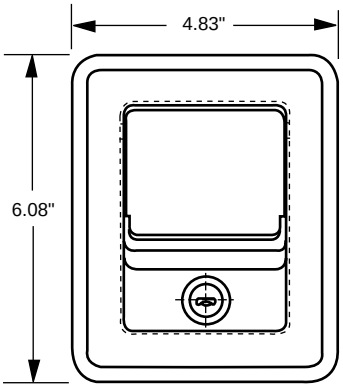
***SPAENAUR No.* 099-045** (Mfr. #1-5974U)
Steel, Black Textured Powder Coat

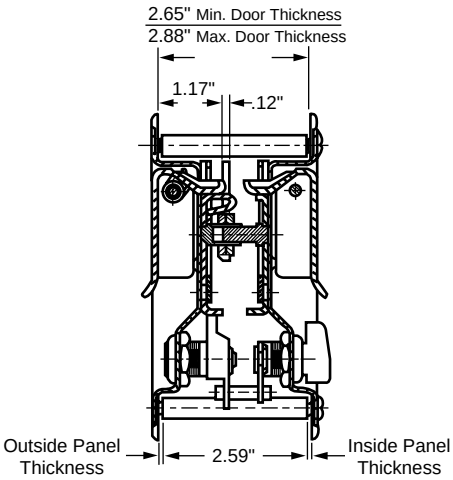


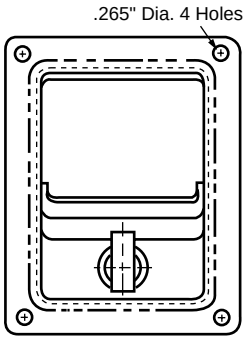
Features:
- The direct connected assembly eliminates the need for rod or cable linkage between the paddles.
- Fits between as little as a 2.65" space.
- System can be locked or unlocked from either the outside or inside.
- Tamper-resistant blind mounting on outside.

Back side view of Outside Handle Assembly
(Less Molded Gasket)

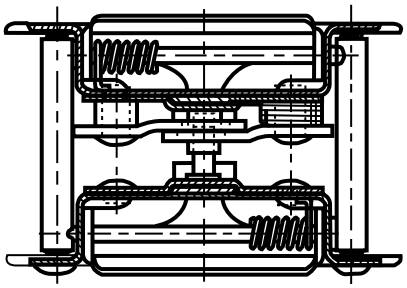








View of Inside Handle Assembly
(Less Gasket).



Handle Includes:
- Outside Handle Assembly
- Inside Handle Assembly
- 2 Gaskets
- 4 Stand-offs with 1/4-20 tap.
- 4 Machine Screws

L

CATALOG 13

FLUSH-MOUNTED DROP "T" HANDLE
Fixed Cam

RECESSED DEAD-BOLT LATCH

099-190
Zinc Plated

This is the centre section component of our #D-3243, shown on page L75.

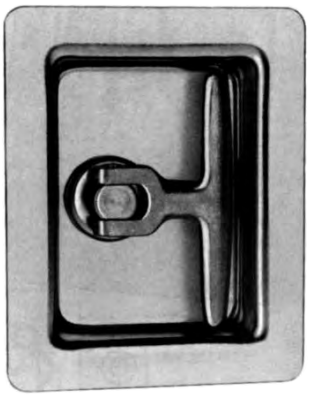
Dimensions:
4-3/4" case outside length
3-3/4" case outside width
15/32" width of flanges

Weight: 12 oz. each

Concealed stainless steel spring holds handle in the folded position. Off-centre shank permits mounting latch close to edge of door.

FLUSH-MOUNTED DROP "T" HANDLE
with Square Shank

D-4020
(Mfr. #5630A)



Zinc Plated

Concealed stainless steel spring holds handle in folded position and prevents rattle.
Shank offset to one side permits mounting lock close to edge of door.

Dimensions:
4-3/4" case outside length
3-3/4" case outside width
3/4" depth of receptacle
5/16" square handle shank
1-11/32" length square shank

Suggested cut-out 3-3/4" x 2-3/4"
Weight: 10 oz. each

FLUSH-MOUNTING RECESSED KEY-LOCKING FOLDING "T" HANDLE
with 5/16" Square Shank

D-4039 (Mfr. #4874) Zinc Plated
Replacement key cylinder No. 099-035
One key furnished

Dimensions:
4-3/4" case outside length
4-7/8" case outside width
3/4" depth of receptacle
Other dimensions same as D-4020

Keyed to differ

Weight: 13 oz. each

Drawing for suggested cut-out available on request.

FLUSH-MOUNT RECESSED KEY-LOCKING FOLDING "T" HANDLE with Adjustable Cam

099-262
(Mfr. #8004)
Key-Locking
(One key furnished)

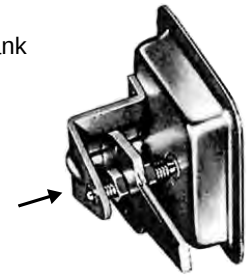
Finish:
Zinc Plated

099-138
(Mfr. #8000)
Non Key-Locking

Single-point lock with adjustable latch for varied door thicknesses; concealed stainless steel spring holds handle in folded position. Shank offset permits mounting lock close to edge of door. Suitable for use on either steel or wood doors. Installed by screws, rivets, or welding.

Replacement key cylinder **099-035**

Dimensions:
4-3/4" case outside length
4-7/8" case outside width (**099-138** - 3-3/4")
5/8" width of flanges
1-5/8" edge opposite key cylinder to centre handle shank
2-5/8" end of latch to centre of handle shank
2-1/2" thickness overall
Weight: 1 lb. 5 oz. each (**099-138** - 1lb. 1 oz.)



Rear view showing how latch grip dimension can be varied from 1-7/32" (min.) to 1-7/8" (max.) by adjusting hex nuts.

Right-hand action supplied. For left hand, disassemble and reverse latch, or order special production.

Drawing for suggested cut-out available on request.

NOTE
Drawings and dimensions on this page are for reference only. For manufacturing, production, or tooling purposes, obtain current engineering print from ***SPAENAUR***.

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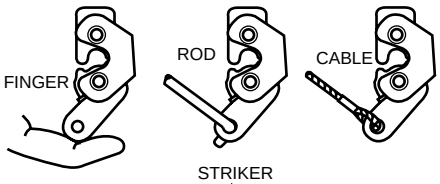
CATALOG 13

All items on this page PRICED SINGLY.

Three methods of release.

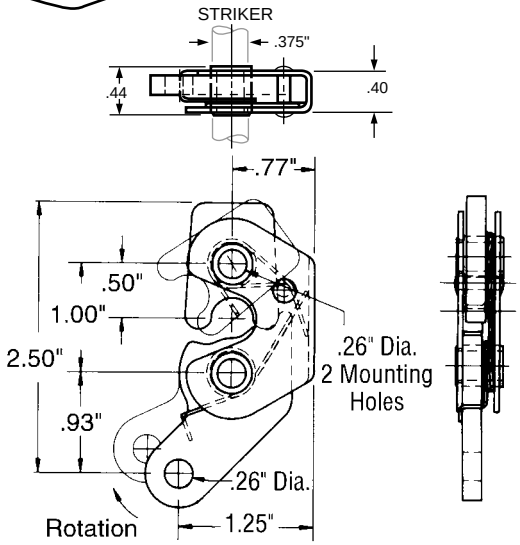


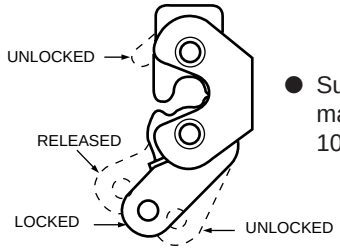
Compact Rotary Slam Latch

099-153 (Mfr. #200)
STEEL - Electro Zinc Finish

099-800 (Mfr. #200SS)
304 STAINLESS STEEL
Latch Pawls are
Carbon Steel with black coating.

- Recommended for small hoods, lids, doors, or panels.
- Universal mounting.
- Easily mounted with two 1/4" bolts.
- Receives any 3/8" dia. striker.





- Suggested maximum load 100 lbs.

WARNING
This product must not be used for personal restraint applications.

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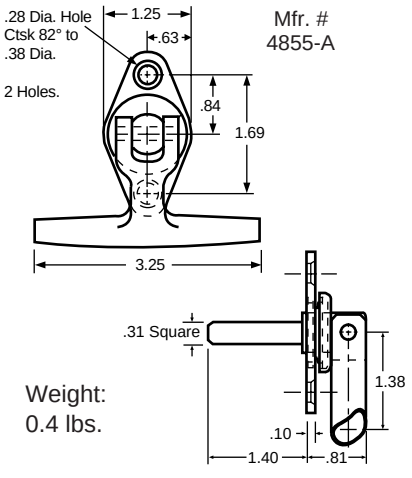
Folding-T Handle with attached stamped steel escutcheon. A concealed stainless steel spring holds the zinc die-cast handle in the folded position.

5/16" square shank.

SPAENAUR No.
099-197

1-13/32" long

STEEL
Zinc-plated

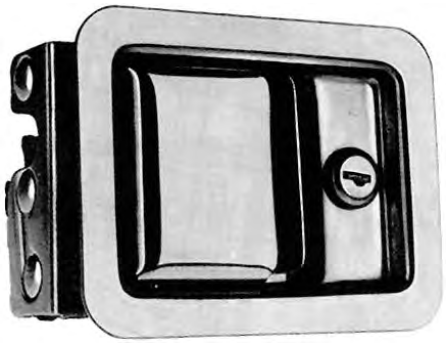


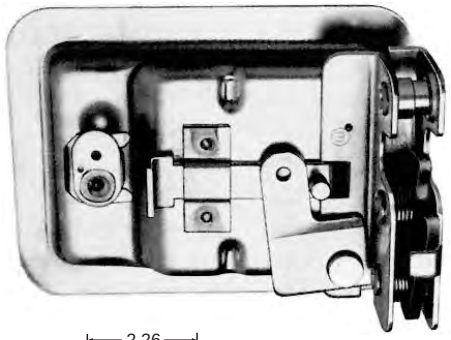
Mfr. # 4855-A

Weight:
0.4 lbs.

Rotary Paddle Lock
(Slam Latch)

The new Key-locking rotary paddle lock was designed for a wide variety of applications requiring a durable means of positive latching, incorporating the industry standard paddle latch configuration with the positive latching features of our two-stage rotary. Striker pin 099-217 (Page L71, Mfr. # 2-400-10) is recommended.



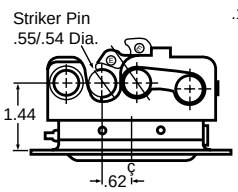


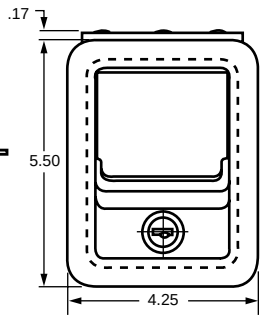
099-193 (Mfr. # 4373) STEEL Zinc Plated

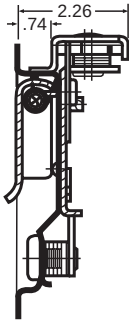
099-194 (Mfr. # 3-4373SS) STAINLESS STEEL Bright Polished

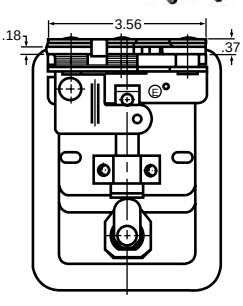
099-194 includes four 11/64" dia. mounting holes on 3-3/4" x 3-13/16" hole centres.

Non-Locking and Mounting Hole Versions are available.







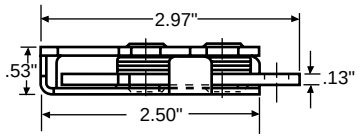


Weight:
1.37 lbs.

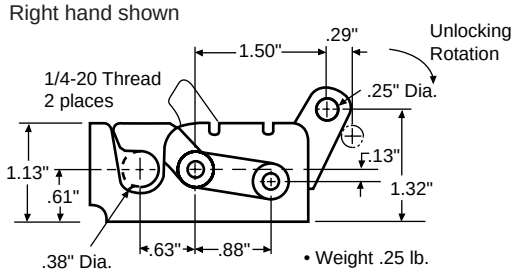
CATALOG 13

Mini Rotary Latches - 3 Different Release Models

099-324 Right Hand (Mfr. #8-240R)
099-325 Left Hand (Mfr. #8-240L)



Right hand shown



- Weight .25 lb.
- Carbon Steel, Zinc Plated
- Spring: Stainless Steel

The Mini Rotary Latch gives you the benefits of a two-stage rotary action for even the most confined areas. It is ideal for small hoods, lids, doors and panels, and has a maximum rated load strength of 750 lbs.

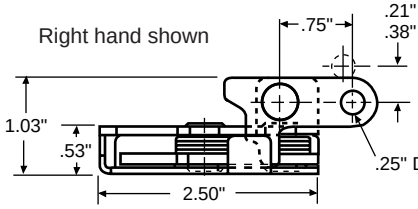
The Mini Rotary Latch is available in three different models which can be unlocked in any of three different directions to meet a wide range of applications.

The latch's low-profile design and light weight allow it to be easily mounted using two 1/4" bolts. An optional mounting bracket is available for added flexibilty.

WARNING
This product must not be used for personal restraint applications.

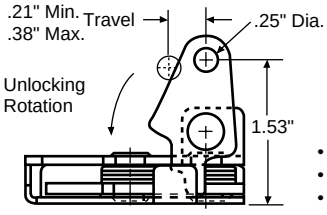
099-323 Left Hand (Mfr. #1-240L)

Right hand shown



- Weight .25 lb.
- Carbon Steel, Zinc Plated
- Springs: Stainless Steel

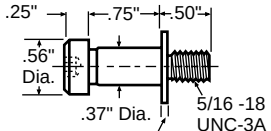
099-320 Right Hand (Mfr. #240R)
099-321 Left Hand (Mfr. #240L)



Right hand shown

- Weight .25 lb.
- Carbon Steel, Zinc Plated
- Springs: Stainless Steel

Striker Assembly
099-328
(Mfr. #240-52U)



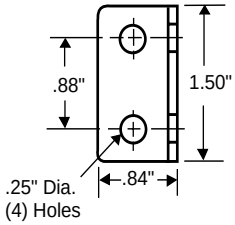
- Weight: .06 lb.
- Carbon Steel
- Zinc-Plated

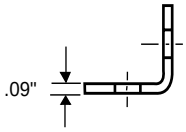
Striker Assembly and Mounting Bracket must be ordered separately.

Mounting Bracket

099-326 Right Hand
(Mfr. #16592R)

099-327 Left Hand
(Mfr. #16592L)





- Weight .06 lb.
- Carbon Steel
- Zinc Plated

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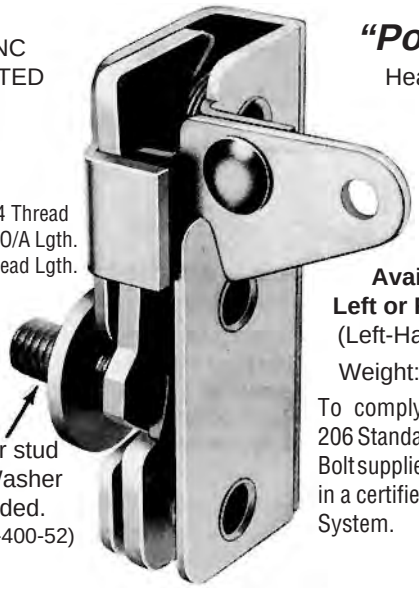
www.spaenaur.com

CATALOG 13

ZINC PLATED



"Positive"

Heavy-duty

(Mfr. #400)

Available in Left or Right-Hand
(Left-Hand Shown)

Weight: 1 lb. each

To comply with FMVSS 206 Standards, the Striker Bolt supplied must be used in a certified FMVSS Door System.

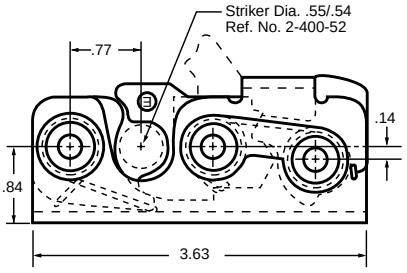
Rotary Latching Points

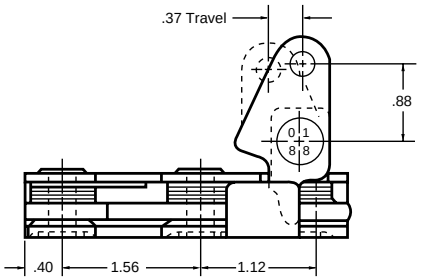
Mounts through the pivot points of the mechanism rather than through the holes of the case extension.

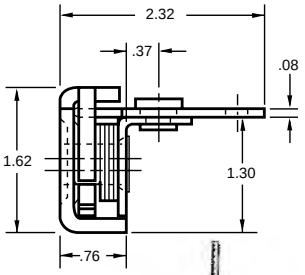
This latch can be used on cab and other vehicle door applications to which the FMVSS 206 applies. It can also be used on any other enclosure application that would benefit from positive latching.

When the door is closed, the gripping member of the latch captures the shank of the hex-headed striker stud horizontally, vertically, and axially. The design affords easy trip-release action, positive gripping, and smooth opening and closing. Both primary and secondary latching capabilities are inherent in the design.

SPAENAUR No.	Style	Mfr. #
099-030	Right-Hand	400R with 2-400-52
099-031	Left-Hand	400L with 2-400-52
099-218	Striker Stud with Washer	2-400-52







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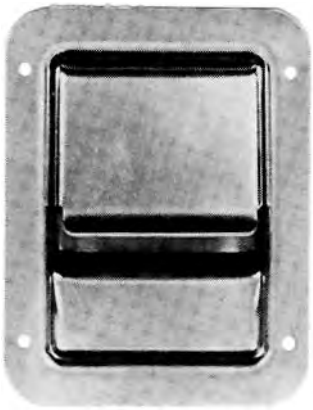
Flush-Mounted Paddle Handles - Cable Actuating



ZINC PLATED

SPAENAUR No.	Style	Mfr. #
099-026	Key-Locking	250
099-027	Non Key-Locking	249
099-040	Locking Cylinder only	4901-61

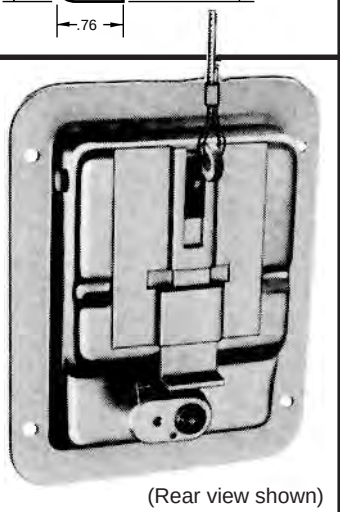
(Front view shown)

099-027
Non Key-Locking

Weight:
1 lb. 1 oz. each

Designed to activate remote latching points.

See page L71 for typical application.



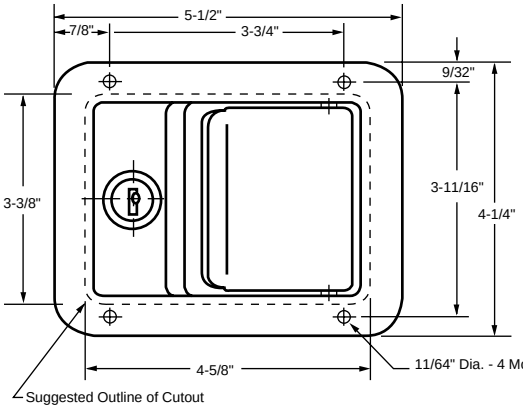
(Rear view shown)

099-026
Key-Locking

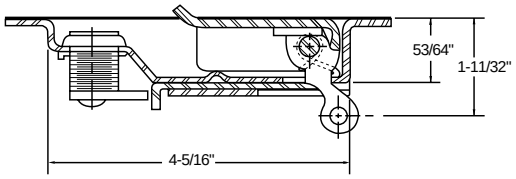
Keyed to differ - With one key

Replacement key cylinder
099-040

Weight: 1 lb. 2-1/2 oz. each



WARNING
This product must not be used for personal restraint applications.



NOTE
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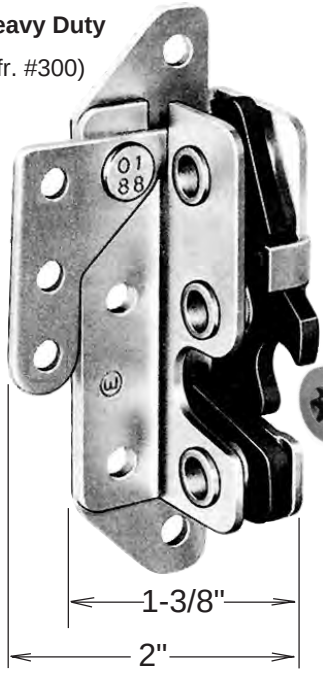
CATALOG 13

Rotary Latching Points

Heavy Duty
(Mfr. #300)



"Positive"
(Right Hand Style Shown)

ZINC-PLATED

Priced Singly.

Weight: 1 lb. includes Torx drive striker bolt with washer.

7/16"-14 Thread
1-3/4" O/A Lgth.
3/4" Thread Lgth.

(Mfr. #2T-400-52)

This unusual new latch is intended for use on compartment and other doors to which Federal Motor Vehicle Safety Standard 206 is not applicable, or on any other enclosure that would benefit from positive latching. Its compactness and simplicity lends it to many applications where economy of space is desirable.

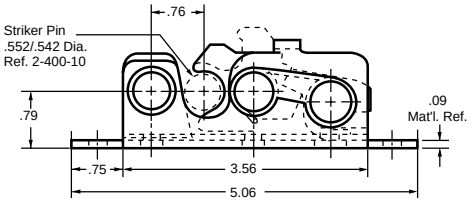
When the door is closed, the gripping member of the latch captures the shank of the hex-socket striker stud, horizontally, vertically and axially. The design affords easy trip-release action, positive gripping and smooth opening and closing. Both primary and secondary latching capabilities are inherent in the design.

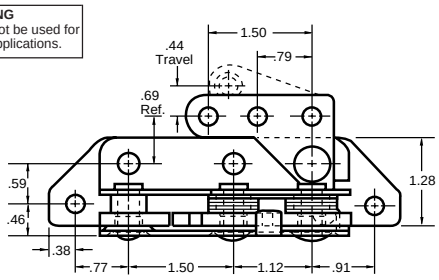
Heat treated latch members and a stainless steel spring increase durability.

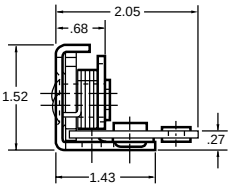
When ordering specify right or left hand.

SPAENAUR No.	Style	Mfrs' #
099-028 **099-029**	Right Hand Left Hand	1-300R with 2T-400-52 1-300L with 2T-400-52
099-217	Replacement Striker Bolt Only	2-400-10 Hex Socket Drive

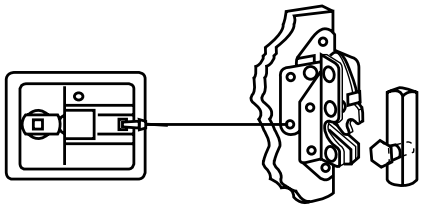
WARNING
This product must not be used for personal restraint applications.



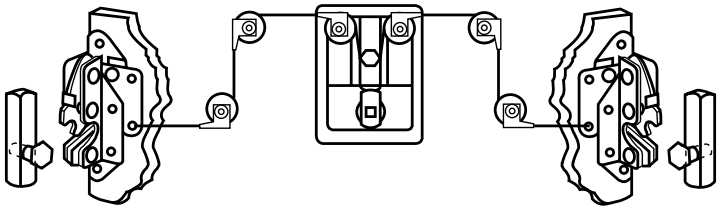




TYPICAL INSTALLATIONS

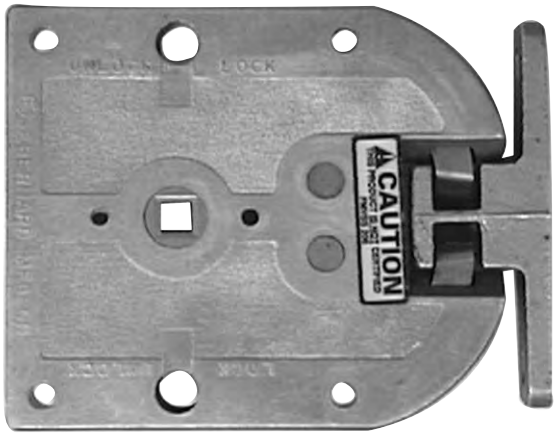


SINGLE-POINT



MULTI-POINT

COMPARTMENT LATCH WITH STRIKER



SPAENAUR No.
099-242
(Mfr. #3-206XU)

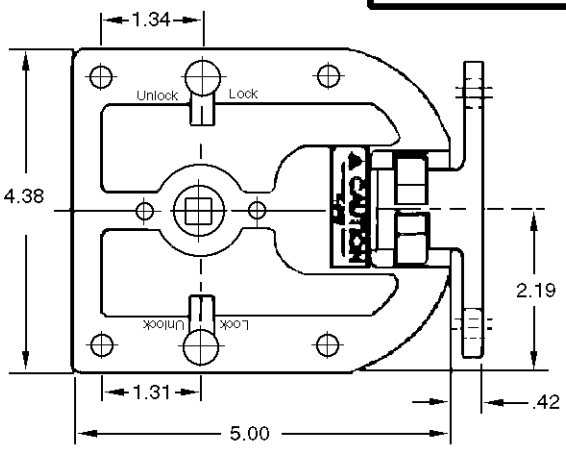
Compartment latch mechanism has been designed specifically to fit compartment applications where durability and smooth functional performance are required.

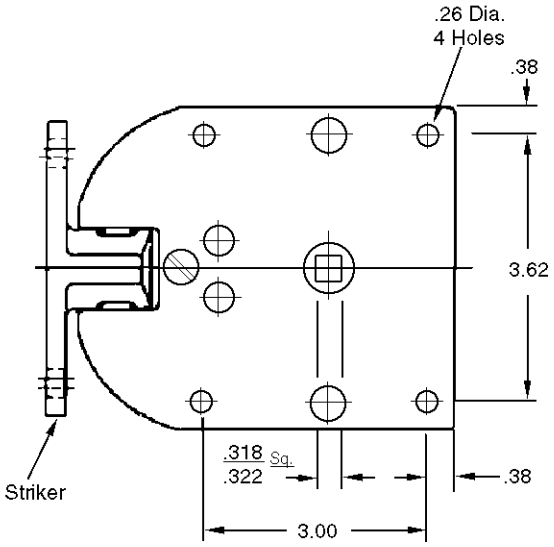
099-242 can be used in conjunction with any of our handles which have a 5/16" square shank.

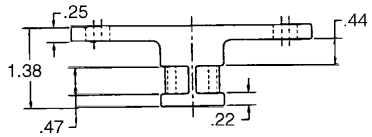
Latch can be surface-mounted on the inside of door panel or between outer and inner door skins. The enclosed strike area mechanism protects against damage by foreign objects.

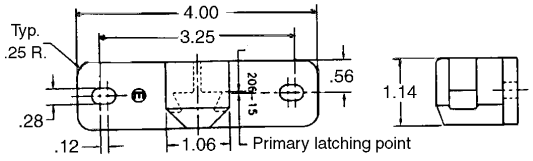
Material: Latch - Zinc Die-cast
Striker - Manganese Bronze

⚠ CAUTION
This Product is not Certified FMVSS 206









Striker is provided with Latch.

L

CATALOG 13

SPAENAUR

SAMEDAY SHIPPING GUARANTEED!

Place your order by noon -

We guarantee to ship it the same day or we'll pay the freight!*

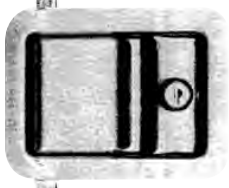
One more way Spaenaur is Advancing the Standard of Fastening.

*See Price List for Terms and Limitations.

2-Point Rod Actuated

099-247
(Zinc Plated)
Rod Actuated
Key-Locking
(Shown)
Keyed to differ
with one key

Weight
3 lbs. 1 oz. each

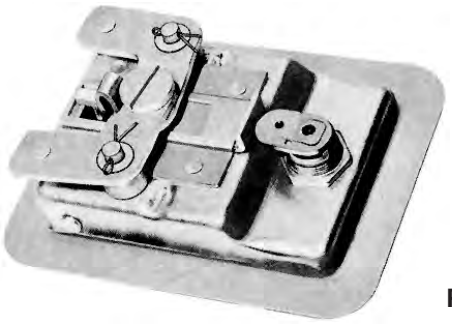


099-246
(Zinc Finish)
Rod Actuated
Non Key-Locking

Rods furnished for maximum overall length of lock assembly of 68-7/8".

Weight
2 lbs. 13 oz. each

End-latching slide bolts are equipped with Stainless Steel Springs

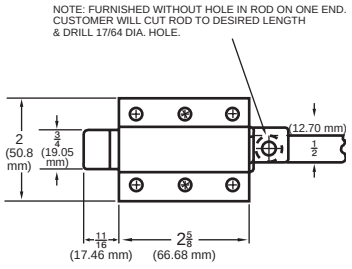


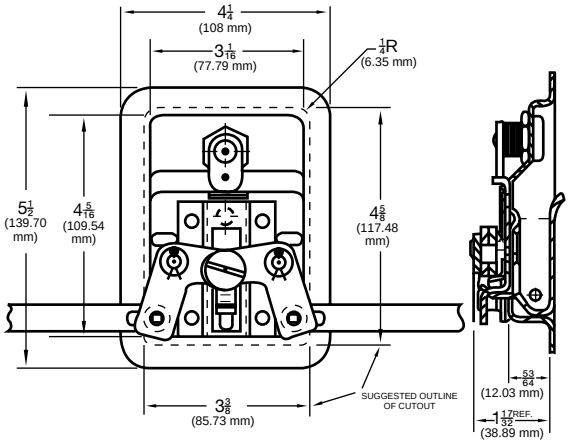
Rear View

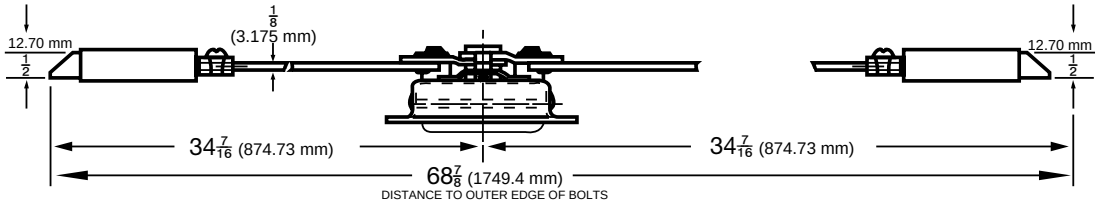
This smooth-acting, slam-type latch is intended for use on all types of compartment doors on farm equipment enclosures, stationary equipment, and machine tool cabinets.

The recessed pan permits flush installation; simply cut an appropriate hole and attach by screws, bolts, or welding. This latch is especially suited for installation in tight quarters because the overall thickness is only 1-9/16".

SPAENAUR No.	Description	Mfr. #
099-247	Rod Control Lock, Key-Locking, Keyed to differ	4972-X
099-246	Ditto, but Non-Locking	4973-X
099-024	Key Cylinder only, Keyed to differ, with one key	4901-51







L

CATALOG 13

(2- and 3-Point) with Folding "T" Handles

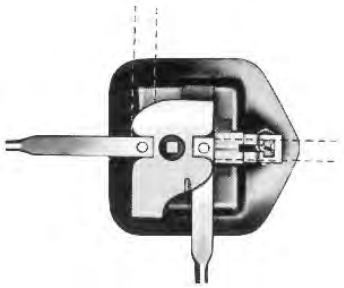
This improved dead-bolt latch for compartment or cabinet doors has a folding handle with a concealed Stainless Steel spring which holds handle in folded position.

The shank is offset for mounting the latch close to edge of door.

Both the 2-point and 3-point key-locking versions are delivered with cylinders attached and one key furnished. The key actuates the bolt, which slides into the notch in the circular plate. (See illustration here.)

After opening the door, the key can be turned to the locked position. Then when the door is closed and the handle is again turned, the locking bolt will drop automatically into the locked position.

The centre case is installed in a simple cut-out (near the edge of door, if desired) and attached by bolts, screws, or welding.



The rods are attached or detached with unusual ease as shown here. With the centre bolt in the unlocked position, the rods are slipped over the formed projections, turned at right angles and the rod guides are attached.

Latch does not have to be accurately centered for locking. After key is turned to lock position, spring loaded lock slide will seat automatically when the handle is turned to secure latch.

Replacement Key Cylinder **099-035** (Mfr. #15621)

D-4062

(Mfr. #4875)

Zinc Pltd. Steel

3-Point Key-Locking

(Shown)

D-4065

(Mfr. #4876)

2-Point Key-Locking

Weight: 2 lbs. 9 oz. each

Zinc Plated STEEL

D-4021

(Mfr. #4857)

2-Point Non Key-Locking

(Shown)

Zinc Plated STEEL

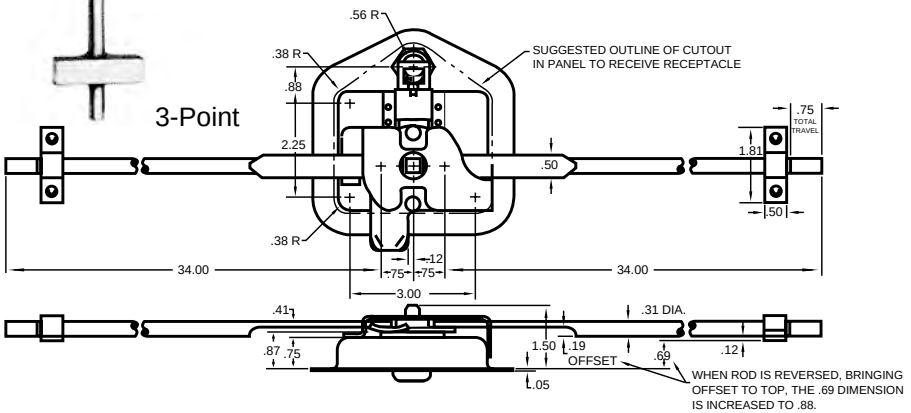
D-3243

(Mfr. #4871)

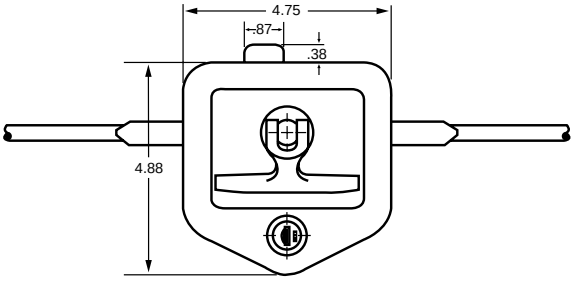
3-Point Non Key-Locking

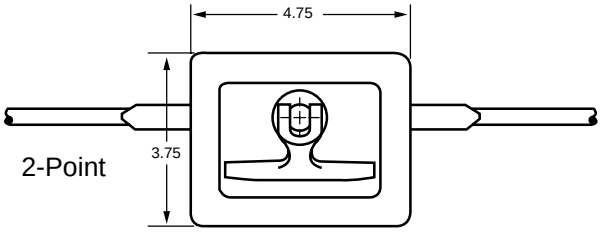
Weight: 2 lbs. 7 oz. each

Zinc Plated STEEL



3-Point





2-Point

NOTE
Drawings and dimensions on this page are for reference only. For manufacturing production or tooling purposes, obtaincurrent engineering print from *SPAENAUR*.

L

CATALOG 13

Dead Bolt

COMPARTMENT DOOR LOCKS

Dimensions: *Easily installed on Metal or Wood Doors*

6-1/4" length of centre case
2-1/4" width of centre case
1-5/16" thickness of centre case (Including rod pins)
9/32" diameter mounting holes in centre case
5/16" square hole for handle
2-1/4" centre of handle hole to end of centre latch on No. 5647 only
1-3/4" x 2-1/4" rod guides
13/64" diameter mounting holes in rod guides
3/8" diameter of rods
97-1/4" overall length of lock (rod end to rod end)
48-5/8" centre of handle hole to rod end (upper or lower)

Zinc Finish

Weight: **D-4022ZP** 3 lbs., 13 oz. each
D-4049 4 lbs., 2 oz. each

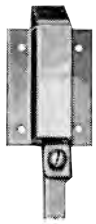
D-4022ZP
(Mfr. #5646U (25))
Zinc Plated
Two-point lock with flat steel anti-rattle spring in rod guides.

D-4048-1
Centre Lock only.
For D-4049 shown at right.

D-4049
(Mfr. #5647)
Zinc Plated
Three-point lock with flat steel anti-rattle springs in rod guides.

Slam Action
Medium Duty

DOOR LOCK



D-3203L - is DISCONTINUED
Components with Spaenaur No's are still available, but will also be discontinued when quantities are depleted.

Steel, Plain Finish

(Right-hand shown)

D-3203LA Upper Bolt (Flush Type).
D-3203LAR Upper Bolt with reverse bevel.
D-3203CR Centre Case — Right-hand.
D-3203CL Centre Case — Left-hand.
D-3203LAO Lower Bolt. (9/16" offset.)

(Rods Not available)

Dimensions:

2" width of slide bolt cases
2-5/8" length of slide bolt cases
3/4" width of slide bolts
11/16" projection of slide bolts
2" width of centre case
3-3/8" length of centre case
5/16" square hole for handle

All screw holes in flanges for # 10 screws.

LIGHT-DUTY

D-3242R Right
D-3242L Left

Dead Bolt LOCK

(Mfr. #5611 R & L)

(Right-hand shown)

Three-point lock.
For metal or wood doors.
All-steel construction. Easily attachable by means of screws, bolts, rivets or welding.
Simplified construction.
Rods attachable or removable without tools. Simply place over pins in a horizontal position - turn to vertical positions and attach rod guides.

Dimensions:

4-1/4" length centre case
2" width centre case
27/64" thickness centre case
5/16" square hole for handle
1-3/4" centre handle to end of centre latch
1/2" x 1-13/16" rod guides
5/16" rod guide diameter
34-3/4" length centre of handle hole over end of rod

Zinc or Plain Finish Our Option.

Weight: 2 lbs. each

P.C. 099

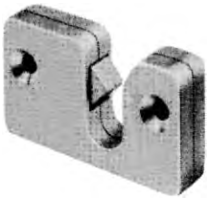
All items on this page Priced Singly

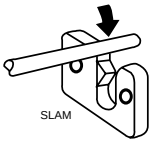
See page L77 for Slam Action (Dead Bolt) Strike.

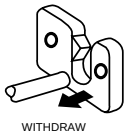
Slam Action Strike

SPAENAUR No.

099-046







This simple, effective strike is intended for use with many latching mechanisms having 5/16" diameter rods, which normally operate as dead bolts.

This strike allows such a latching mechanism to operate as a slam/dead bolt. The strike has a spring loaded plunger which permits the rod to pass into the strike and capture it. The rod cannot be released in the opposite direction.

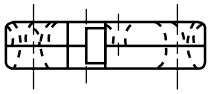
Instead, the rod is withdrawn in customary dead bolt fashion (i.e., a centre mechanism must be turned to retract the rod from the strike. See illustration here). May be used, for example, in conjunction with **D-3242R & L Dead Bolt Lock, (shown at left)** if equipped with 5/16" dia. rods.

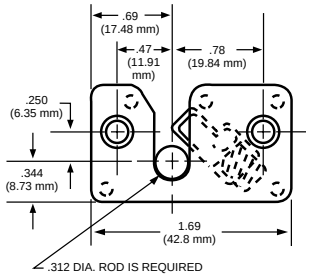
Easily attached with screws, rivets or bolts.

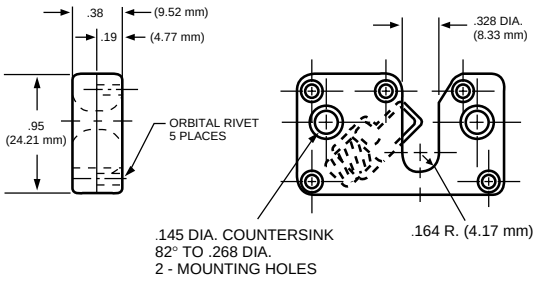
Weight: 2 ozs.

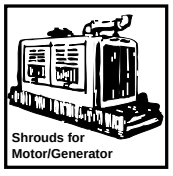
Material: Zinc Die-Cast, Plastic Trigger, Stainless Steel Spring.

Dimensions, $\frac{\text{Inch}}{(\text{mm})}$

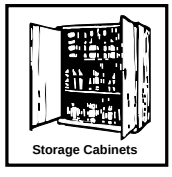







Shrouds for Motor/Generator

Typical Applications


Storage Cabinets

NOTE

Drawings and dimensions are for reference only. For manufacturing production or tooling purposes, obtain current engineering print from *SPAENAUR*.

L

CAM TYPE LOCK WITH RECESSED HANDLE

For Side and Rear Doors

Enlarged sectional view showing installation of cam, cam bearing and keeper.

D-3222 (Mfr. #5660)
Fits Right or Left Hand

Designed for thin-door installations, this cam-type side door lock permits building the vehicle to the greatest legal width for maximum cargo space. Handle has thumb-trigger release with holes for padlock and seal.

Pipe not included. Zinc Plated Finish

Handle is of Cast Malleable Iron construction.

Enlarged View of Door Frame Channel Section

NOTE: This lock cannot be installed in a door with less than 1-1/2" space between door channel sides.

Replacement Groove Pins **239-198.**

FEATURES:
- Steel-forged cams.
- Designed for 3/4" standard pipe (1.050" O.D.)
- Cast-malleable handle and thumb release.
- Stainless steel thumb release spring.
- 1/2" dia. seal eye in thumb release.
- Steel-stamped recessed pan.
- 5-1/8" O/A width of recessed pan.
- 18-1/4" O/A length of recessed pan.
- One handle return spring supplied with each kit.

2-POINT SLAM LATCHES

Slam-action latch for drop and swing doors.

A slam lock especially designed for use on doors of utility service trucks, gasoline trucks, etc.

D-4047L (Left)

D-4047R (Right)

PLAIN FINISH

Mfr. #5613

Centre Section
(D-3203CL & D-3203CR)
as shown on page L76.

Centre Case
3-3/8" x 2" x 15/32"

Long Rods
1/8" x 1/2" x 26-1/2"

Bolt Cases
3-3/8" x 2" x 5/8"

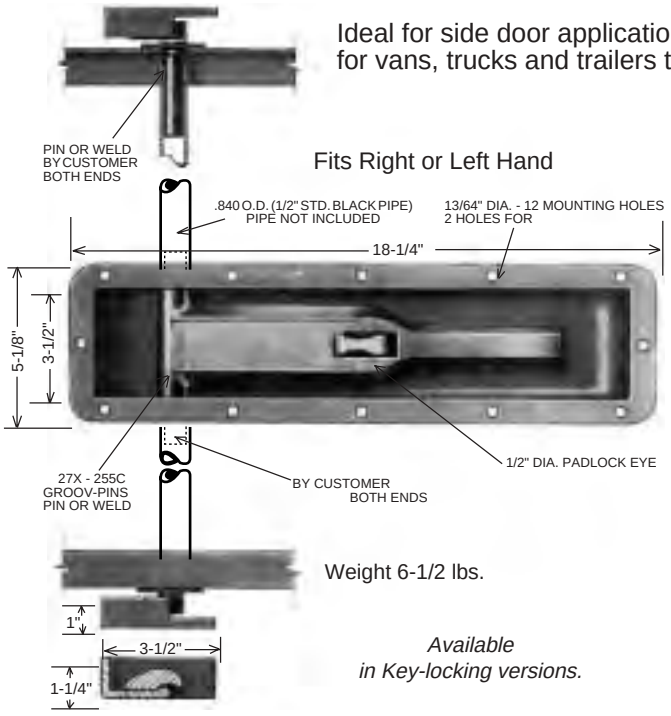
Weight Each
2 lb., 5 oz.

(Right Hand Shown)

L

RECESSED CAM TYPE SIDE DOOR LOCK can be installed in minimum 1-1/8" door thickness.

Ideal for side door applications where maintaining maximum legal width is required for vans, trucks and trailers to maximize cargo storage space.



Fits Right or Left Hand

Weight 6-1/2 lbs.

Available in Key-locking versions.

D-4027
(Mfr. #5663)
Receptacle & Handle
Carbon Steel
Zinc Plated

Features:
- water seal system using o-rings and bushings at the handle pivot point to prevent water leakage
- handle has thumb trigger release with hole for padlock for additional security options
- forged steel cams and keepers for enhanced strength
- cam action is smooth and positive
- furnished with split handle anchoring shafts for ease of rod installation
- recessed latching system permits building the vehicle to the greatest allowable legal width for maximum cargo space.

"GRIP-HARD" LOCKS

Finish - Cadmium

For Big Door Applications

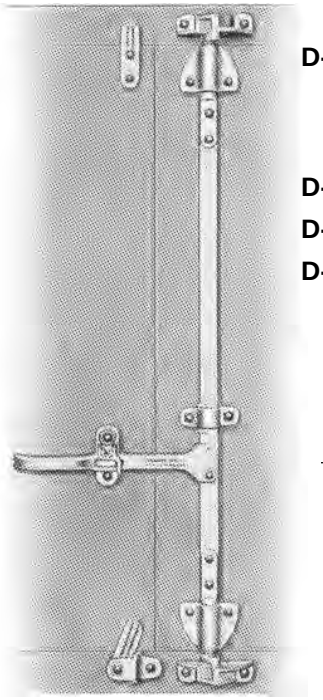
Ruggedly constructed for durability with long service life under hard usage, the Eber-"Grip Hard" Door Locks are particularly suited for use on Refrigeration and Big Van Bodies and are designed for various door heights and thicknesses. Easily installed at right or left on single or double doors.

Liberal, machined bearing surfaces facilitate easy operation and leverage in lock action assures complete door closure and a ready breaking of frost seal upon opening.

A special action padlock eye affords a double locking effect.

Regularly stocked with 75" rod for 83-3/4" doors and 80" rod for 88-3/4" doors. Rods of other lengths furnished on special order if quantity warrants.

Mounting Bolts Not Furnished.



D-3199 (Mfr. #5625) - with 75"rod. Includes all parts as illustrated (except mounting bolts). Weight 35 lbs.

D-3199S - same as D-3199 but with 84" rod.

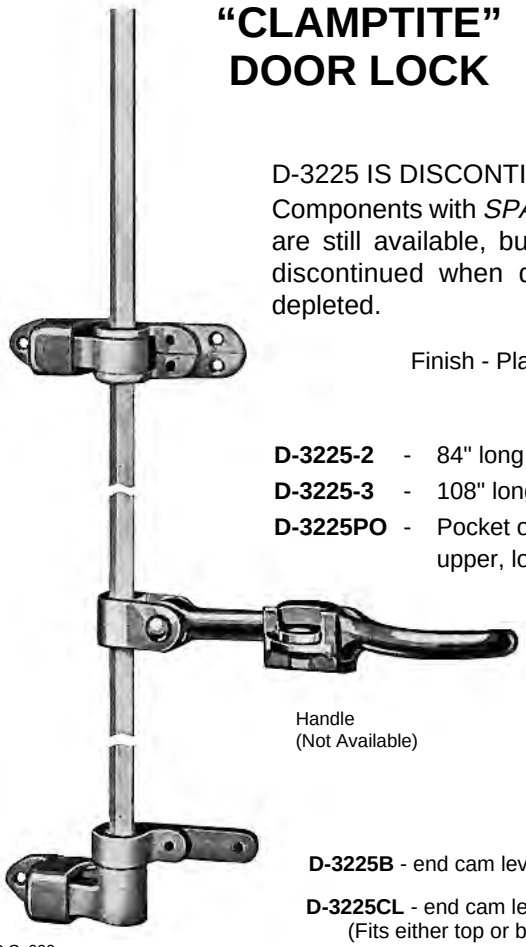
D-3199-2 - same as D-3199 but with 106" rod.

D-3199X (Mfr. #5625X) - with 75" rod, but does not include the upper and lower stops shown at left of the mounted lock. Weight 33 lbs.

RODS AVAILABLE SEPARATELY AS FOLLOWS:

D-3199-R1 75" Rod Only - for 84" Door
D-3199-R2 84" Rod Only - for 92" Door
D-3199-R3 106" Rod Only - for 115" Door

"CLAMPTITE" DOOR LOCK



D-3225 IS DISCONTINUED. Components with *SPAENAUR No's* are still available, but will also be discontinued when quantities are depleted.

Finish - Plain

D-3225-2 - 84" long rod only
D-3225-3 - 108" long rod only
D-3225PO - Pocket or Keeper upper, lower and centre

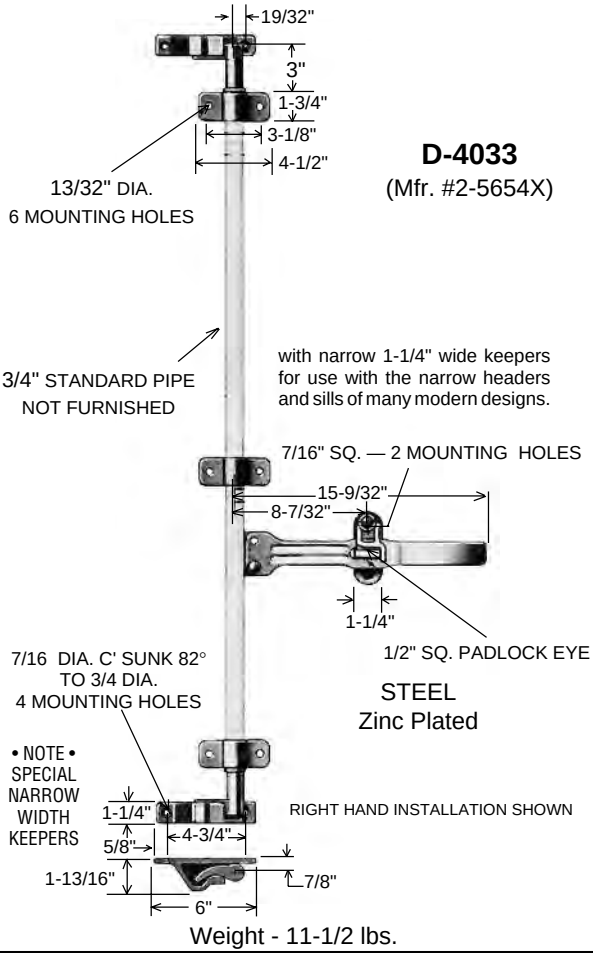
Handle
(Not Available)

D-3225B - end cam lever bracket only

D-3225CL - end cam lever only
(Fits either top or bottom end)

P.C. 099

Universal Cam Type
REAR DOOR LOCK



D-4033
(Mfr. #2-5654X)

STEEL
Zinc Plated

Weight - 11-1/2 lbs.

L

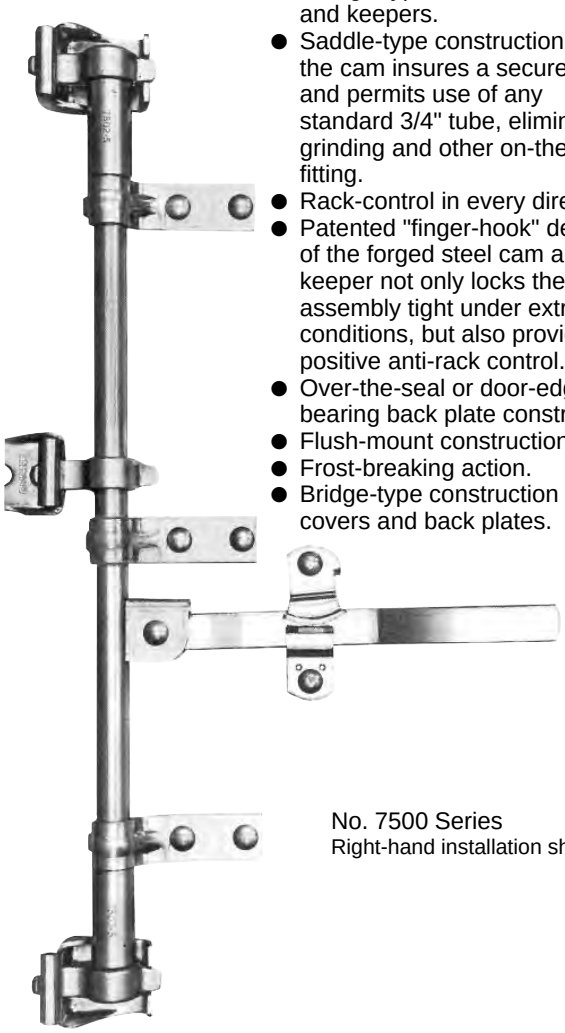
CATALOG 13

"7500 Series" Cam Type Rear Door Locks

Recommended uses:
For all van bodies, trailers, refrigerated equipment and all types of gasketed doors.

Features:

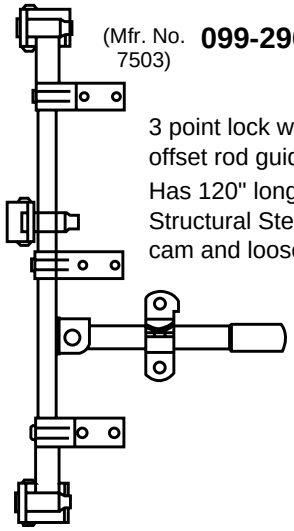
- Wedge-type, anti-rack cams and keepers.
- Saddle-type construction of the cam insures a secure weld and permits use of any standard 3/4" tube, eliminating grinding and other on-the-job fitting.
- Rack-control in every direction.
- Patented "finger-hook" design of the forged steel cam and keeper not only locks the assembly tight under extreme conditions, but also provides positive anti-rack control.
- Over-the-seal or door-edge bearing back plate construction.
- Flush-mount construction.
- Frost-breaking action.
- Bridge-type construction bearing covers and back plates.



No. 7500 Series
Right-hand installation shown.

Specifications:

- Solid steel forged cams and keepers.
- 13/32" diameter mounting holes.
- 1/2" diameter padlock or seal eye.
- Stamped steel handle, seal plate and seal pin.



(Mfr. No. 7503) **099-296** Right-Hand as illustrated

3 point lock with stamped steel keepers and offset rod guides.
Has 120" long rod of 3/4" (1.050" O.D.) Structural Steel tubing, with welded-on lower cam and loose upper and centre cams.

10 foot rod is easily cut to required length.

Zinc Plated

For use with "7500 Series" Cam Type Rear Door Locks

These fittings give greater scope in meeting varying installation conditions.

ALL FITTINGS CADMIUM or ZINC PLATED

099-301 (Right) Shown
099-302 (Left)
Malleable Iron Keeper

1-1/4" high

(Mfr. #2-5654-1 LT or RT)

099-298
Stamped Steel Keeper

2-5/8" high
(Mfr. #7502-1)

099-303
Malleable Iron Keeper

1-7/8" high
(Mfr. #5654-1)

099-299
Third-Point, Stamped Steel Keeper

2-5/8" high
(Mfr. #7503-1)

099-304
Malleable Iron Keeper
2-1/2" high
(Mfr. #7-5625-1)

Safety Release Refrigerator Door Lock

099-291
(Mfr. #1972)

Zinc Plated

Recommended for use on all refrigeration trucks, vans and trailer bodies where the inside release is required for safety.
Do not use on doors with more than one lock.
• 7/8" diameter seamless tubing.
• Weight: 2 lbs. 8 ozs. each.
Can be used with any "7500" lock system.
Specify locking system when ordering.

L

CATALOG 13

ADDITIONAL FITTINGS

For use with "7500 Series" Cam Type Rear Door Locks (See Previous Page)

These fittings give greater scope in meeting varying installation conditions.

ALL FITTINGS CADMIUM or ZINC PLATED

099-298
Stamped Steel Keeper

2-5/8" high

(Mfr. #7502-1)

099-299
Third-Point, Stamped Steel Keeper

2-5/8" high

(Mfr. #7503-1)

099-301 (Right) Shown
099-302 (Left)
Malleable Iron Keeper
(Right or Left)

1-1/4" high

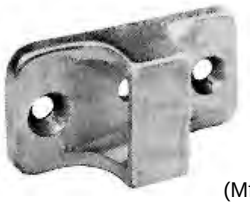
(Mfr. #2-5654-1 LT or RT)

099-303
Malleable Iron Keeper

1-7/8" high

(Mfr. #5654-1)

099-304
Malleable Iron Keeper



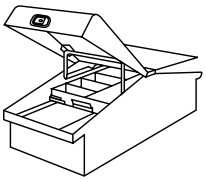
2-1/2" high

(Mfr. #7-5625-1)

RECESSED TOOL BOX LOCK *with hook latch*

Replacement key cylinder No. 099-040
One key furnished.

099-258 Right Plain Finish Steel.



Dimensions:

4-1/2"	length of receptacle
3-1/2"	width of receptacle
1/2"	width of flanges
1-5/16"	total thickness
1 lb. 11 oz.	weight each

Priced Singly

(Mfr. #4900)

Attached by welding, riveting, or screwing.

PADDLE HANDLE RECESSED DOOR LOCK

With end-latching slide bolts equipped with stainless steel springs.
Slam Action for Utility and Tank Bodies

recommended for 3/4" maximum door thickness.

D-3203LA Bolt only as shown.
D-3203LAR Bolt only with reverse bevel.
D-3203LAO Bolt only with 9/16" offset.

*Rods furnished for maximum overall length of Lock Assembly of 69-3/8".

(Right-hand shown)

Plain Finish

All items shown are Priced Singly.

D-3203LA Bolt Only.

5-1/4"	length of receptacle
5"	width of receptacle
7/16"	width or receptacle flanges
2"	width of end slide bolt cases
2-5/8"	length of end slide bolt cases
3/4"	width of end slide bolts
11/16"	projection of end slide bolts
3-3/4 lbs.	weight each

Two Point (Key-Locking).
Right and Left-hand.
Illustration shows Right-hand.

Visit us on the web at . . .

www.spaenaur.com

L

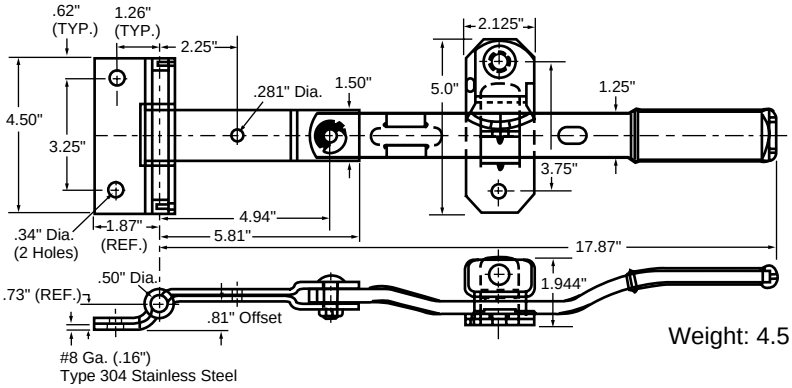
Trailer Closure Assembly

Heavy Duty - Corrosion Resistant

099-815

Fully assembled Stainless Steel hinge portion and Stamped Steel* handle with rubber grip.

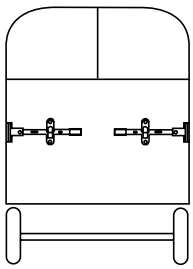
*High Strength, Low Alloy Steel, 45,000 Min. Yield.

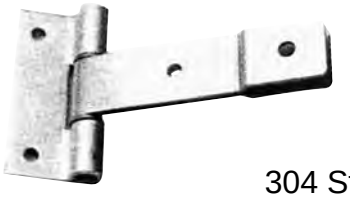


Weight: 4.5 lbs.

Ideal for doors which fold down like ramps.

- Horse Trailers.
- Utility Trailers.





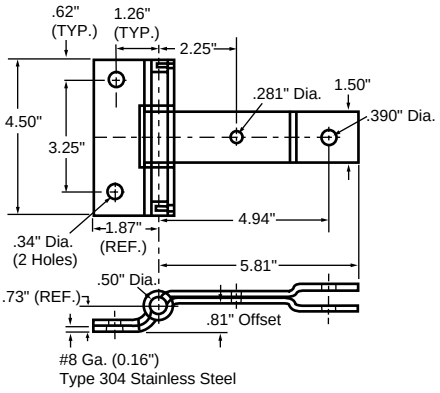
099-814

Stainless Steel

Hinge Strap Only

304 Stainless Steel hinge strap is specially formed to include a clip to mount an activating handle.

Weight: 2 lbs.



L

Trailer Coach Items

Hitch Balls

Cold Forged
1020 SOLID STEEL

Machined to Smooth Finish

Hardened to HB 115-170
NICKEL-CHROME PLATED
Includes Gr. 5 Lockwasher & Hex. Nut

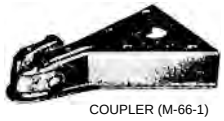
Priced Singly

SPAENAUR No.	Ball Dia.	Thread Size	Stud Lgth.	Load (lbs.) Rating
879-004	1-7/8"	3/4"-16	1-1/2"	2000
879-005	2"	3/4"-16	1-1/2"	3500
M17 Not Plated - Drop Forged	2"	1"-14	2"	3300
879-006	2"	1"-12	1-3/4"	3300
879-007 Ball is painted black	2-5/16"	1-1/4"-12	2-1/8"	7500

TRAILER HITCH BALL COVER

879-008 *See page J73. for more information.*

Priced Singly



COUPLER (M-66-1)

HEAVY DUTY COUPLER & JACK

AVAILABLE COMPONENTS

M-66-1 Coupler Only
Coupler features new latch, easily adjustable for ball wear. Grips any 2" ball securely, without springs. Coupler is of 3/16" steel. Sides are 3" wide, 9-3/4" long. 50° angle between sides. Lock holes permit use of padlock or pin lock.

CASTER (M66-3)

M-66-3 Caster Only
Removable caster formed of heavy gauge steel. Horizontal ball bearing for smooth action. Fork and wheel are pressed steel, with corrosion-resistant zinc finish. Wheel diameter 6".

M-17 2" Ball Bolt, Nut & Lock Washer

P.C. 879

CATALOG 13

Spring Bolt

This spring-loaded bolt uses a 3/8 inch steel rod, tapered at the leading end, and retained within a steel case. Bolt withdraws by 0.75 inch and is retained by inset pins.

SPAENAUR No. **099-300**

Dimensions:

Body Length	2-7/16"
Body Width	2"
Height	15/16"
Holes c. to c. Length	1-5/32"
Holes c. to c. Width	1-7/16"
Hole Diameter	4 Holes 1/4" Dia.

Steel, Zinc Finish

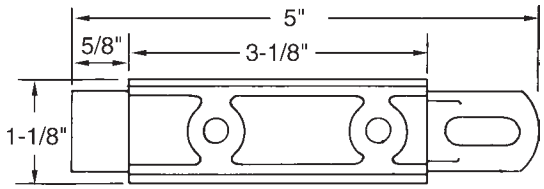
Moulded Slam Latch

'Fix-through' design, totally corrosion-resistant with stainless steel spring.

SPAENAUR No.
099-421

The latch is designed to be mounted through the fixing holes in the body and operated by rod or cable. The slotted bolt pull area provides 'lost motion' so that the latch can always retract, even when the operating system is in 'locked' position.

Black Acetal Copolymer Textured Finish



O/A Thickness (body height) 3/4"

Compact, slim style will suit narrow door pillars, sections and channels.

Finger Hook Latch Bolts

D-3202 (Mfr. #565697)

Steel Latch Bolt

(Flush Type)

Plain Steel

2"	width of case
2-5/8"	length of case
3/4"	width of slide bolt
5/8"	projection of slide bolt
4-15/16"	length overall
1/2 lb.	weight each

Holes for No. 10 screws.

D-3202A (Mfr. #2-565697)

(Offset Type)

Steel, Zinc Plated

2"	width of case
2-5/8"	length of case
3/4"	width of slide bolt
5/8"	projection of slide bolt
4-7/8"	length overall
9/16"	offset from back of case to bolt
11/16 oz.	weight each

Holes for No. 10 Screws.

D-4037 (Mfr. #565692)

"Slamtite" Tapered Bolt

Steel, Zinc Plated

2"	width of case
2-5/8"	length of case
3/4"	width of slide bolt
1-7/8"	projection of slide bolt
6-3/8"	length overall
13/16 lb.	weight each

Steel striker plate furnished as shown.
Holes for No. 10 screws.

D-4052
(Mfr. #5597)

Steel, Zinc Plated

4-11/16" length overall
Weight 1/4 lb.

Ideal latches for drawers and small cabinets.

Have light six pound springs, easily actuated.

1-5/8"	width of case
2"	length of case
1/2"	width of slide bolt
9/16"	projection of slide bolt
1/2"	width of hook member
7/8"	height of finger hook

L

CATALOG 13

All items on this page Priced Singly.

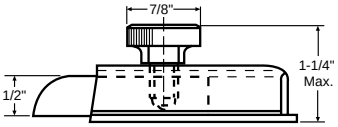
Inside Slam Latch

099-183

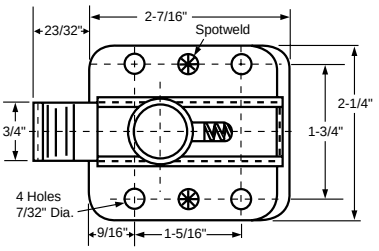
STEEL
Yellow Zinc Dichromate Finish

Plastic Pull-Knob Release

Priced Singly



Shown with knob and "nose-down" bolt.



DOOR HOLDER

099-109

Sturdy stainless steel hook and keeper. When mounted, holds door open firmly clamped to the side.

Priced Singly

1-3/4"	overall width of hook keeper back plate
3"	overall length hook and keeper back plate
1 x 2-5/16"	centres of mounting holes on hook and keeper
5/16"	overall height of hook assembly
23/32"	overall height of keeper assembly
3-3/4"	length of hook
1/8"	thickness of mounting flanges
13/64"	diameter of mounting holes
7 oz.	weight each

Stainless Steel
Prepolished

POSITIVE DOOR HOLDER

D-3196

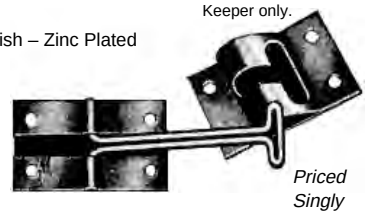
(Mfr. No. 5600U)

Hook and Keeper

For holding doors open against side of body. Hook manually engaged and disengaged.

D-3196K
Keeper only.

Finish – Zinc Plated



Priced Singly

1-3/4"	overall width of hook keeper back plate
3"	overall length hook and keeper back plate
1 x 2-5/16"	centres of mounting holes on hook and keeper
3/8"	overall height of hook assembly
3/4"	overall height of keeper assembly
4"	length of hook
1/8"	thickness of mounting flanges
13/64"	diameter of mounting holes
5 oz.	weight each

D-4019 Zinc Plated

(Mfr. No. 5601-1/2U)

HEAVY DUTY POSITIVE DOOR HOLDER

Priced Singly

Specifications

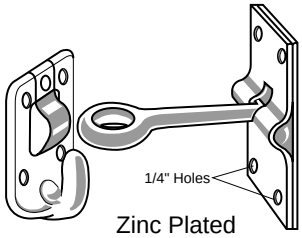
1-3/4"	width of hook and keeper mounting plate
3"	overall length of hook and keeper mounting plate
1 x 2-5/16"	centres of mounting holes on hook and keeper
9/16"	overall height of hook assembly
3/4"	overall height of keeper assembly
4"	length of hook
1/8"	thickness of mounting flange on female keeper
3/16"	thickness of mounting flange on hook
13/64"	diameter of 8 mounting holes
11 oz.	weight each

The D-4019 Positive Door Holder was designed for heavy duty use. Its rugged steel construction incorporates a flat hook retaining spring which prevents the malleable hook from accidently bouncing out of the female keeper.

D-4051 DOOR HOLDER

Has Drop-Forged Hook-and-Eye Pieces

Priced Singly



Zinc Plated

Dimensions:

2"	overall width	Keeper assembly:	
3-1/4"	overall length	1-3/4"	overall width
4-1/2"	eye extension	2-1/2"	overall length

Flexible Wire Rope DOOR HOLD BACK

The flexibility of the wire rope compensates for any misalignment between the holdback hook and the keeper.

STEEL
Zinc Plated Finish

Priced Singly

SPAENAUR No.	Mfr. No.	Rope Length	Mounting holes	Particulars
099-061	5601-1/2-E1	4"	0	No retainer spring in keeper
099-062	6–E1	6"	0	
099-063	5601-1/2-E2	4"	8	
099-064	6–E2	6"	8	
099-067	5601-1/2-E4	4"	8	With retainer spring in keeper
099-068	6–E4	6"	8	

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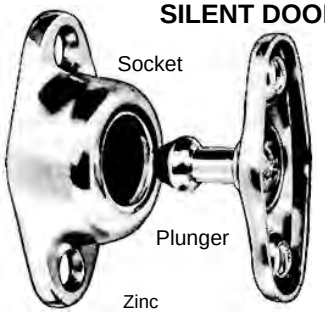
CATALOG 13

SILENT DOOR HOLDER



Zinc Plated

For years the most completely dependable method of retaining light and heavy doors or hinged panels in an open position – securely, soundlessly and without the risk of finish-marring damage. No metal-to-metal contacts. Plunger is surrounded by snug-fitting Neoprene Cup in socket.

Smaller hole has more holding power.

Priced Singly

SPAENAUR No.	Plunger Length	Overall Length
M-70	1-1/4" Plunger	1-5/8"
M-74	1-3/4" Plunger	2-1/8"
M-75	2-1/4" Plunger	2-5/8"
M-76	2-3/4" Plunger	3-1/8"
M-73	Socket (Large Hole)	
879-002	Socket (Small Hole)	
M-73C	Neop. Cup Only (Sm. Hole)	

DOOR HOLDER -

For Holding Door Against Side of Body

D-3189
D-3189C

Finish - Zinc Plated

Stainless Steel Plunger Spring

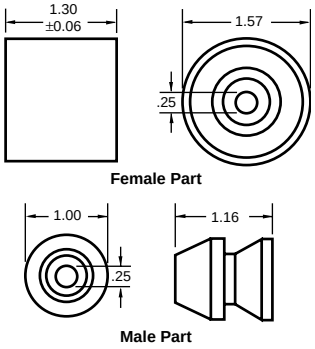
Equipped With Grease Fitting

(Mfr. #5602-1/2)

D-3189	D-3189C	
1-1/4"	1-1/4"	overall width, case
4"	4"	overall length, case
3-1/4"	3-1/4"	c. to c. screw holes, case
1-3/16"	1-3/16"	overall height, case
1-1/4"	1-1/4"	overall width, hook base
1-5/8"	1-5/8"	c. to c. holes, hook base
1-1/2"	3"	projection, hook
7/32"	7/32"	thickness screw flanges
7/8 lbs.	1 lbs.	weight each

Priced Singly

Rubber Door Holder



Unit Pkg. 1 (Two part)

099-210 (Mfr. #666)
A simple positive door holder with good shock absorbing qualities, giving near-silent operation. The rubber female portion (acting as a door buffer) has a unique internal design, which provides a positive grip on the male portion. The male portion is molded from black polypropylene. The complete unit gives positive corrosion-free performance. Furnished black.

099-211 (Mfr. #777)
For production line assembly, the base of the female portion has been drilled with a 6 mm tapped hole. Both 099-210 and 099-211 have a 44 lb. pull-off. Colour- black.

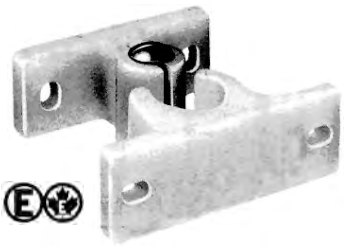
099-212 (Mfr. #776) with plain washer.

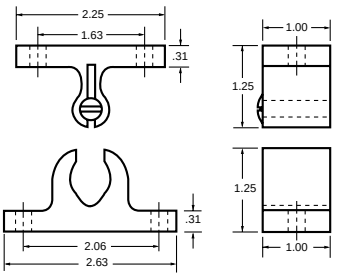
099-213 (Mfr. #778) with tapped washer.

Designed for a softer, more gentle door holder of this type, a pattern with a 6-1/2 lb. pull-off has been designed under part numbers 099-212 (with plain washer) and 099-213 (with 6 mm tapped washer.) Male part colour- black. Female part colour- blue.

Adjustable ● Nylon ● Door Holder was specially designed for use on all types of enclosures using hinged or sliding doors. The unique design includes a brass (nickel plated) screw which allows delicate adjustment for the force required to hold even the heaviest door or panel.

***SPAENAUR No.* 099-214**



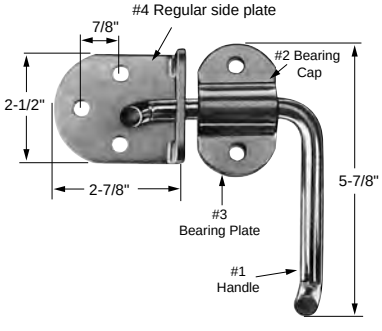


Unit Pkg. 1 (Two Part) (Mfr. # 555)

WESTERN GATE LOCKS - sold in sets or individual pieces

ALL STEEL - Cadmium or Zinc Finish

099-271
#4 Regular side plate



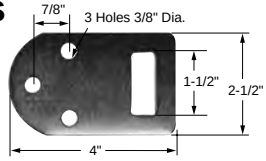
SPAENAUR No.	Mfr. No.	
099-264	1234	Set with Regular Side Plate (As per Illustration at left.)
099-265	1235	Set with Regular Corner Plate
099-267	1237	Set with Long Corner Plate
099-268	#1	Handle
099-269	#2	Bearing Cap
099-270	#3	Bearing Plate
099-271	#4	Regular Side Plate
099-272	#5	Regular Corner Plate
099-273	#6	Long Side Plate

NOTE: All mounting holes for 5/16" bolts.

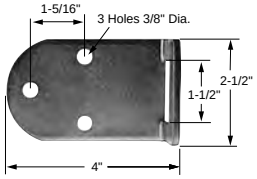
All above SPAENAUR No's. Priced Singly.

These popular locks operate smoothly, engage securely, and are ruggedly constructed for long service. Available in three combinations, as illustrated, OR parts sold separately.

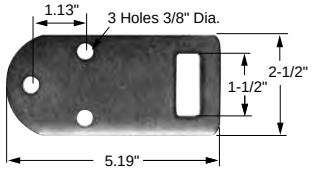
099-272
#5 Regular Corner Plate



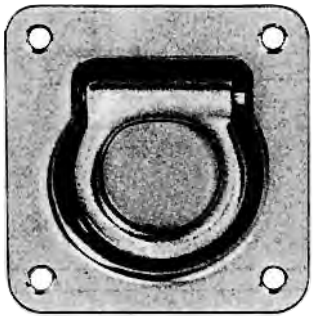
099-273
#6 Long Side Plate



#7 Long Corner Plate



Recessed Rope Ring



Priced Singly

D-4057 (Mfr. #172)
Zinc Plated Steel

4"	overall length
3-3/4"	overall width
1"	thickness case behind flange
1-1/2"	inside diameter of ring
10 oz.	weight each

Holes for No.12 Flat Head Attachment Screws.

For use inside van bodies.

Recessed Rope Fitting

Priced Singly

D-3206 (Mfr. #170)
Zinc Plated Steel

Designed for 3/8" Plywood Lined Vans. Rope ring has a 3/8" recessed pan, therefore, can be mounted and fastened directly into frame.

5"	overall length
3-5/8"	overall width
3/8"	deep
3	mounting holes for #14 flat head screw
1/2 lb.	weight each

A sturdy drop-D ring pull, large enough to accept two fingers. May also be used to attach rope, chain or cable.

FORMED HOOK

099-287
(Mfr. #7462)

Steel, Zinc Plated

Dimensions:

3/4"	wide mounting plate
1-1/2"	long mounting plate
1-9/32"	opening of hook
2"	approx. overall length
1/4 lb.	weight each

Priced Singly

BINDING HOOK

D-3213
(Mfr. #204)

Plain Steel

4-7/8"	length overall
5/8"	hook opening
5/16"	mounting holes

Priced Singly

L

ROPE FITTINGS

3-1/8"	length overall
5/8"	maximum size rope
3/8"	diameter wire in hook
5/8"	width base
3/16 lb.	weight each

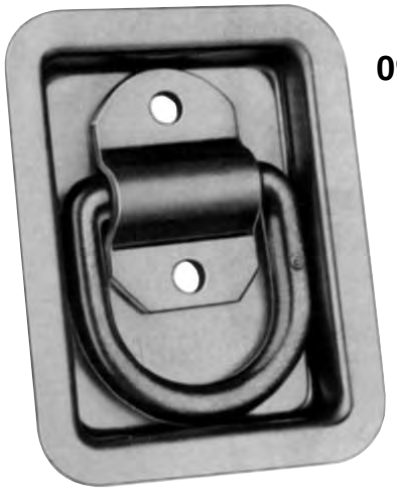
D-4004ZP With 2 Holes, Zinc Plated (Mfr. #166-AH)
099-248 Without Holes, Plain (Mfr. #166A)

Priced Singly

Made of steel, for welding to body, if desired.

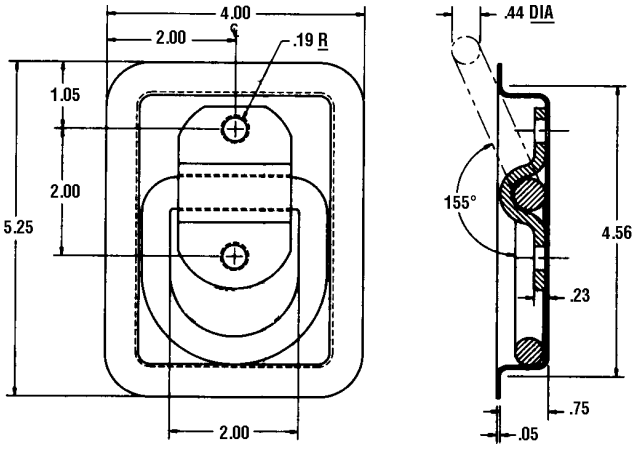
Rope Tie-Down

All Dimensions in Inches



099-467 (Mfr. #1170B)
Zinc Plated Steel

Weight:
.97 lbs.



Priced Singly

This sturdy unit is used for lashing or securing merchandise to beds or platforms in mobile applications. It is attached by bolts.

CATALOG 13

HASP LATCH

Padlock Type

D-4040 (Mfr. #4853)
For doors up to 3/8" thick.
Staple has stud for riveting.

1-7/16" length inside latch
4-1/4" length hasp
9 oz. weight each

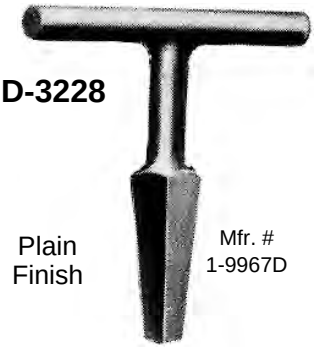
Plain Finish

Priced Singly

Malleable Iron

LOCK KEY

D-3228



Plain Finish

Mfr. # 1-9967D

Dimensions:

2-1/2" length handle
3-21/32" overall length
1-1/8" length square
1/4" to 3/8" tapered square
3 oz. weight each

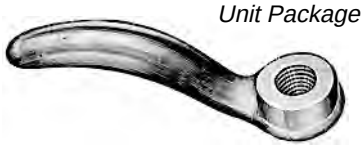
Priced Singly

Box-Rod

HANDLE NUTS

Malleable Iron — Self Coloured

Unit Package 10

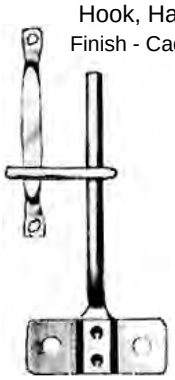


SPAENAUR No.	Thread Size	Length	Width of Flange
226-000	1/4" - 20	3-3/4"	15/16"
226-001	5/16" - 18	3-3/4"	15/16"
226-002	3/8" - 16	4-1/4"	15/16"
226-003	7/16" - 14	4-1/4"	15/16"
226-004	1/2" - 13	4-1/2"	1-1/4"
226-005	5/8" - 11	4-3/4"	1-1/4"
226-006	3/4" - 10	4-3/4"	1-1/4"

DOOR HOLD-BACK AND HANDLE

099-277
Complete Set
Hook, Handle & Eye
Finish - Cadmium or Zinc

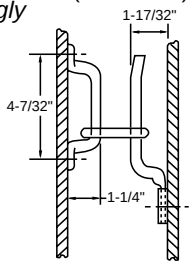
Designed for truck, trailer, and containing applications, but can be used to hold any large, swing-type door securely in open position. Hook generally mounted on permanent surface, handle and eye mounted on swinging door.



Specifications:

Priced Singly

(Mfr. #6602)



HOOK

2-1/8" centres of horizontally spaced mounting holes
13/32" diameter of mounting holes (2)
1-17/32" approx. projection of hook
13 oz. weight of hook, handle and eye

HANDLE

4-7/32" centres of mounting holes
7/32" diameter of mounting holes (2)

099-254
(Mfr. #6068)
LADDER HOLDER

Finish - Plain

Dimensions:

6-7/8" overall projection from side of body
12-1/2" overall length
3-1/2" overall width
7-1/4 lbs. weight each

Priced Singly

Designed by A.T. & T. engineers for holding extension ladders on A.T. & T. service trucks, this device is exceptionally sturdy and convenient. In the closed position, the ladder is securely held by a spring-action toggle clamp. It can be released instantly by raising the handle. Licensed under U.S. Patent No. 2,080,527.

HEAVY-DUTY LATCH

Cast Iron - Plain or Zinc Plated (our option)

A substantial latch for heavy-duty use on doors, end gates, latches, etc. Simple to attach.

D-3224R (Right)
D-3224L (Left)
(Mfr. #5809)

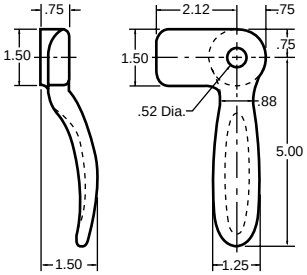
Priced Singly

Right hand illustrated.

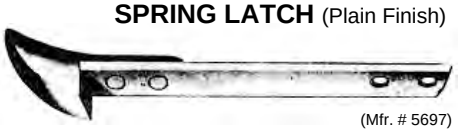
Dimensions:

5" c. to end of handle
2-1/8" length of lock tongue
1-1/2" dia. pivot boss
3/4" thick pivot boss
33/64" dia. hole for 1/2" dia. pivot bolt
1-1/2" total projection
1-1/4 lb. weight each

Specify right or left-hand when ordering.



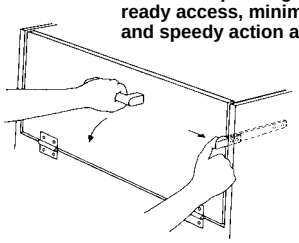
SPRING LATCH (Plain Finish)



(Mfr. # 5697)

Spaenaur No.	Width	Length of Spring	Weight
099-283	3/4"	8-7/8"	5 oz.
099-284	7/8"	9-1/4"	6 oz.

Use on simple hinged panels where ready access, minimum fastening and speedy action are required.



Priced Singly

L

CATALOG 13

STAKE POCKETS

Plain Finish
(Zinc Finish Available, P.O.A.)

Straight Pocket

SPAENAUR No.	D-3252	D-3253	D-3254	D-3255	D-3256
Mfr. No.	(5995-C)	(5990-B)	(5990-C)	(5990-H)	(5990-D)
Pocket W x L	1 1/2" x 3"	1 1/8" x 2 1/4"	1 1/4" x 2 1/2"	1 1/2" x 2 1/2"	1 1/2" x 3"
Pocket Depth	2-3/4"	1-7/8"	2"	1-3/4"	2"
O/A Length	7-1/2"	6"	6-1/4"	7-1/4"	6-3/4"
Bolt Dia.	3/8"	3/8"	3/8"	3/8"	7/16"
Mounting Holes	4	2	2	2	2
Approx. Wt./100 pcs.	173 lbs.	106 lbs.	113 lbs.	117 lbs.	165 lbs.

Chain Eye

For Heavy Trucks

D-3226
(Mfr. #5838A)

Plain Steel

5-1/8" long
1-3/4" wide
9/16" eye
3-3/8" c. to c. of holes
3/8" bolt diameter
1 lb. weight each

STAKE RACK FASTENERS

For Loose End or Side Racks

Plain or Zinc Finish
(our option)

(Mfr. #5758)
Illustration shows **D-3258E** Eye and **D-3258H3R** Hook (3" long, Rt.-hand)

A Series	B Series	
5-1/2"	6"	length overall hook plate
5-1/8"	5-3/4"	length overall eye plate
3 x 3/8"	3-1/8 x 11/16"	hooks
2-3/4"	3"	width plates
1/4"	5/16"	bolts

Holes may or may not be countersunk (our option).

A SERIES

D-3258E	Stake Rack Eye
D-3258H3L	Hook - 3" Left
D-3258H3R	Hook - 3" Right
D-3258H6L	Hook - 6" Left
D-3258H6R	Hook - 6" Right

B SERIES

D-3259H6L	Hook - 6" Left
D-3259H6R	Hook - 6" Right

Drilled hole for 1/4" bolt

(Mfr. # 40705)

TRUCK BODY TAILGATE HOOK

D-3262ZP
Zinc Plated

Length from centre of head to heel of hook: 4-3/4"

Weight: Approx. 1/2 lb. each

EYE

Plain Finish

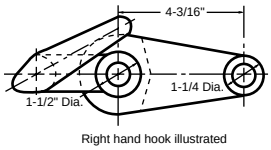
(Elongated Hole)

D-3259ES
(Mfr. #5758C1)

Hole Dimension Inside: 7/8" x 1-3/8"
Weight per 100 pieces: 97 lbs.
For use with D-3259 "B" series hooks. Elongated hole permits easier assembly of hook into eye. Less buckling of racks under heavy loads.

TOW HOOKS

Plain Finish



Right hand hook illustrated

Drop Forged

D-4025-R (Right-hand Hook)
D-4025-L (Left-hand Hook)

Priced Singly

Drop forged from quality controlled steel. Features 2 mounting holes. The thickness through the centre boss is 1-1/2". Light weight with exceptional strength. Maximum recommended safe working load is 23,400 lbs.

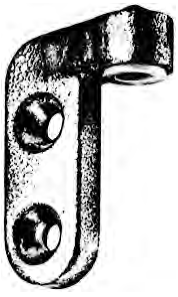
Stake Base

For Tapered Pockets

Plain Finish

D-3267
(6044-A)

1-1/2" x 2-1/2" pocket size
3-3/4" pocket bearing
1-1/2" width strap
8-1/2" length straps
3-7/16 lbs. weight each



HINGE BRACKET

Malleable Iron -
Cadmium or Zinc Pltd.

099-281 (Right)
099-282 (Left)
(Mfr. #287-B-87)

Priced Singly

Specifications:

Nylon bushing for 3/8" dia. pin
Mounting hole 11/32".
Holes centre to centre 1-1/4"
Weight 6 oz. each

FOLDING DOOR ROLLER GUIDE

D-3247
Plain Finish
(Mfr. #5769)
Priced Singly

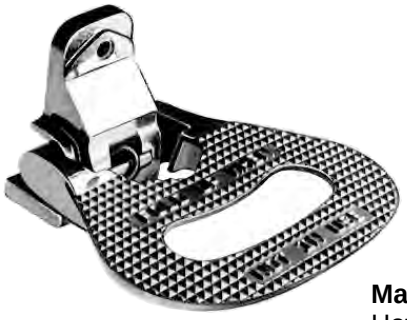
Plain Roller with Grease Fitting

5-1/4" length strap
1/2" face of door to centre of roller
1-1/16" width strap
1" diameter roller
3/4" height roller
1/2 lb. weight each

P.C. 099

L

CATALOG 13



099-157

(Mfr. #1-585809)

PRICED SINGLY.

Here's a Foot-step/Handhold designed for greater strength and durability. It meets the demanding requirements of Federal Highway Administration Regulation 49CFR, Section 399.

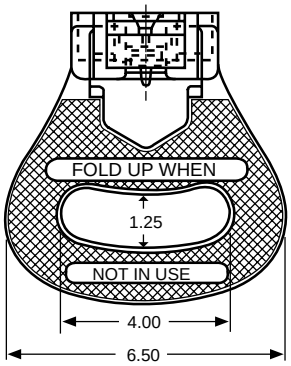
The unit has a step with a minimum 5" diameter, and is capable of withstanding a vertical static load of 450 pounds. The step has a serrated surface to reduce the possibility of skidding.

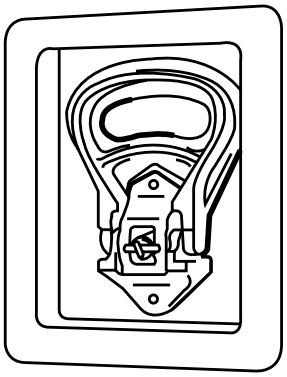
The opening in the step is large enough to be comfortable for even the largest gloved hand.

When flipped up, the step is held firmly in place by a heavy-duty, anti-rattle spring.

This new foot-step can be easily retrofitted on older installations because the mounting hole centre-lines are common.

Material: Alloy Steel
Hot Dipped Galvanized





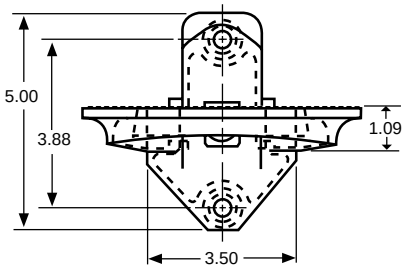
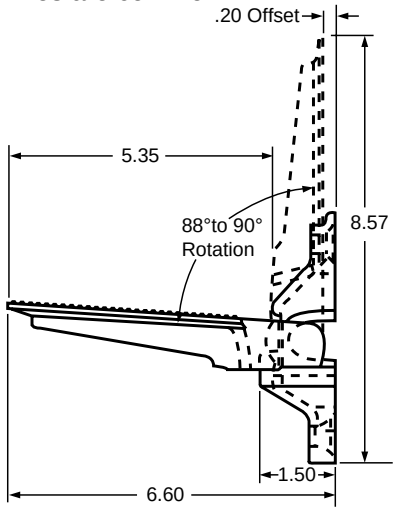


Illustration
Dimensions
in Inches.



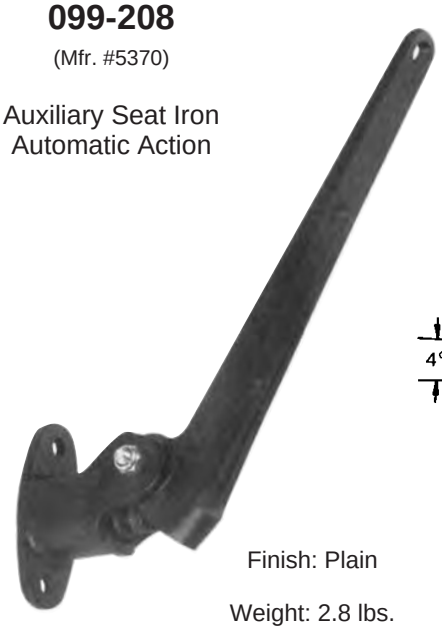
More Folding Steps on L90.

L

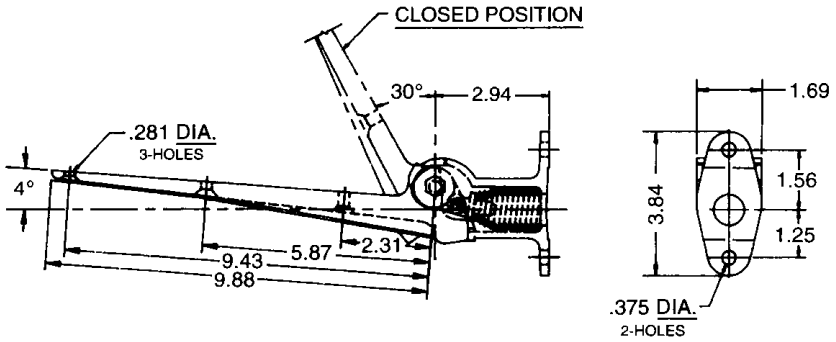
SPAENAUR No.
099-208
(Mfr. #5370)

Illustration Dimensions in Inches.

Auxiliary Seat Iron
Automatic Action



Single-arm style to be used in pairs for small seats or in multiples for long seats.



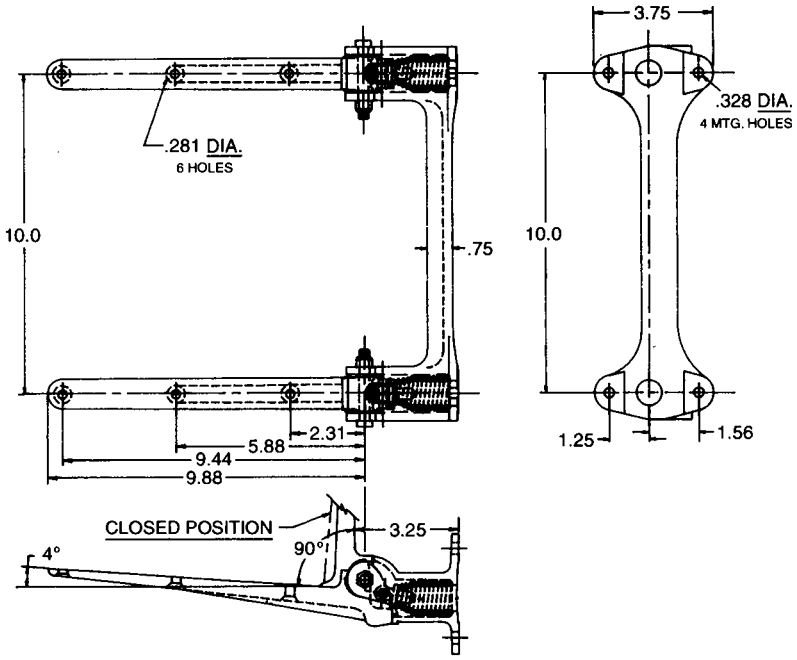
Finish: Plain

Weight: 2.8 lbs.

Priced Singly.

SPAENAUR No.
099-209
(Mfr. #5378)

Double-arm Style
Auxiliary Seat Irons
Automatic Action



Finish: Plain

Weight: 6.6 lbs.
Priced Singly.

L

FOLDING STEP

D-3197
(Mfr. #575709)

For use on bodies, trailers, or shelters where easy access to the roof is necessary. The slotted step pad combines hand grip and tread. A flat spring holds step pad in open or closed position.

Priced Singly

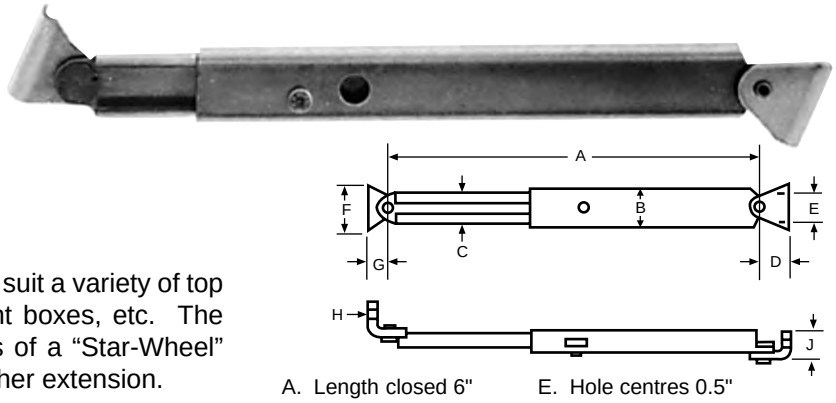
Dimensions:

2"	width back plate
4-5/8"	length back plate
2-1/8 x 4-3/8"	step pad
4"	over step, open
1"	over step, closed
18 oz.	weight each

Finish - cadmium or zinc

099-184
(Mfr. # 7/25122)
(with brackets)

099-231
(Mfr. # 7/26596)
(without brackets)



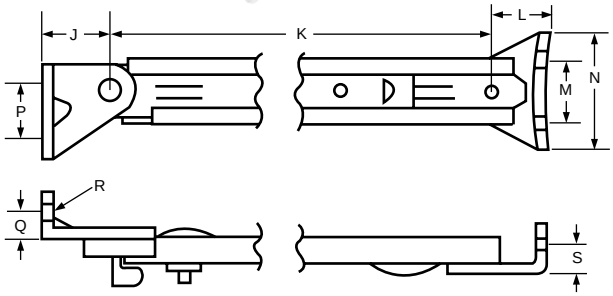
"Miniature" Support Stays

These stays are smaller versions, and suit a variety of top and side-opening cabinets, instrument boxes, etc. The stays lock in open position by means of a "Star-Wheel" design, and are released by slight further extension.

Material: STEEL **Finish:** ZINC PLATED

A. Length closed 6" open 9.4"
B. Width (outer) 0.75"
C. Width (inner) 0.67"
D. Location 0.65"
E. Hole centres 0.5"
F. Hole centres 0.5"
G. Location 0.65"
H. Hole dimensions 0.138" dia.
J. Brackets Height 0.5"

Note: Safety catch fitted to this type of stay.

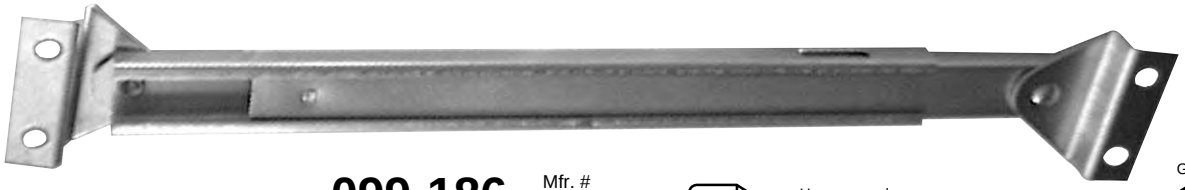


099-185
(Mfr. # 7/25621)
(with brackets)

This stay incorporates a safety catch. To operate, the stay is extended slightly, and the catch released by hand. There are brackets at each end, pivoting freely, and these are individually shaped. Length between fixing centres is 11.2" (closed), 18.5 (open) - not including brackets.

Material: STEEL **Finish:** CLEAR or YELLOW ZINC — our option

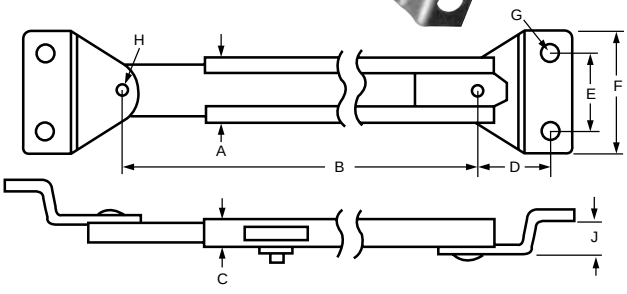
J. Location 0.9"
K. Length closed 11.2" open 18.5"
L. Location 0.9"
M. Hole centres 1.25"
N. Width (bracket) 2.0"
P. Hole centres 0.75"
Q. Location 0.35"
R. Hole dimensions 0.197" dia.
S. Location 0.5"



099-186
Mfr. # (7/03098)
(with brackets)

A basic but extremely popular design with "draw" of 8-1/2" approx., and identical brackets at each end which can swivel freely. The stay locks in the extended position by means of a "Star-Wheel" design, and a further slight extension then frees the mechanism and allows the unit to be closed.
Length between fixing centres is 11.4" (closed), 19.5" (open) - not including brackets.

Material: STEEL **Finish:** CLEAR or YELLOW ZINC — our option



A. Width (outer) 1.0"
B. Length closed 11.4" open 19.5"
C. Height (outer) 0.43"
D. Location 1.1"
E. Hole centres 1.378"
F. Width (bracket) 2.25"
G. Hole dimensions 0.354" dia.
H. Hole dimension 0.236" dia.
J. Bracket Height 0.55"

L

DOUBLE ACTION SIDE OR COWL VENTILATOR

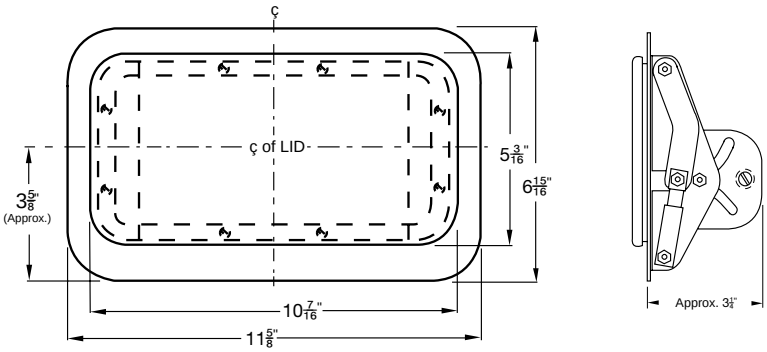
099-311

All steel construction.
20 Ga. C.R. Steel, Zinc Plated.
Supplied without holes for welded installation.
Holes may be added to mounting flange for riveted or bolt on installation.
Supplied with perforated metal bug screen.

Priced Singly

Two way action allows for air intake or air exhaust.

Designed for O.E.M. or replacement on Trucks, Buses, Sleeper Cabs, Farm Cabs, Poultry Bodies, Vans and Off Road Equipment.



Dimensions — Outside Flange
11-5/8" L x 6-15/16" W
Lid (Door) 10-7/16" L x 5-3/16" W

L

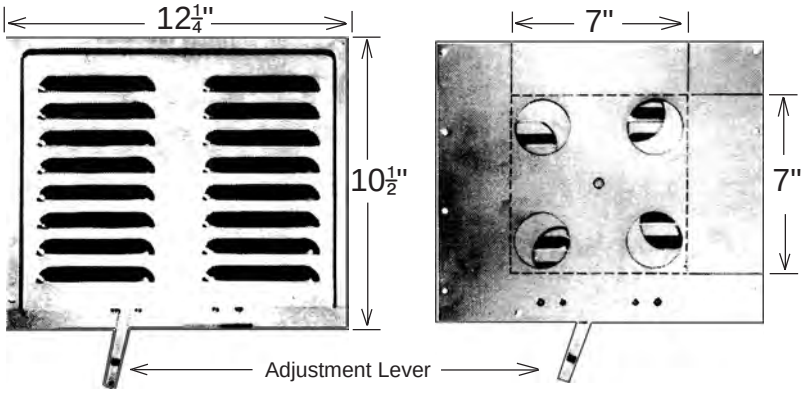
MULTI-PURPOSE VENTILATOR

Recommended for Outside Use.

879-003

Aluminum Ventilator
Supplied with closure.
Back has four 2" diameter holes to allow flow of air.

Priced Singly



ROOF VENTILATOR

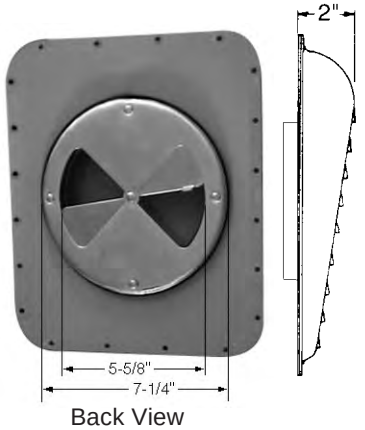
879-001

10" x 12" x 2" high.
Waterproof. Has grill for closing.
Good-looking — easy to install.
Furnished with Prime coat.

Comes complete with plate, gasket and 4 screws to attach plate & gasket.

Priced Singly

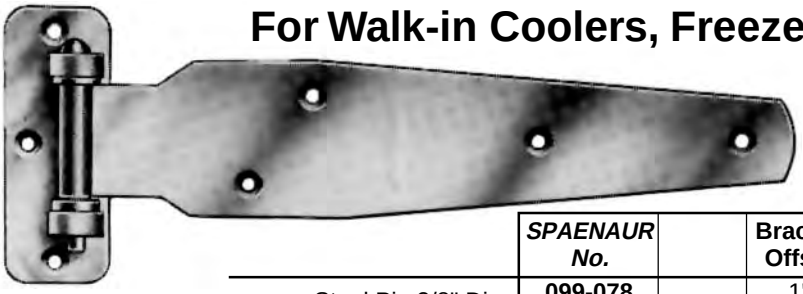
STEEL



Back View

CATALOG 13

For Walk-in Coolers, Freezers or Cold Storage Boxes

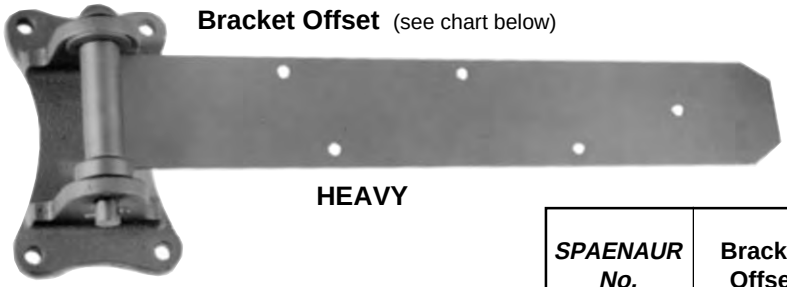


HEAVY

Strap - Rolled Steel Plate, Zinc Plated.
Bracket - Cast Iron, Grey Powder Coated.

Adaptable -
Right or Left

	SPAENAUR No.		Bracket Offset	Thick-ness	STRAP SIZE	Width	Length	Wt. (lbs.)
Steel Pin 3/8" Dia. Nylon Bushings	**099-078**	3 Hole Bracket	1"	1/8"	4 Hole Strap	3"	14"	3
	099-079		1-3/8"	1/8"		3"	14"	3
Steel Washers Use 1/4" Ctsk. Screws	**099-080**		1"	.166"		3"	14"	3-1/2
	099-081		1-3/8"	.166"		3"	14"	3-1/2
Steel Pin 9/16" Dia. Steel Ball Bearings Steel Washers Use 5/16" Ctsk. Screws	**099-082**	4 Hole Bracket	1"	.166"	5 Hole Strap	4"	21"	7
	099-083		1-3/8"	.166"		4"	21"	7
	099-084		1"	1/4"		4"	21"	8
	099-085		1-3/8"	1/4"		4"	21"	8
	099-086		1-5/8"	1/4"		4"	21"	8



Bracket Offset (see chart below)

HEAVY

All Hinges

Adaptable for -
Right or Left

Strap - Rolled Steel Plate, Zinc Plated.
Bracket - Cast Iron, Grey Powder Coated.

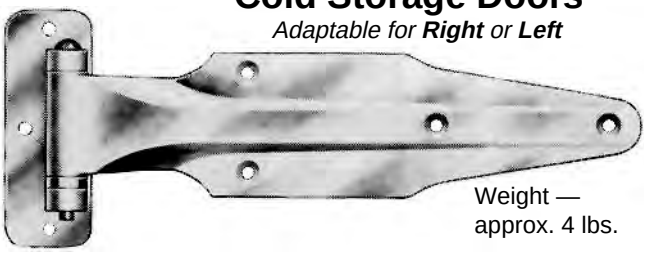
Bracket 6-7/8" high x 4" wide.
Holes in bracket drilled for 3/8" bolts.
Pin — Steel - 9/16" diameter x 5" long.
Washers — Steel.

	SPAENAUR No.	Bracket Offset	STRAP SIZE Thick	Width	Length	Strap Screw-Holes	Wt. (lbs.)
Roller Bearings	**099-087**	1"	.166"	2-7/8"	17"	drilled 1/4"	6
	099-088	1-3/8"	.166"	2-7/8"	17"	1/4"	6
	099-089	1-5/8"	.166"	2-7/8"	17"	1/4"	6
Ball Bearings	**099-090**	1"	1/4"	4"	28"	cts'k 5/16"	10
	099-091	1-3/8"	1/4"	4"	28"	5/16"	10

Cast Iron Hinge for Cold Storage Doors

Grey Powder Coated

*Adaptable for **Right** or **Left***



Weight — approx. 4 lbs.

SPAENAUR No.	Bracket Offset	Strap Size Width	Length
099-096	Flush Mount	3-1/4"	11-1/4"
099-097	3/4"	3-1/4"	13-1/2"
099-098	1-1/4"	3-1/4"	13-1/2"
099-099	1-7/8"	3-1/4"	13-1/2"

Bracket — Cast Iron 2" wide x 5-1/2" high.
Strap — Malleable Iron.
Pin — Steel 3/8" x 3-7/8" long.
Nylon Thrust Bearing.
Bracket and strap has countersunk holes for 1/4" screws.

Forged Hinges

BRASS, Bright Chrome Finish or
304 STAINLESS STEEL, Plain Finish

Weight 9 oz.

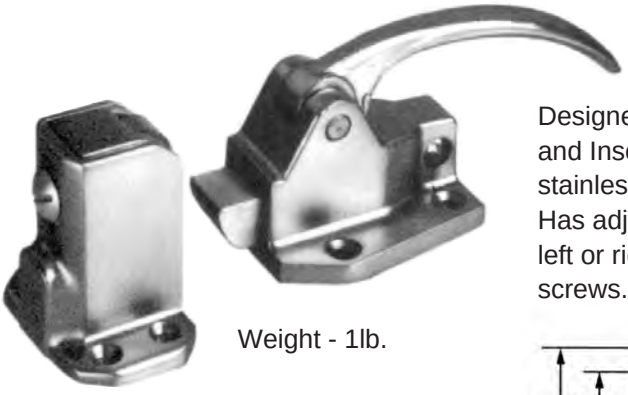
Rugged forged Brass hinge with high lustre chrome finish for vent doors - refrigerated dairy and ice-cream trucks, back bars and food cabinets.

099-093 For Flush Mount - Brass Mtr'l.
099-093SS For Flush Mount - Stainless Steel Mtr'l.
099-094 Offset 3/4" - Stainless Steel Mtr'l.
099-095 Offset 1-1/8" - Brass Mtr'l.

Strap — 5-1/8" centre of pin to end. Bracket — 1-3/8" x 3" long.
Can furnish any offset from flush to 1-1/8".
Narrow Brackets for use even where space is a problem.
Furnished with knurled pin for use on right or left hand doors.
Holes countersunk for No. 8 oval head screws.

See pages L94 and L95 for Refrigerator Locks.

All Hinges Priced Singly.

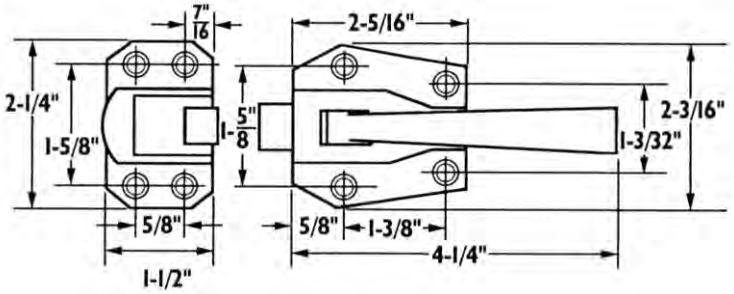


ZINC DIE-CAST LATCH

Chrome Plated

Designed for small refrigerator and ventilator doors. Body, Case and Insert manufactured of zinc die cast, Handle made from stainless steel or forged brass (our option), Bolt malleable iron. Has adjustable roller strike. Padlock hole in body. Universal for left or right hand doors. Holes drilled and countersunk for No. 8 screws.

Weight - 1lb.



099-110
FLUSH STRIKE — Flush to 1/2"

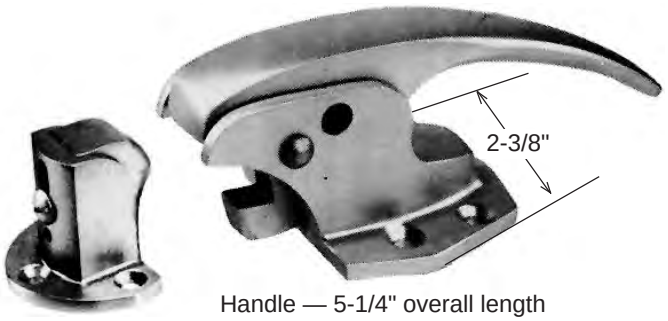
099-111
OFFSET STRIKE — 9/16" to 1-1/4" offset

Bright Chrome Plated

POLARMATIC TRIP LOCK

For "Reach-in" Refrigerators

Modern styling, easy closing. Reversible for right or left hand doors.
Positive padlock feature.
Available flush to 1-1/4 Offset.
Body and strike high pressure Zinc Die-cast.
Holes drilled and countersunk for No. 9 screws.
Handle and bolt are Brass.
Finish — Bright Chrome.
Weight — 1-1/4 lbs.
Base — 2-3/8" wide.

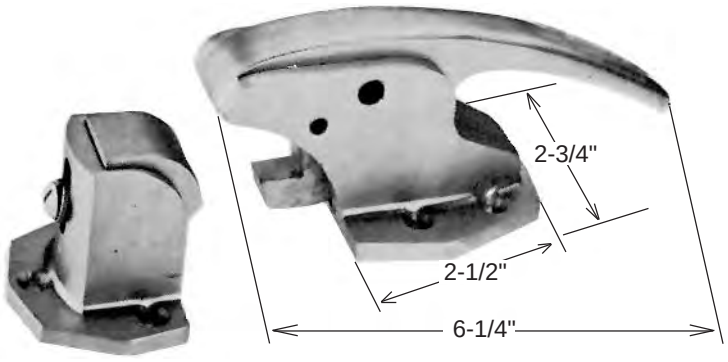


Handle — 5-1/4" overall length
Body — 3-1/4" long x 2" high

099-118 TRIP LOCK (as above)
1-3/4" h x 1-5/8" l x 2-3/16" wide at base
Strike: 5/8" to 1-1/4" Offset

099-119 TRIP LOCK
1-1/4" h x 7/8" l x 1-3/4" wide at base
5/16" to 9/16" Offset
(Strike as at left)

099-120 TRIP LOCK
7/8" h x 1-5/8" l x 2-3/16" wide at base
Flush to 5/16" Offset
(Strike as at left)



099-121
TRIP LOCK

Same as 099-118 but larger.
Strike is adjustable from 3/4" to 1-1/4"
Bright Chrome Plated

Handle — 6-1/4" overall length.
Body — 4-1/8" long x 2-1/2" high.
Base — 2-3/4" wide.
Strike — 2" high x 2" long x 2-1/2" wide at base.
Holes drilled and countersunk for No. 10 screws.
Weight — 2-1/4" lbs.

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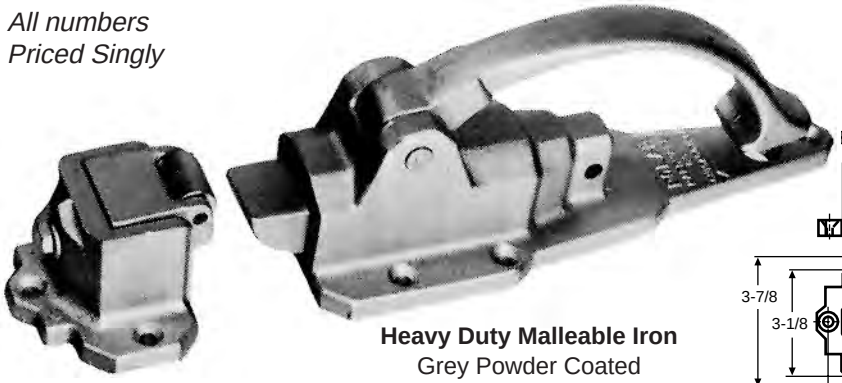
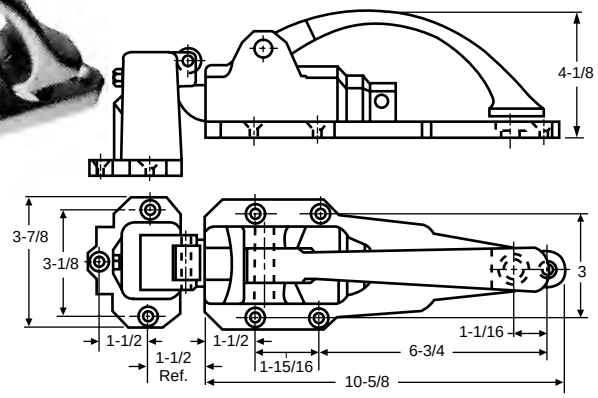
All numbers
Priced Singly



Heavy Duty Malleable Iron
Grey Powder Coated

All Mounting holes drilled & countersunk for 1/4" flat head screws.



Has adjustable roller strike. Body drilled for padlock. Adjustable strike permits take up of play in door when gasket flattens from use to form perfect seal and prevents loss of refrigeration.

For Right or Left-hand Doors

SPAENAUR No.	Style of Strike	Adjustable
099-122	Flush	Flush to 11/16"
099-123	Offset	11/16" to 1-1/2"
10" Push-Rod (included for inside exit)		

Available for flush or offset doors.
Flush strike is adjustable from flush to 11/16".
Offset strike adjustable from 11/16" to 1-1/2".

Specify flush or offset.
Overall length — 14". Holes drilled and countersunk for 1/4" screws.

Finish — Grey Powder Coated

Weight: 12-1/2 lbs.

May be padlocked.
Available from flush to 1-1/4" offset.

All Malleable Iron Construction
Finish - Grey Powder Coated

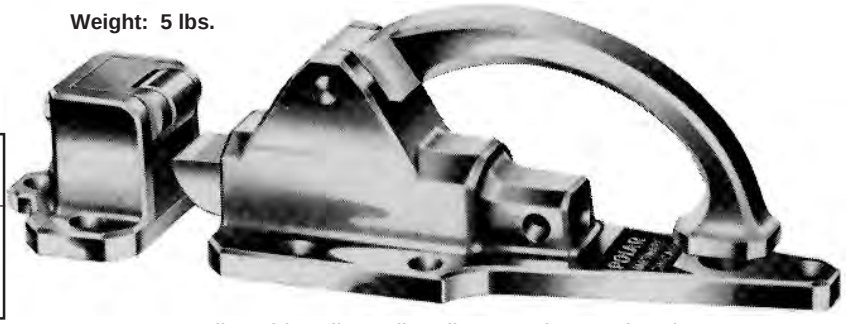
SPAENAUR No.	Style of Strike	Adjustable
099-124	Flush	Flush to 1/8"
099-125	Offset	5/8" to 1-1/4"
8" Push-Rod (included)		

Also, same style as above,
but **304 Stainless Steel**

099-128	Flush	Flush to 1/8"
Stainless Steel 8" Push-Rod (included)		

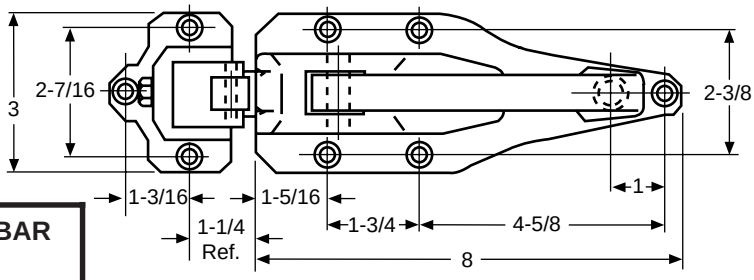
099-129	Offset	5/8" to 1-1/4"
Steel, Zinc Pltd. 8" Push-Rod (included)		

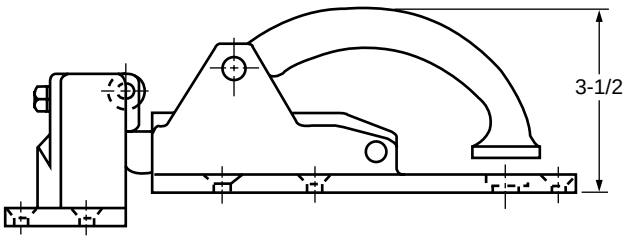
Weight: 5 lbs.



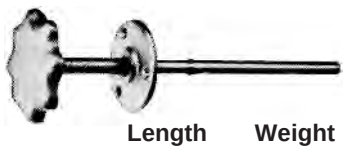
Adjustable roller strike allows perfect seal and prevent loss of refrigeration.

All mounting holes drilled & countersunk for 1/4" flat head screws.





REPLACEMENT PUSH ROD - INSIDE EXIT BAR



	Length	Weight
099-131	10"	1.54 lbs.
099-132	8"	1.43 lbs.

Zinc Plated
1/2" round steel rod
with Cast Iron
mounting plate
and Push-Knob.

(304 Stainless Steel
available P.O.R.)

Note: 099-131 is a component of #099-122, - 123
099-132 is a component of #099-124, -125, -128, -129.

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REAR DOOR HINGES

All steel, these hinges allow full 270° opening to enable door to swing parallel with side of body.

Universal for right or left-hand doors.

Specification:

Bracket — 5" wide.
Pin — 1/2" diameter steel - non-removable.
Steel thrust washers.
Mounting holes for 1/4" screws.
Available from flush to 1/2" offset.
Specify offset required.

ALL STEEL
Zinc Plated

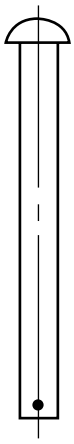
SPAENAUR No.	Style	Strap Length	Screw Holes in Strap
099-070	Flush	12"	2
099-071	1/2" Offset	12"	2
099-072	Flush	16"	3
099-073	1/2" Offset	16"	3

ALL STEEL HEAVY DUTY HINGES

*Net extra charge

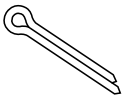
For trailer and container doors. Available in plain, bright zinc plated or *hot dipped galvanized. Available with or without mounting holes. Supplied with mounting hole patterns as shown. Others available on special order.

1/2" Dia. Clevis Pin & Cotter Pin



Clevis and Cotter Pin shown here can be ordered separately to convert the hinges shown in the chart (at right).

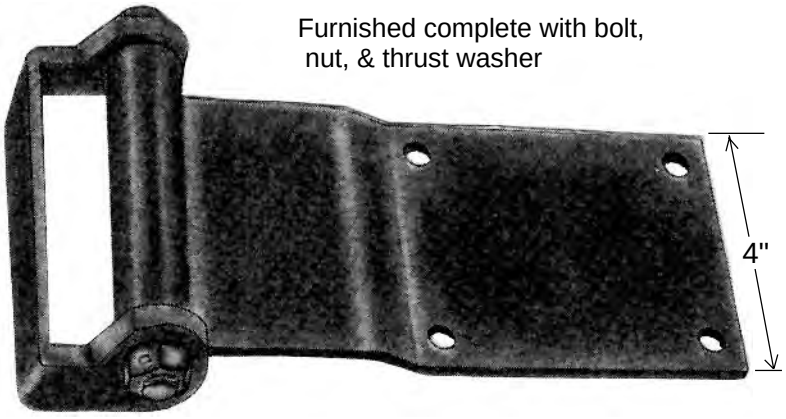
Clevis Pin
233-013

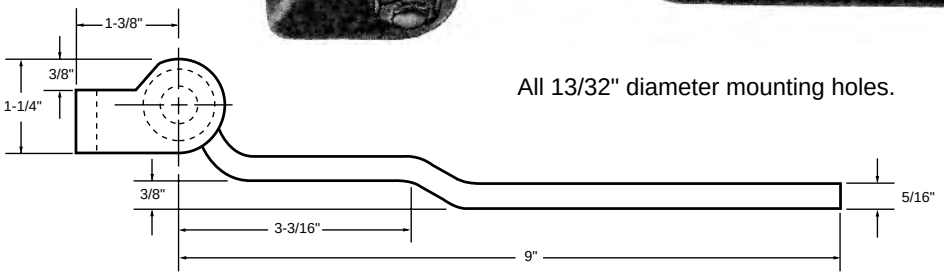


Cotter Pin
1/8" x 1-1/4"
CP-18

SPAENAUR No.	Mtg. Holes	Finish
099-074	0	Zinc
099-075	3	Zinc
099-076	4	Zinc
099-077	5 or 6	Zinc
Adaptable for Right or Left		

Furnished complete with bolt, nut, & thrust washer





All 13/32" diameter mounting holes.

HINGES *with Milled Joints*

For Round Corner Bodies

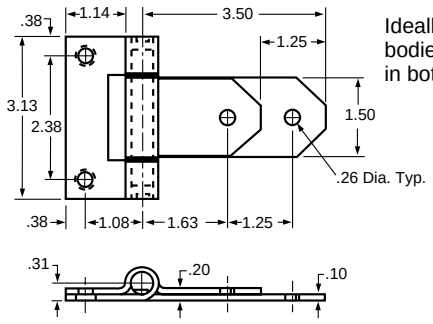
All hinges on this page Priced Singly

All hinges permit the doors to swing back against sides of van without having the joint project beyond the side of body.

D-3191
(Mfr. #5841)

D-3190
(Mfr. #5814)

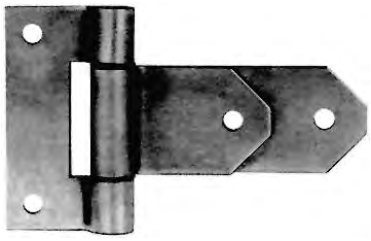
D-3191	D-3190	SPECIFICATIONS
2"	5-1/2 to 6"	-radius of Body Corner.
15-3/4"	18"	-centre of Pin to end of Strap.
2-1/4"	2-3/8"	-width of Hinge Pin.
4"	4-3/8"	-maximum width of Butt Plate.
1-3/4"	2-3/8"	-offset to centre of Pin.
5 lbs.	7-11/16 lbs.	-weight each.

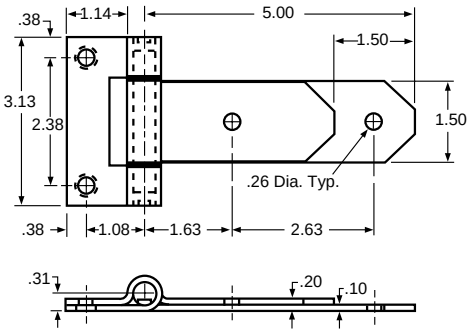


(Mfr. No's 6511 and 6511SS)

Weight: .59 lbs.

Ideally suited for applications such as larger truck bodies and heavy cabinet door designs. Available in both stainless and zinc-plated carbon steel.





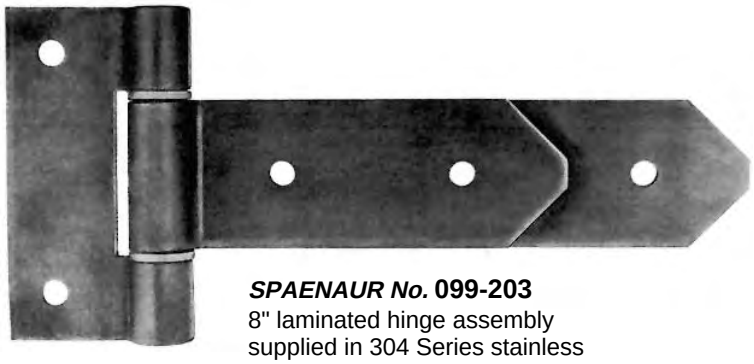
(Mfr. No. 6521SS)

Weight: .72 lbs.

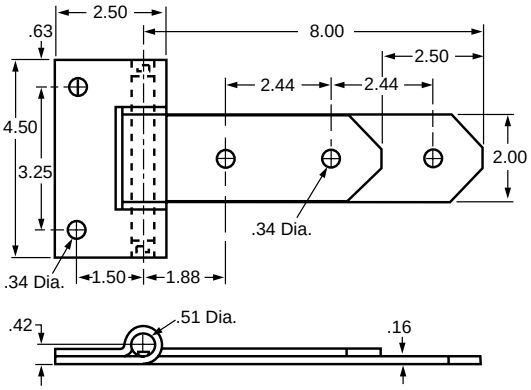
***SPAENAUR No.* 099-198**
3.5" laminated hinge assembly. Finish: Zinc-plated carbon steel.

***SPAENAUR No.* 099-199**
3.5" laminated hinge assembly supplied in 304 Series stainless steel.

***SPAENAUR No.* 099-201**
5" laminated hinge assembly supplied in 304 Series stainless steel.

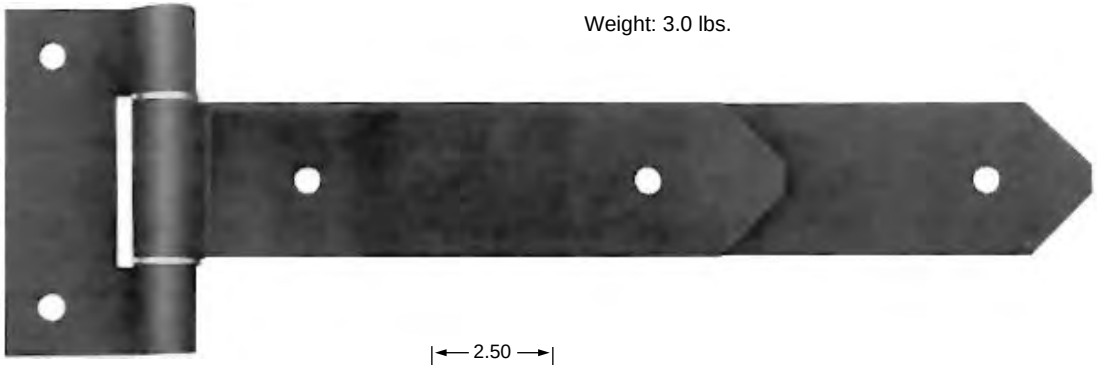


(Mfr. No. 6532SS)

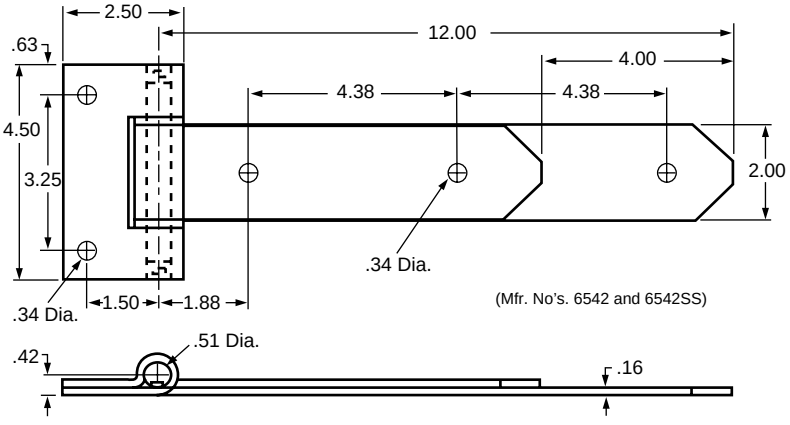


***SPAENAUR No.* 099-203**
8" laminated hinge assembly supplied in 304 Series stainless steel.

Weight: 2.38 lbs.



Weight: 3.0 lbs.



(Mfr. No's. 6542 and 6542SS)

***SPAENAUR No.* 099-206**
12" laminated hinge assembly. Finish: Zinc-plated carbon steel.

***SPAENAUR No.* 099-207**
12" laminated hinge assembly supplied in 304 Series stainless steel.

NOTE: All hinges shown on this page may be furnished with either 1-1/2" or 2" wide straps. P.O.A.

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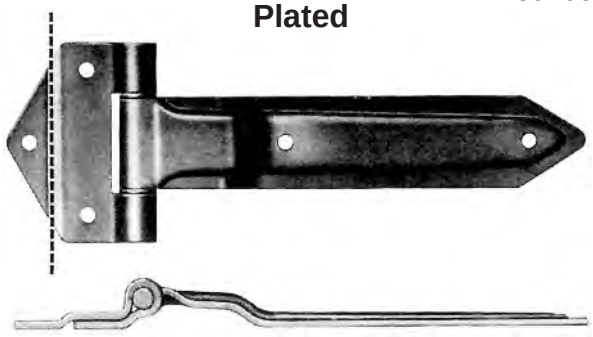
All Illustration Dimensions this page, in Inches.

All Hinges this page Priced Singly.

Steel

Door Hinge

Zinc Plated



The hinges shown here are all 8" stamped steel hinges designed for flush mounting over door seals. All are equipped with hardened steel truss bearings to effectively carry the door loads . . . 180° door movement.

Has 7/16" clearance over the seal.
5 mounting holes, 11/32" dia.
Weight: 2 lbs., 3 oz. each.

Specifications:
#7 gauge hot rolled steel.

Dimensions:
8" centre of pin to end of strap.
3-1/16" centre of pin to end of butt plate.
4-1/2" butt plate width.
2" strap width.

When ordering specify Right-Hand or Left-Hand.

SPAENAUR No.	Mfr. #	Description	
099-050	5889	Right-Hand	
099-051	5889	Left-Hand	
099-052	5889-E1	Right-Hand	Same as 099-050 but with sheared butt as shown by dotted line above.
099-053	5889-E1	Left-Hand	
099-054	5889-E2	Right-Hand	Same as 099-052 but with removable hinge pin.
099-055	5889-E2	Left-Hand	

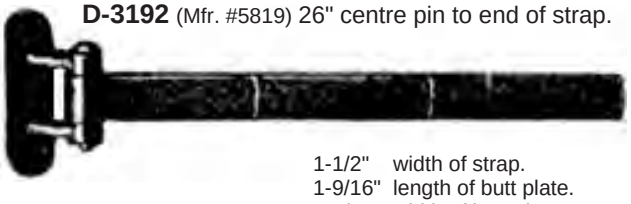
L

REAR DOOR HINGES

for Square Corner Vans

Permits doors to swing around against sides of body.

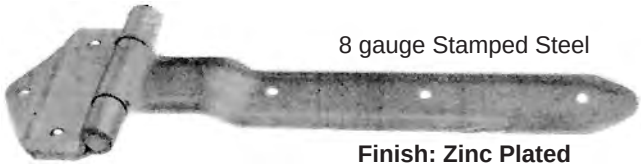
D-3193 (Mfr. #5818)18" centre pin to end of strap.
D-3192 (Mfr. #5819) 26" centre pin to end of strap.



— with Milled Joint
Plain Finish.

1-1/2"	width of strap.
1-9/16"	length of butt plate.
5-9/16"	width of butt plate.
4"	c. to c. holes in butt plate.
13/32"	dia. holes in butt plate.

OVER THE SEAL HINGES — FLUSH



8 gauge Stamped Steel

Finish: Zinc Plated

Dimensions & Style:
Same as 099-050 above, but with longer strap. — 1/2" diameter steel pin will fit right or left.

SPAENAUR No.	Length of Strap	Mounting holes for 5/16" bolts
099-056	12"	
099-058	16"	

099-069 **1/8" Shim**

Steel, Zinc Plated

Use for all 099-050 to 099-058 hinges when 1/8" offset is required.

All items on this page Priced Singly

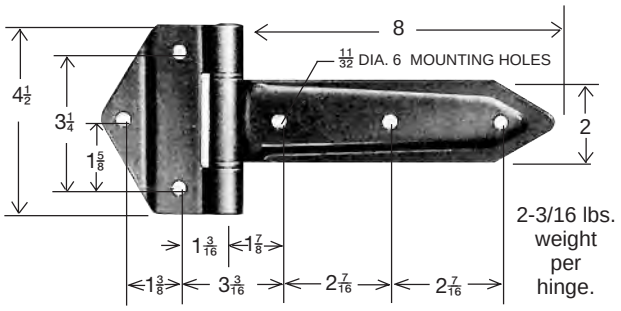
CATALOG 13

STAMPED STEEL 8 INCH HINGE

D-4034
(Mfr. #5869)

Zinc Plated Finish

Fits
Right or Left-hand

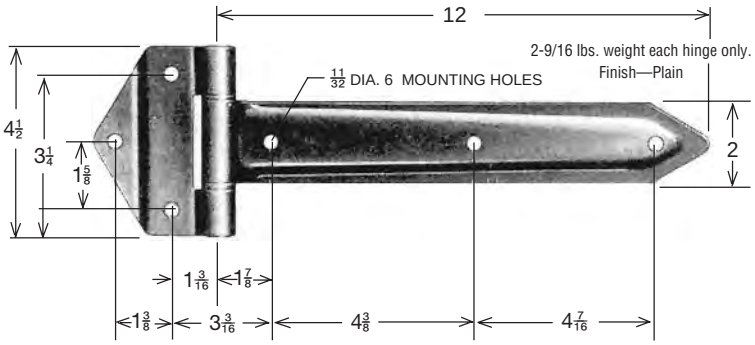


2-3/16 lbs. weight per hinge.

D-4035
(Mfr. #5870)

STAMPED STEEL 12 INCH HINGE

Zinc Plated Finish



STRAP HINGES

304 Stainless Steel

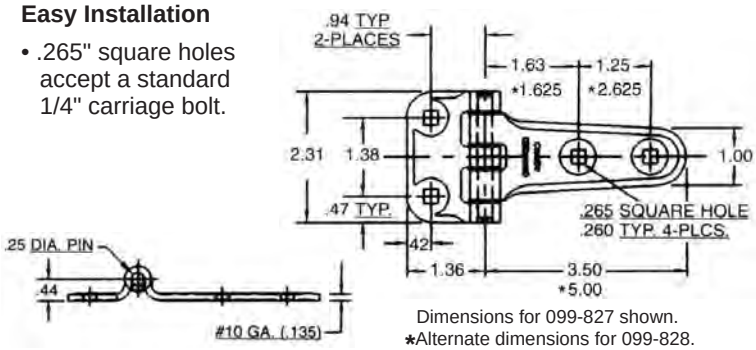
099-827
(Mfr. #6515SSP)
with 3-1/2" strap

099-828
(Mfr. #6516SSP)
with 5" strap

Aesthetically pleasing
- polished finish
- 304 stainless steel prevents ugly corrosion
- attractive emboss on edge of strap and around mounting holes
- round corners on butt match contour strap design.

Small yet strong
- the 3.5" or 5" long strap made of 10 gauge 304 stainless steel provides enhanced strength capabilities.

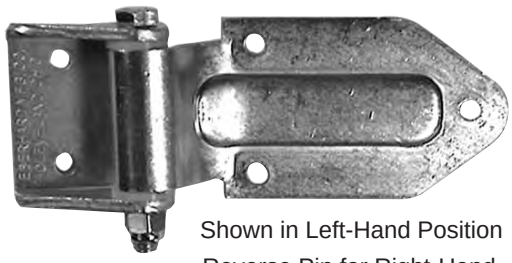
Easy Installation
- .265" square holes accept a standard 1/4" carriage bolt.



Dimensions for 099-827 shown.
*Alternate dimensions for 099-828.

STAMPED STEEL HINGE

For Small Access Doors



Shown in Left-Hand Position
Reverse Pin for Right-Hand

099-285
(Mfr. #5867-E1)
with removable pin

Zinc Plated Finish

Side View

5" stamped steel hinge for flush mounting. Has nylon sleeves bearing for easier operation. Door movement 180°.

Recommended uses:
For vent or small access doors.

Specifications:
#7 gauge steel butt.
#9 gauge steel strap.
5 mounting holes — 9/32" dia.

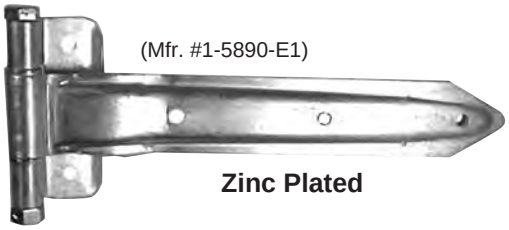
Weight: 1-1/10 lbs. each.

Dimensions:
5" centre of pin to end of strap.
1-3/4" centre of pin to end of butt plate.
2-5/8" strap width.
2-5/8" butt plate width.

REVERSED BUTT HINGE

A stamped steel 12 inch hinge with reversed butt for flush mount applications. Provides full 270° door openings.

(Mfr. #1-5890-E1)



Zinc Plated

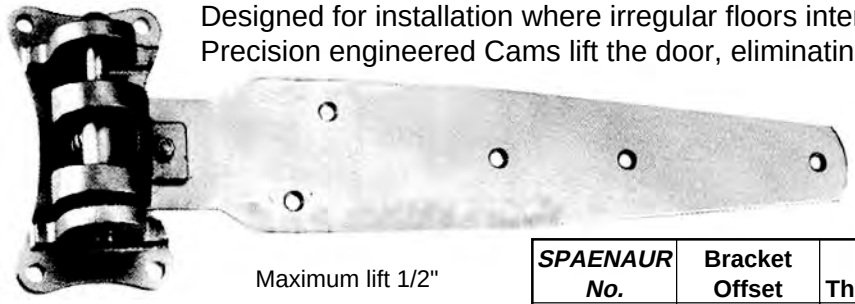
099-309
with removable pin
(as shown)

099-308
with fixed pin

L

CATALOG 13

All items on this page are Priced Singly.



Designed for installation where irregular floors interfere with operation of doors. Precision engineered Cams lift the door, eliminating sag.

Maximum lift 1/2"

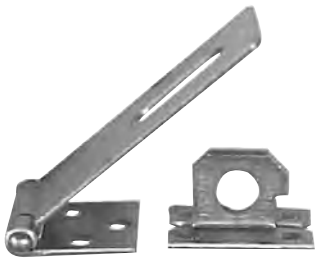
Reversible
For **Right** or **Left**
Finish — **Heavy Zinc Plated**

Strap: — Steel with 1/4" ctsk. Holes.
Cam — Malleable Iron 9/16" steel pin.
Bracket — Malleable Iron -
7-1/2" high x 4" wide, Drilled for 3/8" Bolts.

SPAENAUR No.	Bracket Offset	STRAP SIZE Thickness	Width	Length	Wt. (lbs.)
099-100	1-1/8"	.166"	4"	21"	9-1/4
099-101	1-1/4"	.166"	4"	21"	9-1/4
099-102	1-5/8"	.166"	4"	21"	9-1/4
099-103	1-1/8"	1/4" H.D.	4"	21"	10-1/2
099-104	1-1/4"	1/4" H.D.	4"	21"	10-1/2
099-105	1-5/8"	1/4" H.D.	4"	21"	10-1/2

SAFETY HASPS
MORAILLONS DE SÉCURITÉ

RIVETED PIN ● STEEL ● ZINC PLATED



Items may not be as illustrated.

FIXED STAPLE With Screws

SPAENAUR No.	Size Length Closed	Hinge Part Length	Joint Length	Hasp Gauge	Staple Plate Size	Staple Gauge	Ctsk. For Screw Size	Total Screw Holes
098-153	2-1/2"	1-1/8"	1"	.064"	1-1/4" x 1"	.064"	#6	7
▲098-154	3-5/8"	1-3/8"	1-1/2"	.083"	1-5/8" x 1-1/4"	.097"	#7	7
098-155	4-1/2"	2"	1-1/2"	.090"	1-9/16" x 1-3/16"	.089"	#7	7
098-156	6"	2-3/4"	1-7/8"	.104"	2-1/4" x 1-3/8"	.114"	#9	9
***098-157**	8"	3-1/4"	2-1/2"	.154"	2-1/2" x 1-3/4"	.134"	#12	9

*Plain finish ▲**098-825** same as 098-154 except without screws.

All Dimensions are Approximate

SWIVEL STAPLE Screws Included (*Screws not included)

***098-158**	3-1/2"	1-3/8"	1-1/2"	.074"	1-23/32" x 1-11/32"	.074"	#7	7
098-159	4-1/2"	2"	1-1/2"	.090"	1-1/2" x 1-1/2"	.074"	#7	7

All items priced per Single Set

STEEL STRAP HINGES

Plain and Zinc Plated

Three Knuckle Pattern with RIVETED PIN **STEEL** or **BRASS**

Countersunk for Screw Attachment (Screws not included)

See Pages B74 to B79 for Screws

Style	Size: Length each Leaf	Size: Width of Joint	Gauge of Metal	*SPAENAUR No.* Finish: Not Plated	*SPAENAUR No.* Finish: Zinc Plated	Total Screw Holes	Ctsk. for Screw Size
LIGHT STRAP with Riveted **STEEL PIN**	2"	1"	.053"	—	**098-092**	6	#5
	3"	1-3/32"	.063"	—	**098-094**	6	#6
	4"	1-3/16"	.063"	—	**098-096**	6	#7
	5"	1-5/16"	.074"	—	**098-098**	8	#8
	6"	1-9/16"	.089"	**098-099**	**098-100**	8	#9
	8"	1-7/8"	.104"	—	**098-102**	8	#10
HEAVY STRAP with Riveted **STEEL PIN**	4"	1-1/2"	.083"	—	**098-104**	6	#9
	5"	1-3/4"	.104"	**098-107**	**098-108**	8	#9
	6"	2-1/2"	.119"	—	**098-112**	8	#9
	8"	3"	.134"	—	**098-116**	8	#12
	12"	4"	.154"	**098-123**	**098-124**	10	#14
HEAVY STRAP with Riveted **BRASS PIN**	4"	1-1/2"	.083"	—	**098-106**	6	#9
	5"	1-3/4"	.104"	—	**098-110**	8	#9
	6"	2-1/2"	.119"	—	**098-114**	8	#9
	8"	3"	.134"	—	**098-118**	8	#12

STEEL "T" HINGES

Plain and Zinc Plated

Three Knuckle Pattern with Riveted Pin **STEEL** or **BRASS**

Countersunk for Screw Attachment (Screws not included)

See Pages B74 to B79 for Screws

Style	Length of Strap	Width of Strap at Joint	Width of Pad	Length of Joint	Gauge of Metal	*SPAENAUR No.* Not Plated	*SPAENAUR No.* Zinc Plated	Ctsk. for Screw Size	Total Screw Holes
LIGHT "T" with Riveted **STEEL PIN**	2"	1"	1/2"	2"	.053"	—	**098-128**	#5	6
	3"	1"	3/4"	2-3/8"	.064"	**098-129**	**098-130**	#6	6
	4"	1-1/16"	3/4"	2-5/8"	.064"	—	**098-132**	#6	6
	4-3/4"	1-3/16"	7/8"	2-5/8"	.059"	—	**098-134**	#8	7
	5-3/4"	1-1/4"	7/8"	2-11/16"	.059"	—	**098-136**	#8	7
	8"	1-11/16"	1"	4"	.089"	—	**098-138**	#9	7
EXTRA HEAVY "T" with Riveted **STEEL PIN**	4"	1-5/8"	1-1/4"	3-1/2"	.089"	**098-139**	**098-140**	#9	6
	5"	2-1/8"	1-1/2"	3-7/8"	.104"	—	**098-142**	#10	8
	8"	2-5/8"	2-1/8"	5-1/2"	.134"	—	**098-146**	#12	9
EXTRA HEAVY "T" with Riveted **BRASS PIN**	4"	1-5/8"	1-1/4"	3-1/2"	.089"	—	**098-147**	#9	6
	5"	2-1/8"	1-1/2"	3-7/8"	.104"	—	**098-148**	#10	8
	6"	2-3/8"	1-3/4"	4-1/2"	.119"	—	**098-149**	#10	8
	8"	2-3/4"	2-1/8"	5-1/2"	.134"	—	***098-150**	#12	9
	10"	3"	2-1/4"	7"	.134"	—	**098-151**	#12	9
	12"	4-1/16"	2-7/8"	7-3/4"	.154"	—	**098-152**	#14	10

*Galvanized or Zinc Pltd. our option.

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CATALOG 13

All items on this page Priced Singly.

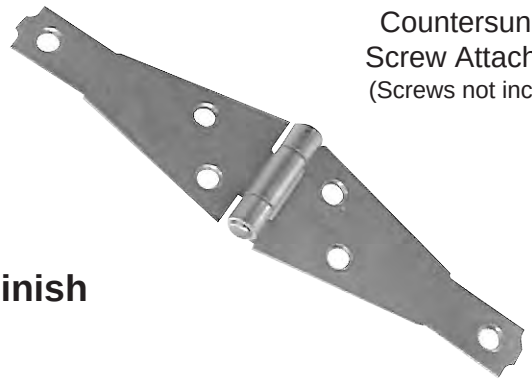
HEAVY STRAP HINGES

SPUN (RIVETED) PINS

ALL STEEL - ZINC PLATED

— or —

STEEL with Zinc GREEN Chromate Finish and Brass Pin



Countersunk for Screw Attachment
(Screws not included)

SPAENAUR No's. Zinc Plated Finish	*SPAENAUR No's.* Zinc - Green Chromate Finish	Size Length Each Leaf	Size Width of Joint	Gauge of Metal	Total Screw Holes	Ctsk. for Screw Size	Pin Dia.
098-190	**098-213**	4"	1.875"	.090"	6	#9	.250"
098-191	**098-214**	6"	2.548"	.120"	8	#10	.332"
098-192	**098-215**	8"	3.050"	.134"	8	#10	.375"
098-193	**098-216**	10"	3.515"	.134"	8	#12	.437"

L

HEAVY "T" HINGES

WITH SPUN (RIVETED) PINS

ALL STEEL - ZINC PLATED

— or —

STEEL with Zinc GREEN Chromate Finish and Brass Pin

Countersunk for Screw Attachment
(Screws not included)

SPAENAUR No's. Zinc Plated Finish	*SPAENAUR No's.* Zinc - Green Chromate Finish	Length of Strap	Width of Strap at Joint	Width of Pad	Length of Joint	Gauge of Metal	Total Screw Holes	Ctsk. for Screw Size	Pin Dia.
098-194	**098-217**	4"	1.875"	1.400"	3.50"	.090"	6	#9	.250"
098-195	**098-218**	6"	2.548"	1.700"	4.50"	.120"	8	#10	.332"
098-196	**098-219**	8"	3.050"	2.000"	5.50"	.134"	8	#10	.375"
098-197	**098-220**	10"	3.515"	2.250"	6.50"	.134"	9	#12	.437"

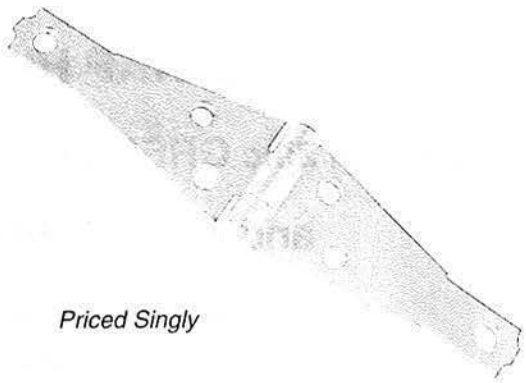
Green Chromate Finish is ideal for use with Pressure Treated Wood.

HEAVY STRAP HINGES

SPUN (RIVETED) PINS

STEEL - ZINC PLATED

Countersunk for Screw Attachment
(Screws not included)



Priced Singly

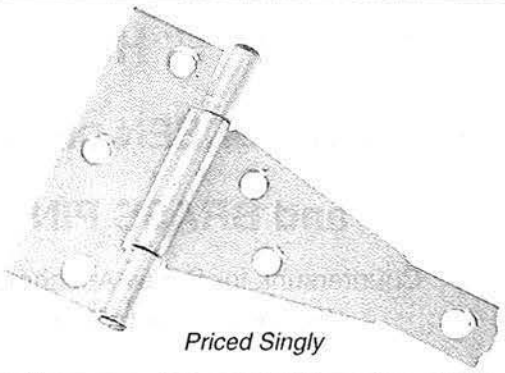
Zinc Plated Finish *SPAENAUR No.*	Size		Gauge of Metal	Total Screw Holes	Ctsk. for Screw Size	STEEL Pin Dia.
	Length Each Leaf	Width of Joint				
098-190	4"	1.875"	.090"	6	#9	.250"
098-191	6"	2.548"	.120"	8	#10	.332"
098-192	8"	3.050"	.134"	8	#10	.375"
098-193	10"	3.515"	.134"	8	#12	.437"

HEAVY "T" HINGES

WITH SPUN (RIVETED) PINS

STEEL - ZINC PLATED

Countersunk for Screw Attachment
(Screws not included)



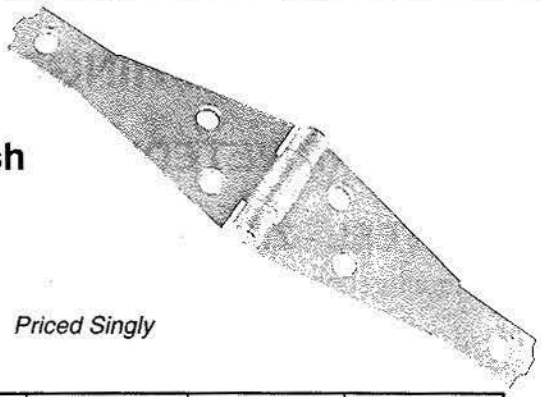
Priced Singly

Zinc Plated Finish *SPAENAUR No.*	Length of Strap	Width of Strap at Joint	Width of Pad	Length of Joint	Gauge of Metal	Total Screw Holes	Ctsk. for Screw Size	STEEL Pin Dia.
098-194	4"	1.875"	1.400"	3.50"	.090"	6	#9	.250"
098-195	6"	2.548"	1.700"	4.50"	.120"	8	#10	.332"
098-196	8"	3.050"	2.000"	5.50"	.134"	8	#10	.375"
098-197	10"	3.515"	2.250"	6.50"	.134"	9	#12	.437"

See page L104 for Heavy Strap and "T" Hinges with Zinc Green Chromate Finish.

HEAVY STRAP HINGES

STEEL with Zinc GREEN Chromate Finish and BRASS PIN



Countersunk for Screw Attachment
(Screws not included)

Priced Singly

Zinc - Green Chromate Finish *SPAENAUR No.*	Size		Gauge of Metal	Total Screw Holes	Ctsk. for Screw Size	BRASS Pin Dia.
	Length Each Leaf	Width of Joint				
098-213	4"	1.875"	.090"	6	#9	.250"
098-214	6"	2.548"	.120"	8	#10	.332"
098-215	8"	3.050"	.134"	8	#10	.375"
098-216	10"	3.515"	.134"	8	#12	.437"

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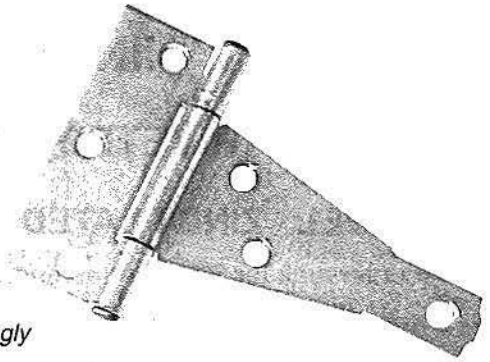
HEAVY "T" HINGES

STEEL with Zinc GREEN Chromate Finish and BRASS PIN



Countersunk for Screw Attachment
(Screws not included)

Priced Singly

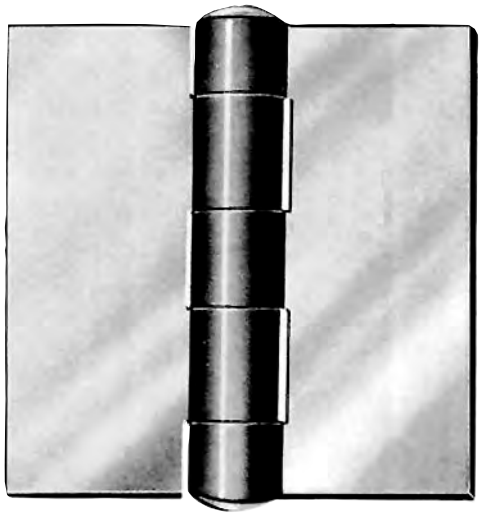
Zinc - Green Chromate Finish *SPAENAUR No.*	Length of Strap	Width of Strap at Joint	Width of Pad	Length of Joint	Gauge of Metal	Total Screw Holes	Ctsk. for Screw Size	BRASS Pin Dia.
098-217	4"	1.875"	1.400"	3.50"	.090"	6	#9	.250"
098-218	6"	2.548"	1.700"	4.50"	.120"	8	#10	.332"
098-219	8"	3.050"	2.000"	5.50"	.134"	8	#10	.375"
098-220	10"	3.515"	2.250"	6.50"	.134"	9	#12	.437"

Ideal for use with Pressure Treated Wood.

See page L103 for Heavy Strap and "T" Hinges with Normal Zinc Plating.

CATALOG 13

BUTT HINGES — Steel, Not Plated



Pin: RIVETED or LOOSE

Pin Material: STEEL or BRASS

All Hinges Priced Singly

HEAVY WEIGHT

BLANK
(NO HOLES)

Not Swaged

All butt hinges for surface application are NOT swaged. Hinges not swaged are also termed Flat Back. Hinges not swaged (flat back hinges) are slightly less in width than swaged hinges.

Not Swaged - for Surface Application

NARROW WIDTH

BLANK
(NO HOLES)

Flat Surface - Not Swaged

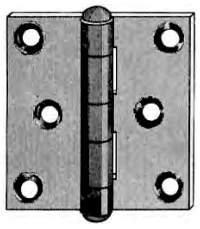
Riveted Pins - STEEL or BRASS

hinge opened

hinge closed

Style	Size (open)	Gauge of Metal	SPAENAUR No's. Riveted Pin STEEL Pin	Riveted Pin BRASS Pin	Loose Pin STEEL Pin
BUTT **Heavy Weight**	1" x 1"	.037"	**098-160** (4 Knuckle Only and Flush Cut Pin)		
	2" x 2"	.104"	**098-061**	—	**098-161**
	2-1/2" x 2-1/2"	.119"	**098-063**	**098-064**	**098-162**
	3" x 3"	.134"	**▲098-065**	***098-066**	**098-163**
	3-1/2" x 3-1/2"	.154"	**098-067**	**098-068**	**098-164**
	4" x 4"	.179"	**098-069**	**098-070**	**098-165**
	4-1/2" x 4-1/2"	.179"	**098-071**	—	**098-166**
	5" x 5"	.179"	**098-073**	**098-074**	**098-167** (.170" ga.)
	6" x 6"	.187"	—	**098-076**	—
	6" x 6"	.203"	**098-075**	—	**098-168**
NARROW WIDTH **Light Weight**	**Height x Width**				
	1" x 31/32"	.047"	**098-077**	**098-078**	**098-169**
	1-1/2" x 1-11/32"	.047"	**098-079**	**098-080**	**098-170**
	2" x 1-17/32"	.064"	**098-081**	**098-082**	**098-171**
	2-1/2" x 1-21/32"	.064"	**098-083**	—	**098-172**
	3" x 1-15/16"	.074"	**098-085**	**098-086**	**098-173**
	3-1/2" x 2-3/16"	.097"	**098-087**	**098-088**	**098-174**
	4" x 2-13/16"	.097"	**098-089**	**098-090**	**098-175**

Exception



▲D-4056
6 Holes - Ctsk. for No. 12 Screw

***098-179** same as 098-066 except Zinc Plated.

Both “BUTT” and “NARROW” Hinges are available in Not Swaged Style.

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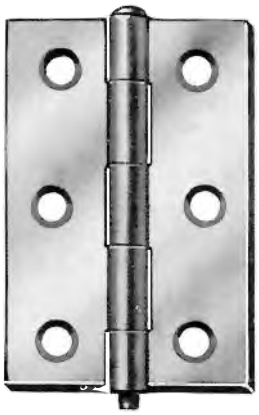
CATALOG 13

Stainless Steel Butt Hinges on page L107.

NARROW WIDTH



With LOOSE PIN

LIGHT WEIGHT
NARROW WIDTH
Countersunk Holes
(Screws NOT Included)

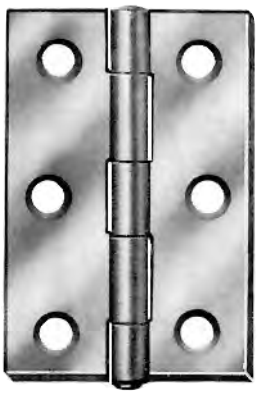
FULL MORTISE (Swaged)

All butt hinges for mortise application are swaged to reduce the clearance between the door (closed) and jamb. The standard clearance between leaves of full mortise hinges after swaging is 1/16".

Swaged — for Mortise Application

hinge opened

hinge closed



With RIVETED PIN

Hinge Size (Open)	Gauge of Metal	*SPAENAUR No's.* Hinge with Loose Pin NOT Plated	Hinge with Loose Pin Zinc Plated	Hinge with Riveted Pin NOT Plated	Hinge with Riveted Pin Zinc Plated	No. of Knuckles	Screw holes each hinge	Ctsk. for Screw Size
Height x Width								
1" x 1"	.047"	—	**098-034**	**098-035**	**098-036**	3	4	#3
1-1/2" x 1-3/8"	.047"	**098-037**	**098-038**	**098-039**	—	3	4	#4 or #5
1-1/2" x 1-3/8"	.058"	—	**098-221**	**098-222**	**098-040**	3	4	#4 or #5
2" x 1-1/2"	.064"	—	**098-042**	**098-043**	***098-044**	5	4	#6
2-1/2" x 1-11/16"	.064"	**098-045**	**098-046**	—	**098-048**	3	6	#6
3" x 2"	.074"	—	**098-050**	**098-051**	**098-052**	5	6	#7 or #8
3-1/2" x 2-1/4"	.097"	**098-053**	**098-054**	—	—	5	6	#8 or #9
4" x 2-7/8"	.097"	**098-057**	—	—	—	5	8	#9 or #10

Priced Singly. *3 Knuckles

OPTIONS: BRASS PLATING (or other finishes) can be supplied in minimum runs per size. Also, any hinge can be made to order, with a loose or riveted BRASS PIN. Request quote on such 'specials'.

Looking for a product not listed?

Call us at (800) 265-8772.

SPAENAUR

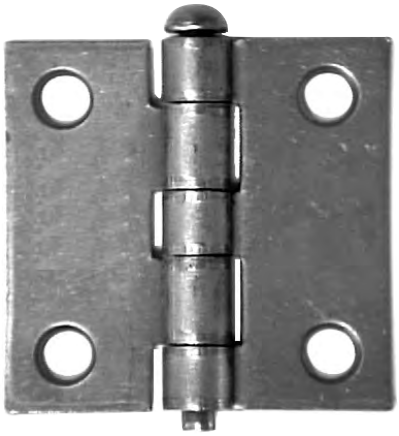
Steel Hinges
BROAD Pattern

STANDARD WEIGHT

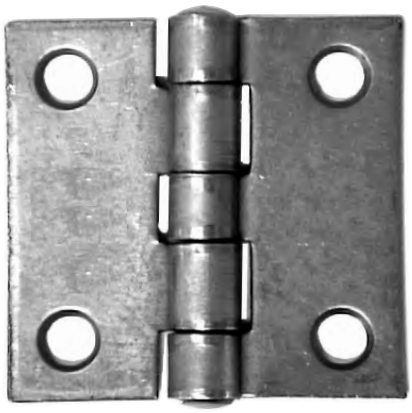
BROAD WIDTH

Countersunk Holes
(Screws NOT included)

FULL MORTISE
(Swaged)



with **LOOSE PIN**



with **RIVETED PIN**

SIZE (Open)	Gauge of Metal	*SPAENAUR No's.* Loose Pin NOT Plated	Loose Pin Zinc Plated	Riveted Pin NOT Plated	Riveted Pin Zinc Plated	Screw holes each hinge	Ctsk. for Screw Size
2" x 2"	.083"	—	**098-002**	**098-003**	**098-004**	4	8 x 3/4"
2-1/2" x 2-1/2"	.089"	**098-005**	**098-006**	—	**098-008**	6	8 x 3/4"
3" x 3"	.085"	—	**098-010**	**098-011**	**098-012**	6	8 x 3/4"
3-1/2" x 3-1/2"	.085"	—	**098-014**	—	**098-016**	6	8 x 3/4"
4" x 4"	.085"	—	**098-018**	—	**098-020**	8	8 x 3/4"
4-1/2" x 4-1/2"	.134"	**098-021**	**098-022**	—	**098-024**	8	12 x 1-1/4"
5" x 5"	.145"	—	**098-026**	—	**098-028**	8	12 x 1-1/4"
6" x 6"	.160"	**098-029**	**098-030**	—	—	10	14 x 1-1/2"

PRICED SINGLY

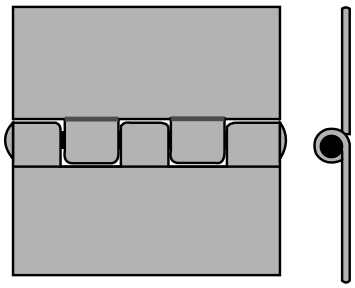
L

BUTT HINGES

Flat Surface Type (Not Swaged)

304 Stainless Steel - Hinge and Pin

Supplied with
Tight Pin (spun on both ends)
or
Loose Pin (spun one end).



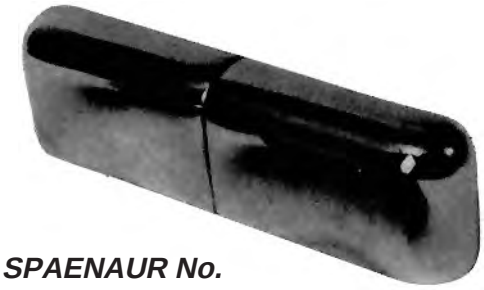
Plain Finish - No Holes

Priced Singly

SPAENAUR No.'s Tight Pin	Loose Pin	Gauge	Open Width	Length	Pin Diameter
098-800	—	.050"	1-1/2"	1-1/2"	.125"
098-801	—	.060"	2"	2"	.125"
098-802	—	.075"	2"	2"	.187"
098-803	—	.075"	2-1/2"	2-1/2"	.187"
098-804	—	.090"	2"	3"	.187"
098-805	**098-814**	.090"	3"	3"	.187"
098-806	—	.090"	3"	3-1/2"	.187"
098-807	—	.090"	3-1/2"	3-1/2"	.187"
098-808	**098-815**	.120"	2"	3"	.250"
098-809	**098-816**	.120"	3"	3"	.250"
098-810	**098-817**	.120"	3"	4"	.250"
098-811	**098-818**	.120"	4"	4"	.250"
098-812	**098-819**	.120"	5"	5"	.250"
098-813	**098-820**	.120"	6"	6"	.250"

(Steel Butt Hinges shown on page L105 to L107.)

DIECAST 'BLOCK' HINGES



SPAENAUR No.

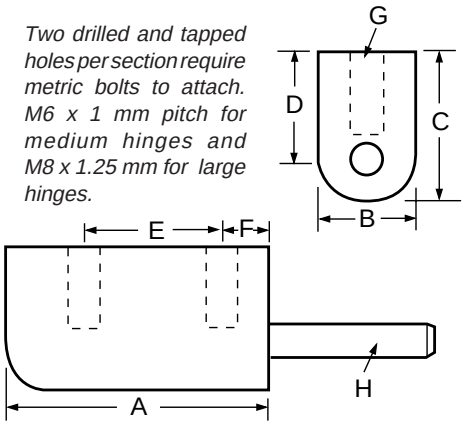
Medium	Large	Finish
098-203	**098-180**	Raw
098-204	**098-181**	Chrome
098-205	**098-182**	Black

These neat 'block' hinges are ideal for metal cabinets, instrument panels, etc. They are not handed, and the upper part simply lifts onto a fixed, zinc plated steel pin.
They are normally exterior-mounted, and rotation is completely free through 360°. Finish is either black, chromium plated or raw metal suitable for painting as part of an overall installation scheme.

Unit Package 1 Hinge (2 Pieces)

Dimensions - Block Hinges
(one portion only is shown)

Two drilled and tapped holes per section require metric bolts to attach. M6 x 1 mm pitch for medium hinges and M8 x 1.25 mm for large hinges.



Dimensions	Medium	Large
A. Length (1/2 total)	1.50"	2.00"
B. Width	0.62"	0.75"
C. Height	0.75"	1.12"
D. Height to pin	0.44"	0.75"
E. Location	0.75"	1.00"
F. Location	0.35"	0.50"
G. Hole Dia.	6 mm	8 mm
Hole depth	0.3"	0.5"

L

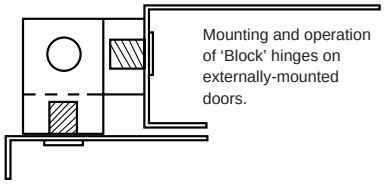
'BLOCK' HINGES in Stainless Steel

Here is a simple concept which can solve a lot of trouble for cabinet-builders and sheet metalworkers!
Available in two standard sizes, the stainless steel versions will completely overcome problems of corrosion, staining and binding-up which can occur in damp or chemically-active environments.

SPAENAUR No.

098-821 Small Block Hinge
098-822 Medium Block Hinge

Unit Package 1 Hinge (2 Pieces)

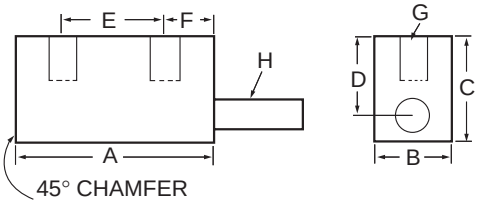


Mounting and operation of 'Block' hinges on externally-mounted doors.

Our 'block' hinges represent a convenient and attractive way of mounting externally-fitted doors. They are tapped to accept metric screws or studs, M5 x 0.80 (small) and M6 x 1.00 (medium). (Special volume orders can be supplied in chemically-blacked or bright polished finish).

Features:
- Attractive satin finish with chamfered edges.
- Block and pin is Grade 303 Stainless.
- Two standard sizes from stock.
- Ready-lubricated for smooth action.

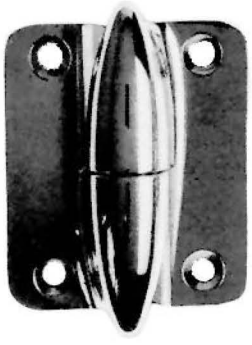
Two drilled and tapped holes per section require metric bolts to attach. M5 x 0.80 mm pitch for small hinges and M6 x 1.00 mm pitch for medium hinges.



Dimensions	Small	Medium
A. Length (1/2 total)	1.260"	1.496"
B. Width	0.512"	0.512"
C. Height	0.629"	0.748"
D. Height to pin	0.374"	0.433"
E. Location	0.629"	0.748"
F. Location	0.315"	0.354"
G. Hole Dia.	5 mm	6 mm
Hole depth	0.295"	0.295"
H. Pin size	0.236"	0.236"

CATALOG 13

LIFT-OFF 'TORPEDO' HINGES

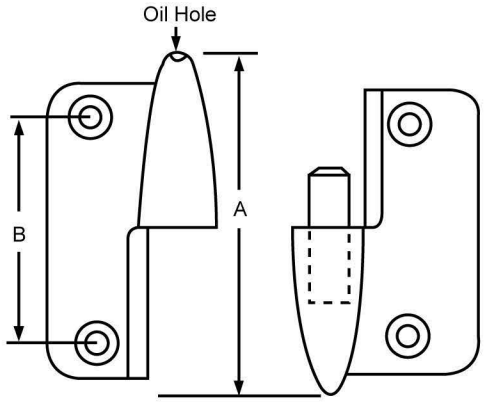


098-206 Left-hand

098-207 Right-hand

Unit Package 2 Hinge
(4 pieces)

RIGHT HAND ILLUSTRATED

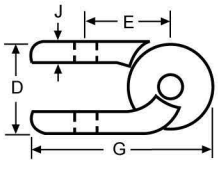


Lift-off 'Torpedo' Hinges (2 hole)

Simple, yet attractive, these externally-mounted, diecast hinges allow a complete door to be dropped on or lifted off from the hinge pin in the fixed half.

Hinges are 'handed', LH or RH.

A. Overall height 3.0"
B. Hole centres 2.0"
D. Depth 0.75"
E. Hole centres 0.75"
G. Width (2-hole) 1.5"
J. Section thickness 0.125"



Pin height: 0.5" above/below centre line
Fixing holes: 0.2" dia., c/sunk 0.375" dia.
Hinges open 180° outwards, close backwards 60°

Load Testing
Proof tests show the hinge carried loads in excess of 800 inch-pounds (moment) without deformation.

L

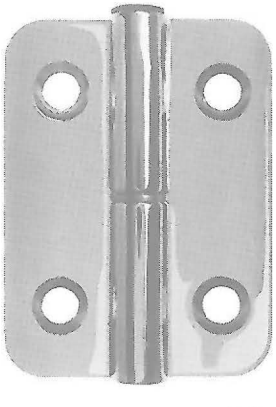
LIFT-OFF HINGES

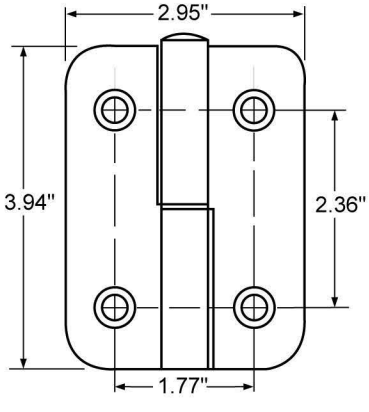
These hinges are made of .120" gauge material with stainless steel pin and bearing washer and moulded end-plug for good appearance.

SPAENAUR No.	Description
098-184	RH hinge, mild steel, yellow zinc plated.
098-185	LH hinge, mild steel, yellow zinc plated.
098-823	RH hinge, 316 stainless steel, polished.
098-824	LH hinge, 316 stainless steel, polished.
098-184BK	RH hinge, mild steel, black finish.
098-185BK	LH hinge, mild steel, black finish.

Unit Package Quantity
2 Hinges (4 pieces)

LEFT HAND ILLUSTRATED





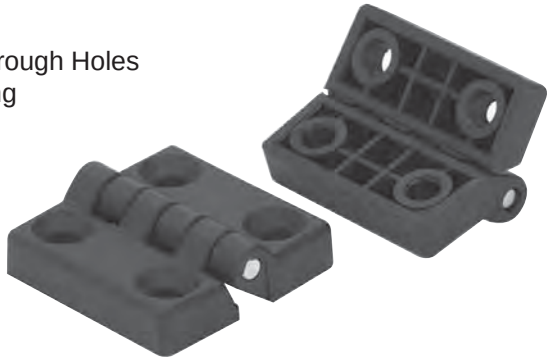
Hole sizes .39" dia.
countersunk to .63".

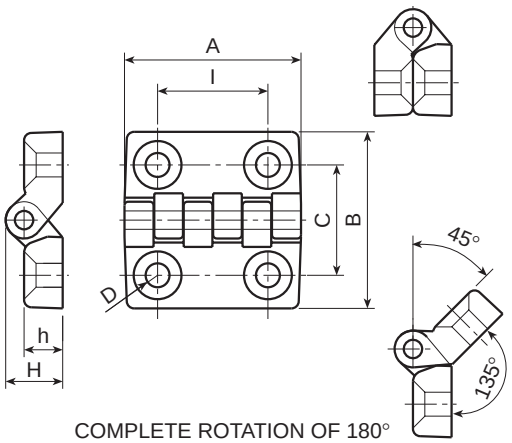
Sales Desk open 7 a.m. to 7 p.m. E.S.T., Monday to Friday.

Call (800) 265-8772 or (519) 744-3521.

HINGES

Countersunk Through Holes
Exterior Mounting





MATERIAL:
Reinforced Polyamide.
Oil and grease resistant.

PIN:
Steel, zinc plated or Stainless Steel

SURFACE: Satin. **COLOUR:** Black.

COMPLETE ROTATION OF 180°

SPAENAUR No.	I	C	A	B	h	H	D	Pin Dia.	Pin Material
135-151	0.79	0.79	1.26	1.26	0.28	0.41	0.16	0.11	Steel
135-154	0.79	0.79	1.26	1.26	0.28	0.41	0.16	0.11	Stainless
135-128	1.18	1.18	1.89	1.89	0.41	0.57	0.26	0.19	Steel
135-155	1.18	1.18	1.89	1.89	0.41	0.57	0.26	0.19	Stainless
135-129	1.58	1.58	2.52	2.52	0.51	0.75	0.26	0.19	Steel
135-156	1.58	1.58	2.52	2.52	0.51	0.75	0.26	0.19	Stainless

L

HINGES

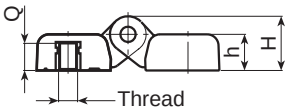
Flat, Tapped Female Insert
Interior Mounting

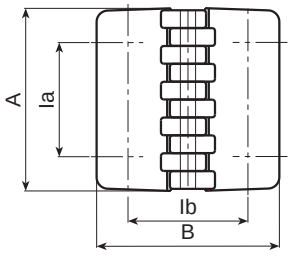
MATERIAL:
Reinforced Polyamide.
Oil and grease resistant.

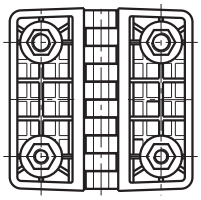
INSERT:
Zinc plated steel pin.
Brass blind threaded bushing.

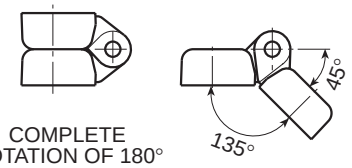
SURFACE:
Satin.

COLOUR:
Black.









COMPLETE ROTATION OF 180°

SPAENAUR No.	Ia	Ib	A	B	h	H	Q	Pin Dia.	Thread Size
135-157	1.18	1.18	1.89	1.89	0.41	0.57	0.28	0.19	10-32
135-158	1.18	1.18	1.89	1.89	0.41	0.57	0.28	0.19	1/4-20
135-159	1.58	1.58	2.52	2.52	0.51	0.75	0.35	0.19	1/4-20
135-160	1.58	1.58	2.52	2.52	0.51	0.75	0.35	0.19	5/16-18

HINGES

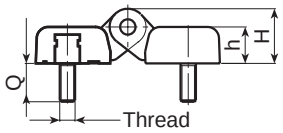
Flat, Tapped Male Insert
Interior Mounting

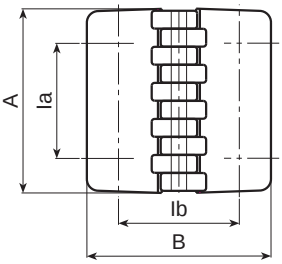
MATERIAL:
Reinforced Polyamide.
Oil and grease resistant.

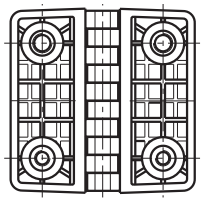
INSERT:
Zinc plated steel pin.
Zinc plated threaded steel bolt.

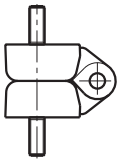
SURFACE:
Satin.

COLOUR:
Black.

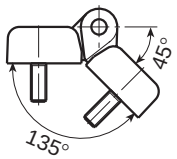








COMPLETE
ROTATION OF 180°



SPAENAUR No.	la	lb	A	B	h	H	Q	Pin Dia.	Thread Size
135-161	1.18	1.18	1.89	1.89	0.41	0.57	0.60	0.19	10-32
135-162	1.18	1.18	1.89	1.89	0.41	0.57	0.60	0.19	1/4-20
135-163	1.58	1.58	2.52	2.52	0.51	0.75	0.80	0.19	1/4-20
135-164	1.58	1.58	2.52	2.52	0.51	0.75	0.80	0.19	5/16-18

L

HINGES

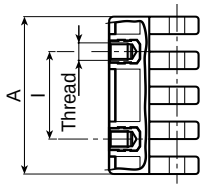
All purpose, Tapped Female Insert
and Straight Door Assembling
Interior Mounting

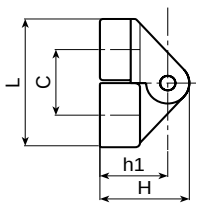
MATERIAL:
Reinforced Polyamide.
Oil and grease resistant.

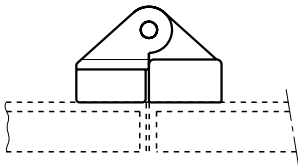
INSERT:
Zinc plated steel pin.
Brass blind threaded
bushing.

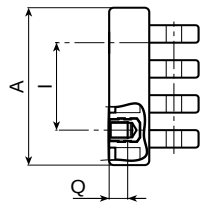
SURFACE:
Satin.

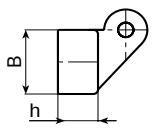
COLOUR:
Black.

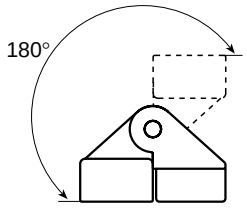








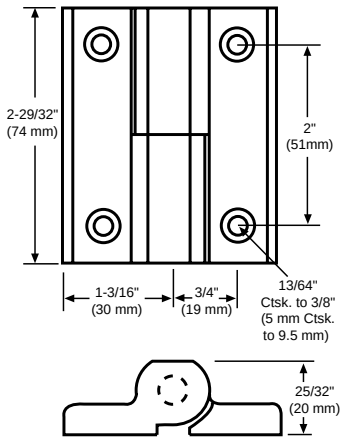




SPAENAUR No.	I	C	A	B	L	h	h1	H	Thread Size
135-165	0.60	0.70	1.18	0.67	1.38	0.43	0.75	1.00	10-32
135-166	1.18	0.87	2.13	0.79	1.73	0.51	0.87	1.14	1/4-20
135-167	1.65	1.26	3.07	1.18	2.44	0.71	1.22	1.65	5/16-18

CATALOG 13

LEFT HAND ILLUSTRATED



Unit Package Quantity
2 Hinges (4 pieces)

Moulded Lift-off Hinges

with stainless steel pin for all types of panels and enclosures

Material -
Hinges are moulded in tough **glass-filled black acetol nylon**, with 9.5 mm diameter pin in grade 303 stainless steel, ultrasonically welded into fixed half.

Look at these features -
- Totally corrosion-resistant for indoor/outdoor use.
- Self-lubricating, will not bind-up or seize.
- Attractive modern design with matt textured finish.
- More ductile and less brittle than die castings.
- Self-colour (black), will not scratch or peel.
- Good load-carrying properties

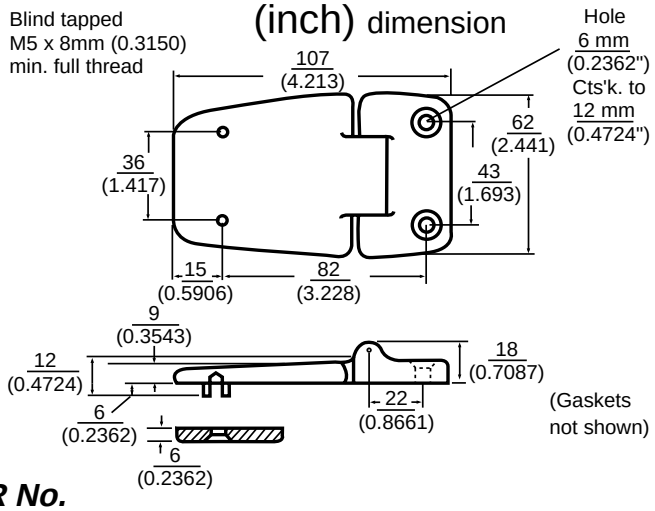
SPAENAUR No.	Mfr. #	Description
098-208	9/01380	Moulded lift-off hinge, RH
098-209	9/01381	Moulded lift-off hinge, LH

Left Hand
Illustrated

Zinc Diecast 'Flat' Hinge

- A smart looking low profile design.
- Front mounting through the bracket, but blind fastened into concealed bosses on the hinge leaf.
- Comes complete with securing plate and rubber gaskets making it ideal for mounting glass doors etc.
- FINISHED IN BLACK POWDER COAT WITH STAINLESS STEEL PIN.

mm dimension
(inch) dimension



SPAENAUR No.
098-183

Priced Singly

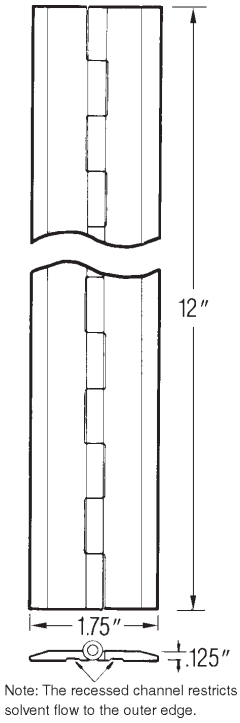
SPAENAUR

Your #1 Choice for Fasteners.

CATALOG 13

Acrylic Piano Hinge

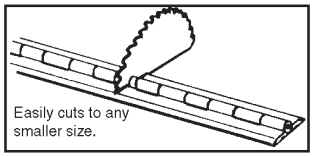
A continuous hinge that is 1-3/4" wide x 12" long.

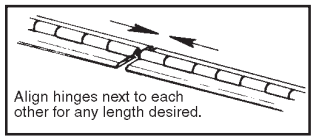


Note: The recessed channel restricts solvent flow to the outer edge.

SPAENAUR No.	Colours
098-401	Clear
098-402	Black
098-403	White

NO DRILLING OR RIVETING NECESSARY!





Unit Package 1

FEATURES:

Neat Appearance
Water clear (unlike metal and polypropylene) and may extend the entire length of joint, thus preventing warpage.

Time Saving
Replaces metal and polypropylene hinges which require drilling, tapping or riveting.

Easy to Apply
Align hinge properly and apply solvent along outer edge.

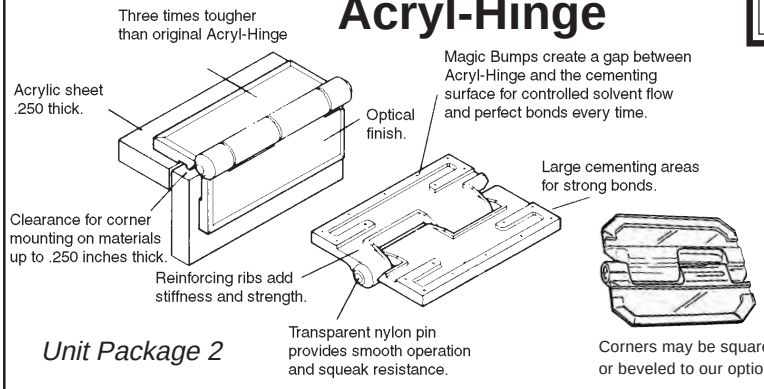
Tensile Strength
Molded of special high strength acrylic which is much stronger than ordinary acrylic.

Adds Extra Strength
Outer cementing surface is wide for added bonding strength.

Ordinary solvent cement and standard cementing techniques work fine for bonding to acrylic sheet.
A patented recessed channel on the cementing surface controls the flow of solvent, thus helping to eliminate air bubbles and other imperfections.

Use **Loctite 414 / *SPAENAUR No.* 800-058** Superbonder Adhesive to bond to other plastics.

Acryl-Hinge



Unit Package 2

SPAENAUR No.	Colours
098-404	Clear
098-405	Black
098-406	White

Dimensions: 1-1/2" wide x 1-3/4" long.

Application
Solvent cementable flat or corner mounting on 1/8", 3/16 and 1/4" thick material.

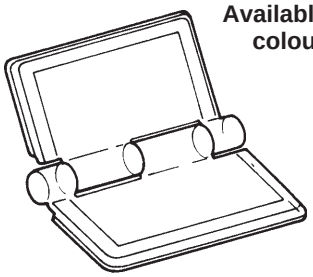
Strength
Has reinforced ribs for added strength.

L

Small Acrylic Hinge

098-407

Available in clear colour only.



Featuring round corners instead of square.

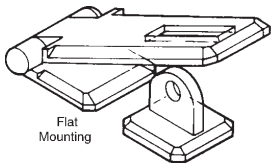
1-1/2" wide x 1-5/8" long.

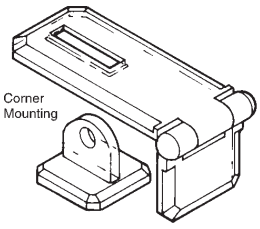
Application
Solvent cementable flat or corner mounting on 1/8", 3/16" and 1/4" thick material.

Unit Package 2

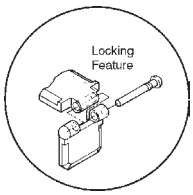
Acrylic Hasp

Easy to Apply.
No Drilling or Riveting Necessary!





SPAENAUR No.	Colours
098-408	Clear
098-409	Black
098-410	White



Reversible Locking System
Bottom section of hasp is reversible for either corner or flat mounting.

Decorative Hasp
Faceted edges enhance appearance of display case.

Tensile Strength
Molded of special high strength acrylic which is much stronger than ordinary acrylic.

Locking Feature of Pin
Pin locks into barrel of hasp once fully inserted.

Note: Predetermine assembly for corner or flat mounting first before inserting pin completely!

Thick Wall
Heavy wall thickness for maximum tensile strength.

Dimensions
Hasp is 1" wide x 2-1/4" long in flat mounting position.

Unit Package 1 (2 pieces)

HINGE TYPE	HINGE MATERIAL	*SPAENAUR No.*	OPEN WIDTH	LENGTH	MAT'L THICK.	PIN MAT'L	PIN DIA.	KNUCKLE LENGTH
PLAIN TYPE Not Swaged Open Closed No Screw Holes	**Steel** Not Plated	**838-022**	3/4"	72"	.030"	Steel	.060"	1/4"
		838-010	1-1/16"	72"	.030"	Steel	.090"	1/4"
		CH-8	1-1/16"		.042"		.090"	1/2"
		838-011	1-1/4"		.030"		.090"	1/4"
		838-004	1-1/4"	72"	.040"	Steel	.090"	1/2"
		838-006	1-1/4"		.060"		.125"	1/2"
		838-012	1-1/2"		.030"	Steel	.090"	1/4"
		B-154	1-1/2"		.040"	Steel	.090"	1/2"
		B-154BP	1-1/2"	72"	.040"	Brass	.090"	1/2"
		838-008	1-1/2"		.060"	Steel	.125"	1/2"
		838-009	1-1/2"		.060"	Brass	.125"	1/2"
		CH-3	1-1/2"	84"	.062"	Steel	.187"	2"
		CH-5	1-3/4"	96"	.075"	Steel	.250"	2"
		838-005			.040"	Steel	.090"	1/2"
		B-867	2"	72"	.062"	Steel	.187"	1"
		B-867BP			.062"	Brass	.187"	1"
		838-014			.075"	Steel	.250"	1"
		CH-2		84"	.062"	Steel	.187"	2"
		838-013		72"	.075"	Brass	.250"	1"
		B-765	3"	84"	.125"	Steel	.375"	2"
		B-765BP		84"	.125"	Brass	.375"	2"
		CH-1BP		96"	.075"	Brass	.250"	2"
		B-766	5"	84"	.125"	Steel	.375"	2"
		838-217			.125"	Brass	.375"	2"
	Stainless Steel Type 302/304 ▲316 Stainless Steel Hinge and Pin	**838-803**	3/4"	72"	.030"	Stainless Steel Type 302/304	.060"	1/4"
		838-814	3/4"		.030"		.090"	1/4"
		838-804	1"		.030"		.060"	1/4"
		838-805	1"		.037"		.100"	1/2"
		838-806	1-1/16"		.037"		.100"	1/2"
		838-807	1-1/4"		.037"		.100"	1/2"
		838-800	1-1/2"	72"	.037"		.100"	1/2"
		838-816	1-1/2"		.060"		.125"	1/2"
		▲838-819	1-1/2"		.060"		.125"	1/2"
		838-817	2"	72"	.060"		.125"	1/2"
		838-810	2"		.060"		.187"	1"
		838-812	2"		.075"		.250"	1"
		838-818	2"	84"	.060"		.125"	1/2"
		838-811	2-1/2"	72"	.060"		.187"	2"
		838-808	3"	72"	.037"		.100"	1/2"
		▲838-820	2-7/8"	72"	.060"		.187"	2"
		838-813	3"	72"	.075"		.250"	1"
		838-809	3"	84"	.125"		.375"	2"

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CATALOG 13

All Hinges on this page Priced Singly.

HINGE TYPE	HINGE MATERIAL	*SPAENAUR No.*	OPEN WIDTH	LENGTH	MAT'L THICK.	PIN MAT'L	PIN DIA.	KNUCKLE LENGTH
PLAIN TYPE (Not Swaged) Open Closed	**Aluminum**	**CH-9**	1-1/16"	72"	.042"	Aluminum	.100"	1/2"
		838-300	1-1/2"	72"	.040"	Aluminum	.093"	1/2"
		CH-7	1-1/2"	72"	.040"	St. Steel	.100"	1/2"
		CH-6	2"	72"	.064"	St. Steel	.187"	1"
		***M-18**	2-7/8"	70"	.083"	Aluminum	.187"	1-3/4"
	Brass	**B-154AB**	1-1/2"	72"	.040"	Brass	.100"	1/2"
		B-867AB	2"		.062"		.187"	2"
OFFSET TYPE (Swaged) Open Closed	**Steel** Not Plated	**B-760**	1-1/2"	72"	.062"	Steel	.187"	2"
		B-760BP		72"		Brass		2"
		B-761		96"		Steel		2"
		B-762	2"	72"	.075"	Steel	.250"	1"
		B-763		96"				2"
		B-896	2-1/2"	72"	.075"	Steel	.250"	2"
		838-026				Brass		1"
		B-896BP				Brass		2"
		B-155	3"	72"	.075"	Steel	.250"	1"
		B-155BP		72"		Brass		1"
		B-156		96"		Steel		2"
		B-156BP		96"		Brass		2"
No Screw Holes in any of these Hinges.		**B-764**	4-1/2"	72"	.075"	Steel	.250"	2"
		B-764BP				Brass		2"

*Made specially for Trailer Coaches. Three extra steel flaps permit attachment of screen door and regular door on same hinge.

ROD PINS FOR CONTINUOUS HINGES

See pages E124-E126 for more Round Stock.

		PIN DIAMETER					
		.080"	.090"	.125"	.187"	.250"	.375"
STEEL PIN Lengths	72"				**838-020**	**838-023**	
	84"						**838-025**
	96"				**838-021**	**838-024**	

ORDER BY *SPAENAUR* NUMBERS

BRASS PIN Lengths	72"				**BR-1**	**BR-3**	
	84"						**BR-5**
	96"				**BR-2**	**BR-4**	

P.C. 838

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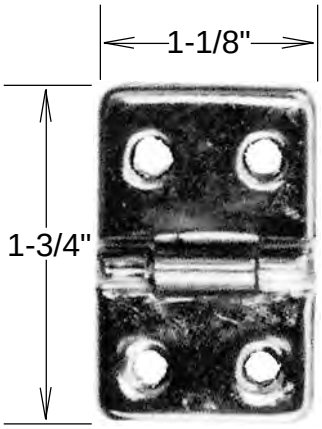
CATALOG 13

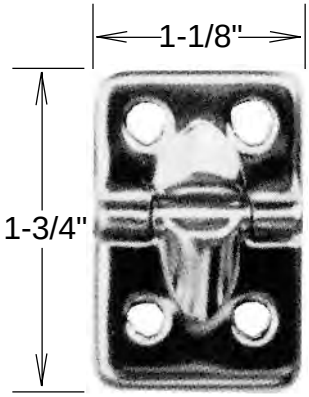
See Price List for Unit Package Quantity.

Hinges on this page shown Actual Size.



098-202

Stamped Steel
Bright Nickel Plated
Full Opening Style
Countersunk for #4 Screws



098-201

Stamped Steel
Bright Nickel Plated
Stops at 90°
Countersunk for #4 Screws

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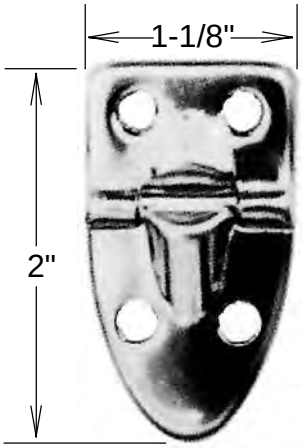
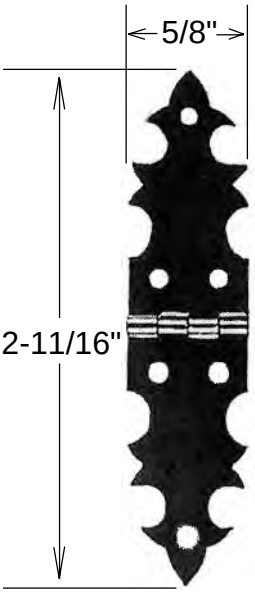


098-200

Stamped Steel
Bright Nickel Plated
Stops at 90°
Countersunk for #4 Screws

All hinges this page
Unit Package 2.

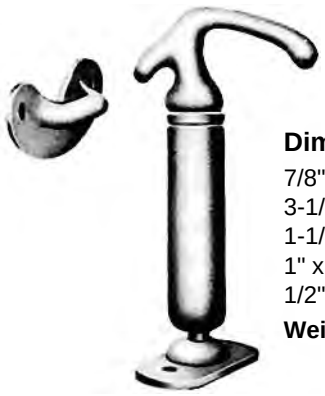


098-500
Packaged
in pairs
with nails
supplied
for installing.

098-500

Decorative Hinges
Brass
Plain Finish
Thickness approx. .020"

CATALOG 13



D-3279
Clamp and Catch Plate
(Mfr. #9663)

Dimensions:
7/8" x 1-3/4" frame bearing.
3-1/4" rise to hook.
1-1/4" finger hook.
1" x 2" bearing hood plate.
1/2" projection hood plate catch.
Weight: 5 oz. each

Unit Package 1

D-3271
Clamp and Catch Plate
(Mfr. #9660)

Dimensions:
1-1/2" x 1-7/8" foot plate.
3-1/2" rise, top of foot plate to hook.
1-1/4" finger hook.
3/4" offset, rear face foot plate to centre of barrel.
1" x 2" bearing hook plate.
1/2" projection hood plate catch.
Weight: 4 oz. each.

Unit Package 1

D-4026
Clamp and Catch Plate
(Mfr. #9674A)

Dimensions:
1-1/2" x 2-1/4" bearing plates.
1" finger loop.
1-1/4" projection hood plate catch.
7/8" diameter barrel
3/4" maximum spring compression.
3/16" rivets.
Weight: 14 oz. each.
The distance between edges of the hood catch and the base plate, necessary to produce the above-noted spring-compression is 4 inches.

Unit Package 1

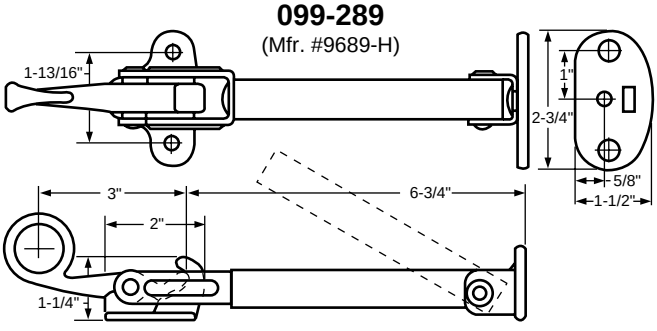
All items on this page are Cadmium or Zinc Finish

L

HORIZONTAL HOOD FASTENER
(2 Part)

Standard horizontal hood fastener. Horizontal unit with 2-hole rigid footplate. Footplate holes are on 2" centres with 11/32 " diameter holes.

099-289
(Mfr. #9689-H)

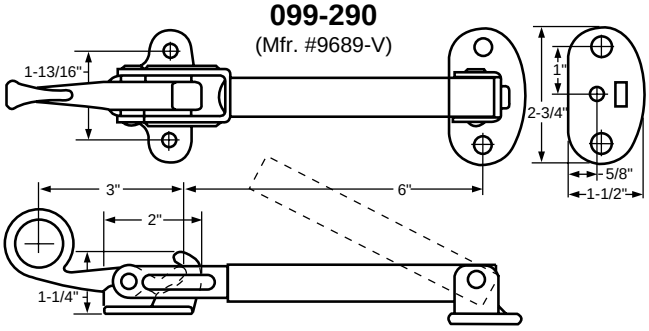


Unit Package 1

VERTICAL HOOD FASTENER
(2 Part)

Standard vertical hood fastener. Vertical unit with 2-hole rigid footplate. Footplate holes are on 2" centres with 11/32" diameter holes.

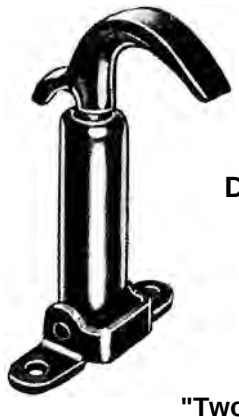
099-290
(Mfr. #9689-V)



Unit Package 1

Complete listing of Hood Clamps and Hood Fasteners found on pages L115 to L119.

NOTE: Designed for Antique Cars, not recommended for OFF-ROAD or High-Speed Vehicles.



D-3074 Black Enameled

"Two-Hole" Anchor

2-23/32" Free Height.
3-3/32" Hooking Height.
3-19/32" Extended Height.
13/64" Diameter and 1-5/8" centre to centre Mounting Holes.

Unit Package 10

D-4064 Black Enameled

"Three-Hole" Anchor

2-23/32" Free Height.
3-3/32" Hooking Height.
3-19/32" Extended Height.
13/64" Diameter 1-5/8" centre to centre Mounting Holes.

Unit Package 10

L

RAM'S HORN STYLE HOOD CLAMP

Unit Package 10

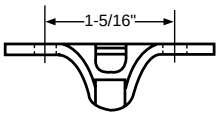
D-4058
099-251

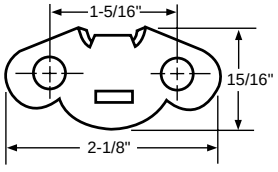
Black Enamel Finish *SPAENAUR No.*	Chrome Plated Finish *SPAENAUR No.*	Free Height		Hooking Height		Extended Height		Mounting Holes	
		Vert.	Horiz.	Vert.	Horiz.	Vert.	Horiz.	C to C	Dia.
D-4058	099-251	—	3-1/4"	—	3-3/4"	—	4-1/4"	1-7/16"	9/32"
D-4059	099-249	3-9/16"	—	4-1/16"	—	4-11/16"	—	1-7/16"	9/32"

D-4059
099-249

Note: The **CATCH PLATE** shown below, will fit all Hood Clamps shown on this page.

Stamped Steel





CATCH PLATE

D-3074C Black Enameled
099-250 Chrome Plated

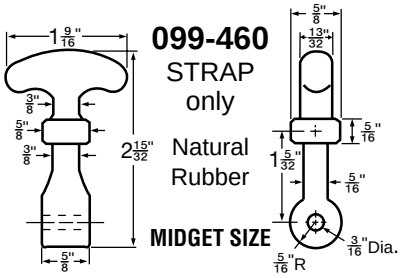
Unit Package 10

They "Keep Things Q-U-I-E-T"

. . . low cost, easy to install truck hood, battery box, hatch cover fasteners

Snug-fit fastening with never a squeak! Neat, trim appearance.

099-450 Fastener
*Complete as shown

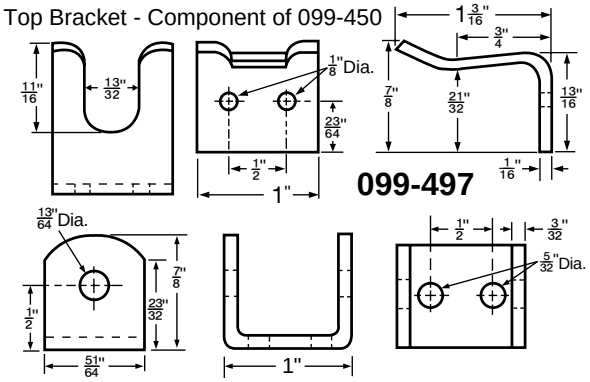


099-460 STRAP only
Natural Rubber
MIDGET SIZE

(Components of 099-450)

233-012 Clevis Pin & **CP-2012** Cotter Pin
or
MS-62 Machine Screw & **HN-172** Lok-Nut

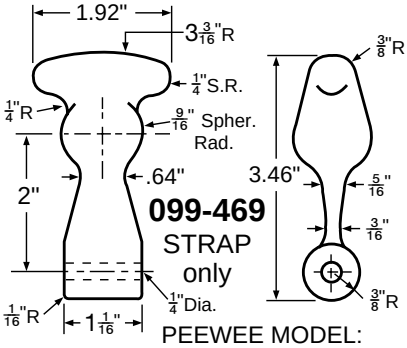
Top Bracket - Component of 099-450



099-497

099-498 Lower Bracket - Component of 099-450

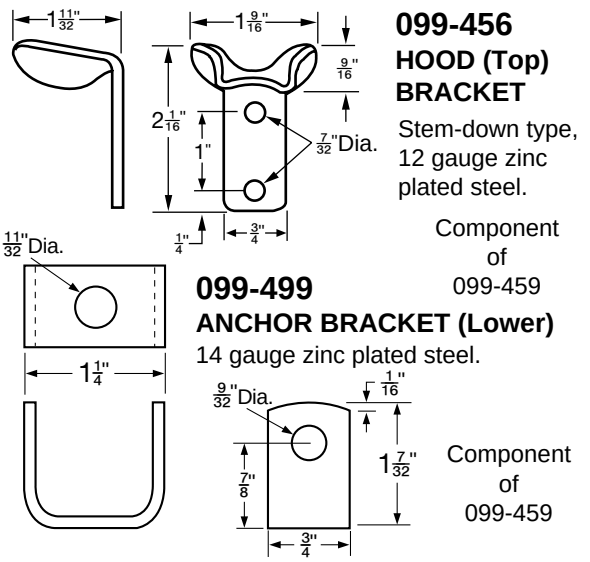
099-459 Fastener
*Complete as shown



099-469 STRAP only
PEEWEE MODEL:
Ideal size for small hoods and access panels.
EPDM Compound.

(Components of 099-459)

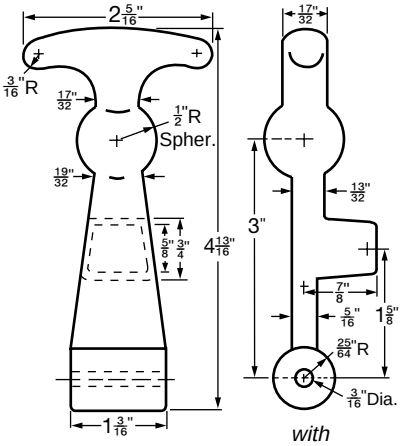
HC-14 Hex. Bolt & **HN-175** Lok-Nut
or
B-1720 Clevis Pin & **CP-2012** Cotter Pin



099-456
HOOD (Top) BRACKET
Stem-down type, 12 gauge zinc plated steel.
Component of 099-459

099-499
ANCHOR BRACKET (Lower)
14 gauge zinc plated steel.
Component of 099-459

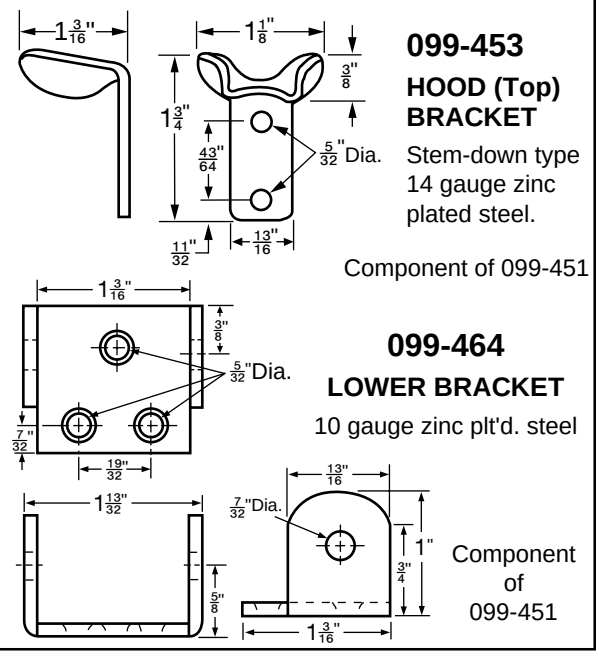
099-451 Fastener
*Complete as shown



099-461 COMPACT MODEL
Natural Rubber STRAP only
with anti-rattle nub.

(Components of 099-451)

233-011 Clevis Pin & **CP-2012** Cotter Pin
or
MS-64 Machine Screw & **HN-172** Lok-Nut



099-453
HOOD (Top) BRACKET
Stem-down type
14 gauge zinc plated steel.
Component of 099-451

099-464
LOWER BRACKET
10 gauge zinc plt'd. steel
Component of 099-451

L

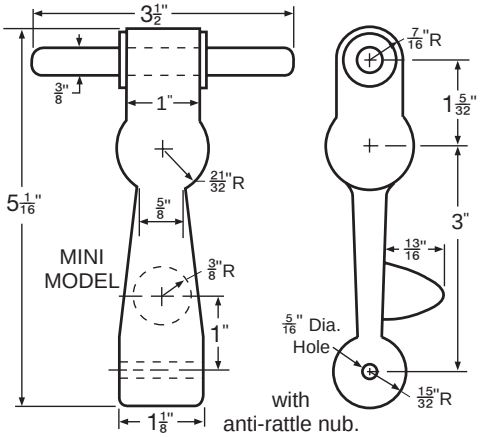
*Mounting screws not included.

See Condensed List on Page L119.

099-458

*Complete FASTENER
(with mounting hardware)

STRAP DATA



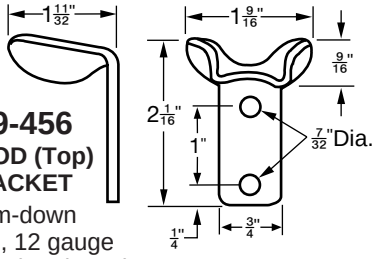
Excellent size for securely fastening battery box covers in limited space. EPDM Compound

099-468 Strap Only (with Grasp)

(Components of 099-458)

HC-14 Hex. Bolt & **HN-175** Lok-Nut
or
B-1720 Clevis Pin & **CP-2012** Cotter Pin

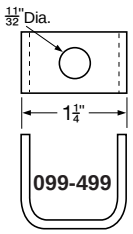
MOUNTING HARDWARE



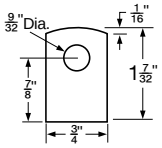
099-456
HOOD (Top) BRACKET

Stem-down type, 12 gauge zinc plated steel.

Component of 099-458



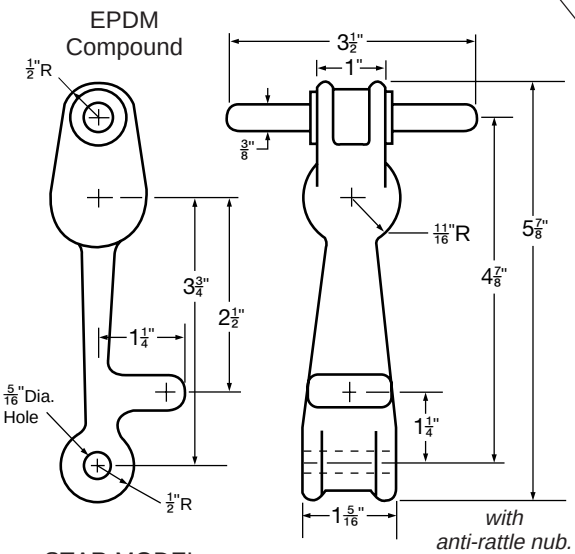
099-499
ANCHOR BRACKET
(bottom)
14 gauge zinc plated steel.



Component of 099-458

099-452

*Complete FASTENER
(with mounting hardware)

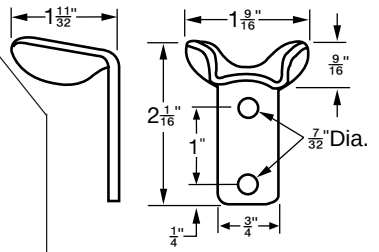


STAR MODEL:
Our standard model. Especially suited to fastening truck hoods and for heavy duty applications.

099-462 STRAP only (with Grasp)

(Components of 099-452)

HC-142 Hex. Bolt & **HN-178** Lok-Nut
or
B-368 Clevis Pin & **CP-2014** Cotter Pin

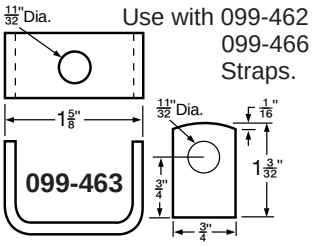


099-456
HOOD (Top) BRACKET

Use with 099-462 Strap

Stem-down type, 12 gauge zinc plated steel.

(Components of 099-452)



Use with 099-462 099-466 Straps.

ANCHOR BRACKET (lower)
11 gauge zinc plated steel.

*Mounting Screws not included.

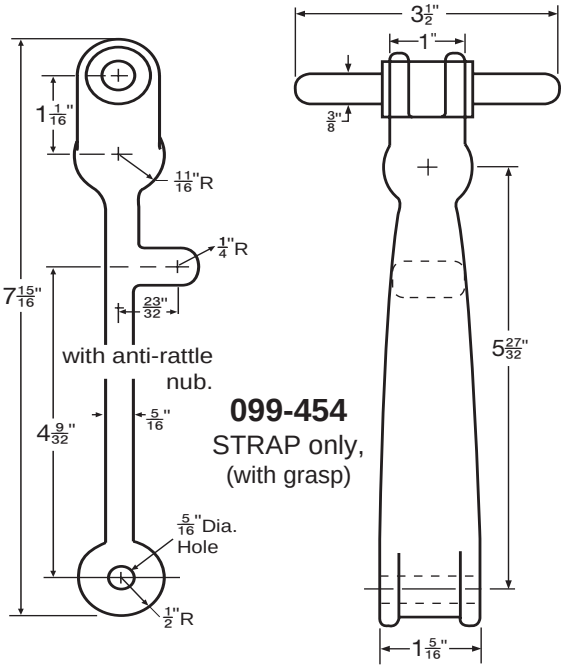
NOTE: EPDM and NR compounds are compared on page R19.

N.B. - The parts required to attach the strap to the lower bracket are shown below each strap data picture, and consist of an Anchor Bolt with Lok-Nut or Clevis Pin with Cotter.

SPAENAUR (at our option) will supply the type of attachment based on availability at time of shipping.

099-457
FASTENER
*Complete with mounting hardware.

099-465 FASTENER
- Jumbo Model -
(Not shown - Details at extreme right

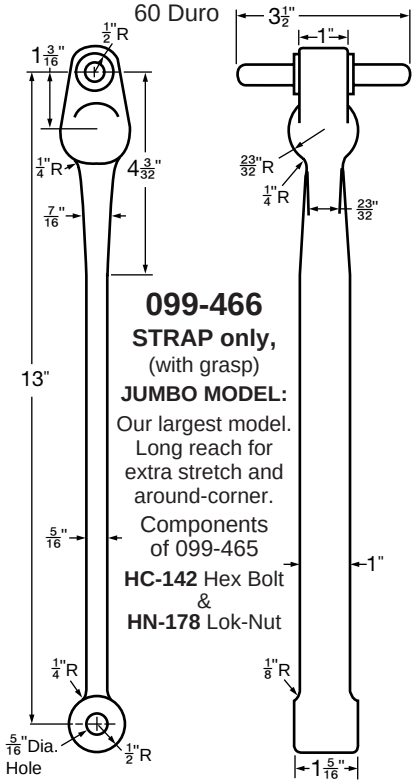


099-454
STRAP only,
(with grasp)

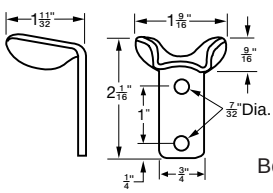
(Components of 099-457)

B-368 Clevis Pin & **CP-2014** Cotter Pin
or
HC-142 Hex Bolt & **HN-178** Lok-Nut

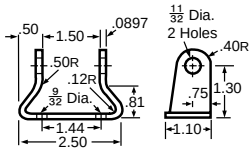
EPDM Compound
60 Duro



099-466
STRAP only,
(with grasp)
JUMBO MODEL:
Our largest model. Long reach for extra stretch and around-corner.
Components of 099-465
HC-142 Hex Bolt
&
HN-178 Lok-Nut



099-456
UPPER HOOD BRACKET
Stem-down type, 12 gauge zinc plated steel.



099-455
LOWER BRACKET
Chrome plated steel.

Both 099-456 - Upper Bracket and 099-455 - Lower Bracket are components of 099-457 and 099-465.

L

Condensed Listing of **Hood Fastener Straps** *and component* **Metal Hardware**

complete **FASTENER** as shown above ***SPAENAUR No.***	**STRAP** Free Overall Length	**Fastener STRAP** only (with Grasp)	**UNIT PKG.** (Less Screws)	**Strap Substance or Compound** See compound characteristics on page R19.	Component ****HARDWARE PARTS** See "Complete Fastener" No's. *(also available separately)*
099-450	2-15/32"	**099-460**	1	Natural Rubber	**099-497** Top Brk't; **099-498** Bot. Brk't; **233-012** Clevis Pin; **CP-2012** Cotter Pin; or, **MS-62** Machine Screw; **HN-172** Lok Nut.
099-459	3-3/64"	**099-469**	1	EPDM Compound - 60 Duro	**099-456** Top Brk't; **099-499** Bot. Brk't; **HC-14** Hx. Bolt; **HN-175** Lok Nut; or **B-1720** Clevis Pin; **CP-2012** Cotter Pin.
099-451	4-7/8"	**099-461**	1	Natural Rubber	**099-453** Top Brk't; **099-464** Bot. Brk't; **233-011** Clevis Pin; **CP-2012** Cotter Pin; or, **MS-64** Machine Screw; **HN-172** Lok Nut.
099-458	5-1/16"	**099-468**	1	EPDM Compound 60 Duro	**099-456** Top Brk't; **099-499** Bot. Brk't; **HC-14** Hx. Bolt; **HN-175** Lok Nut; or **B-1720** Clevis Pin; **CP-2012** Cotter Pin.
099-452	5-7/8"	**099-462**	1	EPDM Compound 60 Duro	**099-456** Top Brk't; **099-463** Bot. Brk't; **HC-142** Hx. Bolt; **HN-178** Lok Nut; or **B-368** Clevis Pin; **CP-2014** Cotter Pin.
099-457	7-15/16"	**099-454**	1	EPDM Compound 60 Duro	**099-456** Top Brk't; **099-455** Bot. Brk't; **B-368** Clevis Pin; **CP-2014** Cotter Pin; or, **HC-142** Hx. Bolt; **HN-178** Lok Nut.
099-465	C. to C. 13"	**099-466**	1	EPDM Compound 60 Duro	**099-456** Top Bracket; **099-455** Bottom Anchor; **HC-142** Cap Screw; **HN-178** Lok Nut.

*Mounting screws not included

**For Component HARDWARE PART Package Quantities See Price List.

We Are Proud To Represent

SOUTHCO®

…the Leader in Providing Latching and Access Hardware Solutions.

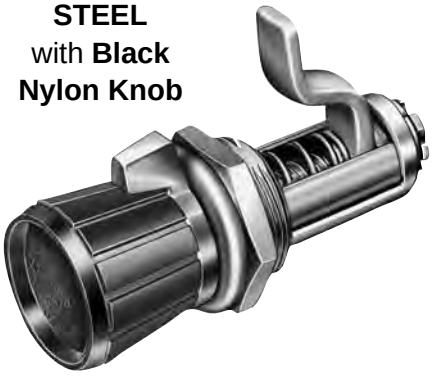
Featured are many of the quality products
we stock for immediate shipment.
With the rapid expansion of our Southco inventory,
it is difficult to keep our catalog up to date.
If you cannot find what you are looking for
in this section (such as draw latches,
rotary latches, handles, pulls and
specialty hinges), please call.

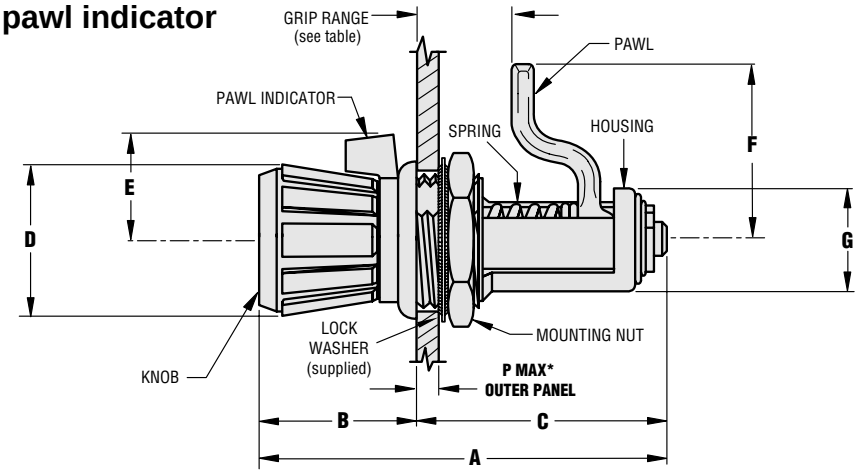
Southco's full line including quarter-turn and captive fasteners,
various latches, catches and locks are available on special order
usually within 2 to 3 weeks. Please call with your requirements
for expert assistance and current information.

Southco® products are manufactured under an ISO 9001 Quality System.

Adjustable Grip Latches with pawl indicator

CARBON STEEL with **Black Nylon Knob**

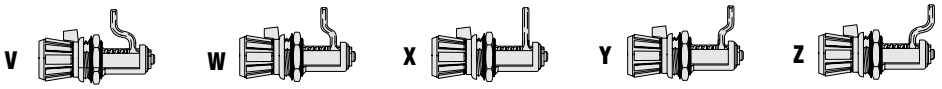




- 1/4 turn latches or unlatches
- Single-hole installation
- An extra turn adjusts the amount of compression applied
- 4 Series

100, 200, 300 and 400 series see table below for *SPAENAUR No.*

Pawl style and position (preassembled)

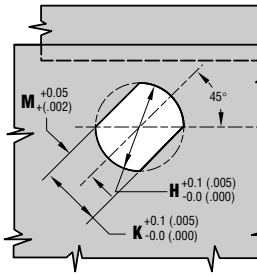


Nylon Knob Style

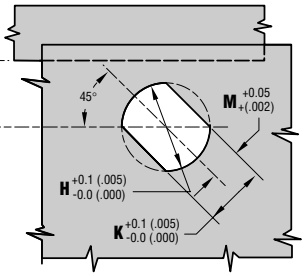
SPAENAUR No.	Mfr. No.	DIMENSIONS A	B	C	D	E	F	G	P	GRIP Min.	Max.	Pawl position	Series	INSTALLATION H	K	M	N Min.	N Max.
—	—									2.4 (.094)	15.9 (.625)	V						
—	—	77.4	30.6	46.9	28.6	19.8	33.3	19	6.4	12.7 (.500)	25.4 (1.000)	W	100	25.4	23.8	11.9	22.2	28.6
—	—	(3.05)	(1.20)	(1.84)	(1.13)	(.78)	(1.31)	(.75)	(.25)	20.6 (.813)	33.3 (1.313)	Y		(1.000)	(.937)	(.468)	(.875)	(1.125)
—	—									28.6 (1.125)	42.9 (1.688)	Z						
097-017	16-10-211-14									1.6 (.063)	14.3 (.563)	V						
—	—	65.9	25.8	40.1	24.1	15.9	27	17.5	6.4	12.7 (.500)	25.4 (1.000)	X	200	22.2	20.6	10.3	15.9	22.2
—	—	(2.59)	(1.02)	(1.58)	(.95)	(.63)	(1.06)	(.69)	(.25)	23.8 (.938)	36.5 (1.438)	Z		(.875)	(.812)	(.406)	(.625)	(.875)
097-016	16-10-311-14									1.6 (.063)	12.7 (.500)	V						
—	—	54.8	21.8	32.9	19	12.7	23	15.5	4.8	(9.5) (.375)	20.6 (.813)	X	300	19	17.5	8.7	17.5	20.6
—	—	(2.16)	(.86)	(1.30)	(.75)	(.50)	(.91)	(.61)	(.19)	17.5 (.688)	28.6 (1.125)	Z		(.750)	(.687)	(.344)	(.688)	(.813)
—	—									1.6 (.063)	8.7 (.344)	V						
097-085	16-10-412-14	40.7	17.3	23.4	13.5	9.1	19	11.5	2.4	7.1 (.28)	14.3 (.563)	X	400	14.3	12.7	6.4	14.3	17.5
—	—	(1.60)	(.68)	(.92)	(.53)	(.36)	(.75)	(.45)	(.09)	12.7(.500)	19.8 (.781)	Z		(.562)	(.500)	(.250)	(.563)	(.688)

Items with SPAENAUR No. Stocked - Other Styles delivery 2-3 weeks.

Installation
(100, 200 series)



Installation
(300, 400 series)



STRENGTH GUIDELINES		
Series	**Max. working load**	**Average ultimate load**
100	445 N (100 lbs.)	990 N (225 lbs.)
200	400 N (90 lbs.)	620 N (140 lbs.)
300	335 N (75 lbs.)	445 N (100 lbs.)
400	220 N (50 lbs.)	330 N (75 lbs.)

INSTALLATION (100 to 400 Series)

1. Prepare panel.
2. Rotate knob to run pawl to back of housing.
3. Remove mounting nut and lockwasher.
4. Insert latch into hole by hooking pawl through hole, following through with housing.
5. Replace lockwasher and mounting nut and tighten.

Flammability Rating (Nylon knob): UL94 - HB

Operating Temperature Range (Nylon knob): -20°C to 80°C (0°F to 180°F)

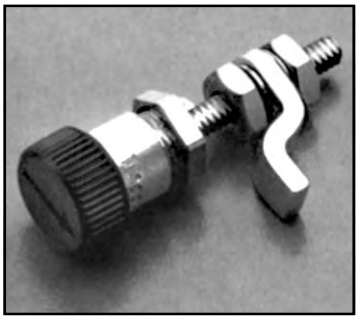
millimeter (inch)

Dimensions without tolerances are for reference only.

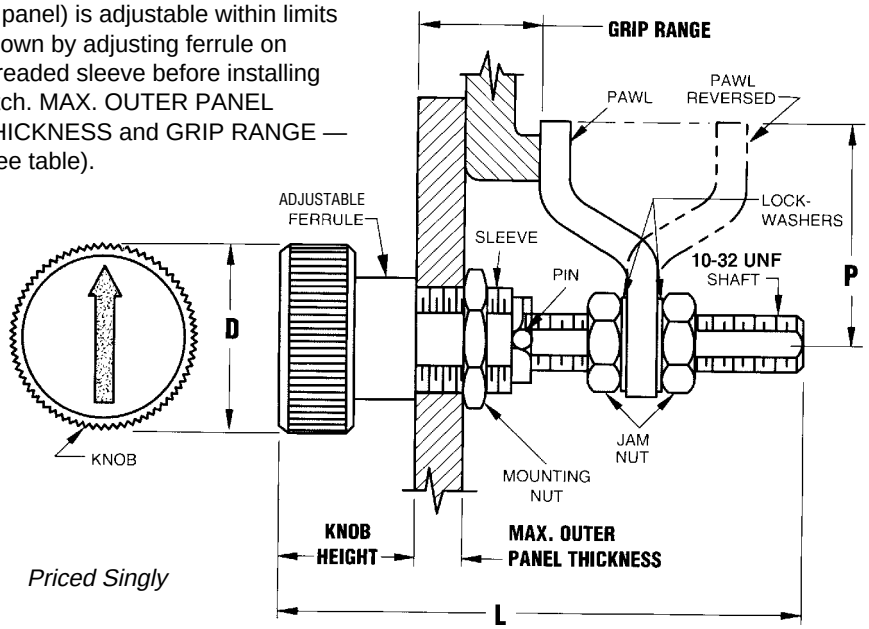
Arrowhead (Pawl Indicator) Design

- Detents in full open and closed positions
- Turn clockwise or counter-clockwise to operate

Series 400



Height of knob (from outside surface of panel) is adjustable within limits shown by adjusting ferrule on threaded sleeve before installing latch. MAX. OUTER PANEL THICKNESS and GRIP RANGE — (see table).



Priced Singly

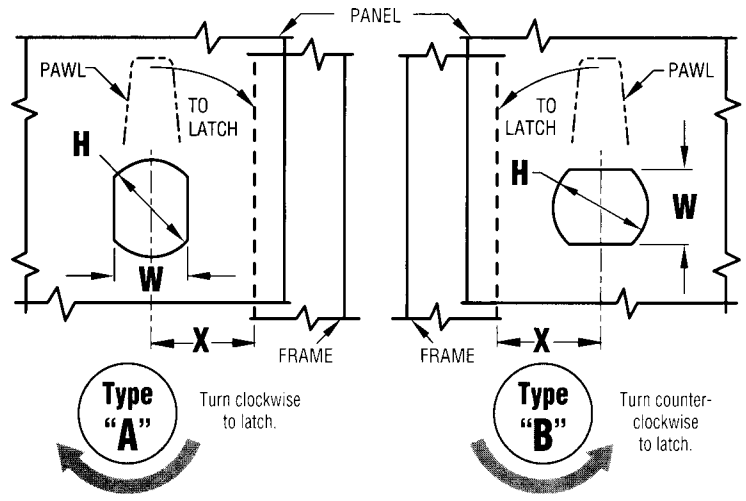
Material and Finish

KNOB: **Nylon, black.**
SHAFT: **Low carbon steel, Dacrosealed†.**
PAWL: **1010 Steel, Dacrotizes†**
FERRULE: **6061 Aluminum, natural.**
SLEEVE: **Die cast zinc with chemical protective film.**
MOUNTING NUT: **Steel, zinc plated plus yellow chromate dip.** JAM NUTS: **Steel, zinc plated plus yellow chromate dip.** SPRING: **302 Stainless steel, natural.** PIN: **303 Stainless steel, passivated.**
LOCKWASHERS: **Spring steel Dacrotized†.**

L

SPAENAUR No. Mfr. No.	Dimensions øD	L	P	Knob Height	Max. Outer Panel Thickness	Grip Range: Pawl as shown Min.	Pawl as shown Max.	Pawl reversed Min.	Pawl reversed Max.	Installation H ±0.13 (±0.05)	W ±0.13 -0.00 (+.005 -0.00)	X Min.	X Max.
097-094	19.1	47.6	15.9	17.5 (.69) Max.	1.59 (.063)	3.2 (.13)	15.9 (.63)	15.9 (.63)	28.6 (1.13)	11.51	9.78	12.30	13.10
69-10-401-11	(0.75)	(1.88)	(.63)	12.7 (.50) Min.	6.35 (.250)	7.9 (.31)	20.6 (.81)	20.6 (.81)	33.3 (1.31)	(.453)	(.385)	(.484)	(.516)

Panel Preparation



Installation

Latch operates through 90° rotation in direction shown with a positive click stop at both extremes. Pawl pulls up at both extremes.

1. Adjust ferrule to desired knob height (see table).
2. Remove shaft nuts, lockwashers, pawl and mounting nut (if assembled).
3. Insert shaft through hole in panel to engage flats of sleeve with shaped hole.
4. Check arrow orientation.
5. Apply and tighten mounting nut.
6. Install pawl and shaft nuts as shown, position pawl for desired grip and use two wrenches to tighten nuts firmly against pawl.

millimeter (inch)

Dimensions without tolerances are for reference only.

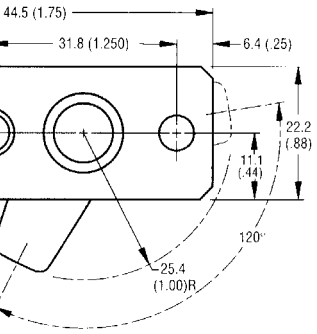
CATALOG 13

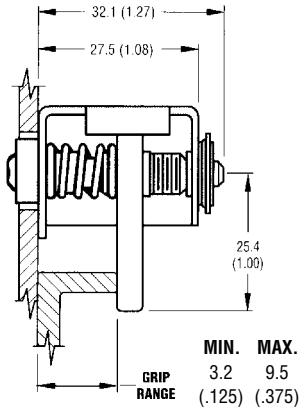
†Registered tradename of Metal Coatings International, Inc.

Toolhead® Recess Adjustable Grip Latch

Medium Size

- Adjusts to your panel thickness
- Draws tightly against panel or gasket



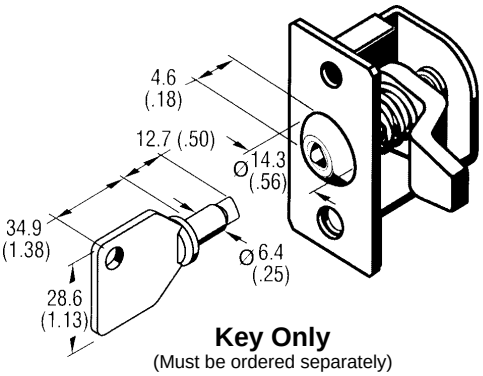


Material and Finish

PAWL and RETAINING WASHER: **1010 steel.**
BUSHING: **12L14 steel. The components listed above are zinc plated plus yellow chromate dip.**
SPRING: **302 Stainless steel, passivated.** CONICAL SPRING: **302 Stainless steel, passivated.**
HOUSING: **1010 steel, zinc plate, chromate plus sealer.**
SCREW: **12L14 steel, zinc plate, chromate plus sealer.**

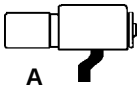
For Trimplate:
PLATE: **1010 Steel, phosphate dip plus black powder coated.** STUDS: **10B21 Steel, phosphate dip.** NUTS: **Steel, DACHROTIZED†,**
LOCKWASHERS: **Spring steel, DACHROTIZED†.**
†Registered trademark of Metal Coatings International.

Operating Temperature Range:
-20°C to 80°C (-0°F to180°F)



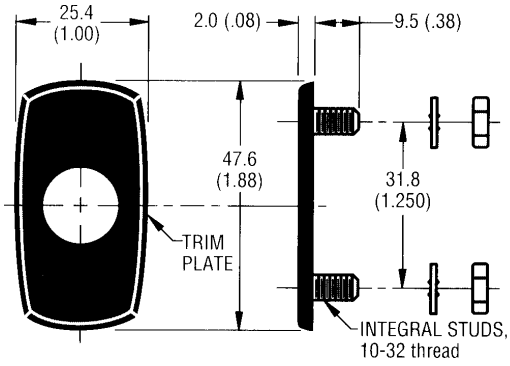
Key Only
(Must be ordered separately)
097-087
Mfr. #29-90-215-10

Latch Only
097-086
Mfr. #44-T-1

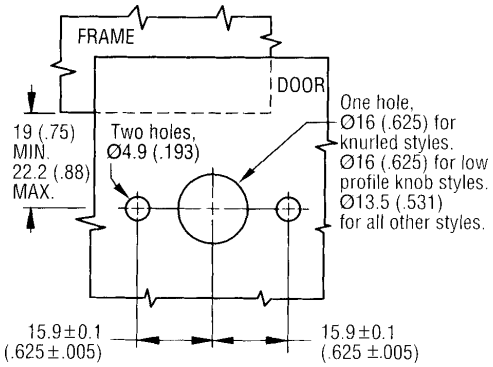


A
Pawl Style and Position

Trimplate Only
097-088
Mfr. #44-30-101-10



Panel Preparation



Installation

1. Prepare door.
2. Pass knob of latch through centre hole and secure with two rivets or screws.

Trimplate Installation

Two nuts and two lockwashers are supplied. Maximum recommended tightening torque for mounting nuts: 2.8 N•m (25 in.-lbs).

Product Strength Guidelines

Maximum working load: 490 N (110 lbs.)
Average ultimate load: 1070 N (240 lbs.)

millimeter (inch)

Dimensions without tolerances are for reference only.

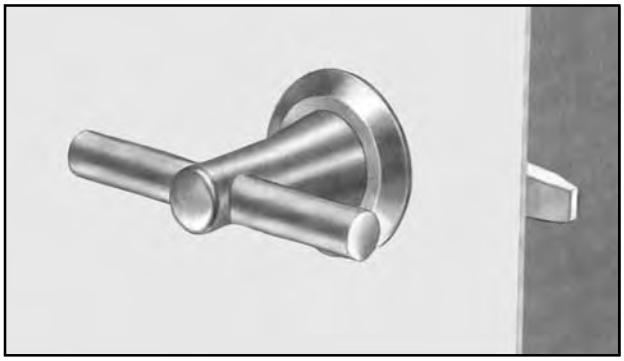
OTHER GRIP RANGES, HEAD STYLES and STAINLESS STEEL Available Special Order.

CATALOG 13

T-handle Latch

Mid-size series 10

- Wide grip range
- Built in 90° rotation
- Single point latching (two or three- point latching also available)

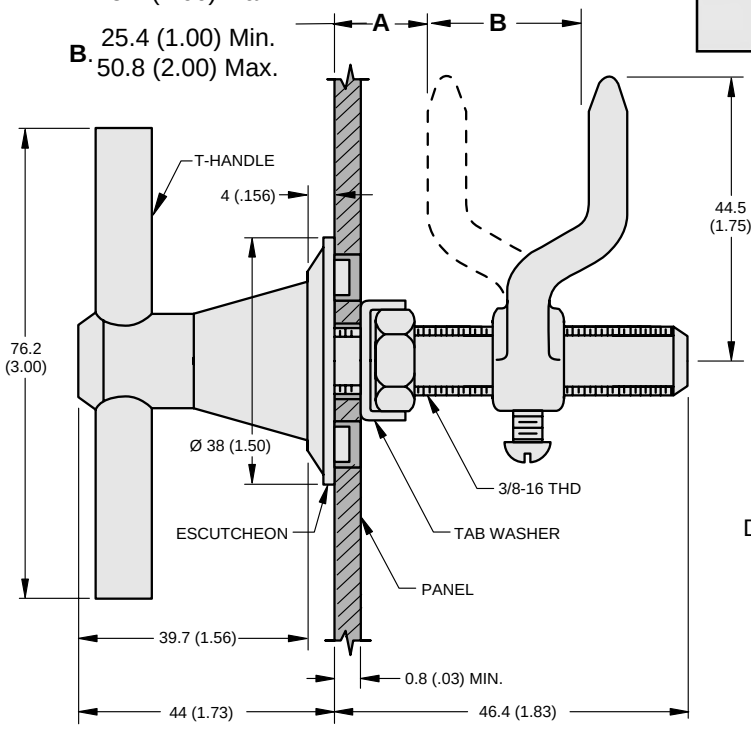


GRIP RANGE

A. 3.2 (.13) Min.
25.4 (1.00) Max.

B. 25.4 (1.00) Min.
50.8 (2.00) Max.

Left or Right Hand Operation



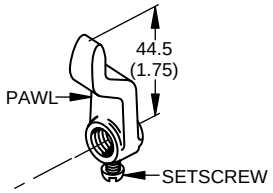
LOW CARBON STEEL

SPAENAUR No.	Mfr. No.	Handle Assembly Finish
097-035	68-10-101-10	Zinc Plated
097-036	68-10-101-20	Chrome Plated

The same assembly is supplied for both long and short grip curves toward panel. Reverse pawl for long grip.

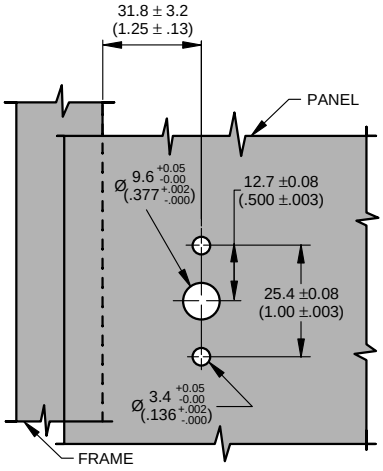
millimeter (inch)

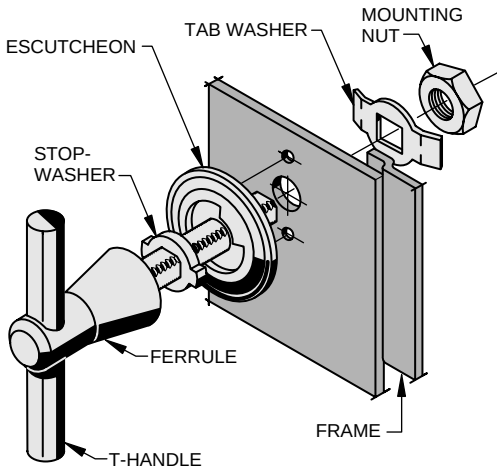
Dimensions without tolerances are for reference only.



INSTALLATION

Prepare panel as shown.





Other styles and sizes available.

Product Strength Guidelines
Average ultimate load:
1100N (250 lbs.)

Priced Singly

Basic Latch Assembly
(Common to all models)

Slip stop washer over shaft and follow with escutcheon plate.

Insert shaft into panel; fit stop pins into holes; apply tab washer and square nut. Tighten nut sufficiently to hold fastener snugly in panel, yet permit smooth operation. Bend tabs of washer against sides of nut.

L

CATALOG 13

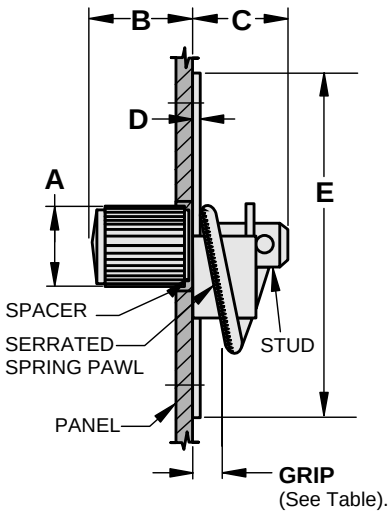
Spring Compression Latches

- Smooth latching action
- Camming action of spring pawl provides wide grip range
- Specify one size for several applications

STEEL
Zinc Plated

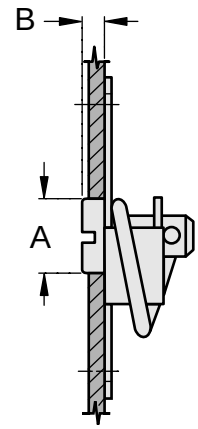
Stainless STEEL
302 Passivated

Knurled Steel Knob Style



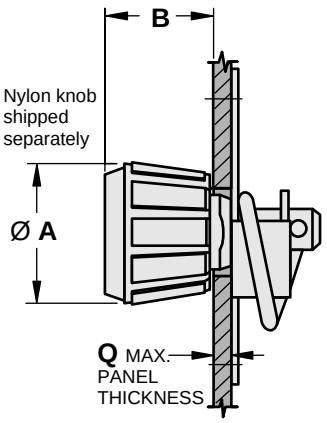
097-037 Steel

Slotted Head Style



097-041 Steel
097-059 302 Stainless Steel

Black Nylon Knob Style

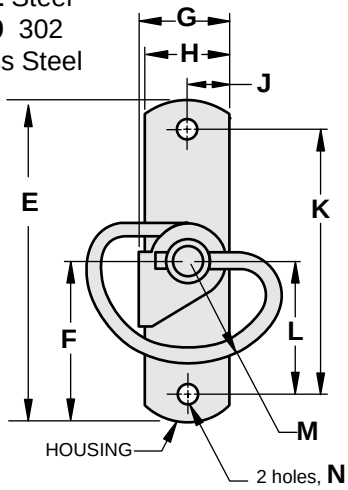


097-038 Steel
097-042 Steel

Black Nylon Knob Style Flammability Rating:
(Nylon knob): UL94 - HB

Operating Temperature Range:
(Nylon knob): -20°C to 80°C
(0°F to 180°F)

Back Side
for all styles



Spring Style is smooth for all Rivet Type *SPAENAUR* Numbers listed below.

Also available with Weld Projection mounting plate, Serrated Spring Pawl, Hex Socket or T-Bar.

Spring: **302 Stainless Steel, passivated**
Housing: **1010 Steel**

SPAENAUR No. Mfr. No. **Head Style**	**Dimensions** ØA	B	C	D	E	F	G	H	J	K	L	M	N	**Q Max. Panel Thick.**	**Grip**
097-037 57-20-201-10 **Knurled**	6.6 (.26)	11.9 (.47)	7.5 (.30)	0.8 (.031)	27 (1.06)	13.5 (.53)	8.5 (.33)	7.1 (.28)	3.6 (.14)	22.2 (.875)	11.1 (.438)	8.6 (.34)	2.7 (.106)	— —	1.2 (0.5) Min. 4.3 (.17) Max.
097-038 57-30-401-10 **Black Knob**	14.7 (.58)	15.1 (.59)	11.1 (.44)	0.8 (.031)	39.7 (1.56)	19.8 (.78)	11.6 (.458)	10.6 (.416)	5.3 (.208)	33.3 (1.312)	16.7 (.656)	13 (.51)	2.7 (.106)	4.8 (.188)	1.2 (0.5) Min. 6.4 (.25) Max.
097-041 57-10-101-10 **Slotted**	11.9 (.47)	3.2 (.13)	17.5 (.69)	1.2 (.047)	58.7 (2.31)	29.4 (1.16)	17.5 (.69)	15.8 (.62)	7.9 (.31)	49.2 (1.94)	24.6 (.97)	19.6 (.77)	3.5 (.136)	— —	1.6 (.06) Min. 9.5 (.38) Max.
097-042 57-10-401-10 **Black Knob**	24.1 (.95)	19.1 (.75)	17.5 (.69)	1.2 (.047)	58.7 (2.31)	29.4 (1.16)	17.5 (.69)	15.8 (.62)	7.9 (.31)	49.2 (1.94)	24.6 (.97)	19.6 (.77)	3.5 (.136)	6.4 (.250)	1.6 (.06) Min. 9.5 (.38) Max.
097-059* 57-10-101-40 **Slotted**	11.9 (.47)	3.2 (.13)	17.5 (.69)	1.2 (.047)	58.7 (2.31)	29.4 (1.16)	17.5 (.69)	15.8 (.62)	7.9 (.31)	49.2 (1.94)	24.6 (.97)	19.6 (.77)	3.5 (.136)	— —	1.6 (.06) Min. 9.5 (.38) Max.

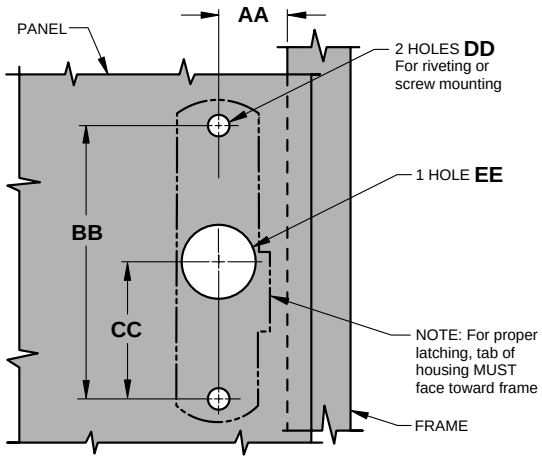
*302 Stainless Steel

millimeter (inch)

Dimensions without tolerances are for reference only.

Installation on facing page….

INSTALLATION FOR SPRING COMPRESSION LATCHES



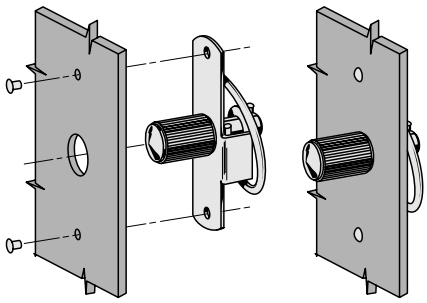
millimeter (inch)

Dimension information on facing page.

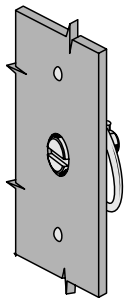
Dimensions without tolerances are for reference only.

Priced Singly

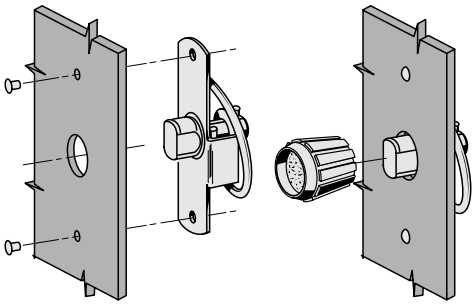
Knurled Steel Knob Style



Slotted Style



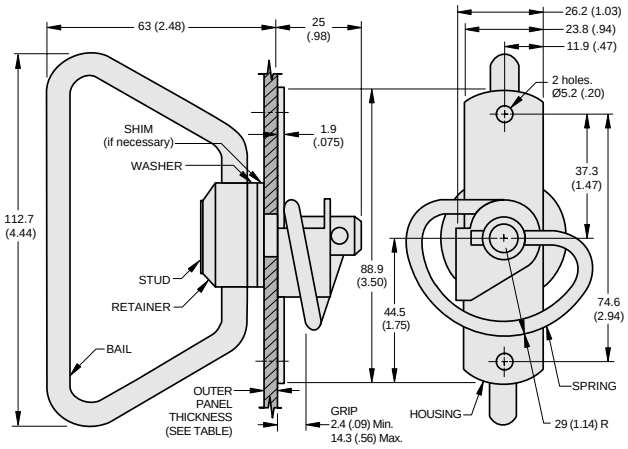
Black Nylon Knob Style



NOTE: Install Knob AFTER installing latch

SPAENAUR No.	MFR. No.	HEAD STYLE	AA	BB	CC	Ø DD	Ø EE
097-037	57-20-201-10	Knurled	5.6 (.22)	22.2 (.875)	11.1 (.438)	2.7 (.106)	7.2 (.238)
097-038	57-30-401-10	Black Knob	8.7 (.34)	33.3 (1.312)	16.7 (.656)	2.7 (.106)	10.5 (.406)
097-041	57-10-101-10	Slotted	12.7 (.50)	49.2 (1.938)	24.6 (.969)	3.5 (.136)	13 (.50)
097-042	57-10-401-10	Black Knob	12.7 (.50)	49.2 (1.938)	24.6 (.969)	3.5 (.136)	16 (.625)
097-059	57-10-101-40	Slotted	12.7 (.50)	49.2 (1.938)	24.6 (.969)	3.5 (.136)	16 (.625)
097-060	57-40-701-80	Bail Handle	19.1 (.75)	74.6 (2.937)	37.3 (1.469)	5.2 (.20)	20 (.78)

Bail Handle Spring Latch



097-060

Low Carbon Steel

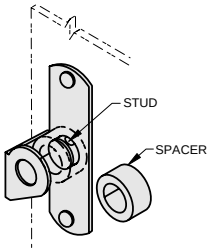
Zinc Plated plus bright chromate dip

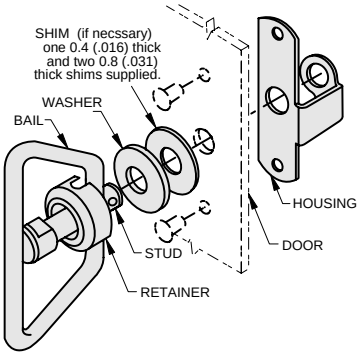
Spring: 302 Stainless Steel, passivated.

INSTALLATION:

1. For panel preparation see above.
2. Assemble as shown.

3.





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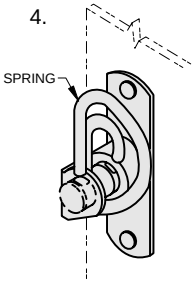
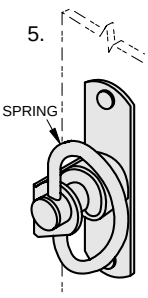


5.



OUTER PANEL THICKNESS	NUMBER OF SHIMS NEEDED
4.6 to 5 (.181 to .196)	None
4.2 to 4.6 (.165 to .180)	One - 0.4 (.016)
3.8 to 4.2 (.149 to .164)	One - 0.8 (.031)
3.4 to 3.8 (.133 to .148)	One - 0.8 (.031) thick and One - 0.4 (.016) thick
3 to 3.4 (.117 to .132)	Two - 0.8 (.031) thick
2.6 to 3 (.101 to .116)	Two - 0.8 (.031) thick and One - 0.4 (.016) thick

L

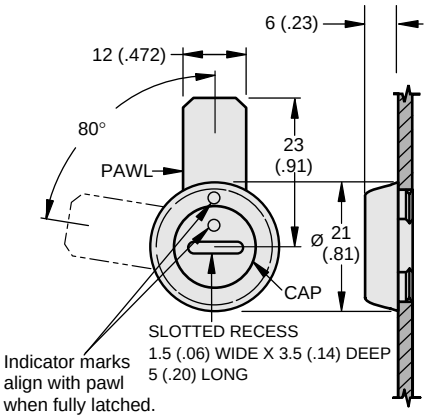
Single-hole Mount, Vise Action® Compression Latches

Small size

- Internal O-ring gasket
- Provides consistent compression
- Fast access
- Quick installation

Easy to install . . . locks doors then pulls them tight with one half turn.

Slotted Recess Style

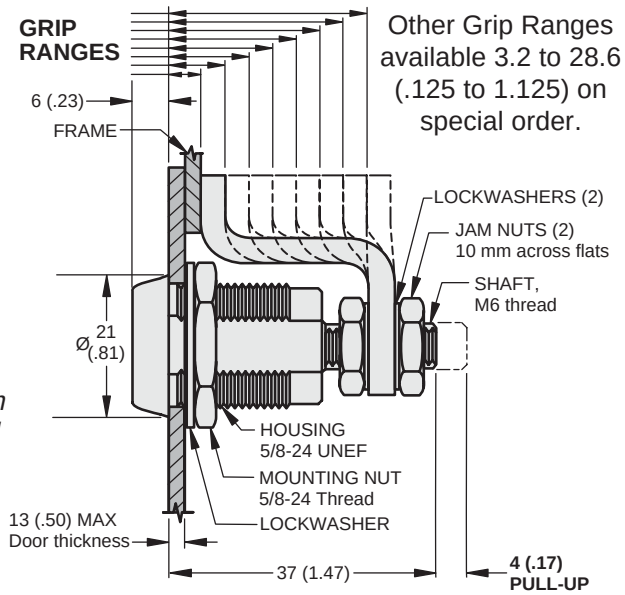


097-050 Mfr. #E3-59-25
Grip Range 6.4 to 9.5 (.250 to .375)

ALL HAVE BLACK MATTE FINISH

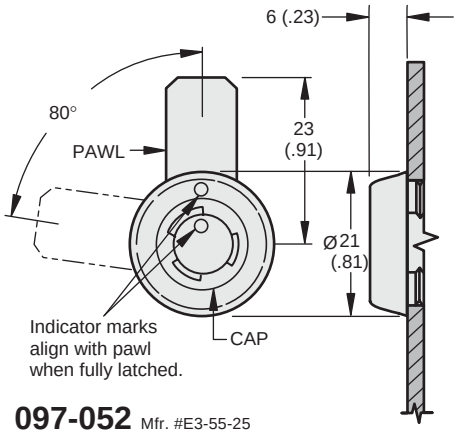
Compressive Strength: Maximum working load 440N (100 lbs.)

Tool-operated Style



Other Grip Ranges available 3.2 to 28.6 (.125 to 1.125) on special order.

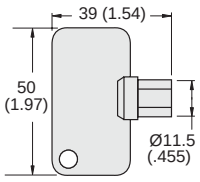
Key-operated Style



097-052 Mfr. #E3-55-25
Grip Range 6.4 to 9.5 (.250 to .375)

097-058 Key must be ordered separately.

Key
Steel
Nickel Plated

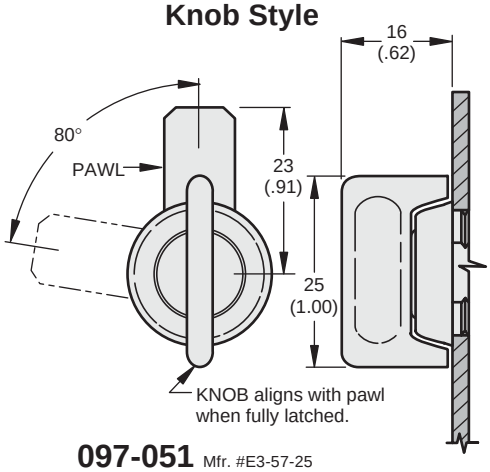


097-058
Mfr. #E3-26-819-15

millimeter
(inch)

Dimensions without tolerances are for reference only.

Knob Style

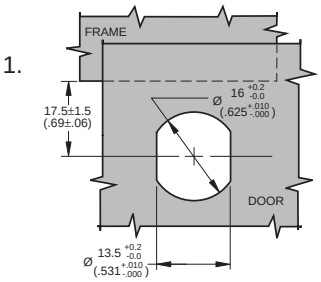


097-051 Mfr. #E3-57-25
Grip Range 6.4 to 9.5 (.250 to .375)

097-089 Mfr. #E3-57-85
Grip Range 25.4 to 28.6 (1.00 to 1.125)

INSTALLATION

1.



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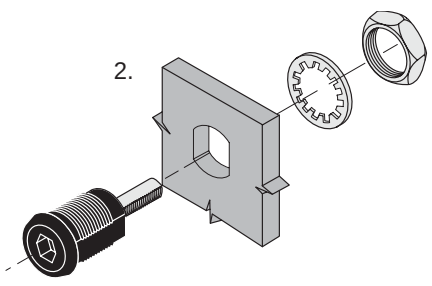

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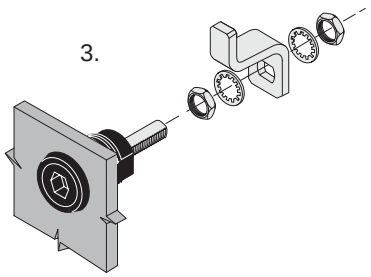


Single-hole Mount

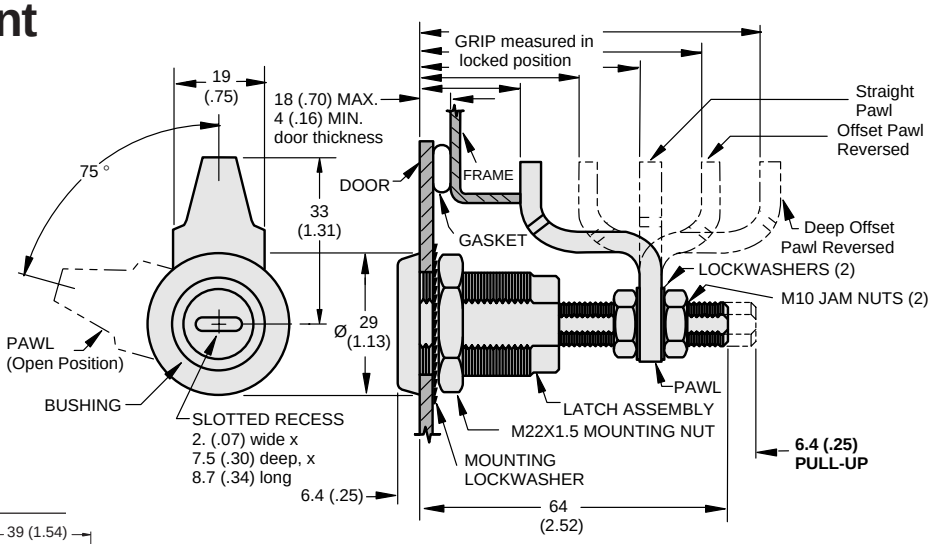
Large size

- Internally gasketed
- Most robust design

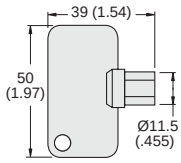
Grip Range
for 097-056 and 097-057
11.4 (.45) Min.
27.2 (1.07) Max.

Other Grip Ranges to 75 (3.0) on special order.

097-056
Mfr. #E3-19-15
Slotted
Recess Style



097-057
Mfr. #E3-15-15
Tubular
Key Style



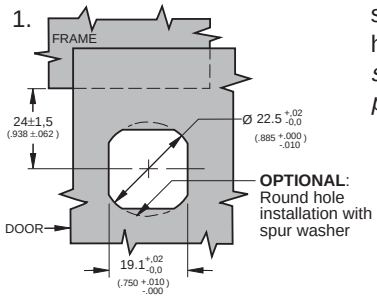
097-053
Mfr. #E3-5-15
Key sold separately.

Housing: **Die-cast zinc**
Finish: **Black Matte powder coated**
Cam: **1075 Case hardened steel**

Compressive Strength: Maximum working load 450N (100 lbs.)

INSTALLATION

1.



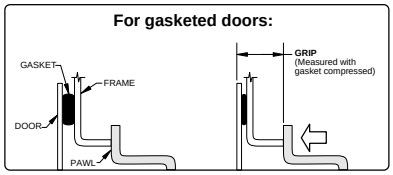
2. & 3. Diagrams are same as for single-hole mount *small size. (See previous page.)*

millimeter
(inch)

Dimensions without tolerances are for reference only.

4. **To adjust grip:**
Measure your grip. Open door. Position pawl on shaft to your grip measurement (with pawl in latched position).

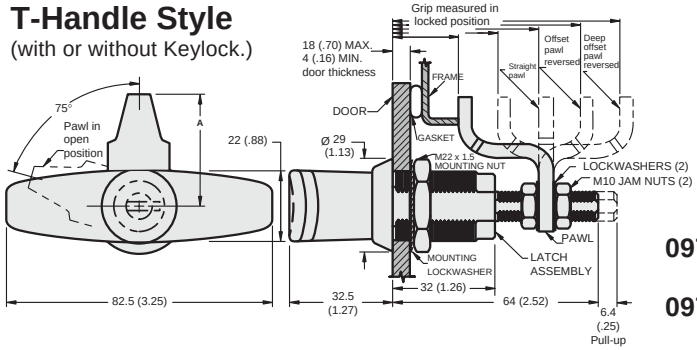
Tighten jam nuts hard against lockwashers and pawl using two wrenches.



All Items This Page Priced Singly

T-Handle Style

(with or without Keylock.)



Grip Range 097-054 & 097-055, 11.4 to 27.2 (.45 to 1.07)
097-097, 38.9 to 54.6 (1.53 to 2.15)

INSTALLATION

1.Insert latch and tighten mounting nut.

2. With latch in closed position, adjust jam nuts to position pawl at correct grip.

Installation dimensions same for *large* size single-hole mount (shown above).

SPAENAUR No.

097-054 non-locking
Mfr. #E3-11-15

097-055 locking (keys included)
Mfr. #E3-18-15

097-097 locking (keys included)
Mfr. #E3-18-35

Housing**: Die-cast zinc**
Black Matte powder coated

Cam and Sleeve: **1075 Case hardened steel**

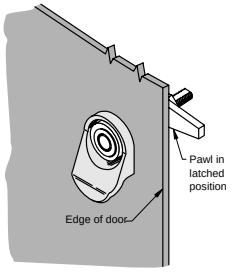
097-436 Mfr. #E3-27-1

Black Nylon

Pull Tab

(finger-grip tab)

Helps in lifting or pulling doors and panels when tool or key operated latches are used. Fits *SPAENAUR No's.* 097-056 and 097-057.



When using pull tab, add 2 (.084) to your desired grip range.

L

CATALOG 13

Pawl-positioning Design

- Provides consistent compression
- Operates with two steps
- Positioning pin assures proper latching

HANDLE AND SLEEVE: **Die-Cast Zinc**
SPRING: **302 Stainless Steel**
PAWL and PAWL RETAINING CLIP: **1010 Steel, Zinc Alloy Plate**

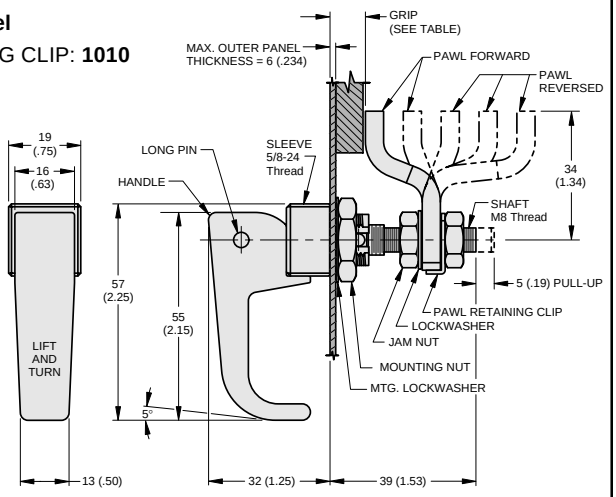
Other grip ranges order special.

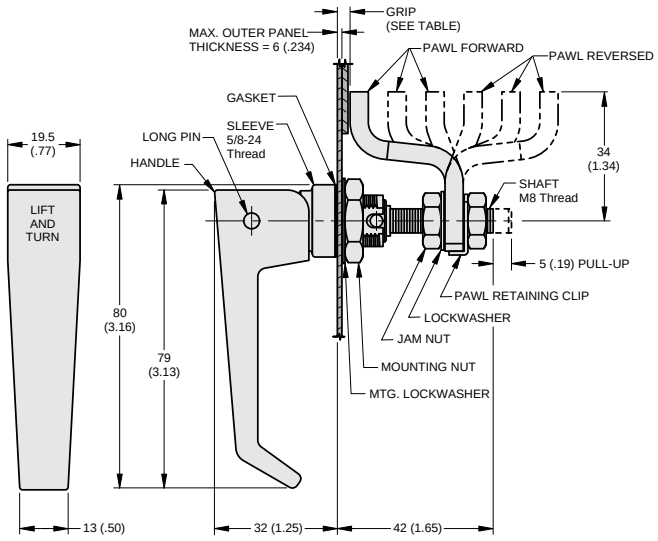
GRIP		SPAENAUR No.			
Min.	Max.	Polished Chrome	Brushed Chrome	Natural With Chemical Protective Film	Black Polyester Powder Coated
2 (.08)	12 (.47)	**097-018** Mfr.#62-10-21	—	—	**097-019** Mfr. #62-10-25
12 (.47)	22 (.87)	**097-082** Mfr.#62-10-31	—	—	—
22 (.87)	32 (1.25)	***097-082****	—	—	—
32 (1.25)	42 (1.66)	***097-018****	—	—	***097-019****
42 (1.66)	52 (2.05)	—	—	—	—

***Reversed Pawl position**

Product Strength Guidelines - Small Size
Maximum working load: 550 N (125 lbs.)
Average ultimate load: 1100 N (250 lbs.)

SMALL





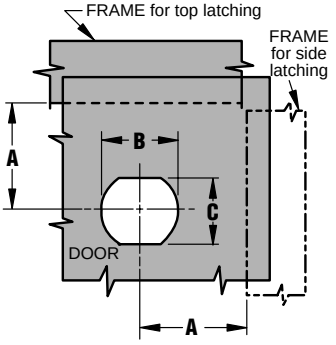
MEDIUM

GRIP		SPAENAUR No.		
Min.	Max.	Polished Chrome	Brushed Chrome	Black Powder Coated
0 (0)	5 (.20)	**097-090** Mfr. # 62-30-11	—	—
5 (.20)	15 (.59)	**097-020** Mfr. # 62-30-21	**097-021** Mfr. # 62-30-22	**097-079** Mfr. #62-30-25
15 (.59)	25 (.98)	—	—	—
25 (.98)	35 (1.37)	—	—	—
35 (1.37)	45 (1.77)	***097-020****	***097-021****	***097-079****
45 (1.77)	55 (2.16)	***097-090****	—	—

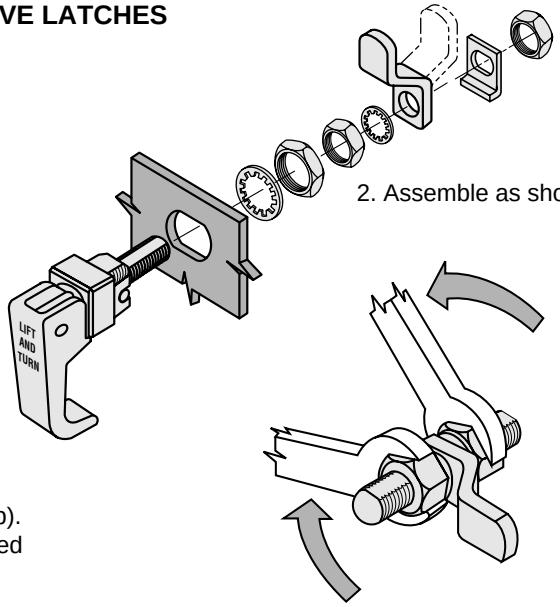
***Reversed Pawl position**

Product Strength Guidelines
Medium style
Maximum working load: 670 N (150 lbs.)
Average ultimate load: 1100 N (250 lbs.)

INSTALLATION FOR ABOVE LATCHES



1. Locate and orient hole with respect to handle in latched position (as shown in next step). This hole orientation is preferred for all latching positions.



2. Assemble as shown.

3. Pawl should be adjusted to GRIP measurement with the door open and the handle in the LATCHED position. Use two wrenches to tighten.

Dimension	SMALL & MEDIUM SERIES
A	23^{+2}_{-1} (.93±.06) PAWL FORWARD
	28^{+2}_{-1} (1.10±.06) PAWL REVERSED
B	ø $16.3^{+0.1}_{-0.0}$ ($.640^{+.005}_{-.000}$)
C	$13.7^{+0.1}_{-0.0}$ ($.540^{+.005}_{-.000}$)

millimeter (inch)

Dimensions without tolerances are for reference only.

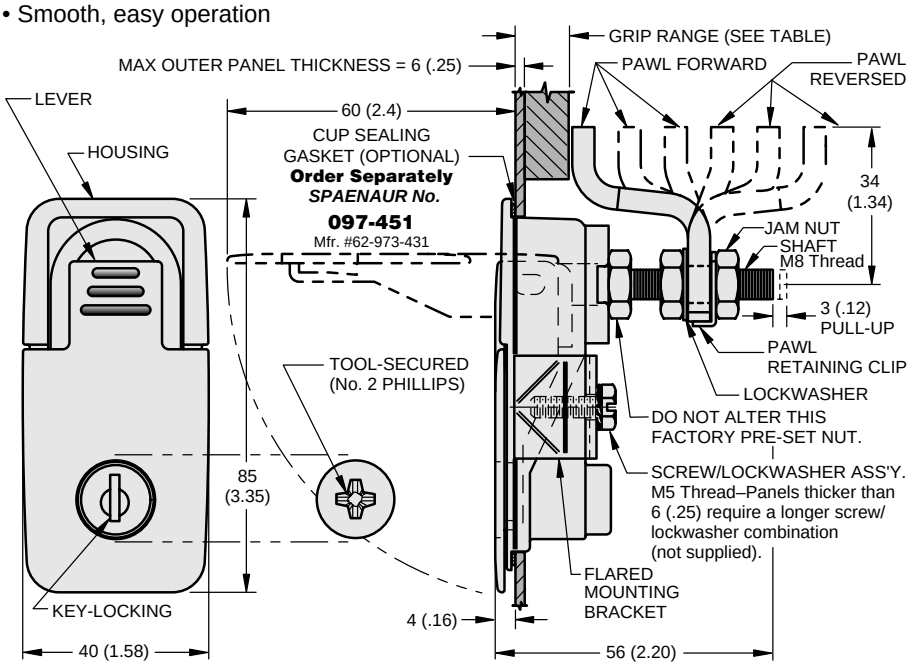
Items with SPAENAUR No. Stocked - Other Styles delivery 2-3 weeks.

L

CATALOG 13

Flush Design

- Meets NEMA 4 and IP-66 applications with optional sealing gasket
- Locking & non-locking have same panel preparation
- Smooth, easy operation



MATERIAL
Housing and Lever:
Die-cast Zinc

Product Strength Guidelines
Maximum working load:
440 N (100 lbs.)

millimeter (inch)

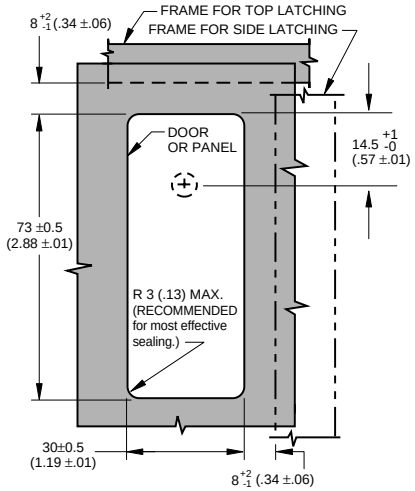
Dimensions without tolerances are for reference only.

GRIP RANGE		*SPAENAUR NUMBERS*					
		Basic Latch		Key-Locking Latch		Tool-Secured Latch	
Pawl Forward Min. - Max.	Pawl Reversed Min. - Max.	Textured Chrome	Black Polyester Powder	Textured Chrome	Black Polyester Powder	Textured Chrome	Black Coat
6 - 16 (.23 - .63)	56 - 66 (2.20 - 2.59)	**097-075** Mfr. #62-40-101-2	**097-076** Mfr. #62-40-151-2	**097-077** Mfr. #62-42-101-2	**097-078** Mfr. #62-42-151-2	—	—
16 - 26 (.63 - 1.02)	46 - 56 (1.81 - 2.20)	—	—	—	—	—	—
26 - 36 (1.02 - 1.41)	36 - 46 (1.41 - 1.81)	—	—	—	—	—	—

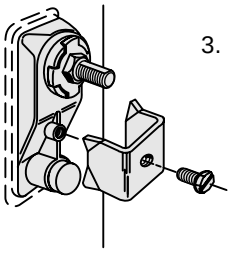
Items with SPAENAUR No. Stocked - Other Styles delivery 2-3 weeks.

INSTALLATION

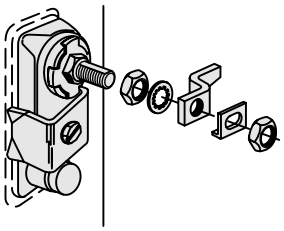
1. Prepare a rectangular opening as shown.



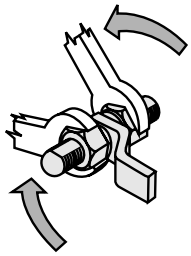
2.



3.



4. Pawl should be adjusted to GRIP measurement with the door open and the lever in the LATCHED position. Use two 13 mm wrenches to tighten.



Sealing Note
NEMA 4 / IP-66 sealing is achieved by using the environmental CUP SEALING GASKET and sealing the mounting screw threads with a suitable material such as an anaerobic sealant.

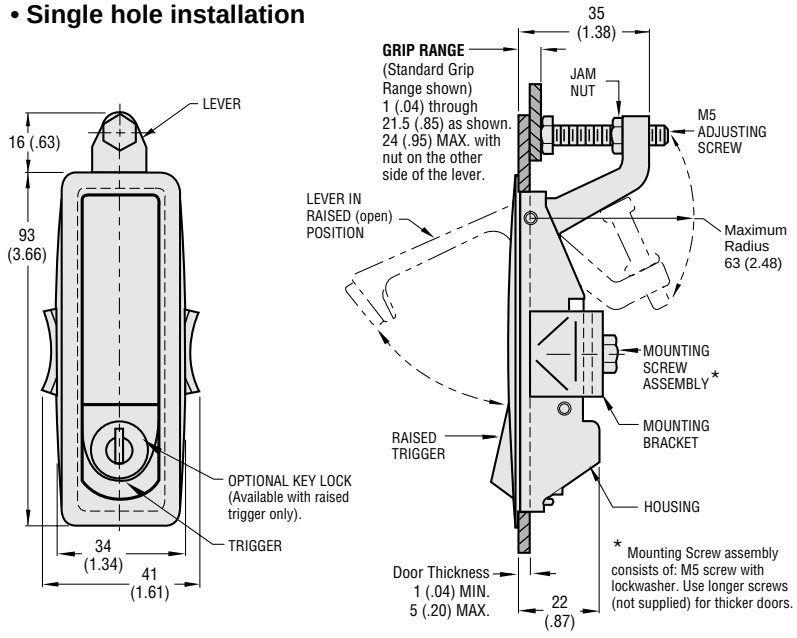
L

CATALOG 13

- **Low profile when latched**
- **Provides handle when unlatched**
- **Robust, metal construction**
- **Single hole installation**

Raised Trigger Design

(shown with optional Keylock).

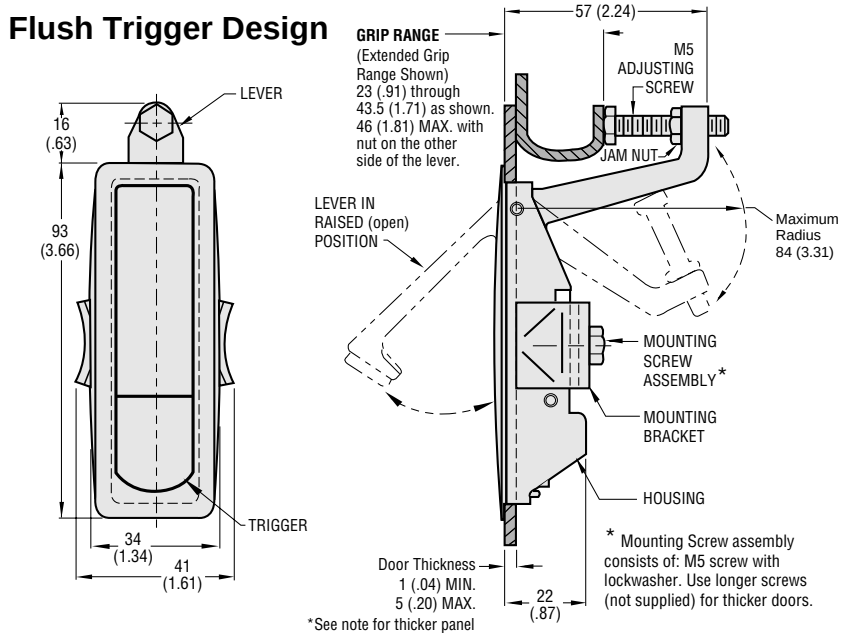


Priced Singly

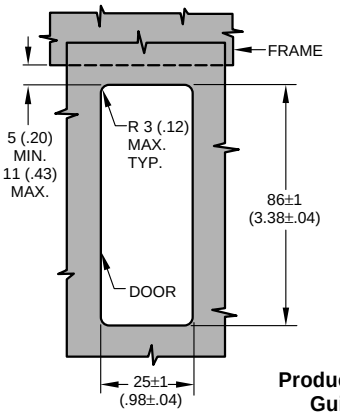
Material and Finish

HOUSING, LEVER and TRIGGER: **Die-cast zinc, black powder coated or textured chrome.**
SPRINGS: **302 Stainless steel, passivated.**
ROLL PINS: **420 Stainless steel, passivated.**
SCREWS and JAM NUT: **Steel, zinc alloy plated.**
LOCK WASHER: **Spring steel, zinc alloy plated.**
BRACKET: **1010 Steel, zinc alloy plate.**
LOCK PLUG: **Die-cast zinc, chrome plated or black powder coated.**

Flush Trigger Design



INSTALLATION



Product Strength Guidelines

Maximum working load: 1100 N (250 lbs.)
Average ultimate load: 2100 N (488 lbs.)

TRIGGER STYLE	GRIP RANGE 1 to 24 (.04 to .95)		GRIP RANGE 23 to 46 (.91 to 1.81)	
	Matte Black Coat	Textured Chrome Finish	Matte Black Coat	Textured Chrome Finish
Raised Trigger	**097-025** Mfr. #C2-32-15	**097-026** Mfr. #C2-32-11	**097-028** Mfr. #C2-33-15	**097-029** Mfr. #C2-33-11
Raised Trigger with Lock	—	**097-027** Mfr. #C2-32-21	—	**097-030** Mfr. #C2-33-21
Flush Trigger	—	—	—	—

Items with SPAENAUR No. Stocked - Other Styles delivery 2-3 weeks.

millimeter
(inch)

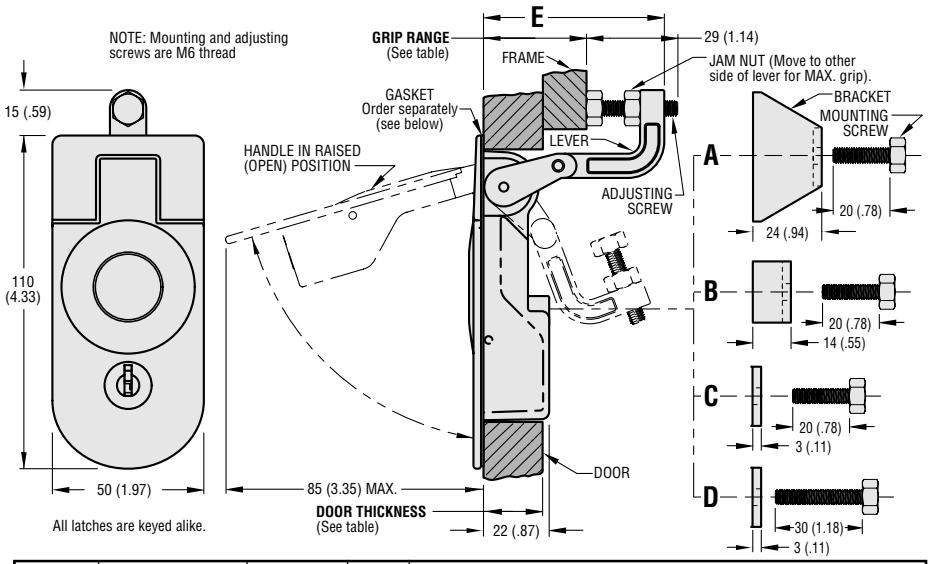
Dimensions without tolerances are for reference only.

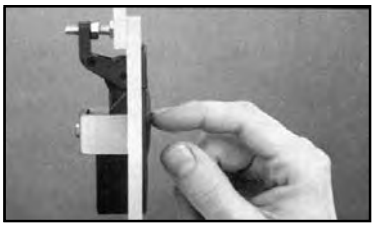
Flush Sealed Latch

- Use in NEMA-4 and 1P-66 applications with optional Flange Gasket
- Corrosion resistant hardware
- Locking or non-locking, using same panel preparation
- Easy grip adjustment
- Spring open action

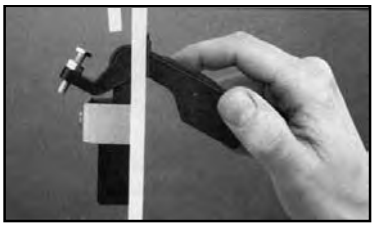
Material and Finish

HOUSING, BUTTON, PAWL and HANDLE: **Die-cast zinc, black powder coated.** LEVER ASSEMBLY: **Die-cast zinc, clear chemical protective film.** TORSION SPRING: **302 Stainless steel, passivated.** ROLL-PIN: **420 Stainless steel, passivated.** ADJUSTING SCREW, JAM NUT, MOUNTING SCREW and BRACKET: **304 Stainless steel, passivated or 1010 Steel, zinc plated with sealed chromate.** LOCK PLUG: **Zinc Diecast with Black powder coat.** KEYS: **Brass.** O-RINGS: **Buna-N black.** FLANGE GASKET: **Neoprene.**





To open, simply press the large domed button and release.



To close, simply push the latch handle back to its flush position.

Mounting Hardware	DOOR THICKNESS Min.	DOOR THICKNESS Max.	GRIP RANGE Min.	GRIP RANGE Max.	E	SPAENAUR No. LOCKING Assembly with plated steel hardware	SPAENAUR No. LOCKING Assembly with stainless steel hardware	SPAENAUR No. NON-LOCKING Assembly with plated steel hardware	SPAENAUR No. NON-LOCKING Assembly with stainless steel hardware
A	1 (.04)	11 (.43)	1 (.04)	14 (.55)	29 (1.14)	**097-074** Mfr. #C5-21-15	**097-824** Mfr. #C5-21-16	—	—
B	11 (.43)	21 (.83)				—	—	—	—
A	1 (.04)	11 (.43)	14 (.55)	29 (1.14)	44 (1.73)	—	—	—	—
B	11 (.43)	21 (.83)				—	—	—	—
C	21 (.83)	31 (1.22)				—	—	—	—
A	1 (.04)	11 (.43)	29 (1.14)	45 (1.77)	60 (2.35)	—	—	—	—
B	11 (.43)	21 (.83)				—	—	—	—
C	21 (.83)	31 (1.22)				—	—	—	—
D	31 (1.22)	41 (1.61)				—	—	—	—
A	1 (.04)	11 (.43)	45 (1.77)	57 (2.25)	72 (2.84)	—	—	—	—
B	11 (.43)	21 (.83)				—	—	—	—
C	21 (.83)	31 (1.22)				—	—	—	—
D	31 (1.22)	41 (1.61)				—	—	—	—

Items with SPAENAUR No. Stocked - Other Styles delivery 2-3 weeks.

Product Strength Guidelines

Maximum working load: 445 N (100 lbs.)

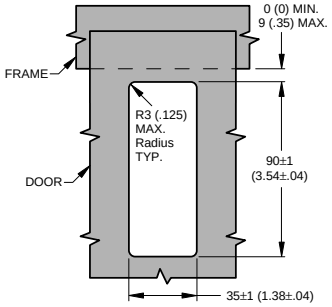
Installation

1. Prepare panel as shown.
2. Insert latch then secure with bracket and supplied hardware.
3. Position adjusting screw for required grip.

Sealing Notes

For most effective environmental sealing, use environmental flange GASKET and seal the mounting screw threads.

FLANGE GASKET
SPAENAUR No.
097-452
Mfr. #C5-82



millimeter (inch)

Dimensions without tolerances are for reference only.

L

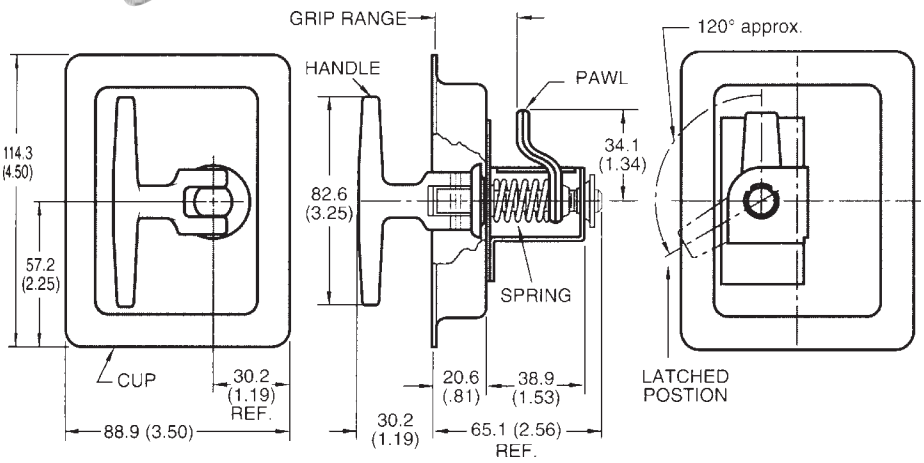
CATALOG 13

Flush T-handle Latch

- Turn handle 90° to latch or unlatch
- T-handle folds away
- An extra turn adjusts the amount of compression applied

Material and Finish

CUP and HOUSING: **304 Stainless steel, highly polished.**
MOUNTING STUDS: **302 or 305 Stainless steel, natural.**
SCREW: **Low carbon steel**.
HANDLE: **Die-cast zinc**.
CUP WASHER: **1010 Steel; these components are chrome plated.**
PAWL: **Steel, zinc alloy plate, bright chromate plus sealer.**
WASHER: **Steel**.
RETAINER: **1010 Steel.**
BUSHING: **Low carbon steel.**
MOUNTING NUTS and LOCKWASHERS: **Steel. Components listed above are zinc plated plus yellow chromate dip.**
DRAG SPRING: **302 Stainless steel, passivated.**
GROOVE PIN: **1112 Steel, zinc plated plus bright chromate dip.**
CONICAL SPRING: **Spring wire, zinc plated plus bright chromate dip.**



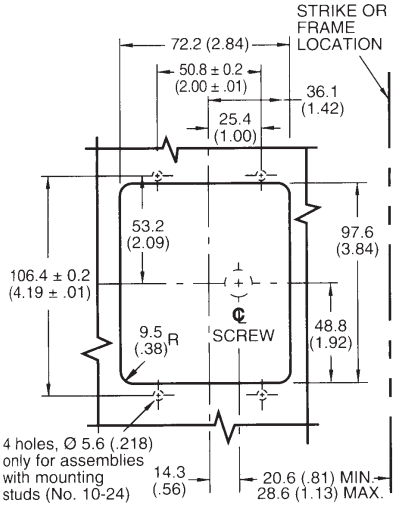
SPAENAUR No.
097-820
with MOUNTING STUDS
Mfr. #24-20-101-35

Grip Range Min. 19.1 (.75)
Max. 37.3 (1.47)

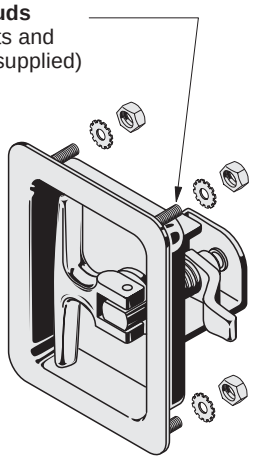
Turns clockwise 90° to latch.

OTHER GRIP RANGES, WELD-ON STYLES, STEEL CUP DUST AND MOISTURE SEAL MODELS AND COUNTERCLOCKWISE LATCHING Available Special Order.

Panel Preparation



Flush Latches with mounting studs (mounting nuts and lockwashers supplied)



- 7.9 (.31) Max. panel thickness
- Tightening torque of mounting nuts not to exceed 2.8 N•m (25 in.-lbs.)

Product Strength Guidelines

Force applied to pawl where it contacts frame.
Maximum working load: 1110 N (250 lbs.)
Average ultimate load: 1550 N (350 lbs.)

millimeter
(inch)

Dimensions without tolerances are for reference only.

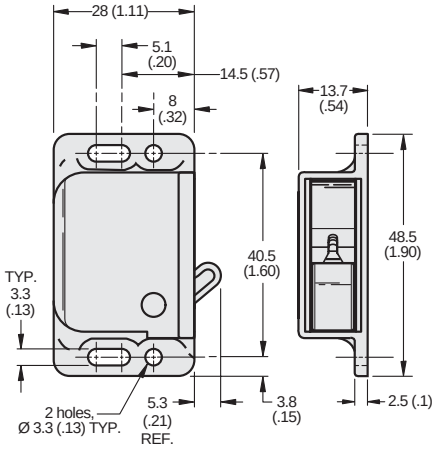
Grabber™ Door Catch

Mounts inside your enclosure

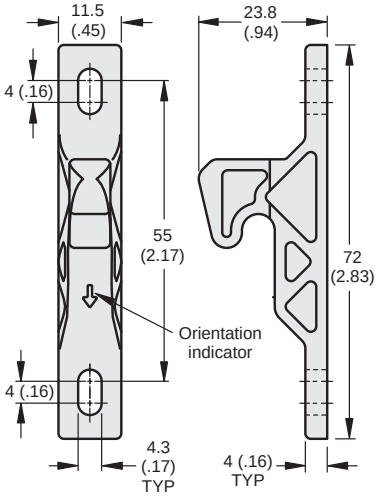
- Heavy duty keeper
- Push to close, pull to open
- Spring loaded over-centre latching
- Choose from three pull-up forces
- Corrosion resistant

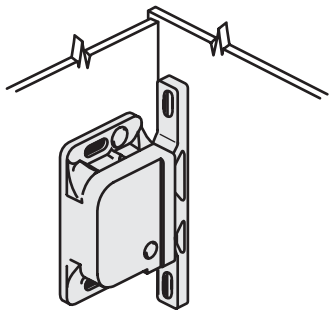
HIGH IMPACT - ABS REINFORCED NYLON

Catch

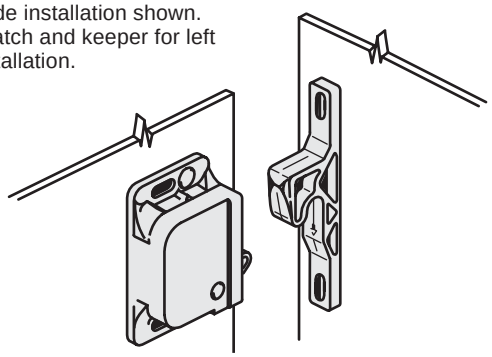


Keeper





Right side installation shown. Invert catch and keeper for left side installation.



SPAENAUR No.	Mfr. No.	Approximate Pull-up force
097-829	C3-803	13 N (3.0 lbs.)
097-818	C3-805	22 N (5.0 lbs.)
097-819	C3-810	44 N (10.0 lbs.)

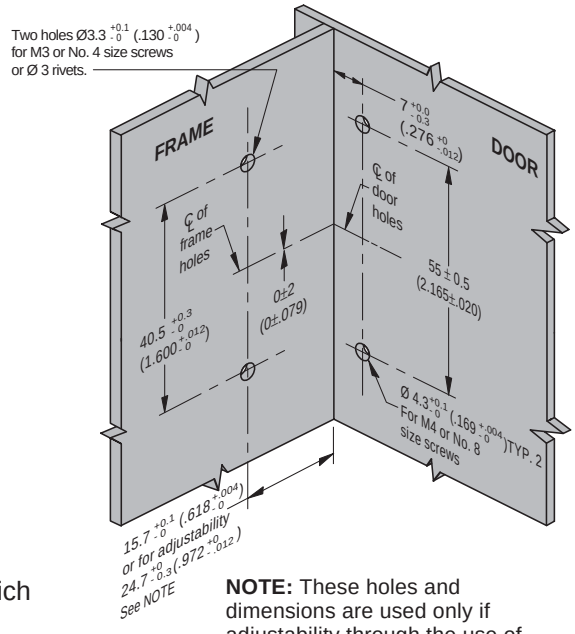
Panel Preparation

Note:
Max. tightening torque for catch = 1.1 N•m (.81 ft. lbs.)
Max. tightening torque for keeper = 2.8 N•m (2.07 ft. lbs.)

Installation

1. Mount CATCH to frame.
2. Orient KEEPER to latch, then mount to door and adjust for smooth latching.

Minimum distance from frame (or surface on which catch sub-assembly is mounted) to centerline of door hinge is 150 (5.9) MIN.



NOTE: These holes and dimensions are used only if adjustability through the use of slotted holes in catch is desired.

Material and Finish

SPRING: **302 Stainless steel, 13 N (3 lb.) passivated, blue organic coating; 22 N (5 lb.) passivated; 44 N (10 lb.) passivated black oxide.**
RIVET: **5056 Aluminum, natural.**
HOUSING: **ABS, black.**
SUPPORT ROD, SPRING SUPPORT and PAWL: **Glass fiber reinforced nylon, black.**
KEEPER: **Mineral filled nylon, black.**

Flammability Rating

ABS Components: UL 94 - HB
Operating Temperature Range:
-30°C to 60°C (-20°F to140°F)

millimeter
(inch)
Dimensions without tolerances are for reference only.

L

CATALOG 13

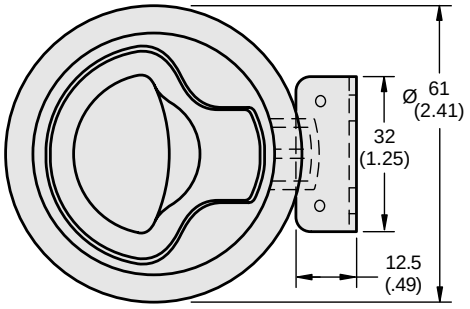
Flush Pull Latch

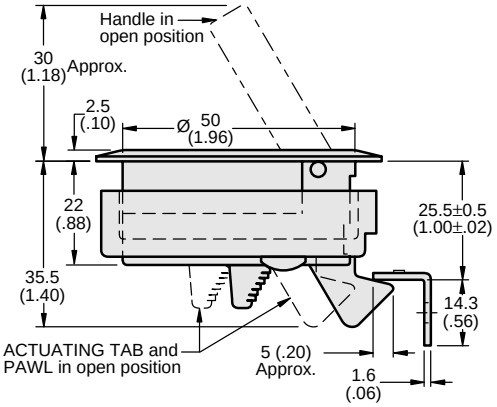
- Low-profile
- Corrosion-resistant
- Simple, round-hole installation
- Mounts in panels up to 22 mm (.875 in.)
- Includes tab for inside actuation

Material and Finish

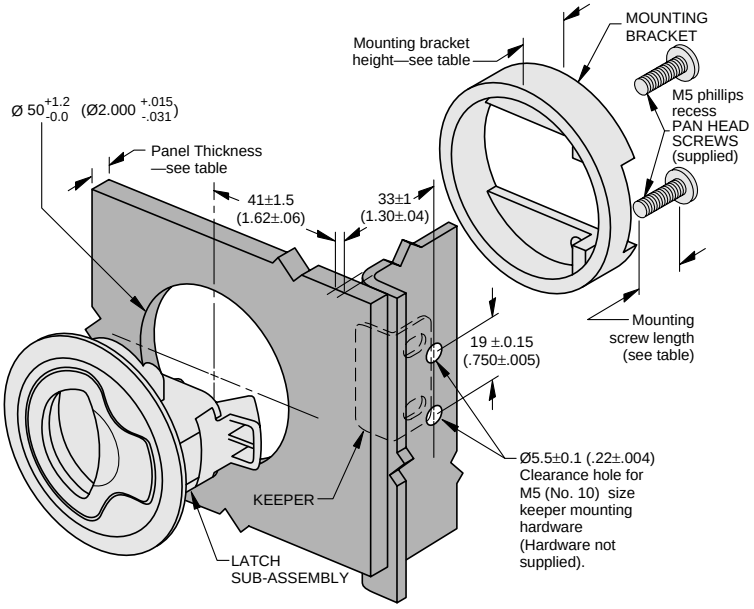
HOUSING, HANDLE AND MOUNTING BRACKET: **Polycarbonate, black or white.**
PIN: **18-8 302 Stainless steel, passivated plus black oxide.**
SPRING, KEEPER AND SCREWS: **18-8 300 Series stainless steel, passivated.**

SPAENAUR No.		PANEL THICKNESS		MOUNTING	MOUNTING SCREW
Black	**White**	**Min.**	**Max.**	**BRACKET HEIGHT**	**LENGTH**
097-402 Mfr. #M1-61	Special Order	2 (.075)	7 (.275)	14 (.55)	16 (.63)
097-403 Mfr. #M1-62	Special Order	7 (.275)	12 (.475)	14 (.55)	20 (.81)
097-404 Mfr. #M1-63	Special Order	12 (.475)	17 (.675)	3.8 (.15)	16 (.63)
097-405 Mfr. #M1-64	Special Order	17 (.675)	22 (.875)	3.8 (.15)	20 (.81)





To close, a firm push on the panel latches the door. To open simply pull the flush handle or slide inside activation tab.



Product Strength Guidelines

Maximum recommended working load exerted by keeper on pawl: 270 N (60 lbs.)
Maximum tightening torque on mounting screws: 2.2 N•m (20 in.-lbs.)

Operating Temperature Range:
-18°C to 60°C (0°F to 140°F)

millimeter (inch)

Dimensions without tolerances are for reference only.

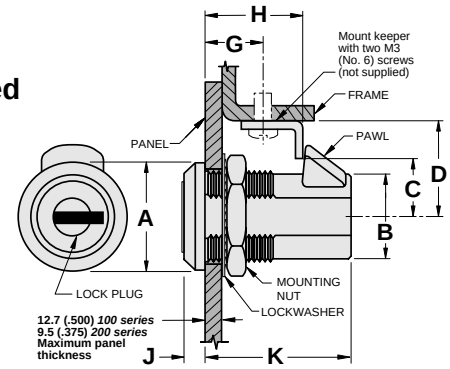
Priced Singly

Slam-action Keylatch-*in two sizes*

100 and 200 Series

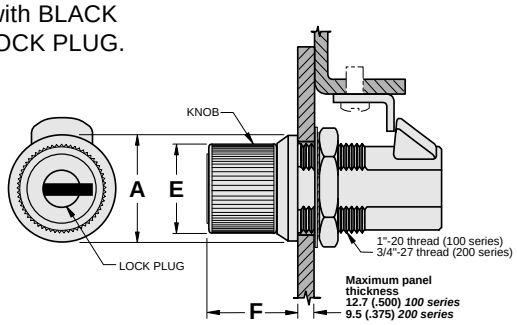
- Single-hole mounting
- Key-locked tamper resistance
- Unlatches with a 90° turn
- Simply push door to latch
- New, optional sealing cover

Low-profile, key actuated



Knob style

Also available with BLACK LOCK PLUG.



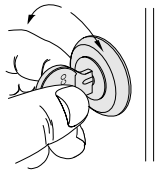
Material and Finish

For low profile style
LOCK PLUG: **Die-cast zinc, with stainless steel scalp.**
SEALING COVER: **Thermoplastic elastomer, black.**

For knob style without keylock
KNOB: **Polycarbonate, black.**
PIN: **303 Stainless steel, natural.**
PLUG: **6262 Aluminum, black powder coated or natural.**

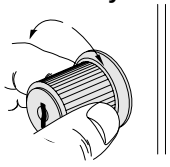
SPAENAUR No. Low profile, key actuated style	Knob style: With Keylock	Knob style: Without Keylock	Lock plug Finish	DIMENSIONS ØA	ØB	C	D	ØE	F	G	H	J	K
100 Series													
097-040 Mfr. #93-10-101-10	**097-033** Mfr. #93-10-102-10	**097-034** Mfr. #93-10-103-10	Bright	29 (1.13)	24 (.93)	16±1.5 (.63±.06)	24±1.5 (.94±.06)	22 (.88)	22 (.88)	17±1.2 (.66±.06)	25±0.4 (1.000 +.000 -.032)	4.8 (.19)	37 (1.44)
200 Series													
097-039 Mfr. #93-10-201-10	**097-031** Mfr. #93-10-202-10	**097-032** Mfr. #93-10-203-10	Bright	23 (.88)	17 (.68)	12±1.5 (.47±.06)	20±1.5 (.78±.06)	19 (.75)	27 (1.06)	12±1.2 (.47±.06)	20 +0.6 -0.2 (.812 +.000 -.032)	4.8 (.19)	30 (1.19)

Low-profile, key actuated



Operates ONLY with the key.

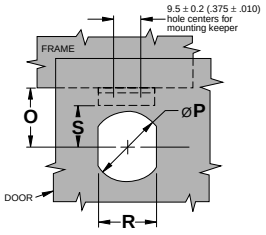
Knob style



Operates without key when unlocked.

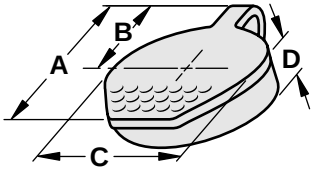
Installation

1. Prepare panel and frame

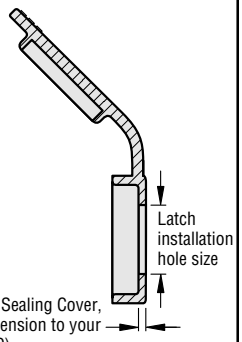


Series	INSTALLATION DIMENSIONS O	P	R	S
100	24±1.5 (.94±.06)	25.5±0.1 (1.000 +.010 -.000)	22.2 +0.3 -0.0 (.875 +.010 -.000)	16±1.5 (.63±.06)
200	20±1.5 (.78±.06)	19 +0.3 -0.0 (.750 +.010 -.000)	16.3 +0.2 -0.0 (.640 +.010 -.000)	12±1.5 (.47±.06)

Optional Sealing Cover



Select Sealing Cover part number by the latch's installation hole size.



When using Sealing Cover, add this dimension to your grip, 2.3 (.09).

Latch Installation Hole Size	Sealing Cover *SPAENAUR No.*	DIMENSIONS A	B	øC	D
19 (.750)	**097-424** Mfr. #90-2	40 (1.58)	20 (.85)	29 (1.13)	10.5 (.42)
25.4 (1.00)	**097-425** Mfr. #90-4	47 (1.84)	28 (1.09)	35 (1.38)	11.7 (.46)

millimeter
(inch)

Dimensions without tolerances are for reference only.

Product Strength Guidelines

200 Series
Maximum working load: 330 N (75 lbs.)
Average ultimate load: 890 N (200 lbs.)

100 Series
Maximum working load: 560 N (125 lbs.)
Average ultimate load: 980 N (220 lbs.)

Sealing Cover — Tensile load: 156 N (35 lbs.)

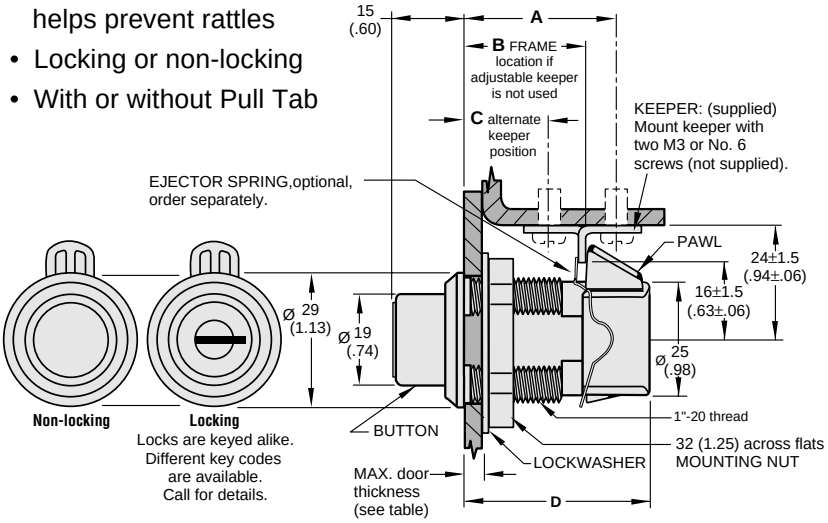
Flammability Rating:
UL 94 - HB
Operating Temperature Range:
LATCH 18°C to 65°C (0°F to 150°F)
SEALING COVER -40°C to 80°C (-40°F to 175°F)

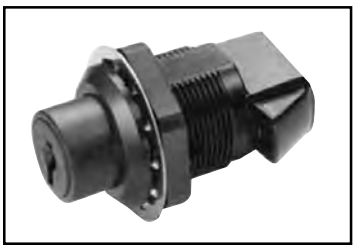
L

CATALOG 13

Corrosion Resistant Push Lock

- Push the door to latch
- Push the button to unlatch
- Optional Ejector Spring helps prevent rattles
- Locking or non-locking
- With or without Pull Tab





Material and Finish

HOUSING: **Glass reinforced nylon, black.**
PAWL: **Acetal, black.**
KNOB and KNOB PLUG: **Polyester, black.**
LOCK PLUG: **Glass reinforced acetal, black.**
CAM: **Glass reinforced nylon/silicone, black.**
INTERNAL SPRINGS: **302 Stainless steel, natural.**
PULL TAB: **Nylon, black.**
MOUNTING NUT: **Glass reinforced nylon, black.**
LOCKWASHER: **302 Stainless steel, passivated.**
KEEPER: **304 Stainless steel, passivated.**
EJECTOR SPRING: **1065 steel, black organic coating.**

STYLE	Max. door thickness	A	B	C	D Ref.
Latch only	12.7 (.500)	32±1.5 (1.25±.06)	25±0.4 (1.000+.000 -.032)	17±1.5 (.66±.06)	40 (1.57)
Latch with pull tab	10.5 (.415)	29.5±1.5 (1.16±.06)	23 +0.1 -0.7 (.907 +.000 -.032)	14.5±1.5 (.57±.06)	37 (1.47)

SPAENAUR No.	Keylock	Non-keylock
With Pull Tab in line with Latching Pawl.	**097-420** Mfr. #93-303	**097-421** Mfr. #93-304
With Pull Tab perpendicular to Latching Pawl.	—	—
Latch only - without pull tab	**097-422** Mfr. #93-307	**097-423** Mfr. #93-308
Ejector spring (if required)	Special Order	

Strength Guidelines
Maximum working load:
530 N (120 lbs.)

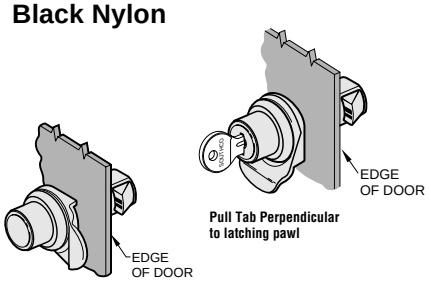
Ultimate load:
690 N (155 lbs.)

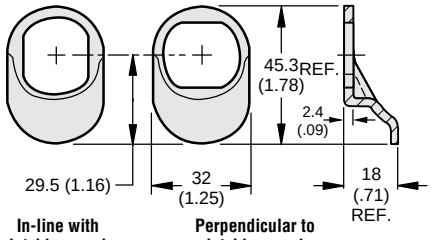
Items with SPAENAUR No's Stocked - Other Styles delivery 2-3 weeks.

Optional Pull Tabs
Black Nylon

097-084
Mfr. #93- 21-301-14

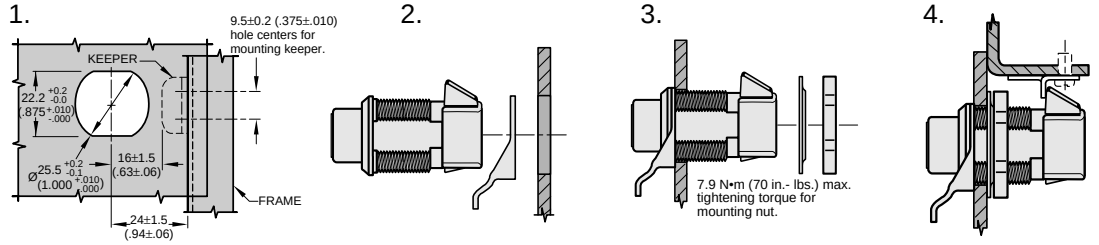
097-083
Mfr. #93- 21-302-14





Installation

1. Prepare panel and frame.
2. Insert latch through Pull Tab (optional) and into hole.
3. Add lockwasher and mounting nut.
4. Install keeper and adjust for proper latching.



millimeter
(inch)

Dimensions without tolerances are for reference only.

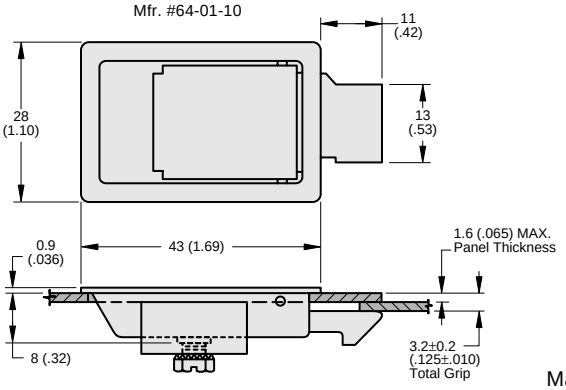
Paddle Latches

Miniature Size

- It's handsome, flush, corrosion-resistant
- Spring-loaded paddle won't rattle
- Smooth, push to close latching
- Quick, one-screw mounting

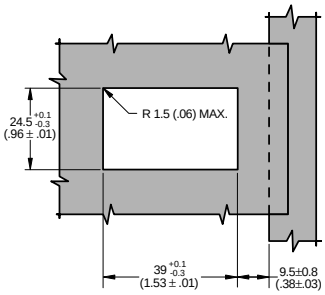
Material and Finish
CUP and PADDLE: **304 Stainless Steel, passivated and brushed finish.**
SLIDE and LEVER: **Polyester thermoplastic, gray.**

SPAENAUR No.
097-817

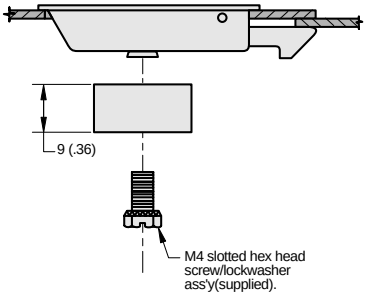


INSTALLATION

1. Prepare opening in door.



2. Seat latch assembly in opening; apply mounting bracket and screw.

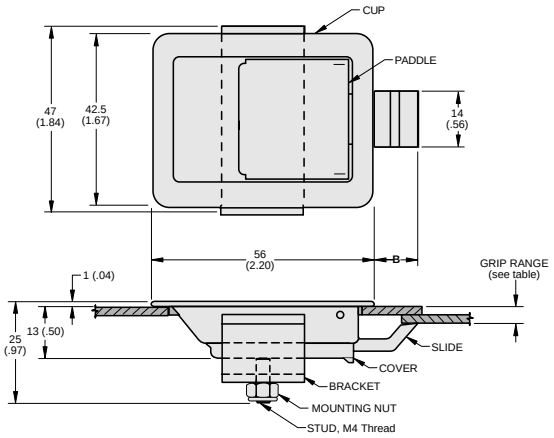


Product Strength Guidelines
Maximum working load: 90 N (20 lbs.)
Average ultimate load: 125 N (28 lbs.)

Flammability Rating: UL 94: V-0
Operating Temperature Range: -18°C to 100°C (0°F to 210°F)

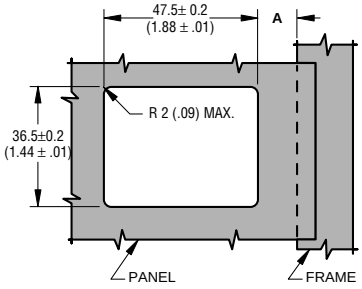
Small Size

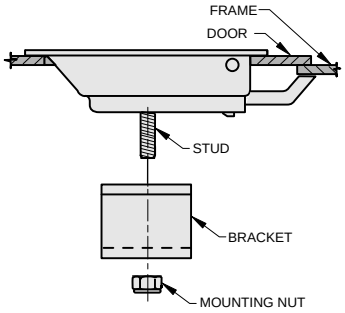
- Three grip ranges
- Metal slide



INSTALLATION

1. Prepare door. Insert latch in door and tighten mounting nut onto the bracket.





GRIP RANGE		*SPAENAUR*	MFR.	A		B
Min.	Max.	*No.*	No.	Min.	Max.	
1.2 (.05)	2.0 (.08)	**097-022**	64-11-10	10.4 (.41)	12.7 (.50)	11.5 (.45)
2 (.08)	2.8 (.11)	**097-023**	64-11-20	11.2 (.44)	13.5 (.53)	11.9 (.47)
2.8 (.11)	3.6 (.14)	**097-024**	64-11-30	11.9 (.47)	14.2 (.56)	12 (.48)

millimeter
(inch)

Dimensions without tolerances are for reference only.

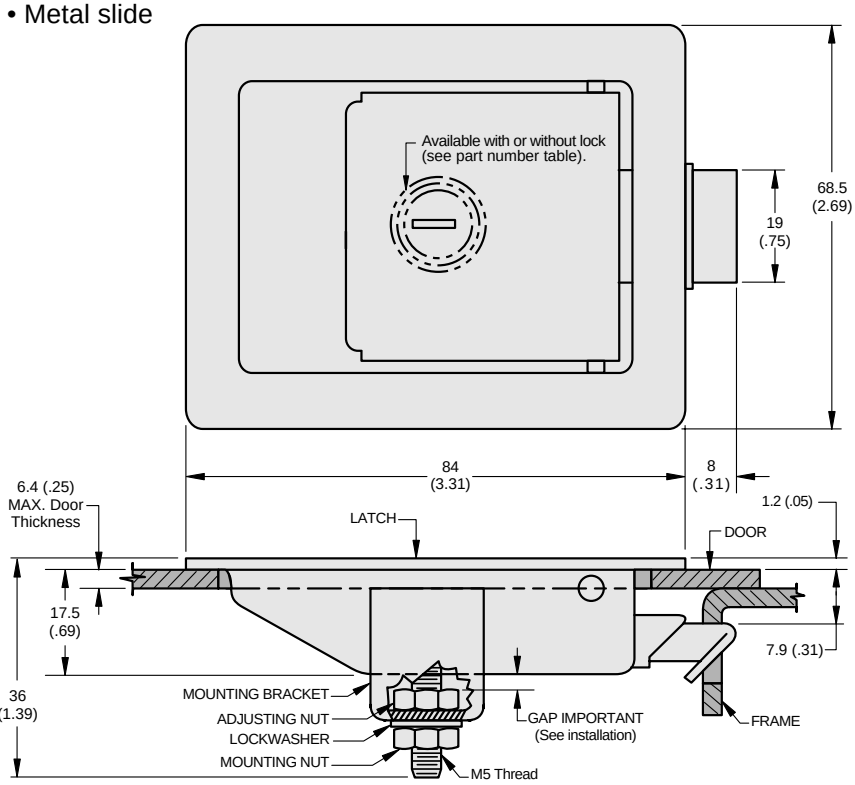
Product Strength Guidelines
Maximum working load: 222 N (50 lbs.)
Average ultimate load: 578 N (130 lbs.)

Paddle Latches continued on next page…

Paddle Latches

20 Series

• Metal slide



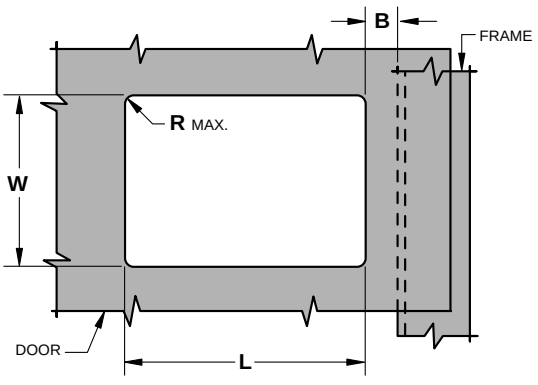
Material and Finish	*SPAENAUR No.* 20 Series without Lock
Stainless Steel	
Brushed	**097-825** Mfr. #64-21-10
Steel	
Zinc Plated	—
Powder Coat on Steel	
Black	**097-080** Mfr. #64-21-11
Silver	—

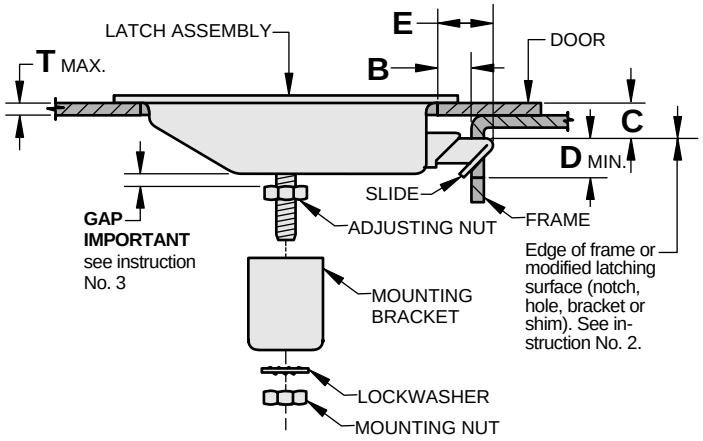
Also available with lock and Zinc Plated Steel - special order.

Series 20 Product Strength Guidelines
Maximum working load: 570 N (125 lbs.)

INSTALLATION

1. Prepare door.
2. If frame requires modification (notch, hole or shim), be sure to observe C and D dimensions and to allow sufficient width clearance for latching slide. See latch drawings for width of slide.
3. Measure your door thickness and set adjusting nut so that GAP is equal to door thickness within plus 0.8 (.03), minus 0.0 (.00).
4. Assemble latch in door and tighten mounting nut.





L	W	R	B Min.	B Max.	C	D Min.	E Ref.	T Max.
71.5 $^{+0.1}_{-0.3}$ (2.81 ± .01)	55.5 $^{+0.3}_{-0.1}$ (2.19 ±.01)	2.5 (.09)	8 (.31)	11 (.44)	7.9 (.31)	11.1 (.44)	14.3 (.56)	6.4 (.25)

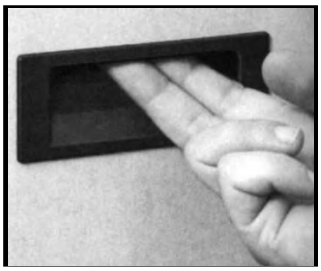
millimeter (inch)

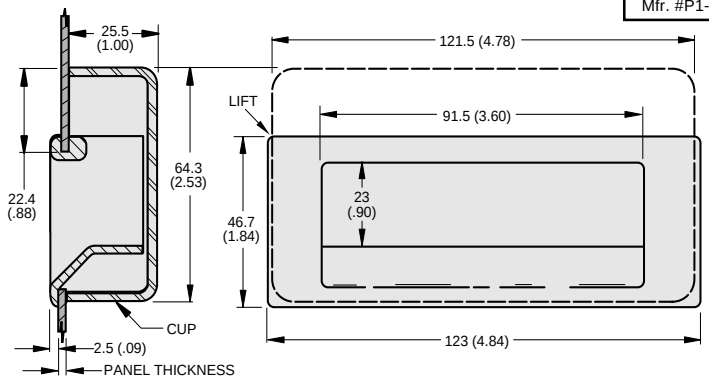
Dimensions without tolerances are for reference only.

Pocket Pull® Flush Handle

- Flush installation
- For lifting or pulling
- Lifting load transferred directly to panel edge
- Single-hole, screw-mount installation

SPAENAUR No's.	
ABS, Black UL94-HB	ABS, Black UL94-VO
PANEL THICKNESS 1 (.040) MIN. 1.8 (.070) MAX.	
097-439 Mfr. #P1-30-101-11	—





Other Panel Thickness Range to 3.3 (.130) available Special Order.

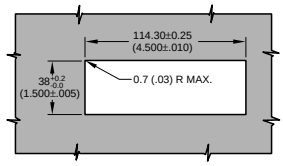
Material and Finish
PULL and CUP: **ABS, black.**
SCREWS: **Steel, zinc plated plus bright chromate dip.**

Operating Temperature Range:
-50°C to 60°C (-60°F to 140°F)

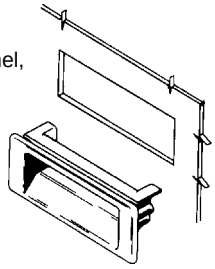
NOTE:
Installation in a panel thickness less than the maximum for each range allows some movement of the pull.

Installation

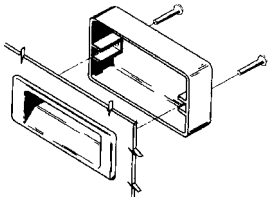
1. Prepare a rectangular opening as shown.



2. Place pull in panel, seating the slot against top of opening.



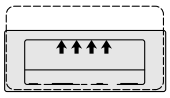
3. Attach cup to pull and back of panel with two screws (supplied).

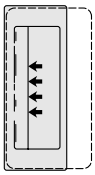


Maximum recommended tightening torque for mounting screws is 0.5 N•m (5 in.-lbs.)

Product Strength Guidelines
(Distributed Load)

Lifting, Pulling





Maximum working load 1300 N (300 lbs.)
Average ultimate load 2700 N (600 lbs.)

Pushing, Sliding
Maximum working load
450 N (100) lbs.
Average ultimate load
670 N (150) lbs.

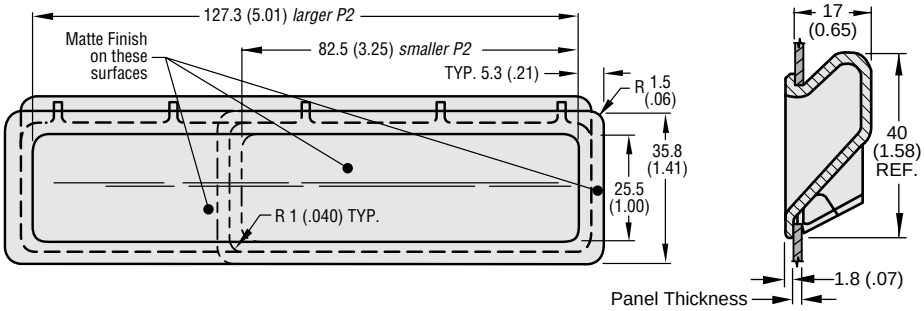
millimeter (inch)

Dimensions without tolerances are for reference only.

L

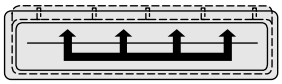
Snap-in design

- Fast, efficient installation
- One-piece design
- Compact envelope
- For lifting or pulling
- Two sizes
- Low Gloss Black ABS



Product Strength Guidelines
(forces applied as shown)

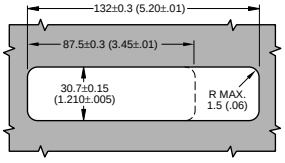
*Based on installation in 1.2 mm (.048 in.) steel panel.
Maximum loads limited by panel strength.



Maximum. working load* = 1800 N (400 lbs.)
Average. ultimate load* = 5300 N (1200 lbs.)

INSTALLATION

1. Prepare a rectangular opening as shown.



2. Engage edge of opening under flange of pull.
3. Firmly snap in opposite flange with a rocking motion.

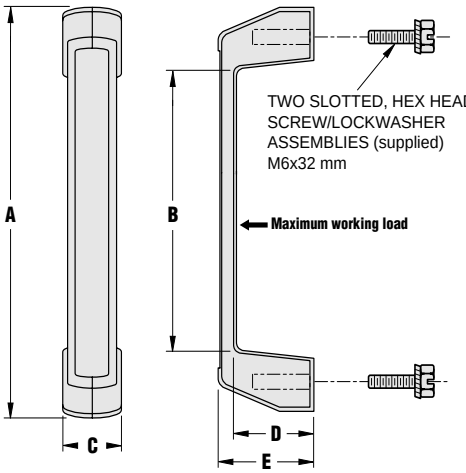
SPAENAUR No.		PANEL THICKNESS	
Large	**Small**	**Min.**	**Max.**
097-444 Mfr. #P2-51	**097-440** Mfr. #P2-41	1 (.040)	1.4 (.055)
097-445 Mfr. #P2-52	**097-441** Mfr. #P2-42	1.4 (.055)	1.8 (.070)
097-446 Mfr. #P2-53	**097-442** Mfr. #P2-43	1.8 (.070)	2.1 (.085)
097-447 Mfr. #P2-54	**097-443** Mfr. #P2-44	2.1 (.085)	2.5 (.100)

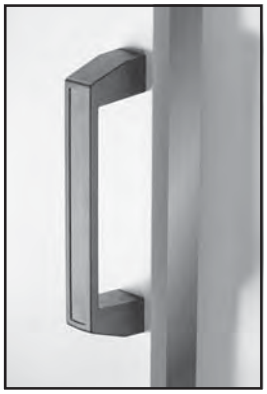
Maximum working load* = 450 N (100 lbs.)
Average ultimate load* = 650 N (150 lbs.)

Grab Handle

- Easy to pull or hold
- Non-corrosive, high impact ABS
- Hidden mounting hardware

Made of tough, high-impact ABS. It's sleek, rugged, durable, lightweight.





Installation
Maximum tightening torque of screws:
4.0 N•m (35 in.-lbs.)

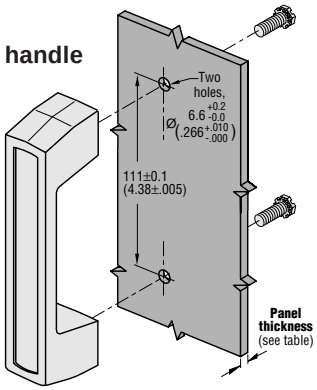
Flammability Rating: UL 94 - HB

Operating Temperature Range:
-50°C to 60°C (-60°F to 140°F)

Product Strength Guidelines
Maximum working load
550 N (125 lbs.)

Installation

Rear mounted handle



SPAENAUR No. Rear Mount	Max. material thickness	DIMENSIONS A	B	C	D	E
097-426 Mfr. #B8-45	16.0 (.63)	150 (5.88)	95 (3.75)	27 (1.07)	32 (1.27)	41 (1.62)

L

CATALOG 13

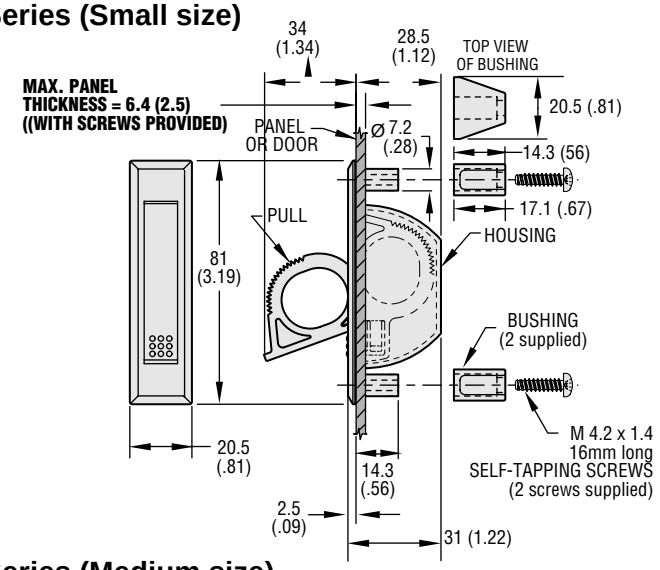
Concealed Pulls

- A pull when you need it, a flush surface when you don't
- Completely enclosed housing
- Simple installation
- Two sizes

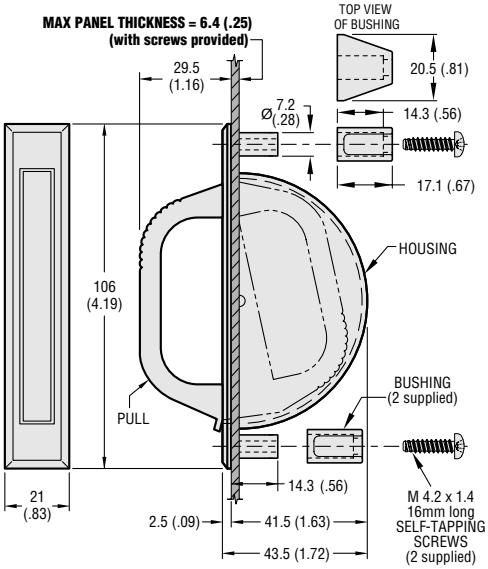
Material and Finish

10 Series
HANDLE: **Polycarbonate, black.**
HOUSING: **Nylon, black.**
BUSHING: **Acetal, black.**
SCREWS: **Stainless steel, passivated.**
PIN: **303 Stainless steel, passivated.**

10 Series (Small size)



20 Series (Medium size)



Material and Finish

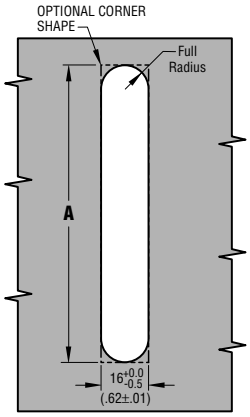
20 Series
HANDLE: **6063 Aluminum, satin silver or black powder coated.**
HOUSING: **Nylon, black.**
BUSHING: **Acetal, black.**
SCREWS: **302 Stainless steel, passivated.**
PIN: **5056 Aluminum, black organic coating.**
SPRING: **302 Stainless steel, passivated.**

Flammability Rating
HOUSING AND BUSHING: UL94-HB
(10 Series only**)** HANDLE: UL94-V2

Installation

1. Prepare Panel.
2. Insert assembly into panel opening, locating serrated section at the top when pull is open.
3. Slide bushings over bosses on back of housing. Run screws into bosses and tighten.
   NOTE: Maximum tightening torque of mounting screws: 0.5 N•m (5 in.- lbs.).

Panel Preparation



SERIES (size)	*SPAENAUR No.* Silver handle	*SPAENAUR No.* Black handle	INSTALLATION A	PRODUCT STRENGTH GUIDELINES Maximum recommended working load	PRODUCT STRENGTH GUIDELINES Average ultimate load
10 series (small)	—	**097-449** Mfr. #67-10	$76^{+1.0}_{-0.0}$ ($3.00^{+.04}_{-.00}$)	620 N (140 lbs.)	850 N (190 lbs.)
20 series (medium)	—	**097-450** Mfr. #67-25	$100^{+1.0}_{-0.0}$ ($3.94^{+.04}_{-.00}$)	440 N (100 lbs.)	710 N (160 lbs.)

Items with SPAENAUR No. Stocked - Other Styles delivery 2-3 weeks.

Operating Temperature Range

10 Series -20°C to 65°C (0°F to 150°F)

20 Series -20°C to 80°C (0°F to 180°F)

Custom Colors!
Call for details.

millimeter
(inch)

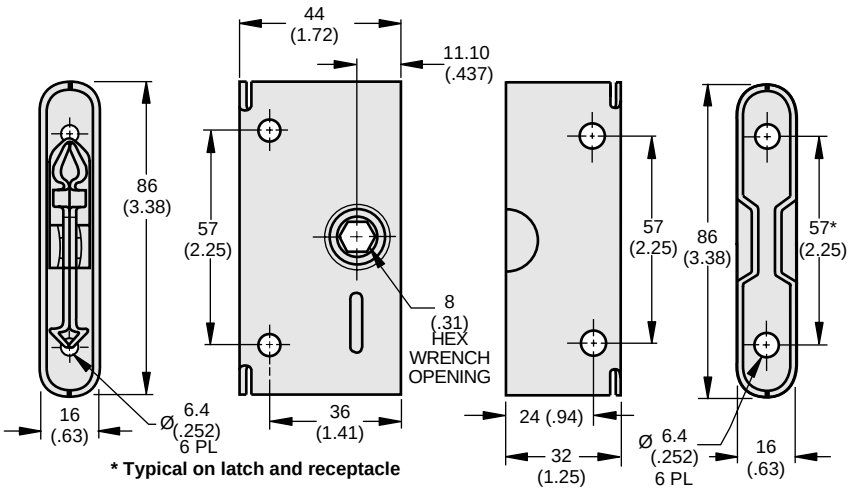
Dimensions without tolerances are for reference only.

Roto Lock® Butt-Joint Panel Fastener

- Progressively draws panels together
- Helps provide an air-tight or water-tight seal
- Adjustability for manufacturing tolerances and gasket shrinkages

Standard - For Mortise, or Side-mounting

Material and Finish
CAM, HOUSING, Latch and Receptacle: **Carbon steel, zinc plated plus bright chromate dip.**



*** Typical on latch and receptacle**

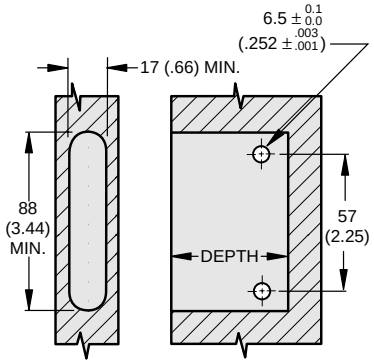
PART	*SPAENAUR No.*
Latch	**097-068** Mfr. #R2-0055-02
Receptacle	**097-069** Mfr. #R2-0002-02
Actuation Tool	**097-070** Mfr. #29-0059-02

Product Strength Guidelines
Ultimate tensile load: 6200 N (1400 lbs.)
Ultimate shear load: 8900 N (2000 lbs.)

L

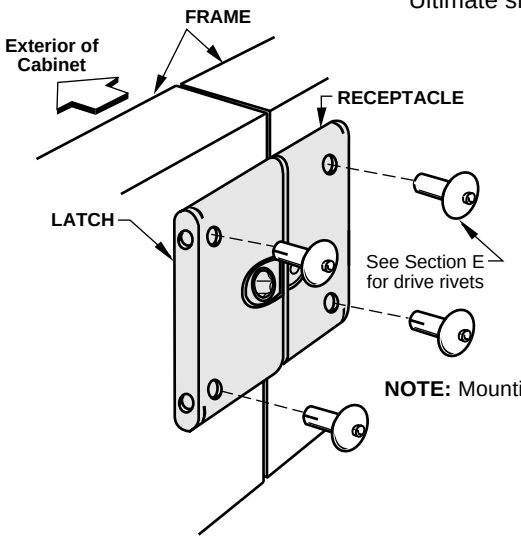
*Mortise Mount

NOTE: This application uses:
Latch part number: 097-068 and
Receptacle part number: 097-069.



*A 1.6 (.06) gap should be maintained between latch and receptacle.

Side Mount

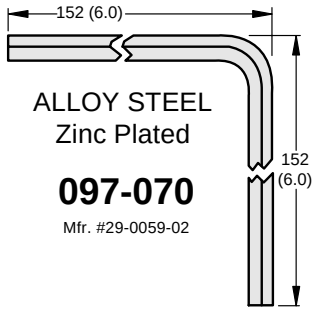


NOTE: Mounting hardware not supplied.

millimeter
(inch)

Dimensions without tolerances are for reference only.

Actuation Tool

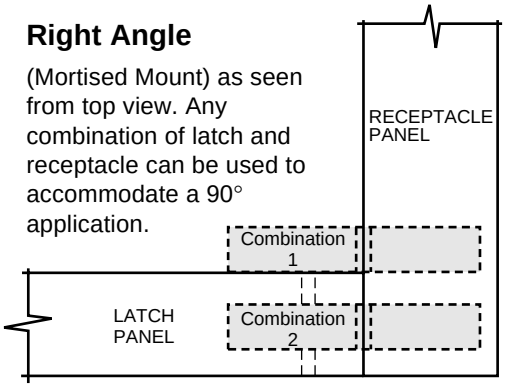


097-070
Mfr. #29-0059-02

All items on this page Priced Singly.

Right Angle

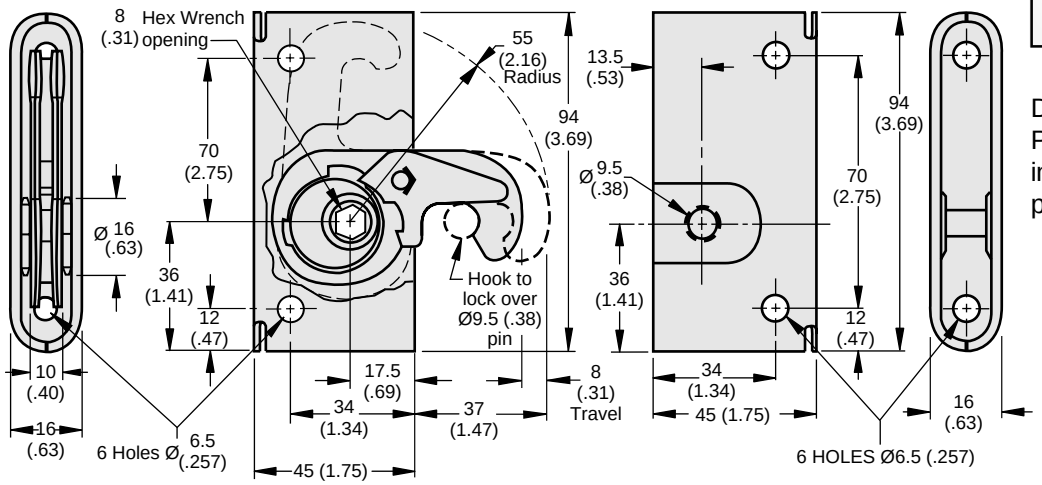
(Mortised Mount) as seen from top view. Any combination of latch and receptacle can be used to accommodate a 90° application.



Dual Lock® Butt-Joint Panel Latch

- Dual-action take up provides substantial closing pressure with minimal operating force on tool
- Capable of helping provide air-tight and water-tight seals
- Vibration and impact resistant

Note: Fastener illustrated in locked position. Broken line shows unlocked position.



Dual Lock® Butt Joint Panel Latch shown in partially latched position.

Use ActuationTool 097-070 shown on facing page.

SPAENAUR No.	
Latch	**Receptacle**
097-071 Mfr. # R5-0074-08	**097-072** Mfr. #R5-0079-08

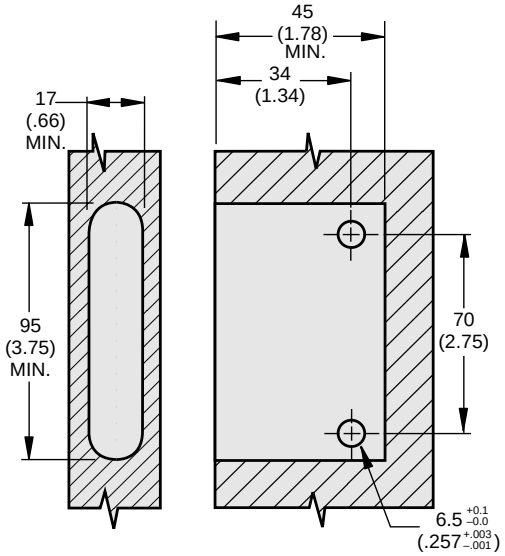
Priced Singly

Material and Finish

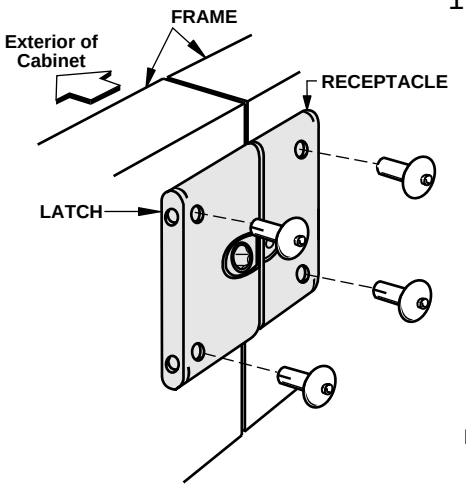
HOUSING: **Carbon steel.**
CAM UNIT: HOOKS - **Hardened alloy steel,**
TRIGGER - **Carbon steel.**
CAM - **Brass.**
All parts are zinc plated, (except for CAM).

Installation and Suggested Panel Preparation

Recessed Pocket



Side Mount



Product Strength Guidelines

Ultimate tensile load: 11,110 N (2,500 lbs.)

See Section E in the Spaenaur Catalog for Drive Rivets.

millimeter
(inch)

Dimensions without tolerances are for reference only.

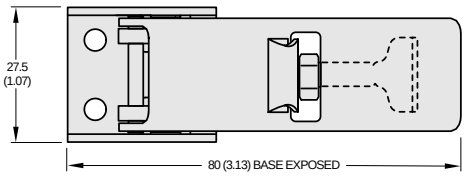
L

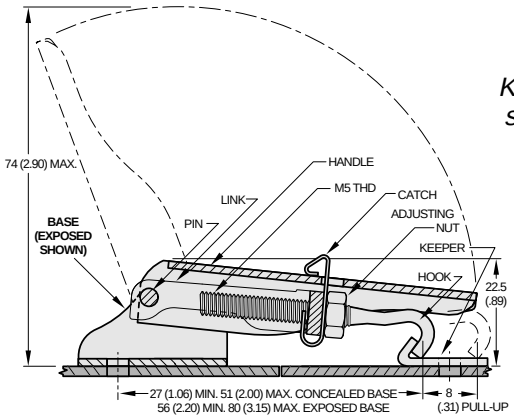
Under-centre Series Latches

- Choice of stainless or plated steel
- Padlock and secondary catch option
- Exposed or concealed mounting options
- Kickout feature moves unlatched hook from keeper

millimeter (inch)
Dimensions without tolerances are for reference only.

Latch - Hook Style

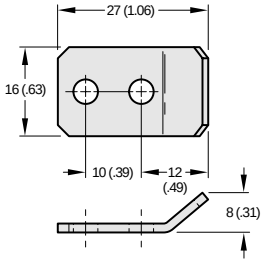




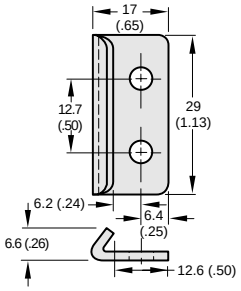
Latch & Keeper sold separately.

Hook Style Keepers

(Concealed)



(Exposed)



Keepers - Concealed & *Exposed

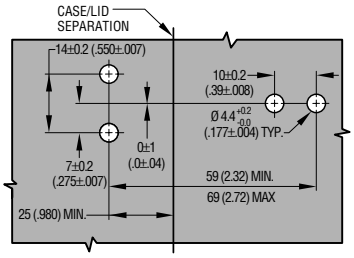
SPAENAUR No.	Mfr. #	Finish
097-012	91-600-07	Steel, zinc plated
097-805	91-600-52	Stainless steel
097-002	***K4-2338-07**	Steel, zinc plated
097-843	***K4-2338-63**	Stainless steel

Material and Finish

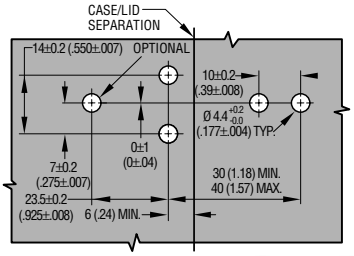
BASE, HOOK, KEEPER, HANDLE and LINK:
1008 Steel, Zinc plated plus bright chromate dip or 304 Stainless Steel, passivated or black powder coated.

INSTALLATION

Exposed Base Style
(Hook Style - Concealed Keeper)

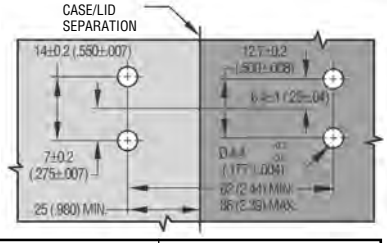


Concealed Base Style
(Hook Style - Concealed Keeper)



1. Use M4 or No. 8 hardware for mounting. NOTE: Maximum head height for mounting hardware on optional hole of concealed base is 2.5 mm (.098 in.).
2. Adjust HOOK to provide desired compression when latched.
3. While securely holding HOOK with pliers, tighten ADJUSING NUT with wrench.

Exposed Base Style
(Hook Style - Exposed Keeper)



SPAENAUR No.	Mfr. #	Latch - Hook Style	Finish
097-009	91-512-07	Concealed base	Steel, zinc plated
097-804	91-512-52		Stainless steel
097-010	91-522-07	Concealed base with secondary catch	Steel, zinc plated
—			Stainless steel
097-011	91-532-07	Concealed base with padlock hasp	Steel, zinc plated
—			Stainless steel
097-067	91-552-07	Exposed base	Steel, zinc plated
097-823	91-552-52		Stainless steel
097-114	91-562-07	Exposed base with secondary catch	Steel, zinc plated
—			Stainless steel

L

CATALOG 13

Soft Latch® Draw Latch

- All hardware is concealed when latched
- Cushions impact, absorbs vibration
- Tolerates misalignment
- Styled for comfortable operation
- Non-corrosive materials

Material and Finish

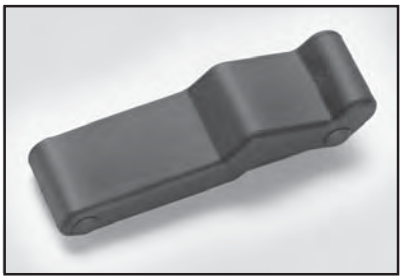
Latch Sub-Assembly consists of LATCH BODY: **Thermoplastic Elastomer, matte black.**

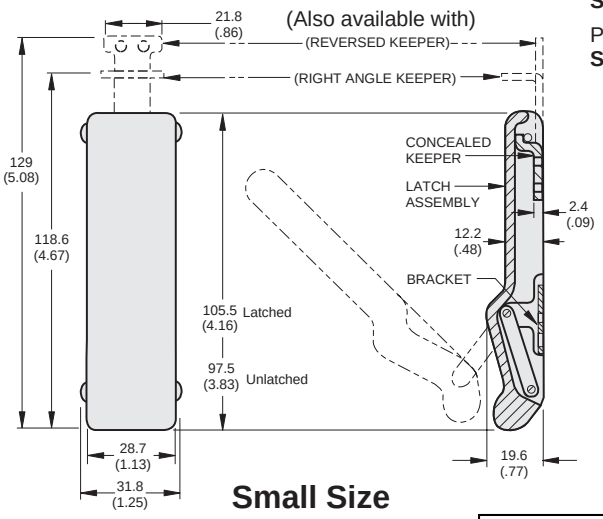
LINK and BUSHINGS: **Glass reinforced nylon, black.**

RIVET: **430 Stainless Steel passivated.**

KEEPER and BRACKET: **304 Stainless Steel, passivated.**

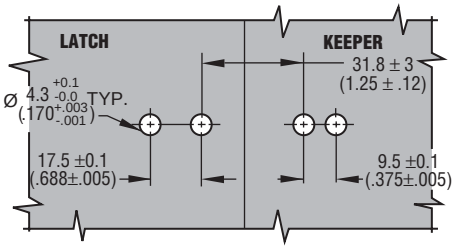
PINS: **300 Series Stainless Steel passivated.**





Small Size

Panel Preparation for 097-401 Small Style.



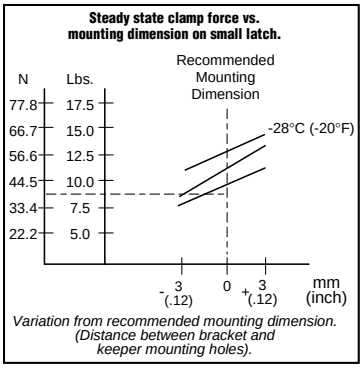
Mount keeper and latch using 4 mm or 5/32" dia. rivets, M4 or No. 8 size hardware.

Flammability Rating: UL94 - HB

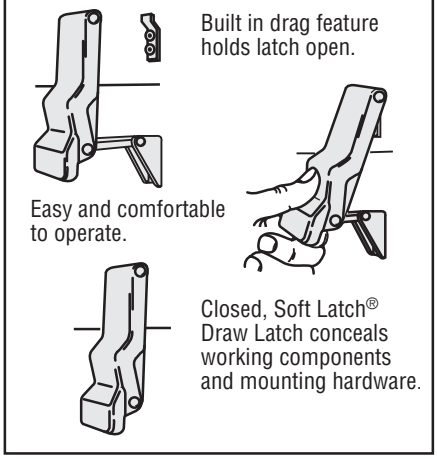
SPAENAUR No.	Mfr. #	Style
097-401	C7-10	Small
097-448	C7-20	Large

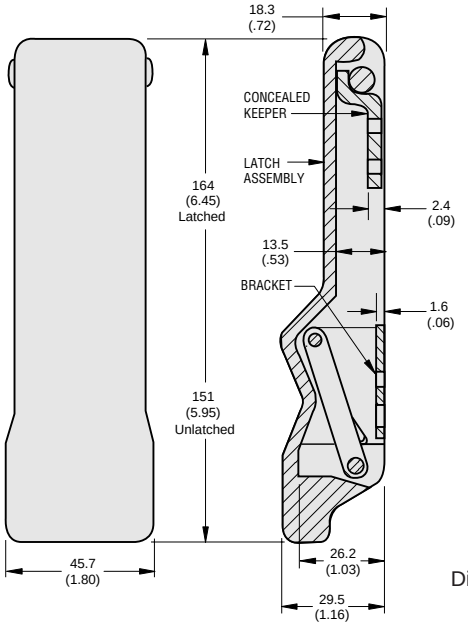
Above items supplied with concealed latch.

Priced Singly

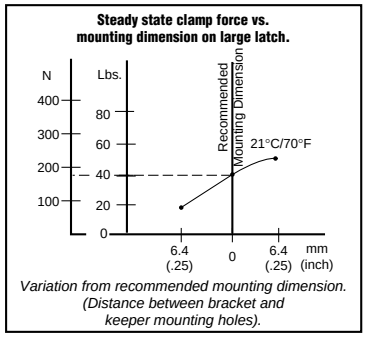


Variation from recommended mounting dimension. (Distance between bracket and keeper mounting holes).





Large Size

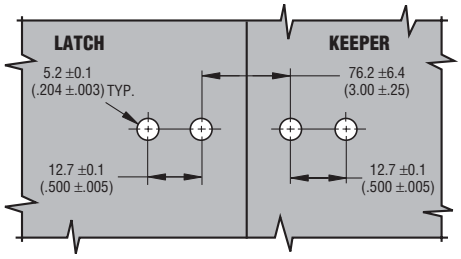


Variation from recommended mounting dimension. (Distance between bracket and keeper mounting holes).

millimeter (inch)

Dimensions without tolerances are for reference only.

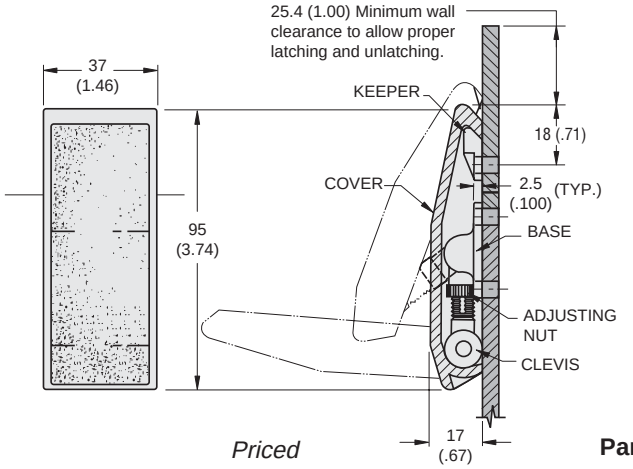
Panel Preparation
for 097-448 Large Style.
Mount keeper and latch using 5 mm or 3/16" dia. rivets, M5 or No. 10 size hardware.

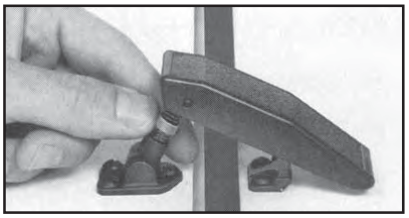


L

SOUTHCO®

Adjustable Non-corrosive Draw Latch



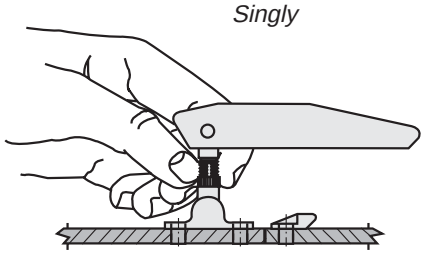


To adjust, simply thread the stainless steel nut up or down the clevis to the desired position then press the cover of the draw latch and complete the latching action. When secured, the latch conceals all of its working parts.

Material and Finish

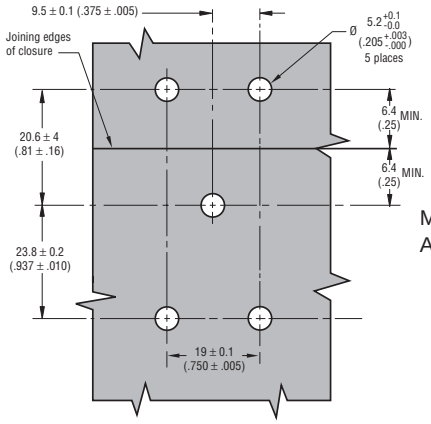
BASE, CLEVIS, PIVOT NUT and KEEPER: **Glass reinforced nylon, black.**
COVER and RETAINER: **Acetal, black.**
ADJUSTMENT NUT: **Stainless steel, passivated**

Priced Singly



To adjust latching force thread adjustment nut up or down clevis (total 7.9 mm or .31" range).

Panel Preparation



SPAENAUR No.
097-429
Mfr. #E8-10-502-20

Product Strength Guidelines
Maximum working load: 1560 N (350 lbs.)
Average ultimate load: 2220 N (500 lbs.)

Flammability Rating: UL94-HB
Operating Temperature Range:
-29°C to 80°C (-20°F to 176°F)

L

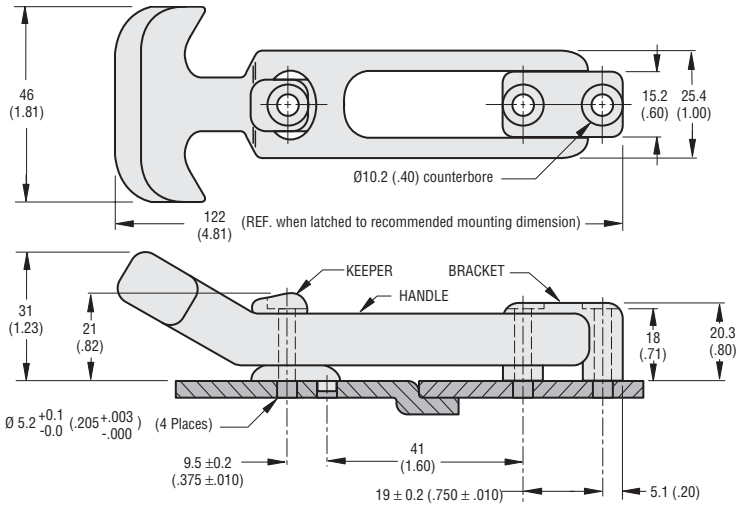
Flexible T-handle Draw Latch

- Non-corrosive/non-conductive materials
- Absorbs and reduces vibration
- Compensates for misalignment in 3 planes

SPAENAUR No.
097-400
Mfr. #F7-53

Installation

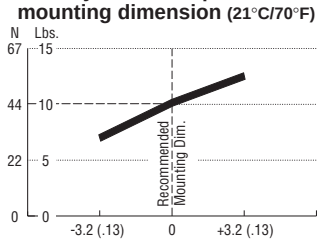
Front Mount uses three M5 or No. 10 screws or Ø3/16" rivets. (not included)



Material and Finish

HANDLE: **Thermoplastic elastomer, black.**
KEEPER and BRACKET: **Glass reinforced nylon, black.**

Steady state clamp force vs. mounting dimension (21°C/70°F)



Variation from recommended mounting dimension (Distance between bracket and keeper mounting holes).

millimeter (inch)

Dimensions without tolerances are for reference only.

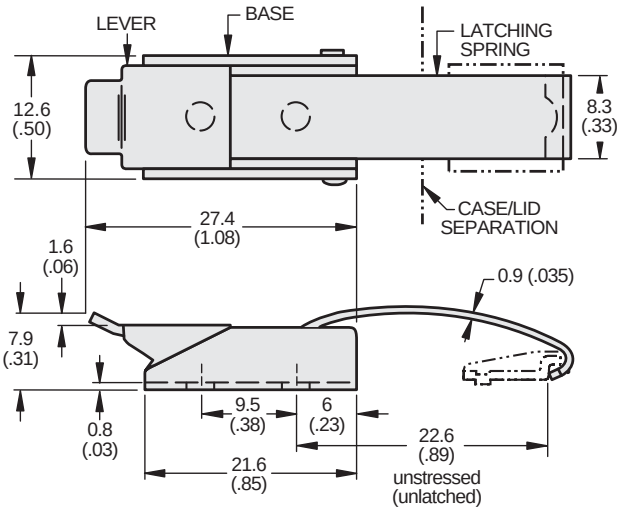
Flammability Rating: UL94-HB

Also available with concealed mounting and larger size model not stocked - delivery 2-3 weeks.

CATALOG 13

Over-centre Draw Latch Assembly - Stainless Steel

Series 30 - Small Size



BUTTON KEEPER: **303 Stainless steel, passivated.**

OTHER KEEPERS, LEVER and BASE: **302 Stainless steel, passivated.**

PINS: **17-7PH Stainless steel, passivated.**

SPRING: **455 Stainless steel, passivated.**

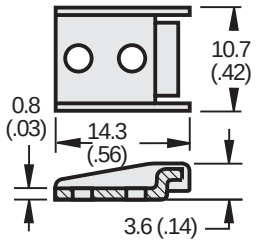
Product Strength Guidelines
Stainless Steel - Clamping Force: 135 N (30 lbs.)

Latch with Two Hole Style Keeper

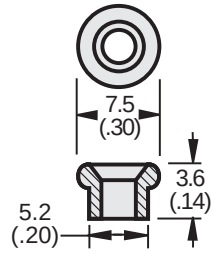
SPAENAUR No.
097-809

Mfr. #97-30-161-12

Dimension **S**
14.7 (.58)



Latch with Button Style Keeper



SPAENAUR No.
097-810

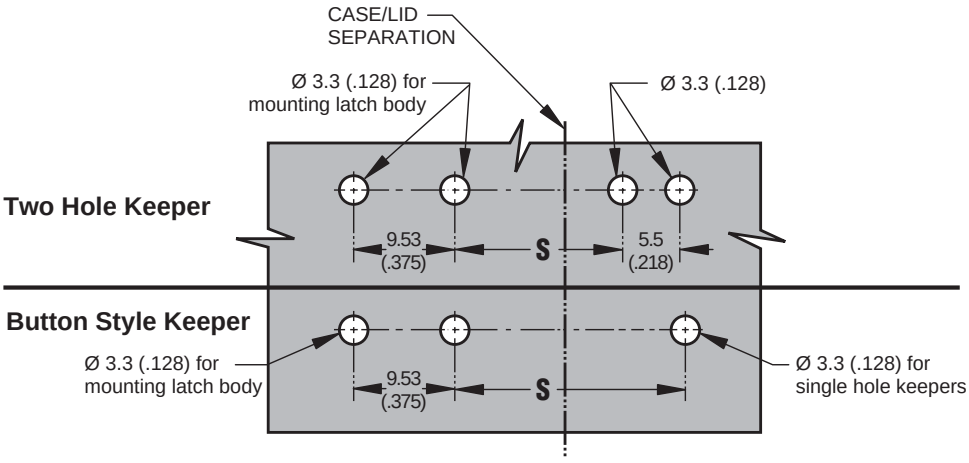
Mfr. #97-30-163-12

Dimension **S**
21.8 (.86)

Above items include latch and keeper.

Panel Preparation
Mount latches and keepers with M3 (No. 4) screws.
For button type keeper use a countersunk head screw.

millimeter (inch)
Dimensions without tolerances are for reference only.



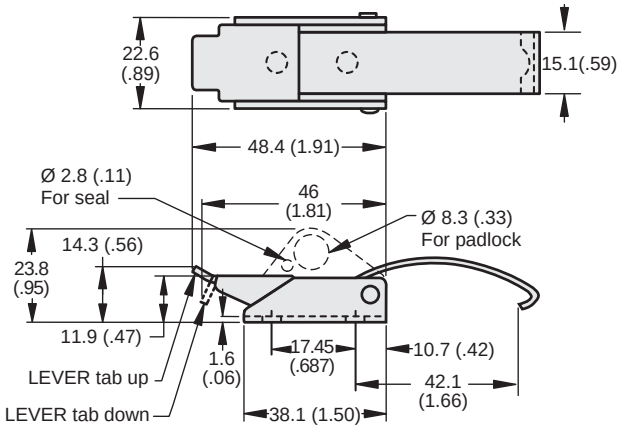
Priced Singly

Steel assemblies available but not stocked - delivery 2-3 weeks.

L

Over-centre Draw Latch Assembly - Stainless Steel

Series 50 - Light Duty



BUTTON KEEPER: **303 Stainless steel, passivated.**

OTHER KEEPERS, LEVER and BASE: **304 Stainless steel, passivated.**

PIN and RIVET: **302 Stainless steel, passivated.**

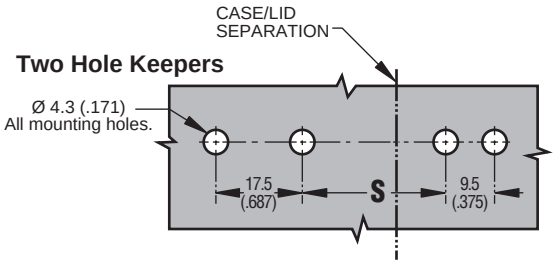
LATCHING SPRING: **455 Stainless steel, passivated.**

Product Strength Guidelines

Light Duty - Clamping Force: 310 N (70 lbs.)

Special Order
Heavy Duty - Clamping Force: 670 N (150 lbs.)

Panel Preparation
Mount latches and keepers with M4 (No. 8) screws or 5/32" rivets. For button type keeper use a countersunk head screw.

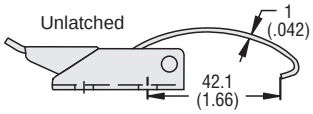


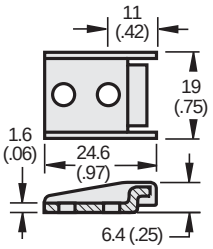
S dimension 28.6 (1.13)

Latch with Two Hole Style Keeper

SPAENAUR No.
097-811

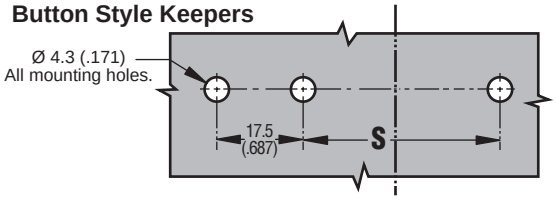
Mfr. #97-50-121-12





Latch with Button Style Keeper

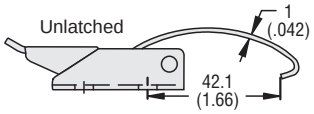
Button Style Keepers

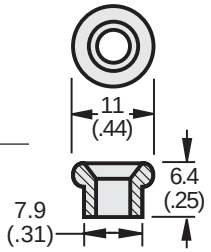


S dimension 42.1 (1.66)

SPAENAUR No.
097-812

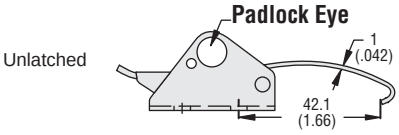
Mfr. #97-50-123-12





SPAENAUR No.
097-813

Mfr. #97-50-323-12



Shorter or Longer Reach, Zinc Plated Steel and Heavy Duty Models available - delivery 2-3 weeks.

millimeter (inch)

Dimensions without tolerances are for reference only.

SPAENAUR No's. include latch and keeper.

Priced Singly

L

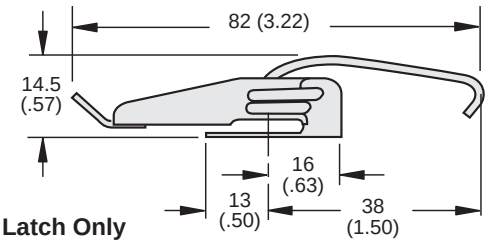
CATALOG 13

Versa Latch® Tension Latch

Small Size Latch

- For applications where latch and keeper remain on the same plane
- Torsion springs compensate for application irregularities
- Load Capacity: Up to 1770 N (400 lbs.) ultimate tension

Short Blade

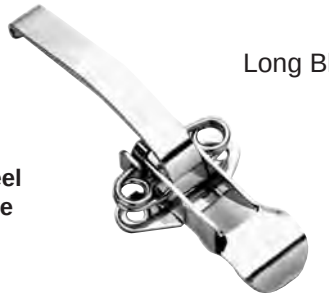


Latch Only

SPAENAUR No.	Mfr. #	Material	S mounting dimension c. to c. Min.	Max.
097-063	V2-0025-07	steel	*55 (2.17)	*57.3 (2.26)
097-822	V2-0025-52	300 stainless	*55 (2.17)	*57.3 (2.26)

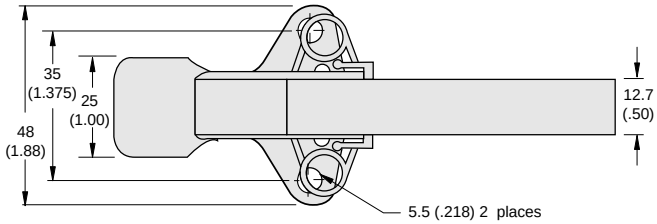
Medium Size Latch

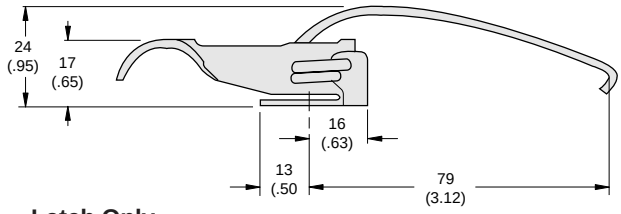
- Torsion springs compensate for application irregularities
- Load Capacity: Up to 1400 N (325 lbs.) ultimate tension
- Easy to grasp handle design
- Long blade spans gasketed joints



Long Blade

All Carbon Steel Zinc Chromate Plated





Latch Only

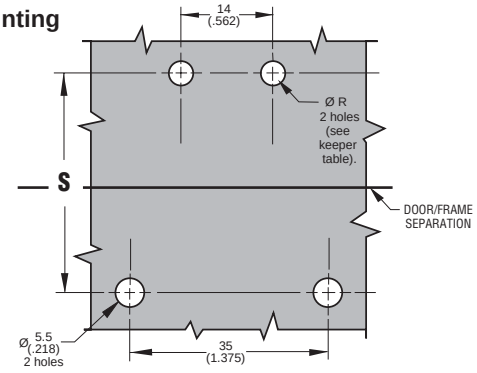
SPAENAUR No.	Mfr. #	S mounting dimension c. to c. Min.	Max.
097-064	V3-0072-07	*96.7 (3.80)	*99 (3.90)

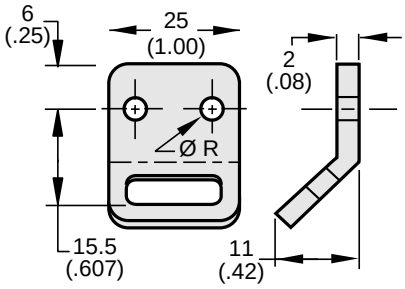
***Note:** Spring loaded anchor plate compensates up to 2.3 (0.09) for irregularities in sealing and gasket set. See **S** dimension below.

KEEPERS - For above latches

SPAENAUR No.	Mfr. #	Material	øR
097-062	V2-0018-07	steel	3.4 (.135)
097-821	V2-0018-52	stainless steel	3.4 (.135)

Suggested Mounting Dimensions





millimeter (inch)
Dimensions without tolerances are for reference only.

Product Strength Guidelines

Steel - Clamping Force: 330 N (75 lbs.) Min., 700 N (160 lbs.) Max.

Stainless Steel - Clamping Force: 260 N (60 lbs.) Min., 530 N (120 lbs.) Max.

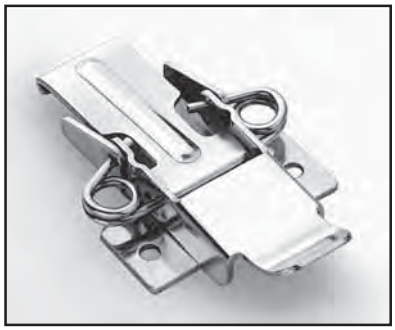
Average ultimate load: Steel 1770 N (400 lbs.); Stainless 1690 N (380 lbs.)

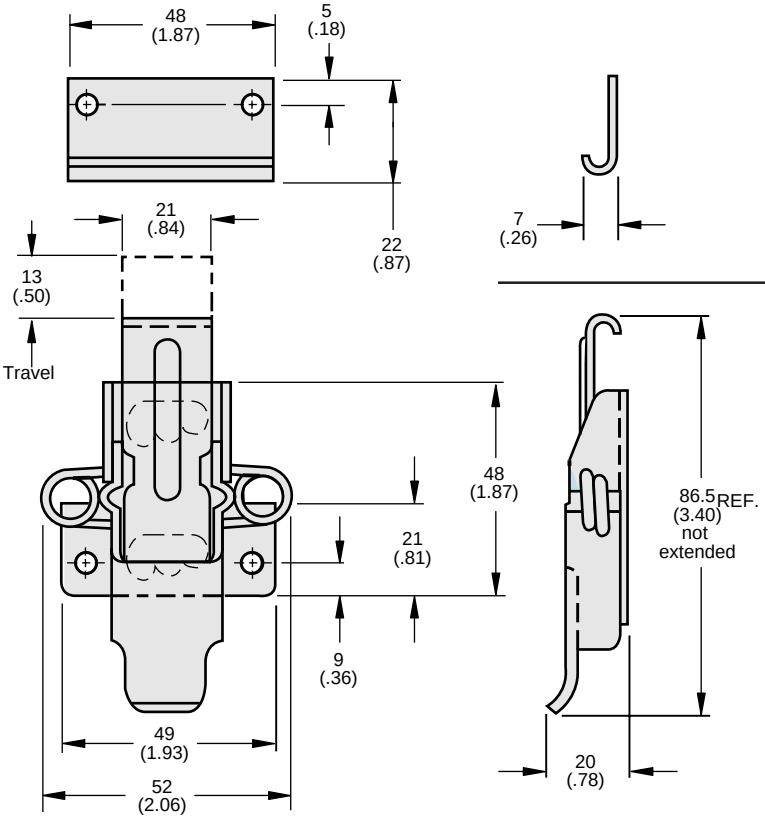
Versa Latch® Tension Latch

Large Size Latch

- Torsion springs compensate for application irregularities
- Load Capacity: Up to 3500 N (800 lbs.) tension
- Easy to grasp handle design
- For applications where latch and keeper remain on the same plane
- Fixed or adjustable mounting

Carbon Steel Zinc Plated plus bright chromate dip





Keeper
SPAENAUR No.
097-066
Mfr. #V4-0009-02

millimeter (inch)

Dimensions without tolerances are for reference only.

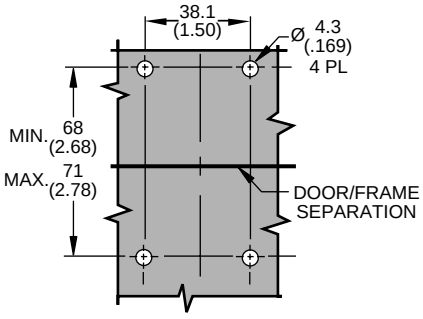
Latch
SPAENAUR No.
097-065
Mfr. #V4-0006-02

Priced Singly

L

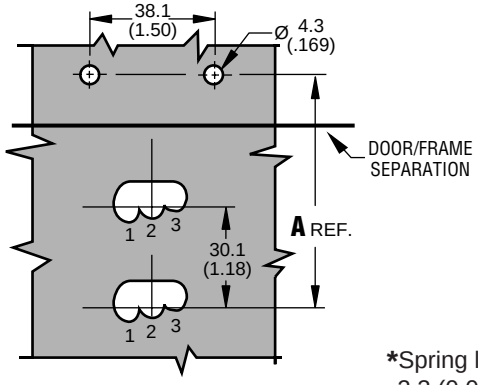
Suggested FIXED Mounting Dimensions

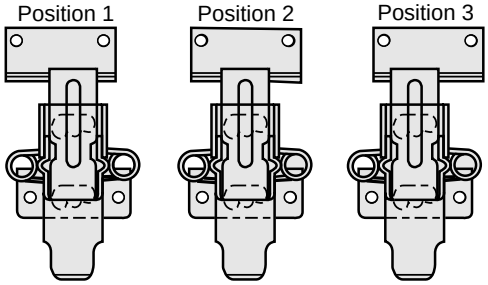
The pattern shown is in the bottom of the anchor plate. Two 4.3 (.169) round holes are needed in the panel.



Also available in stainless steel special order- delivery 2-3 weeks.

Suggested ADJUSTABLE Mounting Dimensions





Position Number	*Dimensions A Min.	Max.
1	72 (2.81)	74 (2.90)
2	70 (2.75)	72 (2.84)
3	68 (2.68)	70 (2.78)

***Spring loaded anchor plate compensates up to 2.3 (0.09) for irregularities in sealing and gasket set.

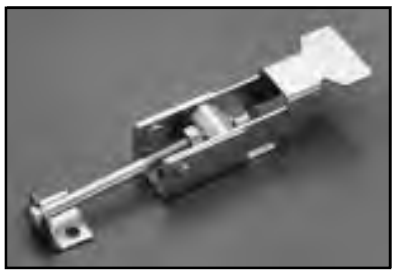
CATALOG 13

Adjustable Draw Latch

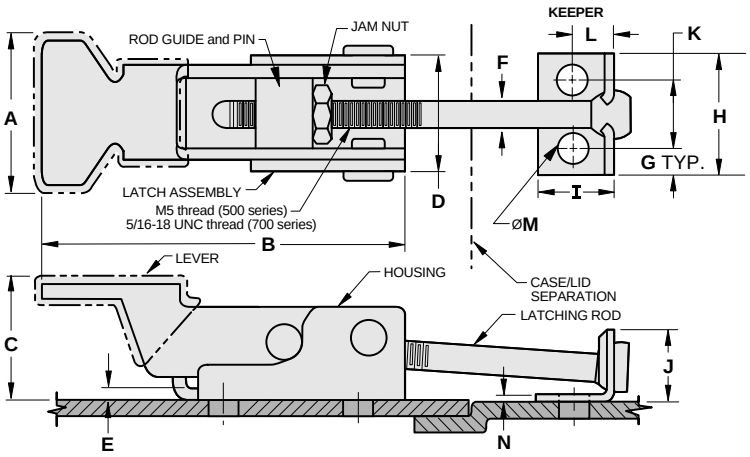
Multiple sizes and latching styles

- Ball-end Latching Rod
- Latching rod adjusts to fit your grip range
- Steel or Stainless Steel available

LEVER and HOUSING: **1010 steel.** ROD GUIDE and JAM NUT: **Low carbon steel.** SERIES 700 ROD: **1008 steel.** SERIES 500 ROD: **1006 steel.** KEEPER: 1**064 steel. Steel components are zinc plated plus bright chromate dip.**



500 and 700 Series



Stainless Steel (700 SERIES) LEVER and HOUSING: **304 Stainless steel, passivated.** ROD and RIVET: **302 stainless steel, passivated.** KEEPER: **17-7PH stainless steel.**

SPAENAUR No.	Mfr. #	Material	Series
097-014	A1-10-501-10	steel - zinc pltd.	**500**
097-806	A1-10-501-40	stainless steel	**500**
097-807	A1-10 701-40	stainless steel	**700**

Above numbers include latch and keeper.

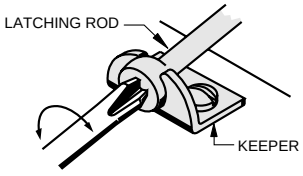
Series	Dimensions													
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
500	27 (1.06)	68 (2.66)	20 (.78)	21 (.82)	1.6 (.060)	4.4 (.17)	5 (.19)	22 (.88)	14 (.56)	11 (.44)	13 (.50)	8 (.31)	5.2 (.203)	1.3 (.050)
700	40 (1.56)	113 (4.45)	32 (1.25)	31 (1.21)	1.9 (.075)	7 (.27)	6 (.25)	31 (1.21)	19 (.75)	19 (.75)	19 (.75)	11 (.44)	6.7 (.265)	1.5 (.060)

Available with vinyl grip Special Order 2-3 weeks.

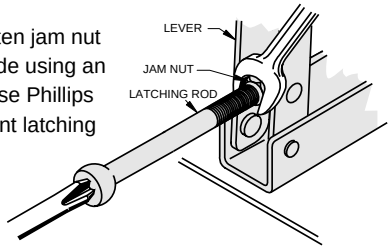
L

To Adjust

1. With rod and lever in latched position, turn latching rod with a Phillips screwdriver until desired tension is reached.



2. Raise lever and tighten jam nut hard against rod guide using an open end wrench. Use Phillips screwdriver to prevent latching rod from turning.



Product Strength Guidelines

500 Series - Maximum working load: 180 N (40 lbs.)
Average ultimate load: 330N (75 lbs.)
700 Series - Maximum working load: 890 N (200 lbs.)
Average ultimate load: 178 N (400 lbs.)

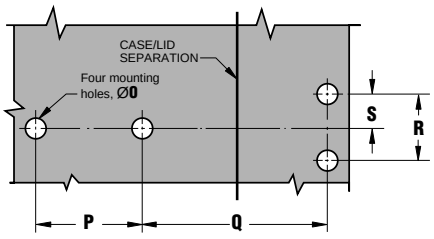
Installation

Prepare case and lid as shown and mount both latch and keeper using four screws or rivets.

Priced Singly

millimeter (inch)

Dimensions without tolerances are for reference only.



Series	Installation Dimensions					
	ØO +0.2 to -0.0 (+.010 to -.000)	P +0.1 to -0.2 (+.005 to -.010)	Q Min.	Q Max.	R ±0.2 (.005)	S ±0.2 (.005)
500	5.2 (.203)	25.5 (1.000)	25 (1.00)	44 (1.75)	12.7 (.500)	6.4 (.250)
700	6.7 (.257)	44.5 (1.750)	24 (.94)	57 (2.25)	19 (.750)	9.5 (.375)

southco®
CONNECT · CREATE · INNOVATE

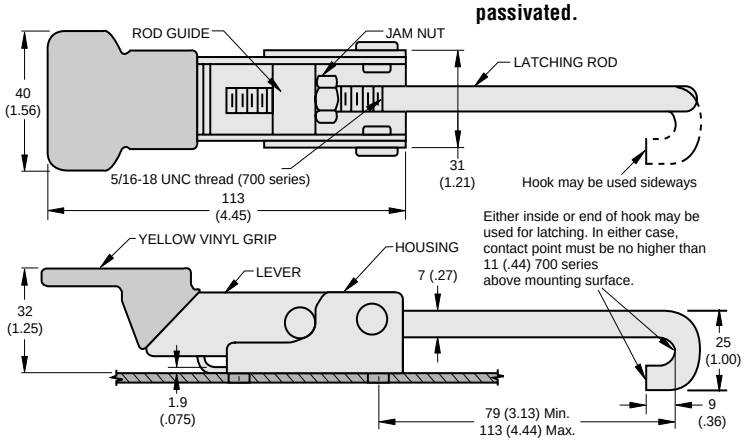
Adjustable Draw Latch with hooked latching rod

700 Series

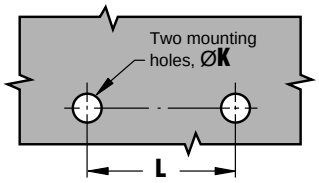
- Hooked-end latching rod rotates to pick up a variety of latching surfaces
- Adjustable latching rod
- Optional yellow vinyl coated lever

Steel Version
LEVER and HOUSING: **1010 steel.**
ROD GUIDE and JAM NUT: **Low carbon steel.** ROD: **1008 steel. All steel parts are zinc plated plus bright chromate dip.**
Rivet: **302 stainless steel, passivated.**
Grip: **Vinyl, yellow.**

Stainless Steel Version
LEVER and HOUSING: **304 stainless steel.**
ROD GUIDE: **303 stainless steel.** JAM NUT: **300 stainless steel.** ROD and RIVET: **302 stainless steel. All stainless steel parts passivated.**



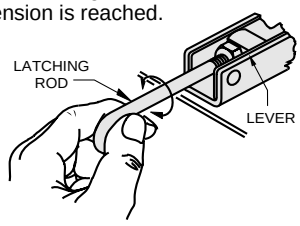
SPAENAUR No.	Mfr. #	Material	Series
097-015	A1-11-702-20	steel - zinc pltd.	700*
	*with yellow vinyl grip (add 1 mm for thickness)		
097-808	A1-11-702-40	stainless steel	700



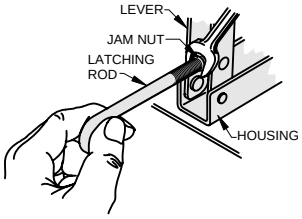
Installation Dimensions		
	Dimension	Tolerance
ØK	6.5 (.257)	±0.1(±.005)
L	44.5 (1.750)	±0.2(±.010)

To adjust

1. With lever in latched position, turn latching rod until desired tension is reached.

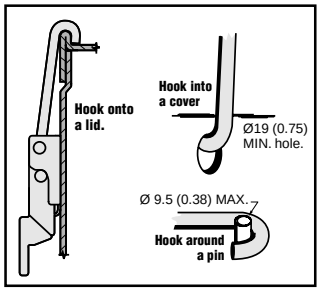


2. Raise lever. While holding latching rod to prevent rotation, tighten jam nut hard against rod guide using an open end wrench.



millimeter (inch)

Dimensions without tolerances are for reference only.

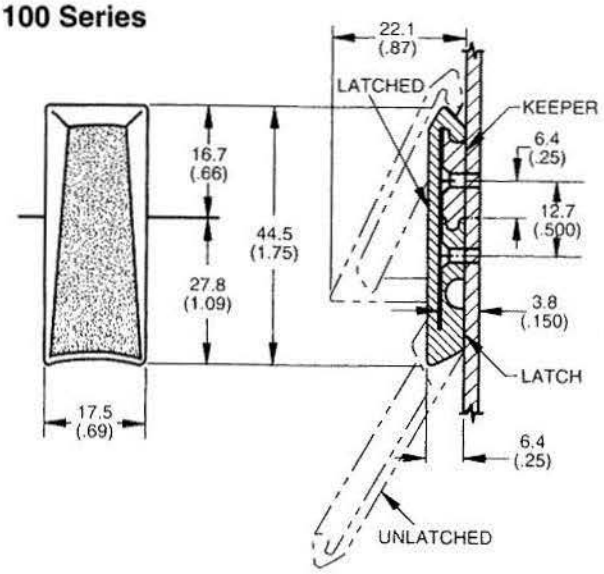


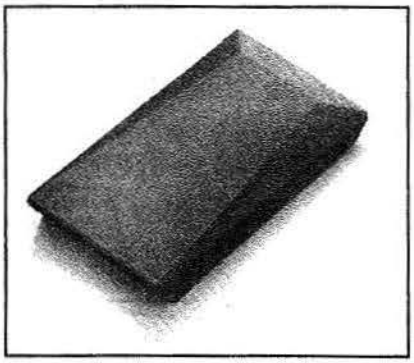
Product Strength Guidelines
Maximum working load: 1780 N (400 lbs.)
Average ultimate load: 2270 N (510 lbs.)

Also available 500 Series Hooked Latching Rod - Special Order

Designer Series Draw Latch

100 Series

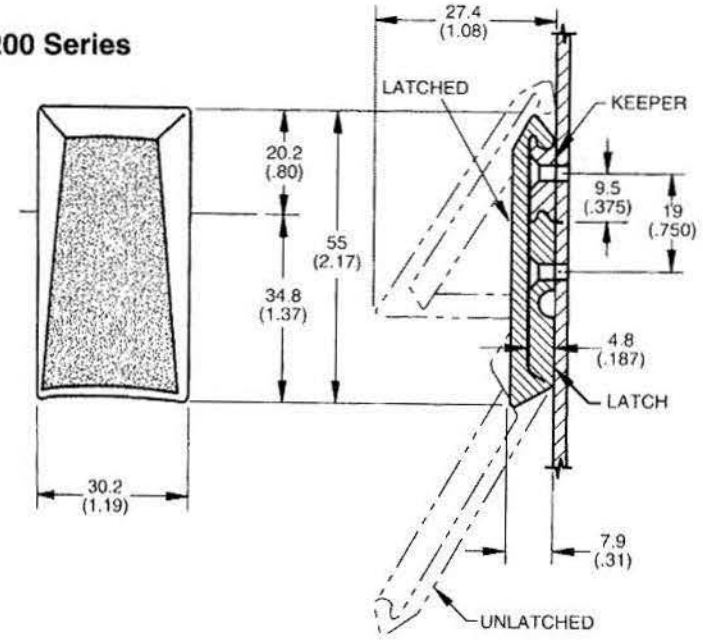




Material and Finish
Polypropylene, black

SPAENAUR No.	Mfr. #	Series
097-430	07-10-105-12	**100**
097-428	07-10-205-12	**200**

200 Series



Product Strength Guidelines

Series 100
Maximum working load: 110 N (25 lbs.)
Average ultimate load: 220 N (50 lbs.)

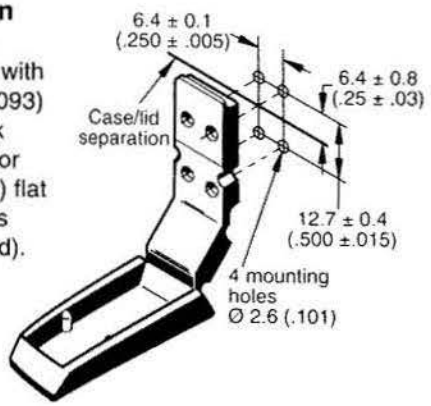
Series 200
Maximum woking load: 445 N (100 lbs.)
Average ultimate load: 670 N (150 lbs.)

Installation

Series 200
Install latch with four Ø3 (.125) countersunk head rivets or M3 (No. 4) flat head screws (not included)

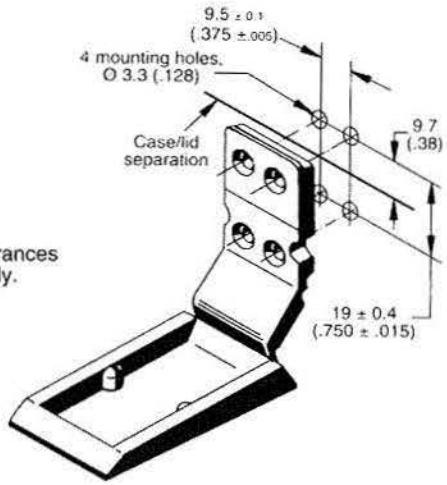
Installation

Series 100
Install latch with four Ø2.5 (.093) countersunk head rivets or M2.5 (No. 2) flat head screws (not included).



millimeter (inch)
Dimensions without tolerances are for reference only.

Priced Singly



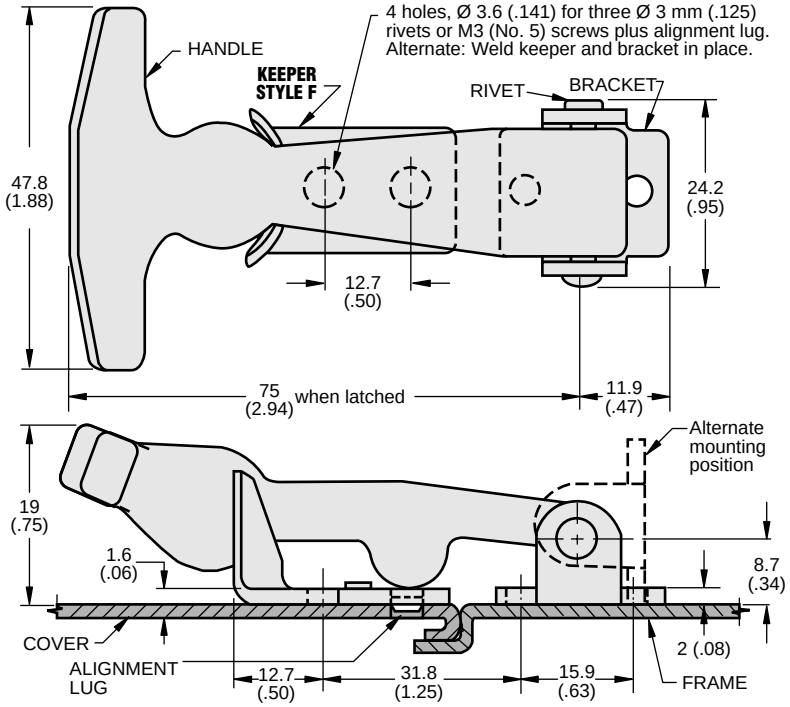
L

Flexible Draw Latches

T-Handle Style with Stainless Steel Hardware

SPAENAUR No.
097-814
Mfr. #37-10-071-20
071 Series

071 Series



T-Handle Latch assembled when shipped.

Material and Finish
071, 086 and 100 Series

HANDLE: **EPDM Rubber, black.**

BRACKET: **302 stainless steel, passivated.**

RIVET: **302 stainless steel, passivated**

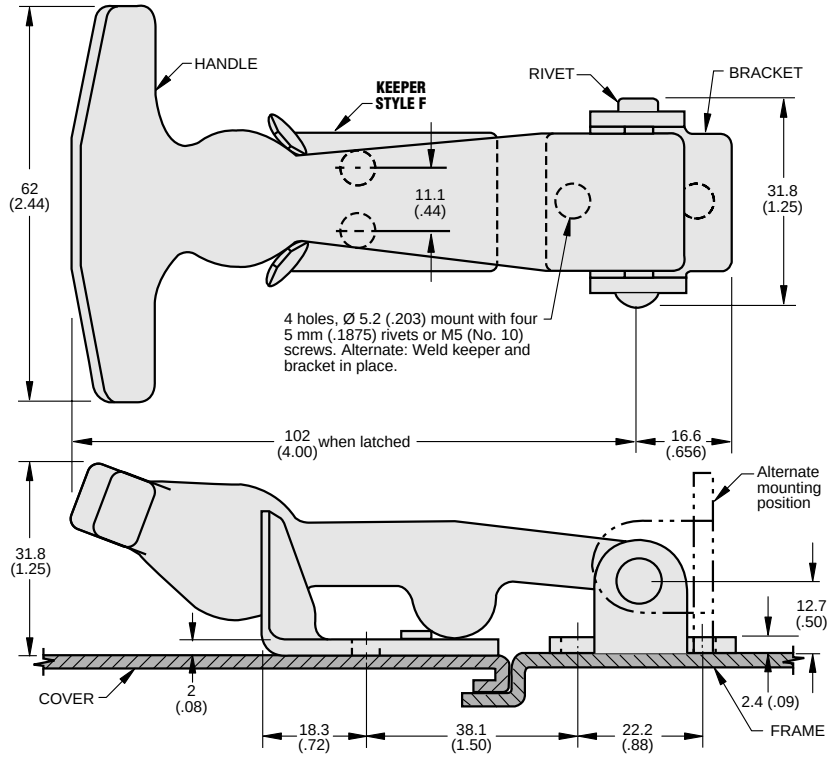
KEEPER F-Style: **302/304 stainless steel, passivated.**

Product Strength Guidelines

071 Series
Average clamping force: 38.7 N (8.7 lbs.)
Average ultimate load: 142 N (32 lbs.)

086 Series
Average clamping force: 49 N (11 lbs.)
Average ultimate load: 285 N (64 lbs.)

086 Series



Also available with Reversed Keeper and Steel Zinc Plated Hardware - Special Order.

Priced Singly

SPAENAUR No.
097-815
Mfr. #37-10-086-20
086 Series

millimeter (inch)

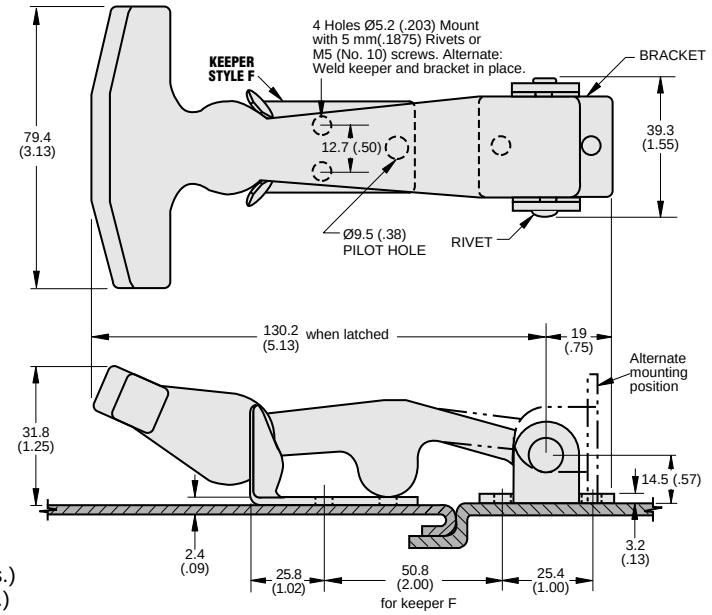
Dimensions without tolerances are for reference only.

Continued…

100 Series

T-Handle Style

T-Handle Latch assembled when shipped.



SPAENAUR No.
097-816
Mfr. #37-10-101-20
100 Series

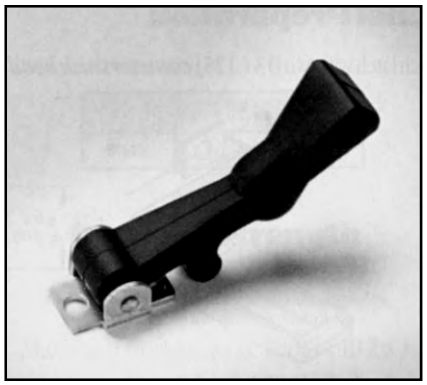
For Material and Finish see page L156.

Product Strength Guidelines
100 Series
Average clamping force: 84 N (19 lbs.)
Average ultimate load: 365 N (82 lbs.)

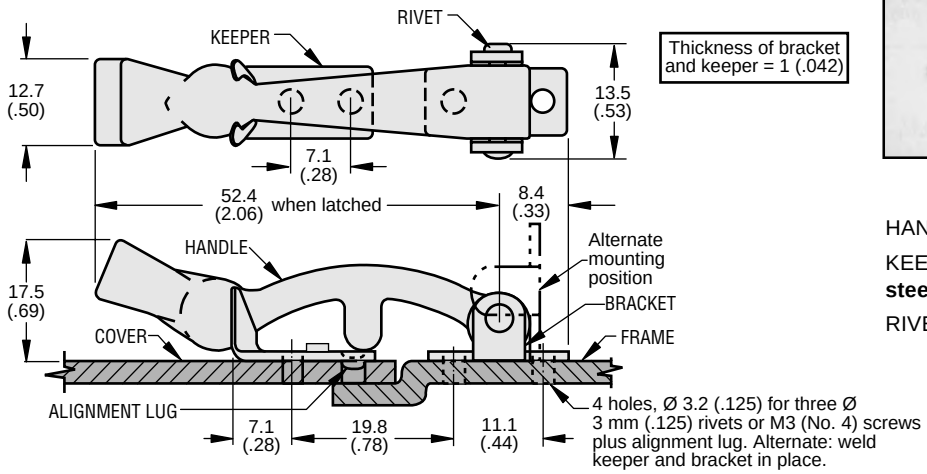
Flexible Draw Latches

Tab Handle Style with Stainless Steel and Aluminum Hardware

SPAENAUR No.
097-826
Mfr. #37-10-051-20
051 Series



051 Series



Thickness of bracket and keeper = 1 (.042)

Material and Finish

HANDLE: **EPDM Rubber, black.**

KEEPER and BRACKET: **302 stainless steel, passivated.**

RIVET: **5056 aluminum, natural.**

millimeter (inch)

Dimensions without tolerances are for reference only.

Priced Singly

Product Strength Guidelines
051 Series
Average clamping force: 20.9 N (4.7 lbs.)
Average ultimate load: 58 N (13 lbs.)

L

Over-centre Draw Latch
with Toggle Action

- Lockable with tumbler type keylock
- Latches/unlatches with over-centre toggle action
- Finished in black powder coat or bright polished chrome
- Mounts on outside of door

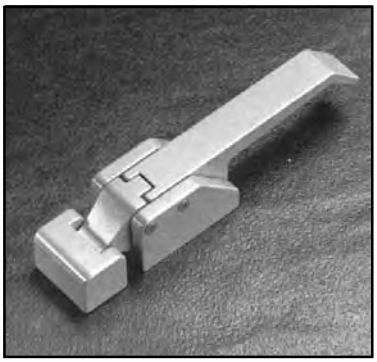
Material and Finish

LEVER, PAWL, BASE, KEEPER and LOCK (when used): **Die-cast zinc, chrome plated or black powder coated.**

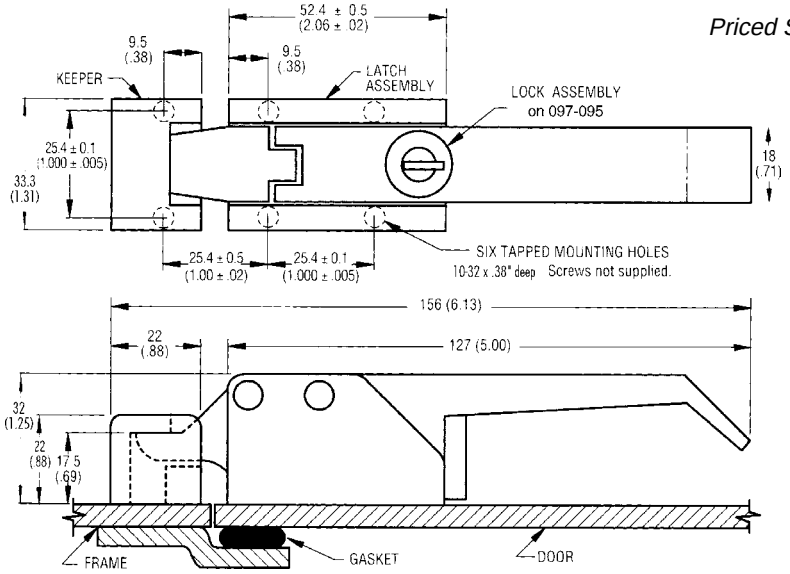
LOCK EXTENSION and LINK: **Die-cast zinc with chemical protective film.**

LOCK SLIDE: **Steel, zinc plate plus bright chromate dip.**

Priced Singly



097-049 shown (without lock).



SPAENAUR No.	Mfr. #	Style
097-049 Chrome Finish	A7-10-301-30	Standard
097-095 Black Coat Finish	A7-10-302-20	with lock*

*Locks are keyed alike.

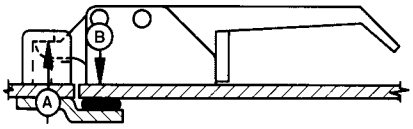
Product Strength Guidelines

Maximum working load: 2200 N (500 lbs.)

Average ultimate load: 3700 N (825 lbs.)

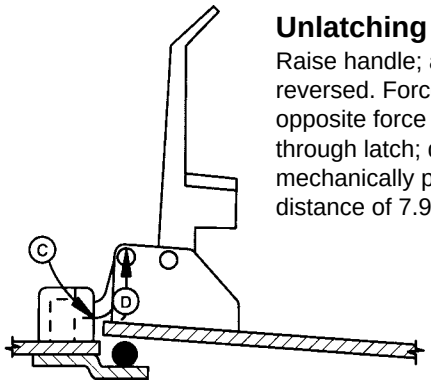
Latching

Lower handle. Latching pawl engages keeper, applies force A. Resultant force B closes and latches door with over-centre toggle action, 9.5 (0.38) pull-up distance.



Unlatching

Raise handle; action is reversed. Force C results in opposite force D applied through latch; door is mechanically pried open a distance of 7.9 (0.31).



millimeter (inch)

Dimensions without tolerances are for reference only.

Standard and Key Locking Assemblies with Finish of Satin Silver Powder Coat available but not stocked - delivery 2-3 weeks.

L

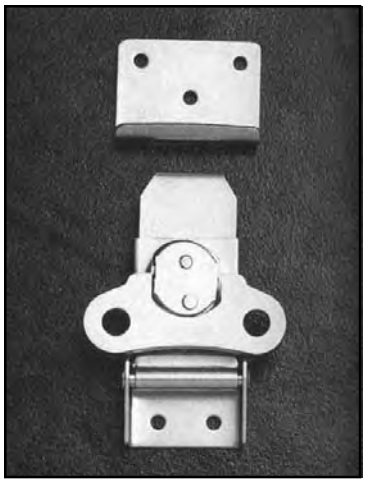
CATALOG 13

Link Lock® Rotary Action Latch

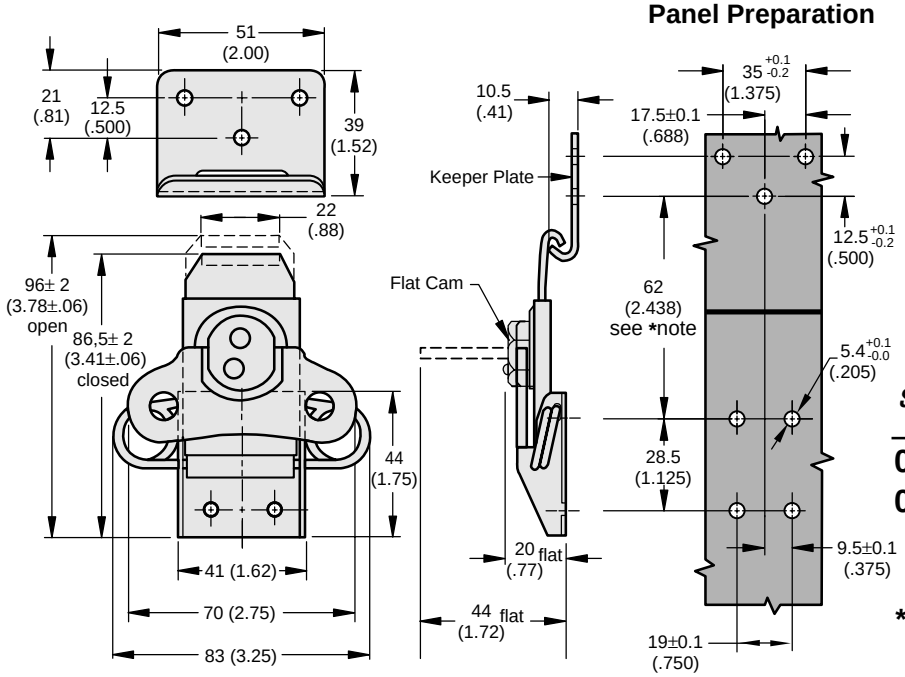
Large

Spring Loaded Flat Cam Style
Accommodates Misalignment.

Material and Finish
All components - Latch and Keeper:
300 Stainless Steel, natural



Panel Preparation



millimeter (inch)

Dimensions without tolerances are for reference only.

SPAENAUR No.	Mfr. #	Part
097-800	K5-2856-52	Latch Flat Cam
097-801	K5-2811-52	Keeper Plate

***NOTE: Spring loaded anchor plate compensates up to 4 mm (.156) for misalignment.

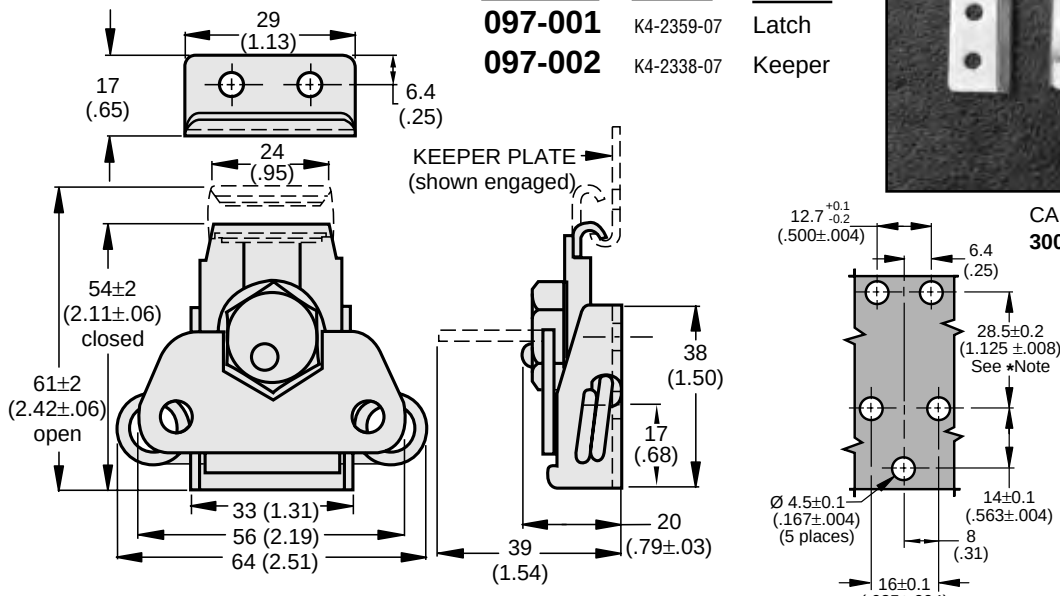
Medium

Spring Loaded Hex Cam Style
Accommodates Misalignment.

Steel - Zinc Plated

SPAENAUR No.	Mfr. #	Part
097-001	K4-2359-07	Latch
097-002	K4-2338-07	Keeper

CAM SPRING:
300 Series Stainless Steel



millimeter (inch)

Dimensions without tolerances are for reference only.

***NOTE: Spring loaded anchor plate compensates up to 4 mm (.156) for misalignment.

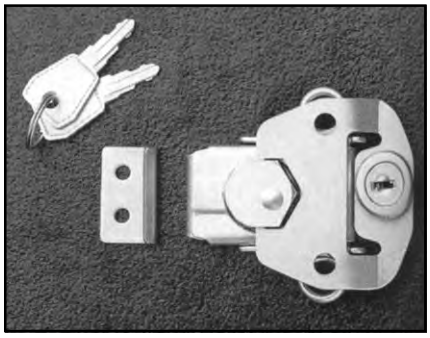
L

CATALOG 13

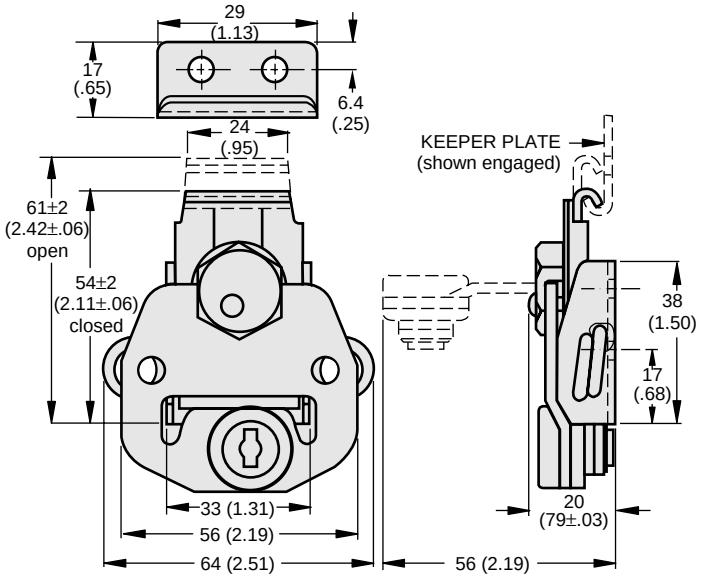
See following page for Key-lockable Latches.

Link Lock® Rotary Action Latch

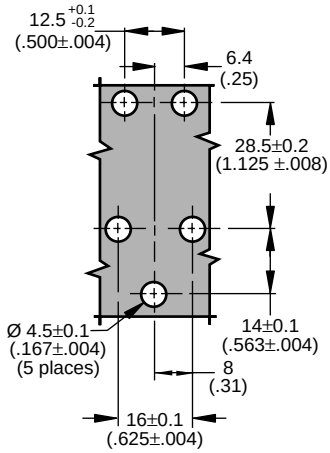
Medium - Key-Lockable Spring Loaded



SPAENAUR No.	Mfr. #	Part
097-003	K4-2833-07	Latch
097-002	K4-2338-07	Keeper



Panel Preparation



Material and Finish

LATCH & KEEPER: **Carbon steel, zinc plated.**

LOCK HOUSING and LOCK PLUG: **Die-cast zinc, chrome plated.**

MOUNTING NUT: **Brass, natural**

Assembly supplied with two keys.

Large - Key-Lockable

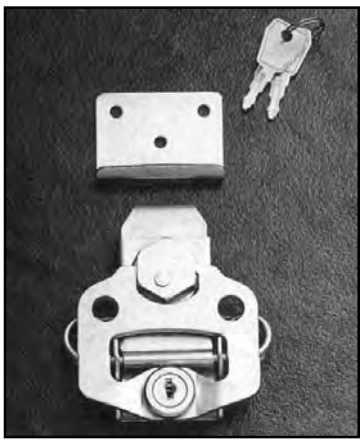
- Load carrying capacity up to 4000 N (900 lbs.)

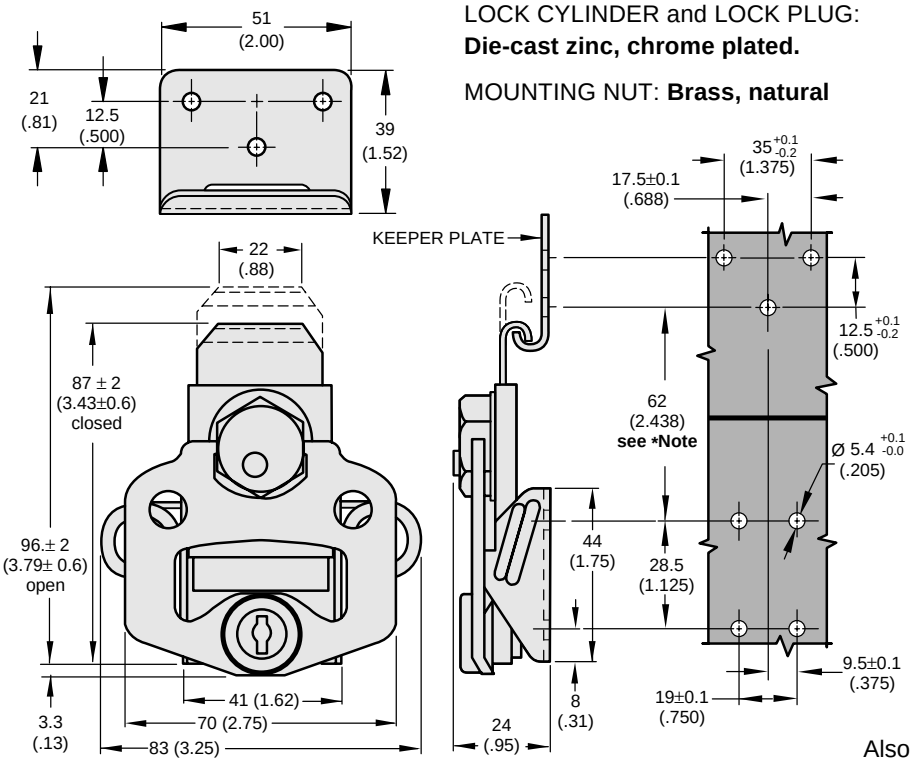
Material and Finish

LATCH & KEEPER: **Carbon steel, zinc plated.**

LOCK CYLINDER and LOCK PLUG: **Die-cast zinc, chrome plated.**

MOUNTING NUT: **Brass, natural**





Assembly supplied with two keys

SPAENAUR No.	Mfr. #	Part
097-005	K5-2813-07	Latch
097-006	K5-2811-07	Keeper

Latch - Spring loaded with key lock.

***NOTE:** Spring loaded anchor plate compensates up to 4 mm (.16) for misalignment.

millimeter (inch)

Dimensions without tolerances are for reference only.

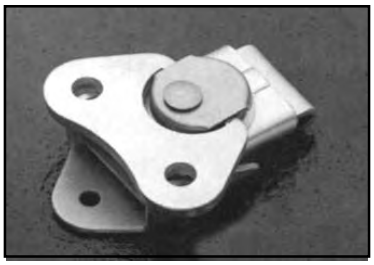
Also available Pad-Lockable Assembly special order - 2-3 weeks delivery.

L

CATALOG 13

Link Lock® Rotary Action Latch

Small - Riveted Style



Spring Loaded & Padlockable Styles available special order - 2-3 weeks.

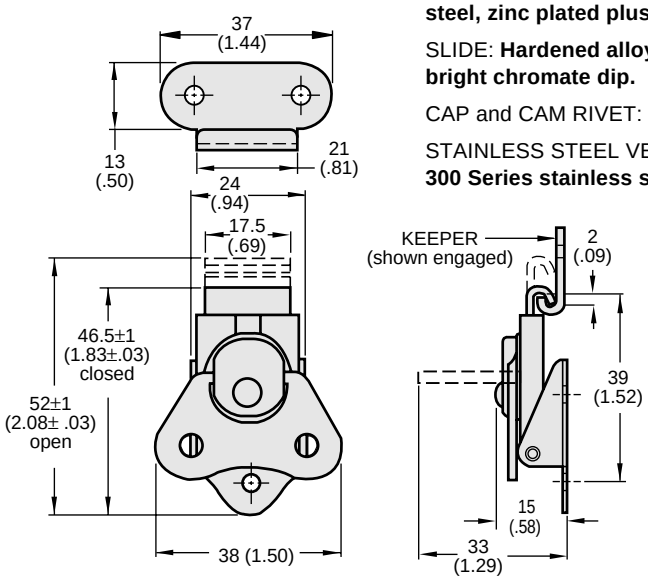
Material and Finish

ANCHOR PLATE, WING, HOUSING, UPPER, LOWER CAM and ANCHOR PLATE RIVET: **Carbon steel, zinc plated plus bright chromate dip.**

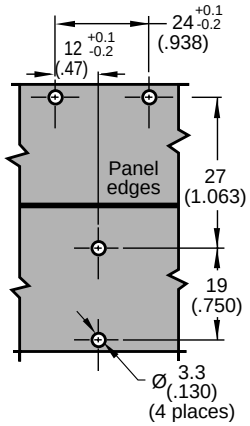
SLIDE: **Hardened alloy steel, zinc plated plus bright chromate dip.**

CAP and CAM RIVET: **300 series stainless steel.**

STAINLESS STEEL VERSIONS: **All components 300 Series stainless steel.**



Panel Preparation

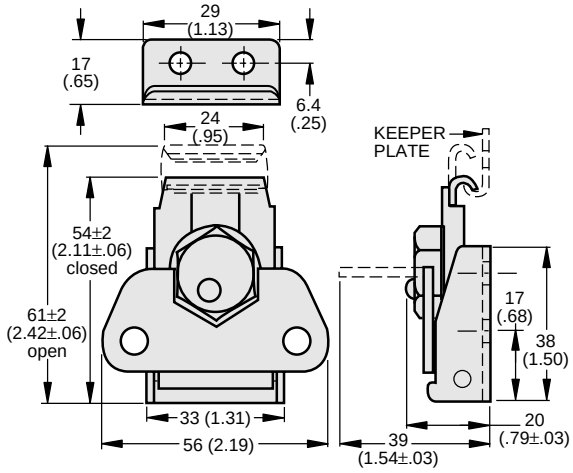


millimeter (inch)

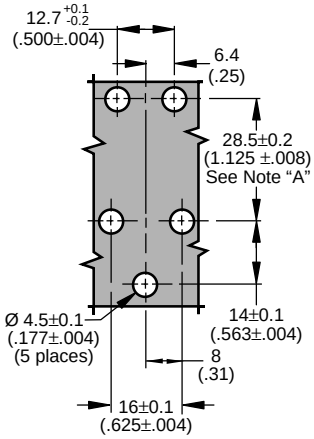
Dimensions without tolerances are for reference only.

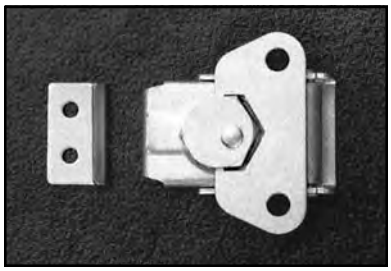
SPAENAUR No.	Mfr. #	Material	Part
097-007	K3-1625-07	Steel	Latch
097-008	K3-0334-07	Steel	Keeper
097-802	K3-1625-52	Stainless	Latch
097-803	K3-0334-52	Stainless	Keeper

Medium - Riveted Style
Hex Cam



Panel Preparation





Material and Finish

ANCHOR PLATE, WING HOUSING, LOWER CAM KEEPER PLATE and ANCHOR PLATE RIVET: **Carbon steel, zinc plated plus bright chromate dip.**

SLIDE: **Hardened alloy steel, zinc plated plus bright chromate dip.**

HEX CAM: **Powder metal, zinc plated plus bright chromate dip.**

CAM RIVET and CAM SPRING: **300 Series stainless steel, natural.**

millimeter (inch)

Dimensions without tolerances are for reference only.

SPAENAUR No.	Mfr. #	Part
097-092	K4-2714-07	Latch
097-002	K4-2338-07	Keeper

Priced Singly

See following page for Large Rotary Action Latch.

Link Lock® Rotary Action Latch

Large - Riveted Anchor Plate Hex Cam

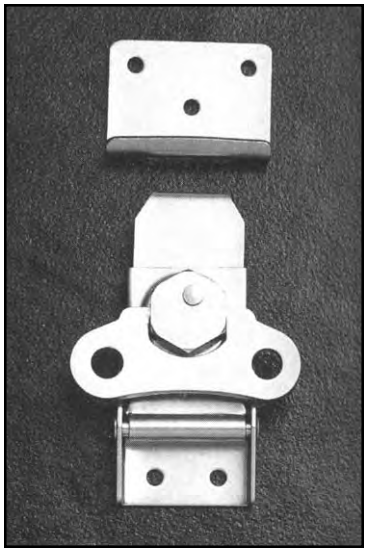
Material and Finish

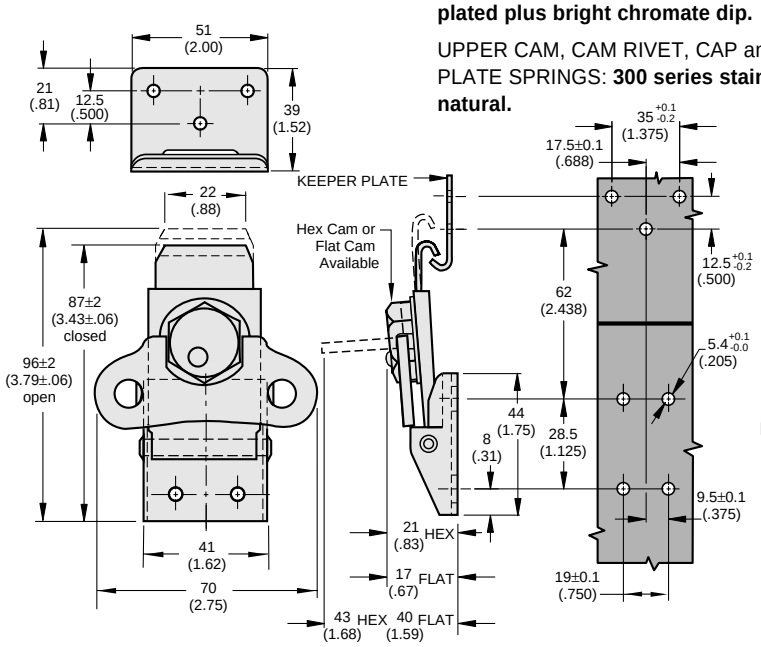
ANCHOR PLATE, WING, and LOWER CAM: **Carbon steel, zinc plated plus bright chromate dip.**

HOUSING and SLIDE: **Hardened alloy steel, zinc plated plus bright chromate dip.**

UPPER CAM, CAM RIVET, CAP and ANCHOR PLATE SPRINGS: **300 series stainless steel natural.**

HEX CAM: **Powdered metal, zinc plated, bright chromate dip.**





millimeter (inch)

Dimensions without tolerances are for reference only.

SPAENAUR No.	Mfr. #	Part
097-081	K5-2812-07	Latch
097-006	K5-2811-07	Keeper

L

SPAENAUR

TELEPHONE:
24 hours a day, 365 days a year
(800) 265-8772
(519) 744-3521

FAX:
24 hours a day, 365 days a year
(519) 744-0818
(800) 252-6380

Counter Sales:
7 a.m. to 6 p.m. EST., Weekdays

Concealed Hinges…

Provide good looking, easily removable doors.

- Mounts inside formed doors
- Right or Left mounting

Material and Finish

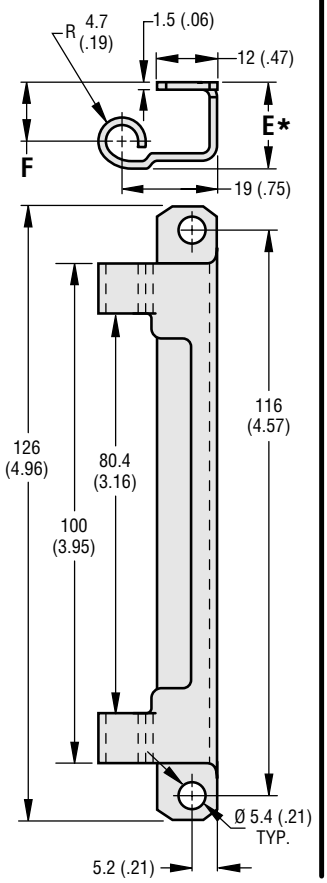
FRAME LEAF, DOOR LEAF: **1010 steel, zinc plate plus chromate dip, yellow.**

HINGE PINS: **12L14 steel, zinc plate plus yellow chromate dip and clear organic coating.**

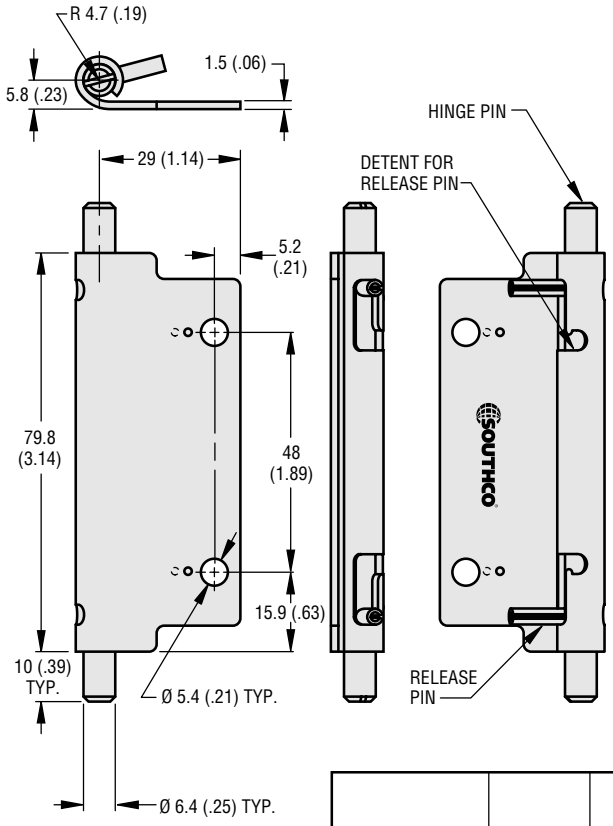
RELEASE PINS: **420 stainless steel passivated.**

INTERNAL SPRING: **302 Stainless steel, passivated.**

Frame Leaf



Door Leaf



Hinges may be fastened to door and frame by:
- M5 or No. 10 hardware; For mounting frame leaf, machine screws are recommended. Hex jam nuts may be used, but clearance with door edge should be verified.
- Welding.

Unit Package 2 Hinges (4 pieces)

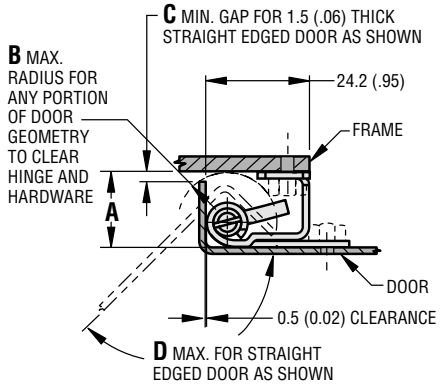
SPAENAUR No.	Mfr. #	Series	Frame Leaf Dimensions E*	F
—	F6-1	**1**	17.0 (.67)	11.8 (.47)
097-061	F6-2	**2**	20.0 (.79)	14.8 (.58)
—	F6-3	**3**	23.4 (.92)	18.2 (.72)

Parts without SPAENAUR No's. Special Order 2-3 weeks.

Product Strength Guidelines

Maximum working axial load: 500 N (112 lbs.)
Maximum working radial load: 300 N (65 lbs.)

Panel Preparation



SERIES	PANEL PREPARATION DIMENSIONS A	B	C	D
1	17.6 (.69)	10.9 (.43)	3.2 (.13)	132°
2	20.6 (.81)	12.7 (.50)	3.9 (.15)	125°
3	24 (.95)	15.3 (.60)	4.4 (.17)	118°

***Note: Select the frame leaf with a value of **E** best suited to the configuration of your door. The dimension **E** + 0.6 (.02) = the distance from the outside surface of your frame to the inside of your door.

millimeter (inch)

Dimensions without tolerances are for reference only.

L

CATALOG 13

Metal Lift-Off Hinges

Large - In-line Hinge

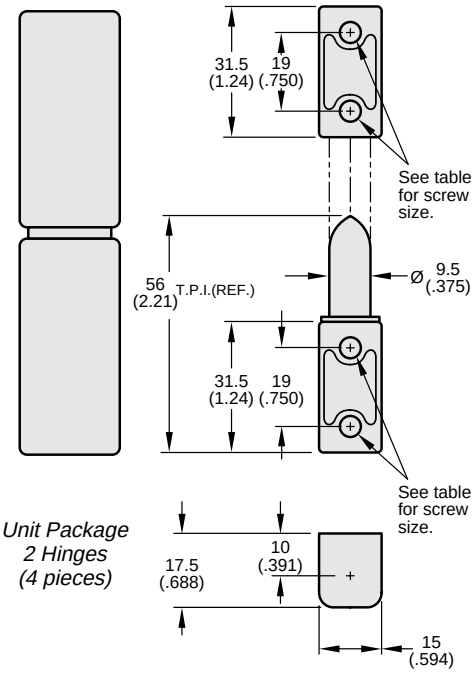
In-line hinges can be used interchangably on doors hinged on either side.

Material and Finish

KNUCKLES: **Die-cast zinc, black matte polyester powder coating.**

WASHER: **Black nylon**

Screws not supplied.

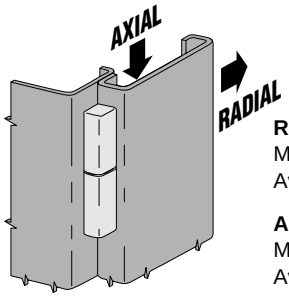


Door and frame preparation

Note: to insure lift-off capability, the *lower* knuckle must be installed on the frame, the *upper* knuckle on the door.

SPAENAUR No.	Mfr. #	Use Screw Size
—	96-50-500-50	M5
097-046	96-10-500-50	No. 10-32

Product Strength Guidelines



RADIAL
Maximum working load 1300 N (300 lbs.)
Average ultimate load 3300 N (1000 lbs.)

AXIAL
Maximum working load 2200 N (500 lbs.)
Average ultimate load 9300 N (2100 lbs.)

Note: Maximum screw length = door (or frame) thickness + 5 (.200).

L

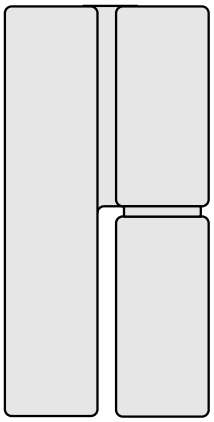
Large - Offset Hinge

Offset hinges must be ordered as Type "A" or Type "B" assemblies

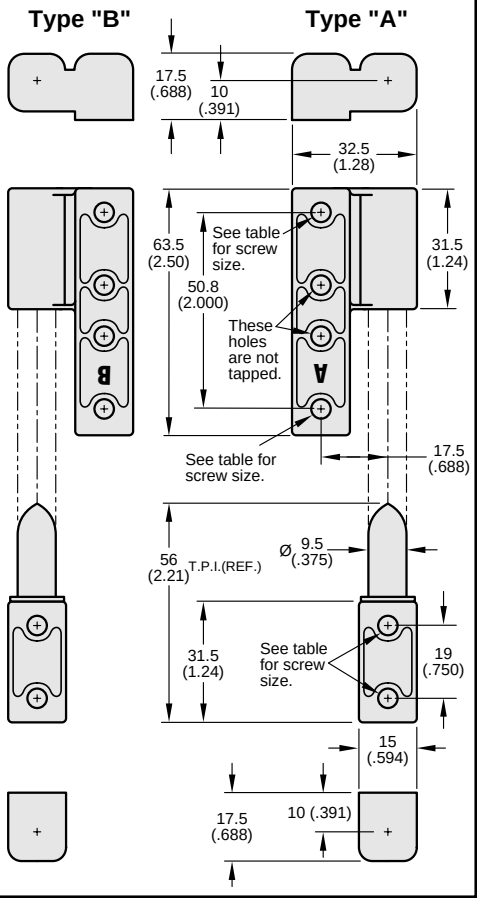
millimeter (inch)

Dimensions without tolerances are for reference only.

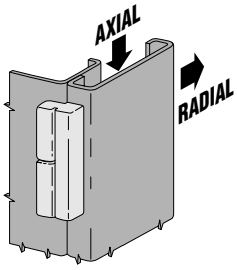
SPAENAUR No.	Mfr. #	Use Screw Size	Type
—	96-50-510-50	M5	"A"
097-047	96-10-510-50	No. 10-32	"A"
—	96-50-520-50	M5	"B"
097-048	96-10-520-50	No. 10-32	"B"



Unit Package 2 Hinges (4 pieces)

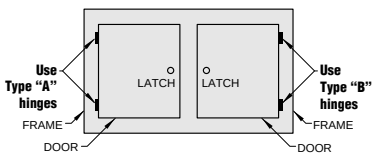


Product Strength Guidelines



RADIAL
Maximum working load 1300 N (300 lbs.)
Average ultimate load 3500 N (800 lbs.)

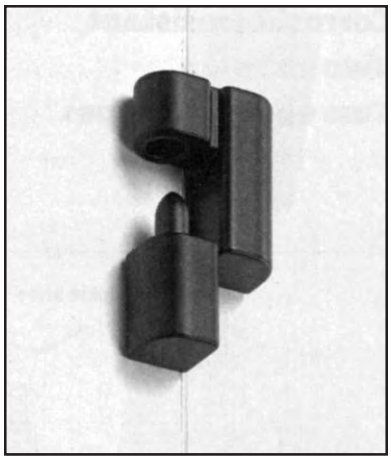
AXIAL
Maximum working load 2200 N (500 lbs.)
Average ultimate load 9300 N (2100 lbs.)



Note: For non lift-off mounting use one type "A" and one type "B" hinge per door. One hinge knuckle must be mounted **AFTER** the door is hung.

Metal Lift-Off Hinges

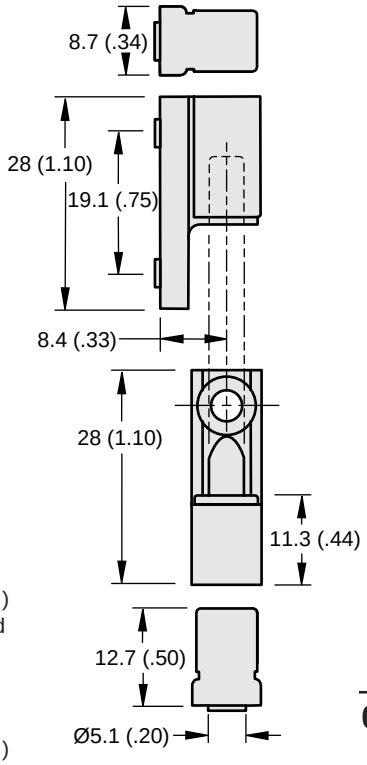
- Allows the door to be removed from the hinge side
- Compact size with high strength/size ratio
- All mounting hardware is concealed
- Door can also be permanently installed



Mini- In-line Hinge

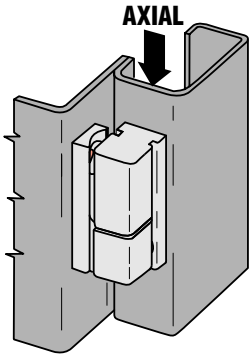
In-line hinges can be used interchangably on doors hinged on either side.

Screw length = door or frame thickness +5 (.200).



Material and Finish
KNUCKLES: **Die-cast zinc, black polyester powder coated.**

Product Strength Guidelines



RADIAL
Maximum working load 1100 N (250 lbs.)
Average ultimate load 2400 N (530 lbs.)

AXIAL
Maximum working load 1250 N (280 lbs.)
Average ultimate load 2600 N (580 lbs.)

SPAENAUR No.	Mfr. #	Use Screw Size
097-043	96-110	6-32
—	96-140	M4 x 0.7

Note: Maximum recommended tightening torque for mounting screws: 1.1 N•m (10 in.-lbs.)

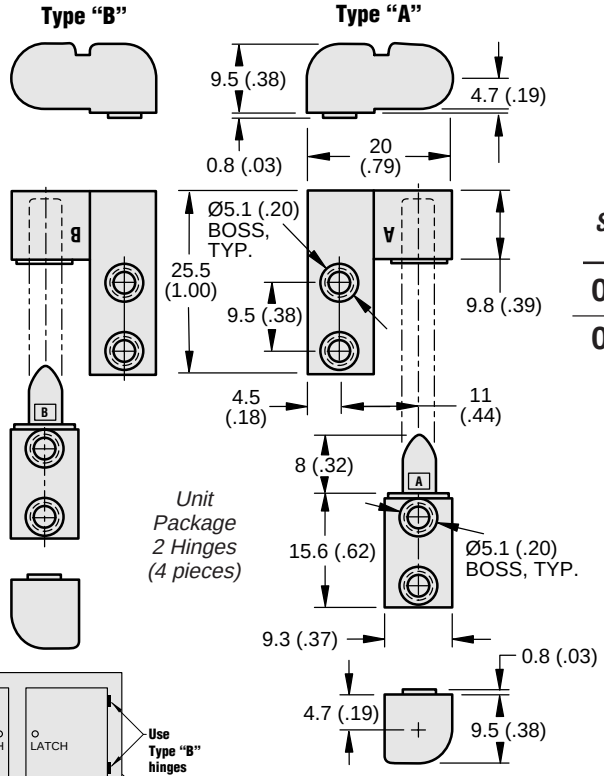
Mini- Offset Hinge

Offset hinges must be ordered as type "A" or type "B" assemblies.

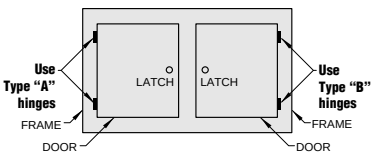
millimeter (inch)

Dimensions without tolerances are for reference only.

Screws not supplied.



Unit Package 2 Hinges (4 pieces)



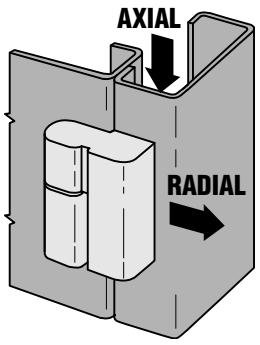
Door and frame preparation
Note: to assure lift-off capability, the *lower* knuckles must be installed on the frame, the *upper* knuckles on the door.

For non-lifting off offset hinges only: Use one type "A" and one type "B" hinge per door.

SPAENAUR No.	Mfr. #	Use Screw Size	Type
097-044	96-111	6-32	"A"
097-045	96-112	6-32	"B"

Also available M4 Thread special order 2-3 weeks.

Product Strength Guidelines



RADIAL
Maximum working load 1100 N (250 lbs.)
Average ultimate load 2400 N (530 lbs.)

AXIAL
Maximum working load 1250 N (280 lbs.)
Average ultimate load 9300 N (2100 lbs.)

L

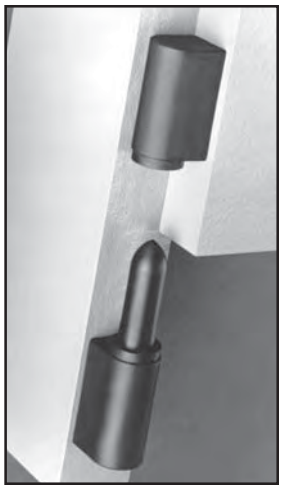
CATALOG 13

Nylon Lift-Off Hinges

- Corrosion resistant
- Two sizes
- Two operating types

Material and Finish
KNUCKLES: **Glass-reinforced nylon, black.**
PIN: **Nylon, black.**

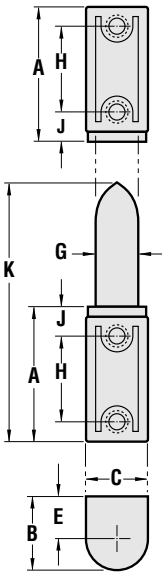
Free Swinging Type - without cams.



Screws not supplied.

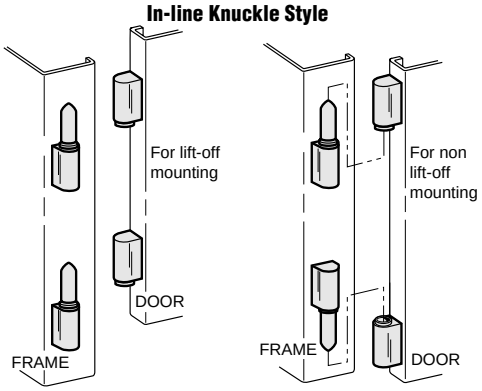
In-line Knuckle Style

SPAENAUR No.	Mfr. #	Use Screw Size	Type	Series
097-434	96-10-300-11	10-24	Free Swinging	**300**
097-435	96-10-400-11	1/4-20	Free Swinging	**400**



300 Series
Screw length = panel thickness + 4.8 (.187)

In-line Knuckle Style



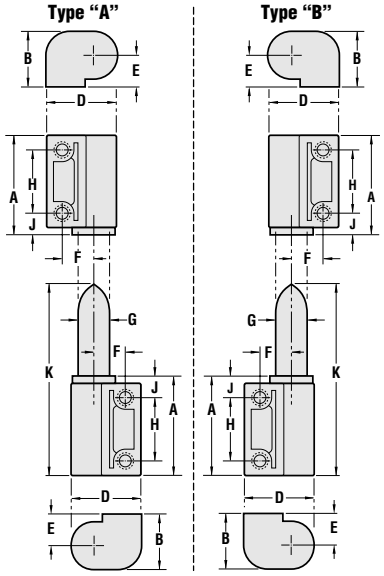
Note:
Maximum recommended tightening torque for mounting screws:
300 series = 2.8 N•m (25 in.lbs.)
400 series = 5.6 N•m (50 in.lbs.)

Unit Package
2 Hinges
(4 pieces)

Dimensions A	B	C	D	E F & G	H	J	K	Series
31 (1.22)	16.7 (.66)	14.3 (.56)	21.5 (.84)	9.5 (.38)	19 (.75)	7 (.28)	58 (2.28)	**300**
41.3 (1.63)	22.2 (.88)	19 (.75)	28.5 (1.13)	12.7 (.50)	25.5 (1.00)	9.5 (.38)	78 (3.06)	**400**

Offset Knuckle Style

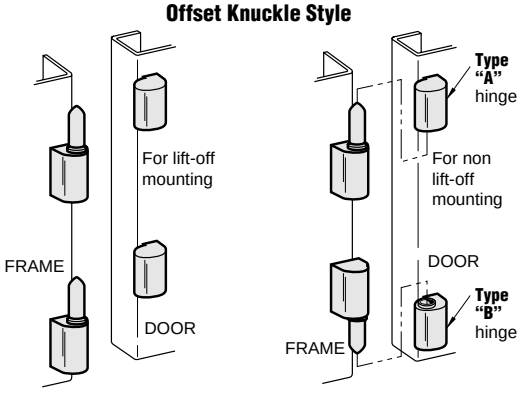
SPAENAUR No.	Mfr. #	Use Screw Size	Free Swinging Type	Series
097-412	96-10-310-11	10-24	"A"	**300**
097-413	96-10-320-11	10-24	"B"	**300**



300 Series
Screw length = panel thickness + 6.5 to 9.5 (.250 to .375).

400 Series *available special order 2-3 weeks delivery.*

Offset Knuckle Style



Product Strength Guidelines

RADIAL 300 Series
Maximum working load 670 N (150 lbs.)
Average ultimate load 1300 N (290 lbs.)

AXIAL 300 Series
Maximum working load 1100 N (250 lbs.)
Average ultimate load 2500 N (550 lbs.)

RADIAL 400 Series
Maximum working load 1300 N (300 lbs.)
Average ultimate load 2600 N (600 lbs.)

AXIAL 400 Series
Maximum working load 2200 N (500 lbs.)
Average ultimate load 5000 N (1100 lbs.)

Special Order:
Door Positioning Type*. Holds door shut (cams position door 10° past closed; the door constantly presses against frame) holds door open at 80° or 170° position.*

millimeter (inch)

Dimensions without tolerances are for reference only.

L

Friction Adjustable Hinges

For free or dampened door swing… at the turn of a screw!

- Helps hold doors open, closed, partially open
- Adjust speed of opening/closing
- No visable mounting hardware (100 Series only)

Material and Finish

LEAVES, HINGE PIN and ADJUSTABLE SCREW: **Acetal, black**

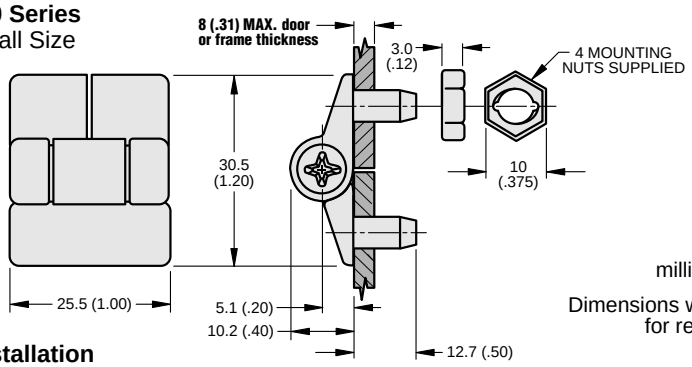
WASHER: **Nylon, black or natural.**

NUTS: **Steel, zinc plated.**

Black Colour
White - Special Order

Unit Package
2 Hinges

100 Series
Small Size



SPAENAUR No.
097-417

Mfr. #E6-10-101-20

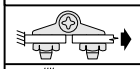
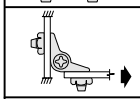
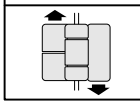
millimeter (inch)

Dimensions without tolerances are for reference only.

Operating temperature range: -20°C to 80°C (0°F to 180°F)

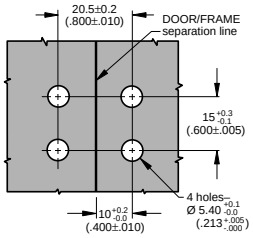
Maximum prevailing torque of hinge:
25 N•m (2.2 in.lbs.)

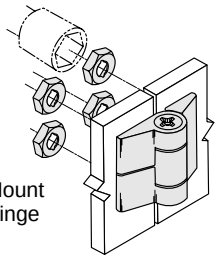
PRODUCT STRENGTH GUIDELINES

	Ultimate tensile= 1390 N (312 lbs.)
	Ultimate tensile= 675 N (152 lbs.)
	Ultimate shear= 950 N (214 lbs.)

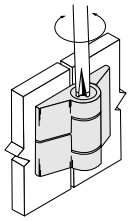
Installation

1. Prepare door and frame.



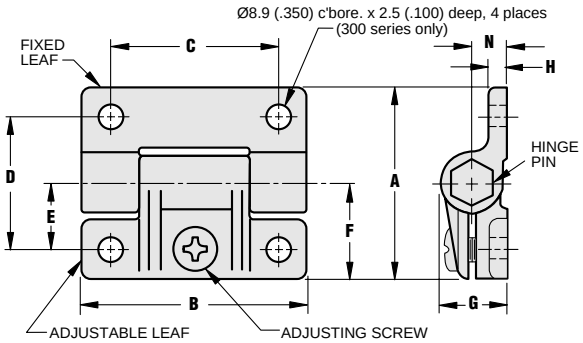


2. Mount hinge



3. Adjust hinge friction.

300 & 500 Series



Material and Finish

LEAVES: **Acetal, black.**

HINGE PIN: **Polycarbonate clear.**

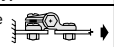
NUT & ADJUSTABLE SCREW: **303 Stainless Steel.**

SPAENAUR No.	Mfr. #	Series
097-418	E6-10-301-20	**300**
097-419	E6-10-501-20	**500**

Dimensions									
A	B	C	D	E	F	G	H	N	Series
36.5 (1.44)	43.0 (1.69)	31.7 (1.25)	25.5 (1.00)	12.7 (.50)	18.3 (.72)	12.7 (.50)	6.0 (.23)	6.7 (.27)	**300**
57.5 (2.25)	63.5 (2.50)	47.6 (1.88)	38.0 (1.50)	19.0 (.75)	28.5 (1.13)	19.4 (.77)	5.2 (.20)	10.3 (.41)	**500**

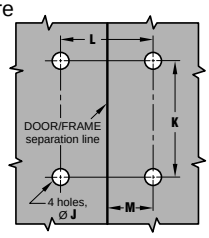
For Mounting							
K +0.3 -0.0 (±.005)	L ±0.1 (±.010)	M +0.2 -0.0 (±.010)	Thread Size mm	Thread Size inch	øJ +0.1 -0.0 mm	øJ (+.005 -.000) inch	Series
31.5 (1.250)	25.5 (1.000)	12.5 (.500)	M4	(8-32)	4.5	(.177)	**300**
47.5 (1.875)	38.0 (1.500)	19.0 (.75)	M6	(1/4-20)	6.6	(.265)	**500**

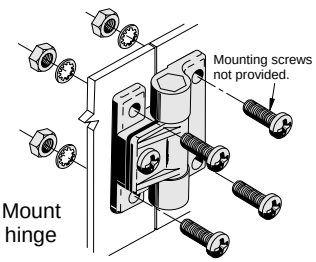
PRODUCT STRENGTH GUIDELINES

Type of load	300 Series	500 Series
Ultimate tensile 	1780 N (400 lbs.)	3110 N (700 lbs.)
Ultimate tensile	600 N (135 lbs.)	2220 N (500 lbs.)
Ultimate shear	890 N (200 lbs.)	2000 N (450 lbs.)

Installation

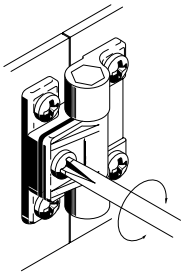
1. Prepare door and frame.





2. Mount hinge

3. Adjust hinge friction.



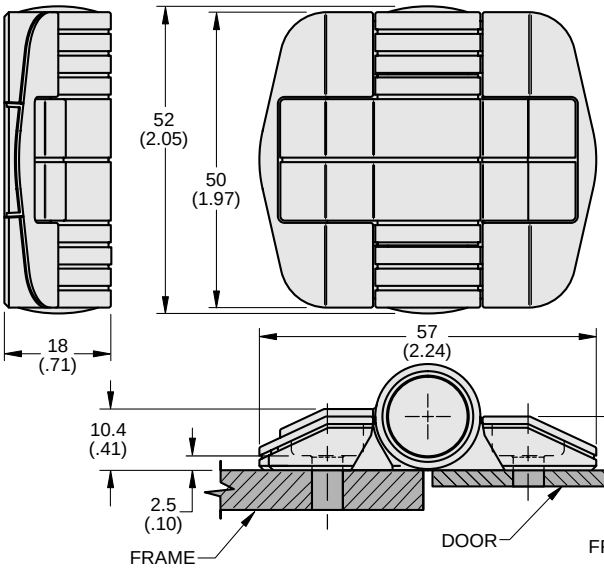
L

CATALOG 13

Door Positioning Hinge

Helps hold door opened and closed with a choice of 3 positioning torques.

- 80°, 115°, or 150° hold-open angles (All hinges can be further opened to 180°)
- Covers hide mounting hardware.



Material and Finish

External Components

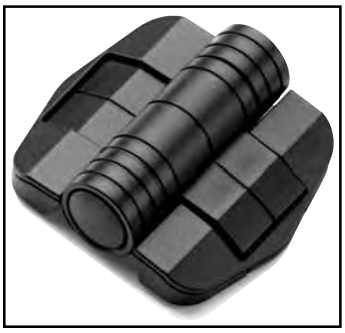
HINGE LEAVES, RETAINING TAB, END PLUGS, and COVERS: **Acetal, black.**

Internal Components

SPRINGS: **302 Stainless Steel, natural.**

DETENT BALLS: **Chrome Steel, natural, or for assemblies with stainless steel tubes, zinc plate, chrome plus sealer.**

DETENT TUBE: **1065 Steel hardened, zinc plate, chromate plus sealer, or 304 stainless steel passivated.**

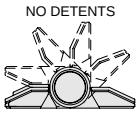


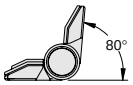
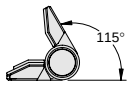
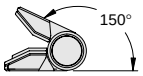
Flammability Rating: UL94-HB

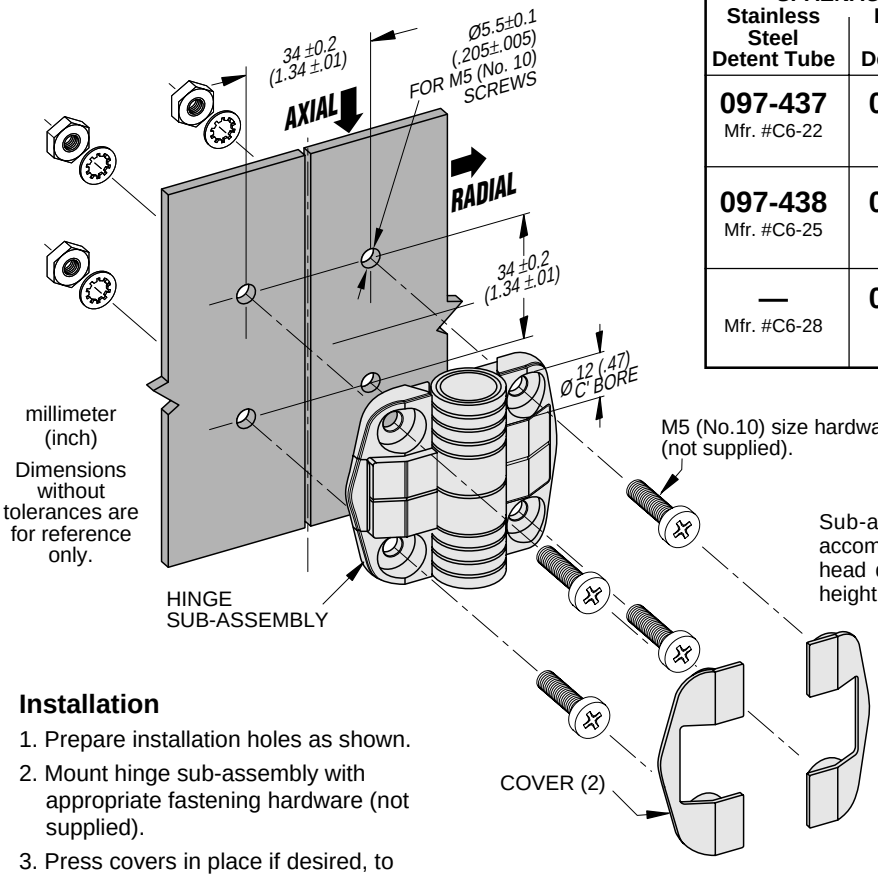
Operating Temperature Range: -40°C to 80°C (-40°F to 180°F)

Unit Package 2 Hinges Covers included.

Also available but not stocked - no detent, positioning torque values 70 (6) and 170 (15) special order 2-3 weeks.



SPAENAUR No. Stainless Steel Detent Tube	*SPAENAUR No.* Hardened Steel Detent Tube	Positioning Torque N•m (in.lbs.)	Detented Open Angle
097-437 Mfr. #C6-22	**097-414** Mfr. #C6-2	1.1 (10)	
097-438 Mfr. #C6-25	**097-415** Mfr. #C6-5	1.1 (10)	
— Mfr. #C6-28	**097-416** Mfr. #C6-8	1.1 (10)	



Sub-assemblies and covers are designed to accomodate mounting hardware with a maximum head diameter of 10.1 (.40) and maximum head height of 4 (.16).

Installation

1. Prepare installation holes as shown.
2. Mount hinge sub-assembly with appropriate fastening hardware (not supplied).
3. Press covers in place if desired, to hide mounting hardware.

Product Strength Guidelines

RADIAL

Maximum working load 450 N (100 lbs.)
Average ultimate load 2600 N (575 lbs.)

AXIAL

Maximum working load 450 N (100 lbs.)
Average ultimate load 1800 N (400 lbs.)

Cycle life (stainless steel): Up to 5000
(steel): Up to 20,000

Swell Latches

Heavy Duty Version

- Accommodates misalignment between door and frame
- Latches in any frame thickness, blind application, glass or plastic
- Resists vibration

Material and Finish

HANDLE: **Die cast zinc, black powder coated.**

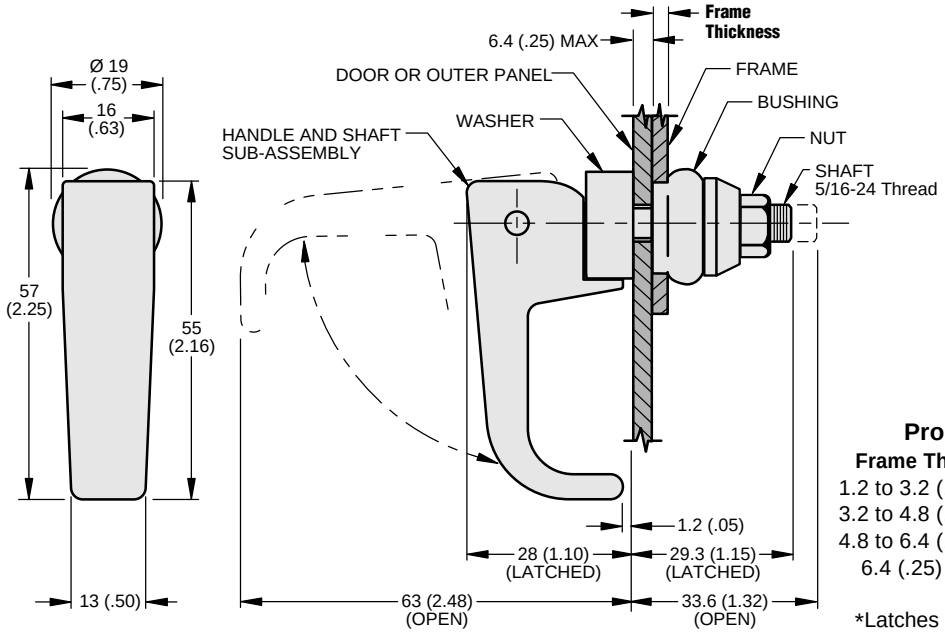
SHAFT: **Brass, black organic coating.**

PIN: **303 Stainless steel, passivated with black oxide coating.**

NUT: **Nylon, black.**

WASHER: **Acetal, black.**

BUSHING: **SBR rubber, black.**



SPAENAUR No.

097-410

Mfr. #19-14-10

Priced Singly

Product Strength Guidelines

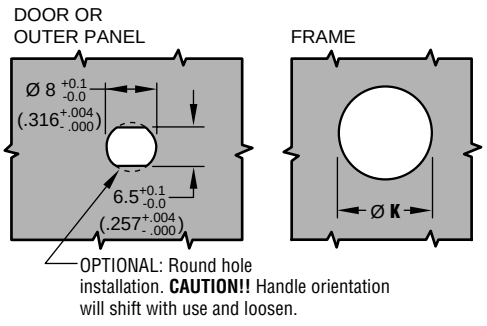
Frame Thickness	Rated Load* (Short Term)
1.2 to 3.2 (.05 to .13)	330 N (75 lbs.)
3.2 to 4.8 (.13 to .19)	660 N (150 lbs.)
4.8 to 6.4 (.19 to .25)	550 N (125 lbs.)
6.4 (.25) and Up	220 N (50 lbs.)

*Latches should not be loaded continuously at values near to the short term rated load.

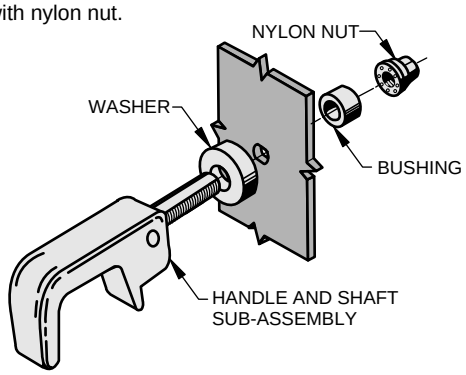
L

Installation

1. Prepare shaped hole in door or outer panel and round hole in frame.



2. With handle in open position insert shaft through washer then hole in door. Pass bushing over shaft and secure with nylon nut.



Frame Thickness	Ø K +0.5 -0.0 (+.031 -.000)	MAX. misalignment between ℄'s of panel hole and frame hole.
1.2 to 3.2 (.05 to .13)	19 (.750)	0.9 (.035)
3.2 to 4.8 (.13 to .19)	19.5 (.766)	1.1 (.045)
4.8 to 6.4 (.19 to .25)	20 (.781)	1.3 (.050)
6.4 (.25) and Up	20.5 (.797)	1.5 (.060)

3. Adjust nylon nut to provide adequate expansion of the bushing when the handle is lowered.

millimeter (inch)

Dimensions without tolerances are for reference only.

Latch should not be operated at temperatures below 0°C (32°F).

Swell Action Latches

Light Duty Version

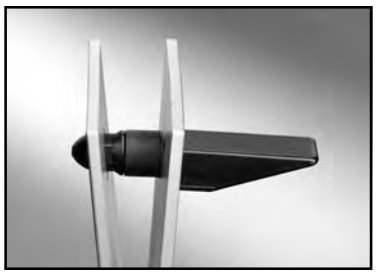
- Accommodates misalignment between door and frame
- Latches in any frame thickness, blind application, glass, plastic or metal
- Resists vibration
- Sound deadening

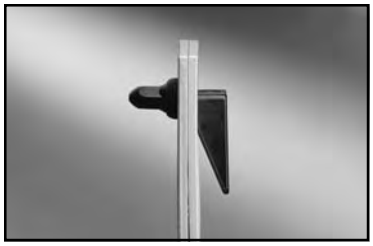
Material and Finish

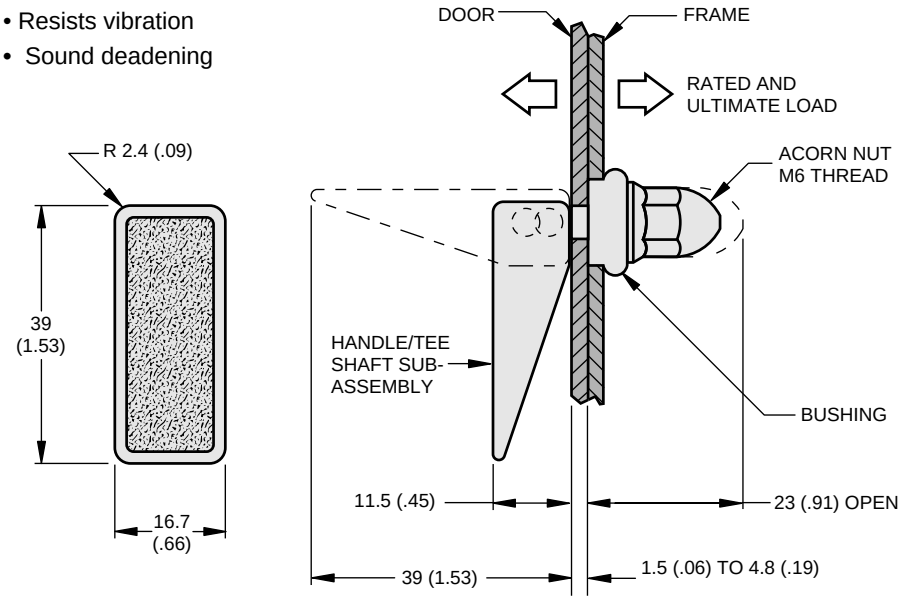
HANDLE, WASHER and ACORN NUT: **Nylon, black.**

TEE SHAFT: **Glass filled nylon, black.**

BUSHING: **SBR Rubber, black.**







Door Thickness	Use Washer?	Adjustment Required?
1.7±0.2 (.07±.01)	Yes	No
1.9 to 2.3 (.08 to .09)	Yes	Yes
2.5±0.2 (.10±.01)	No	No
2.7 to 4.8 (.11 to .19)	No	Yes

SPAENAUR No.

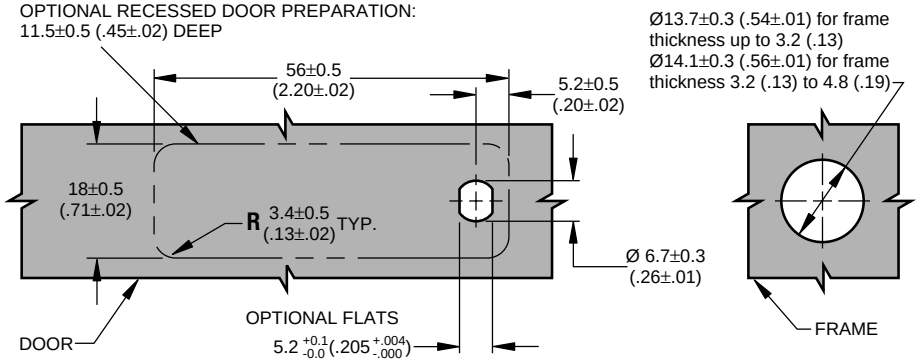
097-408

Mfr. #19-54-01

Priced Singly

L

Panel Preparation

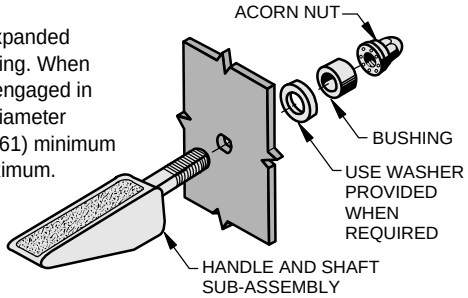


millimeter (inch)

Dimensions without tolerances are for reference only.

Installation

1. Prepare hole in door as shown. Optional flats in door preparation will prevent latch rotation.
2. Prepare hole frame as shown.
3. With handle in open (unlatched) position, insert tee shaft through door, then slide washer (if required) over the tee shaft.
4. Slide bushing over tee shaft and secure with acorn nut. For "No Adjustment" door thickness, run nut until fully seated on tee shaft [0.5 N•m (4.5 in.lbs.) Max. Torque]. For other door thickness, adjust nut for satisfactory latching action.
5. Check the free expanded diameter of bushing. When latched, but not engaged in frame, bushing diameter should be 15.5 (.61) minimum to 16.5 (.65) maximum.



CATALOG 13

Swell Action Latches

- Latches in any frame thickness, blind application, glass or plastic
- Accommodates misalignment between door and frame

Material and Finish

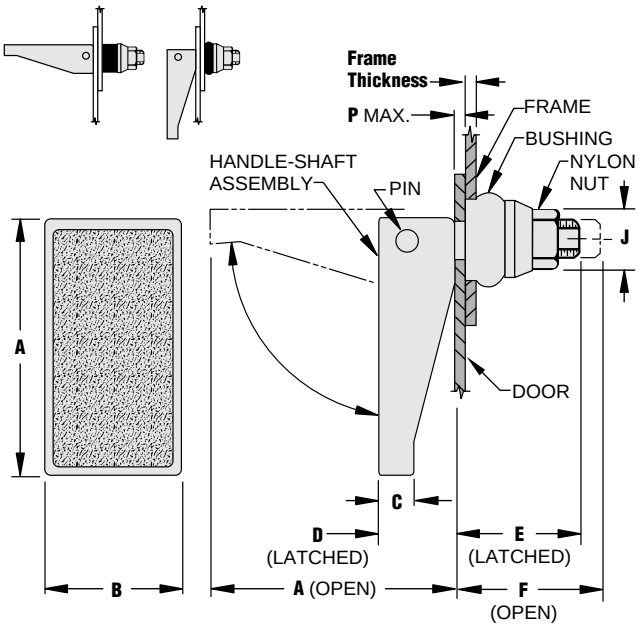
HANDLE and NUT: **Nylon, black.**

SCREW: **Die cast zinc, zinc plated, black chromate**

BUSHING: **SBR Rubber, black.**

PIN: **18-9LW Stainless steel, passivated with black oxide coating.**

Straight Handle Style



Priced Singly

*****Latches should not be loaded continuously at values near the short term rated load.

SERIES	G +0.1 -0.0 (+.004 -.000)	ØH +0.1 -0.0 (+.004 -.000)	FRAME THICKNESS	ØK +0.5 -0.0 (+.030 -.000)	MAX. misalignment between ℄'s of panel hole and frame hole.	RATED LOAD* (SHORT TERM)
81	3.3 (.130)	4.1 (.161)	3.2 (.13) MAX.	9.5 (.375)	0.4 (.015)	180 N (40 lbs.)
91	4.5 (.177)	5.8 (.228)	up to 3.2 (.13)	13.5 (.531)	0.6 (.025)	440 N (100 lbs.)
			3.2 to 4.8 (.13 to .19)	14 (.547)	0.8 (.030)	330 N (75 lbs.)
101	6.5 (.257)	8 (.316)	1.2 to 3.2 (.05 to .13)	19 (.750)	0.9 (.035)	330 N (75 lbs.)
			3.2 to 4.8 (.13 to .19)	19.5 (.766)	1.1 (.045)	660 N (150 lbs.)
			4.8 to 6.4 (.19 to .25)	20 (.781)	1.3 (.050)	550 N (125 lbs.)
			6.4 (.25) and up	20.5 (.797)	1.5 (.060)	220 N (50 lbs.)

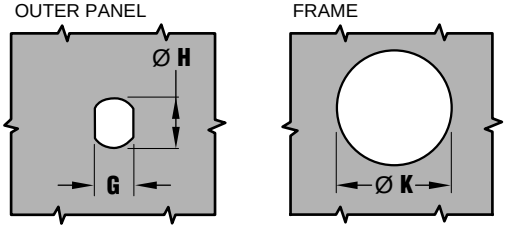
SPAENAUR No.	Dimensions A	B	C	D	E	F	J A/F	P Max.	Series	Thread Size
097-431 Mfr. #19-81-10	28 (1.09)	12 (.47)	4.0 (.14)	8.0 (.31)	13 (.52)	15.5 (.61)	6.0 (.24)	3.2 (.13)	**81**	8-32 UNC
097-432 Mfr. #19-91-10	39 (1.53)	17 (.66)	5.0 (.19)	11.5 (.45)	19 (.75)	22.5 (.89)	8.0 (.31)	4.8 (.19)	**91**	12-24 UNC
097-433 Mfr. #19-10-101-10	56 (2.19)	29 (1.13)	7.0 (.28)	16 (.64)	27 (1.05)	31.5 (1.23)	11 (.43)	6.4 (.25)	**101**	5/16-24 UNF

millimeter (inch)

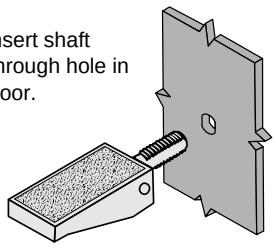
Dimensions without tolerances are for reference only.

Installation

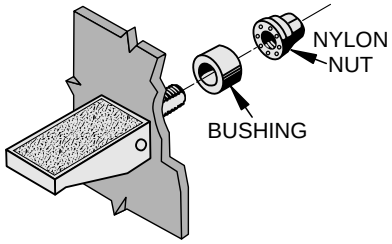
1. Prepare shaped hole in door and round hole in frame.



2. Insert shaft through hole in door.



3. With handle in raised position, pass bushing over shaft and secure with nylon nut.



Swell Action Series

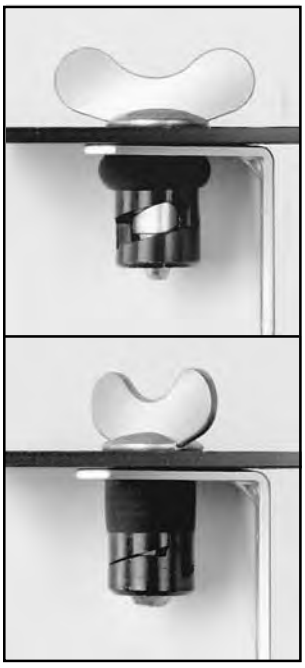
Series 20

- Works in any material without a receptacle
- Quick-opening
- Absorbs vibration

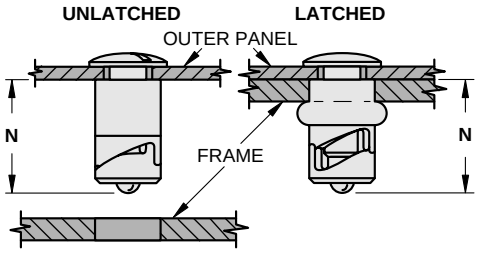
Note: Swell latches hold panels snug under short term intermittent loading. Do not apply continuous load.

Material and Finish

SLOTTED HEAD STUD: **1008 Steel, zinc alloy plate, bright chromate plus sealer.**
SLEEVE: **SBR Rubber.**
STATIONARY CAM: **Acetal, black.**
MOVING CAM: **Die-cast zinc, black organic coating.**

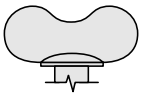


Oval Head Style



KNURLED HEAD STYLE

WING HEAD STUD



Knurled and Wing Head Stud Styles
Special Order 2-3 weeks delivery.

millimeter (inch)

Dimensions without tolerances are for reference only.

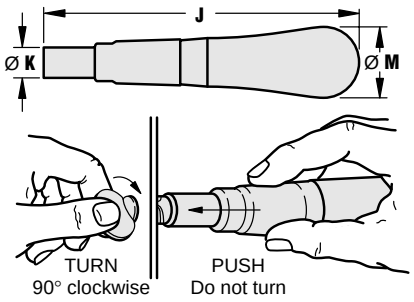
Oval Head Stud Style

Series	*SPAENAUR No.*	Mfr. No.	Outer Panel Thickness Min.	Outer Panel Thickness Max.	F Ref	L
20	—	84-20-040-10	0.8 (.030)	1.2 (.049)	17.0 (.67)	13.1 (.515)
	—	84-20-060-10	1.3 (.050)	1.8 (.069)	17.5 (.69)	13.6 (.535)
	—	84-20-080-10	1.8 (.070)	2.3 (.089)	18.0 (.71)	14.1 (.555)
	—	84-20-100-10	2.3 (.090)	2.8 (.109)	18.5 (.73)	14.6 (.575)
	110-004	84-20-120-10	2.8 (.110)	3.3 (.129)	19.1 (.75)	15.1 (.595)

Installation Tool

***SPAENAUR No.* 876-1783**

Mfr. #82-0-14719-11



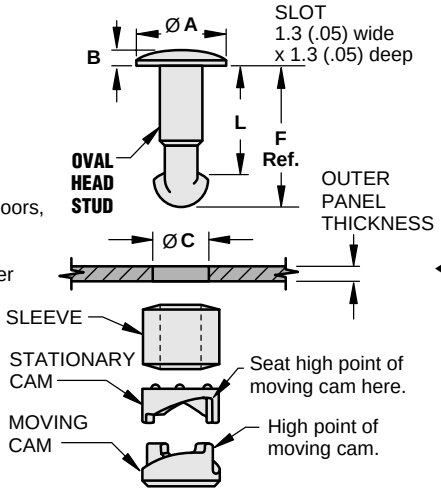
Series	Dimensions A	B	C	D	E	G	H	J	K	M	N
20	9.5 (.38)	2.3 (.09)	6.4 (.25)	11.1 (.44)	12.7 (.50)	11.9 (.47)	17.5 (.69)	152.4 (6.00)	11.1 (.44)	33.3 (1.31)	15.9 (.63)

Flammability Rating: UL94-HB

Operating Temperature Rating: 0°C to 65°C (30°F to 150°F)

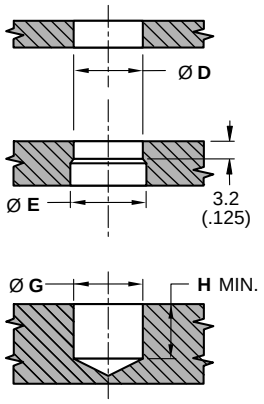
Product Strength Guidelines
Series 20
Maximum working load: 180 N (40 lbs.)
Average ultimate load: 330 N (75 lbs.)

Complete Assembly



NOTE: On hinged doors, minimum mounting distance from ℄ hinge to ℄ fastener = 152.4 (6).

- When frame thickness is 3.2 (.125) or less.
- When frame thickness is 3.2 (.125) or more.
- For blind hole applications



Unit Package 10

Larger 50 Series available please call for information.

CATALOG 13

Series 82 Selection Guide

To select correct fastener

1. Choose a receptacle. (Note any frame thickness limitations).

2. To select a stud,

a) measure your Outer Panel Thickness **or** Total Material Thickness (note with receptacle will tell you which to use).

b) if adjustment formula is shown under receptacle part number, apply this formula to your measurement.

c) if sealing washers, stud ejector springs or wear washers will be used, apply proper adjustment formulas to your measurement.

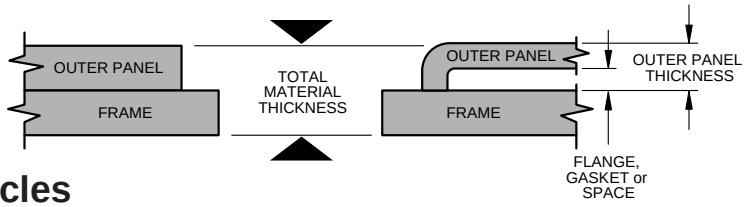
d) use measurement (or adjusted measurement) to find part number in chart.

3. Choose a retainer.

4. Review the stud installation procedure.

5. Order each part and tool separately.

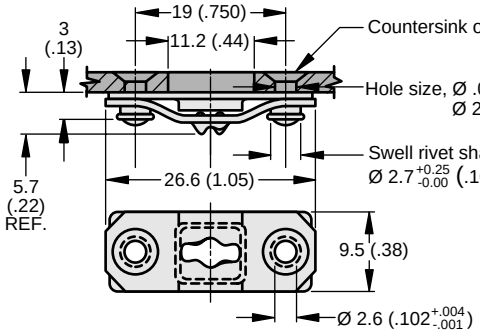
See page L174 for studs.



Series 82 Leaf Spring Receptacles

For Riveting - with Base

SPAENAUR No.
110-038
Mfr. #82-35-302-15

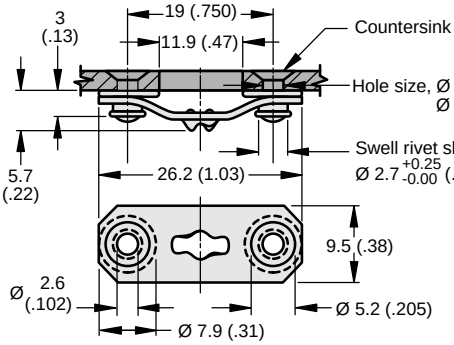


Material and Finish
RECEPTACLE SPRING: **1064 Steel DACROTIZED**†
BASE: **1010 Steel, DACROTIZED**†

Spring must float freely as before riveting.

For Riveting - without Base

SPAENAUR No.
110-182
Mfr. #82-35-295-15



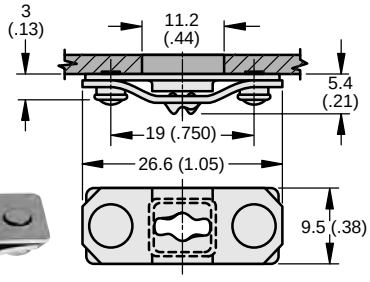
Material and Finish
RECEPTACLE SPRING: **1064 Steel DACROTIZED**†
EYELET: **Steel, DACROTIZED**†

Spring must float freely as before riveting.

For Welding

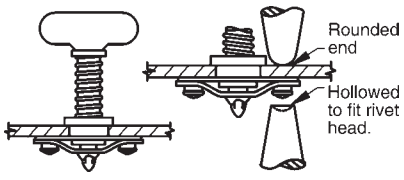
SPAENAUR No.
110-184
Mfr. #82-35-303-15

Spring must float freely as before welding.



Rivet must not melt over onto spring.

Material and Finish
RECEPTACLE SPRING: **1064 Steel DACROTIZED**†
BASE: **1010 Steel, DACROTIZED**†
WELDING STUDS: **Steel copper plate.**



SPAENAUR No.
110-185
Pilot Clamp
Mfr. #82-0-6948-11

Use with Series 82 receptacles shown on this and following pages.

continued …

L

CATALOG 13

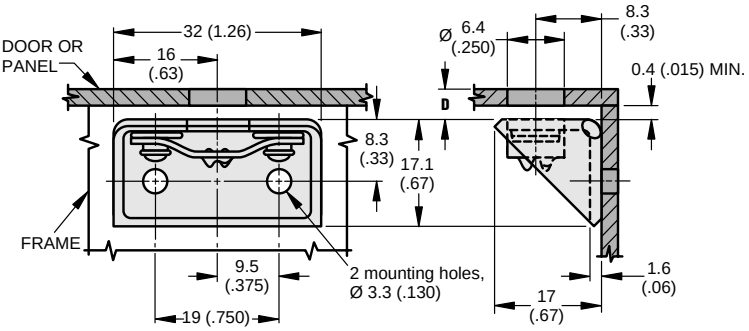
†Registered tradename of Metal Coatings International, Inc.

…continued

Series 82 Leaf Spring Receptacles

Side Mount

SPAENAUR No.
110-183
Mfr. #82-45-101-15

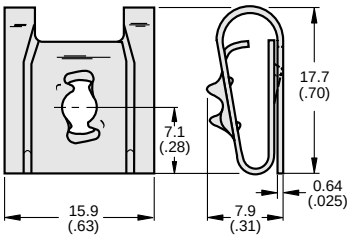


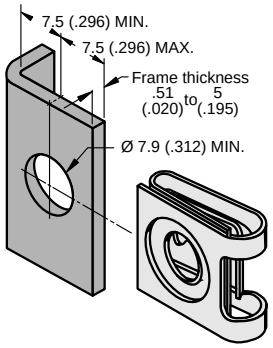
Material and Finish
RECEPTACLE SPRING: **1064 Steel DACROTIZED**†
ANGLE BRACKET: **1010 Steel, zinc plate, chromate plus sealer.**
EYLET: **Steel, DACROTIZED**†

Adjustment Formula
To enter Stud Selection Table Calculate: **D + 1.5 (.060) and use Total Material Thickness column.**

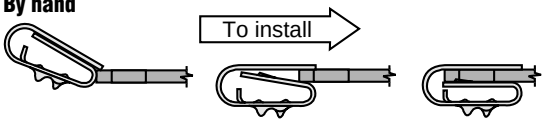
See bottom of page for Stud Selection.

Series 82 Clip-On Receptacle

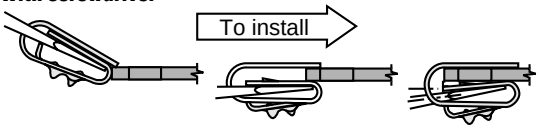




By hand

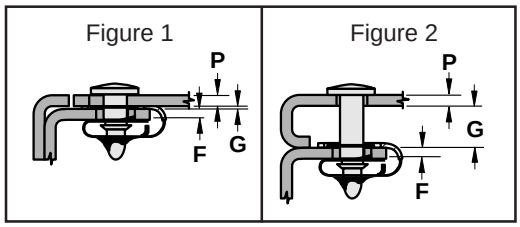


With screwdriver



SPAENAUR No.
110-186
Mfr. #82-47-113-15

Material and Finish
RECEPTACLE: **1064 Steel DACROTIZED**†



Adjustment Formula:
To enter Stud Selection Table determine your Total Material Thickness by calculating: P + F + 1.40 (.055) (constant) when G is 0.64 (.025). (Figure 1)
P + F + G + 0.76 (.030) (constant) when G is 0.65 (.026) or greater (Figure 2)

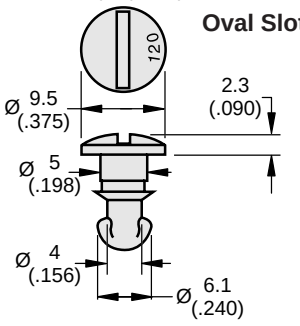
Series 82 Stud Selection

SPAENAUR No.	Mfr. #	Stud Head Style	Total Material Thickness Min.	Max.
110-187	82-11-080-16	**Oval Slotted**	1.8 (.070)	2.3 (.089)
110-188	82-11-100-16	**Oval Slotted**	2.3 (.090)	2.8 (.109)
110-189	82-11-120-16	**Oval Slotted**	2.8 (.110)	3.3 (.129)
110-197	82-12-120-16	**Wing Head**	2.8 (.110)	3.3 (.129)
110-190	82-11-140-16	**Oval Slotted**	3.3 (.130)	3.8 (.149)
110-191	82-11-160-16	**Oval Slotted**	3.8 (.150)	4.3 (.169)
110-198	82-12-160-16	**Wing Head**	3.8 (.150)	4.3 (.169)
110-192	82-11-180-16	**Oval Slotted**	4.3 (.170)	4.8 (.189)
110-193	82-11-200-16	**Oval Slotted**	4.8 (.190)	5.3 (.209)
110-199	82-12-200-16	**Wing Head**	4.8 (.190)	5.3 (.209)
110-194	82-11-220-16	**Oval Slotted**	5.3 (.210)	5.8 (.229)
110-195	82-11-240-16	**Oval Slotted**	5.8 (.230)	6.3 (.249)
110-200	82-12-240-16	**Wing Head**	5.8 (.230)	6.3 (.249)
110-196	82-11-260-16	**Oval Slotted**	6.4 (.250)	6.9 .269)

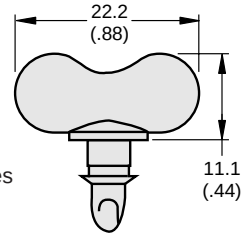
Material and Finish
STUD: **1008 Steel, zinc plate, chromate plus sealer.**
All studs are case hardened.

Slot
1.2 (.05) wide
1.2 (.05) deep

Oval Slotted



Wing Head

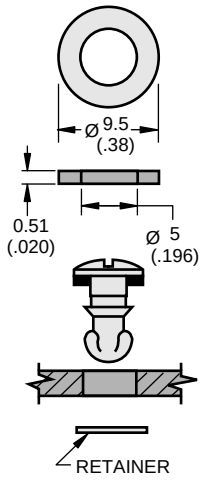


millimeter (inch)
Dimensions without tolerances are for reference only.

†Registered tradename of Metal Coatings International, Inc.

Series 82

Sealing Washer



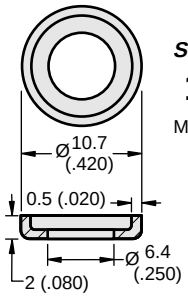
SPAENAUR No.
110-201
Mfr. #82-43-201-38

Material
SEALING WASHER:
Nitrile fibre core rubber, black.

Adjustment Formula:
Add 0.51 (.020) to your Outer Panel Thickness or Total Material Thickness.

Nylon Wear Washers

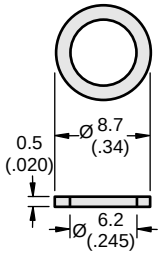
Cupped



SPAENAUR No.
110-203
Mfr. #82-46-101-41

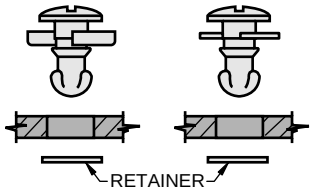
Colour: Black

Flat



SPAENAUR No.
110-204
Mfr. #82-46-103-39

Colour: Natural

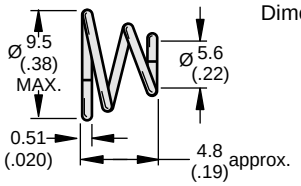


Adjustment Formula: When using a wear washer, add 0.5 (.020) to your Outer Panel Thickness or Total Material Thickness.

Unit Package 10

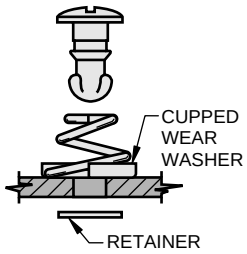
millimeter (inch)
Dimensions without tolerances are for reference only.

Ejector Spring

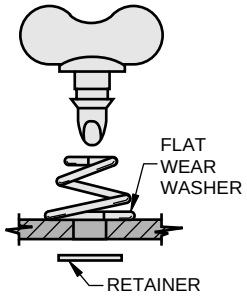


SPAENAUR No.
110-202
Mfr. #43-13-1-24

Material
SPRING: **302 Stainless Steel, passivated.**

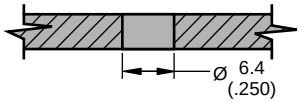


Adjustment Formula:
When using a stud ejector (ejector spring and wear washer), add 1 (.040) to your Outer Panel Thickness or Total Material Thickness.

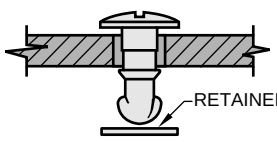


Installation for any panel thickness.

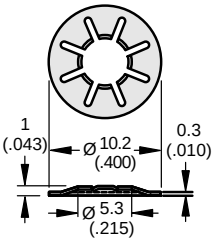
1. Drill



2. Insert stud and add retainer.

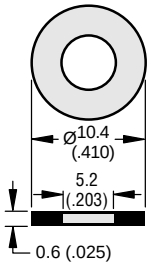


Retainers



Material
RETAINER:
304 Stainless Steel, passivated

SPAENAUR No.
110-205
Mfr. #82-32-201-20



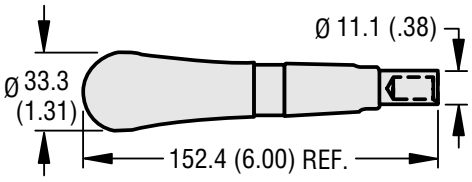
Material
RETAINER:
Nylon, black

SPAENAUR No.
110-042
Mfr. #82-32-301-12

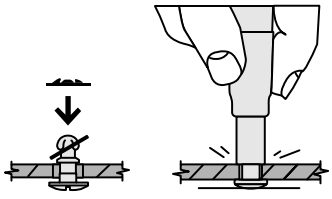
Installation Tool

SPAENAUR No.
110-206
Mfr. #82-0-22542-11

Priced Singly



To install retainers, use tool.



Series 85 Selection

To select correct fastener see guide shown on page L173.

1/4 Turn Fasteners Series 82 & 85 provide quick, low cost access.

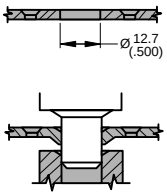
• Tolerate Misalignment • Speed Installation • Present a Low Profile • Resist Tampering • Operate with or without Spring Ejection • Provide EMI Shielding • Permit Sliding Applications • Resist Corrosion • Reduce Inventory.

Leaf Spring Receptacles

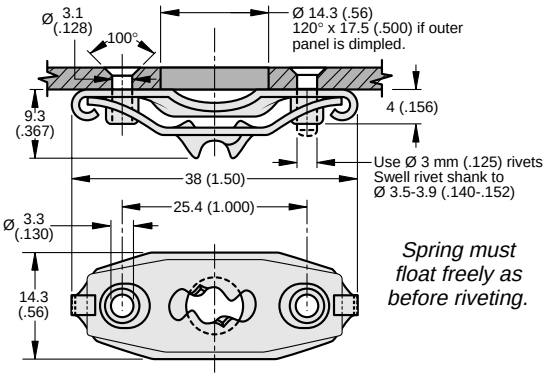
For Riveting

SPAENAUR No.
110-037
Mfr. #85-35-295-15

For Dimpling Inner Panel:



Unit Package 10



Spring must float freely as before riveting.

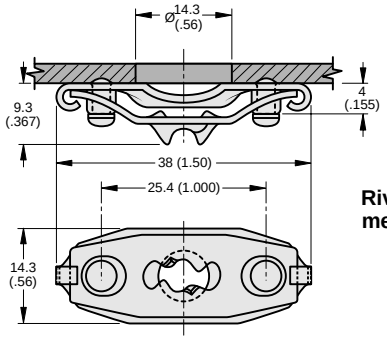
Material and Finish
RECEPTACLE SPRING: **1064 Steel, DACROTIZED**†
BASE: **1010 Steel, DACROTIZED**†

To enter Stud Selection Table determine your Total Material Thickness.

For Welding

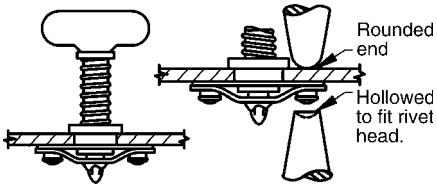
SPAENAUR No.
110-159
Mfr. #85-35-296-15

Unit Package 10



Rivet must not melt over onto spring.

Material and Finish
RECEPTACLE SPRING: **1064 Steel DACROTIZED**†
BASE: **1010 Steel, DACROTIZED**†
RIVET: **Steel copper plate.**



SPAENAUR No.
110-162
Pilot Clamp
Mfr. #85-90-3278-11

Unit Package 10

Use with Series 85 receptacles.

Other pilot clamps available special order.

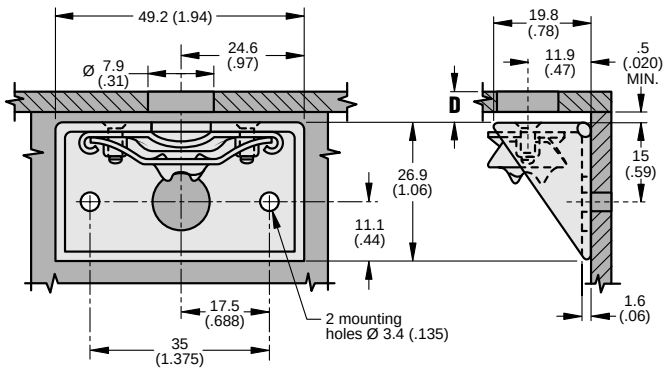
millimeter (inch)

Dimensions without tolerances are for reference only.

Side Mount

SPAENAUR No.
110-160
Mfr. #85-45-101-15

Unit Package 10



Material and Finish
ANGLE BRACKET: **1010 Steel, zinc plate, chromate plus sealer.**
RECEPTACLE SPRING: **1064 Steel DACROTIZED**†
BASE: **1010 Steel DACROTIZED**†
RIVET: **2117 Aluminum, natural.**

Adjustment Formula
To enter Stud Selection Table Calculate: **D + 1.6 (.062) and use Total Material Thickness column.**

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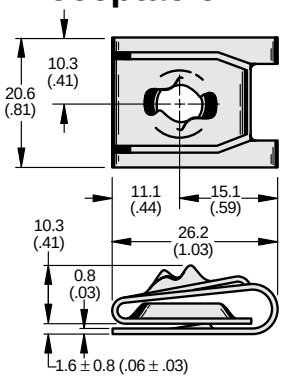
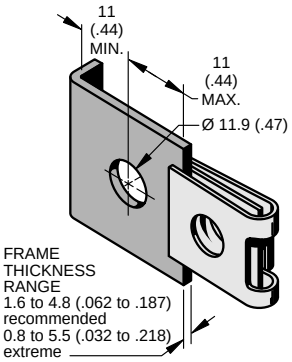
CATALOG 13

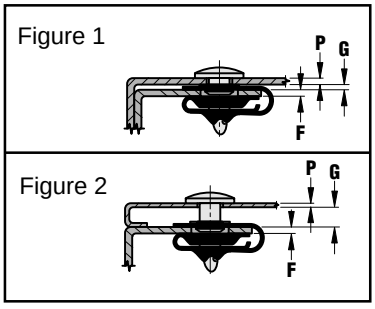
†Registered tradename of Metal Coatings International, Inc.

Series 85 Clip-On Receptacle

SPAENAUR No.
110-161
Mfr. #85-47-101-15

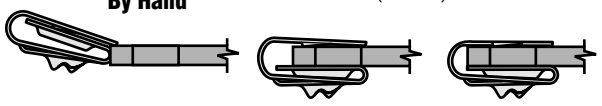




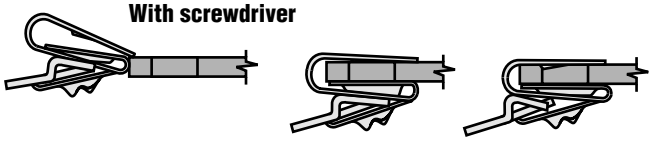


Material and Finish
RECEPTACLE: **1064 Steel, DACROTIZED**†

By Hand



With screwdriver



Adjustment Formula:
To enter Stud Selection Table determine your Total Material Thickness by calculating: P + F + 0.94 (.037) (constant) when G is 1.32 (.052). (Figure 1)
P + F + G is 0.38 (.015) (constant) when G is 1.33 (.053) or greater (Figure 2).

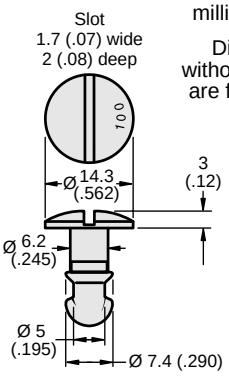
millimeter (inch)
Dimensions without tolerances are for reference only.

Series 85 Stud Selection

SPAENAUR No.	Mfr. #	Stud Head Style	Total Material Thickness Min.	Max.
110-163	85-11-120-16	**Oval Slotted**	2.8 (.110)	3.3 (.129)
110-164	85-11-140-16	**Oval Slotted**	3.3 (.130)	3.8 (.149)
110-168	85-12-140-16	**Wing Head**	3.3 (.130)	3.8 (.149)
110-165	85-11-160-16	**Oval Slotted**	3.8 (.150)	4.3 (.169)
110-169	85-12-160-16	**Wing Head**	3.8 (.150)	4.3 (.169)
110-166	85-11-180-16	**Oval Slotted**	4.3 (.170)	4.8 (.189)
110-170	85-12-180-16	**Wing Head**	4.3 (.170)	4.8 (.189)
110-167	85-11-200-16	**Oval Slotted**	4.8 (.190)	5.3 (.209)
110-171	85-12-200-16	**Wing Head**	4.8 (.190)	5.3 (.209)
110-172	85-12-240-16	**Wing Head**	5.8 (.230)	6.3 (.249)
110-173	85-12-280-16	**Wing Head**	6.9 (.270)	7.4 (.289)
110-174	85-12-320-16	**Wing Head**	7.9 (.310)	8.4 (.329)
110-039	85-12-380-16	**Wing Head**	9.4 (.370)	9.9 (.389)
110-207	85-11-580-16	**Oval Slotted**	14.5 (.570)	15 (.589)

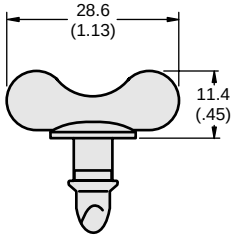
Material and Finish
OVAL SLOTTED HEAD STUD: **1008 Steel.** WING HEAD STUD: **1008 Steel.** WING: **1010 Steel, zinc alloy plate, bright chromate plus sealer.**
All studs are case hardened.

Oval Slotted



millimeter (inch)
Dimensions without tolerances are for reference only.

Wing Head



Unit Package 10

Various material thicknesses, Slotted and Bail Head Stud sizes available - Special Order 2-3 weeks.

Installation Tool - for Snap in Receptacles (not stocked)

SPAENAUR No.
097-091
Mfr. #29-8125-309

Priced Singly

Wooden Handle

Over all length 7".

Material and Finish
TOOL: **12L14 Steel zinc plate, chromate plus sealer.**

Installation tool for snap-in receptacles **Series 81, 82 and 85** 1/4 turn fasteners, available special order.

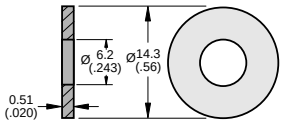
L

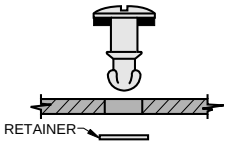
CATALOG 13

Sealing Washer

SPAENAUR No.
110-181
Mfr. #85-43-201-38

Adjustment Formula: Add .51 (.020) to your Outer Panel Thickness or Total Material Thickness.



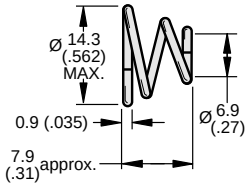


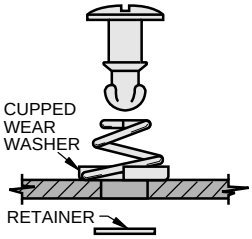
Material and Finish
SEALING WASHER: **Nitrile fibre core rubber, black.**
STUD EJECTOR: **302 Stainless steel, passivated.**
WEAR WASHERS: **Nylon.**

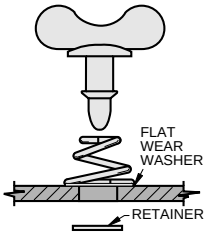
See page L177 for studs.

Ejector Spring

SPAENAUR No.
110-180
Mfr. #14-18-150-24



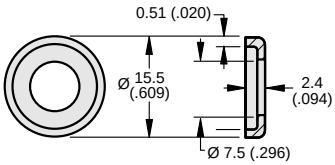


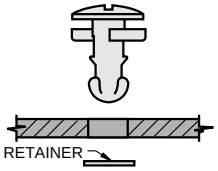


Adjustment Formula: When using a stud ejector (ejector spring and wear washer), add 1.5 (.060) to your Outer Panel Thickness or Total Material Thickness.

Nylon Wear Washers

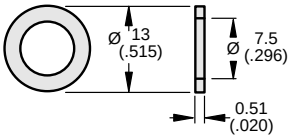
SPAENAUR No.
110-178
Mfr. #85-46-101-41
Cupped
Colour: Black

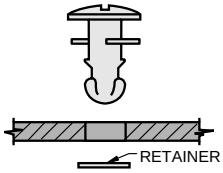




Adjustment Formula: When using a wear washer, add 0.51 (.020) to your Outer Panel Thickness or Total Material Thickness.

SPAENAUR No.
110-179
Mfr. #85-46-103-39
Flat
Colour: Natural



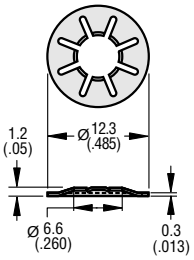


millimeter (inch)
Dimensions without tolerances are for reference only.

Unit Package 10

L

Push-on-Retainers

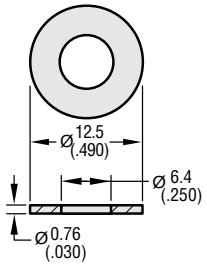


Material
RETAINER:
302 Stainless Steel, passivated.

SPAENAUR No.
110-175
Mfr. #85-34-201-20

Unit Package 10

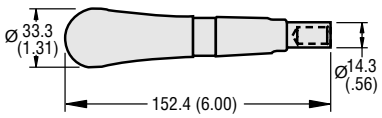
Material
RETAINER:
Nylon, black.



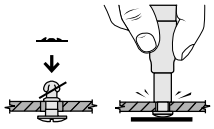
SPAENAUR No.
110-176
Mfr. #85-34-301-12

Installation Tool

SPAENAUR No.
110-177
Mfr. #85-0-22543-11



To install retainer, use tool.



millimeter (inch)
Dimensions without tolerances are for reference only.

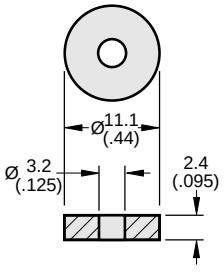
Priced Singly

Retainer
Hand Installation

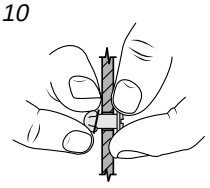
SPAENAUR No.
110-040
Mfr. #85-33-101-27

Unit Package 10

Material and Finish
RETAINER:
Neoprene, black

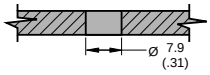


To install.

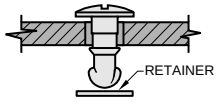


Installation for any panel thickness.

1. Drill



2. Insert stud and add retainer.

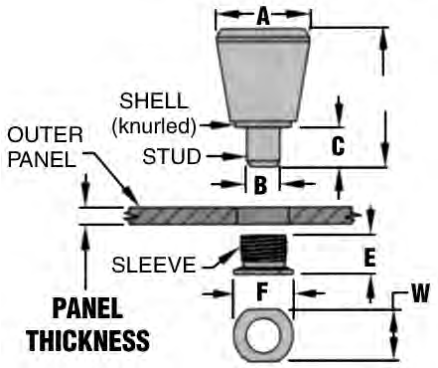


CATALOG 13

Spring Loaded Plunger

- Provides quick release of sliding parts
- With or without hold-open feature

Thread-in



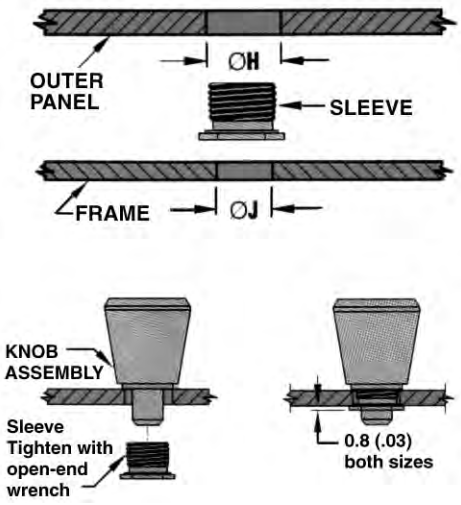
Material and Finish

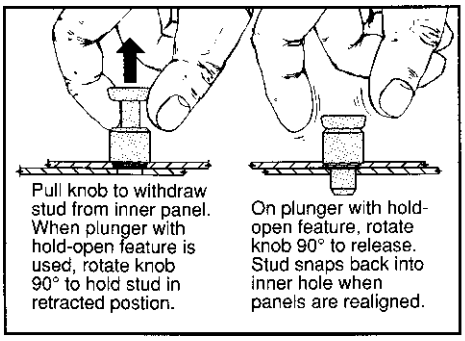
KNOB: **6262-T9 aluminum.**

STUD: **Low carbon steel, case hardened, zinc plate, chromate plus sealer.**

SHELL AND SLEEVE: **12L14 Steel, zinc plate, chromate plus sealer.**
DETENT WASHER: **1064 Steel, DACROTIZED†.**

Spaenaur No.	Mfr. No.	DIMENSIONS A	B	C	D	E	F	W	Hold-Open Feature	INSTALLATION Panel Thickness Min.	Max.	øH ±0.1 (±.003)	øJ ±0.1 (+.003 -.001)	Sleeve Thread Size	Tool Mfr. Number
—	56-10-301-20	13.5 (.53)	4.7 (.183)	6.5 (.25)	20 (.78)	6 (.22)	9 (.34)	7 (.28)	with	0.8 (.031)	1.6 (.060)	7.2 (.281)	4.8 (.188)	M7 x 1	56-0-22041-03
097-096	56-10-401-20	17.5 (.69)	6.3 (.245)	8 (.31)	26 (1.03)	7 (.28)	11.2 (.44)	9.4 (.37)	with	0.8 (.031)	3.2 (.125)	9.2 (.359)	6.4 (.250)	M9 x 1	56-0-22041-04
—	56-99-196-20	13.5 (.53)	4.7 (.183)	6.5 (.25)	20 (.78)	6 (.22)	9 (.34)	7 (.28)	without	0.8 (.031)	1.6 (.060)	7.2 (.281)	4.8 (.188)	M7 x 1	56-0-22041-03
—	56-99-197-20	17.5 (.69)	6.3 (.245)	8 (.31)	26 (1.03)	7 (.28)	11.2 (.44)	9.4 (.37)	without	0.8 (.031)	3.2 (.125)	9.2 (.359)	6.4 (.250)	M9 x 1	56-0-22041-04



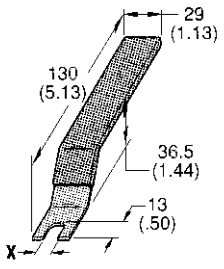


millimeter (inch)

Dimensions without tolerances are for reference only.

Unit Package 1

INSTALLATION TOOL



Installation tool available but not stocked.

L

CATALOG 13

Visit us on the web at . . .

www.spaenaur.com

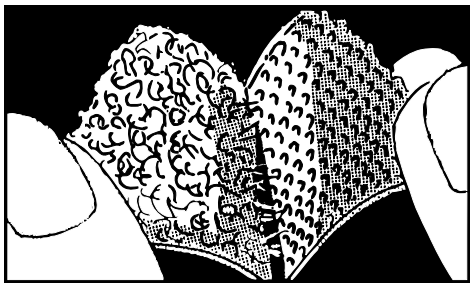
†Registered tradename of Metal Coatings International, Inc.

Velcro®	Velcro®	**M2**
Slide Fasteners (Zippers)	Fermetures à glissière (Zippers)	**M12**
Bungee Cord & Accessories	Cordes et accessoires «Bungee»	**M14**
Shock Cords & Tie-Downs	Cordons élastiques et fixations	**M18**
Synthetic Rope	Câbles synthétiques	**M25**
Needles, Threads & Twines	Aiguilles, fils et ficelles	**M26**
Webbings	Sangles	**M29**
Buckles & Clasps	Boucles et attaches	**M30**
Snap Fasteners & Tools	Attaches «snap» et outils	**M38**
Canvas & Leatherwork Fasteners & Grommets	Rondelles isolantes et attaches pour toiles, canevas et cuirs	**M42**
Eyelets & Tools	Oeillets et outils	**M48**
Upholsterers' Tools	Outils pour rembourreurs	**M50**
Auto Reupholstering Supplies	Fournitures pour capitonnage d'automobiles	**M55**
Tacks & Nails	Punaises et clous	**M58**
Rings, Loops & Slides	Anneaux, boucles et glissières	**M62**
Spring Snaps & Hooks	Mousquetons et crochets	**M67**
Wire Rope Hardware	Quincaillerie pour câble métallique	**M72**
Decorative Plastic Chain	Chaîne en plastique décorative	**M75**
Steel Chain & Accessories	Chaîne en acier et accessoires	**M76**
Quick Connecting Links	Maillons à branchement rapide	**M78**
Ball Chain & Hardware	Chaîne à billes et quincaillerie	**M81**

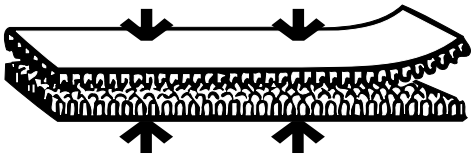
VELCRO®

THE NYLON TAPE FASTENER

The VELCRO® fastener is a completely adjustable, versatile, light-weight, jam-proof fastener which cannot rust or malfunction. It consists of two all-nylon tapes...one covered with a myriad of finely woven monofilaments formed into permanent hooks (hook tape); the other, covered with soft nylon loops (pile tape).

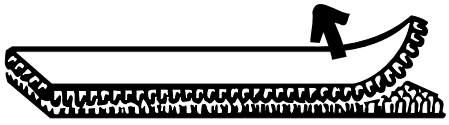


PRESSED TOGETHER, THEY FASTEN TIGHTLY.



10 Popular Colours

TO SEPARATE, SIMPLY PEEL APART.



REGULAR TYPE VELCRO® - with uncoated back

COLOUR	Width: 3/4" (approx.19 mm) *SPAENAUR No.* Hook 88	Loop 1000	Width: 1" (approx. 25 mm) *SPAENAUR No.* Hook 88	Loop 1000	Width: 2" (approx. 50 mm) *SPAENAUR No.* Hook 88	Loop 1000	UNIT PACKAGE
Black	**888-500▲**	**888-600▲**	**888-520▲**	**888-620▲**	**888-539▲**	**888-639▲**	25 Metres ▲ Triangle after *Spaenaur No.* indicates 25 Yards per Unit Pkg. Hook **or** Loop **Order both parts, for complete closure.**
White	**888-501▲**	**888-601▲**	**888-521▲**	**888-621▲**	**888-540▲**	**888-640▲**	
Light Grey	**888-502▲**	**888-602▲**	**888-522▲**	**888-622▲**	**888-541▲**	**888-641▲**	
Med. Blue	**888-016**	**888-116**	**888-009**	**888-109**	**888-043**	**888-143**	
Navy Blue	**888-024**	**888-124**	**888-029**	**888-129**	**888-044**	**888-144**	
Khaki	**888-505▲**	**888-605▲**	**888-525▲**	**888-625▲**	**888-544▲**	**888-644▲**	
Coach Green	**888-004**	**888-104**	**888-010**	**888-110**	**888-017**	**888-117**	
Beige	**888-507▲**	**888-607▲**	**888-527▲**	**888-627▲**	**888-546▲**	**888-646▲**	
Orange	**888-027**	**888-127**	**888-038**	**888-138**	**888-094**	**888-194**	
Red	**888-028**	**888-128**	**888-039**	**888-139**	**888-098**	**888-198**	

PRE-COATED TYPE VELCRO®

(permanent bonding)

Pre-coated type has adhesive backing No. SA0140A. To attach, activate backing with Methyl Ethyl Ketone solvent (not supplied). Pre-coated type may also be electronically heat-sealed.

COLOUR	Width: 3/4" (approx. 18 mm) *SPAENAUR No.* Hook 88	Loop 1000	Width: 1" (approx. 25 mm) *SPAENAUR No.* Hook 88	Loop 1000	Width: 2" (approx. 50 mm) *SPAENAUR No.* Hook 88	Loop 1000	UNIT PACKAGE
Black	**888-018**	**888-118**	**888-020**	**888-120**	**888-022**	**888-122**	25 Metres Hook **or** Loop **Order both parts, for complete closure.**
White	**888-019**	**888-119**	**888-021**	**888-121**	**888-023**	**888-123**	
Light Grey	**888-048**	**888-148**	**888-066**	**888-166**	**888-082**	**888-182**	
Med. Blue	**888-049**	**888-149**	**888-067**	**888-167**	**888-083**	**888-183**	
Navy Blue	**888-057**	**888-157**	**888-068**	**888-168**	**888-084**	**888-184**	
Khaki	**888-058**	**888-158**	**888-069**	**888-169**	**888-085**	**888-185**	
Coach Green	**888-059**	**888-159**	—	—	**888-086**	**888-186**	
Beige	**888-063**	**888-163**	**888-078**	**888-178**	**888-087**	**888-187**	
Orange	**888-064**	**888-164**	**888-079**	**888-179**	**888-088**	**888-188**	
Red	**888-065**	**888-165**	**888-081**	**888-181**	**888-089**	**888-189**	

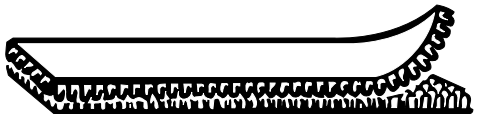
M

CATALOG 13

VELCRO® is a registered trade mark

VELCRO® Pressure-Sensitive Backing (Peel-off Style)

Pressure sensitive pre-coats are popular because of the ease of application. Simply remove the release medium and press VELCRO® tape in place, on a clean, oil free surface.

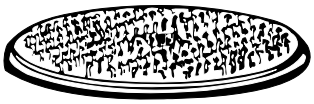


Pressure sensitive pre-coats should always be considered semi-permanent bonds.

	Width: 3/4" (approx. 19 mm)		Width: 1" (approx. 25 mm)		Width: 2" (approx. 50 mm)		UNIT PACKAGE
	SPAENAUR No.		*SPAENAUR No.*		*SPAENAUR No.*		
☆COLOUR	Hook 88	Loop 1000	Hook 88	Loop 1000	Hook 88	Loop 1000	25 Yards
Black	**888-559**	**888-659**	**888-561**	**888-661**	**888-563**	**888-663**	
White	**888-560**	**888-660**	**888-562**	**888-662**	**888-564**	**888-664**	

☆Other colours available - Request for Quote.

NYLON HOOK 88

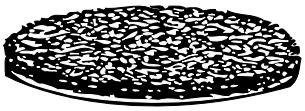


VELCOIN®

HOOK AND LOOP FASTENER

22 mm (7/8") Diameter

NYLON LOOP 1000 (PILE)



With *Pressure-Sensitive* ADHESIVE BACKING

Specially die punched pressure sensitive adhesive backed Velcro fasteners. To attach simply peel Velcoin from protective backing and apply directly to a clean, dry substrate (instant bonding).

COLOUR	*SPAENAUR No.* HOOK 88 22 mm dia.	LOOP 1000 22 mm dia.
Black	**888-210**	**888-310**
White	**888-225**	**888-325**
Beige	**888-211**	**888-311**
Coachman Green	**888-213**	**888-313**
Medium Blue	**888-214**	**888-314**
Red	**888-215**	**888-315**

UNIT PACKAGE 100 ONLY

Hook and Loop must be ordered separately.

M

VELCOIN®

Same as above except—

PRE-COATED BACKING for ***SOLVENT ACTIVATION***

To attach, activate backing with Methyl Ethyl Ketone. (permanent bonding)

COLOUR	*SPAENAUR No.* HOOK 88 22 mm dia.	LOOP 1000 22 mm dia.
Black	**888-031**	**888-131**

UNIT PACKAGE 100 ONLY

Hook and Loop must be ordered separately.

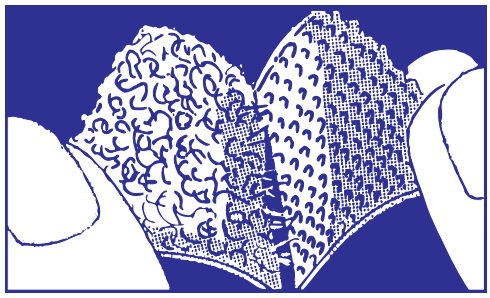
35 mm dia.	1-3/8" dia. VELCOIN® Black only	
	Hook 88	**888-223**
	Loop 1000	**888-323**

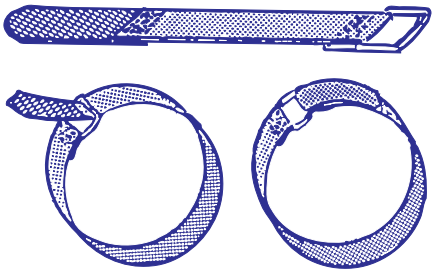
More POP-ON® (Circular) Fasteners on M7.

CATALOG 13

VELSTRAP® Fastener

the most versatile method of cinching or strapping.





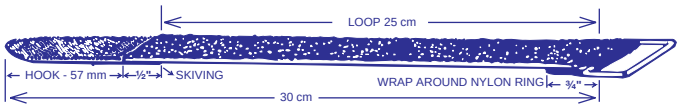
VELSTRAP FASTENERS are fabricated from Velcro Hook #88 and Standard Loop #1000 Nylon Tapes, plus a specially designed Nylon "Tuck Loop" or ring, joined and heat-sealed into a complete strap unit.

All Velstraps 25 mm wide

(19 mm and 50 mm widths available in minimum lots of 100 straps)

UNIT PACKAGE 10

Velstraps are completely washable. Not affected by most oils and grease.

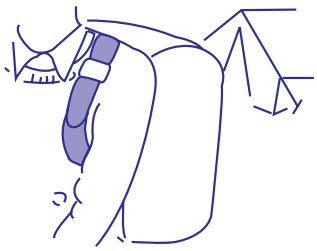


Above shows typical assembly, 30 cm Velstrap. Longer Hook sections appear on 80 cm and longer, for greater security.

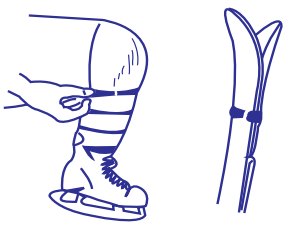
COLOUR	BLACK	WHITE	GOLD	ORANGE	RED	MED. BLUE	COACH GREEN
LENGTH	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW						
16 cm (6-1/4")	888-400	888-401	888-402	888-403	888-404	888-405	888-406
20 cm (7-3/4")	888-407	888-408	888-409	888-410	888-411	888-412	888-413
30 cm (11-3/4")	888-414	888-415	888-416	888-417	888-418	888-419	888-420
40 cm (15-3/4")	888-421	888-422	888-423	888-424	888-425	888-426	888-427
50 cm (19-1/2")	888-428	888-429	888-430	888-431	888-432	888-433	888-434
60 cm (23-1/2")	888-435	888-436	888-437	888-438	888-439	888-440	888-441
80 cm (31-1/2")	888-442	888-443	888-444	888-445	888-446	888-447	888-448
100 cm (39-1/4")	888-449	888-450	888-451	888-452	888-453	888-454	888-455

Velstraps in special lengths are available in minimum lots of 100.

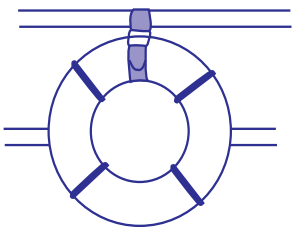
Note: 60 cm is the standard length for Pro-Hockey Garters.



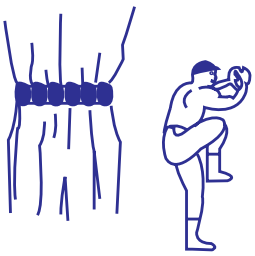
PACK STRAP
BED ROLLS
CAMPING ACCESSORIES
CINCHING TENT POLES
CAR TOP CARRIERS



PRO-HOCKEY GARTER
BUNDLING HOCKEY STICKS
SKI-WRIST-SUPPORTER



ATTACHING LIFE RINGS
FURLING SAILS
THROW-LINE STRAPS
OUTBOARD TANK STRAP
WATER SKI BINDING



WEIGHT BELT
ANKLE STRAP
WRIST STRAP
SPORT GLOVE

M

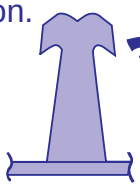
CATALOG 13

MOULDED NYLON ARROWHEAD TAPE

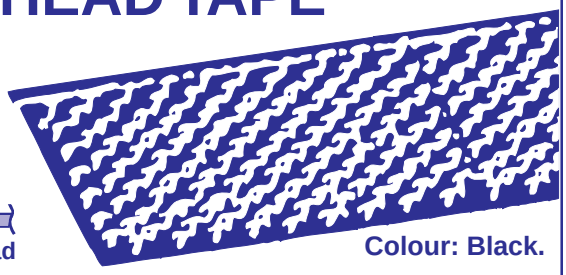
Moulded semi-flexible nylon hook configuration.
Pressure sensitive adhesive precoat backing.

SPAENAUR No. **888-243**

Regular Hook



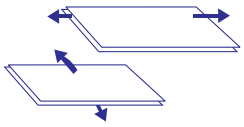
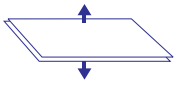
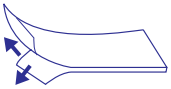
Arrowhead Hook



Colour: Black.

Unit Package Quantity:
One Roll 25 mm (1") wide x 25 metres long.

A specially designed high profile arrowhead shaped hook configuration. This hook was engineered to be mated with various woven and knitted loops, with reticulated foam (pore sizes 10 through 60), uncut loop carpeting, and woven filter materials. Mated with the correct loop it is especially suitable for fastener applications in Automotive and Aircraft assembly where high strength and low opening and closing cycles are the design parameters.

Shear Strength	Tensile Strength	Peel Strength
		
2590 g/cm² (22 PSI) average (Shear strength doubles when closure applied around a curve	1050 g/cm² (12 PSI) average	890 g/cm² (2.5 PIW) average.
Cycle life (To 50% original shear)	This molded hook tape may be "cycled" with a mating loop tape 25-40 times.	

The strength of VELCRO® fasteners is dependent mainly on the pressure applied in closing, plus other minor factors. Prototype products should be tested prior to production.

Caution

Coupled with this high holding strength are several features which restrict the usage of the moulded tapes.
- The semi-flexible hook increases degraduation of the loop component and limits cycle life.
- Moulded tapes tend to become brittle in cold temperatures.

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VELCRO® BACK TO BACK UTILITY TAPE STRAP FASTENERS

Back to Back is a continuous two-sided hook and loop self wrapping and reusable fastening tape. Production is achieved by permanently adhering the VELCRO hook and loop tape backs together.

The standard product combination consists of VELCRO hook #88 with Loop #1000. Other tape combinations are available by special order.

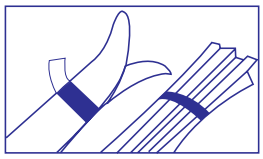
Colour: Black

SPAENAUR No.	**Width x Length**	**Unit Package Quantity**
888-240	19 mm x 25 metres	25 metres
888-241	25 mm x 25 metres	25 metres
888-242	50 mm x 25 metres	25 metres

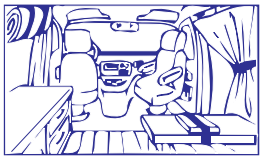
Utility Tape Supplied Rolled.

Some examples of uses:

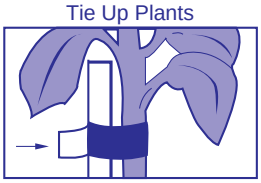
Bundle Skis/Stakes



Secure loose items.



Tie Up Plants



CATALOG 13

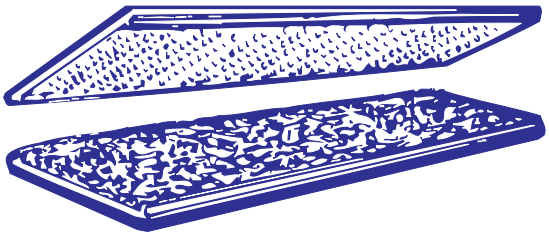
VELSTICK® semi-rigid FASTENER
Furnished in separate, mating components

NYLON HOOK 88
25 mm wide x 1.2 metres long
(1" x 4')

NYLON LOOP 1000
25 mm wide x 1.2 metres long
(1" x 4')

Designed for mechanical attachment with staples, tacks, rivets, screws, etc., or for retention in a channel. Readily cut with shears, or drilled or punched as may be required.

In many instances, only one VELSTICK® component is used in conjunction with the mating VELCRO® tape component. As an example, an elevator carpet installation would utilize a VELSTICK® component on the floor of the cab while the mating tape component would be glued or stiched to the underside of the carpet. Other similar uses would be access panels, valances, removable upholstery for commercial seating, cushion and pad placement on examining tables and charts, picture and wall hangings for both the home and industry.



Furnished in lengths of 25 mm wide x 1.2 m long.

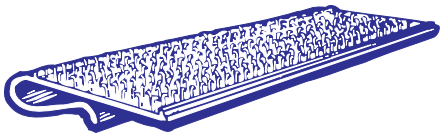
VELSTICK® SEMI-RIGID FASTENER

COLOUR	*SPAENAUR No.* HOOK 88 25 mm x 1.2 m	LOOP 1000 25 mm x 1.2 m	Unit Package
Black	**888-030**	**888-130**	16 lengths
White	**888-099**	**888-199**	16 lengths

All Components Packed Separately.
Order by *SPAENAUR No.*

EDGECLIP FASTENER
ATTACHE EDGECLIP

– A rigid vinyl extrusion with a 24 mm wide face and a 18 mm wide overhang. VELCRO® hook tape is permanently attached to the face.
– To install, simply slip onto the open edge of any rigid material.



– Available in 1.2 metre (4') lengths.
– Available with all woven "Hook 88" tape and Arrowhead Hook tape.

EDGECLIP FASTENERS
Black Nylon Hook Tape on rigid Clear Vinyl.

Type of Hook	*SPAENAUR No.*	Unit Package (1.2 metre lgths.)
Hook 88 Tape	**888-230**	16 lengths
Arrow Hook Tape	**888-238**	16 lengths

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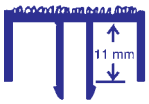
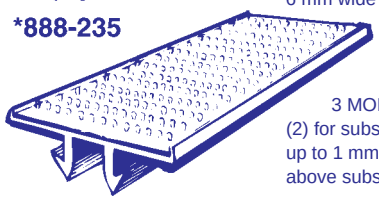


*888-235



A semi-rigid vinyl extrusion with a 25 mm wide face to which VELCRO® hook tape has been permanently attached. The underside has two parallel locking tracks to provide rapid attachment into a prepunched 6 mm wide slot. - Available in 1.2 metre (4') lengths.

VELTRACK FASTENER
ATTACHE VELTRACK

3 MODELS: (1) for substrates up to 1 mm thick. (2) for substrates up to 2.5 mm thick. (3) for substrates up to 1 mm thick; face of fastener is elevated 11 mm above substrate surface.

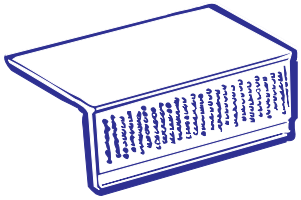
VELTRACK FASTENER
Grey Nylon Hook 88 tape on rigid Grey Vinyl.

Suitable For Substrate Thickness	*SPAENAUR No.*	Unit Package (1.2 metre lgths)
up to 1 mm	**888-233**	16 lengths
up to 2.5 mm	**888-234**	16 lengths
up to 1 mm	***888-235**	16 lengths

* Face is elevated 11 mm above substrate

INSTANT VALANCE MOUNT
POSE IMMEDIATE DE VOLANTS

– Standard Size: 2 metre lengths
– Available with 18 mm woven nylon hook tape only.



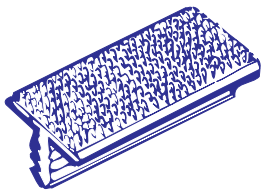
– An "L" shaped rigid vinyl extrusion with a continuous length of VELCRO® hook tape (18 mm) permanently bonded to the face.
– Designed specifically for stationary drapery and valance installation.
– Can be screwed, nailed or riveted.
For attaching valances, stationary drapes, tapestries or wood panels requiring removability; also used in electronic packaging.

INSTANT VALANCE MOUNT
White Nylon Hook 88 on rigid White Vinyl.

L shape 18 mm x 18 mm	*SPAENAUR No.*	Unit Package
2 metre length	**888-236**	6 lengths

KNOCK-IN FASTENER
ATTACHE ENFONCABLE

– A semi-rigid vinyl extrusion with an 18 mm wide face to which VELCRO® hook tape is permanently attached. The underside has a serrated track to provide a positive grip when tapped into a 3 mm wide x 16 mm deep routed groove.
– Available in 2 metre lengths
– Available with woven nylon hook



For special applications, particularly in the upholstery industry, where a routed groove provides a quick and easy method of installation.
– Used for attaching upholstery fabric to frames.

KNOCK-IN FASTENER
Beige Nylon Hook 88 on rigid Beige Vinyl.

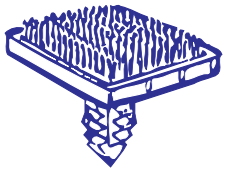
T Shape 20 mm x 12 mm	*SPAENAUR No.*	Unit Package
2 metre length	**888-237**	6 lengths

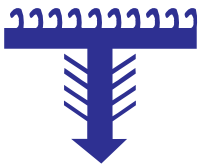
CATALOG 13

VELCRO® is a registered trade mark.

Metric

VELSTUD® Fastener





For those applications where the surface of the substrate limits the area of attachment, or of those where a pre-punched or pre-drilled hole provides the easiest method of installation. Used to secure speaker grills, acoustical and wall panels, energy poles, displays, store fixtures, etc.

A rigid moulded nylon fastener with a 25 mm square face, to which VELCRO® moulded nylon hook tape has been permanently attached. The underside has a 13 mm-long serrated shank.
Designed for shank insertion into a 6.4 mm dia. pre-punched or drilled hole; minimum wall thickness of 0.8 mm

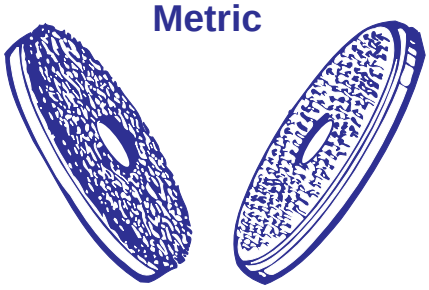
For use with Velcro PILE (Loop) 1000

SPAENAUR No.	Colour	Style	Unit Package
888-204	Black	Moulded Hook	100

VELSTUD® also anchors any nylon pile; Burfab® and closed-loop carpet.

Burfab® is a registered trademark of Architectural School Products Ltd.

Metric



RIGID BACK NYLON LOOP (PILE) — **RIGID BACK HOOK 88**

O.D. 20 mm
CENTRE HOLE 4 mm dia.

POP-ON® DISC FASTENER

POP-ON® DISC FASTENER

A semi-rigid vinyl disc with a pre-punched centre hole to which VELCRO® hook or loop tape has been permanently attached.

Can be stapled, screwed, nailed, riveted, or glued.

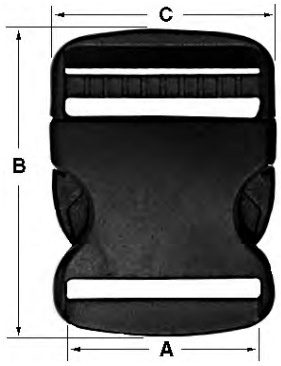
COLOUR	HOOK 88 20 mm dia. *SPAENAUR No.*	LOOP (PILE) 1000 20 mm dia. *SPAENAUR No.*	UNIT PACKAGE
Black	**888-200**	**888-300**	100
Beige	**888-201**	**888-301**	100
Light Grey	**888-202**	**888-302**	100
White	**888-203**	**888-303**	100

These POP-ON DISCS may also be used with the opposite parts in Velcoin Fasteners.
The application possibilities of Velcro, Velcoin, Velstick, Velstrap, and Pop-on Fasteners are almost limitless. These are truly versatile fasteners.

M

SPAENAUR

CATALOG 13



Black Acetal Curved Side Release Buckle

SPAENAUR No.	Strap Size	A	B	C	Break Strength lbs.	Pkg. Qty.
122-729	3/4"	.775"	2.112"	1.009"	103.9 +/- 15%	25
122-730	1"	.980"	2.626"	1.283"	188.9 +/- 15%	25
122-731	1-1/2"	1.524"	2.977"	1.830"	186.6 +/- 15%	10
122-732	2"	2.00"	3.310"	2.357"	308.1 +/- 15%	10

Black Acetal Side Release Buckle

SPAENAUR No.	Strap Size	A	B	C	Break Strength lbs.	Pkg. Qty.
122-733	3/4"	.771"	2.221"	.989"	150.5 +/- 15%	25
122-734	1"	1.000"	2.778"	1.362"	246.1 +/- 15%	25
122-735	1-1/2"	1.514"	2.936"	1.858"	231.9 +/- 15%	10
122-736	2"	2.027"	3.280"	2.367"	268.8 +/- 15%	10

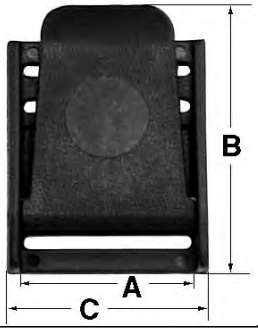
Black Acetal Mini Side Release Buckle

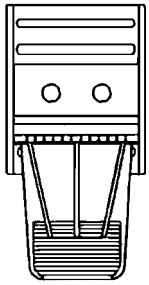
SPAENAUR No.	Strap Size	A	B	C	Break Strength lbs.	Pkg. Qty.
122-737	1/2"	.500"	1.251"	.824"	24.9 +/- 15%	25
122-738	5/8"	.655"	1.695"	1.000"	27.3 +/- 15%	25

Open View

Black Acetal Press Buckle

SPAENAUR No.	Strap Size	A	B	C	Pkg. Qty.
122-739	3/4"	.785"	1.204"	1.004"	25
122-740	1"	1.026"	1.453"	1.269"	25
122-741	1-1/2"	1.500"	2.210"	1.816"	10





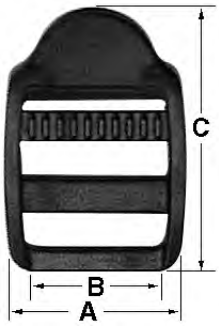
Hole Dia. .312"

Open View

Black Acetal Press Buckle

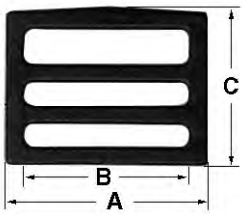
(Not a Velcro® Buckle)

SPAENAUR No.	Strap Size	A	B	C	Pkg. Qty.
122-742	2"	2.039"	3.375"	2.434"	10



Black Acetal Step Lock

SPAENAUR No.	Strap Size	A	B	C	Break Strength lbs.	Pkg. Qty.
122-754	3/4"	1.022"	.750"	1.536"	118.3 +/- 15%	25
122-755	1"	1.228"	1.000"	1.563"	159.8 +/- 15%	25
122-756	1-1/2"	1.810"	1.500"	2.001"	131.3 +/- 15%	10

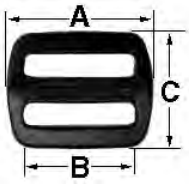


Black Acetal 4 Bar Slide

(Not a Velcro® Slide)

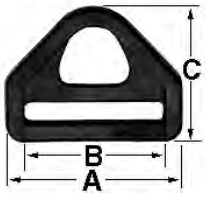
SPAENAUR No.	Strap Size	A	B	C	Break Strength lbs.	Pkg. Qty.
122-710	1"	1.306"	1.000"	1.043"	143.4 +/- 15%	25

Black Acetal Tri-Slide



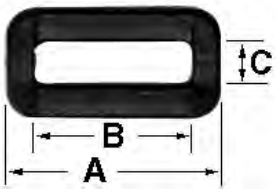
SPAENAUR No.	Strap Size	A	B	C	Break Strength lbs.	Pkg. Qty.
122-705	3/4"	1.091"	.743"	.903"	209.0 +/- 15%	25
122-706	1"	1.258"	1.000"	.903"	116.6 +/- 15%	25
122-707	1-1/4"	1.510"	1.250"	1.093"	106.5 +/- 15%	25
122-708	1-1/2"	1.871"	1.500"	1.333"	197.3 +/- 15%	10
122-709	2"	2.389"	2.000"	1.483"	193.2 +/- 15%	10

Black Acetal Hexagon Ring



SPAENAUR No.	Strap Size	A	B	C	Break Strength lbs.	Pkg. Qty.
122-722	1"	1.332"	1.000"	1.048"	130.5 +/- 15%	25
122-723	1-1/2"	1.927"	1.500"	1.211"	165.8 +/- 15%	10
122-724	2"	2.397"	2.000"	1.481"	133.3 +/- 15%	10

Black Acetal Rectangle Loop

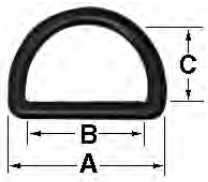


SPAENAUR No.	Strap Size	A	B	C	Break Strength lbs.	Pkg. Qty.
122-725	3/4"	1.100"	.750"	.267"	131.1 +/- 15%	25
122-726	1"	1.390"	1.000"	.301"	203.1 +/- 15%	25
122-727	1-1/2"	1.826"	1.500"	.388"	215.0 +/- 15%	10
122-728	2"	2.421"	2.000"	.301"	135.1 +/- 15%	10

Black Acetal Triangle

SPAENAUR No.	Strap Size A	C	B	Thickness	Break Strength lbs.	Pkg. Qty.
122-718	3/4"	.780"	.209"	.132"	157.0 +/- 15%	25
122-719	1"	.920"	.232"	.157"	160.3 +/- 15%	25
122-720	1-1/2"	1.338"	.258"	.155"	186.5 +/- 15%	10
122-721	2"	1.755"	.275"	.181"	151.2 +/- 15%	10

Black Acetal Standard D-Ring



SPAENAUR No.	Strap Size	A	B	C	Break Strength lbs.	Pkg. Qty.
122-711	3/4"	1.030"	.750"	.531"	33.6 +/- 15%	25
122-712	1"	1.307"	1.000"	.641"	94.1 +/- 15%	25
122-713	1-1/2"	1.917"	1.500"	.927"	141.6 +/- 15%	10
122-714	2"	2.524"	2.013"	1.278"	150.6 +/- 15%	10

Black Acetal Heavy Duty D-Ring

SPAENAUR No.	Strap Size	A	B	C	Break Strength lbs.	Pkg. Qty.
122-715	1"	1.457"	1.000"	.660"	221.2 +/- 15%	25
122-716	1-1/2"	1.839"	1.500"	.714"	189.0 +/- 15%	10
122-717	2"	2.456"	2.000"	.736"	185.6 +/- 15%	10

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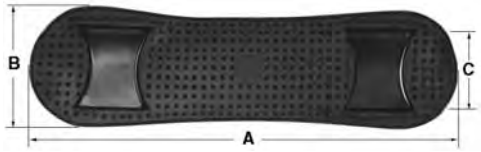
Black Soft PVC Shoulder Strap Pad



SPAENAUR No.	Strap Size	Length A	Width B	Width of Slot Opening C	Pkg. Qty.
122-751	1"	5.708"	1.603"	1" +/- .082	10
122-752	1-1/2"	5.695"	2.075"	1.5" +/- .086	10
122-753	2"	6.183"	2.567"	2" +/- .090	10

Black Acetal Swivel Strap Hook

SPAENAUR No.	Strap Size	A	B	C	D	Break Strength lbs.	Pkg. Qty.
122-701	3/4"	2.439"	1.560"	.803"	.275"	133.3 +/- 15%	25
122-702	1"	2.505"	1.592"	1.000"	.303"	102.5 +/- 15%	25
122-703	1-1/2"	2.466"	1.584"	1.500"	.307"	130.7 +/- 15%	10

Black Acetal Swivel Hook

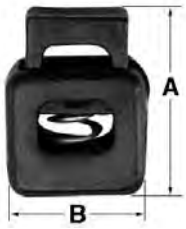
SPAENAUR No.	Strap Size	A	B	C	D	Break Strength lbs.	Pkg. Qty.
122-704	3/4"	2.471"	1.566"	.500"	.284"	121.9 +/- 15%	25

Black Polyethylene Barrel Cord Lock

SPAENAUR No.	Cord Size	Length A	Width B	Pull Force lbs.	Pkg. Qty.
122-743	3/16" (5 mm)	1.079"	.507"	2.6 +/- 15%	25
122-744	5/16" (8 mm)	1.473"	.645"	6.1 +/- 15%	25

Black Polyethylene Round Cord Lock

SPAENAUR No.	Cord Size	Length A	Width B	Pull Force lbs.	Pkg. Qty.
122-745	3/16" (5 mm)	.895"	.696"	3.2 +/- 15%	25



Black Polyethylene Square Cord Lock

SPAENAUR No.	Cord Size	Length A	Width B	Thickness	Pull Force lbs.	Pkg. Qty.
122-746	3/16" (5 mm)	.902"	.667"	.483	1.8 +/- 15%	25

Black Polyethylene Oval Cord Lock

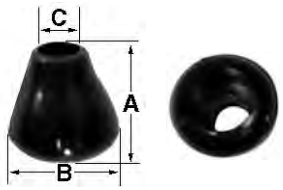
SPAENAUR No.	Cord Size	Length A	Width B	Thickness	Pull Force lbs.	Pkg. Qty.
122-747	3/16" (5 mm)	1.086"	.488"	.449	2.6 +/- 15%	25

Black Polyethylene Circle Cord Lock

SPAENAUR No.	Cord Size	Length A	Width B	Thickness	Pull Force lbs.	Pkg. Qty.
122-748	3/16" (5 mm)	1.078"	.700"	.227"	2.7 +/- 15%	25

Black Polyethylene Dual Circle Cord Lock

SPAENAUR No.	Cord Size	Length A	Width B	Thickness	Pull Force lbs.	Pkg. Qty.
122-749	3/16" (5 mm)	1.163"	.816"	.249"	1.9 +/- 15%	25



Black Polyethylene Cord End

SPAENAUR No.	Cord Size	Length A	Outer Dia. B	Inner Dia. C	Centre Dia.	Pkg. Qty.
122-750	3/16" (5 mm)	.584"	.621"	.233"	.409"	25

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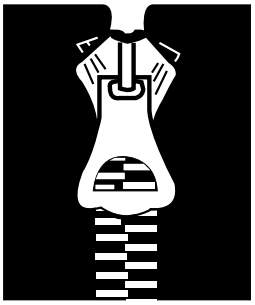


SLIDING FASTENERS

Very best quality – complete with top and bottom strips and slider – assembled.

Heavy Duty Type.

Wide range of uses.

Priced Singly

COTTON TAPE SEPARABLE TYPE SLIDE FASTENERS

SPAENAUR No. Hardware NICKEL-SILVER	**SIZE No. 5** (W = 7/32") Length of Opening	Colour of Tape O./A. Width 1-1/4"
TS-281	15½"	Brown
TS-32	18"	Black
TS-34	20"	Black
TS-35	20"	Brown
TS-36	22"	Black
TS-37	22"	Brown
TS-310	26"	Black
TS-38	36"	Black
TS-39	36"	Brown
TS-40	40"	Black
TS-41	40"	Brown
TS-149	47"	Black
TS-148	52"	Black
TS-151	63"	Black
TS-42	72"	Black
TS-43	72"	Brown
TS-44	76"	Black
TS-45	76"	Brown
TS-46	80"	Black
TS-47	80"	Brown
TS-203	85"	Black
TS-201	96"	Black
TS-202	120"	Black

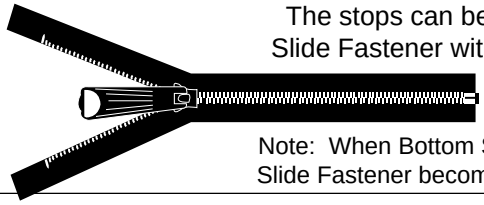
Plain BRASS	**SIZE No. 7** (W = 7/32") O./A. Width 1-5/8"	
TS-299	23"	Black
TS-306	46"	Tan
TS-301(2-way-Pull)	58"	Black
TS-307	60"	Black
TS-308	60"	Wheat
TS-151HW	63"	White
TS-151H	63"	Black
TS-203H	85"	Black
TS-201H	96"	Black
TS-201HW	96"	White
TS-202H	120"	Black

SEPARABLE TYPE Light Weight Tape	**SIZE No. 3** (W = 3/16") O./A. Width 1"	
TS-147 (Nickel)	14"	Black

HEAVY DUTY SLIDE FASTENER STOCK IN CONTINUOUS LENGTHS –

Cut to required length as needed.

The stops can be applied on the Slide Fastener with ordinary pliers.



Note: When Bottom Stop is added, the Slide Fastener becomes non-separable.

SLIDE FASTENER STOCK - COTTON TAPE

Heavy Duty – Size No. 5
5/8" Tape – (1-1/4" Overall Width)

SPAENAUR No's. Hardware BRASS	Hardware NICKEL-SILVER	Hardware ALUMINUM	*Unit Pkg. 25 YDS.* Colour of Tape
TS-64	–	**▲897-300**	Black
TS-65	–	–	Wheat
897-501	**TS-300**	**897-301**	White
897-502	–	**897-302**	Khaki
897-503	–	**897-303** ▲Polyester Tape	Air Force Blue

Extra-Heavy Duty – Size No. 7
3/4" Tape – (1-3/4" Overall Width)

TS-66	–	**897-304**	Black
TS-67	–	–	Wheat
897-504	–	**897-305**	White
897-505	–	**897-306**	Khaki
897-506	–	**897-307**	Air Force Blue

***SLIDE FASTENER HARDWARE ACC.** Description & Size	BRASS	ALUMINUM	STEEL Zinc or Nickel Plated our option
Top Stop, #5	**B-1647**	–	**123-301**
Top Stop, #7	**B-1650**	–	**123-303**
Bottom Stop, #5	**B-1648**	–	**123-302**
Bottom Stop, #7	**B-1651**	–	**123-304**
Slider, #5, long	**B-1646**	**123-305**	–
Slider, #5, long, N.P.	**B-1681**	–	–
Slider, #5, double	**B-1850**	**123-306**	–
Slider, #7, long	**B-1649**	**123-307**	–
Slider, #7, double	**B-1853**	**123-308**	–

NON-SEPARABLE TYPE SLIDE FASTENERS

SPAENAUR No.	Size	Opening	Colour	Overall Width	Chain Material	
4-SN	#5	10"	Black	1-1/4"	**Nickel Silver**	*PRICED SINGLY*
5-SN	#5	12"	Black			
897-013	#5	15"	Black			
28-SN	#5	18"	Brown			
30-SN	#5	24"	Brown			
TS-311	#5	26"	Brown			
TS-303	#5	27"	Brown			
34-SN	#5	36"	Brown			
TS-298	#5	56"	Brown			
TS-42NS	#5	72"	Black			
TS-305	#7	60"	Black	1-5/8"	**Plain Brass**	
TS-304	#7	72"	Black			

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CATALOG 13

*See Price List for UNIT PACKAGE QUANTITY.

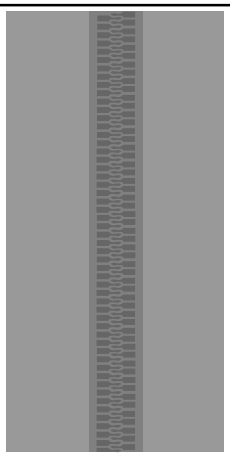
NYLON

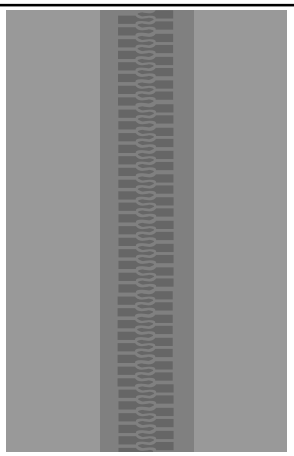
#5 Heavy Duty Slide Fasteners

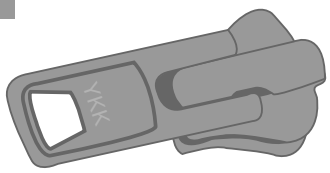
and

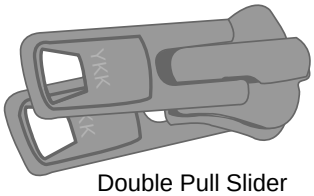
#10 Extra Heavy Duty Slide Fasteners

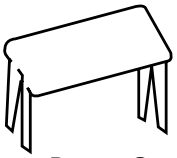
Slide Fasteners and Accessories
available in SIX COLOURS!


#5 Actual Size


#10 Actual Size


Single Pull Slider


Double Pull Slider


Bottom Stop

Top Stop

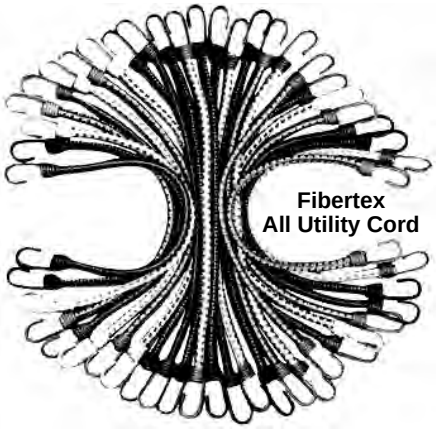
ORDER BY *SPAENAUR* NUMBERS LISTED BELOW.

Description	COLOURS White	Wheat	Beige	Olive	Air Force Blue	Black	Unit Pkg. Qty.
#5 Chain / Nylon / 1-1/4" O.A. Width	**897-001**	**897-002**	**897-003**	**897-004**	**897-005**	**897-006**	25 mtrs.
#5 Slider / Single Pull / Metal	**123-001**	**123-002**	**123-003**	**123-004**	**123-005**	**123-006**	10 pcs.
#5 Slider / Double Pull / Metal	**123-007**	**123-008**	**123-009**	**123-010**	**123-011**	**123-012**	10 pcs.
#5 Slider / Single Pull / Nylon	**123-013**	—	—	—	—	**123-018**	10 pcs.
#5 Top Stops / Metal	**123-037**	—	**123-039**	**123-040**	**123-041**	**123-042**	50 pcs.
#5 Bottom Stops / Metal	**123-043**	—	**123-045**	—	**123-047**	**123-048**	50 pcs.
#10 Chain / Nylon / 1-1/2" O.A. Width	**897-007**	**897-008**	—	**897-010**	**897-011**	**897-012**	25 mtrs.
#10 Slider / Single Pull / Metal	**123-019**	**123-020**	**123-021**	**123-022**	**123-023**	**123-024**	10 pcs.
#10 Slider / Double Pull / Metal	**123-025**	**123-026**	**123-027**	**123-028**	**123-029**	**123-030**	10 pcs.
#10 Slider / Single Pull / Nylon	**123-031**	**123-032**	**123-033**	—	**123-035**	**123-036**	10 pcs.
#10 Top Stops / Metal	**123-049**	**123-050**	**123-051**	**123-052**	**123-053**	**123-054**	50 pcs.
#10 Bottom Stops / Metal	**123-055**	**123-056**	**123-057**	**123-058**	**123-059**	**123-060**	50 pcs.

SPAENAUR

The most complete inventory in Canada – over 400 million pieces in stock!

• SPORTING GOODS
• AUTOMOTIVE • MARINE
• HARDWARE



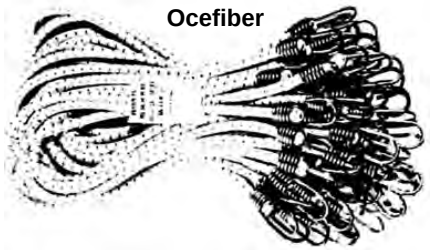
† With Steel Yellow Zinc Plated Hooks.

* One hook is standard. The other is plastic similar to 122-008.

FIBERTEX ALL UTILITY CORDS
Assembled with Plastic Covered Steel Hooks

SPAENAUR No.	DIAMETER Inch	mm	Approx. Lgth.	Pkg. Qty.
810-059†	5/32	4	10 in.	25
810-060	5/16	8	13 in.	25
810-061	5/16	8	16 in.	25
810-062	5/16	8	18 in.	25
810-064	5/16	8	65 in.	25
810-065	3/8	9	18 in.	25
810-066	3/8	9	20 in.	25
810-068	3/8	9	24 in.	25
810-069	3/8	9	26 in.	25
810-071	3/8	9	30 in.	25
810-084*	3/8	9	30 in.	25
810-072	3/8	9	32 in.	25
810-073	13/32	10	12 in.	25

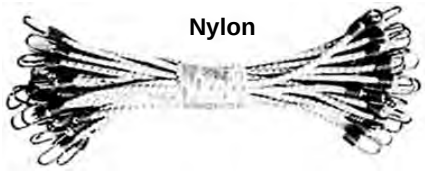
SPAENAUR No.	DIAMETER Inch	mm	Approx. Lgth.	Pkg. Qty.
810-074	13/32	10	18 in.	25
810-075	13/32	10	24 in.	25
810-076	13/32	10	28 in.	25
810-077	13/32	10	32 in.	25
810-078	13/32	10	36 in.	25
810-079	13/32	10	40 in.	25
810-080	1/2	12	18 in.	25
810-081	1/2	12	24 in.	25
810-082	1/2	12	32 in.	25
810-083	1/2	12	40 in.	25



OCEFIBER COVER ASSEMBLED WITH DICHROMATED HOOKS

SPAENAUR No.	DIAMETER Inch	mm	Approx. Lgth.	Pkg. Qty.
810-085	13/32	10	16 in.	25
810-086	13/32	10	24 in.	25
810-087	13/32	10	32 in.	25
810-088	13/32	10	40 in.	25

SPAENAUR No.	DIAMETER Inch	mm	Approx. Lgth.	Pkg. Qty.
810-089	13/32	10	48 in.	25
810-091	13/32	10	64 in.	25
810-092	13/32	10	72 in.	25



NYLON COVER WITH STAINLESS STEEL HOOKS #316 RUST PROOF

SPAENAUR No.	DIAMETER Inch	mm	Approx. Lgth.	Pkg. Qty.
810-093	13/32	10	16 in.	25
810-094	13/32	10	24 in.	25
810-095	13/32	10	32 in.	25
810-096	13/32	10	40 in.	25

SPAENAUR No.	DIAMETER Inch	mm	Approx. Lgth.	Pkg. Qty.
810-097	13/32	10	48 in.	25
810-098	13/32	10	56 in.	25
810-099	13/32	10	64 in.	25
810-175	13/32	10	72 in.	25

INDUSTRIAL-TRUCKING-HEAVY DUTY
ASSEMBLED WITH DICHROMATED HOOKS — BLACK COLOUR

SPAENAUR No.	DIAMETER Inch	mm	Approx. Lgth.	Pkg. Qty.
810-176	13/32	10	16 in.	25
810-177	13/32	10	18 in.	25
810-178	13/32	10	24 in.	25
810-179	13/32	10	32 in.	25
810-180	13/32	10	40 in.	25

SPAENAUR No.	DIAMETER Inch	mm	Approx. Lgth.	Pkg. Qty.
810-181	13/32	10	48 in.	25
810-182	13/32	10	56 in.	25
810-183	13/32	10	64 in.	25

TOGGLE STRAPS DOUBLE STRAND NYLON WITH 25 mm BALL

SPAENAUR No.	DIAMETER Inch	mm	Approx. Lgth.	Pkg. Qty.
810-185	5/32	4	12 in.	25
810-186	5/32	4	16 in.	25
810-187	5/32	4	20 in.	25
810-188	5/32	4	24 in.	25

SPORTING GOODS/ GENERAL USE

TOGGLE STRAPS DOUBLE STRAND NYLON WITH 30 mm BALL

SPAENAUR No.	DIAMETER Inch	mm	Approx. Lgth.	Pkg. Qty.
810-189	3/16	5	24 in	25
810-190	3/16	5	28 in.	25
810-191	3/16	5	32 in.	25

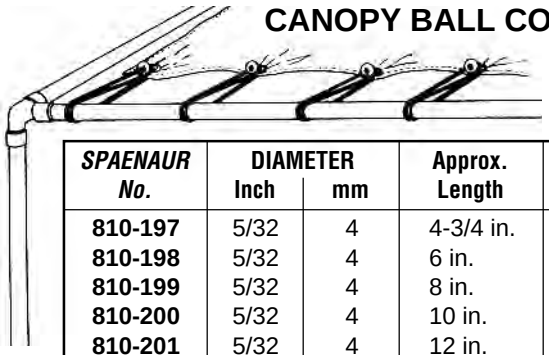
MARINE USE/BOATING INDUSTRY

BICYCLE-MOPEDS AND MOTORCYCLES

LUGGAGE RACK FASTENERS

SPAENAUR No.	DIAMETER Inches	mm	Approx. LENGTH	NUMBER OF BRANCHES	UNIT PKG. QTY.
810-193	13/32	10	32 in.	3 Hooks	25
810-194	5/16	8	20 in.	4 Arms	10
810-195	3/8	9	24 in.	4 Arms	10
810-196	13/32	10	24 in.	4 Arms	10

CANOPY BALL CORDS



LOOP STYLE

SPAENAUR No.	DIAMETER Inch	mm	Approx. Length	Unit Pkg. Qty.
810-197	5/32	4	4-3/4 in.	50
810-198	5/32	4	6 in.	50
810-199	5/32	4	8 in.	50
810-200	5/32	4	10 in.	50
810-201	5/32	4	12 in.	50
810-202	3/16	5	4-3/4 in.	50
810-203	3/16	5	6 in.	50
810-204	3/16	5	8 in.	50
810-205	3/16	5	10 in.	50
810-206	3/16	5	12 in.	50

CAR & TRAILER TOP LUGGAGE RACK FASTENERS

Unit Package Quantity - 1

SPAENAUR No.	DESCRIPTION	DIAMETER Inches	mm	DORMANT LENGTH	UNIT BRANCHES
810-207	Spider	13/32	10	36 in.	6 Arms
810-208	Octopus	3/8	9	32 in.	8 Arms
810-209	Star	13/32	10	38 in.	8 Arms
810-210	Centipede	1/2	12	40 in.	8 Arms
810-211	Stretch Net Small Compact Car	3/16	5	28" x 36"	12 Hooks
810-212	Stretch Net Large Full Size Car	1/4	6	40" x 50"	16 Hooks
810-213	Stretch Net Compact Truck	1/4	6	60" x 78"	24 Hooks
810-214	Stretch Net Truck & Trailer	1/4	6	72" x 96"	32 Hooks

U.P.Q. - 1 Pack

SPAENAUR No.	PACK ASSORTMENT - Contents
810-215	2 ea., 810-065, 810-068, 810-071
810-216	2 ea., 810-065, 810-068, 810-071, 4 ea., 810-059
810-217	2 ea., 810-065, 810-068, 810-071, 810-078, 4 ea., 810-059
810-218	2 ea., 810-065, 810-068, 810-071, 810-078, 810-083, 4 ea., 810-084, 810-059
810-219	3 ea., 810-062, 810-068, 810-071, 810-078, 2 ea., 810-079, 4 ea., 810-059
810-220	4 ea., 810-065, 810-068, 2 ea., 810-071, 810-078, 810-079, 810-084, 4 ea., 810-059
810-221	4 ea., 810-065, 810-068, 810-071, 2ea., 810-078, 810-083, 810-084, 4 ea., 810-059
810-222	2 ea., 810-179, 810-181, 810-183

(See page M14 for sizes)

Coil

Spool

Sold in Full Spools Only.

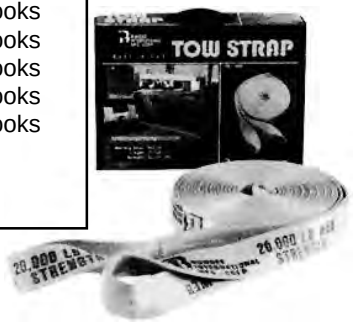
(* 500 Ft. Spool)

MULTI-COLOR FIBERTEX CORD DIAMETER		50 FT. COIL (15.25 m) POLY BAGGED	328 FT. (100 Meter) SPOOL
Inches	mm	*SPAENAUR No.*	*SPAENAUR No.*
5/32	4	**810-250**	**810-224**
3/16	5	**810-251**	**810-225**
1/4	6	**810-252**	**810-226**
5/16	8	**810-253**	**810-227**
3/8	9	**810-254**	**810-228**
13/32	10	**810-255**	**810-229**
1/2	12	**810-256**	**810-230**
HEAVY DUTY BLACK POLYPROPYLENE			
1/4	6	**810-258**	**810-232**
5/16	8	**810-259**	**810-233**
3/8	9	**810-260**	**810-234**
13/32	10	**810-261**	**810-235**
1/2	12	**810-262**	**810-236**
WHITE OCEFIBER			
1/4	6	**810-263**	**810-237**
5/16	8	**810-264**	**810-238**
3/8	9	**810-265**	**810-239**
13/32	10	**810-266**	**810-240**
1/2	12	**810-267**	**810-241**
NYLON			
1/8	3	**810-268**	**810-242***
5/32	4	**810-269**	**810-243**
3/16	5	**810-270**	**810-244**
1/4	6	**810-271**	**810-245**
5/16	8	**810-272**	**810-246**
3/8	9	**810-273**	**810-247**
13/32	10	**810-274**	**810-248**
1/2	12	**810-275**	**810-249**

TOW STRAPS and ROPES

WEBBING TOW STRAP

SPAENAUR No.	DESCRIPTION	TENSILE STRENGTH	LENGTH	U.P.Q.	ENDS
895-221	2" Webbing Strap	6,000 lbs.	10'	1	Forged Hooks
895-222	2" Webbing Strap	6,000 lbs.	15'	1	Forged Hooks
895-223	2" Webbing Strap	10,000 lbs.	15'	1	Forged Hooks
895-224	2" Webbing Strap	10,000 lbs.	20'	1	Forged Hooks
895-225	2" Webbing Strap	10,000 lbs.	25'	1	Forged Hooks
895-226	2" Webbing Strap	20,000 lbs.	20'	1	Loops
895-227	2" Webbing Strap	20,000 lbs.	25'	1	Loops
895-228	2" Webbing Strap	20,000 lbs.	30'	1	Loops



SPAENAUR No.	DESCRIPTION	TENSILE STRENGTH	LENGTH	U.P.Q.	ENDS
895-229	5/8" Poly Rope	6,800 lbs.	14'	1	Forged Hooks
895-230	7/8" Poly Rope	12,000 lbs.	19'	1	Forged Hooks

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CATALOG 13

UNIT PKG. QTY. - 10 OF EACH

SPAENAUR No.	USE WITH CORD DIA. Inches	mm
PLASTIC COATED HOOKS & RINGS		
121-065	3/16	5 mm
121-066	1/4	6 mm
121-067	5/16	8 mm
121-068	3/8	9 mm
121-069	13/32	10 mm
121-070	1/2	12 mm
DICHROMATED HOOKS & RINGS		
121-071	5/32	4 mm
121-072	3/16	5 mm
121-073	1/4	6 mm
121-074	5/16	8 mm
121-075	3/8	9 mm
121-076	13/32	10 mm
121-077	1/2	12 mm
S.S. HOOKS & RINGS		
121-833	3/16	5 mm
121-834	1/4	6 mm
121-835	5/16	8 mm
121-836	3/8	9 mm
121-837	13/32	10 mm
121-838	1/2	12 mm

SUPER ADJUSTABLE HOOKS

SPAENAUR No.	USE WITH CORD DIA. Inches	mm	PKG. QTY.
122-008	3/8	9 mm	10

PLASTIC BALL

SPAENAUR No.	DIAMETER Inches	mm	PKG. QTY.
122-009	1"	25 mm	10
122-010	1-3/16"	30 mm	10

STRETCH NET HOOKS

SPAENAUR No.		LENGTH	PKG. QTY.
122-011	Regular	3-5/8"	10
122-012	Large	5-1/2"	10

8 & 9 mm

10 & 12 mm

'C' RING

SPAENAUR No.	MATERIAL	FITS CORD DIA. SIZE	PKG. QTY.
121-078	Metal	8 & 9 mm	25
121-839	Stainless Steel	10 & 12 mm	25

WARNING Cords are to hold or tie together masses of varying sizes and weights. It is important to use good judgement in choosing appropriate cord lengths and diameters for the intended purpose. **EXTREME CAUTION** should be taken when cords are stretched. Ends of stretched cords should be held firmly and fastened securely. Care should be taken that face and other vulnerable body parts are kept away from potential cord rebound path. Do not attempt to stretch a cord beyond obvious limits. Generally, most effective stretch range is 75% beyond unstretched length.

AVERTISSEMENT Les cordes sont destinées a lier ensemble ou attacher des articles de différents poids ou tailles. Il est très important d'utiliser un bon jugement pour choisir les cordes de diametres ou de tailles appropriés. **D'EXTRÊMES PRECAUTIONS** Doivent étre prises lorsque l'on tire les cordes, bien tenir en main les extrémités et s'assurer que la fixation est correcte. Tenir a l'écart d'un possible rebondissement de la corde, la figure ou toute autre partie vulnérable du corps. Ne pas essayer de tirer la corde au dela de ses limites. En general l'élasticité la plus efficace est d'environ 75% au dela de la taille originate.

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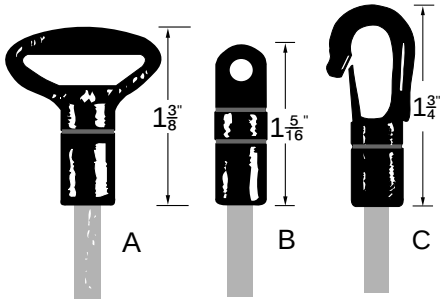
SPAENAUR

Your #1 Choice for Fasteners.



All mounts come in two separate parts which are snapped together after insertion of the cord.

SHOCKCORD MOUNTS

Tough Delrin 500 (Black)

For use with 1/4" dia. Shockcord

SPAENAUR No.	Style	Type of End	Unit Pkg.
122-410	A	For 1" Webbing	10
122-413	B	Has 3/16" hole	10
122-416	C	Hook, with tongue	10

Note: Elastic Cord should be tight-wrapped with 1" wide masking tape, 1-1/4 turns. Then cut through the wrapped part with a sharp knife or shears. This yields non-fraying ends, for secure anchoring in the mount.

EASY HOOK

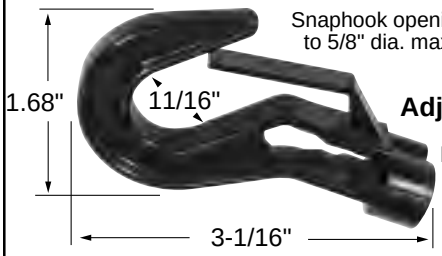
(Natural Nylon)

SPAENAUR No.
122-420

Hook Opening .153"

Non-conductive, rust resistant, and can be used with "D" and "O" rings. For use with 1/8" dia. Shockcord.

UNIT PACKAGE 50



Snaphook opening to 5/8" dia. max.

SPAENAUR No.
122-688

Adjustable SHOCKCORD HOOK

For use with 1/4" dia. Shockcord

Material: Acetal Colour: Black

UNIT PACKAGE 10

Adjustable CORD HOOK

SPAENAUR No.
122-445

For use with 1/8" to 1/4" dia. Shockcord.

Snaphook opening to 1/4" dia. max.

Material: Nylon Colour: Black

UNIT PACKAGE 10

ELASTIC SHOCKCORD

Strong and durable.

CHOOSE FROM COTTON OR NYLON COVERING.

SPAENAUR No.	COTTON COVERING Cord Dia.	Spool Size
810-009	1/8"	1,000 ft.
MP-82	3/16"	1,000 ft.
MP-44	1/4"	500 ft.
MP-45	5/16"	500 ft.
MP-46	3/8"	300 ft.
MP-47	7/16"	250 ft.
MP-48	1/2"	150 ft.

SPAENAUR No.	NYLON COVERING Cord Dia.	Spool Size
810-051	1/8"	1,000 ft.
810-052	5/32"	1,000 ft.
810-053	3/16"	1,000 ft.
810-054	1/4"	500 ft.
810-055	5/16"	500 ft.
***810-010**	5/16"	500 ft.
810-056	3/8"	300 ft.
810-057	7/16"	150 ft.
810-058	1/2"	150 ft.

*All Black Cover

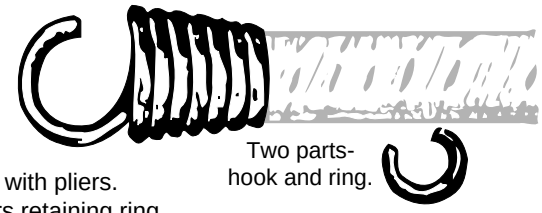
- Covering Colour -
White with Coloured Fleck.

ELASTIC CORD LOAD AND STRETCH DATA

Dia.	Stretch	Load 100%	Approx. Breaking Strength
3/16"		12 lbs.	75 lbs.
1/4"	6" to 12"	20 lbs.	127 lbs.
5/16"	6" to 12"	55 lbs.	175 lbs.
3/8"	6" to 12"	60 lbs.	520 lbs.
7/16"	6" to 12"	65 lbs.	575 lbs.
1/2"	6" to 12"	70 lbs.	610 lbs.

SHOCKCORD ATTACHMENTS

Available in Plated Steel
and
302 Stainless Steel



Two parts- hook and ring.

Hook is first slid over end of cord. Ring is then clamped to end of cord with pliers. Hook then engages ring, and will not come off. Hook completely covers retaining ring.

Unit Package 25 - One number.

High Tensile STEEL - Zinc Plated

Complete Attachment	Spring Hook Only	Retainer Ring Only
MH-90 (for 3/16" shockcord)	**121-213**	**121-218**
MH-1 (for 1/4" shockcord)	**121-214**	**121-219**
MH-2 (for 5/16" shockcord)	**121-215**	**121-220**
MH-91 (for 3/8" shockcord)	**121-216**	**121-221**
MH-3 (for 7/16" and 1/2" cord)	**121-217**	**121-222**

302 STAINLESS STEEL

Complete Attachment	Spring Hook Only	Retainer Ring Only
MH-90SS (for 3/16" shockcord)	**121-823**	**121-828**
MH-1SS (for 1/4" shockcord)	**121-824**	**121-829**
MH-2SS (for 5/16" shockcord)	**121-825**	**121-830**
MH-91SS (for 3/8" shockcord)	**121-826**	**121-831**
MH-3SS (for 7/16" and 1/2" cord)	**121-827**	**121-832**

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ELASTIC STRETCH CORDS

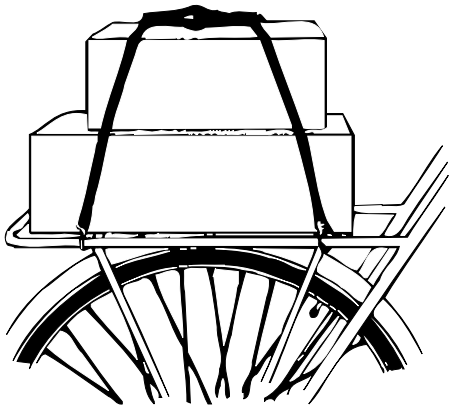
Rubber fasteners with fully plasticized hooks and multi-coloured polyethylene cover. Impervious to salt water, sun, gas, oil, chlorine, and certain acids. Smart in colour, secure and durable.

CRAB
825-169

SPAENAUR No.	Diameter Inches	Diameter mm	Length	Stretchable From	Unit Pkg.
825-163	3/8	9	12 in.	12 to 20 in.	25
825-166	3/8	9	30 in.	30 to 60 in.	10
825-167	3/8	9	36 in.	36 to 72 in.	10
825-168	3/8	9	42 in.	42 to 96 in.	10

LUGGAGE RACK FASTENERS				NUMBER OF ARMS	O/A Lgth.from Hook to Hook	
Crab	**825-169**	3/8	9	4	24 in.	10
Spider	**825-170**	3/8	9	6	36 in.	1
Octopus	**825-171**	3/8	9	8	30 in.	1

SPIDER
825-170



825-192
(Without rope)

825-192

Neoprene Mooring Snubber

22" Long

SPAENAUR Mooring Snubber gives safety stretch to mooring lines, absorbs shock of wind and waves. Tough 3-rib neoprene withstands sun, salt, water. Use two for large boats.

PRICED SINGLY

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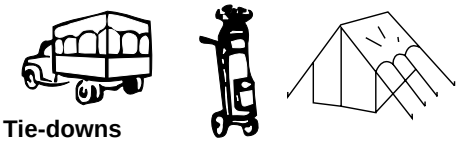
SPAENAUR No.	Length of Strap hole to hole	Number and Size of Steel "S" Hooks		Overall Length with Hooks	Maximum Stretch Length with Hooks
825-144	2-1/2"	2 – 2-7/8"		7-1/2"	8"
825-145	4"	2 – 2-7/8"		9"	10"
825-146	9"	2 – 2-7/8"		14"	18"
825-147	9"	1 – 2-7/8"	1 – 4-1/2"	16"	20"
825-148	9"	2 – 4-1/2"		18"	22"
825-149	9"	1 – 4-1/2"	1 – 6-1/2"	20"	24"
825-150	15"	2 – 2-7/8"		20"	26"
825-151	15"	1 – 2-7/8"	1 – 4-1/2"	22"	28"
825-152	15"	2 – 4-1/2"		24"	30"
825-153	15"	1 – 4-1/2"	1 – 6-1/2"	26"	32"
825-154	15"	2 – 6-1/2"		28"	34"
825-155	21"	2 – 2-7/8"		25"	32"
825-156	21"	1 – 2-7/8"	1 – 4-1/2"	27"	34"
825-157	21"	2 – 4-1/2"		29"	36"
825-158	21"	1 – 4-1/2"	1 – 6-1/2"	31"	38"
825-159	21"	2 – 6-1/2"		33"	40"
***825-162**	24"	2 – 2-7/8"		29"	32"
825-160	31"	2 – 2-7/8"		36"	48"
825-161	31"	2 – 4-1/2"		40"	52"

STRAPS ONLY without hooks

		Overall Length
825-137	2-1/2"	4"
825-138	4"	5-3/4"
825-140	9"	10-1/2"
825-141	15"	16-3/4"
825-142	21"	22-1/2"
†**825-139**	24"	See Below
825-143	29"	30-1/2"

ALL STRAPS ARE APPROX. 11/16" WIDE BY 5/16" THICK AND PRICED SINGLY



Tie-downs

- Live & Tough "EPDM".
- Min. tensile strength 1,000 lbs. psi.
- Heat and cold resistance. -54° to +70°C (-65° to +158°F)
- Ozone-proof.
- Resistant to oxidation, abrasion, sun and cold.

S-HOOKS of Zinc Plated STEEL wire, .187" dia.

2-3/4" S-HOOK **121-186**

4-1/2" S-HOOK **121-187**

6-1/2" S-HOOK **121-188**

Adjustable

†**825-139** Strap only

***825-162** With Hooks

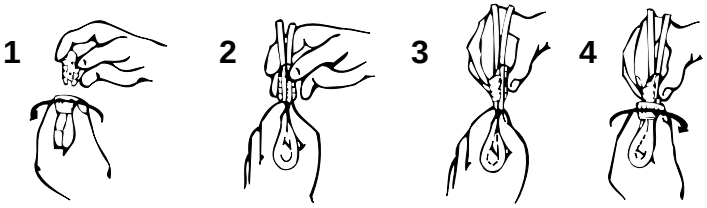
Plenty of S - t - r - e - t - c - h!

†25-1/2" Overall length, 6" c. to c. for each section

HOOKS PACKAGED IN 100s

M

Not-a Knot® Re-useable Rope Clamp



Eliminates knot tying • Easy to use Needs no tools • Will not rust.

Better than a knot! 100% nylon, fastens and unfastens in a second, by hand; get proper rope length and rope tension the first time, every time.

Some applications include: Ski Tow Rope, Tying Springlines, Sailing, Camping/Tents, Clothes- line and more!

WORKING LOAD 250 lbs.

SPAENAUR No.	Colour	For Rope Types
122-006	YELLOW	3/8" Round (Use with 1/4" and 3/8" Braided Nylon only)

Unit Pkg. Qty. 10

NOTE: Rope clamps are not sold for use on safety equipment, life saving equipment, mountain climbing, rigging, or other similar applications.

CATALOG 13

Heavy Cargo Tie-Downs

Loop Load Strength 2700 kg (6,000 lbs.)

Ratchet-Buckle Assembly

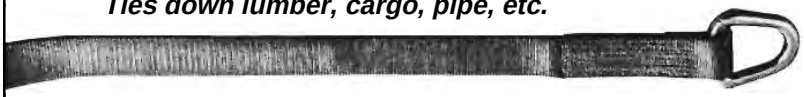
- 2" Ratchet-Buckle assembly.
- Rugged, flat J-Hooks each end.
- Hand loop for quick/easy adjustment.
- Super strong 2" nylon web - 20 ft.
- Length adjustment range 1 ft. to 20 ft.
- Packaged one assembly per heavy poly bag.

SPAENAUR No.	Size	Unit Package
895-200	2" x 20'	2 Assemblies

Flatbed Winch Strap

Ties down lumber, cargo, pipe, etc.

2" and 4" - Coated Nylon Web - 30 ft. length.



Loop Load Strength: 2" - 2700 kg (6,000 lbs.)
4" - 5400 kg (12,000 lbs.)

SPAENAUR No.	Description	Strap Size	Unit Pkg.
895-201 **895-202**	Strap with Forged "O"-Ring on one end.	2" x 30' 4" x 30'	4 2
895-203 **895-204**	Strap with Stamped Steel Hook on one end.	2" x 30' 4" x 30'	4 2
121-266	5/8" dia. Hook, for welding to frame (Used with 895-201 & 895-202).		4

See Winch Binder (shown below) for tightening and anchoring straps.

121-267
Flatbed Winch Binder

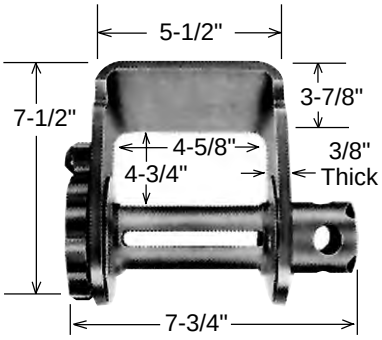
Black Finish

Takes 2" or 4" webbing.

Winch Binder is of rugged construction, designed to be bolted or welded to a steel member on bottom of truck bed.

For use with Winch Strap 895-201 to 895-204, as featured above.

Priced Singly



Approx. Dimensions

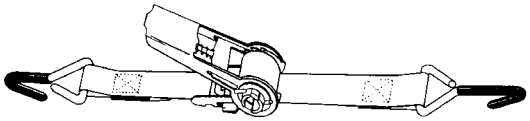
M

NYLON TIE-DOWN STRAPS

Priced Singly

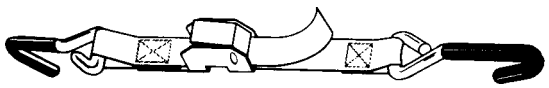
RATCHET and STRAP

895-205 - 1/4" dia. metal hooks, rubber coated.
895-207 - 3/8" dia. metal hooks, rubber coated.



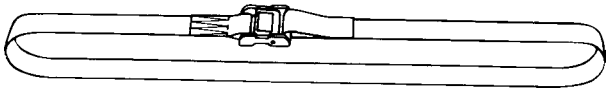
SPAENAUR No.	Strap Dimensions	Maximum Tensile Strength
895-205	1" x 15' - Light Duty	300 lbs.
895-207	1" x 15' - Med. Duty	750 lbs.

CAM and STRAP with 3/8" dia. metal hooks, rubber coated.



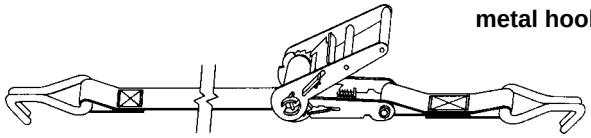
SPAENAUR No.	Strap Dimensions	Maximum Tensile Strength
895-206	1" x 15' - Med. Duty	750 lbs.

STRAP ASSEMBLY with CAM BUCKLE



SPAENAUR No.	Strap Dimensions	Maximum Tensile Strength
895-210	1" x 10'	500 lbs.

Industrial (Heavy Duty) RATCHET and STRAP with double 3/8" dia. metal hooks.



SPAENAUR No.	Strap Dimensions	Maximum Tensile Strength
895-208	2" x 15'	4,000 lbs.
895-209	2" x 25'	4,000 lbs.

PROTECT YOUR INVESTMENT!

Will Not Slip Under Vibration

INBOARD/ OUTBOARD & PERSONAL WATERCRAFT* TIE-DOWN

Heavy-duty S-Hooks (upper hook is vinly-coated) attach to ski-tow eyes on boat and trailer. Anti-scuff pad under fastener protects boat finish. *Can be used to tie off back of Personal Watercraft. Single strap may be used as a Bow Tie-Down.

Tensile Strengths

Fastener: 1,000 lbs.

End Fittings: 1,000 lbs.

Webbing (1" Cordura): 2,500 lbs. Blue Colour.

895-211

1-3/4" BOAT GUNWALE TIE-DOWNS

Heavy-duty S-Hooks attach to trailer on each side of boat gunwale.

Available in three adjustable lengths: 10 -13 ft., 13 -16 ft., 16 -18 ft.

Tensile Strengths

Fasteners: 2,000 lbs.

End Fittings: 1,000 lbs.

Webbing (1-3/4" Cordura): 3,500 lbs. Blue Colour.

895-212 10 -13 ft.
895-213 13 -16 ft.
895-214 16 -18 ft.

Here is a tie-down strap that meets every requirement: ease of installation; rapid adjustability; simple, lock-in tensioning; quick release; operation unaffected by sand, mud, ice or salt water. Strong yet elastic webbing absorbs shocks, preventing damage to cargo or carrier.

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CATALOG 13

MOTORCYCLE/ CATAMARAN* TIE-DOWN

End fittings are 1" opening wire hooks, with vinyl-coating on upper hook.

*Can also be used as Catamaran Tie-Downs. (Note - no attaching hardware included).

Strap adjusts from 12" - 60".

Tensile Strengths

Fastener: 1,000 lbs.

End Fittings: 1,000 lbs.

Webbing (1" Cordura): 2,500 lbs. Blue Colour.

895-217

FUEL/ BATTERY TIE-DOWN

To secure fuel tank or battery box.

Continuous loop strap with quick disconnect. Adjusts from 4 ft. down to less than 1 ft.

2 each metal retaining clips included.

Tensile Strengths

Fastener: 300 lbs.

End Fitting: 300 lbs.

Webbing (1" Cordura): 2,500 lbs. Blue Colour.

895-218

SPORTSMEN'S UTILITY TIE-DOWN

With hooks for a variety of uses. End fittings are vinyl-coated 1" opening wire hooks which can be used on luggage rack, truck bed, flat trailer, etc.

Adjusts from 4 - 8 ft.

Tensile Strengths

Fasteners: 300 lbs.

End Fittings: 1,000 lbs.

Webbing (1" Nylon): 2,500 lbs. Blue Colour.

895-219

CAR TOP CARRIER TIE-DOWN

With specially designed vinyl-coated clip rail hooks.

Strap adjusts from 4 - 8 ft.

Tensile Strengths

Fasteners: 300 lbs.

End Fittings: 300 lbs.

Webbing (1" Nylon): 2,500 lbs. Blue Colour.

895-220

895-231 Strap Assembly

60" Long with Plastic Protector Pad.

Complete Assembly

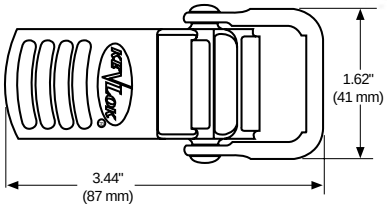
FASTENER

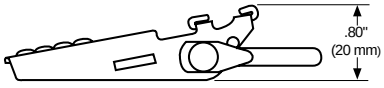
Tensioning take up: 5/8" (16 mm)

Tensile Strength: 300 lbs. (136 kg)

Material: Cold Rolled Steel

Finish: Zinc Plate Bronze Chromate



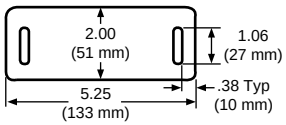


NYLON WEBBING

Grey Colour

Tensile Strength: 2,500 lbs. (1,134 kg)

PROTECTOR PAD



Material: .04 thick Polyethylene

Application: To protect delicate surfaces from fasteners; pad is secured to strap behind fastener.

RUGGED CONSTRUCTION

All KevLok Tie-Downs feature heavy gauge steel hardware with zinc plating and bronze chromate finish - a combination designed to give years of trouble-free service - and webbings with tensile strengths up to 3,500 lbs. Where vibration could be a problem, abrasion resistant, anti-slip Cordura webbing is used to reduce slippage and fraying.

M

All items this page Priced Singly.

SYNTHETIC ROPE IN HANDYCOILS

THREE STRAND ROPE - STANDARD LAY (TWIST)

Sold in
FULL COILS ONLY.

HANDYCOILS

50 FT. AND 100 FT.

Standard Colours:

POLYPROPYLENE
Yellow

NYLON
White

COILS		*Please order by SPAENAUR No.*	
Diameter	Feet per Coil	Monofilament Polypropylene	Nylon
3/8"	100	**810-107**	—
1/2"	50	**810-108**	**810-158**
1/2"	100	**810-109**	**810-159**

REEL STOCK

Sold in FULL REELS

OR

Cut lengths,
to your requirements.

REELS		*Please order by SPAENAUR No.*	
Diameter	Feet per Reel	Monofilament Polypropylene	Nylon
3/16"	1,000	**810-120**	—
1/4"	725	**810-121**	**810-171**
5/16"	425	**810-122**	**810-172**
1/2"	200	**810-124**	**810-174**

ROPE COMPARISON CHART

ROPE WEIGHT AND STRENGTH SPECIFICATIONS FOR 3 STRAND STANDARD LAY (TWIST).

(Canadian Government Specifications.)

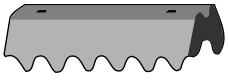
Nominal Size (Inches)		Weight Per 100 Ft. (Pounds)		Minimum Tensile Strength (Pounds)	
Diameter	Circumference	Nylon	Mono-filament Poly-propylene	Nylon	Mono-filament Poly-propylene
3/16"	5/8"	1.25	.80	1,100	720
1/4"	3/4"	1.90	1.37	1,700	1,120
5/16"	1"	3.08	1.80	2,700	1,490
3/8"	1-1/8"	4.00	2.70	3,500	2,120
7/16"	1-1/4"	5.00	3.80	4,300	2,820
1/2"	1-1/2"	7.00	4.90	5,950	3,650

Note: Safe Working Load is one seventh of the average tensile strength.

Synthetic rope is made from virgin fibres. It is much stronger than Manilla and Sisal. It is impervious to dampness, rot and mildew. Polypropylene in pariticular has the characteristics of lightness, smoothness, and will float.

C-913
Brass - Plain

106-031
Steel - Zinc



C-1020
Steel - Zinc Plated

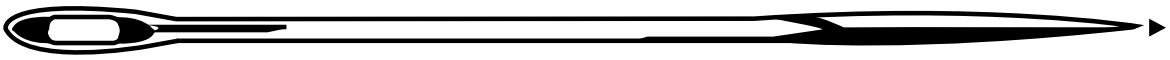
*****Tool Sets have 3/8" arbor on top and bottom dies.
Will fit 876-830 Hand Press on page M41.

CORD COUPLERS				*2-PIECE TOOL SETS For Installation
SPAENAUR No.	Capacity Cord Size	Length	Unit Pkg. Quantity	
C-913	3/32" to 1/8"	1/2"	100	**T-247**
106-031	3/32" to 1/8"	1/2"	100	**T-247**
C-1020	1/8" to 3/16"	1"	100	**T-248**

See page M72 for more Couplers and Thimbles.

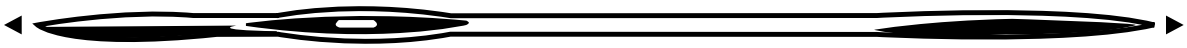
UPHOLSTERERS' STRAIGHT NEEDLES

Priced Singly



LONG EYE (MATTRESS NEEDLES) ONE BAYONET POINT

142-020	8" long	**142-021**	10" long	**142-022**	12" long	**142-023**	18" long



OVAL EYE

						BAYONET POINTS AT BOTH ENDS
142-024	8" long	**142-026**	12" long	**142-028**	16" long	
142-025	10"long	**142-027**	14" long	**142-029**	18" long	

OVAL EYE (MATTRESS NEEDLES) ONE ROUND POINT

142-013	8" long	**142-014**	10" long	**142-015**	12" long	**142-016**	18" long

OVAL EYE ROUND POINTS AT BOTH ENDS

142-017	8" long	**142-018**	10" long	**142-019**	12" long

T-176 PACKING NEEDLE (BALING NEEDLE)

Priced Singly

Curved Point 5" Long

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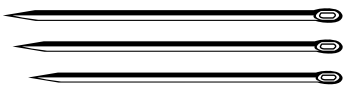
SEWING NEEDLES

(EGG EYED SHARPS)
ROUND POINT, SHARP
Unit Package 25 (One Size)

SPAENAUR No.	SIZE	LENGTH
142-002	1	1-15/16"
142-003	2	1-13/16"

CARPET NEEDLES — Round Point



SPAENAUR No.	SIZE
142-006	16
142-007	17
142-008	18

Unit Package 25 (One Size.)

GLOVERS' NEEDLES — WITH CUTTING EDGES — BAYONET POINTS

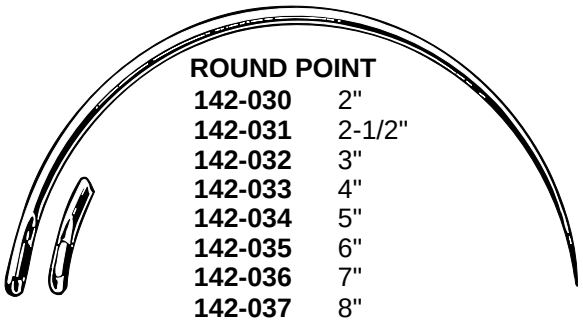
SPAENAUR No.	SIZE
142-009	1
142-010	1/0
142-011	2/0
142-012	3/0

Unit Package 25 (One Size)

CATALOG 13

CURVED TRIMMERS' NEEDLES

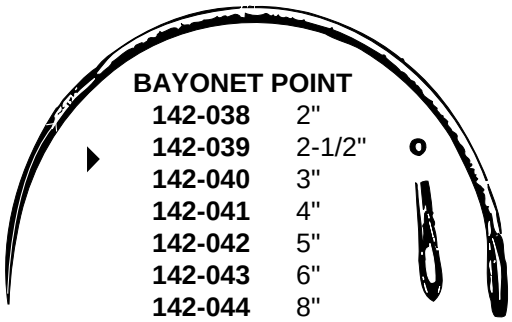
Priced Singly



ROUND POINT

142-030	2"
142-031	2-1/2"
142-032	3"
142-033	4"
142-034	5"
142-035	6"
142-036	7"
142-037	8"

Length is measured around curve.



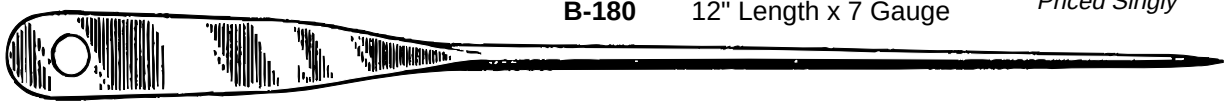
BAYONET POINT

142-038	2"
142-039	2-1/2"
142-040	3"
142-041	4"
142-042	5"
142-043	6"
142-044	8"

UPHOLSTERERS' REGULATORS

B-179	10" Length x 8 Gauge
B-180	12" Length x 7 Gauge

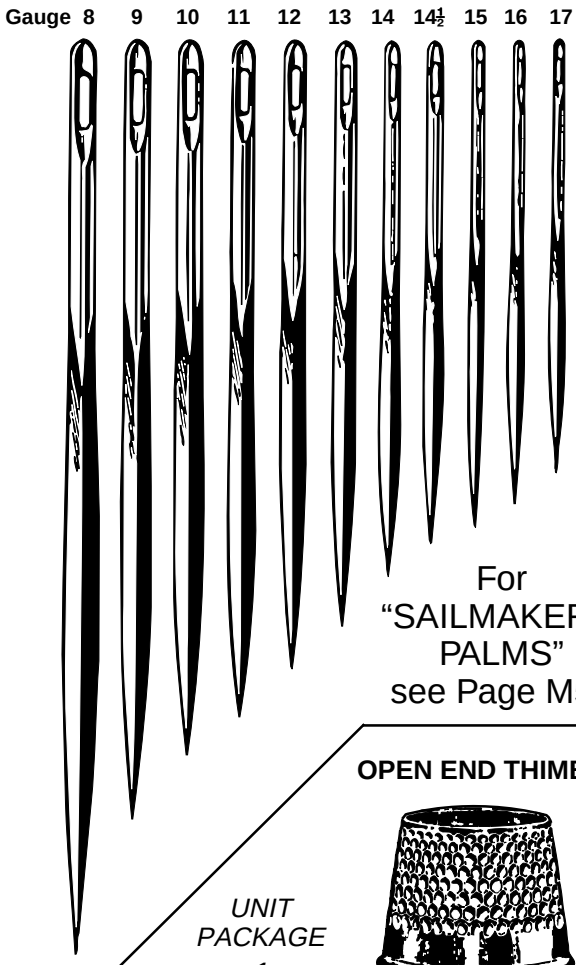
Priced Singly



UPHOLSTERERS' SKEWERS

SPAENAUR No.	Length
B-181-A	2-3/4"
B-182	3"

Unit Package 144



For "SAILMAKER'S PALMS" see Page M52

STRAIGHT SAIL NEEDLES

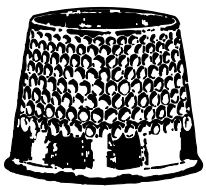
Sail Needles, triangular points, long eyes.

Made from the finest quality cast steel, highly polished, with smooth eyes and "Three Square" blades.

SPAENAUR No.	LENGTH	GAUGE	UNIT PKG.
142-167	2-1/4"	17	10
142-166	2-3/8"	16	10
142-168	2-1/2"	15	10
—	2-1/2"	14-1/2	—
142-165	2-3/4"	14	10
142-164	3"	13	10
142-169	3-1/4"	12	10
142-163	3-1/2"	11	10
142-162	3-3/4"	10	10
—	4"	9	—
142-161	4-1/2"	8	10

OPEN END THIMBLE

UNIT PACKAGE 1



SPAENAUR No.	ENGLISH Size	AMERICAN Size
T-510-00	00	14 ... 27/32 inch
T-510-0	0	13 ... 13/16 inch
T-510-1	1	12 ... 25/32 inch
T-510-2	2	10 ..... 3/4 inch

Nickel Plated Brass thimble, indispensible wherever hand sewing is required. Coarse grate.

KOBAN THREAD

75% Polyester
25% Cotton

SPAENAUR No.	Colour	Thread Size N.M.	Size of Spool	Type of Thread
862-498	White	30/3	approx. 65 metres	KOBAN Extra strong thread for canvas, awnings, sails, carpets, buttons, heavy outerwear, etc. *Unit Package 1 Spool*
862-499	Black	30/3		
862-500	Red	30/3		
862-501	Navy	30/3		
862-502	Brown	30/3		
862-503	Green	30/3		
862-504	Beige	30/3		
862-505	Charcoal	30/3		
862-506	Grey	30/3		

SILK FINISH COTTON THREAD

462-S	Fawn	16/4	2 oz.
463-S	Grey	12/4	2 oz.
465-S	White	12/4	2 oz.
466-S	Dark Brown	12/4	2 oz.
467-S	Wine	12/4	2 oz.
478-S	Smoke	70/4	2 oz.

Small spools for machine work

Unit Package 1 Spool

Conversion of Thread Sizes

NEW	OLD
12/4	35/4
16/4	40/4

SILK FINISH COTTON THREAD

			Metres on Cone
480-S	Black	12/4	3600
481-S	Black	16/4	5000
482-S	Fawn	16/4	5000
483-S	Tobacco	12/4	3600
484-S	Tobacco	16/4	5000
486-S	Chestnut	12/4	3600
487-S	Chestnut	16/4	5000
488-S	Wine	16/4	5000
492-S	Blue	12/4	3600
493-S	Smoke	24/4	7000

Large cones (tubes) for machine work

Unit Package 1 Cone

SPAENAUR

Quality fasteners – Inspected, Tested and Certified!

Bonded
NYLON THREAD
For Convertible Top Work, etc.

Size: CSB-207 (FFF)
on Spill-proof C-S Tubes
(Weight: 225 g, 450 g, or 680 g)
or Cones
(Length 2000 metres)

Colour	*SPAENAUR No.* 225 g	450 g	680 g	2,000 metres
Fawn	N/A	N/A	**862-002**	**862-010**
Green	N/A	N/A	**862-004**	N/A
White	N/A	N/A	N/A	**862-014**

Unit Package 1 Tube (or Cone)

Bonded
NYLON THREAD
For Upholstery Work

Size: CSB-69(E)
On Spill-proof C-S Tubes
(Length appr. 3500 metres, Regular weight)

SPAENAUR No.	Colour
437-S	Chestnut Brown
438-S	Ecru (Fawn)
441-S	Steel Grey
443-S	Taupe

SPAENAUR No.	Colour
445-S	Green
446-S	Med. Turquoise
496-S	Yellow
862-001	Khaki

Unit Package 1 C-S Tube

SPAENAUR No. 862-421
"MONOVIC" NYLON MONOFILAMENT THREAD

Put up on spill-proof bobbin

Unit Package 1 Bobbin (Approx. .5 kg) — Clear Grade #52

5 lb. Ball

SPRING TYING TWINE

SPAENAUR No.	PLY	MAT.
100 lbs. min.	3	Hemp
P.O.R.	4	Hemp
UF-45	3	Jute
UF-46	4	Jute

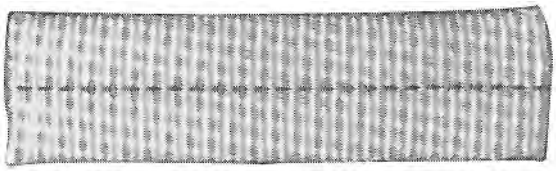
CATALOG 13

M

NON-STRETCH COTTON WEBBING

General Purpose

SPAENAUR No.	Colour	Width	Thick.	Unit Pkg.
TS-204	Olive Drab	1/2"	1/32"	50 MT.
TS-56	Olive Drab	1/2"	1/16"	100 FT.
TS-276	Natural	1/2"	1/16"	50 MT.
895-046	Olive Drab	3/4"	1/16"	50 MT.
TS-192	Olive Drab	1"	3/64"	50 MT.
TS-160	Natural	1"	1/16"	50 MT.
895-040	Olive Drab	1-1/4"	1/32"	50 MT.
TS-205	Natural	1-1/2"	1/16"	50 MT.
TS-62	Olive Drab	1-1/2"	1/8"	50 MT.
TS-309	Natural	2"	1/16"	50 MT.
TS-154	Olive Drab	2"	1/8"	50 YDS.



***SPAENAUR No.* 895-045**

Tubular Nylon Webbing

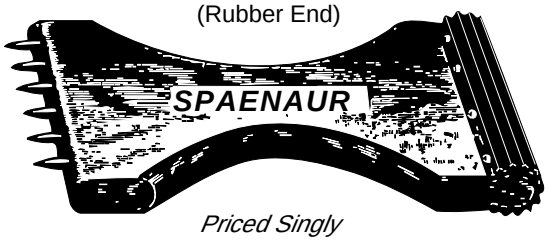
Natural (White) Colour
1" Wide x 3/32" Thick

UNIT PACKAGE— 50 YDS.

A utility webbing used in the Marine Trade as boat ties, straps, belts, bag handles, etc.

M-92 WEBBING STRETCHER

Length 7-1/2" Width 3-3/8"
(Rubber End)



Priced Singly

Pages M30 to M37 show webbing hardware.
See page H40 for Hood Lacing, Welting and Windcord.

POLYESTER WEBBING

Metric Sizes

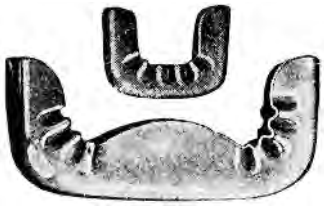
SPAENAUR No.	Colour	Width	Thick.	U.P.Q.
895-053	Blue	49mm	1.25mm	50 MT.
895-054	Charcoal	49mm	1.25mm	50 MT.
895-055	Black	49mm	1.25mm	50 MT.
895-056	White	49mm	1.25mm	50 MT.

NYLON & POLYESTER WEBBING

Inch Sizes

SPAENAUR No.	Colour and Material	Width	Thick.	U.P.Q.
895-043	White Nylon	1/2"	1/16"	50 MT.
895-044	White Nylon	1"	1/16"	50 MT.
895-050	Black Polyester	1"	1/16"	50 MT.
895-051	Black Polyester	1-1/2"	1/16"	50 MT.

WEBBING TIPS



Steel—Nickel Plated
Unit Package 144

SPAENAUR No.	For Webbing Width
B-1588	1/2"
B-1589	5/8"
B-1497	3/4"
B-1496	1"
B-1591	1-1/4"
B-1592	1-1/2"

121-166 WEBBING TIP

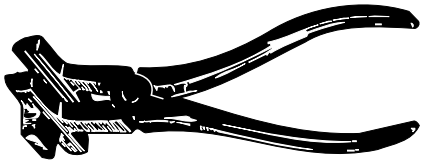
Steel—Nickel Plated
For 2" Wide Webbing.
Unit Package 100

121-175 CLAMP BUCKLE

Steel—Nickel Plated
For 1-1/8" Strap
Unit Package 100

M-127 WEBBING OR LEATHER PLIER

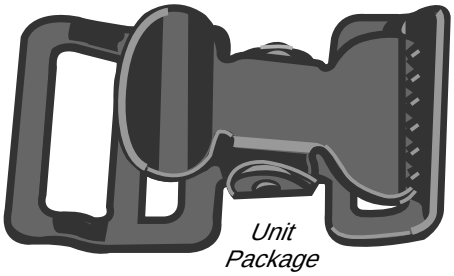
Length 8-3/4"
Jaw width 3-1/2"



Priced Singly

M

CATALOG 13



WEB STRAP BUCKLE

Overall Length 2-7/16"

Will Fit Webbing 1" wide x 3/32", 1/8", or 3/16" thick.

Unit Package 25

121-190
Steel, Nickel Plated

121-865
304 Stainless Steel

WEBBING BUCKLES

Stamped Steel — Nickel Plated

Unit Package 144

SPAENAUR No.	For Webbing Width
B-1582	1/2"
B-1583	5/8"
B-1584	3/4"
B-1585	7/8"
B-1586	1-1/4"
B-1587	1-1/2"
B-1523	2"

SUPERTUFF

Black Nylon

CAM BUCKLE

Takes 2" x 1/16" or 1/8" Webbing

SPAENAUR No. **122-443**

End Uses: Scuba diving, Medical restraint, Recreational, Tie-downs, Belts.

Unit Package 25

SPAENAUR No.
122-441

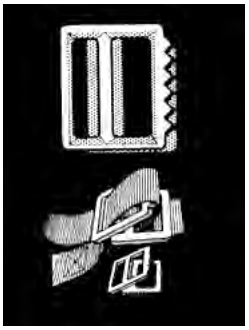
STRAP BUCKLE

of tough NATURAL NYLON

Originally developed for battery tie-down assemblies in marine applications to resist corrosives such as battery acid and salt spray. The strap buckle is a worker, having an aggressive tooth pattern for extra holding power.

For Webbings up to 1-7/16" wide x 1/8" thick.

UNIT PACKAGE 25



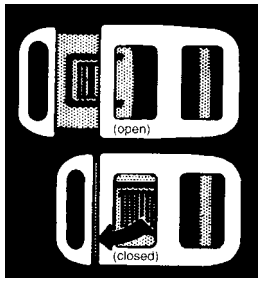
End Uses
Marine Use, Backpacking, Hold-down, Camping.

SPAENAUR No.
122-442

BUCKLE

White Colour: of tough *"Delrin 500"*

For Straps — 1" Wide x 3/64", 1/16" or 1/8" thick.



The easy adjusting buckle is impervious to weathering , foolproof to operate and excellent in applications where instant adjustability is required. Release is accomplished quickly and easily with the press of a thumb.

End uses: Marine use, Camping, Backpacks, General outdoor use. Juvenile care products.

Coastguard and Underwriters Laboratories Approved.

Unit Package 25

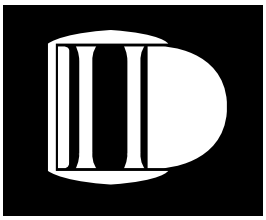
SPAENAUR No.
122-444

BUCKLE

White *"Delrin 500"*

Double Bar Double Locking

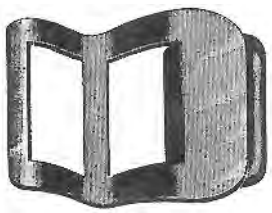
For 1" Webbing x 3/64", 1/16" or 1/8" thick.



Unit Package 50

Eliminates necessity of sewing. Features ease of adjustment from either side, easy access thumb tab release.

Applications:
Backpack, Outdoor use, Flotation and Marine, Luggage, Protective Clothing, Straps.



121-165
WEBBING BUCKLE

(No Teeth)

Steel — Nickel Plated

For 1" wide Webbing

Unit Package 100

SNAPHOOK & TRI-RING

The three parts of the Snaphook & Tri-Ring are assembled as shown.
(Parts not sold separately)

SNAPHOOK & TRI-RING

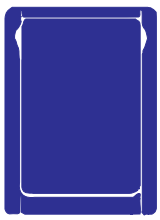
*of tough **Delrin 500** - in Black only*

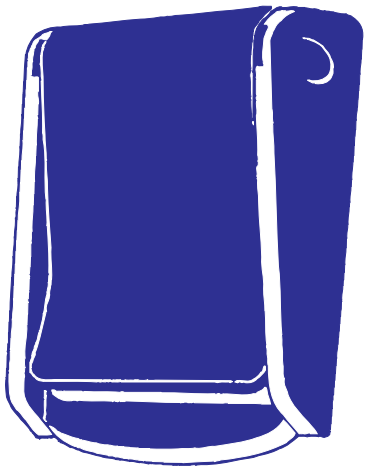
SPAENAUR No.	Snap Loop EYE SIZE	Tri-Ring INSIDE DIM.	UNIT PKG. (Complete sets)
122-422	For 3/4" Strap	7/8" max.	10
122-426	For 1" Strap	1-1/8" max.	10
122-430	For 1-1/4" Strap	1-3/8" max.	10
122-434	For 1-1/2" Strap	1-5/8" max.	10
122-438	For 2" Strap	1-5/8" max.	10

Very popular for use with camping gear, back-packing harness, diving equipment, restraint straps, etc. "Delrin 500" Temperature Range: -37°C to +82°C.

More Webbing Hardware on pages M31-M37.
Metal Loops on page M65.
Velcro® Buckles and Hardware on pages M8-M11.

122-611





122-650/651

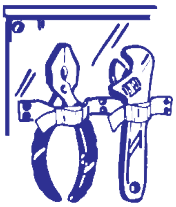
Metric

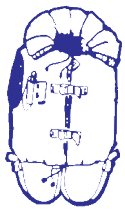
STRAP BUCKLE

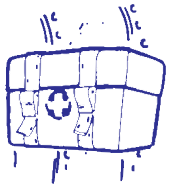
Runner Plate with locking flap.

Suitable for polyester straps, e.g. Terylene. Used for knapsacks, life-saving jackets, divers' suits, luggage straps and harnesses of various kinds, etc.

The buckle is attached to the strap by sewing, rivets or high-frequency welding.







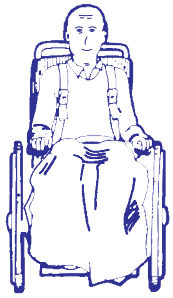
STRAP BUCKLE

of tough Delrin 500

For straps of 1.4 to 1.5 mm thick.

SPAENAUR No.	Colour	Strap Width mm	Unit Pkg.
122-611	**White**	15	25
122-621	**White**	20	25
122-630	**Black**	25	10
122-631	**White**	25	10
122-650	**Black**	40	10
122-651	**White**	40	10
122-681	**Black**	50	10
122-682	**White**	50	10

See also "Extra Strong", on next page.



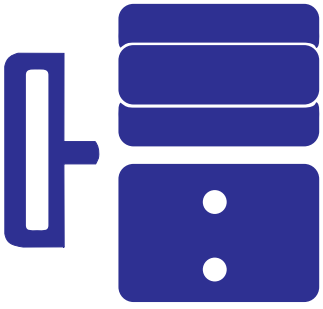
Delrin 500 White

***SPAENAUR No.* 122-327**

STRAP BUCKLE

Runner plate with locking flap.

122-327 is suitable for 25 mm straps of 0.5 to 0.7 mm thickness. Especially suitable for orthopedic uses. *Unit Pkg. Qty. 25*



STRAP GUIDES

Loop and base-plate.

For 20 mm straps.

Holds strap in correct position.

Mounting is accomplished with base-plate which is pressed on loop's studs after holes have been punched in the material.

SPAENAUR No.	Description	Colour	Strap Width	Unit Pkg.
122-319	Strap Guide	Grey	20 mm	25
122-322	Strap Guide	Gold	20 mm	25

M

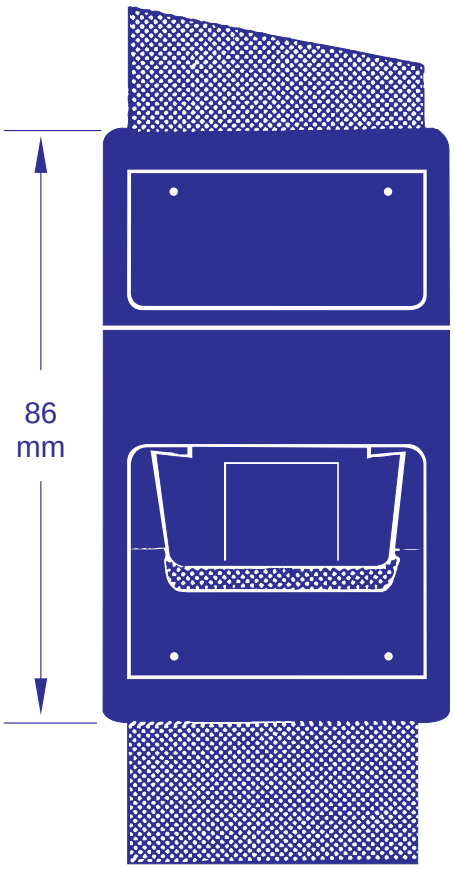
CATALOG 13

Parts illustrated are approx. actual size.

Metric

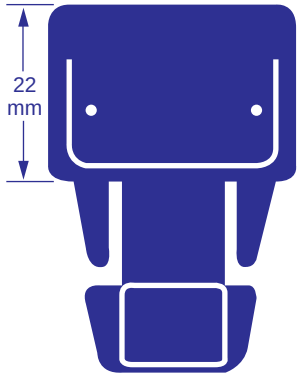
EXTRA STRONG CLIP BUCKLE

(Clip and Hold)



122-402 & 122-405

- **Suitable for webbings of Terylene, Nylon, etc.**
- **Special protection against accidental opening.**
- **Used on Life-Saving Jackets, heavy Rucksacks, etc.**



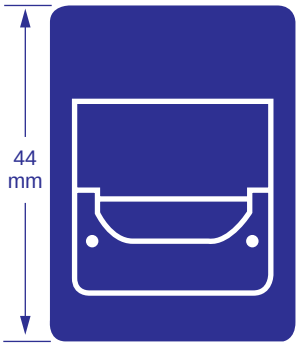
122-255

122-402. Suitable for 40 mm strap of 1.4 - 1.5 mm thickness.

122-255. Suitable for 25 mm strap of 1.4 - 1.5 mm thickness.

The surface of the strap should not be too smooth.

Mounting without sewing or rivets. Insert the strap in the clip and holder to the desired length. The Clip Buckle remains in position whether the strap is in use or not, but is nevertheless adjustable. Adjust the position by pushing the outer part of the strap inwards in order to release the strap. The loose end is hidden by the outer part of the strap.



Buckle has two separate parts, as shown above.

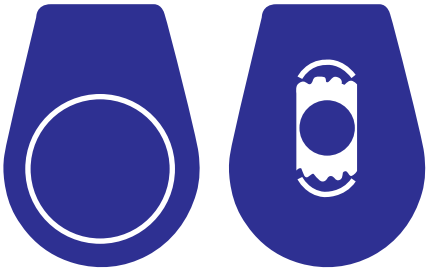
SPAENAUR No.	Colour	Strap Width	Strap Thickness	Unit Pkg.
122-255	White	25 mm	1.4 to 1.5 mm	10
122-402	Black	40 mm	1.4 to 1.5 mm	10
122-405	Grey	40 mm	1.4 to 1.5 mm	10

Additional colours are available. See page M33 for particulars.

CORD BUCKLE

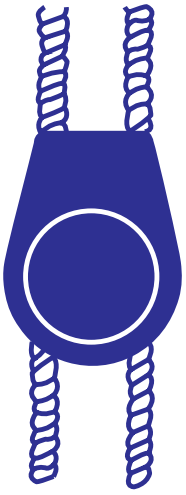
Holder and locking wheel supplied separately.

Used for bags and clothing. E.g. rucksacks, duffel bags, laundry bags, sleeping bag covers, anoraks, swimming trunks, sou'westers.



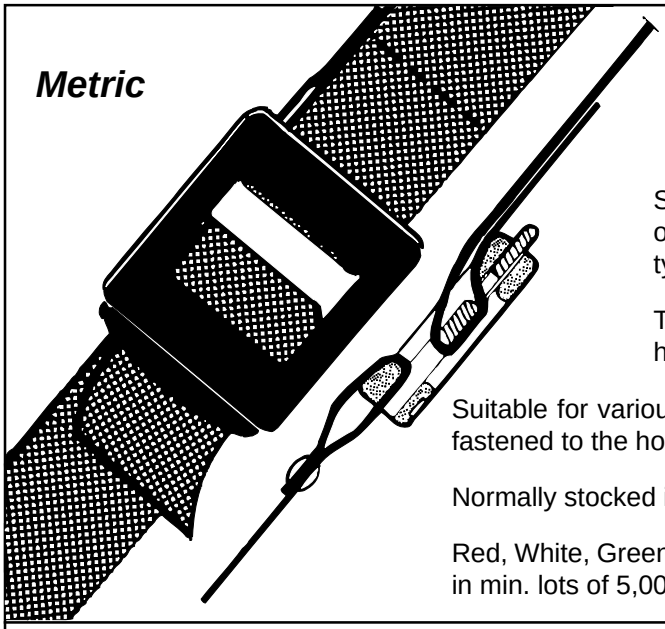
All Buckles have White Locking Wheel

Unit Package 25



For Cord Size	*SPAENAUR No's.* WHITE	BLACK	RED	BROWN	GREY
2 mm	**122-652**	**122-655**	—	**122-658**	—
3-4 mm	**122-660**	**122-663**	**122-666**	—	—
5 mm	—	—	—	—	**122-670**
7 mm	—	—	—	—	—

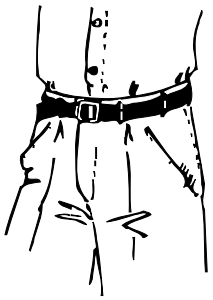
MOUNTING: After threading the cord through the holder, push in the locking wheel. Knot the ends of the cord.



Self-locking

STRAP BUCKLE

(Buckle body with slide)



Self-locking buckle for various kinds of belts, i.e. Leather, Vinyl, Web types, etc.

The locking effect is increased by heavier load.

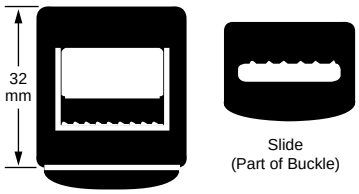
Suitable for various kinds of straps of 20 and 40 mm width. The strap is fastened to the holder by sewing, rivets, or high-frequency welding.

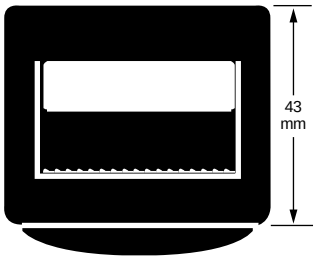
Normally stocked in Colours as shown.

Red, White, Green, Brown or Gold colours are available on “special order” in min. lots of 5,000, with delivery of approximately 10 weeks.

Self-locking **STRAP BUCKLE** *of Delrin 500*

SPAENAUR No.	**Colour**	**Belt Width mm**	**Unit Pkg.**
122-580	Grey	20	50
122-600	Black	40	25
122-605	Grey	40	25





Note: Each unit consists of 2 parts,
i.e., the buckle body, and the slide.

M

SPAENAUR

Canada’s leading supplier of industrial fasteners and components.

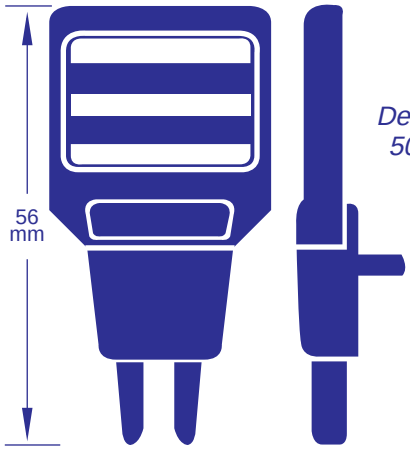
CATALOG 13

Metric

SNAP BUCKLE

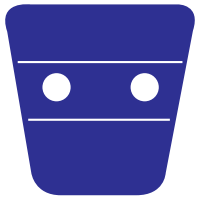
For suspender-type overalls

Permits stap length adjustment.
Buckle accepts strap of 25 mm width.
Parts need not be detached
before laundering.



For 25 mm Stap Width

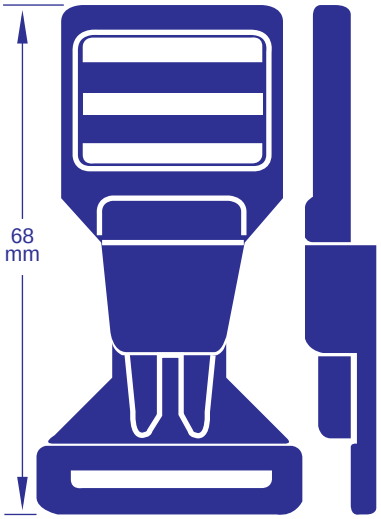
Delrin 500



Base Plate, for friction mounting of Catch

SPAENAUR No.	Description	Unit Pkg.
122-535	Strap Buckle, White	50

Each unit includes the Buckle-body, Catch, and 1 only base plate.



122-545
For 28 mm Strap Width

Delrin 500

SNAP BUCKLE

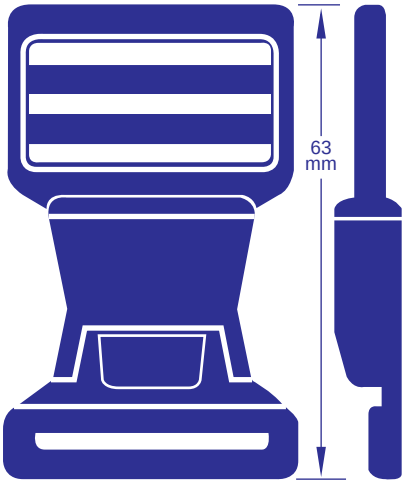
(2 Parts)

For Suspender-type Garments

The "Catch" section to be sewn on.

SPAENAUR No.	Colour	Strap Width	Unit Pkg.
122-545	White	28 mm	50
122-550	Black	30 mm	50
122-555	White	30 mm	50

*Other colours available, (see below)



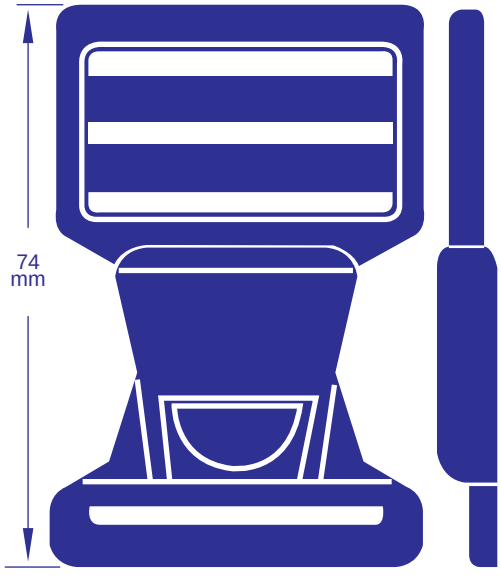
122-550/555
For 30 mm Strap Width

SNAP BUCKLE

For Life-Saving Jackets, etc.

Also used on suspender-type overalls of heavy materials.

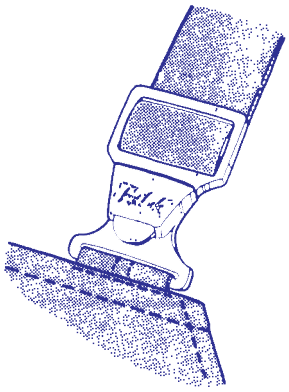
Catches to be sewn on.



122-560/565

SPAENAUR No.	Colour	Strap Width	Unit Pkg.
122-560	Gold	40 mm	50
122-565	White	40 mm	50
122-570	Gold	50 mm	25

Other colours: Red, Grey, Green, Brown or Black colours are available, on "special order", in minimum lots of 5000, with delivery of approx. 10 weeks.



Unit includes Buckle-body and Catch, of "Delrin 500"

M

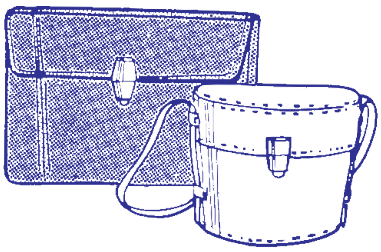
CATALOG 13

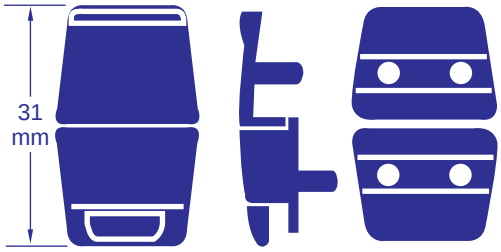
Metric

SNAP CATCH

For Handbags, Briefcases, Portfolios, Filing Boxes, Rainwear, etc.

Dependable in hot or cold climate. Washable. Won't dent, rust, stain, swell or shrink. Impervious to most solvents. **Temperature range: - 37°C to 82°C.**



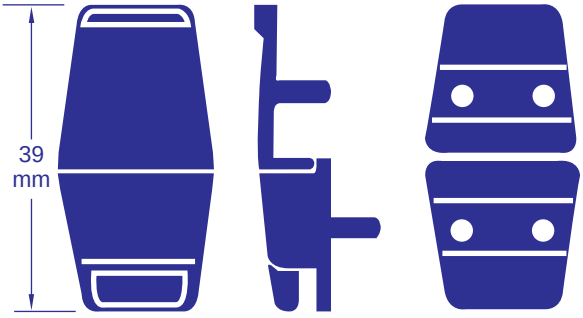


To be mounted with base-plates pressed on the Snap-body and Catch, after holes have been punched in the receiving material.

SPAENAUR No.	Description	Unit Pkg.
122-500	**SNAP-CATCH,** Black	50
122-505	**SNAP-CATCH,** White	50

Unit includes Snap-body, Catch, and 2 Base-plates.

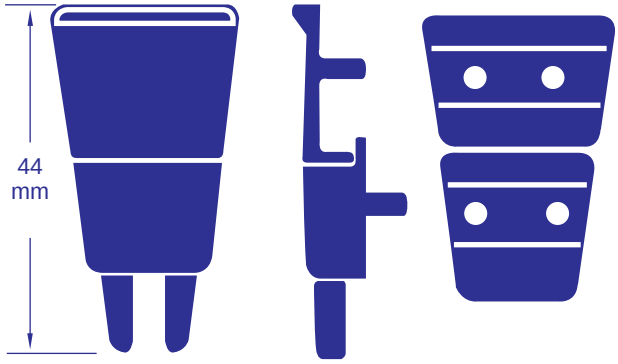
Delrin 500 is TOUGH!



SNAP CATCH

Unit includes Snap-body, Catch, and 2 identical Base-plates.

SPAENAUR No.	Description	Unit Pkg.
122-510	**SNAP-CATCH,** Black	50
122-515	**SNAP-CATCH,** White	50



SNAP CATCH

Unit includes Snap-body, Catch, and 2 Dis-similar Base-plates, as shown.

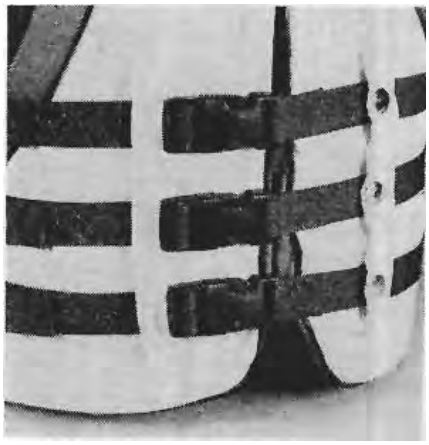
SPAENAUR No.	Description	Unit Pkg.
122-520	**SNAP-CATCH,** Black	50
122-525	**SNAP-CATCH,** White	50

Grey, Red, Green, Brown or Gold colours are available on "special order" basis, in minimum lots of 5,000, with delivery of approx. 10 weeks.

Delrin 500 Won't Stain!

SPAENAUR

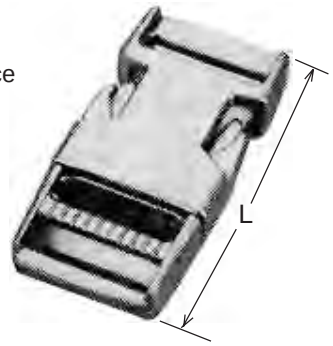
Our fully computerized systems give you prompt quotations and information!



SIDE RELEASE BUCKLE

The Side Release Buckle has become a standard for both performance and appearance among molded buckles and fasteners. It is popular in applications involving backpacking and sporting gear, soft luggage, juvenile products and a wide range of other new and ingenious uses. The patented design is both functionally and esthetically superior.

- Single-handed release and adjustment.
- Designed to prevent unintentional release.



SPAENAUR No.	Description	Overall Length (L)	Unit Pkg. Quantity
122-683	Fits 3/4" Webbing	2-3/16"	25
122-685	Fits 2" Webbing	3-1/8"	10

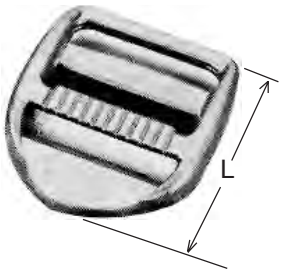
Material: **Acetal**

Colour: **Black**

LADDERLOC ™

The Ladderloc™ is one of the most versatile buckles available anywhere. It allows easy one-handed release or tightening of webbing and straps. Its design is simple but its applications are endless.

- Patented design eliminates slippage and creep of webbing.
- Unaffected by extremes in weather and temperature.



SPAENAUR No.	Description	Overall Length (L)
122-686	Fits 3/4" Webbing	1-35/64"
122-687	Fits 1" Webbing	1-37/64"

Material: **Acetal**

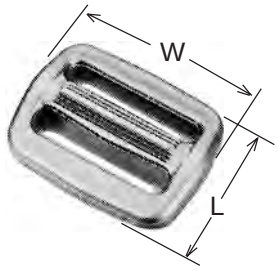
Colour: **Black**

*Unit Package Quantity - **50***

TRIGLIDE ™

The Triglide™ is perfect in any strap or webbing application where variable length is required. It also works well in combination with other buckles as a means of securing loose webbing needs.

- Engineered to grip webbing securely, yet readily adjustable.



SPAENAUR No.	Description	Length (L)	Width (W)
122-690	Fits 3/4" Webbing	29/32"	1"
122-691	Fits 1" Webbing	1"	1-19/64"
122-696	Fits 1-1/4" Webbing	1-3/8"	1-9/16"

Material: **Acetal**

Colour: **Black**

*Unit Package Quantity - **50***

M

CATALOG 13

SPAENAUR No.
122-671

Looploc ™

Ideal for holding straps or webbing where no adjustment is needed.
Rounded edges will not gouge or scratch.

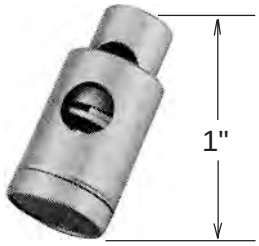
*****Other sizes and colours available subject to minimum order.
1", 1-1/4", 1-1/2" and 2".

Material: Acetal Colour: **Black**

Unit Package Quantity - ***50***

T-PLASTECH CORD-LOK ®

Size: MINI



The Cord-Lok® from T-PlasTech is one of the most popular spring-loaded cord closures available. It's been proven in hundreds of applications, ranging from casual apparel to expedition-quality outdoor gear.

- Pre-assembled.
- Stainless steel spring.
- Remains assembled even when cords are removed.

SPAENAUR No.	Colour	*Cord Diameter
122-692	Black	For 1/4"
122-693	White	For 1/4"
122-695	Red	For 1/4"

(*When using with Shockcord use 3/16" dia.)

Material: **ABS**

Unit Package Quantity - ***25***

M

See page M18 for Shockcord and Shockcord hooks.

See pages M8-M11 for Velcro® Buckles and Hardware.

SPAENAUR

Our Mission

- We are a Team of Professionals
- We Listen to our Customers
- We Grow Ourselves

Proudly serving you since 1936.

Furnished in LARGE SIZE, grey enamelled Steel Drawer with scooped bins.

Shipping weight: 3.52 kg (7-3/4 lbs.)

Drawer will fit into the Slide Racks shown on page A3.

ASSORTMENT 805-499
ASSORTIMENT

Anti-Corrosive

"MARINE" FASTENERS

16 Varieties — 633 Pieces

Complete with 3 Tools

Contains most popular fastener items for Canvas Covers, Camping Gear, etc.

Priced Singly

See pages M39 to M43 for the complete Fabric & Leather Fastener line.

Contents of 805-499 Assortment

(1) Brass, Nickel Plated **665-D** **Cap** 5/16" barrel length

(25) **164-T** **DRIVE TOOL**

2 in 1 ANVIL 670-T
(TOP) for Cap
(1) (BOTTOM) for Eyelet

(1) **450-T PUNCH** For "Common Sense" fasteners

(25) Brass Nickel Plated **550-B** **EYELET** 5/16" barrel length

(15) **106-001** **"QUICK-SNAP" DURABLE STUD** Brass, Bright Nickel Plated. 5/64" Pull mandrel is of Stainless Steel. For use with No. 548D Socket. Attaches to Panel like a "Pop" rivet. Use Rivet Tool No. 876-400

(24) Brass Nickel Plated **400** "Common Sense" **EYELET**

(24) Brass Nickel Plated **400A** "Common Sense" **WASHER**

"Common Sense" FASTENER
(10) **401-CS STUD (Single)**
(20) **980-S SCREW** (6 x 5/8") Brass, Nickel Plated

(15) **106-027** Phillips Drive #8 x 5/8" Wood Screw.
ALL STAINLESS STEEL **FASTENER STUD**

(30) Use with 550-S STUD **ST-2133** 6 x 3/4" Slot Flat Head STAINLESS STEEL **TAPPING SCREW** (For Wood, Plastic or Metal)

(15) Use with 550-S STUD **MS-2358P** 6-32 x 3/4" STAINLESS STEEL **MACHINE SCREW**

(15) **HN-2003** 6-32 **HEX NUT**

(15) **W-2060** #6 Internal Tooth **LOCKWASHER**
STAINLESS STEEL

(100) Brass Nickel Plated **670-D** **Cap** 1/4" barrel length

(100) Brass Nickel Plated **548-D** **SOCKET**

(100) Brass Nickel Plated **550-S** **STUD**

(100) Brass Nickel Plated **550-A** **EYELET** 1/4" barrel length

M

CATALOG 13

SNAP FASTENERS *(Install with regular screwdrivers.)*

UNIT PACKAGE QUANTITY 100
All fasteners on this page.

Flanged STUD

Self-Drilling

Phillips Drive
106-033 #8 x 1/2"
106-034 #8 x 3/4"
Stainless steel screw
Brass stud
Nickel plated

Flanged STUD

Phillips Drive

Wood Screw

106-026 #8 x 3/8"
106-027 #8 x 5/8"
Brass stud, nickel plated
Stainless steel wood screw

Robertson Drive
106-002 #8 x 3/8"
106-030 #8 x 5/8"
Stainless steel stud
Nickel plated steel screw

Flanged STUD

Phillips Drive

106-032 8-32 x 3/16"
106-004 8-32 x 1/4"
106-005 8-32 x 5/8"
Steel machine screw
Brass stud
Nickel plated

STUD

Phillips Drive
106-006 10-32 x 1/4"
106-028 10-32 x 3/8"
Steel machine screw

106-038 10-32 x 3/8"
106-007 10-32 x 5/8"
Brass machine screw

Brass stud
Nickel plated

Flanged STUD

Tapping Screw

Phillips Drive
106-003 #8 x 3/8"
UH-54 #8 x 5/8"
Steel tapping screw

106-035 #8 x 3/8"
106-036 #8 x 5/8"
106-037 #8 x 1"
Stainless steel screw

Brass stud
Nickel plated

STUD

Brass
Nickel plated

B-1900 on 3/4" channel
B-1901 on 7/8" channel
Channel length - 9/16"

C-978 SLIDE SOCKET

Steel,
nickel plated
For 1/2" strap

SNAP FASTENERS

Fasteners shown below and on M40 require special fastener tools.
(See pages M40 and M41.)

O.D. .600" 24 line

CAP

5/16" barrel

665-D Nickel on brass
665-DB Plain brass
106-025 Nickel on steel

O.D. .600" 24 line

CAP

1/4" barrel

670-D Nickel on brass
106-008 Blue on brass
106-009 Black on brass
670-DB Plain brass
670-DS Nickel on steel

SOCKET

548-D Nickel on brass
548-DB Plain brass
548-DS Nickel on steel

STUD

Eyelet attaching type

550-S Nickel on brass
550-SB Plain brass
550-SS Nickel on steel

EYELET

550-A 1/4" Nickel on brass
550-AB 1/4" Plain brass
550-AS 1/4" Nickel on steel
550-B 5/16" Nickel on brass
550-BB 5/16" Plain brass
106-024 5/16" Nickel on steel
550-C 3/8" Nickel on brass
550-CB 3/8" Plain brass

C-985 CAP

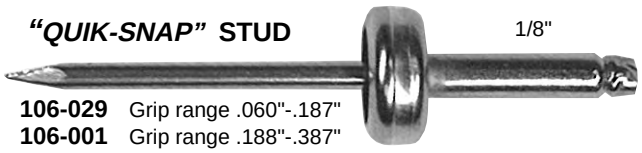
Brass
Gilt Finish

13/16" O.D.
7/32" barrel length

552-D STUD

Eyelet attaching type
Double
Nickel on brass

"QUIK-SNAP" STUD



1/8"

106-029 Grip range .060"-.187"
106-001 Grip range .188"-.387"
Brass, bright nickel plated
For use with No. 548-D Socket
Attaches to panel like a "Pop" rivet
Use Rivet Tool No. 876-400

5/64" pull mandrel is of stainless steel

BABY DURABLE FASTENERS

BUTTON
20 Line

3/16"
Barrel
Length

B-1286 Nickel on brass
B-1286-B Plain brass
B-1286-1 Black on brass
B-1286-3 Brown on brass
106-019 White on brass
106-010 Black on steel
106-011 Lt. brown on steel
106-012 Lt. blue on steel
106-013 Yellow on steel
106-014 Red on steel
106-015 Drk. blue on steel
106-016 Drk. brown on steel
106-017 White on steel
106-018 Green on steel
106-020 Nickel on steel

SOCKET

Regular action

B-1287
Nickel on brass

B-1287-B
Plain brass

STUD

Flange diameter 31/64"

B-1288 Nickel on brass
B-1288-B Plain brass
106-023 Nickel on steel

EYELET

3/16" barrel length

B-1289 Nickel on brass
B-1289B Plain brass
106-021 Nickel on steel

1/4" barrel length

B-1290 Nickel on brass
B-1290-B Plain brass
106-022 Nickel on steel

PULL-THE-DOT FASTENERS

B-1826 BUTTON

Brass, Nickel plated

24 Line

11/64" Barrel length

Attaching Tool No. 670-T

B-1827 SOCKET

Brass, Nickel plated

Stiff action

Attaching Tool No. 164-T

B-1824 STUD

Brass, Nickel plated

Clinch Type

Attaching Tool No. 9760-T

EYELET

550-A	1/4" Nic. on brass
550-AB	1/4" Plain brass
550-B	5/16" Nic. on brass
550-BB	5/16" Plain brass
106-024	5/16" Nic. on steel
550-C	3/8" Nic. on brass
550-CB	3/8" Plain brass
550-AS	1/4" Nic. on steel

SPEEDY RIVETS

For use on leather belts, handbags, luggage, etc., where a quick, sure riveting job is needed.

O.D. 9/32"
O/A Lgth. 3/16"

BUTTON — TOP

106-191	Nickel on brass
106-190	Nickel on steel
106-187	Black on brass
106-188	Brown on steel

EYELET — BASE

106-192 Barrel Lgth. 19/64" Nickel on Brass
Flange Diameter 21/64"

106-189 Barrel Lgth. 7/32" Nickel on Steel
Flange Dia. 21/64"

O.D. 3/8"
O/A Lgth. 17/64"

BUTTON — TOP

106-196	Nickel on brass
106-193	Nickel on steel
106-183	Black on steel
106-184	Brown on steel

EYELET — BASE

106-185 Barrel Lgth. 5/16" Nickel on Steel
Flange Diameter 25/64"

Speedy Rivet
ATTACHING TOOLS

For use with 876-830 Press shown on page M41.

876-529

876-530

Tool No.	For attaching
876-529	106-187, -188, -190, -191.
876-530	106-189, -192.
876-531	106-183, -184, -193, -196.
876-532	106-185.

Priced Singly.

Pres-N-Snap SETTING TOOL
will install

- **Snaps**
- **Grommets**
- **Speedy Rivets** with an O.D. of 9/32"
- **Pull-the-Dot Fasteners** 24 line

Overall Length 12"
Throat Depth 3-1/4"

Complete Information on page M44.

DRIVE TOOL
(SETTING PUNCH)

164-T
For regular size (24 line) Snap Buttons and Eyelets

876-007
For small size (20 line) Baby Durable Buttons & Eyelets

2 IN 1 ANVIL

670-T
Size: 24 line

TOP
For Snap Buttons

BOTTOM
For Snap Eyelets

Note:
No. 670-T is a 2 in 1 die. It is made with concave 670-T style on top face, plus the 550-T face, on bottom.

For Baby Durable
20 line size

876-009 Die (For B-1286 Button)
876-008 Die (For B-1289 Eyelet)

TIME-SAVER ATTACHMENTS
For installing SNAP FASTENERS

No.	Description
T-10R	**VISE-GRIP PLIER/WRENCH** straight jaw model, 10" long, throat depth 15/16" back of throat to centre of attachment dies.
T3-7	**ATTACHMENT KIT** 1 each of T4-79B, T4-80B, T4-82A, T4-89A.
	Kit Components
T4-79B	**ANVIL** for Button 670D
T4-80B	**ANVIL** for Eyelet 550A
T4-82A	**CLINCHER** Button (holds 548D)
T4-89A	**CLINCHER** Eyelet (holds 550S)

GROMMET SETTING TOOLS
Use with T-10R Vise-Grip Plier/Wrench

T-3-8-A for setting Size 0 sheet brass grommets.

T-3-8-B for setting Size 1 sheet brass grommets.

UNIT PACKAGE - 1 SET

HAND OPERATED BENCH PRESS

– with approximately 4-1/2" throat depth and long padded handle to improve leverage and maximize performance.

Accepts dies and adapters having 3/8" shaft diameters.

Fasteners that can be set using this Bench Press and appropriate die sets include: Snap Fasteners, Rolled Flange Brass Eyelets, "Klikit" Snap Fasteners, Rolled Rim Brass Grommets with Spur Washers, Speedy Rivets - Button and Eyelet, Sheet Brass Grommets with Washers, Cord Couplers, Etc.

SPAENAUR No.
876-830

O/A Ht. 12"
O/A Lgth. 9-1/2"
Throat Ht. 2-1/4"

Snap Fastener Dies – Must be ordered separately.

CAP (Bottom)
SPAENAUR No.
876-831

SOCKET (Top)
SPAENAUR No.
876-832

STUD (Top)
SPAENAUR No.
876-833

EYELET (Bottom)
SPAENAUR No.
876-834

UPPER and LOWER DIES FOR BENCH PRESSES and DRIVE TOOLS and BENCH DIES FOR HAND INSTALLATION

MUST BE ORDERED SEPARATELY.

Select suitable Installation Tools by referring to the following—

FASTENERS			INSTALLATION TOOLS			
			HAND	BENCH PRESS		
			ORDER BY *SPAENAUR* NUMBERS LISTED BELOW			
TYPE	PART	NUMBER(S)	BENCH DIE	DRIVE TOOL	3/8" SHANK DIA. LOWER DIE	3/8" SHANK DIA. UPPER DIE
SNAP FASTENERS 24 line (.600" Dia.)	Buttons	665D & 670D Series	**670-T**	**164-T**	**876-831**	**876-832**
	Sockets	548D Series				
	Eyelets	550 Series			**876-834**	**876-833**
	Studs	550 Series				
	Stud	552D	—		—	—
PULL-THE-DOT FAST.* 24 line (.600" Dia.)	Button	B-1826	**670-T**	**164-T**	**876-831**	**876-832**
	Socket	B-1827				
	Eyelets	550 Series			**876-834**	**876-833 or 9760T**
	Stud	B-1824				
BABY DURABLE 20 line (.500" Dia.)	Buttons	B-1286 Series	**876-009**	**876-007**	**1483-T**	**9323-T**
	Sockets	B-1287 Series	—			
	Eyelets	B-1289 & B-1290 Series	**876-008**		**1488-T**	**1486-T**
	Studs	B-1288 Series	—			
SPEEDY RIVETS	Button Top 9/32" O.D.	106-187, 106-188, 106-190 & 106-191	—	—	—	**876-529**
	Eyelet Base 21/64" Flange Dia.	106-189, 106-192	—	—	**876-530**	—
	Button Top 3/8" O.D.	106-183, 106-184, 106-193 & 106-196	—	—	—	**876-531**
	Eyelet Base 25/64" Flange Dia.	106-185	—	—	**876-532**	—

***** The 876-220 Pres-N-Snap tool on page M44 will also set the Pull-the-Dot Fasteners on page M40.

Typical Upper and Lower Die

For use in any press or tool holders which will accept 3/8" shank dia.

BENCH TOOLS

192-T CHUCK DIE HOLDER
For 3/8" Shank Dia. Upper Die.

9902-T

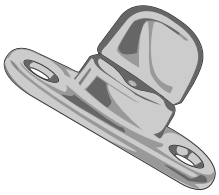
For 3/8" Shank Dia. Dies

LOWER DIE HOLDER

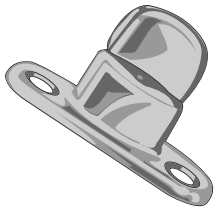
COMMON SENSE FASTENERS

Unit Package Quantity 100 — All fasteners this page.
All tools Unit Package Quantity 1.

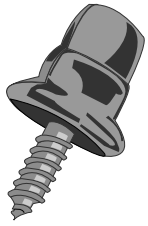
P.C. 106



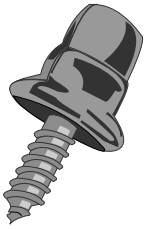
401-CS
STUD
Single, two screw base.
Nickel on Brass



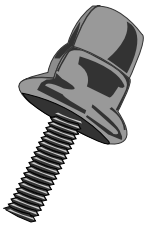
402-CS
STUD
Double, two screw base.
Nickel on Brass.
402-CSB
Plain Brass.



404-CS
STUD
#7 x 5/8"
Wood Screw.
Nickel on Brass.
(Steel Screw.)



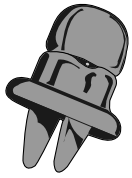
404-B
STUD
#12 x 5/8"
Wood Screw.
Nickel on Brass.
(Steel Screw.)



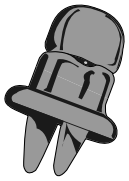
408-A
STUD
6-32 x 5/8"
Machine Screw.
Nickel on Brass.
(Brass Screw.)

400
EYELET
Regular 1/4" prongs.
Nickel on Brass.
400B
Plain Brass.
420
Long prong, 5/16".
(Not Illustrated)
Nickel on Brass.
420-B
Plain Brass.

400A
WASHER
For attaching No.
400 or No. 420.
Nickel on Brass.
400AB
Plain Brass.



410 STUD
Single, two prong,
clinch type.
Nickel on Brass.
410-B
Plain Brass.



412 STUD
Double, two prong,
clinch type.
Nickel on Brass.
412-B
Plain Brass.

410A
CLINCH PLATE
For attaching stud
No. 410 or No. 412.
Nickel on Brass.
410-AB
Plain Brass.

450-T

Punch for 400, 400B,
420, 420B Eyelets.

P.C. 876

HAND PUNCHES

171-T

Punch for 410 and 412, also 895 Studs.

LIFT-THE-DOT FASTENERS

Supplied in Nickel Finish Only

608
SOCKET
Regular, 7/32"
prongs. Brass
with bronze
spring.

609
SOCKET
Long prong,
9/32". Brass
with bronze
spring.

708A
CLINCH
PLATE
For attaching
No. 608 or No.
609. Brass.

895
STUD
Single, clinch
type. Brass.

295A
CLINCH
PLATE
Use with stud
No. 895. Brass.

844
STUD
Single, eyelet
type. Brass.
Tubular.

844A
WASHER
Use with stud
No. 844.

151-T
HAND
PUNCH

For
608
and
609
Sockets.

952-D
#8 x 3/8"
952-DL
#8 x 5/8"
Single, large
hexagon base.
Self-Tapping
Steel Screw.

852-D
STUD
#8 x 5/8"
Brass Wood
Screw.
Single, large
hexagon base.

953-D
STUD
#8 x 3/8"
Brass Wood
Screw.

882-D
STUD
10-32 x 5/8"
Machine Screw
Single, large
hexagon base.

HAND SCREW
DRIVER
169-E

for Studs
882D, 852D,
952D, and 953D.

ALL STUDS MADE OF BRASS, NICKEL PLATED.

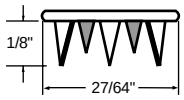
CATALOG 13

M

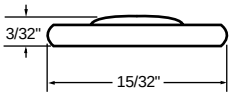
Klikit®

SNAP FASTENERS Brass — Nickel Plated

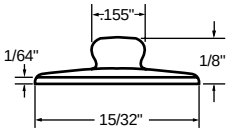
Unit Package Quantity - 100



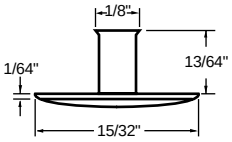
106-100
OPEN FRONT



106-101
SOCKET



106-102
STUD



106-103
EYELET

ATTACHING TOOLS

with 3/8" Arbor
for 876-830 Hand Press

SPAE-NAUR No.	Fits Fastener	Pkg.
876-014	106-100	1
876-015	106-101	1
876-016	106-102	1
876-017	106-103	1

CINCH FASTENERS

Nickel on Brass

Note:
WASHERS, SOCKETS,
& EYELETS,
are no longer available.

16C STUD

Single

Unit Pkg. 100

10-32 x 1/4"
Machine Screw

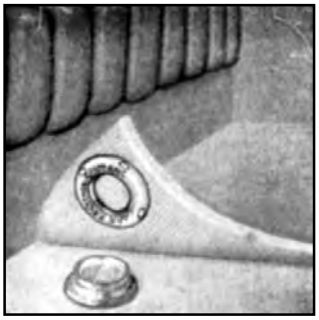
CINCH FASTENING TOOL

3501-T

Yankee Screwdriver Bit for installation and removal of 64C socket.

PRICED SINGLY

(64C socket is no longer available.)



UNIT PACKAGE QTY.
100 (one number)

VELTREX — Vintage type CARPET FASTENERS

Socket is fastened to carpet by means of a pronged ring. When attached, ring is concealed in nap of carpet. Will not bend or break under pressure of stepping on fastener.

Used with
Snap Fastener STUDS
(See page M39.)

106-194
Socket

106-195
Pronged Ring

Brass — Black Nickel Finish

M

SPAENAUR

Our customers know they can rely on us to provide immediate delivery on most items. Day in and day out, 97 out of every 100 orders are shipped complete within 24 hours.

CATALOG 13

PRES-N-SNAP

SETTING TOOL

876-220

for

Snap Fasteners,
Brass Grommets,
Speedy Rivets with O.D. of 9/32",
and Pull-the-Dot Fasteners 24 Line.

UNIT PACKAGE 1

(Includes 1 each of Die Nos. 876-221, 876-222, 876-223 and 876-1554 for setting Snap Fasteners, plus one two-piece die set 876-226 for setting sheet Brass Grommets.)

U.S.A. Patent 0-221126

- **Strong aluminum body.**
- **3-1/8" throat clearance.** (O/A Lgth. 12", O/A Width 5-1/2")
- **Adjustable stroke for positive clinching.**
- **All-Steel, basic die-set included.**

Installs SNAPS and GROMMETS quickly in upholstery, auto tops, boat covers, tents, tarps, canvas, etc.

A "No Nonsense" Tool at last — built to last!

876-221
Die for No. 670-D
Snap Fastener Cap

876-1554
Die for No. 548-D Snap
Fastener Socket.

876-222
Die for Nos.
550-A, B & C
Snap Fastener Eyelets

876-223
Die for 550-S
Snap Fastener Stud

876-230
Rubber Retainer
used with Die Nos.
876-221 and 876-222

Die Set	Size
876-224	00
876-225	0
876-226	1
876-227	2

Two-Piece Die-Sets, for setting
Sheet Brass Grommets

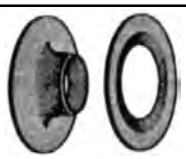
Die Set	Size
876-228	0
876-229	1

Two piece Die-Sets, for setting
Spur Type Brass Grommets

Tool parts list for Pres-N-Snap

876-1551	Plunger Only
876-232	Handle
876-233	Lever
876-234	Compression Spring
876-235	Bolt & Nut
876-236	Adjusting Bolt
876-237	Frame Only

All Dies and Parts Priced Singly



ALUMINUM

116-301	Grommet	0	7/32"
116-302	Washer	0	7/32"

Unit Pkg. 100

BRASS GROMMETS and WASHERS shown on opposite page.

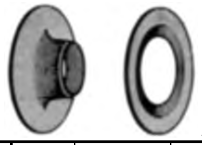
M

CATALOG 13

SHEET BRASS GROMMETS WITH WASHERS

Furnished in "PACKAGES" only

Stamped Brass



Flat Flange Style

See page M44 for Aluminum Grommets

S.B. GROMMETS & WASHERS SEPARATE COMPONENTS

Sold "in Bulk" or in Packages.

SPAENAUR No.	Size No.	(Approx.) Hole Dia.	Finish	Unit Pkg.	GROMMET ONLY SPAENAUR No.	WASHER ONLY SPAENAUR No.	Unit Pkg.
7344	00	3/16"	Plain Brass	144	**116-105**	**116-205**	100
7344-GB	00	3/16"	Black Oxide	144	**116-105GB**	**116-205GB**	100
7344-N	00	3/16"	Nickel Plated	144	**116-106**	**116-206**	100
7345	0	1/4"	Plain Brass	144	**116-107**	**116-207**	100
7345-N	0	1/4"	Nickel Plated	144	**116-108**	**116-208**	100
7346	1	5/16"	Plain Brass	144	**116-109**	**116-209**	100
7346-N	1	5/16"	Nickel Plated	144	**116-110**	**116-210**	100
7347	2	3/8"	Plain Brass	144	**116-111**	**116-211**	100
7347-N	2	3/8"	Nickel Plated	144	**116-112**	**116-212**	100
7348	3	13/32"	Plain Brass	144	**116-113**	**116-213**	100
7348-9	3 1/2	7/16"	Plain Brass	144	**116-115**	**116-215**	100
7349	4	15/32"	Plain Brass	144	**116-117**	**116-217**	100
7350	5	9/16"	Plain Brass	144	**116-119**	**116-219**	100
7363	6	13/16"	Plain Brass	144	**116-120**	**116-220**	100

ROLLED RIM BRASS GROMMETS WITH SPUR WASHERS

Plain Finish
*Nickel Plated

In Packages only

SPUR-TYPE SEPARATE COMPONENTS

Sold "in Bulk" or in Packages.

SPAENAUR No.	Size No.	(Approx.) Hole Dia. When Set	Unit Pkg.	GROMMET ONLY SPAENAUR No.	WASHER ONLY SPAENAUR No.	Unit Pkg.
7370	0	5/16"	144	**116-121**	**116-221**	100
7371	1	3/8"	144	**116-123**	**116-223**	100
7372	2	7/16"	144	**116-125**	**116-225**	100
***7372-N**	2	7/16"	144	***116-126**	***116-226**	100
7373	3	15/32"	144	**116-127**	**116-227**	100
7374	4	5/8"	144	**116-129**	**116-229**	100
7375	5	11/16"	144	**116-130**	**116-230**	100
7376	6	7/8"	144	**116-132**	**116-232**	100
7377	7	15/16"	144	**116-134**	**116-234**	100
7378	8	1"	144	**116-136**	**116-236**	100

BRASS VENTILATOR GROMMETS (WITH STEEL WASHERS)

SEPARATE COMPONENTS *In Bulk or Pkgs.*

SPAENAUR No.	Hole Diameter	Top O.D.	Unit Pkg.	GROMMET ONLY SPAENAUR No.	WASHER ONLY SPAENAUR No.	Unit Pkg.
24-SN	9/16"	3/4"	144	**116-104**	**116-204**	100
B-1299	3/4"	1"	100	**116-103**	**116-203**	100

SETTING TOOLS: **T-201** Hand Cutter & Dies - For No. 24-SN
T-202 Hand Cutter & Dies - For No. B-1299

OBLONG GROMMETS WITH WASHERS

In Packages only

SEPARATE COMPONENTS

Sold "In Bulk" or Pkgs.

SPAENAUR No.	(Approx.) Hole Size	Material	Unit Pkg.	GROMMET ONLY SPAENAUR No.	WASHER ONLY SPAENAUR No.	Unit Pkg.
B-1140	1/4" x 7/8"	Brass, Plain	144	**116-101**	**116-201**	100

SETTING TOOLS: B-1140 takes **M-91** Hand Cutter & **876-525** Hand Die.

INSERTING DIES FOR SHEET BRASS GROMMETS

Unit Pkg. 1 Set.

SPAENAUR No.	Size No.	(Approx.) Grommet Hole Dia.
876-1777	00	3/16"
876-1778	0	1/4"
1-GT	1	5/16"
2-GT	2	3/8"
3-GT	3	13/32"
3 1/2-GT	3 1/2	7/16"
4-GT	4	15/32"
5-GT	5	9/16"
6-GT	6	13/16"

INSERTING DIES FOR BRASS SPUR GROMMETS

Unit Pkg. 1 Set.

SPAENAUR No.	Size No.	(Approx.) Grommet Hole Dia.
M-40	0	5/16"
M-41	1	3/8"
M-42	2	7/16"
M-43	3	15/32"
M-44	4	5/8"
M-45	5	11/16"
M-46	6	7/8"
M-47	7	15/16"
M-48	8	1"

HOLE CUTTERS
Drop Forged Steel - Side-type

Use a wood mallet with all dies and cutters.

SPAENAUR No.	Size No.	Hole Dia.
M-29	00	3/16"
M-30	0	1/4"
M-31	1	9/32"
M-32	2	3/8"
M-33	3	7/16"
M-34	4	1/2"
M-35	5	5/8"
M-36	6	3/4"
M-37	7	7/8"
M-38	8	1"
M-93	-	1-1/4"

Priced Singly

GROMMETING DIES FOR USE IN PRESSES

Sold in complete sets only (Top and Bottom Dies).

Dies have **3/8" SHANK DIAMETER** to fit any press which accepts 3/8" shank dia. (e.g. 876-830 Hand Press on page M41).

FOR GROMMET SIZE No.	For SHEET BRASS GROMMETS DIE SET No.	For Spur-type GROMMETS DIE SET No.
00	**876-549**	**-**
0	**T-218**	**876-537**
1	**T-219**	**876-538**
2	**T-220**	**876-539**
3	**T-221**	**876-540**
3-1/2	**876-560**	**-**
4	**T-222**	**876-541**
5	**T-223**	**876-542**

Unit Package - 1 Set

M

CATALOG 13

USED ON CONVERTIBLE TOPS (ESPECIALLY BRITISH AND EUROPEAN CARS), CANVAS AND LEATHER GOODS, ETC.

Locks securely

Quickly released by "just a pinch"

Two Basic Sizes: Standard and Small
Non-rustable: Brass - Nickel Plated.

Be sure to order all individual parts required.
Each part takes a separate stock number.

Unit Package: 50 pieces of one stock number.
(Except TR-38 - Unit Pkg. 10)

SNAP LOCKING BUTTONS
Self-locking, Clutch Action

TX-1
Standard Button

NOTE:
'SMALL' SERIES LOCKING BUTTONS DISCONTINUED.
'SMALL' SERIES PEGS AVAILABLE ONLY WHILE CURRENT STOCK LASTS.

LOCKING NUTS
One Nut required with each Button to attach same to the canvas, leather, etc.

TX-3
DOMED NUT
For Single or Double Canvas

TX-4
FLAT NUT
For Treble or Four Fold Canvas

SHORT CANVAS PEGS

For Single Canvas

TX-5 Standard
106-168 Small

For Treble Canvas

TX-6 Standard
106-169 Small

MEDIUM CANVAS PEGS

For Single Canvas

TX-9 Standard
106-170 Small

For Treble Canvas

TX-10 Standard
106-171 Small

NUT
TX-13

One Nut required with each Canvas Peg to attach same.

WOODSCREW PEGS
1/2" long Wood Screw

TX-14 Standard
106-172 Small

TX-15 Standard
106-173 Small

WOODSCREW SOCKET

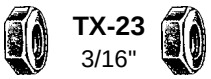
TX-18

MACHINE SCREW PEGS (3/16" WHITWORTH THREAD x 3/8" LONG)

TX-19 Standard

TX-20 Standard
106-175 Small

HEXAGON NUTS

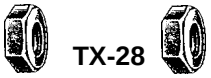


TX-23
3/16"
Whitworth Thread

MACHINE SCREW PEGS (2. B.A. THREAD x 3/8" LONG)

TX-24 Standard
TX-24S (3/32" long) **106-176** Small

TX-25 Standard
106-177 Small



TX-28
2. B.A. Thread

DOUBLE SCREW BASE PEGS

TX-29 Standard

TX-30 Standard

CLINCH FIXING PEGS

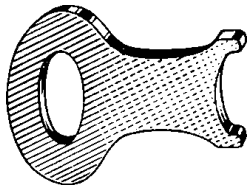
TX-33 Standard
106-180 Small

TX-34 Standard
106-181 Small

CLINCH FIXING PLATE

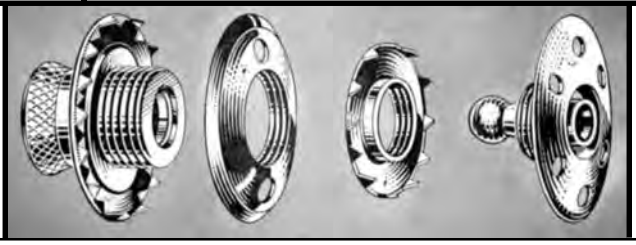
295A CLINCH PLATE
One Plate required with each Clinch Fixing Peg.

TX-38 FIXING KEY



To install Buttons and Canvas Pegs.

Unit package - 10



HOW TO SELECT E EYELETS

1. DETERMINE GRIP. Eyelet grip is the thickness which can be held between the flange and the setting and will vary with the materials being eyeleted. Maximum grips listed in the chart are based on test settings made in metal panels and are intended only as a guide for your use. It is recommended that sample settings be made for each new application. To determine the grip, measure the total thickness of the materials to be eyeleted. Locate the corresponding grip in the chart. Reading to the right will identify the various standard E Eyelets which will provide the desired grip.

Example: Assume the material(s) to be eyeleted have a total work thickness of .175". Reading vertically down the DESIRED GRIP column locate the nearest standard grip figure which is .176". Now reading horizontally to the right, identify the various E Eyelets which will provide the required grip, that is E27, E38, E48, E58, E68, E78 and E88.

2. DETERMINE EYELET SIZE. With a possible selection of three or more eyelet sizes available for a given grip, the function of the eyelet will help determine the eyelet diameter to be used. Will the eyelet be subjected to tensile or shear stresses, is the size of the hole to receive the eyelet already established, is the inside diameter critical because something will be passed through the eyelet, or will the eyelet be used as a decoration and size becomes an aesthetic decision?

3. DETERMINE WORKING DIMENSIONS. The chart on page M49 graphically depicts 66 standard E Eyelets. Eyelet dimensions and required hole sizes are all identified for your convenience.

DESIRED GRIP	E EYELET SIZES						
.020	E-22	E-33	E-43	E-53	E-63	E-73	E-83
.035	E-23					E-74	E-84
.040				E-54	E-64		
.045		E-34	E-44				
.051						E-75	E-85
.067	E-24			E-55	E-65		
.072							
.077							
.082		E-35	E-45			E-76	E-86
.098	E-25						
.103				E-56	E-66		
.108							
.113		E-36	E-46			E-77	E-87
.129	E-26						
.134				E-57	E-67		
.139							
.144		E-37	E-47			E-78	E-88
.161	E-27						
.166				E-58	E-68		
.171							
.176		E-38	E-48			E-79	E-89
.192							
.197				E-59	E-69		
.202							
.223		E-39	E-49			E-710	E-810
.228							
.233				E-510	E-610		
.254		E-310	E-410			E-711	E-811
.259							
.264				E-511	E-611		
.286		E-311	E-411				
.290						E-712	
.291							
.296							
.317							E-812
.322			E-412		E-612		
.328							
.348							E-813
.353					E-613		

EYELETTING DIES FOR BRASS EYELETS

DIES WITH 5/16" ARBORS.

Die Set No.	For Eyelet Dia.
T-234-2	2/32" (.059")
T-234-3	3/32" (.089")
T-234-4	4/32" (.121")
T-234-5	5/32" (.152")
T-234-6	6/32" (.183")
T-234-7	7/32" (.215")
T-234-8	8/32" (.246")

ARBOR ADAPTERS — *Priced Singly*
T-194A-M (Male) Converts 5/16" to 3/8"
T-194A-F (Female) Converts 5/16" to 3/8"
P.C. 104, 876

DIES WITH 5/16" ARBORS, AND 3/8" ADAPTERS.

Die Set No.	For Eyelet Dia.
T-211	2/32" (.059")
T-212	3/32" (.089")
T-213	4/32" (.121")
T-214	5/32" (.152")
T-215	6/32" (.183")
T-216	7/32" (.215")
T-217	8/32" (.246")

Sold in Complete Sets Only.— (Top and Bottom Dies)

Die sets T-211 to T-217 may be used with
876-830
Hand Press.
(Dies not included.)

SPAENAUR No.
876-830
Priced Singly

Accepts Dies having 3/8" Shank Dia.

Complete Hand Press information on page M41.

M

CATALOG 13

Rolled Flange Style

Eyelet Mtrl. Thick.	*SPAENAUR No.*
.006"	**E-22 to E-25**
.007"	**E-26, E-27**
.008"	**E-33, E-34**
.009"	**E-35, E-310, E-311**
.0095"	**E-36, E-37 E-43 to E-48**
.010"	**E-38, E-39 E-411 to E-510 E-63, E-64**
.0105"	**E-49, E-410 E-65 to E-611**
.011"	**E-412, E-511, E-612 to E-813**

Adaptable as rivets, reinforcements, pivots, bushings, vents, etc.

Widely used in electronics parts assemblies.

UNIT PACKAGE 100 ONLY

Length under Flange	(A) - Drill Size (B) - Flange Dia. (C) - Barrel O.D.						
	(A) 1/16"	3/32"	1/8"	5/32"	3/16"	7/32"	1/4"
	(B) 0.105"	0.150"	0.200"	0.245"	0.290"	0.340"	0.385"
	(C) .059"	.089"	.121"	.152"	.183"	.215"	.246"
	ORDER BY *SPAENAUR NUMBERS* LISTED BELOW.						
2/32" .062"	**E-22**						
3/32" .093"	**E-23**	**E-33**	**E-43**	**E-53**	**E-63**	**E-73**	**E-83**
4/32" .125"	**E-24**	**E-34**	**E-44**	**E-54**	**E-64**	**E-74**	**E-84**
5/32" .156"	**E-25**	**E-35**	**E-45**	**E-55**	**E-65**	**E-75**	**E-85**
6/32" .187"	**E-26**	**E-36**	**E-46**	**E-56**	**E-66**	**E-76**	**E-86**
7/32" .218"	**E-27**	**E-37**	**E-47**	**E-57**	**E-67**	**E-77**	**E-87**
8/32" .250"		**E-38**	**E-48**	**E-58**	**E-68**	**E-78**	**E-88**
9/32" .281"		**E-39**	**E-49**	**E-59**	**E-69**	**E-79**	**E-89**
10/32" .312"		**E-310**	**E-410**	**E-510** also **E-510NP** (Nickel Plated)	**E-610**	**E-710**	**E-810**
11/32" .343"		**E-311**	**E-411**	**E-511**	**E-611**	**E-711**	**E-811**
12/32" .375"	E EYELETS TOLERANCES: Barrel Diameter ± .002", Length Under Flange ± .005", Flange Diameter ± .005"		**E-412**		**E-612**	**E-712**	**E-812**
13/32" .406"	These eyelet numbers are descriptive. For example: In E-69, the E means Standardized Eyelet. The first numeral (6) indicates Barrel Diameter (6/32"). The following numeral (9) or numerals indicate Barrel Length (9/32"). P.C. 104				**E-613**		**E-813**

See the "HOW TO SELECT E EYELETS" chart on facing page.

SPECIAL SIZE EYELETS

UNIT PACKAGE 100 ONLY

See pages M39, M40, and M45 for additional styles.

▲(GE-27 eyelet. Use **T-225** SETTING DIES, 3/8" Shank Dia.)

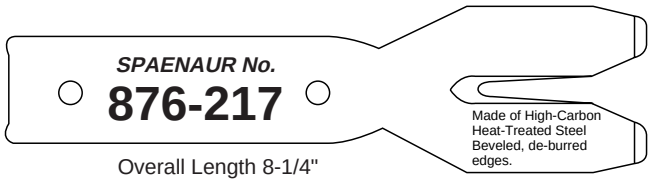
P.C. 104 & 116

SPAENAUR No.	Material	Finish	O.D.	Barrel Length	Flange Dia.	Remarks
GE-27▲	Brass	Nickel Pltd.	.178"	.145"	.303"	No. 2 Colonial
GE- 29	Brass	Plain	3/32"	1/8"	3/8"	Flat Flange
GE-28	Brass	Plain	11/64"	7/8"	3/8"	Flat Flange
104-009	Aluminum	Black Jap.	.202"	.180"	.350"	
104-001	Brass	Plain	.215"	.165"	.390"	Split Ends
GE-26	Brass	Plain	7/32"	7/64"	9/32"	
GE-4	Aluminum	Black Jap.	7/32"	5/32"	25/64"	
GE-6A	Aluminum	Plain	9/32"	3/16"	1/2"	
116-300	Aluminum	Plain	13/32"	1/8"	11/16"	Split Ends

EYELETTING DIE SETS FOR BRASS EYELETS, ARBOR ADAPTERS, and 876-830 HAND PRESS shown on facing page.

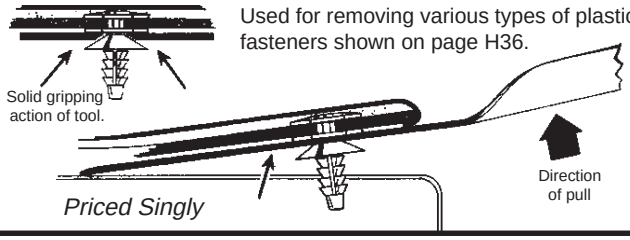
Complete Hand Press information on page M41.

TRIM PAD REMOVING TOOL



Overall Length 8-1/4"

Used to pull out the plastic trim pad fasteners on GM cars since 1971. Saves the fastener, and avoids damage to the trim pad backboard, paint, etc.



Used for removing various types of plastic fasteners shown on page H36.

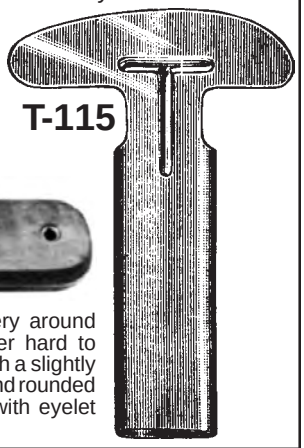
Priced Singly

HEADLINER TOOLS

Used to stuff headliner into channel above doors, etc. Blunt edge will not damage the material. Easy to use around curves and near corners.

Priced Singly

876-135



T-115

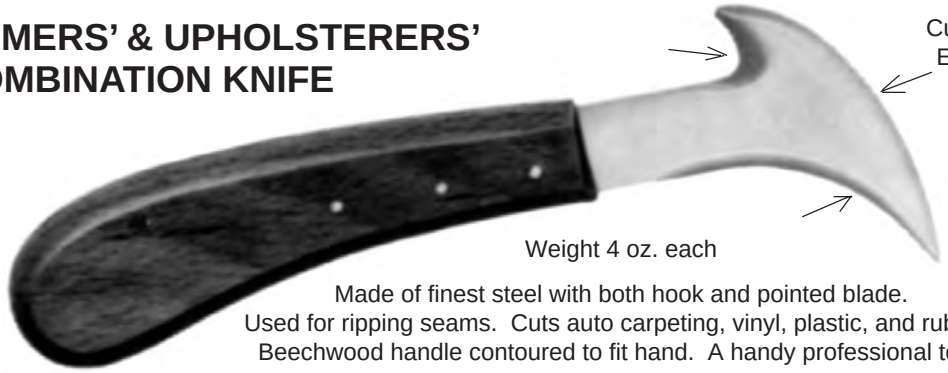
TUCKING TOOL

For tucking headlining and upholstery around windows and above doors and other hard to reach places. A sturdy, tough tool, with a slightly curved blade that has finished edges and rounded corners. Comfortable wood handle with eyelet hole through one end.

AUTO TRIMMERS' & UPHOLSTERERS' COMBINATION KNIFE

876-025

Priced Singly



Weight 4 oz. each

Made of finest steel with both hook and pointed blade.
Used for ripping seams. Cuts auto carpeting, vinyl, plastic, and rubber.
Beechwood handle contoured to fit hand. A handy professional tool.

M

Trimming Knives

876-132
3-1/2" x 7/8"
Square end blade

876-133
3-1/2" x 7/8"
Sharp pointed blade

Priced Singly

Safety Sheath 876-734

A sturdy leather sheath for our industrial knives. Slits fit on belt. Stitched edges reinforced with six rivets.

WISS® Snap Knife

876-1833

8 Point Snap Knife with metal track
3 blades included.

Molded from high-impact plastic for long-term service and has metal track to keep the blade secure in use.

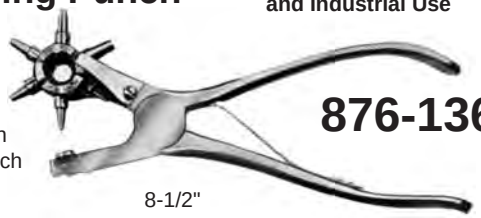
Priced Singly

See more Knives on page P149.

Revolving Punch

For Professional and Industrial Use

Priced Singly



876-136

6-tube punch
Length of Punch
8-1/2"

This punch has been known for many years as the best Revolving Punch ever made. The frame is made of forged steel, highly polished. The cutting tubes are hand turned from high carbon tool steel, and threaded to allow easy replacement. These tubes are individually tempered.

Replacement Tube Punches available for 876-136

Order by *SPAENAUR No.*

876-737	876-738	876-739	876-740	876-741	876-742
1	2	3	4	5	6
3/32"	7/64"	1/8"	5/32"	11/64"	3/16"

Revolving Punch

Priced Singly

876-137

(Tube punches for 876-137 cannot be replaced.)

Length 8"

A fine quality, inexpensive pressed-frame revolving punch with drive tubes. All tubes are heat treated to give long wear. Fully nickel plated. Furnished with six tube sizes:

1	2	3	4	5	6
5/64"	3/32"	7/64"	1/8"	5/32"	3/16"

For punching holes in leather, plastic, rubber, cork, etc.

NOTE: Dab outside of tube with light oil. Holes will be easier to make.

SPAENAUR No.
876-398

Priced Singly

Cutting Pads 10" x 10" x $^1/_2$"

Made of resilient vinyl plastic, these tough cutting pads are ideal for use with arch punches or belt punches. They are long wearing, and can be used on both sides. Cutting pads must be used on a solid base for best results.

Designed to help you get cleaner cuttings.

See page M45 for HOLE CUTTERS (Punches)

T-240 COMBINATION RIPPER AND TACK LIFTER for heavy-duty work.

Drop forged high carbon or alloy steel. Plastic handle.

Priced Singly

STAPLE KNOCKER
876-732

Priced Singly

Staple Knocker for removing staples and shredded material. Manufactured from top-grade steel. Electronically hardened working ends. Easy to grip plastic handle.

STAPLE LIFTER
876-731

Priced Singly

Same specifications as Staple Knocker, except shank has a greater angle to facilitate lifting the staples instead of knocking them out.

T-241 RIPPING CHISEL

rugged enough to shear a six-penny nail without damage to the edge. Unbreakable plastic handle.

Priced Singly

M

CATALOG 13

AUTOMATIC AWL
T-203

Priced Singly

Ideal for sewing leather or canvas. The awl carries a spool of thread on the handle. Hollow handle holds extra curved needle and wrench.

Directions with each awl for automatic lock stitch. Awl includes one T-203-8 straight and one T-203-6 curved tip, diamond pointed needle.

EXTRA NEEDLES

T-203-5 Straight #5 fine.
T-203-6 Curved tip, #6 reg.
T-203-8 Straight #8 reg.

EXTRA (waxed) THREAD in 12-1/2 yard reels

T-203-RB Black
T-203-RB1 White
T-203-RB2 Brown

Priced Singly

HEAVY-DUTY SCRATCH AWLS

Best quality steel blades with rugged plastic handles. Made in four sizes for your convenience.

SPAENAUR No.	Blade Lgth.	
T-246-1	2-1/2"	*Priced Singly*
T-246-2	3-1/2"	
T-246-3	4-1/2"	
T-246-4	5-1/2"	

All Purpose Awl 876-138

Priced Singly

The bent awl is a varied-purpose tool. It assists in the installation of roof windows, windshield rubber and back glass. It is used to remove body clips, mouldings and for spring pulling and cotter pin extracting or for radiator hose removal. Great for hard to reach places. Can be used to remove small staples in grooves. Tempered end.

SAILMAKER'S PALMS

Sewing Palm

Right-hand style shown.

A hide-bound, iron thimble palm, riveted joints. Furnished either in right or left-hand. Right-hand will be furnished unless otherwise specified.

SPAENAUR No.	STYLE	UNIT PKG.
876-021	Right-hand	1
876-022	Left-hand	1

See also page M27 for SAIL NEEDLES.

RETAINER BUTTON REMOVER FOR AUTO TRIMMERS

SPAENAUR No.

876-023

Special pliers for removing the retainers from the underside of auto upholstery buttons. Does not damage buttons or retainers, so that they can be reused. This tool is a great money and time saver. A difficult job is now easy.

To remove the retainers, the lower forked jaw of the pliers is inserted between the retainer and the upholstery material with the pin of the button in the forked portion of the jaw. The upper jaw with dimple is then in position for the pointed pin of the button to fit into the dimple. Then with pressure on the pliers, the retainer will snap off the button. On buttons with two pins, the procedure is repeated. If the retainer does not snap off, rotate the pliers a quarter-turn and apply pressure again. After removal, if the ears on the retainer plates are slightly distorted, they can easily be flattened to original shape by using a tack hammer on a solid, flat surface.

Priced Singly

M

Overall length 6-3/8"

UPHOLSTERY SPRING BENDER

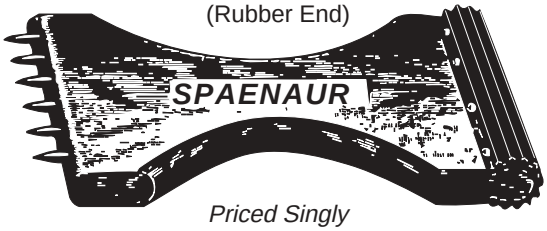
Portable, Lightweight

A completely portable spring bending tool for both furniture and automobile springs - EASY TO USE - simply hold one BENDER in each hand and exert pressure in opposite directions to get precise arc, angle or curve desired.

SPAENAUR No.	W (Width)	Unit Pkg.
T-224	1"	1 Pair
876-733	2"	1 Pair

M-92 WEBBING STRETCHER

Length 7-1/2" Width 3-3/8"
(Rubber End)

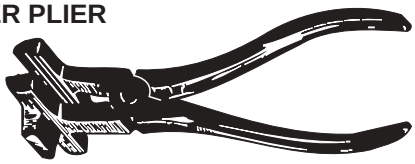


Priced Singly

WEBBING OR LEATHER PLIER

M-127

Length 8-3/4" Jaw width 3-1/2"



Priced Singly

SPIRAL TWIST PIN — Locks with a twist!

Plastic Head

Unit Package 100

A low-cost, slip-proof pin for fastening Auto Seat Covers, Furniture Slip Covers, Tidies, Dust Ruffles. Perfect to attach Price Tags to Furniture, Mattresses, Rugs, etc. Ideal for locking two pieces of corrugated together, fastening down paper, fabric, foil into styrofoam displays, etc.

SPAENAUR No.	Pin Length	Head Dia.	Head Colour
B-1848-B	5/16"	27/64"	Ivory
B-1849-B	7/16"	27/64"	Ivory

P.C 123

PROFESSIONAL and INDUSTRIAL

BENT TRIMMERS' SHEARS
INLAID STEEL BLADES

Priced Singly

Made with bent handles for greatest ease in cutting and trimming, these larger sizes have powerful leverage and unequalled cutting capacity.

SPAENAUR No.	Right or Left	Full Length	Length of Cut
T-107	Right-handed	8"	3-3/4"
B-397	Right-handed	10"	5"
B-397L	Left-handed	10"	5"
B-398	Right-handed	12"	6-1/4"

QUICK CLIPPER

SPAENAUR No.
876-527

Priced Singly

Sharp Points

Quick-Clip® Speed Cutters with stainless steel replaceable blades. Positive spring action reopens blades for fast cutting. Heavy-duty contour-designed Delrin® frames.
(A registered trademark of DuPont.)

Full length 4-3/4"

Length of cut approx. 1"

876-606 Repair Kit for above

Consists of 2 blades, 4 screws, 1 spring & 1 stop screw.

Kit Priced Singly.

WISS PINKING SHEARS

11-1/2" Overall Length
4-1/16" Length of cut
Extra heavy-duty for professional use.
Fully nickel plated

SPAENAUR No. **T-124**

Priced Singly

M

SPAENAUR

We're ready to handle your order!

BUTTON MOULDS

Shells and Backs (Not Assembled)

Wire-Eye

Unit Package 720 (except B-1769 which is 144)

SPAENAUR No.	SIZE	USE CUTTER AND DIE
B-177	22 ligne (1/2" dia.)	M-39
UH-66	24 ligne (5/8" dia.)	T-231
UH-67	30 ligne (3/4" dia.)	T-232
B-178	36 ligne (7/8" dia.)	M-49
B-1093	45 ligne (1-1/8" dia.)	M-126
B-1769	60 ligne (1-1/2" dia.)	T-150

TUFTING BUTTON

SPAENAUR No. **7283-96**

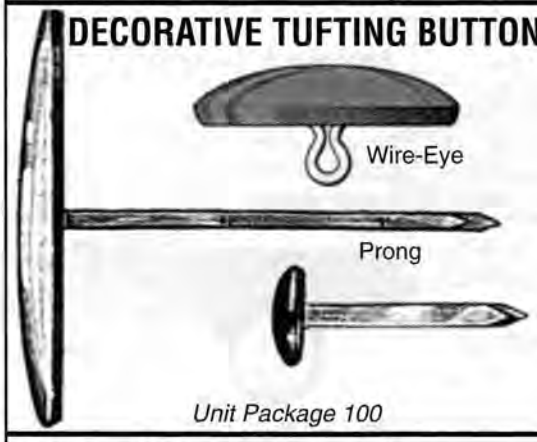
Black Japanned on Steel

Wire-Eye 22 Ligne

1/2" Diameter

Unit Package 720

DECORATIVE TUFTING BUTTONS



Unit Package 100

For special effects on padded walls, counter fronts, doors, furniture, etc.

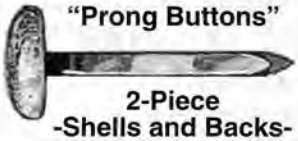
Special Finishes - on steel.

Complete with prong or wire-eye backs, assembled and ready to use.

Ligne Size	Dia.	Finish	SPAENAUR No. Wire-Eye	SPAENAUR No. Prong	Length of Prong
24	5/8"	Black		UH-6	1-1/2"
45	1-1/8"	Chrome	UH-21	UH-21P	1-1/4"
45	1-1/8"	Brushed Brass	UH-49	UH-49P	1-1/4"
45	1-1/8"	Bright Gold	UH-50	UH-50P	1-1/4"
60	1-1/2"	Brushed Brass	UH-52	UH-52P	1-1/2"
60	1-1/2"	Bright Gold		UH-53P	1-1/2"

BUTTON MOULDS

"Prong Buttons"



2-Piece -Shells and Backs- (Not Assembled)

Unit Package 144

Size 22 (1/2" Dia.)	SPAENAUR No.	Prong Length
May be assembled and covered by M-28 Button Machine using M-39 Cutter & Die Set. (See bottom left of page.)	UH-1	1-1/4"
	UH-2	1-1/2"
	UH-3	2"
	UH-4	2-1/2"
Large size (30 ligne - 3/4" dia.) *Takes T-232 Cutter & Die	*UH-75	2"

TUFTING NEEDLE T-183

10" long

Priced Singly

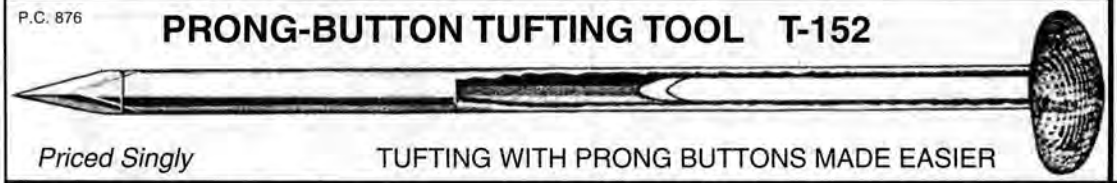
Top part only - showing special recessed eye for clips on end of tufting tapes.

Eye is recessed for clip on end of tufting tape or strap. Clip is inserted and slipped down into slot. Will hold firmly during tufting stroke, and will disengage easily.

P.C. 142

P.C. 876

PRONG-BUTTON TUFTING TOOL T-152



Priced Singly TUFTING WITH PRONG BUTTONS MADE EASIER

M-28 BUTTON MACHINE

(Not including Cutters and Dies)

For assembling and covering all types of Button Moulds - Tuft, Wire-Eye, Prong, Nail, Tape, etc.

Priced Singly

Height 22"

Note long handle for maximum leverage. Important for ease in cutting covers and clinching buttons tightly.

Takes 2-piece dies, as per chart.

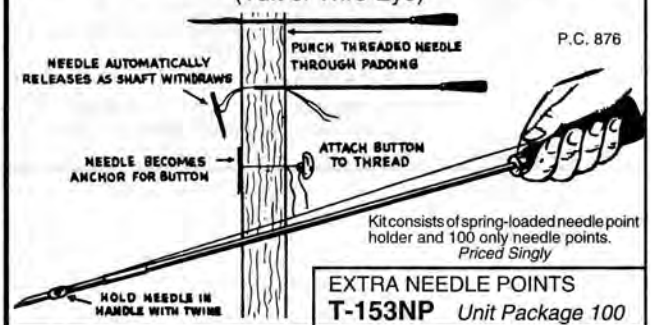
CUTTER AND DIE SETS

Will cover either Tuft or Wire-Eye styles of buttons.

Set No.	For Button Mould Size
M-39	22 ligne (1/2") dia.
T-231	24 ligne (5/8") dia.
T-232	30 ligne (3/4") dia.
M-49	36 ligne (7/8") dia.
M-126	45 ligne (1-1/8") dia.
T-150	60 ligne (1-1/2") dia.

T-153 TUFTING KIT - For use with Tufting Buttons

(Tuft or Wire-Eye)



P.C. 876

Kit consists of spring-loaded needle point holder and 100 only needle points.

Priced Singly

EXTRA NEEDLE POINTS **T-153NP** *Unit Package 100*

PRONG BUTTON WASHERS

STEEL - ZINC PLATED

I.D. 13/64"

O.D. 15/16"

SPAENAUR No. **UH-7**

Unit Package 144

CATALOG 13

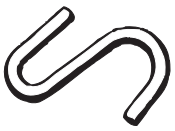
Fibre Washers to reduce sound - page D11.

STEEL SEAT COVER "S" HOOKS

Actual Size

2392
Large Size

Unit Package 500

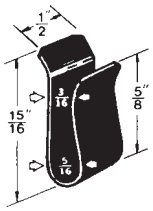


Actual Size

C-904
Small Size

Unit Package 500

P.C. 123



Material Thickness .022"

2298
SEAT COVER CLIPS
For front seat sideshield & front seat back panel.

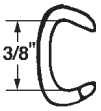
Spring Steel, Zinc Plated

Unit Package 100

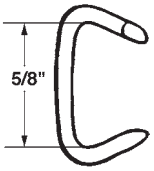
P.C. 086

CUSHION CLIPS (Hog Rings)

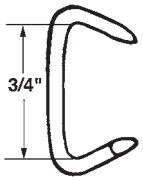
New improved style — sharp points! Precision clinch with overlapping legs. No points exposed. Grips tighter. Prevents ripping or tearing of fabrics, upholstery, door panels, trim work.



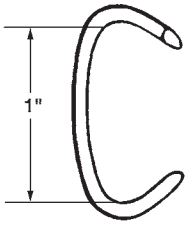
7435-A
Plain Steel
(Approx. 842 per lb.)



7435
Plain Steel
(Approx. 530 per lb.)



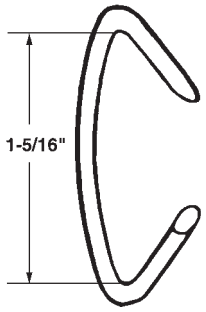
7595
Plain Steel
(Approx. 486 per lb.)



7644
Plain Steel
(Approx. 350 per lb.)

P.C. 123

Unit Package 1 lb.



B-1914
Coppered Finish Steel

Unit Package 100

M

CUSHION CLIP PLIERS

7434
Thin Nose — Straight

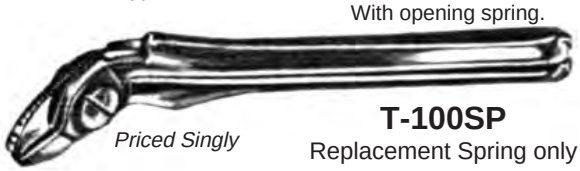
Priced Singly

Overall length 7"

Will close all Cushion Clips except B-1914.

Overall length 6-1/4"
Bent type.

T-100
Angled — Spring Grip
With opening spring.



Priced Singly

T-100SP
Replacement Spring only

Will close all Cushion Clips except 7644 and B-1914.

T-148

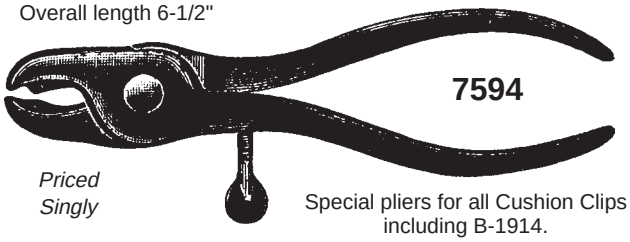
7" long

Priced Singly

High Grade Steel — Top Quality

Will close all Cushion Clips except B-1914.

Overall length 6-1/2"



Priced Singly

Special pliers for all Cushion Clips including B-1914.

876-1578
For Cushion Clip No. 7644.
Cold Forged Steel / Zinc Plated
Vinyl Red Handle

Priced Singly

CATALOG 13

Knotted Ends

P.C. 856

BACK SPRINGS for Car and Truck Seats

SPAENAUR No.	Approx. Height	Gauge	Approx. Diameter of Ends	Unit Package Quantity	Shipping Weight of Unit Pkg.
B-706	6"	12	3-1/2"	100	7.48 kg
B-811	5"	13			4.76 kg
B-813	7"	13			5.22 kg

P.C. 123

CUSHION EDGE WIRE FERRULES

2-1/2" Long

7535— For No. 6 Wire.

7531— For No. 7 Wire.

7532— For No. 8 Wire.

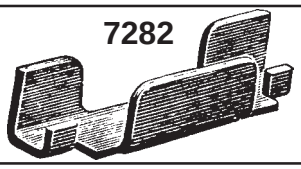
7533— For No. 9 Wire.

Unit Package 100 (One Size)

CUSHION SPRING KEY HOOKS

SPAENAUR No.	Inside Dimension
7541	1" Long
7542	1-1/2" Long

Unit Package 500 (One Size)



7282 Cushion Spring Clip 5 Prong Style

Unit Package 500

B-1183 Cushion Spring Clip 3 Prong Style

Width Inside 5/16" Length 1"

Unit Pkg. 500

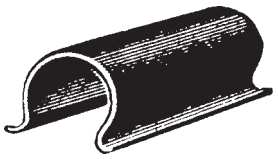
7530 Cushion Edge Clip (Use ordinary pliers)

1/2" x 1/2" *Unit Package 100*

876-134

Cushion Clip Plier

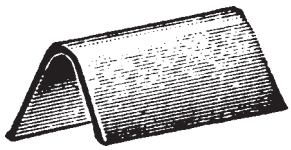
For 3 Point Clips



7578

Seat Cushion Upholstery Clip Steel, self-colour.

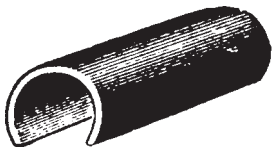
Unit Package 500



7576

Seat Cushion Upholstery Clip Steel, self-colour.

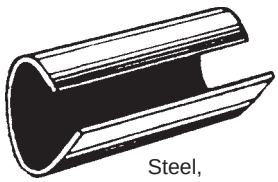
Unit Package 500



7611

Seat Cushion Upholstery Clip Steel, self-colour.

Unit Package 500



Steel, Cad./Zinc Plated.

B-1579

NO-SAG SPRING CLIP: Length 7/8", Inside Width 1/2".

For anchoring ends of NO-SAG Springs to steel edge wire.

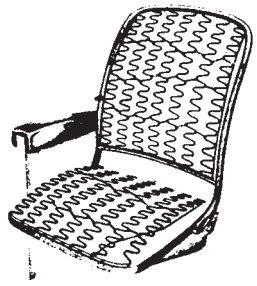
Unit Package 500

M

CATALOG 13

no-sag® Springs

For seat cushions in cars, trucks, buses, railway coaches, aircraft, etc. Also used in all types of household furniture.



CUT LENGTHS

Unit Package 200 Lengths

SPAENAUR No.	Gauge	Length
M-94	11	17-5/8"
M-95	12	17-1/2"
M-96	12	19"
M-97	12	20-1/2"

Cut lengths are furnished with standard bent ends, as shown. Available from stock only in specific lengths as featured above. Special lengths processed to order, in minimum runs of 200 pieces per length.

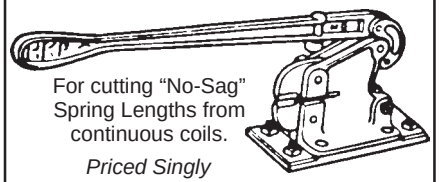
CONTINUOUS LENGTHS IN COILS

Unit Package 1 Coil

SPAENAUR No.	Gauge	Length of Coil (in Feet)	Weight Per Coil (Lbs.)
M-98	8	111	19.6
M-99	9	120	19.
M-104	12	154	12.5

Can be cut into lengths as required. Open ends must then be bent back to prevent spring from slipping out of clip. See M-106 Cutter and M-107 Bender at right.

M-106 "NO-SAG" CUTTER



For cutting "No-Sag" Spring Lengths from continuous coils.

Priced Singly

M-107 "NO-SAG" BENDING TOOL

For Hand-forming ends of No-Sag Springs.

FIG. 1

Priced Singly

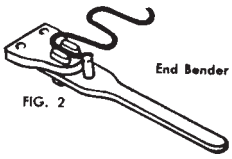
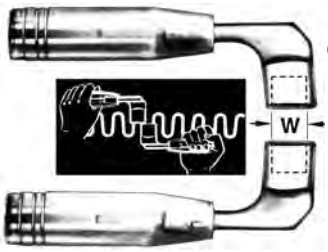


FIG. 2

UPHOLSTERY SPRING BENDER

Portable, Lightweight



Overall length 6-3/8"

See also page M53.

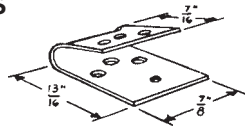
SPAENAUR No.	W (Width)	*Unit Pkg.*
T-224	1"	1 Pair
876-733	2"	1 Pair

NO-SAG CLIPS

B-1619

Use 12 ga. nails

Unit Package 500

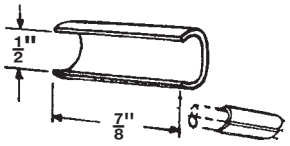


A four nail clip, permitting choice of using 1 or 2 nails on lip. For average and heavy duty wood frame back and seat construction. Also used whenever springs are to be hung inside the rail. Supplied with lining.

C-744 NO-SAG EDGE CLIPS

For attaching No-Sag Springs, edge springs and torsion springs to border and edge wires.

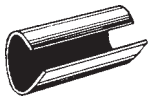
Steel-Self Colour Insulator.



Max. closing capacity two 8 gauge wires or equivalent.

P.C. 123 *Unit Package 500*

B-1579



Length 7/8"

Unit Package 500

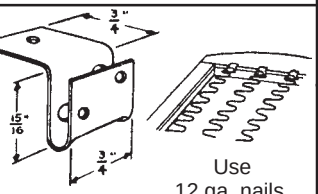
Inside Width 1/2"

For Anchoring Ends of NO-SAG Springs to Border Wire.

Finish: Cad./Zinc Pltd.

B-1620

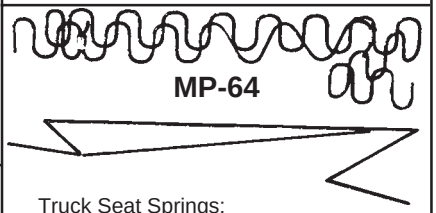
Has staggered nail holes to drop springs 1" below top of rail on wood frames. Nail to top and inside edges as illustrated. 3/4" Width



Use 12 ga. nails.

Unit Package 500

MP-64



Truck Seat Springs:
For Repairing Truck Seats.
Length 21"— Formed ACTUAL SIZE HEAVY GAUGE.
Component of No. CITB-8163100-E
FORD TRUCKS '57 - '66

Unit Package 10

P.C. 610

SEAT HELICALS

15 ga. 1/2" O.D.

Unit Package 100

B-668	2" length for 4" spacing
B-669	3" length for 5" spacing
B-670	4" length for 6" spacing

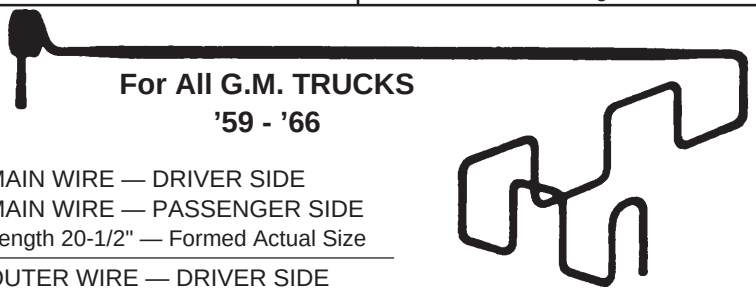
BACK HELICALS

17 ga. 1/2" O.D.

Unit Package 100

B-671	2" length for 4" spacing
B-672	3" length for 5" spacing
B-673	4" length for 6" spacing

For All G.M. TRUCKS '59 - '66



SPAENAUR No.	
MP-51	MAIN WIRE — DRIVER SIDE
MP-52	MAIN WIRE — PASSENGER SIDE Length 20-1/2" — Formed Actual Size
MP-53	OUTER WIRE — DRIVER SIDE
MP-54	OUTER WIRE — PASSENGER SIDE Length 18" — Formed Actual Size

Unit Package 10 (One Number)

SOLID BRASS HEAD
PLAIN FINISH

High Crown

Low Crown

SPAENAUR No.	Head Dia.	Crown Style	Shank Length	Unit Pkg.
UH-1010	3/8"	High	1/2"	1,000
UH-1009	27/64"	High	1/2"	1,000
UH-1499	1/2"	High	23/32"	1,000
139-003	14 mm	High	15 mm	1,000
UH-1039	35/64"	Low	1/2"	500
UH-1038	21/32"	Low	1/2"	500
UH-1037	3/4"	Low	1/2"	250
***UH-1053**	27/32"	High	5/8"	100

*Steel with antique brass finish.

DECORATIVE STEEL FURNITURE NAILS

P.C. 139

Shank 1/2" long Head 7/16" diameter

Unit Package 1,000 Nails (One Style)

Small Facets — Hammered Steel

7470 Oxford Finish

7470N Nickel Finish

Large Facets — Hammered Steel

7470L Oxford Finish

7470LN Nickel Finish

Smooth Head — Steel

7471 Bronze Renaissance Finish

7471N Nickel Finish

STEEL FURNITURE NAILS

PLAIN BRASS FINISH

SPAENAUR No.
139-001

Head dia. 31/64"
Shank length 1/2"

Unit Package 1,000

M

STEEL METALENE UPHOLSTERING NAILS

UNIT PACKAGE - 1,000 Nails (one colour)

Head 1/2" dia.
Shank 1/2"

SPAENAUR No.	Colour
7473-7	Dark Tan
7473-8	Grass Green
7473-17	Deep Blue
7473-25	White

Head 13/32" dia.
Shank 5/8"

SPAENAUR No.	Colour
7476-17	Deep Blue
7476-19	Light Blue
7476-21	Brick Red

Head
7/32" dia.
▲13/32" dia.

SPAENAUR No.	Shank Length	Colour
7493-7	1/2"	Brown
7494-45	1/2"	Nickel
▲7492-45	1/2"	Nickel
7490-7	5/8"	Brown
7490-45	5/8"	Nickel

SOLID BRASS HEAD NAILS

PLAIN BRASS FINISH

Unit Package 1,000

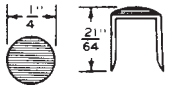
P.C. 139

SPAENAUR No.	UH-1426	UH-1406
Head diameter	1/2"	33/64"
Shank	1/2"	1/2"

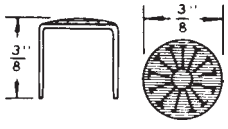
P.C. 699

SIDE PRONG RIVETS

STEEL - BRASS PLATED



B-1903



B-1902

Unit Package 100

SPAENAUR No.
112-142

STEEL - Brass Plated
#4 Thumb Tack
3/8" Head Diameter
9/32" Shank Length

Unit Package - 1,000

CATALOG 13

RATCHET NAIL

STEEL
Not
Plated

7598 - 1-3/4"
with annular threads.

Unit Package 50

Thread O.D. .120"

Unit Package 1 lb.

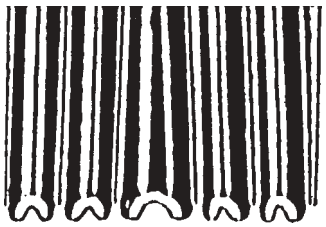
Soft Steel - Not Plated
INTERIOR BODY TRIM NAILS
Concealed Head - Smooth Shank

	Dia.	(Approx. count per lb.)
7119 - #17 x 3/4"	.058"	1,930
7120 - #17 x 7/8"	.058"	1,600
7121 - #17 x 1"	.058"	1,072

Special Smooth Tapered Head, Perfect for All Blind Nailing Purposes. Far Superior to the Ordinary Brand.

CORRUGATED FASTENERS

Steel - Plain Finish



For Fast, Efficient Wood Assemblies and Repairs of All Kinds.

See page F14 for complete information.

STEEL - HARDENED SCREW NAILS

Flat Head
Zinc Plated
7599 - 1/2" - 10
(.134" Dia.)

Unit Package 100

Flat Head
Zinc Plated
139-105 - 1/2" - 9
(.148" Dia.)
(No. 9 Screw Dia.)
(Formerly #7604)

Unit Package 100

ESCUTCHEON PINS OR NALS

BRASS

18

16

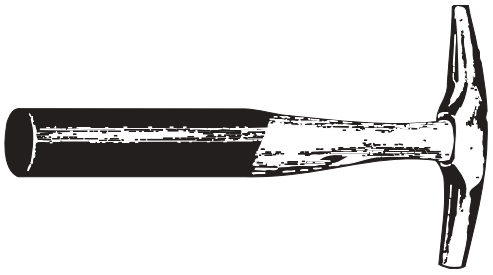
14

STEEL
16 & 14

SPAENAUR No.	Gauge	Dia.	Material	(Approx. count per lb.)
B-1983	3/8"-18 Ga.	.049"	Plain Brass	3,712
B-1854	1/2"-18 Ga.	.049"	Plain Brass	3,110
B-1984	5/8"-18 Ga.	.049"	Plain Brass	2,624
B-1993	3/4"-18 Ga.	.049"	Plain Brass	2,045
B-1986	3/8"-16 Ga.	.065"	Plain Brass	2,304
B-1987	1/2"-16 Ga.	.065"	Plain Brass	1,600
B-1988	5/8"-16 Ga.	.065"	Plain Brass	1,472
B-1989	3/4"-16 Ga.	.065"	Plain Brass	1,216
B-1990	1"-16 Ga.	.065"	Plain Brass	960
B-1991	1/2"-14 Ga.	.083"	Plain Brass	1,024
B-1992	5/8"-14 Ga.	.083"	Plain Brass	913
B-1855	3/4"-14 Ga.	.083"	Plain Brass	755
7391B	1"-14 Ga.	.083"	Plain Brass	624
7391	1"-14 Ga.	.083"	Brass - Nkl. Pl.	574
B-1926	1-1/2"-14 Ga.	.083"	Brass - Nkl. Pl.	398
139-011	3/8"-16 Ga.	.065"	Steel - Nkl. Pl.	2,271
B-1931	3/4"-14 Ga.	.083"	Steel - Nkl. Pl.	962

MAGNETIC TRIMMER'S HAMMER

SPAENAUR No.
B-400



Priced Singly

P.C. 876

More Upholstery Tools on pages M50-M56

See Page M61 for Tacks.

M

316 Stainless Steel Nails

Advantages

- High Strength 125,000 - 145,000 PSI.
- Eliminate Staining and Streaking on Lumber.
- High Resistance to Sea Water and Other Chloride Environments.

Corrosion Resistance

Corrosion resistance of nails is of primary importance for wood and plywood construction applications which are exposed to weather, high moisture or other caustic conditions. This is particularly true in cases where the wood is chemically treated.

Appearance

Today's high cost of lumber makes even the most modest building project a considerable investment. Evaluate the added cost of stainless steel nails over nails made of plain or galvanized steel in terms of **total project cost**. Since expenditures for fasteners are usually minor in comparison with labour, lumber and other costs, the premium for lifetime protection from staining and streaking is easily justified.

Stainless Steel Common Nails
316 Stainless Steel

• Shank, Annular Ring or Screw Thread - our option.
• Flat Head • Diamond Point

All-around general purpose commercial nails with low profile thread.

Also available in Smooth Shank or Screw Shank.

SPAENAUR No.	Length	Gauge	Shank Dia.	Head Dia.	Unit Pkg. Qty.
139-800	1"	15	.072"	3/16"	100
139-801	1-1/4"	14	.083"	7/32"	100
139-802	1-1/2"	12	.109"	1/4"	100
139-803	1/3/4"	12	.109"	1/4"	100
139-804	2"	11	.120"	17/64"	100
139-805	2-1/4"	11	.120"	17/64"	100
139-806	2-1/2"	10	.134"	9/32"	50
139-807	3"	9	.148"	5/16"	50
139-808	3-1/4"	9	.148"	5/16"	50
139-809	3-1/2"	8	.165"	11/32"	25
139-810	4	6	.203"	7/16"	25
139-811	4-1/2"	6	.203"	7/16"	10
139-812	5"	6	.203"	7/16"	10
139-813	6"	4	.238"	15/32"	10

M

Nails for Marine Service
316 Stainless Steel and Silicone Bronze

• Large Flat Head • Annular Ring Thread
• Diamond Point

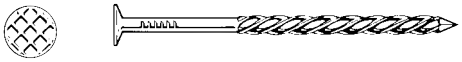
- Large bearing surface under head holds planking securely to framing members on new construction and re-nailing projects.
- Annular Ring "Barbed" Threads provide maximum holding power and resistance to nail head popping.
- Specify Type 316 Stainless Steel to minimize discolouration of heads and paint bleed-through.
- Silicone Bronze offers best resistance to stress-corrosion cracking under heads in salt water service.

Also available in other gauge and length combinations up to 4 ga. x 6".

Stainless Steel	Silicone Bronze	Length	Gauge	Shank Dia.	Unit Pkg. Qty.
139-824	**MH-159**	3/4"	14	.083"	250
139-825	**MH-160**	7/8"	14	.083"	250
139-826	—	1"	14	.083"	100
—	**139-002**	2"	14	.083"	100
139-827	—	1-1/4"	13	.095"	100
—	**MH-162**	1-1/4"	12	.109"	100
139-828	**MH-169**	1-1/2"	12	.109"	100
139-829	—	1-3/4"	12	.109"	100
—	**MH-166**	1-3/4"	10	.134"	100
139-830	**MH-167**	2"	10	.134"	100
139-831	—	2-1/2"	10	.134"	50
139-832	—	3"	9	.148"	50
139-833	—	3-1/2"	8	.165"	25
139-834	—	4"	6	.203"	25

Decking Nails for Pressure Treated Lumber
316 Stainless Steel

• Checkered Pattern or plain our option.
• Sinker Heads • Blunt Diamond Point • Screw Shank (Ardox)

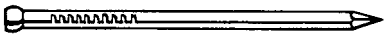


Sinker heads drive flush with work surface. Use Screw Shank Nails for easier driving in harder seasoned wood.

SPAENAUR No.	Length	Gauge	Shank Dia.	Head Dia.	Unit Pkg. Qty.
139-817	3-3/4"	8	.165"	11/32"	25

Finishing Nails
304 Stainless Steel

• Brad Head • Smooth Shank • Diamond Point



SPAENAUR No.	Length	Gauge	Shank Dia.	Head Dia.	Unit Pkg. Qty.
139-818	1-1/4"	15	.072"	.109"	100
139-819	1-1/2"	14	.083"	.120"	100
139-820	2"	13	.095"	.135"	100
139-821	2-1/2"	12	.109"	.148"	100
139-822	3"	11	.120"	.165"	100
139-823	3-1/2"	11	.120"	.165"	50

Roofing Nails (Slating Nails)
Copper

• Large Flat Head • Ring Shank • Diamond Point

- Annular threaded roofing nails provide superior holding power in wood and plywood.
- To determine correct nail length to use add one inch to twice the thickness of slates.

Also available in other gauge and length combinations.

SPAENAUR No.	Length	Gauge	Shank Dia.	Head Dia.	Unit Pkg. Qty.
139-700	3/4"	12	.109"	21/64"	100
139-701	1"	12	.109"	21/64"	100
139-702	1-1/4"	12	.109"	21/64"	100
139-703	1-1/2"	12	.109"	21/64"	100
▲139-710	1-1/2"	12	.109"	21/64"	100
139-704	1-1/4"	11	.120"	3/8"	100
139-705	1-1/2"	11	.120"	3/8"	100
139-706	2"	11	.120"	3/8"	100
139-707	1-3/4"	10	.134"	7/16"	100
139-708	2"	10	.134"	7/16"	50
139-709	3"	10	.134"	7/16"	50

▲304 Stainless Steel

Coloured GIMP TACKS

Illustrated Approx. Size				LACE TACK
Size	2 oz.	2-1/2 oz.	3 oz.	2 oz.
Length	4/16"	5/16"	6/16"	7/16"
Approx. Count per lbs.	5,675	3,450	2,690	4,054
Black	**7067-96**	**7068-96**	–	–
Blue	**7067-17**	**7068-17**	**7060-17**	–
Brown	–	–	**7060-7**	**7044-7**
Green	**7067-8**	**7068-8**	**7060-8**	**7044-8**
Ivory	–	**7068-35**	**7060-35**	**7044-35**
Red	**7067-1**	**7068-1**	–	–
Blued	–	**7068-0**	–	–

UNIT PACKAGE 1 LB.

BLUED SANITARY UPHOLSTERERS' TACKS

UNIT PACKAGE 1 LB.

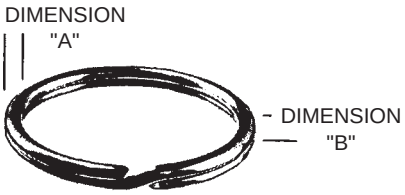
APPROX. SIZE ILLUSTRATION	SPAENAUR No.	SIZE	LENGTH	(Approx. count per lb.)
	7050-A	1-1/2 oz.	7/32"	6,765
	7050	2 oz.	4/16"	4,106
	7051	2-1/2 oz.	5/16"	3,360
	7052	3 oz.	6/16"	2,114
	7053	4 oz.	7/16"	1,728
	7055	8 oz.	9/16"	1,376
	7056	10 oz.	10/16"	1291
	7057	12 oz.	11/16"	1114
	7058	16 oz.	13/16"	655
	7059	20 oz.	15/16"	553
	619-001	24 oz.	1-1/8"	470

BLUED SANITARY TRIMMERS' TACKS

	7015	24 oz.	1-5/32"	620

Magnetic Trimmer's Tack Hammer on M59.

SPLIT RINGS

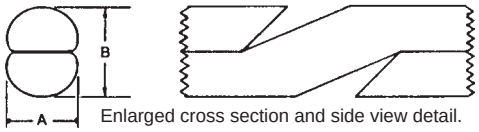


Available in **TEMPERED STEEL** and **BRASS**

OUTSIDE DIA. TOLERANCES:

Up to .875" Outside Dia.
Steel +.015 to -.005
Brass +.025 to -.005

.875" and up Outside Dia.
+.115 to -.005



Enlarged cross section and side view detail.

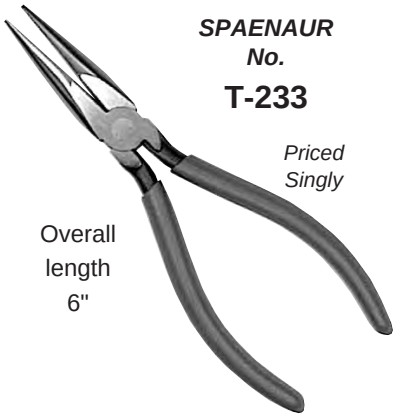
"A" ± .005"
"B" ± .005"

SPAENAUR No.	Material	Finish	Outside Dia.	Inside Dia.	"A"	"B"	Steel Nickel Plated *SPAENAUR No.*
MH-97	Steel	Zinc	.165"	.117"	.024"	.034"	—
MH-98	Steel	Zinc	.190"	.142"	.024"	.034"	—
MH-99	Steel	Zinc	.220"	.162"	.029"	.040"	**121-033**
MH-100	Steel	Zinc	.254"	.192"	.031"	.046"	**121-034**
MH-101	Steel	Zinc	.292"	.222"	.035"	.054"	**121-035**
MH-102	Steel	Zinc	.334"	.264"	.035"	.054"	**121-036**
MH-103	Steel	Zinc	.380"	.300"	.040"	.062"	**121-037**
MH-103B	Brass	Nickel	.380"	.300"	.040"	.062"	—
MH-104	Steel	Zinc	.430"	.328"	.051"	.074"	**121-038**
MH-105	Steel	Zinc	.484"	.382"	.051"	.074"	**121-039**
MH-106	Steel	Zinc	.542"	.428"	.057"	.083"	**121-040**
121-168	Steel	Zinc	.604"	.460"	.072"	.105"	**121-041**
121-195	Brass	Nickel	.670"	.526"	.072"	.105"	—
MH-189	Steel	Zinc	.740"	.596"	.072"	.105"	**121-042**
121-194	Brass	Nickel	.740"	.596"	.072"	.105"	—
121-196	Brass	Plain	.740"	.596"	.072"	.105"	—
121-159	Steel	Zinc	.875"	.707"	.084"	.110"	**121-043**
MH-93	Steel	Zinc	.970"	.802"	.084"	.110"	**121-044**
121-161	Steel	Zinc	1.250"	1.062"	.094"	.130"	**121-045**
MH-94	Steel	Zinc	1.375"	1.159"	.108"	.142"	**121-046**
MH-95	Steel	Zinc	1.480"	1.264"	.108"	.142"	**121-047**
MH-96	Steel	Zinc	1.640"	1.396"	.122"	.168"	**121-048**

All sizes *UNIT PACKAGE 100 except* MH-96 and 121-048 - *Unit Pkg. 50*

Light Face *Spaenaur No's.* 5,000 Minimum Order P.O.A.

SPLIT RING PLIERS



SPAENAUR No.
T-233

Priced Singly

Overall length 6"

A specially designed plier for easy and speedy assembly of Split Rings to articles of all types.

SPAENAUR No.
876-497

Zinc Plated STEEL

Overall length 5-1/8"

Priced Singly

A special utility tool designed exclusively for assembling or removing small split rings.

HINGED STEEL RING

Nickel Plated

For loose-leaf binders

Unit Package 100

SPAENAUR No.	I.D.	Wire Dia.
121-003	3/4"	.095"
MH-148	1"	.121"
121-004	1-1/4"	.116"
121-002	1-1/2"	.116"
121-005	2"	.130"
121-006	2-1/2"	.141"
121-007	3"	.171"

TAG RINGS

MH-178

Galvanized Wire
1-1/2 TURNS

I.D.	O.D.
11/16"	3/4"

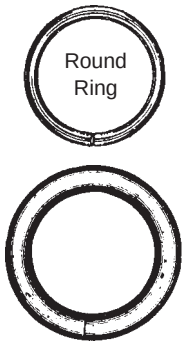
UNIT PACKAGE 1,000

P.C. 121

Useful for holding tags to loops or as an inexpensive key ring.

For blank Tags and Name Plates See page P124.

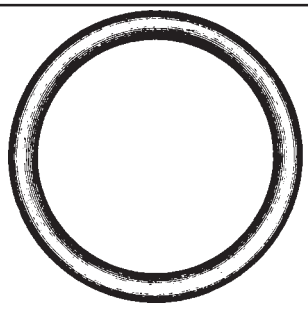
ABUTTED JOINT



ROUND RINGS

STEEL WIRE - NICKEL PLATED

SPAENAUR No.	I.D.	Wire Dia.	Unit Pkg.
MH-17	1/2"	.120"	100
MH-18	5/8"	.120"	100
121-200	3/4"	.177"	100
MH-20	7/8"	.140"	100
MH-21	1"	.120"	100
MH-22	1-1/8"	.165"	100
MH-24	1-1/2"	.160"	100
121-018	2"	.250"	50



ROUND RINGS

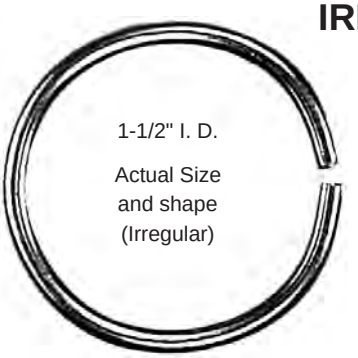
PLATED STEEL

(Nickel or Zinc - Our option.)

WELDED JOINT

SPAENAUR No.	Inside Dia.	Wire Gauge	Unit Pkg.
121-008	1"	.177"	100
MH-37	1-1/4"	7/32"	50
MH-38	1-1/2"	1/4"	50
MH-39	1-3/4"	1/4"	50
MH-40	2"	1/4"	50
MH-41	2-1/2"	1/4"	50
MH-42	3"	5/16"	25

IRREGULAR RING

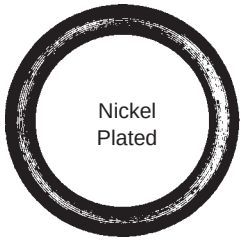


SPAENAUR No.

121-023

Zinc Plated Steel Wire 0.160" Dia.

Unit Package - 100



Unit Package 100

ROUND RINGS

CAST SOLID BRASS

SPAENAUR No.	Inside Dia.	Wire Dia.
MH-26	1/2"	.130"
MH-27	5/8"	.135"
MH-28	3/4"	.150"
MH-29	7/8"	.170"
MH-30	1"	.177"
MH-31	1-1/8"	.185"
MH-32	1-1/4"	.185"

P.C. 121

M

Unit Package 50

Approx. Weight- 6.35 kg per 100.

HALTER LOOP AND RING

SPAENAUR No. **121-307**

Welded Steel Wire

Regal (Brass) Plated

Ring I.D.	Loop I.D.
1-1/2"	1"

FOOTMAN LOOPS

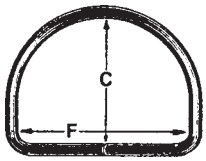
Steel - Zinc Plated

SPAENAUR No.	For Strap Size	Screw Hole Dia.	Screw Holes c. to c.	Unit Pkg. Qty.
121-208	1"	3/16"	1-15/16"	100
121-207	2"	1/4"	3-1/8"	100

CATALOG 13

DEE RINGS

STEEL WIRE
NICKEL PLATED



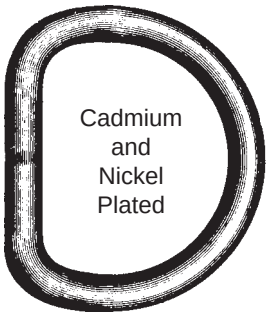
ABUTTED JOINT
(† WELDED JOINT)

SPAENAUR No.	F (Flat)	C (Crown)	Wire Dia.	Pkg. Qty.
MH-15	3/8"	5/16"	.080"	100
MH-14	3/8"	3/8"	.080"	100
121-010	5/8"	7/16"	.080"	100
MH-5	9/16"	7/16"	.120"	100
MH-6	5/8"	7/16"	.120"	100
MH-7	3/4"	5/8"	.120"	100
121-026■	3/4"	5/8"	.120"	100
MH-4*	3/4"	5/8"	.120"	100
MH-8	7/8"	3/4"	.148"	100
MH-9	1"	7/8"	.120"	100
121-807▲	1"	7/8"	.125"	100
MH-10	1-1/8"	7/8"	.120"	100
121-349†	1-1/8"	7/8"	.142"	50
121-011	1-1/8"	7/8"	.177"	100
MH-11	1-5/16"	1"	.148"	100
121-350†	1-5/16"	1"	.151"	50
121-009	1-5/8"	1-1/8"	.148"	100
MH-12	1-5/8"	1-1/8"	.177"	100
MH-13	2"	1-3/8"	.160"	50

*Brass Plated ▲304 Stainless Steel ■Plain Finish

HEAVY WEIGHT DEE

WELDED STEEL WIRE

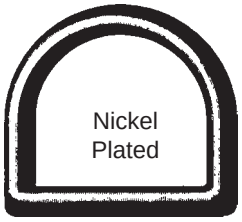


Unit Package 50

SPAENAUR No.	Inside Width	Wire Dia.
Cad or Zinc (our option)		
MH-44	1"	.207"
MH-46	1-1/4"	.243"
MH-49	2"	.312"
Zinc Plated		
MH-45	1-1/8"	.207"
MH-47	1-1/2"	.250"
121-351	2"	.262"
Nickel Plated		
121-253	15/16"	.160"
121-255	1-5/16"	.207"
121-358	1-3/4"	.250"
MH-48	1-3/4"	.262"

DEE

CAST SOLID BRASS

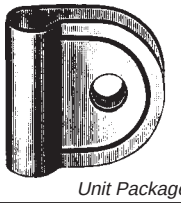


Unit Package 100

SPAENAUR No.	Inside Width	Inside Height
MH-33	5/8"	1/2"
MH-34	3/4"	1/2"
MH-35	7/8"	3/4"
MH-36	1"	13/16"

"D" RING CLIP

Sheet Steel—Nickel Plated

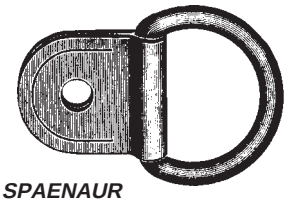


Unit Package 100

SPAENAUR No.	Width	O/A Lgth.
MH-135	5/8"	13/16"
MH-136	3/4"	13/16"

CLIP AND DEE

Steel Wire Dee with Sheet Steel Clip Nickel Plated



*All Stainless Steel 300 Series

SPAENAUR No.	Clip Width	O/A Lgth.	Hole Dia.	Unit Pkg.
MH-134	3/4"	1-1/2"	.201	100
***121-809**	1-1/8"	2-27/32"	.375"	10

"D" RING ANCHOR PLATE

Sheet Steel—Nickel Plated

SPAENAUR No. **121-198**

Unit Package 100

11/16" Width x 1-3/8" Length
3/16" Dia. holes - 27/32" C. to C.
Eye diameter 1/8"

BUCKLES

Centre Bar Type

SPAENAUR No.	Sheet Steel Nickel Plated Width	Package Quantity
MH-116	1/2"	100
MH-117	5/8"	100
Zinc Die Cast	**Nickel Plated**	
121-116	1/2"	100
121-117	3/4"	100
121-118	1"	100

TRIANGLE LOOP

Welded Steel
Nickel Plated

SPAENAUR No. **121-332**

Max. Inside Width 1-1/2"
Wire Dia. .150"

CONWAY BUCKLE

SPAENAUR No. **MH-89**

Cast Malleable Iron
Nickel Plated
Reverse Strap Pattern

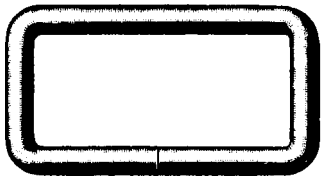
For 5/8" Strap.
Unit Package 100

Quick Connecting Links found on pages M75 to M77.

D Rings, Triangle Loops and Slide Buckles made of acetal, on pages M9 and M10.

M

CATALOG 13



TUCK LOOP

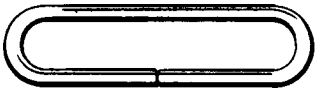
Steel Wire
Nickel Plated

SPAENAUR No.	Inside Width	Inside Height	Wire Dia.
MH-121	5/8"	3/8"	.105"
MH-122	3/4"	3/8"	.105"
MH-124	1"	7/16"	.113"
MH-127	1-1/2"	1/2"	.120"
MH-128	2"	1/2"	.148"

Unit Package 100

P.C. 121

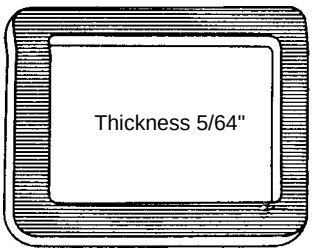
SPAENAUR No.
121-176



STEEL WIRE LOOP

NICKEL PLATED
FOR 1-1/16" STRAP
O/S 21/64" x 1-15/64" x .080"

Unit Package 100



BRASS LOOPS

SPAENAUR No.
121-502
Size Inside 7/16" x 1-1/16"
Size Outside 5/8" x 1-11/32"

SPAENAUR No.
121-501
Size Inside 3/4" x 1-1/16"
Size Outside 1-1/16" x 1-11/32"

Unit Package 50

HOOKS and EYES

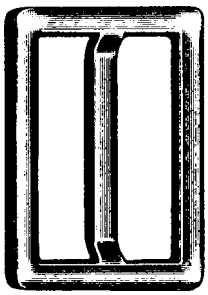
UH-81 HOOK
Unit Pkg. 100

For Headbands
(used with 1/2" webbing)
Steel — Nickel Plated
P.C. 123

UH-82 EYE
Unit Pkg. 100

Webbing and Webbing Hardware on pages M29 and M30.

SLIDES (Webbing Adjuster Buckles)



SPAENAUR No.
121-503

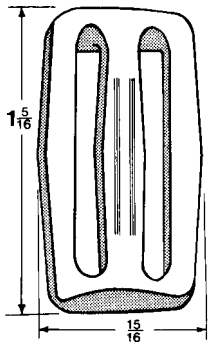
For 1" wide webbing.
Slot widths 3/16" and 1/4".
Size overall 29/32" x 1-5/16".
Sheet Brass - 7/64" Thick
Government Bronze Finish (Black)

Unit Package 50

Unit Package 50

SPAENAUR No. **121-209**
Sheet Steel - 3/32" Thick
For 2" wide webbing Slot width 3/16"
Size overall 7/8" x 2-3/8"
Nickel Plated Finish

SPAENAUR No. **121-505**
Sheet Brass - 7/64" Thick
For 2" wide webbing Slot width 9/32"
Size overall 1-3/64" x 2-3/8"
Nickel Plated Finish



SPAENAUR No.
122-440

SLIDE BUCKLE

of tough "Delrin 500" White

FOR 1" WEBBING
3/64", 1/16", or 1/8" Thick

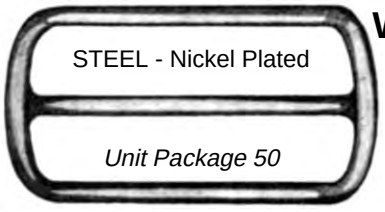
Unit Package 50

WELDED SLIDES

STEEL - Nickel Plated

SPAENAUR No.	Max. Width	Wire Dia.
121-261	1-3/16"	.098"
121-262	1-1/2"	.098"

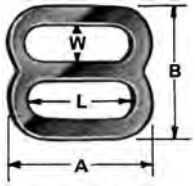
Unit Package 50



Unit Package 50

WELDED SLIDE

SPAENAUR No.
121-257
Width: 1-1/2"
Wire Dia.: .109"



SLIDES

NICKEL PLATED
SHEET STEEL

Approx. .050" Thick

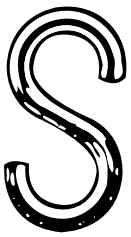
SPAENAUR No.	L LENGTH OF SLOT	W WIDTH OF SLOT	A OVER-ALL LENGTH	B OVER-ALL WIDTH	UNIT PKG. QTY.
121-012	1/2"	1/8"	3/4"	5/8"	100
121-013	5/8"	3/16"	7/8"	11/16"	100
121-014	3/4"	3/16"	1"	11/16"	100
121-015	1"	3/16"	1-1/4"	3/4"	50
121-016	1-1/2"	1/4"	1-3/4"	7/8"	50
121-017	2"	3/16"	2-5/16"	13/16"	50

M

"S" HOOK

Zinc Plated STEEL
(*Plain Brass)

SPAENAUR No.	Wire Dia.	Lgth. O/A	Unit Pkg.
MH-500*	.102"	1"	100
MH-177	.141"	1-1/4"	100
MH-75	.141"	1-1/2"	25
MH-76	.162"	1-7/8"	25
MH-77	.185"	2-1/4"	25
MH-78	.212"	2-1/2"	25
MH-79	.272"	2-3/4"	25
121-090	.312"	3"	25
MH-80	.329"	3-1/4"	25
MH-74	.375"	3-1/4"	25
121-091	.375"	3-1/2"	25

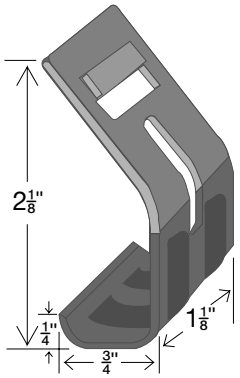


See also Page M20 for more "S" Hooks

GUTTER HOOKS

121-184

HI-STRENGTH STEEL ZINC PLATED



For Anchoring Luggage Racks, Ski Racks, Etc., To Car Roofs.

NEOPRENE COATED HOOK, TO PREVENT ABRASION.

SPAENAUR No.	For Webbing Size	Unit Pkg.
121-184	3/4" Width x 1/16" to 3/16" Thick.	6

N-129H MOLLY® HOOK

P.C. 226

Steel – Zinc Plated

FOR PICTURES, MIRRORS, ETC.

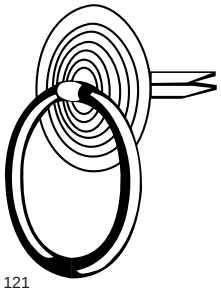
It is neat in appearance and sturdily constructed to hold pictures, mirrors, etc. The hole will accommodate a 6-32 screw such as used with Jacknut No. N-125.

For use with larger screws, the hole may be enlarged easily by removing the insert.

(See Page C146 for Molly Jack Nuts)

Actual Size

Unit Package 50

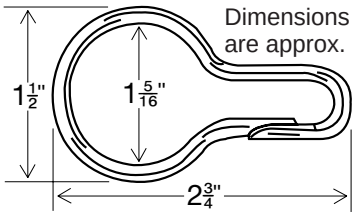


P.C. 121

MH-132 DRAWER PULL

Consisting of-
B-1939 Brass Staple
B-1940 Brass Escutcheon
MH-19B Brass Plated Ring

Unit Package - 100 sets



Dimensions are approx.

METAL SHOWER CURTAIN RING

SPAENAUR No.
121-169

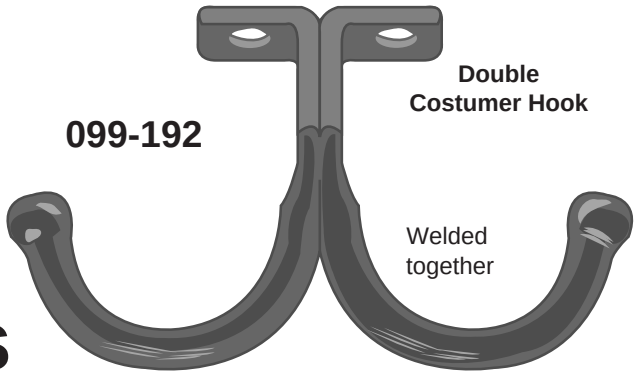
Steel, Zinc or Nickel plated, our option.

Unit Package 50

Top Mount

099-192

Double Costumer Hook

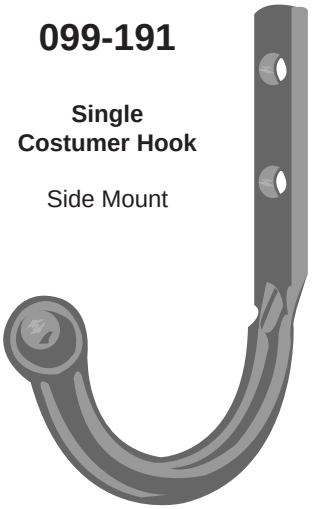


Welded together

099-191

Single Costumer Hook

Side Mount



Hooks

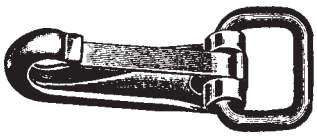
Both Hooks are 3/16" dia. Steel Wire, Zinc Plated.

SPAENAUR No.	Height	Projection	Holes Centre to Centre	Use Screws	Unit Pkg. Quantity
099-191	2-5/8"	1-5/8"	3/4"	2 #9 Round Hd.	10
099-192	2-1/4"	3-3/8"	7/8"	2 #10 Round Hd.	10

SPRING SNAPS

Cast Malleable Iron
Loop Eye
Nickel Plated
▲ Die Cast

SPAENAUR No.	Size of Eye	Length Overall	Ring Size Snap Opening	Pkg. Qty.
MH-54▲	1/2"	1-5/8"	.177"	25
MH-55	5/8"	1-5/8"	.177"	25
MH-56	3/4"	1-5/8"	.177"	25
MH-57A	7/8"	1-3/4"	.177"	25
MH-59	2"	1-3/4"	.177"	25



Loop Eye
Sheet Steel
Nickel Plated

MH-60	1/2"	1-3/4"	.177"	25
MH-61	5/8"	1-3/4"	.177"	25
MH-62	3/4"	1-3/4"	.177"	25

Cast Malleable Iron
Swivel Eye
Nickel Plated

MH-50A	3/8"	1-15/16"	.156"	25
MH-50	15/32"	2-1/2"	.177"	25

122-439
Snap Hook
(Flag Snap)

Colour: Natural

This snap can be used with any cord up to 3/8" dia. It has all the characteristics of metal snaps, as well as other advantages only found using thermoplastic material. The material is versatile because it will not scratch surfaces, freeze or rust after many years of service.

O/A Lgth. Approx. 2-3/8"

UNIT PACKAGE 25

Other colours available (P.O.R.)

Key Ring
BELT SNAP
Assemblies

Metal Die Cast SNAP
Nickel Plated

SPAENAUR No.
121-252

Unit Package 10 (One Number)

SPAENAUR No.
121-146

Steel Ring
Nickel Plated

	121-146	121-252
Snap Opening	15/64" 6 mm	11/32" 8.7 mm
Snap O/A Length	2-3/8" 60 mm	2-7/8" 73 mm
Ring I.D.	13/16" 20.64 mm	13/16" 20.64 mm
O/A Assembly Length	3-1/8" 80 mm	3-17/32" 90 mm

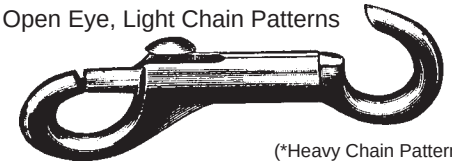
See page M70 for more KEY HOLDERS.

BOLT SNAPS

Metal Die Cast Nickel Plated
Double Pattern

SPAENAUR No.	Length Overall	Ring Size Snap Opening	Pkg. Qty.
121-173	3-1/2"	3/8"	25
121-174	4-1/8"	7/16"	25

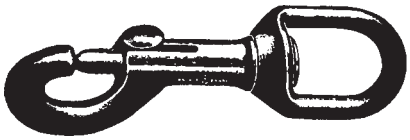
Cast Malleable Iron Zinc or Cadmium Plated at our option.
Open Eye, Light Chain Patterns



(*Heavy Chain Pattern)

SPAENAUR No.	Size of Eye	Length Overall	Ring Size Snap Opening	Pkg. Qty.
121-171	3/8"	3-1/4"	5/16"	25
121-172	3/8"	3-1/2"	3/8"	25
121-178	1/2"	4"	3/8"	25
121-348*	1/2"	4-1/4"	3/8"	25

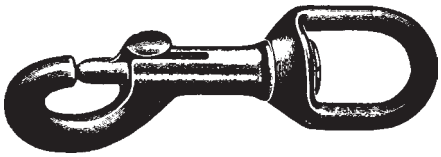
Zinc Die-Cast Nickel Plated
Swivel Round Eye



121-228	1/2"	2-15/16"	11/32"	10
121-229	5/8"	3-1/8"	3/8"	10
121-191	3/4"	3-1/4"	5/16"	25
MH-157†	3/4"	4-1/16"	3/8"	25
121-230	7/8"	3-5/16"	3/8"	10
121-231	1"	3-1/2"	3/8"	10

†Furnished in Cast Mall. Iron - Cad. Plated

CAST SOLID BRASS

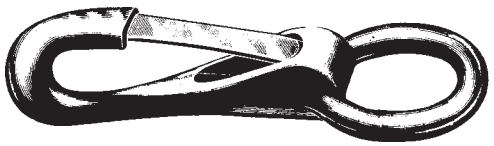


Plain Finish

MH-70	3/8"	3"	1/4"	25
121-021	3/4"	3-5/32"	3/8"	25

M

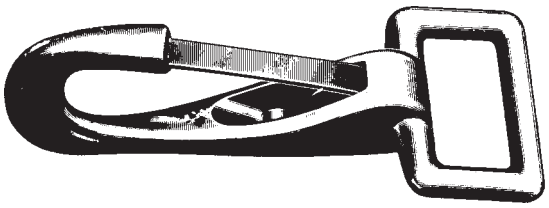
SPRING SNAPS



Round Eye

Snap Body: tough Zinc Die-Cast, or Cast Malleable Iron, at our option.
Finish: Nickel, Cadmium or Bright Zinc (our option).

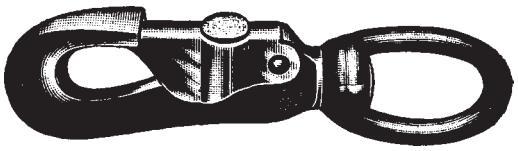
SPAENAUR No.	Size of Eye	Length Overall	Ring Size Snap Opening	Pkg. Qty.
MH-81	5/8"	3-1/8"	7/16"	10
121-235	3/4"	3-5/16"	7/16"	10
121-389	Same as 121-235 except Light Duty and Dull Finish.			
121-233	3/4"	3-11/16"	7/16"	10



Loop Eye

Material and Finish: as described above.

MH-108	27/32"	2-11/16"	.375"	25
MH-109A	23/32"	2-5/16"	.262"	25
MH-109	3/4"	2-7/8"	.283"	25
MH-110	7/8"	3-1/8"	.283"	25
MH-111	1"	3"	.283"	25
MH-113	1-1/4"	3-1/2"	.306"	25
MH-114	1-1/2"	3-3/4"	.306"	25
MH-43	2"	3-1/2"	.306"	5



Swivel Round Eye

Material and Finish: as described above.

MH-82A	5/8"	3-1/8"	1/4"	25
MH-82	5/8"	3-1/2"	5/16"	25
MH-83	3/4"	3-1/2"	3/8"	25
MH-84	1"	3-3/4"	3/8"	25

Swivel Eye

Cast Solid Brass - Nickel Plated

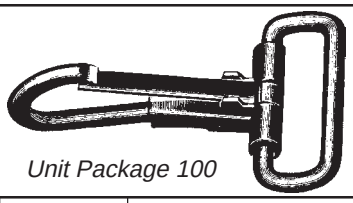
MH-52	3/8"	1-7/8"	.175"	25

Cast Malleable Iron - Nickel Plated

121-192	3/8"	2-1/2"	3/16"	25

SPRING SNAPS

Nickel or Zinc Plated at our option.



Unit Package 100

SPAENAUR No.	Loop Width	Length Overall	Ring Size Snap Opening	Material
MH-64	1"	2-1/8"	3/16"	Brass Wire
MH-65	1-1/8"	2-1/4"	3/16"	Steel Wire
MH-119	1-1/2"	2-1/8"	3/16"	Steel Wire

SPRING SNAPS

Sheet Steel Body
Swivel Eye

Nickel Plated

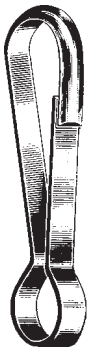
Sheet Steel Eye

SPAENAUR No.	Size of Eye	Length Overall	Ring Size Snap Opening	Snap Body Component
MH-88	3/8"	2-1/8"	5/32"	(MH-87)
MH-53	3/8"	2-3/4"	1/4"	(MH-86)
MH-92	1/2"	2-3/4"	1/4"	(MH-86)

Unit Package 100

SNAP BODIES

Sheet Steel Nickel Plated

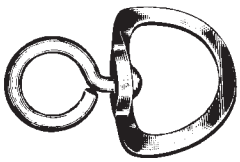


SPAENAUR No.	Length Overall	Ring Size Snap Opening
MH-87A	31/32"	3/32"
MH-87	1-1/4"	7/32"
MH-86A	1-9/16"	3/16"
MH-86	1-3/4"	1/4"

Unit Package 100

SWIVELS

Steel
Nickel Plated



SPAENAUR No.	
MH-143	3/8" Eye
MH-145	1/2" Eye

Unit Package 100

SWIVELS

Tough
Zinc Die-Cast

Nickel Plated

SPAENAUR No.	Size of Eye	Length Overall	Use with Snap Opening	Pkg. Qty.
121-247	1/2"	1-15/16"	5/32"	25
121-248	5/8"	2-3/8"	3/16"	25
121-249	3/4"	2-5/8"	3/16"	10
121-250	1"	3"	7/32"	10

M

CATALOG 13

SNAPS

Cast Brass

Plain Finish

90° Fast Eye

SPAENAUR No.	I.D. of Eye	Length Overall	Ring Size Snap Opening	Pkg. Qty.
121-024	3/8"	2"	1/4"	10
MH-67	5/8"	2-7/8"	5/16"	10
121-025	3/4"	3-7/8"	5/8"	10

Our buckles, snaps, hooks and pulleys are manufactured to either Inch or Metric specifications and shown accordingly in our catalog.

By using the Inch/Metric Conversion Chart on page **R3** in the back of the Spaenaur catalog, your selection can be expanded by simple conversion to choose from both Inch and Metric items.

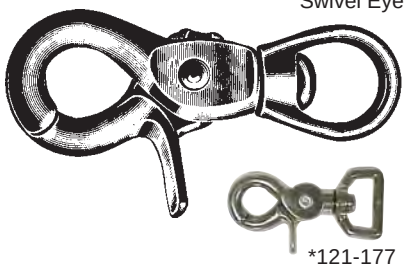
Page **R4** provides other valuable measurement conversion formulas to expand your selection of quality
Spaenaur products. The **R section** also contains information relating to Equivalent Standard Bolt Diameters, Torque Conversion Charts and Tension Loads / Tightening Torques.

TRIGGER SNAPS

Zinc Die-cast
or
Cast Malleable Iron
- at our option.

Nickel Plated

Swivel Eye

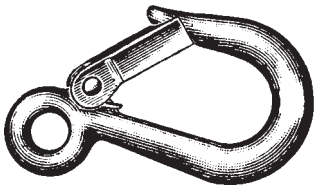


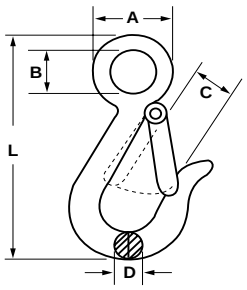
*121-177

SPAENAUR No.	Size of Eye	Length Overall	Ring Size Snap Opening	Pkg. Qty.
121-179	3/8"	2-3/8"	3/8"	10
121-180	1/2"	2-1/2"	3/8"	10
***121-177**	3/4" x 1/4"	2-3/8"	3/8"	10
121-181	5/8"	2-3/8"	3/8"	10
121-182	3/4"	2-7/8"	3/8"	10

SAFETY SNAP HOOKS

Fast Eye





Weldless Drop Forged Steel
Galvanized Finish
With Stainless Steel Spring and Rivet or Screw and Nut Assembly.

SPAENAUR No.	A	B	C	D	L	Safe Work Ld.	Pkg. Qty.
121-049	1-1/4"	3/4"	3/4"	7/16"	3-15/16"	750 lbs.	10
121-050	2"	1-1/8"	13/16"	9/16"	4-3/4"	1000 lbs.	5

For trailer winches, etc. Also used on conveyors.

PULLEY with Swivel Eye

For 9/32" (7 mm) Rope Dia.

SPAENAUR No.

121-422

Body: Die Cast, Nickel Plated
Roller: Die Cast, Brass Plated

Overall Length: 2-3/8"
Roller O.D: 1"

Unit Package 10

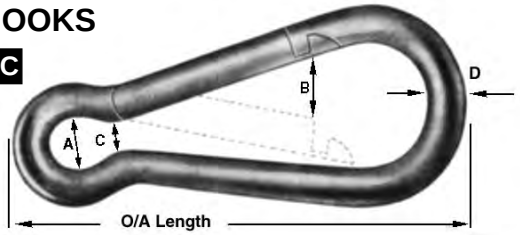
M

CATALOG 13

SNAP HOOKS

DIN 5299C

ZINC PLATED STEEL

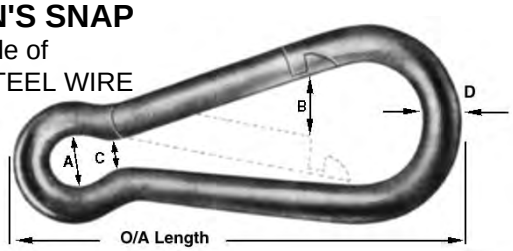


SPAENAUR No.	Dimensions A mm	B mm	C mm	O/A Length mm	Dia. D mm	Safe Work Load kg	Unit Pkg. Qty
121-138	10	8	6	60	6	120	10
121-139	11	9	8	70	7	180	10
121-140	13	11	9	80	8	230	10
121-141	13	11	10	90	9	250	10
121-142	16	12	11	100	10	350	10
121-143	16	17	12	120	11	450	10
121-144	20	21	14	140	12	510	5
121-145	22	28	16	160	13	600	5

FIREMAN'S SNAP

Made of ROUND STEEL WIRE

ZINC PLATED

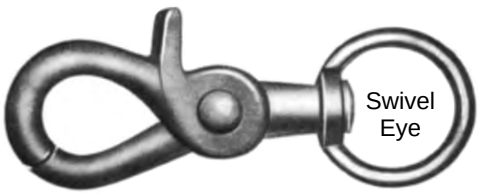


SPAENAUR No.	Dimensions A mm	B mm	C mm	O/A Length mm	Dia. D mm	Unit Pkg. Qty.
121-129	8	7	4	50	5	10
121-130	10	8	6	60	6	10
121-131	11	9	8	70	7	10
121-244	13	11	9	80	8	10
121-132	13	11	10	90	9	10
121-245	16	12	11	100	10	10
121-246	16	17	12	120	11	10
121-133	20	21	14	140	12	10
121-134	22	28	16	160	13	10
121-135	22	42	16	180	14	5
121-136	26	43	16	200	15	5

SNAP HOOKS

ZINC DIE CAST

Nickel Plated

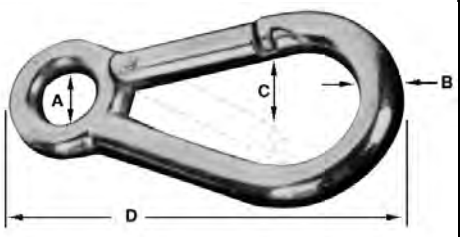


SPAENAUR No.	Size of Eye mm	Length Overall mm	Ring Size Snap Opening mm	Pkg. Qty.
121-223	10	55	10	10
121-224	15	65	12	10

SNAP HOOKS

DROP FORGED
ZINC PLATED

Style 1



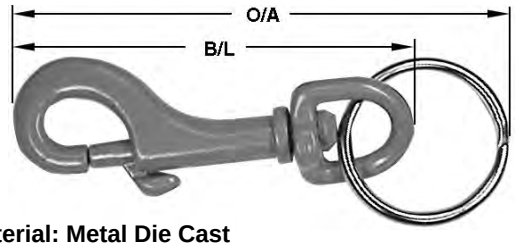
Style 2

with threaded collar

SPAENAUR No.	Style	Eye Dia. A mm	Steel Thick. B mm	Snap Opening C mm	O/A Lgth. D mm	Pkg. Qty.
121-123	1	9	6	8	60	5
121-124	1	10	7	8	70	5
121-424	1	15	10	13	100	1
121-126	2	15	10	13	100	1

Hot Coloured

KEY HOLDERS



Material: Metal Die Cast

Split Ring Nickel Plated
I.D. 21 mm

Unit Package 10 (One Colour)

SPAENAUR No.	Colour	O/A Lgth.	B/L Body Lgth.	Snap Opening
121-400	Black	80 mm	60 mm	6 mm
121-401	White			
121-402	Pink			
121-403	Green			
121-404	Violet			
121-405	Black	90 mm	73 mm	8 mm
121-406	White			
121-407	Pink			
121-408	Turquoise			
121-409	Violet			

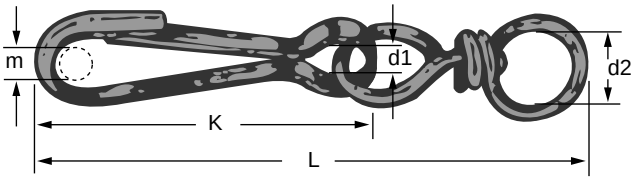
More Key holders on M67.
Synthetic Rope on page M25.

Snap Hooks of Half Round Steel Wire

with Swivel Eye

Metric

Nickel Plated



Dimensions in Millimetres.

SPAENAUR No.	d1	d2	m	K/L	Pkg. Qty.
121-079	5.5	8	3.5	25/50	100
121-080	6	8	4.5	30/55	100
121-081	6.5	8	5	35/60	100
121-082	7	10	5.5	40/67	100
121-083	8	10	6	45/74	50
121-084	9	11	6.5	50/83	50
121-085	10	13	7.5	60/97	50
121-086	11	17	9	70/115	50
121-087	12	17	10	80/123	25
121-088	13	19	10.5	90/140	25
121-089	14	19	11	100/146	10

SPRING SNAP BODY ONLY

Stainless Steel, Plain Finish

SPAENAUR No.	d1	d2	m	K	Pkg. Qty.
121-841	7	-	5.5	40	50

SNAP HOOK

SOLID BRASS

SPAENAUR No.	Size of Eye mm (inch)	Snap Opening mm	Overall Length mm	Pkg. Qty.
121-119	16 (5/8)	—	80	10
121-120	20 (3/4)	—	80	10

SNAP HOOK

of

DROP FORGED STEEL

Bright Zinc Plated

Break Strength: 3600 lbs.

SPAENAUR No. **121-232**

Eye Diameter	Overall Length	Package Quantity
17 mm	90 mm	10

Boat Snaps

ZINC DIE CAST

Zinc or Nickel Plated - our option.

Fast Eye

SPAENAUR No.	Size of Eye mm	Length Overall mm	Ring Size Snap Opening mm	Pkg. Qty.
121-423	11	50	7	10
121-236*	12	60	8	10
MH-153	15	70	10	10
MH-154	16	85	12	10
MH-155	17	100	15	10
121-237*	24	120	18	10
121-238*	29	142	25	10

*Cast Malleable Iron

SNAP HOOK

SOLID BRASS

SPAENAUR No.	Size of Eye mm (inch)	Snap Opening mm	Overall Length mm	Pkg. Qty.
121-121	16 (5/8)	—	70	10
121-122	20 (3/4)	—	95	5

PULLEYS

Body: Tough Die Cast Zinc

Roller: Nylon

Unit Package 10

SPAENAUR No.	Roller Dia. mm	Rope Dia. mm	O/A Lgth. mm
121-241	15	5	50
121-240	20	6	60
121-242	25	7	70
121-243	30	8	80

PULLEY with Swivel Eye

SPAENAUR No. **121-410**

Body: Zinc Die Cast - Zinc Plated
Roller: Nylon

Overall Length: 73 mm
Roller Diameter: 25 mm
For Rope Diameter: 7 mm

Unit Package 10

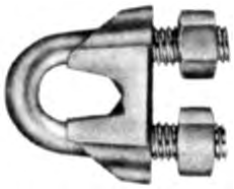
M

CATALOG 13

More Belt Snaps on M67 and M70.

"NIPPER" WIRE ROPE CLIPS

Galvanized
Malleable Iron Base.
Zinc Plated
Steel U-bolt.



SPAENAUR No.	For Dia. Rope	U-Bolt Dimensions Thread Dia.	Length Overall	Centre to Centre	Unit Pkg.
121-269	1/8"	3/16"	7/8"	1/2"	25
121-270	3/16"	1/4"	1-1/8"	9/16"	25
121-271	1/4"	5/16"	1-1/2"	11/16"	25
121-272	5/16"	5/16"	1-1/2"	11/16"	25
121-273	3/8"	3/8"	1-13/16"	7/8"	25
121-274	7/16"	3/8"	2"	7/8"	25
121-275	1/2"	7/16"	2-3/8"	1"	25
121-276	5/8"	1/2"	2-3/4"	1-3/16"	10
121-277	3/4"	9/16"	3-1/16"	1-11/32"	10
121-278	7/8"	5/8"	3-1/2"	1-5/8"	5
121-279	1"	5/8"	3-15/16"	1-3/4"	5

WIRE ROPE CLAMPS

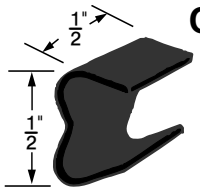
Material & Finish:
For 1/8" Rope - Nickel on Bronze
For 5/16" Rope - Galv. Gray Iron

SPAENAUR No.	For Dia. Rope	Width	Length	Unit Pkg.
121-510	1/8"	11/16"	1-5/16"	5
121-281	*5/16"	1"	2"	5

CABLE COUPLER

Steel - Zinc Plated

C-1070



Unit Package 100

P.C. 106

For clamping together two parallel strands of 3/16" dia. cord, plastic or wire cable.

MANILLA ROPE THIMBLES

Mechanical Galvanized Steel

Unit Package 10

SPAENAUR No.	For Dia. Rope
121-283	3/8"
121-285	1/2"
121-286	5/8"
121-287	3/4"
121-288	1"

THIMBLES

Unit Package 10

STANDARD WIRE ROPE THIMBLES

ELECTRO GALVANIZED STEEL

SPAENAUR No.	For Dia. Rope
121-737	1/8"
121-289	3/16"
121-290	1/4"
121-291	5/16"
121-292	3/8"
121-293	1/2"
121-294	5/8"
121-295	3/4"
121-296	7/8"
121-297	1"

STAINLESS STEEL

SPAENAUR No.	For Dia. Rope
121-879	1/8"
121-880	3/16"
121-803	1/4"
121-804	5/16"
121-805	3/8"
121-806	1/2"

HEAVY DUTY WIRE ROPE THIMBLES

Mechanical Galvanized Drop Forged Steel

SPAENAUR No.	For Dia. Rope
121-298	1/4"
121-299	5/16"
121-300	3/8"
121-301	7/16"

SPAENAUR No.	For Dia. Rope
121-303	5/8"
121-304	3/4"
121-305	7/8"
121-306	1"

LINE CLEATS

Cast Aluminum

SPAENAUR No.	Length	Height	For Screw No.	C. to C.	Unit Pkg.	Weight per 100 (in kg.)
121-324	2-1/2"	5/16"	6	3/8"	20	1.81
121-325	4-1/2"	9/16"	8	3/4"	20	2.84
121-512	(Same as above, except Burnished Bronze)					4.10
121-326	6"	3/4"	10	1"	20	5.67

HEAVY SHIP OR DOCK CLEATS

Galvanized gray iron.

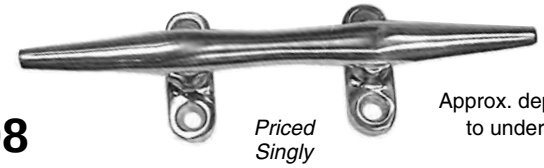
Priced Singly

SPAENAUR No.	Length	Base Size	For Diameter Bolt	Weight Each (in kg.)
121-330	15"	7-1/4" x 3-1/2"	3/4"	6.35

Ideal for marina and dock use.

SPAENAUR No.

121-808



Priced Singly

Approx. depth from flat surface to underside of cleat - 1".

POLISHED SLIM LINE CLEAT IN 316 STAINLESS STEEL

Overall Length - 7-3/4 Inches.
Countersunk Holes for 1/4" Screws.

M

CATALOG 13

SWAGE SLEEVES of Aluminum and Copper

ALUMINUM

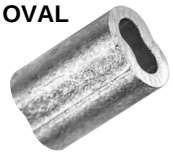
For Cable Diameter	OVAL SPAENAUR No.	OVAL Approx. Length	STOP SPAENAUR No.	STOP Approx. Length	Unit Pkg. Qty.
1/16"	**121-360**	3/8"	**121-368**	1/4"	100
3/32"	**121-361**	1/2"	**121-369**	5/16"	100
1/8"	**121-362**	5/8"	**121-370**	5/16"	50
5/32"	**121-363**	11/16"	**121-371**	11/32"	50
3/16"	⁎**121-364**	1"	**121-372**	11/32"	25
1/4"	**121-365**	1-1/8"	**121-373**	11/16"	10
5/16"	**121-366**	1-1/4"	—	—	10
3/8"	**121-367**	1-7/16"	—	—	10

⁎**121-022** same as 121-364 except 1/4" approx. length.
Min 5,000 pieces P.O.R. Delivery 3-4 weeks.

COPPER

For Cable Diameter	OVAL SPAENAUR No.	OVAL Approx. Length	STOP SPAENAUR No.	STOP Approx. Length	Unit Pkg. Qty.
1/16"	**121-700**	3/8"	**121-708**	7/32"	100
3/32"	**121-701**	3/8"	**121-709**	5/16"	50
1/8"	**121-702**	9/16"	**121-710**	5/16"	50
5/32"	**121-703**	5/8"	**121-711**	5/16"	50
3/16"	**121-704**	15/16"	**121-712**	5/16"	25
1/4"	**121-705**	1-1/8"	**121-713**	11/16"	10
5/16"	**121-706**	1-1/16"	—	—	10
3/8"	**121-707**	1-1/4"	—	—	10

(Cable Connectors)


OVAL

STOP

Lengths of OVAL & STOP may vary, but do not affect the strength of application.

M

SWAGING TOOLS for installing — Aluminum & Copper Swage Sleeves

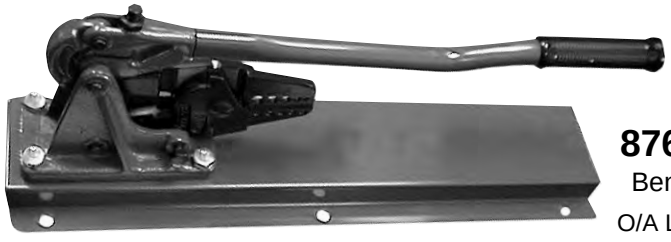
876-1548
Hand Tool
Sets 1/16" to 3/16" cable dia.
Ovals and Stops.

O/A Length 26"

Separate Hand Tool available for setting larger cable diameter sizes.

876-1550
Replacement Jaw Set for Hand and Bench Tools.

Priced Singly



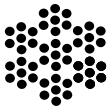
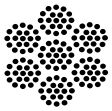
876-1549
Bench Tool
O/A Length 20"

Sets 1/16" to 3/16" dia. cable Ovals and Stops.

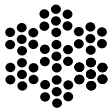
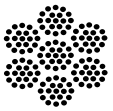
CATALOG 13

WIRE ROPE

GALVANIZED STEEL

7 x 7 Construction	SPAENAUR No.	Wire Dia.	Nom. Breaking Strength (lbs.)	Weight (lbs./1000 ft.)
	**697-103**	1/16"	480	7.5
	697-104	3/32"	920	16.0
	697-105	1/8"	1,700	28.5
	697-106	3/16"	3,700	62.0
7 x 19 Construction	**697-107**	1/8"	2,000	29.0
	**697-108**	5/32"	2,800	45.0
	697-109	3/16"	4,200	65.0
	697-110	1/4"	7,000	110.0
	697-111	5/16"	9,800	173.0
	697-112	3/8"	14,400	243.0

STAINLESS STEEL Type 302/304

7 x 7 Construction	SPAENAUR No.	Wire Dia.	Nom. Breaking Strength (lbs.)	Weight (lbs./1000 ft.)
	**697-850**	3/64"	270	4.2
	697-851	1/16"	480	7.5
	697-852	3/32"	920	16.0
	697-853	1/8"	1,700	28.5
7 x 19 Construction	**697-854**	3/32"	1,050	16.0
	**697-855**	1/8"	1,760	29.0
	697-856	5/32"	2,400	45.0
	697-857	3/16"	3,700	65.0
	697-858	1/4"	6,400	110.0
	697-859	5/16"	9,000	173.0
	697-860	3/8"	12,000	243.0

Unit Package Quantity 1-250 ft. spool (all sizes).

WIRE ROPE and CABLE CUTTER

Priced Singly

Alloy Steel with plastic coated handles.

Will cut all cable sizes listed above.

SPAENAUR No.
876-1739

19" O/A Length

M

See page H21 for Steel and Stainless Steel Music Wire, also page P172 for other Wire Rope Cutters.

Grade 30 Chain Low Carbon Steel

Design Factor 4:1

Spaenaur No.	Trade Size	WLL (lbs.)	Unit Pkg. Quantity	Approximate Weight (lbs.) Per Foot
121-720	1/8"	375	1000'	0.19
121-721	3/16"	590	750'	0.30
121-722	1/4"	1,040	350'	0.52

Grade 70 Transport Chain

Boron Manganese Heat Treated Steel

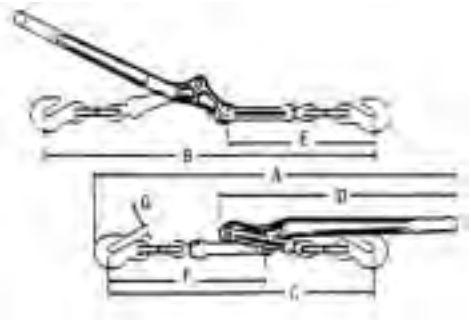
Never exceed working load limit of chain!

Spaenaur No.	Trade Size	WLL (lbs.)	Unit Pkg. Quantity	Minimum Weight (lbs.) Per Foot
121-723	5/16"	4,700	275'	0.93
121-724	3/8"	6,600	200'	1.42

Grade 30 & Grade 70 Chains Must Not Be Used For Overhead.

Standard Lever Load Binder

• Forged Steel - quench and tempered. • Ball and socket swivel joints at hook assemblies permit a straight line pull. • Do not operate load binder while you or anyone else is standing on the load. • Tighten handle in a downward manner. • Do not use handle extension for tightening. • Secure position of binder by wrapping the loose end of chain around the handle and tighten chain. • Always stay “clear” of the handle as it could snap back. • Do not close your hand around the handle. • Inspect binder prior to use and discard in case of signs of wear.



Spaenaur No.	Chain Size	Weight Each (lbs.)	Dimensions (Inches) A	B	C	D	E	F	G	Take Up	WLL (lbs.)	NBS (lbs.)
121-725	5/16 - 3/8"	7.00	24.13	22.13	17.88	16.00	10.38	10.38	0.05	4.25	5,400	19,000

Lever Load Binder 121-743 same as above except recoilless type.

Warning: Never exceed working load limit! Failure to follow instructions can result in serious injury!

Chain & Bolt Cutter

Cutting Capacity:
1/2" for Grade 30 Chain
3/8" for Grade 70 Chain
Length: 42"
Weight: 18-20 lbs.

Blade Material:
Alloy Steel, Satin Finish.
Adjustable Blade Clearance.
Suitable For Mild Steels Only!

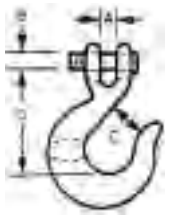
Spaenaur No.
876-300

These tools are sharp and should be used with caution! Using them beyond the stated capacity or on other products will damage the blades and the tool!

See following page for chain accessories

Grade 30 Clevis Slip Hook

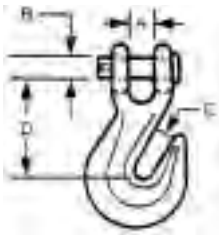
Carbon Steel (Forged Steel, Heat Treated)



Spaenaur No.	Chain Size	WLL (lbs.)	Approximate Weight (lbs.)	Dimensions (Inches) A	B	C	D
121-741	1/4"	1,950	0.50	0.38	0.38	0.88	2.56

Grade 30 Clevis Grab Hook

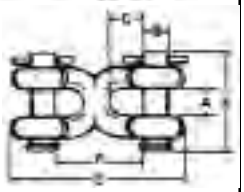
Carbon Steel (Forged Steel, Heat Treated)



121-742	1/4"	2,600	0.46	0.38	0.38	0.34	1.94

Grade 30 Twin Clevis Links (Suitable for Grades 30 to 70 chain)

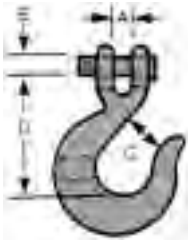
Body: Carbon Steel Pin: Alloy Steel



Spaenaur No.	Chain Size	WLL (lbs.)	Approximate Weight (lbs.)	Dimensions (Inches) A	B	C	D	E	F
121-732	1/4-5/16"	4,700	0.31	0.39	0.37	0.41	2.50	1.62	1.18
121-733	3/8"	6,600	0.44	0.47	0.46	0.60	2.98	1.88	1.51

Grade 70 Clevis Slip Hook - without and with latch

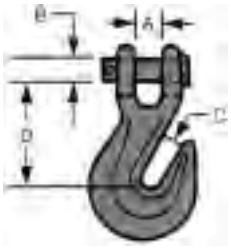
Alloy Steel, Yellow Chromate



Spaenaur No. Without Latch	With Latch	Chain Size	WLL (lbs.)	Approximate Weight (lbs.)	Dimensions (Inches) A	B	C	D
121-734	**121-736**	5/16"	4,300	0.75	0.44	0.44	1.00	2.81
121-735	**121-738**	3/8"	5,200	1.20	0.56	0.47	1.28	3.25

Grade 70, Clevis Grab Hook

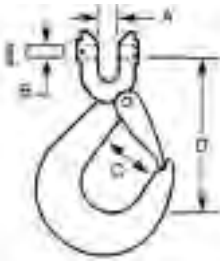
Alloy Steel, Yellow Chromate



Spaenaur No.	Chain Size	WLL (lbs.)	Approximate Weight (lbs.)	Dimensions (Inches) A	B	C	D
121-726	5/16"	4,700	0.65	0.44	0.44	0.41	2.38
121-727	3/8"	6,600	1.15	0.56	0.47	0.50	2.63

Grade 80, Clevis Sling Hook - with heavy duty latch

Alloy Steel



Spaenaur No.	Chain Size	WLL (lbs.)	Approximate Weight (lbs.)	Dimensions (Inches) A	B	C	D
121-730	3/8"	7,100	2.43	0.52	0.50	1.58	4.13
121-731	1/2"	12,000	4.30	0.66	0.63	1.88	5.03

Grade 80 Connecting Link

Alloy Steel Design Factor 4:1

Spaenaur No.	Chain Size	WLL (lbs.)	Approximate Weight (lbs.)	Dimensions (Inches) A	B	C	D	E
121-728	3/8"	7,100	0.75	0.47	3.00	0.88	0.91	1.00
121-729	1/2"	12,000	1.50	0.63	3.38	1.25	1.30	1.13

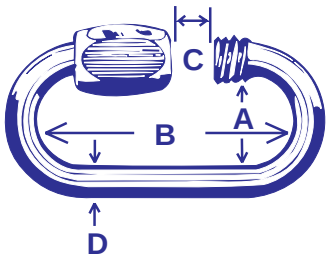
Warning: Never exceed working load limit! Not recommended for overhead lifting!

M

CATALOG 13

All items on this Page
Priced Singly.

STANDARD SERIES



STEEL Zinc Plated

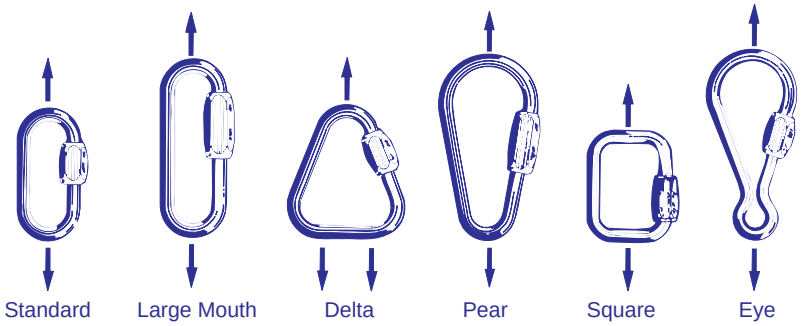
316 Stainless Steel
(Stainless 18/12 Mo.)

NYLON 6/6
Natural colour
(▲ Red colour)

APPROXIMATE WIRE DIAMETER "D" CONVERSION	
Inch	mm
7/64"	= 3.0 mm
1/8"	= 3.5 mm
5/32"	= 4.0 mm
3/16"	= 5.0 mm
1/4"	= 6.0 mm
9/32"	= 7.0 mm
5/16"	= 8.0 mm
3/8"	= 9.0 mm
7/16"	= 10.0 mm
1/2"	= 12.0 mm
9/16"	= 14.0 mm
5/8"	= 16.0 mm
11/16"	= 18.0 mm
25/32"	= 20.0 mm

	SPAENAUR No.	All dimensions stated in millimetres A	B	C	D	Safe Working *Load	Unit Pkg. Qty.
STEEL - Zinc Plated	121-027	8.5	25.0	4.0	3.0	50 kg	25
	121-019	10.0	29.0	5.0	3.5	100 kg	25
	121-333	11.5	31.5	5.5	4.0	180 kg	25
	121-334	13.0	39.5	6.5	5.0	280 kg	25
	121-335	14.5	45.0	7.5	6.0	400 kg	25
	121-336	16.0	52.0	8.5	7.0	550 kg	10
	121-337	17.5	58.0	10.0	8.0	700 kg	10
	121-028	19.0	62.0	11.0	9.0	900 kg	10
	121-338	20.5	69.0	12.0	10.0	1,100 kg	10
	121-339	23.5	80.5	15.0	12.0	1,500 kg	5
	121-340	26.5	93.0	17.0	14.0	2,200 kg	5
	121-341	29.5	108.0	19.0	16.0	2,900 kg	5
	121-029	32.5	121.0	23.0	18.0	3,500 kg	5
	121-030	35.5	137.5	26.0	20.0	4,000 kg	1
316 STAINLESS STEEL	121-810	8.5	25.0	4.0	3.0	160 kg	25
	121-811	10.0	29.0	5.0	3.5	220 kg	25
	121-812	11.5	31.5	5.5	4.0	280 kg	25
	121-813	13.0	39.5	6.5	5.0	450 kg	10
	121-814	14.5	45.0	7.5	6.0	650 kg	10
	121-815	16.0	52.0	8.5	7.0	900 kg	10
	121-816	17.5	58.0	10.0	8.0	1,100 kg	10
	121-817	19.0	62.0	11.0	9.0	1,400 kg	5
	121-818	20.5	69.0	12.0	10.0	1,800 kg	5
	121-819	23.5	80.5	15.0	12.0	2,500 kg	1
	121-820	26.5	93.0	17.0	14.0	3,500 kg	1
	121-821	29.5	108.0	19.0	16.0	4,500 kg	1
	121-822	32.5	121.0	23.0	18.0	5,400 kg	1
NYLON	122-001	12	47	8	6	20 kg	25
	122-002	16	58	10	8	25 kg	10
	122-003	20	69	12	10	30 kg	10
	▲122-051	20	69	12	10	30 kg	10

Standard, Pear, Square and Delta Series are stocked.
Large Mouth and Eye Series are available but not stocked.
Price and delivery P.O.R.

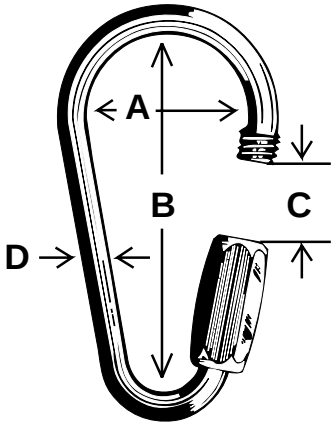


WARNING:
- Strain to be exercised in Arrow Directions only.
- Do not exceed safe working load.
- Not to be used for overhead lifting.
- To secure, the nut must be closed so that no threads are exposed. Failure to do so will cause the link to fail below its rated capacity.

***BREAKING LOAD IS APPROXIMATELY 5 TIMES THE SAFE WORKING LOAD .**

See pages M76 and M77 for more Quick Connecting Links.

PEAR SERIES



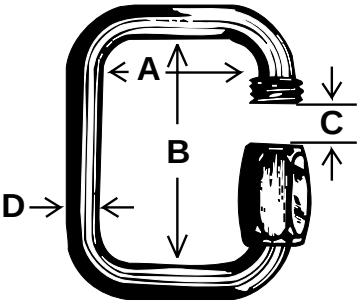
STEEL Zinc Plated

316 Stainless Steel

SPAENAUR No.	All dimensions stated in millimetres A	B	C	D	Safe Working *Load	Unit Pkg. Qty.
STEEL - Zinc Plated						
121-092	17.60	39.45	8.50	3.0	32 kg	10
121-093	20.56	45.74	10.00	3.5	56 kg	10
121-094	23.84	53.17	11.50	4.0	80 kg	10
121-095	27.10	60.66	13.00	5.0	120 kg	5
121-096	30.70	69.31	14.50	6.0	200 kg	5
121-097	33.98	76.77	16.00	7.0	320 kg	5
121-098	37.24	84.23	17.50	8.0	480 kg	5
121-099	39.96	89.90	19.00	9.0	600 kg	1
121-100	43.40	97.97	20.50	10.0	720 kg	1
121-101	52.00	120.00	23.50	12.0	880 kg	1
121-102	56.98	129.57	26.50	14.0	1,440 kg	1
121-103	63.52	144.49	29.50	16.0	2,000 kg	1
316 STAINLESS STEEL						
121-840	17.60	39.45	8.50	3.0	100 kg	10
121-864	20.56	45.74	10.00	3.5	130 kg	10
121-842	23.84	53.17	11.50	4.0	170 kg	10
121-843	27.10	60.66	13.00	5.0	270 kg	5
121-844	30.70	69.31	14.50	6.0	400 kg	5
121-845	33.98	76.77	16.00	7.0	550 kg	5
121-846	37.24	84.23	17.50	8.0	660 kg	5
121-847	39.96	89.90	19.00	9.0	840 kg	1
121-848	43.40	97.97	20.50	10.0	1,100 kg	1
121-849	52.00	120.00	23.50	12.0	1,500 kg	1
121-850	56.98	129.57	26.50	14.0	2,100 kg	1
121-851	63.52	144.49	29.50	16.0	2,700 kg	1

M

SQUARE SERIES



STEEL Zinc Plated

316 Stainless Steel

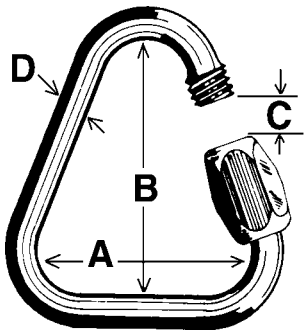
***BREAKING LOAD IS APPROXIMATELY 5 TIMES THE SAFE WORKING LOAD.**

Also see "WARNING" on page M75.

SPAENAUR No.	All dimensions stated in millimetres A	B	C	D	Safe Working *Load	Unit Pkg. Qty.
STEEL - Zinc Plated						
121-104	18.0	23.5	4.0	3.0	40 kg	10
121-105	22.0	27.5	5.0	3.5	70 kg	10
121-106	25.0	31.5	5.5	4.0	100 kg	10
121-107	28.0	37.5	6.5	5.0	150 kg	5
121-108	31.0	43.0	7.5	6.0	250 kg	5
121-109	34.0	49.5	8.5	7.0	400 kg	5
121-110	37.0	55.0	10.0	8.0	550 kg	5
121-111	40.0	60.0	11.0	9.0	700 kg	1
121-112	43.0	68.5	12.0	10.0	900 kg	1
121-113	50.0	78.0	15.0	12.0	1,100 kg	1
121-114	57.0	89.0	17.0	14.0	1,800 kg	1
121-115	64.0	103.0	19.0	16.0	2,200 kg	1
316 STAINLESS STEEL						
121-852	18.0	23.5	4.0	3.0	110 kg	10
121-853	22.0	27.5	5.0	3.5	150 kg	10
121-854	25.0	31.5	5.5	4.0	200 kg	10
121-855	28.0	37.5	6.5	5.0	325 kg	5
121-856	31.0	43.0	7.5	6.0	450 kg	5
121-857	34.0	49.5	8.5	7.0	625 kg	5
121-858	37.0	55.0	10.0	8.0	770 kg	5
121-859	40.0	60.0	11.0	9.0	980 kg	1
121-860	43.0	68.5	12.0	10.0	1,250 kg	1
121-861	50.0	78.0	15.0	12.0	1,750 kg	1
121-862	57.0	89.0	17.0	14.0	2,450 kg	1
121-863	64.0	103.0	19.0	16.0	3,150 kg	1

CATALOG 13

DELTA SERIES



STEEL Zinc Plated

316 Stainless Steel

*** BREAKING LOAD IS APPROXIMATELY 5 TIMES THE SAFE WORKING LOAD.**

Also see "WARNING" on page M75.

STEEL - Zinc Plated

SPAENAUR No.	All dimensions stated in millimetres A	B	C	D	Safe Working *Load	Unit Pkg. Qty.
121-375	17.00	22.00	3.5	2.5	25 kg	10
121-376	21.00	24.00	4.0	3.0	40 kg	10
121-377	24.00	29.00	5.0	3.5	70 kg	10
121-378	27.50	32.00	5.5	4.0	100 kg	10
121-379	30.00	38.00	6.5	5.0	150 kg	5
121-380	35.00	44.00	7.5	6.0	250 kg	5
121-381	37.00	49.00	8.5	7.0	400 kg	5
121-382	40.00	57.00	10.0	8.0	550 kg	5
121-383	42.00	60.00	11.0	9.0	700 kg	1
121-384	46.00	67.00	12.0	10.0	900 kg	1
121-385	51.00	80.00	15.0	12.0	1,100 kg	1
121-386	57.00	95.00	17.0	14.0	1,800 kg	1
121-387	61.00	106.00	19.0	16.0	2,200 kg	1
121-388	66.00	119.00	23.0	18.0	2,600 kg	1

316 STAINLESS STEEL

121-866	17.00	22.00	3.5	2.5	70 kg	10
121-867	21.00	24.00	4.0	3.0	110 kg	10
121-868	24.00	29.00	5.0	3.5	150 kg	10
121-869	27.50	32.00	5.5	4.0	200 kg	10
121-870	30.00	38.00	6.5	5.0	325 kg	5
121-871	35.00	44.00	7.5	6.0	450 kg	5
121-872	37.00	49.00	8.5	7.0	625 kg	5
121-873	40.00	57.00	10.0	8.0	770 kg	5
121-874	42.00	60.00	11.0	9.0	980 kg	1
121-875	46.00	67.00	12.0	10.0	1,250 kg	1
121-876	51.00	80.00	15.0	12.0	1,750 kg	1
121-877	57.00	95.00	17.0	14.0	2,450 kg	1
121-878	61.00	106.00	19.0	16.0	3,150 kg	1

Standard, Pear and Square Series are found on pages M75 and M76.

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LAP LINKS

†Zinc Plated

SPAENAUR No's. Polished Steel	Galvanized Steel	Wire Dia. (Inches)	Length Inside (Inches)	Width Inside (Inches)	Unit Pkg.	Weight Per 100 (in kg.)
121-347†	—	1/8"	3/4"	1/4"	20	—
—	**121-309**	3/16"	1"	1/2"	20	2.72
121-343†	**121-310**	1/4"	1-1/4"	1/2"	20	3.63
121-344	—	5/16"	1-1/2"	3/4"	20	6.80
121-345	**121-312**	3/8"	2"	3/4"	20	10.43
121-346†	—	1/2"	2-1/2"	1"	10	27.22

CONNECTING LINKS

Galvanized, self-coloured heat treated drop forged steel with interlocking lugs.*

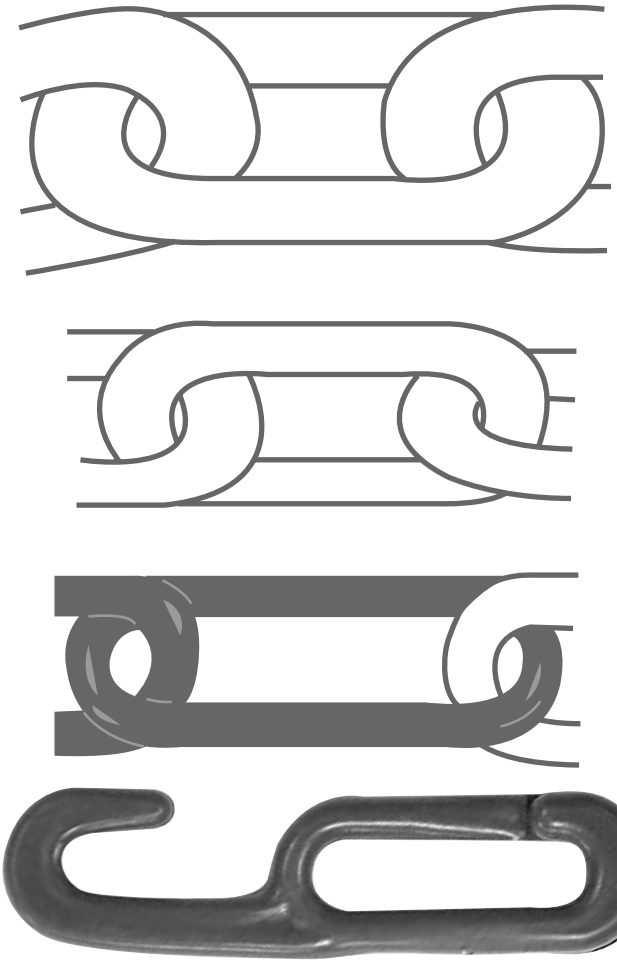
When riveted down, the pins securely lock the lugs together, making the links as strong as proof chain. *Sizes 3/16", 1/4", and 5/16" have no interlocking lugs.

Strengths are in accordance with requirements of federal specification RR-C-271b. (U.S.A.).

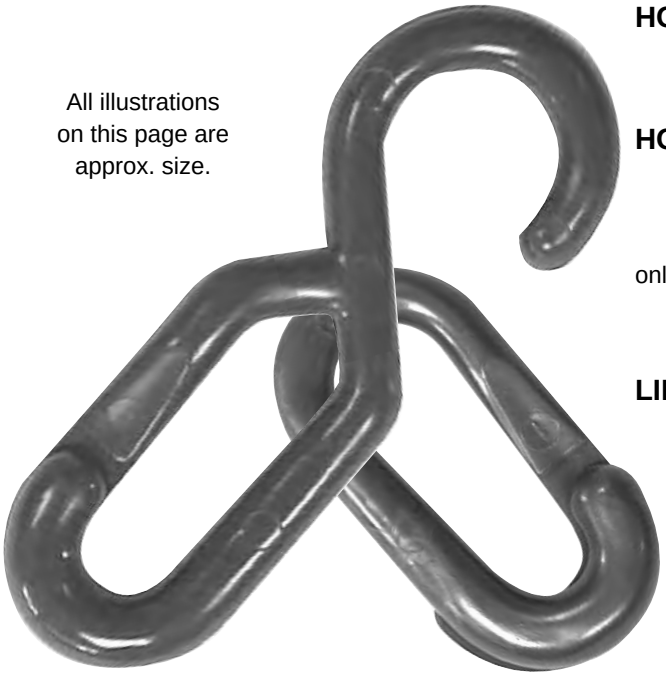
SPAENAUR No.	Size (Inches)	Outside Dim. (Inches)	Unit Pkg.	Weight Per 100 (in kg).
121-314	3/16"*	1-1/4" x 3/4"	10	1.81
121-315	1/4"*	1-1/2" x 1"	10	3.63
121-316	5/16"*	1-3/4" x 1-1/4"	10	4.99
121-317	3/8"	2" x 1-3/8"	10	8.16
121-318	7/16"	2-3/8" x 1-1/2"	10	10.89
121-319	1/2"	2-5/8" x 1-3/4"	10	14.97
121-320	5/8"	3-1/4" x 2-1/8"	10	33.11
121-321	3/4"	3-7/8" x 2-1/2"	5	55.79
121-322	7/8"	4-1/2" x 3"	5	77.11
121-323	1"	4-7/8" x 3-3/8"	5	119.30

DECORATIVE — POLYPROPYLENE LINK CHAIN & FITTINGS

Ideal For Non-Restraint Crowd Control Barriers and Decorative Borders.



All illustrations on this page are approx. size.



LINK CHAIN - 8 mm Dia. Size

SPAENAUR No.	Colour	Approx. Inside Length	Approx. Inside Width	Unit Pkg. Qty.
122-013	Red/White	50 mm	16 mm	75 metres
122-014	Black/Yellow	50 mm	16 mm	75 metres
122-015	White	50 mm	16 mm	50 metres
122-016	Red	50 mm	16 mm	75 metres
122-017	Yellow	50 mm	16 mm	75 metres
122-018	Black	50 mm	16 mm	75 metres
122-019	Bronze	50 mm	16 mm	75 metres
122-020	Silver	50 mm	16 mm	75 metres

LINK CHAIN - 6 mm Dia. Size

122-021	Red/White	41 mm	12 mm	100 metres
122-022	Black/Yellow	41 mm	12 mm	100 metres
122-023	White	41 mm	12 mm	100 metres
122-024	Red	41 mm	12 mm	100 metres
122-025	Yellow	41 mm	12 mm	100 metres
122-026	Black	41 mm	12 mm	100 metres
122-027	Bronze	41 mm	12 mm	100 metres
122-028	Silver	41 mm	12 mm	100 metres

LINK DECO-CHAIN - 6 mm Dia. Size

122-029	Red & White	54 mm	13 mm	100 metres
122-030	Black/Yellow	54 mm	13 mm	100 metres
122-031	White	54 mm	13 mm	100 metres
122-032	Red	54 mm	13 mm	100 metres
122-033	Yellow	54 mm	13 mm	100 metres
122-034	Black	54 mm	13 mm	100 metres
122-035	Bronze	54 mm	13 mm	100 metres
122-036	Silver	54 mm	13 mm	100 metres

HOOK ATTACHMENT - 6 mm Dia. Size

122-049	Red	70 mm	9 mm	10 only
122-050	Yellow	70 mm	9 mm	10 only

HOOK ATTACHMENT - 8 mm Dia. Size

122-037	White	44 mm	13 mm	10 only
122-038	Red	44 mm	13 mm	10 only
122-039	Yellow	44 mm	13 mm	10 only
122-040	Black	44 mm	13 mm	10 only
122-041	Bronze	44 mm	13 mm	10 only

LINK ATTACHMENT - 8 mm Dia. Size

122-043	White	42 mm	14 mm	10 only
122-044	Red	42 mm	14 mm	10 only
122-045	Yellow	42 mm	14 mm	10 only
122-046	Black	42 mm	14 mm	10 only
122-047	Bronze	42 mm	14 mm	10 only
122-048	Silver	42 mm	14 mm	10 only

Plastic Chain, Hook or Link are not to be used for high tensile applications.

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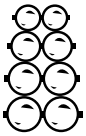
CATALOG 13

Nylon Quick-Link on page M75.

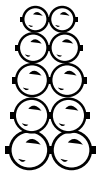
STANDARD BALL CHAIN

STEEL- Nickel Plated Finish (*304 Stainless Steel)



SPAENAUR No.	CHAIN NUMBER	DIAMETER	AVERAGE TENSILE STRENGTH	BALLS PER FOOT (APPROX.)	UNIT PACKAGE QUANTITY
124-001	No. 3	3/32"	20 lbs.	91-94	1000 ft. spool
124-002	No. 6	1/8"	30 lbs.	69-70	1000 ft. spool
124-004	No. 175	.175"	45 lbs.	48-49	500 ft. spool
124-003	No. 10	3/16"	45 lbs.	48-49	500 ft. spool
***124-800**	No. 10	3/16"	80 lbs.	48-49	500 ft. spool

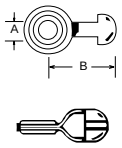
BRASS - Nickel Plated Finish

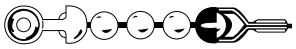


SPAENAUR No.	CHAIN NUMBER	DIAMETER	AVERAGE TENSILE STRENGTH	BALLS PER FOOT (APPROX.)	UNIT PACKAGE QUANTITY
124-005	No. 3	3/32"	20 lbs.	92-95	1000 ft. spool
124-006	No. 6	1/8"	30 lbs.	69-70	1000 ft. spool
124-008	No. 175	.175"	45 lbs.	48-49	500 ft. spool
124-007	No. 10	3/16"	45 lbs.	48-49	500 ft. spool
124-022	No. 13	1/4"	90 lbs.	37	250 ft. spool

TYPE "A" COUPLINGS

Used to attach BALL CHAIN retaining chain with a screw, bolt, or rivet, i.e. filler caps, dust caps, etc. Offset coupling provides flush assembly. **BRASS - Nickel Plated Finish.**



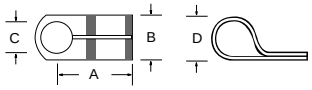


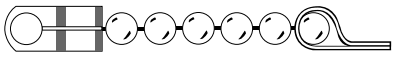
SPAENAUR No.	HOLE DIAMETER (A) W/EYELET	LENGTH (B)	CHAIN SIZE
124-012	.130"	13/32"	3-6
124-013	.193"	9/16"	8-10

Unit Package Quantity - 100

TYPE "D" COUPLINGS

Has same general use as "A" Couplings. Provides a flexible, swiveling, permanent attachment.





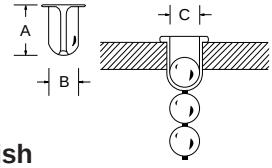
BRASS - Nickel Plated Finish

SPAENAUR No.	LENGTH (A)	WIDTH (B)	HOLE DIAMETER (C)	HEIGHT (D)	FOR CHAIN SIZE
124-014	19/64"	17/64"	.130" & .170"	11/64"	3-6
124-015	31/64"	23/64"	.190" & .250"	1/4"	6-8-10

Unit Package Quantity - 100

DETACHABLE SLEEVES

Used to retain with BALL CHAIN to pens, electrical outlet caps, etc.

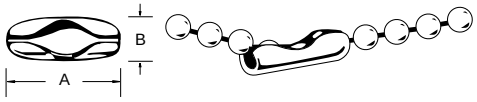


BRASS - Nickel Plated Finish

SPAENAUR No.	LENGTH (A)	DIAMETER (B)	HOLE SIZE FOR SLEEVE (C)	FOR CHAIN SIZE	UNIT PACKAGE QUANTITY
124-017	13/64"	1/8"	.116"	2-3	100
124-018	13/64"	5/32"	.149"	3-6	100
124-019	9/32"	15/64"	.221"	6-8-10	100

CONNECTORS

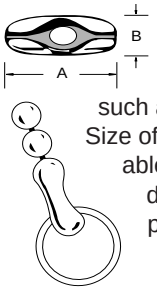
Used to join ends of Ball Chain to make endless assemblies for Key Chains, Neck Chains, etc. Also acts as connecting link to splice lengths of chain.



BRASS - Nickel Plated Finish

SPAENAUR No.	LENGTH (A)	DIAMETER (B)	FOR CHAIN SIZE	UNIT PKG. QTY.
124-009	11/32"	1/8"	1-2-3	100
124-010	7/16"	11/64"	6	100

TYPE 'B" COUPLINGS

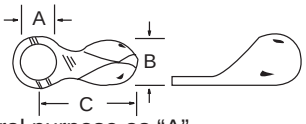


Used with jump rings to attach parts such as sink stoppers, etc. to BALL CHAIN. Size of hole makes it possible to form adjustable loop at end of chain; ideal for use on damper control and merchandising displays. May also be used to join ends of chain to make endless assemblies.

BRASS - Nickel Plated Finish

SPAENAUR No.	LENGTH (A)	DIAMETER (B)	FOR CHAIN SIZE	UNIT PKG. QTY.
124-011	5/8"	1/4"	8-10	100
124-025	47/64"	23/64"	10-13	100

END RING CONNECTORS



Used for the same general purpose as "A" Couplings.

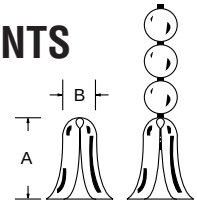
BRASS - Nickel Plated Finish

SPAENAUR No.	HOLE SIZE (A)	DIAMETER (B)	LENGTH (C)	FOR. CHAIN SIZE
124-016	.140"	3/16"	25/64"	No. 3-6

Unit Package Quantity - 100

DETACHABLE PENDANTS

Used mainly as pull for electric lighting socket extension chains, convector controls, etc. Can be used as a retainer.



BRASS - Nickel Plated Finish

SPAENAUR No.	LENGTH (A)	DIAMETER (B)	FOR CHAIN SIZE	UNIT PKG. QTY.
124-020	13/32"	1/4"	3-6-8-10	100
124-021	5/8"	9/16"	10-13	100

Other materials and finishes are available.
Our sales staff would be pleased to follow-up on your enquiries.

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CATALOG 13

Nut Drivers	Clé à douilles	**N3**
Wrenches - Open, Box, Striker & Adjustable	Clés - à fourche, à molette, et ajustables	**N4**
Chisels, Centre & Drift Punches	Burins, poinçons	**N11**
Universal Grip Pliers	Pinces étaux universelles	**N12**
Extractors, Separators & Puller Devices	Extracteurs, appareils pour séparer et pour trier	**N13**
Screwdrivers	Tournevis	**N16**
Stud Extractors & Nut Splitters	Dégoujonneuses et brise - écrous	**N21**
1/4" to 1" Square Drive Tools & Accessories	1/4" à 1" d'outillage combiné et accessoires	**N22**
Impact Sockets, Extensions & Adapters	Douilles industrielles, rallonges et adaptateurs	**N46**
Assorted Pliers	Pinces assorties	**N47**
Sheet Metal Tools & Hammers	Outils pour métal en feuilles et marteaux	**N51**
Hex Head Wrenches & Thread Restorers	Clefs - à six pans et restaurateurs à filetage	**N54**
Feeler Gauges & Scribers	Jauges d'épaisseur	**N56**
Screwdriver Bits, Adapters & Holders	Embouts - tournevis, adaptateurs et supports	**N57**
Torque Tools	Programme de clés dynamométriques	**N61**
Miscellaneous Tools	Outils Divers	**N62**

Spaenaur offers the complete Hazet product line. If you are interested in an item not shown in our catalog, please contact our Hazet Sales Specialist at 1-800-265-8772.

Spaenaur vous offre un inventaire complet de produits Hazet. Si vous êtes intéressés dans un article qui n'est pas illustré dans votre catalogue, s'il vous plaît veuillez communiquer avec votre spécialiste de ventes de produits Hazet au 1-800-265-8772.

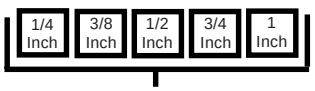
- Many convenient sets of Hazet tools are listed in this section. Components of most sets are listed by their Spaenaur number.
- Only Spaenaur numbers which are followed by a Hazet number are Hazet items. Other Spaenaur numbers are shown in order to compliment a particular line or substitute for certain tools when necessary.
- Tools are generally priced singly. To verify unit package quantity please refer to the Spaenaur Price List.
- Due to the large number of pictures in this section and for ease of reading, this section is printed strictly in black. Please note all references to inch and/or metric designations.

- Nous avons inclus plusieurs jeux d'outils HAZET dans cette section. La plupart des pièces de jeux d'outils seront identifiées par un numéro de pièce Spaenaur.
- Seulement les pièces Spaenaur qui sont suivit par un numéro de HAZET sont des pièces HAZET. Quand nécessaire, il y aura d'autre pièce de Spaenaur pour démontrer une série d'article particulière ou pour substituer certains outils.
- S.V.P. faire référence au Tarif de Spaenaur pour vérifier la quantité. En général, les outils sont vendus à l'unité.
- Cette section a été imprimée en noir seulement, alors faites très attention aux dimensions indiquées dans cette section. Normalement nous imprimons les sections métriques en bleu et les sections impériales en noir.

N

LEGEND

b	Width
L	Length
L_1	Blade Length
L_2	Total Length
M	Metric Threads
s	Span of the Jaw
sb	Jaw Capacity
st	Span Depth
t	Depth
V	Chrome-Plated
VKH	Chrome-Plated Bright Heads



With 1/4" resp. 3/8", 1/2", 3/4" or 1" square drive

For screws with internal serration (XZN)

For spline socket screws (RIBE CV)

For slotted screws

For Phillips-Recess screws

For POZIDRIV® screws
POZIDRIV® is the Registered Trade Mark of European Industrial Services Ltd.

For inside hexagon socket screws

For outside hexagon socket screws

For inside TORX® screws
HAZET are licensees for the manufacture of TORX® tools

For inside TORX® screws with internal hole for pivots

For outside TORX® screws

TORX® size in mm

TORX® is a registered trademark of CAMCAR TEXTRON INC., Rockford, Illinois, USA
HAZET are licensees for the manfacture of TORX® tools

1000 V — Insulated according to IEC 900

1000 V — Insulated according to VDE 0680, part 2

□	Female
■	Male
⬡	Female
⬢	Male
▭	Female (Torque Wrenches)
▬	Male (Torque Wrenches)
▬	For flat material on Pliers
●	For round material on Pliers

CATALOG 13

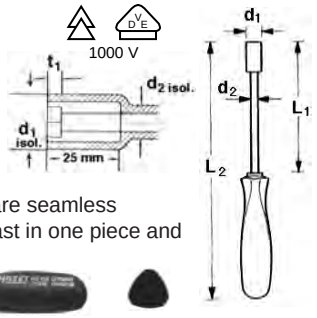
Hex Nut-Drivers

Functional dimensions according to DIN 7445.

Insulated according to EIEC 78 (CO) 11, equivalent to VDE 0680 section 201 and IEC 900.

Colour: Red

All Hazet VDE-Tools with blades are seamless insulated, handle and cover are cast in one piece and therefore undetachable.

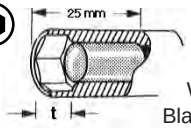


SPAENAUR No.	HAZET No.	mm	L1 mm	L2 mm	t min. mm	d1 mm	d2 mm
990-116	425 VDE-5,5	**5,5**	125	225	3,0	8,1	5,0
990-117	425 VDE-6	**6**	125	225	3,5	9,0	5,0
990-118	425 VDE-7	**7**	125	235	4,0	11,0	6,0
990-119	425 VDE-8	**8**	125	235	5,0	12,0	6,0
990-120	425 VDE-9	**9**	125	235	5,0	13,0	6,0
990-121	425 VDE-10	**10**	125	235	6,0	14,0	6,0
990-122	425 VDE-11	**11**	125	245	7,0	16,0	8,1
990-123	425 VDE-12	**12**	125	245	8,0	17,0	8,1
990-124	425 VDE-13	**13**	125	245	8,0	18,0	8,1

Hex Nut-Driver

Chrome-Vanadium

Especially for deep leveled screws e.g. on valve cover and oil pan.



With Trinamic® Black Plastic Handle

With MAGNET

Blade with hexagon tang,

Chrome-Plated

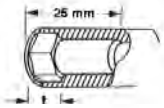
Long Pattern

990-102	421-10	**10**	125	235	6	14	8

Hex Nut-Drivers

DIN 3125

Chrome-Vanadium



With Trinamic® Black Plastic Handle

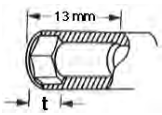
Chrome-Plated

Long Pattern

990-104	425-4,5	**4,5**	125	223	2,3	7,0	5
990-105	425-5	**5**	125	223	2,5	8,0	5
990-106	425-5,5	**5,5**	125	223	3,0	8,0	6
990-107	425-6	**6**	125	223	3,5	9,0	6
990-108	425-7	**7**	125	223	4,0	11,0	6
990-109	425-8	**8**	125	232	5,0	12,0	7
990-110	425-9	**9**	125	232	5,0	13,0	8
Blade with Hexagon Tang							
990-111	425-10	**10**	125	240	6,0	14,0	8
990-112	425-11	**11**	125	240	7,0	16,0	8
990-113	425-12	**12**	125	240	8,0	17,0	9
990-114	425-13	**13**	125	240	8,0	18,5	9
990-115	425-14	**14**	125	240	10,0	19,7	9

Flexible Hex Nut-Drivers

For radiator hose clamps with worm-driven thread.



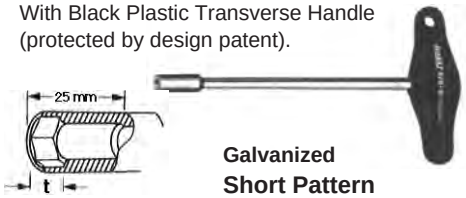
With Trinamic® Black Plastic Handle

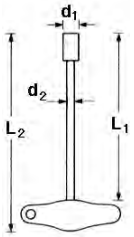
990-125	426-6	**6**	150	262	5,0	11,0	8
990-126	426-7	**7**	150	262	5,0	11,0	8

Hex Nut-Drivers

Chrome-Vanadium

With Black Plastic Transverse Handle (protected by design patent).



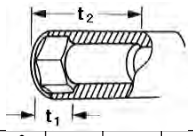


Galvanized

Short Pattern

SPAENAUR No.	HAZET No.	mm	L1 mm	L2 mm	t min. mm	d1 mm	d2 mm
990-127	428-4	**4**	150	175	2,0	6,9	5
990-128	428-4,5	**4,5**	150	175	2,3	7,5	5
990-129	428-5	**5**	150	175	2,5	8,2	5
990-130	428-5,5	**5,5**	230	262	3,0	8,0	6
990-131	428-6	**6**	230	262	3,5	9,0	6
990-132	428-7	**7**	230	262	4,0	11,0	6
990-133	428-8	**8**	230	262	5,0	12,0	7
990-134	428-9	**9**	230	262	5,0	13,0	8
990-135	428-10	**10**	230	262	6,0	14,0	8
990-136	428-11	**11**	230	262	7,0	16,0	8
990-137	428-12	**12**	230	265	8,0	17,0	9
990-138	428-13	**13**	230	265	8,0	18,0	9

Long Pattern



SPAENAUR No.	HAZET No.	mm	L1 mm	L2 mm	t1 mm	t2 mm	d1 mm	d2 mm
990-139	428 Lg-5,5	**5,5**	350	382	3,0	25	8,0	6
990-140	428 Lg-6	**6**	350	382	3,5	25	9,0	6
990-141	428 Lg-7	**7**	350	382	4,0	25	11,0	6
990-142	428 Lg-8	**8**	350	382	5,0	25	12,0	7
990-143	428 Lg-9	**9**	350	382	5,0	25	13,0	8
990-144	428 Lg-10	**10**	350	382	6,0	25	14,0	8
990-145	428 Lg-11	**11**	350	382	7,0	25	16,0	8
990-146	428 Lg-12	**12**	350	385	8,0	25	17,0	9
990-147	428 Lg-13	**13**	350	385	8,0	25	18,0	9

Nut-Drivers

Chrome-Vanadium

For outside Torx® screws.

External TORX®

With Transverse Black Plastic Handle (protected by design patent)

Chrome-Plated

HAZET are licensees for the manufacture of TORX® tools.

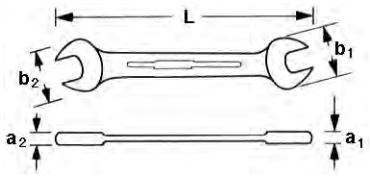
SPAENAUR No.	HAZET No.	For Torx	mm	L1 mm	L2 mm	t1 min. mm	t2 mm	d1 mm	d2 mm
990-148	428-E5	**E5**	4,75	130	165	4,0	15	6,5	11,0
990-150	428-E8	**E8**	7,52	130	165	6,5	15	10,5	11,5
990-151	428-E10	**E10**	9,42	130	165	7,5	15	13,0	12,0

N

Double Open-End Wrenches

Long and Slender Pattern
DIN 3110, ISO 3318/1085

Chrome-Vanadium
Chrome-Plated

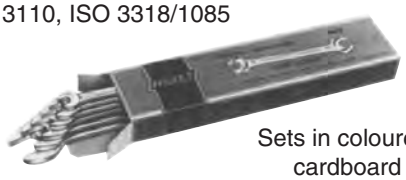


SPAENAUR No.	HAZET No.	mm	L mm	a_1 a_2 mm	b_1 mm	b_2 mm
990-203+	450-4 x 5*	**4 x 5**	100	3,4	11,6	13,7
990-204+	450-5 x 5,5*	**5 x 5,5**	100	3,5	13,6	15,3
990-205+	450-5,5 x 7*	**5,5 x 7**	122	3,8	15,3	18,6
990-206+	450-6 x 7	**6 x 7**	121,5	3,5	15,3	17,2
990-207+	450-7 x 8	**7 x 8**	130,5	3,8	17,3	18,7
990-208+	450-8 x 9	**8 x 9**	139,5	3,8	18,7	21,2
990-209	450-8 x 10	**8 x 10**	141	4,1	19,2	23,5
990-210+	450-10 x 11	**10 x 11**	146,5	4,6	23,4	25,4
990-211	450-10 x 13	**10 x 13**	172,8	5,1	25,7	30,0
990-212+	450-11 x 13	**11 x 13**	173,3	5,1	25,1	29,8
990-213+	450-12 x 13	**12 x 13**	172,8	5,1	27,3	29,3
990-214+	450-13 x 14	**13 x 14**	189	5,7	30,1	31,0
990-215+	450-13 x 15	**13 x 15**	189	5,7	30,1	33,0
990-216	450-13 x 16	**13 x 16**	205,5	5,8	30,7	34,6
990-217+	450-13 x 17	**13 x 17**	206,3	6,0	31,1	36,9
990-218+	450-14 x 15	**14 x 15**	189	5,7	31,1	33,0
990-220+	450-16 x 17	**16 x 17**	206,3	6,0	35,0	36,9
990-221+	450-16 x 18	**16 x 18**	206,3	6,0	35,0	38,5
990-222	450-17 x 19	**17 x 19**	222,2	6,7	37,6	40,9
990-223+	450-18 x 19	**18 x 19**	222,2	6,7	38,9	40,9
990-224	450-18 x 21	**18 x 21**	238,1	6,7	38,8	44,9
990-225	450-19 x 22	**19 x 22**	239,1	7,0	41,8	47,0
990-226+	450-20 x 22	**20 x 22**	239,1	7,0	43,1	47,0
990-227+	450-21 x 22*	**21 x 22**	239,1	7,0	45,1	47,0
990-228+	450-21 x 23	**21 x 23**	247	7,1	45,1	49,1
990-229	450-21 x 24	**21 x 24**	253,7	7,0	44,9	51,0
990-230+	450-22 x 24	**22 x 24**	254,7	7,1	47,1	51,2
990-231+	450-24 x 26	**24 x 26**	270	7,8	51,0	55,0
990-232+	450-24 x 27	**24 x 27**	270	7,8	51,0	57,1
990-233+	450-25 x 28	**25 x 28**	284,9	8,4	53,4	59,0
990-234+	450-27 x 30	**27 x 30**	304,3	9,0	59,9	66,8
990-235+	450-27 x 32	**27 x 32**	304,8	9,0	57,9	67,2
990-236	450-30 x 32	**30 x 32**	304,8	9,0	63,3	67,2
990-237+	450-30 x 34	**30 x 34**	304,8	9,0	63,3	67,2
990-239+	450-32 x 36	**32 x 36**	343,7	9,8	66,7	75,1
990-240+	450-34 x 36	**34 x 36**	343,2	9,8	70,2	75,1
990-241	450-36 x 41	**36 x 41**	389,6	10,5	75,1	84,0
990-242+	450-41 x 46	**41 x 46**	440,1	11,0	85,3	94,2
990-243+	450-46 x 50	**46 x 50**	498	11,8	94,1	100,0

* not according to DIN + Matte Finish

Double Open-End Wrench Sets

DIN 3110, ISO 3318/1085



Sets in coloured HAZET cardboard boxes.

SPAENAUR No. (Hazet No.)	Wrench Sizes (Metric) in each Set.			
990-245 (450/7)	6 x 7 14 x 15	8 x 9 17 x 19	10 x 11 20 x 22	12 x 13
990-246 (450N/8)	6 x 7 14 x 15	8 x 9 16 x 17	10 x 11 18 x 19	12 x 13 21 x 22
990-248 (450/10)	6 x 7 14 x 15 24 x 26	8 x 9 16 x 17 27 x 32	10 x 11 18 x 19	12 x 13 20 x 22
990-250 (450/12)	6 x 7 14 x 15 21 x 23	8 x 9 16 x 17 24 x 26	10 x 11 18 x 19 25 x 28	12 x 13 20 x 22 27 x 32
990-251 (450/12N)	6 x 7 14 x 15 21 x 23	8 x 9 16 x 17 24 x 27	10 x 11 18 x 19 25 x 28	12 x 13 20 x 22 30 x 32
990-252 (450/13)	6 x 7 14 x 15 21 x 23 36 x 41	8 x 9 16 x 17 24 x 26	10 x 11 18 x 19 25 x 28	12 x 13 20 x 22 27 x 32

Sets in plastic wall brackets

990-256 (450/8H)	6 x 7 14 x 15	8 x 9 16 x 17	10 x 11 18 x 19	12 x 13 20 x 22
990-257 (450/12H)	6 x 7 14 x 15 21 x 23	8 x 9 16 x 17 24 x 26	10 x 11 18 x 19 25 x 28	12 x 13 20 x 22 27 x 32

Double Open-End Wrenches

DIN 3110, ISO 3318/1085

Sets in "Remscheid"- Clip, new, modern design, black plastic material.

DBGM and protected by design patent.

Also suitable for wall fixation.

In coloured HAZET cardboard boxes.

SPAENAUR No. (Hazet No.)	Wrench Sizes (Metric) in each Set.			
990-253 (450/8 RS)	6 x 7 14 x 15	8 x 9 16 x 17	10 x 11 18 x 19	12 x 13 20 x 22
990-254 (450/12 RS)	6 x 7 14 x 15 21 x 23	8 x 9 16 x 17 24 x 26	10 x 11 18 x 19 25 x 28	12 x 13 20 x 22 27 x 32
990-255 (450/12N RS)	6 x 7 14 x 15 21 x 23	8 x 9 16 x 17 24 x 27	10 x 11 18 x 19 25 x 28	12 x 13 20 x 22 30 x 32

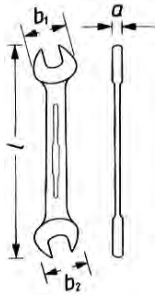
N

CATALOG 13

SPAENAUR

Double Open-End Wrenches

ISO 1085
Chrome-Vanadium
Long and Slender Pattern
Chrome-Plated, Bright Heads



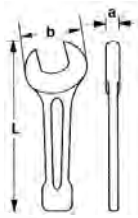
Inch Sizes

SPAENAUR No.	HAZET No.	Inch	L mm	a mm	b_1 mm	b_2 mm
990-258	450A-1/4 x 5/16 VKH	**1/4 x 5/16**	121,5	3,8	15,9	18,8
990-259	450A-5/16 x 3/8 VKH	**5/16 x 3/8**	139,9	4,1	19,2	22,0
990-260	450A-3/8 x 7/16 VKH	**3/8 x 7/16**	156,4	4,6	22,3	25,3
990-262	450A-1/2 x 9/16 VKH	**1/2 x 9/16**	172,8	5,1	28,7	31,3
990-263	450A-9/16 x 5/8 VKH	**9/16 x 5/8**	189,8	5,7	31,8	34,8
990-264	450A-19/32 x 11/16 VKH*	**19/32 x 11/16**	206,3	6,0	33,8	37,7
990-265	450A -5/8 x 11/16 VKH	**5/8 x 11/16**	206,3	6,0	35,0	38,5
990-266	450A-5/8 x 3/4 VKH	**5/8 x 3/4**	222,2	6,7	35,2	40,9
990-267	450A-11/16 x 3/4 VKH	**11/16 x 3/4**	222,2	6,7	38,9	41,9
990-268	450A-25/32 x 7/8 VKH*	**25/32 x 7/8**	239,1	7,0	42,9	47,4
990-269	450A-7/8 x 15/16 VKH	**7/8 x 15/16**	254,7	7,1	48,1	50,9
990-270	450A-15/16 x 1 VKH	**15/16 x 1**	270,0	7,8	51,2	53,8
990-271	450A-1 x 1-1/8 VKH	**1 x 1-1/8**	284,9	8,4	55,5	60,0
993-620+	450A-1-1/16 x 1-1/8	**1-1/16 x 1-1/8**	285	8,2	53,4	59,0
990-272	450A-1-1/16 x 1-1/4 VKH	**1-1/16 x 1-1/4**	304,3	9,0	58,0	66,8
990-274	450A-1-1/4 x 1-7/16 VKH	**1-1/4 x 1-7/16**	343,7	9,8	66,7	75,1
990-275	450A-1-5/16 x 1-1/2 VKH	**1-5/16 x 1-1/2**	343,7	9,8	66,7	75,1
993-623	450A-1-5/16 x 1-11/16	**1-5/16 x 1-11/16**	345	9,8	75,1	84,0

+ Matte Finish *not according to ISO -Also available up to 9" across flat
- Metric sizes up to 230 mm. P.O.A.

Open-End Striking Wrenches

DIN 133
Special Steel
Steel Grey
Withstand Extreme
Impact Loads



SPAENAUR No.	HAZET No.	mm	L mm	a mm	b mm
990-281	452-27	**27**	180	16,0	56
990-282	452-30	**30**	190	17,0	62
990-283	452-32	**32**	190	17,0	62
990-284	452-36	**36**	215	17,5	76
990-285	452-41	**41**	235	18,5	86
990-286	452-46	**46**	255	20,0	98
990-287	452-50	**50**	275	21,0	105
990-288	452-55	**55**	300	23,0	116
990-289	452-60	**60**	320	24,5	128
990-290	452-65	**65**	342	27,0	138
990-291	450-70	**70**	375	30,0	154
990-292	452-75	**75**	375	30,0	154
990-293	452-80	**80**	408	34,0	174
990-294	452-85	**85**	408	34,0	174
990-295	452-90	**90**	445	38,0	194
990-296	452-95	**95**	445	38,0	194
990-297	452-100	**100**	485	44,0	215

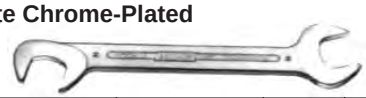
Double Open-End Wrench Sets

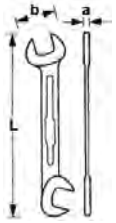
Sets in coloured HAZET cardboard boxes.

SPAENAUR No. (HAZET No.)	**Wrench Sizes (Inch) in each Set.**		
990-278 (450A/6 VKH)	3/8 x 7/16 5/8 x 3/4	1/2 x 9/16 25/32 x 7/8	19/32 x 11/16 15/16 x 1
990-279 (450A/8 VKH)	1/4 x 5/16 1/2 x 9/16 25/32 x 7/8	5/16 x 3/8 19/32 x 11/16 15/16 x 1	3/8 x 7/16 5/8 x 3/4
990-280 (450A/12 VKH)	1/4 x 5/16 1/2 x 9/16 5/8 x 3/4 15/16 x 1	5/16 x 3/8 9/16 x 5/8 25/32 x 7/8 1 x 1-1/8	3/8 x 7/16 19/32 x 11/16 7/8 x 15/16 1-1/16 x 1-1/4

Double Open-End Wrenches

Small Pattern
Chrome-Vanadium
Heads set at 15° and 75°
Matte Chrome-Plated





SPAENAUR No.	HAZET No.	mm	L mm	a mm	b mm
990-186	440-3,2	**3,2**	70	2	10,5
990-187	440-3,5	**3,5**	70	2	10,5
990-188	440-4	**4**	70	2	10,5
990-189	440-4,5	**4,5**	70	2	10,5
990-190	440-5	**5**	78	2	12,6
990-191	440-5,5	**5,5**	78	2	12,6
990-192	440-6	**6**	78	2	12,6
990-193	440-7	**7**	91	2	14,7
990-194	440-8	**8**	96	3	16,8
990-195	440-9	**9**	103	3	18,9
990-196	440-10	**10**	105	3	21,0
990-197	440-11	**11**	116	3	24,2
990-198	440-12	**12**	116	3	24,2
990-199	440-13	**13**	131	3	28,3
990-200	440-14	**14**	131	3	28,3

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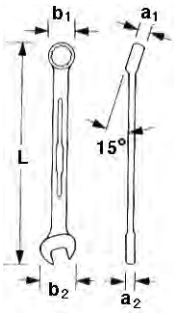
Combination Box and Open-End Wrenches

DIN 3113, Form A, ISO/DIS 3318

Chrome-Vanadium
Chrome-Plated Bright Heads

Slender and thin-walled, the double-hex box end is offset at a 15° angle to the handle to clear obstruction, equal openings, at both ends.



SPAENAUR No.	HAZET No.	⬢ mm	L mm	a_1 mm	a_2 mm	b_1 mm	b_2 mm
876-1176	—	**3,2**	75	3,2	3,0	6,6	10,0
876-1575	—	**3,5**	75	3,2	3,0	6,6	10,0
876-1179	—	**4,5**	85	3,2	3,0	7,8	12,5
990-298	600-5,5*	**5,5**	105	5,0	4,0	10,5	15,0
990-299	600-6	**6**	105	5,0	4,0	10,5	15,0
990-300	600-7*	**7**	118	6,0	4,3	11,8	17,0
990-301	600-8*	**8**	130	7,0	5,0	13,5	18,5
990-302	600-9*	**9**	143	7,5	5,0	14,5	21,0
990-303	600-10*	**10**	155	7,8	5,5	16,0	23,0
990-304	600-11*	**11**	168	8,4	6,0	17,5	25,0
990-305	600-12*	**12**	180	8,8	6,0	18,5	27,0
990-306	600-13	**13**	193	9,3	6,5	19,8	29,0
990-307	600-14*	**14**	205	9,8	6,8	21,0	31,0
990-308	600-15	**15**	218	10,3	7,0	22,5	32,5
990-309	600-16	**16**	230	10,8	7,5	24,0	34,5
990-310	600-17	**17**	242	11,3	8,0	25,0	36,5
990-311	600-18	**18**	255	12,3	8,0	27,3	38,5
990-312	600-19	**19**	268	12,3	8,2	28,5	40,5
990-313	600-20*	**20**	280	13,5	9,0	30,0	43,0
990-314	600-21	**21**	292	13,,7	9,0	30,5	45,0
990-315	600-22	**22**	304	13,7	9,5	32,8	47,0
990-316	600-23*	**23**	328	14,7	9,2	35,2	51,0
990-317	600-24	**24**	328	14,7	9,2	35,2	51,0
990-318	600-25*	**25**	354	15,4	10,0	38,5	55,0
990-319	600-26*	**26**	354	15,4	10,0	38,5	55,0
990-320	600-27	**27**	380	16,0	11,0	40,5	59,0
990-321	600-28*	**28**	380	16,0	11,0	40,5	59,0
990-322	600-29*	**29**	380	16,0	11,0	40,5	59,0
990-323	600-30	**30**	406	18,0	12,4	44,0	63,5
990-324	600-32	**32**	420	17,7	13,0	47,0	67,0
990-325	600-34	**34**	432	18,0	13,5	50,0	71,0
990-326	600-36	**36**	460	19,3	14,0	52,0	75,0
990-327	600-41	**41**	500	20,0	14,3	59,5	84,0

*not according to DIN

SPAENAUR No. (HAZET No.)	Wrench Sizes (Inch) in each Set.					
990-366 (600A/8-1)	3/8	7/16	1/2	9/16	5/8	3/4
	7/8	1				
990-367 (600A/10)	1/4	5/16	3/8	7/16	1/2	9/16
	5/8	3/4	7/8	1		
990-368 (600A/12-1)	1/4	5/16	3/8	7/16	1/2	9/16
	5/8	3/4	7/8	1	1-1/8	1-5/16

SPAENAUR No.	HAZET No.	⬢ Inch	L mm	a_1 mm	a_2 mm	b_1 mm	b_2 mm
990-336	600A-1/4	**1/4**	105	5,0	4,0	10,5	15,0
990-337	600A-5/16	**5/16**	130	7,0	5,0	13,5	18,5
990-338	600A-3/8	**3/8**	155	7,8	5,5	16,0	23,0
990-339	600A-7/16	**7/16**	168	8,4	6,0	17,5	25,0
990-340	600A-1/2	**1/2**	193	9,3	6,5	19,8	29.0
990-341	600A-9/16	**9/16**	205	9,8	7.0	21,0	31,0
990-342	600A-5/8	**5/8**	230	10,8	7,5	24,0	34,5
990-343	600A-11/16	**11/16**	242	11,3	8,0	25,0	36,5
990-344	600A-3/4	**3/4**	268	12,3	8,2	28,5	40,5
990-345	600A-13/16	**13/16**	292	13,7	9,0	30,5	45,0
990-346	600A-7/8	**7/8**	304	13,7	9,5	32,8	47,0
990-347	600A-15/16	**15/16**	328	14,7	9,2	35,2	51,0
990-348	600A-1	**1**	354	15,4	10,0	38,5	55,0
990-349	600A-1-1/16	**1-1/16**	380	16,0	11,0	40,5	59,0
990-350	600A-1-1/8	**1-1/8**	380	16,0	11,0	40,5	59,0
990-351	600A-1-1/4	**1-1/4**	420	17,7	13,0	47,0	67,8
990-352	600A-1-5/16	**1-5/16**	432	18,0	13,5	50,0	71,0
990-353	600A-1-3/8	**1-3/8**	432	18,0	13,5	50,0	71,0
990-354	600A-1-1/2	**1-1/2**	460	19,3	14,0	52,0	75,0
990-355	600A-1-5/8	**1-5/8**	500	20,0	14,3	59,5	84,0

Combination Box and Open-End Wrench Sets

Sets in coloured HAZET cardboard boxes.

SPAENAUR No. (HAZET No.)	Wrench Sizes (Metric) in each Set.										
990-360 (600/8N)	9	10	11	13	14	17	19	22			
993-826 (600/8)	10	11	13	14	15	17	19	22			
990-362 (600/12)	6	7	9	11	13	14	17	19	22	24	27
	32										
990-363 (600/17)	6	7	8	9	10	11	12	13	14	15	16
	17	18	19	20	21	22					
993-827 (600/17N)	7	8	9	10	11	12	13	14	15	16	17
	18	19	21	22	24	27					
994-022 (600N/17N)	7	8	9	10	11	12	13	14	15	16	
	17	18	19	21	22	24	27				
990-365 (600/27)	6	7	8	9	10	11	12	13	14	15	16
	17	18	19	20	21	22	23	24	25	26	27
	28	30	32	36	41						
993-828 (600/30)	5,5	6	7	8	9	10	11	12	13	14	15
	16	17	18	19	20	21	22	23	24	25	26
	27	28	29	30	32	34	36	41			

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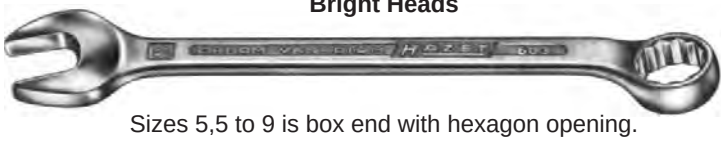
CATALOG 13

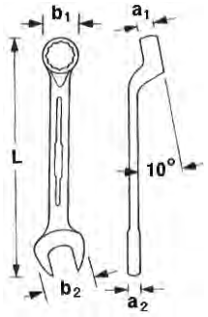
Combination Box and Open-End Wrenches

DIN 3113, Form B

Chrome-Vanadium
Chrome-Plated
Bright Heads

Slender and thin-walled, box end is offset through 10°, equal openings at both ends.





Sizes 5,5 to 9 is box end with hexagon opening.

SPAENAUR No.	HAZET No.	⬡ mm	L mm	a_1 mm	a_2 mm	b_1 mm	b_2 mm
990-369	603-5,5*	**5,5**	90	4,7	3,7	9,8	14,1
990-370	603-6	**6**	100	5,1	4,0	10,5	14,9
990-371	603-7*	**7**	110	5,5	4,3	12,2	16,8
990-372	603-8	**8**	120	5,9	4,5	13,1	18,3
990-373	603-9	**9**	130	6,3	4,5	14,6	21,0
990-374	603-10	**10**	137	6,7	5,0	15,6	23,0
990-375	603-11	**11**	145	7,1	5,2	17,1	25,0
990-376	603-12	**12**	152	7,6	5,4	18,4	26,8
990-377	603-13	**13**	160	8,0	5,6	19,9	28,8
990-378	603-14	**14**	170	8,5	5,8	21,4	30,7
990-379	603-15	**15**	180	9,0	6,0	22,5	32,6
990-380	603-16	**16**	190	9,5	6,2	24,0	34,6
990-381	603-17	**17**	200	10,0	6,4	25,5	36,5
990-382	603-18	**18**	210	10,5	6,7	,26,9	38,6
990-383	603-19	**19**	220	11,0	7,0	28,4	40,6
990-384	603-20*	**20**	230	11,5	7,3	29,3	42,8
990-385	603-21	**21**	240	12,0	7,6	30,7	44,8
990-386	603-22	**22**	250	12,5	7,9	32,2	46,8
990-387	603-23*	**23**	260	13,0	8,2	33,6	48,8
990-388	603-24	**24**	270	13,5	8,5	35,1	51,0
990-389	603-25*	**25**	280	14,0	8,8	36,5	53,0
990-390	603-26*	**26**	290	14,5	9,1	37,1	54,8
990-391	603-27	**27**	305	15,0	9,3	38,5	57,3
990-392	603-28*	**28**	315	15,3	9,5	39,9	59,0
990-393	603-29*	**29**	325	15,6	9,8	41,3	61,0
990-394	603-30	**30**	340	16,0	10,0	42,7	63,4
990-395	603-32	**32**	360	17,0	10,5	45,5	67,2
Matte Chrome-Plated							
990-328	600N-46	**46**	520	24,0	15,0	69,0	95,0
990-330	600N-55	**55**	610	28,0	18,0	84,5	113,0
990-332	600N-65*	**65**	710	33,0	22,0	98,0	133,0
990-333	600N-70	**70**	760	35,0	24,0	105,0	143,0
990-334	600N-75*	**75**	810	38,0	26,0	110,0	153,0
990-335	600N-80*	**80**	860	41,0	28,0	119,0	163,0

*not according to DIN

Combination Box and Open-End Wrenches

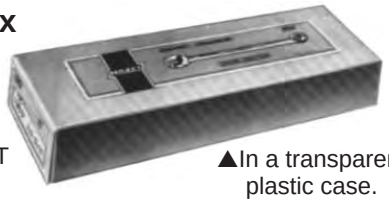
ISO 691, Offset Inch Sizes

Sizes 1/4 and 5/16 are box end with hexagon opening.

SPAENAUR No.	HAZET No.	⬡ Inch	L mm	a_1 mm	a_2 mm	b_1 mm	b_2 mm
990-398	603A-1/4	**1/4**	100	5,1	4,0	10,5	14,9
990-399	603A-5/16	**5/16**	120	5,9	4,5	13,1	18,3
990-400	603A-3/8	**3/8**	137	6,7	5,0	15,6	23,0
990-401	603A-7/16	**7/16**	145	7,1	5,2	17,1	25,0
990-402	603A-1/2	**1/2**	160	8,0	5,6	19,9	28,8
990-403	603A-9/16	**9/16**	170	8,5	5,8	21,4	30,7
990-404	603A-5/8	**5/8**	190	9,5	6,2	24,0	34,6
990-405	603A-11/16	**11/16**	200	10,0	6,4	25,5	36,5
990-406	603A-3/4	**3/4**	220	11,0	7,0	28,4	40,6
990-407	603A-13/16	**13/16**	240	12,0	7,6	30,7	44,8
990-408	603A-7/8	**7/8**	250	12,5	7,9	32,2	46,8
990-409	603A-15/16	**15/16**	260	13,0	8,2	33,6	48,8
990-410	603A-1	**1**	280	14,0	8,8	36,5	53,0
990-411	603A-1-1/16	**1-1/16**	305	15,0	9,3	38,5	57,3
990-413	603A-1-1/4	**1-1/4**	360	17,0	10,5	45,5	67,2
990-414	603A-1-5/16	**1-5/16**	375	17,3	10,6	47,3	69,5
990-415	603A-1-3/8	**1-3/8**	395	17,7	10,8	49,7	73,0
990-416	603A-1-7/16	**1-7/16**	405	18,0	11,0	51,3	75,0
Matte Chrome-Plated							
990-418	603A-1-5/8	**1-5/8**	470	22,0	13,5	62,0	85,0
990-356	603A-1-13/16	**1-13/16**	520	24,0	15,0	69,0	95,0
990-358	603A-2-3/16	**2-3/16**	610	28,0	17,0	83,0	111,0
990-359	603A-2-3/8	**2-3/8**	660	31,0	20,0	90,0	123,0

Combination Box and Open-End Wrench Sets

Sets in coloured HAZET cardboard boxes.



▲In a transparent plastic case.

SPAENAUR No.	HAZET No.	Wrench Sizes in each Set.
993-638	▲603/6K	10 13 14 15 17 19
990-419	603/8N	9 10 11 13 14 17 19 22
990-421	603/12N	10 11 12 13 14 15 16 17 18 19 21 22
990-422	603/17N	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22
990-423	603/25	6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 30 32
990-428	603A/16	1/4 5/16 3/8 7/16 1/2 9/16 5/8 11/16 3/4 13/16 7/8 15/16 1 1-1/16 1-1/8 1-1/4

Wrench Set in Plastic Wall Bracket

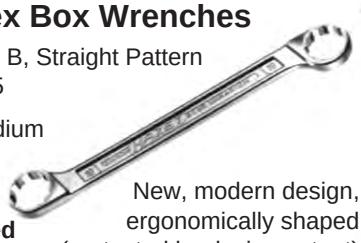
990-425
(603/17H)

Wrench Sizes in Set (mm)								
6	7	8	9	10	11	12	13	14
15	16	17	18	19	20	21	22	

Double-Hex Box Wrenches

DIN 837, Form B, Straight Pattern
ISO 3318/1085

Chrome-Vanadium



New, modern design, ergonomically shaped (protected by design patent)

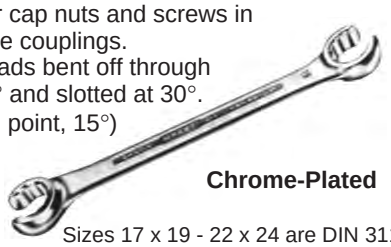
Chrome-Plated Bright Heads

SPAENAUR No.	HAZET No.	mm	L mm	a mm	b_1 mm	b_2 mm
990-457	610N-8 x 9	**8 x 9**	113,3	5,2	12,3	13,6
990-458	610N-10 x 11	**10 x 11**	125,3	6,0	14,9	16,2
990-459	610N-12 x 13	**12 x 13**	139,0	6,2	17,8	18,9
990-460	610N-14 x 15	**14 x 15**	154,5	7,0	20,2	21,5
990-461	610N-16 x 17	**16 x 17**	170,0	7,5	22,7	24,1
990-462	610N-18 x 19	**18 x 19**	188,6	8,5	26,0	27,0
990-463	610N-20 x 22	**20 x 22**	208,8	9,0	28,4	30,4
990-464	610N-21 x 23	**21 x 23**	232,3	10,0	29,8	32,7
990-465	610N-24 x 26	**24 x 26**	254,0	11,0	34,1	37,0
990-466	610N-25 x 28	**25 x 28**	280,1	11,5	35,5	39,8
990-467	610N-27 x 32	**27 x 32**	308,7	13,5	38,9	45,4

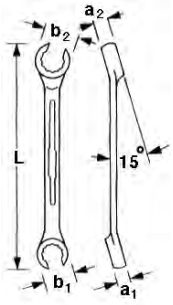
Flare Nut Wrenches

Chrome-Vanadium

For cap nuts and screws in tube couplings.
Heads bent off through 15° and slotted at 30°.
(12 point, 15°)



Chrome-Plated



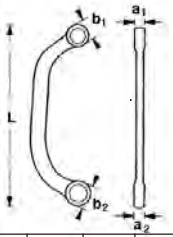
Sizes 17 x 19 - 22 x 24 are DIN 3118E
Sizes 8 x 10 - 12 x 14 are with hexagon opening

990-473	612-8 x 10	**8 x 10**	140	7,0	8,0	18	20
990-474	612-9 x 11	**9 x 11**	147	8,0	8,7	20	22
990-475	612-10 x 11	**10 x 11**	147	8,0	8,7	20	22
990-476	612-11 x 13	**11 x 13**	160	8,7	9,8	22	26
990-477	612-12 x 14	**12 x 14**	168	9,2	10,3	24	28
990-478	612-13 x 15	**13 x 15**	182	9,8	10,9	26	29
990-481	612-17 x 19	**17 x 19**	208	12,0	13,2	30	32
990-482	612-19 x 22	**19 x 22**	222	13,2	15,0	32	38
990-484	612-24 x 27	**24 x 27**	260	16,2	18,0	42	46
990-485	612-30 x 32	**30 x 32**	300	21,0	23,0	50	52

Double-Hex Starter and Block Wrenches

Chrome-Vanadium

Chrome-Plated Bright Heads



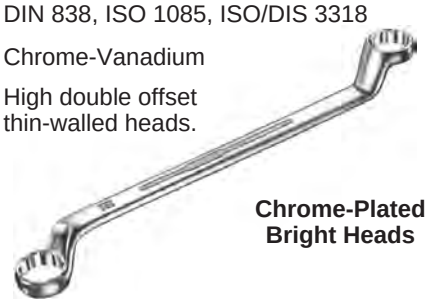
SPAENAUR No.	HAZET No.	mm	L mm	a_1 mm	a_2 mm	b_1 mm	b_2 mm
990-494	615-13 x 15	**13 x 15**	185	7,5	8,0	21	23
990-495	615-14 x 16	**14 x 16**	185	8,0	9,0	22	25
990-496	615-14 x 17	**14 x 17**	185	8,0	9,0	22	25
990-497	615-15 x 17	**15 x 17**	185	8,0	9,0	22	25
990-498	615-19 x 22	**19 x 22**	235	12,0	13,0	28	32

Double-Hex Box Wrenches

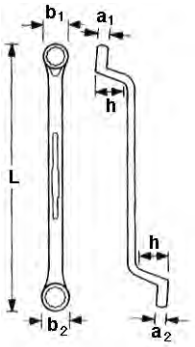
DIN 838, ISO 1085, ISO/DIS 3318

Chrome-Vanadium

High double offset thin-walled heads.



Chrome-Plated Bright Heads



SPAENAUR No.	HAZET No.	mm	L mm	a_1 mm	a_2 mm	b_1 mm	b_2 mm	h mm
990-536	630-6 x 7*	**6 x 7**	165	6,0	6,5	10,5	12,2	18,0
990-537	630-8 x 9*	**8 x 9**	180	7,0	7,5	13,1	14,6	20,5
990-538	630-8 x 10*	**8 x 10**	180	7,0	8,0	13,1	15,6	20,5
990-539	630-10 x 11	**10 x 11**	200	8,0	9,0	15,6	17,1	23,5
990-540	630-10 x 13*	**10 x 13**	210	8,0	9,5	15,6	19,9	23,5
990-541	630-12 x 13	**12 x 13**	220	9,0	9,5	18,4	19,9	25,0
990-542	630-13 x 14	**13 x 14**	230	9,5	10,0	19,9	21,4	26,0
990-543	630-13 x 15	**13 x 15**	230	9,5	10,5	19,9	22,5	26,0
990-544	630-13 x 17	**13 x 17**	245	9,5	11,3	19,9	25,5	27,0
990-545	630-14 x 15	**14 x 15**	240	10,0	10,5	21,4	22,5	27,0
990-546	630-16 x 17	**16 x 17**	255	11,0	11,3	24,0	25,5	29,0
990-547	630-16 x 18	**16 x 18**	260	11,0	11,6	24,0	26,9	29,0
990-548	630-17 x 19	**17 x 19**	265	11,3	11,9	25,5	28,4	29,0
990-549	630-18 x 19	**18 x 19**	275	11,6	11,9	26,9	28,4	31,0
990-550	630-18 x 21	**18 x 21**	295	11,6	12,5	26,9	30,7	37,0
990-551	630-19 x 22	**19 x 22**	295	11,9	12,9	28,4	32,2	32,5
993-656	630-19 x 24	**19 x 24**	315	11,9	13,5	28,4	35,1	34,0
990-552	630-20 x 22	**20 x 22**	295	12,2	12,9	29,3	32,2	32,5
990-553	630-21 x 23	**21 x 23**	315	12,5	13,2	30,7	33,6	34,0
990-554	630-22 x 24	**22 x 24**	315	12,9	13,5	32,2	35,1	34,0
990-555	630-24 x 26	**24 x 26**	330	13,5	14,1	35,1	37,1	34,0
990-556	630-24 x 27	**24 x 27**	340	13,5	14,4	35,1	38,5	35,0
990-557	630-24 x 30	**24 x 30**	340	13,5	15,4	35,1	42,7	35,0
990-558	630-25 x 28	**25 x 28**	350	13,8	14,7	36,5	39,9	35,0
990-559	630-27 x 29*	**27 x 29**	350	14,4	15,0	38,5	41,3	36,5
990-560	630-27 x 30*	**27 x 30**	365	14,4	15,4	38,5	42,7	36,5
990-561	630-27 x 32	**27 x 32**	365	14,4	16,0	38,5	45,5	36,5
990-562	630-30 x 32	**30 x 32**	365	15,4	16,0	42,7	45,5	36,5
990-563	630-32 x 36*	**32 x 36**	400	16,0	17,2	45,5	51,3	40,0
990-564	630-36 x 41*	**36 x 41**	440	17,2	18,8	51,3	58,2	40,0
Mat Chrome-Plated								
990-565	630-41 x 46	**41 x 46**	485	18,8	20,3	58,2	67,5	44,0
990-566	630-46 x 50	**46 x 50**	515	20,3	21,6	67,5	73,5	48,0
990-567	630-55 x 60*	**55 x 60**	620	23,2	24,7	82,5	90,0	55,0

*not according to DIN

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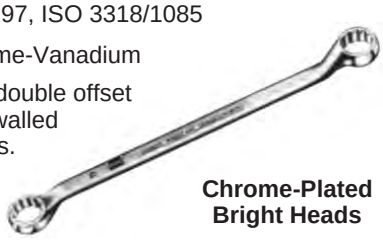
CATALOG 13

Double-Hex Box Wrenches

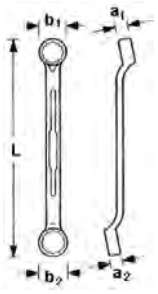
DIN 897, ISO 3318/1085

Chrome-Vanadium

Low double offset thin-walled heads.



Chrome-Plated Bright Heads



SPAENAUR No.	HAZET No.	⬢ mm	L mm	a_1 mm	a_2 mm	b_1 mm	b_2 mm
990-500	625-6 x 7*	**6 x 7**	129,5	7,0	7,0	10,5	12,0
990-501	625-8 x 9*	**8 x 9**	149,4	7,5	7,5	13,5	14,5
990-502	625-10 x 11	**10 x 11**	174,5	8,5	8,5	16,0	17,0
990-503	625-12 x 13	**12 x 13**	199,5	9,5	9,5	19,0	21,0
990-504	625-13 x 15*	**13 x 15**	209,3	10,0	10,0	21,5	23,0
990-505	625-14 x 15	**14 x 15**	209,3	10,0	10,0	21,5	23,0
990-508	625-17 x 19	**17 x 19**	279,4	12,5	12,5	26,5	29,0
990-510	625-19 x 22*	**19 x 22**	329,3	14,0	14,0	29,0	33,0
990-511	625-20 x 22*	**20 x 22**	329,0	14,0	14,0	30,5	33,0
990-512	625-21 x 23*	**21 x 23**	329,0	15,0	15,0	33,0	35,0
990-515	625-24 x 27*	**24 x 27**	379,0	16,0	16,0	35,5	39,5
990-516	625-25 x 28*	**25 x 28**	383,9	17,0	17,0	38,5	41,5
990-517	625-27 x 32*	**27 x 32**	408,7	17,0	18,0	43,5	45,7

Double-Hex Box Wrench Sets

DIN 838, ISO 1085, ISO/DIS 3318

Sets in coloured HAZET cardboard boxes.

High Double Offset Heads

SPAENAUR No. (HAZET No.)	Wrench sizes in each Set. Metric Sizes				
990-591 (630/8)	6 x 7 16 x 17	8 x 9 18 x 19	10 x 11 20 x 22	12 x 13	14 x 15
990-595 (630/12)	6 x 7 16 x 17 25 x 28	8 x 9 18 x 19 27 x 32	10 x 11 20 x 22	12 x 13 21 x 23	14 x 15 24 x 26
990-596 (630/12-2N)	6 x 7 16 x 17 25 x 28	8 x 9 18 x 19 30 x 32	10 x 11 20 x 22	12 x 13 21 x 23	14 x 15 24 x 27
990-597 (630/13)	6 x 7 16 x 17 25 x 28	8 x 9 18 x 19 27 x 32	10 x 11 20 x 22 36 x 41	12 x 13 21 x 23	14 x 15 24 x 26

Inch Sizes

990-598 (630A/6)	3/8 x 7/16 13/16 x 7/8	1/2 x 9/16 15/16 x 1	5/8 x 11/16	3/4 x 25/32
990-600 (630A/8)	1/4 x 5/16 3/4 x 25/32	3/8 x 7/16 13/16 x 7/8	1/2 x 9/16 15/16 x 1	5/8 x 11/16 1-1/16 x 1-1/4
990-601 (630A/12)	1/4 x 5/16 5/8 x 11/16 7/8 x 15/16	3/8 x 7/16 5/8 x 3/4 15/16 x 1	1/2 x 9/16 3/4 x 7/8 1 x 1-1/8	19/32 x 11/16 25/32 x 13/16 1-1/16 x 1-1/4

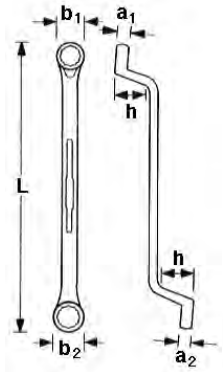
Double-Hex Box Wrenches

ISO 1085, ISO/DIS 3318

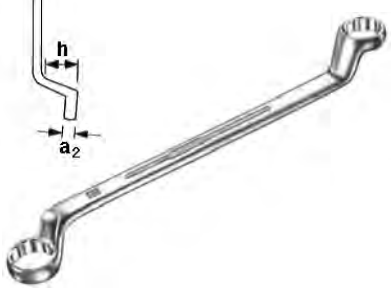
Chrome-Vanadium

High double offset, thin-walled heads.

Inch Sizes



Chrome-Plated Bright Heads



SPAENAUR No.	HAZET No.	⬢ Inch	L mm	a_1 mm	a_2 mm	b_1 mm	b_2 mm	h mm
990-568	630A-1/4 x 5/16	**1/4 x 5/16**	170	6,6	7,0	12,2	13,1	19,5
990-569	630A-3/8 x 7/16	**3/8 x 7/16**	200	8,0	9,0	15,6	17,1	23,5
990-570	603A-7/16 x 1/2	**7/16 x 1/2**	210	9,0	9,5	17,1	19,9	23,5
990-571	630A-1/2 x 9/16	**1/2 x 9/16**	230	9,5	10,5	19,9	22,5	26,0
990-572	630A-9/16 x 5/8	**9/16 x 5/8**	245	10,0	11,3	21,4	25,5	27,0
990-573	630A-19/32 x 11/16*	**19/32 x 11/16**	255	10,8	11,5	22,7	26,5	29,0
990-574	630A-5/8 x 11/16	**5/8 x 11/16**	255	11,0	11,6	24,0	26,9	29,0
990-575	630A-5/8 x 3/4	**5/8 x 3/4**	265	11,0	11,9	24,0	28,4	29,0
990-576	630A-3/4 x 25/32*	**3/4 x 25/32**	285	11,9	12,2	28,4	29,3	32,5
990-577	630A-11/16 x 13/16	**11/16 x 13/16**	285	11,5	12,9	26,9	30,4	31,0
990-578	630A-3/4 x 7/8	**3/4 x 7/8**	295	11,9	12,9	28,4	32,2	32,5
990-579	630A-25/32 x 13/16*	**25/32 x 13/16**	295	12,2	12,5	29,3	30,2	32,5
990-580	630A-13/16 x 7/8	**13/16 x 7/8**	315	12,5	13,2	30,7	33,6	34,0
990-581	630A-7/8 x 15/16	**7/8 x 15/16**	315	12,9	13,5	32,2	35,1	34,0
990-582	630A-15/16 x 1	**15/16 x 1**	330	13,5	14,1	35,1	37,1	34,0
990-583	630A-1 x 1-1/8	**1 x 1-1/8**	350	14,1	15,6	36,3	42,1	36,5
990-584	630A-1-1/16 x 1-1/8	**1-1/16 x 1-1/8**	350	14,4	15,0	38,5	41,3	36,5
990-585	630A-1-1/16 x 1-1/4	**1-1/16 x 1-1/4**	365	14,8	16,4	39,4	46,5	36,5
993-653	630A-1-3/16 x 1-5/16	**1-3/16 x 1-5/16**	365	15,0	16,5	43,3	48,0	36,5
990-587	630A-1-5/16 x 1-1/2	**1-5/16 x 1-1/2**	400	16,5	18,0	47,3	54,0	40,0

*not according to ISO standards
Sizes to 3-1/8 available

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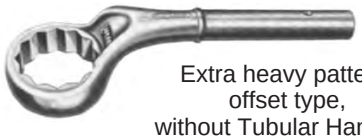
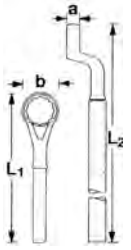
Heavy Duty Box Wrenches

Chrome-Vanadium
Chrome-Plated



Extra heavy pattern, offset type, without Tubular Handles.



SPAENAUR No.	HAZET No.	mm	L_1 mm	L_2 mm	a mm	b mm
990-610	640-24	**24**	198,5	559	17,0	36,5
990-611	640-27	**27**	200	560	17,0	40,0
990-612	640-30	**30**	207	568	18,0	43,5
990-613	640-32	**32**	235	721	18,0	46,0
990-614	640-36	**36**	245	731	20,0	52,0
990-615	640-41	**41**	250	736	21,0	60,0
990-616	640-46	**46**	280	912	23,0	69,0
990-617	640-50	**50**	290	922	25,5	76,0
990-618	640-55	**55**	300	925	28,0	81,0
990-619	640-60	**60**	345	1039	30,5	90,0
990-620	640-65	**65**	355	1049	33,0	98,0
990-621	640-70	**70**	365	1059	35,5	105,0
990-622	640-75	**75**	375	1069	38,0	110,0
990-623	640-80	**80**	385	1075	40,5	125,0
990-624	640-85	**85**	385	1076	40,5	125,0
990-625	640-90	**90**	410	1100	45,0	140,0
990-626	640-95	**95**	410	1100	45,0	140,0
990-627	640-100	**100**	412	1103	45,0	143,0
		Inch Sizes				
990-628	640A-1	**1**	198,5	559	17,0	36,5
990-630	640A-1-1/8	**1-1/18**	209	568	18,0	40,5
990-631	640A-1-1/4	**1-1/4**	235	721	18,0	46,0
876-1187	—	**1-3/8**	245	735	20,0	54,0
876-1170	—	**1-1/2**	250	740	22,0	56,0
876-1171	—	**1-11/16**	265	750	22,0	62,0
876-1172	—	**1-3/4**	280	910	23,0	69,0
990-634	640A-1-13/16	**1-13/16**	280	912	23,0	69,0
876-1173	—	**1-7/8**	280	910	23,0	69,0
876-1174	—	**2**	290	920	25,5	76,0
876-1175	—	**2-1/8**	300	925	28,0	81,0
990-636	640A-2-3/16	**2-3/16**	300	925	28,0	81,0
990-637	640A-2-3/8	**2-3/8**	345	1039	30,5	90,0
990-638	640A-2-9/16	**2-9/16**	355	1049	33,0	98,0
990-639	640A-2-3/4	**2-3/4**	365	1059	35,5	105,0
990-640	640A-2-15/16	**2-15/16**	375	1069	38,0	110,0
990-641	640A-3-1/8	**3-1/8**	385	1076	40,5	125,0

Tubular Handles

Chrome-Plated

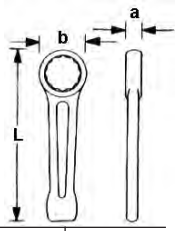
Hard ST 35 steel pipe, for Heavy Duty Box Wrenches.

SPAENAUR No.	HAZET No.	mm	Inch	L mm
990-646	640-2430	**24 - 30**	**1 - 1-1/8**	460
990-647	640-3241	**32 - 41**	**1-1/4 - 1-5/8**	610
990-648	640-4655	**46 - 55**	**1-13/16 - 2-3/16**	760

Box Wrenches Striking Face Pattern

DIN 7444
Steel Grey

Special steel withstand extreme impact loads.



SPAENAUR No.	HAZET No.	mm	L mm	a mm	b mm
990-651	642-27	**27**	180	16	46
990-652	642-30	**30**	190	17	52
990-653	642-32	**32**	190	17	52
990-654	642-36	**36**	205	18	58
990-655	642-41	**41**	230	20	66
990-656	642-46	**46**	240	22	74
990-657	642-50	**50**	255	24	80
990-658	642-55	**55**	270	25	86
990-659	642-60	**60**	280	26	93
990-660	642-65	**65**	300	30	102
990-661	642-70	**70**	330	33	110
990-662	642-75	**75**	330	33	110
990-663	642-80	**80**	360	36	126
990-664	642-85	**85**	360	36	126
990-665	642-90	**90**	390	40	142
990-666	642-95	**95**	390	40	142
990-667	642-100	**100**	420	45	155
993-976	642-105	**105**	420	45	155

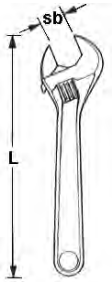
Available up to 220 mm and 8-1/2 inch sizes. P.O.A.

Adjustable Wrenches with scale

DIN 3117, Form A, ISO 6787
Chrome-Vanadium

Head set at 15°

Phosphatized
Head Polished



SPAENAUR No.	HAZET No.	L mm	L inch	sb Jaw Capacity mm
990-090	279-6	160	6-1/4"	20
990-091	279-8	205	8"	24
990-092	279-10	255	10"	29
990-093	279-12	308	12"	34
	Matte Chrome-Plated, Head Polished			
990-094	279 V-6	160	6-1/4"	20
990-095	279 V-8	205	8"	24
990-096	279 V-10	255	10"	29
990-097	279 V-12	308	12"	34

Head set at 22.5° DIN 3117, Form B, ISO 6787
Phosphatized, Head Polished Special Steel

990-098	279-4	109	4-1/2"	13
990-099	279-15	382	15"	44
990-100	279-18	458	18"	53
	Matte Chrome-Plated, Head Polished			
990-101	279V-4	109	4-1/2"	13

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CATALOG 13

Flat Chisels

Chrome-Vanadium **Matte Black**

DIN 6453

Air-Hardened, Rectangular Stock

*not according to DIN

SPAENAUR No.	HAZET No.	L mm	min. mm	mm
990-720	730-1	100	15	14 x 9
877-1137	—	100	15	14 x 9
990-721	730-2	125	15	14 x 9
877-1138	—	125	18	14 x 9
990-722	730-3	150	18	17 x 11
877-1139	—	150	20	17 x 11
990-723	730-4*	150	21	20 x 12
990-724	730-5	175	21	20 x 12
877-1140	—	175	24	20 x 12
990-725	730-6	200	24	23 x 13
877-1141	—	200	26	23 x 13
990-726	730-7	250	25	23 x 13
877-1142	—	250	30	23 x 13
990-727	730-8	300	26	23 x 13
877-1143	—	300	30	23 x 13

Flat Chisels

Chrome-Vanadium **Matte Black**

Air-Hardened, Octagonal Stock

990-729	731-2	125	11	10
990-730	731-5	150	15	12

Cape Chisels

Chrome-Vanadium **Matte Black**

DIN 6451

Air-Hardened, Rectangular Stock

990-731	740-2	125	5	14 x 9
877-1144	—	125	7	14 x 9
990-732	740-3	150	6	17 x 11
877-1145	—	150	8	17 x 11
990-733	740-5	175	7	17 x 11
877-1146	—	175	9	17 x 11
990-734	740-6	200	8	20 x 12
877-1147	—	200	10	20 x 12
877-1148	—	250	9	23 x 13
993-663	740-7	250	9	26 x 13

Octagonal Stock

990-735	741-1	125	4	10

Spaenaur offers the complete Hazet product line. If you are interested in an item not shown in our catalog, please contact a Spaenaur Sales Representative at 1-800-265-8772.

Spaenaur vous offre la gamme complète de produits Hazet. Si vous êtes intéressé par des articles non illustrés dans notre catalogue, veuillez communiquer avec le service des ventes de Spaenaur au 1-800-265-8772.

Drift Punches

Chrome-Vanadium **Matte Black**

DIN 6458

Air-Hardened, Octagonal Stock

Light Pattern (B)

SPAENAUR No.	HAZET No.	L mm	Ø mm	mm
990-736	745-1	120	1	10
877-1155	—	120	1	10
990-737	745-2	120	2	10
877-1156	—	120	2	10
990-738	745-3	120	3	10
877-1157	—	120	3	10
990-739	745-4	120	4	10
877-1158	—	120	4	10
990-740	745-5	120	5	10
877-1153	—	120	5	10
Heavy Pattern (D)				
990-741	745a-2	120	2	12
990-742	745a-3	120	3	12
990-743	745a-4	120	4	12
990-744	745a-5	120	5	12
877-1159	—	120	5	12
990-745	745a-6	120	6	12
877-1160	—	120	6	12
990-746	745a-7	120	7	12
877-1161	—	120	7	12
990-747	745a-8	120	8	12
877-1162	—	120	8	12
990-748	745a-10	150	10	12
877-1164	—	150	10	12

Centre Punches

Chrome-Vanadium **Matte Black**

DIN 7250

Air-Hardened, Octagonal Stock

990-749	746-1	120	—	10
877-1166	—	120	—	10
990-750	746-2	120	—	12
877-1167	—	120	—	12

Auto-Impact Centre Punch

Steel, with tough and hard point of special steel.

Impact force infinitely variable (by pushing upper part)

†Does not include pocket clip.

			Impact Force
990-751	747-1	147	3-30 kg
†877-1168	—	130	3.5-15 kg

993-972	Replacement springs for 990-751 Centre punch shown above. *Unit Pkg. 1 set (2 springs)*

N

Drift Pins

DIN 6450, Form C
Chrome-Vanadium
Air Hardened,

Octagonal Stock

Mat Black

SPAENAUR No.	HAZET No.	L mm	L_1 Min. mm	Ø Max. mm	mm
990-752	748a-2	115	30	2	8
990-753	748a-3*	125	40	3	8
990-754	748b-2	150	30	2	10
877-1179	—	150	30	2	10
990-755	748b-3	150	40	3	10
877-1181	—	150	40	3	10
990-756	748b-4	150	50	4	10
877-1182	—	150	50	4	10
990-757	748b-5	150	50	5	10
877-1183	—	150	50	5	10
990-758	748b-6	150	50	6	10
877-1184	—	150	50	6	10
877-1185	—	150	50	7	12
990-759	748b-8	150	50	8	12
877-1186	—	150	50	8	12
877-1187	—	150	50	9	12
877-1188	—	150	50	10	12
Long Pattern					
990-760	748c-6*	180	60	6	12
990-761	748c-8*	200	70	8	12
990-762	748c-10*	200	70	10	12

*not according to DIN

Drift Pins

Long Pattern
Especially for safety bolts of brake discs.

Black

990-763	748 Lg b-4	175	80	4	10

Drift Pins

DIN 6450, with guide pin, for safety bolts of pads in floating caliper disc brake, especially Opel.

990-764	748 Lg b-6	175	90	3	5,8

Drift Pin Sets

Chrome-Vanadium
Air-Hardened,

On Plastic Display Stands.

SPAENAUR No. (HAZET No.)	*SPAENAUR No.'s* in Set	
990-770 (751/6)	990-752	990-753
	990-756	990-757
	990-760	990-761
990-771 (751/6-1)	990-754	990-755
	990-756	990-757
	990-758	990-759
877-1178	Same as 990-771 above	

990-771
Shown

Chisel, Drift Punch, Centre Punch Sets

Chrome-Vanadium
Air-Hardened,

On Plastic Display Stands.

SPAENAUR No. (HAZET No.)	*SPAENAUR No.'s* in Set Chisel	Punch
990-768 (750/6)	990-729	990-742
	990-730	990-743
	990-735	990-749
990-769 (750/6-1)	990-722	990-741
	990-725	990-743
	990-732	990-750
877-1176	Same as 990-769 above	

990-768
Shown

Universal Grip Pliers

Jaws Chrome-Vanadium, Drop-Forged.

Nickel-Plated

With enlarged quick-release plastic-coated lever.
Offers larger area to use fingers for releasing.

990-781	757-10	230	9"	50	6-50

Universal or Waterpump Pliers

Chrome-Vanadium
Induction Hardened

With fluted sliding lap joint, relief-milled guide flutes, wide parallel and circular gipping range, despite minimum overall width (a) of pliers, three-point contact on round parts, handles coated with black hand-sympathetic plastic material for a better grip.

Chrome-Plated, Bright Heads

SPAENAUR No.	HAZET No.	L mm	L Inch	sb mm ■	sb mm ●	a mm
990-793	760N-1	180	7"	30	45	35
990-794	760N-2	260	10"	50	65	55
990-795	760N-3	307	12"	65	80	66
990-796	760N-4	408	16"	110	120	88

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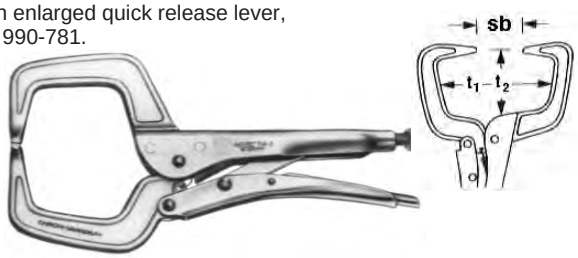
CATALOG 13

Grip Pliers

Jaws Chrome-Vanadium, Drop-Forged.

Especially designed for holding larger objects.

With enlarged quick release lever, like 990-781.



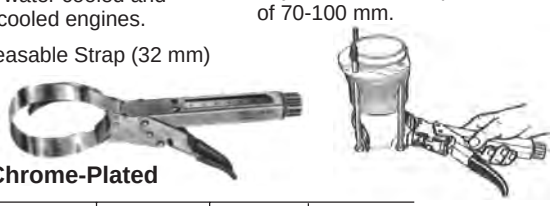
SPAENAUR No.	HAZET No.	L mm	L Inch	sb mm	t_1 mm	t_2 mm
990-785	758-2	275	10-3/4"	90	170	75

Piston Ring Compressor

For water cooled and air-cooled engines.

Adjustable within a piston Ø range of 70-100 mm.

Releasable Strap (32 mm)



Chrome-Plated

SPAENAUR No.	HAZET No.	Ø mm	L mm
990-882	794U-3	70-100	302-332

Lever for Removing Door Panels

Special Steel

Galvanized

With trinamic®-handle (protected by design patent) Black plastic material.

For dismantling of door panels with clips.

SPAENAUR No.	HAZET No.		L mm	L Inch
990-895	799-3	26	250	10"

Hose Clamp Pliers

Chrome-Vanadium

Chrome-Plated

For self-gripping spring head clips.
Swivel acting jaws, adjustable opening for differently sized clamps.
With locking device.
Especially for VW-Audi.

SPAENAUR No.	HAZET No.	sb mm	L mm	L Inch
990-893	798-10	90	320	12-1/2"

994-024	Spring Eye bolt, Rivet & Nut. Repair Kit for 990-983
993-982	2 Holding bolts and 2 Retaining rings. Repair Kit for 990-893

Internal Extractors

Special Steel

To be used with Counter Stays.
SPAENAUR No.'s 990-862 and 990-863.

SPAENAUR No.	HAZET No.	Ø mm
877-1415	—	5-8
877-1416	—	6-10
877-1296	—	8-12
877-1263	—	10-14
990-854	788-14	12-16
877-1297	—	12-16
990-855	788-18	14-19
877-1298	—	14-19
990-856	788-23	18-23
877-1299	—	18-23
990-857*	788-30	20-30
990-858	788-37	28-40
877-1301	—	28-40
990-859	788-46	36-46
877-1302▲	—	36-46
990-860	788-56	45-58
877-1303	—	45-58
990-861	788-70	56-70
877-1304	—	56-70

Zinc Plated or Black Finish our option.

Galvanized

*ZINC PLTD.

▲877-1399 Replacement Wedge for 877-1302
▲877-1400 Replacement Nut for 877-1302

Slide Hammer

Steel - Grey

877-1307 Use with above Internal Extractors with bore diameters of 5-8 mm to 14-19 mm.
877-1328 Use with diameters of 18-23 mm to 56-70 mm.

Counter Stays

Special Steel

To be used with above Internal Extractors.

With removable threaded reduction collar.

Galvanized

Application: 990-854 up to 990-858 without reduction collar.
990-856 up to 990-858 with reduction collar.
990-859 up to 990-861 without reduction collar.

SPAENAUR No.	HAZET No.	
990-862	788-1437	990-854 to 990-858 and 877-1296
877-1305	—	877-1296/877-1301 and 877-1415 to 877-1416
877-1306	—	877-1301 to 877-1304
990-863	788-4670	990-856 to 990-861

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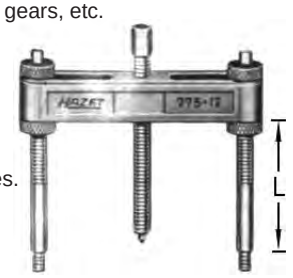
Pulling Devices and Separators

Special Steel

For removing tightly seated ball-bearings, roller-bearings, innerraces, annular gears, etc.

Pulling Devices



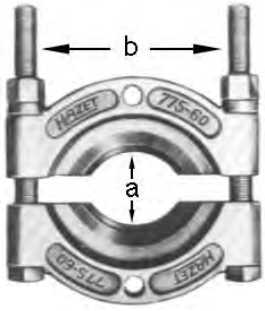
To be connected with separators by screwing the stud end into the tap holes in the separator blades.

Galvanized

SPAENAUR No.	HAZET No.	**sb** mm	**L** mm
990-816	775-12	41-117	72-125
877-1274	—	50-110	150
877-1275	—	65-160	200
877-1276	—	60-200	250

Separators

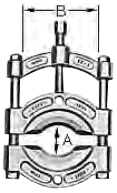
Special Steel



Sharp separator edges to be forced behind part to be pulled off.

Separator blades to be compressed by evenly tightening nuts on side bolts.

Galvanized



* with Centre Thrust Screw

SPAENAUR No.	HAZET No.	**a** mm	**b** mm
990-819	775-60	5-60	60
877-1265	—	5-60	60
877-1277	—	12-75	75
***877-1279**	—	12-75	75
990-820	775-75	12-75	77,5
990-821	775-115	22-115	115
877-1278	—	22-115	115
***877-1280**	—	22-115	115

Pitman Arm Shaft Pullers

Special Steel

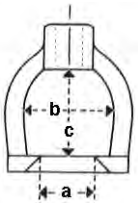
Also for ball bearings, gears and similar parts.
Screw clamp forces puller hooks securely upon part to be removed.

Galvanized

SPAENAUR No.	HAZET No.	**sb** mm	**st** mm
877-1281	—	80	90
877-1282	—	100	100
877-1283	—	150	140

Ball Joint Pullers

Special Steel.



For removing the ball pivots when dismantling the ball joints.

Galvanized

SPAENAUR No.	HAZET No.	**a** mm	**b** mm	**c** mm
990-828	779-18	18	36,5	38
990-829	779-23	23	45	48
990-830	779-29	29	61,5	63
990-831	779-39	39	62	78

Pulling Arm

Special Steel

Galvanized

SPAENAUR No.	**990-834**
HAZET No.	781-7

Used with Universal Hub Pullers

Extentions (per pair)

Special Steel

To be used in pairs for extending the length of the puller studs.

Galvanized

SPAENAUR No.	HAZET No.		**L** mm
990-822	775-012	990-816/877-1275	100
990-823	775-021	877-1276	100

For pulling parts from shafts, screw the studs of suitable puller into two tap holes in separator. Pull away by tightening screw spindle against shaft end.

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CATALOG 13

Pullers

Special Steel

Galvanized

For gears, ball bearings, etc. Two double-hook arms, each with a narrow end for use in congested areas.

With 2 arms

SPAENAUR No.	HAZET No.	sb mm	st mm
990-835	784-15	150	85
877-1284	—	150	85
990-836	784-20	220	130
877-1285	—	220	130

With 3 arms

990-837	785-15	150	85
877-1286	—	150	85
990-838	785-20	200	130
877-1287	—	220	130

Universal Ball Joint Puller

Special steel, Galvanized

For removing the ball pivots when dismantling the ball joints on Ford, BMW, Volvo, Toyota, Opel, VW, Audi, Renault, Nissan, Fiat and Mercedes-Benz cars

Clamping range, Two stages

Stage 1 = to 30 mm

Stage 2 = to 50 mm

Priced Singly

SPAENAUR No.	HAZET No.	Jaw Capacity	a
993-895	779-1	50 mm	20-22 mm

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Two Arm Pullers

Special Steel

Galvanized

SPAENAUR No.	HAZET No.	sb mm	st mm
990-839	787 N-08	80	100
877-1289	—	80	100
990-840	787 N-12	120	100
877-1290	—	120	100
990-841	787 N-16	160	150
877-1291	—	160	150
990-842	787 N-20	200	150
877-1292	—	200	150
990-843	787 N-25	250	200
990-844	787 N-35	350	200
990-845	787 N-52	520	200
877-1295	—	520	200

The pulling arms are replaceable and can be adjusted for inside and outside pulling.

Pulling Arm (per pair)

Special Steel

Galvanized

With normal slide jaws

SPAENAUR No.	HAZET No.	st mm	
990-846	787 N-0812	106	990-839/990-840
877-1310	—	100	877-1289/877-1290
990-847	787 N-1620	158	990-841/990-842
877-1311	—	150	877-1291/877-1292
877-1267	—	200	877-1294/877-1293/877-1295
990-848	787 N-2552	208	990-843/990-844/990-845

With Extra Long Slide Jaws

990-849	787 N Lg-0812	205	990-839/990-840
877-1312	—	200	877-1289/877-1290
877-1266	—	250	877-1289/877-1290
990-850	787 N Lg-1620	300	990-841/990-842
877-1268	—	300	877-1291/877-1292
990-851	787 N Lg-2552	305	990-843/990-844/990-845
877-1269	—	300	877-1293/877-1294/877-1295
877-1270	—	400	877-1293/877-1294/877-1295
990-852	787 N Lg-2552/4	406	990-843/990-844/990-845
990-853	787 N Lg-2552/5	504	900-843/990-844/990-845
877-1271	—	500	877-1293/877-1294/877-1295

Replacement Forcing Screw

For 2 arm puller. Steel

SPAENAUR No.	Used With Pulling Device
877-1273	877-1284, 877-1286, 877-1289, 877-1290, 990-839 and 990-840
877-1264	877-1285, 877-1287, 877-1291, 877-1292 and 990-842

N

Screwdrivers
according to Swiss standard

(VSM 25 601)
(protected by design patent)

Chrome-Vanadium
with black handle
of Durethan® plastic.

Blades **Matte Chrome-Plated**
Tips **Burnished**

Ergonomical shaped handle
formed by experienced
Industry Designers.

For Slotted Screws
Blades offset, parallel faces.

SPAENAUR No.	HAZET No.	mm	mm	**L** mm
990-896	800-00	0,3	2,0	70
990-897	800-0	0,4	2,5	80
990-898	800-1	0,5	3,5	90
990-899	800-2	0,6	4,0	100
990-900	800-3	0,8	5,5	120
990-901	800-4	1,0	6,5	140
990-902	800-5	1,2	8,0	160
990-903	800-6	1,6	10,0	180
990-904	800-7	2,0	13,0	200
990-905	800-8	2,5	16,0	220
990-906	800-9	3,0	18,0	240

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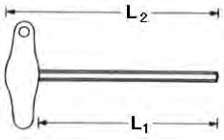
Screwdriver

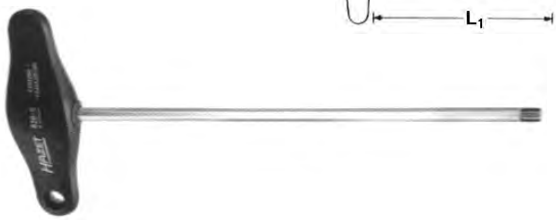
Chrome-Vanadium

Chrome-Plated

For hex socket head screws

With transverse handle.
Black plastic material
(protected by design patent)





SPAENAUR No.	HAZET No.	mm	L_1 mm	L_2 mm
990-996	828-2	2	100	118
990-997	828-2,5	2,5	100	118
990-998	828-3	3	150	168
990-999	828-4	4	150	175
991-003	828-8	8	200	235
991-004	828-10	10	200	235

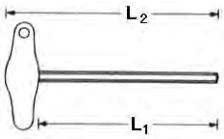
TORX® Screwdrivers

Chrome-Vanadium

For inside TORX® screws

Blades **Chrome-Plated**
Tips **Burnished**

With transverse handle.
Black plastic material
(protected by design patent)



SPAENAUR No.	HAZET No.		L_1 mm	L_2 mm
993-594	828-T8	2,31	80	98
991-020	828-T30	5,52	130	162
991-021	828-T40	6,65	130	162
991-022	828-T45	7,82	130	165
991-023	828-T50	8,83	130	165
991-024	828-T55	11,22	130	165

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CATALOG 13

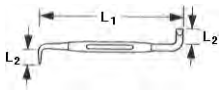
Offset Screwdrivers

DIN 5200

Chrome-Vanadium

For Slotted Screws.

With black plastic covered handle.



Blades **Chrome-Plated**
Tips **Steel Grey**

SPAENAUR No.	HAZET No.	mm	mm	L_1 mm	L_2 mm
990-962	818-1	0,6	3,5	90	8,5
990-963	818-2	1,0	5,5	125	10,5
990-964	818-3	1,2	8,0	150	17,0
990-965	818-4	1,6	10,0	175	24,0

Offset Screwdrivers

DIN 5208

Tips DIN 5260 Phillips-Recess

With black plastic covered handle.

SPAENAUR No.	HAZET No.		**Screw Size**	L_1 mm	L_2 mm
990-966	819-PH 1 + PH 2	1 + 2	2-4/5-10	125	20
990-967	819-PH 2 + PH 3*	2 + 3	5-10/12-16	150	29

*not according to DIN

Hold-Fast Screw-Starters

—Hold-Fast Screwdriver—

With trinamic® -handle,
black plastic material
(protected by design patent)

Black
Tips **Burnished**

For hard to reach screws.

With plastic cover and integrated spring for holding-fast the screws at screw head.

Easy release due to fitted thumb depression.

For Phillips-Recess Screws

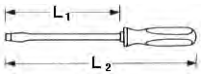
SPAENAUR No.	HAZET No.		**Screw Size**	L_1 mm	L_2 mm
990-986	826-PH 0	0	0-1	126	213
990-987	826-PH 1	1	2-4	149	246
990-988	826-PH 2	2	5-10	175	282

Ball Tip Screwdrivers

Chrome-Vanadium

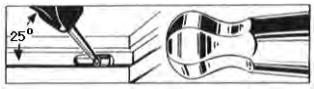
For hex socket head screws

With trinamic®-handle
(protected by design patent)
Black plastic material



Works concealed hex-recessed head screws at an angle of 25°.

Hexagon ball uses cardan principle.



Chrome-Plated

SPAENAUR No.	HAZET No.	mm	L_1 mm	L_2 mm
990-992	827-06	6	125	223
990-994	827-10	10	150	265
990-995	827-12	12	150	274

Screwdrivers for Electricians

1000 V

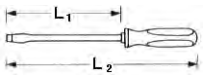
Functional dimensions according to DIN 7439

For hex socket head screws

Chrome-Vanadium

With trinamic®-handle
(protected by design patent)
Plastic material
Protected to standard E IEC 78 (CO) 11,
VDE 0680 part 201 and IEC 900

Red
Tips **Burnished**



All Hazet VDE-Tools with blades are seamless insulated, handle and cover are casted in one piece and therefore connected undetachable.

991-007	828 VDE-3	3	75	176
991-008	828 VDE-4	4	75	176
991-009	828 VDE-5	5	75	185,5
993-592	828 VDE-6	6	100	210,5
991-011	828 VDE-8	8	100	218,5

N

Screwdrivers

Chrome-Vanadium
For slotted screws
Blade tip offset,
with parallel faces (VSM)
Sizes 991-032 to 991-034
have square shank section for
wrench application.

with trinamic®-handle
(protected by design patent)
Black plastic material

Blades **Chrome-Plated**
Tips **Burnished**

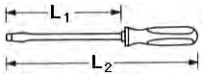
SPAENAUR No.	HAZET No.	mm	mm	L_1 mm	L_2 mm	□ mm
991-025	829-0	0,4	2,5	76,3	140	—
991-033	829-8	2,5	16,0	211,5	339,5	9
991-034	829-9	3,0	18,0	246,5	374,5	10

Screwdrivers

DIN 5265, Form D
For slotted screws
One section of the shank is round,
the other hexagonal,
edges according to DIN 5264, Form A.

Chrome-Vanadium

Blades **Chrome-Plated**
Tips **Burnished**



SPAENAUR No.	HAZET No.	mm	mm	L_1 mm	L_2 mm	⌀ mm
991-036	830-2*	0,8	4,0	100	189,5	8
991-041	830-14	2,0	12,0	200	328	16
991-042	830-16	2,5	14,0	25,0	378	16

*not according to DIN

Extra Long Blades for deep levelled screws.

991-043	830 Lg-5	1,0	5,5	410	520,5	8

Screwdrivers Sets

with trinamic® handles of
plastic, black
(protected by design patent)

990-930
Shown

SPAENAUR No. (HAZET No.)	***SPAENAUR No's*** **in Set**			
990-930 (810/5)	991-063	991-064		
	991-086	991-087	991-088	

In cardboard boxes
with moulded plastic tray
and transparent cover.

990-938 (810/10K)	991-045	991-047	991-060	
	991-063	991-064	991-070	
	991-086	991-087	991-088	991-089
990-939 (811/10K)	991-036	991-038	991-039	
	991-045	991-046	991-047	
	991-060	991-063	991-064	991-070
990-940 (812/10K)	991-026	991-027	991-028	
	991-029	991-030	991-031	
	991-060	991-063	991-064	991-070

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Screwdrivers

DIN 5265, Form A

For Slotted Screws

with trinamic®-handle
(protected by design patent)
Black plastic material

Chrome-Vanadium

Blades **Chrome-Plated**
Tips **Burnished**

SPAENAUR No.	HAZET No.	mm	mm	L_1 mm	L_2 mm
991-047	832-4	0,6	3,5	100	180
991-049	832-6	1,0	5,5	125	228

Screwdrivers

DIN 5262, Form B

For Phillips Recess Screws
Tips DIN 5260 Phillips Recess

with trinamic®-handle
(protected by design patent)

Chrome-Vanadium

Blades **Chrome-Plated**
Tips **Burnished**

Black plastic Material

SPAENAUR No.	HAZET No.	⇐	**Screw Size**	L_1 mm	L_2 mm	∅ mm
991-064	835-PH 2	2	5-10	100	200	—

One section of the shank is round, the other hexagonal.

991-067	835-PH 3	3	12-16	150	265,5	13
991-068	835-PH 4	4	18->	200	325	16

DIN 5262, Form D
Short Pattern

991-069	835-PH 01	1	2-4	25	88	—

Screwdrivers

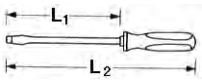
DIN 5265, Form D

For Slotted Screws

with trinamic®-handle
(protected by design patent)
Black plastic material

Chrome-Vanadium

Blades **Chrome-Plated**
Tips **Burnished**



One section of the shank is square, the other hexagonal - upsetted-, edges according to DIN 5264

*not according to DIN

SPAENAUR No.	HAZET No.	mm	mm	L_1 mm	L_2 mm	∅ mm
991-087	836-2*	1,0	5,5	124	234	10
991-089	836-4	1,6	10,0	175	292,5	13
991-090	836-5	2,0	12,0	200	327	16

Pozidriv® Screwdrivers

Chrome-Vanadium

For Pozidriv® screws

Pozidriv® is the Registered Trade Mark of European Industrial Services Ltd.

Blades **Chrome-Plated**
Tips **Burnished**

SPAENAUR No.	HAZET No.	⇐	L_1 mm	L_2 mm	∅ mm
991-078	835-PZ 0	0	53	137,5	—

One section of the shank is round, the other hexagonal.

991-082	835-PZ 3	3	143,5	265	13
991-083	835-PZ 4	4	191,5	324	16

Short Pattern

991-084	835-PZ 01	1	25	88	—
991-085	835-PZ 02	2	25	88	—

Pozidriv® Screwdrivers with blue ring

NEW

Chrome-Vanadium For Pozidriv® screws

Blades **Chrome-Plated,** Tips **Burnished**
From size PZ 3 on, blade with hex bolster

SPAENAUR No.	HAZET No.	⇐	L_1 mm	∅ mm
994-035	803-PZ 0	0	53,5	—
994-036	803-PZ 1	1	73	—
994-037	803-PZ 2	2	94,5	—
994-038	803-PZ 3	3	142	13
994-039	803-PZ 4	4	192	16

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TORX® Screwdrivers

for inside TORX® screws
with trinamic®-handle
(protected by design patent),
Black plastic material

Special High Tensile Steel

Blades **Chrome-Plated**
Tips **Burnished**

SPAENAUR No.	HAZET No.	mm	L_1 mm	L_2 mm
991-096	837-T 10	2,74	69,5	150
991-099	837-T 25	4,43	84	175
991-101	837-T 30	5,52	99	200,5
991-102	837-T 40	6,65	99	200,5
991-103	837-T 45	7,82	112	224

TORX® Screwdrivers

Special High Tensile Steel
for inside TORX® screws
with trinamic®-handle
(protected by design patent),
Black plastic material

Blades **Chrome-Plated**
Tips **Burnished**

Industrial Finish
with extended handles

SPAENAUR No.	HAZET No.	mm	L_1 mm	L_2 mm
991-107	837i-T 9	2,50	55	156
991-109	837i-T 15	3,27	70	171
991-110	837i-T 20	3,86	84	194,5
991-111	837i-T 25	4,43	84	194,5
991-112	837i-T 27	4,99	99	209,5
991-113	837i-T 30	5,52	99	209,5
991-114	837i-T 40	6,65	99	217,5
991-115	837i-T 45	7,82	112	230,5

TORX® Screwdrivers for inside TORX® screws

with trinamic®-handle
(protected by design patent),
Black plastic material

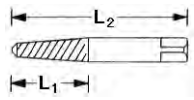
Blades **Chrome-Plated**
Tips **Burnished**

SPAENAUR No.	HAZET No.	mm	L_1 mm
994-025	803-T 6	1,67	48
994-026	803-T 7	1,99	48
994-027	803-T 8	2,31	55
994-028	803-T 9	2,50	55
994-029	803-T 10	2,74	70
994-030	803-T 15	3,27	70
994-031	803-T 20	3,86	84
994-032	803-T 25	4,43	84
994-033	803-T 27	4,99	99
994-034	803-T 30	5,52	99

Screw Extractors

Chrome-Vanadium

For broken screws and bolts
with r.h. threads.
Use drill sizes listed in 5th table
column for making holes required.



Polished

SPAENAUR No.	HAZET No.	Ø mm	M	ø mm	L_1 mm	L_2 mm
991-120	840-1	1,4-3,6	3-6	1,8	13,2	50
991-121	840-2	2,1-4,9	6-8	2,6	16,8	57
991-122	840-3	3,1-6,5	8-11	3,7	20,4	64
991-123	840-4	4,8-8,8	11-14	5,5	24,0	71
991-124	840-5	6,2-11,0	14-18	7,0	28,8	78
991-125	840-6	9,4-15,0	18-24	10,3	33,6	85
991-126	840-7	12,7-19,0	24-33	13,7	37,8	92
991-127	840-8	17,5-24,0	33-45	18,6	39,0	100

Screw Extractor Sets

In plastic boxes

SPAENAUR No. (HAZET No.)	***SPAENAUR No's.*** **in Set**			
991-128 (840/5)	991-120	991-121	991-122	991-123
	991-124			
991-130 (840/8)	991-120	991-121	991-122	991-123
	991-124	991-125	991-126	991-127

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CATALOG 13

Stud Extractors

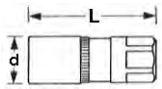
1/2 inch

Chrome-Vanadium

Chrome-Plated Polished

For tightening and removing studs and staybolts with r.h and l.h. threads.

With 1/2" inside square drive and 21mm outside 6 point square drive.



SPAENAUR No.	HAZET No.	ø mm	L mm	D mm	mm
991-131	844-6	6	65	23,5	21
991-132	844-8	8	65	23,5	21
991-133	844-10	10	75	27,0	21
991-134	844-12	12	75	27,0	21

Repair Parts for above Stud Extractor

For Stud No.	Description	*SPAENAUR No.*	Hazet No.
991-131	Cage	**993-906**	844-6-01
	Cover Plate	**993-910**	844-6-02
	Retaining Ring	**993-914**	844-6-03
	Dowel Pin	**993-918**	844-6-04
991-132	Cage	**993-907**	884-8-01
	Cover Plate	**993-911**	844-8-02
	Retaining Ring	**993-915**	844-8-03
	Dowel Pin	**993-919**	844-8-04
991-133	Cage	**993-908**	844-10-01
	Cover Plate	**993-912**	844-10-02
	Retaining Ring	**993-916**	844-10-03
	Dowel Pin	**993-920**	844-10-04
991-134	Cage	**993-909**	844-12-01
	Cover Plate	**993-913**	844-12-02
	Retaining Ring	**993-917**	844-12-03
	Dowel Pin	**993-921**	844-12-04

Mechanical Nut Splitter

Chrome-Vanadium

Galvanized

For removing unbreakable nuts in the quality range 5,6 and 8.
With double splitting effect due to 2 chisels
-also for bigger nuts-

SPAENAUR No.	HAZET No.	mm	L mm
991-139	847-1027	10-27	132
991-140	847-1736	17-36	160

Stud Extractor Set

Chrome-Vanadium

In black plastic box.
Embedded in soft PUR foam material (protected by design patent)

Chrome-Plated Polished

187 x 125 x 39

SPAENAUR No. (HAZET No.)	*SPAENAUR No.'s* **in Set**	
991-135 (844/4)	991-131 991-133	991-132 991-134

Stud Extractor

Special Steel **Galvanized**

Large gripping range due to low arrangement of eccentric knurled screw, clamps even short stud ends, for tightening and removing studs and staybolts with r.h. and l.h. threads.

SPAENAUR No.	HAZET No.	ø mm
991-136	845	5-19
877-1309	—	5-19

Hydraulic Nut Splitters

Aluminum colour

Special Steel

For removing unbreakable nuts in the quality range 5,6,8 and 10.

Double offset configuration permits use even in congested areas.
Low effort due to hydraulic system

SPAENAUR No.	HAZET No.	mm	L mm
991-137	846-22	7-22	235
991-138	846-36	22-36	335

Blunt Scraper

With black plastic handle.
With replaceable hard-metal tip, to be used on both sides.

SPAENAUR No.	HAZET No.	mm	L_1 mm	L_2 mm
990-979	825-25	25	265	400
Replaceable Hard-metal Tips				
990-980	825-025	25	25	—

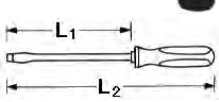
Blunt Scraper

Special Steel **Galvanized**

Square blade.

For the easy and complete removal of seal remnants.

Handle made of black plastic material.



990-975	824	23	150	270

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CATALOG 13

1/4" Drive 6 Point Sockets

1/4 inch

DIN 3124, ISO 2725

Chrome-Vanadium

1/4" □ drive

Chrome-Plated Polished

SPAENAUR No.	HAZET No.	⬢ mm	L mm	d_1 mm	d_2 mm	t mm
991-141	850-3,2*	3,2	25	6,2	11,0	3,2
991-142	850-4	4	25	6,8	11,0	3,7
991-143	850-4,5	4,5	25	7,0	11,0	4,2
991-144	850-5	5	25	8,0	11,0	4,1
991-145	850-5,5	5,5	25	8,5	11,0	4,6
991-146	850-6	6	25	9,0	11,0	5,1
991-147	850-7	7	25	10,5	11,5	5,6
991-148	850-8*	8	25	11,5	12,5	6,3
991-149	850-9	9	25	13,0	11,5	7,3
991-150	850-10	10	25	14,0	12,5	7,3
991-151	850-11	11	25	15,5	14,0	8,3
991-152	850-12	12	25	17,0	15,0	9,3
991-153	850-13	13	25	18,0	15,0	9,3
991-154	850-14	14	25	19,5	16,0	10,8

*not according to DIN

Deep Sockets

Sizes 4 - 5,5 = DIN 3124

SPAENAUR No.	HAZET No.	L mm	d_1 mm	d_2 mm	t mm
991-165	850 Lg-4	50	6,7	11,0	3,8
991-166	850 Lg-5	50	7,9	11,0	4,4
991-167	850 Lg-5,5	50	8,5	11,0	4,7
991-168	850 Lg-6	50	9,2	11,0	5,0
991-169	850 Lg-7	50	10,4	11,0	5,5
991-170	850 Lg-8	50	11,6	11,6	6,0
991-171	850 Lg-9	50	13,0	13,0	6,5
991-172	850 Lg-10	50	14,2	14,2	7,0
991-173	850 Lg-11	50	15,5	15,5	7,5
991-174	850 Lg-12	50	16,8	16,8	8,0
991-175	850 Lg-13	50	18,0	18,0	8,5

Inch Sizes

SPAENAUR No.	HAZET No.	Inch	L mm	d_1 mm	d_2 mm	t mm
991-155	850A-3/16	3/16	25	8,0	11,0	4,2
991-156	850A-7/32	7/32	25	8,5	11,0	4,6
991-157	850A-1/4	1/4	25	9,5	11,0	5,1
991-158	850A-9/32	9/32	25	10,5	11,5	5,6
991-159	850A-5/16	5/16	25	11,5	12,5	6,3
991-160	850A-11/32	11/32	25	13,0	11,5	7,3
991-161	850A-3/8	3/8	25	14,0	12,5	7,3
991-162	850A-7/16	7/16	25	15,5	14,0	8,3
991-163	850A-1/2	1/2	25	18,0	15,0	9,3
991-164	850A-9/16	9/16	25	19,5	16,0	10,8

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Hex Socket

1/4 inch

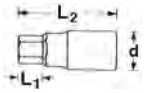
Chrome-Vanadium

1/4"□ drive (DIN 3120)

For hollow hex head screws

CVD-Titannitrit (Tin) Coated Yellow or Chrome-Plated, our option.

Tips **Burnished**



SPAENAUR No.	HAZET No.	S mm	L_1 mm	L_2 mm	d mm
991-183	8501-3	3	6,5	28	12
991-184	8501-4	4	6,5	28	12
991-185	8501-5	5	6,5	28	12
991-186	8501-6	6	6,5	28	12
991-187	8501-8	8	6,5	28	12

Long Pattern

In connection with reversible ratchet HAZET 863 PC for valve adjustment on 2.01 engines Audi 100 S, LS, GLS, VW LT 28/31/35, Porsche 924 turbo.

991-188	8501 Lg-3	3	12	30	12

Torx Socket

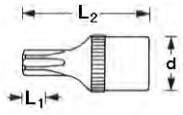
Chrome-Vanadium

1/4"□ drive (DIN 3120)

For inside TORX® screws

CVD-Titannitrit (Tin) Coated Yellow or Chrome-Plated, our option.

Tips **Burnished**



HAZET are licensees for the manufacture of TORX® tools.

SPAENAUR No.	HAZET No.	mm	L_1 mm	L_2 mm	d mm
991-189	8502-T 8	2,31	3,5	28	12
991-190	8502-T 9	2,50	3,5	28	12
991-191	8502-T 10	2,74	3,8	28	12
991-192	8502-T 15	3,27	4,0	28	12
991-193	8502-T 20	3,86	4,0	28	12
991-194	8502-T 25	4,43	4,5	28	12
991-195	8502-T 30	5,52	5,0	28	12

Slotted Socket

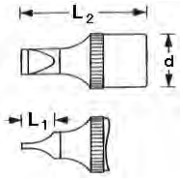
Chrome-Vanadium

1/4"□ drive (DIN 3120)

For slotted screws
Blades according to DIN 5264

CVD-Titannitrit (Tin) Coated Yellow or Chrome-Plated, our option.

Blades **Burnished**



SPAENAUR No.	HAZET No.	mm	mm	L_1 mm	L_2 mm	d mm
991-196	8503-0,6 x 3,5	0,6	3,5	5	28	12
991-197	8503-0,8 x 4	0,8	4,0	5	28	12
991-198	8503-1 x 5,5	1,0	5,5	7,5	28	12
991-199	8503-1,2 x 8	1,2	8,0	8	28	12
991-200	8503-1,6 x 10	1,6	10,0	9	28	12

Phillip Socket

Tips DIN 5260 Phillips-Recess

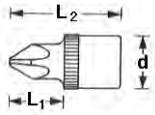
Chrome-Vanadium

1/4"□ drive (DIN 3120)

For Phillips-Recess screws

CVD-Titannitrit (Tin) Coated Yellow or Chrome-Plated, our option.

Tips **Burnished**



SPAENAUR No.	HAZET No.	⇐	Screw Sizes	L_1 mm	L_2 mm	d mm
991-201	8506-PH 1	1	2-4	16	28	12
991-202	8506-PH 2	2	5-10	16	28	12
991-203	8506-PH 3	3	12-16	16	28	12
991-204	8506-PH 4	4	18->	16	28	12

Pozidriv® Socket

For Pozidriv® screws

Pozidriv® is the protected trade mark of the European Industrial Services Ltd.

SPAENAUR No.	HAZET No.	⇐	L_1 mm	L_2 mm	d mm
991-205	8507-PZ 1	1	16	28	12
991-206	8507-PZ 2	2	16	28	12
991-207	8507-PZ 3	3	16	28	12
993-793	8507-PZ 4	4	16	28	12

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Socket Adapter

1/4 inch | 3/8 inch

DIN 3123, ISO 3316

Chrome-Plated Chrome-Vanadium

3/8" ■, 1/4"□,
□ drive nominal size 6.3 = 1/4"
■ drive nominal size 10 = 3/8"

SPAENAUR No.	HAZET No.	inch ■	inch □	**L** mm
991-208	858-1	3/8	1/4	26,5

Reversible Ratchets

DIN 3122, ISO 3315

Chrome-Vanadium
1/4" ■,

With HAZET ergonomic® plastic handle, black (protected by design patent), 20 teeth.

Chrome-Plated Polished

SPAENAUR No.	HAZET No.	**L** mm	**L** inch
991-210	863 P	115	4-1/2

Reversible Ratchets

With hinge joint

Chrome-Vanadium
1/4" ■,

Chrome-Plated Polished

With HAZET ergonomic® plastic handle, black (protected by design patent), 20 teeth.

SPAENAUR No.	HAZET No.	**L** mm	**L** inch
991-212	863 G	135	5

Handle for above Ratchet

SPAENAUR No.
993-938

Hazet No.
863G-01

Flexible Handle

DIN 3122, ISO 3315
Chrome-Vanadium
1/4" ■,

Chrome-Plated

With HAZET ergonomic® plastic handle, black (protected by design patent),

991-215	864	143	5-1/2

Sliding T-Handle

DIN 3122, ISO 3315

Chrome-Plated Polished

Chrome-Vanadium
1/4" ■,

SPAENAUR No.	HAZET No.	**L** mm	**L** inch
991-216	865	115	4-1/2

Spin Type Speeder

DIN 3122, ISO 3315

Chrome-Vanadium
1/4" ■,

Chrome-Plated

With trinamic®-handle, black (protected by design patent)

991-217	866	134	5-1/4

Extensions

1/4 inch

DIN 3123, ISO 3316

Chrome-Vanadium

Chrome-Plated Polished

1/4" ■, 1/4"□ drive,
□ drive nominal size 6.3 = 1/4"
■ drive nominal size 6.3 = 1/4"

SPAENAUR No.	HAZET No.	**L** mm	**L** inch
991-218	867-2	55	2
991-219	867-4	100	4

DIN 3123, ISO 3316

991-220	868	147	6

Universal Joint

Chrome-Plated

DIN 3123, ISO 3316

Chrome-Vanadium
1/4" ■, 1/4"□ drive,

SPAENAUR No.	HAZET No.	**L** mm	**L** inch
991-221	869	36,5	1-1/2

N

CATALOG 13

1/4" Socket Sets

Chrome-Vanadium
with 6 point sockets,
1/4" □ drive,
Chrome-Plated
Polished

***SPAENAUR No.* 991-224**
(HAZET No. 850-1)
14 parts

167 x 97 x 37 mm

All tools snugly embedded in soft PUR foam material in a neat black plastic box. (protected by design patent)

Every HAZET plastic tool box is provided with injected steel hinges which guarantees an unlimited durability.

6 Point Sockets

SPAENAUR No.	Sizes	*SPAENAUR No.*	Sizes	*SPAENAUR No.*	Sizes
991-142	4	**991-146**	6	**991-149**	9
991-143	4,5	**991-147**	7	**991-150**	10
991-144	5	**991-148**	8	**991-151**	11
991-145	5,5				

	SPAENAUR No's.
	991-210
	991-218
	991-220
	991-221

***SPAENAUR No.* 991-226**
(HAZET No. 852 N)

16 parts

187 x 125 x 39 mm

SPAENAUR No.	Sizes	*SPAENAUR No.*	Sizes	*SPAENAUR No.*	Sizes
991-142	4	**991-146**	6	**991-149**	9
991-143	4,5	**991-147**	7	**991-150**	10
991-144	5	**991-148**	8	**991-151**	11
991-145	5,5				

	991-210
	991-216
	991-217
	991-218
	991-220
	991-221

N

1/4 inch

1/4" Socket Sets

Chrome-Vanadium
with 6 point sockets,
1/4" □ drive,
Chrome-Plated
Polished

***SPAENAUR No.* 991-227**
(HAZET No. 852-1)
20 parts

187 x 125 x 39 mm

All tools snugly embedded in soft PUR foam material in a neat black plastic box. (protected by design patent)

Every HAZET plastic tool box is provided with injected steel hinges which guarantees an unlimited durability.

Sockets

SPAENAUR No.	Sizes	*SPAENAUR No.*	Sizes	*SPAENAUR No.*	Sizes
991-142	4	**991-147**	7	**991-151**	11
991-143	4,5	**991-148**	8	**991-152**	12
991-144	5	**991-149**	9	**991-153**	13
991-145	5,5	**991-150**	10	**991-154**	14
991-146	6				

	SPAENAUR No's.
	991-210
	991-215
	991-216
	991-217
	991-218
	991-220
	991-221

1/4 inch

187 x 125 x 39 mm

SPAENAUR No. 991-229

(HAZET No. 854)

-with Screwdriver Bits-

30 parts

6 Point Sockets

SPAENAUR No.	Sizes	*SPAENAUR No.*	Sizes
991-142	4	**991-149**	9
991-144	5	**991-150**	10
991-145	5.5	**991-151**	11
991-146	6	**991-152**	12
991-147	7	**991-153**	13
991-148	8	**991-154**	14

Bits

SPAENAUR No.	Sizes
991-183	3
991-184	4
991-185	5
991-186	6
991-187	8

Bits

SPAENAUR No.	Sizes
991-201	1
991-202	2

Bits

SPAENAUR No.	Sizes
991-205	1
991-206	2

SPAENAUR No's.

	991-210
	991-216
	991-217
	991-218
	991-220
	991-221

Bits

991-196	0,6 x 3,5
991-198	1 x 5,5
991-199	1,2 x 8

187 x 125 x 39 mm

SPAENAUR No. 991-234

(HAZET No. 852 A N)

14 parts

6 Point Sockets

SPAENAUR No.	Sizes	*SPAENAUR No.*	Sizes	*SPAENAUR No.*	Sizes
991-155	3/16	**991-158**	9/32	**991-161**	3/8
991-156	7/32	**991-159**	5/16	**991-162**	7/16
991-157	1/4	**991-160**	11/32		

	991-210
	991-216
	991-217
	991-218
	991-220
	991-221

187 x 125 x 39 mm

SPAENAUR No. 991-235

(HAZET No. 852 A-1)

17 parts

6 Point Sockets

SPAENAUR No.	Sizes	*SPAENAUR No.*	Sizes	*SPAENAUR No.*	Sizes
991-155	3/16	**991-159**	5/16	**991-162**	7/16
991-156	7/32	**991-160**	11/32	**991-163**	1/2
991-157	1/4	**991-161**	3/8	**991-164**	9/16
991-158	9/32				

	991-210
	991-215
	991-216
	991-217
	991-218
	991-220
	991-221

N

6 Point Spark Plug Sockets

3/8 inch

Foreign patents

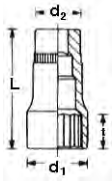
Chrome-Vanadium

3/8" □ drive (DIN 3120)

***SPAENAUR No.* 993-978**
Replacement Magnet for 991-372
***SPAENAUR No.* 993-977**
Replacement Magnet for 991-373

Chrome-Plated
Polished

Long pattern, with permanent magnet and guide bushing
Centres all plugs automatically.



SPAENAUR No.	HAZET No.	s mm	s inch	L mm	d_1 mm	d_2 mm	t mm
991-372	880 Mg T	20,8	13/16	64	27,4	22,5	9,0
991-373	880 A Mg T	16,0	5/8	64	21,6	21,7	9,0

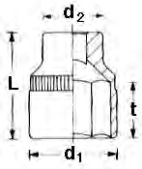
CATALOG 13

6 Point Sockets

3/8 inch

DIN 3124, ISO 2725
Chrome-Vanadium
3/8" ☐ drive,

Chrome-Plated Polished



SPAENAUR No.	HAZET No.	⬡ mm	L mm	d_1 mm	d_2 mm	t mm
991-236	880-6*	6	24,0	10,0	17,0	6,2
991-237	880-7	7	24,0	10,5	17,0	6,2
991-238	880-8	8	24,0	11,8	17,0	6,2
991-239	880-9	9	24,0	13,0	17,0	6,2
991-240	880-10	10	25,0	14,4	17,0	7,2
991-241	880-11	11	26,0	15,8	17,5	8,2
991-242	880-12	12	27,0	17,0	18,5	9,2
991-243	880-13*	13	27,5	18,7	17,0	9,7
991-244	880-14*	14	29,5	19,8	17,5	11,7
991-245	880-15*	15	29,5	21,1	18,0	11,7
991-246	880-16	16	29,5	22,1	18,0	11,7
991-247	880-17	17	29,5	23,3	18,5	11,7
991-248	880-18*	18	31,5	24,8	19,0	13,5
991-249	880-19	19	31,5	25,8	19,5	13,5
991-250	880-20	20	31,5	26,8	21,0	13,5
991-251	880-21	21	31,5	28,3	22,5	13,0
991-252	880-22*	22	33,8	30,3	23,5	16,0

*not according to DIN

Width Across Flats according to ISO 691

Inch Sizes

991-253	880A-1/4	1/4	24,0	10,0	17,0	6,2
991-254	880A-5/16	5/16	24,0	11,8	17,0	6,2
991-255	880A-3/8	3/8	25,0	13,8	17,0	7,2
991-256	880A-7/16	7/16	26,0	15,8	17,5	8,2
991-257	880A-1/2	1/2	27,5	18,7	17,0	9,7
991-258	880A-9/16	9/16	29,5	20,1	17,5	11,7
991-259	880A-5/8	5/8	29,5	22,1	18,0	11,7
991-260	880A-11/16	11/16	29,5	23,8	18,5	11,7
991-261	880A-3/4	3/4	31,5	25,8	19,5	13,5

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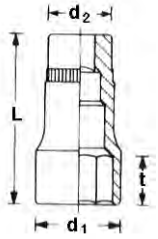
6 Point Sockets

DIN 3124, ISO 2725
Chrome-Vanadium
3/8" ☐ drive,

Chrome-Plated Polished

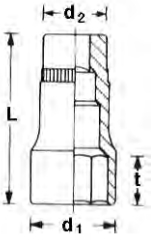


Long Pattern

SPAENAUR No.	HAZET No.	⬡ mm	L mm	d_1 mm	d_2 mm	t mm
991-262	880 Lg-9*	9	54	13,0	17,0	10,0
991-263	880 Lg-10*	10	54	14,4	17,0	10,0
991-264	880 Lg-11*	11	54	15,8	17,2	11,0
991-265	880 Lg-12*	12	54	17,0	18,5	11,0
991-266	880 Lg-13*	13	54	18,4	18,5	12,0
991-267	880 Lg-14*	14	54	19,5	19,5	15,0
991-268	880 Lg-15*	15	60	20,8	19,5	15,0
991-269	880 Lg-16*	16	60	21,8	18,5	16,0
991-270	880 Lg-17*	17	60	23,0	18,5	16,0
991-271	880 Lg-18*	18	66	24,4	20,0	20,0
991-272	880 Lg-19*	19	66	25,5	20,0	20,0
991-273	880 Lg-20	20	70	26,6	21,0	22,0
991-274	880 Lg-20,8+	20,8	70	27,4	21,0	16,5
991-275	880 Lg-21	21	70	28,0	22,0	22,0
991-276	880 Lg-22	22	70	29,6	21,0	22,0

* not according to DIN
+ with rubber insert for spark plugs

Inch Sizes



991-277	880A Lg-3/8	3/8	54	13,8	17,0	10,0
991-278	880A Lg-7/16	7/16	54	15,8	17,2	11,0
991-279	880A Lg-1/2	1/2	54	18,0	18,5	12,0
991-280	880A Lg-9/16	9/16	60	19,8	19,5	15,0
991-281	880A Lg-19/32	19/32	60	20,8	19,5	15,0
991-282	880A Lg-5/8	5/8	60	21,8	18,5	16,0
991-283	880A Lg-11/16	11/16	66	23,5	19,0	20,0
991-284	880A Lg-3/4	3/4	66	25,5	19,0	20,0
991-285	880A Lg-13/16+	13/16	70	27,4	21,0	16,5
991-286	880A Lg-7/8	7/8	70	29,6	22,0	22,0

+ with rubber insert for spark plugs

N

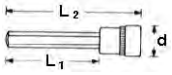
Hex Socket

Sockets Chrome-Vanadium
Blades Special High Tensile Steel

3/8" □ drive (DIN 3120)

For hex socket head screws

Chrome-Plated
Blades **Steel Grey**



3/8 inch

SPAENAUR No.	HAZET No.	s mm	L_1 mm	L_2 mm	d mm	Replacement Bit *SPAENAUR No.*	Replacement Bit HAZET No.
991-378	8801-3+	3	23,5	50	17,0	**993-256**	8801-03
991-379	8801-4+	4	28,5	55	17,0	**993-257**	8801-04
991-380	8801-5+	5	33,5	60	17,0	**993-258**	8801-05
991-381	8801-6	6	38,5	65	17,0	**993-259**	8801-06
991-382	8801-7+	7	43,5	70	19,0	**993-260**	8801-07
991-383	8801-8	8	48,5	75	19,0	**993-261**	8801-08
991-384	8801-9+	9	52,5	80	19,0	**993-262**	8801-09
991-385	8801-10	10	57,5	85	19,0	**993-263**	8801-010
991-386	8801-12	12	62,5	90	19,0	**993-264**	8801-012
		Inch Sizes					
991-387	8801 A-1/8+	1/8	23,5	50	17,0	**993-265**	8801 A-01/8
991-388	8801 A-5/32+	5/32	28,5	55	17,0	**993-266**	8801 A-05/32
991-389	8801 A-3/16+	3/16	33,5	60	17,0	—	—
991-390	8801 A-7/32+	7/32	38,5	65	17,0	**993-268**	8801 A-07/32
991-391	8801 A-1/4+	1/4	43,5	70	19,0	**993-269**	8801 A-01/4
991-392	8801 A-5/16	5/16	48,5	75	19,0	**993-270**	8801 A-05/16
991-393	8801 A-3/8+	3/8	52,5	80	19,0	**993-271**	8801 A-03/8

+ with offset blade

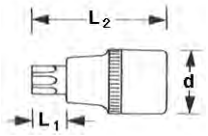
TORX® Socket

Sockets Chrome-Vanadium
Blades Special High Tensile Steel

3/8" □ drive,

For inside TORX® screws

Chrome-Plated
Blades **Steel Grey**



SPAENAUR No.	HAZET No.	mm	L_1 mm	L_2 mm	d mm	Replacement Bit *SPAENAUR No.*	Replacement Bit HAZET No.
991-394	8802-T15	3,27	17	43,5	19	**993-272**	8802-T015
991-395	8802-T20	3,86	17	43,5	19	**993-273**	8802-T020
991-396	8802-T25	4,43	17	43,5	19	**993-274**	8802-T025
991-397	8802-T27	4,99	17	43,5	19	**993-275**	8802-T027
991-398	8802-T30	5,52	17	43,5	19	**993-276**	8802-T030
991-399	8802-T40	6,65	17	43,5	19	**993-277**	102070
991-400	8802-T45	7,82	17	43,5	19	**993-278**	8802-T045
991-401	8802-T50	8,83	17	44,5	19	**993-279**	8802-T050

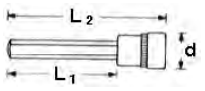
Slotted Socket

Sockets Chrome-Vanadium
Blades Special High Tensile Steel

3/8" □ drive (DIN 3120)

For Slotted screws

Chrome-Plated
Blades **Steel Grey**



SPAENAUR No.	HAZET No.	mm	mm	L_1 mm	L_2 mm	d mm	Replacement Bit *SPAENAUR No.*	Replacement Bit HAZET No.
993-794	8803-0,8 x 4	0,8	4,0	48,5	75	17,0	**993-280**	8803-00,8 x 4
991-402	8803-1 x 5,5	1,0	5,5	48,5	75	17,0	**993-281**	8803-01 x 5,5
991-403	8803-1,2 x 8	1,2	8,0	53,5	80	19,0	**993-282**	8803-01.2 x 8
991-404	8803-1,6 x 10	1,6	10,0	62,5	90	19,0	**993-283**	8803-01.6 x10

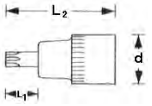
Phillips Socket

Sockets Chrome-Vanadium
Blades Special High Tensile Steel

3/8" ☐ drive (DIN 3120)

For Phillips Recess screws
Tips DIN 5260 Phillips Recess

Chrome-Plated
Blades **Steel Grey**



3/8 inch

SPAENAUR No.	HAZET No.	⇐	Screw Size	L_1 mm	L_2 mm	d mm	Replacement Bits *SPAENAUR No.*	Replacement Bits HAZET No.
991-405	8806-PH 1	1	2-4	23,5	50	17,0	**993-284**	8806-PH01
991-406	8806-PH 2	2	5-10	23,5	50	17,0	**993-285**	8806-PH02
991-407	8806-PH 3	3	12-16	28,5	55	19,0	**993-286**	8806-PH03
991-408	8806-PH 4	4	18->	32,5	60	19,0	**993-287**	8806-PH04

Pozidriv® Socket

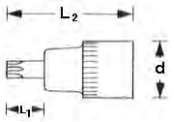
Sockets Chrome-Vanadium
Blades Special High Tensile Steel

3/8" ☐ drive (DIN 3120)

For Pozidriv® screws

Chrome-Plated
Blades **Steel Grey**

Pozidriv® is the protected trade mark of the European Industrial Services Ltd.



SPAENAUR No.	HAZET No.	⇐	L_1 mm	L_2 mm	d mm	Replacement Bits *SPAENAUR No.*	Replacement Bits HAZET No.
991-409	8807-PZ 1	1	17,5	44	19	**993-288**	8807-PZ01
991-410	8807-PZ 2	2	17,5	44	19	**993-289**	8807-PZ02
991-411	8807-PZ 3	3	17,5	44	19	—	—
991-412	8807-PZ 4	4	17,5	44	19	**993-291**	8807-PZ04

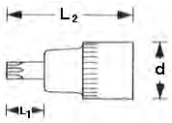
XZN Socket

Sockets Chrome-Vanadium
Blades Special High Tensile Steel

3/8" ☐ drive (DIN 3120)

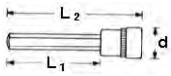
For XZN Screws

Chrome-Plated
Blades **Steel Grey**



SPAENAUR No.	HAZET No.	M	L_1 mm	L_2 mm	d mm	Replacement Bits *SPAENAUR No.*	Replacement Bits HAZET No.
991-413	8808-5	5	13,5	40	19	**993-292**	8808-05
991-414	8808-6	6	13,5	40	19	**993-293**	8808-06
991-415	8808-8	8	14,5	41	19	**993-294**	8808-08
991-416	8808-10	10	14,5	42	19	**993-295**	8808-010

Long Pattern



991-417	8808 Lg-8	8	61,5	88	19	**993-296**	8808 Lg-08
991-418	8808 Lg-10	10	61,5	89	19	**993-297**	8808 Lg-010

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Speeder

3/8 inch

DIN 3122, ISO 3315
Chrome-Vanadium
3/8" ■ drive,
with HAZET-ergonomic® plastic handle, black (protected by design patent)

Chrome-Plated

SPAENAUR No.	HAZET No.	L mm	L Inch
991-419	8811	420	16-1/2

Flexible Handle - Power Bar

DIN 3122, ISO 3315
Chrome-Vanadium
3/8" ■ drive,
with HAZET-ergonomic® plastic handle, black (protected by design patent)

Chrome-Plated Polished

SPAENAUR No.	HAZET No.	L mm	L Inch
991-421	8814	250	10

Fine-Tooth Reversible Ratchet

DIN 3122, ISO 3315
Chrome-Vanadium
3/8" ■ drive,
with 72 teeth, with HAZET-ergonomic® plastic handle, black (protected by design patent)

Chrome-Plated

SPAENAUR No.	HAZET No.	L mm	L Inch
991-423	8816 F	200	8

Reversible Ratchet

Chrome-Vanadium
3/8" ■ drive (DIN 3120),
with 30 teeth, with HAZET-ergonomic® plastic handle, black (protected by design patent),

Chrome-Plated Polished

with hinge joint, straight.

991-424	8816 G	276	11

Reversible Ratchet

Din 3122, ISO 3315
Chrome-Vanadium
3/8" ■ drive,
with 30 teeth,
with HAZET -ergonomic® plastic handle, black (protected by design patent)

Chrome-Plated Polished

991-428	8816 P	200	8

Socket Adapters

DIN 3123, ISO 3316
Chrome-Vanadium
3/8" □ drive
Chrome-Plated

991-439

991-440

SPAENAUR No.	HAZET No.	L mm	■ "	□
991-439	8858-1	36	1/2	3/8
991-440	8858-2	26	1/4	3/8

Universal Joint

DIN 3123, ISO 3316
Chrome-Vanadium
3/8" ■, 3/8" □

Chrome-Plated

SPAENAUR No.	HAZET No.	L mm	L inch
991-429	8820	46,5	2

Spare Parts for 991-429 Universal Joint	*SPAENAUR No.*	Part
	993-808	Male Driver
	993-809	Spring

Sliding T-Handle

DIN 3122, ISO 3315
Chrome-Vanadium
3/8" ■ drive

Chrome-Plated Polished

SPAENAUR No.	HAZET No.	L mm	L Inch
991-422	8815	200	8

Extensions

DIN 3123, ISO 3316
Chrome-Vanadium
3/8" ■, 3/8" □ drive

Chrome-Plated Polished

991-430	8821-3	75	3
991-431	8821-5	127	5
991-432	8821-6*	151	6
991-433	8821-8*	203	8
991-434	8821-10	254	10
991-435	8821-12*	305	12
991-436	8821-20*	508	20
991-437	8821-28*	711	28

*not according to DIN

Flexible Extension

Chrome-Vanadium
3/8" ■, 3/8" □ drive (DIN 3120)

Chrome-Plated Polished
Shaft **Burnished**

991-438	8830	210	8

N

CATALOG 13

3/8 inch

344 x 188 x 56 mm

3/8" Socket Sets

Chrome-Vanadium

3/8" □ drive,

Chrome-Plated
Polished

***SPAENAUR No.* 991-445**

(HAZET No. 885 N)

32 Parts

All tools snugly embedded in soft PUR foam material in a shock resistant black plastic box, with 6 point sockets.
-With screwdriver sockets-

Every HAZET plastic tool box is provided with injected steel hinges which guarantees an unlimited durability.

6 Point Sockets

SPAENAUR No.	Size	*SPAENAUR No.*	Size	*SPAENAUR No.*	Size
991-236	6	**991-242**	12	**991-247**	17
991-237	7	**991-243**	13	**991-248**	18
991-238	8	**991-244**	14	**991-249**	19
991-239	9	**991-245**	15	**991-251**	21
991-240	10	**991-246**	16	**991-252**	22
991-241	11				

Bits

SPAENAUR No.	Size
991-379	4
991-380	5
991-381	6
991-383	8

Bits

SPAENAUR No.	Size
991-402	1 x 5,5
991-403	1,2 x 8
991-404	1,6 x 10

Bits

SPAENAUR No.	Size
991-405	1
991-406	2
991-407	3

	SPAENAUR No's.
	991-422
	991-428
	991-429
	991-430
	991-431
	991-434

***SPAENAUR No.* 991-454**

(HAZET No. 881 Z)

with 12 point sockets

25 parts

435 x 215 x 59 mm

6 & 12 Point Sockets

SPAENAUR No.	Size	*SPAENAUR No.*	Size	*SPAENAUR No.*	Size
991-236	*6	**991-290**	12	**991-296**	18
991-237	*7	**991-291**	13	**991-297**	19
991-238	*8	**991-292**	14	**991-298**	20
991-287	9	**991-293**	15	**991-299**	21
991-288	10	**991-294**	16	**991-300**	22
991-289	11	**991-295**	17		

*6, 7 and 8 = 6 point

	SPAENAUR No's.
	991-419
	991-421
	991-422
	991-428
	991-429
	991-430
	991-432
	991-435

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3/8 inch

578 x 235 x 88 mm

3/8" Socket Sets

Chrome-Vanadium
3/8" □ drive,
Chrome-Plated
Polished

SPAENAUR No. 991-457

(HAZET No. 888 Z N)
58 parts

In HAZET coloured sheet metal boxes,
with 6 and 12 point sockets
-with screwdriver sockets-

	SPAENAUR No's.
	991-419
	991-420
	991-421
	991-422
	991-428
	991-429
	991-430
	991-432
	991-433
	991-435
	991-438
	991-440

6 Point Sockets

SPAENAUR No.	Size	*SPAENAUR No.*	Size	*SPAENAUR No.*	Size
991-236	6	**991-237**	7	**991-238**	8

12 Point Sockets

	991-287	9	**991-292**	14	**991-297**	19
	991-288	10	**991-293**	15	**991-298**	20
	991-289	11	**991-294**	16	**991-299**	21
	991-290	12	**991-295**	17	**991-300**	22
	991-291	13	**991-296**	18		
12 Point Deep Sockets	**991-313**	9	**991-318**	14	**991-323**	19
	991-314	10	**991-319**	15	**991-324**	20
	991-315	11	**991-320**	16	**991-326**	21
	991-316	12	**991-321**	17	**991-327**	22
	991-317	13	**991-322**	18		

Bits

SPAENAUR No.	Size	*SPAENAUR No.*	Size
991-378	3	**991-383**	8
991-379	4	**991-384**	9
991-380	5	**991-385**	10
991-381	6	**991-386**	12
991-382	7		

Bits

SPAENAUR No.	Size
991-402	1 x 5,5
991-403	1,2 x 8
991-404	1,6 x 8

Bits

SPAENAUR No.	Size
991-406	2
991-407	3
991-408	4

N

SPAENAUR No. 991-458

(HAZET No. 888 AZ N)
Inch Sizes

Spare moulds for the subsequent completion of the set

49 parts

	991-419
	991-420
	991-421
	991-422
	991-428
	991-429
	991-430
	991-432
	991-433
	991-435
	991-438
	991-440

6 Point Sockets

SPAENAUR No.	Size	*SPAENAUR No.*	Size	*SPAENAUR No.*	Size
991-253	1/4	**991-254**	5/16		

6 Point Deep Sockets

991-277	3/8	**991-278**	7/16	**991-279**	1/2
991-280	9/16	**991-281**	19/32	**991-282**	5/8
991-283	11/16	**991-284**	3/4	**991-286**	7/8
991-285*	13/16	*with rubber insert for spark plugs			

12 Point Sockets

991-301	3/8	**991-305**	19/32	**991-309**	25/32
991-302	7/16	**991-306**	5/8	**991-310**	13/16
991-303	1/2	**991-307**	11/16	**991-311**	7/8
991-304	9/16	**991-308**	3/4	**991-312**	15/16

Bits

SPAENAUR No.	Size	*SPAENAUR No.*	Size
991-387	1/8	**991-391**	1/4
991-388	5/32	**991-392**	5/16
991-389	3/16	**991-393**	3/8
991-390	7/32		

Bits

SPAENAUR No.	Size
991-402	1 x 5,5
991-403	1,2 x 8
991-404	1,6 x 10

Bits

SPAENAUR No.	Size
991-406	2
991-407	3
991-408	4

6 Point Sockets

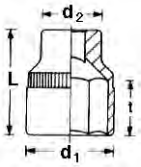
1/2 inch

DIN 3124, ISO 2725

Chrome-Vanadium

1/2" □ drive,

Chrome-Plated Polished



SPAENAUR No.	HAZET No.	⬡ mm	L mm	d_1 mm	d_2 mm	t mm
991-465	900-8*	8	38,0	12,0	22,0	7,5
991-466	900-9*	9	38,0	13,5	22,0	8,5
991-467	900-10	10	38,0	14,9	22,0	10,5
991-468	900-11	11	38,0	16,4	22,0	10,5
991-469	900-12	12	38,0	17,5	22,0	11,0
991-470	900-13	13	38,0	18,8	22,0	11,0
991-471	900-14	14	38,0	20,3	22,0	11,5
991-472	900-15	15	38,0	21,5	23,0	11,5
991-473	900-16	16	38,0	22,7	23,6	12,5
991-474	900-17*	17	38,0	24,6	22,0	12,5
991-475	900-18	18	38,0	25,4	22,4	14,0
991-476	900-19*	19	38,0	26,7	23,0	14,0
991-477	900-20	20	38,0	27,8	24,0	14,0
991-478	900-21	21	38,0	29,0	25,0	14,0
991-479	900-22	22	41,5	30,4	26,0	17,5
991-480	900-23	23	41,5	31,4	26,0	17,5
991-481	900-24	24	44,0	32,6	26,0	20,0
991-482	900-25	25	44,0	33,9	26,0	20,0
991-483	900-26	26	44,0	35,1	24,0	20,0
991-484	900-27	27	46,0	36,2	25,0	21,0
991-485	900-28	28	47,0	37,5	26,0	22,0
991-486	900-29*	29	50,0	38,7	27,0	25,0
991-487	900-30	30	50,0	40,1	28,0	25,0
991-488	900-32	32	50,0	42,3	28,0	24,0

* not according to DIN

Width Across Flats according to ISO 691

Inch Sizes

991-489	900 A-3/8	3/8	38,0	14,5	22,0	10,5
991-490	900 A-7/16	7/16	38,0	16,4	22,0	10,5
991-491	900 A-1/2	1/2	38,0	18,3	22,0	11,0
991-492	900 A-9/16	9/16	38,0	20,5	23,2	11,5
991-493	900 A-5/8	5/8	38,0	22,7	23,6	12,5
991-494	900 A-11/16	11/16	38,0	24,6	22,0	12,5
991-495	900 A-3/4	3/4	38,0	26,8	23,0	14,0
991-496	900 A-13/16	13/16	38,0	28,6	25,0	14,0
991-497	900 A-7/8	7/8	41,5	30,4	26,0	17,5
991-498	900 A-15/16	15/16	44,0	32,6	26,0	20,0
991-499	900 A-1	1	44,0	34,6	24,5	20,0
991-500	900 A-1-1/16	1-1/16	46,0	36,3	25,0	21,0
991-501	900 A-1-1/8	1-1/8	47,0	38,2	26,5	22,0
991-502	900 A-1-3/16	1-3/16	50,0	40,0	28,0	25,0
991-503	900 A-1-1/4	1-1/4	50,0	42,3	28,0	25,0

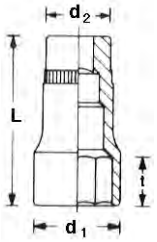
6 Point Sockets

DIN 3124, Deep Sockets

Chrome-Vanadium

1/2" □ drive,

Chrome-Plated Polished



SPAENAUR No.	HAZET No.	⬡ mm	L mm	d_1 mm	d_2 mm	t mm
991-504	900 Lg-12*	12	82	17,5	22,0	11
991-505	900 Lg-13	13	82	18,8	22,0	12
991-506	900 Lg-14	14	82	19,9	22,5	15
991-507	900 Lg-15	15	82	21,5	23,2	15
991-508	900 Lg-16	16	82	22,7	23,6	15
991-509	900 Lg-17	17	82	24,1	23,6	15
991-510	900 Lg-18*	18	82	24,6	23,6	15
991-511	900 Lg-19*	19	82	26,8	26,0	18
991-512	900 Lg-20,8+	20,8	82	28,5	24,5	18
991-513	900 Lg-21	21	82	28,6	24,5	18
991-514	900 Lg-22	22	82	30,4	25,0	21
991-515	900 Lg-24	24	82	32,6	27,5	24
991-516	900 Lg-26	26	82	35,1	29,5	24
991-517	900 Lg-27	27	82	36,3	30,0	27
991-518	900 Lg-30	30	82	40,1	33,0	30

* not according to DIN

\+ with rubber appliance for spark plugs

Width Across Flats according to ISO 691

Inch Sizes

991-519	900 A Lg-1/2	1/2	82	18,3	22,0	12
991-520	900 A Lg-9/16	9/16	82	20,5	22,5	15
991-521	900 A Lg-5/8	5/8	82	22,7	23,6	15
991-522	900 A Lg-11/16	11/16	82	24,6	23,6	15
991-523	900 A Lg-3/4	3/4	82	26,8	26,0	18
991-524	900 A Lg-13/16+	13/16	82	28,5	24,5	18
991-525	900 A Lg-7/8	7/8	82	30,4	25,0	21
991-526	900 A Lg-15/16	15/16	82	32,6	27,5	24
991-527	900 A Lg-1	1	82	34,6	29,5	24

\+ with rubber insert for spark plugs

N

12 Point Sockets

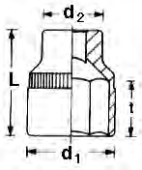
1/2 inch

DIN 3124, ISO 2725

Chrome-Vanadium

1/2" ☐ drive,

Chrome-Plated Polished



SPAENAUR No.	HAZET No.	mm	L mm	d_1 mm	d_2 mm	t mm
991-528	900 Z-8*	8	38,0	12,0	22,0	7,5
991-529	900 Z-9*	9	38,0	13,5	22,0	8,5
991-530	900 Z-10	10	38,0	14,9	22,0	10,5
991-531	900 Z-11	11	38,0	16,4	22,0	10,5
991-532	900 Z-12	12	38,0	17,5	22,0	11,0
991-533	900 Z-13	13	38,0	18,8	22,0	11,0
991-534	900 Z-14	14	38,0	20,3	22,5	11,5
991-535	900 Z-15	15	38,0	21,5	23,2	11,5
991-536	900 Z-16	16	38,0	22,7	23,6	12,5
991-537	900 Z-17*	17	38,0	24,6	22,0	12,5
991-538	900 Z-18	18	38,0	25,4	22,4	14,0
991-539	900 Z-19*	19	38,0	26,7	23,0	14,0
991-540	900 Z-20	20	38,0	27,8	24,0	14,0
991-541	900 Z-21	21	38,0	29,0	25,0	14,0
991-542	900 Z-22	22	41,5	30,4	26,0	17,5
991-543	900 Z-23	23	41,5	31,4	26,0	17,5
991-544	900 Z-24	24	44,0	32,6	26,0	20,0
991-545	900 Z-25	25	44,0	33,9	24,8	20,0
991-546	900 Z-26	26	44,0	35,1	24,0	20,0
991-547	900 Z-27	27	46,0	36,2	25,0	21,0
991-548	900 Z-28	28	47,0	37,5	26,0	22,0
991-549	900 Z-29*	29	50,0	38,7	27,0	25,0
991-550	900 Z-30	30	50,0	40,1	28,0	25,0
991-551	900 Z-32	32	50,0	42,3	28,0	24,0
991-552	900 Z-33*	33	50,0	43,6	28,0	24,0

* not according to DIN

Width Across Flats according to ISO 691

Inch Sizes

991-553	900 AZ-3/8	3/8	38,0	14,5	22,0	10,5
991-554	900 AZ-7/16	7/16	38,0	16,4	22,0	10,5
991-555	900 AZ-1/2	1/2	38,0	18,3	22,0	11,0
991-556	900 AZ-9/16	9/16	38,0	20,5	22,5	11,5
991-557	900 AZ-19/32	19/32	38,0	21,5	23,2	11,5
991-558	900 AZ-5/8	5/8	38,0	22,7	23,6	12,5
991-559	900 AZ-11/16	11/16	38,0	24,6	22,0	12,5
991-560	900 AZ-3/4	3/4	38,0	26,8	23,0	14,0
991-561	900 AZ-25/32	25/32	38,0	27,8	24,0	14,0
991-562	900 AZ-13/16	13/16	38,0	28,6	25,0	14,0
991-563	900 AZ-7/8	7/8	41,5	30,4	26,0	17,5
991-564	900 AZ-15/16	15/16	44,0	32,6	26,0	20,0
991-565	900 AZ-31/32	31/32	44,0	33,4	24,6	20,0
991-566	900 AZ-1	1	44,0	34,6	24,8	20,0
991-567	900 AZ-1-1/16	1-1/16	46,0	36,3	25,0	21,0
991-568	900 AZ-1-1/8	1-1/8	47,0	38,2	26,5	22,0
991-569	900 AZ 1-3/16	1-3/16	50,0	40,1	28,0	25,0
991-570	900 AZ-1-1/4	1-1/4	50,0	42,3	28,0	24,0

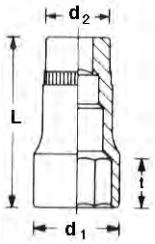
12 Point Sockets

DIN 3124,

Chrome-Vanadium

1/2" ☐ drive,

Chrome-Plated Polished



Deep Sockets

SPAENAUR No.	HAZET No.	mm	L mm	d_1 mm	d_2 mm	t mm
991-571	900 TZ-12*	12	82	17,5	22,0	11
991-572	900 TZ-13	13	82	18,8	22,0	12
991-573	900 TZ-14	14	82	19,9	22,5	15
991-574	900 TZ-15	15	82	21,5	23,2	15
991-575	900 TZ-16	16	82	22,7	23,6	15
991-576	900 TZ-17	17	82	24,1	23,6	15
991-577	900 TZ-18*	18	82	24,6	23,6	15
991-578	900 TZ-19*	19	82	26,8	26,0	18
991-579	900 TZ-20,8+	20,8	82	28,5	24,5	18
991-580	900 TZ-21	21	82	28,6	24,5	18
991-581	900 TZ-22	22	82	30,4	25,0	21
991-582	900 TZ-24	24	82	32,6	27,5	24
991-583	900 TZ-26	26	82	35,1	29,5	24
991-584	900 TZ-27	27	82	36,3	30,0	27
991-585	900 TZ-30	30	82	40,1	33,0	30

*not according to DIN

+with rubber insert for spark plugs

Width Across Flats according to ISO 691

Inch Sizes

991-586	900 TAZ-1/2	1/2	82	18,3	22,0	12
991-587	900 TAZ-9/16	9/16	82	20,5	22,5	15
991-588	900 TAZ-5/8	5/8	82	22,7	23,6	15
991-589	900 TAZ-11/16	11/16	82	24,6	23,6	15
991-590	900 TAZ-3/4	3/4	82	26,8	26,0	18
991-591	900 TAZ-13/16+	13/16	82	28,5	24,5	18
991-592	900 TAZ-7/8	7/8	82	30,4	25,0	21
991-593	900 TAZ-15/16	15/16	82	32,6	27,5	24
991-594	900 TAZ-1	1	82	34,6	29,5	24

+with rubber insert for spark plugs

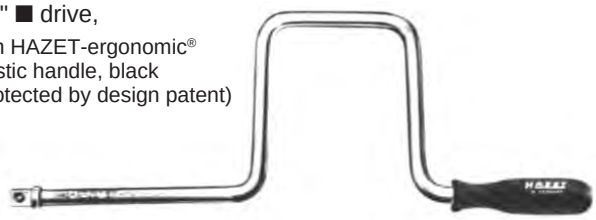
N

Speeder

1/2 inch

DIN 3122, ISO 3315
Chrome-Vanadium
1/2" ■ drive,
with HAZET-ergonomic® plastic handle, black (protected by design patent)

Chrome-Plated



SPAENAUR No.	HAZET No.	**L** mm	**L** inch
991-624	911	415	16-1/2

Flexible Handles

DIN 3122, ISO 3315
Chrome-Vanadium
1/2" ■ drive,
with HAZET-ergonomic® plastic handle, black (protected by design patent)

Chrome-Plated

991-625	914-15	396	15-1/2
991-626	914-18*	472	18-3/4

* not according to DIN

Sliding T-Handle

DIN 3122, ISO 3315
Chrome-Vanadium
1/2" ■ drive

Chrome-Plated Polished

SPAENAUR No.	HAZET No.	**L** mm	**L** inch
991-627	915	300	12

Fine-Tooth Reversible Ratchet

Chrome-Vanadium
1/2" ■ drive,
with HAZET-ergonomic® plastic handle, black (protected by design patent)

Chrome-Plated
72 teeth

991-630	916 F	260	10-1/4

Reversible Ratchets with hinge joint

Chrome-Vanadium
1/2"■ drive (DIN 3120),
Polished

with HAZET-ergonomic® plastic handle, black (protected by design patent)
32 teeth

Chrome-Plated

Replacement
Short Handle for 991-632
SPAENAUR No. 993-940
(Hazet No. 916GK-01)

		Short Pattern	
991-632	916 GK	270	10-1/2

Spaenaur offers the complete Hazet product line. If you are interested in an item not shown in our catalog, please contact a Spaenaur Sales Representative at 1-800-265-8772.

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"Komposit" Reversible Ratchet

DBP, DBGM and EP
DIN 3122, ISO 3315

1/2" ■ drive

Shock resistant body, black, cover plates made of chrome-plated steel, ergonomic design (protected by design patent).

Easy-running ratchet wheel, 32 teeth, by means of long leaf springs, easily interchangeable parts because of composite construction, with reversing knob at the handle.

SPAENAUR No.	HAZET No.	L mm	L inch
991-633	916 N	275	10-3/4

Reversible Ratchet

DIN 3122, ISO 3315
Chrome-Vanadium
1/2" ■ drive,
with HAZET-ergonomic® plastic handle, black (protected by design patent)

Chrome-Plated Polished
32 teeth

991-634	916 SP	275	10-3/4

Replacement Plastic Handle for 991-630 and 991-634

SPAENAUR No. **993-310**
(HAZET No. 916 KG-02)

Socket Adapters

DIN 3123, ISO 3316
Chrome-Vanadium
1/2" □ drive

Chrome-Plated

991-640

991-641

SPAENAUR No.	HAZET No.	L mm	■ inch	□ inch
991-640	958-1	50	3/4	1/2
991-641	958-2	36	3/8	1/2

Extensions

1/2 inch

DIN 3123, ISO 3316
Chrome-Vanadium
1/2" ■, 1/2" □ drive

Chrome-Plated Polished

SPAENAUR No.	HAZET No.	L mm	L inch
991-635	917-3	76	3
991-636	917-5	125	5

Long Pattern

991-637	918-10	248	9-3/4
991-638	918-23	575	22-1/2

Universal Joint

DIN 3123, ISO 3316
Chrome-Vanadium
1/2" ■, 1/2" □ drive

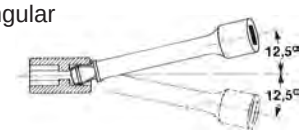
Chrome-Plated

991-639	920	70	2-3/4

Wobble Extension

With ball shaped, conical outside square drive - allows 12.5° angular movement to every side.

For working on fasteners in constricted areas.



993-802	919-5	125	4-7/8
993-803	919-10	250	9-1/2

Wobble Extension (5 Part Set)

Chrome-Vanadium
Polished

Chrome-Plated

With ball shaped, conical outside square drive - allows 8° resp. 12.5° angular movement to every side.

SPAENAUR No.
993-852
(Hazet No. 919/5)

Set includes:

SPAENAUR No.	Hazet No.	■ □ drive, nominal size	length mm	angular movement
993-831	871-4	6.3 = 1/4"	100	8°
993-833	8822-3	10 = 3/8"	75	8°
993-834	8822-10	10 = 3/8"	245	8°
993-802	919-5	12.5 = 1/2"	125	12.5°
993-803	919-10	12.5 = 1/2"	250	12.5°

Spark Plug Socket with Universal Joint

1/2 inch

Chrome-Vanadium
1/2" ☐ drive (DIN 3120),
With hinge joint,
with rubber appliance.

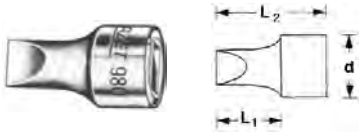
Chrome-Plated

SPAENAUR No.	HAZET No.	**s** mm	**L** mm
991-642	962	20,8 (13/16")	100

Drag Link Sockets

Chrome-Plated

Chrome-Vanadium
1/2" ☐ drive (DIN 3120),
For slotted screws.

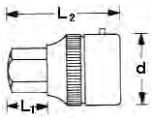


SPAENAUR No.	HAZET No.	mm	mm	L_1 mm	L_2 mm	d mm
991-643	980-2 x 13	2	13	19,5	38	22,0
991-644	980-3 x 19	3	19	20,0	38	23,7
991-645	980-4 x 24	4	24	19,5	38	23,7

Hex Head Sockets

Chrome-Plated
Tips **Burnished**

1/2"☐ drive (DIN 3120),
For hex socket head screws.

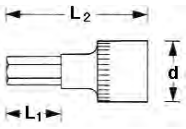


SPAENAUR No.	HAZET No.	**s** mm	L_1 mm	L_2 mm	**d** mm
991-646	985-4	4	5	38	22
991-647	985-5	5	5	38	23
991-648	985-6	6	6	38	23
991-649	985-8	8	8	38	23
991-650	985-10	10	10	40	25
991-651	985-12	12	12	40	25
991-652	985-14	14	14	40	25
991-653	985-17	17	17	42	28
991-654	985-19	19	19	42	28

Hex Head Sockets

DIN 7422
Sockets Chrome-Vanadium,
Blades Special High Tensile Steel
1/2"☐ drive (DIN 3120),
For hex socket head screws.

Chrome-Plated
Blades **Steel Grey**



SPAENAUR No.	HAZET No.	**s** mm	L_1 mm	L_2 mm	**d** mm	**Replacement Bit** ***SPAENAUR No.***	Hazet No.
991-656	986-4	4	22	60	23	**993-316**	986-04
991-657	986-5	5	22	60	23	**993-317**	986-05
991-658	986-6	6	22	60	23	**993-318**	986-06
991-659	986-7	7	22	60	23	**993-319**	986-07
991-660	986-8	8	22	60	23	**993-320**	986-08
991-661	986-10	10	22	60	23	**993-321**	986-010
991-662	986-12	12	22	60	23	**993-322**	986-012
991-663	986-14	14	22	60	23	**993-323**	986-014

sizes 8, 10 and 14 = E DIN 7422

Inch Sizes

991-664	986 A-5/32	5/32	14	52	23	**993-324**	986A-05/32
991-665	986 A-3/16	3/16	14	52	23	**993-325**	986A-03/16
991-666	986 A-7/32	7/32	14	52	23	—	—
991-667	986 A-1/4	1/4	14	52	23	—	—
991-668	986 A-5/16	5/16	14	52	23	**993-328**	986A-05/16
991-669	986 A-3/8	3/8	14	52	23	**993-329**	986A-03/8
991-670	986 A-7/16	7/16	14	52	23	**993-330**	986A-07/16
991-671	986 A-1/2	1/2	14	52	23	**993-331**	986A-01/2

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Hex Sockets

1/2 inch

DIN 7422
Sockets Chrome-Vanadium,
Blades Special High Tensile Steel
1/2" □ drive (DIN 3120),
For hex socket head screws.
Chrome-Plated
Blades **Steel Grey**

Long Pattern (Metric Sizes)

SPAENAUR No.	HAZET No.	s mm	L_1 mm	L_2 mm	d mm	Replacement Bit *SPAENAUR No.*	Replacement Bit Hazet No.
991-672	986 Lg-5	5	142	180	23	**—**	—
991-673	986 Lg-6	6	99	137	23	**993-333**	986 Lg-06
991-674	986 Lg-7	7	62	100	23	**993-334**	986 Lg-07
991-675	986 Lg-8	8	42	80	23	**993-335**	986 Lg-08
991-676	986 Lg-10	10	103	141	23	**993-336**	986 Lg-010

Extra Long Pattern (Metric Sizes)

991-677	986 S Lg-6	6	122	160	23	**993-337**	986 S Lg-06
991-678	986 S Lg-8	8	81	119	23	**993-338**	986 S Lg-08

Slotted Sockets

Sockets Chrome-Vanadium,
Blades Special High Tensile Steel
1/2"□ drive (DIN 3120),
For slotted screws.
Blades as per DIN 5264.
Chrome-Plated
Blades **Steel Grey**

SPAENAUR No.	HAZET No.	T mm	⊥T mm	L_1 mm	L_2 mm	d mm	Replacement Bit *SPAENAUR No.*	Replacement Bit HAZET No.
991-679	987-1,2 x 8	1,2	8	22	60	23	**–**	–
–	987-1,6 x 10	1,6	10	22	60	23	**–**	–
991-681	987-2 x 12	2,0	12	22	60	23	**–**	–
991-682	987-2,5 x 14	2,5	14	22	60	23	**–**	–
991-683	987-2,5 x 16	2,5	16	22	60	23	**993-343**	987-02,5 x 16

N

Phillips Sockets

Sockets Chrome-Vanadium,
Blades Special High Tensile Steel
1/2"□ drive (DIN 3120),
For Phillips Recess screws.
Tips as per DIN 5260
Chrome-Plated
Blades **Steel Grey**

SPAENAUR No.	HAZET No.	⇐ mm	Screw Size	L_1 mm	L_2 mm	d mm	Replacement Bit *SPAENAUR No.*	Replacement Bit HAZET No.
991-684	988-PH 2	2	5-10	18	56	23	**993-344**	988-PH02
991-685	988-PH 3	3	12-16	18	56	23	**–**	–
991-686	988-PH 4	4	18->	18	56	23	**–**	–

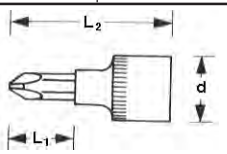
Long Pattern
Especially for chain adjustment rail on Mazda.

993-771	988 Lg-PH 3	3	12-16	47	85	23	–	–

Pozidriv® Sockets

Sockets Chrome-Vanadium,
Blades Special High Tensile Steel
1/2"□ drive (DIN 3120),
For Pozidriv® screws.
Chrome-Plated
Blades **Steel Grey**

Pozidriv® is the protected trademark of the European Industrial Services Ltd.



SPAENAUR No.	HAZET No.	⇐	L_1 mm	L_2 mm	d mm	Replacement Bit *SPAENAUR No.*	Replacement Bit HAZET No.
991-687	989-PZ 2	2	18	56	23	–	–
991-688	989-PZ 3	3	18	56	23	–	–

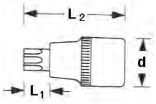
CATALOG 13

XZN Sockets

1/2 inch

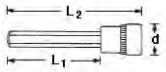
Sockets Chrome-Vanadium,
Blades Special High Tensile Steel
1/2" ☐ drive (DIN 3120),
For XZN screws

Chrome-Plated
Blades **Steel Grey**



SPAENAUR No.	HAZET No.	M	L_1 mm	L_2 mm	d mm	Replacement Bits *SPAENAUR No.*	Replacement Bits HAZET No.
991-690	990-5	5	14	52	23	**993-351**	990-05
991-691	990-6	6	14	52	23	**993-352**	990-06
991-692	990-8	8	15	53	23	**993-353**	990-08
991-693	990-10	10	15	53	23	**993-354**	990-010
991-694	990-12	12	17	55	23	**993-355**	990-012
991-695	990-14	14	20	58	23	**993-356**	990-014
991-696	990-16	16	22	60	23	**993-357**	990-016

Long Pattern



991-697	990 Lg-8	8	62	100	23	**993-358**	990 Lg-08
991-698	990 Lg-10	10	62	100	23	**993-359**	990 Lg-010
991-699	900 Lg-12	12	62	100	23	**993-360**	990 Lg-012

991-697 = e.g. for CV-joint on VW-Audi

Extra Long Pattern
e.g. for cylinder head screws
on engines of various car-types

991-700	990 S Lg-10	10	82	120	23	**993-361**	990 S Lg-010
991-701	990 S Lg-12	12	102	140	23	**993-362**	990 S Lg-012

RIBE CV Sockets

Sockets Chrome-Vanadium,
Blades Special High Tensile Steel
1/2"☐ drive (DIN 3120),
For RIBE CV screws

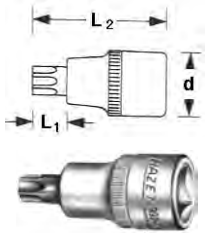
Chrome-Plated
Blades **Steel Grey**

991-702	991-5	5	25	63	23	**993-363**	991-05
991-703	991-6	6	25	63	23	**993-364**	991-06
991-704	991-8	8	25	63	23	**993-365**	991-08
991-705	991-10	10	25	63	23	**993-366**	991-010
991-706	991-12	12	25	63	23	**993-367**	991-012
991-707	991-14	14	25	63	23	**993-368**	991-014
991-708	991-16	16	25	63	23	**993-369**	991-016

TORX® Sockets

Sockets Chrome-Vanadium,
Blades Special High Tensile Steel
1/2" ☐ drive (DIN 3120),
For inside TORX® screws.

Chrome-Plated
Blades **Steel Grey**



SPAENAUR No.	HAZET No.	mm	L_1 mm	L_2 mm	d mm	Replacement Bit *SPAENAUR No.*	Replacement Bit HAZET No.
991-709	992-T 20	3,86	17	55	23	**993-370**	992-T020
991-710	992-T 25	4,43	17	55	23	**993-371**	992-T025
991-711	992-T 27	4,99	17	55	23	**993-372**	992-T027
991-712	992-T 30	5,52	17	55	23	**993-373**	992-T030
991-713	992-T 40	6,65	17	55	23	**993-374**	992-T040
991-714	992-T 45	7,82	17	55	23	**993-375**	992-T045
991-715	992-T 50	8,83	17	55	23	**993-376**	992-T050
991-716	992-T 55	11,22	18	56	23	**993-377**	992-T055
991-717	992-T 60	13,25	18	56	23	**993-378**	992-T060

Long Pattern
For cylinder head screws on engines
of Ford 1.8 L diesel-engines (turbo) Fiesta,
Escort, Sierra, P 100 since model 8/92

993-804	992 LG-T70	15,54	67	105	23	—	—

N

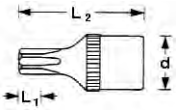
TORX® Sockets

T 45: for intake bridge Ford-Scorpio 2.4, 2.8 and 2.9 L injection engine, gearbox VW-Passat since April 1989, gearbox Ford type 02 A, 1.6, 1.8 and 2.0 L.
T 55: for cylinder head bolts on various Ford engines

Long Pattern	SPAENAUR No.	HAZET No.	mm	L_1 mm	L_2 mm	d mm	Replacement Bit SPAENAUR No.	Replacement Bit HAZET No.
	991-718	992 S Lg-T 45	7,82	100	138	23	**993-379**	992 S Lg-T 045
	991-719	992 S Lg-T 55	11,22	102	140	23	**993-380**	992 S Lg-T 055

TORX® Sockets

Sockets Chrome-Vanadium,
Blades Special High Tensile Steel
1/2" ☐ drive (DIN 3120),
For inside TORX® screws.
Chrome-Plated
Blades **Steel Grey**



991-720	995-T 27	4,99	3,5	37	23,0	—	—
991-721	995-T 30	5,52	4,0	37	23,0	—	—
991-722	995-T 40	6,65	4,0	37	23,0	—	—
991-723	995-T 45	7,82	4,5	37	23,0	—	—
991-726	995-T 60	13,25	7,5	40	25,1	—	—

1/2 inch

1/2" Socket Sets

1/2"☐ drive
Chrome-Plated
Polished

***SPAENAUR No.* 991-732**

(HAZET No. 954 N)
-with screwdriver sockets, bits and joints-

410 x 216 x 65 mm 44 parts

6 Point Sockets

SPAENAUR No.	Size	*SPAENAUR No.*	Size	*SPAENAUR No.*	Size
991-467	10	**991-474**	17	**991-481**	24
991-468	11	**991-476**	19	**991-483**	26
991-469	12	**991-477**	20	**991-484**	27
991-470	13	**991-478**	21	**991-485**	28
991-471	14	**991-479**	22	**991-487**	30
991-472	15	**991-480**	23	**991-488**	32

Bits

SPAENAUR No.	Size
992-623	1
992-624	2
992-625	3
992-626	4

Bits

SPAENAUR No.	Size
992-618	1
992-619	2
992-620	3
992-621	4

Bits

SPAENAUR No.	Size
992-655	T27
992-656	T30
992-657	T40
992-658	T45
992-659	T50

	SPAENAUR No's.
	991-627
	991-634
	991-636
	991-637
	991-639

Bits

SPAENAUR No.	Size
991-657	5
991-658	6
991-659	7
991-660	8
991-661	10
991-662	12
991-663	14

Adapter

SPAENAUR No.	○	☐
992-677	5/16	1/2

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1/2 inch

1/2" Socket Sets

1/2"☐ drive
For hex socket head screws.
Chrome-Plated
Tips **Burnished**

320 x 128 x 58 mm

***SPAENAUR No.* 991-655**
(HAZET No. 985)
12 parts

Hex Sockets

SPAENAUR No.	Size	*SPAENAUR No.*	Size	*SPAENAUR No.*	Size
991-647	5	**991-650**	10	**991-653**	17
991-648	6	**991-651**	12	**991-654**	19
991-649	8	**991-652**	14		

	SPAENAUR No's.
	991-627
	991-634
	991-636
	991-637

435 x 215 x 59 mm

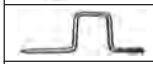
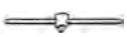
***SPAENAUR No.* 991-742**
(HAZET No. 905)
Chrome-Vanadium
1/2"☐ drive
Chrome-Plated
Polished
31 parts

In HAZET coloured sheet metal box with plastic inserts.

With 6 point sockets.

6 Point Sockets

SPAENAUR No.	Size	*SPAENAUR No.*	Size	*SPAENAUR No.*	Size
991-465	8	**991-473**	16	**991-481**	24
991-466	9	**991-474**	17	**991-482**	25
991-467	10	**991-475**	18	**991-483**	26
991-468	11	**991-476**	19	**991-484**	27
991-469	12	**991-477**	20	**991-485**	28
991-470	13	**991-478**	21	**991-487**	30
991-471	14	**991-479**	22	**991-488**	32
991-472	15	**991-480**	23		

	SPAENAUR No's.
	991-643
	**991-624**
	991-625
	**991-627**
	991-634
	991-636
	991-637
	991-639

1/2" Socket Sets

1/2"☐ drive
Chrome-Plated
Polished

With 12 point sockets

31 parts

***SPAENAUR No.* 991-743**
(HAZET No. 905 Z)

435 x 215 x 59 mm

12 Point Sockets

SPAENAUR No.	Size	*SPAENAUR No.*	Size	*SPAENAUR No.*	Size
991-528	8	**991-536**	16	**991-544**	24
991-529	9	**991-537**	17	**991-545**	25
991-530	10	**991-538**	18	**991-546**	26
991-531	11	**991-539**	19	**991-547**	27
991-532	12	**991-540**	20	**991-548**	28
991-533	13	**991-541**	21	**991-550**	30
991-534	14	**991-542**	22	**991-551**	32
991-535	15	**991-543**	23		

	SPAENAUR No's.
	991-643
	991-624
	991-625
	991-627
	991-634
	991-636
	991-637
	991-639

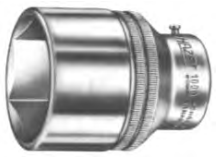
N

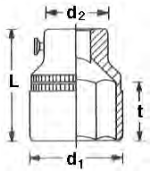
6 Point Sockets

3/4 inch

DIN 3124, ISO 2725
Chrome-Vanadium
3/4" □ drive,
With locking device

Chrome-Plated
Polished





SPAENAUR No.	HAZET No.	⬡ mm	L mm	d_1 mm	d_2 mm	t mm
991-752	1000-19*	19	52,0	28,0	33,2	14,2
991-753	1000-22*	22	52,0	32,0	33,2	13,5
991-754	1000-23*	23	52,0	33,0	35,5	16,0
991-755	1000-24	24	52,0	34,0	36,0	16,0
877-1470	—	24	52,0	34,0	36,0	16,0
991-756	1000-25*	25	52,0	36,0	33,2	16,9
991-757	1000-26*	26	52,0	37,0	34,0	16,9
991-758	1000-27	27	54,0	38,0	35,0	18,8
877-1471	—	27	54,0	38,0	35,0	18,8
991-759	1000-28*	28	54,0	39,0	36,0	18,8
991-760	1000-29*	29	55,0	41,0	36,0	19,5
991-761	1000-30	30	55,0	42,0	36,0	21,0
991-762	1000-32	32	58,0	44,5	36,0	23,4
991-763	1000-33*	33	59,0	46,0	36,0	23,9
991-764	1000-34	34	60,0	47,5	36,0	24,8
991-765	1000-35*	35	61,5	48,5	35,5	25,8
991-766	1000-36	36	61,5	49,5	36,0	25,7
991-767	1000-38*	38	65,0	52,5	38,0	28,3
991-768	1000-41	41	68,5	55,5	39,0	31,2
991-769	1000-42*	42	70,0	57,5	41,0	31,2
991-770	1000-46	46	73,0	62,0	44,0	34,0
991-771	1000-50	50	65,0	67,0	42,0	33,5
991-772	1000-55*	55	70,0	73,5	42,0	36,0
991-773	1000-60*	60	70,0	80,0	42,0	36,0

* not according to DIN/ISO

Span of jaws ISO 691 **Inch Sizes**

991-774	1000 A-3/4	3/4	52,0	28,0	33,2	14,0
991-775	1000 A-7/8	7/8	52,0	32,0	33,2	13,5
▲991-812	1000 AZ-15/16	15/16	52,0	34,0	36,0	16,0
991-777	1000 A-1	1	52,0	36,5	33,2	16,9
991-778	1000 A-1-1/16	1-1/16	54,0	38,0	35,0	18,8
▲991-815	1000 AZ-1-1/8	1-1/8	54,0	40,0	36,0	19,8
991-780	1000 A-1-3/16	1-3/16	55,0	42,0	36,0	21,0
991-781	1000 A-1-1/4	1-1/4	58,0	44,5	36,0	23,4
991-782	1000 A-1-5/16	1-5/16	59,0	46,0	36,0	23,9
991-783	1000 A-1-3/8	1-3/8	61,5	48,5	35,5	25,8
991-784	1000 A-1-7/16	1-7/16	63,0	50,0	36,0	27,2
991-785	1000 A-1-1/2	1-1/2	65,0	52,5	38,0	28,6
▲991-822	1000 AZ-1-5/8	1-5/8	68,0	55,5	39,0	31,2
▲991-823	1000 AZ-1-11/16	1-11/16	71,0	58,0	41,0	33,1
991-788	1000 A-1-3/4	1-3/4	72,0	60,0	41,0	33,6
991-789	1000 A-1-13/16	1-13/16	73,0	62,0	44,0	34,0
▲991-826	1000 AZ-1-7/8	1-7/8	65,0	64,0	42,0	33,5
▲991-827	1000 AZ-2	2	65,0	68,0	42,0	33,5

▲12 Point Socket

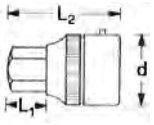
Above sizes are also available in 12 point sockets in Metric and Inch.

Hex Sockets ⬡

3/4 inch

Chrome-Vanadium
For hex socket head screws.
3/4" □ drive (DIN 3120)
with locking device

Chrome-Plated
Tips **Burnished**



*Impact Hex Sockets - Plain Finish

SPAENAUR No.	HAZET No.	s mm	L_1 mm	L_2 mm	d mm
991-828	1010-14	14	16,7	54,5	36
991-829	1010-17	17	19,7	54,5	36
991-830	1010-19	19	21,7	56,5	36
991-831	1010-22	22	24,7	56,5	36
***877-251**	—	24	20	70	44
***877-252**	—	27	20	70	44

Handle Bar

Chrome-Vanadium
with locking device

Chrome-Plated

SPAENAUR No.	HAZET No.	L mm	L inch	Ø mm
991-832	1014	500	19-1/2	20

Sliding Part

Chrome-Vanadium
3/4" ■ drive
To be fixed at Handle Bar
Chrome-Plated

991-833	1015-1	60	2-3/8	—

Handle Bar with Sliding Part

Chrome-Vanadium
991-832 + 991-833 = Sliding T-Handle

Chrome-Plated

991-834	1015/2	500	19-1/2	20

Universal Joint

DIN 3123, ISO 3316
Chrome-Vanadium
3/4" ■, 3/4" □ drive,
■ with ball fitting and locking device
□ with bolt for locking device

Chrome-Plated

991-840	1021	105	4	40

N

CATALOG 13

Ratchet Head

Chrome-Vanadium
3/4" ■ (DIN 3120),
■ with ball fitting and locking device,
shank with bolt for locking device
32 teeth

Chrome-Plated

SPAENAUR No.	HAZET No.	L mm	L inch	Ø mm
991-835	1016	165	6-1/2	—

Adapters

DIN 3123, ISO 3316
Chrome-Vanadium
3/4" □ drive
with ball fitting and locking device

Chrome-Plated

991-841

991-842

SPAENAUR No.	HAZET No.	L mm	■ inch	□ inch
991-841	1058-1	60	1	3/4
991-842	1058-2	52,3	1/2	3/4

Extensions

Chrome-Vanadium
3/4" ■, 3/4" □ drive,
■ with ball fitting and locking device
□ with bolt for locking device

Chrome-Plated
Polished

SPAENAUR No.	HAZET No.	L mm	L inch	Ø mm
991-837	1017-3*	75	3	25
991-838	1017-8	200	8	20

*not according to DIN
991-838 = DIN 3123, ISO 3316

DIN 3123, ISO 3316

991-839	1018	400	16	22

3/4 inch

578 x 235 x 88 mm

3/4" Socket Sets

Chrome-Vanadium
With 6 point sockets.
3/4" □ drive

Chrome-Plated
Polished

With locking device.
-prevents sockets from coming off during application-

In HAZET coloured sheet metal boxes with plastic inserts.

***SPAENAUR No.* 991-844**
(HAZET No. 1002)

18 parts

6 Point Sockets

SPAENAUR No.	**Size**	***SPAENAUR No.***	**Size**	***SPAENAUR No.***	**Size**
991-753	22	**991-762**	32	**991-770**	46
991-755	24	**991-766**	36	**991-771**	50
991-758	27	**991-767**	38	**991-772**	55
991-761	30	**991-768**	41	**991-773**	60

	SPAENAUR No's.
	991-832
	991-835
	991-833
	991-838
	991-839
	991-840

N

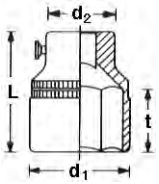
CATALOG 13

1" Sockets

6 Point Sockets

DIN 3124, ISO 2725
Chrome-Vanadium
1" □ drive,
with bolt for locking device

Chrome-Plated
Polished



SPAENAUR No.	HAZET No.	mm	L mm	d_1 mm	d_2 mm	t mm
991-849	1100-32*	32	65	48,0	46	23,4
991-850	1100-36*	36	64	54,0	51	32,5
991-851	1100-41*	41	69	60,0	51	35,5
991-852	1100-46	46	73	66,0	54	34,5
991-853	1100-50	50	77	71,0	54	38,0
991-854	1100-55	55	82	77,5	57	41,0
991-855	1100-60	60	87	83,5	57	43,5
991-856	1100-65	65	91	90,0	57	45,0
991-858	1100-75	75	100	102,5	60	52,5
991-859	1100-80	80	105	108,5	60	55,5

*not according to DIN

12 Point Sockets

DIN 3124, ISO 2725
Chrome-Vanadium
1" □ drive,
with bolt for locking device

Chrome-Plated
Polished

SPAENAUR No.	HAZET No.	mm	L mm	d_1 mm	d_2 mm	t mm
991-860	1100 Z-32*	32	65	48,0	46	23,4
991-861	1100 Z-36*	36	64	54,0	51	32,5
991-862	1100 Z-41*	41	69	60,0	51	35,5
991-863	1100 Z-46	46	73	66,0	54	34,5
991-864	1100 Z-50	50	77	71,0	54	38,0
991-865	1100 Z-55	55	82	77,5	57	41,0
991-866	1100 Z-60	60	87	83,5	57	43,5
991-867	1100 Z-65	65	91	90,0	57	45,0
991-868	1100 Z-70	70	95	96,0	60	49,0
991-869	1100 Z-75	75	100	102,5	60	52,5
991-870	1100 Z-80	80	109	108,5	60	59,5

* not according to DIN

Handle Bar

1 inch

Chrome-Vanadium
with locking device

Chrome-Plated

SPAENAUR No.	HAZET No.	L mm	L inch	Ø mm
991-871	1114	700	27-1/2	26

Sliding Part

To be fixed at Handle Bar
(= Sliding T-Handle)

Chrome-Plated

991-872	1115-1	80	3-1/8	48

Reversible Ratchet Head

Chrome-Vanadium
1" ■,
■ with locking device,
shank with bolt for locking device,
32 teeth

Chrome-Plated

1 inch

SPAENAUR No.	HAZET No.	L mm	L inch	Ø mm
991-874	1116	195	7-1/2	—

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Extensions

1 inch

DIN 3123, ISO 3316
Chrome-Vanadium
1" ■,1" □,drive
■ with locking device,
□ with bolt for locking device

Chrome-Plated Polished

SPAENAUR No.	HAZET No.	L mm	L inch	Ø mm
991-876	1117-8	200	8	28
991-877	1117-16	400	16	28

Universal Joint

Chrome-Plated

Chrome-Vanadium
1" ■,1" □, drive (DIN 3120)
■ with locking device,
□ with bolt for locking device

SPAENAUR No.	HAZET No.	L mm	L inch	Ø mm
991-878	1121	143	5-3/4	48

Adapter

Chrome-Plated

DIN 3123, ISO 3316
Chrome-Vanadium
1" □ drive,
■ with ball fitting and locking device,
□ with bolt for locking device

SPAENAUR No.	HAZET No.	L mm	■ inch	□ inch
991-879	1158-2	70	3/4	1

1" Socket Sets

1 inch

Chrome-Vanadium
6 point sockets with bolt
for locking device.
-prevents sockets from coming off during application-
Accessories and Ratchet are
of sturdy construction,
Ratchet Head reversible,
32 teeth
1" □ drive

In HAZET coloured sheet metal box.

780 x 305 x 115 mm

***SPAENAUR No.* 991-880**
(HAZET No. 1100)

Chrome-Plated Polished
17 parts

6 Point Sockets

SPAENAUR No.	Size	*SPAENAUR No.*	Size	*SPAENAUR No.*	Size
991-849	32	**991-853**	50	—	70
991-850	36	**991-854**	55	**991-858**	75
991-851	41	**991-855**	60	**991-859**	80
991-852	46	**991-856**	65		

	SPAENAUR No's.
	991-871
	991-874
	991-872
	991-876
	991-877
	991-878

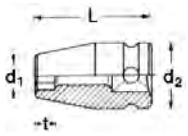
N

CATALOG 13

6 Point Impact Sockets

1/4 inch

DIN 3129, ISO 2725
1/4" □ drive



SPAENAUR No.	HAZET No.	⬢ mm	L mm	d_1 mm	d_2 mm	t mm
991-882	850 S-5,5	5,5	25	9,1	13	4,6
991-883	850 S-6	6	25	9,8	13	5,1
991-884	850 S-7	7	25	11,0	13	5,6
991-885	850 S-8	8	25	12,2	13	6,3
991-886	850 S-10	10	25	15,0	13	7,3
With permanent magnet						
991-887	850 S Mg-7	7	25	10,9	13	2,5
991-888	850 S Mg-8	8	25	12,5	13	2,5
991-889	850 S Mg-10	10	25	15,0	13	4,2

Impact Adapter

1/4 inch

To hold impact sockets for use on electric and pneumatic drills, with 1/4" □ drive

■ 6,3 DIN 3121 (1/4")

⬢ E 6,3 DIN 3126, Form E (1/4")

SPAENAUR No.	HAZET No.	■ mm	■ inch	L mm
991-900	8508 S-3	6,3	1/4	50

Impact Extensions

3/8 inch

3/8" ■ , 3/8" □drive (DIN 3121)

SPAENAUR No.	HAZET No.	L mm	L inch	■ inch
991-925	8805 S-3	78	3	3/8
991-926	8805 S-6	152	6	3/8

Adapter

To hold impact sockets for application on electric and pneumatic drills, with 3/8" □ drive,

■ 10 DIN 3121 (3/8")

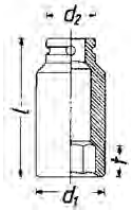
⬢ 5/16"

SPAENAUR No.	HAZET No.	■ mm	■ inch	L mm
991-930	8808 S-1	10	3/8	75

1/2" Drive 6 Point Impact Sockets

1/2 inch

Long Pattern
1/2" □ drive
□ DIN 3121,
6 point DIN 475



SPAENAUR No.	HAZET No.	⬢ mm	L mm	d_1 mm	d_2 mm	t mm
991-953	900 S Lg-13	13	85	20,8	25	8,5
991-954	900 S Lg-16	16	85	24,8	30	13,5
991-955	900 S Lg-17	17	85	26,2	30	13,5
991-956	900 S Lg-18	18	85	28,5	30	17,5
991-957	900 S Lg-19	19	85	28,8	30	17,5
991-958	900 S Lg-21+	21	85	31,3	30	15,5
991-959	900 S Lg-22	22	85	32,5	30	17,5
991-960	900 S Lg-24	24	85	35,0	30	17,5
991-961	900 S Lg-27	27	85	38,8	30	19,5
Inch Sizes						
991-962	900 A S Lg-13/16+	13/16	85	31,0	30	14,7

+For wheel nuts/screws
e.g. on Japanese and American cars, (also 21 mm)

Impact Adapters

3/4 inch

3/4" □ drive

992-022

992-023

SPAENAUR No.	HAZET No.	■ inch	□ inch	L mm
992-022	1007 S-1	1/2	3/4	56
992-023	1007 S-2	1	3/4	65

N

CATALOG 13

Diagonal Cutters

Chrome-Plated Bright Heads

Special Steel
For hard wire,
Swedish pattern,
Performance Class H,
Handles with black non-slip plastic jackets

SPAENAUR No.	HAZET No.	L mm	L inch	Ø mm
992-101	1803-11	140	5-1/2	1,6
992-102	1803-22	150	6	2,0
992-103	1803-33	165	6-1/2	2,0

Diagonal Cutters

Chrome-Plated Bright Heads

Chrome-Vanadium
For hard wire,
Performance Class H

SPAENAUR No.	HAZET No.	L mm	L inch	Ø mm
992-095	1802-1	150	6	1,6
992-096	1802-2	170	6-3/4	1,6
992-097	1802-3	200	8	2,0

Ø mm = cutting efficiency

Handles with black non-slip plastic jackets

992-098	1802-11	160	6-1/4	1,6
992-099	1802-22	175	7	1,6
992-100	1802-33	200	8	2,0

Lever Side Cutting Pliers

Special Steel
For hard wire
Black

SPAENAUR No.	HAZET No.	L mm	L inch	Ø
992-108	1805-3	215	8-1/2	2,5

Long Flat Nose Pliers

similar DIN 5248, Form A
Special Steel
Handles with black non-slip plastic jackets

Chrome-Plated Bright Heads

SPAENAUR No.	HAZET No.	L mm	L inch
992-114	1816-11	143	5-3/4
992-115	1816-22	162	6-1/4

Long Round Nose Pliers

similar DIN 5249, Form A
Special Steel
Handles with black non-slip plastic jackets

Chrome-Plated Bright Heads

992-117	1826-11	145	5-3/4
992-118	1826-22	168	6-3/4

End Cutting Pliers

DIN 5252, Form A
Special Steel
Performance Class H,
For hard wire

Chrome-Plated Bright Heads

SPAENAUR No.	HAZET No.	L mm	L inch	Ø
992-112	1807-1	165	6-1/2	1,6

Handles with black non-slip plastic jackets

992-113	1807-11	170	6-3/4	1,6

N

CATALOG 13

Long Nose Pliers with side cutter

Chrome-Vanadium
Chrome-Plated Bright Heads
Straight jaws

SPAENAUR No.	HAZET No.	L mm	L inch
992-120	1841 a-1	142	5-1/2
992-121	1841 a-2	160	6-1/4
992-122	1841 a-3	200	8

Curved jaws (30°)

992-123	1841 b-3	195	7-3/4

Bent jaws

992-124	1841 c-3	188	7-1/2

Long Nose Side Cutting Pliers

Chrome-Vanadium
Chrome-Plated Bright Heads
Handles with black non-slip plastic jackets
Straight jaws

992-125	1841 a-11	150	6
992-126	1841 a-22	163	6-1/2
992-127	1841 a-33	205	8

Curved jaws (45°)

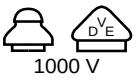
992-128	1841 b-33	195	7-3/4

Bent jaws (90°)
Slim Pattern

992-129	1841 c-33	188	7-1/2

Long Nose Side Cutting Pliers

Chrome-Vanadium
Protected to IEC 900, DIN EN 60900 VDE 0680/part 2



Ergonomic plastic handle covers, red, handles are directly injected onto the pliers' shanks, increasing the durability and cohesiveness. No twisting or pulling-off of the handles.

Chrome-Plated Bright Heads

Straight jaws

SPAENAUR No.	HAZET No.	L mm	L inch
992-130	1841 a VDE-22	160	6-1/4
992-131	1841 a VDE-33	200	8

Curved jaws (30°)

992-132	1841 b VDE-33	222	8-3/4

Long Nose Side Cutting Pliers

(Flat Round Pliers)
Chrome-Vanadium
With HAZET-ergonomic® handles (protected by design patent), protected to standard DIN 57 680 part 2/ VDE 0680 section 2
Red Grips

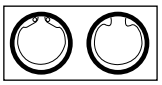
Chrome-Plated Bright Heads

Bent jaws

SPAENAUR No.	HAZET No.	L mm	L inch
992-133	1841 c VDE-33	202	8

Lockring Pliers

Spring Steel
For holes (inside lockrings), with black plastic handles
Black Grips



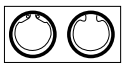
Straight jaws, Form C

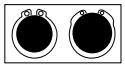
SPAENAUR No.	HAZET No.	L mm	L inch	Ø mm	DIN 472/984 mm
992-159	1844 C-85	290	11-1/2	3,2	85-165

N

CATALOG 13

Lockring Pliers





Spring Steel
Reversible for inside and outside lockrings, with black plastic handles.
Black Grips

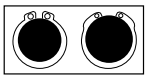
Straight Jaws

SPAENAUR No.	HAZET No.	**L** mm	**L** inch	**Ø** mm	mm	mm
992-134	1843 a-10	150	6	0,9	9-13	8-17

Bent jaws 45°

992-141	1843 b-31	235	9-1/4	2,3	32-82	31-82

Lockring Pliers



Spring Steel
For shafts (outside lockrings), with pull-back spring, with black plastic handles.
Black Grips

Straight jaws, Form A

SPAENAUR No.	HAZET No.	**L** mm	**L** inch	**Ø** mm	**DIN 471/983** mm
992-146	1844 A-3	140	5-1/2	0,9	3-10
992-149	1844 A-40	230	9	2,3	40-100
992-150	1844 A-85	305	12	3,2	85-165

Curved jaws, Form B

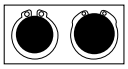
992-153	1844 B-19	170	6-3/4	1,8	19-60
992-154	1844 B-40	220	8-3/4	2,3	40-100
992-155	1844 B-85	285	11-1/4	3,2	85-165

Lockring Pliers

Bent jaws 45°

992-167

Spring Steel
For shafts (outside lockrings), with pull-back spring, with plastic handles.
Black

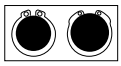


Bent jaws 90°

992-165

SPAENAUR No.	HAZET No.	**L** mm	**L** inch	**Ø** mm	**DIN 471/983** mm
992-165	1845 B-10	140	5-1/2	1,3	10-25
992-167	1845 B-85	295	11-3/4	3,2	85-165

Lockring Pliers



Chrome-Plated Bright Heads
Tips **Steel Grey**

DIN 5254
Chrome-Vanadium
For shafts (outside lockrings)
Straight jaws, Form A

(Leaf or Coil Spring - our option.)

SPAENAUR No.	HAZET No.	**L** mm	**L** inch	**Ø** mm	**DIN 471** mm
992-181	1846 c-0	140	5-1/2	0,9	3-10
992-182	1846 c-1	140	5-1/2	1,3	10-25
992-183	1846 c-2	180	7	1,8	19-60
992-184	1846 c-3	225	8-3/4	2,3	40-100
992-185	1846 c-4	310	12-1/4	3,2	85-165

For shafts (outside lockrings), bent off 90°, Form B

(Leaf or Coil Spring - our option.)

992-186	1846 d-0	130	5	0,9	3-10
992-187	1846 d-1	130	5	1,3	10-25
992-188	1846 d-2	170	6-3/4	1,8	19-60
992-189	1846 d-3	210	8-1/4	2,3	40-100
992-190	1846 d-4	290	11-1/2	3,2	85-165

N

Lockring Pliers

Spring Steel
For holes (inside lockrings),
with plastic handles.
Bent off 45°

SPAENAUR No.	HAZET No.	L mm	L inch	Ø mm	DIN 472/984 mm
992-168	1845 D-8	135	5-1/4	0,9	8-25

Lockring Pliers

Chrome-Plated
Bright Heads
Tips **Steel Grey**

DIN 5256
Chrome-Vanadium
For holes (inside lockrings)
Straight jaws, Form C

992-171	1846 a-0	145	5-3/4	0,9	8-25
992-172	1846 a-1*	145	5-3/4	1,3	10-25
992-173	1846 a-2	185	7-1/4	1,8	19-60
992-174	1846 a-3	225	8-3/4	2,3	40-100
992-175	1846 a-4*	312	12-1/2	3,2	85-165

Bent off 90°, Form D

992-176	1846 b-0	135	5-1/4	0,9	8-25
992-177	1846 b-1*	135	5-1/4	1,3	10-25
992-178	1846 b-2	175	7	1,8	19-60
992-179	1846 b-3	215	8-1/2	2,3	40-100
992-180	1846 b-4	300	12	3,2	85-165

*not according to DIN

Lockring Pliers

Chrome-Plated

Chrome-Vanadium
For shafts (outside lockrings),
tips bent off 90°,
e.g. on gearboxes

SPAENAUR No.	HAZET No.	L mm	L inch	mm
992-191	1847-2	200	8	—

Lockring Pliers

Spring Steel
For shafts (outside lockrings)
Straight Tips,
with pull-back spring,
with black plastic handles,
Black Grips

SPAENAUR No.	HAZET No.	L mm	L inch	mm	mm
992-195	1847-5	210	8-1/4	1,5 x 3	—

Lockring Pliers

Chrome-Plated

Chrome-Vanadium
For lockrings on synchro-joints
-outside- e.g. VW-Passat, Scirocco,
Golf, Polo and Audi 80.
Straight Tips

SPAENAUR No.	HAZET No.	L mm	L inch	mm
992-192	1847-3	195	7-3/4	—

Lockring Pliers

Long tips, flat and fluted
Especially for horseshoe rings,
e.g. on motors, gearboxes, clutches, brakes.

Spring Steel
For shafts (outside lockrings),
with pull-back spring,
with black plastic handles,
bent off 70°.
Black Grips

992-193	1847-04	180	7	1,5 x 4

Lockring Pliers

Spring steel
For shafts (outside lockrings),
Tips bent off 90°,
with pull-back spring,
with black plastic handles,
Black Grips

992-194	1847-4	210	8-3/4	1,5 x 8

Combination Pliers

Chrome-Plated
Bright Heads

DIN 5244
Special Steel
Cutters induction-hardened
for hard wire

SPAENAUR No.	HAZET No.	L mm	L inch
992-201	1850-2	165	6-1/2
992-202	1850-3	180	7
992-203	1850-4	200	8

Handles with black non-slip
plastic jackets

992-204	1850-22	170	6-3/4
992-205	1850-33	190	7-1/2
992-206	1850-44	210	8-1/4

N

CATALOG 13

Automatic Wire Stripper

For solid and flexible PVC-insulated cables with wires 0.25-6 mm^2 dia.

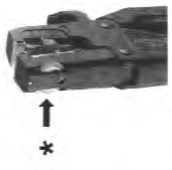
Adjusts automatically to each wire section and strips perfectly without any damage.

Black plastic housing

*Permits adjustment of length to be stripped and adaptation to thickness of insulation material.

With integral (self-sharpening) wire cutter for cutting wires of max. 6 mm^2, and 2.5 mm^2 dia. into lengths.

In black plastic box.



SPAENAUR No.	HAZET No.	L mm	L inch
992-219	1863	190	7-1/2

ELECTRONIC Pliers

Height tensile special steel

Short pattern

For thin and extremely thin wire, with threaded joint.

Red plastic jackets and flat spiral spring.

Non dazzling, **Black** surface.

Diagonal Cutters

Inductive heated tips, for copper wire 0.2-2.0 mm dia., flush cut.

SPAENAUR No.	HAZET No.	L mm	L inch
992-220	1870	112	4-1/2

Sheet Metal Crimping Tool

Chrome-Vanadium

Settling depth 12 mm

First use tool to offset edge on one sheet, then place second sheet upon offset strip and spot-weld or braze.

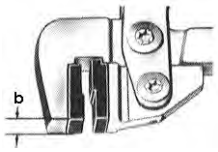
Quick effortless offsetting action.

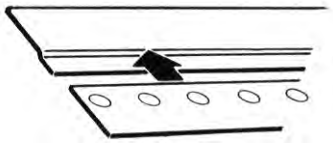
Flood gaps with solder to save surface treatment.

To offset edges on sheet metal up to a thickness of 1 mm, using the **992-254** model for short offset strips on 0.8-1 mm sheets and the **992-255** tool for longer offset strips on sheets thinner than 0.8 mm.

Chrome-Plated

***For punching sheet metal please use special punches 992-317,-318 or -319.**





SPAENAUR No.	HAZET No.	b mm	L mm
992-254	1932-1	15	300
992-255	1932-2	30	300

Countersinking Punch

Chrome-Vanadium

To be used with **992-256.**

For countersinking pre-drilled rivet holes.

(countersunk rivets 4 mm dia.)

In car body repair work, **(adhesive method).**

With black plastic handles.

Chrome-Plated

SPAENAUR No.	HAZET No.	L mm
992-257	1932-6	300

N

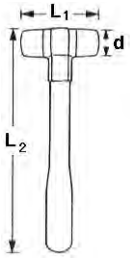
CATALOG 13

Plastic Hammers

(protected by design patent)
With ergonomically shaped handle made of ash wood.

Supplied with easy-to-remove tips made of specially tough material (Desmopan®).

Zinc die-cast middle piece with guide- and protection bush for handle.



Black Tips

SPAENAUR No.	HAZET No.	d mm	L_1 mm	L_2 mm
992-284	1952-23	23	75	246
992-285	1952-28	28	85	269
992-286	1952-35	35	95	290
992-287	1952-40	40	105	317
992-288	1952-50	50	115	342
992-289	1952-60	60	130	382

Replacement Tips, per pair

Made of specially tough material (Desmopan®)

Black

Remove used tips by turning them hard to the left.
Replacement tips are to be driven home merely by a blow or with pressure.

SPAENAUR No.	HAZET No.	d mm
992-290	1952-023	23
992-291	1952-028	28
992-292	1952-035	35
992-293	1952-040	40
992-294	1952-050	50
992-295	1952-060	60

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Lead Shot Hammers

Non-bouncing, with steel-tube handle and petrol and oil resistant plastic grip.
With renewable tips.
Made of special plastic, safe in operation as tips will not splinter or crumble.
Prevent damage to material being hammered, highly resistant to abrasion, long life.

Black

SPAENAUR No.	HAZET No.	d mm	L_1 mm	L_2 mm
992-296	1953-30	30	113	295
992-297	1953-35	35	115	300
992-298	1953-40	40	123	305
992-299	1953-45	45	129	310
992-300	1953-50	50	133	370
992-301	1953-60	60	163	380

Replacement Tips, per pair

Made of special plastic material.

Does not splinter or crumble.
To mount, drive tip home cold with a few hammer blows.

Blue

SPAENAUR No.	HAZET No.	d mm
992-302	1953-030	30
992-303	1953-035	35
992-304	1953-040	40
992-305	1953-045	45
992-306	1953-050	50
992-307	1953-060	60

Machinists' Hammers

DIN 1041
Chrome-Vanadium
Quality Grade A,
with HICKORY handle

SPAENAUR No.	HAZET No.	Wt. g/lbs.	L mm
992-483	2140-2	200 g	280
992-484	2140-3	300 g	300
992-485	2140-4	400 g	310
992-486	2140-5	500 g	320
992-487	2140-8	800 g	350
992-488	2140-10	1000 g	360

N

CATALOG 13

Ball Peen Hammers

Chrome-Vanadium
with HICKORY handle

SPAENAUR No.	HAZET No.	Wt. g/lbs.	L mm
992-489	2141-0	1/2 lbs.	290
992-490	2141-1	3/4 lbs.	310
992-491	2141-2	1 lbs.	360
992-492	2141-3	1-1/2 lbs.	360
992-493	2141-4	2 lbs.	380

Rubber Mallet

DIN 5128
Ø 52 x 88 mm

992-494	2143	240 g	315

Milled Tooth File with Holder

Special Steel
For flat blades
SPAENAUR No. 992-262 to 992-266.

Adjustable, with turnbuckle and
one file blade *SPAENAUR No.* 992-265.

Aluminum colour

SPAENAUR No.	HAZET No.	L mm
992-259	1934	355

Wood,
For flat blades
SPAENAUR No. 992-262 to
992-266 without file.

992-260	1934 N-1	525

Hand Riveting Tool

For safe and fast rivet joints,
up to 5 mm Ø aluminum and 4 mm Ø stainless steel blind rivets.

Handle and lever are chrome-vanadium for long durability, plastic coated -comfortable grip-.

Patented intermediate lever reduces expenditure of force and absorbs pull-off strength.

The jaws are manufactured using a special technique.
Proved in the industry.

Black

SPAENAUR No.	HAZET No.	L mm
992-316	1963	260

Hack Saw

For 300 mm saw blades.
Special Steel
With black plastic handle
and front bow,
with 1 saw blade.

SPAENAUR No.	HAZET No.	L mm
992-342	1980 N	390

Saw Blade only

High Speed Steel, 24 teeth per inch

992-343	1980 B-2	300

Small Hack Saw

For 150 mm saw blades.
Special Steel (ST 2 K 40),
With black fiber-glass reinforced plastic handle,
with 1 saw blade.

992-344	1981	252

Saw Blade only

Chrome-alloyed tool steel

992-345	1981-01	150

More Hacksaws and Blades shown on page P137.

Universal Sheet Metal Snips

Special Steel
With lever transmission system.
Handles with black non-slip plastic jackets.

Right hand cutting

992-313	1961 R-2	260

Left hand cutting

992-314	1961 L-2	260

Sheet Metal Hand Nibbler

With renewable chromium steel knives for cutting sheet metal up to 1.2 mm, plastic tubes up to a wall thickness of 2 mm, and even corrugated transparent plastic.
Handles with black non-slip plastic jackets.

Galvanized

SPAENAUR No.	HAZET No.	L mm
992-315	1962 N	275

N

CATALOG 13

Tool Holder

Flexible plastic clamps
EP
Base of anodized light metal with
2 oblong holes which facilitate fastening
to perforated sheet steel panels etc.
Straps of oil and cold resistant plastic
material, however, tough, flexible, and
long-lived.
Two flexible plastic straps embrace
each item without damaging it.
Easy and quick fixing of any object,
withdrawal by simply pulling it off.

SPAENAUR No.	HAZET No.	L mm
992-381	2025 X	440
992-382	2025 X-1	150

Tool Hangers and Guide Rails

Tool hangers 992-386 with rubber
tube that prevents objects from sliding,
to be inserted into guide rails 992-387
and 992-388.

Tool hangers	**992-386**	2025 X-06	25
Guide rails	**992-387**	2025 X-5	440
	992-388	2025 X-6	150

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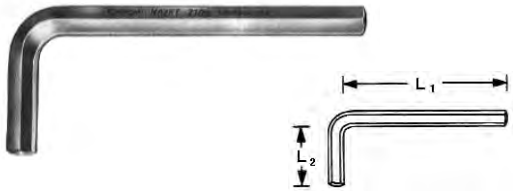
Hex Head Wrenches

DIN 911, ISO 2936
Chrome-Vanadium
For hex socket head screws
Bright Nickel-Plated



SPAENAUR No.	HAZET No.	s mm	L_1 mm	L_2 mm
992-389	2100-015	1,5	45	14
992-390	2100-02	2	50	16
992-391	2100-025	2,5	56	18
992-392	2100-03	3	63	20
992-393	2100-035*	3,5	65	22
992-394	2100-04	4	70	25
992-395	2100-045*	4,5	73	26
992-396	2100-05	5	80	28
992-397	2100-06	6	90	32
992-398	2100-07	7	95	34
992-399	2100-08	8	100	36
992-400	2100-09*	9	110	38
992-401	2100-10	10	112	40
992-402	2100-11*	11	119	42
992-403	2100-12	12	125	45
992-404	2100-13*	13	133	50
992-405	2100-14	14	140	56
992-406	2100-17	17	160	63
992-407	2100-19	19	180	70
992-408	2100-22	22	200	80
992-409	2100-24	24	224	90
992-410	2100-27	27	250	100

*not according to DIN/ISO

Inch Sizes

992-411	2100 A-5/64	5/64	50	16
992-412	2100 A-3/32	3/32	56	18
992-413	2100 A-1/8	1/8	63	20
992-414	2100 A-5/32	5/32	70	25
992-415	2100 A-3/16	3/16	80	28
992-416	2100 A-7/32	7/32	85	30
992-417	2100 A-1/4	1/4	90	32
992-418	2100 A-9/32	9/32	95	35
992-419	2100 A-5/16	5/16	100	36
992-420	2100 A-3/8	3/8	112	40
992-421	2100 A-7/16	7/16	119	42
992-422	2100 A-1/2	1/2	132	50
992-423	2100 A-9/16	9/16	140	55
992-424	2100 A-5/8	5/8	160	60
992-425	2100 A-3/4	3/4	180	70

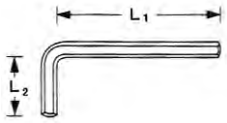
Hex Head Wrench Set

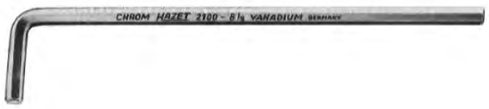
DIN 911, ISO 2936
Chrome-Vanadium
For hex socket head screws
Bright Nickel-Plated
Sets in plastic rolls

SPAENAUR No. (HAZET No.)	***SPAENAUR No's.*** **in Set**		
992-426 (2100/7P)	992-390 992-396 992-399	992-392 992-397	992-394 992-398
992-427 (2100/10P)	992-390 992-396 992-399 992-403	992-392 992-397 992-400	992-394 992-398 992-401
992-428 (2100/14P)	992-390 992-396 992-399 992-403 992-407	992-392 992-397 992-400 992-405 992-408	992-394 992-398 992-401 992-406
Inch Sizes			
992-429 (2100 A/9P)	992-411 992-414 992-417	992-412 992-415 992-419	992-413 992-416 992-420
992-430 (2100 A/11P)	992-411 992-414 992-417 992-422	992-412 992-415 992-419 992-423	992-413 992-416 992-420
992-431 (2100 A/13P)	992-411 992-414 992-417 992-422 992-425	992-412 992-415 992-419 992-423	992-413 992-416 992-420 992-424

Hex Head Wrenches

DIN 911, ISO 2936
Chrome-Vanadium
Long Pattern
For hex socket head screws
Bright Nickel-Plated





SPAENAUR No.	HAZET No.	**s** mm	**L_1** mm	**L_2** mm
992-434	2100 Lg-02	2	100	16
992-435	2100 Lg-025	2,5	112	18
992-436	2100 Lg-03	3	126	20
992-437	2100 Lg-04	4	140	25
992-438	2100 Lg-05	5	160	28
992-439	2100 Lg-06	6	180	32
992-440	2100 Lg-08	8	200	36
992-441	2100 Lg-10	10	224	40
992-442	2100 Lg-12	12	250	45
992-443	2100 Lg-14	14	280	56

Thread Restorers

Special Steel
For restoring damaged or worn-out threads for male and female threads
a = Pitch
b = Screw Dia.

Galvanized
Yellow Chromized

SPAENAUR No.	HAZET No.	**a** mm	**b** Metr.	**L** mm
992-477	2126	0,8 1,00 1,25 1,50 1,75 2,00 2,50 3,00	5 6 7 8 9 10 11 12 14 16 18 20 22 24 27	230

Thread Restorers

b = Screw Dia.
c = Threads per inch

Inch Sizes

SPAENAUR No.	HAZET No.	**c**	**b UNF**	**b UNC**	**L** mm
992-478	2126 A	24 20 18 16 14 13 12 — 11	5/16 3/8 7/16 1/2 9/16 5/8 3/4 7/8 1 — 1-1/8 1-1/4 1-1/2 —	— 1/4 5/16 3/8 7/16 1/2 9/16 — 5/8	230

N

CATALOG 13

Feeler Gauges

Stainless Steel
In convenient holders.
Aluminum Colour
7 Parts

SPAENAUR No.	HAZET No.	Sizes	L mm
992-495	2146	0,10 0,15 0,20 0,30 0,40 0,60 0,70 mm	106
8 Parts			
992-496	2146-1	0,20 0,25 0,30 0,35 0,40 0,45 0,50 0,55 mm	106

Feeler Gauges

Stainless Steel
20 blades,
pitch 0.05 mm
mm-sizes = Feeler gauges,
Set D, DIN 2275
Aluminum Colour

992-497	2147	0,05-1,0 mm	106
Tool Steel **Plain**			
877-145	—	0,05-1,0 mm	—
Stainless Steel **Aluminum Colour** 20 Parts **Inch Sizes**			
992-498	2147 A	0,002-0,040" SAE	106
Spring Steel **Plain**			
877-148	—	2-35/1000"	—

Stethoscope

For diagnosing defective mechanical parts such as valves, bearings, piston pins, spur pinions etc.
With steel probe 180 mm and efficient diaphragm.

SPAENAUR No.	HAZET No.	L mm
992-515	2151	1080

Feeler Gauge Strips

Spring Steel
5 M long, 13 mm wide
Strips are marked with thickness every 10 cm.
Plastic housing
Aluminum Colour

SPAENAUR No.	HAZET No.	Size	L Metres
992-499	2148-5	0,05	5
992-500	2148-10	0,10	5
992-501	2148-15	0,15	5
992-503	2148-20	0,20	5
992-504	2148-22	0,22	5
992-505	2148-25	0,25	5
992-506	2148-30	0,30	5
992-507	2148-35	0,35	5
992-508	2148-40	0,40	5
992-509	2148-45	0,45	5
992-510	2148-50	0,50	5
992-511	2148-55	0,55	5

Holder

For strips

992-512	2148-120	0,50-0,55	118 mm

Scriber

Special Steel
Burnished

SPAENAUR No.	HAZET No.	L mm
992-513	2150	240
Plain		
877-140	—	250

Scriber

All-metal housing,
with exchangeable hard metal tip,
press button and clip.
Needle made of hard metal for scribing up to hardness of HRc 60°.

Tip dia. 2 mm

992-514	2150-2	150
Carbide Steel Replacement Tips		
993-444	2150-02	32
877-142	—	30

N

CATALOG 13

Screwdriver Bits

DIN 7426-C 6.3, ISO 1173, ISO 3109
For hollow hex head screws
1/4" hexagon drive

SPAENAUR No.	HAZET No.	s mm	DIN 912 M	L mm
993-805	2204-1.5	—	—	—
993-806	2204-2	—	—	—
993-807	2204-2.5	—	—	—
992-583	2204-3	3	4	25
992-584	2204-4	4	5	25
992-585	2204-5	5	6	25
992-586	2204-6	6	8	25
992-587	2204-8*	8	10	25

*not according to DIN

DIN 3126, Form C 8
5/16" hexagon drive
Steel Grey

993-791	2205-1	3	4	30

DIN 7426-C 8, ISO 1173, ISO 3109
5/16" hexagon drive

992-588	2206-5	5	6	30
992-589	2206-6	6	8	30
992-590	2206-8	8	10	30
992-591	2206-10*	10	12	30

DIN 3127 T1-C 6.3, ISO 1173, ISO 2351
For slotted screws
1/4" hexagon drive

SPAENAUR No.	HAZET No.	mm	mm	L mm
992-592	2208-4	0,5	4,0	25
992-593	2208-6	0,6	4,5	25
992-594	2208-8	0,8	5,5	25
992-595	2208-9*	1,0	6,0	25
992-596	2208-10	1,2	6,5	25
992-597	2208-11	1,2	8,0	25
992-598	2208-12	1,6	8,0	25

* not according to DIN

Screwdriver Bits

DIN 3127 T1-C8, ISO 1173
For slotted screws
5/16" hexagon drive

992-599	2210-8	0,8	5,5	41
992-600	2210-9	1,0	5,5	41
992-601	2210-10	1,2	6,5	41
992-602	2210-11	1,2	8,0	41
992-603	2210-12	1,6	8,0	41
992-604	2210-13	1,6	10,0	41
992-605	2210-14	2,0	12,0	41

Screwdriver Bits

DIN 3128-C 6.3, ISO 1173
For Phillips-Recess screws
Tips PHILLIPS-RECESS, DIN 5260
Tough and hard for screws
with self-cutting thread
1/4" hexagon drive

SPAENAUR No.	HAZET No.	⇐	Screw Sizes	L mm
992-606	2215-PH 1	1	2-4	25
992-607	2215-PH 2	2	5-10	25
992-608	2215-PH 3+	3	12-16	32
992-609	2215-PH 4+	4	18->	32

Very Hard
e.g. For sheet metal screws

992-610	2215-PH 1 a	1	2-4	25
992-611	2215-PH 2 a	2	5-10	25

Long pattern, tough and hard
For screws with self-cutting thread

992-612	2215 Lg-PH 2	2	5-10	50

Screwdriver Bits

DIN 3126, Form C 6.3
For Pozidriv® screws
1/4" hexagon drive
Pozidriv® is the Registered Trade Mark of European Industrial Services Ltd.

SPAENAUR No.	HAZET No.	⇐	L mm
992-613	2216-PZ 1	1	25
992-614	2216-PZ 2	2	25
992-615	2216-PZ 3	3	25
992-616	2216-PZ 4+	4	32

+ reinforced design

DIN 3128-C 8, ISO 1173
For Phillips-Recess screws
Tips PHILLIPS-RECESS, DIN 5260
Tough and hard for screws
with self-cutting thread
5/16" hexagon drive

SPAENAUR No.	HAZET No.	⇐	Screw Sizes	L mm
992-618	2217-PH 1	1	2-4	32
992-619	2217-PH 2	2	5-10	32
992-620	2217-PH 3	3	12-16	32
992-621	2217-PH 4+	4	18->	38

+ reinforced design

Very Hard
e.g. for sheet metal screws

992-622	2217-PH 2 a	2	5-10	32

N

Screwdriver Bits

DIN 3126, Form C 8
For Pozidriv® screws
5/16" hexagon drive
Pozidriv® is the Registered Trade Mark of European Industrial Services Ltd.

SPAENAUR No.	HAZET No.	⇐	L mm
992-623	2218-PZ 1	1	32
992-624	2218-PZ 2	2	32
992-625	2218-PZ 3	3	32
992-626	2218-PZ 4+	4	38

+reinforced design

Flex-Bits

For long duration consistency
For Phillips-Recess screws
Tips PHILLIPS-RECESS, DIN 5260
High torque values are obtainable with these bits.
1/4" hexagon drive

SPAENAUR No.	HAZET No.	⇐	Screw Sizes	L mm
992-627	2219-PH1	1	2-4	25
992-628	2219-PH 2	2	5-10	25
992-629	2219-PH 3	3	12-16	25

Titanium coated
For Phillips-Recess screws

992-633	2221-PH 1	1	2-4	25
992-634	2221-PH 2	2	5-10	25
992-635	2221-PH 3	3	12-16	25

Screwdriver Bits

DIN 3126, Form C 6.3
For inside TORX® screws
1/4" hexagon drive

SPAENAUR No.	HAZET No.	mm	L mm
992-639	2223-T 6	1,67	26
992-640	2223-T 7	1,99	26
992-641	2223-T 8	2,31	26
992-642	2223-T 9	2,50	26
992-643	2223-T 10	2,74	26
992-644	2223-T 15	3,27	26
992-645	2223-T 20	3,86	26
992-646	2223-T 25	4,43	26
992-647	2223-T 27	4,99	26
992-648	2223-T 30	5,52	26
992-649	2223-T 40	6,65	26

Screwdriver Bits

Long Pattern
e.g. for screws of the seat panel and to adjust the steel roof
Series No. 3 and 5 BMW
for Audi 80 and 90 since 1988.

SPAENAUR No.	HAZET No.	mm	L mm
992-650	2223 Lg-T 25	4,43	65
992-651	2223 S Lg-T 25•	4,43	110

Screwdriver Bits

DIN 3126, Form C 6.3
For inside TORX® screws with centre pin, with bore hole of the face.
1/4" hexagon drive
For sensor screw
Airbag BMW

992-653	2223-T 30 H	5,52	26

DIN 3126, Form C8
For inside TORX® screws
5/16" hexagon drive

992-654	2224-T 25	4,43	35
992-655	2224-T 27	4,99	35
992-656	2224-T 30	5,52	35
992-657	2224-T 40	6,65	35
992-658	2224-T 45	7,82	35
992-659	2224-T 50	8,83	35
992-660	2224-T 55	11,22	35

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Adapters

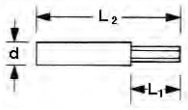
Chrome-Vanadium
DIN 7427, ISO 1173,
with 6 point opening
For electric and pneumatic drills
Burnished

SPAENAUR No.	HAZET No.	⬡ inch	□ inch	L mm
992-661	2230 S-1	1/4	1/4	25
992-662	2230 S-2	1/4	3/8	30
992-663	2230 S-3	5/16	3/8	30
992-664	2230 S-4	1/4	1/2	35
992-665	2230 S-5	5/16	1/2	35

Adapters

Chrome-Vanadium
With die-cast sleeve and
permanent magnet for holding bits
and screws securely.

For all electric drills and bits
with 1/4" ⬢ drive
Silver Grey



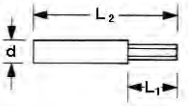
DIN 3126
(1/4")

E 6,3
DIN 3126
(1/4")

SPAENAUR No.	HAZET No.	d mm	L_1 mm	L_2 mm
992-666	2239-1	10	25	61

Couplings

With ring magnet for holding bits
and screws securely and round drive
tang for customary drill chucks,
for bits with 1/4" ⬢ drive.
With depth gauge - uncouples
automatically when fixed sinking
depth setting is reached.
Silver Grey



(1/4")

8 mm

992-672	2245-1	20	19,5	57

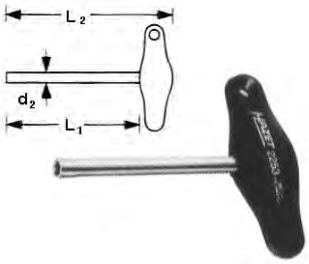
Adapters

Chrome-Vanadium
For manual operation,
with ball fitting.
Chrome-Plated

SPAENAUR No.	HAZET No.	⬡ inch	□ inch	L mm
992-673	2250-1	1/4	1/4	23,5
992-674	2250-2	1/4	3/8	30
992-675	2250-3	5/16	3/8	31
992-676	2250-4	1/4	1/2	35
992-677	2250-5	5/16	1/2	36

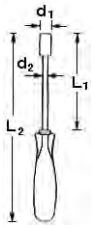
Bit Holder for ⬡ Screwdriver Bits

Aluminum
-Al Cu Mg Pb F 37-
For bits with 1/4" ⬢ drive,
with permanent magnet,
for hand-operation,
with transverse handle,
(protected by design patent),
Black Plastic Material



SPAENAUR No.	HAZET No.	⬡ inch	L_1 mm	L_2 mm	d_1 mm	d_2 mm
992-678	2253	1/4	100	135	—	10

DIN 3126 C, ⬡
for Bits with 1/4" or 5/16" ⬢ drive
With trinamic®-handle
(protected by design patent)
Black Plastic Material



992-679	2255	1/4	80	190	10	10
992-680	2256	5/16	95	205	12	10

Bit Holder ⬡

With Bits 1/4" ⬢
and adapter for drills.
Bits are stored in the
plastic handle

SPAENAUR No. (HAZET No.)	Bit	Bit	Adapter
992-681 (2260/6)	992-593 992-594	992-606 992-607	992-666
992-682 (2260/10)	992-592 992-593 992-594 992-595	992-606 992-607 **Bit** 992-613 992-614	992-666

Torx® Bit Holder

With Storage Handle that accommodates
8 Torx Bits, 1/4" ⬢ (6.3 mm) Drive
and an adapter for drills.

SPAENAUR No.	Hazet No.
993-851	2260/10T

Bits Included (1 only)

Sizes: T9 T10 T15 T20 T25 T27 T30 T40

Drill Adapter Included (1 only)

Priced Singly
(Includes 8 Torx Bits
and 1 Adapter)

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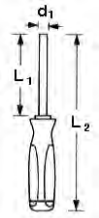
CATALOG 13

Screwdriver Bit-Holder

For manual operation, short pattern
With trinamic®-magazine handle, black (protected by design patent).
With swivel cap and retainer magnet.
1/4" ⬢ drive, without bits.
No loosening of cap during operation.



SPAENAUR No.	HAZET No.	L_1 mm	L_2 mm	d_1 mm
992-683	2261	17	90	10

Long Pattern, without bits

992-684	2262	85,5	200	10
992-685	2263	185,5	300	10

Bit-Holder with Bits

Sets in magazines
Short Pattern
7 Parts

***SPAENAUR No.* 992-686**
(HAZET No. 2261/7)

Set Includes:

992-683	1/4" ⬡	**992-593** **992-594** **992-595** **992-597**	1/4" ⬢
992-606 **992-607**	1/4" ⬢		

Long Pattern
7 Parts

***SPAENAUR No.* 992-687**
(HAZET No. 2262/7)

Set Includes:

992-684	1/4" ⬡	**992-593** **992-594** **992-595** **992-597**	1/4" ⬢
992-606 **992-607**	1/4" ⬢		

Very Long Pattern
7 Parts

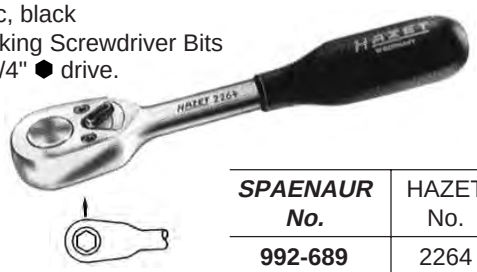
***SPAENAUR No.* 992-688**
(HAZET No. 2263/7)

992-685	1/4" ⬡	**992-593** **992-594** **992-595** **992-597**	1/4" ⬢
992-606 **992-607**	1/4" ⬢		

Reversible Ratchet

Chrome-Vanadium
With trinamic®-handle (protected by design patent)
Plastic, black
For taking Screwdriver Bits with 1/4" ⬢ drive.

Chrome-Plated
Polished



SPAENAUR No.	HAZET No.	L mm
992-689	2264	115

For taking Screwdriver Bits with 5/16" ⬢ drive.

993-850	2264-1	200

Adapters

Chrome-Vanadium
For sockets
□ drive according DIN 3120
Burnished

For Bit-Holder 992-678, 992-679, 992-683 to -685 and Reversible Ratchet 992-689.
1/4" ⬢ drive
According DIN 3126, Form C

SPAENAUR No.	HAZET No.	■ inch	⬢ inch	L mm
992-696	2304	1/4	1/4	25

Socket Wrench

3/8 inch

Chrome-Vanadium
With universal joint, T-handle and 3/8" inside square drive.
Especially for installing/tightening the oil pan on VW with transverse positioned engine, e.g. Golf/Rabbit, Jetta, Scirocco
Chrome-Plated

SPAENAUR No.	HAZET No.	⬢ mm	L mm
992-721	2528-10	10	250

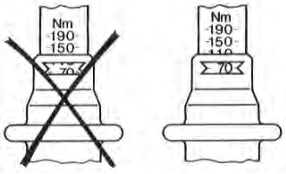
Torque Tools

Standard Torque Wrench SYSTEM 5000 ST

With automatic close-gap release, palpable and audible when torque setting is reached.
Release accuracy tolerance:
± 4% **of values selected**
Tightening at torque setting is possible both to the right and left.

To adjust, turn handle until torque value is shown in handle opening.

* Not exactly as illustrated



Example to adjust 70 Nm

Torque Range Nm	Increase 1-1/4 Turn Nm
10-60	5
20-120	10
40-200	10
60-300	20

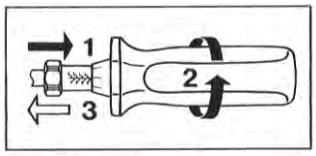
With set screw to fix torque setting,
Drive element: Ratchet with sliding square tang
HAZET No. *5110-1CT especially for mounting spark plugs on motorcycles

SPAENAUR No.	HAZET No.	■	**Nm**	**L** mm
–	*5110-1CT	3/8"	10-60	300
992-928	5121 ST	1/2"	20-120	390
992-929	5122 ST	1/2"	40-200	480
992-930	5123 ST	1/2"	60-300	620

***SPAENAUR No.* 993-922**
Ratchet Head only for 992-929.

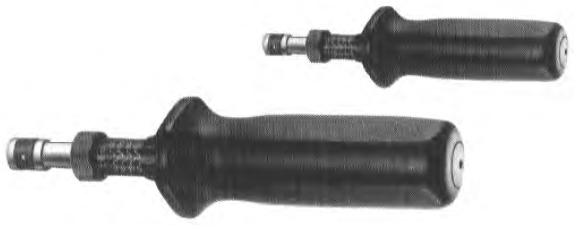
Torque Screwdriver SYSTEM 6000 CT

With automatic close-gap release, palpable and audible when torque setting is reached.
Release accuracy tolerance:
± 5% **of values selected**
Tightening at torque setting is possible both to the right and left,
with micrometer adjustment by simply turning the red ring (1) and the handle at the same time (2), scale value will be locked automatically after releasing the red ring (3).



With 1/4" inside hexagon drive for screwdriver bits
With 1/4" outside hexagon drive

Torque Range		**Increase/Turn**		**Graduation**	
cNm	**Nm**	**cNm**	**Nm**	**cNm**	**Nm**
10-120	—	10	—	1	—
—	1-6	—	1	—	0,1



SPAENAUR No.	HAZET No.	⬡	**cNm**	**Nm**	**L** mm
992-931	6002 CT	1/4"	10-120	—	170
992-932	6003 CT	1/4"	—	1-6	230

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Torque Tools

Torque Wrenches

DBP
DIN/ISO 6789
With reversible ratchet
☐ drive as per DIN 3120
Release accuracy tolerance:
± 2% **of values selected**
at right hand threads,
with locking knob for extra retention
of torque setting

SPAENAUR No.	HAZET No.	■	**Nm**	**L** mm
992-938	6110-1 CT +	3/8"	10-60	335
992-939	6111-1 CT +	3/8"	20-120	389
992-940	6121-1 CT +	1/2"	20-120	435
992-941	6122-1 CT +	1/2"	40-200	545
992-942	6123-1 CT	1/2"	60-320	663
992-943	6143-1 CT O	3/4"	100-400	803
992-945	6145-1 CT O	3/4"	300-800	1280

+ = in Safe Box
O = without signal transmitter

With cylinder lock for supplementary
torque value locking

Torque Wrench Key

***SPAENAUR No.* 993-923**

for wrenches with cylinder lock
SPAENAUR No's 992-946, 992-948
992-949, 992-950 & 992-952

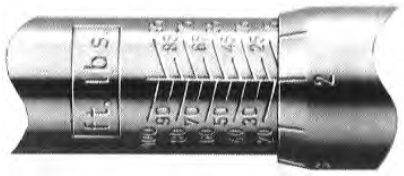
992-946	6110 CT +	3/8"	5-60	335
992-948	6122 CT +	1/2"	40-200	545
992-949	6123 CT	1/2"	60-320	660
992-950	6143 CT O	3/4"	100-400	803
992-952	6145 CT O	3/4"	300-800	1280

+ = in Safe Box
O = without signal transmitter

N

Torque Wrenches

DBP
To US Standards
With scale graduation in **foot/pounds**
Release accuracy tolerance:
± 3% **of values selected**
at right hand threads,
with locking knob for extra retention
of torque setting



SPAENAUR No.	HAZET No.	■	**B** ft./lbs.	**B** Nm	**T** ft./lbs.	**T** Nm	**L** mm
992-953	6115-1 CT +	3/8"	20-100	27,1-135,7	1/2	0,7	390
992-954	6127-1 CT +	1/2"	40-200	54,3-270	1	1,4	545

B = Torque Range
T = Graduation
+ = in Safe-Box

Tool Kit, empty

Made from sheet steel
5 trays, with padlock
530 x 200 x 200 mm
Blue
Store enamelled

***SPAENAUR No.* 990-089**
(HAZET No. 190 L)

Trimming Knife

(protected by design patent)
With Fiberglass-reinforced housing
and 3 variable blades
(snap-off, straight and hook)
stored in the handle.

Replacement Blades
are available.

SPAENAUR No.	HAZET No.	**L** mm
992-524	2157	167

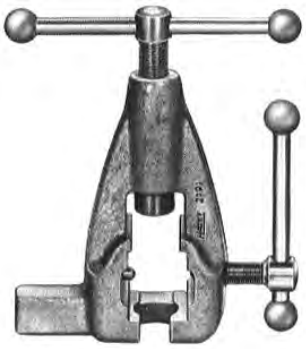
Universal Strap Wrench

Chrome-Vanadium
Particularly for oil filters
and other circular screw
joints.
Non-slip strap, plastic
coated
Chrome-Plated

SPAENAUR No.	HAZET No.	**L** mm	**Ø** mm
992-538	2170	230	160

Tube Flaring Unit and Accessories

Special Cast Steel
VARNISHED
Flaring Yoke
For Tubes outside-Ø



SPAENAUR No.	HAZET No.	**Ø**
992-560	2191	4,75-10 mm / 3/16-3/8" A

Gripping Jaws

For E and F flares

992-561	2191-1	4,75, 5, 6, 8, 9, 10 mm
992-562	2191 A-1	3/16, 1/4, 5/16, 3/8" A

Pry Bars

Special Steel
For lifting cylinder heads,
taking off gears, bushings,
bearings, etc.
Bright Nickel-Plated

SPAENAUR No.	HAZET No.	**L** mm
992-532	2165-1	400

992-533	2165-2	400

992-534	2165-3	400

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N

Spring Tensioner

3/8 inch

with T-handle with Universal Joint
Chrome-Vanadium
For mounting and removing
the steel clamps at the ball flange
in VW exhaust systems
Golf 1.5 L-70 HP, Diesel 1.5 L-50 HP,
1.6 L-54 HP, Jetta 1.5 L-70 HP,
Diesel 1.6 L-54 HP, Scirocco 1.5 L-70 HP
Drop-forged,

Chrome-Plated

SPAENAUR No.	HAZET No.	SW max. mm	L mm
992-779	2585	77	145/340

Taper Key Set

3 parts
Special Steel
To assemble clamp springs (steel clamps)
on exhaust systems
with ball flange connection
all VW-vehicles.

Burnished

Set consisting of 3 parts

992-783

992-784

SPAENAUR No. (HAZET No.)	*SPAENAUR No's.* **in Set**
992-782 (2586 N/3)	992-783 992-784 (2 keys)

Taper keys also sold separately

95 mm length, 78/89/100 mm width

***SPAENAUR No.* 992-783**
(HAZET No. 2586 N-1)

46 mm length, 86/89, 5/100 mm width

***SPAENAUR No.* 992-784**
(HAZET No. 2586 N-2)

Open 12 Point Socket

1/2 inch

Chrome-Plated

Chrome-Vanadium
For fastening nut on injection
nozzle Mercedes-Benz,
on M 314, 352 A, 360, 360 h,
346/355 A,
MB-No. 346 589 00 13 00

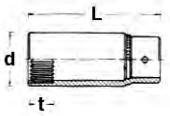
SPAENAUR No.	HAZET No.	s mm	L mm
992-907	4550-30	30	136

12 Point Sockets

1/2 inch

Chrome-Plated

Chrome-Vanadium
For injection nozzles on diesel engines
VW-Audi, Mercedes-Benz, Opel, Ford,
Peugeot-Talbot, Volvo, Toyota, Mazda,
Nissan, Mitsubishi, Daihatsu,
MB-No. 001 589 65 09 00



For turning the engine over at
the crankshaft hex head screws.
With special relief-turned
section of accommodate
the small leakage return tubes.

SPAENAUR No.	HAZET No.	s mm	L mm	d mm	t mm
992-908	4555	27	82	36,2	15

For injection nozzles on
BMW-Diesel 524 td,
Ford-Diesel Lincoln
Continental (USA),
Lincoln Mark VII, VII LSC

1/2 inch

992-909	4555-1	27	82	36,2	15

Crown Wrench

1/2 inch

Chrome-Plated

Chrome-Vanadium
For tightening and slackening
the nozzle holder nuts
in Mercedes-Benz trucks
M 401/421, M 402/422, LA,A,
M 403/423, M 470 h,
MB-No. 403 589 04 07 00

SPAENAUR No.	HAZET No.	L mm
992-912	4558	72

N

CATALOG 13

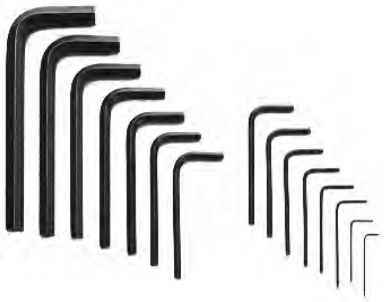
Allen® Hex Keys	Clefs six pans Allen®	**P2**
Hex & Torx® Keys, Sets & Drivers	Clefs six pan et Torx®	**P7**
Armstrong® Tools	Outils Armstrong®	**P15**
Screw Drivers, Driver Bits & Sockets	Tournevis, embouts et douilles	**P32**
Inch High Speed & Masonry Drills	Forets pour acier et maçonnerie en pouces	**P46**
Inch Countersinks, Reamers & Mill Cutters	Fraises et alésoirs en pouces	**P49**
Metric High Speed, Masonry & Wood Drills	Forets pour acier, maçonnerie, et bois en métrique	**P54**
Metric Countersinks, Bores, Reamers & Cutters	Fraises et alesoirs en métrique	**P65**
Hand Taps, Dies & Tools	Tarauds et filières	**P76**
Screw Extractors	Extracteurs de boulons	**P101**
Feeler Gauges & Measuring Devices	Jauges d'épaisseur et dispositifs de mesure	**P105**
Paint Stripers	Décapant de peinture	**P112**
Spanner Wrenches	Clés «Spanner»	**P115**
Punches, Chisels & Marking Stamps	Poinçons, burins et outils pour identification	**P123**
Vise Grip®, Pliers & Clamps	Outils Vise-Grip®	**P127**
Channel Lock® Tools	Outils Channel Lock®	**P130**
Files & Hacksaws	Limes et scies à métal	**P137**
Body Shop & Metalworking Tools	Outils pour carrosserie et pour le travail de métal	**P140**
Knipex® Pliers	Pinces Knipex®	**P150**
Ullman® Inspection Tools	Outils pour inspection Ullman®	**P173**

A cross reference chart for checking if a part is RoHS compliant or if a part has an updated part number has been added to the end of this electronic version of the catalog. Click here to jump to the cross reference chart.

Hex Key Sets - Short Arm

Precision tolerances, heat treated alloy steel, black finish.

AW56030 In pouch.
11 keys, short arm series, inch sizes: .050, 1/16, 5/64, 3/32, 1/8, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8.



AW56032 In pouch.
15 keys, short arm series, inch sizes: .028, .035, .050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8.

AW56011 In pouch.
20 keys, short arm series, inch sizes: .028, .035, .050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8, 7/16, 1/2, 9/16, 5/8, 3/4.

AW56026 In sturdy metal box.
18 keys, short arm series, inch sizes: .028, .035, .050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8, 1/2, 9/16, 5/8.

AW56028 In sturdy metal box.
15 keys, short arm series, inch sizes: .028, .035, .050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8.

AW56080 In plastic holder.
13 hex keys, short arm series, inch sizes: .050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8.

Hex Key Sets - Long Arm

AW56034 In pouch.
9 keys, 6" long arm series, inch sizes: 5/64, 3/32, 1/8, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8.

AW56150 In pouch.
11 keys, long arm series, inch sizes: .050, 1/16, 5/64, 3/32, 1/8, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8.

AW56014 In pouch.
15 keys, long arm series, inch sizes: 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8, 1/2, 9/16, 5/8, 3/4.

AW56110 In pouch.
7 keys, 12" extra long arm series, inch sizes: 5/64, 3/32, 1/8, 5/32, 3/16, 7/32, 1/4.

Hex Key Sets - Long Arm

AW56152 In plastic holder.
12 keys, long arm series, inch sizes: .050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16.

AW56009 In plastic holder.
22 keys, long arm series, inch and metric sizes: .050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8, and 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10mm.

P

Precision tolerances, heat treated alloy steel, black finish.

Hex Key Set - Long Arm

AW56128 In sturdy metal box.
13 keys, long arm series, inch sizes: 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8, 1/2.

Ball Plus™ Long Arm Sets

AW56190 In caddy.
13 keys, Ball Plus™ sets, inch sizes: .050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8.

AW56195 In pouch.
8 keys, Ball Plus™, inch sizes: .050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32.

AW56196 In caddy.
12 keys, Ball Plus™, inch sizes: .050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16.

AW56192 In caddy.
22 keys, Ball Plus™, inch and metric sizes: .050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8 and 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10.

BALL PLUS™ Cushion Grip T-Handle Key Sets

AW56130 In pouch.
10 keys, Ball Plus™, inch sizes: 3/32*, 7/64*, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8. (*Hex End Only)

AW56134 In pouch.
11 keys, Ball Plus™, inch and metric sizes: 5/32, 3/16, 7/32, 1/4, 5/16, 3/8 and 4, 5, 6, 8, 10mm.

BALL PLUS™ Screwdriver Handle - Sets

AW56180 In pouch.
8 keys, Ball Plus™, screwdriver handle, inch sizes: .050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32.

AW56182 In pouch.
13 keys, Ball Plus™, screwdriver handle, inch sizes: .050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8.

AW56183 In pouch.
7 keys, Ball Plus™, screwdriver handle, inch sizes: 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16.

AW56184 In pouch.
11 keys, Ball Plus™, **long** screwdriver handle, inch sizes: 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8.

P

Precision tolerances, heat treated alloy steel, black finish.

Forged T-Handle

Forged T-Handles feature rugged metal handles with large gripping surface for maximum leverage. Bits are replaceable; key for set screw is included. Conform to Fed. Std. GGG-K-275. AMED. 1

NOMINAL BIT SIZE IN.	NOMINAL BIT LENGTH, IN.	*SPAENAUR No.*	NOMINAL BIT SIZE IN.	NOMINAL BIT LENGTH, IN.	*SPAENAUR No.*
3/32	5	**AW56044**	1/4	6	**AW56058**
7/64	5	**AW56046**	5/16	7	**AW56060**
1/8	5	**AW56048**	3/8	7	**AW56062**
9/64	5	**AW56050**			
5/32	5	**AW56052**			
3/16	5	**AW56054**			
7/32	5	**AW56056**			

Plas-T-Key® Handle

Plas-T-Key® Drivers are molded of red butyrate for comfort and toughness. Size-marked handles show bit size.

NOMINAL BIT SIZE IN.	NOMINAL BIT LENGTH, IN.	*SPAENAUR No.*	NOMINAL BIT SIZE IN.	NOMINAL BIT LENGTH, IN.	*SPAENAUR No.*
3/32	1-7/8	**AW57500**	9/64	2-1/2	**AW57506**
7/64	2-1/8	**AW57502**	5/32	2-11/16	**AW57508**
1/8	2-5/16	**AW57504**	3/16	3-3/32	**AW57510**

AW56112 In metal stand.
Wrenchmate contains ten 6" long Allen Plas-T-keys® in a metal stand. Inch sizes: 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8. Each Plas-T-Key has a size-marked molded plastic handle. Just right for workbench.

Components of AW56112

NOMINAL BIT SIZE INCHES	EXPOSED BIT LENGTH, IN.	*SPAENAUR No.*
3/32	4.5	**AW58400**
7/64	4.5	**AW58402**
1/8	4.5	**AW58404**
9/64	4.5	**AW58406**
5/32	4.5	**AW58408**
3/16	4.5	**AW58410**
7/32	4.5	**AW58412**
1/4	4.5	**AW58414**
5/16	4.5	**AW58416**
3/8	4.5	**AW58418**

AW56064 In metal stand.
Cushion-Grip T-Handle Set includes 10 drivers with Allen Bits in inch sizes: 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8. Bit lengths 6". Large cushioned handles provide more torque and comfort. Modern metal stand with individual recesses, perfect for workbench.

AW56161 In vinyl wrap pouch.
Cushion-Grip T-Handle Set includes 8 drivers with Allen Bits in inch sizes: 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4. Overall lengths 6".

Cushion-Grip T-Handle Individual Components

NOMINAL BIT SIZE IN.	OVERALL LENGTH, IN.	*SPAENAUR No.*	NOMINAL BIT SIZE IN.	OVERALL LENGTH, IN.	*SPAENAUR No.*
3/32	6	**AW57300**	3/16	6	**AW57310**
7/64	6	**AW57302**	7/32	6	**AW57312**
1/8	6	**AW57304**	1/4	6	**AW57314**
9/64	6	**AW57306**	5/16	6	**AW57316**
5/32	6	**AW57308**	3/8	6	**AW57318**

AW56163 In metal stand.
Cushion-Grip T-handle Set includes 10 drivers with Allen Bits in inch sizes: 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8. Bit lengths 9".
Large cushioned handles provide more torque and comfort.
Modern metal stand with individual recesses, perfect for workbench.

AW56164 In vinyl wrap pouch.
Cushion-Grip T-handle Set includes 8 drivers with Allen Bits in inch sizes: 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4. Bit lengths 9".

Cushion-Grip T-Handle Individual Components

NOMINAL BIT SIZE IN.	NOMINAL BIT LENGTH, IN.	*SPAENAUR No.*	NOMINAL BIT SIZE IN.	NOMINAL BIT LENGTH, IN.	*SPAENAUR No.*
3/32	9	**AW58250**	3/16	9	**AW58260**
7/64	9	**AW58252**	7/32	9	**AW58262**
1/8	9	**AW58254**	1/4	9	**AW58264**
9/64	9	**AW58256**	5/16	9	**AW58266**
5/32	9	**AW58258**	3/8	9	**AW58268**

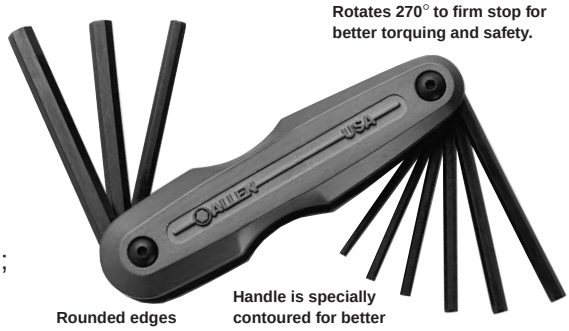
Fold-Up Hex Key Sets

Precision tolerances, heat treated alloy steel, black finish.

AW56384 - Bike Mate™
Contains 4 Hex Bits in metric sizes 2, 4, 5, 6 and one Phillips and one Slotted screwdriver blade.

Wrenches open from the top and bottom, for easy access and use.

Rotates 270° to firm stop for better torquing and safety.



Rounded edges never cut hands or catch clothing.

Handle is specially contoured for better feel and control

AW56347
Contains 9 bits in inch sizes:
5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4.

AW56357 In pouch.
3 Pc. Fold-Up Hex Key Sets
Contains 9 bits in Inch sizes - 7 bits in Metric & Torx® sizes.
0.50, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16 - inch sizes;
1.5, 2, 2.5, 3, 4, 5, 6 - metric sizes;
T-10, T-15, T-20, T-25, T-27, T-30, T-40 - Torx sizes.

AW56349
Contains 7 bits in metric sizes: 1.5, 2, 2.5, 3, 4, 5, 6.

AW56301
3 Pc. Fold-Up Key Sets Include: 9 Bit Inch Size Wrench Set, .050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16;
7 Bit Metric Size Wrench Set 1.5, 2, 2.5, 3, 4, 5, 6mm;
7 Bit Torx® Size Wrench Set T-10, T-15, T-20, T-25, T-27, T-30, T-40.

AW56301 set includes all three fold-ups at left.

AW56073
9 Bits Inch Size Wrench Set
.050, 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16.
Bit Lengths 1-5/8 - 2-1/4". Colour: Flame Orange.

AW56897
7 Bits Torx® Wrench Set
T-10, T-15, T-20, T-25, T-27, T-30, T-40.
Bit Lengths 2-1/2 - 3". Colour: Hi-Vis Green.

AW56076
7 Bits Metric Size Wrench Set
1.5, 2, 2.5, 3, 4, 5, 6mm.
Bit Lengths 64-70mm. Colour: Electric Blue.

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Short Arm Series Sets

Precision tolerances, heat treated alloy steel, black finish.

AW56038 In sturdy metal box.
12 metric keys, short arm series, mm sizes: .0.7, 0.9, 1.3, 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10.

AW56036 In sturdy metal box.
15 metric keys, short arm series, mm sizes: 0.7, 0.9, 1.3, 1.5, 2, 2.5, 3, 4, 5, 6, 8,10, 12, 14, 17.

AW56008 In plastic holder.
9 metric keys, short arm series, mm sizes: 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10.

Long Arm Series Set

AW56085

In sturdy metal box.
10 genuine Allen long arm series hex keys, mm sizes: 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10, 12.

Long Hex Key Fold-Up Set

130-284

5 key sizes:
4, 5, 6, 8, 10mm.

ALLOY STEEL Keys, Black Finish

Cushion-Grip T-Handle Series Set

AW56093 In vinyl wrap pouch.
Set contains five drivers with Bits in mm sizes: 2.5, 3, 4, 5, 6.

Ball Plus™ Long Arm Set

AW56194

9 keys, Ball Plus™, metric sizes:
1.5, 2, 2.5, 3, 4, 5, 6, 8, 10mm.

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Ball Plus™ Cushion Grip T-Handle Key Set

AW56132 In pouch.
7 keys, Ball Plus™, metric sizes:
2.5*, 3, 4, 5, 6, 8, 10. (*Hex End Only)

Ball Plus™ Screwdriver Handle Set

AW56187 In pouch.
9 keys, Ball Plus™ metric screwdriver handle set in metric sizes:
1.5, 2, 2.5, 3, 4, 5, 6, 8, 10.

Ball Plus™ Long Length Screwdriver Set

AW56188 In pouch.
8 keys, Ball Plus™, metric screwdriver handle set in metric sizes: 2, 2.5, 3, 4, 5, 6, 8, 10.

CATALOG 13

HEX KEYS
For INCH SIZES

UNIT PACKAGE QUANTITIES SHOWN IN PRICE LIST

KEY FIT TABLE - FITS NOMINAL THREAD SIZE

SET	SOCKET HEAD CAP (1936 SERIES)	SOCKET HEAD CAP (1960 SERIES)	SOCKET LOW HEAD CAP	FLAT HEAD CAP	BUTTON HEAD CAP	SHOULDER	PIPE PLUG	KEY SIZE (Width Across Flats)	ALLOY STEEL Plain SPAENAUR No. Regular SHORT ARM Series	ALLOY STEEL Plain SPAENAUR No. Special LONG ARM Series	CHROME VANADIUM SPAENAUR No. SHORT ARM Plain	CHROME VANADIUM SPAENAUR No. SHORT ARM Nickel Pltd.	CHROME VANADIUM SPAENAUR No. LONG ARM Plain	CHROME VANADIUM SPAENAUR No. LONG ARM Nickel Pltd.
0								.028"	SS-303K	—	—	—	—	—
								3/64"	—	—	130-294	130-294NP	—	—
1, 2				0	0			.035"	SS-304K	—	—	—	—	—
3, 4	0, 1	0	4	1, 2	1, 2			.050"	SS-61K	—	130-326	130-326NP	—	—
5, 6	2	1	5,6	3, 4	3, 4			1/16"	SS-62K	—	130-327	130-327NP	130-345	130-345NP
8	3, 4	2, 3	8	5, 6	5, 6			5/64"	SS-63K	SS-63KL	130-328	130-328NP	130-346	130-346NP
10	5, 6	4, 5	10	8	8			3/32"	SS-64K	SS-64KL	130-329	130-329NP	130-347	130-347NP
		6						7/64"	SS-105K	130-051	—	—	—	—
¼	8		¼	10	10	¼		1/8"	SS-65K	SS-65KL	130-330	130-330NP	130-348	130-348NP
		8						9/64"	SS-106K	SS-106KL	—	130-331NP	—	—
5/16	10	10	5/16	¼	¼	5/16	1/16	5/32"	SS-66K	SS-66KL	130-332	130-332NP	130-349	130-349NP
3/8	¼	¼	3/8	5/16	5/16	3/8	1/8	3/16"	SS-67K	SS-67KL	130-333	130-333NP	130-350	130-350NP
7/16	5/16		7/16	3/8	3/8			7/32"	SS-103K	SS103KL	130-334	130-334NP	130-351	130-351NP
½		5/16	½	7/16		½	¼	1/4"	SS-68K	SS-68KL	130-335	130-335NP	130-352	130-352NP
								9/32"	—	—	130-295	130-295NP	—	—
5/8	3/8,7/16	3/8	5/8	½	½	5/8	3/8	5/16"	SS-69K	SS-69KL	130-336	130-336NP	130-353	130-353NP
								11/32"	—	—	130-296	130-296NP	—	—
¾	½	7/16,½		5/8,¾	5/8	¾	½	3/8"	SS-104K	130-050	130-337	130-337NP	130-354	130-354NP
								7/16"	—	SS-310KL	130-338	130-338NP	130-355	130-355NP
7/8	5/8	5/8				1		1/2"	—	SS-300KL	130-339	130-339NP	130-356	130-356NP
1,1⅛	¾,7/8						¾	9/16"	—	SS-301KL	130-340	130-340NP	—	—
1¼,1⅜	1	¾				1¼	1	5/8"	—	SS-302KL	130-341	130-341NP	—	—
1½	1⅛,1¼,1⅜	7/8,1					1¼	3/4"	—	SS-305KL	130-342	130-342NP	130-357	130-357NP
		1⅛,1¼						7/8"	—	SS-306KL	130-343	130-343NP	—	—
1¾,2	1½	1⅜,1½					1½,2	1"	—	SS-307KL	130-344	130-344NP	—	—
		1¾						1-1/4"	—	—	—	—	—	—
		2						1-1/2"	—	—	—	—	—	—

P

HEX KEY SETS INCH SIZES

***SPAENAUR* HEXAGON KEYS** are made to fine tolerances from special alloy steel. All ends are chamfered for easy insertion. A snug fit is certain when you use these keys with *SPAENAUR* Hex-socket Screws. *Priced Singly*

B-587
REGULAR SHORT ARM KEYS

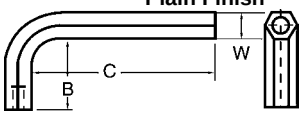
- Contains 8 sizes Hex Keys
- Handy transparent plastic case
- Hex Key sizes: .050" to 1/4"
- Fit Set Screws from #3 to 9/16" diameter
- Chart on lid shows complete size data

B-588
SPECIAL LONG ARM KEYS

- Contains 7 sizes Hex Keys
- Hex Key sizes 5/64" to 5/16"
- Fit Set Screws from #8 to 5/8" dia.

Short Arm Security Hex Keys
Drilled on both ends.
(*Drilled both or short end only - our option.)

Alloy Steel
Plain Finish



SPAENAUR No.	NOMINAL KEY OR BIT AND SOCKET SIZE	W WIDTH ACROSS FLATS Max.	B LENGTH OF SHORT ARM Max.	C LENGTH OF LONG ARM Max.	HOLE SIZE +.005
130-100	3/32"(0.094)"	0.0937"	0.750"	2.094"	.050"
130-093	1/8" (0.125)"	0.1250"	0.844"	2.344"	.075"
130-094	9/64"(0.141)"	0.1406"	0.891"	2.469"	.084"
130-095	5/32"(0.156)"	0.1562"	0.938"	2.594"	.097"
130-096	3/16"(0.188)"	0.1875"	1.031"	2.844"	.102"
130-097	7/32"(0.219)"	0.2187"	1.125"	3.094"	.123"
*130-098	1/4" (0.250)"	0.2500"	1.219"	3.344"	.123"
*130-099	5/16"(0.312)"	0.3125"	1.344"	3.844"	.201"

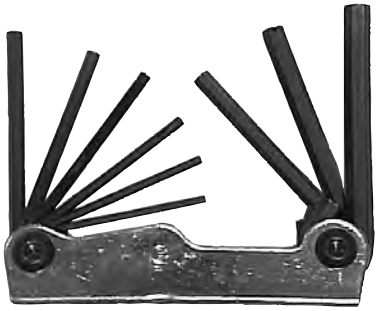
Unit Package Quantity – 3/32" is 10, Larger Sizes Priced Singly

EASY TO USE - HARD TO LOSE...

Holder handles are designed to fit the hand and are deburred and chrome plated for comfort and durability. The most popular folding hex key set. Often copied, but never equalled in quality or performance.

3" Blades

4" Handle



Medium Handle Folding Deluxe Hex Key Set

The ideal size group by popular demand. The perfect set for tradesman or technician, do-it-yourselfer, or mechanic.

***SPAENAUR No.* 130-322 9-Blade Set – Inch Sizes**

Set contains sizes 5/64", 3/32", 7/64", 1/8", 9/64", 5/32", 3/16", 7/32" & 1/4" across flat blades.

UNIT PACKAGE - 1 SET

Individual Replacement Keys for Folding Hex Key Sets available (while stock exists) for sizes .050" to 7/32". Order by individual *SPAENAUR Number*.

Selected grade of steel with precise hexagonal measurements.

Unit Package Quantity – 10

SPAENAUR No.	Width Across Flats
130-001	.050"
130-002	1/16"
130-004	3/32"

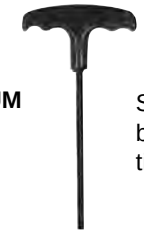
SPAENAUR No.	Width Across Flats
130-005	7/64"
130-007	9/64"

SPAENAUR No.	Width Across Flats
130-009	3/16"
130-010	7/32"

"T" HANDLE HEX DRIVERS

All Hex shafts are manufactured from **CHROME VANADIUM STEEL**.

Priced Singly



Red Plastic Handle

Style shipped will be to our option at time of order.

SPAENAUR No.	KEY SIZE (Width A/F)
130-012	3/32"
130-013	7/64"
130-014	1/8"
130-015	9/64"
130-016	5/32"

SPAENAUR No.	KEY SIZE (Width A/F)
130-017	3/16"
130-018	7/32"
130-019	1/4"
130-020	5/16"
130-021	3/8"

HEX DRIVERS with Ball End

All dimensions in Inches

SPAENAUR No.	KEY SIZE Width A/F	Blade Lgth.	O/A Lgth.
876-1671	.050"	3-3/16"	4-11/16"
876-1672	1/16"	3-5/16"	4-13/16"
876-1673	5/64"	3-1/2"	5-5/16"
876-1674	3/32"	3-11/16"	5-19/32"
876-1675	7/64"	2-29/32"	5-3/32"
876-1676	1/8"	3-3/32"	5-5/16"
876-1677	9/64"	3-5/16"	6-3/32"
876-1678	5/32"	3-1/2"	6-13/32"
876-1679	3/16"	3-13/16"	7-5/16"
876-1680	7/32"	4-3/16"	7-11/16"
876-1681	1/4"	4-11/16"	8-13/16"
876-1682	5/16"	5-19/32"	9-13/32"
876-1683	3/8"	6-1/2"	10-13/32"
876-1684	7/16"	7-19/32"	11-1/2"
876-1685	1/2"	8-1/2"	12-1/2"

All Hex Drivers Priced Singly.

HEX KEYS with Ball End

SPAENAUR No.	KEY SIZE Width A/F	Blade Length Inch
876-1686	.050"	2-13/16"
876-1687	1/16"	3
876-1688	5/64"	3-3/16"
876-1689	3/32"	3-13/32"
876-1690	7/64"	3-19/32"
876-1691	1/8"	3-13/16"
876-1692	9/64"	3-29/32"
876-1693	5/32"	4-3/32"
876-1694	3/16"	4-1/2"
876-1695	7/32"	4-29/32"
876-1696	1/4"	5-3/16"
876-1697	5/16"	6
876-1698	3/8"	6-13/16"
876-1699	7/16"	7-1/2"
876-1700	1/2"	8-5/16"
876-1701	9/16"	9
876-1702	5/8"	9-13/16"
876-1703	3/4"	11-5/16"

All Hex Keys Priced Singly.

HEX KEYS
Metric
DIN 911

UNIT PACKAGE QUANTITIES SHOWN IN PRICE LIST

Fits Screw Styles & Sizes				KEY SIZE	ALLOY STEEL Plain *SPAENAUR No.*		CHROME VANADIUM *SPAENAUR No.*			
							SHORT ARM		LONG ARM	
DIN 912	DIN 7984	DIN 7991	DIN 913-916	(Width Across Flats) mm	SHORT ARM Series	LONG ARM Series	Plain	Nickel Pltd.	Plain	Nickel Pltd.
Screw Diameters in mm										
			M1.4, M1.7	0.71	130-201	—	—	—	—	—
			M2, M2.3	0.89	130-202	—	—	—	—	—
			M2.5	1.3	130-273	—	—	—	—	—
M1.7, M2	—	—	M3	1.5	130-203	130-286	130-358	130-358NP	—	130-404NP
M2.3, M2.6	M3	M3	M4	2	130-204	130-221	130-359	130-359NP	130-376	130-376NP
M3	M4	M4	M5	2.5	130-205	130-222	130-360	130-360NP	130-377	130-377NP
M4	M5	M5	M6	3	130-206	130-223	130-361	130-361NP	130-378	130-378NP
—	—	—	—	3.5	—	—	130-232	130-232NP	—	—
M5	M6	M6	M8	4	130-207	130-224	130-362	130-362NP	130-379	130-379NP
M6	M8	M8	M10	5	130-208	130-225	130-363	130-363NP	130-380	130-380NP
M8	—	M10	M12	6	130-209	130-226	130-364	130-364NP	130-381	130-381NP
—	M10	—	—	7	130-210	—	130-365	130-365NP	130-382	130-382NP
M10	M12	M12	M16	8	130-211	130-227	130-366	130-366NP	130-383	130-383NP
—	—	—	—	9	130-212	—	130-367	130-367NP	130-384	130-384NP
M12	M14	M14, M16	M20	10	130-213	130-228	130-368	130-368NP	130-385	130-385NP
—	—	—	—	11	—	—	130-263	130-263NP	130-287	130-287NP
M14	M16, M18	M18, M20	M24	12	130-214	130-233	130-369	130-369NP	130-386	130-386NP
—	—	—	—	13	—	—	130-276	130-276NP	130-264	130-264NP
M16, M18	M20, M22	M22, M24	—	14	130-215	—	130-370	130-370NP	130-388	130-388NP
—	—	—	—	15	—	—	130-277	130-277NP	130-389	130-389NP
—	—	—	—	16	—	—	130-278	130-278NP	130-390	130-390NP
M20, M22	M24	—	—	17	130-216*	—	130-371	130-371NP	130-391	130-391NP
—	—	—	—	18	—	130-238	130-279	130-279NP	130-392	130-392NP
M24, M27	—	—	—	19	130-217	130-239	130-372	130-372NP	130-393	130-393NP
—	—	—	—	20	—	—	130-280	130-280NP	—	—
—	—	—	—	21	—	—	130-262	130-262NP	—	—
M30	—	—	—	22	130-218	—	130-373	130-373NP	130-288	130-288NP
M33	—	—	—	24	130-219	—	130-374	130-374NP	130-265	130-265NP
M36	—	—	—	27	130-231	—	130-375	130-375NP	130-269	130-269NP
—	—	—	—	30	—	130-047	130-266	130-266NP	130-270	130-270NP
M42	—	—	—	32	—	—	130-267	130-267NP	130-271	130-271NP
M48	—	—	—	36	—	—	130-268	130-268NP	—	130-291NP

***130-216NP** Nickel Plated

METRIC SHORT ARM HEX KEY SETS

Alloy Steel,
Plain Finish
Supplied in a clear, rigid plastic case.

SPAENAUR No.	Contents of Key Set 1 each of following Key No's.
130-250	130-201, 130-202, 130-203 130-204, 130-205, 130-206
130-251	130-203, 130-204, 130-205, 130-206 130-207, 130-208, 130-209, 130-211

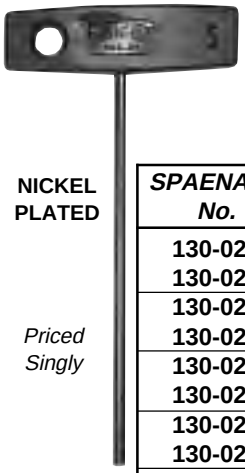
130-405NP

Set of 10 Hex Keys
Chrome Vanadium
Nickel Plated

Contents of set - one of each of 1.5mm, 2mm, 2.5mm, 3mm, 4mm, 5mm, 6mm, 8mm, 10mm and 12mm, width across flats.

UNIT PACKAGE
1 SET

Supplied in a plastic pouch.



HEX KEY WITH PLASTIC "T" HANDLE

For Socket Head Hex Screws

CHROME VANADIUM

NICKEL PLATED

Priced Singly

SPAENAUR No.	KEY SIZE (Width A/F)	BLADE LENGTH	TOTAL LENGTH
130-022	2mm	100mm	121mm
130-023	2.5mm	100mm	121mm
130-024	3mm	150mm	171mm
130-025	4mm	150mm	171mm
130-026	5mm	150mm	176mm
130-027	6mm	150mm	176mm
130-028	8mm	150mm	176mm
130-029	10mm	200mm	230mm
130-030	12mm	200mm	230mm
130-031	14mm	300mm	330mm

"T" HANDLE HEX KEYS

ALLOY STEEL

with Plastic Handle

SPAENAUR No.	KEY SIZE (Width A/F)	BLADE LENGTH	TOTAL LENGTH
130-254	2mm	85mm	128mm
130-261	10mm	127mm	183mm

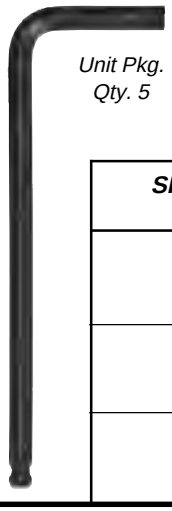
Priced Singly

SHORT HEX KEY WITH PILOT POINT

DIN 6911

SPAENAUR No.			
GRADE 10.9 STEEL	CHROME VANADIUM PLAIN	CHROME VANADIUM Nickel Plated	KEY SIZE (Width A/F)
130-036	**130-118**	**130-118NP**	3mm
130-037	—	**130-119NP**	4mm
130-038	**130-120**	**130-120NP**	5mm
130-039	—	**130-121NP**	6mm
130-040	**130-122**	**130-122NP**	8mm
130-041	**130-123**	**130-123NP**	10mm
130-042	**130-124**	**130-124NP**	12mm
130-043	**130-125**	**130-125NP**	14mm
130-044	**130-126**	**130-126NP**	17mm
130-045	**130-127**	**130-127NP**	19mm
130-046	**130-128**	**130-128NP**	22mm

Unit Pkg.Qty. 5 — Over 14mm, Priced Singly.



Unit Pkg. Qty. 5

Similar to DIN 911 Long

LONG HEX KEY WITH BALL END

CHROME VANADIUM

SPAENAUR No.	KEY SIZE (Width A/F)
130-109	1.5mm
130-110	2mm
130-111	2.5mm
130-112	3mm
130-113	4mm
130-114	5mm
130-115	6mm
130-116	8mm
130-117	10mm

More Metric Fold Up Key Sets shown on pages P5, P6 and P12.

Individual Replacement Keys

ALLOY STEEL

Available for sizes 2mm to 8mm

Order by individual SPAENAUR No.

Heat treated and tempered to exacting tolerances.

SPAENAUR No.	Width A/F
130-241	2mm
130-242	2.5mm
130-243	3mm
130-244	4mm
130-245	5mm
130-246	6mm
130-247	8mm

Unit Package 10

DIN 911

METRIC HEX KEY SETS

CHROME VANADIUM

All Sizes in Millimetres.

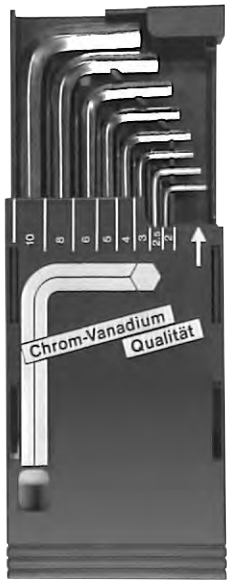
Each of the following hex keys are put up in a vinyl pouch with individual pockets for each key.
Unit Package – 1 Set

Contents of Key Set:

SPAENAUR No.	1 Each of the following Key Sizes. (Width Across Flats)
130-248	Short arm, black finish *0.7, *0.9, *1.3, 1.5, 2, 2.5, 3mm (*Alloy Steel)
130-290	Short arm, black finish 1.5, 2, 2.5, 3, 4, 5, 6, 8mm
130-283	Short arm, black finish 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10, 12mm
130-297	Short arm, black finish 1.5, 2, 2.5, 3, 4, 5, 6, 8, 10, 12, 14, 17, 19, 22mm
130-249	Long arm, black finish 2, 2.5, 3, 4, 5, 6, 7, 8, 10mm
130-106	Long arm, black finish 2, 2.5, 3, 4, 5, 6, 7, 8, 10, 12, 14mm
130-289	Short arm, nickel plated 2, 3, 4, 5,6, 7, 8mm
130-274	Short arm, nickel plated 2, 3, 4, 5, 6, 7, 8, 9, 10, 12mm

Each of the following hex keys are put up in a hard plastic case with size marked slots for each key.

Unit Package – 1 Set



Contents of Key Set:

SPAENAUR No.	1 Each of the following Key Sizes. (Width Across Flats)
130-104	Short arm, nickel plated 2, 2.5, 3, 4, 5, 6, 8mm
130-105	Short arm, nickel plated 2, 2.5, 3, 4, 5, 6, 8, 10mm
130-107	Long arm, nickel plated 2, 2.5, 3, 4, 5, 6, 8, 10mm
130-108	Long arm with ball end, black finish 2, 2.5, 3, 4, 5, 6, 8, 10mm

SPAENAUR No.
876-1168

Hex Key Set on Ring

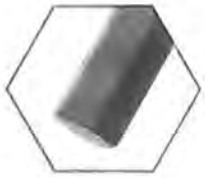
Short arm, Chrome Vanadium, Chrome Plated

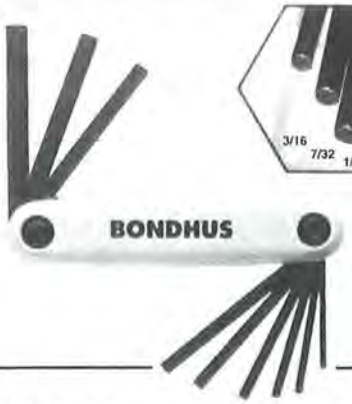
Width Across Flats: 2, 2.5, 3, 4, 5, 6, 8 and 10mm

Unit Package - 1 set

P

BONDHUS®
Gorilla Grip™
Fold Up Key Sets





Features:

- *"Stronger than steel" resin handle*
- *Precision chamfered blades for easy screw entry*
- *Lightweight ergonomic design*
- *Colour coded for easy identification*

SPAENAUR No.	Style	Number of Blades	Blade Sizes
130-394	Inch - Hexagon (Yellow Handle)	9	.050", 1/16", 5/64", 3/32", 7/64", 1/8", 9/64", 5/32" and 3/16"
130-395	Inch - Hexagon (Yellow Handle)	9	5//64", 3/32", 7/64", 1/8", 9/64", 5/32", 3/16", 7/32" and 1/4"
130-396	Metric - Hexagon (Red Handle)	7	1.5 mm, 2 mm, 2.5 mm, 3 mm, 4 mm, 5 mm and 6 mm
130-397	Metric - Hexagon (Red Handle)	7	2 mm, 2.5 mm, 3 mm, 4 mm, 5 mm, 6 mm and 8 mm
130-398	Torx® (Green Handle)	8	T6, T7, T8, T9, T10, T15, T20 and T25

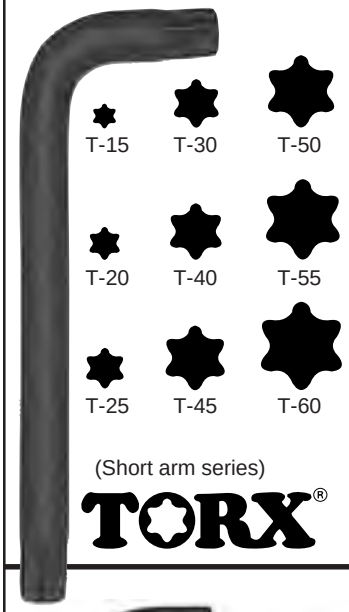
BONDHUS®
Ballpoint and Straight/Chamfered
Foldup Key Sets

Features:

- *Angle entry to 25° with Ballpoint*
- *Work where standard hex tools cannot*
- *Industrial quality hardened blades*
- *Ergonomic handle case - lightweight yet sturdy*

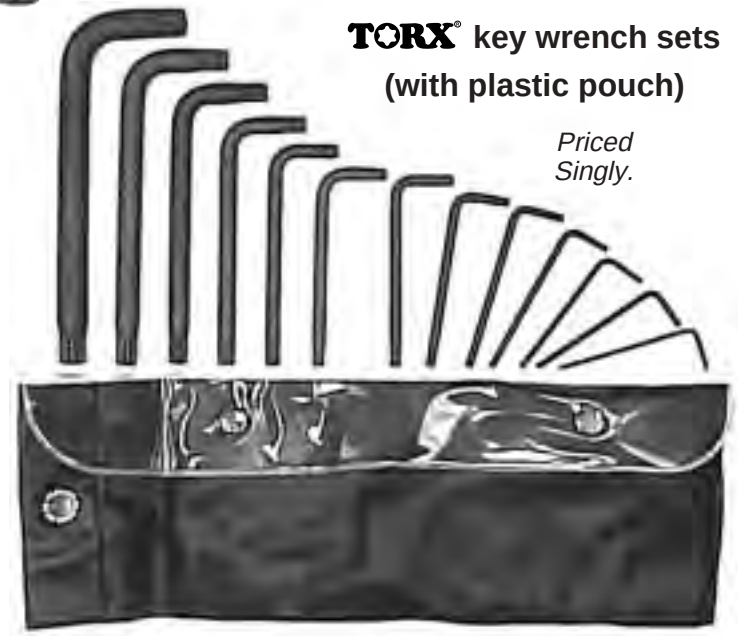
SPAENAUR No.	Style	Number of Blades	Blade Sizes
130-400	Inch - Hexagon (Yellow Handle)	5	3/16" and 7/32" - Straight/Chamfered 1/4", 5/16" and 3/8" - Ballpoint
130-402	Metric - Hexagon (Red Handle)	5	4 mm and 5 mm - Straight/Chamfered 6 mm, 8 mm and 10 mm - Ballpoint
130-403	Torx® Ballstar (Green Handle)	8	T9, T10, T15, T20, T25, T27, T35, and T40 All Ballpoint

Key Wrenches of ***ALLOY STEEL***



(Short arm series)
TORX®

SPAENAUR No.	TORX Size	Socket Head Cap Screw	Button Head Cap Screw	Flat Head Cap Screw	Pressure Plug	Socket Set Screw	Unit Pkg.
130-300	T-7		#4			#6	**1**
130-301	T-8					#8	**1**
130-302	T-9			#4			**1**
130-303	T-10	#4, #5	#6	#5		#10	**1**
130-304	T-15	#6	#8	#6			**1**
130-305	T-20			#8		1/4"	**1**
130-306	T-25	#8	#10	#10			**1**
130-307	T-27	#10	1/4"		1/16"	5/16"	**1**
130-308	T-30	1/4"		1/4"	1/8"	3/8"	**1**
130-309	T-40		5/16"	5/16"			**1**
130-310	T-45	5/16"	3/8"	3/8"	1/4"	1/2"	**1**
130-311	T-50	3/8"		7/16", 1/2"			**1**
130-312	T-55	7/16", 1/2"	1/2"	5/8"	3/8"		**1**



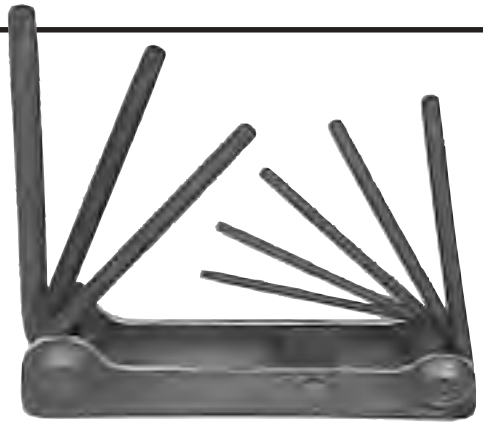
TORX® key wrench sets (with plastic pouch)

Priced Singly.

***SPAENAUR No.* 130-317**
6 Piece Set
T-10, T-15, T-20, T-25, T-27, T-30
Short arm series TORX keys

***SPAENAUR No.* 130-318**
9 Piece Set
T-10, T-15, T-20, T-25,T-27, T-30, T-40, T-45, T-50
Short arm series Torx keys

***SPAENAUR No.* 130-319**
13 Piece Allen® Set
T-7, T-8, T-9, T-10, T-15, T-20, T-25, T-27, T-30
T-40, T-45, T-50, T-55
Short arm series TORX keys



TORX® Jack Key Set

***SPAENAUR No.* 130-320**

Set contains 8 short arm TORX keys.
T-9, T-10, T-15, T-20, T-25, T-27, T-30 and T-40.

Priced Singly.

See pages P34 and P35 for more TORX Drivers & Bits.

Eliminator™ Ratcheting System

40% STRONGER

Shown on pages P16 to P22.

We've eliminated the square drive — the weakest link in ordinary ratchets.
We've moved the gear teeth to the outside surface of the socket.
Eliminator direct-drive sockets deliver up to 40% more torque.

50% SLIMMER

Integrated ratchet/socket design is only half as deep as and ordinary ratchet. Work in places ordinary sockets just can't reach.

100% SMARTER

Open head design allows access over any nut and any length bolt. Eliminate deep sockets and ratcheting box wrenches. Colour-coded for fractional (red ring) and metric (blue ring).

Discover the Revolutionary ELIMNINATOR…
The World's Most advanced Ratchet System!

Shown on pages P23 to P29.

Armstrong Industrial Socket Sets

Armstrong also offers the professional technician a variety of sets designed to provide a complete offering of sockets, drive tools and accessories. Each set comes with a heavy-duty metal box to make sure the sockets stay protected and organized.

Armstrong offers socket sets with a variety of different styles and openings. 6 point, 12 point and 8 point socket sets are available as well as a large selection of Hex Bit Drivers, Torx Bit Drivers, Screwdrivers and Universal Socket Sets.

Armstrong also offers a complete line of Metric Sets.

Offering professional technicians the tools they need - that's the Armstrong Performance Difference.

SPAENAUR No. AT16-060

42 Piece 1/4" & 3/8" Drive Eliminator Socket Set
Inch & Metric Sizes

36 Sockets, 6 Drive Tools. In blow mould carry case.
Approx. Weight,7.82 lbs. (3.55 kg)
12-pt. 1/4" Drive Eliminator Sockets (inch): 3/16, 7/32, 1/4, 9/32, 5/16, 11/32, 3/8, 7/16, 1/2.
12-pt. 1/4" Drive Eliminator Sockets (mm): 5, 5.5, 6, 7, 8, 9, 10, 11, 12, 13.
6-pt. 3/8" Drive Eliminator Sockets (inch): 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4.
6-pt. 3/8" Drive Eliminator Sockets (mm): 10, 11, 12, 13, 14, 15, 16, 17, 18, 19.
1/4" Drive Tools: Ratchet, 1/4" Dr., 5.5"; Eliminator Sq. Dr. Adaptor, 1/4" Dr.; Thru-hole Extension, 1/4" Dr., 6".
3/8" Drive Tools: Ratchet, 3/8" Dr., 7.5"; Eliminator Sq. Dr. Adaptor, 3/8" Dr.; Thru-hole Extension, 3/8" Dr., 3".

SPAENAUR No. AT16-067

22 Piece 1/4" & 3/8" Drive Eliminator Socket Set
Inch Sizes

16 Sockets, 6 Drive Tools. In blow mould carry case.
Approx. Weight, 5.85 lbs. (2.65 kg)
12-pt. 1/4" Drive Eliminator Sockets (inch): 3/16, 7/32, 1/4, 9/32, 5/16, 11/32, 3/8, 7/16, 1/2.
6-pt. 3/8" Drive Eliminator Sockets (inch): 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4.
1/4" Drive Tools: Ratchet, 1/4" Dr., 5.5"; Eliminator Sq. Dr. Adaptor, 1/4" Dr.; Thru-hole Extension, 1/4" Dr., 6".
3/8" Drive Tools: Ratchet, 3/8" Dr., 7.5"; Eliminator Sq. Dr. Adaptor, 3/8" Dr.; Thru-hole Extension, 3/8" Dr., 3".

SPAENAUR No. AT43-067

26 Piece 1/4" & 3/8" Drive Eliminator Socket Set
Metric Sizes

20 Sockets, 6 Drive Tools. In blow mould carry case.
Approx. Weight, 6.09 lbs. (2.76 kg)
12-pt. 1/4" Drive Eliminator Sockets (mm): 5, 5.5, 6, 7, 8, 9, 10, 11, 12, 13.
6-pt. 3/8" Drive Eliminator Sockets (mm): 10, 11, 12, 13, 14, 15, 16, 17, 18, 19.
1/4" Drive Tools: Ratchet, 1/4" Dr., 5.5"; Eliminator Sq. Dr. Adaptor,1/4" Dr.; Thru-hole Extension, 1/4" Dr., 6".
3/8" Drive Tools: Ratchet, 3/8" Dr., 7.5"; Eliminator Sq. Dr. Adaptor, 3/8" Dr.; Thru-hole Extension, 3/8" Dr., 3".

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CATALOG 13

SPAENAUR No. AT43-087

26 Piece 3/8" & 1/2" Drive Eliminator Socket Set
Metric Sizes

20 Sockets, 6 DriveTools. In blow mould carry case.
Approx. Weight, 11.56 lbs. (5.24 kg)
6-pt. 3/8" Drive Eliminator Sockets (mm): 10, 11, 12, 13, 14, 15, 16, 17, 18, 19.
6-pt. 1/2" Drive Eliminator Sockets (mm): 15, 16, 17, 18, 19, 21, 22, 24, 27, 30.
3/8" Drive Tools: Ratchet, 3/8" Dr., 7.5"; Eliminator Sq. Dr. Adaptor, 3/8" Dr.; Thru-hole Extension, 3/8" Dr., 3".
1/2" Drive Tools: Ratchet, 1/2" Dr., 10.5"; Eliminator Sq. Dr. Adaptor, 1/2" Dr.; Thru-hole Extension, 1/2" Dr., 5".

SPAENAUR No. AT16-194

41 Piece 12 Point 1/4" Drive Eliminator Socket Set
Inch & Metric Sizes

37 Sockets, 4 Drive Tools. In blow mould carry case.
Approx. Weight, 5.02 lbs. (2.28 kg)
12-pt. Eliminator Sockets (inch): 3/16, 7/32, 1/4, 9/32, 5/16, 11/32, 3/8, 7/16, 1/2.
12-pt. Eliminator Sockets (metric): 5, 5.5, 6, 7, 8, 9, 10, 11, 12, 13.
Eliminator Hex Driver Sockets - Bit sizes (inch): 1/16, 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16.
Eliminator Hex Driver Sockets - Bit sizes (mm): 2, 2.5, 3, 4, 5, 6, 8.
Drive Tools: Ratchet, 1/4" Dr., 5.5"; Eliminator Sq. Dr. Adaptor, 1/4" Dr.; 2 Thru-hole Extensions, 1/4" Dr., 2" & 6".

SPAENAUR No. AT16-190

16 Piece 1/4" Drive Eliminator Hex Driver Set
Inch & Metric Sizes

16 Sockets, 4 Drive Tools. In blow mould carry case.
Approx. Weight, 3.26 lbs. (1.48 kg)
Eliminator Hex Driver Sockets - Bit sizes (inch): 5/64, 3/32, 7/64, 1/8, 9/64, 5/32, 3/16, 7/32, 1/4, 5/16.
Eliminator Hex Driver Sockets - Bit sizes (mm): 2.5, 3, 4, 5, 6, 8.

SPAENAUR No. AT16-192

23 Piece 12 Point 1/4" Drive Eliminator Socket Set
Inch & Metric Sizes

19 Sockets, 4 Drive Tools. In blow mould carry case.
Approx. Weight, 3.26 lbs. (1.48 kg)
12-pt. Eliminator Sockets (inch): 3/16, 7/32, 1/4, 9/32, 5/16, 11/32, 3/8, 7/16, 1/2.
12-pt. Eliminator Sockets (mm): 5, 5.5, 6, 7, 8, 9, 10, 11, 12, 13.
Drive Tools: Ratchet, 1/4" Dr., 5.5"; Eliminator Sq. Dr. Adaptor, 1/4" Dr.; 2 Thru-hole Extensions, 1/4" Dr., 2" & 6".

SPAENAUR No. AT42-223

21 Piece 12 Point 1/4" Drive Eliminator Socket Set
Metric Sizes

17 Sockets, 4 Drive Tools. In blow mould carry case.
Approx. Weight, 3.18 lbs. (1.44 kg)
12-pt. Eliminator Sockets (mm): 5, 5.5, 6, 7, 8, 9, 10, 11, 12, 13.
Eliminator Hex Driver Sockets - Bit sizes (mm): 2, 2.5, 3, 4, 5, 6, 8.
Drive Tools: Ratchet, 1/4" Dr., 5.5"; Eliminator Sq. Dr. Adaptor, 1/4" Dr.;
2 Thru-hole Extensions, 1/4" Dr., 2" & 6".

SPAENAUR No. AT42-216

6 Piece 1/4" Drive Eliminator Hex Driver Set
Metric Sizes

6 Sockets. In blow mould carry case.
Approx. Weight, 2.78 lbs. (1.26 kg)
Eliminator Hex Driver Sockets - Bit sizes (mm): 2.5, 3, 4, 5, 6, 7.

SPAENAUR No. AT16-294

34 Piece 6 Point 3/8" Drive Eliminator Socket Set
Inch & Metric Sizes

37 Sockets, 4 Drive Tools. In blow mould carry case.
Approx. Weight, 7.13 lbs. (3.23 kg)
6-pt. Eliminator Sockets (inch sizes): 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4.
6-pt. Eliminator Sockets (mm): 10, 11, 12, 13, 14, 15, 16, 17, 18, 19.
Eliminator Hex Driver Sockets - Bit sizes (inch): 1/8, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8.
Eliminator Hex Driver Sockets - Bit sizes (mm): 4, 5, 6, 7, 8, 10.
Drive Tools: Ratchet, 3/8" Dr., 7.5"; Eliminator Sq. Dr. Adaptor, 3/8" Dr.;
2 Thru-hole Extensions, 3/8" Dr., 1-1/2" & 3".

SPAENAUR No. AT16-292

21 Piece 6 Point 3/8" Drive Eliminator Socket Set
Inch & Metric Sizes

17 Sockets, 4 Drive Tools. In blow mould carry case.
Approx. Weight, 4.79 lbs. (2.17 kg)
6-pt. Eliminator Sockets (inch): 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4.
6-pt. Eliminator Sockets (mm): 10, 11, 12, 13, 14, 15, 16, 17, 18, 19.
Drive Tools: Ratchet, 3/8" Dr., 7.5"; Eliminator Sq. Dr. Adaptor, 3/8" Dr.;
2 Thru-hole Extensions, 3/8" Dr., 1-1/2" & 3".

SPAENAUR No. AT16-290

13 Piece 3/8" Drive Eliminator Hex Driver Set
Inch & Metric Sizes

13 Sockets. In blow mould carry case.
Approx. Weight, 3.34 lbs. (1.51 kg)
Eliminator Hex Driver Sockets - Bit sizes (inch): 1/8, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8.
Eliminator Hex Driver Sockets - Bit sizes (mm): 4, 5, 6, 7, 8, 10.

SPAENAUR No. AT43-223

20 Piece 6 Point 3/8" Drive Eliminator Socket Set
Metric Sizes

16 Sockets, 4 Drive Tools. In blow mould carry case.
Approx. Weight, 4.80 lbs. (2.18 kg)
6-pt. Eliminator Sockets (mm): 10, 11, 12, 13, 14, 15, 16, 17, 18, 19.
Eliminator Hex Driver Sockets - Bit sizes (mm): 4, 5, 6, 7, 8, 10.
Drive Tools: Ratchet, 3/8" Dr., 7.5"; Eliminator Sq. Dr. Adaptor, 3/8" Dr.;
2 Thru-hole Extensions, 3/8" Dr., 1-1/2" & 3".

SPAENAUR No. AT16-346

24 Piece 6 Point 1/2" Drive Eliminator Socket Set
Inch & Metric Sizes

20 Sockets, 4 DriveTools. In blow mould carry case.
Approx. Weight, 10.63 lbs. (4.82 kg)
6-pt. Eliminator Sockets (inch): 5/8, 11/16, 3/4, 13/16, 7/8, 15/16, 1, 1-1/16, 1-1/8, 1-1/4.
6-pt. Eliminator Sockets (mm): 15, 16, 17, 18, 19, 21, 22, 24, 27, 30.
Drive Tools: Ratchet, 1/2" Dr., 10.5"; Eliminator Sq. Dr. Adaptor, 1/2" Dr.;
2 Thru-hole Extensions, 1/2" Dr., 2" & 5".

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SPAENAUR No. AT16-390

13 Piece 1/2" Drive Eliminator Hex Driver Set
Inch & Metric Sizes

13 Sockets. In blow mould carry case.
Approx. Weight, 4.71 lbs. (2.14 kg)
Eliminator Hex Driver Sockets - Bit sizes (inch): 1/4, 5/16, 3/8, 7/16, 1/2, 9/16, 5/8.
Eliminator Hex Driver Sockets - Bit sizes (mmm): 6, 8, 10, 12, 14, 17.

SPAENAUR No. AT43-390

20 Piece 6 Point 1/2" Drive Eliminator Socket Set
Metric Sizes

16 Sockets, 4 Drive Tools. In blow mould carry case.
Approx. Weight, 9.37 lbs. (4.25 kg)
6-pt. Eliminator Sockets (mm): 15, 16, 17, 18, 19, 21, 22, 24, 27, 30.
Eliminator Hex Driver Sockets - Bit sizes (mm): 6, 8, 10, 12, 14, 17.
Drive Tools: Ratchet, 1/2" Dr., 10.5"; Eliminator Sq. Dr. Adaptor, 1/2" Dr.; 2 Thru-hole Extensions, 1/2" Dr., 2" & 5".

SPAENAUR No. AT43-315

6 Piece 1/2" Drive Eliminator Hex Driver Set, Metric Sizes
6 Sockets. In blow mould carry case.
Approx. Weight, 3.24 lbs. (1.47 kg)
Eliminator Hex Driver Sockets - Bit sizes (mm): 6, 8, 10, 12, 14, 17.

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1/4" Drive Eliminator Hex Driver Sockets
Metric

SPAENAUR No.	Bit Size	Drive End	Nose Diameter	Overall Length	Bit Length	Length to Shoulder
AT37-722	**2**	0.616	0.630	1.480	0.600	0.600
AT37-785	**2.5**	0.616	0.630	1.480	0.600	0.600
AT37-723	**3**	0.616	0.630	1.480	0.600	0.600
AT37-724	**4**	0.616	0.630	1.480	0.600	0.600
AT37-725	**5**	0.616	0.630	1.480	0.600	0.600
AT37-726	**6**	0.616	0.630	1.480	0.600	0.600
AT37-728	**8**	0.616	0.690	1.480	0.600	0.600

Dimensions in millimetres

CATALOG 13

Spaenaur No. AT10-930
1/4" Drive Eliminator Adaptor

3/8" Drive Eliminator Hex Driver Sockets
Metric

SPAENAUR No.	Bit Size	Drive End	Nose Diameter	Overall Length	Bit Length	Length to Shoulder
AT38-724	4	0.870	0.625	1.470	0.600	0.290
AT38-725	5	0.870	0.625	1.470	0.600	0.290
AT38-726	6	0.870	0.625	1.470	0.600	0.290
AT38-727	7	0.870	0.625	1.470	0.600	0.290
AT38-728	8	0.870	0.685	1.470	0.600	0.290
AT38-730	10	0.870	0.750	1.470	0.600	0.290

Dimensions in millimetres

Spaenaur No. AT11-930
3/8" Drive Eliminator Adaptor

1/2" Drive Eliminator Hex Driver Sockets
Metric Sizes

SPAENAUR No.	Bit Size	Drive End	Nose Diameter	Overall Length	Bit Length	Length to Shoulder
AT39-726	6	0.870	0.625	1.470	0.600	0.290
AT39-728	8	0.870	0.625	1.470	0.600	0.290
AT39-730	10	0.870	0.625	1.470	0.600	0.290
AT39-732	12	0.870	0.625	1.470	0.600	0.290
AT39-734	14	0.870	0.685	1.470	0.600	0.290
AT39-737	17	0.870	0.750	1.470	0.600	0.290

Dimensions in millimetres

Spaenaur No. AT12-930
1/2" Drive Eliminator Adaptor

3/8" Eliminator Micrometer Torque Wrenches

SPAENAUR No.	PRIMARY SCALE Range	PRIMARY SCALE Incr.	ALTERNATE SCALE Range	ALTERNATE SCALE Incr.	Head Width	Head Length	Head Thickness	Length Inches	Weight Lbs.
AT64-140	5-75 Nm	0.5 Nm	-	-	1.280	1.985	0.56	17.9	2.27
AT64-142	150-750 In/Lb	5 In/Lb	-	-	1.280	1.985	0.56	17.9	2.27
AT64-144	5-75 Ft/Lb	0.5 Ft/Lb	10.1-105.1Nm	0.7 Nm	1.280	1.985	0.56	17.9	2.27

Note: All Eliminator torque wrenches may be purchased certified.

1/2" Eliminator Micrometer Torque Wrenches

SPAENAUR No.	PRIMARY SCALE Range	PRIMARY SCALE Incr.	ALTERNATE SCALE Range	ALTERNATE SCALE Incr.	Head Width	Head Length	Head Thickness	Length Inches	Weight Lbs.
AT64-180	40-340 Nm	2 Nm	-	-	1.700	2.300	0.78	22.5	3.24
AT64-182	300-3000 In/Lb	12 In/Lb	43-348 Nm	1.4 Nm	1.700	2.300	0.78	22.5	3.24
AT64-184	25-250 Ft/Lb	1 Ft/Lb	43-348 Nm	1.4 Nm	1.700	2.300	0.78	22.5	3.24

Pre-Set Eliminator Torque Wrenches

SPAENAUR No.	Drive Size	PRIMARY SCALE Range	ALTERNATE SCALE Range	Head Width	Head Length	Head Thickness	Length Inches	Weight Lbs.
AT64-230	**1/4"**	30-200 In/Lb	4-25 Nm	0.878	1.363	0.46	9.5	0.95
AT64-240	**3/8"**	150-750 In/Lb	5-75 Nm	1.280	1.985	0.56	16.1	1.98
AT64-280	**1/2"**	300-3000 In/Lb	40-340 Nm	1.700	2.300	0.78	21.6	3.13

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Eliminator Sockets and Accessories

Sockets may be purchased in sets or individually. Please see the Eliminator section for more details.

Drive Size	Eliminator Socket Range Fractional	Eliminator Socket Range Metric	Eliminator Hex Bit Socket Range Fractional	Eliminator Hex Bit Socket Range Metric	Extensions
1/4"	3/16" - 1/2"	5 mm - 13 mm	1/16" - 5/16"	2 mm - 8 mm	1", 2", 4", 6"
3/8"	3/8" - 3/4"	10 mm - 19 mm	1/8" - 3/8"	4 mm - 10 mm	1.5", 3"
1/2"	5/8" -1-1/4"	15 mm - 30 mm	1/4" - 5/8"	6 mm - 17 mm	2", 5"

CATALOG 13

SPAENAUR No. AT15-215

25 Piece 6 Point 1/4" Drive Socket Set
Inch Sizes

20 Sockets, 5 Drive Tools. In steel case.
Approx. Weight, 3.54 lbs. (1.61 kg)
6-pt. Std. Length Sockets (inch): 3/16, 7/32, 1/4, 9/32, 5/16, 11/32, 3/8, 7/16, 1/2, 9/16.
6-pt. Deep Sockets (inch): 3/16, 7/32, 1/4, 9/32, 5/16, 11/32, 3/8, 7/16, 1/2, 9/16.
Drive Tools: 2 Extensions, 1/4" Dr., 2" & 6"; Plastic Handle Driver, 1/4 Dr., 6"; Universal Joint, 1/4" Dr.; Ratchet, 1/4" Dr., 5-9/32".

SPAENAUR No. AT15-225

15 Piece 6 Point 1/4" Drive Socket Set
Inch Sizes

10 Sockets, 5 Drive Tools. In steel case.
Approx. Weight, 1.82 lbs. (0.83 kg)
6-pt. Std. Length Sockets (inch): 3/16, 7/32, 1/4, 9/32, 5/16, 11/32, 3/8, 7/16, 1/2, 9/16.
Drive Tools: 2 Extensions, 1/4" Dr., 2" & 6"; Plastic Handle Driver, 1/4 Dr., 6"; Universal Joint, 1/4" Dr.; Ratchet, 1/4" Dr., 5-9/32".

SPAENAUR No. AT44-200

43 Piece 6 Point 1/4" Drive Socket Set
Metric Sizes

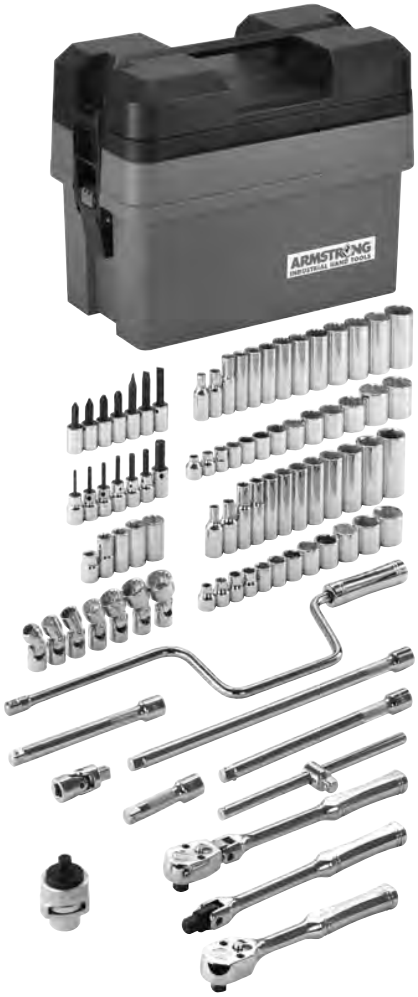
35 Sockets, 8 Drive Tools. In steel case.
Approx. Weight, 5.75 lbs. (2.61 kg)
6-pt. Std. Length Sockets (mm): 4, 4.5, 5, 5.5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15.
6-pt. Deep Sockets (mm): 4, 4.5, 5, 5.5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15.
Hex Driver Sockets - Bit sizes (mm): 2, 2.5, 3, 4, 5, 6, 8.
Drive Tools: Breaker Bar, 1/4" Dr., 5-3/4"; 2 Extensions, 1/4" Dr., 2" & 6"; Flex Extension, 1/4" Dr., 6"; T-Handle, 1/4" Dr.; Plastic Handle Driver, 1/4 Dr., 6"; Universal Joint, 1/4" Dr.; Ratchet, 1/4" Dr., 5-9/32".

SPAENAUR No. AT15-300
87 Piece 3/8" Drive Socket Set With Box
Inch Sizes - In Plastic Hand Box

SPAENAUR No. AT15-305
87 Piece 3/8" Drive Socket Set; Tools Only
Inch Sizes

No Box; Tools Only.

76 Sockets, 11 Drive Tools.
Approx. Weight, 20 lbs. (9.1 kg)
6-pt. Std. Length Sockets (inch): 1/4, 5/16, 11/32, 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4, 13/16, 7/8.
6-pt. Deep Sockets (inch): 1/4, 5/16, 11/32, 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4, 13/16, 7/8.
12-pt. Std. Length Sockets (inch): 1/4, 5/16, 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4, 13/16, 7/8, 15/16, 1.
12-pt. Deep Sockets (inch): 1/4, 5/16, 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4, 13/16, 7/8, 15/16, 1.
8-pt. Std. Length Sockets (inch): 1/4, 5/16, 3/8, 7/16, 1/2.
12-pt. Universal Sockets (inch): 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4.
Hex Driver Sockets - Bit sizes (inch): 1/8, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8.
Screwdriver Sockets (inch): Slot - 1/4 x 1/32, 5/16 x 3/64, 3/8 x 1/16; Phillips - #1, 2, 3, 4.
Drive Tools: Breaker Bar, 3/8" Dr., 8-1/2"; 4 Extensions, 3/8" Dr., 3", 6", 8" & 12"; Speeder, 3/8" Dr., 16-1/2"; T-Handle, 3/8" Dr.; Ratchet Adapter, 3/8" Dr.; Universal Joint, 3/8" Dr.; Ratchet, 3/8" Dr., 7-3/8"; Ratchet, 3/8" Dr., Flex Head, 9-1/2".



SPAENAUR No. AT15-310
58 Piece 12 Point 3/8" Drive Socket Set With Box
Inch Sizes - In Steel Case.

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SPAENAUR No. AT15-315
58 Piece 12 Point 3/8" Drive Socket Set; Tools Only
Inch Sizes

No Box; Tools Only.
49 Sockets, 9 Drive Tools.
Approx. Weight, 15 lbs. (6.8 kg)
12-pt. Std. Length Sockets (inch): 1/4, 5/16, 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4, 13/16, 7/8, 15/16, 1.
12-pt. Deep Sockets (inch): 1/4, 5/16, 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4, 13/16, 7/8, 15/16, 1.
8-pt. Std. Length Sockets (inch): 1/4, 5/16, 3/8, 7/16, 1/2.
12-pt. Flex Sockets (inch): 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4.
Hex Driver Sockets - Bit sizes (inch): 1/8, 5/32, 3/16, 7/32, 1/4, 5/16, 3/8.
Screwdriver Sockets (inch): Slot - 1/4 x 1/32; Phillips - #2, 3, 4.
Drive Tools: Breaker Bar, 3/8" Dr., 8-1/2"; 3 Extensions, 3/8" Dr., 3", 6", & 12"; Speeder, 3/8" Dr., 16-1/2"; T-Handle, 3/8" Dr.; Ratchet Adapter, 3/8" Dr.; Universal Joint, 3/8" Dr.; Ratchet, 3/8" Dr., 7-3/8".

SPAENAUR No. AT15-320

33 Piece 12 Point 3/8" Drive Socket Set
Inch Sizes

In Steel Case.
26 Sockets, 9 Drive Tools.
Approx. Weight, 12.07 lbs. (5.84 kg)
12-pt. Std. Length Sockets (inch): 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4, 13/16, 7/8.
12-pt. Deep Sockets (inch): 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4, 13/16, 7/8.
8-pt. Std. Length Sockets (inch): 1/4, 5/16, 3/8.
12-pt. Flex Sockets (inch): 7/16, 1/2, 9/16, 5/8, 3/4.
Drive Tools: Breaker Bar, 3/8" Dr., 8-1/2"; 3 Extensions, 3/8" Dr., 3", 6", & 12"; Speeder, 3/8" Dr., 16-1/2"; Universal Joint, 3/8" Dr.; Ratchet, 3/8" Dr., 7-3/8".

SPAENAUR No. AT15-340

15 Piece 12 Point 3/8" Drive Socket Set
Inch Sizes

In Steel Case.
9 Sockets, 6 Drive Tools.
Approx. Weight, 8.28 lbs. (3.76 kg)
12-pt. Std. Length Sockets (inch): 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4, 13/16, 7/8.
Drive Tools: Breaker Bar, 3/8" Dr., 8-1/2"; 2 Extensions, 3/8" Dr., 3" & 12"; Speeder, 3/8" Dr., 16-1/2"; Universal Joint, 3/8" Dr.; Ratchet, 3/8" Dr., 7-3/8".

SPAENAUR No. AT44-300

57 Piece 12 Point 3/8" Drive Socket Set With Box
Metric Sizes - In Steel Case.

SPAENAUR No. AT44-305

57 Piece 12 Point 3/8" Drive Socket Set; Tools Only
Metric Sizes

No Box; Tools Only.
44 Sockets, 13 Drive Tools.
Approx. Weight, 14.47 lbs. (6.56 kg)
12-pt. Std. Length Sockets (mm): 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22.
12-pt. Deep Sockets (mm): 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19.
Hex Driver Sockets - Bit sizes (mm): 4, 5, 6, 7, 8, 9, 10.
Screwdriver Sockets: Slot - 1/4" x 1/32"; Phillips - # 2, 3, 4.
Drive Tools: Breaker Bar, 3/8" Dr., 8-1/2"; 3 Extensions, 3/8" Dr., 3", 6" & 12"; Extension, 3/8" Dr., Flex, 7-1/4"; Locking Adapter, 3/8" Dr.; Speeder, 3/8" Dr.; T-Handle, 3/8" Dr.; Plastic Handle Driver, 3/8" Dr., 6" Ratchet Adapter, 3/8" Dr.; Ratchet Spinner, 3/8" Dr.; Universal Joint, 3/8" Dr.; Adapter, 3/8" F, 1/2" M; Ratchet, 3/8" Dr., 7-3/8"; Ratchet Flex Head, 3/8" Dr.

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SPAENAUR No. AT44-310
29 Piece 12 Point 3/8" Drive Socket Set
Metric Sizes

In Steel Case.
24 Sockets, 5 Drive Tools.
Approx. Weight, 9.53 lbs. (4.32 kg)
12-pt. Std. Length Sockets (mm): 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19.
12-pt. Deep Sockets (mm): 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19.
Drive Tools: Breaker Bar, 3/8" Dr.; 2 Extensions, 3/8" Dr., 3" & 6"; Universal Joint, 3/8" Dr.; Ratchet, 3/8" Dr., 7-3/8".

SPAENAUR No. AT44-320
20 Piece 12 Point 3/8" Drive Socket Set
Metric Sizes

In Steel Case.
14 Sockets, 6 Drive Tools.
Approx. Weight, 7.63 lbs. (3.46 kg)
12-pt. Std. Length Sockets (mm): 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19.
Drive Tools: Breaker Bar, 3/8" Dr.; 2 Extensions, 3/8" Dr., 3" & 12"; Speeder, 3/8" Dr.; Universal Joint, 3/8" Dr.; Ratchet, 3/8" Dr., 7-3/8".

SPAENAUR No. AT44-325
16 Piece 12 Point 3/8" Drive Socket Set
Metric Sizes

In Steel Case.
14 Sockets, 2 Drive Tools.
Approx. Weight, 6.73 lbs. (3.05 kg)
12-pt. Std. Length Sockets (mm): 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19.
Drive Tools: Extensions, 3/8" Dr., 6"; Ratchet, 3/8" Dr., 7-3/8".

P

SPAENAUR No. AT15-515

27 Piece 12 Point 1/2" Drive Socket Set
Inch Sizes

In Steel Case.
14 Sockets, 5 Drive Tools, 7 wrenches, 1 pliers.
Approx. Weight, 19.08 lbs. (8.66 kg)
12-pt. Std. Length Sockets (inch): 7/16, 1/2, 9/16, 5/8, 11/16, 3/4, 13/16, 7/8, 15/16, 1, 1-1/16, 1-1/8, 1-1/4.
Spark Plug Socket (inch): 13/16.
12-pt. Full Polished Combination Wrenches (inch): 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4.
Tongue & Groove Pliers: 10" Long.
Drive Tools: Breaker Bar,1/2" Dr., 17"; 2 Extensions, 1/2" Dr., 5" & 10"; Universal Joint, 1/2" Dr.; Ratchet, 1/2" Dr., 10-1/2".

SPAENAUR No. AT15-520

26 Piece 12 Point 1/2" Drive Socket Set
Inch Sizes

In Steel Case.
18 Sockets, 8 Drive Tools.
Approx. Weight, 19.08 lbs. (8.66 kg)
12-pt. Std. Length Sockets (inch): 3/8, 7/16, 1/2, 9/16, 19/32, 5/8, 21/32, 11/16, 3/4, 25/32, 13/16, 7/8, 15/16, 1, 1-1/16, 1-1/8, 1-3/16, 1-1/4.
Drive Tools: Breaker Bar,1/2" Dr., 17"; 3 Extensions, 1/2" Dr., 2-1/2", 5" & 10"; Speeder, 1/2" Dr.; Ratchet Spinner, 1/2" Dr.; Universal Joint, 1/2" Dr.; Ratchet, 1/2" Dr., 10-1/2".

SPAENAUR No. AT15-530

18 Piece 6 Point 1/2" Drive Socket Set
Inch Sizes

In Steel Case.
15 Sockets, 3 Drive Tools.
Approx. Weight, 19.08 lbs. (8.66 kg)
6-pt. Std. Length Sockets (inch): 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4, 13/16, 7/8, 15/16, 1, 1-1/16, 1-1/8, 1-3/16, 1-1/4.
Drive Tools: Breaker Bar,1/2" Dr., 17"; Extension, 1/2" Dr., 5"; Ratchet, 1/2" Dr., 10-1/2".

SPAENAUR No. AT15-535
16 Piece 12 Point 1/2" Drive Socket Set
Inch Sizes

In Steel Case.
10 Sockets, 6 Drive Tools.
Approx. Weight, 11.46 lbs. (5.20 kg)
12-pt. Std. Length Sockets (inch): 7/16, 1/2, 9/16, 5/8, 11/16, 3/4, 13/16, 7/8, 15/16, 1.
Drive Tools: Breaker Bar, 1/2" Dr., 17"; 2 Extensions, 1/2" Dr., 5" & 10"; Speeder, 1/2" Dr.; Universal Joint, 1/2" Dr.; Ratchet, 1/2" Dr., 10-1/2".

SPAENAUR No. AT44-510
31 Piece 12 Point 1/2" Drive Socket Set
Metric Sizes

In Steel Case.
27 Sockets, 4 Drive Tools.
Approx. Weight, 20.46 lbs. (9.28 kg)
12-pt. Std. Length Sockets (mm): 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26.
12-pt. Deep Sockets (mm): 16, 17, 18, 19, 20, 21, 22, 24, 25, 26.
Screwdriver Sockets: Slot - 1/4" x 1/32"; Phillips - # 2, 3, 4.
Drive Tools: Breaker Bar, 1/2" Dr., 17"; 2 Extensions, 1/2" Dr., 5" & 10"; Ratchet, 1/2" Dr., 10-1/2".

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SPAENAUR No. AT44-525
16 Piece 12 Point 1/2" Drive Socket Set
Metric Sizes

In Steel Case.
14 Sockets, 2 Drive Tools.
Approx. Weight, 7.09 lbs. (3.22 kg))
12-pt. Std. Length Sockets (mm): 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23.
Drive Tools: Extensions, 1/2" Dr., 5"; Ratchet, 1/2" Dr., 10-1/2".

3/8" Drive Micrometer Adjustable Torque Wrenches, Ratchet Head

SPAENAUR No.	PRIMARY SCALE Range	Incr.	ALTERNATE SCALE Range	Incr.	Head Width	Head Length	Head Thickness less tang	Head Thickness with tang	Length Inches	Weight Lbs.
AT64-041	50-250 Nm	1 In/Lb	6-29 Nm	.11 Nm	1.063	1.672	0.469	0.969	9.5	.76
AT64-042	100-1000 In/Lb	5 In/Lb	14-116 Nm	.6 Nm	1.500	2.125	0.563	1.063	17.1	2.05
AT64-046	10-100 Ft/Lb	.5 Ft/Lb	17-139 Nm	.7 Nm	1.500	2.125	0.563	1.063	17.1	2.05
AT64-049	10-100 Nm	1 Nm	-	-	1.500	2.125	0.563	1.063	17.1	2.05

ANSI B107.14M ISO 6785

3/4" Drive Micrometer Adjustable Torque Wrenches, Ratchet Head

SPAENAUR No.	PRIMARY SCALE Range	Incr.	ALTERNATE SCALE Range	Incr.	Head Width	Head Length	Head Thickness less tang	Head Thickness with tang	Length Inches	Weight Lbs.
AT64-094	50-400 Ft/Lb	2.5 Ft/Lb	85-559 Nm	3.4 Nm	2.450	3.063	1.700	2.620	33.0	9.62
AT64-095	100-600 Ft/Lb	2.5 Ft/Lb	153-830 Nm	3.4 Nm	2.450	3.063	1.700	2.620	40.5	10.7
AT64-099	150-800 Nm	2.5 Nm	-	-	2.450	3.063	1.700	2.620	40.5	10.72

ANSI B107.14M ISO 6785

1/4" Torque Screwdrivers

Accuracy of ± 6% clockwise (20-100% of full range). Provides precise torque application. Clutch type release mechanism prevents over torquing.

SPAENAUR No.	PRIMARY SCALE Range	Incr.	Length Inches	Weight Lbs.
AT64-002	20-100 In/oz	2 In/oz	6.8	.79
AT64-005	6-36 In/Lb	.5 In/Lb	6.8	.79

Includes 1/4" Drive female Hex adapter.
Screwdrivers with Metric scales are available on special order. P.O.R.
ANSI B107.14M

Visit us on the web at . . .

www.spaenaur.com

Super Palmster™ Pocket-Sized Ratchet

3/8" Square Drive
(Meets ANSI B107.4 specification)

Size: Length, (closed) 2-5/16"
Length, (open) 3-13/16"
Height, 1-1/4"
Width, 1-11/16"

SPAENAUR No.
876-1740

Priced Singly

Alloy Steel
Black Finish

Small enough to fit in your pocket for maximum portability, this exclusive new tool combines the full ratcheting capabilities of a standard ratchet with a unique portable design that lets you take it anywhere you need it. The compact ratchet, **Super Palmster™**, weighs just 5 ounces (.15 kg).

This ratchet's special design and short ratcheting arc, less than 4-1/2°, allow you to use it in tight, confining applications. The ratchet assembly features an industrial strength double-pawl, 82 tooth action design for maximum durability.

The 3/8" square drive accommodates standard sockets and boasts a hefty 1,800 in/lbs. of torque. The nylon reinforced, high impact handle on the **Super Palmster™** has a torque capacity of more than 500 in/lbs., so you can count on it to deliver rugged, dependable performance.

Set Priced Singly

Super Palmster™ Socket/Bit Set

19 Pieces in a Black Plastic Moulded Case.

SPAENAUR No. **876-1741**

Set includes:

1 - Ratchet (similar to above)
4 - Torx® Bits (T-15, T-20, T-25, T-30)
4 - Slotted Bits (5-6, 6-8, 8-10, 10-12)
4 - Phillips Bits (P1, 2 x P2, P3)
1 - Magnetic Bit Holder
1 - Extension
4 - 6-point Sockets (1/4", 5/16", 3/8", 7/16")

P

Have a question?

Call (800) 265-8772 or (519) 744-3521.

CATALOG 13

Sockets for Hand Use

High quality sockets to withstand the high torque applied with long ratchet handles.

3/8"

For Phillips screws
Drive: 3/8" square drive
Tip: Phillips, Black Point

SPAENAUR No.	Tip Size	Length mm
876-1713	1	48
876-1714	2	48
876-1715	3	48
876-1716	4	48

1/2"

For XZN screws (12 point recess)
Drive: 1/2" square drive
Tip: XZN

SPAENAUR No.	Metric Screw Size	Length mm
877-1417	M 8	53
877-1418	M 8	100
877-1419	M 10	53
877-1420	M 10	100
877-1421	M 10	120
877-1422	M 12	55
877-1423	M 12	100
877-1424	M 12	140

Socket Body - Chrome/Moly Alloy
Bit Portion - S-2 Modified TOOL STEEL

3/8"

For TORX screws
Drive: 3/8" square drive
Tip: TORX

SPAENAUR No.	Tip Size	Length mm
876-1717	T9	46
876-1718	T10	46
876-1719	T15	46
876-1720	T20	46
876-1721	T25	46
876-1722	T27	46
876-1723	T30	46
876-1724	T40	46

1/2"

For TORX socket screws
Drive: 1/2" square drive
Tip: TORX

SPAENAUR No.	Tip Size	Length mm
876-1725	T45	55
876-1726	T45	120
876-1727	T50	55
876-1728	T55	56
876-1729	T55	140
876-1730	T60	56

Square Socket Drive Adapters for Hex Bits.

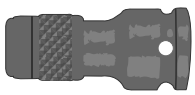
Hand or Powertool use.

(Length 30 mm)

SPAENAUR No.
876-895
Adapter, 1/4" Square Drive with Wera Quickrelease® for 1/4" Hex Bits.

All Items This Page Priced Singly.

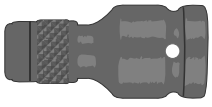
(Length 43 mm)



SPAENAUR No. **876-896**
Adapter, 3/8" Square Drive with Wera Quickrelease® for 1/4" Hex Bits.

SPAENAUR No. **876-898**
Adapter, 3/8" Square Drive with Wera Quickrelease® for 5/16" Hex Bits.

(Length 50 mm)



SPAENAUR No. **876-897**
Adapter, 1/2" Square Drive with Wera Quickrelease® for 1/4" Hex Bits.

SPAENAUR No. **876-899**
Adapter, 1/2" Square Drive with Wera Quickrelease® for 5/16" Hex Bits.

P

Insert Bits — Alloy Steel

Top Quality, extra hard (Grey)

Not for use with power drivers.

Bit Point Size	UNIT PACKAGE 1 — SPAENAUR No. 1" L x 1/4" H	1-1/4" L x 5/16" H
Phillips		
0	876-140	—
1	876-141	876-144
2	876-142	876-145
3	876-143	876-146
4	—	876-147
Slot		1-1/2" x 5/16"
0	876-104	
4-6	876-148	876-152
6-8	876-149	876-153
10	876-150	876-154
12	876-151	876-155
14	876-888 (1-1/2" long)	
Pozidriv®		1-1/4" x 5/16"
1	876-156	876-159
2	876-157	876-160
3	876-158	876-161
4	—	876-162
Tri-Wing®		
0	876-1631	—
1	876-218	—
2	876-1634	—
3	876-1635	—
4	876-1636	—
5	876-1637	—
6	876-1638	—
Square Recess		
0	876-821	—
1	876-163	—
2	876-164	—
3	876-165	—
4	876-1048	—
Hex Socket	Hex Size	1-1/8" x 5/16"
1/16"	876-178	—
5/64"	876-179	—
3/32"	876-180	—
7/64"	876-181	—
1/8"	876-889	—
9/64"	876-182	—
5/32"	876-825	876-183
3/16"	876-826	876-184
7/32"	876-827	876-185
1/4"	876-752	—
5/16"	876-753	—

1/4" hex shanks, 1" long, available in no's. 0 through 3 points; 5/16" hex shanks are 1-1/4" long, in sizes 1 through 4.

Point	Screws
No. 1	No. 1 to 4
No. 2	No. 5 to 10
No. 3	No. 12 to 16
No. 4	3/8"

1/4" and 5/16" hex shank models for slotted screw sizes 0 through 14. Lengths 1" and 1-1/2".

1/4" and 5/16" hex shanks, 1" to 1-1/4" long. Point sizes: 1PZD through 4PZD.

Point	Screws
No. 1	No. 1 to 4
No. 2	No. 5 to 10
No. 3	No. 12 to 16
No. 4	3/8"

1/4" hex shanks, 1" long. Point sizes: 0, 1, 2, 3, 4, 5, & 6.

1/4" hex shanks only, in 1" length. Point sizes: 0, 1, 2, 3 & 4.

Point	Screws
No. 0	No. 4
No. 1	No. 6
No. 2	No. 8, 10
No. 3	No. 12, 1/4"
No. 4	5/16"

1/4" and 5/16" hex shanks, 1" and 1-1/8" long. Socket sizes: 1/16" to 5/16".

METRIC Hex Socket Driver Bits

Extra Hard Alloy Steel - Grey

All bits 25 mm x 6.3 mm (1" x 1/4") hex shank.

Hex Size	SPAENAUR No.	Hex Size	SPAENAUR No.
1.5 mm	876-1576	4 mm	876-815
2 mm	876-812	5 mm	876-816
2.5 mm	876-813	6 mm	876-817
3 mm	876-814	8 mm	876-818

LOW PROFILE HEX RECESSED SOCKET BITS

Fit 1/4" Hex Shanks

Overall Length 1-1/4" All Sizes

- Specially designed for hard-to-reach hex heads
- Perfect for use with the angle or inline driver
- Transfers magnetic pickup for holding fasteners
- 7 standard hex sizes combination SAE/Metric

SPAENAUR No.	Across Flats Inch	Metric
876-785	3/16"	5 mm
876-784	7/32"	5.5 mm
876-783	1/4"	—
876-781	5/16"	8 mm
876-780	3/8"	—
876-779	—	10 mm

HEX RECESSED MAGNETIC DRIVER

1/4" Hex Shank

Generally used on Self-drilling Construction Fastener Screws.

SPAENAUR No.	Across Flat Size	O/A Lgth.
T-208A	1/4"	1-11/16"
876-876	1/4"	2-9/16"
T-208B	5/16"	1-11/16"
876-877	5/16"	2-9/16"
876-198	3/8"	1-3/4"
876-878	3/8"	2-9/16"
876-875	7/16"	1-3/4"
876-199	7/16"	2-9/16"

All Bits on this page are **NOT** for use with power tools.

All Bits — Unit Package 1

INSERT BIT ORGANIZER

***SPAENAUR No.* 876-819**

Moulded of strong, flexible plastic that won't let your bits fall out even if you toss the organizer on your work bench or in your tool box.

Approx. O/A Dimensions: 3-9/16" L x 1-15/16" W x 13/16" H

Holds up to 36 Bits - 1/4" or 5/16" Hex Shank

Centre divider will hold adapters or extensions up to 3" in length.

Priced Singly
(Bits not included)

INSERT BITS FOR *"SPANNER"* (drilled head) SCREWS

See pages B126 and B127 for Spanner Screws.

For 1/4" Hex - use Driver 876-129 (Pg. P37)
For 5/16" Hex - use Driver 876-130 (Pg. P37)
Do **NOT** use Bit with Power Driver

SPAENAUR No.	For Screw Size	C to C Across Tips	Bit Size
876-991	No. 4 size	3/32"	5/16" Hex x 1-1/2" Lgth.
876-190	No. 6 size	1/8"	1/4" Hex x 1" Lgth.
876-191	No. 8 size	5/32"	1/4" Hex x 1" Lgth.
876-999	No. 8 size	5/32"	5/16" Hex x 1-1/2" Lgth.
876-192	No. 10 size	3/16"	1/4" Hex x 1" Lgth.
876-992	No. 12 size	7/32"	5/16" Hex x 1-1/2" Lgth.
876-193	1/4", 5/16", 3/8"	1/4"	5/16" Hex x 1-1/2" Lgth.

WARNING: "Spanner" Insert Bits are **NOT GUARANTEED** against breakage or wear because of their extremely hard points.

HEX SOCKET SECURITY BITS

1/4" Hex

SPAENAUR No.	ACROSS FLATS	FITS BUTTON HEAD	FITS FLAT HEAD
876-835	3/32"	#4	#4
876-769	1/8"	#6	#6
876-770	5/32"	#8, #10, #14, and 1/4"	#8, #10, #14, and 1/4"
876-771	3/16"	5/16"	5/16"
876-772	7/32"	3/8"	3/8"

"SPANNER" BITS

METRIC - Heat Treated
5/16" Hex. (*1/4" Hex.)

***877-692** for M3 screws
877-689 for M3 screws
877-691 for M5 screws
876-193 for M6 screws

PHILLIPS SECURITY BITS

SPAENAUR No.
876-773
Phillips #2 Pin-Head Bits fit sizes #6 to #10 screws.

SPAENAUR No.
876-1573
Phillips #3 Pin-Head Bits fit sizes #12 to 1/4" screws.

1/4" Hex

All Bits shown above are **NOT** for use with power tools.

POWER BITS

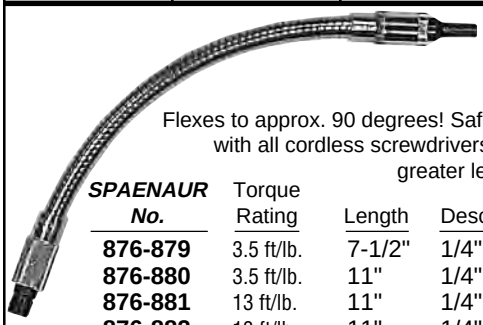
to fit most popular makes of air and electric drivers.

Extra hard Steel - Grey Finish 1/4" Hex Shank

Phillips *SPAENAUR No.*	Sq. Recess *SPAENAUR No.*	Point Size	Overall Length	Slotted *SPAENAUR No.*	Screw Size	Blade Thickness	Body Diameter
876-1137	**876-1428**	1	2"	**876-844**	4 - 5	.034"	.187"
876-838	**876-841**	1	2-3/4" - 3"	**876-845**	6 - 7	.038"	.250"
876-1139	**876-1429**	1	6"	**876-846**	8 - 10	.042"	.275"
876-1140	**876-1652**	2	2"	**876-847**	10 - 12	.046"	.312"
876-839	**876-842**	2	2-3/4" - 3"	**876-848**	12 - 14	.050"	.360"
876-1155	**876-1135**	2	6"				
876-1185	**876-1653**	3	2"				
876-840	**876-843**	3	3"				
876-1186	**876-1136**	3	6"				

All slotted power bits are 3" overall length.

See page P34 for Torx® Power Bits.



FLEX-A-BIT™

Flexible Extension Shaft

Flexes to approx. 90 degrees! Safe at any speed! Outer sleeve does not rotate. Use with all cordless screwdrivers, drills, air tools, electric drills or hand drivers. For greater lengths, connect 2, 3 or 4 FLEX-A-BITs™ together!

SPAENAUR No.	Torque Rating	Length	Description
876-879	3.5 ft/lb.	7-1/2"	1/4" Male x 1/4" Female Hex Drive
876-880	3.5 ft/lb.	11"	1/4" Male x 1/4" Female Hex Drive
876-881	13 ft/lb.	11"	1/4" Male x 1/4" Female Hex Drive - Heavy Duty
876-882	13 ft/lb.	11"	1/4" Male x 1/4" Female Square Drive - Heavy Duty
876-883	13 ft/lb.	11"	3/8" Male x 3/8" Female Square Drive - Heavy Duty

Priced Singly.

All Bits Unit Package 1.

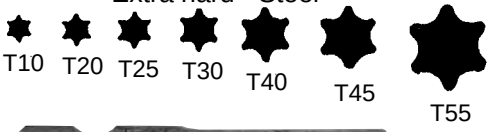
Not for use with power drivers.

TORX®
Sq. Socket
Drive Bits

TORX®
Insert Bits
Extra hard

TORX® Power Bits

Extra hard - Steel



Extra hard
5/16" Hex Shank

Bit Size	1/4" & 3/8" Sq. Drive		Overall Length 1" 1/4" Hex Shank	1-1/4" 5/16" Hex Shank	2" 1/4" Hex Shank	2-3/4" 1/4" Hex Shank	3-1/2" 1/4" Hex Shank	6" 1/4" Hex Shank	5/16" Hex Shank	
	Sq. Dr.	*SPAENAUR No.*	*SPAENAUR No.*	*SPAENAUR No.*	*SPAENAUR No.*	*SPAENAUR No.*	*SPAENAUR No.*	*SPAENAUR No.*	O/A Lgt.	*SPAENAUR No.*
T-7	—	—	**876-620**	—	—	—	—	—	—	—
T-8	—	—	**876-166**	—	**876-627**	**876-635**	**876-643**	**876-299**	—	—
T-9	1/4"	**876-321**	**876-167**	—	—	—	—	—	—	—
T-10	1/4"	**876-322**	**876-168**	—	**876-628**	**876-636**	**876-644**	**876-310**	—	—
T-15	1/4"	**876-323**	**876-169**	—	**876-629**	**876-637**	**876-645**	**876-301**	—	—
T-20	1/4"	**876-324**	**876-170**	—	**876-630**	**876-638**	**876-646**	**876-302**	—	—
T-25	1/4"	**876-325**	**876-171**	—	**876-631**	**876-639**	**876-647**	**876-303**	—	—
T-27	1/4"	**876-326**	**876-172**	—	**876-632**	**876-640**	**876-648**	—	—	—
T-30	1/4"	**876-327**	**876-173**	**876-175**	**876-633**	**876-641**	**876-649**	**876-305**	—	—
T-40	3/8"	**876-328**	**876-174**	**876-176**	**876-634**	**876-642**	**876-298**	**876-306**	—	—
T-45	3/8"	**876-329**	—	**876-621**	—	—	—	—	3"	**876-308**
T-50	3/8"	**876-330**	—	**876-177**	—	—	—	—	3"	**876-309**
T-55	3/8"	**876-331**	—	**876-622**	—	—	—	—	—	—

Unit Package Quantity 1 - All Items This Page.

For TORX® Key Wrenches see page P13.

TORX® INTERCHANGEABILITY TABLE

TORX Sizes	TORX Socket Set Screw	TORX Socket Head Cap Screw	TORX Socket Button Head Cap Screw	TORX Socket Flat Head Cap Screw	TORX Socket Pressure Plug	TORX Socket Pan and Oval Heads Machine Screw INCH Sizes	TORX Socket Pan and Oval Heads Machine Screw METRIC Sizes	TORX Socket Pan and Oval Heads Tapping Screw INCH Sizes	TORX Socket Pan and Oval Heads Tapping Screw METRIC Sizes
T-7	#6					#2			
T-8	#8		#4			#3	2.5		
T-9				#4		#4		#4	
T-10	#10	#4, #5	#6	#5		#5		#4, #5	2.9
T-15		#6	#8	#6		#6, #8	3.5, 3.9	#6, #8	3.5, 3.9
T-20	1/4"			#8		#8	4.2, 4.8	#8, #10	4.2, 4.8
T-25		#8	#10	#10		#10	5.	#10	
T-27	5/16"	#10	1/4"		1/16"	#12		#12	
T-30	3/8"	1/4"		1/4"	1/8"	1/4"	5.5, 6.3	1/4"	5.5, 6.3
T-40			5/16"	5/16"		5/16"	7., 8.	5/16"	7., 8.
T-45	1/2"	5/16"	3/8"	3/8"	1/4"	3/8"		3/8"	
T-50		3/8"		7/16", 1/2"		7/16"	10.	7/16"	10.
T-55		7/16", 1/2"	1/2"	5/8"	3/8"				
T-60			5/8"	3/4"					
T-70		5/8"							
T-80									
T-90		3/4"							

P

CATALOG 13

TORX® DRIVE SYSTEM

The Torx Drive System is a 6-point fastening system which maximizes the driving surface for longer drive life, while maximizing torque, reducing slippage, and minimizing worker fatigue. Sometimes called the "Star" fastener, because of its likeness to the shape of a star, this fastening system is used on most late-model cars. Several often-replaced vehicle parts, such as headlights, tail-lights, turning signal lights, and exterior trim areas, will utilize the Torx System.

Appliances, television sets, washers, dryers, toasters, and vacuum cleaners will also utilize the Torx System.

***SPAENAUR No.* 876-617 Wrap Kit.**
Kit includes one each of all sizes of Torx bits shown in the chart except T9.
Unit Package - 1 kit.

TORX DRIVE BITS - Page P34.

UNI-DRIVER TORX BITS - Page P45.

TORX SCREWDRIVERS

with Plastic Handle

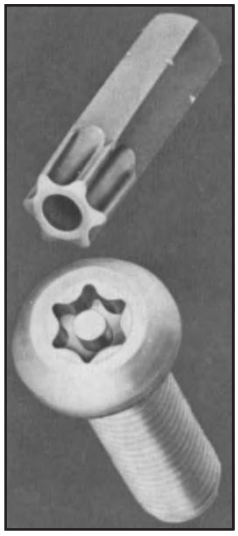
Sizes available individually or in a set.

SPAENAUR No.	Torx Bit Size	Unit Pkg.
876-607	T8	1
876-619	T9	1
876-608	T10	1
876-609	T15	1
876-610	T20	1
876-611	T25	1
876-612	T27	1
876-613	T30	1
876-614	T40	1
876-615	T45	1
876-616	T50	1

TORX® TAMPER-RESISTANT BITS and DRIVERS for Recessed Tamper-Resistant Screws

The tamper-resistant TORX drive has a post in the centre of its recess which requires a specially mated driver to remove the fastener. Unauthorized removal is prevented.

	SPAENAUR NUMBERS LISTED BELOW			
Torx Recess Size	**HAND DRIVER** Approx. O/A Lgth.	with integral Bit and plastic handle	***INSERT BIT** 1/4" Hex - 1" long ▲5/16" Hex - 1-1/4" long	**KEY WRENCH** Short Arm drilled both ends Alloy Steel
TR7	5-7/8"	**876-1704**	—	—
TR8	5-7/8"	**876-1705**	**876-890**	—
TR9	8-1/2"	**876-1706**	**876-891**	—
TR10	5-7/8"	**876-1707**	**876-348**	**876-1785**
TR15	6-7/8"	**876-345**	**876-349**	**876-1786**
TR20	6-7/8"	**876-1708**	**876-823**	**876-1787**
TR25	7-3/4"	**876-346**	**876-350**	**876-1788**
TR27	8"	**876-347**	**876-351**	**876-1789**
TR30	7-1/2"	**876-1709**	**876-892**	**876-1790**
TR40	8-1/2"	**876-1710**	**876-893**	**876-1791**
TR45	8-1/2"	**876-1711**	**▲876-1792**	—
TR50	8-1/2"	—	**▲876-1793**	—



See pages B132 to B134 for screws.

*Not for use with power driver.

(Hollow handle for storing bits.)

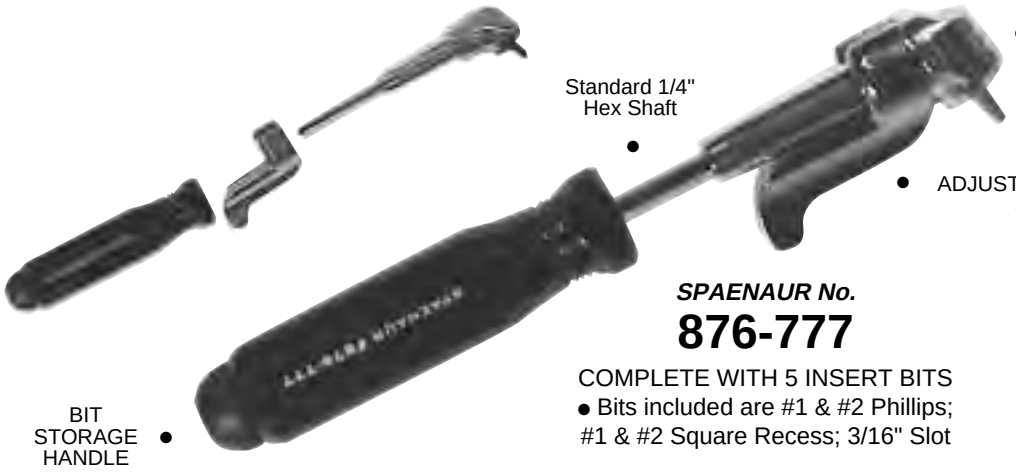
(Bits not included.)

NOTE: SPANNER and TORX "Tamper Resistant" tools, are NOT guaranteed against overtorque, misuse, breakage or wear.

All Bits and Tools Priced Singly.

Spaenaur No.	Magnetic Driver Handles
876-129	for 1/4" hex bits shown in chart.
876-130	for 5/16" hex bits shown in chart.

ANGLE DRIVER 'PRO'



SPAENAUR No.
876-777
COMPLETE WITH 5 INSERT BITS
- Bits included are #1 & #2 Phillips; #1 & #2 Square Recess; 3/16" Slot

SPAENAUR No.
876-786
Driver only.
NO BITS.

- Features heavy duty chrome plated die cast gear housing.
- Adjustable/removable ergonomic stabilizer.
- Detachable acrylic handle.
- Convenient storage handle for bits.
- 1/4" hex shaft.
- Overall length 8-1/2"

The **ANGLE DRIVER 'PRO'** is a heavy duty version with the gearing design allowing conventional screwdriver action on hard-to-get at fasteners.

Hardened gearing and die cast construction provide extra strength and durability for todays mechanic, technician and do-it-yourselfer. For automotive, RV, marine, aircraft and electronics use as well as around the home and workshop.

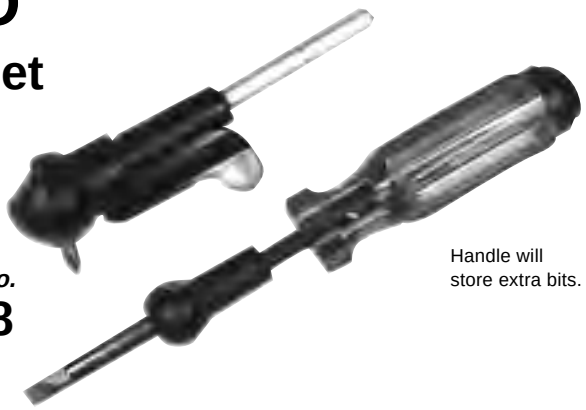
SKEWDRIVER COMBO

straight and offset bit driver set

Use for light duty applications.

Driver set comes with four interchangeable 1/4" bits; #1 and #2 Phillips drive, 3/16" and 1/4" Slot drive. Also includes 4-1/2" magnetic driver, guide bushing and SkewDriver offset head.
Unique guide knob puts the "push" in one hand and the "turn" in the other hand for accuracy and control.
SkewDriver offset drive head with grip stabilizer gets rotary drive action into hard-to-reach places.

SPAENAUR No.
876-778



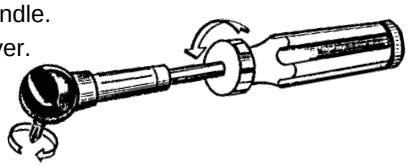
Shown with slot and phillips bit in magnetic driver.

The ANGLE Offset Bit Driver -

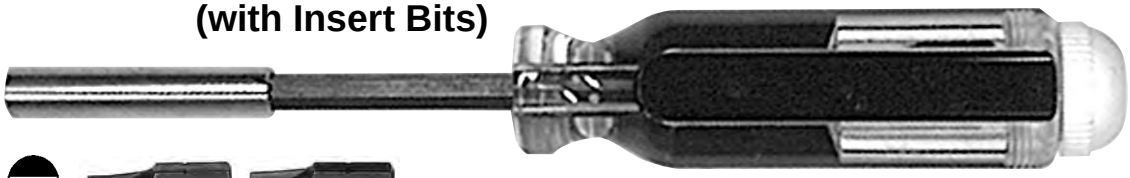
is a unique professional hand tool designed to remove and install hard-to-get-at fasteners with a simple twist of the handle. Unique design gives conventional screwdriver action in offset applications. Designed for strength and durability.

SPAENAUR No.
876-787
DRIVER ONLY.
Bits not included.

- Gear Drive Bit Driver with a "new twist". Replaces stubby, offset and ratcheting screwdrivers.
- Magnet holds standard 1/4" hex insert bits in driver.
- Extra bits are conveniently stored in handle.
- Comfort grip acrylic handle.
- Durable low profile driver.
- Overall length 8-1/2".



Magnetic Screwdrivers - Hollow Handle (with Insert Bits)



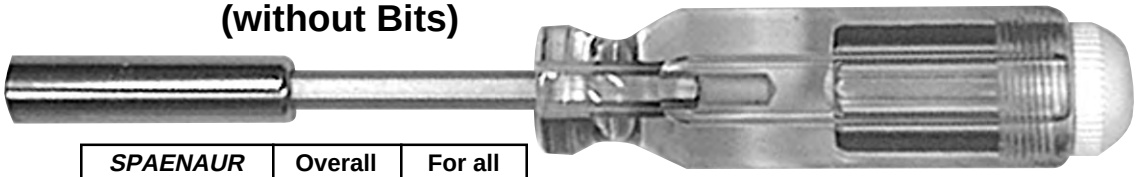
Bits are stored in hollow handle

Each driver has size 1 & 2 Phillips, 4-6 & 6-8 Slot, (1"-long bits with 1/4" Hex) in storage handle.

Magnet in driver-shank holds choice of 4 interchangeable bits, and passes magnetism through bit to securely hold screw.

SPAENAUR No.	Overall Length	Description
876-120	2-1/2"	Magna Driver
876-121	8"	Magna Driver
876-122	11"	Magna Driver

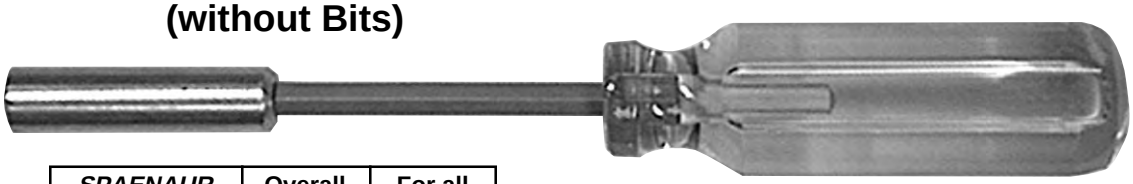
Magnetic Screwdrivers - Hollow Handle (without Bits)



Bits can be stored in hollow handle

SPAENAUR No.	Overall Length	For all Hex Bits
876-129	8"	1/4"
876-131	11"	1/4"
876-130	8-3/4"	5/16"

Magnetic Screwdrivers - Solid Handle (without Bits)



SPAENAUR No.	Overall Length	For all Hex Bits
876-123	2-1/2"	1/4"
876-124	8"	1/4"
876-126	11"	1/4"
876-125	8-3/4"	5/16"

Magnetic Bit Holder Extender

SPAENAUR No.	Overall Length	For all Hex Bits
876-887	3"	1/4"
876-127	4"	1/4"

DRIVER HANDLE (Spinner)

1/4" Square Drive

Overall length 7"

SPAENAUR No. **876-536**

P

CATALOG 13

All items this page
Unit Package 1.

For Service people, Mechanics, Home Handy-persons, or as a gift.

DRIVER and INSERT BIT KIT

876-820

Magnetic Driver, 26 Bits, Socket Adapter and Bit Holder

Priced Singly

Case Dimensions
8-3/4" L x 4-5/8" W x 2" H

Description	Overall Length	Bit/Point Size
Driver	8"	1/4" magnetic with storage handle
Philips Bits	1"	0:1:2:3:drywall
Slotted Bits	1"	0-1:3-4:5-6:8-10:12-14
Allen Bits	1"	5/64:3/32:7/64:1/8:9/64
Square Recess	1"	0:1:2:3
Torx Bits	1"	T10:T15:T20:T25:T30:T40
Posidriv Bits	1"	1:2
Socket Adapter	1"	1/4"
Bit Holder	3"	1/4" for use with power tools

Put up in a sturdy plastic case with hinged lid and clasp.

Non-Magnetic Hand Drivers

Overall assembled length approx. 7-1/4" including selected bits.

4 in 1 Quick Change Screwdriver

Hand driver will hold 1 double-ended bit in each end of reversible shaft. By flipping shaft or double-ended bits,
4 driver choices are instantly available in a sturdy driver handle.

Handle and bits must be ordered separately.

876-1595
Plastic handle with steel shaft, non-magnetic. (Two Parts)

All SPAENAUR No's. Unit Package 1.

876-1597
3/16" & 5/16" Slotted Drive

876-1599
#1 & #2 Square Drive

Plain Steel Double End Bits, 5/16" Hex Shank; Overall Length 3".

876-1596
#1 & #2 Phillips Drive

876-1598
#2 Phillips & #27 Torx® Drive

Wiha Precision Series Screwdrivers

Slotted Screwdriver with Slender Handle meets the rigorous demands of todays technology for control, accuracy and durability.

Applications:

- Electronics Service and Assembly
- Medical, Optical
- Hobby, Model Making
- All Detail Precision Work

Priced Singly

Blade of high alloy chrome-vanadium-molybdenum steel.

SPAENAUR No.	Inch	mm	Inch	mm	Inch	mm	Inch	mm
877-109	1/16"	1.5	1.6"	40	.010"	0.25	4.72"	120
877-110	.070"	1.8	1.6"	40	.012"	0.30	4.72"	120
877-102	5/64"	2.0	1.6"	40	.016"	0.40	4.72"	120
877-103	5/64"	2.0	2.0"	50	.016"	0.40	5.71"	145
877-104	3/32"	2.5	2.0"	50	.016"	0.40	5.71"	145
877-105	1/8"	3.0	2.0"	50	.020"	0.50	5.71"	145
877-106	1/8"	3.0	2.4"	60	.020"	0.50	6.69"	170
877-1411	1/8"	3.0	6.0"	150	.020"	0.50	10.24"	260
877-107	9/64"	3.5	2.4"	60	.024"	0.60	6.69"	170
877-108	5/32"	4.0	2.4"	60	.031"	0.80	6.69"	170
877-1413	5/32"	4.0	3.9"	100	.031"	0.80	8.27"	210
877-1414	5/32"	4.0	6.0"	150	.031"	0.80	10.24"	260

300 Series with Wera *slip*STOP® Blade Screwdriver Set

Screwdriver Sets with ***Slip*STOP®** blades and Kraftform® handle with ergonomic design for anti-roll protection. ***Slip*STOP®** blades are laser treated giving them an extremely rough drive end which literally "bites" into the screw head.

876-1843

Contents:
- 6.5 x 150mm, 4.0 x 100mm
- PH1/80, PH2/100
- #1/80, #2/100

Series 100 VDE Safety Screwdriver Set with Wera *slip*STOP® Blade

876-1841

Contents:
- 3.5 x 100mm, 5.5 x 125mm
- PH1/80, PH2/100
- #1/80, #2/100

Mini-Check CDN Version

A compact bit set that includes Square, Slotted and Phillips bits, for light hand use around the house, or with the included adaptor in your drill for faster work.

876-1847

Contents:
- 1.0 x 5.5mm, 1.2 x 6.5mm
- PH 1/25, PH 2/25
- #1/25, #2/25

876-1855

The **Wera Star** is a practical and space-saving magnetizing and demagnetizing device for various screwdriver profiles.
To magnetize, the tool is pulled along the positive surface side of the **Wera Star** and to demagnetize the tool it is passed along one of the four negative sides.

876-1868 Bit-Safe® Allround

This 32 piece set has a range of tools for all common applications in trade and industry. The set contains a Kraftform® handle, magnetic quick-release chuck and a power tool adaptor.

Contents:
3 bits each of: PH 1/25, PH 2/25, PH3/25
PZ 1/25, PZ 2/25, PZ3/25
1 bit each of: TX10, TX15, TX20, TX25, TX30, TX40
SW4, SW5, SW6 0.6 x 4.5, 1.0 x 5.5, 1.2x 6.5

876-1869 Bit-Safe® BiTorsion®

This 31 piece set has a range of tools for users who place the greatest emphasis on long life-span, high load capacity and versatility, with many different drive profiles. The set contains a BiTorsion® bit holder with quick-release chuck to suit most popular power tools or for use in electronic drills.

Contents:
2 bits: PH 1/25, 6 bits: PH 2/25, 2 bits: PH3/25
2 bits: PZ 1/25, PZ3/25, 6 bits: PZ 2/25
1 bit: TX10, 2 bits: TX15, TX20, TX25, TX30, 1 bit: TX40

876-1860

Kraftform Kompakt 11- This is a unique, compact 10 piece bit set that contains a range of Torx, Pozidriv, Phillips and Slot bits ideal for either household or electronics applications.

876-1862

Kraftform Kompakt 30 - This 11 piece bit set contains an ergonomic bit-holding screwdriver, as well as an adaptor that allows the included Slotted, Phillips and Pozidriv bits to be used in power tools as well.

876-1863

Kraftform Kompakt 50 - This 14 piece bit set features the exciting new Wera **"Bayonet"** handle, which extends to convert from a short to a longer screwdriver and the bit holder can also be removed to convert to a power tool adaptor. Set includes Torx Security, Pozidriv, Phillips and Slotted bits.

Bayonet blade

By pushing the clamping sleeve, the bayonet blade can be extended out of the handle and the compact tool becomes a full-sized screwdriver.

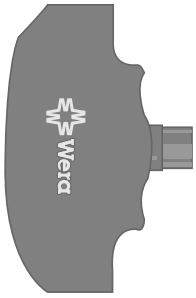
876-1864

Kraftform Kompakt 50 - This 14 piece bit set features the exciting new Wera "**Bayonet**" handle, which extends to convert from a short to a longer screwdriver and the bit holder can also be removed to convert to a power tool adaptor. Set includes Torx Security, Phillips, Slotted and Square Skt. drive bits.

P

A wide range of accessories are available in the Vario® program.

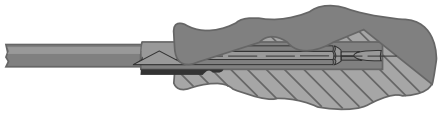
Wera screwdriver handles are manufactured almost exclusively from a sensational new material, "Weralit® II". A modern multi-component material with outstanding qualities: Stronger, more comfortable grip; Higher impact resistance; Excellent hot or cold temperature resistance; High oil, gas and acid resistance; Weight savings up to 25% over other materials add to the work comfort in tool handling; All cadmium-free colors.



Vario® T-Handle
SPAENAUR No.
876-920
for 6mm
Vario
Accessories

Vario® with Kraftform-plus®
"soft cushions" Handle
SPAENAUR No.
876-919
with 10mm hex.
and 6mm opening
to fit all Vario
Accessories.

Size 95mm x 35mm
(3-3/4" x 1-3/8")



The Vario Blade Selection

*(All blades listed below are usable either end and will fit both handles shown above. **6mm Hex Driver is essential**.)*

Slotted

SPAENAUR No.		Hex drive mm	O/L
876-921	5/32" and 1/4"	6	7"
876-922	3/16" and 9/32"	6	7"

Slotted/Phillips

	Point size			
876-923	#1	5/32"	6	7"
876-924	#2	1/4"	6	7"
876-925	#3	9/32"	6	7"

Hex Head/Ball-Head

	Hex Size		
876-928	1.5 mm	6	7"
876-930	2.5 mm	6	7"
876-931	3 mm	6	7"
876-932	4 mm	6	7"
876-933	5 mm	6	7"
876-934	6 mm	6	7"
876-940	3/16"	6	7"

Phillips/Pozidrive®

SPAENAUR No.	Point size		Hex. drive mm	O/L
876-926	#1	#1	6	7"
876-927	#2	#2	6	7"

Phillips

876-941	#1	#2	6	7"

Pozidrive®

876-942	#1	#2	6	7"

Square Socket Head

876-943	#1	#2	6	7"

Torx® Size

876-945	T6	T8	6	7"
876-946	T7	T9	6	7"
876-947	T10	T15	6	7"
876-948	T20	T25	6	7"
876-949	T30	T40	6	7"

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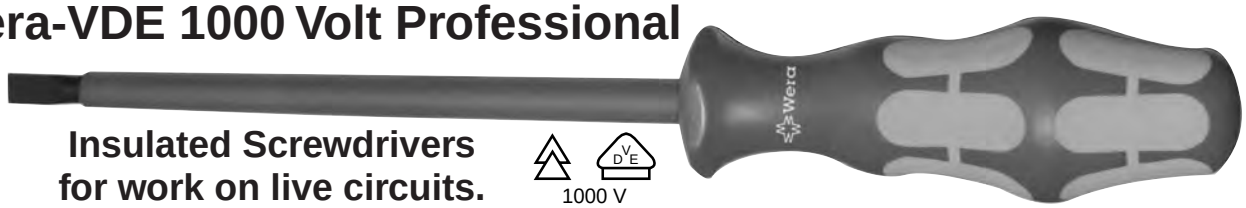
Wera-VDE 1000 Volt Professional



Insulated Screwdrivers for work on live circuits.

1000 V

Tough ergonomically designed handle for ultimate torque transfer and operator comfort.

A 10,000 volt water immersion test guarantees the safe performance of every single insulated tool manufactured by Wera.

VDE - screwdriver for Phillips - recess screws, Red Insulation

SPAENAUR No.	Point Size		mm	mm	
876-950	0	60	75/22	135	2-3/8"
876-951	1	80	90/30	170	3-1/8"
876-952	2	100	100/38	200	4"
876-953	3	150	110/42	260	6"
876-954	4	200	110/42	310	8"

VDE nut driver for hex head bolts, red insulation

SPAENAUR No.	Hex. Size	mm	mm	mm	
876-973	3/16"	125	90/30	215	5"
876-504	1/4"	125	90/30	215	5"
876-974	5/16"	125	100/38	225	5"
876-505	3/8"	125	110/42	236	5"
876-501	7/16"	125	110/42	236	5"
876-503	1/2"	125	110/42	236	5"
876-502	9/16"	125	110/42	235	5"
876-506	5/8"	125	110/42	235	5"

VDE - screwdriver for slotted screws. Conical tips DIN 7437. Red Insulation.

SPAENAUR No.	mm	mm	mm	mm	mm	
876-956	0.4	2.5	75	75/22	150	3/32" x 3"
876-957	0.5	3	100	75/22	175	1/8" x 4"
876-958	0.6	3.5	100	80/27	180	1/8" x 4"
876-959	0.8	4	100	90/30	190	5/32" x 4"
876-960	1.0	5.5	125	100/38	225	7/32" x 5"
876-961	1.2	6.5	150	100/38	250	1/4" x 6"
876-962	1.2	8	175	110/42	285	5/16" x 7"
876-963	1.6	8	200	110/42	310	5/16" x 8"
876-964	1.6	10	200	110/42	310	3/8" x 8"

VDE - Screwdriver for Square Socket Screws.

SPAENAUR No.	Point Size	Colour	mm	mm	mm	Inch
876-1771	1	Green/Yellow	80	98/26	178	3-1/8"
876-262	2	Red/Yellow	100	105/22	205	4"

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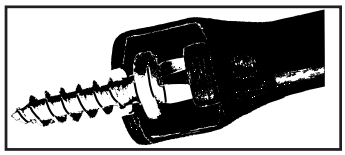
Screw-holding Drivers - Ideal for tight spots

(Not for use on live circuits)



Screwdriver for Slot-Head Screws

SPAENAUR No.	mm	mm	mm	mm	mm	
876-965	0.4	2.5	75	75/22	150	3/32" x 3"
876-966	0.5	3	100	80/27	180	1/8" x 4"
876-967	0.6	4	125	90/30	215	5/32" x 5"
876-968	0.8	5	150	105/40	255	3/16" x 6"
876-969	1.2	6	175	105/40	280	1/4" x 7"

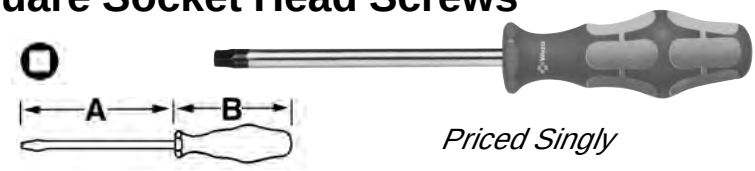
Screwdriver for Phillips - Recess Screws

SPAENAUR No.	Point Size	mm	mm	mm	
876-970	0	100	90/30	190	4"
876-971	1	150	105/40	255	6"
876-972	2	175	105/40	280	7"

CATALOG 13

All items on this page Priced Singly.

Screwdriver for Square Socket Head Screws



Priced Singly

Blade: Round, mat nickel.
Tip: Square-Plus, Black Point except for 876-1760 & 1761.
Handle: Kraftform®, with anti-roll protection, three components. 876-1760 & 876-1761 handles are Weralit® II one component.

SPAENAUR No.	Colour	Point	A mm	A inch	B mm	Use with Screw Dia. Mach. & Tap	Use with Screw Dia. Wood
876-1752	orange/grey	#00	60	2-3/8"	81	2	2
876-1753	yellow/grey	# 0	60	2-3/8"	81	3, 4	3, 4
876-1760 (Stubby)	green	#01	25	31/32"	54	5, 6, 7	5, 6, 7
876-1754	green/grey	# 1	80	3-1/8"	98		
876-1755	green/grey	# 1	200	8"	98		
876-1761 (Stubby)	red	#02	25	31/32"	54	8, 10	8, 9, 10
876-1756	red/grey	# 2	100	4"	105		
876-1757	red/grey	# 2	200	8"	105		
876-1758	black/grey	# 3	150	6"	112	12, 1/4"	12, 14
876-1759	black/grey	# 4	200	8"	112	5/16", 3/8"	16, 18, 20, 24

For the traditional "Jewellers Hold" the Wera "Schnellform" (Fastgrip) screwdriver features a free-turning concave shaped and cap handle of hard plastic.

Design engineered for fine mechanics work with very small fasteners.

Screwdriver handle with flat blade tip.

SPAENAUR No.			d1 mm	d2 mm			
	mm	mm			mm	mm	mm
876-901	0.15	0.6	0.6	2.5	20	100/17	135
876-902	0.20	0.8	0.8	2.5	20	100/17	135
876-906	0.30	1.8	1.8	2.5	20	100/17	135
876-909	0.50	3.0	2.5	2.5	20	100/17	135
876-910	0.60	3.5	2.5	2.5	20	100/17	135

Blades listed below will fit all screwdriver handles shown on this page.

Flat Blade tip

SPAENAUR No.			d1 mm	d2 mm	
	mm	mm			mm
876-312	0.15	0.6	0.6	2.5	33
876-313	0.20	0.8	0.8	2.5	33
876-314	0.20	1.0	1.0	2.5	33
876-317	0.30	1.8	1.8	2.5	33
876-318	0.40	2.0	2.0	2.5	33
876-319	0.40	2.5	2.5	2.5	33

Screwdriver handle with Pozidriv/Supadriv tip blade.

876-917	1	2.5	2.5	20	100/17	135

Phillips-Recess, crosspoint tip

	Point size			
876-586	0	2.5	2.5	33
876-587	1	2.5	2.5	33

Pozidriv/Supadriv tip

	Point size			
876-588	00	2.0	2.5	33
876-589	0	2.5	2.5	33

All items this page Priced Singly.

CATALOG 13

FULLER "PRO 300" SCREWDRIVERS

Industrial quality and strength. Preferred by professionals. A prefect combination of rugged durability and comfort-guaranteed. Available in Slotted, Phillips or Robertson Drive.

Chrome vanadium steel blade for strength and durability. Chrome Plated to resist rust.

One piece, shatterproof, extra large fluted handles for maximum comfort and torque.

Spaenaur No.	Tip Width	Blade Length	For Screw Sizes
POCKET SCREWDRIVER with clip			
876-1870	1/8"	3"	#1, 2, 3
ELECTRICIAN'S SCREWDRIVER			
876-1871	3/16"	4"	#4, 5, 6
MECHANIC'S SCREWDRIVER			
876-1872	1/4"	4"	#7, 8, 9
876-1873	5/16"	6"	#10
876-1874	3/8"	8"	#12,14,16
Genuine PHILLIPS TIP SCREWDRIVERS	**Tip #**		
876-1875	0	2-1/2"	#0, 1
876-1876	1	3"	#2, 3, 4
876-1877	2	4"	#5, 6, 7, 8, 9
876-1878	3	6"	#10, 12, 14, 16
Genuine ROBERTSON TIP SCREWDRIVERS			
876-1879	0	4"	#3, 4
876-1880	1	4"	#5, 6, 7
876-1881	2	5"	#8, 9, 10
876-1882	3	5"	#12, 14

PHILLIPS SCREW DRIVERS with Plastic Handle

Phillips Drive

SPAENAUR No.	Point	For Mach. Screw No's.	For Wood Screw No's.
1431	No. 4 - 8" Blade	5/16" to 1/2"	18 to 24

P.C. 876

PHILLIPS SECURITY SCREW DRIVER 876-851

O/A Length 8"

Plastic Handle

Screw Driver fits #6 to #10 Dia. Phillips Drive Security Screws.

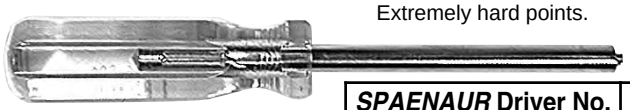
P

UN-DO-IT SCREW TOOL

Needed for removing "ONE-WAY SLOT" Machine Screws, Barrel Nuts and Shoulder Screws.

Un-Do-It Screw Tool also shown on B125 with One-Way Slot Drive Screws. See page C72 for One-Way Slot Drive Barrel Nuts and Shoulder Screws.

Extremely hard points.



SPAENAUR Driver No.	876-804	876-807	876-810
For Screw Sizes	4 to 8 ga.	10-12 ga.	14 ga. (1/4" & 5/16")
Points C. to C.	5/32"	7/32"	15/64"

WARNING: "Spanner" and "Un-Do-It" Screw Drivers are **NOT GUARANTEED** against breakage or wear because of their extremely hard points.

DRIVERS FOR *SPANNER* (drilled head) SCREWS

O/A Lgth. 7-1/2"

SPAENAUR No.	For Screw Sizes	Points C.to C.
876-993	No. 4	3/32"
876-186	No. 6	1/8"
876-187	No. 8	5/32"
876-188	No. 10	3/16"
876-994	No. 12	7/32"
876-189	1/4", 5/16" & 3/8"	1/4"

CATALOG 13

All items this page Priced Singly.

Uni-Drivers®

RATCHET MECHANISM TYPE

SPAENAUR No.
876-775
UNI-DRIVER
with **TWELVE BITS**
(See Below.)

SPAENAUR No.
876-776
Ratchet Uni-Driver
Handle only.
(No Bits.)

SPAENAUR No.
876-975
UNI-DRIVER
with **TWELVE BITS**
(Chart at right.)

SPAENAUR No.
876-976
Uni-Driver
Handle only.
(No Bits.)

Contents of 876-775 Ratchet Uni-Driver, with 1/4" Hex Shank Bits.

Two Slotted Bits
No. 4
No. 6

Three Phillips Bits
No. 1
No. 2
No. 3

Four Square Recess Bits
No. 0
No. 1
No. 2
No. 3

One Hex Socket Bits
Socket size 1/8"

One Torx® Bits
T-15

One Scratch Awl

876-985 Holster
will fit all Uni-Drivers on this page.

Replacement or additional Hex Bits are available, see Pages P32 and P34.

BITS INCLUDED WITH 876-975 UNI-DRIVER

No. 498 3/16" SLOT

No. 499 1/4" SLOT

No. 501 No. 1 PHILLIPS

No. 502 No. 2 PHILLIPS

No. 503 No. 3 PHILLIPS

No. 876-982 No. 0 SQ. SOCKET

No. 504 No. 1 SQ. SOCKET

No. 505 No. 2 SQ. SOCKET

No. 506 No. 3 SQ. SOCKET

No. 573 1/8" HEX

No. 574 5/32" Hex

No. 876-981 SCRATCH AWL

For additional available bits see facing page.

Uni-Driver® BITS

Unit Package Qty. 1

PHILLIPS

SPAENAUR No.	Point	For Screws
501	No. 1	No. 1 to 4
502	No. 2	No. 5 to 9
503	No. 3	No. 10 to 16

ROBERTSON

SPAENAUR No.	Point	Wood Screws	Stove Bolts	Mach. Screws
876-982	No. 0	No. 3, 4		
504	No. 1	No. 5, 6, 7	1/8"	No. 6
505	No. 2	No. 8, 9, 10	5/32", 3/16"	No. 8, 10
506	No. 3	No. 12, 14	1/4"	No. 12, 1/4"

SLOT

SPAENAUR No.	Point Size	Wood Screws	Mach. Screws
498	3/16" Parallel Tip	No. 1 to 5	No. 6
499	1/4" Parallel Tip	No. 6 to 9	No. 8, 10

HEX SOCKET

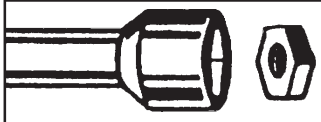
SPAENAUR No.	Point Size (Across Flats)	Set	Socket Hd. Cap	Flat Hd. Cap	Shoulder	Pipe Plug
572	3/32"	No. 10, 12	No. 5, 6	No. 8		
573	1/8"	1/4"	No. 8	No. 10	1/4"	
574	5/32"	5/16"	No. 10, 12	1/4"	5/16"	1/16"
575	3/16"	3/8"	1/4"	5/16"	3/8"	1/8"
576	7/32"	7/16"	5/16"	3/8"		
577	1/4"	1/2", 9/16"		7/16"	1/2"	1/4"

CLUTCH

SPAENAUR No.	Point Size	For Screw Sizes
566	1/8"	No. 4 and No. 5
568	3/16"	No. 10
569	1/4"	No. 12
570	9/32"	1/4" Diameter
571	5/16"	5/16" and 3/8" Diameter

TORX®

SPAENAUR No.	Point Size	Screw Sizes Inch	Screw Sizes Metric
876-987	T-10	#4, #5	2.9
876-988	T-15	#6, #8	3.5, 3.9, 4.2
876-989	T-20	#8, #10	4.2, 4.8



NUT DRIVERS WITH HOLLOW SHAFT

SPAENAUR No.	To Fit Nut Sizes (Across Flats)
578	3/16"
579	1/4"
580	5/16"
581	11/32"
582	3/8"

Made of high-carbon steel, accurately sized and heat treated for lasting wear. SIZES STAMPED ON BLADES.

Shanks are 3-1/2" long, and are hollow for 3/4" from the end, giving lots of screw clearance. Your kit is not complete without a set of Nut Drivers.

Please Note: These will not fit INSIDE the handle.

CARBON TAPER STEP TAPS

SPAENAUR No.	One Bit (3 Sizes)
876-977	6-32, 8-32, 10-32

Ideal for electricians and sheet metal workers. For switch boxes, fuse boxes, and all sheet metal work.

SCREW HOLDING BLADES

876-978	3/16" Tip	It's simple to operate - and made to last.
876-979	1/4" Tip	

TACK PULLER BLADE

876-980

A fast way of removing tacks.

Note: Will not fit INSIDE the handle.

SCRATCH AWL BLADE

876-981

2-1/2" Overall

All items on this page **NOT** for use with power drivers.

HIGHEST QUALITY - MADE IN U.S.A.

HIGH SPEED STEEL 118° POINT
NITRATED FOR BEST PERFORMANCE

Unit Pkg. - 10 per size for drill sizes #80 to 21/64".
*Unit Pkg. - 5 per size for drill sizes Q to 1/2". *Unit Pkg. 1*

SPAENAUR No.	Drill Size	Dia-meter	Overall Length Inches	Flute Length Inches
HSD-80	80	.0135	3/4	3/16
HSD-79	79	.0145	3/4	3/16
HSD-1/64	1/64	.0156	3/4	3/16
HSD-78	78	.016	7/8	3/16
HSD-77	77	.018	7/8	3/16
HSD-76	76	.020	7/8	3/16
HSD-75	75	.021	1	1/4
HSD-74	74	.0225	1	1/4
HSD-73	73	.024	1-1/8	5/16
HSD-72	72	.025	1-1/8	5/16
HSD-71	71	.026	1-1/4	3/8
HSD-70	70	.028	1-1/4	3/8
HSD-69	69	.0292	1-3/8	1/2
HSD-68	68	.031	1-3/8	1/2
HSD-1/32	1/32	.0312	1-3/8	1/2
HSD-67	67	.032	1-3/8	1/2
HSD-66	66	.033	1-3/8	1/2
HSD-65	65	.035	1-1/2	5/8
HSD-64	64	.036	1-1/2	5/8
HSD-63	63	.037	1-1/2	5/8
HSD-62	62	.038	1-1/2	5/8
HSD-61	61	.039	1-5/8	11/16
HSD-60	60	.040	1-5/8	11/16
HSD-59	59	.041	1-5/8	11/16
HSD-58	58	.042	1-5/8	11/16
HSD-57	57	.043	1-3/4	3/4
HSD-56	56	.0465	1-3/4	3/4
HSD-3/64	3/64	.0468	1-3/4	3/4
HSD-55	55	.052	1-7/8	7/8
HSD-54	54	.055	1-7/8	7/8
HSD-53	53	.0595	1-7/8	7/8
HSD-1/16	1/16	.0625	1-7/8	7/8
HSD-52	52	.0635	1-7/8	7/8
HSD-51	51	.067	2	1
HSD-50	50	.070	2	1
HSD-49	49	.073	2	1
HSD-48	48	.076	2	1
HSD-5/64	5/64	.0781	2	1
HSD-47	47	.0785	2	1
HSD-46	46	.081	2-1/8	1-1/8
HSD-45	45	.082	2-1/8	1-1/8
HSD-44	44	.086	2-1/8	1-1/8
HSD-43	43	.089	2-1/4	1-1/4
HSD-42	42	.0935	2-1/4	1-1/4
HSD-3/32	3/32	.0937	2-1/4	1-1/4
HSD-41	41	.096	2-3/8	1-3/8
HSD-40	40	.098	2-3/8	1-3/8
HSD-39	39	.0995	2-3/8	1-3/8
HSD-38	38	.1015	2-1/2	1-7/16
HSD-37	37	.104	2-1/2	1-7/16
HSD-36	36	.1065	2-1/2	1-7/16
HSD-7/64	7/64	.1094	2-5/8	1-1/2
HSD-35	35	.110	2-5/8	1-1/2
HSD-34	34	.111	2-5/8	1-1/2
HSD-33	33	.113	2-5/8	1-1/2
HSD-32	32	.116	2-3/4	1-5/8
HSD-31	31	.120	2-3/4	1-5/8
HSD-1/8S	1/8	.1250	1-7/8	1
HSD-1/8	1/8	.1250	2-3/4	1-5/8
HSD-30	30	.1285	2-3/4	1-5/8
HSD-29	29	.136	2-7/8	1-3/4
HSD-28	28	.1405	2-7/8	1-3/4
HSD-9/64	9/64	.1406	2-7/8	1-3/4
HSD-27	27	.144	3	1-7/8
HSD-26	26	.147	3	1-7/8
HSD-25	25	.1495	3	1-7/8
HSD-24	24	.152	3-1/8	2
HSD-23	23	.154	3-1/8	2
HSD-5/32	5/32	.1562	3-1/8	2
HSD-22	22	.157	3-1/8	2
HSD-21	21	.159	3-1/4	2-1/8
HSD-20	20	.161	3-1/4	2-1/8
HSD-19	19	.166	3-1/4	2-1/8
HSD-18	18	.1695	3-1/4	2-1/8
HSD-11/64	11/64	.1719	3-1/4	2-1/8
HSD-17	17	.173	3-3/8	2-3/16
HSD-16	16	.177	3-3/8	2-3/16
HSD-15	15	.180	3-3/8	2-3/16
HSD-14	14	.182	3-3/8	2-3/16
HSD-13	13	.185	3-1/2	2-5/16
HSD-3/16	3/16	.1875	3-1/2	2-5/16
HSD-12	12	.189	3-1/2	2-5/16
HSD-11	11	.191	3-1/2	2-5/16
HSD-10	10	.1935	3-5/8	2-7/16
HSD-9	9	.196	3-5/8	2-7/16
HSD-8	8	.199	3-5/8	2-7/16
HSD-7	7	.201	3-5/8	2-7/16
HSD-13/64	13/64	.2031	3-5/8	2-7/16
HSD-6	6	.204	3-3/4	2-1/2
HSD-5	5	.2055	3-3/4	2-1/2
HSD-4	4	.209	3-3/4	2-1/2
HSD-3	3	.213	3-3/4	2-1/2
HSD-7/32	7/32	.2187	3-3/4	2-1/2
HSD-2	2	.221	3-7/8	2-5/8
HSD-1	1	.228	3-7/8	2-5/8
875-172	A	.234	3-7/8	2-5/8
HSD-15/64	15/64	.2344	3-7/8	2-5/8
875-173	B	.238	4	2-3/4
875-174	C	.242	4	2-3/4
875-175	D	.246	4	2-3/4
HSD-1/4	1/4	.250	4	2-3/4
875-176	E	.250	4	2-3/4
875-177	F	.257	4-1/8	2-7/8
875-178	G	.261	4-1/8	2-7/8
HSD-17/64*	17/64	.2656	4-1/8	2-7/8
875-181	H	.266	4-1/8	2-7/8
875-180	I	.272	4-1/8	2-7/8
875-037	J	.277	4-1/8	2-7/8
875-038	K	.281	4-1/4	2-15/16
HSD-9/32	9/32	.2812	4-1/4	2-15/16
875-039	L	.290	4-1/4	2-15/16
875-040	M	.295	4-3/8	3-1/16
HSD-19/64	19/64	.2969	4-3/8	3-1/16
875-041	N	.302	4-3/8	3-1/16
HSD-5/16	5/16	.3125	4-1/2	3-3/16
875-170	O	.316	4-1/2	3-3/16
875-171	P	.323	4-5/8	3-5/16
HSD-21/64	21/64	.3281	4-5/8	3-5/16
875-179	Q	.332	4-3/4	3-7/16
875-042	R	.339	4-3/4	3-7/16
HSD-11/32	11/32	.3437	4-3/4	3-7/16
875-043	S	.348	4-7/8	3-1/2
875-044	T	.358	4-7/8	3-1/2
HSD-23/64	23/64	.3594	4-7/8	3-1/2
875-045	U	.368	5	3-5/8
HSD-3/8	3/8	.375	5	3-5/8
875-046	V	.377	5	3-5/8
875-047	W	.386	5-1/8	3-3/4
HSD-25/64	25/64	.3906	5-1/8	3-3/4
875-182	X	.397	5-1/8	3-3/4
875-048	Y	.404	5-1/4	3-7/8
HSD-13/32	13/32	.4062	5-1/4	3-7/8
875-049	Z	.413	5-1/4	3-7/8
HSD-27/64	27/64	.4219	5-3/8	3-15/16
HSD-7/16	7/16	.4375	5-1/2	4-1/16
HSD-29/64	29/64	.4531	5-5/8	4-3/16
HSD-15/32	15/32	.4687	5-3/4	4-5/16
HSD-31/64	31/64	.4844	5-7/8	4-3/8
HSD-1/2	1/2	.500	6	4-1/2

***SPAENAUR* DRILLS - MANUFACTURED TO CANADIAN AND AMERICAN SPECIFICATIONS - ARE FULL LENGTH - GIVE FULL VALUE.**

P.C. 875

Heavy Duty – 135° Split Point Cobalt High Speed Steel

Gold Finish

HIGHEST QUALITY - MADE IN U.S.A.

Heavy Duty Construction. Use to drill hard, tough metals, free machining grades of stainless steels, high temperature alloys, titanium, certain abrasive plastics. High red hardness of colbalt permits speeds 30% over regular H.S.S. drills. Cobalt drills demand rigidly held positive feed drilling equipment.

Priced Singly

SPAENAUR No.	Drill Size	Dia-meter	Overall Length Inches	Flute Length Inches
875-100	1/16	.0625	1-7/8	7/8
875-101	5/64	.0781	2	1
875-102	3/32	.0937	2-1/4	1-1/4
875-130	40	.098	2-3/8	1-3/8
875-103	7/64	.1094	2-5/8	1-1/2
875-104	1/8	.1250	2-3/4	1-5/8
875-129	30	.1285	2-3/4	1-5/8
875-128	29	.136	2-7/8	1-3/4
875-105	9/64	.1406	2-7/8	1-3/4
875-106	5/32	.1562	3-1/8	2
875-127	21	.159	3-1/4	2-1/8
875-126	19	.166	3-1/4	2-1/8
875-107	11/64	.1719	3-1/4	2-1/8
cont'd.				

SPAENAUR No.	Drill Size	Dia-meter	Overall Length Inches	Flute Length Inches
875-108	3/16	.1875	3-1/2	2-5/16
875-125	11	.191	3-1/2	2-5/16
875-124	10	.1935	3-5/8	2-7/16
875-109	13/64	.2031	3-5/8	2-7/16
875-110	7/32	.2187	3-3/4	2-1/2
875-111	15/64	.2344	3-7/8	2-5/8
875-112	1/4	.250	4	2-3/4
875-121	F	.257	4-1/8	2-7/8
875-122	I	.272	4-1/8	2-7/8
875-113	9/32	.2812	4-1/4	2-15/16
875-114	5/16	.3125	4-1/2	3-3/16
***875-150**	Q	.332	4-3/4"	3-7/16"
875-115	11/32	.3437	4-3/4	3-7/16
cont'd.				

SPAENAUR No.	Drill Size	Dia-meter	Overall Length Inches	Flute Length Inches
875-123	U	.368	5	3-5/8
875-116	3/8	.375	5	3-5/8
875-117	13/32	.4062	5-1/4	3-7/8
875-118	7/16	.4375	5-1/2	4-1/16
875-119	15/32	.4687	5-3/4	4-5/16
875-120	1/2	.500	6	4-1/2

*Hi-Molybdenum Tool Steel
Titanium Nitride Coated

Adjustable Drill Stops

876-762
Drill Dia. Capacity:
1/16" to 1/4"
(1.6 to 6.35 mm)

876-763
Drill Dia. Capacity:
1/4" to 1/2"
(6.35 to 12.7 mm)

Precision moulded of delrin plastic to rigid specifications for hard, rugged use.

Can be easily adjusted to control exact depth of holes in drilling metal, masonry, formica and wood. Costly and embarrassing mistakes caused by overdrilling from opposite side are eliminated.

Holes can be drilled faster and more accurately, saving time and money for mechanics, electricians, plumbers, and automotive repairmen.

Can be effectively used with either high speed drills or carbide-tipped masonry drills.

Looking for those "Hard to Find" products?

Call us at (800) 265-8772.

SPAENAUR

General Purpose E-X-T-R-A L-O-N-G 118° Point

Recommended for production drilling in a wide range of deep hole drilling applications.

12" LENGTHS High Speed Steel 18" LENGTHS

SPAENAUR No.	Diameter	Decimal Equivalent	Flute Length
875-001	1/8"	.1250"	9"
875-002	9/64"	.1406"	9"
875-003	5/32"	.1562"	9"
875-004	11/64"	.1719"	9"
875-005	3/16"	.1875"	9"
875-006	13/64"	.2031"	9"
875-007	7/32"	.2188"	9"
875-008	15/64"	.2344"	9"
875-009	1/4"	.2500"	9"
875-010	17/64"	.2656"	9"
875-011	9/32"	.2812"	9"
875-012	19/64"	.2969"	9"
875-013	5/16"	.3125"	9"
875-014	21/64"	.3281"	9"
875-015	11/32"	.3438"	9"
875-016	23/64"	.3594"	9"
875-017	3/8"	.3750"	9"
875-018	25/64"'	.3906"	9"
875-019	13/32"	.4062"	9"
875-020	27/64"	.4219"	9"
875-021	7/16"	.4375"	9"
875-022	29/64"	.4531"	9"
875-023	15/32"	.4688"	9"
875-024	31/64"	.4844"	9"
875-025	1/2"	.5000"	9"

SPAENAUR No.	Diameter	Decimal Equivalent	Flute Length
875-026	3/16"	.1875"	10"
875-027	7/32"	.2188"	10"
875-028	1/4"	.2500"	12"
875-029	9/32"	.2812"	12"
875-030	5/16"	.3125"	12"
875-031	11/32"	.3438"	12"
875-032	3/8"	.3750"	12"
875-033	13/32"	.4062"	12"
875-034	7/16"	.4375"	12"
875-035	15/32"	.4688"	12"
875-036	1/2"	.5000"	12"

REDUCED SHANK DRILLS

1/2" SHANK

HIGH SPEED STEEL

GENERAL PURPOSE - 118° POINT

Recommended for use in portable electric drills and in power applications such as screw machines where a short, rigid drill is required.

SPAENAUR No.	Diameter	Decimal Equivalent	Overall Length
875-062	21/32"	.6562"	6"
875-063	11/16"	.6875"	6"
875-064	23/32"	.7188"	6"
875-065	3/4"	.7500"	6"
875-066	25/32"	.7812"	6"
875-067	13/16"	.8125"	6"
875-068	27/32"	.8438"	6"
875-069	7/8"	.8750"	6"
875-070	29/32"	.9062"	6"
875-071	15/16"	.9375"	6"
875-072	31/32"	.9688"	6"
875-073	1"	1.0000"	6"
875-074	1-1/16"	1.0625"	6"
875-075	1-1/8"	1.1250"	6"
875-076	1-5/32"	1.1562"	6"
875-077	1-3/16"	1.1875"	6"
875-078	1-1/4"	1.2500"	6"

REDUCED SHANK DRILLS

3/8" SHANK

Bright Finish - High Speed Steel

GENERAL PURPOSE - 118° POINT

This general purpose drill type is designed for use in portable air and electric drilling equipment with 3/8" chucks.

SPAENAUR No.	Diameter	Decimal Equivalent	Overall Length	Flute Length
875-050	25/64"	.3906"	5-1/8"	3-3/4"
875-051	13/32"	.4062"	5-1/4"	3-7/8"
875-052	27/64"	.4219"	5-3/8"	3-15/16"
875-053	7/16"	.4375"	5-1/2"	4-1/16"
875-054	29/64"	.4531"	5-5/8"	4-3/16"
875-055	15/32"	.4688	5-3/4"	4-5/16"
875-056	31/64"	.4844"	5-7/8"	4-3/8"
875-057	1/2"	.5000"	6"	4-1/2"
875-058	17/32"	.5312	6"	4-1/2"
875-059	9/16"	.5625"	6"	4-1/2"
875-060	19/32"	.5938"	6"	4-1/2"
875-061	5/8"	.6250"	6"	4-1/2"

ALL HIGHEST QUALITY U.S.A. MADE.

Extension Drill – Surface Treated

Heavy Duty 135° Split Point – High Speed Steel

***SPAENAUR No.* 875-097**

1/4" dia x 2-3/4" flute length, 12" O/A Length.

Useful for drilling holes in hard-to-reach places!

P

CATALOG 13

HIGHEST QUALITY
U.S.A. MADE

STRAIGHT SHANK JOBBERS' DRILLS

In First Quality
Metal Index Boxes

COMPACT
CONVENIENT
DURABLE

Holes in panels are individually drilled. Drill sizes, decimal equivalents and tap sizes, are plainly marked on panels. Panels are hinged, and fold into box.

FRACTIONAL-SIZE DRILL SETS WITH INDEX

SET NO.	CONTENTS	SIZES				
HSDS-13	13 Drills	1/16, 9/64, 7/32,	5/64, 5/32, 15/64,	3/32, 11/64, 1/4	7/64, 3/16,	1/8, 13/64,
HSDI-13	Index only for above.					
HSDS-15	15 Drills	1/16, 7/32, 3/8,	3/32, 1/4, 13/32,	1/8, 9/32, 7/16,	5/32, 5/16, 15/32,	3/16, 11/32, 1/2
HSDI-15	Index only for above.					
HSDS-29	29 Drills	1/16, 9/64, 7/32, 19/64, 3/8, 29/64,	5/64, 5/32, 15/64, 5/16, 25/64, 15/32,	3/32, 11/64, 1/4, 21/64, 13/32, 31/64,	7/64, 3/16, 17/64, 11/32, 27/64, 1/2	1/8, 13/64, 9/32, 23/64, 7/16,
HSDI-29	Index only for above.					

P.C. 875

WIRE GAUGE (Number Size) & LETTER SIZE DRILL SETS

DRILL SETS INCLUDING INDEX

SET NO.	CONTENTS	SIZES	INDEX ONLY
HSDS-217	20 Drills	No's. 61 to 80 incl.	**HSDI-217**
HSDS-219	60 Drills	No's. 1 to 60 incl.	**HSDI-219**
HSDS-226	26 Drills	Sizes A to Z incl.	**HSDI-226**

No. 875-167
4-Flute Core Drill
(left)

Straight Shank
13/16" Diameter
10-1/8" O/A Length
High Speed Steel

No. 874-339
Finishing Tap
(right)

High Speed Steel
7/8"-14 Thread

Tap shown in protective plastic coating.

— Note —

Above items are required when installing No. 627-019 EZ-LOK Thread Inserts, as listed on page C214.

CHATTERLESS COUNTERSINKS

HIGH SPEED

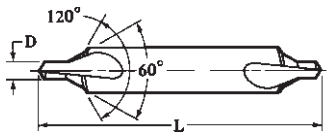
Six-Flute

SPAENAUR No.'s 82° CTSK.	90° CTSK.	120° CTSK.	Body Diameter	Shank Diameter
875-200	**875-207**	**875-214**	1/8"	1/8"
875-201	**875-208**	**875-215**	3/16"	3/16"
875-202	**875-209**	**875-216**	1/4"	3/16"
875-203	**875-210**	**875-217**	5/16"	1/4"
875-204	**875-211**	**875-218**	3/8"	1/4"
875-205	**875-212**	—	1/2"	1/4"
875-206	**875-213**	**875-219**	1/2"	3/8"
875-881	**875-239**	—	5/8"	3/8"
875-882	—	—	3/4"	1/2"

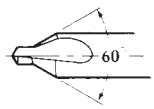
When ordering please specify head diameter of screw and degree of countersink.

Please refer to Section R for Head Dimension Charts.

Combined DRILL and COUNTERSINK- Double Ended



Bell Type



Plain Type

High Speed Steel

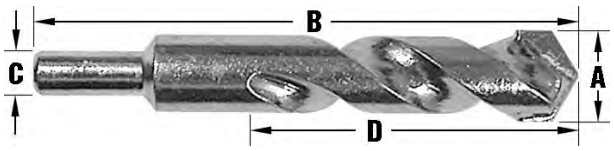
60° ctsk.with 120° chamfer

SPAENAUR No.	Drill Dia.	Countersink	Overall Length
875-184	3/32"	Bell Type	2"
875-169	1/8"	Plain Type	2"
875-185	5/32"	Bell Type	2-3/4"
875-186	3/16"	Bell Type	3"

Not guaranteed against breakage or wear.

For use in Rotary Electric Drills and Hand Braces.

Standard Type Spiral Fluted



CAUTION:
Do not use in hammer-type percussion drills.

SPECIFICATIONS *Priced Singly*

SPAENAUR No.	Nominal Dia.	** Actual Dia. Inches A	Approx. Length Overall Inches B	Dimensions Inches Shank Diameter C	Dimensions Inches Spiral Flute Length D
RT-1405-5	1/8"	.130	2-3/4	1/8	1-1/2
RT-1408-5	5/32"	.175	3	5/32	1-1/2
RT-1410-5	3/16"	.198	4	3/16	2
RT-1415-5	1/4"	.260	4	1/4	2-1/2
RT-1420-5	5/16"	.328	4	1/4	2-1/2
RT-1425-5	3/8"	.390	4	1/4	2-1/4
RT-1430-5	*7/16"	.458	6-1/2	1/4 or 3/8	4-1/4
RT-1435-5	*1/2"	.525	6	1/4 or 3/8	4-1/4
RT-1440-0	9/16"	.587	6-1/2	3/8	4-1/4
RT-1445-0	5/8"	.650	6-3/8	1/2	4-1/4
RT-1450-0	11/16"	.713	6-1/2	1/2	4-1/4
RT-1455-0	3/4"	.775	6-1/2	1/2	4-1/4
RT-1460-0	7/8"	.905	6	1/2	4-1/4
RT-1465-0	1"	1.030	6-1/2	1/2	4-1/4

* 7/16 and 1/2 in. diameters supplied with 3/8" shanks unless 1/4" shanks are specified.
** Sufficient oversize allowances are provided for proper hole size required for installation of expansion shields, anchors and toggle bolts.

The rotary masonry drill is carbide tipped, and has a spiral fluted body. It penetrates freely and easily, giving clean, accurate holes in the hardest masonry.

For use with all common types of rotary electric drills and hand braces. Do not use in Hammer-type percussion drills. All drills are individually packaged, complete with operating instructions.

Extra Long Lengths

Spiral fluted

SPECIFICATIONS *Priced Singly*

SPAENAUR No.	Nominal Diameter x Extra Long Length	For use in Drill Chuck Size	Spiral Flute Length
RT-1415-16	1/4" x 16"	1/4"	13"
RT-1420-16	5/16" x 16"	5/16"	13"
RT-1425-16	3/8" x 18"	3/8"	13"
RT-1425-24	3/8" x 24"		21"
RT-1435-16	1/2" x 16"	3/8"	13"
RT-1435-24	1/2" x 24"		21"
875-187	5/8" x 16"	1/2"	9-1/2"
RT-1445-24	5/8" x 24"		21"
RT-1455-24	3/4" x 24"	1/2"	21"
RT-1460-16	7/8" x 16"	1/2"	13"
RT-1460-24	7/8" x 24"		21"
RT-1465-16	1" x 18"	1/2"	13"
RT-1465-24	1" x 24"		21"
RT-1475-16	1-1/4" x 18"	1/2"	13"
875-166	1-3/8" x 16"		13"

ROTARY MASONRY DRILLS

For Use in Rotary and Hammer Drills

Unit Package 1

(For TAPCON Anchor System, see pages B90-B93)

SPAENAUR No.	Drill Bit Dia.	Length
875-159	5/32"	3-1/2"
875-160		4-1/2"
875-161		5-1/2"
875-162	3/16"	3-1/2"
875-163		4-1/2"
875-164		5-1/2"
875-165		6-1/2"
875-183	7/32"	4"

INSTRUCTIONS FOR USE AND CARE OF CARBIDE-TIPPED ROTARY MASONRY DRILLS

1. **USE IT WITH** - rotary electric portable drills, drill presses or hand braces. Do not use in hammer-type percussion drills.
2. **SPEED** - For best results use heavy-duty, slow speed electric drills with 400 to 750 RPM. For extremely hard materials, slower speeds, from 100 to 200 RPM, will give better results.
3. **PRESSURE** - For best results use sufficient pressure to keep drill cutting at all times.
4. **LUBRICATION** - Although dry drilling produces excellent results, a lubricant sometimes helps on very hard materials such as glazed tile, porcelain, marble, etc. Turpentine, kerosene or water may be used as lubricants, and enough should be applied to keep the entire drill point wet.
5. **HOW TO SHARPEN** - These drills can be sharpened on any tool grinder, although silicon wheels are recommended.

   When sharpening, use moderate pressure, and keep drill continually moving across the wheel. Use the same angles as for steel drills, and keep the drill dry at all times during sharpening.

P.C. 875

SPADE POWER BITS

High Carbon STEEL

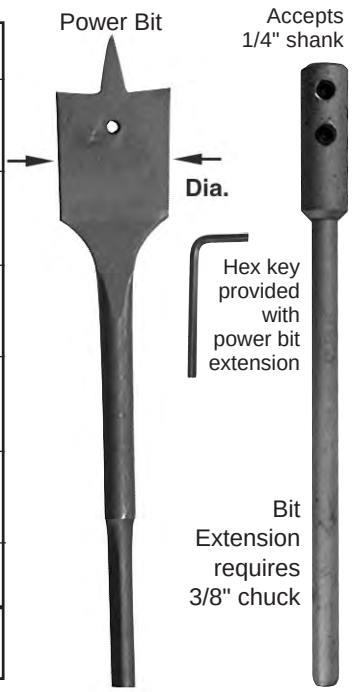
1/4" Shank

Cuts clean accurate holes in all soft and hard woods plus foam core, plastic, many non-metallic building sidings and foam insulation.

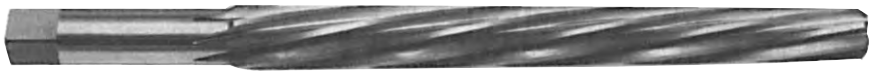
Approx. O/A Length of Bits
6-1/4"

Priced Singly.

Spaenaur No.	Diameter	Description
875-220	1/4"	Power Bit
875-221	5/16"	Power Bit
875-222	3/8"	Power Bit
875-223	7/16"	Power Bit
875-224	1/2"	Power Bit
875-225	9/16"	Power Bit
875-226	5/8"	Power Bit
875-227	11/16"	Power Bit
875-228	3/4"	Power Bit
875-229	13/16"	Power Bit
875-230	7/8"	Power Bit
875-231	15/16"	Power Bit
875-232	1"	Power Bit
875-233	1-1/8"	Power Bit
875-234	1-1/4"	Power Bit
875-235	1-3/8"	Power Bit
875-236	1-1/2"	Power Bit
875-237	12" length	Power Bit Extension
875-238	6" length	Power Bit Extension



INCH TAPER PIN REAMERS



LEFT HAND SPIRAL / RIGHT HAND CUT

Straight Shank • High Speed Steel

Taper 1/4" Per Foot

SPAENAUR No.	For Pin Size	Dia. Small End	Dia. Large End	Flute Length	Overall Length
875-131	**7/0**	.0497"	.0666"	13/16"	1-13/16"
875-132	**6/0**	.0611"	.0806"	15/16"	1-15/16"
875-133	**5/0**	.0719"	.0966"	1-3/16"	2-3/16"
875-134	**4/0**	.0869"	.1142"	1-5/16"	2-5/16"
875-135	**3/0**	.1029"	.1302"	1-9/16"	2-5/16"
875-136	**2/0**	.1137"	.1462"	1-9/16"	2-9/16"
875-137	**0**	.1287"	.1638"	1-11/16"	2-15/16"
875-138	**1**	.1447"	.1798"	1-11/16"	2-15/16"
875-139	**2**	.1605"	.2008"	1-15/16"	3-3/16"
875-140	**3**	.1813"	.2294"	2-5/16"	3-11/16"
875-141	**4**	.2071"	.2604"	2-9/16"	4-1/16"
875-142	**5**	.2409"	.2994"	2-13/16"	4-5/16"
875-143	**6**	.2773"	.3504"	3-11/16"	5-7/16"
875-144	**7**	.3297"	.4220"	4-7/16"	6-5/16"
875-145	**8**	.3971"	.5050"	5-3/16"	7-3/16"
875-146	**9**	.4805"	.6066"	6-1/16"	8-5/16"
875-147	**10**	.5799"	.7216"	6-13/16"	9-5/16"

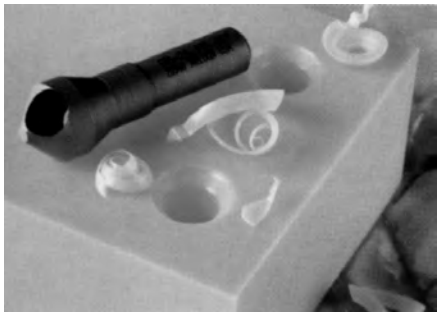
All Reamers Priced Singly.

P

Countersinks you can count on - from start to finish.

Cut Metal

Cut Plastic



Cut Wood

Weldon high-speed steel countersinks and deburring tools are known for their high quality, unique designs and outstanding performance. No matter what material you're cutting or what angle you're cutting it, our tools will give you the chatterless finishes you're looking for. With Weldon, you always get real value in the cutting tools you buy. Superior-quality countersinks and deburring tools at very competitive prices. Choose from our large selection of styles and sizes.

- ***Chatterless design***
- ***Single cutting edge for fast removal of stock***
- ***Free-cutting***
- ***Easily sharpened***
- ***Available in 60°, 82°, 90° and 100° cutting angles***
- ***Specials also available***

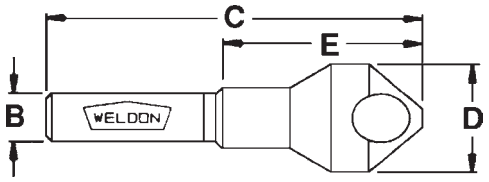
SPAENAUR No.

874-1699

5 piece
82° Countersink Set

Set consists of 1 each: 874-1694, 874-1695, 874-1696, 874-1697 and 874-1698.

Priced Singly



82° Pilotless Countersinks - *Priced Singly*

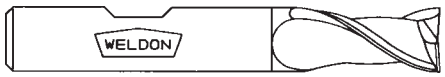
SPAENAUR No.	For Screw Size	Dia. of Cut Min.	Dia. of Cut Max.	Shank Dia. B	Overall Length C	D	E
874-1694	Nos. 4,#5	—	—	1/4"	1-1/2"	17/64"	5/8"
874-1695	No. 6	—	—	1/4"	1-1/2"	19/64"	5/8"
874-1696	No. 8	—	—	1/4"	1-5/8"	11/32"	3/4"
874-1697	No. 10	—	—	1/4"	1-5/8"	25/64"	3/4"
874-1698	—	3/16"	17/32"	1/4"	1-7/8"	9/16"	1"
100° Pilotless Countersinks - *Priced Singly*							
874-1700	—	3/32"	1/4"	1/4"	1-1/2"	17/64"	5/8"
874-1701	—	1/8"	27/64"	1/4"	1-11/16"	7/16"	13/16"
874-1702	—	3/16"	35/64"	1/4"	1-7/8"	9/16"	1"

End Mills - 2 Flutes

Two Flute End Mills are designed for milling keyways, slots, pockets and other operations requiring a combination of plunge cutting and milling. Ample chip room in the flutes provides for efficient metal removal. Weldon's new *UniLead*™ precision manufactured leads are featured on end mills of 1/2" cutting diameter and larger.

Regular Length Single-End

with WELDON shank
R.H. Cut, R.H. Helix



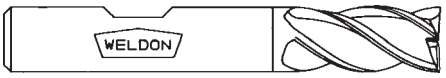
	SPAENAUR No.	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
Premium 8% Cobalt Steel • Centre Cutting End Design • Cutting Diameter Tolerance is +.003 -.000	**874-1680**	1/8"	3/8"	3/8"	2-5/16"
	874-1681	3/16"	3/8"	7/16"	2-5/16"
	874-1682	1/4"	3/8"	1/2"	2-5/16"
	874-1683	5/16"	3/8"	9/16"	2-5/16"
	874-1684	3/8"	3/8"	9/16"	2-5/16"
High Speed Steel • Cutting Diameter Tolerance is +.003 -.000 Two screw drive on 7/8" shanks and larger	**874-1676**	1/2"	1/2"	1"	3"
	874-1677	5/8"	5/8"	1-5/16"	3-7/16"
	874-1678	3/4"	3/4"	1-5/16"	3-9/16"
	874-1679	1"	1"	1-5/8"	4-1/8"

End Mills - 4 Flutes

These end mills are designed for general purpose work including cam milling, die sinking and slot milling. End mills 13/32" diameter and larger are regularly furnished with standard square end. Weldon's new *UniLead*™ precision manufactured leads are featured on end mills of 1/2" cutting diameter and larger.

Regular Length Single-End

with WELDON Shank
R.H. Cut, R.H. Helix



	SPAENAUR No.	Diameter of Mill	Diameter of Shank	Length of Cut	Overall Length
Premium 8% Cobalt Steel • Centre Cutting End Design • Cutting Diameter Tolerance is +.003 -.000	**874-1689**	1/8"	3/8"	3/8"	2-5/16"
	874-1690	3/16"	3/8"	1/2"	2-3/8"
	874-1691	1/4"	3/8"	5/8"	2-7/16"
	874-1692	5/16"	3/8"	3/4"	2-1/2"
	874-1693	3/8"	3/8"	3/4"	2-1/2"
High Speed Steel • Centre Cutting • Cutting Diameter Tolerance is +.003 -.000 Two screw drive on 7/8" shanks and larger	**874-1685**	1/2"	1/2"	1-1/4"	3-1/4"
	874-1686	5/8"	5/8"	1-5/8"	3-3/4"
	874-1687	3/4"	3/4"	1-5/8"	3-7/8"
	874-1688	1"	1"	2"	4-1/2"

The complete range of Weldon End Mills are available upon request.

P

All items this page
Priced Singly.

General Purpose

DIN 338

High Speed Steel
Right Hand Cutting

METRIC STRAIGHT SHANK TWIST DRILLS

SPAENAUR No.	Size mm (dia.)	Flute Length mm	Overall Length mm
875-500	0.30	3	19
875-502	0.35	3	19
875-504	0.40	5	20
875-506	0.45	5	20
875-507	0.48	5	20
875-508	0.50	6	22
875-509	0.52	6	22
875-511	0.58	6	22
875-512	0.60	7	24
875-513	0.62	7	24
875-516	0.70	9	28
875-517	0.72	9	28
875-518	0.75	9	28
875-519	0.78	9	28
875-520	0.80	10	30
875-522	0.85	10	30
875-523	0.88	10	30
875-524	0.90	11	32
875-525	0.92	11	32
875-526	0.95	11	32
875-528	1.00	12	34
875-529	1.05	12	34
875-530	1.10	14	36
875-531	1.15	19	44
875-532	1.20	16	38
875-533	1.25	16	38
875-534	1.30	16	38
875-535	1.35	16	38
875-536	1.40	18	40
875-537	1.45	18	40
875-538	1.50	18	40
875-540	1.60	20	43
875-541	1.65	20	43
875-542	1.70	20	43
875-543	1.75	22	46
875-544	1.80	22	46
875-545	1.85	22	46
875-546	1.90	24	49
875-547	1.95	24	49
875-548	2.00	24	49
875-549	2.05	24	49
875-550	2.10	27	53
875-552	2.20	27	53
875-553	2.25	27	53
875-554	2.30	30	57
875-555	2.35	30	57
875-556	2.40	30	57
875-557	2.45	30	57
875-558	2.50	30	57
875-559	2.55	30	57
875-560	2.60	30	57

SPAENAUR No.	Size mm (dia.)	Flute Length mm	Overall Length mm
875-561	2.65	30	57
875-562	2.70	33	61
875-563	2.75	33	61
875-564	2.80	33	61
875-565	2.85	33	61
875-566	2.90	33	61
875-567	2.95	33	61
875-568	3.00	33	61
875-569	3.10	36	65
875-689	3.15	36	65
875-570	3.20	36	65
875-571	3.25	36	65
875-572	3.30	36	65
875-573	3.40	39	70
875-574	3.50	39	70
875-575	3.60	39	70
875-576	3.70	39	70
875-577	3.75	43	75
875-578	3.80	43	75
875-579	3.90	43	75
875-580	4.00	43	75
875-581	4.10	43	75
875-582	4.20	43	75
875-583	4.25	43	75
875-584	4.30	47	80
875-585	4.40	47	80
875-586	4.50	47	80
875-587	4.60	47	80
875-588	4.70	47	80
875-589	4.75	52	86
875-590	4.80	52	86
875-591	4.90	52	86
875-592	5.00	52	86
875-593	5.10	52	86
875-594	5.20	52	86
875-595	5.25	52	86
875-596	5.30	52	86
875-597	5.40	57	93
875-598	5.50	57	93
875-599	5.60	57	93
875-600	5.70	57	93
875-601	5.75	57	93
875-602	5.80	57	93
875-603	5.90	57	93
875-604	6.00	57	93
875-605	6.10	63	101
875-606	6.20	63	101
875-607	6.25	63	101
875-608	6.30	63	101
875-609	6.40	63	101

Continued on next page…

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CATALOG 13

DIN 338 METRIC STRAIGHT SHANK TWIST DRILLS

...continued from previous page.

SPAENAUR No.	Size mm (dia.)	Flute Length mm	Overall Length mm
875-610	6.50	63	101
875-611	6.60	63	101
875-612	6.70	63	101
875-613	6.75	69	109
875-614	6.80	69	109
875-615	6.90	69	109
875-616	7.00	69	109
875-617	7.10	69	109
875-618	7.20	69	109
875-619	7.25	69	109
875-620	7.30	69	109
875-621	7.40	69	109
875-622	7.50	69	109
875-623	7.60	75	117
875-624	7.70	75	117
875-625	7.75	75	117
875-626	7.80	75	117
875-627	7.90	75	117
875-628	8.00	75	117
875-629	8.10	75	117
875-630	8.20	75	117
875-631	8.25	75	117
875-632	8.30	75	117
875-633	8.40	75	117
875-634	8.50	75	117
875-635	8.60	81	125
875-636	8.70	81	125
875-637	8.75	81	125
875-638	8.80	81	125
875-639	8.90	81	125
875-640	9.00	81	125
875-641	9.10	81	125
875-642	9.20	81	125
875-643	9.25	81	125
875-644	9.30	81	125
875-645	9.40	81	125
875-646	9.50	81	125
875-647	9.60	87	133
875-648	9.70	87	133
875-649	9.75	87	133
875-650	9.80	87	133
875-651	9.90	87	133
875-652	10.00	87	133
875-653	10.10	87	133
875-654	10.20	87	133
875-655	10.25	87	133
875-656	10.30	87	133
875-657	10.40	87	133
875-658	10.50	87	133
875-659	10.60	87	133
875-660	10.70	94	142
875-661	10.75	94	142
875-662	10.80	94	142
875-663	10.90	94	142
875-664	11.00	94	142
875-665	11.10	94	142
875-666	11.20	94	142
875-667	11.25	94	142
875-668	11.30	94	142
875-669	11.40	94	142
875-670	11.50	94	142
875-671	11.60	94	142
875-672	11.70	94	142
875-673	11.75	94	142
875-674	11.80	94	142
875-675	11.90	101	151
875-676	12.00	101	151
875-677	12.10	101	151
875-678	12.20	101	151
875-679	12.25	101	151
875-680	12.30	101	151
875-681	12.40	101	151
875-682	12.50	101	151
875-683	12.60	101	151
875-684	12.70	101	151
875-685	12.75	101	151
875-686	12.80	101	151
875-687	12.90	101	151
875-688	13.00	101	151
875-690	13.25	108	160
875-691	13.50	108	160
875-692	13.75	108	160
875-693	14.00	108	160
875-694	14.50	114	169
875-695	15.00	114	169
875-696	15.25	120	178
875-697	15.50	120	178
875-698	16.00	120	178
875-699	16.50	125	184
875-715	17.00	125	184
875-716	17.50	130	191
875-717	18.00	130	191
875-718	18.50	135	198
875-719	19.00	135	198
875-720	19.50	140	205
875-721	20.00	140	205

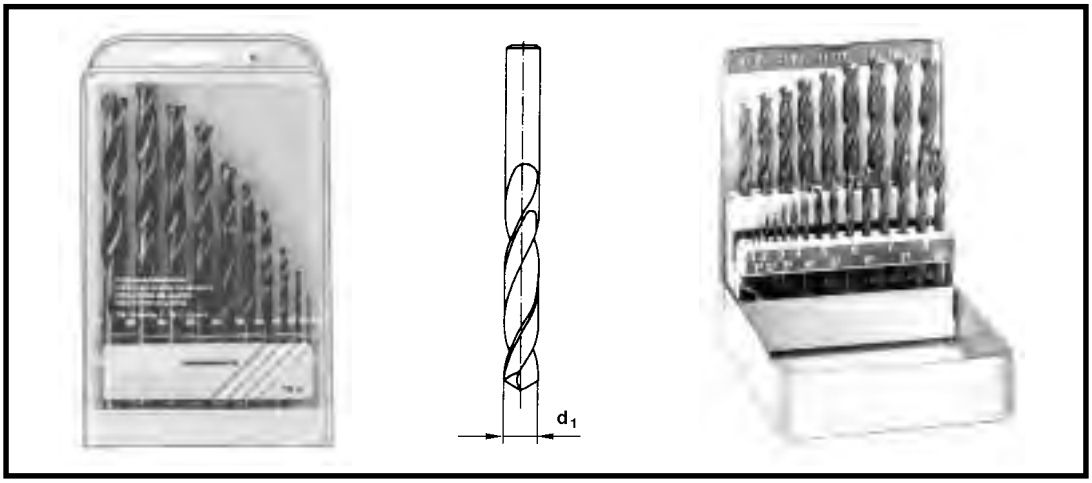
PACKAGING: Sizes up to 5.00 mm dia. - Unit Package Quantity 10 - Larger Sizes Priced Singly.

For more DIN 338 drills, see following pages.

METRIC STRAIGHT SHANK TWIST DRILLS SETS

DIN 338

High Speed Steel
Right Hand Cutting



All Dimensions in Millimetres.

SPAENAUR No.	**Description - Set Contains 1 each of the Following Sizes (d_1):**
	The following put up in a transparent case:
875-262	2.0, 3.0, 4.0, 5.0, 6.0, 8.0 mm (6 sizes)
875-264	1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0 mm (10 sizes)
	The following put up in a metal box:
875-266	1.0, 2.0, 3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0 mm (10 sizes)
875-268	1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0 mm (19 sizes)
875-260	Contents same as 875-268 above, except superior quality.
875-269	Empty drill index for 19 pieces, sizes 1.0 to 10.0 mm
875-270	1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 10.0, 11.0, 12.0, 13.0 mm (21 sizes)
875-271	1.0, 1.5, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5, 6.0, 6.5, 7.0, 7.5, 8.0, 8.5, 9.0, 9.5, 10.0, 10.5, 11.0, 11.5, 12.0, 12.5, 13.0 mm (25 sizes)
875-272	1.0, 1.5, 1.9, 2.0, 2.2, 2.5, 2.6, 2.9, 3.0, 3.2, 3.3, 3.5, 3.7, 4.0, 4.2, 4.5, 5.0, 5.1, 5.5, 6.0, 6.5, 6.7, 7.0, 7.5, 7.9, 8.0, 8.5, 9.0, 9.5, 10.0, 10.2, 10.5 mm (32 sizes)
875-273	6.0, 6.1, 6.2, 6.3, 6.4, 6.5, 6.6, 6.7, 6.8, 6.9, 7.0, 7.1, 7.2, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8, 7.9, 8.0, 8.1, 8.2, 8.3, 8.4, 8.5, 8.6, 8.7, 8.8, 8.9, 9.0, 9.1, 9.2, 9.3, 9.4, 9.5, 9.6, 9.7, 9.8, 9.9, 10.0 mm (41sizes)
875-274	1.0, 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8, 1.9, 2.0, 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8, 2.9, 3.0, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8, 3.9, 4.0, 4.1, 4.2, 4.3, 4.4, 4.5, 4.6, 4.7, 4.8, 4.9, 5.0, 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7, 5.8, 5.9 mm (50 sizes)

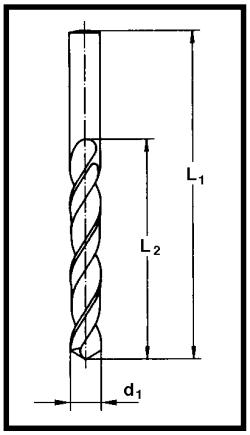
All Drill Sets Priced Singly.

METRIC STRAIGHT SHANK TWIST DRILLS

High Efficiency

DIN 338

High Speed Steel
Right Hand Cutting



Range of Application:
High efficiency drill for drilling of steel and steel castings, alloy and plain carbon, grey iron castings, copper-alloys, nickel-silver, graphite and similar materials.

SPAENAUR No.	Size DIA. (d_1) mm	Overall Length (L_1) mm	Flute Length (L_2) mm
875-723	0.3	19	3
875-724	0.4	20	5
875-725	0.5	22	6
875-726	0.6	24	7
875-727	0.7	28	9
875-728	0.75	28	9
875-729	0.8	30	10
875-730	0.85	30	10
875-731	0.9	30	11
875-732	0.95	32	11
875-733	1.0	32	12
875-734	1.1	36	14
875-735	1.45	40	18
875-736	1.5	40	18
875-737	1.6	43	20
875-738	2.0	49	24
875-739	2.05	49	24
875-740	2.1	49	24
875-741	2.15	53	27
875-742	2.5	57	30
875-743	2.65	57	30
875-744	2.9	61	33
875-745	3.0	61	33
875-746	3.3	65	36
875-747	3.5	70	39
875-748	3.7	70	39
875-749	4.0	75	43
875-797	4.2	75	43
875-798	4.25	75	43
875-799	4.5	80	47
875-800	5.0	86	52
875-801	5.25	86	52
875-802	5.5	93	57
875-803	5.8	93	57
875-804	5.9	93	57
875-805	6.0	93	57

SPAENAUR No.	Size DIA. (d_1) mm	Overall Length (L_1) mm	Flute Length (L_2) mm
875-806	6.5	101	63
875-807	6.8	109	69
875-808	7.0	109	69
875-809	7.5	109	69
875-810	7.8	117	75
875-811	8.0	117	75
875-812	8.5	117	75
875-813	9.0	125	81
875-814	9.5	125	81
875-815	10.0	133	87
875-816	10.1	133	87
875-817	10.2	133	87
875-818	10.3	133	87
875-819	10.4	133	87
875-820	10.6	142	94
875-821	10.7	142	94
875-822	10.8	142	94
875-823	10.9	142	94
875-824	11.1	142	94
875-825	11.2	142	94
875-826	11.3	142	94
875-827	11.4	142	94
875-828	11.6	142	94
875-829	11.7	142	94
875-830	11.8	142	94
875-831	11.9	151	101
875-832	12.0	151	101
875-833	12.1	151	101
875-834	12.2	151	101
875-835	12.3	151	101
875-836	12.4	151	101
875-837	12.6	151	101
875-838	12.8	151	101
875-839	12.9	151	101
875-840	14.0	160	108
875-855	17.5	191	130
875-856	18.0	191	130

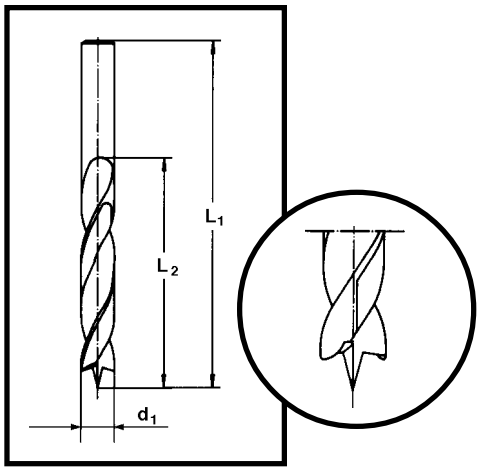
PACKAGING: Sizes up to 5.00 mm dia. - Unit Package Quantity 10 - Larger Sizes Priced Singly.

TWIST DRILLS FOR WOOD WITH CENTRE POINT AND SPUR

METRIC - SIMILAR TO DIN 338

Chrome Vanadium
Right Hand Cutting

Range of Application:
Twist drill for wood with good cutting efficiency for general use. Suitable for drilling in soft and hard wood, in chipboards, fibreboards etc.



SPAENAUR No.	Size DIA. (d_1) mm	Overall Length (L_1) mm	Flute Length (L_2) mm
875-324	3	61	33
875-325	4	75	43
875-326	5	86	52
875-327	6	93	57
875-328	7	109	69
875-329	8	117	75
875-330	9	125	81
875-331	10	133	87
875-332	11	142	94
875-333	12	151	101
875-334	13	151	101
875-335	14	160	108
875-336	15	169	114
875-337	16	178	120
875-338	18	191	130
875-339	20	191	130

All Drill Bits Priced Singly.

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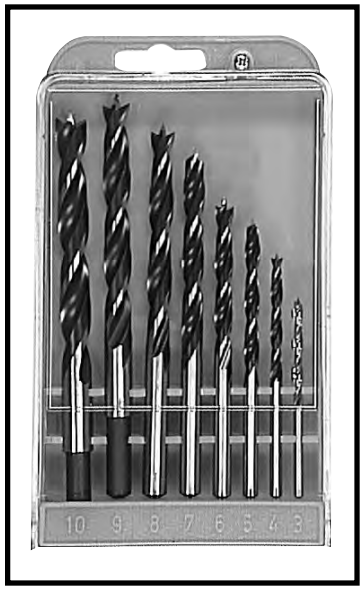
TWIST DRILL SETS FOR WOOD WITH CENTRE POINT

METRIC - SIMILAR TO DIN 338

Chrome Vanadium
Right Hand Cutting
Put up in a Transparent Case



SPAENAUR No.	Sizes
875-261	4.0, 5.0, 6.0, 8.0, 10.0 mm
875-263	3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0 mm

All Drill Sets Priced Singly.

STRAIGHT SHANK TWIST DRILLS WITH REDUCED SHANKS

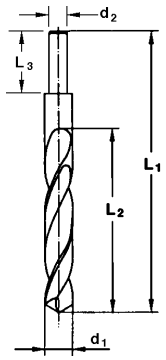
SPAENAUR No.	Size Dia. (d_1) mm	Overall Length (L_1) mm	Flute Length (L_2) mm	Shank Diameter (d_2) mm	Reduced Shank Length (L_3) mm
875-841	10.5	133	87	9.5	25
875-842	11	142	94	9.5	25
875-843	11.5	142	94	9.5	25
875-844	12	151	101	9.5	25
875-845	12.5	151	101	9.5	25
875-846	13	151	101	9.5	25
875-847	13.5	160	108	9.5	30
875-848	14	160	108	9.5	30
875-849	14.5	169	114	9.5	30
875-850	15	169	114	9.5	30
875-851	15.5	178	120	9.5	30
875-852	16	178	120	9.5	30
875-096	16.5	184	125	12.5	30
875-859	17	184	125	12.5	30
875-860	17.5	191	130	12.5	30
875-861	18	191	130	12.5	30
875-862	18.5	198	135	12.5	30
875-863	19	198	135	12.5	30
875-864	19.5	205	140	12.5	30
875-865	20	205	140	12.5	30

METRIC - SIMILAR TO DIN 338

High Speed Steel
Right Hand Cutting

Range of Application:
Rollforged twist drill; best toughness combined with good cutting efficiency for drilling plain carbon and alloyed steel.

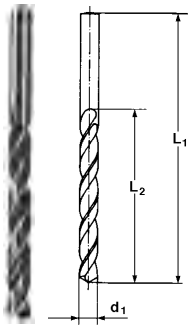
All Reduced Shank Twist Drills Priced Singly.



STRAIGHT LONG SHANK TWIST DRILLS

SPAENAUR No.	Size DIA. (d_1) mm	Overall Length (L_1) mm	Flute Length (L_2) mm
875-079	3	100	66
875-080	4	119	78
875-081	5	132	87
875-082	6	139	91
875-083	8	165	109
875-084	10	184	121
875-085	12	205	134

PACKAGING: Sizes up to 5.00 mm dia. - Unit Package Quantity 10 - Larger Sizes Priced Singly.



METRIC - SIMILAR TO DIN 340

High Speed Steel
Right Hand Cutting

Range of Application:
High efficiency drill for deep holes and for drilling with drillbushes. For drilling of steel and steel castings, alloy and plain carbon, grey iron castings, copper alloys, nickel silver, graphite and similar materials.

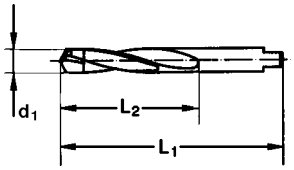
P

CARBIDE TIPPED STRAIGHT SHANK METRIC TWIST DRILLS

SPAENAUR No.	Size DIA. (d_1) mm	Overall Length (L_1) mm	Flute Length (L_2) mm
***875-301**	1.5	–	–
875-306	3.0	50	20
875-308	3.5	56	25
875-309	4.0	56	25
875-311	4.5	63	28
875-312	5.0	63	28
875-313	5.5	71	32
875-315	6.5	71	32
875-316	7.0	80	40
875-317	7.5	80	40
875-318	8.0	80	40
875-319	8.5	90	50
875-320	9.0	90	50
875-322	9.5	90	50
875-323	10.0	100	56

DIN 8037

Range of Application:
Twist drill, suitable for drilling extremely hard materials, as chill-castings, spring-steels, bronze and similar materials.



***** not to DIN Specifications
Solid Carbide.

Priced Singly.

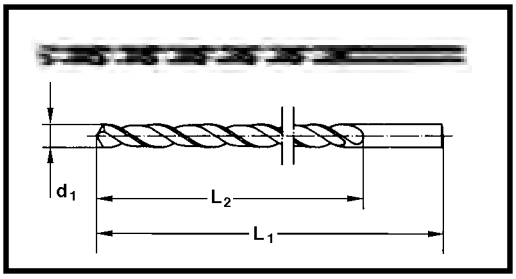
CATALOG 13

METRIC EXTRA LONG STRAIGHT SHANK TWIST DRILLS

DIN 1869

High Speed Steel
Right Hand Cutting

Range of Application:
High efficiency drill for drilling of extremely deep holes where working conditions (cutting speed, feed, coolant, as well as frequently chip-removal) have to be observed.



SPAENAUR No.	Size DIA. (d_1) mm	Overall Length (L_1) mm	Flute Length (L_2) mm
875-374	2.0	125	85
875-375	2.5	140	95
875-376	3.0	190	130
875-356	3.5	200	125
875-377	3.5	210	145
875-355	3.5	265	180
875-357	4.0	175	120
875-378	4.0	220	150
875-358	4.5	185	125
875-359	4.5	200	125
875-379	4.5	235	160
875-380	5.0	245	170
875-361	5.5	205	140
875-381	5.5	260	180
875-360	6.0	205	140
875-382	6.0	260	180
875-362	6.5	215	150
875-383	6.5	275	190
875-363	7.0	225	155
875-384	7.0	290	200
875-364	7.5	225	155
875-879	7.5	200	125
875-385	7.5	290	200
875-386	8.0	305	210
875-366	8.5	240	165
875-880	8.5	250	160
875-387	8.5	305	210
875-367	9.0	250	175
875-388	9.0	320	200
875-368	9.5	250	175
875-389	9.5	320	200
875-369	10.0	265	185
875-390	10.0	340	235
875-370	10.5	265	185
875-371	11.0	280	195
875-372	11.5	280	195
875-373	12.0	295	205

P

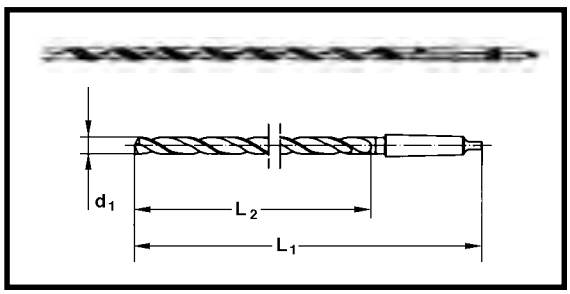
METRIC EXTRA LONG TAPER SHANK TWIST DRILLS

DIN 1870

High Speed Steel
Right Hand Cutting

Range of Application:
High efficiency drill for drilling of extremely deep holes with working conditions (cutting speed, feed, coolant etc.) adjusted to suit the drilling depth. It is necessary to withdraw the drill frequently for chip-removal.

SPAENAUR No.	Size DIA. (d_1) mm	Overall Length (L_1) mm	Flute Length (L_2) mm
875-397	10.5	285	185
875-398	11.0	300	195
875-399	11.5	300	195
875-400	12.0	310	205
875-401	12.5	310	205
875-402	13.0	310	205
875-394	13.0	315	205
875-395	13.5	315	205



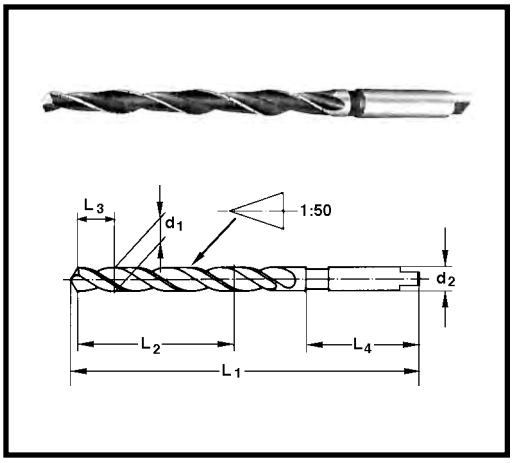
CATALOG 13

TAPER PIN DRILLS WITH TAPER 1:50
with Parallel Shank, Type A

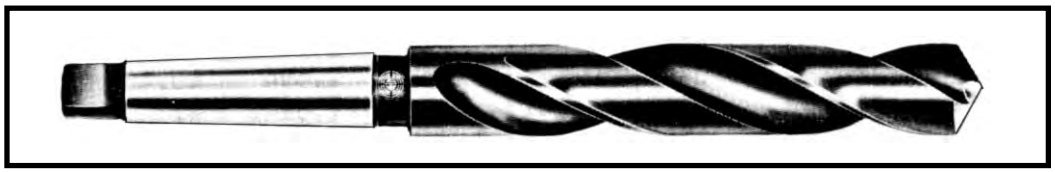
DIN 1898A

High Speed Steel
Right Hand Cut

Range of Application:
For production of taper pin holes for taper pins according to DIN 1, DIN 258, DIN 7977 and DIN 7978.



SPAENAUR No.	d_1 mm	d_2 mm	L_1 mm	L_2 mm	L_3 mm	L_4 mm
875-490	2	2.84	65	43	–	–
875-493	4	5.0	112	68	5	34
875-494	5	6.3	122	73	5	38
875-495	6	8.0	160	105	5	42
875-496	8	10.0	207	145	5	46
875-497	10	12.5	245	175	5	50
875-498	12	16.0	290	210	10	58



SPAENAUR No.	Diameter mm	Taper Shank No.	Flute Length Inches	Overall Length Inches
875-700	14.00	1	4-1/4	8-1/8
875-702	15.50	2	4-3/4	8-5/8
875-703	16.50	2	4-7/8	8-3/4
875-704	17.50	2	5-1/8	9
875-705	18.50	2	5-1/4	9-1/8
875-706	19.50	2	5-1/2	9-3/8
875-708	21.00	2	5-3/4	10-1/2
875-709	22.50	2	6-1/8	10-7/8
875-710	24.00	3	6-1/4	11
875-713	27.50	3	6-5/8	12-1/2
875-714	30.50	3	7-1/8	13

TWIST DRILLS WITH MORSE TAPER SHANK

Similar to DIN 345

High Speed Steel
Right Hand Cutting

For DIN 345
see following page.

P

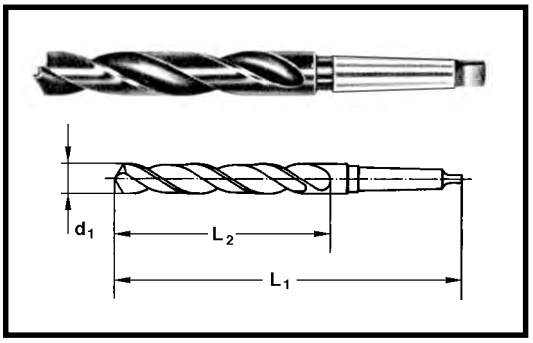
CATALOG 13

All Drill Bits This Page
Priced Singly.

DIN 345

High Speed Steel
Right Hand Cutting

Range of Application:
High efficiency drill for drilling steel and steel castings, alloy and plain carbon, grey iron castings, malleable cast-iron, copper-alloys, nickel-silver, graphite etc.



SPAENAUR No.	Size DIA. (d_1) mm	Overall Length (L_1) mm	Flute Length (L_2) mm	Taper Shank No.
875-403	8	156	75	1
875-404	12	182	101	1
875-405	12.5	182	101	1
875-406	12.75	182	101	1
875-407	13	182	101	1
875-408	13.5	189	108	1
875-409	13.75	189	108	1
875-410	14	189	108	1
875-411	14.5	212	114	2
875-412	14.75	212	114	2
875-413	15	212	114	2
875-414	15.5	218	120	2
875-415	16	218	120	2
875-416	16.5	223	125	2
875-417	16.75	223	125	2
875-418	17	223	125	2
875-853	17.3	228	130	2
875-419	17.5	228	130	2
875-420	18	228	130	2
875-421	18.5	233	135	2
875-422	18.75	233	135	2
875-423	19	233	135	2
875-424	19.25	238	140	2
875-425	19.5	238	140	2
875-426	20	238	140	2
875-427	20.25	243	145	2
875-428	20.5	243	145	2
875-429	20.75	243	145	2
875-430	21	243	145	2
875-431	21.5	248	150	2
875-432	22	248	150	2
875-433	22.5	253	155	2
875-434	23	253	155	2
875-435	23.5	276	155	3
875-436	23.75	281	160	3
875-437	24	281	160	3
875-438	24.5	281	160	3
875-439	25	281	160	3
875-440	25.5	286	165	3
875-441	26	286	165	3
875-442	26.5	286	165	3
875-443	27	291	170	3
875-444	27.5	291	170	3
875-445	28	291	170	3
875-854	28.25	296	175	3

SPAENAUR No.	Size DIA. (d_1) mm	Overall Length (L_1) mm	Flute Length (L_2) mm	Taper Shank No.
875-446	28.5	296	175	3
875-447	29	296	175	3
875-448	29.5	296	175	3
875-449	30	296	175	3
875-450	30.5	301	180	3
875-451	31	301	180	3
875-452	31.5	301	180	3
875-453	32	334	185	4
875-454	32.5	334	185	4
875-455	33	334	185	4
875-456	33.5	334	185	4
875-457	34	339	190	4
875-458	34.5	339	190	4
875-459	35	339	190	4
875-460	35.5	339	190	4
875-461	36	344	195	4
875-462	36.5	344	195	4
875-463	37	344	195	4
875-464	37.5	344	195	4
875-465	38	349	200	4
875-466	38.5	349	200	4
875-467	39	349	200	4
875-468	39.5	349	200	4
875-469	40	349	200	4
875-470	40.5	354	205	4
875-471	41	354	205	4
875-472	41.5	354	205	4
875-473	42	354	205	4
875-474	42.5	354	205	4
875-475	43	359	210	4
875-476	43.5	359	210	4
875-477	44	359	210	4
875-478	44.5	359	210	4
875-479	45	359	210	4
875-480	45.5	364	215	4
875-481	46	364	215	4
875-482	46.5	364	215	4
875-483	47	364	215	4
875-484	47.5	364	215	4
875-485	48	369	220	4
875-486	48.5	369	220	4
875-487	49	369	220	4
875-488	49.5	369	220	4
875-489	50	369	220	4

All Drill Bits This Page Priced Singly.

PERCUSSION TYPE METRIC MASONRY BITS

SPAENAUR No.	Drill Bit Diameter mm	For Chuck Size mm	Overall Length mm	Shank Style
875-750	5.0		85	
875-751	6.5	12.5	100	
875-752	6.5	mm	150	Straight
875-753	8.0	or	120	Shank
875-754	8.0	1/2"	150	
875-755	10.0		120	Style
875-758	16.0	3/4"	150	
875-759	16.0	B	160	(Adapter
875-760	20.0	Taper	400	needed)

Carbide Tipped

Note:
For best results, always use these Percussion Type Masonry Bits with a Rotary Percussion Drill.

Diameters of the shank and tip are identical, giving increased precision, better support for the carbide tip and less risk of breakage.

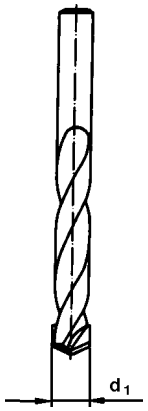
TUNGSTEN CARBIDE TIPPED MASONRY DRILL SETS

Metric - Similar to DIN 8039
Right Hand Cutting
Put up in a Transparent Case

Range of Application:
High efficiency tungsten carbide masonry drill, high stability because of the fully cylindrical form of the shaft. Suitable for drilling concrete, brick, natural stone etc. Primary range of application is for percussion drilling.

SPAENAUR No.	Bit Diameters (d_1) in each set.
875-275	4.0, 5.0, 6.0, 8.0, 10.0mm
875-276	3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0mm

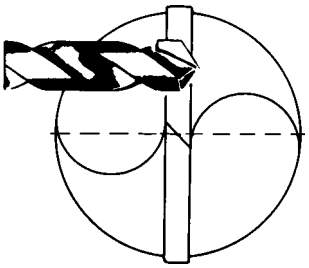
All Masonry Drill Sets Priced Singly.



METRIC MASONRY DRILLS

Carbide Tipped
Zinc Plated or Plain Finish - our option
STRAIGHT or REDUCED SHANK - our option
for
Non-impact, Rotary Drilling Machines

All Masonry Drills Priced Singly.

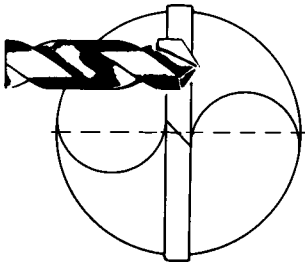


SPAENAUR No.	Bit Diameter	Length	*SPAENAUR No.*	Bit Diameter	Length	*SPAENAUR No.*	Bit Diameter	Length
875-761	3mm	60mm	**875-772**	9mm	120mm	**875-777**	16mm	150mm
875-764	4.5mm	85mm	**875-773**	10mm	120mm	**875-794**	16mm	600mm
875-765	5mm	85mm	**875-785**	10mm	400mm	**875-778**	18mm	160mm
875-766	5.5mm	85mm	**875-775**	12mm	150mm	**875-789**	18mm	400mm
875-767	6mm	100mm	**875-782**	12mm	200mm	**875-790**	20mm	400mm
875-774	6mm	150mm	**875-786**	12mm	400mm	**875-796**	20mm	600mm
875-768	6.5mm	100mm	**875-792**	12mm	600mm			
875-769	7mm	100mm	**875-776**	14mm	150mm			
875-780	8mm	200mm	**875-783**	14mm	200mm			
875-784	8mm	400mm	**875-787**	14mm	400mm			
875-771	8.5mm	120mm	**875-793**	14mm	600mm			

All Drill Bits This Page Priced Singly.

METRIC MASONRY DRILLS

Carbide Tipped
Zinc Plated or Plain Finish - our option
STRAIGHT or REDUCED SHANK - our option
for
Non-impact, Rotary Drilling Machines



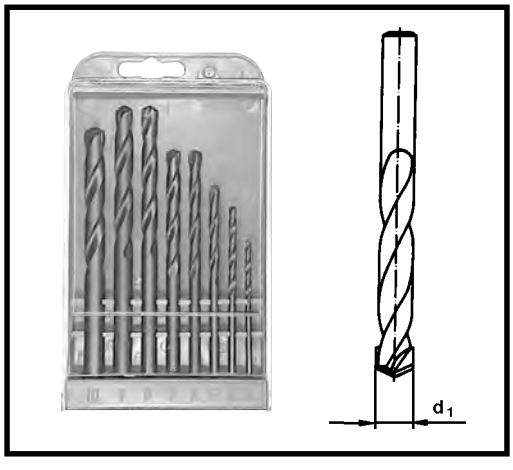
All Masonry Drills Priced Singly.

Bit Dia. (in mm)	LENGTH (in millimetres)									
	60	75	85	100	120	150	160	200	400	600
	Order by *SPAENAUR* Numbers Listed Below									
M3	**875-761**									
M3.5										
M4										
M4.5			**875-764**							
M5			**875-765**							
M5.5			**875-766**							
M6				**875-767**		**875-774**				
M6.5				**875-768**						
M7				**875-769**						
M8								**875-780**	**875-784**	
M8.5					**875-771**					
M9					**875-772**					
M10					**875-773**			**875-781**	**875-785**	**875-791**
M12						**875-775**		**875-782**	**875-786**	**875-792**
M14						**875-776**		**875-783**	**875-787**	**875-793**
M16						**875-777**				**875-794**
M18							**875-778**		**875-789**	**875-795**
M20							**875-779**		**875-790**	**875-796**

TUNGSTEN CARBIDE TIPPED MASONRY DRILL SETS

Metric - Similar to DIN 8039
Right Hand Cutting
Put up in a Transparent Case

Range of Application:
High efficiency tungsten carbide masonry drill, high stability because of the fully cylindrical form of the shaft. Suitable for drilling concrete, brick, natural stone etc. Primary range of application is for percussion drilling.



SPAENAUR No.	Bit Diameters (d_1) in each set.
875-275	4.0, 5.0, 6.0, 8.0, 10.0 mm
875-276	3.0, 4.0, 5.0, 6.0, 7.0, 8.0, 9.0, 10.0 mm

All Masonry Drill Sets Priced Singly.

P

CATALOG 13

PRECISIONS - COUNTERSINKS

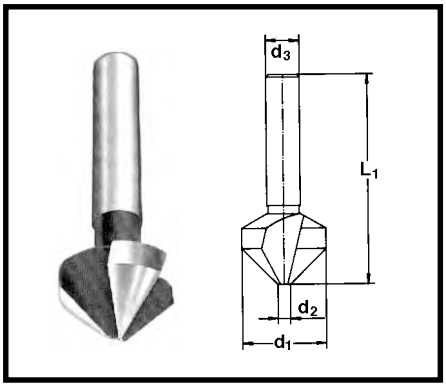
90°, Form "C" with Parallel Shank

Metric

DIN 335

High Speed Steel
Right Hand Cut

Range of Application:
For iron and non-ferrous metals, synthetic material soft and hard. Universal deburring and sink tool for all kinds of borings. High standard cutting features guarantee a smooth surface without burrs; profile relief facilitate an easy regrind.



SPAENAUR No.	d_1 mm	d_2 mm	d_3 mm	L_1 mm
874-1020	4.3	1.3	4	40
874-1021	5.0	1.5	4	40
874-1022	6.0	1.5	5	45
874-1023	6.3	1.5	5	45
874-1024	7.0	1.8	6	50
874-1025	8.0	2.0	6	50
874-1026	8.3	2.0	6	50
874-1139	10.0	2.5	6	50
874-1027	10.4	2.5	6	50
874-1028	11.5	2.8	8	56
874-1029	12.4	2.8	8	56
874-1030	15.0	3.2	10	60
874-1031	16.5	3.2	10	60
874-1032	19.0	3.5	10	63
874-1033	20.5	3.5	10	63
874-1034	23.0	3.8	10	67
874-1035	25.0	3.8	10	67
874-1036	28.0	4.0	12	71
874-1140	31.0	4.2	12	71

Priced Singly.

DIN 335C COUNTERSINK SET 874-1047
Taper and deburring countersinkers set 90°. DIN335 CBN-ground with triple cutting lip in wooden case.

SPAENAUR No.	Bit Diameters (d_1) in set.
874-1047	4.3, 5.0, 6.0, 6.3, 7.0, 8.0, 8.3, 10.0, 10.4, 11.5, 12.4, 15.0, 16.5, 19.0, 20.5, 23.0, 25.0 mm

P

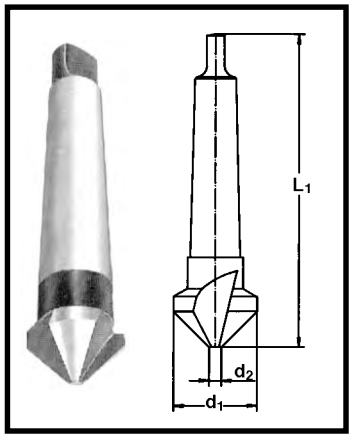
PRECISIONS - COUNTERSINKS

90°, Form "D" with Morse Taper Shank

METRIC

DIN 335

High Speed Steel
Right Hand Cut



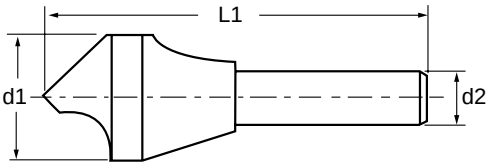
Range of Application:
For iron and non-ferrous metals, synthetic material soft and hard. Universal deburring and sink tool for all kinds of borings. High standard cutting features guarantee a smooth surface without burrs; profile relief facilitate an easy regrind.

SPAENAUR No.	d_1 mm	d_2 mm	L_1 mm	Morse Taper
874-1038	15.0	3.0	85	1
874-1039	16.5	3.2	85	1
874-1040	19.0	3.2	100	2
874-1041	20.5	3.5	100	2
874-1042	23.0	3.8	106	2
874-1043	25.0	3.8	106	2
874-1044	28.0	4.0	112	2
874-1045	31.0	4.2	112	2
874-1046	37.0	4.8	118	2

Slotted Taper and Deburring 90° Countersinks

Priced Singly.

Material: HSS-E (Co 5)



- Chatter-free
- Burr-free
- High grade finish
- Suitable for most cuttable materials

SPAENAUR No.	Nominal Dia. (mm)	Countersink Range (mm)	Head Dia. d1 (mm)	Shank Dia. d2 (mm)	Length L1 (mm)
874-001	2/5	2 - 5	10	6	45
874-002	5/10	5 - 10	14	8	48
874-003	10/15	10 - 15	21	10	65
874-004	15/20	15 - 20	28	12	85
874-005	20/25	20 - 25	35	15	102
874-098	25/30	25 - 30	44	15	115
874-285	30/35	30 - 35	48	15	127
874-287	35/40	35 - 40	53	15	136
874-293	40/50	40 - 50	64	18	166

SPAENAUR

Your #1 Choice for Fasteners.

METRIC FLAT COUNTERBORES WITH MORSE TAPER SHANK AND PILOT PIN

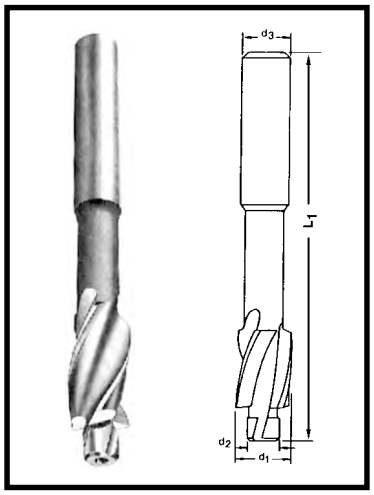
Fine Grade for Through-Hole

SPAENAUR No.	For Thread	Countersink d_1 mm	Pin d_2 mm	Taper Shank No.	Overall Length (L_1) mm
874-1658	**M10**	18	10.5	2	150
874-1017	**M14**	24	15	2	160
874-1018	**M16**	26	17	3	190
874-1019	**M20**	33	21	3	190

METRIC COUNTERBORES WITH PARALLEL SHANK AND SOLID PILOT FOR THROUGH-HOLES

High Speed Steel
Fine Grade
Right Hand Cut

DIN 373



Range of Application:
For iron and non-ferrous metals, synthetic material soft and hard. Suitable for working in through holes according to DIN 273. Considerable results in special and serial production.

SPAENAUR No.	For Thread	d_1 mm	d_2 mm	d_3 mm	L_1 mm
874-1012	M3	6.0	3.2	5.0	71
874-1013	M3.5	6.5	3.7	5.0	71
874-1014	M4	8.0	4.3	5.0	71
874-1015	M5	10.0	5.3	8.0	80
874-1000	M6	11.0	6.4	8.0	80
874-1002	M8	15.0	8.4	12.5	100
874-1003	M10	18.0	10.5	12.5	100
874-1016	M12	20.0	13.0	12.5	100

All Counterbores This Page Priced Singly.

DIN 373

METRIC COUNTERBORE SET
Fine Grade

High Speed Steel — Right Hand Cut

874-1011	Flat Counterbore set in steel case, 6 sizes. For thread M3, M4, M5, M6, M8 and M10.

Priced Singly.

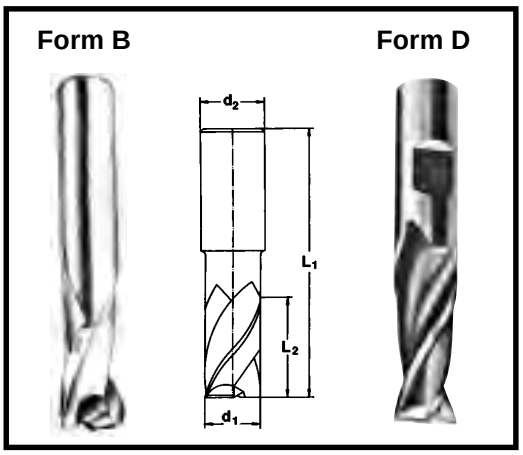
P

METRIC SLOT CUTTER, SHORT SERIES
With Parallel Shank Centre Cutting

DIN 327

High Speed Steel
Right Hand Cutting - Right Hand Spiral - 2 Flute

Range of Application:
ANS-quality
Recommended for milling in material of medium and high tensile strength up to 1.200N/mm^2.
Vertical cutting to full depth and horizontal cutting with exact tolerances.



SPAENAUR No.	d_1 mm	L_1 mm	L_2 mm	d_2 mm	Helix mm	Form
874-1068	2.5	49	5	6	14.0	D
874-1069	3.0	49	5	6	16.0	B
874-1070	4.0	51	7	6	22.4	D
874-1071	6.0	52	8	6	35.5	D
874-1072	8.0	61	11	10	45.0	D
874-1073	10.0	63	13	10	56.0	D
874-1074	12.0	73	16	12	71.0	D
874-1075	14.0	73	16	12	80.0	D
874-1076	15.0	73	16	12	80.0	D
874-1077	16.0	79	19	16	90.0	D

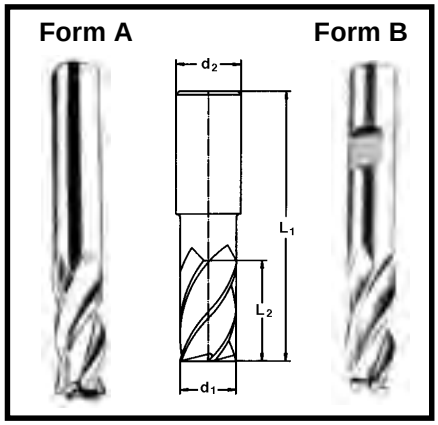
All Slot Drills Priced Singly.

METRIC END MILLS, SHORT SERIES
With Parallel Shank, centre cutting up to dia. 20

DIN 844

High Speed Steel
Right Hand Cutting - Right Hand Spiral

Range of Application:
ANS-quality
Recommended for milling in heavy duty material with high tensile strength up to 1.200N/mm^2 as well as in titanium and titanium-alloyed materials.



SPAENAUR No.	d_1 mm	L_1 mm	L_2 mm	d_2 mm	Form
875-857	4.0	55	11	6	B
875-866	9.0	63	25	8	B
875-867	11.0	70	28	10	B
875-868	14.0	80	32	12	B
875-869	16.0	90	36	16	B
875-870	22.0	110	45	20	B
875-872	28.0	125	56	25	A
875-873	32.0	140	63	25	A
875-874	36.0	160	70	32	A
875-875	40.0	160	70	32	A
875-876	45.0	180	80	40	A
875-877	50.0	200	90	40	A

All End Mills Priced Singly.

P

CATALOG 13

DIN 9

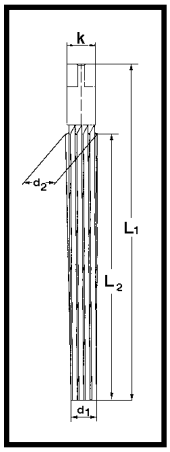
METRIC TAPER PIN REAMERS

with Parallel Shank and Squared End
High Speed Steel
Taper 1:50, for Taper Pins DIN 1 and DIN 7978
Right Hand Cut

Range of application: For use in iron and non-ferrous metals, synthetic materials soft and hard.

DIN 9A is a Straight Flute type suitable for conical borings. Taper 1:50 fitting to taper pins. For pre-working recommended taper pin drills.

DIN 9B is a Slow Helix type suitable for interrupted conical borings. Taper 1:50 fitting to taper pins, slots and crossborings. Reamers demand a higher feed but achieve a better quality of surface. Can be utilized for special and separate production.



DIN 9A STRAIGHT FLUTE **DIN 9B SPIRAL FLUTE**

All Dimensions in Millimetres

SPAENAUR No's. DIN 9A	DIN 9B	Nom. Dia.	d_1	d_2	L_1	L_2	Square (k) A/F	No. of Flutes
874-1078	**—**	**1.5**	1.4	2.14	57	37	2.5	3
874-1079	**874-1102**	**2**	1.9	2.86	68	48	2.5	3
874-1080	**874-1103**	**2.5**	2.4	3.36	68	48	2.5	4
—	**874-1105**	**4**	3.9	5.26	93	68	4.0	5
—	**874-1106**	**5**	4.9	6.36	100	73	5.0	5
—	**874-1107**	**6**	5.9	8.00	135	105	6.3	6
874-1087	**874-1108**	**6.5**	6.4	8.76	148	118	6.3	6
—	**874-1110**	**8**	7.9	10.80	180	145	8.0	6
—	**874-1112**	**10**	9.9	13.4	215	175	10.0	6
874-1092	**874-1113**	**12**	11.8	16.0	255	210	11.2	8
—	**874-1114**	**13**	12.8	17.0	255	210	11.2	8
—	**874-1115**	**14**	13.8	18.0	255	210	11.2	8
—	**874-1116**	**16**	15.8	20.4	280	230	14.0	8
—	**874-1117**	**20**	19.8	24.8	310	250	18.0	8
—	**874-1118**	**25**	24.7	30.7	370	300	22.4	10
874-1098	**874-1119**	**30**	29.7	36.1	400	320	25.0	10
—	**874-1138**	**40**	39.7	46.5	430	340	31.5	12

All Reamers Priced Singly.

P

All Dimensions in Millimetres

DIN 206A SPAENAUR No	No. of Flutes	DIN 206B SPAENAUR No.	No. of Flutes	Nom. Dia. (d)	L_1	L_2	Square(k) A/F
874-630	3	**874-685**	3	**1.5**	41	20	1.12
—	6	**874-686**	4	**2.0**	50	25	1.60
874-632	6	**874-687**	4	**2.5**	58	29	2.0
874-668	6	**874-752**	6	**2.8**	62	31	2.24
874-633	6	**874-688**	6	**3.0**	62	31	2.24
874-669	6	**874-753**	6	**3.2**	66	33	2.50
874-634	6	**874-689**	6	**3.5**	71	35	2.80
—	—	**874-690**	6	**4.0**	76	38	3.15
874-670	6	—	—	**4.5**	81	41	3.55
874-636	6	**874-691**	6	**5.0**	87	44	4.0
874-671	6	**874-754**	6	**5.5**	93	47	4.5
874-637	6	**874-692**	6	**6.0**	93	47	4.5
874-638	6	**874-693**	6	**7.0**	107	54	5.6
—	—	**874-694**	6	**8.0**	115	58	6.3
874-672	6	**874-755**	6	**8.5**	115	58	6.3
874-640	6	**874-695**	6	**9.0**	124	62	7.1
874-641	8	**874-696**	6	**10.0**	133	66	8.0
874-642	8	**874-697**	6	**11.0**	142	71	9.0
874-643	8	**874-698**	6	**12.0**	152	76	10.0
874-644	8	**874-699**	6	**13.0**	152	76	10.0
874-645	8	**874-727**	6	**14.0**	163	81	11.2
874-646	8	**874-728**	6	**15.0**	163	81	11.2
874-647	10	**874-729**	6	**16.0**	175	87	12.5
874-648	10	**874-730**	6	**17.0**	175	87	12.5
—	10	**874-731**	6	**18.0**	188	93	14.0
874-650	10	**874-732**	6	**19.0**	188	93	14.0
874-651	10	**874-733**	6	**20.0**	201	100	16.0
874-673	10	**874-756**	8	**21.0**	215	107	18.0
874-652	10	**874-734**	8	**22.0**	215	107	18.0
874-674	12	**874-757**	8	**23.0**	231	115	20.0
874-653	12	**874-735**	8	**24.0**	231	115	20.0
874-654	12	**874-736**	8	**25.0**	231	115	20.0
874-655	12	**874-737**	8	**26.0**	231	115	20.0
874-675	12	**874-758**	8	**27.0**	247	124	22.4
—	12	**874-738**	8	**28.0**	247	124	22.4
874-676	12	—	—	**29.0**	247	124	22.4
—	—	**874-739**	8	**30.0**	247	124	22.4
874-677	12	**874-760**	8	**31.0**	265	133	28.0
874-658	12	**874-740**	8	**32.0**	265	133	25.0
874-678	12	**874-761**	10	**33.0**	284	142	28.0
874-659	12	**874-741**	10	**34.0**	284	142	28.0
—	12	**874-742**	10	**35.0**	284	142	28.0
874-661	12	**874-743**	10	**36.0**	284	142	28.0
874-679	14	**874-762**	10	**37.0**	305	152	31.5
874-662	14	**874-744**	10	**38.0**	305	152	31.5
874-680	14	—	—	**39.0**	305	152	31.5
874-663	14	**874-745**	10	**40.0**	305	152	31.5
874-681	14	**874-764**	10	**41.0**	305	152	31.5
874-664	14	**874-746**	10	**42.0**	305	152	31.5
874-682	14	**874-765**	10	**43.0**	326	163	35.0
874-665	14	**874-747**	10	**44.0**	326	163	35.0
874-666	14	**874-748**	10	**45.0**	326	163	35.5
874-667	14	**874-749**	10	**46.0**	326	163	35.5
874-683	16	**874-766**	12	**47.0**	347	174	40.0
874-982	16	**874-750**	12	**48.0**	347	174	40.0
874-684	16	**874-767**	12	**49.0**	347	174	40.0
874-983	16	**874-751**	12	**50.0**	347	174	40.0

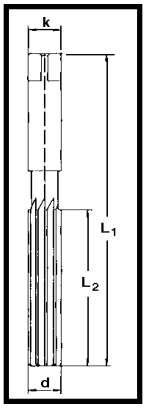
DIN 206

METRIC HAND REAMERS

with Parallel Shank and Squared End
High Speed Steel
Right Hand Cut

Range of application: Iron and non-ferrous metals, synthetic materials soft and hard.

DIN 206A is a Straight Flute type, can be utilized for special and separate production.



DIN 206B is a Spiral Flute, slow helix type suitable for interrupted borings, slots, crossborings etc.

All Reamers Priced Singly.

P

CATALOG 13

All Dimensions in Millimetres

SPAENAUR No's. DIN 208A	DIN 208B	Nom. Dia. (d)	L_1	L_2	Morse Taper	No. of Flutes
874-835	**874-879**	**3**	125	20	1	6
874-836	**874-880**	**4**	133	22	1	6
874-837	**874-881**	**5**	133	23	1	6
874-768	**874-840**	**6**	138	26	1	6
874-838	**874-882**	**7**	150	31	1	6
874-769	**874-841**	**8**	156	33	1	6
874-770	**874-842**	**9**	162	36	1	6
874-771	**874-843**	**10**	168	38	1	6
874-772	**874-844**	**11**	175	41	1	6
874-773	**874-845**	**12**	182	44	1	6
874-774	**874-846**	**13**	182	44	1	8
874-775	**874-847**	**14**	189	47	1	8
874-776	**874-848**	**15**	204	50	2	8
874-777	**874-849**	**16**	210	52	2	8
874-778	**874-850**	**17**	214	54	2	8
874-779	**874-851**	**18**	219	56	2	8
874-780	**874-852**	**19**	223	58	2	8
874-781	**874-853**	**20**	228	60	2	8
874-782	**874-854**	**21**	232	62	2	8
874-783	**874-855**	**22**	237	64	2	8
874-784	**874-856**	**23**	241	66	2	8
874-785	**874-857**	**24**	268	68	3	8
874-786	**874-858**	**25**	268	68	3	8
874-787	**874-859**	**26**	273	70	3	8
—	**874-860**	**27**	277	71	3	8
874-789	**874-861**	**28**	277	71	3	8
874-790	**874-862**	**29**	281	73	3	10
874-791	**874-863**	**30**	281	73	3	10
—	**874-864**	**31**	285	75	3	10
874-793	**874-865**	**32**	317	77	4	10
874-794	**874-866**	**33**	317	77	4	10
874-795	**874-867**	**34**	321	78	4	10
874-796	**874-868**	**35**	321	78	4	10
—	**874-869**	**36**	325	79	4	10
874-798	**—**	**37**	325	79	4	10
874-799	**874-870**	**38**	329	81	4	10
874-827	**874-871**	**40**	329	81	4	10
—	**874-872**	**42**	333	82	4	12
—	**874-873**	**44**	336	83	4	12
874-830	**874-874**	**45**	336	83	4	12
874-831	**874-875**	**46**	340	84	4	12
874-832	**874-876**	**47**	340	84	4	12
874-833	**874-877**	**48**	344	86	4	12
—	**874-883**	**49**	344	86	4	12
874-834	**874-878**	**50**	344	86	4	12

All Reamers Priced Singly.

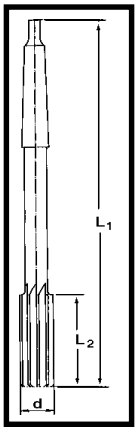
DIN 208

METRIC MACHINE REAMERS

with Morse Taper
High Speed Steel
Right Hand Cut

Range of application: Iron and non-ferrous metals.

DIN 208 A is a Straight Flute type suitable for blind and through-hole borings. Can be utilized for special and serial production.



DIN 208B is a Spiral Flute, slow helix type 8° left hand spiral suitable for interrupted borings, slots and crossborings etc.

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CATALOG 13

All Dimensions in Millimetres

DIN 212

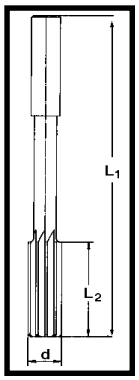
METRIC MACHINE REAMERS

with Parallel Shank
High Speed Steel
Right Hand Cut
Range of application: Iron and non-ferrous metals.

SPAENAUR No. DIN 212A	No. of Flutes	*SPAENAUR No.* DIN 212B	No. of Flutes	Nom. Dia. (d)	L_1	L_2
874-884	3	**874-944**	3	**1.5**	40	8
874-885	6	**874-945**	4	**2.0**	49	11
874-886	6	**874-946**	4	**2.5**	57	14
874-887	6	**874-947**	6	**3.0**	61	15
874-888	6	**874-948**	6	**3.5**	70	18
DIN 212C		**DIN 212D**				
874-889	6	**874-949**	6	**4.0**	75	19
874-890	6	**874-955**	6	**4.5**	80	21
874-891	6	**874-956**	6	**5.0**	86	23
874-892	6	**874-957**	6	**6.0**	93	26
874-893	6	**874-958**	6	**7.0**	109	31
874-894	6	**874-959**	6	**8.0**	117	33
874-895	6	**874-960**	6	**9.0**	125	36
874-896	6	**874-961**	6	**10.0**	133	38
874-897	6	**874-962**	6	**11.0**	142	41
874-898	6	**874-963**	6	**12.0**	151	44
874-899	8	**874-964**	6	**13.0**	151	44
874-927	8	**874-965**	8	**14.0**	160	47
874-928	8	**874-966**	8	**15.0**	162	50
874-929	8	**874-967**	8	**16.0**	170	52
874-930	8	**874-968**	8	**17.0**	175	54
874-931	8	**874-969**	8	**18.0**	182	56
874-932	8	**874-970**	8	**19.0**	189	58
874-933	8	**874-971**	8	**20.0**	195	60
874-934	8	**874-972**	8	**21.0**	215	60
874-935	8	**874-973**	8	**22.0**	225	60
874-936	8	**874-974**	8	**23.0**	230	60
874-937	8	**874-975**	8	**24.0**	240	60
874-941	8	**—**	8	**28.0**	270	65
874-943	10	**—**	10	**30.0**	280	70

All Reamers Priced Singly.

DIN 212A and DIN 212C are Straight Flute types suitable for blind and through-hole borings. Can be utilized for special and serial production.



DIN 212B and 212D are Spiral Flute, slow helix types (8° left hand) suitable for interrupted borings, slots, crossborings etc.

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CATALOG 13

All Sizes in Millimetres

DIN 859B

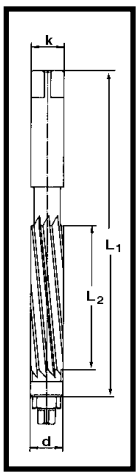
HAND REAMERS, Adjustable

with Parallel Shank and Squared End
High Speed Steel
Adjustability is approx. 1/100 of Diameter
Right Hand Cut

SPAENAUR No.	Nom. Dia. (d)	L_1	L_2	Square(k) A/F	No. of Flutes
874-556	**7**	107	38	5.6	9
874-557	**8**	115	42	6.3	9
874-558	**9**	124	46	7.1	9
874-560	**11**	142	51	9.0	9
874-562	**13**	152	61	10.0	9
874-563	**14**	163	61	11.2	9
874-564	**15**	163	61	11.2	9
874-565	**16**	175	67	12.5	9
874-566	**17**	175	67	12.5	9
874-567	**18**	188	68	14.0	9
874-568	**19**	188	68	16.0	9
874-569	**20**	201	75	16.0	9
874-589	**22**	215	82	18.0	12

All Reamers Priced Singly.

Range of application: Iron and non-ferrous metals, synthetic materials soft and hard. Slow helix type (8° left hand) with long chamfer suitable for interrupted borings. Can be utilized for special and separate production.



SPIRAL FLUTE

All Sizes in Millimetres

DIN 2179

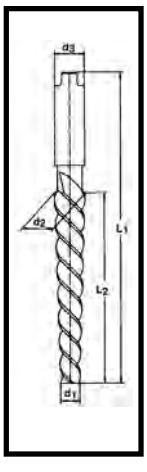
QUICK HELIX TAPER PIN REAMERS

with Parallel Shank
High Speed Steel
Taper 1:50, for Taper Pins DIN 1 and DIN 7978
Right Hand Cut

SPAENAUR No.	Nom. Dia.	d_1	d_2	L_1	L_2	d_3	No. of Flutes
***874-1049**	2	1.90	2.86	86	48	3.15	3
874-1051	3	2.90	4.06	100	58	4.00	3
874-1052	4	3.90	5.26	112	68	5.00	3
874-1053	5	4.90	6.36	122	73	6.30	3
874-1054	6	5.90	8.00	160	105	8.00	3
874-1055	6.5	6.40	8.50	160	105	8.00	3
***874-1056**	7	6.72	8.97	150.3	114.3	8.91	3
874-1057	8	7.90	10.80	207	145	10.00	3
874-1059	10	9.90	13.40	245	175	12.50	3
874-1060	12	11.80	16.00	290	210	16.00	3

*Not according to DIN specifications.

Range of application: For use in Iron and non-ferrous metals, synthetic materials soft and hard. Quick helix type (45°)suitable for reaming of taper pin borings (1:50). For preprocessing we recommend taper pin drills 1:50. Can be utilized for special and serial production with higher efficiency in chipping.



All Reamers Priced Singly.

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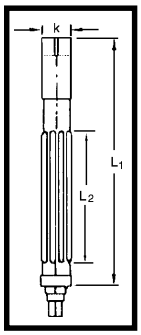
CATALOG 13

METRIC QUICK ACTION ADJUSTABLE REAMERS

with Parallel Shank and Squared End
High Speed Steel
Right Hand Cut
Range of application: Especially suitable for repair work.



(Reamer shown in protective plastic coating)

All Dimensions in Millimetres

SPAENAUR No.	ADJUSTING Range	L_1	L_2	Square (k) A/F	No. of Flutes	*SPAENAUR No.* Set of Replace-ment Blades	No. in Set	*SPAENAUR No.* Adjusting Nut
874-592	6.4 - 7.2	110	32	3.15	4	**874-984**	(4)	**874-1121**
874-593	7.2 - 8	110	32	3.55	4	**874-985**	(4)	**874-1122**
874-594	8 - 9	115	34	4.0	5	**874-986**	(5)	**874-1123**
874-595	9 - 10	115	34	4.5	5	**874-987**	(5)	**874-1124**
874-596	10 - 11	115	34	4.5	5	**874-988**	(5)	**874-1125**
874-597	11 - 12	125	35	5	5	**874-989**	(5)	**874-1126**
874-598	12 - 13.5	135	41	5.6	5	**874-990**	(5)	**874-1127**
874-599	13.5 - 15.5	146	50	6.3	5	**874-991**	(5)	**874-1128**
874-628	15.5 - 18	166	60	8	5	**874-992**	(5)	**874-1129**
874-629	18 - 21	178	65	10	5	**874-993**	(5)	**874-1130**
874-510	21 - 24	195	76	11.2	5	**874-994**	(5)	**874-1131**
874-511	24 - 27.5	218	82	12.5	5	**874-995**	(5)	**874-1132**
874-512	27.5 - 31.5	245	86	14	5	**874-996**	(5)	**874-1133**
874-513	31.5 - 37	280	98	18	6	**874-997**	(6)	**874-1134**
874-515	45 - 55	370	118	28	6	**874-999**	(6)	**874-1136**

All Reamers Priced Singly.

P

SET OF METRIC QUICK ACTION ADJUSTABLE REAMERS

With Parallel Shank and Squared End
High Speed Steel
Right Hand Cut

SPAENAUR No.
874-1630

Contains eleven sizes
from 8 mm to 31.5 mm.

Put up in a wooden box.

Priced Singly.

CATALOG 13

HISTORY

The FRENCH ENGINEERING WORKS (PTY) LIMITED was established in 1918 to manufacture rock drill spares for the mining industry.

The Swiss origin and technical background of the owner, Herman Moser, instilled a pride in quality and precision which persists to the present day.

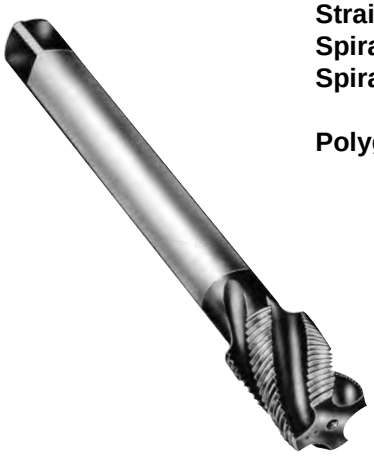
In 1940 taps and threading tools became part of the product range and by 1954, the company was specializing in the manufacture of these tools.

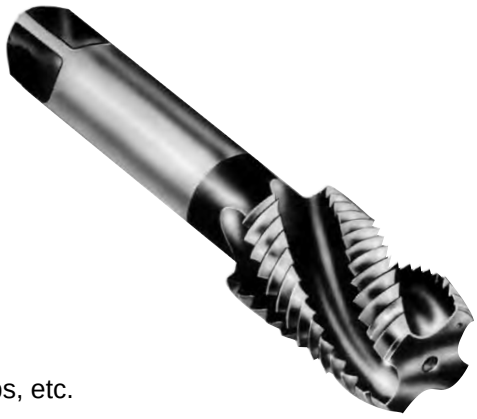
Over eighty years of tap manufacturing experience and development of extensive distribution networks have enabled customers in over 40 countries to benefit from a wide range of tools offered. Modern production facilities and ongoing product development, ensure that the reputation earned over three-quarters of a century will continue to grow.

STOCK RANGE

* FEW manufactures a comprehensive range of Threading Tools in various norms laid down by **ISO 529/2284, JIS B4430** and **DIN 371/376/374/5156.**
* Taps are produced in various HIGH SPEED STEELS for both HAND and MACHINE tapping. FEW is one of the first companies in the world to manufacture taps from HSSE-V or M9V.

Straight Flute – Standard and Serial sets for Hand Tapping.
Straight Flute – Machine Taps for Through or Blind Holes.
Spiral Point – Machine Taps for Through Holes.
Spiral Flute – Machine Taps for Blind Holes, available in Slow Standard and Fast Helixes.
Polygon – A Fluteless Tap for rolling a Threadform in Ductile materials.





FEW also manufactures Long Shank Taps, Pipe Taps, Nut Taps, etc.

Taps in the FEW Standard Range are available in:

Metric – M (metric Course) MF (metric Fine).
American – UNC, UNF, NC, NF, UNEF, UNS.
Whitworth – BSW, BSF, BA, BSC, BSB.
Pipe – G (BSP Mechanical), Rp (BSP Leakproof), Rc (Pipe Conical), NPS, NPSF (Dryseal), NPT, NPTF (Dryseal), NGT, API.

DISTRIBUTION NETWORK

FEW has set up a distribution network of stocking distributors in selected key areas around the world. These distributors carry a broad range of products and therefore ensure speedy service to all parts of the world.

FEW products are distributed in Canada by *SPAENAUR INC.*

P

CATALOG 13

See the following two pages for more FEW Tap selections.

HSS STANDARD STOCK RANGE

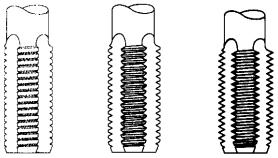
STD. SET
TYPE 0420

Taper + Second + Bottom

The Standard Set generally comprises of taper, second and bottom taps which can also be ordered and used individually. These taps are used for all normal hand and machine tapping. Fine threads - 2 per set (taper + bottom) except where stated. Sets of 3 available by special request.

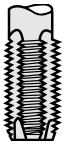
SER. SET
TYPE 0720

No. 1 + No. 2 + Bottom



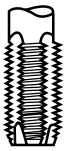
Serial Taps are also known as progressive taps and are recommended for precision hand tapping long through holes and blind holes in tough materials. Serial taps are sold only in sets, and are not suitable for machine use. Fine threads - 2 per set except where stated.

STD. S.P.
TYPE 1221



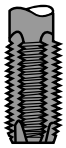
Spiral Point Taps are also known as Gun Nose and are used for machine tapping of deep and normal through holes. The black "steam temper" surface treatment facilitates the tapping of steels which are prone to cold welding.

STD. B.F. S.P.
TYPE 1220



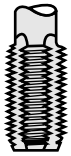
Bright finish, Spiral Point Taps have no surface treatment and are normally used for the tapping of through holes in non-ferrous materials.

TiN S.P.
TYPE 1223



Titanium Nitride Spiral Point Taps are used for through holes in abrasive materials, or where higher tapping speeds and longer tool life are required.

NI BOTT
TYPE 0322



These Bottom Taps have been nitrided for maximum abrasion resistance. They are mainly used in the tapping of short chipping cast iron and other abrasive materials.

TiN BOT
TYPE 0323

Developed for use in production application where abrasive short chipping materials such as cast iron are being tapped. Higher tapping speeds reduce cycle times whilst abrasion resistance is increased, thus improving production rates.

STD. S.F.
TYPE 4221

Sprial Flute Taps are used in blind holes where chip disposal becomes a problem. The black "steam temper" surface treatment facilitates the tapping of steels which are prone to cold welding.

STD. B.F. S.F.
TYPE 4220

Bright finish, Spiral Flute Taps have no surface treatment and are normally used for the tapping of blind holes in non-ferrous metals.

TiN S.F.
TYPE 4223

Titanium Nitride Spiral Flute Taps are used for blind holes in abrasive materials, or where higher tapping speeds and longer tool life are required.

STD. P. POLYGON
TYPE 6220

These are Fluteless Taps which are primarily used for the chipless threading of through holes in aluminum, brass, copper and other ductile materials. Tapping drill size is very important.

B + O/G POLYGON
TYPE 7220

These Polygon Taps have oil grooves to facilitate lubrication in the forming of threads in deep or blind holes in ductile materials.

CLOSE FIT TAPS

Generally availabe in straight flute, SP or SF form, these tools are used when tapping to tighter tolerances (e.g. Metric 4H UNIFIED 1B or WHITWORTH Close Fit). Because these taps have a reduced effective diameter, they may also be used where oversizing is a problem.

FREE FIT TAPS

Generally available in straight flute, SP or SF form, these taps are used when looser threads are required. (e.g. Metric 7H / 6G, UNIFIED 3B or WHITWORTH Free Fit.). Because these taps have a larger wear allowance, they are also occasionally used where maximum tool life is required in abrasive applications.

L.H. TAPS

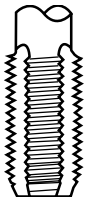
Left Hand taps are stocked in most popular sizes and are sold in sets up to 12 mm or 1/2". Larger diameters are available in single taps.

P

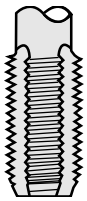
SPECIAL GEOMETRY MACHINE TAPS

STRAIGHT FLUTE MACHINE TAPS

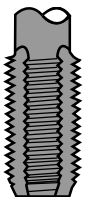
STR. FL. BRASS (Din Form C)
Straight Flute Tap with a modified rake angle and 15° lead suitable for threading short chipping brass.



STR. FL. NITRIDE (Din Form C)
Straight Flute Tap with modified rake angle 15° lead and nitrided surface treatment for cast iron and other abrasive short chipping materials.

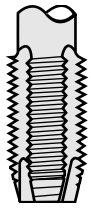


STR. FL. TIN (Din Form C)
Straight Flute Tap with modified rake angle, 15° lead and TiN coating suitable for cast iron and other abrasive short chipping materials.

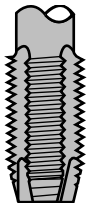


SPIRAL POINT TAPS (DIN FORM B) - SPECIAL GEOMETRY

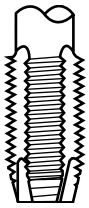
TYPE 1222 HR HR SP
The High Resistance Spiral Point has been designed with special geometry to cut threads in normal and deep through holes in high resistance steels of over 1000 N/mm².



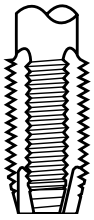
TYPE 1221 IN STAINLESS STEEL SP
The Stainless Steel Spiral Point Tap as been designed with special geometry to cut threads in normal and deep through holes in tough stainless steels and high alloyed tool steels which have a tendency to "close" after threading.



TYPE 1220 AL ALU SP
The Aluminum Spiral Point has been designed with special geometry and wide flutes for tapping through soft holes in ductile aluminums, light metals and plastics with long chips.

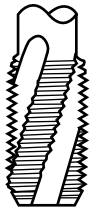


TYPE 1220 AS AL-SI SP
The geometry of this Spiral Point is suitable for threading through holes in tough aluminum alloys with silicon content greater than 10%, and non-ferrous metals which have a tendency to "close" after threading.

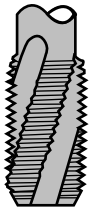


SLOW SPIRAL FLUTE TAPS (~15°)

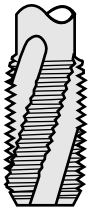
TYPE 3220 BF SF 15°
Bright Finish 15° Spiral Flute Taps are suitable for tapping blind holes in tougher non-ferrous materials with medium to long chips, or steels up to 1000 N/mm² where cold welding does not pose a problem.



TYPE 5220 AS AL-SI SF
Steam Tempered 15° Spiral Flute Taps are suitable for tapping blind holes in tough steels up to 1000 N/mm² where cold welding occurs. Supplied as standard where surface treatment is not specified.

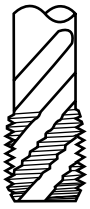


TYPE 3223 TIN SF 15°
Titanium Nitrided 15° Spiral Flute Taps are suitable for tapping blind holes in tough, abrasive materials where higher tapping speeds or longer tool life are required.

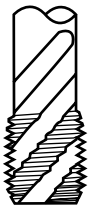


FAST SPIRAL FLUTE TAPS (~40°) - SPECIAL GEOMETRY

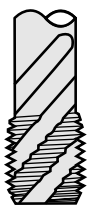
TYPE 5220 AL ALU SF
The Aluminum Spiral Flute has high helix with special geometry and wide flutes adapted for tapping blind holes in soft ductile aluminums and plastics with long chips.



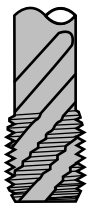
TYPE 5220 AS AL-SI SF
The special geometry of this High Helix Special Flute Tap is adapted for threading blind holes in tough aluminum alloys with silicon contact greater than 10% and non-ferrous metals which have a tendency to "close" after threading.



TYPE 5222 HR HR SF
The High Resistance Sprial Flute Tap has high helix and special geometry adapted to cut threads in blind holes in high resistance steels of over 1000 N/mm².



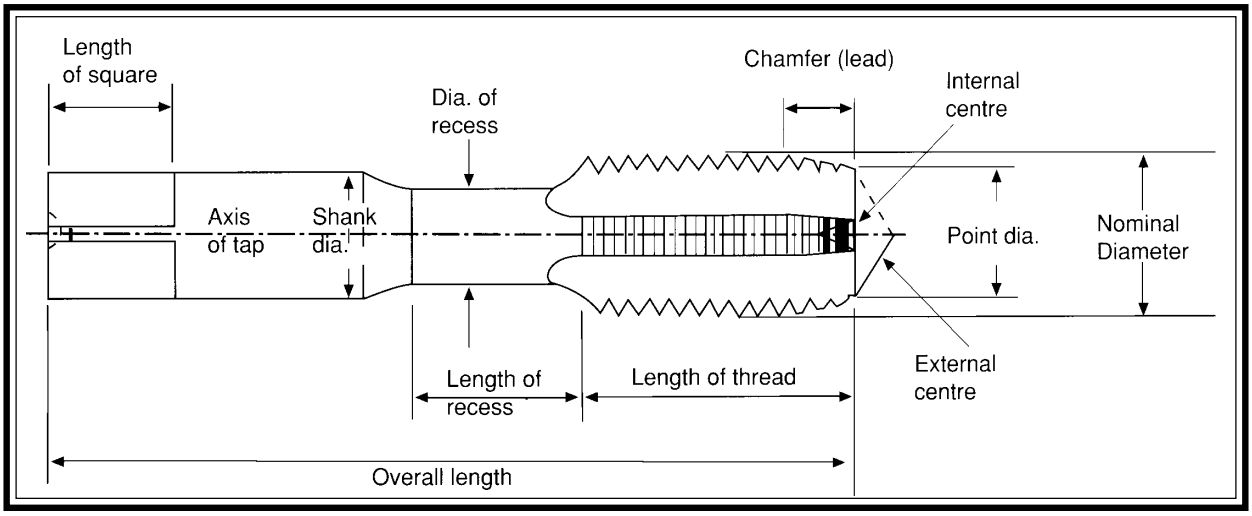
TYPE 5221 IN STAINLESS STEEL SF
The Stainless Steel Spiral Flute Tap has high helix and special geometry adapted to cut threads in blind holes in tough stainless steels and steels which have a tendency to "close" after threading.



P

CATALOG 13

Tap Terminology
Terminologie de taraud



SURFACE TREATMENT

When choosing lubricant and type of tap to suit a particular application, the life of the tap can be further prolonged by selecting the correct surface treatment.

1. BRIGHT FINISH (BF) - *SPAENAUR* carries Bright Finish in stock.

This is a ground finish without any further surface treatment. Used mainly for non-ferrous metals or steels which do not cold weld.

2. STEAM TEMPERED (ST)

This is an oxide treatment which is recognizable by its deep blue/black finish. This treatment produces tiny pitmarks on the surface of the tap, too small to be seen with the naked eye. These indentations help to capture and retain the lubricant, thus reducing torque and discouraging cold welding. Used in a wide variety of applications where build-up can cause problems, e.g. mild steel and all highly alloyed ferrous materials, including stainless steels. Machine taps are supplied with a Steam Tempered finish, unless an alternative is specified.

The following taps are available upon request, price on application:

3. NITRIDED (NI)

This treatment hardens the surface of the tool and gives it a mottled grey/black finish. This extra skin hardness gives better tool life in the more abrasive shorter-chipping materials such as cast iron and certain types of bronze, high Si aluminum alloys and plastic. This treatment can cause brittleness and should be used with care.

4. DOUBLE TREATMENT (DT)

This combination of Steam Tempering and Nitriding is used mainly for nut taps and taps for special application where the qualities of abrasion resistance and lubrication adherence are most beneficial.

5. TITANIUM CARBIDE NITRIDE (TIN)

A Physical Vapour Deposition (PVD) process imparting a shiny golden finish to the tool surface. Features are high surfaces hardness (equivalent to Rc80-85)with good abrasion resistance allowing for prolonged tool life. A low coefficient of friction results in reduced torque, temperature and cold welding, thus allowing for greater tool speeds.

6. TITANIUM CARBIDE NITRIDE (TICN)

Another PVD process imparting a harder surface than TIN. Suitable for abrasive applications and for high tensile materials.

TAPS

HIGH SPEED STEEL GROUND THREAD
Right Hand Threads

INCH Sizes
U.N.C. (Coarse)
and
U.N.F. (Fine)

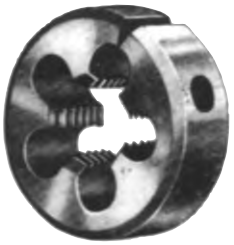
TAPS ARE AVAILABLE SINGLE OR IN SETS:

No. 1 STARTING TAP
No. 2 MIDDLE TAP
No. 3 FINISHING TAP

Note: Taps No. 1, No. 2, & No. 3 are commonly referred to as TAPER, PLUG, & BOTTOMING TAPS.

TAPS and TAP SETS

■Shown are ANSI 94.9 dimensions for Square End. May also be supplied to ISO 529 at our option.



DIES

HIGH SPEED STEEL

Dies split or solid, our option.

(Dia.) SIZE	THREADS per inch U.N.C.	U.N.F.	DRILL Size	Dec.	#1 Starting Tap SPAENAUR No.	#2 Middle Tap SPAENAUR No.	#3 Finishing Tap SPAENAUR No.	Set of 3 Taps SPAENAUR No.	■Tap Square End A/F	DIES SPAENAUR No.	Die O.D.
0		80	3/64	.047	**874-100**	**874-200**	**874-300**	**874-400**		**878-100**	
1	64		#53	.060	**874-101**	**874-201**	**874-301**	**874-401**		**878-101**	
1		72	#53	.060	**874-102**	**874-202**	**874-302**	**874-402**		**878-102**	
2	56		#50	.070	**874-103**	**874-203**	**874-303**	**874-403**		**878-103**	
2		64	#50	.070	**874-104**	**874-204**	**874-304**	**874-404**		**878-104**	
3	48		#47	.079	**874-105**	**874-205**	**874-305**	**874-405**		**878-105**	
3		56	#46	.081	**—**	**874-206**	**874-306**	**874-406**	.110	**878-106**	
4	40		#44	.086	**874-107**	**874-207**	**874-307**	**874-407**		**878-107**	
4		48	#43	.089	**874-108**	**874-208**	**874-308**	**874-408**		**878-108**	
4	36	(N.S.)			**874-109**	**874-209**	**874-309**	**874-409**		**878-109**	
5	40		#40	.098	**874-110**	**874-210**	**874-310**	**874-410**		**878-110**	13/16"
5		44	#38	.102	**874-111**	**874-211**	**874-311**	**874-411**		**878-111**	
6	32		#37	.104	**874-112**	**874-212**	**874-312**	**874-412**		**878-112**	
6		40	#34	.111	**874-113**	**874-213**	**874-313**	**874-413**		**878-113**	
8	32		#29	.136	**874-114**	**874-214**	**874-314**	**874-414**	.131	**878-114**	
8		36	#29	.136	**874-115**	**874-215**	**874-315**	**874-415**		**878-115**	
10	24		#25	.150	**874-116**	**874-216**	**874-316**	**874-416**	.152	**878-116**	
10		32	#21	.159	**874-117**	**874-217**	**874-317**	**874-417**		**878-117**	
12	24		#16	.177	**874-118**	**874-218**	**874-318**	**874-418**	.165	**878-118**	
12		28	#14	.182	**874-119**	**874-219**	**874-319**	**874-419**		**878-119**	
1/4"	20		#7	.201	**874-120**	**874-220**	**874-320**	**874-420**	.191	**878-120**	
1/4"		28	#3	.213	**874-121**	**874-221**	**874-321**	**874-421**		**878-121**	
5/16"	18		F	.257	**874-122**	**874-222**	**874-322**	**874-422**	.238	**878-122**	
5/16"		24	I	.272	**874-123**	**874-223**	**874-323**	**874-423**		**878-123**	1"
3/8"	16		5/16	.313	**874-124**	**874-224**	**874-324**	**874-424**	.286	**878-124**	
3/8"		24	Q	.332	**874-125**	**874-225**	**874-325**	**874-425**		**878-125**	
7/16"	14		23/64	.359	**874-126**	**874-226**	**874-326**	**874-426**	.242	**878-126**	
7/16"		20	25/64	.391	**874-127**	**874-227**	**874-327**	**874-427**		**878-127**	1-5/16"
1/2"	13		27/64	.422	**874-128**	**874-228**	**874-328**	**874-428**	.275	**878-128**	
1/2"		20	29/64	.453	**874-129**	**874-229**	**874-329**	**874-429**		**878-129**	
9/16"	12		31/64	.484	**874-130**	**874-230**	**874-330**	**874-430**	.322	**878-130**	
9/16"		18	1/2	.500	**874-131**	**874-231**	**874-331**	**874-431**		**878-131**	1-1/2"
5/8"	11		17/32	.531	**874-132**	**874-232**	**874-332**	**874-432**	.360	**878-132**	
5/8"		18	9/16	.563	**874-133**	**874-233**	**874-333**	**874-433**		**878-133**	
11/16"	11		19/32	.594	**874-134**	**874-234**	**874-334**	**874-434**	.406		
11/16"		16	5/8	.625	**874-135**	**874-235**	**874-335**	**874-435**			
Continued on next page…					*Unit Package - 1 Only*			*Unit. Pkg. 1 Set*		*Unit. Pkg. 1*	

See page P82 for LEFT HAND THREAD SIZES.

TAPS

HIGH SPEED STEEL GROUND THREAD

Right Hand Threads

INCH Sizes

U.N.C. (Coarse)

and

U.N.F. (Fine)

…continued from previous page.

TAPS ARE AVAILABLE SINGLE OR IN SETS:

No. 1
STARTING TAP

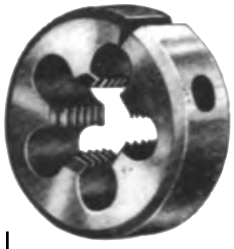
No. 2
MIDDLE TAP

No. 3
FINISHING TAP

Note: Taps No. 1, No. 2, & No. 3 are commonly referred to as TAPER, PLUG, & BOTTOMING TAPS.

TAPS and TAP SETS

■Shown are ANSI 94.9 dimensions for Square End. May also be supplied to ISO 529 at our option.



DIES

HIGH SPEED STEEL

Dies split or solid, our option.

(Dia.) SIZE	THREADS per inch U.N.C.	U.N.F.	DRILL Size	Dec.	#1 Starting Tap SPAENAUR No.	#2 Middle Tap SPAENAUR No.	#3 Finishing Tap SPAENAUR No.	Set of 3 Taps SPAENAUR No	■Tap Square End A/F	DIES SPAENAUR No.	Die O.D
3/4"	10		21/32	.656	**874-136**	**874-236**	**874-336**	**874-436**	.442	**878-136**	2"
3/4"		16	11/16	.688	**874-137**	**874-237**	**874-337**	**874-437**		**878-137**	
7/8"	9		49/64	.766	**874-138**	**874-238**	**874-338**	**874-438**	.523	**878-138**	
7/8"		14	13/16	.813	**874-139**	**874-239**	**874-339**	**874-439**		**878-139**	
1"	8		7/8	.875	**874-140**	**874-240**	**874-340**	**874-440**		**878-140**	
1"		12	29/32	.906	**874-141**	**874-241**	**874-341**	**874-441**	.600	**878-141**	
1"		14	15/16	.938	**874-142**	**874-242**	**874-342**	**874-442**		**878-142**	
1-1/16"		12	—	—	—	—	—	—	—	**878-200**	2-1/2"
1-1/8"	7		63/64	.984	**874-143**	**874-243**	**874-343**	**874-443**	.672		
1-1/8"		12	1-3/64	1.047	**874-144**	**874-244**	**874-344**	**874-444**			
1-1/4"	7		1-3/32	1.094	**874-145**	**874-245**	**874-345**	**874-445**	.766		
1-1/4"		12	1-11/64	1.172	**874-146**	**874-246**	**874-346**	**874-446**			
1-3/8"	6		1-13/64	1.203	**874-147**	**874-247**	**874-347**	**874-447**	.831		
1-3/8"		12	1-19/64	1.297	**874-148**	**874-248**	**874-348**	**874-448**			
1-1/2"	6		1-21/64	1.328	**874-149**	**874-249**	**874-349**	**874-449**	.925		
1-1/2"		12	1-27/64	1.422	**874-150**	**874-250**	**874-350**	**874-450**			
1-3/4"	5		1-35/64	1.547	**874-151**	**874-251**	**874-351**	**874-451**	1.072		
2"	4-1/2"		1-25/32	1.781	**874-152**	**874-252**	**874-352**	**874-452**	1.233		
					Unit Package - 1 Only			*Unit. Pkg. 1 Set*		*Unit. Pkg. 1*	

Inch Size - High Speed TAP SETS (Right Hand)

Strong case protects cutting edges of taps and against dirt and corrosion.
Keeps the taps together so they are there when you need them!

U.N.C. - Coarse Thread

***874-480** 8-32 to 1/2"-13

874-587 #10 to 1/2"

U.N.F. - Fine Thread

***874-481** 8-36 to 1/2"-20

874-588 #10 to 1/2"

Sets Priced Singly

***874-480 & 874-481** have wooden cases. These sets contain Starting, Middle & Finishing Taps for each of 7 sizes in set.

874-587 & 874-588 have metal cases. These sets contain Starting, Middle & Finishing Taps for each of 6 sizes in set.

CUT THREAD TAPS (Carbon Steel)

875-252 Size 000-120

MINIATURE TAPS

Priced Singly

PRECISION-GROUND TAPS (H.S.S.)

875-251 Size 00-90

875-253 Size 000-120

See page B16 for Miniature Screw Sizes 00-90 and 000-120.

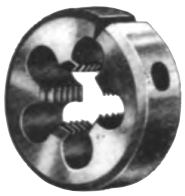
SHORT HAND & MACHINE TAPS
LEFT HAND THREADS

HIGH SPEED STEEL
GROUND THREAD

INCH Sizes
U.N.C. (Coarse)
and
U.N.F. (Fine)

No. 1 STARTING TAP (Taper)
No. 2 MIDDLE TAP (Plug)
No. 3 FINISHING TAP (Bottoming)

Taps are available singly or in sets of 2 or 3.



DIES

HIGH SPEED STEEL

Dies split or solid, our option.

(Dia.) SIZE	THREADS per inch U.N.C.	U.N.F.	DRILL Size or Number	Dec.	SPAENAUR No's #1 Starting Tap (Taper)	#2 Middle Tap (Plug)	#3 Finishing Tap (Bottom)	Set of 2 (Taper and Bottoming)	Set of 3 Taps	■Tap Square End A/F(approx.)	DIES Left Hand Threads DIES SPAENAUR No.	Die O.D
1/4"	20		#7	.201"	–	–	–	–	**874-1703**	.197"	**878-207**	1"
1/4"		28	#3	.213"	–	**874-1749**	–	**874-1713**	–	.197"	**878-202**	1"
5/16"	18		F	.257"	–	–	–	–	**874-1704**	.248"	**878-208**	1"
5/16"		24	I	.272"	–	**874-1750**	**874-1666**	**874-1714**	–	.248"	**878-201**	1"
3/8"	16		5/16"	.313"	–	–	–	–	**874-1705**	.315"	**878-209**	1"
3/8"		24	Q	.332"	–	–	–	**874-1715**	–	.315"	**878-203**	1"
7/16"	14		23/64"	.359"	–	–	–	–	**874-1706**	.248"	–	–
7/16"		20	25/64"	.391"	–	–	–	**874-1716**	–	.248"	–	–
1/2"	13		27/64"	.422"	–	–	–	–	**874-1707**	.280"	**878-210**	1-1/2"
1/2"		20	29/64"	.453"	–	–	–	**874-1717**	–	.280"	**878-204**	1-1/2"
9/16"	12		31/64"	.484"	**874-1723**	**874-1724**	**874-1725**	–	**874-1708**	.354"	–	–
9/16"		18	1/2"	.500"	–	**874-1738**	**874-1739**	**874-1718**	–	.354"	–	–
5/8"	11		17/32"	.531"	**874-1726**	**874-1727**	**874-1728**	–	**874-1709**	.394"	**878-211**	1-1/2"
5/8"		18	9/16"	.563"	–	**874-1740**	**874-1741**	**874-1719**	–	.394"	**878-205**	1-1/2"
3/4"	10		21/32"	.656"	**874-1729**	**874-1730**	**874-1731**	–	**874-1710**	.441"	**878-212**	2"
3/4"		16	11/16"	.688"	–	**874-1742**	**874-1743**	**874-1720**	–	.441"	**878-206**	2"
7/8"	9		49/64"	.766"	**874-1732**	**874-1733**	**874-1734**	–	**874-1711**	.492"	–	–
7/8"		14	13/16"	.813"	–	**874-1744**	**874-1745**	**874-1721**	–	.492"	–	–
1"	8		7/8"	.875"	**874-1735**	**874-1736**	**874-1737**	–	**874-1712**	.551"	–	–
1"		12	29/32"	.906"	–	**874-1746**	**874-1747**	**874-1722**	–	.551"	–	–
					Unit Package - 1 Only			*Unit. Pkg. 1 Set*			*Unit. Pkg. 1*	

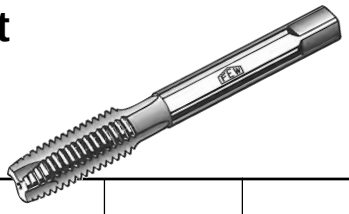
P

SHORT MACHINE TAPS - Spiral Point

High Speed Steel - Steam Tempered

U.N.C. (Coarse) and U.N.F. (Fine) INCH THREADS

RIGHT HAND THREADS (All other dimensions in millimetres.)



(Dia.) SIZE Inch	U.N.C. Coarse Threads Per Inch	U.N.C. Coarse SPAENAUR No.	U.N.F. Fine Threads Per Inch	U.N.F. Fine SPAENAUR No.	Normal Dia. mm	Shank Dia. mm	Thread Lgth. (max.) mm	Overall Length mm	Square A/F mm
4	40	**874-465**	-	**-**	2.845	3.15	11	48	2.5
5	40	**874-466**	-	**-**	3.175	3.15	11	48	2.5
6	32	**874-467**	40	**874-474**	3.505	3.55	13	50	2.8
8	32	**874-468**	36	**874-475**	4.166	4.5	13	53	3.55
10	24	**874-469**	32	**874-476**	4.826	5.0	16	58	4.0
12	24	**874-470**	28	**874-477**	5.486	5.6	17	62	4.5
1/4"	20	**874-471**	28	**874-478**	6.350	6.3	19	66	5.0
5/16"	18	**874-472**	24	**874-479**	7.938	8.0	22	72	6.3
3/8"	16	**874-473**	24	**874-482**	9.525	10.0	24	80	8.0

All Taps Priced Singly.

CATALOG 13

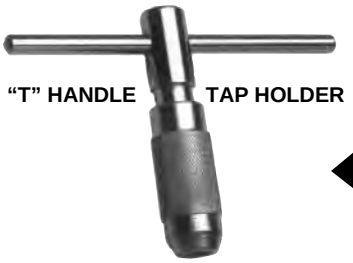
DIE STOCKS FOR ROUND SPLIT DIES

Will fit Metric and Inch Dies
as featured on pages P80 to P82 and P93.

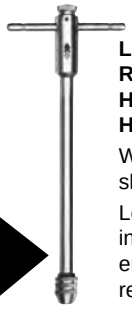
SPAENAUR No.	Approx. LENGTH		O.D. OF DIES
	Inch	mm	
877-022	7-1/8"	180 mm	13/16"
877-023	8-1/2"	216 mm	1"
877-024	10"	254 mm	1-5/16"
877-025	12-1/4"	311 mm	1-1/2"
877-026	20"	508 mm	2"

T-TYPE TAP WRENCHES

Polished chrome and black finish.



SPAENAUR No.	Approx. LENGTH		For Thread Dia. CAPACITY (IN INCHES)
	Inch	mm	
877-027	2-3/4"	70 mm	1/8" - 1/4"
877-028	4"	102 mm	1/4" - 1/2"
877-064	10"	250 mm	1/8" - 1/4"
877-065	11-3/4"	300 mm	7/32" - 1/2"



LONG SHANK RATCHET "T" HANDLE TAP HOLDER

With 2-jaw knurled chuck & slip handle.

Long shank permits tapping in difficult places often encountered in machine repair work.

STRAIGHT TAP WRENCHES

SPAENAUR No.	RANGE CAPACITY		
	Inch	Metric	Pipe
877-033	1/16" - 1/4"	M1 - M8	—
877-035	5/32" - 1/2"	M3.5 - M12	1/8" - 1/4"
877-036	7/32" - 3/4"	M5 - M20	1/8" - 3/8"
877-037	7/16" - 1"	M9 - M27	1/8" - 1/2"
877-038	3/4" - 1-1/2"	M18 - M42	3/8" - 1-1/4"
877-039	1" - 2-1/8"	M25 - M50	3/4" - 2"
877-040	1-1/4" - 2-1/2"	M32 - M63	1" - 2-1/2"

P

INCH and METRIC THREADING TOOL KITS

High Speed Steel supplied in strong wooden cases.

Kits are not carried as stock items. Please allow 2-3 weeks for delivery.

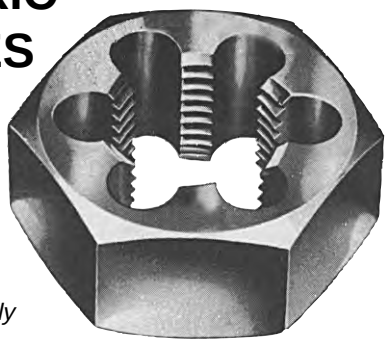
Each set contains: 1 set of 2 taps per size (taper and bottom) and 1 corresponding die and appropriate tap wrench

SPAENAUR No.	Thread Form	Size	Tap Wrenches	Die Stocks
878-193	UNC	1/4, 5/16, 3/8, 7/16, 1/2"	No. 2	1", 1-5/16"
878-194	UNF	1/4, 5/16, 3/8, 7/16, 1/2"	No. 2	1", 1-5/16"
878-195	UNC	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4"	No. 2, 3	1", 1-5/16", 2"
878-196	UNF	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4"	No. 2, 3	1", 1-5/16", 2"
878-197	UNC	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 9/16, 3/4, 7/8, 1"	No. 2, 4	1-1/2", 2"
878-198	UNF	1/4, 5/16, 3/8, 7/16, 1/2, 5/8, 3/4, 7/8, 1"	No. 2, 4	1", 1-5/16", 2"
878-672	MM Coarse	M2, M2.5, M3, M3.5, M4, M5, M6	No. 1	13/16"
878-673	MM Coarse	M6, M7, M8, M9, M10, M11, M12	No. 2	1", 1-5/16"
878-674	MM Coarse	M6, M8, M10, M12, M14, M16, M18, M20, M22, M24	No. 2, 4	1", 1-5/16", 2"

CATALOG 13

ALL ITEMS ON THIS PAGE
PRICED SINGLY.

METRIC SIZES



Metric
COARSE
Thread

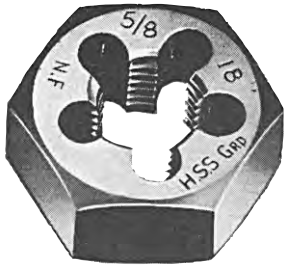
Priced Singly

HIGH SPEED STEEL ISO METRIC HEXAGON RETHREADING DIES
STANDARD PITCH - RIGHT HAND

FOR REPAIRING DAMAGED OR RUSTY THREADS

SPAENAUR No.	METRIC SIZE and PITCH	*SPAENAUR No.*	METRIC SIZE and PITCH
878-640	M6 x 1.0	**878-647**	M14 x 2.0
878-641	M7 x 1.0	**878-648**	M16 x 2.0
878-642	M8 x 1.25	**878-649**	M18 x 2.5
878-643	M9 x 1.25	**878-650**	M20 x 2.5
878-644	M10 x 1.5	**878-651**	M22 x 2.5
878-645	M11 x 1.5	**878-652**	M24 x 3.0
878-646	M12 x 1.75		

INCH SIZES



FOR REPAIRING
DAMAGED OR
RUSTY THREADS

Priced Singly

High Speed Steel - HEXAGON RETHREADING DIES
U.N.C. or U.N.F. - Right Hand

U.N.C. COARSE		U.N.F. FINE	
SPAENAUR No.	SIZE	*SPAENAUR No.*	SIZE
878-160	1/4"-20	**878-175**	1/4"-28
878-161	5/16"-18	**878-176**	5/16"-24
878-162	3/8"-16	**878-177**	3/8"-24
878-163	7/16"-14	**878-178**	7/16"-20
878-164	1/2"-13	**878-179**	1/2"-20
878-165	9/16"-12	**878-180**	9/16"-18
878-166	5/8"-11	**878-181**	5/8"-18
878-167	11/16"-11(NS)	**878-182**	11/16"-16(NS)
878-168	3/4"-10	**878-183**	3/4"-16
878-169	7/8"-9	**878-184**	7/8"-14
878-170	1"-8	**878-185**	1"-12
878-172	1-1/4"-7	**878-190**	1"-14(NS)
878-174	1-1/2"-6	**878-186**	1-1/8"-12
878-199	2"-4-1/2	**878-187**	1-1/4"-12
		878-188	1-3/8"-12
		878-189	1-1/2"-12

P

Inch and Metric
HEXAGON RETHREADING DIES
in wooden cased sets

High Speed Steel
Rethreading Dies

SPAENAUR No. **878-671** Metric Coarse Thread 10 Dies	*SPAENAUR No.* **878-191** Inch - U.N.C. Coarse Thread 10 Dies	*SPAENAUR No.* **878-192** Inch - U.N.F. Fine Thread 11 Dies
M6 x 1 mm	1/4"-20	1/4"-28
M8 x 1.25 mm	5/16"-18	5/16"-24
M10 x 1.5 mm	3/8"-16	3/8"-24
M12 x 1.75 mm	7/16"-14	7/16"-20
M14 x 2 mm	1/2"-13	1/2"-20
M16 x 2 mm	9/16"-12	9/16"-18
M18 x 2.5 mm	5/8"-11	5/8"-18
M20 x 2.5 mm	3/4"-10	3/4"-16
M22 x 2.5 mm	7/8"-9	7/8"-14
M24 x 3 mm	1"-8	1"-12
		1"-14NS
	Priced Singly	

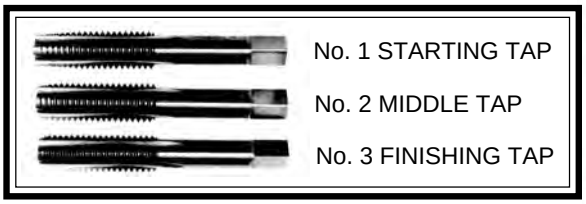
CATALOG 13

STRAIGHT FLUTE METRIC TAPS

ISO 529

METRIC COARSE THREAD
RIGHT HAND
HIGH SPEED STEEL
GROUND THREAD

Straight Flute Taps are available single or in sets.



Spiral Flute

Spiral Point

Note: Taps No. 1, No. 2 & No. 3 are commonly referred to as TAPER, PLUG & BOTTOMING TAPS.

Nominal DIA. mm	PITCH mm	Tap Square End A/F mm	Recommended DRILL mm	#1 Starting Tap *SPAENAUR No.*	#2 Middle Tap *SPAENAUR No.*	#3 Finishing Tap *SPAENAUR No.*	Set of 3 Taps *SPAENAUR No.*	Spiral Point *SPAENAUR No.*	Spiral Flute *SPAENAUR No.*
M1	0.25	2	0.75	**874-1193**	**874-1207**	**874-1220**	**874-1179**	—	—
M1.1	0.25	2	0.85	**874-1194**	**874-1208**	**874-1221**	**874-1180**	—	—
M1.2	0.25	2	0.95	**874-1195**	**874-1209**	**874-1222**	**874-1181**	—	—
M1.4	0.3	2	1.1	**874-1196**	**874-1210**	**874-1223**	**874-1182**	—	—
M1.5	0.35	2	1.1	**874-1233**	**874-1243**	**874-1241**	**874-1177**	—	—
M1.6	0.35	2	1.25	**874-600**	**874-700**	**874-800**	**874-900**	—	—
M1.7	0.35	2	1.35	**874-601**	**874-701**	**874-801**	**874-901**	—	—
M1.8	0.35	2	1.45	**874-1197**	**874-1211**	**874-1224**	**874-1183**	—	—
M2	0.4	2	1.6	**874-602**	**874-702**	**874-802**	**874-902**	**874-1485**	—
M2.2	0.45	2.24	1.75	**874-1198**	**874-1212**	**874-1225**	**874-1184**	—	—
M2.3	0.4	2.24	1.9	**874-603**	**874-703**	**874-803**	**874-903**	—	—
M2.5	0.45	2.24	2.05	**874-604**	**874-704**	**874-804**	**874-904**	**874-1486**	—
M2.6	0.45	2.24	2.15	**874-605**	**874-705**	**874-805**	**874-905**	—	—
M3	0.5	2.5	2.5	**874-606**	**874-706**	**874-806**	**874-906**	**874-1487**	**874-1507**
M3.5	0.6	2.8	2.9	**874-607**	**874-707**	**874-807**	**874-907**	**874-1488**	—
M4	0.7	3.15	3.3	**874-608**	**874-708**	**874-808**	**874-908**	**874-1489**	**874-1508**
M4	0.75	3.15	3.25	—	**874-1247**	—	—	—	—
M4.5	0.75	3.55	3.75	**874-609**	**874-709**	**874-809**	**874-909**	**874-1490**	—
M5	0.8	4	4.2	**874-610**	**874-710**	**874-810**	**874-910**	**874-1491**	**874-1509**
M5.5	0.9	4.5	4.6	—	—	**874-1246**	**874-1178**	—	—
M6	1.0	5	5	**874-611**	**874-711**	**874-811**	**874-911**	**874-1492**	**874-1510**
M6.3	1.0	—	5.3	**874-612**	**874-712**	**874-812**	**874-912**	—	—
M7	1.0	5.6	6	**874-613**	**874-713**	**874-813**	**874-913**	**874-1493**	—
M8	1.25	6.3	6.75	**874-614**	**874-714**	**874-814**	**874-914**	**874-1494**	**874-1511**
M9	1.25	7.1	7.75	**874-615**	**874-715**	**874-815**	**874-915**	—	—
M10	1.5	8	8.5	**874-616**	**874-716**	**874-816**	**874-916**	**874-1495**	**874-1512**
M11	1.5	6.3	9.5	**874-1199**	**874-1213**	**874-1226**	**874-1185**	—	—
M12	1.75	7.1	10.2	**874-617**	**874-717**	**874-817**	**874-917**	**874-1496**	**874-1513**
M14	2.0	9	12	**874-618**	**874-718**	**874-818**	**874-918**	**874-1497**	**874-1514**
M16	2.0	10	14	**874-619**	**874-719**	**874-819**	**874-919**	**874-1498**	**874-1515**
M18	2.5	11.2	15.5	**874-620**	**874-720**	**874-820**	**874-920**	**874-1499**	**874-1516**
M20	2.5	11.2	17.5	**874-621**	**874-721**	**874-821**	**874-921**	**874-1500**	**874-1517**
M22	2.5	12.5	19.5	**874-622**	**874-722**	**874-822**	**874-922**	**874-1501**	**874-1518**
M24	3.0	14	21	**874-623**	**874-723**	**874-823**	**874-923**	**874-1502**	**874-1519**
M27	3.0	16	24	**874-624**	**874-724**	**874-824**	**874-924**	**874-1503**	—
M30	3.5	16	26.5	**874-625**	**874-725**	**874-825**	**874-925**	**874-1504**	**874-1520**
M33	3.5	18	29.5	**874-1200**	**874-1214**	**874-1227**	**874-1187**	**874-1505**	—
M36	4.0	20	32	**874-626**	**874-726**	**874-826**	**874-926**	**874-1506**	—
M39	4.0	22.4	35	**874-1201**	**874-1215**	**874-1228**	**874-1188**	—	—
M42	4.5	22.4	37.5	**874-1203**	**874-1216**	**874-1229**	**874-1189**	—	—
M45	4.5	25	40.5	**874-1204**	**874-1217**	**874-1230**	**874-1190**	—	—
M48	5.0	25	43	**874-1205**	**874-1218**	**874-1231**	**874-1191**	—	—
M52	5.0	28	47	**874-1206**	**874-1219**	**874-1232**	**874-1192**	—	—
M64	6	31.5	58	—	**874-1240**	—	—	—	—

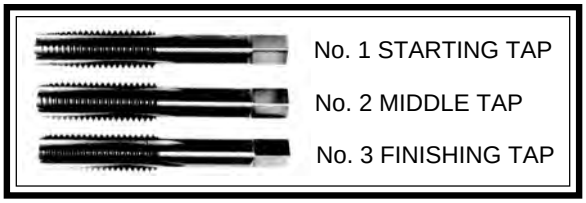
All Taps Priced Singly.

STRAIGHT FLUTE METRIC TAPS

ISO 529

METRIC FINE THREAD
RIGHT HAND
HIGH SPEED STEEL
GROUND THREAD

Straight Flute Taps are available single or in sets.



Note: Taps No. 1, No. 2 & No. 3 are commonly referred to as TAPER, PLUG & BOTTOMING TAPS.

Spiral Point

Nominal DIA. mm	PITCH mm	Tap Square End A/F mm	Recommended DRILL mm	#1 Starting Tap *SPAENAUR No.*	#2 Middle Tap *SPAENAUR No.*	#3 Finishing Tap *SPAENAUR No.*	Set of 2 Taps *SPAENAUR No.*	Spiral Point *SPAENAUR No.*
M2	0.25	2	1.75	**874-1300**	**—**	**874-1256**	**874-518**	**—**
M2.2	0.25	2.24	1.95	**—**	**—**	**—**	**874-500**	**—**
M2.5	0.35	2.24	2.15	**874-1301**	**—**	**874-1257**	**874-951**	**—**
M3	0.35	2.5	2.65	**874-1302**	**—**	**874-1258**	**874-952**	**—**
M3.5	0.35	2.8	3.15	**—**	**—**	**874-1259**	**874-501**	**—**
M4	0.5	3.15	3.5	**874-1303**	**—**	**874-1260**	**874-953**	**—**
M5	0.5	4	4.5	**874-1304**	**—**	**874-1261**	**874-954**	**—**
***M5**	0.75	4	4.25	**874-1645**	**874-1248**	**874-1262**	**874-503**	**874-1521**
***M6**	0.5	5	5.5	**874-1305**	**—**	**874-1263**	**874-1141**	**—**
M6	0.75	5	5.25	**874-1306**	**—**	**874-1264**	**874-1142**	**874-1523**
M7	0.75	5.6	6.25	**874-1661**	**874-1662**	**874-1663**	**874-504**	**—**
M8	0.75	6.3	7.25	**874-1307**	**874-1249**	**874-1265**	**874-1143**	**—**
M8	1.0	6.3	7	**874-1308**	**874-1242**	**874-1266**	**874-1144**	**874-1524**
M9	1.0	7.1	8	**—**	**—**	**—**	**874-505**	**—**
***M10**	0.75	8	9.25	**874-1309**	**—**	**874-1267**	**874-1145**	**—**
▲M10	1.0	8	9	**874-1310**	**—**	**874-1268**	**874-1146**	**874-1525**
M10	1.25	8	8.75	**874-1311**	**—**	**874-1269**	**874-1147**	**874-1526**
***M11**	1.0	6.30	10	**874-1659**	**—**	**874-1270**	**874-506**	**—**
***M11**	1.25	6.30	9.75	**874-1312**	**—**	**874-1271**	**874-1148**	**—**
M12	1.0	7.1	11	**874-1313**	**—**	**874-1272**	**874-1149**	**—**
▲M12	1.25	7.1	10.75	**874-1314**	**874-1250**	**874-1273**	**874-1150**	**874-1650**
M12	1.5	7.1	10.5	**874-1315**	**—**	**874-1274**	**874-1151**	**874-1527**
M14	1.0	9	13	**—**	**874-1251**	**874-1275**	**874-507**	**—**
▲M14	1.25	1.25	12.75	**874-1316**	**874-1252**	**874-1276**	**874-1153**	**874-1528**
M14	1.5	9	12.5	**874-1317**	**—**	**874-1277**	**874-1154**	**874-1529**
M16	1.0	10	15	**874-1318**	**874-1253**	**874-1278**	**874-1155**	**—**
M16	1.5	10	14.5	**874-1319**	**—**	**874-1279**	**874-1156**	**874-1530**
M18	1.0	11.2	17.0	**874-1667**	**—**	**—**	**—**	**—**
M18	1.25	11.2	16.75	**874-1320**	**—**	**—**	**874-509**	**—**
▲M18	1.5	11.2	16.50	**874-1321**	**—**	**874-1280**	**874-1157**	**874-1531**
M18	2.0	11.2	16	**874-1322**	**—**	**874-1281**	**874-1158**	**—**
M20	1.0	11.2	19	**874-1323**	**—**	**874-1282**	**874-1159**	**—**
M20	1.5	11.2	18.5	**874-1324**	**—**	**874-1283**	**874-1160**	**874-1532**
M20	2.0	11.2	18	**874-1325**	**—**	**874-1284**	**874-1161**	**—**
M22	1.5	12.5	20.5	**874-1326**	**874-1660**	**874-1285**	**874-1162**	**—**
M22	2.0	12.2	20	**874-1327**	**—**	**874-1286**	**874-1163**	**—**
M24	1.5	14	22.5	**874-1328**	**—**	**874-1287**	**874-1164**	**874-554**
M24	2.0	14	22	**874-1329**	**—**	**874-1288**	**874-1165**	**—**
M26	1.5	14.5	24.5	**874-008**	**874-009**	**—**	**—**	**—**
M27	1.5	16	25.5	**874-1330**	**—**	**874-1289**	**874-1166**	**—**
M27	2.0	16	25	**874-1331**	**—**	**874-1290**	**874-1167**	**—**
M28	1.5	16	26.5	**874-1332**	**—**	**874-1291**	**874-1168**	**—**
M30	1.5	16	28.5	**874-1333**	**—**	**874-1292**	**874-1169**	**—**
M30	2.0	16	28	**874-1334**	**874-1655**	**874-1293**	**874-1170**	**—**
M30	3.0	16	27	**874-1335**	**—**	**874-1294**	**874-1171**	**—**
M32	1.5	16	30.5	**—**	**874-535**	**—**	**874-516**	**—**
M33	1.5	18	31.5	**874-1336**	**874-1254**	**874-1295**	**874-1172**	**—**
M33	2.0	18	31	**874-1337**	**—**	**874-1296**	**874-1173**	**—**
***M34**	1.5	18	32.5	**874-1640**	**—**	**874-1641**	**874-517**	**—**
M36	1.5	20	34.5	**874-1338**	**—**	**874-1297**	**874-1174**	**—**
M36	2.0	20	34	**874-1339**	**—**	**874-1298**	**874-1175**	**—**
M36	3.0	20	33	**874-1340**	**874-1152**	**874-1299**	**874-1176**	**—**
***M38**	1.5	22.4	36.5	**—**	**874-1255**	**—**	**—**	**—**

P

CATALOG 13

SPAENAUR

* Not to ISO Metric Fine Standards
▲ Spark Plug

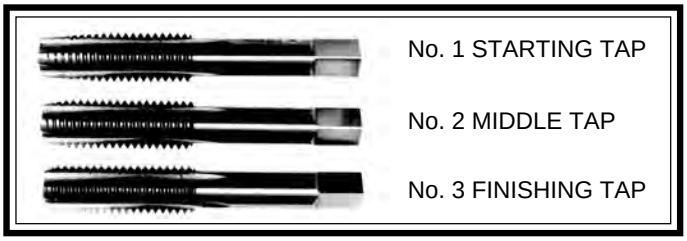
All Taps Priced Singly.

STRAIGHT FLUTE METRIC TAPS

ISO 529

METRIC COARSE THREAD
LEFT HAND
HIGH SPEED STEEL
GROUND THREAD

Straight Flute Taps are available single or in sets.



Note: Taps No. 1, No. 2 & No. 3 are commonly referred to as TAPER, PLUG & BOTTOMING TAPS.

All Taps Priced Singly.

Nominal DIA. mm	PITCH mm	Tap Square End A/F mm	Recommended DRILL mm	#1 Starting Tap *SPAENAUR No.*	#2 Middle Tap *SPAENAUR No.*	#3 Finishing Tap *SPAENAUR No.*	Set of 3 Taps *SPAENAUR No.*
M3	0.5	2.5	2.5	**874-1341**	**874-1353**	**874-1363**	**874-1388**
M4	0.7	3.15	3.3	**874-1342**	**874-1354**	**874-1364**	**874-1389**
M5	0.8	4	4.2	**874-1343**	**874-1355**	**874-1365**	**874-1390**
M6	1.0	5	5	**874-1344**	**874-1356**	**874-1366**	**874-1391**
M8	1.25	6.3	6.75	**874-1345**	**874-1357**	**874-1367**	**874-1392**
M10	1.5	8	8.5	**874-1346**	**874-1358**	**874-1368**	**874-1393**
M12	1.75	7.1	10.2	**874-1347**	**874-1359**	**874-1369**	**874-1394**
M14	2.0	9	12	**874-1348**	**—**	**874-1370**	**—**
M16	2.0	10	14	**874-1349**	**874-1360**	**874-1371**	**874-1395**
M18	2.5	11.2	15.5	**874-1350**	**—**	**—**	**—**
M20	2.5	11.2	17.5	**874-1351**	**874-1361**	**874-1372**	**874-1396**
M24	3.0	14	21	**874-1352**	**874-1362**	**874-1373**	**874-1397**

LEFT HAND METRIC FINE THREAD

Nominal DIA. mm	PITCH mm	Tap Square End A/F mm	Recommended DRILL mm	#1 Starting Tap *SPAENAUR No.*	#2 Middle Tap *SPAENAUR No.*	#3 Finishing Tap *SPAENAUR No.*	Set of 2 Taps *SPAENAUR No.*
M8	1.0	6.3	7	**—**	**—**	**874-1625**	**874-1376**
M10	1.0	8	9	**—**	**—**	**874-1382**	**874-1377**
M12	1.0	7.1	11	**874-1652**	**874-1653**	**—**	**—**
M12	1.5	7.1	10.5	**—**	**—**	**874-1383**	**874-1378**
M14	1.5	9	12.5	**—**	**—**	**874-1374**	**—**
M16	1.5	10	14.5	**—**	**—**	**874-1384**	**874-1379**
M20	1.5	11.2	18.5	**—**	**—**	**874-1385**	**874-1380**
M24	1.5	14	22.5	**—**	**874-1387**	**874-1386**	**874-1381**

SPECIALTY TOOLS & FASTENERS DISTRIBUTORS ASSOCIATION
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P

STRAIGHT FLUTE METRIC TAPS

ISO 529

METRIC COARSE THREAD
RIGHT HAND
CARBON STEEL

Straight Flute Taps are available single or in sets.

Note: Taps No. 1, No. 2 & No. 3 are commonly referred to as TAPER, PLUG & BOTTOMING TAPS.

Nominal DIA. mm	PITCH mm	Tap Square End A/F mm	Recommended DRILL mm	#1 Starting Tap *SPAENAUR No.*	#2 Middle Tap *SPAENAUR No.*	#3 Finishing Tap *SPAENAUR No.*	Set of 3 Taps *SPAENAUR No.*
M2.3	0.4	2.24	1.9	**—**	**874-1412**	**—**	**874-1433**
M3	0.5	2.5	2.5	**—**	**—**	**—**	**—**
M3.5	0.6	2.8	2.9	**874-1399**	**874-1414**	**—**	**—**
M4.5	0.75	3.55	3.75	**874-1401**	**—**	**874-1426**	**874-1436**
M7	1.0	5.6	6	**—**	**874-1417**	**874-1427**	**—**
M9	1.25	7.1	7.75	**874-1405**	**874-1418**	**874-1428**	**—**
M18	2.5	11.2	15.5	**—**	**—**	**—**	**874-1443**
M33	3.5	18	29.5	**—**	**—**	**—**	**874-1448**

STRAIGHT FLUTE TAPS - RIGHT HAND

METRIC FINE THREAD
CARBON STEEL

Nominal DIA. mm	PITCH mm	Tap Square End A/F mm	Recommended DRILL mm	#1 Starting Tap *SPAENAUR No.*	#2 Middle Tap *SPAENAUR No.*	#3 Finishing Tap *SPAENAUR No.*	Set of 2 Taps *SPAENAUR No.*
M9	1.0	7.1	8	**874-1450**	**—**	**874-1454**	**—**
M24	1.5	14	22.5	**—**	**—**	**—**	**874-1456**

All Taps Priced Singly.

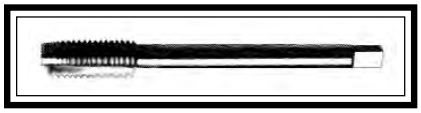
P

CATALOG 13

METRIC SPIRAL POINT, LONG REDUCED SHANK MACHINE TAPS

DIN 376

METRIC COARSE THREAD
RIGHT HAND
HIGH SPEED STEEL
GROUND THREAD



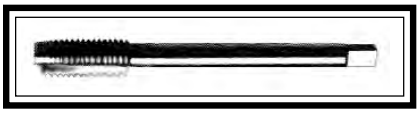
Spiral Point

Nominal DIA. mm	PITCH mm	Approx. Overall Lgth. mm	Thread Length (Max.) mm	Tap Square End A/F mm	Recom. DRILL mm	Spiral Point *SPAENAUR No.*
M3	0.5	56	13	—	2.5	**874-1572**
M3.5	0.6	56	13	2.1	2.9	**874-1573**
M4	0.7	63	13	2.1	3.3	**874-1574**
M5	0.8	70	16	2.7	4.2	**874-1575**
M6	1.0	80	19	3.4	5	**874-1576**
M7	1.0	80	19	4.3	6	**874-1577**
M8	1.25	90	22	4.9	6.75	**874-1578**
M9	1.25	90	22	5.5	7.75	**874-1579**
M10	1.5	100	24	5.5	8.5	**874-1580**
M11	1.5	100	25	6.2	9.5	**874-1581**
M12	1.75	110	29	7	10.2	**874-1582**
M14	2.0	110	30	9	12	**874-1583**
M16	2.0	110	32	9	14	**874-1584**
M18	2.5	125	37	11	15.5	**874-1585**
M20	2.5	140	37	12	17.5	**874-1586**
M22	2.5	140	38	14.5	19.5	**874-1587**
M24	3.0	160	45	14.5	21	**874-1588**

METRIC SPIRAL POINT, LONG REDUCED SHANK MACHINE TAPS

DIN 374

METRIC FINE THREAD
RIGHT HAND
HIGH SPEED STEEL
GROUND THREAD



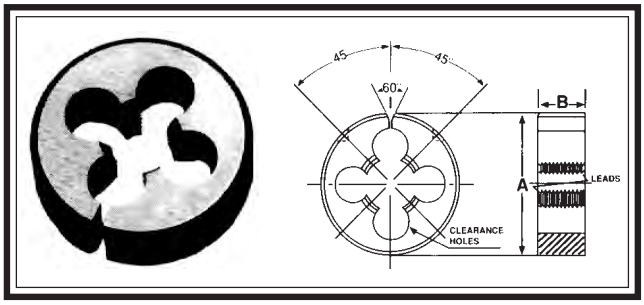
Spiral Point

Spiral Flute

Nominal DIA. mm	PITCH mm	Approx. Overall Lgth. mm	Thread Length (Max.) mm	Tap Square End A/F mm	Recom. DRILL mm	Spiral Point *SPAENAUR No.*	Spiral Flute *SPAENAUR No.*
M6	0.75	80	14	3.4	5.25	—	**874-1549**
M8	1.0	90	22	4.9	7	**874-1565**	**874-1550**
M10	1.0	90	20	5.5	9	**874-1566**	**874-1551**
M10	1.25	100	24	5.5	8.75	**874-1567**	**874-1552**
M12	1.25	100	22	7	10.75	—	**874-1553**
M12	1.5	100	22	7	10.5	**874-1568**	**874-1554**
M14	1.25	100	22	9	12.75	—	**874-1555**
M14	1.5	100	22	9	12.5	**874-1569**	**874-1556**
M16	1.5	100	22	9	14.5	**874-1570**	**874-1557**
M20	1.5	125	25	12	18.5	**874-1571**	**874-1558**
M24	1.5	140	28	14.5	22.5	—	**874-1559**

All Taps Priced Singly.

PARALLEL THREAD PIPE TAP, 55° THREAD ANGLE
BSP MECHANICAL JOINT TYPE G - RIGHT HAND
STRAIGHT FLUTE FINISHING TAPS
HIGH SPEED STEEL
GROUND THREAD



Dies split or solid, our option.

#3 Finishing Taps *SPAENAUR No.*	SIZE Inch	PITCH TPI	Tap Square End A/F (mm)	Recommended Drill (mm)	*ROUND DIES *SPAENAUR No.*	Die O.D. (mm)	Thick-ness (mm)
874-1457	G 1/8	28	6.3	8.8	**878-924**	30	11
874-1458	G 1/4	19	8	11.8	**878-925**	38	10
874-1459	G 3/8	19	10	15.25	**878-926**	45	14
874-1460	G 1/2	14	12.5	19	**878-927**	45	14
874-1461	G 5/8	14	14	21	**878-928**	55	16
874-1462	G 3/4	14	16	24.5	**878-929**	55	16
874-1463	G 7/8	14	18	28.25	**878-930**	65	18
874-1464	G 1	11	20	30.50	**878-931**	65	18

*These dies are suitable for BSP Type G and Type RP threads.

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PARALLEL THREAD PIPE TAP, 55° THREAD ANGLE
BSP LEAK PROOF JOINT TYPE RP - RIGHT HAND
STRAIGHT FLUTE FINISHING TAPS
HIGH SPEED STEEL
GROUND THREAD

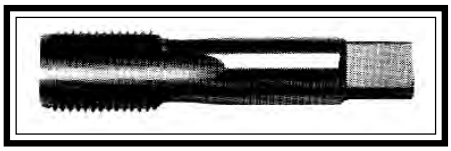
#3 Finishing Taps *SPAENAUR No.*	SIZE Inch	PITCH TPI	Tap Square End A/F (mm)	Recommended DRILL (mm)
874-1465	RP 1/8	28	6.3	8.6
874-1466	RP 1/4	19	8	11.5
874-1467	RP 3/8	19	10	15
874-1468	RP 1/2	14	12.5	18.5
874-1469	RP 3/4	14	16	24
874-1470	RP 1	11	20	30.50

For dies see above.

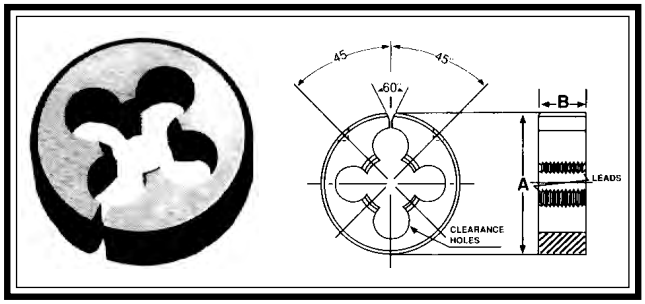
CONICAL THREAD PIPE TAP, 55° THREAD ANGLE

BSPT 1:16 TAPER TYPE RC - RIGHT HAND

HIGH SPEED STEEL
GROUND THREAD



TAPERED THREAD



Dies split or solid, our option.

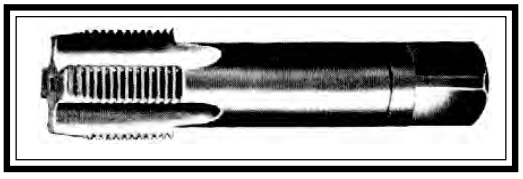
SIZE Inch	PITCH TPI	Tap Square End A/F (mm)	Recommended DRILL (mm)	#2 Middle Tap *SPAENAUR No.*	#3 Finishing Tap *SPAENAUR No.*	ROUND DIES *SPAENAUR No.*	Die O.D. (mm)	THICK-NESS (mm)
RC 1/8	28	6.3	8.6	**874-387**	**874-1471**	**878-932**	30	11
RC 1/4	19	8	11.5	**874-386**	**874-1472**	**878-933**	38	14
RC 3/8	19	10	15	**874-007**	**874-1473**	**878-934**	45	14
RC 1/2	14	12.5	18.5	—	**874-1474**	—	45	18
RC 3/4	14	16	24	—	**874-1475**	**878-936**	55	22
RC 1	11	20	30.50	—	**874-1476**	**878-937**	65	25

GERMAN PIPE THREAD TYPE PG

CONDUIT PARALLEL, 80° THREAD ANGLE

RIGHT HAND FINISHING TAPS

HIGH SPEED STEEL
GROUND THREAD



#1 Starting Taps *SPAENAUR No.*	#3 Finishing Taps *SPAENAUR No.*	SIZE (Diameter mm)	Recommended DRILL (mm)	PITCH TPI	ROUND DIES *SPAENAUR No.*	Die O.D. (mm)	THICK-NESS (mm)
874-1668	**874-1477**	PG-7 (12.5)	11.3	20	**878-938**	38	10
874-1669	**874-1478**	PG-9 (15.2)	13.75	18	**878-939**	38	10
874-1670	**874-1479**	PG-11 (18.6)	17.3	18	**878-940**	45	14
874-1671	**874-1480**	PG-13.5 (20.4)	19	18	**878-941**	45	14
874-1672	**874-1481**	PG-16 (22.5)	21	18	**878-942**	55	16
874-1673	**874-1482**	PG-21 (28.3)	27.5	16	**878-943**	65	18
874-1674	**874-1483**	PG-29 (37)	36	16	**878-944**	65	18
874-1675	**874-1484**	PG-36 (47)	46	16	**878-945**	90	22

P

CATALOG 13

All Items This Page
Priced Singly.

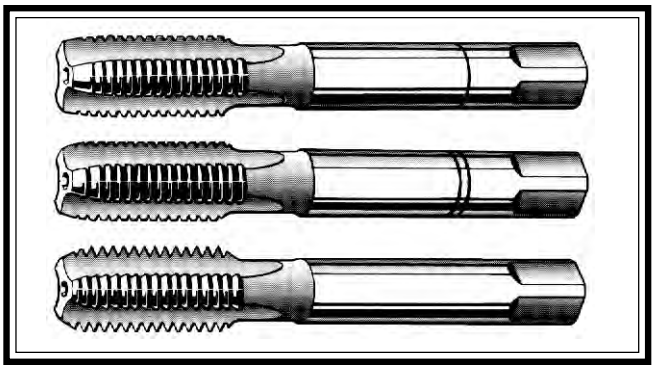
METRIC HAND TAPS ONLY

STRAIGHT FLUTE - RIGHT HAND

METRIC COARSE THREAD

HIGH SPEED STEEL

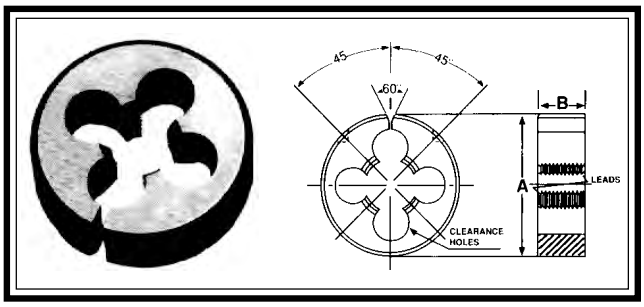
GROUND THREAD



Straight flute taps with a progressive thread form on each successive tap. Serial sets are suitable for deep through and blind holes, and are recommended for precision tapping in tough materials. Three taps per set. These taps should not be used individually or by machine.

Nominal DIA. mm	PITCH mm	Tap Square End A/F	Recommended DRILL mm	Set of 3 Taps *SPAENAUR No.*
M3	0.5	2.5	2.5	**874-1534**
M4	0.7	3.15	3.3	**874-1535**
M5	0.8	4	4.2	**874-1536**
M6	1.0	5	5	**874-1537**
M7	1.0	5.6	6	**874-1546**
M8	1.25	6.3	6.75	**874-1538**
M9	1.25	7.1	7.75	**874-1547**
M10	1.5	8	8.5	**874-1539**
M11	1.5	6.3	9.5	**874-1548**
M12	1.75	7.1	10.2	**874-1186**
M14	2.0	9	12	**874-1540**
M16	2.0	10	14	**874-1541**
M18	2.5	11.2	15.5	**874-1542**
M20	2.5	11.2	17.5	**874-1543**
M22	2.5	12.5	19.5	**874-1544**
M24	3.0	14	21	**874-1545**

All Serial Sets Priced Singly.



METRIC ROUND DIES WITH INCH O.D.

RIGHT HAND
METRIC COARSE THREAD
HIGH SPEED STEEL
GROUND THREAD

Dies split or solid, our option.

SPAENAUR No.	SIZE mm	PITCH mm	O.D. Inch	THICKNESS Inch
878-600	**M1.6**	0.35	13/16"	1/4"
878-601	**M1.7**	0.35	13/16"	1/4"
878-602	**M2**	0.4	13/16"	1/4"
878-603	**M2.3**	0.4	13/16"	1/4"
878-604	**M2.5**	0.45	13/16"	1/4"
878-605	**M2.6**	0.45	13/16"	1/4"
878-606	**M3**	0.5	13/16"	1/4"
878-607	**M3.5**	0.6	13/16"	1/4"
878-608	**M4**	0.7	13/16"	1/4"
878-609	**M4.5**	0.75	13/16"	1/4"
878-610	**M5**	0.8	13/16"	1/4"
878-611	**M6**	1.0	13/16"	1/4"
878-612	**M6.3**	1.0	13/16"	1/4"
878-614	**M8**	1.25	1"	3/8"
878-615	**M9**	1.25	1"	3/8"
878-616	**M10**	1.5	1"	3/8"
878-617	**M12**	1.75	1-5/16"	7/16"
878-695	**M12**	1.75	2"	5/8"
***878-796**	**M12**	1.75	2"	5/8"
878-618	**M14**	2.0	1-1/2"	1/2"
878-696	**M14**	2.0	2"	5/8"
878-619	**M16**	2.0	1-1/2"	1/2"
878-697	**M16**	2.0	2"	5/8"
878-620	**M18**	2.5	2"	5/8"
***878-798**	**M18**	2.5	2"	5/8"
878-621	**M20**	2.5	2"	5/8"
***878-799**	**M20**	2.5	2"	5/8"
878-622	**M22**	2.5	2"	5/8"
878-623	**M24**	3.0	2"	5/8"

*Carbon Steel

METRIC ROUND DIES

DIN 223

RIGHT HAND
METRIC COARSE THREAD
HIGH SPEED STEEL
GROUND THREAD

SPAENAUR No.	SIZE mm	PITCH mm	O.D. mm	THICKNESS mm
878-712	**M1**	0.25	16	5
878-713	**M1.1**	0.25	16	5
878-714	**M1.2**	0.25	16	5
878-715	**M1.4**	0.3	16	5
878-814	**M1.5**	0.35	16	5
878-716	**M1.6**	0.35	16	5
878-815	**M1.7**	0.35	16	5
878-717	**M1.8**	0.35	16	5
878-718	**M2**	0.4	16	5
878-719	**M2.2**	0.45	16	5
878-817	**M2.3**	0.4	16	5
878-720	**M2.5**	0.45	16	5
878-816	**M2.6**	0.45	16	5
878-721	**M3**	0.5	20	5
878-755	**M3**	0.5	25	9
878-722	**M3.5**	0.6	20	5
878-723	**M4**	0.7	20	5
878-756	**M4**	0.7	25	9
878-724	**M4.5**	0.75	20	7
878-725	**M5**	0.8	20	7
878-819	**M5.5**	0.90	20	7
878-726	**M6**	1.0	20	7
878-758	**M6**	1.0	25	9
878-727	**M7**	1.0	25	9
878-728	**M8**	1.25	25	9
878-729	**M9**	1.25	25	9
878-760	**M10**	1.5	25	9
878-730	**M10**	1.5	30	11
878-731	**M11**	1.5	30	11
878-761	**M12**	1.75	25	9
878-732	**M12**	1.75	38	14
878-762	**M12**	1.75	45	18
878-733	**M14**	2.0	38	14
878-763	**M14**	2.0	45	18
878-734	**M16**	2.0	45	18
878-735	**M18**	2.5	45	18
878-736	**M20**	2.5	45	18
878-737	**M22**	2.5	55	22
878-768	**M24**	3.0	45	18
878-738	**M24**	3.0	55	22
878-739	**M27**	3.0	65	25
878-740	**M30**	3.5	65	25
878-741	**M33**	3.5	65	25
878-965	**M36**	4.0	65	20
878-742	**M36**	4.0	65	25
878-743	**M39**	4.0	75	30
878-744	**M42**	4.5	75	30
878-745	**M45**	4.5	90	36
878-746	**M48**	5.0	90	36
878-747	**M52**	5.0	90	36

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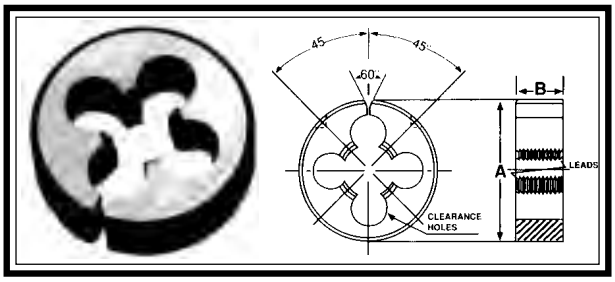
All Dies Priced Singly.

RIGHT HAND DIES



DIN 223

METRIC FINE AND COARSE THREAD

Dies split or solid, our option.

METRIC FINE THREAD
HIGH SPEED STEEL
GROUND THREAD

SPAENAUR No.	SIZE mm	PITCH mm	O.D. mm	THICKNESS mm
878-820	**M2.2**	0.25	16	5
878-821	**M3**	0.35	20	5
878-822	**M3.5**	0.35	20	5
878-839	**M4**	0.5	20	5
878-825	**M5**	0.75	20	7
878-840	**M5**	0.5	20	5
878-841	**M6**	0.5	20	5
878-842	**M6**	0.75	20	7
878-824	**M7**	0.75	25	9
878-843	**M8**	0.75	25	9
878-844	**M8**	1.0	25	9
878-826	**M9**	1.0	25	9
878-845	**M10**	0.75	30	11
878-846	**M10**	1.0	30	11
878-847	**M10**	1.25	30	11
878-827	**M11**	1.0	30	11
878-848	**M11**	1.25	30	11
878-849	**M12**	1.0	38	10
878-850	**M12**	1.25	38	10
878-851	**M12**	1.5	38	10
878-624	**M14**	1.0	38	10
878-852	**M14**	1.25	38	10
878-853	**M14**	1.5	38	10
878-854	**M16**	1.0	45	14
878-828	**M16**	1.25	45	14
878-855	**M16**	1.5	45	14
878-829	**M18**	1.25	45	14
878-856	**M18**	1.5	45	14
878-857	**M18**	2.0	45	14
878-858	**M20**	1.0	45	14
878-859	**M20**	1.5	45	14
878-860	**M20**	2.0	45	14
878-830	**M22**	1.0	55	16
878-861	**M22**	1.5	55	16
878-862	**M22**	2.0	55	16
878-863	**M24**	1.5	55	16

Continued…

SPAENAUR No.	SIZE mm	PITCH mm	O.D. mm	THICKNESS mm
…continued				
878-864	**M24**	2.0	55	16
878-831	**M26**	1.5	65	18
878-865	**M27**	1.5	65	18
878-866	**M27**	2.0	65	18
878-867	**M28**	1.5	65	18
878-868	**M30**	1.5	65	18
878-869	**M30**	2.0	65	18
878-870	**M30**	3.0	65	18
878-832	**M32**	1.5	65	18
878-871	**M33**	1.5	65	18
878-872	**M33**	2.0	65	18
878-833	**M34**	1.5	65	18
878-834	**M35**	2.0	65	18
878-873	**M36**	1.5	65	18
878-874	**M36**	2.0	65	18
878-875	**M36**	3.0	65	18
878-835	**M38**	1.5	75	20

METRIC COARSE THREAD - CARBON STEEL

SPAENAUR No.	SIZE mm	PITCH mm	O.D. mm	THICKNESS mm
878-790	**M2.3**	0.4	16	5
878-748	**M3**	0.5	20	5
878-749	**M4**	0.7	20	5
878-792	**M4.5**	0.75	20	7
878-750	**M5**	0.8	20	7
878-794	**M9**	1.25	25	9
878-795	**M11**	1.5	30	11
878-801	**M22**	2.5	55	22
878-803	**M24**	3.0	55	22
878-805	**M27**	3.0	65	25
878-806	**M30**	3.5	65	25

All Dies Priced Singly.

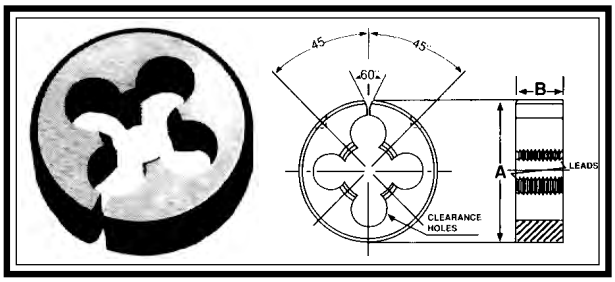
RIGHT HAND DIES

DIN 223

METRIC FINE THREAD
CARBON STEEL

Dies split or solid, our option.

SPAENAUR No.	SIZE mm	PITCH mm	O.D. mm	THICKNESS mm
878-809	**M7**	0.75	25	9
878-810	**M10**	0.75	30	11
878-812	**M14**	1.25	38	10



LEFT HAND DIES

Dies split or solid, our option.

METRIC COARSE THREAD
HIGH SPEED STEEL
GROUND THREAD

SPAENAUR No.	SIZE mm	PITCH mm	O.D. mm	THICKNESS mm
878-675	**M4**	0.7	20	5
878-676	**M5**	0.8	20	7
878-677	**M6**	1.0	20	7
878-678	**M8**	1.25	25	9
878-679	**M10**	1.5	30	11
878-680	**M12**	1.75	38	14
878-681	**M14**	2.0	38	14
878-682	**M16**	2.0	45	18
878-683	**M18**	2.5	45	18
878-684	**M20**	2.5	45	18
878-685	**M24**	3.0	55	22

METRIC FINE THREAD
HIGH SPEED STEEL
GROUND THREAD

SPAENAUR No.	SIZE mm	PITCH mm	O.D. mm	THICKNESS mm
878-686	**M8**	1.0	25	9
878-687	**M10**	1.0	30	11
878-688	**M12**	1.5	38	10
878-625	**M14**	1.5	38	10
878-689	**M16**	1.5	45	14
878-690	**M18**	1.5	45	14
878-134	**M20**	1.5	45	14
878-135	**M32**	1.5	63.5	19

METRIC FINE THREAD
CARBON STEEL

SPAENAUR No.	SIZE mm	PITCH mm	O.D. mm	THICKNESS mm
878-691	**M18**	1.5	45	14

All Dies Priced Singly.

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SPAENAUR

The beginnings of a great idea…

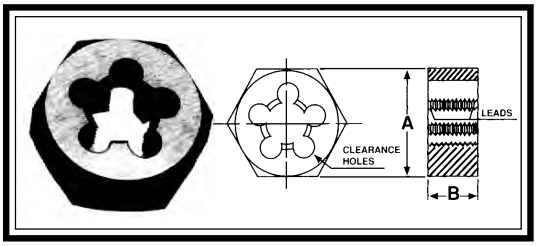
Holding Canada together since 1936!

Our Kitchener headquarters and distribution centre.

METRIC RIGHT HAND DIES

DIN 382

METRIC COARSE THREAD
HIGH SPEED STEEL
GROUND THREAD



DIN 382

METRIC FINE THREAD
HIGH SPEED STEEL
GROUND THREAD

SPAENAUR No.	SIZE mm	PITCH mm	A/F mm	THICKNESS mm
878-769	**M3**	0.5	19	5
878-770	**M3.5**	0.6	19	5
878-771	**M4**	0.7	19	5
878-789	**M4.5**	0.75	19	7
878-772	**M5**	0.8	19	7
878-653	**M6**	1.0	19	7
878-654	**M7**	1.0	22	9
878-655	**M8**	1.25	22	9
878-656	**M9**	1.25	22	9
878-657	**M10**	1.5	27	11
878-658	**M12**	1.75	36	14
878-659	**M14**	2.0	36	14
878-660	**M16**	2.0	41	18
878-661	**M18**	2.5	41	18
878-662	**M20**	2.5	41	18
878-663	**M22**	2.5	50	22
878-664	**M24**	3.0	50	22
878-773	**M27**	3.0	60	25
878-774	**M30**	3.5	60	25
878-775	**M33**	3.5	60	25
878-776	**M36**	4.0	60	25
878-777	**M39**	4.0	70	30
878-778	**M42**	4.5	70	30
878-779	**M45**	4.5	85	36
878-780	**M48**	5.0	85	36
878-781	**M52**	5.0	85	36

METRIC COARSE THREAD
CARBON STEEL

SPAENAUR No.	SIZE mm	PITCH mm	A/F mm	THICKNESS mm
878-782	**M3**	0.50	19	5
878-783	**M4**	0.70	19	5
878-784	**M5**	0.80	19	7
878-785	**M6**	1.00	19	7
878-786	**M8**	1.25	22	9
878-787	**M10**	1.5	27	11
878-788	**M12**	1.75	36	14
878-921	**M14**	2.0	36	14
▲878-923	**M24**	1.5	50	16
878-922	**M36**	4.0	60	25

▲Fine Pitch

SPAENAUR No.	SIZE mm	PITCH mm	A/F mm	THICKNESS mm
878-878	**M3**	0.35	19	5
878-879	**M4**	0.5	19	5
878-880	**M5**	0.5	19	5
878-881	**M6**	0.5	19	5
878-882	**M6**	0.75	19	7
878-883	**M8**	0.75	22	9
878-884	**M8**	1.0	22	9
878-626	**M9**	1.0	22	9
878-961	**M10**	0.75	27	11
878-885	**M10**	1.0	27	11
878-886	**M10**	1.25	27	11
878-915	**M11**	1.0	27	11
878-887	**M11**	1.25	27	11
878-888	**M12**	1.0	36	10
878-889	**M12**	1.25	36	10
878-890	**M12**	1.5	36	10
878-891	**M14**	1.25	36	10
878-892	**M14**	1.5	36	10
878-893	**M16**	1.0	41	14
878-916	**M16**	1.25	41	14
878-894	**M16**	1.5	41	14
878-917	**M18**	1.25	41	14
878-895	**M18**	1.5	41	14
878-896	**M18**	2.0	41	14
878-897	**M20**	1.0	41	14
878-898	**M20**	1.5	41	14
878-899	**M20**	2.0	41	14
878-900	**M22**	1.5	50	16
878-901	**M22**	2.0	50	16
878-902	**M24**	1.5	50	16
878-903	**M24**	2.0	50	16
878-904	**M27**	1.5	60	18
878-905	**M27**	2.0	60	18
878-906	**M28**	1.5	60	18
878-907	**M30**	1.5	60	18
878-908	**M30**	2.0	60	18
878-909	**M30**	3.0	60	18
878-918	**M32**	1.5	60	18
878-910	**M33**	1.5	60	18
878-911	**M33**	3.0	60	18
878-919	**M34**	1.5	60	18
878-920	**M35**	1.5	60	18
878-912	**M36**	1.5	60	18
878-913	**M36**	2.0	60	18
878-914	**M36**	3.0	60	18

All Dies Priced Singly.

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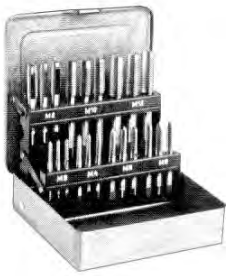
CATALOG 13

METRIC COARSE AND FINE THREAD TAP AND DIE SETS

- **Wide selection of taps, dies and related holders.**
- **Put up in sturdy containers.**
- **Organization made easy!**

Example of Set 878-954 in Wooden Box



Example of Set 874-1589 in Metal Box

METRIC COARSE THREAD TAP SETS

High Speed Steel, Ground Thread

874-950

In a wooden box containing one starting, middle and finishing tap in each of the following sizes:
M3, M4, M5, M6, M8, M10 and M12.

874-1600

FEW Tap Set in a metal case containing one starting, middle and finishing tap in each of the following sizes:
M3, M4, M5, M6, M8, M10, and M12.

METRIC COARSE THREAD SERIAL TAP AND DIE SETS

High Speed Steel, Ground Thread

874-1589

In a metal index box containing one starting, middle and finishing tap in each of the following sizes:
M3, M4, M5, M6, M8, M10 and M12.

874-1601

In a plastic case containing one starting, middle and finishing tap in each of the following sizes:
M3, M4, M5, M6, M8, M10 and M12. Set also contains one bar type tap handle and one ratcheting tap handle.

874-1602

Taps and Drills in a plastic box containing one starting, middle and finishing tap in each of the following sizes:
M3, M4, M5, M6, M8, M10 and M12 and one bar type tap handle.
One drill in each of the following sizes:
2.5 mm, 3.3 mm, 4.2 mm, 5 mm, 6.8 mm, 8.5 and 10.2 mm.

878-946

In a wooden box containing one starting, middle and finishing tap and one 2" outside diameter round die in each of the following sizes: M12, M14, M16, M18, M20, M22 and M24. Set also includes one tap handle and one die holder.

878-949

In wooden box containing one starting, middle and finishing tap and one round die in each of the of the following sizes:
M3, M4, M5, M6, M8, M10, M12, M14, M16, M18, M20, M22, and M24.
Set also includes tap handles and die holders.

878-967

In plastic box containing one starting, middle and finishing tap and one round die in each of the following sizes:
M3, M4, M5, M6, M8, M10 and M12.
Set also includes two tap handles, five die holder and one slotted screwdriver.

878-968

In plastic box containing one starting, middle and finishing tap and one round die in each of the following sizes:
M3, M4, M5, M6, M8, M10 and M12.
Set also includes two tap handles, one ratchet tap handle, five die holders, one thread pitch gauge, one slotted screwdriver and one drill in each of the following sizes:
2.5 mm, 3.3 mm, 4.2 mm, 5 mm, 6.8 mm, 8.5 mm and 10.2 mm.

878-951

In wooden box containing one starting, middle and finishing tap and one round die in each of the following sizes:
M3, M4, M5, M6, M8, M10, M12, M14, M16, M18 and M20.
Set also includes two tap handles and six die holders.

878-952

In wooden box containing one starting, middle and finishing tap and one round die in each of the following sizes:
M5, M6, M8, M10, M12, M14, M16, M18, M20, M22, M24, M27 and M30.
Set also includes three tap handles and seven die holders.

METRIC FINE SERIAL TAP AND DIE SETS

High Speed Steel, Ground Thread

878-953

In a wooden box containing one starting and finishing tap and one round fine die in each of the following sizes:
M3 x .35, M4 x .5, M5 x .5, M6 x .75, M8 x 1.0, M10 x 1.0, M12 x 1.5, M14 x 1.5, M16 x 1.5, M18 x 1.5 and M20 x 1.5.
Also includes two tap handles and two die holders.

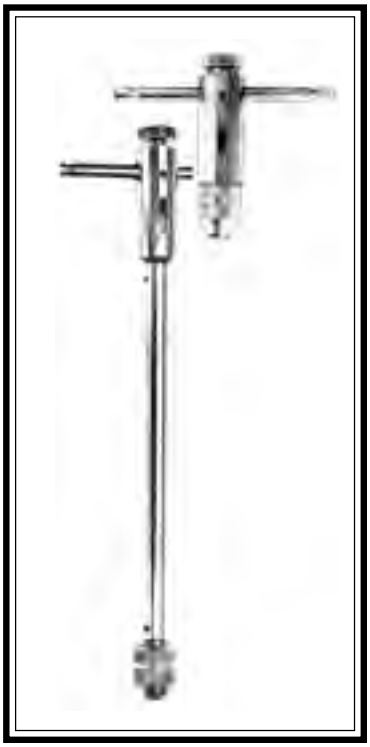
P

CATALOG 13

All Sets Priced Singly.

TAP WRENCHES WITH RATCHET

Chuck Type Tap Handle
Chrome Plated Steel



SPAENAUR No.	No.	FOR TAP CAPACITY Metric DIN	Whitworth	SQUARE RANGE mm	LENGTH mm
877-245	**1**	M3 - 10	W1/8 - 3/8	2.4 - 5.5	85
877-078	**2**	M5 - 12	W7/32 - 1/2 + R1/8	4.5 - 7.0	100
877-121	**10**	M3-10	W1/8 - 3/8	2.4-5.5	250
877-125	**20**	M5-12	W7/32 - 1/2 + R1/8	4.5-7.0	300

Priced Singly.

E-Z Tap Holder
876-886

Put up in a plastic case containing an aluminum tap holder for miniature Inch tap sizes 00, 0, 1 and 2 along with appropriate hex key.

Priced Singly.

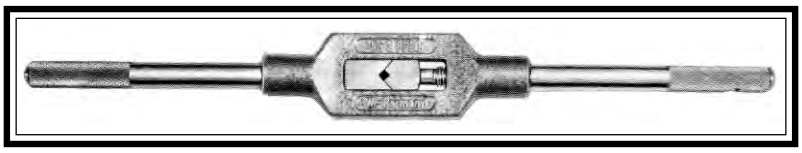
P

CATALOG 13

ADJUSTABLE TAP WRENCHES

DIN 1814

Bar Type Handle
Steel Plain Finish



SPAENAUR No.	No.	FOR TAP CAPACITY				SQUARE RANGE mm	LENGTH mm
		Metric DIN	Metric ISO	Whitworth	Pipe		
877-1393	0	M1 - 8	M1 - 6	W1/16 - 1/4	—	2.1 - 4.9	130
877-075	1	M1 - 10	M2.2 - 7	W1/16 - 3/8	R1/8	2.1 - 5.5	188
877-076	1-1/2	M1 - 12	M2.5 - 10	W1/16 - 1/2	R1/8	2.1 - 7.0	215
877-035	2	M3.5 - 12	M4 - 10	W5/32 - 1/2	R1/8	3.0 - 8.0	280
877-1391	3	M5 - 20	M6 - 20	W7/32 - 3/4	R1/8 - 1/2	4.9 - 12	380
877-1390	4	M11 - 27	M8 - 27	W7/16 - 1	R1/4 - 3/4	6.2 - 16	500
877-077	5L	M13 - 32	M12 - 36	W1/2 - 1-1/4	R1/4 - 1	7 - 20	700

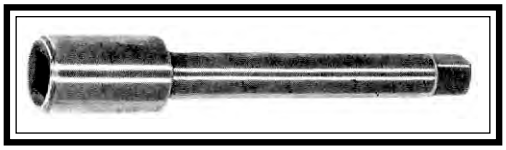
Priced Singly.

BAR TYPE TAP HANDLE

Malleable Cast Iron

SPAENAUR No.	No.	FOR TAP CAPACITY				SQUARE RANGE mm	LENGTH mm
		Metric DIN	Metric ISO	Whitworth	Pipe		
877-1402	6L	M18 - 42	M18 - 42	W3/4 - 1-1/2	R1/2 - 1-1/4	11 - 24	1000
877-1403	7	M25 - 52	M27 - 62	W1 - 2-1/8	R3/4 - 21/4	16 - 32	1250
877-1389	8	M25 - 64	M27 - 76	W1 - 2-1/2	R3/4 - 3	16 - 40	1250

Priced Singly.



DIN 377

METRIC TAP EXTENSIONS

Steel, Plain or Plated - our option.

SPAENAUR No.	SQUARE A/F mm	LENGTH mm
874-1603	**2.7**	80
874-1604	**3.4**	95
874-1605	**4.9**	110
874-1606	**5.5**	115
874-1607	**6.2**	120
874-1608	**7.0**	125
874-1609	**8.0**	130
874-1610	**9.0**	135

Priced Singly.

METRIC TAP EXTRACTORS

Steel Plain Finish

SPAENAUR No.		FOR TAP SIZE
Three Prong	Four Prong	
874-1611	—	M3
874-1612	—	M4
874-1613	—	M5
874-1614	—	M6
874-1615	—	M8
—	**874-1616**	M10
—	**874-1617**	M12
874-1618	—	M14
874-1619	—	M16
874-1639	—	M20
874-1620	**874-1621**	M22
874-1622	**874-1628**	M24
874-1623	**874-1629**	M27
874-1624	**874-1631**	M30

Priced Singly.

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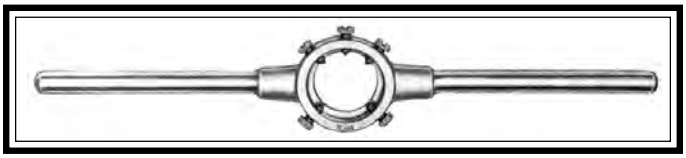
DIE STOCKS

DIN 225

FOR ROUND SPLIT DIES



for direct application of DIN 223 dies.
Steel Plain Finish

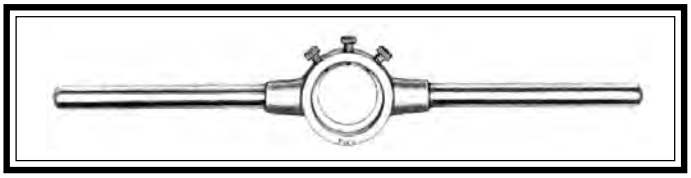
SPAENAUR No.	SIZE mm	FOR ROUND DIE CAPACITY Metric	Metric Fine	Whitworth	Pipe	LENGTH mm
877-083	16 x 5	M1 - 2.6	—	W1/16 - 3/32	—	160
877-084	20 x 5	M3 - 4	Mf3 - 4	W1/8 - 5/32	—	200
877-085	20 x 7	M4.5 - 6	Mf4.5 - 6	W3/16 - 1/4	—	200
877-086	25 x 9	M7 - 9	Mf7 - 9	W5/16	—	224
877-087	30 x 11	M10 - 11	Mf10 - 11	W3/8 - 7/16	R1/8	280
877-088	38 x 10	—	Mf12 - 14	—	G1/8 - G1/4	315
877-089	38 x 14	M12 - 14	—	W1/2 - 9/16	R1/4	315
877-090	45 x 14	—	Mf16 - 20	—	G3/8 -G1/2,RC3/8	450
877-091	45 x 18	M16 - 20	—	W5/8 - 13/16	RC1/2	450
877-092	55 x 16	—	Mf22 - 24	—	G5/8, 3/4	560
877-093	55 x 22	M22 - 24	—	W7/8	RC3/4	450
877-094	65 x 18	—	Mf26 - 35	—	G7/8, 1	630
877-095	65 x 25	M27 - 36	—	W1-1/8 - 1-3/8	RC1	630
877-096	75 x 30	M39 - 42	—	W1-1/2 - 1-5/8	—	800
877-097	90 x 36	M45 - 52	—	W1-3/4 - 2	—	900

Priced Singly.

DIE STOCKS FOR ROUND SPLIT DIES

Will fit Metric and Inch Dies
Steel Plain Finish

SPAENAUR No.	FOR ROUND DIE CAPACITY inch	mm	LENGTH mm
877-098	1" x 3/8"	25.4 x 9.5	224
877-099	1-1/2" x 1/2"	38.1 x 12.7	325
877-100	2" x 5/8"	50.8 x 15.9	470



Priced Singly.

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METRIC "COMBI-DIE"

HIGH SPEED STEEL

COMBINATION DIE, DIESTOCK AND TAP SET IN ONE HANDY 'RANGE PAC'

METRIC COARSE THREAD

SPAENAUR No.	SIZE mm	PITCH mm
878-705	M3	0.5
878-706	M4	0.7
878-707	M5	0.8

Priced Singly.

Solid, Precision, Toolsteel Die; needs no adjustment, (replaces a Dienut on many applications). Used with a good quality lubricant, 'Combi-Die' cuts perfect threads, time after time, without reversing.

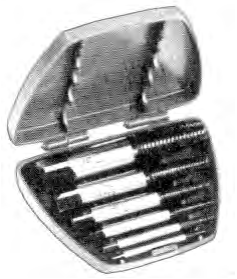
Light, Unbreakable (in normal use) Diestock; with permanently bonded Die and Guide, 'Combi-Die' is light in the Toolbox or hangs on workshop toolrack.

Guide holds cutting Die in correct alignment with workpiece. 'Combi-Die' promotes square cutting, prevents uneven threads and so improves Die life.

SCREW EXTRACTORS with Left Hand Spiral Thread

Steel, Plain Finish

SPAENAUR No.	NO.	SIZE mm	LENGTH mm	DRILLS mm	FOR SCREWS Metric	Inch
877-217	1	1.4 - 3.6	50	1.8	M3 - 6	1/8 - 1/4"
877-218	2	2.1 - 4.9	57	2.6	M6 - 8	1/4 - 5/16"
877-219	3	3.1 - 6.5	64	3.7	M8 - 11	5/16 - 7/16"
877-220	4	4.8 - 8.8	71	5.5	M11 - 14	7/16 - 9/16"
877-221	5	6.2 - 11	78	7	M14 - 18	9/16 - 3/4"
877-481	6	9.4 - 15	85	10.3	M18 - 24	3/4 - 1"
877-222	7	12.7 - 19	92	13.7	M24 - 33	1 - 1-3/8"
877-223	8	17.5 - 24	100	18.6	M33 - 45	1-3/8 - 1-3/4"



SCREW EXTRACTORS SETS

With Left Hand Spiral Thread
Steel, Plain Finish

Sets Priced Singly.

SPAENAUR No.	SET No.	CONTENTS OF SET (See above chart for size details)
877-224	1	877-217, 877-218, 877-219, 877-220, 877-221
877-225	2	877-217, 877-218, 877-219, 877-220, 877-221, 877-481
877-226	3	877-217, 877-218, 877-219, 877-220, 877-221, 877-481, 877-222, 877-223

SPAENAUR

Our Mission

- We are a Team of Professionals
- We Listen to our Customers
- We Grow Ourselves

Proudly serving you since 1936.

P

CATALOG 13

All items Priced Singly.

Priced Singly

THE DRILL-OUT ® POWER EXTRACTOR

The Drill-Out® Power Extractor is excellent for removing broken bolts and studs without damaging the threads in the hole. The drill body is manufactured using the finest quality M-2 Hi-Speed Tool Steel (Rc 64). The collet is produced from H-13 Hot Work Die Steel (Rc 54), using the finest steel of its type. All Drill-Out® Power Extractors are made with a precision ground 130° left hand cutting self-centering point, and are heat treated for toughness.

Individual Drill-Out® Power Extractors

SPAENAUR No.	To remove broken bolt or stud
876-860	1/4" or 6 mm
876-861	5/16" or 8 mm
876-862	3/8" or 10 mm
876-863	1/2" or 12 mm

Drill-Out® Set

876-864

Contains all four extractor sizes.

Handsomely encased in a black polyethylene case making it ideally compact for storage and transportation.

Set Priced Singly

WARNING ALWAYS USE PROTECTIVE EYEWEAR

INSTRUCTIONS

1. Obtain a variable speed power drill and **set it for reverse.**
2. Measure the diameter of the broken bolt to determine the size Drill-Out® required. For example, if the broken bolt is 1/4" or 6 mm use the 1/4" 6 mm Drill-Out®. **We recommend 3/8" variable speed drill.** Impact and high horse-power drills may cause damage to Drill-Out®. See chart Figure 1A below.
3. Attach only the hex end of the Drill-Out® securely into the drill chuck. Thread collet back against the drill chuck. See Figure 2.
4. **Make sure drill is set in reverse.**
5. Place the tip of the Drill-Out® on the centre of the broken bolt and begin drilling. **Do not allow collet to move down towards tip while drilling.** If so, thread collet back towards chuck.
6. With the hole started, **stop and observe** making absolutely sure that you are at the centre of the broken bolt. If you are not centered, simply angle the drill toward the centre of the broken bolt and drill until the point of the drilled hole is on centre.

THE MOST IMPORTANT STEP IN EXTRACTING A BROKEN BOLT IS TO DRILL THE HOLE ON CENTRE.

7. With the hole started ON CENTRE, hold the drill parallel to the axis of the broken bolt and continue drilling.
8. Stop every 1/16" or 2 mm in depth to clean out chips and add cutting oil. **Verify each time that you are drilling on centre and straight.**
9. Stop drilling just before you reach the front of the collet. **DO NOT let collet touch the end of the bolt.** See Figure 2.
10. Clean out chips from hole and use penetrating oil to help loosen the broken bolt.
11. Move collet toward the drill tip with three or four theads showing.
12. **Hold electrical drill firmly with both hands.**
13. Bring drill speed to suggested RPMs, see Figure 1B, and plunge into the hole while applying pressure toward the broken bolt. See Figure 3
14. The collet automatically engages and extracts the broken bolt. See Figure 4.
15. If drill stalls during extraction hand removal is possible. Leave Drill-Out® lodged into the bolt and remove tool from drill.
16. Look to see if you have drilled exactly on centre. If so, use a wrench on the square collet head. Turn counter clockwise to remove the broken bolt. **Do not use excessive force, damage to tool may occur.**
17. If you get a lot of resistance when using a wrench, you may have drilled off centre, and the Drill-Out® tool is biting on the casting or you may be in an impossible situation. If this situation arises, remove Drill-Out® tool by turning clockwise. You may have to drill and tap new threads.
18. To remove Drill-Out® from broken bolt, firmly tighten broken bolt in a vise. Using an adjustable wrench turn the collet clockwise and remove the Drill-Out®. If necessary, clamp the hex end of the Drill-Out® into the vise and back the collet off the drill head. Drill-Out® is ready to use again.

ATTENTION TOUJOURS UTILISER DES VERRES PROTECTEURS LORSQUE

1. Utiliser une perceuse a vitesse variable et inverseur de marche et la positionner en marche inversée.
2. Mesurer le diametre du boulon brise pour déterminer la grandeur de l'extracteur à utiliser. Exemple si le boulon est de 1/4" ou 6 mm, utiliser l'extracteur de 1/4" ou 6 mm. Nous recommandons une perceuse 3/8" à vitesse variable. Ne jamais utiliser une perceuse à frappe ou a haute puissance celles-ci pourraient endommager l'extracteur. Voir tableau figure 1A
3. Insérer la partie hexagonale de l'extracteur dans le mandrin. Visser le taraud extracteur vers le mandrin. Voir figure 2.
4. **S'assurer que la perceuse est en marche inversée.**
5. Placer la pointe de l'extracteur au centre du boulon et commencer à percer. **Ne pas laisser le taraud extracteur descendre vers la pointe durant le perçage.** Si cela se produit revisser le taraud extracteur vers le mandrin.
6. Lorsque vous avez commencé à percer, assurez-vous que vous êtes bien au centre du boulon. Si vous n' êtes pas centrés, pointer le foret vers le centre et percer.

LE PLUS IMPORTANT DANS L'EXTRACTION D'UN BOULON EST DE PERCER EXACTEMENT AU CENTRE DE CELUI-CI.

7. Lorsque le trou est centré, maintenir le foret parallele a l'axe du boulon et continuer à percer.
8. Arrêter le perçage tous les 1/16" ou 2 mm environ pour retirer les fragments et lubrifier. **Vous assurer que vous êtes toujours bien centrés.**
9. Arrêter le perçage avant que le taraud extracteur ne touche le boulon. Voir figure 2.
10. Nettoyer le trou percé avec du dégrippant pour relâcher le boulon.
11. Tourner le taraud extracteur vers le bout du foret de trois à quatre filetages.
12. **Maintenir fermement la perceuse à deux mains.**
13. Amener la vitesse de rotation de la perceuse comme indiqué à la figure 1B. Placer le foret dans le trou en appuyant sur la perceuse. Voir figure 3
14. Le taraud extracteur s'engage et extrait automatiquement le boulon. Voir figure 4.
15. Si le foret se bloque durant l'extraction, il est possible de le dégager manuellement. Laisser l'extracteur logé dans le boulon et le retirer de la perceuse.
16. Vérifier si vous avez percé exactement au centre du boulon. Si oui utiliser une clé pour dévisser l'extracteur. Tourner dans le sens contraire des aiguilles d'une montre. Ne pas mettre de pression excessive, vous pourriez endommager l'extracteur.
17. S'il y a beaucoup de résistance en dévissant avec une clé, vous n'avez sans doute pas bien centré le perçage et l'extracteur a pénétré dans la piece et dans ce cas vous êtes dans une situation impossible. Si cela se produit retirer l'extracteur en tournant dans le sens des aiguilles d'une montre. Vous aurez peut-etre à percer et faire un nouveau filetage.
18. Pour enlever l'extracteur du boulon, insérer le boulon dans un étau. Utiliser une clé adjustable et tourner le taraud extracteur dans le sens des aiguilles d'une montre. Si nécessaire serrer l'extrémité de l'extracteur dans un étau et enlever le taraud extracteur. L'extracteur est prêt à être utilisé.

Helpful Hints

A. Centre punch before drilling to shock bolt.
B. Penetrating oil or heat is effective on rusted or chemically bonded bolts.
C. When bolt is broken below a flange, r**everse collet** to centre Drill-Out® as shown in Figure 4.

Conseils Pratiques

A. Pointer le centre de boulon cassé avant le perçage.
B. Chauffer ou utiliser de l'huile à dégripper, ceci est efficace contre la rouille et les dépôts chimiques.
C. Lorsque le boulon est brisé sous une bride, inverser le taraud extracteur sur l'extracteur. Voir figure 4.

Drill-Out® Size Broken Bolt Size Boulon diamètre	3/8" Variable Speed Drill Perceuse à vitesse variable 3/8"	
	Drilling à percer	**Extracting L'extracteur**
1/4" or 6mm 1/4" ou 6mm	700-800 RPM	350 RPM
5/16" or 8mm 5/16" ou 8mm	650-750 RPM	470 RPM
3/8" or 10mm 3/8" ou 10mm	600-700 RPM	840 RPM
1/2" or 12mm 1/2" ou 12mm	475-575 RPM	1400 RPM
FIGURE	**1A**	**1B**

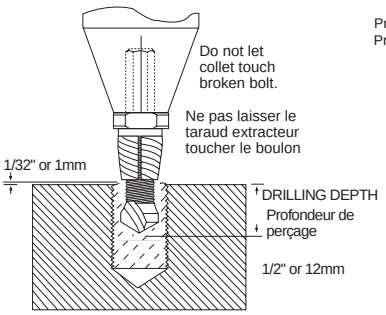


FIGURE 2 Drilling

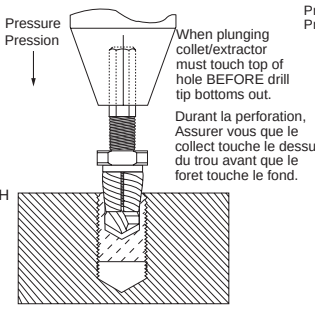


FIGURE 3 Plunging

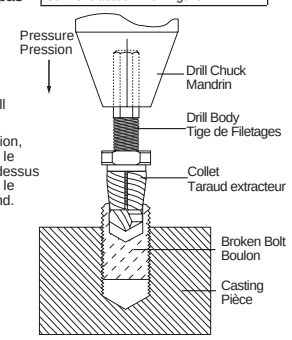


FIGURE 4 Extracting

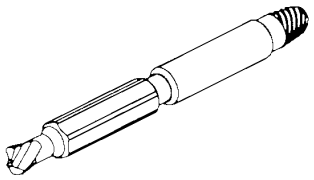
876-1607
Micro Power Extractor Set

Set Priced Singly

- *Self Centering Drill Tip*
- *Short, Tough Drill Body*
- *Left Hand Cutting Edge*
- *Drill Bit and Extractor in One*
- *Easy, Time Saving Operation*
- *Drills Grade 8 (Class 10.9) Bolts*

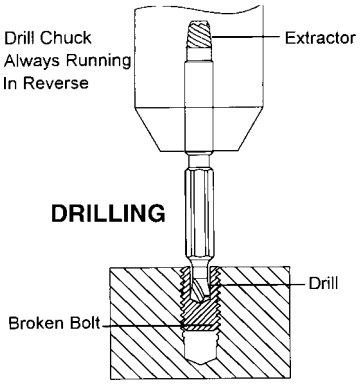
THE DRILL-OUT ®

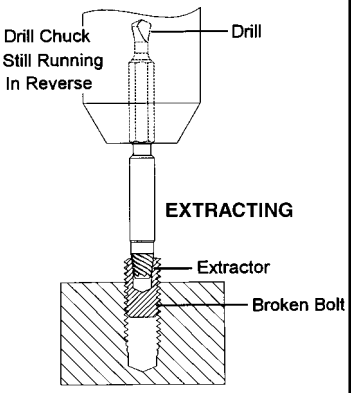
MICRO POWER EXTRACTOR



The DRILL-OUT® *Micro Power Extractor* has many of the same features as our larger extractors but its design is a bit different. Put the Micro tool into your reversible electric or battery powered drill, extractor side in, set it for reverse and drill your hole. Take the tool out, turn it around so that the drill side is inserted into the chuck and you have your extractor. Insert the extractor tip into the hole you just drilled and remove your broken screw. That's it! Fast, easy and dependable.

Individual Drill-Out® Micro Power Extractors	
SPAENAUR No.	**To remove broken bolt or stud**
876-1608	#5 & #6 or M3
876-1609	#8 or M4
876-1610	#10 or M5
876-1611	1/4" or M6
Priced Singly	





DRILL-OUT ®

7 PIECE MASTER KIT

876-1784

A new full range kit with substantial savings, compared to buying two kits or individual sizes.

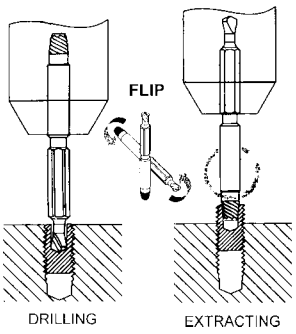
Set Priced Singly

Works on:

- most common fasteners: Grade 2 to 8, property classes 5.6 to 10.9 & stainless steel.
- Inch & Metric Sizes: 1/8 to 1/2" or M3 to M12.
- jagged, uneven or rough breaks; drill point eliminates walking, no centring tools are needed.
- confined work space; small design allows easy access.

DRILL-OUT ® kit contains Spaenaur numbers 876-1608, 876-1609, 876-1610, 876-1611, 876-861, 876-862 and 876-863 as found at top of this page and on previous page.

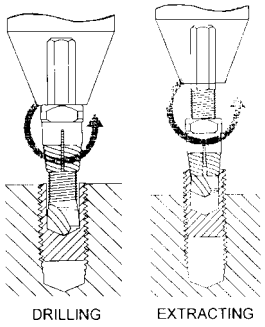
Mirco Sizes
1/8" to 1/4" or M3 to M6



Drill Bit and Extractor in one.

1. Insert *DRILL-OUT ®* into drill set for REVERSE.
2. Drills into broken bolt on centre.
3. Extracts using the POWER of the drill.

Regular Sizes
5/16" to 1/2" or M8 to M12



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CATALOG 13

Screw and Pipe Extractors

Remove broken screws, bolts, threaded parts and pipe.

Drill a hole in broken part, insert extractor and turn to the left. Broken piece is extracted without damage to threads.

Hi-Carbon Steel, Plain Finish

SPAENAUR No.	To Remove Diameter Screw	Diameter of Screw Extractor Shank	Point	Drill Size
876-865*	3/32" to 5/32"	1/8"	.060"	5/64"
876-866*	5/32" to 7/32"	3/16"	.080"	7/64"
876-867*	7/32" to 9/32"	1/4"	1/8"	5/32"
876-868*	9/32" to 3/8" and 1/8" Pipe	5/16"	3/16"	1/4"
876-869*	3/8" to 5/8" and 1/4" Pipe	7/16"	1/4"	17/64"
876-870	5/8" to 7/8" and 3/8" Pipe	5/8"	3/8"	13/32"
876-871	7/8" to 1-1/8" and 1/2" Pipe	7/8"	15/32"	17/32"
876-872	1-1/8" to 1-3/8" and 3/4" Pipe	1-1/32"	3/4"	13/16"
876-873	1-3/8" up and 1" Pipe	1-9/32"	1"	1-1/8"

Screw and Pipe EXTRACTOR KIT

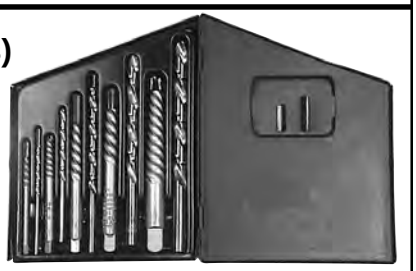
SPAENAUR No. **876-874**

Contains 5 Extractors in an attractive reusable pouch.

*(*SPAENAUR No's.* at right, followed by an asterisk are included in Kit.)

SCREW/BOLT REMOVER SETS (With Left Hand Spiral Drills)

A unique combination of left hand spiral drills and bolt/screw extractors. Designed to quickly and easily remove a wide variety of broken studs. Left hand spiral drills often eliminate the need for bolt and screw extractor. Drill may loosen bolt stud with counter clockwise rotation. 135° split point drill will cut harder metals than a 118° point drill. Most broken studs are work hardened during the breaking process.



SPAENAUR No. **876-1190**

4 left hand Super Premium drill bits.
Sizes: 3/32", 1/8", 3/16" and 1/4".
4 bolt and screw extractors.
Sizes: 1, 2, 3 and 4.

Sets come in black metal index box with i.d. plate.

SPAENAUR No. **876-1191**

5 left hand Super Premium drill bits.
Sizes: 3/32", 1/8", 3/16", 1/4" and 5/16".
5 bolt and screw extractors.
Sizes 1, 2, 3, 4 and 5.

P

CATALOG 13

While work is in progress… or at final inspection time… you need a

Poc-Kit® Feeler Gauge Assortment

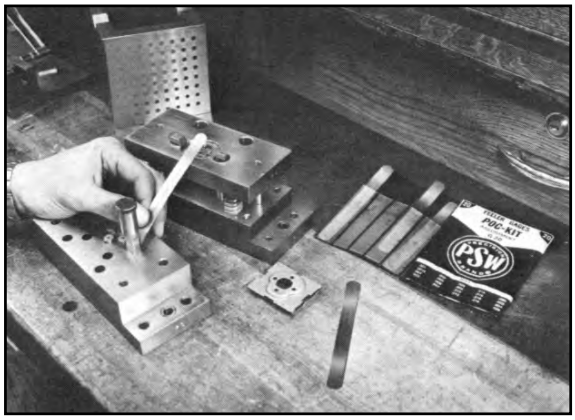
SPAENAUR No.
876-020

UNIT PACKAGE 1 Kit

TWENTY POPULAR THICKNESSES IN INCHES.

.001*	.004	.008	.014	.020
.0015*	.005	.009	.015	.022
.002*	.006	.010	.016	.024
.003*	.007	.012	.018	.025

*.001-.003" inclusive is 1.125 carbon content
One piece each thickness 1/2" x 5"



CHECK IT

Folds wallet-flat. Sturdy vinyl case with individual sleeves keeps gauges clean. Fits conveniently in your pocket. Contains 20 T-4 tolerance feeler gauges. Individual blades enable greater gauging accuracy. Most used thicknesses, from .001" to .025". Opens up flat, showing sizes instantly. Each blade 1/2" x 5" long. Sized for access to hard-to-reach areas. Replacement blades available.

FOLDS WALLET FLAT

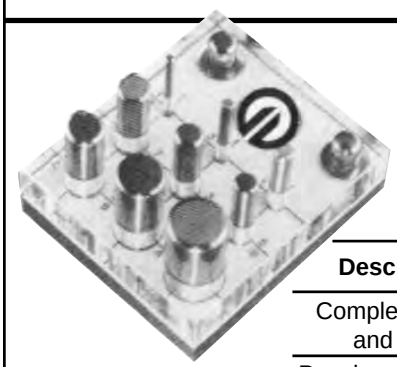
OPENS UP FLAT

POC-KIT®
REPLACEMENT BLADES

Thickness in Inches	Equivalent Thickness in mm	*SPAENAUR No.*
*.001"	.025	**876-050**
*.0015"	.038	**876-051**
*.002"	.051	**876-052**
*.003"	.076	**876-053**
.004"	.102	**876-054**
.005"	.127	**876-055**
.006"	.152	**876-056**
.007"	.179	**876-057**
.008"	.203	**876-058**
.009"	.229	**876-059**
.010"	.254	**876-060**
.012"	.305	**876-061**
.014"	.356	**876-062**
.015"	.381	**876-063**
.016"	.406	**876-064**
.018"	.457	**876-065**
.020"	.508	**876-066**
.022"	.559	**876-067**
.024"	.610	**876-068**
.025"	.635	**876-069**

*.001-.003" inclusive is 1.125 carbon content.

UNIT PACKAGE 1



SETS ARE PRICED SINGLY

Shim Stock Punch and Die Set

Description	*SPAENAUR No.*
Complete Punch and Die Set	**876-002**
Punches - complete sets only	**876-003**

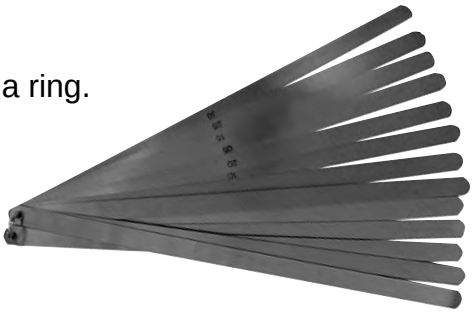
Sizes: 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 5/8", 3/4".

Next to your shop apron, you can't afford to be without one. Need gaskets, shims, washers, spacers, etc., from 1/8" to 3/4" diameter? Make them fast and accurately. All you need is the appropriate thickness, a hammer, flat surface, and our unique Punch and Die Set. Clear PLEXIGLAS® top lets you see where you're punching, for greater accuracy. Heat treated tool steel base. Case hardened punches, easily resharpened. Nine different sizes: 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 5/8", and 3/4". To use, mark centre lines on piece to be punched, and line up with centre lines of clear PLEXIGLAS® top. Hit punch with hammer. Cut rubber, plastic, brass, or mild steel to .025". Stainless steel and blue tempered steel to .010". Compact size: 3-1/16" x 3-9/16". Weighs 2 lbs. 4 oz.

Feeler Gauge Sets

With 300 mm (12") long blades on a ring.

Metric Sets



Priced Singly

SPAENAUR No.	Thicknesses in Set mm	O/A Lgth. mm	Width mm	No. of Blades	Material
877-149	0.05, 0.10, 0.15, 0.20, 0.25, 0.30, 0.40, 0.50, 0.60, 0.70, 0.80, 0.90, 1.00 mm	300	13	13	Spring Steel
877-287	0.05, 0.10, 0.15, 0.20, 0.25, 0.30, 0.35, 0.40, 0.45, 0.50, 0.55, 0.60, 0.65, 0.70, 0.75, 0.80, 0.85, 0.90, 0.95, 1.00 mm	300	13	20	Spring Steel

Inch and Metric Precision Thickness Feeler Gauge Sets

Tapered Blades in plated metal case.

Length of Blades 100 mm

Priced Singly

SPAENAUR No.	Thicknesses in Set mm	No. of Blades	Blade Material
877-231	0.05, 0.10, 0.15, 0.20, 0.25, 0.30, 0.40, 0.50, 0.60, 0.70, 0.80, 0.90, 1.00 mm	13	Tool Steel
877-185	0.05, 0.10, 0.15, 0.20, 0.25, 0.30, 0.40, 0.50, 0.60, 0.70, 0.80, 0.90, 1.00 mm	13	Brass
877-232	0.04, 0.05, 0.06, 0.07, 0.08, 0.09, 0.10, 0.15, 0.20, 0.25, 0.30, 0.40, 0.50, 0.60, 0.70, 0.80, 0.90, 1.00 mm	18	Tool Steel
877-145	0.05, 0.10, 0.15, 0.20, 0.25, 0.30, 0.35, 0.40, 0.45, 0.50, 0.55, 0.60, 0.65, 0.70, 0.75, 0.80, 0.85, 0.90, 0.95, 1.00 mm	20	Tool Steel
877-233	0.10, 0.20, 0.30, 0.40, 0.50, 0.60, 0.70, 0.80, 0.90, 1.00, 1.10, 1.20, 1.30, 1.40, 1.50, 1.60, 1.70, 1.80, 1.90, 2.00 mm	20	Tool Steel
877-148 Thickness expressed in Thousands of an Inch	2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 16, 18, 20, 22, 24, 30, 35/1000"	20	Spring Steel

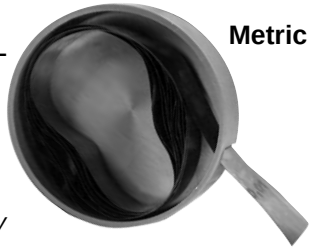
Feeler Gauge Material

Roll is packaged in convenient round metal or plastic container up to 0.80 mm thickness.

SPRING STEEL

Each Roll is 13 mm wide by 5 metres long.

Priced Singly



Metric

SPAENAUR No.	Thick. mm
877-230	.005
877-150	.01
877-151	.02
877-152	.03
877-153	.04
877-154	.05
877-155	.06
877-156	.07
877-157	.08
877-158	.09
877-159	.10

SPAENAUR No.	Thick. mm
877-160	.11
877-161	.12
877-162	.15
877-163	.18
877-235	.20
877-236	.22
877-164	.25
877-165	.35
877-167	.45
877-168	.50

SPAENAUR No.	Thick. mm
877-170	.55
877-171	.60
877-172	.65
877-173	.70
877-174	.75
877-175	.80
877-176	.85
877-177	.90
877-178	.95
877-179	1.00

POCKET-SLIDE-CALIPER
of Rust-Proofed Tool Steel

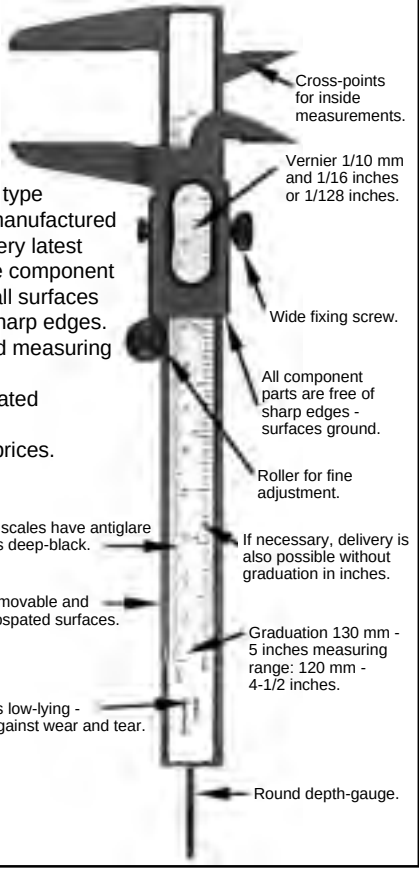
SPAENAUR No.
877-529

This pocket-slide-caliper type »Columbus« has been manufactured in accordance with the very latest production methods. The component parts are fine punched, all surfaces are ground and free of sharp edges.

- Anti-glare matt finished measuring parts.
- Rustproofed by phospated surfaces.
- Exactly at favourable prices.

Scale:
5"
120 mm

Priced Singly



POCKET-SLIDE-CALIPER
for craftsmen, home workers, apprentices and schools.

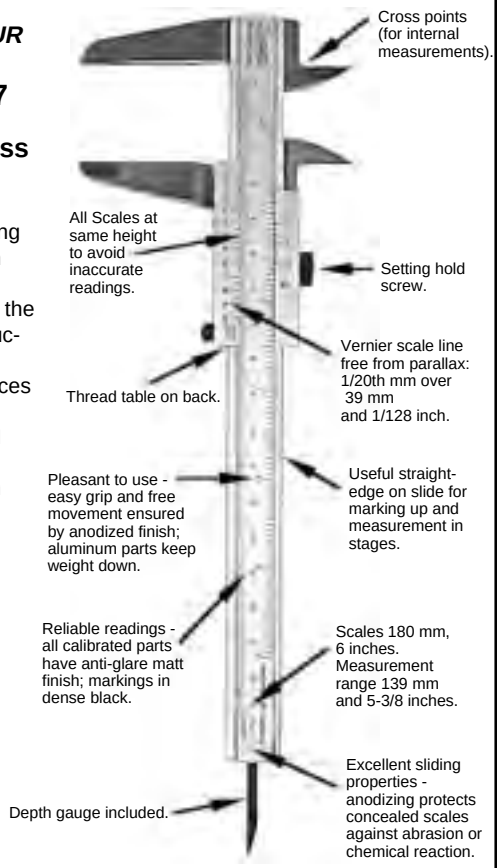
SPAENAUR No.
877-527

of Stainless Steel

This pocket sliding caliper has been manufactured in accordance with the very latest production methods: measuring surfaces rustless and hardened to DIN 862 standard, drawn aluminum slide scale.

Scale:
6"
180 mm

Priced Singly

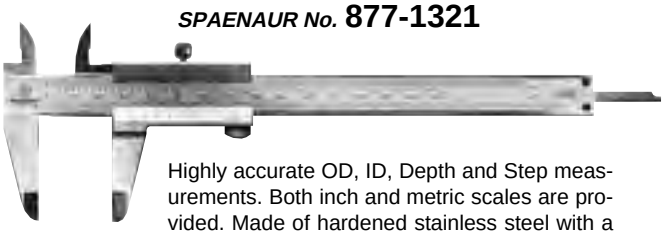


POCKET VERNIER CALIPERS

SPAENAUR No. **877-139**

Both inch and metric scales are provided.
Made of brass - plain finish.
Measuring capacity 100 mm and 4 inches.
Length of jaws 25 mm.
Priced Singly

SPAENAUR No. **877-1321**



Highly accurate OD, ID, Depth and Step measurements. Both inch and metric scales are provided. Made of hardened stainless steel with a satin-chrome finish.
Measuring capacity 150 mm and 6 inches.
Priced Singly

P

THREAD PITCH GAUGES

For the simple and quick checking of internal and external threads.
Threads per inch for imperial and thread pitch for metric are stamped on each blade.

INCH SIZE

***SPAENAUR No.* 876-857** 60° Screw Pitch

15 Blades to measure:

80, 72, 64, 56, 48, 44, 40, 36, 32, 28, 24, 18, 16, 14, and 12 threads per inch.

METRIC

***SPAENAUR No.* 877-204** 60° Screw Pitch

24 Blades to measure:

0.25, 0.3, 0.35, 0.4, 0.45, 0.5, 0.6, 0.7, 0.75, 0.8, 0.9, 1.0, 1.25, 1.5, 1.75, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0,5.5 and 6.0 mm thread pitch.

AMERICAN

***SPAENAUR No.* 876-894** 60° Screw Pitch

52 Blades to measure:

84, 82, 80, 78, 76, 74, 72, 70, 68, 66, 64, 62, 60, 58, 56, 54, 52, 50, 48, 46, 44, 42, 40, 38, 36, 34, 32, 30, 28, 27, 25, 24, 22, 20, 18, 17, 16, 15, 14, 13, 12, 11.5, 11, 10, 9, 8, 7, 6, 5.5, 5, 4.5, and 4 threads per inch.

BRITISH WHITWORTH

BS 84

***SPAENAUR No.* 877-182** 55° Screw Pitch

28 Blades to measure:

62G, 60G 1/16", 48G 3/32", 40G 1/8", 36G, 32G 5/32", 30G, 28G, 26G, 25G, 24G 3/16 7/32", 22G, 20G 1/4", 19G, 18G 5/16", 16G 3/8", 14G 7/16", 13G, 12G, 11G 5/8", 10G 3/4", 9G 7/8", 8G 1", 7G 1-1/8 1-1/4", 6G 1-3/8 1-1/2", 5G 1-5/8 1-3/4", 4-1/2G 1-7/8" and 4G 2-1/4 2-1/2".

BRITISH WHITWORTH and ISO METRIC

***SPAENAUR No.* 877-183**

ISO and Whitworth combination

60° Screw Pitch - ISO 55° Screw Pitch - Whitworth

52 Blades to measure:

METRIC

0.25, 0.3, 0.35, 0.4, 0.45, 0.5, 0.6, 0.7, 0.75, 0.8, 0.9, 1.0, 1.25, 1.5, 1.75, 2.0, 2.5, 3.0, 3.5, 4.0, 4.5, 5.0, 5.5 and 6.0 mm thread pitch.

WHITWORTH

62G, 60G 1/16", 48G 3/32", 40G 1/8", 36G, 32G 5/32", 30G, 28G, 26G, 25G, 24G 3/16 7/32", 22G, 20G 1/4", 19G, 18G 5/16", 16G 3/8", 14G 7/16", 13G, 12G, 11G 5/8", 10G 3/4", 9G 7/8", 8G 1", 7G 1-1/8 1-1/4", 6G 1-3/8 1-1/2", 5G 1-5/8 1-3/4", 4-1/2G 1-7/8 2" and 4G 2-1/4 2-1/2".

UNC

***SPAENAUR No.* 877-184** 60° Screw Pitch

22 Blades to measure:

64, 56, 48, 40, 32, 24, 22, 20, 18, 16, 14, 13, 12, 11, 10, 9, 8, 7, 6, 5, 4.5 and 4 threads per inch.

U.S.

***SPAENAUR No.* 877-293** 60° Screw Pitch

30 Blades to measure:

42, 40, 38, 36, 34, 32, 30, 28, 27, 26, 24, 22, 20, 18, 16, 15, 14, 13, 12, 11.5, 11, 10, 9, 8, 7, 6, 5.5, 5, 4.5 and 4 threads per inch.

All Thread Pitch Gauges Priced Singly.

P

Lufkin® Inch Tape Measure

Light weight, high strength, contour grip case fits comfortably in hand.
Hi-Viz® Orange color makes tape easy to locate.
Unique slide lock design allows for easy control of tape blade.
Extra wide base width helps keep tape standing upright.
Removable belt clip.
Fits easily in most tape holsters.

876-1831 25’ x 1”
876-1832 16’ x 3/4”

Priced Singly.

CATALOG 13

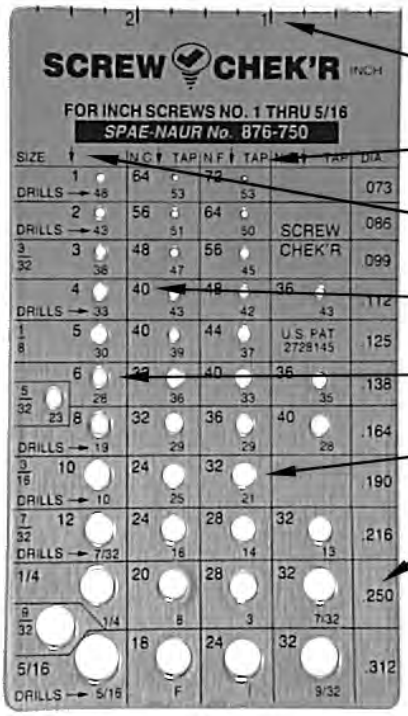
INCH

SPAENAUR No.
876-750

For American and Unified Screws from No. 1 thru 5/16". Also identifies wood screws, sheet metal screws, self-tapping screws, rivets and cotter pins.

SIZE:
5-1/8" x 3" x 3/32"

Priced Singly



"TELLS"

A LENGTH
B TAP SERIES
C SIZE (Both Number & Fractional)
D THREADS PER INCH
E CLEARANCE DRILL SIZE
F TAP DRILL SIZE
G BASIC DIAMETER

SCREW CHEK'R

Clearly and Vividly Marked

INCLUDES:

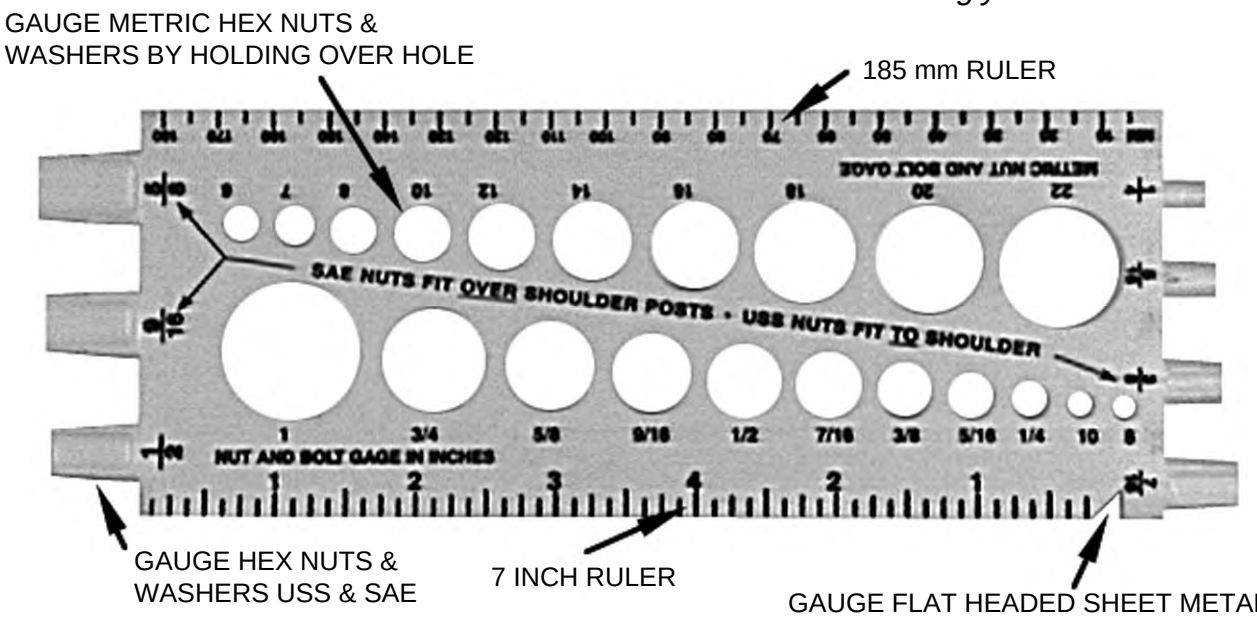
- Instructions for use and cutting, straightening, cleaning screws.
- Chart of common screw types.
- Chart of decimal equivalents of wire, letter and fractional size drills.

Material: STEEL, Satin-Chrome Plated

COMBINATION BOLT, HEX NUT & WASHER SIZER

U.S.S., S.A.E. and METRIC ***SPAENAUR No.*** **877-503**

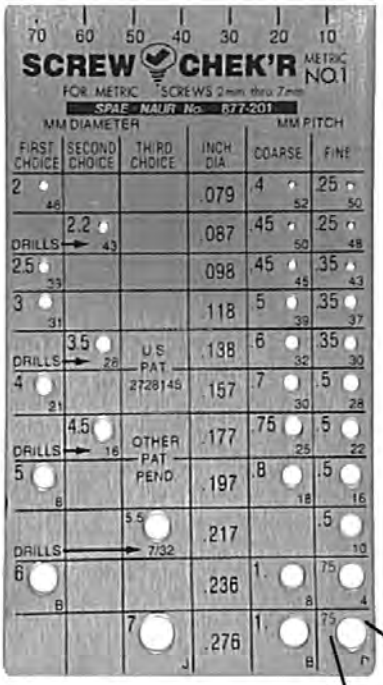
Priced Singly



Moulded of Polystyrene, a hard, tough plastic

P

Metric No. 1 **SAVES TIME – PREVENTS COSTLY ERRORS**



SCREW CHEK'R THREADED GAUGES IDENTIFY METRIC SCREWS

Ingenious threaded gauges quickly tell you size, pitch, tap drill size, clearance drill size, tap series, length and basic diameter for Metric machine screws and bolts. Also sizes wood screws, sheet metal screws, self-tapping screws, rivets and cotter pins.

Made of heavy-gauge steel, satin-chrome plated, clearly and vividly marked. Supplied in heavy see-thru vinyl pouch with hang-up grommet.

Holes are precision threaded for identification of coarse or fine threads.

***SPAENAUR No.* 877-201**

METRIC Screw Chek'r #1
for ISO metric screws from
2 mm (.079") thru 7 mm (.276")

SIZE: 5-3/8" x 3" x 3/32"

Priced Singly

NOTE:
For gauging larger Metric Sizes -
8 mm to 14 mm threads,
use Metric No. 2 SCREW CHEK'R
SPAENAUR No. 877-202.
shown below.

Metric No. 2 **The Complete System for Identifying Metric Screws**

P

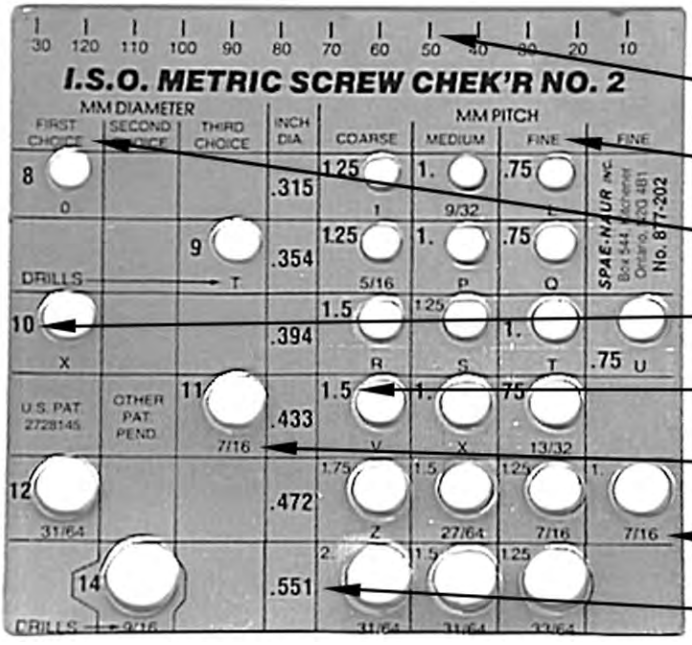
SPAENAUR No.
877-202
SCREW-CHEK'R
of Steel,
Satin-Chrome
Plated

For Metric Sizes
8 mm thru 14 mm

Clearly and
Vividly Marked

SIZE: 5-1/4" x 5" x 3/32"

Priced Singly



TELLS:

A LENGTH (in millimetres)

B TAP SERIES

C ISO PREFERENCE RATING

D SIZE (in millimetres)

E PITCH (in millimetres)

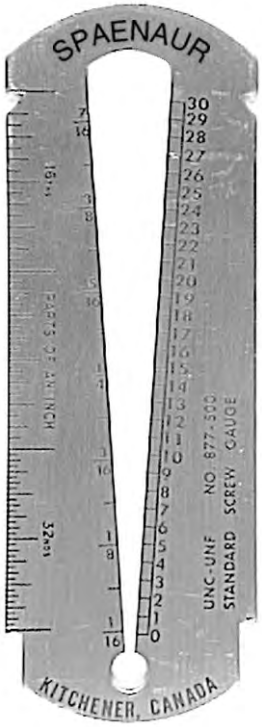
F CLEARANCE DRILL SIZE

G TAP DRILL SIZE

H BASIC DIAMETER (in inches)

CATALOG 13

DUAL PURPOSE SCREW GAUGE



SPAENAUR No. 877-500

Front Face – Inch

For identifying gauges and length of screws with **UNC and UNF Threads,** from 0 to 30 gauge, and lengths up to 3".

Back Face – Metric

For identifying gauges and lengths of screws with **METRIC Threads,** from 1 mm to 12 mm dia. and lengths up to 75 mm.

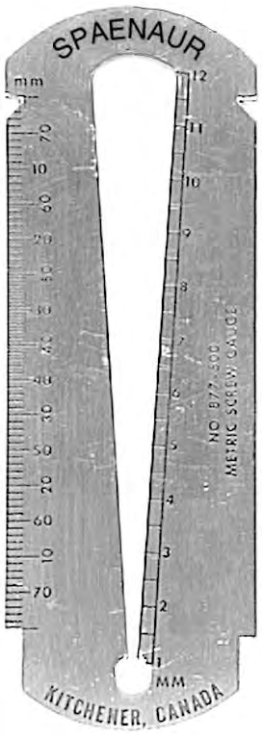
Made of Aluminum (57S hard), bright, etched in black and clear lacquered.

An indispensable tool for use of stock-keepers, mechanics, salespeople, etc.

INCH Front of Gauge

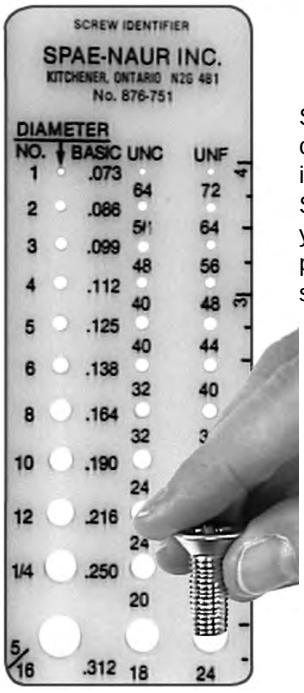
Priced Singly

METRIC Back of Gauge



INCH SCREW IDENTIFIER

It's Threaded



SPAENAUR No.
876-751

Small in size for shirt pocket carrying yet practical in utility to identify all popular "INCH SYSTEM" machine screws. Tells you size, basic diameter and pitch of UNC & UNF machine screw from number 1 thru 5/16".

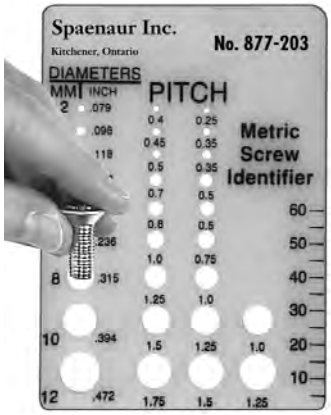
SIZE:
5-1/8" x 1-7/8" x 1/8"

Priced Singly

Manufactured in White HI-IMPACT POLYETHYLENE for long life.

METRIC SCREW IDENTIFIER

It's Threaded!



SPAENAUR No.
877-203

Small in size for shirt pocket carrying, yet practical in utility to identify I.F.I. metric machine screws. Tells you size, basic diameter and pitch of I.F.I. machine screws from 2 mm thru 12 mm.

A PRACTICAL & USEFUL TOOL!

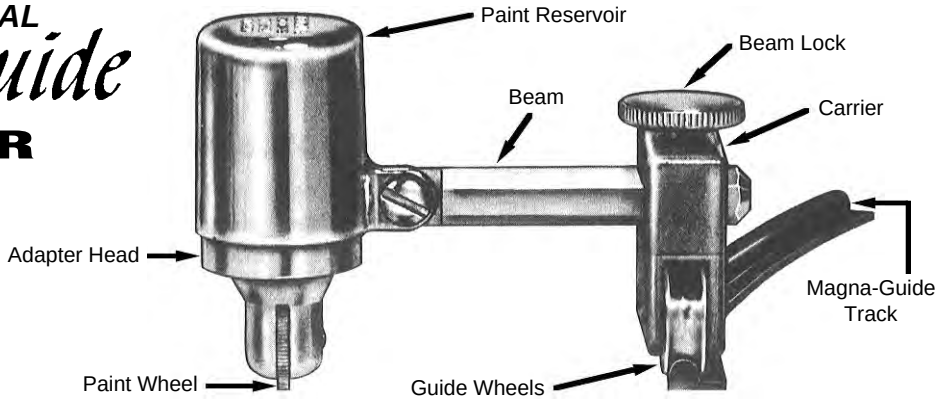
Manufactured in White HI-IMPACT POLYETHYLENE for long life.

SIZE: 123 mm x 89 mm x 3.5 mm

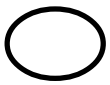
Priced Singly

P

PROFESSIONAL
magna-guide
STRIPER



MAGNA-GUIDE COMPONENTS

ILLUSTRATION	*SPAENAUR No.*	DESCRIPTION
	OPTIONAL ADAPTER HEAD ASSEMBLIES (COMPLETE)	
	876-102	3/32" Adapter Head
	876-103	1/8" Adapter Head
	REPLACEMENT WHEELS (ONLY)	
	876-114	1/32" Stripe Wheel
	876-105	1/16" Stripe Wheel
	876-106	3/32" Stripe Wheel
	876-107	1/8" Stripe Wheel
	876-115	1/4" Stripe Wheel
	**876-108**	Rubber “O” Ring for Adapter Head
	876-110	Carrier Assembly
	876-111	Beam W/Screw
	876-112	Beam Lock
	876-116	Wheel Pin

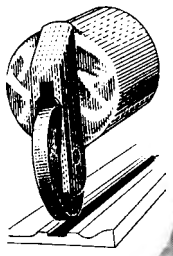
Magna-guide has been discontinued. The page illustrates component parts still available until sold.

All above parts PRICED SINGLY

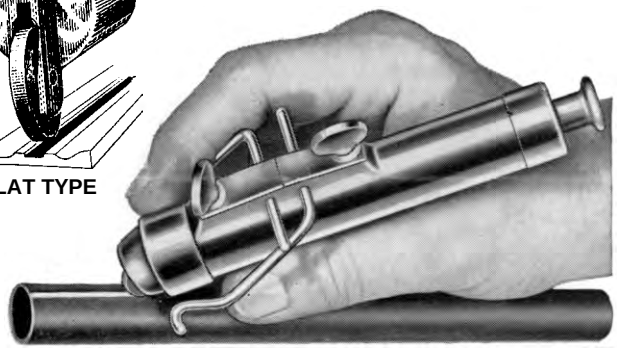
P

CATALOG 13

AUTOMOTIVE AND INDUSTRIAL STRIPING



FLAT TYPE



FOR EVERY PURPOSE WHERE A PERFECT STRIPE IS NEEDED

NO CLOGGING - NO DRIP - SIMPLE - EASY TO CLEAN

APPLICATION OF ADHESIVE MATERIALS

IDENTIFICATION MARKING...

DECORATIVE STRIPING...

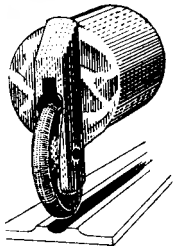
TWO MODELS TO CHOOSE FROM:

B-148A DELUXE STRIPER

B-148A DELUXE STRIPER KIT

Furnished complete with Double Guide Holder, 3 Guides, 3 Wheel Heads sizes 25, 43, 73, and 1 Cleaning Brush. Length overall approx. 6-1/4". Barrel Diameter 3/4".

Note: The included Wheel Heads are all "Flat Type".



CONVEX TYPE

B-148J JUMBO STRIPER KIT

Furnished complete with Double Guide Holder, 3 Guides, 2 Wheel Heads sizes 95 and 235, and 1 Cleaning Brush. Length overall approx. 8-3/4". Barrel Diameter 1-1/8".

Note: The included Wheel Heads are all "Flat Type".

P.C. 876

FULL RANGE OF STRIPER WHEEL HEADS AVAILABLE SEPARATELY

Inches	1/64	1/32	3/64	1/16	3/32
mm	.4	.8	1.3	1.7	2.3
Inches	7/64	1/8	5/32	3/16	1/4
mm	2.8	3.2	4.0	4.8	6.3

FLAT STYLE WHEEL HEADS

STRIPE WIDTH Inch	STRIPE WIDTH mm	WHEEL HEAD NO. FOR B-148A	WHEEL HEAD NO. FOR B-148J
1/64	.4	**B-148A-16**	-
1/32	.8	**B-148A-25**	-
3/64	1.3	**B-148A-43**	-
1/16	1.7	**B-148A-57**	-
3/32	2.3	**B-148A-73**	-
7/64	2.8	**B-148A-93**	**B-148J-95**
1/8	3.2	**B-148A-115**	**B-148J-120**
5/32	4.0	-	**B-148J-140**
3/16	4.8	-	**B-148J-190**
1/4	6.3	-	**B-148J-235**

CONVEX STYLE WHEEL HEADS

STRIPE WIDTH Inch	STRIPE WIDTH mm	WHEEL HEAD NO. FOR B-148A	WHEEL HEAD NO. FOR B-148J
1/64	.4	-	-
1/32	.8	-	-
3/64	1.3	**876-010**	-
1/16	1.7	**876-011**	-
3/32	2.3	**876-012**	-
7/64	2.8	-	**876-013**
1/8	3.2	-	**876-026**
5/32	4.0	-	**876-027**
3/16	4.8	-	**876-028**
1/4	6.3	-	**876-029**

Adhesive Guns and Accessories. Epoxy-finish bodies, plated spouts. Die-cast caps and heat treated triggers. Interchangeable, replaceable spouts include wire closure tips. Brush tip and spreader tip also available. Pumps most non-corrosive fluids which will seek their own level. (Not recommended for use with water-base adhesives.) Spout tips have 12-32 threads. Spout bases have 3/8-24 threads.

SPAENAUR No.
T-121

Capacity 1 pt.

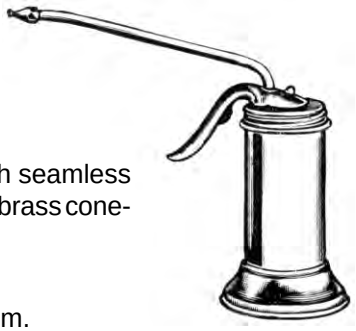
4" rigid seamless steel spout.

Priced Singly

Replacement Parts for T-121

T-121-1 Pump
T-121-2 4" Spout
T-120-4 Needle Tip
} *Priced Singly*

SEALER GUN



SPAENAUR No.
25-SN

Capacity 6 oz. - 6-inch seamless spout with detachable brass cone-shaped tip.

Seamless Body.

Double seamed bottom.

Broad base prevents tilting.

Copperite finish.

Priced Singly

***SPAENAUR No.* 25-SNT**

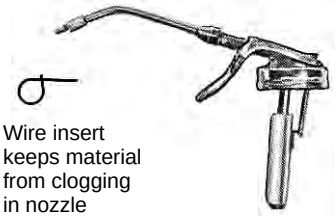
Needle Tip Only

Priced Singly

ACCESSORY ITEMS (For use with Guns and Applicators on this page.)

PUMP APPLICATORS

T-120P - For use with 8 oz. screw-top cans
T-121P - For use with 16 oz. screw-top cans



Wire insert keeps material from clogging in nozzle

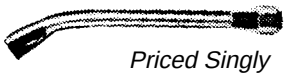
Priced Singly

Furnished complete with detachable 4" welded steel spout, detachable adhesive needle-type applicator nozzle (with wire closure insert to prevent clogging), and T-120-5 flexible plastic ribbon spreader tip, detachable.

T-120-4
Needle Tip Applicator

Priced Singly

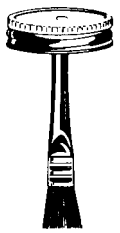
T-120-3
4" Knife Blade Tip Applicator



Priced Singly

T-151
Brush-in-cap

Fits 8 oz. screw top cans, 3-3/4" x 1-3/4".



Priced Singly

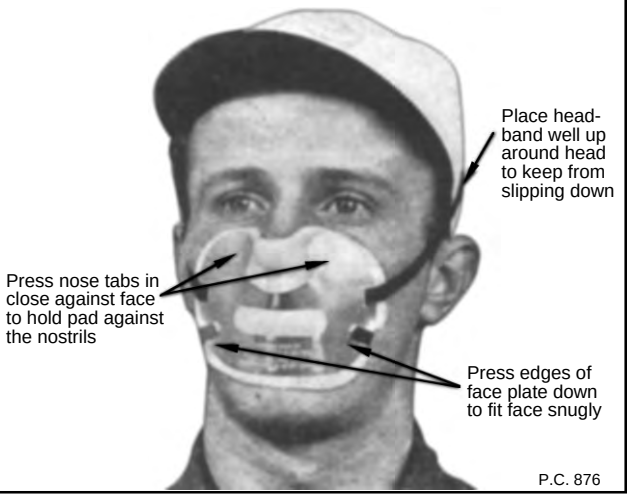
MARTINDALE PROTECTIVE MASKS

Indispensable for paint spraying, grinding, undercutting commutators, blowing out electrical or other machinery, on all polishing and buffing operations, whenever irritating fumes and unpleasant smells are present, and where the air is heavily laden with dust and grit.

PERMIT - Free breathing, clear vision, use of goggles, easy speech.
PREVENT - Dirt and irritants from reaching the nose, throat, and lungs.
PROTECT - Your health against dusts, mists, and fumes.

Made of soft rolled aluminum, so pliable that they fit closely over the nose and mouth. Only clean cotton gauze comes in contact with the skin.

SPAENAUR No.	*PACKING*
MP-20	*MARTINDALE MASK: Priced singly*
MP-21	*Package of 25 Refills pads*



P.C. 876

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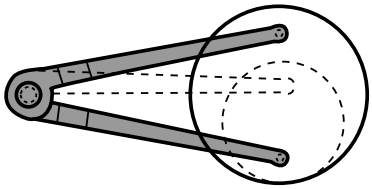
CATALOG 13

PIN-TYPE FACE SPANNER

For round nuts with drilled holes in face.

TOOL STEEL — Black Finish

With spot welded pins



All dimensions in millimetres

SPAENAUR No.	Nom. Size	Pin Dia.	Pin Lgth.	O/A Length	Thickness
877-867	7-40	2.0	3.6	115	3.0
877-868	11-60	4.0	5.0	160	4.0
877-869	14-100	6.0	7.0	215	6.0
877-870	22-125	8.0	8.0	260	6.0
877-871	22-125	10.0	10.0	260	6.0

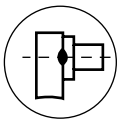
Priced Singly

HINGED PIN-TYPE FACE SPANNER

For round nuts with drilled holes in face.

TOOL STEEL — Black Finish

With spot welded pins



All dimensions in millimetres

SPAENAUR No.	Nom. Size	Pin Dia.	Pin Lgth.	O/A Length	Thickness
877-872	18-40	3.0	4.0	150	5.0
877-873	40-80	4.0	5.0	220	6.0
877-874	80-125	6.0	7.0	320	8.0
877-875	125-200	8.0	8.0	450	10.0

Priced Singly

The Hinge and Adjustable Pin-type Face Spanners on this page are not hardened but tempered, so there can be no brittle fractures caused by overstress.

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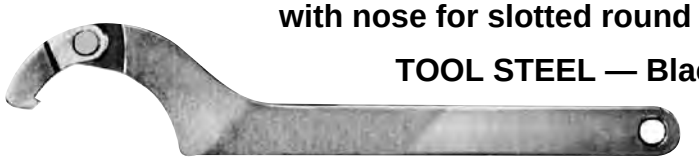
SPAENAUR

Quality fasteners - inspected, tested and certified!

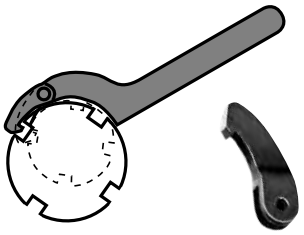
HINGE-TYPE HOOK SPANNER

with nose for slotted round nuts to DIN 1804

TOOL STEEL — Black Finish



All dimensions in millimetres



HOOK SPANNER - Complete

SPAENAUR No.	Nom. Size	Overall Length	Thickness A	Thickness B
877-261	20-35	135	9.0	4.0
877-262	35-60	175	10.5	5.0
877-263	60-90	250	12.5	7.0
877-264	90-155	290	14.0	8.0
877-265	155-230	420	17.5	10.0

REPLACEMENT HOOK with Rivet

SPAENAUR No.	Nom. Size	Overall Length
877-851	20-35	22
877-852	35-60	33
877-853	60-90	48
877-854	90-155	62
877-855	155-230	98

HINGE-TYPE PIN SPANNER

For round nuts with pin holes according to DIN 1816

TOOL STEEL — Black Finish

Priced Singly

All dimensions in millimetres

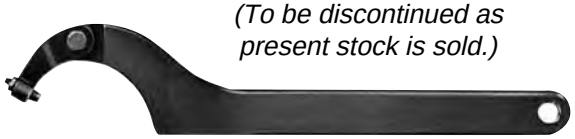
SPAENAUR No.	Nom. Size	Pin Dia.	Overall Length
877-258	20-35	2.5	135
877-253	20-35	3.0	135
877-254	35-60	4.0	175
877-259	60-90	5.0	250
877-255	60-90	6.0	250
877-260	90-155	6.0	290
877-256	90-155	8.0	290
877-257	155-230	10.0	420

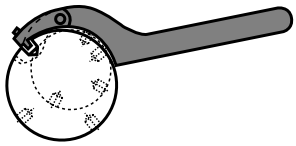
HINGE-TYPE PIN SPANNER Replaceable Pins and Head Assemblies

For round nuts with pin holes according to DIN 1816

P

(To be discontinued as present stock is sold.)





All dimensions in millimetres

PIN SPANNER

Replacement parts can only be installed on Spanners designed for replacement items.

REPLACEMENT PIN SPANNER HEAD ASSEMBLY
INCLUDES PIN, NUT & ARM

SPAENAUR No.	Nom. Size	Pin Dia.
877-845	20-35	2.5
877-846	20-35	3.0
877-847	20-35	4.0
877-915	35-60	5.0
877-850	60-90	5.0

REPLACEMENT PIN with nut

SPAENAUR No.	Nom. Size	Pin Dia. ØD	L	M
877-856	20-35	2.5	3.0	2.0
877-857	20-35	3.0	3.0	2.0
877-858	20-35	4.0	4.0	2.0
877-859	35-60	4.0	4.0	3.5
877-860	35-60	5.0	5.0	3.5
877-861	60-90	5.0	5.0	4.0
877-862	60-90	6.0	6.0	4.0
877-863	90-155	6.0	6.0	5.0
877-864	90-155	8.0	8.0	5.0
877-865	155-230	8.0	8.0	6.0
877-866	155-230	10.0	10.0	6.0

CATALOG 13

HOOK SPANNER

DIN 1810 A

For slotted round nuts to DIN 1804

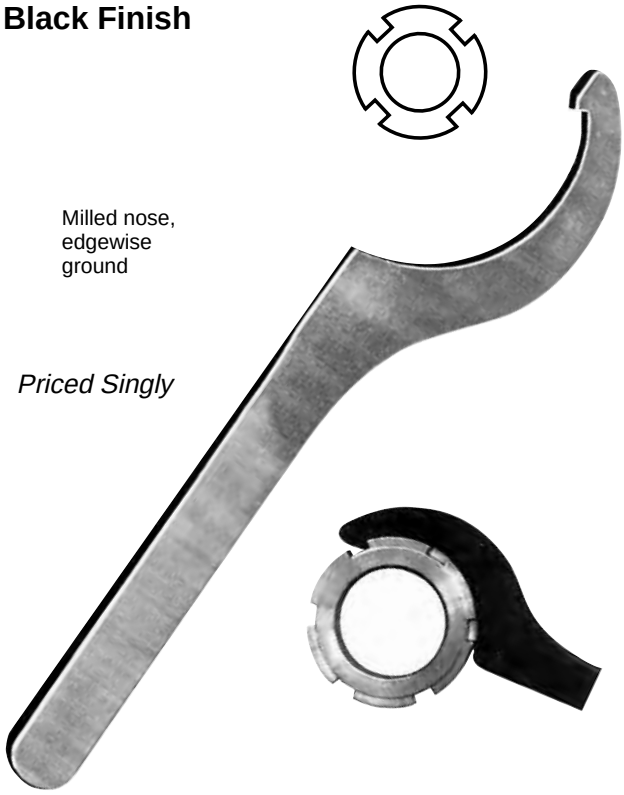
TOOL STEEL — Black Finish

All dimensions in millimetres.

SPAENAUR No.	Nom. Size	Overall Length	Thickness
877-876	12-14	110	3.0
877-877	16-20	110	3.0
877-878	25-28	136	4.0
877-879	30-32	136	4.0
877-880	34-36	170	5.0
877-881	40-42	170	5.0
877-882	45-50	206	6.0
877-883	52-55	206	6.0
877-884	58-62	242	7.0
877-885	68-75	242	7.0
877-886	80-90	280	8.0
877-887	95-100	280	8.0
877-888	110-115	335	10.0
877-889	120-130	335	10.0
877-890	135-145	385	10.0
877-891	155-165	385	10.0
877-892	180-195	470	10.0
877-893	205-220	470	10.0
877-894	230-245	560	10.0
877-289	260-270	568	10.0
877-290	280-300	680	16.0

Milled nose, edgewise ground

Priced Singly



PIN SPANNER

DIN 1810 B

For round nuts with pin holes according to DIN 1816

All dimensions in millimetres

TOOL STEEL — Black Finish

SPAENAUR No.	Nom. Size	Overall Length	Pin Dia.	Thickness
877-895	12-14	110	2.0	3.0
877-896	16-18	110	2.5	3.0
877-897	20-22	110	2.5	3.0
877-898	25-28	136	3.0	4.0
877-899	30-32	136	4.0	4.0
877-900	34-36	170	4.0	5.0
877-901	40-42	170	4.0	5.0
877-902	45-50	205	5.0	6.0
877-903	52-55	205	5.0	6.0
877-904	58-62	240	5.0	7.0
877-905	68-75	240	6.0	7.0
877-906	80-90	280	6.0	8.0
877-907	95-100	280	8.0	8.0
877-908	110-115	335	8.0	10.0
877-909	120-130	335	8.0	10.0
877-910	135-145	380	8.0	10.0
877-911	155-165	380	8.0	10.0
877-912	180-195	470	10.0	10.0
877-913	205-220	470	10.0	10.0

Priced Singly

P

DIN 6368

Metric Socket Wrench

SPANNER for shell and mill arbors
for cutter retaining screws DIN 6367

TOOL STEEL — Black Finish

SPAENAUR No.	*Nom. Size		Thread Dia.	Overall Length
877-836	13	13	M6	160
877-837	16	16	M8	180
877-839	22	22	M10	200
877-840	27	27	M12	225
877-841	32	32	M16	250
877-842	40	40	M20	280
877-843	50	50	M24	315
877-844	60	60	M30	355

***** Nominal size refers to the dia. of arbor.

All dimensions in millimetres.

Metric Crowfoot Wrenches

Steel
Nickel & Chromium Plated

12 Point Opening
1/4" Drive

SPAENAUR No.	A/F mm	Drive inch	A mm	B mm	C mm
877-114	10.0	1/4" drive	12.0	15.5	7.5
877-115	11.0	1/4" drive	12.5	17.5	8.5
877-116	12.0	1/4" drive	13.0	21.0	10.0
877-118	14.0	1/4" drive	13.0	22.0	11.0

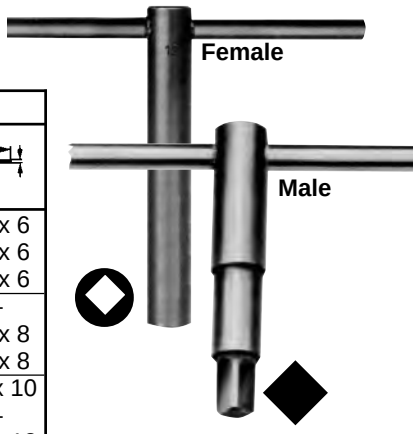
P

Metric Square Drive Wrench with T-handle

Female

DIN 904L
Long Series

***DIN 904**
Short Series



TOOL STEEL
Black Finish

▲Not to DIN

All dimensions in millimetres.

Male

DIN 905

FEMALE (For External Series)			
SPAENAUR No.	Nom. Size A/F		
▲**877-460**	**5**	120 x 12	160 x 6
▲**877-461**	**6**	160 x 12	160 x 6
***877-228**	**6**	80 x 12	160 x 6
—	**7**	—	—
▲**877-462**	**8**	160 x 16	180 x 8
▲**877-463**	**9**	200 x 18	200 x 8
▲**877-464**	**10**	200 x 20	200 x 10
—	**11**	—	—
877-465	**12**	200 x 24	250 x 12
877-466	**13**	200 x 24	250 x 12
877-467	**14**	200 x 28	320 x 14
***877-229**	**14**	120 x 28	320 x 14
877-468	**17**	250 x 34	400 x 16
877-469	**19**	320 x 36	400 x 16
—	**22**	—	—
—	**24**	—	—

MALE (For Internal Series)			
SPAENAUR No.	Nom. Size A/F		
877-470	**5**	60 x 12	160 x 6
877-484	**6**	80 x 12	160 x 6
▲**877-485**	**7**	80 x 16	180 x 8
877-486	**8**	80 x 16	180 x 8
877-487	**9**	80 x 16	180 x 8
877-488	**10**	100 x 20	200 x 10
877-489	**11**	100 x 20	200 x 10
877-490	**12**	100 x 24	250 x 12
877-491	**13**	100 x 24	250 x 12
877-492	**14**	120 x 28	320 x 14
877-493	**17**	160 x 34	400 x 16
877-494	**19**	200 x 36	400 x 16
877-495	**22**	200 x 42	630 x 20
877-496	**24**	250 x 45	630 x 20

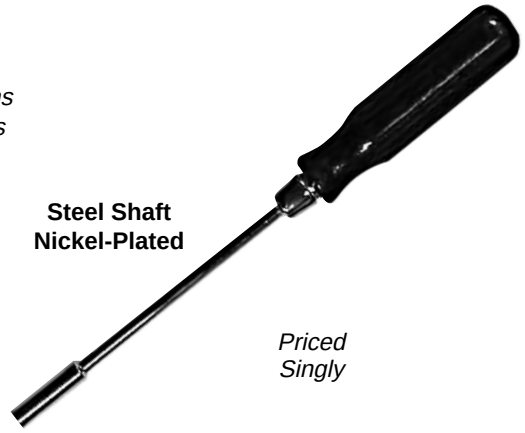
All items on this page Priced Singly.

Hex Nut Driver with finished wood handle.

SPAENAUR No.	A/F	Blade Length	Handle Length
877-346	3.0	120	100
877-347	3.5	120	100
877-348	4.0	120	100
877-349	4.5	120	100
877-350	5.0	120	100
877-351	5.5	120	100
877-352	6.0	120	100
877-353	7.0	120	100
877-354	8.0	120	100
877-355	9.0	120	100
877-356	10.0	120	110
877-357	11.0	120	110
877-358	12.0	120	110
877-359	13.0	120	110
877-360	14.0	120	110

All dimensions in millimetres

Steel Shaft Nickel-Plated



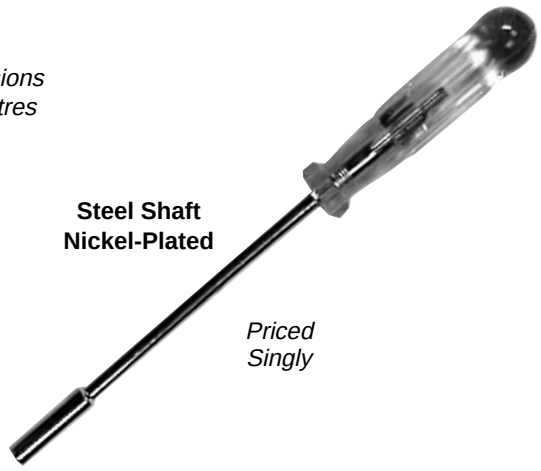
Priced Singly

Hex Nut Driver with yellow plastic handle

SPAENAUR No.	A/F	Blade Length	Handle Length
877-361	3.0	125	90
877-362	3.5	125	90
877-363	4.0	125	90
877-364	4.5	125	90
877-365	5.0	125	90
877-366	5.5	125	90
877-367	6.0	125	90
877-368	7.0	125	90
877-369	8.0	125	90
877-370	9.0	125	90
877-378	10.0	125	100
877-371	11.0	125	100
877-372	12.0	125	100
877-373	13.0	125	100
877-374	14.0	125	100
877-375	15.0	125	100
877-376	16.0	125	100
877-377	17.0	125	100

All dimensions in millimetres

Steel Shaft Nickel-Plated



Priced Singly

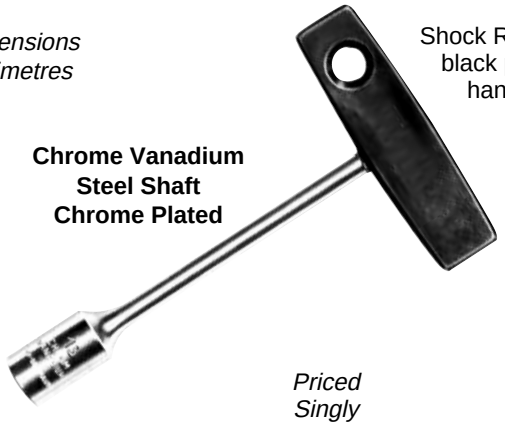
Hex Nut Driver with T-handle

SPAENAUR No.	A/F	Blade Length	O/A Length
877-266	5.5	125	151
877-267	6.0	125	151
877-268	7.0	125	151
877-269	8.0	125	151
877-278	8.0	230	256
877-270	10.0	125	151
877-279	10.0	230	256
877-271	11.0	125	151
877-272	12.0	125	151
877-280	12.0	350	376
877-273	13.0	125	151
877-281	13.0	230	256
877-274	14.0	125	151
877-282	14.0	350	376
877-275	15.0	125	151
877-276	16.0	125	151
877-277	17.0	125	151

All dimensions in millimetres

Shock Resistant black plastic handle.

Chrome Vanadium Steel Shaft Chrome Plated

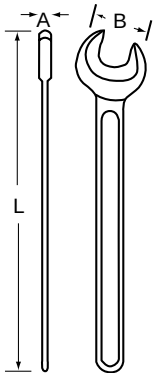


Priced Singly

P

Single Open-End Wrench

TOOL STEEL - Black Finish



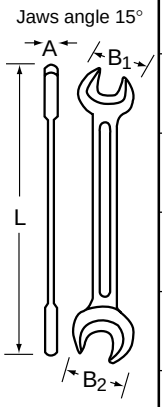
Priced Singly

SPAENAUR No.	A/F	L mm	A mm	B mm
877-799	6	75	3.2	15.5
877-800	7	80	3.2	17.5
877-801	8	95	3.5	19.0
877-802	9	100	4.0	20.5
877-803	10	105	4.5	22.0
877-804	11	110	5.0	24.0
877-805	12	125	5.0	26.5
877-806	13	130	5.5	28.5
877-807	14	140	5.5	30.0
877-808	15	145	5.5	32.0
877-809	16	145	5.5	33.0
877-810	17	160	6.0	36.0
877-288	18	160	6.0	36.0
877-811	19	170	7.0	40.0
877-812	22	195	8.0	46.0
877-813	24	215	9.0	50.0
877-721	25	215	9.0	52.0
877-814	27	240	10.0	56.0
877-815	30	260	11.0	62.0
877-816	32	275	12.0	66.0
877-722	38	305	13.0	74.0
877-818	41	345	14.0	84.0
877-819	46	380	15.0	94.0
877-820	50	415	16.0	102.0
877-821	55	460	17.0	112.0
877-822	60	495	18.0	122.0
877-823	65	530	19.0	132.0
877-824	70	575	20.0	142.0
877-825	75	610	21.0	152.0
877-826	80	645	22.0	162.0
877-827	85	690	23.0	172.0
877-828	90	740	25.0	192.0
877-829	95	740	25.0	192.0
877-830	100	800	26.0	201.0
877-831	105	850	28.0	220.0
877-832	110	900	28.0	220.0
877-833	115	960	28.0	220.0
877-834	120	990	30.0	242.0

DIN 895

Double Open-End Wrench

TOOL STEEL - Black Finish



Priced Singly

SPAENAUR No.	A/F	L mm	A mm	B1 mm	B2 mm
877-758	6 x 7	96	3.3	15.5	17.0
877-759	7 x 9	110	4.0	19.0	23.0
877-760	8 x 9	108	4.0	19.0	20.5
877-761	8 x 10	115	4.5	19.0	22.0
877-762	9 x 10	120	4.5	23.0	26.5
877-763	9 x 11	124	5.0	20.0	24.0
877-764	10 x 11	124	5.0	22.0	24.0
877-765	10 x 13	140	5.5	22.0	28.5
877-766	10 x 14	140	5.5	22.5	31.0
877-767	11 x 14	140	5.5	24.0	31.0
877-768	12 x 13	140	5.5	26.5	28.5
877-769	12 x 14	140	5.5	26.5	30.0
877-770	13 x 14	140	5.5	28.5	30.0
877-771	13 x 15	155	5.5	28.5	32.0
877-718	13 x 16	155	5.5	28.5	33.0
877-772	13 x 17	160	6.0	28.5	36.0
877-773	14 x 15	155	5.5	30.0	32.0
877-774	14 x17	160	6.0	30.0	36.0
877-775	16 x 17	160	6.0	33.0	36.0
877-719	16 x 18	170	6.5	33.0	38.0
877-776	17 x 19	175	7.0	36.0	40.0
877-777	17 x 22	195	8.0	36.0	46.0
877-778	18 x 19	175	7.0	38.0	40.0
877-720	18 x 21	195	8.0	38.0	44.0
877-779	19 x 22	195	8.0	40.0	46.0
877-780	19 x 24	205	9.0	40.0	50.0
877-781	20 x 22	195	8.0	42.5	46.0
877-782	21 x 23	220	9.0	44.0	49.0
877-783	22 x 24	220	9.0	46.0	50.0
877-784	22 x 27	235	10.0	46.0	56.0
877-785	24 x 27	245	10.0	50.0	56.0
877-786	24 x 30	265	11.0	50.0	62.0
877-787	25 x 28	245	10.0	53.0	58.0
877-788	27 x 32	275	12.0	56.0	66.0
877-789	30 x 32	275	12.0	62.0	66.0
877-790	30 x 36	305	13.0	62.0	74.0
877-792	36 x 41	345	14.0	74.0	84.0
877-793	41 x 46	380	15.0	84.0	94.0
877-794	46 x 50	420	16.0	94.0	102.0
877-795	50 x 55	460	17.0	102.0	112.0
877-796	55 x 60	500	18.0	112.0	122.0
877-797	65 x 70	580	20.0	132.0	142.0
877-798	75 x 80	660	22.0	152.0	162.0

Double Open-End Wrench - EXTRA THIN

Purchase as a Set or Individually.

6-Piece Set

SPAENAUR Set No.

877-453

Steel Chrome Vanadium Hardened and Nickel-Plated

Supplied in a plastic wallet.

Contents of Set - 1 of each Wrench Listed Below

SPAENAUR No.	A/F	Overall Length	Thickness
877-454	3 x 3.5	120	1.5
877-455	4 x 4.5	120	1.5
877-456	5 x 5.5	120	1.5
877-457	6 x 6.5	120	1.5
877-458	7 x 8	125	2.0
877-459	9 x 10	125	2.0

All dimensions in millimetres.

P

CATALOG 13

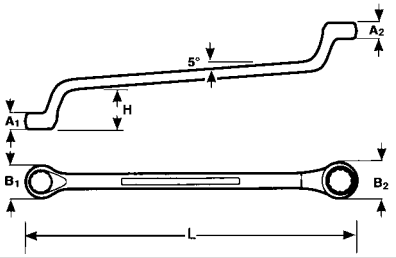
Priced Singly

Box Wrenches

12 Point, deep offset, thin walled.

Chrome-Vanadium

Chrome Plated, polished ends.



SPAENAUR No.	A/F	L mm	A1 mm	A2 mm	B1 mm	B2 mm	H mm
876-1061	1-7/16" x 1-5/8"	440	20.0	21.0	54.0	60.5	40
876-1062	1-11/16" x 1-7/8"	485	21.0	22.5	64.0	71.5	43
876-1063	1-13/16" x 2"	535	22.5	24.0	69.0	76.5	48
876-1064	1-3/4" x 2-1/16"	535	22.5	24.0	66.5	79.0	48
876-1065	2-3/16" x 2-3/8"	610	25.0	26.0	85.5	92.0	54
876-1066	2-1/4" x 2-7/16"	610	25.0	26.0	88.0	95.0	54
876-1067	2-9/16" x 2-3/4"	685	27.0	28.0	102.0	108.0	58
876-1068	2-5/8" x 2-13/16"	685	27.0	28.0	104.0	110.0	58
876-1069	2-15/16" x 3-1/8"	790	30.0	30.0	117.0	124.0	63
876-1070	3" x 3-1/8"	790	30.0	30.0	119.0	124.0	63

Smaller size Double-Hex Box Wrenches in Inch, found on N9.

Crescent® Pivot Head Ratcheting Combination Wrench Set

Introducing the New Crescent® Pivot Head Ratcheting Combination Wrench. Its head pivots a full 180° so it works at any angle. Made of super-tough chrome vanadium steel with a strong, smooth operating pivot joint, the head can be positioned easily, yet securely, at any point along its 180° arc. The fully articulated head of the pivot head wrench makes jobs go more quickly, saving time and money.

876-1834

7 Piece set

SAE 5/16”, 3/8”, 7/16”, 1/2”, 9/16”, 5/8” and 3/4” in a plastic case.

Priced Singly

P

PUNCHES

Chrome Vanadium

Air-hardening steel, forged and hardened.
Octagonal Stock

Striking head quenched and tempered. Lacquered finish.

DIN 6458 Taper Punches

SPAENAUR No.	Length mm	Length Inch	⬡ Stock mm	Ø Dia. of Point mm	Ø Dia. of Point Inch
877-1430	120	5	10	1	1/16
877-1431	120	5	10	2	5/64
877-1432	120	5	10	3	1/8
877-1433	120	5	10	4	5/32
877-1434	120	5	10	5	3/16
877-1435	120	5	10	6	1/4
877-1436	120	5	12	1	1/16
877-1437	120	5	12	2	5/64
877-1438	120	5	12	3	1/8
877-1439	120	5	12	4	5/32
877-1440	120	5	12	5	3/16
877-1441	120	5	12	6	1/4
877-1442	120	5	12	7	9/32
877-1443	120	5	12	8	5/16
877-1444	120	5	12	9	11/32
877-1445	120	5	12	10	13/32
877-1446	150	6	12	9	11/32
877-1447	150	6	12	10	13/32

SPAENAUR No.
877-1136

Universal chisel hand guard, made of Lupolen, for all flat and octagonal chisels.

Approx. O/A length 4-3/4" Approx. O/A Shield dia. 4-1/8"

DIN 7250 Centre Punches

SPAENAUR No.	Length mm	Length Inch	⬡ Stock mm	Ø Dia. of Point mm	Ø Dia. of Point Inch
877-1425	100	4	8	3	1/8
877-1426	120	5	10	4	5/32
877-1427	120	5	10	5	3/16
877-1428	120	5	12	5	3/16
877-1429	150	6	12	5	3/16

DIN 6450 Parallel Pin Punches

SPAENAUR No.	Length mm	Length Inch	⬡ Stock mm	Ø Dia. of Point mm	Ø Dia. of Point Inch
877-1448	150	6	10	2	5/64
877-1450	150	6	10	3	1/8
877-1452	150	6	10	4	5/32
877-1453	150	6	10	4.5	11/64
877-1454	150	6	10	5	3/16
877-1455	150	6	10	6	1/4
877-1456	150	6	12	7	9/32
877-1457	150	6	12	8	5/16
877-1458	150	6	12	10	13/32

Pilot Punches

FOR REMOVAL OF
(Rolled) **Spring Tension Pins**

PAT. NO. 3,099,876

See page E106.

P

CATALOG 13

All items on this page
PRICED SINGLY.

Flat Cold Chisels

Chrome Vanadium
Air-hardening steel, forged and hardened.
Rectangular Stock
Striking head quenched and tempered.
Lacquered finish.

DIN 6453

SPAENAUR No.	Length mm	Length Inch	Stock mm	Point mm	Point Inch
877-1460	200	8	23 x 13	24	1
877-1461	250	10	23 x 13	25	1
877-1462	300	12	23 x 13	26	1

Crosscut Chisels

Chrome Vanadium
Air-hardening steel, forged and hardened.
Rectangular Stock
Striking head quenched and tempered.
Lacquered finish.

DIN 6451

SPAENAUR No.	Length mm	Length Inch	Stock mm	Point mm	Point Inch
877-1463	200	8	20 x 12	8	5/16
877-1464	250	10	23 x 13	9	3/8

Pointed Chisels

Striking head quenched and tempered.
Lacquered finish.

DIN 7256

Chrome Vanadium
Air-hardening steel,
forged and hardened.

SPAENAUR No.	Length mm	Length Inch	Stock mm
877-1465	250	10	16

Octagonal Stock

Electrician's Chisels

Striking head quenched and tempered,
Lacquered finish.

Chrome Vanadium
Air-hardening steel, forged and hardened.

SPAENAUR No.	Length mm	Length Inch	Stock mm	Point mm	Point Inch
877-1466	200	8	10	14	1/2
877-1467	250	10	10	14	1/2

P

Jointing Chisels

Striking head quenched and tempered,
Lacquered finish.

Chrome Vanadium
Air-Hardening steel, forged and hardened.
Rectangular Stock

SPAENAUR No.	Length mm	Length Inch	Stock mm	Point mm	Point Inch
877-1468	250	10	26 x 13	60	2-3/8

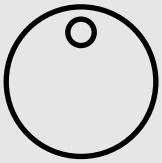
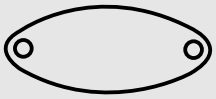
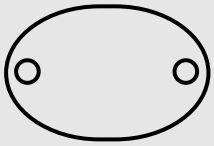
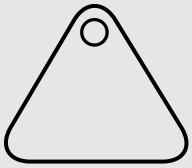
Stone Mason Chisels

Chrome-molybdenum Vanadium
Air-hardening steel,
resists splitting and mushrooming.

SPAENAUR No.	Length mm	Length Inch	Stock mm	Point mm	Point Inch
877-1170	200	8	15	23	29/32
877-1171	250	10	15	23	29/32
877-1172	300	12	15	23	29/32
877-1173	350	14	18	26	1
877-1174	400	16	18	26	1
877-1175	500	20	20	30	1-3/16

BRASS & ALUMINUM BLANK TAGS, CHECKS & NAME PLATES

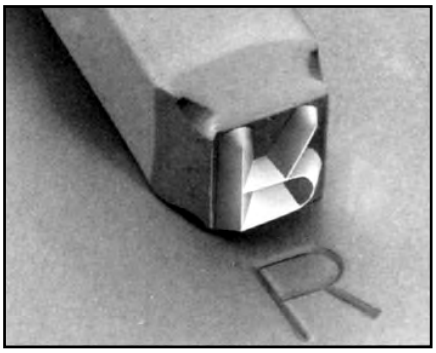
Items illustrated on this page are stocked standard shapes available to be stamped or embossed. Used for all sorts of identification: machines, coat rooms, keys, valves, inventory control, etc. Variety of shapes and sizes available upon request.

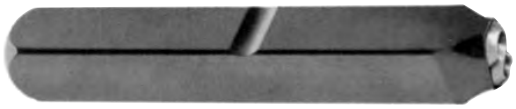
	SPAENAUR No. Mtrl. Thick. 1/32"					
	Aluminum	Brass	Dimensions	Hole Sizes	No. of Holes	Pkg. Qty.
ROUND 	**121-411**	**121-515**	1"	3/16"	1	25
	121-412	**121-516**	1-1/4"	1/4"	1	25
	121-413	**121-517**	1-1/2"	3/16"	1	25
	121-414	**121-518**	2"	1/4"	1	25
OVAL 	**121-415**	**121-519**	5/8 x 1-1/2"	1/8"	2	25
	**121-416**	**121-520**	1-3/16 x 1-3/4"	1/16"	2	25
	121-417	**121-521**	1-3/8 x 2-1/8"	1/8"	2	25
RECTANGLE	**121-418**	**121-522**	5/8 x 1-3/8"	1/4"	1	25
	121-419	**121-523**	1 x 2"	1/8"	2	25
	121-420	**121-524**	1/2 x 2-1/4"	1/8"	2	25
TRIANGLE 	**121-421**	**121-525**	1-3/8 x 1-3/8"	1/8"	1	25

Sales Desk open 7 a.m. to 7 p.m. E.S.T., Monday to Friday.

Call (800) 265-8772 or (519) 744-3521.

A-Z and Numeric Identification Tools





Featuring the thumb groove that helps you to:

1. See the thumb side.
2. Feel the thumb side.
3. Get positive grip.
4. Make your mark with no mistake.

The relatively deep groove across the thumb side of the stamp corresponds to the bottom of the character. It provides an easily seen, quickly felt index mark for locating the thumb side of the stamp and gives a positive thumb grip. You get marks and no mistakes.

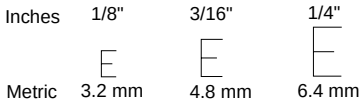
Sets packed in sturdy wood box with lid. Both pieces made from a solid block of wood. Lid serves as handy holder for composition.

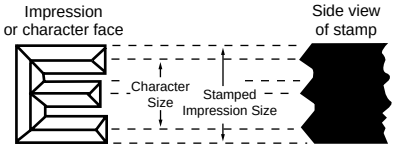
Machine-made

Fine quality steel, special heat treatment. Sharp characters in gothic style insure deep, clear impressions. They can mark steel up to a hardness of 50 Rockwell. Crown hammer end. More identification marks per dollar.

To Determine Sharp Face Character Size

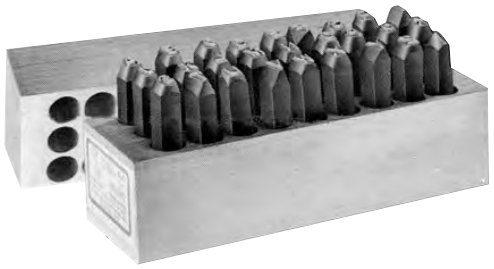
It is not unusual to overestimate the size of character needed. A character is measured from cutting edge to cutting edge.





LETTER SETS, A-Z plus period (27 characters).

SPAENAUR No.	Type Height	Weight Lbs.	Size of Steel Sq.	Size of Steel Length
876-1743	1/8"	1-1/2	1/4"	2-3/8"
876-1744	3/16"	2	5/16"	2-7/16"
876-1745	1/4"	3	3/8"	2-5/8"



NUMERIC SETS, 0-8 (9 characters) 6 and 9 are interchangeable.

SPAENAUR No.	Type Height	Weight Lbs.	Size of Steel Sq.	Size of Steel Length
876-1746	1/8"	1/2	1/4"	2-3/8"
876-1747	3/16"	3/4	5/16"	2-7/16"
876-1748	1/4"	1	3/8"	2-5/8"

COMBINATION SETS, A-Z plus period and Numbers 0-8 (36 characters of one size). 6 and 9 are interchangeable.

SPAENAUR No.	Type Height	Weight Lbs.	Size of Steel Sq.	Size of Steel Length
876-1749	1/8"	2	1/4"	2-3/8"
876-1750	3/16"	2-1/2	5/16"	2-7/16"
876-1751	1/4"	3	3/8"	2-5/8"

P

CATALOG 13

All sets on this page PRICED SINGLY.

SPAENAUR

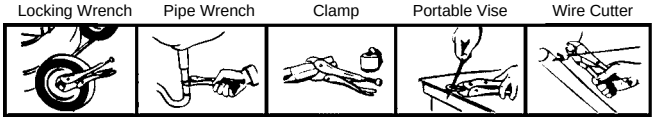
TELEPHONE:
24 hours a day, 365 days a year
(800) 265-8772
(519) 744-3521

Counter Sales:
7 a.m. to 6 p.m. EST., Weekdays

FAX:
24 hours a day, 365 days a year
(519) 744-0818
(800) 252-6380

A WHOLE TOOL KIT BY ITSELF!

Genuine VISE-GRIP, the most sensational hand tool ever made. Puts Ton-Grip in the palm of your hand! It LOCKS, CLAMPS, TWISTS, TURNS, PULLS, CUTS, RATCHETS, HOLDS! Has hundreds of uses as an Adjustable End Wrench, Pipe Wrench, Locking Wrench, Super Pliers, Vise and Toggle Press. VISE-GRIP is the handiest tool you can own!



Curved Jaw Locking Pliers with Wire Cutter

- Convenient wire cutter cuts up to a 1/4" bolt.
- Involute jaw curve permits user to put tremendous pressure on four points of any style nut or bolt head.

SPAENAUR No.	Size	Jaw Adjustment
876-246	4"	0 - 15/16"
876-245	5"	0 - 1-1/4"
T-7WR	7"	0 - 1-5/8"
T-10WR	10"	0 - 1-7/8"

Curved Jaw Locking Pliers

- Involute jaw curve permits user to put tremendous pressure on four points of any style nut or bolt head.

SPAENAUR No.	Size	Jaw Adjustment
T-7CR	7"	0 - 1-5/8"
T-10CR	10"	0 - 1-7/8"

Straight Jaw Locking Pliers

- Straight jaws allow for maximum contact on flat, square or hex work.
- Very popular in welding and other metal working.
- Use for safer grinding or as a portable vise.

SPAENAUR No.	Size	Jaw Adjustment
T-7R	7"	0 - 1-1/8"
T-10R	10"	0 - 1-5/8"

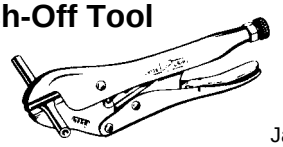
Long Nose Locking Pliers

- Convenient wire cutter cuts up to a 1/4" bolt.
- Long, straight nose allows for use in narrow spaces not reachable by curved or straight jaws.
- Use to clamp or tighten bolts or to extract items in hard-to-reach places.

SPAENAUR No.	Size	Jaw Adjustment
876-247	4"	0 - 1-5/8"
876-238	6"	0 - 2-1/4"
876-240	9"	0 - 2-7/8"

VISE-GRIP Pinch-Off Tool

Specially for the refrigeration industry! Crimps copper tubing instantly for shut-off.

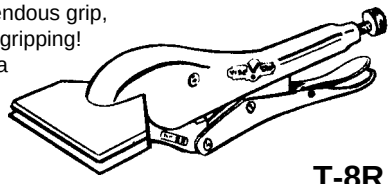


T-RR
with EASY Release

SPAENAUR No. T-RR	Size	Jaw Thickness	Throat Depth
VISE-GRIP Pinch-Off Pliers	7"	1/4"	1"

VISE-GRIP Sheet Metal Tool

LOCKS to work with tremendous grip, eliminating tiresome hand gripping! Material can't slip - giving a smoother, more accurate bending and seaming job. Adjusts to non-locking Pliers Action. Makes all kinds of bending, forming, crimping jobs EASIER ...FASTER.

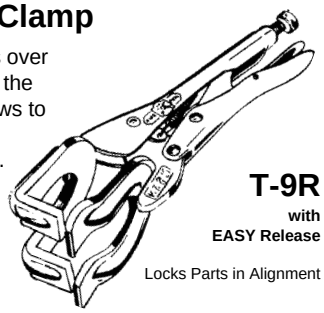


T-8R
with EASY Release

SPAENAUR No. T-8R	Size	Jaw Width	Throat Depth
VISE-GRIP Sheet Metal Tool	8"	3-1/8"	1-3/4"

VISE-GRIP Welding Clamp

Simply place the U-shaped jaws over the edges to be welded ... close the toggle lever. This LOCKS the jaws to the work with powerful grip. The work is brought into alignment ... HELD securely ... freeing both hands for handling equipment. Jaws provide good visibility and working space, adjusts up to 1-5/8" Makes every job FASTER, EASIER.



T-9R
with EASY Release

Locks Parts in Alignment

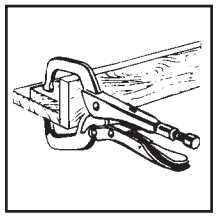
SPAENAUR No. T-9R	Size	Jaw Width	Jaw Adjustment
VISE-GRIP Welding Clamp	9"	2-3/4"	1-5/8"

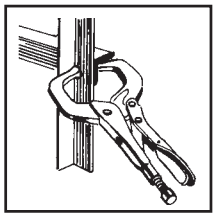
P.C.876

P

CATALOG 13

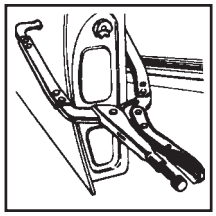
All VISE-GRIP Tools PRICED SINGLY.

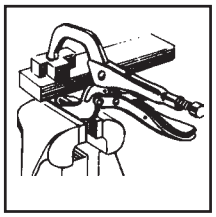

Wood clamp.

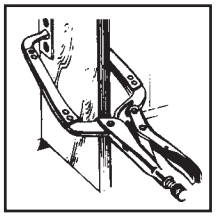

Clamp angle iron.

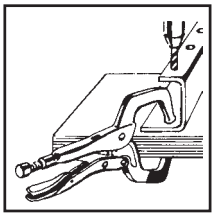
VISE-GRIP LOCKING "C" CLAMPS

- **Quick, easy locking and release action makes old fashioned screw-type "C" clamps obsolete.**


Auto body work.


Clamp intricate work.


Carpentry work.


Clamp awkward jobs.

876-244

Mfr's. No. 6R
Length 6-1/2"
Jaw Adjusts 0" to 2"
A = 2" B = 1-1/2"

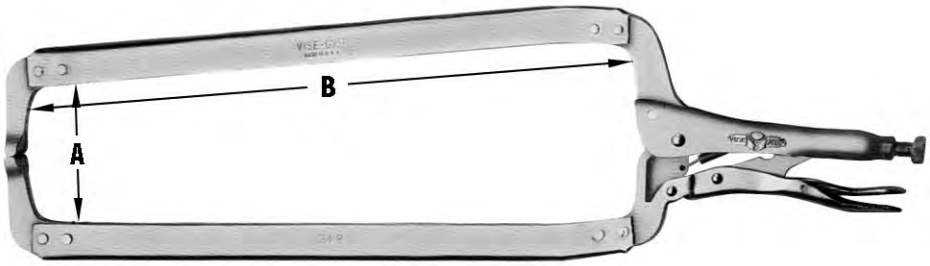
T-11R

Mfr's. No. 11R
Length 10-5/8"
Jaw Adjusts 0" to 3-3/4"
A = 3-3/4" B = 2-5/8"

All VISE-GRIP® Tools Priced Singly.

876-766

Mfr's. No. 24R
Length 24"
Jaw Adjusts 0" to 14-3/4"
A = 3-5/8" B = 15-1/2"



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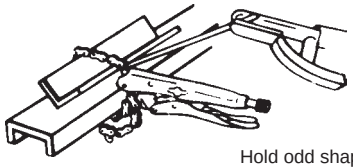
VISE-GRIP® CHAIN WRENCH

T-20R

P.C. 876


Hold odd shapes for welding and fabricating.

SPAENAUR No.

T-20R – Chain Wrench

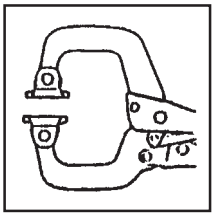
T-20REP – Replacement Chain 19"

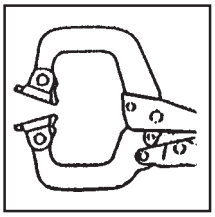
T-20EX – Extension Chain 18"

CATALOG 13

VISE-GRIP LOCKING "C" CLAMPS

WITH SWIVEL PADS


Protects wood


Holds tapered work.

- **Quick, easy locking and release action makes old fashioned screw-type "C" clamps obsolete.**
- **Self-leveling swivel pads won't damage work.**

876-765

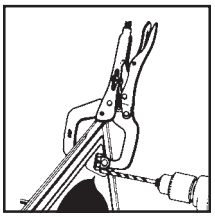
Mfr's. No. 4SP

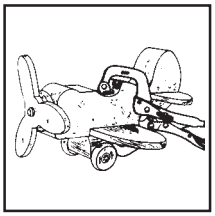
Length 5-1/2"
Jaw Adjusts 0" to 1-1/2"
A = 1-7/8" B = 1-1/8"

876-241

Mfr's. No. 6SP

Length 6-1/2"
Jaw Adjusts 0" to 2"
A = 2-1/8" B = 1-3/8"

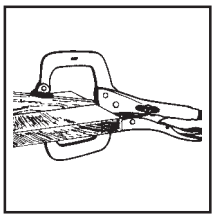

Clamp awkward fabricating jobs.


Hold delicate work.

876-242

Mfr's. No. 11SP

Length 11"
Jaw Adjusts 0" to 3-3/4"
A = 3-3/8" B = 2-5/8"


Hold tapered work.

876-243

Mfr's. No. 18SP

Length 18"
Jaw Adjusts 0" to 7"
A = 3-1/2" B = 9-1/2"

876-764

Mfr's. No. 24SP

Length 24"
Jaw Adjusts 0" to 11-1/4"
A = 3-1/2" B = 15-1/2"

P

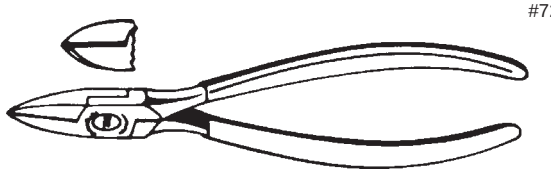
CATALOG 13

For Those Who Want The Best

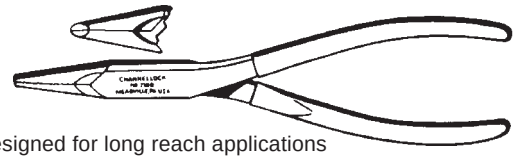
SPAENAUR No. MFR'S No.

876-363 **Long Reach Plier, Diagonal Cutter, 7-1/2" long** #728

Designed for long reach applications and for use in confined areas.

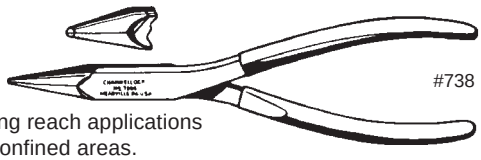


876-364 **Long Reach Plier, Flat Nose, 8" long** #718



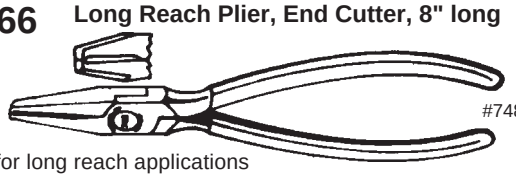
Designed for long reach applications and for use in confined areas.

876-365 **Long Reach Plier, Needle Nose, 8" long** #738



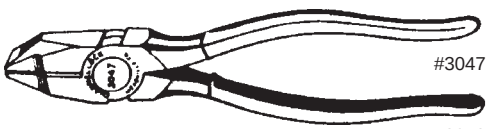
Designed for long reach applications and for use in confined areas.

876-366 **Long Reach Plier, End Cutter, 8" long** #748



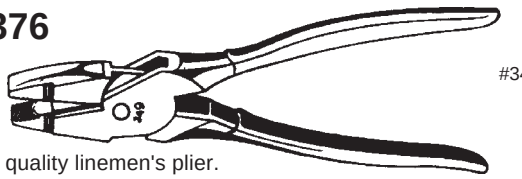
Designed for long reach applications and for use in confined areas.

876-373 6" long
876-374 7" long
876-375 8-1/2" long
Linemen's Plier, Bevel Nose #3046 #3047 #3048



WIREMASTER™, Linemen's Plier, 9" long

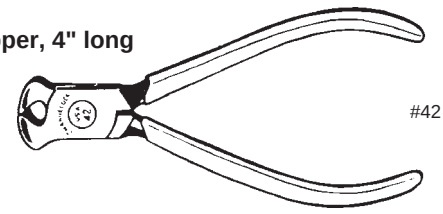
876-376 #349



Premium quality linemen's plier.
High leverage handle design.

LITTLE CHAMP
End Cutting Nipper, 4" long

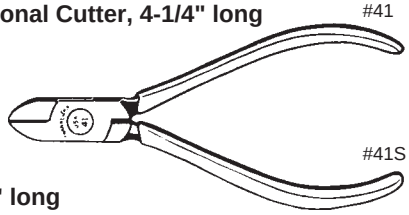
876-377 #42



SPAENAUR No. MFR'S No.

876-367 **Diagonal Cutter, 4-1/4" long** #41

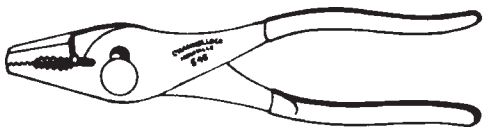
876-368 **LITTLE CHAMP with Spring, 4-1/4" long** #41S



Slip Joint Plier Heavy Duty Wire Cutting Shear

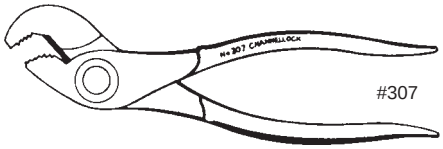
Patented PermaLock® fastener eliminates nut and bolt failures.

876-369 6-3/4" long #546
876-370 8-1/4" long #548



876-371 **NUTBUSTER™, Parrot Nose, 7" long** #307

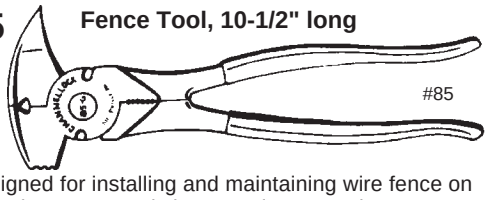
Parrot nose with terrific gripping power on rounded surfaces from 1/4" to 5/8".



876-372 **Cutting Plier Wiring Plier, Cuts, Strips Insulation, 7"long** #337W

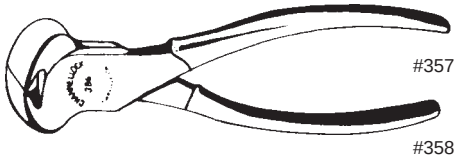
10 and 12 guage wire stripping holes.

876-385 **Fence Tool, 10-1/2" long** #85



Specially designed for installing and maintaining wire fence on metal and wood posts. 6 tools in 1: staple starter, hammer, 2 staple puller, wire stretcher, wire splicer and 2 wire cutters.

876-378 6" long
876-379 7" long
876-380 8" long
Cutting Plier End Cutter #356 #357 #358



Note:
CHANNELLOCK comfort grips are only for hand comfort and improved appearance. **They are not recommended or warranted for dielectric properties.**

P

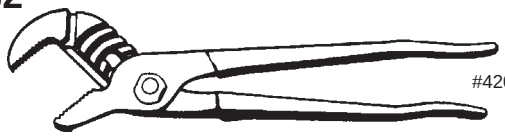
CATALOG 13

SPAENAUR No. **876-381** **End Nippers, 14" long** MFR'S No.

#148-14

Heavy duty construction.
Ideal for cutting large nails.

876-382 **Tongue and Groove Plier, 9-1/2" long**

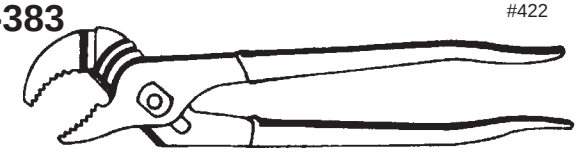


#420

Right angle teeth grip in all directions for maximum bite and minimum wear.
Patented undercut tongue and groove design assures, no slip jaw action.

Tongue and Groove Plier, V jaw, 9-1/2" long

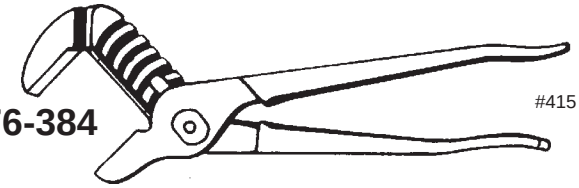
876-383 #422



V jaw design for use on round stock and tubing.
Right angle teeth grip in all directions for maximum bite and minimum wear.
Patented undercut tongue and groove design assures, no slip jaw action.

Tongue and Groove Plier, Smooth Jaw, 10" long

876-384



#415

Smooth jaw for use on plated fixtures.

Adjustable Wrenchs

Measurement scales (inch on front, mm on reverse) are handy for sizing nuts, pipe and tube diameters.

Perfectly parallel jaw surfaces grip safely and reduce possibility of damage.

Non protruding jaw with thinner jaw profile permits easier use in more confined spaces.

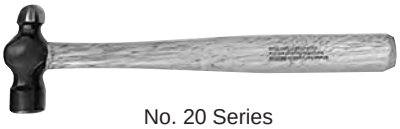
Ergonomic handle is wider for more comfortable grip.

Chrome Vanadium Steel construction with (2NI-1Cr) coating.

SPAENAUR No.	Length	Jaw Capacity	MFR'S. No.
876-387	4"	9/16"	#804
876-388	6"	13/16"	#806
876-389	8"	15/16"	#808
876-390	10"	1-3/16"	#810
876-391	12"	1-3/8"	#812
876-392	15"	1-3/4"	#815

Ball Peen Hammer

876-397



1-1/2 lb.

No. 20 Series
LOK-WEDGED Handle

For more Hammers see page M59, P140, to P143 and P147.

See pages G57 and G58 for Stripper Cutter and Crimping Pliers.

Looking for those "Hard to Find" products?

Call us at (800) 265-8772.

SPAENAUR

Red Head Toggle Action Clamps

Toggle Action Clamps give you greater production for Welding, Drilling, Milling, Sawing, Gluing, Grinding, Riveting, Routing, Machining or Assembly Operation.

Horizontal

Push-Pull

Vertical

Handle is made of high strength alloy tempered steel, featuring rolled round edges, covered with red vinyl plastic to assure a sure, cool grip. The plastic handle will resist oil, acid and is non-inflammable.

Bearings Ideal conditions have been incorporated into each bearing. Featuring alloy steel pins moving in a malleable cast linkage, giving greater bearing surfaces and assuring self-lubricating, free-operating hinge points.

Linkage Sturdy one piece, wide bearing support link giving added strength and greater bearing surface. Made of malleable iron and having machined surfaces at all contact points.

Base is one piece malleable cast iron accurately machined to assure flat mounting surface and rigid bolting. Mounting holes located to facilitate interchangeability.

Tolerances All holes are drilled and reamed to exact tolerances assuring uniformity, smooth action, and close alignment throughout the entire construction and assembly of this clamp.

Toggle action Engineered to give positive locking action with a minimum of force required for locking and unlocking clamp.

Finish Zinc plated finish (to mfr's. option) makes an attractive addition to your tools and fixtures.

Hinge pins have spun heads eliminating any binding and have no sharp burrs on edges to interfere with the operator.

Clamp bar is made of carbon steel assuring rigid clamping of parts. Available with open or closed bar.

Spindle adjustable for height.

Recommended Load The recommended load, in the closed position, is the maximum that can be exerted on the clamp without distortion or failure. This is measured at the base and will decrease as you approach the end of the bar.

RED HEAD HORIZONTAL TOGGLE ACTION CLAMPS

086-700

Specifications:

Recommended pressure: **200 lbs.**
Shut height: **13/16"**
Base dimension: **Width 1-7/16"; Length 1-5/8".**

086-700 is a small, light duty toggle clamp with open type toggle bar equipped with rubber capped adjustable spindle that can be located in any desired position. Bar retracts to vertical position when clamp is open.

086-701

Specifications:

Recommended pressure: **200 lbs.**
Shut height: **1"**
Base dimension: **Width 1-3/8"; Length 1-7/8".**

086-701 is a small, light duty toggle clamp with open type toggle bar equipped with rubber capped adjustable spindle that can be located in any desired position. Bar retracts to vertical position when clamp is open.

086-702 is a larger toggle clamp, has more clamping pressure and incorporating the same design as 086-701, including rubber capped adjustable spindle.

Specifications:

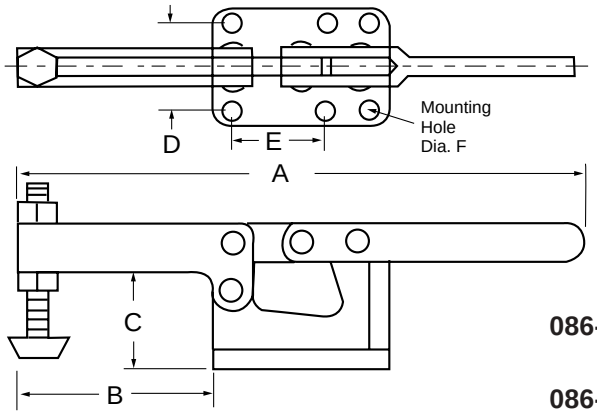
Recommended pressure: **500 lbs.**
Shut height: **1-1/4"**
Base dimension: **Width 1-5/8"; Length 2-1/4".**

086-703

086-703 is a heavy duty horizontal toggle clamp for use where overhead space is limited. Has a channel bar and threaded spindle that can be adjusted in height and located at any desired spacing along the channel. Additional spindles may be placed in channel to accommodate parts of varying thicknesses.

Specifications:

Recommended pressure: **750 lbs.**
Shut height: **1-7/8"**
Base dimension: **Width 2"; Length 3-1/4".**



Spaenaur No.	Capacity lbs.	Dimension in Inches A	B	C	D	E	F
086-700	200	5.81	1.81	0.88	0.88	1.06	0.22
086-701	200	5.81	1.81	1.06	0.88	1.00	0.22
086-702	500	7.25	2.50	1.25	0.88	1.00	0.27
086-703	750	11.25	4.00	1.88	1.63	1.63	0.33

Replacement Spindles

086-709 Standard Bolt Spindle Assembly (including rubber foot) for Clamps 086-700, 086-701, 086-702 and 086-706.

086-725 Replacement rubber foot for above spindle.

086-710 Standards Bolt Spindle Assembly for Clamp 086-703.

P

CATALOG 13

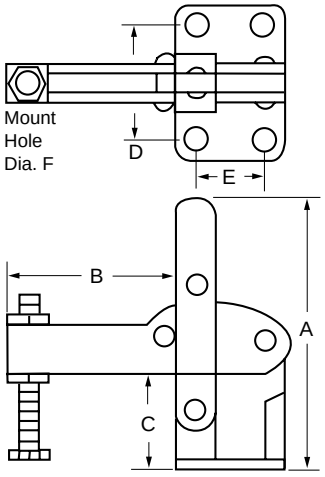
RED HEAD VERTICAL TOGGLE ACTION CLAMPS

086-706

086-704

086-705

086-708



086-706 is a light duty toggle clamp with short handle and bar, so clamp can be mounted where clearance is limited. Equipped with rubber capped adjustable spindle. (See previous page for Replacement Spindle.)

Specifications:
Recommended pressure: **200 lbs.**
Shut Height: **1-1/16"**.
Base dimensions, **Width 1-9/16"; Length 1".**

086-704 is a light duty toggle clamp with short handle and bar with spindle so clamp can be mounted where clearance is limited.

Specifications:
Recommended pressure: **350 lbs**.
Shut Height: **1-1/4"**.
Base dimensions, **Width 2-1/4"; Length 1-9/16".**

086-705 is a light duty toggle clamp with long handle for easy operation, also long bar with spindle to give clamp more reach.

Specifications:
Recommended pressure: **500 lbs**.
Shut height: **1-1/4"**.
Base dimensions, **Width 2-1/4"; Length 1-9/16".**

086-707 larger, more clamping power and incorporating same design and features as 086-705. Has a shorter handle for mounting where clearance is limited, also shorter bar, with spindle.

Specifications:
Recommended pressure: **600 lbs.**
Shut height: **2".**
Base dimensions, **Width 2-3/8"; Length 2-1/8".**

086-708 a heavy duty clamp having vertical handle and including a channel bar with threaded spindle which may be adjusted on height and located anywhere along channel. Additional spindles may be placed in channel to accommodate parts of varying thicknesses.

Specifications:
Recommended pressure, **1000 lbs**..
Shut height, **1-1/2**".
Base Width, **2-1/4"; Length, 2"**.

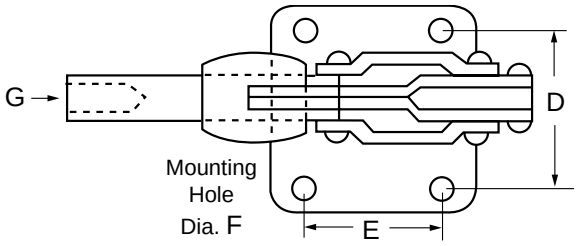
Spaenaur No.	Capacity lbs.	Dimension in Inches A	B	C	D	E	F
086-706	200	4.75	1.38	1.06	1.06	0.50	0.20
086-704	350	5.00	1.62	1.12	1.25	0.75	0.28
086-705	500	7.00	3.12	1.25	1.25	0.75	0.28
086-707	750	7.50	3.50	2.00	1.78	1.25	0.34
086-708	1000	8.69	4.63	1.50	1.78	1.25	0.34

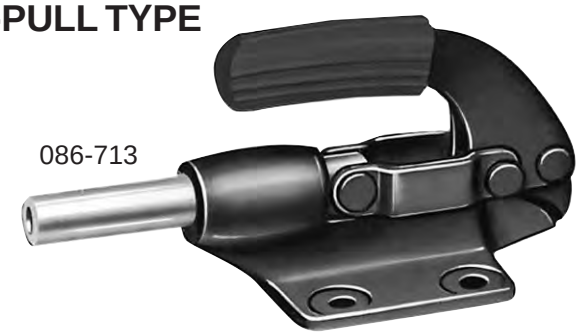
Replacement Spindles

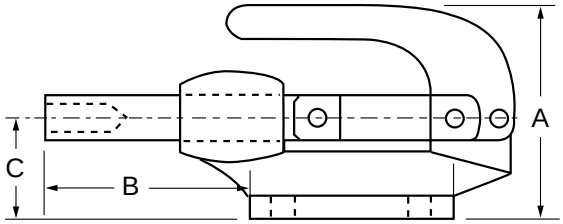
086-710 Standard Bolt Spindle Assembly for Clamps 086-704, 086-705, 086-707.

086-711 Standards Bolt Spindle Assembly for Clamp 086-708.

RED HEAD PUSH-PULL TYPE







Spaenaur No.	Capacity lbs.	Dimensions in Inches A	B	C	D	E	F	Int. Thread G
086-713	400	2.88	2.25	1.12	1.62	1.38	0.28	5/16"-18
086-714	800	4.00	3.25	1.88	1.62	1.62	0.33	3/8"-16

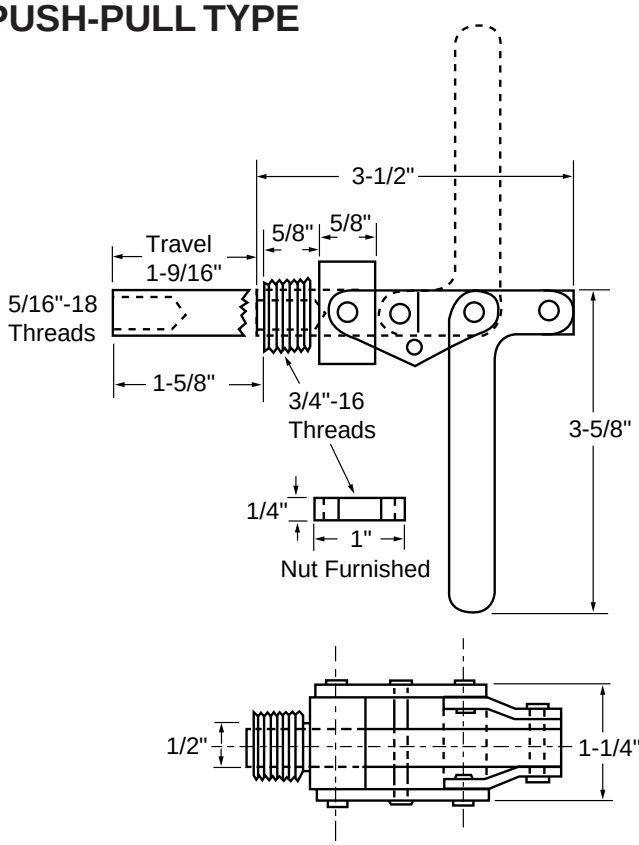
086-713 Push-Pull type clamp
Plunger diameter **1/2".**
Plunger travel distance **1-1/4".**
Spindle not included.

Specifications:
Recommended delivered pressure: **400 lbs.**
Maximum pressure: **600 lbs.**

086-714 Push-Pull type clamp
Plunger diameter **3/4".**
Plunger travel distance **1-1/2".**
Spindle not included.

Specifications:
Recommended delivered pressure: **800 lbs.**
Maximum pressure: **1200 lbs.**

RED HEAD PUSH-PULL TYPE



086-712 Push-Pull Type clamp.
Holding capacity **300 lbs**.
Locks in either position.
Plunger travel **1-9/16"**.
Spindle not included.
Can be mounted in either a drilled & tapped hole or through a drilled hole by use of the furnished nut.

P

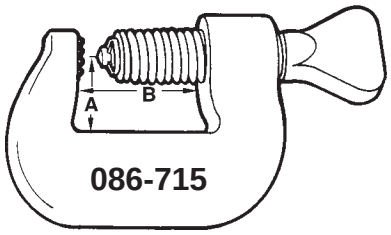
CATALOG 13

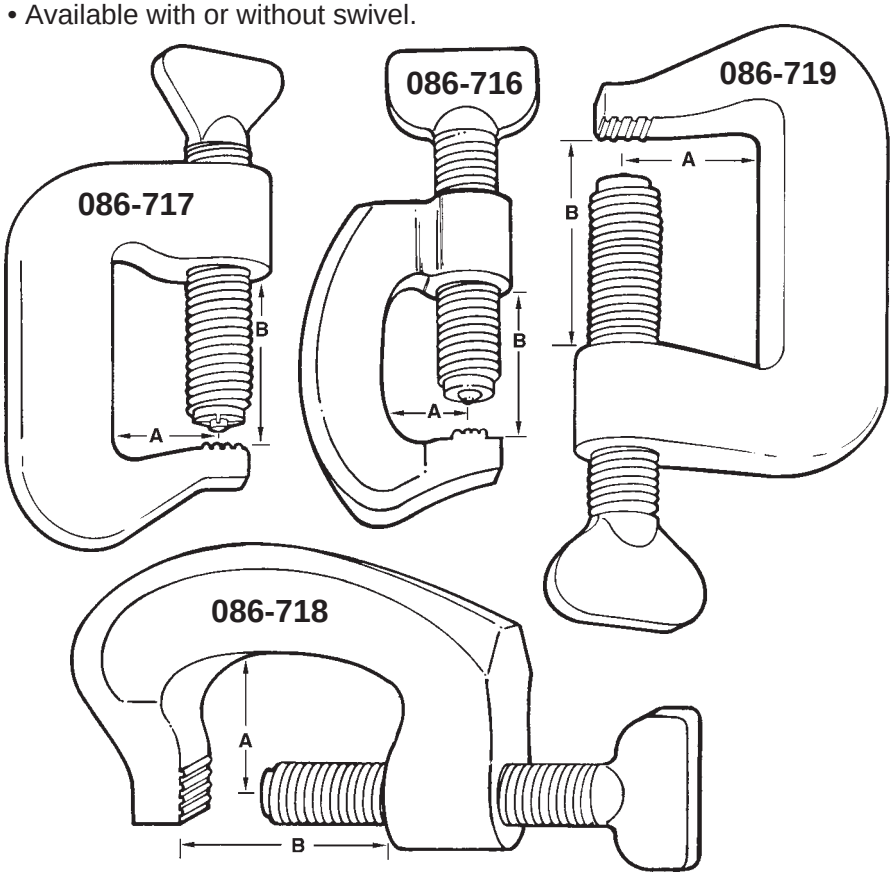
Duraclamps®

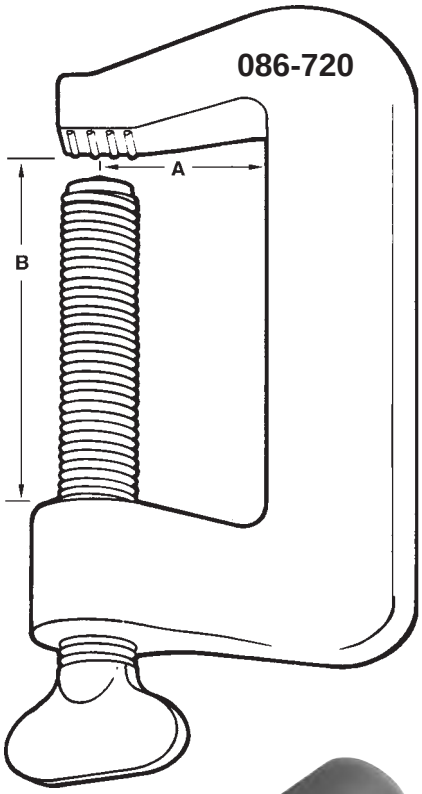
Injection molded, high strength plastic.

- Can be used for any type of jigging or clamping.
- Chemically and electrically inert. Does not thieve chemicals or electricity.
- Ideal for variable spacing on racks. Reduces the need for expensive custom racks for specific jobs in the metal finishing industry.
- High resistance to acids, alkali solutions and boiling water. No softening or thread binding. No stripping is required after use.
- Available with or without swivel.

MATERIAL:
G.E Plastics - Noryl
Modified Polyphenylene Oxide
Grey Colour







Spaenaur No.	Swivel	A Throat Depth	B Max. Grip Range	Max. Torque Rating In. Lbs.
086-715	without	13/16"	1-1/4"	90
086-721	with	13/16"	3/4"	90
086-716	without	7/8"	1-1/2"	140
086-717	without	1-3/16"	1-7/8"	150
086-722	with	1-3/16"	1-3/8"	150
086-718	without	1-1/4"	2"	185
086-719	without	1-1/2"	2-1/2"	200
086-723	with	1-1/2"	2"	200
086-720	without	1-3/4"	4"	300
086-724	with	1-3/4"	3-1/2"	300

All items Priced Singly.

Shown with swivel tip.

Also available special order Ceramic Tips …
"diamond hard" alumina oxide tip.

P

CATALOG 13

Professional Hacksaw

Strong die-cast handle provides superb comfort and control and the guarded grip design protects knuckles. The tubular frame ensures perfect rigidity and balance, in addition to providing storage space for spare blades. The hacksaw is supplied with a 12" (300 mm) HSS flex blade, which can be angled at 90 degree to the frame if necessary. Frame also adjusts to accept 10" (250 mm) blades.

SPAENAUR No. **876-1602**

Overall Length	Overall Height
18-1/4" (465 mm)	5" (130 mm)

High Quality Hacksaw Blades

The Hicut Bimetal blade is very versatile, cutting a wide variety of materials - even the most difficult alloys. Virtually unbreakable in normal use.

SPAENAUR No.	Blade Size Inch (mm)	Teeth per Inch
877-1258	12" x 1/2" x .025" (300 x 13 x .065)	18
877-1256	12" x 1/2" x .025" (300 x 13 x .065)	24
877-1255	12" x 1/2" x .025" (300 x 13 x .065)	32

General Purpose Small Hacksaw

Carefully positioned “flats” to ensure correct alignment of the blade. The top quality British steel frame gives perfect blade tension during use. Texture epoxy finish.

Overall Length	Overall Height
10-1/4" (260 mm)	2-5/8" (67 mm)

SPAENAUR No. **876-1603**

6" Hacksaw Blade High Speed Steel

SPAENAUR No.	Blade Length	Teeth per Inch
877-1257	6" (150 mm)	14

P

CATALOG 13

Visit us on the web at . . .

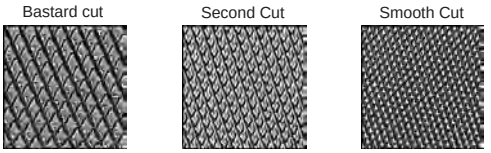
www.spaenaur.com

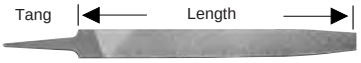
DESCRIPTION:

BASTARD CUT - the standard cut used for shaping and dressing steels and castings.

SECOND CUT - for hard metals.

SMOOTH CUT - for hard metals and for use as a finishing file.





The file length is the measurement from point to shoulder, exclusive of the tang.

ORDER BY *SPAENAUR* NUMBER LISTED BELOW

STYLE	LENGTH 4"	6"	8"	10"	12"	14"
HALF ROUND - For filing both flat and concave surfaces. Slightly tapered in width and thickness.						
BASTARD	–	**876-1492**	**876-1493**	**876-1494**	**876-1495**	–
SECOND CUT	–	**876-1497**	**876-1498**	**876-1499**	**876-1500**	–
SMOOTH	–	**876-1502**	**876-1503**	**876-1504**	**876-1505**	–
ROUND - For circular openings and concave surfaces. Tapers slightly to point.						
BASTARD	–	**876-1433**	**876-1434**	**876-1435**	**876-1436**	**876-1437**
SECOND CUT	–	**876-1439**	**876-1440**	**876-1441**	**876-1442**	**876-1443**
SMOOTH	–	**876-1444**	**876-1445**	**876-1446**	**876-1447**	**876-1448**
FLAT - Taper in width. Cut on both sides and edges.						
BASTARD	–	**876-1449**	**876-1450**	**876-1451**	**876-1452**	**876-1453**
SECOND CUT	–	**876-1455**	**876-1456**	**876-1457**	**876-1458**	**–**
SECOND CUT (Straight in width)		**876-1621***	–	–	**876-1623***	**–**
SMOOTH	–	**876-1460**	**876-1461**	–	**876-1463**	**–**
SQUARE - For slots and keyways. Tapers slightly to point and double cut on all four sides.						
BASTARD	–	**876-1465**	**876-1466**	**876-1467**	**876-1468**	–
SECOND CUT	–	**876-1470**	**876-1471**	**876-1472**	**876-1473**	–
SMOOTH	–	**876-1475**	**876-1476**	**876-1477**	**876-1478**	–
THREE-SQUARE - For filing out sharp corners and internal angles. Double cut on all three sides. Tapers slightly toward point.						
BASTARD	–	**876-1480**	**876-1481**	**876-1482**	**876-1483**	–
SECOND CUT	–	**876-1484**	**876-1485**	**876-1486**	**876-1487**	–
SMOOTH	–	**876-1488**	**876-1489**	**876-1490**	**876-1491**	–

*Straight in width, cut 2 sides and 1 edge.

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CATALOG 13

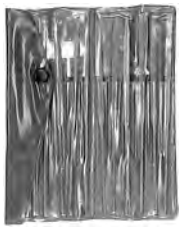
For Surface Shaping Tools and files, see page P148.

All items on this page Priced Singly.

NEEDLE FILE SET

File set includes 12 precision needle files, in a vinyl roll-up pouch. Set includes Marking, Slitting, Joint (cuts on two round sides only), Barrette, Equalling, Three Square, Square, Knife, Crossing, Flat, Half-Round and Round. Approx. O/A length of files 6-1/4".

SPAENAUR No.
876-1430



THREAD RESTORING FILES

Restores damaged or clogged threads in a jiffy.

Close-up

Type	*SPAENAUR No.*	PITCH / T.P.I.
METRIC	**874-1656**	0.75 / 1 / 1.25 / 1.5 / 1.75 / 2 / 2.5 / 3 mm Pitch
IMPERIAL	**874-1657**	11 / 12 / 13 / 14 / 16 / 18 / 20 / 24 TPI

UNIVERSAL File Handles

- **Re-usable.**
- **Made of Indestructible Black Tenite.**

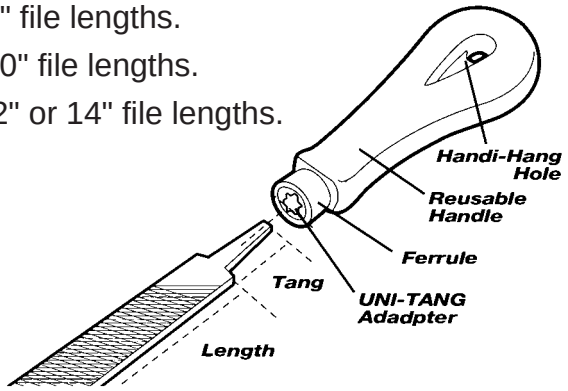
Priced Singly.

Spaenaur No.

876-1114 Handle - for use with 4" to 8" file lengths.

876-1115 Handle - for use with 8" to 10" file lengths.

876-1116 Handle - for use with 10", 12" or 14" file lengths.



Designed to accept most tangs as illustrated.

▬ Flat ◠ 1/2 Round ■ Square

▲ Triangular ● Round

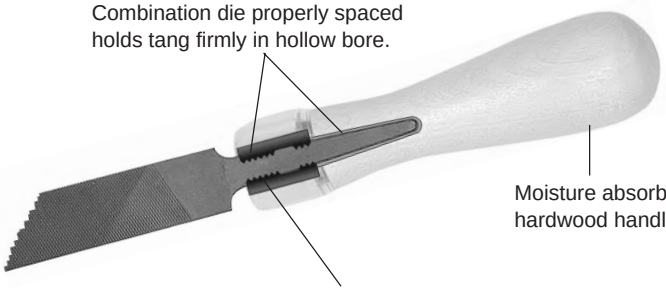
FILE HANDLES - WOODEN

SPAENAUR No.	Handle Number	For File Length
877-473	No. 1	Small
877-474	No. 2	4"
877-475	No. 3	5"
877-476	No. 4	6"
877-477	No. 5	8"
877-478	No. 6	10"
877-480	No. 8	14"

Tang after thread is cut.

Heavy steel ferrule compressing die in place.

Combination die properly spaced holds tang firmly in hollow bore.



Moisture absorbing hardwood handle.

Special tempered hexagonal steel die with sharp V thread.

TYPE 27 — Depressed Centre Grinding Wheels

Reinforced with three full diameters of high tensile fiberglass.

For Use with **METAL, STAINLESS**
A30S - Fast Grind

Use on Angle Grinders

For Grinding ONLY

Aggressive grinding - longest life. Ideal for most metals including stainless and other hard alloys. An excellent "all-purpose" spec.

DIMENSIONS Dia. x Thk. Abor	MAX RPM	METAL, STAINLESS Fast Grind A30S
4-1/2" x 1/4" x 7/8"	13,300	**876-1950**
5" x 1/4" x 7/8"	12,000	**876-1951**

TYPE 27 — Depressed Centre Cutoff Wheels

These extra heavy duty 1/8" thick wheels are designed specifically for cutting applications.

For Use with **METAL, STAINLESS**
A30S - Fast Cut

Use on Angle Grinders

For Cutoff ONLY

Fast cutting with good life. Ideal for most metals, including stainless and other hard alloys. An excellent "all-purpose" spec.

DIMENSIONS Dia. x Thk. Abor	MAX RPM	METAL, STAINLESS Fast Cut A30S
4-1/2" x 1/8" x 7/8"	13,300	**876-1954**
5" x 1/8" x 7/8"	12,000	**876-1955**

TYPE 27 — Thin Depressed Centre Cutoff Wheels

For Use with **METAL, STAINLESS**
A60SST-27 - Extra Fast Cut

Use on Angle Grinders

For Cutoff ONLY

The razor thin .045" delivers the fastest cutting action on carbon steel, stainless and other alloys - including aluminum, brass, bronze and cast iron. Cuts sheet, pipe, rod, cable and all profiles.

DIMENSIONS Dia. x Thk. Abor	MAX RPM	METAL, STAINLESS Extra Fast Cut A60SST-27
4-1/2" x .045" x 7/8"	13,300	**876-1952**
5" x .045" x 7/8"	12,000	**876-1953**

P

TYPE 1 — Bench Grinder Wheels

Precision Balanced for vibration-free running.

Each wheel comes with a set of nested reduction bushing at no additional cost.

Use on Bench Grinders

For Grinding ONLY

For Use with **METAL, STAINLESS Aluminum Oxide -**

Vitrified bonded aluminum oxide wheel for general purpose grinding of carbon steel, stainless steel and other alloys.

DIMENSIONS Dia. x Thk. Abor	MAX RPM	METAL, STAINLESS (ALUMINUM OXIDE GRAIN) Coarse A24	Med./Fine A60	Fine A80
6" x 1" x 1"	4,138	**876-1957**	**876-1958**	**876-1959**
8" x 1" x 1-1/4"	3,600	**876-1960**	**876-1961**	**876-1962**

For Use with **NONFERROUS Green Silicon Carbide -**

The toughest abrasive for sharpening or grinding hard or very soft materials. Extremely sharp grain for faster, burr-free cutting on tungsten carbide, brass, bronze, aluminum and masonry.

DIMENSIONS Dia. x Thk. Abor	MAX RPM	METAL, STAINLESS (Green Silicon Carbide Grain) Coarse CG60	Medium CG80	Fine CG120
6" x 1" x 1"	4,138	**876-1963**	**876-1964**	**876-1965**
8" x 1" x 1-1/4"	3,600	**876-1966**	**876-1967**	**876-1968**

TYPE 1 — Thin Angle Grinder Cutoff Wheels

For Use with **METAL, STAINLESS**
A60SST, A46RB50 - Extra Fast Cut

Delivers razor-sharp, clean cutting action on carbon steel, stainless and other alloys. Ideal for sheet, pipe, rod, cable and all profiles.

Use on Angle Grinders

For Cutoff ONLY

DIMENSIONS Dia. x Thk. Abor	MAX RPM	METAL, STAINLESS Exra Fast Cut A60SST / A46RB50
4-1/2" x .045" x 7/8"	13,300	**876-1970**
5" x .045" x 7/8"	12,000	**876-1971**

TYPE 1 — Circular Saw Wheels

Use on Circular Saws

For Cutoff ONLY

For Use with **METAL, STAINLESS**
A36TB38 - Fast Cut

Fast, easy cutting of shapes and profiles. Ideal on carbon or stainless steel.

DIMENSIONS Dia. x Thk. Abor	MAX RPM	METAL, STAINLESS Fast Cut A36TB38
7" x 3/32" x 5/8" Dia.*	8,600	**876-1972**

For Use with **CONCRETE, MASONRY**
C30UB64 - Heavy Duty

Quick cuts on concrete, brick, block and other masonry products.

DIMENSIONS Dia. x Thk. Abor	MAX RPM	CONCRETE, MASONRY Heavy Duty C30UB64
7" x 1/8" x 5/8" Dia.*	8,600	**876-1973**

*Diamond shaped arbor.

TYPE 1 — High Speed Gas & Electric Saw Wheels

For Use with **METAL, STAINLESS**
A24/30SB - Heavy Duty

The contractors' choice - a heavy duty blade, excellent on rebar, steel pipe, sheet metal and structural steel. Excellent for production cutting.

For Use with **CONCRETE, MASONRY**
C30UB - Heavy Duty

A must on the job site, this heavy duty spec delivers excellent performance when cutting concrete and other masonry products, including clay pipe, brick and block. Ideal on PVC pipe.

Use on High Speed Saws

For Cutoff ONLY

DIMENSIONS Dia. x Thk. Abor	MAX RPM	METAL, STAINLESS Heavy Duty A24/30SB	CONCRETE, MASONRY Heavy Duty C30UB
12" x 1/8" x 20mm	6,300	**876-1974**	**876-1975**

TYPE 1 — Chopsaw / Mitersaw Wheels

Use on Chopsaws

For Cutoff ONLY

For Use with **METAL, STAINLESS**
A30RB - Fast Cut

DIMENSIONS Dia. x Thk. Abor	MAX RPM	METAL, STAINLESS Fast Cut A30RB
12" x 3/32" x 1"	5,092	**876-1976**
14" x 3/32"x 1"	4,365	**876-1977**

Fast, burr-free cutting in the widest range of materials and profiles including angle, channel, tubing and solids. An excellent choice on carbon and alloy steels.

P

All items on this page Priced Singly.

TYPE 29

Use on Angle Grinders

For Grinding, Blending & Finishing

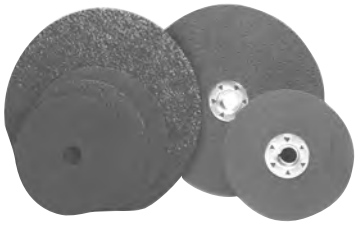
Super Flap Discs

For Use with **METAL, STAINLESS, ALUMINUM**
Zirconia Alumina Heavy Duty

Recommended for medium to high performance production applications, these heavy duty discs work well on both ferrous and nonferrous metals. Specially formulated grain reduces heat build up on the material, limiting the risk of burning or discoloration.

Type 29 - Zirconia Alumina with Fiberglass Backing Plate.

DIMENSIONS Dia. x Abor	MAX RPM	METAL, STAINLESS, ALUMINUM ZA40	ZA60	ZA80
4-1/2" x 7/8"	13,300	**876-1978**	**876-1979**	**876-1980**
5" x 7/8"	12,000	**876-1981**	**876-1982**	**876-1983**



Use on Angle Grinders

For Grinding, Blending & Finishing

Resin Fibre Sanding Discs

For Use with **METAL, STAINLESS**
Zirconia Alumina High Production

Flexon, Zirconia Alumina delivers the longest life on high tensile alloys, including metal and stainless steel. Flexon discs deliver fast, cool cutting action and premium performance.

Zirconia Alumina

DIMENSIONS Dia. x Arbor	METAL, STAINLESS, ALUMINUM ZA24	ZA36	ZA60	ZA80
4-1/2" x 7/8"	**876-1984**	**876-1985**	**876-1986**	**876-1987**
5" x 7/8"	**876-1988**	**876-1989**	**876-1990**	**876-1991**

Backing Pads

Use on Angle Grinders

Extends disc life up to 50%.

MEDIUM - Quick-Spin
For use with Quick-Spin resin fibre discs.

DIMENSIONS Dia. x Thread	MAX RPM	BACKING PADS MEDIUM Quick-Spin Discs
4-1/2" x 5/8"-11	13,000	**876-1992**
5" x 5/8"-11	12,000	**876-1993**

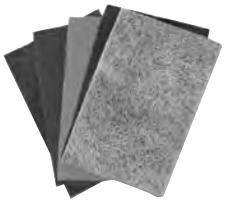
Shop Rolls

- Premium closed coat aluminum oxide grain, resin bonded to flexible cloth.
- 50-yard rolls packaged in convenient, see-through boxes for easy dispensing.

For Cleaning & Finishing

Shop Rolls - can be used dry or wet with water and water-based coolants.

DIMENSIONS Width x Length	METAL A80	A180	A240
1" x 50 Yards	**876-1994**	**876-1995**	**876-1996**



Non Woven Hand Pads

- Excellent alternative to sandpaper, wire wheel brushes, files and steel wool. Washable and reusable.
- Available in a variety of grades. Ideal for deburring, polishing, cleaning and surface preparation.

6" x 9" Sheets

For Cleaning & Finishing

Unit Package Qty. 2

Spaenaur No.	Description	Application
876-1998	**Non-Abrasive - White**	Ideal for cleaning and polishing.
876-1999	**Ultra Fine / Grey**	Aluminum oxide abrasive, use for fine finishing and polishing.
876-2002	**Very Fine / General Purpose - Maroon**	An all-purpose pad for routine hand applications. Constructed of aluminum oxide grain and durable non woven.
876-2003	**General Purpose - Green**	Made with aluminum silicate abrasives, this pad is for use on general cleaning, scouring and scrubbing applications.
876-2000	**Very Fine / Heavy Duty - Maroon**	More durable than Very Fine General Purpose, this pad is for use on rugged applications.
876-2001	**Extra Cut - Tan**	Made with silicon carbide abrasive grain, this industrial grade pad delivers aggresive action on the toughest applications.

876-1997

Reusable hand pad holder. This convenient **hook and loop** holder is designed for use with 6" x 9" non woven hand pads shown above.

Wire Wheel Brushes

Use on Angle Grinders

For Cleaning & Conditioning

Carbon Wire .020

General purpose wire for cleaning and deburring.

Narrow work face allows for easy access to confined areas. Ideal for weld and bead cleaning on pipes and vessels.

Stringer Bead Wire Wheels

DIMENSIONS Face Dia. x Width x Arbor	MAX RPM	CARBON WIRE
4" x 1/4" x 5/8"-11	20,000	**876-2046**
6-1/2" x 1/4" x 5/8"-11	12,000	**876-2045**

Wire Cup Brushes

Use on Angle Grinders

For Cleaning & Conditioning

Carbon Wire .014, .020

General purpose wire for cleaning and deburring.

Crimped Wire Cups

DIMENSIONS Dia. x Thread	MAX RPM	CARBON WIRE .014	CARBON WIRE .020
2-3/4" x 5/8"-11	12,500	**876-2047**	—
2-3/4" x M14-2.0	12,500	**876-2048**	—
5" x 5/8"-11	7,000	—	**876-2049**

Knotted -

Knotted wire cup brushes are perfect for heavy duty cleaning and rough scale removal.

Use on Angle Grinders

For Cleaning & Conditioning

Knotted - Knock-Off Bridle

Bridles restrain the knots, providing flare control and prevent premature wire breakage. As the brush wears down removing the bridle will expose new wire.

Knotted Wire Cups

DIMENSIONS Dia. x Thread	MAX RPM	CARBON WIRE .020	STAINLESS WIRE .020
2-3/4" x 5/8"-11	12,500	**876-2050**	—
3" x 5/8"-11 Knock-Off Bridle	11,000	**876-2057**	**876-2058**
4" x 5/8"-11 Knock-Off Bridle	8,500	**876-2051**	—
5" x 5/8"-11 Knock-Off Bridle	8,500	**876-2052**	**876-2053**
6" x 5/8"-11 Knock-Off Bridle	6,500	**876-2054**	—

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Wire Wheel Brushes

Carbon Wire .014

General purpose wire for cleaning and deburring.

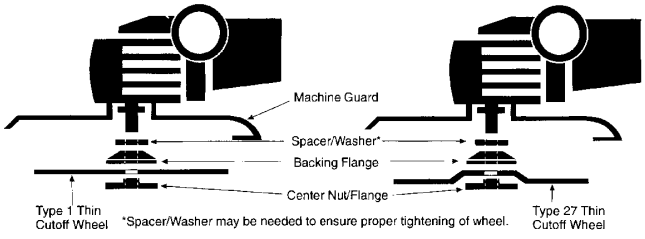
Use on Bench Grinders

For Cleaning & Conditioning

Crimped Wire Wheel Brushes

DIMENSIONS Face Dia. x Width x Hole Sizes	MAX RPM	CARBON WIRE
6" x 1" x 5/8" and 1/2"	6,000	**876-2055**
8" x 1" x 5/8" and 1/2"	4,500	**876-2056**

Reuseable Flange Assembly Kit, consists of backing flange and centre nut/flange.



876-2060 **1-3/4"Dia. x 5/8-11 Arbor**

For use with 4-1/2" and 5" diameter thin* cutoff wheels on angle grinders. Can be used with Type 1 or Type 27 thin* cutoff wheels.

*Wheel Thickness .045" thru 1/8"

Type 1 cutoff wheels must be mounted between properly relieved flanges of equal diameter and matching bearing surfaces. Such flanges must be at least 1/4 of the wheel diameter. Do not use this flange assembly with wheels larger than 5" diameter. Right angle grinders may not come equipped with Type 1 flanges as standard equipment.

Carbide Burs

All Burs on this page are for Grinding ONLY

Use on Die Grinders

- Precision ground tungsten carbide tips, silver brazed to a hardened steel shank.
- Excellent in hard-to-reach areas or confined spaces. Ideal for shaping and enlarging holes, removing welds and smoothing castings.

All items on this page Priced Singly.

Double Cut Series for Steel and Stainless Steel

With its chisel tooth cutting pattern, double cut burs produce small,distinct granular chips instead of long, sharp slivers. Eliminates loading of the bur's flutes and minimizes chatter. This is the most popular, smoothest cutting style. Ideal on steel, stainless steels, alloys and exotics.

DIMENSIONS Dia. x Length x Shank	*Spaenaur No.*
Cylinder	
1/4" x 5/8" x 1/4"	**876-2005**
3/8" x 3/4" x 1/4"	**876-2006**
1/2" x 1" x 1/4"	**876-2008**
Ball Nose Cylinder	
1/4" x 5/8" x 1/4"	**876-2011**
3/8" x 3/4" x 1/4"	**876-2012**
1/2" x 1" x 1/4"	**876-2014**
Ball	
1/4" x 3/16" x 1/4"	**876-2017**
3/8" x 5/16" x 1/4"	**876-2018**
1/2" x 7/16" x 1/4"	**876-2020**
Oval	
1/4" x 3/8" x 1/4"	**876-2023**
3/8" x 5/8" x 1/4"	**876-2024**
1/2" x 7/8" x 1/4"	**876-2025**

DIMENSIONS Dia. x Length x Shank	*Spaenaur No.*
Round Nose Tree	
1/4" x 5/8" x 1/4"	**876-2027**
3/8" x 3/4" x 1/4"	**876-2028**
1/2" x 1" x 1/4"	**876-2030**
Pointed Tree	
1/4" x 5/8" x 1/4"	**876-2033**
3/8" x 3/4" x 1/4"	**876-2034**
1/2" x 1" x 1/4"	**876-2035**
Ball Nose Cone	
1/4" x 5/8" x 1/4"	**876-2037**
3/8" x 1-1/16" x 1/4"	**876-2038**
1/2" x 1-1/8" x 1/4"	**876-2039**
Pointed Cone	
1/4" x 1/2" x 1/4"	**876-2041**
3/8" x 5/8" x 1/4"	**876-2042**
1/2" x 7/8" x 1/4"	**876-2043**

Aluminum Cut with 1/4" Shank

The authentic milling cutter style flute assures fast chip flow and extremely fast stock removal. These burs are ideal on aluminum, nonferrous metals, reinforced plastics and other soft materials.

DIMENSIONS Dia. x Length x Shank	*Spaenaur No.*
Cylinder	
3/8" x 3/4" x 1/4"	**876-2007**
1/2" x 1" x 1/4"	**876-2009**
Ball Nose Cylinder	
3/8" x 3/4" x 1/4"	**876-2013**
1/2" x 1" x 1/4"	**876-2015**

DIMENSIONS Dia. x Length x Shank	*Spaenaur No.*
Ball	
3/8" x 5/16" x 1/4"	**876-2019**
1/2" x 7/16" x 1/4"	**876-2021**
Round Nose Tree	
3/8" x 3/4" x 1/4"	**876-2029**
1/2" x 1" x 1/4"	**876-2031**

Miniature Burs with 1/8" Shank

These right hand spiral burs are ideal on high tensile steel, dies, casts and other tough materials. Ideal for deburring, beveling and chamfering.

DIMENSIONS Dia. x Length x Shank	*Spaenaur No.*
Cylinder 1/8" x 9/16" x 1/8"	**876-2004**
Ball Nose Cylinder 1/8" x 9/16" x 1/8"	**876-2010**
Ball 1/8" x 1/8" x 1/8"	**876-2016**
Oval 1/8" x 7/32" x 1/8"	**876-2022**

DIMENSIONS Dia. x Length x Shank	*Spaenaur No.*
Round Nose Tree 1/8" x 1/2" x 1/8"	**876-2026**
Pointed Tree 1/8" x 1/2" x 1/8"	**876-2032**
Ball Nose Cone 1/8" x 1/2" x 1/8"	**876-2036**
Pointed Cone 1/8" x 7/16" x 1/8"	**876-2040**

Carbide burs are cutting tools, not abrasives. Burs are designed to cut with one side only. Do not jam the bur into a tight corner or cavity. Doing so will force the bur to cut in all sides, and will overload and overheat the bur causing it to fail.

Ballpeen Hammer

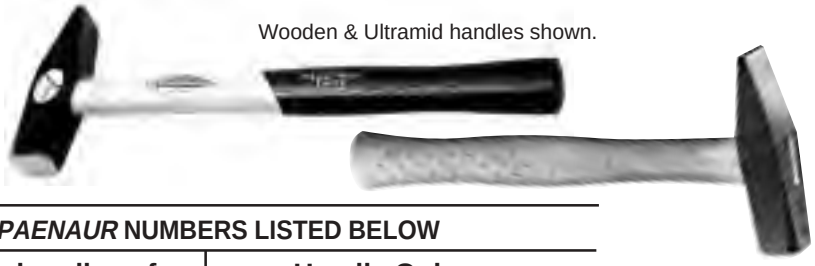
Steel Polished Heads

Wood Handle (Hickory or Ash - our option)

Weight in Lbs.	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW Hammer with handle	Handle Only
1/4	**877-1124**	**877-1189**
1/2	**877-1125**	**877-1190**
1	**877-1127**	**877-1192**
1-1/4	**877-1128**	**877-1193**
1-1/2	**877-1129**	**877-1193**
1-3/4	**877-1130**	**877-1194**
2	**877-1131**	**877-1194**
3	**877-1132**	—

Locksmith's Hammer

German Pattern
Steel - Black Finish



Wooden & Ultramid handles shown.

Weight in Grams	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW Hammer with handles of: †Wood	Ultramid	Tubular Steel	Handle Only †Wood	▲Ultramid
50	**877-1094**	—	—	**877-1195**	—
100	**877-1095**	—	—	**877-1196**	—
200	**877-1096**	**877-1105**	—	**877-1197**	**877-1206**
300	**877-1097**	***877-1106**	**877-1111**	**877-1198**	**877-1207**
400	**877-1098**	—	—	**877-1199**	—
500	**877-1099**	**877-1107**	**877-1112**	**877-1200**	**877-1209**
600	**877-1100**	—	—	**877-1201**	—
800	**877-1101**	**877-1108**	—	**877-1202**	**877-1210**
1000	**877-1102**	**877-1109**	—	**877-1203**	**877-1211**
1500	**877-1103**	—	—	**877-1204**	—
2000	**877-1104**	—	—	**877-1205**	—

†Hickory or Ash (our option)

▲With Wedge and Pin

***877-1110** Chrome Plated Head

Claw Hammer

American Pattern
Tubular Steel Handle
Polished
Cushion Grip

Weight in Oz.	*SPAENAUR No.*
16	**877-1133**
20	**877-1134**

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Nylon Hammer

Head with steel core centre
and replaceable nylon tips (sold singly)

Wood Handle (Hickory or Ash - our option)

Weight in Grams	Tip ø	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW		
		Hammer with Handle	Handle Only	Replacement Nylon Tip
220	27	**877-1076**	**877-1223**	**877-1081**
310	32	**877-1077**	**877-1224**	**877-1082**
370	35	**877-1078**	**877-1225**	**877-1083**
540	40	**877-1079**	**877-1226**	**877-1084**
860	50	**877-1080**	**877-1227**	**877-1085**

Recoilless Hammer

With Polyurethane
replaceable tips (sold singly)

†Hickory or Ash (our option)

Weight in Grams	Tip ø	ORDER BY *SPAENAUR* NUMBERS		
		Hammer with Handle of: †Wood	Fibreglass	Replacement Tip
280	25	**877-1059**	—	**877-1066**
400	30	**877-1060**	—	**877-1067**
550	35	**877-1061**	**877-1073**	**877-1068**
700	40	**877-1062**	**877-1074**	**877-1069**
850	45	**877-1063**	**877-1075**	**877-1070**
1000	50	**877-1064**	—	**877-1071**
1650	60	**877-1065**	—	**877-1072**

Circular Wedges

Made of steel

For wooden hammer handles

SPAENAUR No.	Dia. of Wedge in mm	Use with Head Weight
877-1213	5	50
877-1214	7	100
877-1215	8	200
877-1216	10	300
877-1217	12	400
877-1218	13	500
877-1219	14	600
877-1220	15	1000
877-1018	16	1500
877-1221	17	2000

Unit Package Quantity 10

Copper Hammer

Square working surface

Wood Handle (Hickory or Ash - our option)

Weight in Grams	ORDER BY *SPAENAUR* NUMBERS LISTED BELOW	
	Hammer with Handle	Handle Only
750	**877-1117**	**877-1201**
1000	**877-1118**	**877-1203**
1500	**877-1119**	**877-1204**

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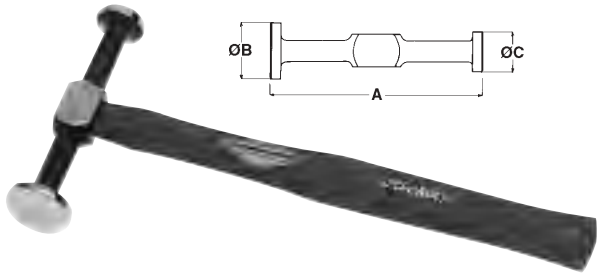
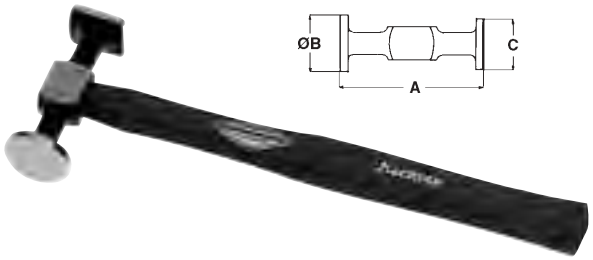


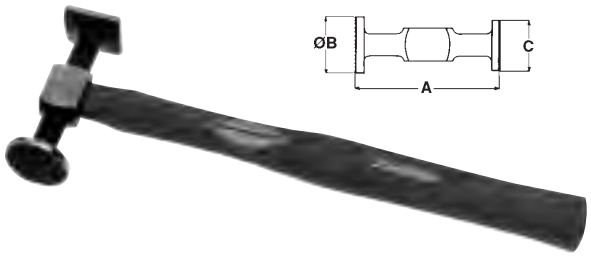
Round Face Bumping Hammer,
light design, with 2 different dia. round, smooth faces.

SPAENAUR No.	Dimensions in mm A	B	C	Weight in grams
877-1007	147	39	28	400



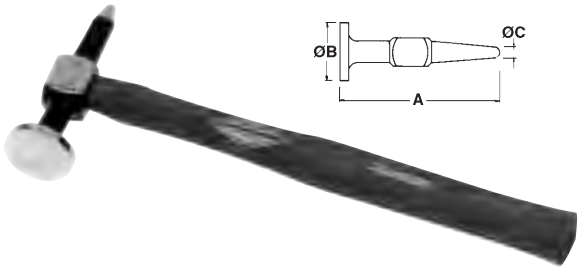
Wide Face Bumping Hammer,
short design, smooth round and square faces

SPAENAUR No.	Dimensions in mm A	B	C	Weight in grams
877-1009	100	33	28	300
877-1011	100	39	35	400
877-1013	112	46	41	450



Bumping and Shrinking Hammer,
short design with round face cross-milled, square face smooth.

SPAENAUR No.	Dimensions in mm A	B	C	Weight in grams
877-1010	100	33	28	300
877-1012	100	39	35	400
877-1014	112	46	41	450



Picking and Dinging Hammer,
short design

SPAENAUR No.	Dimensions in mm A	B	C	Weight in grams
877-1017	130	41	5	400

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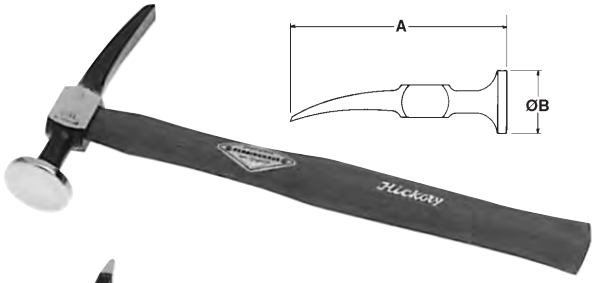
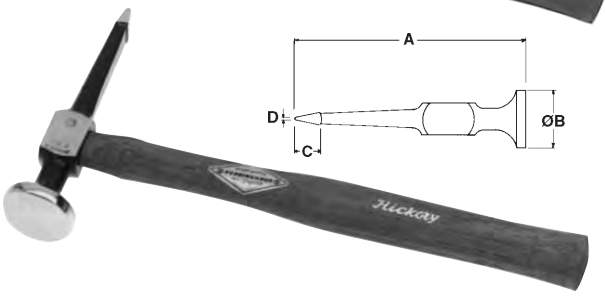


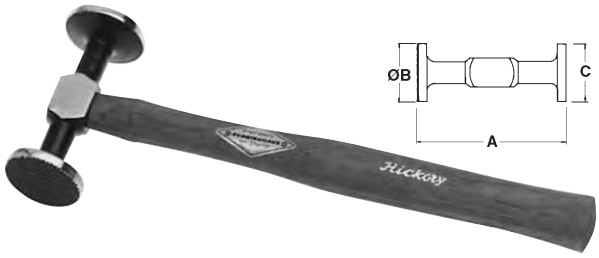
Short Curve Cross Peen Hammer,
with curved round face, and pointed peen.

SPAENAUR No.	Dimensions in mm A	B	Weight in grams
877-1019	150	43	360



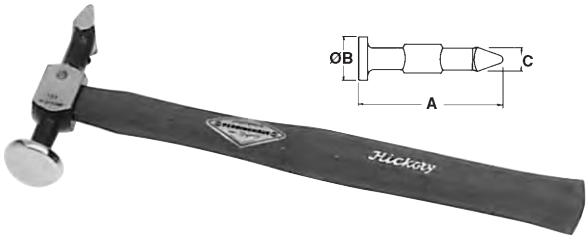
Wide Nose Peen Hammer
Straight, with round face and long peen.

SPAENAUR No.	Dimensions in mm A	B	C	D	Weight in grams
877-1020	160	42	19	1.6	430



Bumping and Shrinking Hammer,
short design, 2 round faces one face cross-milled.

SPAENAUR No.	Dimensions in mm A	B	C	Weight in grams
877-1021	110	48	48	450

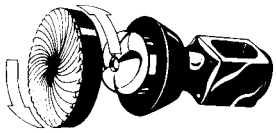


Bumping and Peen Hammer

SPAENAUR No.	Dimensions in mm A	B	C	Weight in grams
877-1022	115	37	15	330

Aluminum Hammer, barrel shape

SPAENAUR No.	Weight in grams
877-1005	300



Twisting Force-Shrinking Hammer

SPAENAUR No.	Weight in grams
877-1006	300

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All items on this page
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Roof Wedge (Curved Dolly)
SPAENAUR No.
877-1023

- long curved face, 110 mm long, wt. 1,150 g.

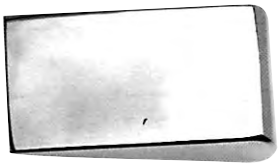
Dolly,
SPAENAUR No.
877-1024

- thin execution, width 55 mm, long curved face, 143 mm length, wt. 780 g.

Hand Hold Dolly,
SPAENAUR No.
877-1026

- width 75 x 55 mm, height 70 mm, wt. 1,450 g.

Dolly - Wedge Form,
SPAENAUR No.
877-1027



- 115 x 60 mm, height 25 mm, wt. 800 g.

Anvil Dolly,
SPAENAUR No.
877-1028

- hatchet form faces, 70 x 23 mm and 48 x 5 mm, height 140 mm, wt. 800 g.

Wedge Dolly,
SPAENAUR No.
877-1029

- robust form, large face 75 x 6 mm, rectangular face 45 x 25 mm, wt. 1,600 g.

Utility Dolly,
SPAENAUR No.
877-1030

- handy face 75 x 60 mm, height 50 mm, wt. 1,100 g.

Utility Dolly,
SPAENAUR No.
877-1031

- one face nearly flat, other face light curved, length 70 x 60 mm, height 40 mm, wt. 1,100 g.

Low Crown Dolly,
SPAENAUR No.
877-1032

- sole pattern face, curved to all sides, face 106 x 60 mm, height 25 mm, wt. 950 g.

Toe Dolly,
SPAENAUR No.
877-1044

- flat and bowed face, length 115 mm, width 60 mm, height 28 mm, wt. 1,200 g.

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All items on this page Priced Singly.

Toe Dolly,
SPAENAUR No.
877-1045

- all polished, one face bowed and cross-milled for shrinking, length 120 mm, width 60 mm, height 28 mm, wt. 1,100 g.

Universal Dolly,
SPAENAUR No.
877-1046

- faces 75 x 55 mm and 60 x 45 mm, height 57 mm, wt. 1,100 g.

Heel Dolly,
SPAENAUR No.
877-1047

- with round and flat face, length 80 mm, width 60 mm, height 35 mm, wt. 1,100 g.

Shrinking Dolly,
SPAENAUR No.
877-1048

- "Diabolo" face, diameter 60 mm, height 55 mm, wt. 850 g.

Shrinking Dolly,
SPAENAUR No.
877-1053

- all cross-milled, length 160 mm, wt. 800 g.

Dolly,
SPAENAUR No.
877-1052

- "Diamler" face bowed, length 105 mm, width 50 mm, height 50 mm, wt. 1,500 g.

File Holder,
SPAENAUR No.
877-1050

- for milled curved tooth-files, light metal, adjustable, length 350 mm, wt. 950 g.

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All items on this page
Priced Singly.

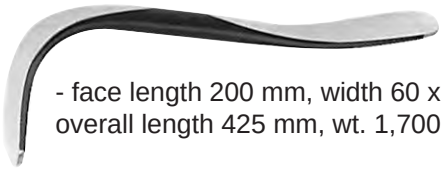
Inside Spoon,
SPAENAUR No.
877-1086

- working face 132 mm length, 37mm width, overall length 300 mm, wt. 700 g.

Heavy Inside Spoon,
SPAENAUR No.
877-1035

- working face 200 mm length, 60 x 30 mm width, overall length 400 mm, wt. 1,250 g.

Pry and Bumping Spoon,
SPAENAUR No.
877-1037



- face length 200 mm, width 60 x 40 mm, overall length 425 mm, wt. 1,700 g.

Pry and Bumping Spoon,
SPAENAUR No.
877-1469

- face length 200 mm, width 60 x 40 mm, overall length 450 mm, wt. 1,600 g.

Aligning Bar,
SPAENAUR No.
877-1041

- all nickel plated, overall length 400 mm, diameter 17 mm, wt. 600 g.

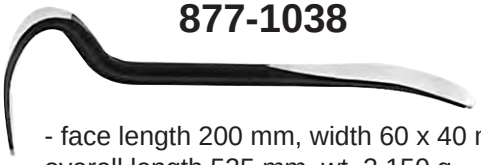
Light Inside Spoon,
SPAENAUR No.
877-1034

- working face 150 mm length, 50 mm width, overall length 280 mm, wt. 750 g.

Heavy Inside Shrinking Spoon,
SPAENAUR No.
877-1036

- fine cross-milled working face 170 mm length, 60 x 30 mm width, overall length 400 mm, wt. 1,200 g.

Pry and Bumping Spoon,
SPAENAUR No.
877-1038



- face length 200 mm, width 60 x 40 mm, overall length 525 mm, wt. 2,150 g.

Rolling Head Bar,
SPAENAUR No.
877-1040

- all nickel plated, overall length 400 mm, diameter 14 mm, wt. 500 g.

All items on this page
Priced Singly.

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For additional HAMMERS see pages M59, P131 and P140 to P143.

Rubber Mallet,
with two flat faces

SPAENAUR No.	Size	Face Dia. in mm	Head Lgth. in mm	Weight in grams
877-1057	1	55	112	300
877-1058	2	65	128	530

PULL ROD

MAKE BODY REPAIRS IN 1/3 THE TIME!

DRILL-PULL-FILL and job is finished

Be a "metal magician." Repair quarter sections, doors, tops, etc., entirely from the outside! Super tough Pull Rods were developed as the answer to repairing today's boxed-in cars. A must for metal station wagons and panel trucks. Time saved on one job will more than pay for a complete set.

ARROWS SHOW LOCATING POINTS OF 500 LB. TEST

SPAENAUR No.
T-200-1

6-1/4" overall length

EACH TOOL IS FACTORY TESTED AT 500 LBS. PULL

DOOR HANDLE CLIP TOOLS

T-108

SPRING-TYPE TOOL
For horseshoe-type clips.

T-122

DOOR HANDLE TOOL
for removing inside door and window handle on Chrysler-built cars.

T-191

Removes horseshoe-style clips from inside door handles—all G.M. and Ford cars.

M-21

For removing or inserting horseshoe clips on inside handles.

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SURFACE SHAPING TOOLS & FILES

PLANE TYPE

***SPAENAUR No.* 876-206**

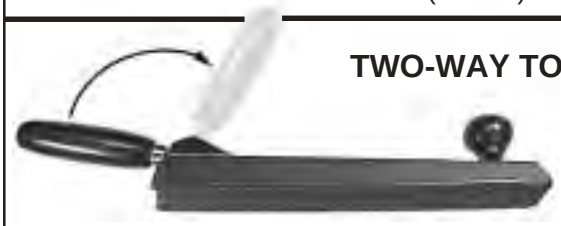
Metal alloy body with impact-resistant black moulded handle.

The cutting tool that cuts, shaves, shapes, and forms.

Regular cut blade which can easily be replaced with **876-201** Half Round or **876-202** Flat.

Length: 11-1/4 inches (286 mm)
Width: 1-5/8 inches (41 mm)

TWO-WAY TOOL



***SPAENAUR No.* 876-207**

Metal alloy body with hardwood handle. Handle can be adjusted to two positions for use as either a plane or a file.

Regular cut blade which can easily be replaced with **876-201** Half Round or **876-202** Flat.

Length: 10 inches (254 mm)
Width: 1-5/8 inches (41 mm)

TWO-WAY TOOL

***SPAENAUR No.* 876-208**

Extra-strength metal alloy body with hardwood handle.

Designed for tough industrial use. Offers real flexibility for a broad variety of jobs.

Regular cut blade which can easily be replaced with **876-203** Half Round or **876-204** Flat.

Length: 14 inches (356 mm)
Width: 1-5/8 inches (41 mm)

Suitable for such materials as wood, plastic, and soft metals.

***SPAENAUR No.* 876-201**

10" Half Round, regular cut teeth. For curved surfaces and faster trimming, smoothing.

***SPAENAUR No.* 876-202**

10" Flat, regular cut teeth. For planing large flat areas, smooth surfaces on hard or soft woods, soft metals, and plastics.

***SPAENAUR No.* 876-203**

14" Half Round, regular cut teeth. For curved surfaces and faster trimming, smoothing.

***SPAENAUR No.* 876-204**

14" Flat, regular cut teeth. For planing large flat areas. Smooth surfaces on hard or soft woods, soft metals, and plastics.

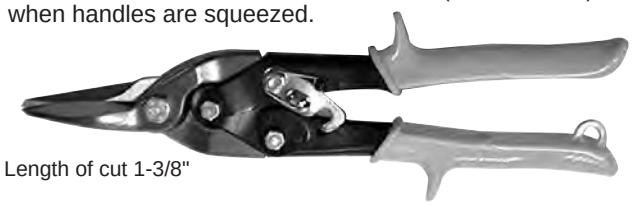
P

CATALOG 13

WISS METALMASTER® SNIPS

Change lap settings. Underlap for distortion-free, clean cuts, overlap for extra length of cut on heavy metals. Blades of hot drop-forged chromium steel, precision ground for superior cutting quality. Spring-activated latch snaps open when handles are squeezed.

876-1830
Cuts Straight and Wide Curves
(Yellow Handle)



Length of cut 1-3/8"

9-3/4" overall Weight - 16 oz.

876-1828 Cuts Left and Straight, (Red Handle)
876-1829 Cuts Right and Straight, (Green Handle)

Item may not be as illustrated.

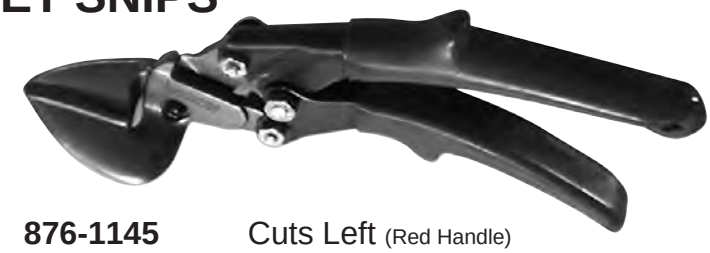
Length of cut 1-3/8"

9-3/4" overall Weight - 12 oz.

OFFSET SNIPS

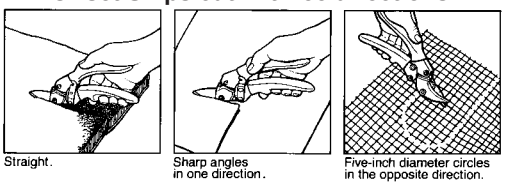
Offset snips handle virtually every cutting job in sheet, linoleum, carpet, tile and other materials.

- Easier to use than conventional metal snips
- Cuts in three directions
- Forged steel blades
- Exclusive pinch-point wire cutter
- Unique curved handle fits comfortably
- Keeps hands safely above the work



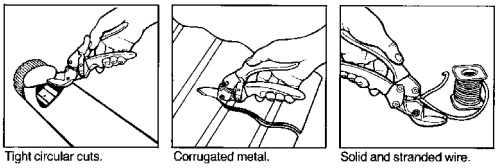
876-1145 Cuts Left (Red Handle)
876-1146 Cuts Right (Green Handle)

Offset Snips cut in three directions.



Straight. Sharp angles in one direction. Five-inch diameter circles in the opposite direction.

Offset Snips make difficult cuts easy.



Tight circular cuts. Corrugated metal. Solid and stranded wire.

Hawkbill Knife

"The Shipper's Favourite"

876-735

Varnished Hardwood Handle

3" blade of finest cutlery steel.

More Knives on page M50.

METAL CUTTER

M-63
Extra Blade and Pins
Blade - tough 1/8" spring steel, heat treated to 45 Rockwell Blk. Oxide treated against corrosion. Long lasting.

M-62
Cutter Complete with blade
10" overall

Handle stock, heat treat ductile iron, nickel plated.

The single blade takes care of all types of cutting jobs. Blade has tip that pierces the metal, one edge to cut light and medium gauge metals, another edge to cut heavy gauge metals. The handle fits the hand for easy guiding. Blades can be sharpened or ground thinner with stone or wheel. When worn down they can be easily replaces at low cost.

This is the way metal is pierced before cutting starts.

Here you see the tool cutting a straight line.

P.C. 876

P

CATALOG 13

All items on this page Priced Singly.

The Complete Plier Programme

Plier Index

Cable Shears - P170, P172.
Carpenters' Pincers - P160.
Centre Cutters, Lever Action - P164.
Chain and Snipe Nose, Side Cutting Pliers - P155.
Circlip (Retaining Ring) Pliers - P158, P159.
Combination Pliers - P151, P152.
Crimping Pliers - P172.
Duck Bill, Flat, Long, and
Round Nose Pliers - P154, P156.
Electronic Pliers - P156, P157.
Electronic Relay Adjusting Pliers - P156, P157.
Electronic Special Pliers:
Gripping, Adjusting, and Nippers - P165, P166.
Electronic Super Knips - P164.
Gripping Adjustable Pliers
for Pipe and Spanner - P156, P167, P168.
Mechanics' Pliers - P157.
Nippers (End Cutting):
Concretors' - P160.
Electronics' - P160.
Mechanics' - P161.
Regular and High Leverage - P161.
Sheet Metal - P169.
Nippers (Diagonal Cutting):
Electro-Mechanics' - P163.
Electronic - P162.
High Leverage - P163.
Regular - P162.
Revolving Punch Pliers - P169.
Ribbon Cable Cutters - P169.
Three Piece Plier Set - P159.
Wire/Insulation Stripper Pliers - P153.
Wire Rope Cutters - P172.

Information and Symbols used throughout the Knipex Plier Pages.

Rivet Design

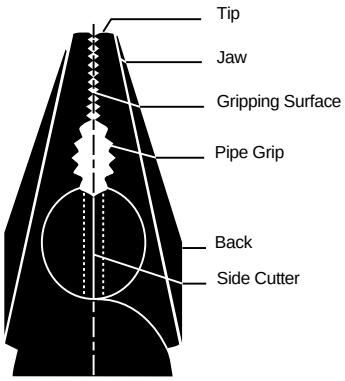
reverse action joint rivet

forged on joint axis

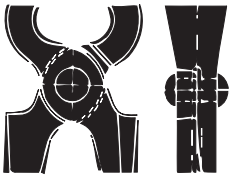
Cross-Section of Jaws (basic styles)

flat half-round round

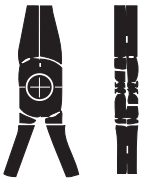
Head Parts



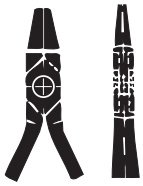
Style of Joints



Lay-on joint



Single joint



Box joint

Symbols

cutting edges bevelled

with spring

gripping surfaced smooth

for electronics

box joint

cutting edges with small bevel

with wire holding device

gripping surfaces serrated

copper and aluminum cable

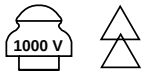
centre cutter

cutting edges without bevel (flush cutter)

jaws angled

gripping surfaces cross-cut

for wire rope



1000 V

The symbols respectively bearing 1000 V voltage indication and the manufacturer's trade mark KNIPEX show that the tool conforms to IEC900: 1987 or has been manufactured and tested to VDE 0680/2.

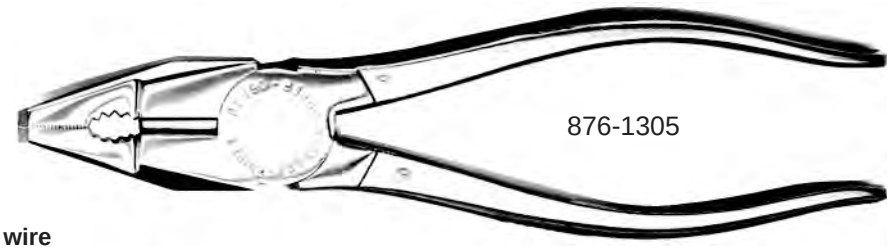
Design, production and storage tests conform to the VDE independant standard authority.

CATALOG 13

The illustrations, dimensions and weights in this publication are approximate.

Combination Pliers

Chrome Vanadium



- for all grades of wire, incl. piano wire
- long cutting edges for thicker cables
- jaw hardness approx. 53 HRc
- extra hard-wearing gripping jaws
- long-lasting under toughest conditions
- oil-hardened and tempered
- cutting edges separately induction-hardened
- cutting edge hardness approx. 64 HRc
- Material: Chrome Vanadium electric steel, oil-hardened

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head	Handles	Cutting Ø Capacity Hard wire mm	Hard wire inch	Piano wire mm	Piano wire inch	Cable mm	Cable inch	Wt. g
876-1304	0104160	160	6-1/4"	chrome plated	nonslip checkered	2.0	5/64"	1.5	1/16"	10.0	25/64"	180
876-1305	0104190	190	7-1/2"	chrome plated	nonslip checkered	2.5	3/32"	2.0	5/64"	13.0	1/2"	270

High Leverage Combination Pliers

- with new, high leverage, eccentric joint
- 50% easier cutting
- with cutting edges for soft, hard and piano wire
- long-lasting under the toughest conditions
- oil-hardened and tempered
- cutting edges separately induction-hardened
- cutting edge hardness approx. 63 HRc
- Material: Quality high grade tool steel, oil-hardened

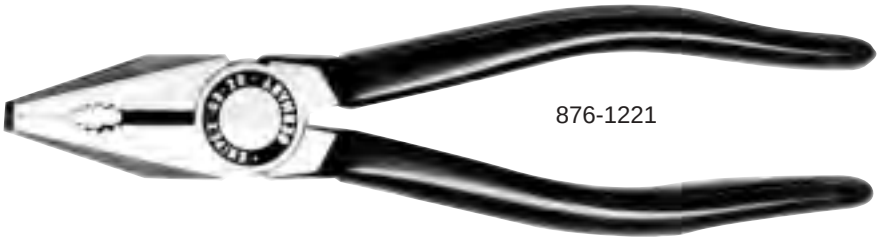
SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head	Handles	Cutting Ø Capacity Hard wire mm	Hard wire inch	Piano wire mm	Piano wire inch	Cable mm	Cable inch	Wt. g
876-1306	0201180	180	7"	polished	plastic-coated	2.5	3/32"	2.0	5/64"	11.5	7/16"	200
876-1307	0201200	200	8"			2.8	7/64"	2.2	5/64"	13.0	1/2"	280
876-1308	0201225	225	9"			3.0	1/8"	2.5	3/32"	14.0	9/16"	340
876-1215	0202180	180	7"	polished	heavily insulated	2.5	3/32"	2.0	5/64"	11.5	7/16"	240
876-1216	0202200	200	8"			2.8	7/64"	2.2	5/64"	13.0	1/2"	320
876-1217	0202225	225	9"			3.0	1/8"	2.5	3/32"	14.0	9/16"	380
876-1309	0205180	180	7"	chrome plated	heavily insulated	2.5	3/32"	2.0	5/64"	11.5	7/16"	240
876-1310	0205200	200	8"			2.8	7/64"	2.2	5/64"	13.0	1/2"	320
876-1311	0205225	225	9"			3.0	1/8"	2.5	3/32"	14.0	9/16"	380
876-1312	0206180	180	7"	chrome plated	heavily insulated VDE-tested 1000 V	2.5	3/32"	2.0	5/64"	11.5	7/16"	240

All items on this page
Priced Singly.

Combination Pliers

Special Tool Steel

- **cutting edges for hard and soft wire**
- **oil-hardened and tempered**
- **cutting edges separately induction-hardened**
- **cutting edge hardness appox. 60 HRc**
- **Material: special tool steel, oil-hardened**



876-1221

876-1322

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head	Handles	Cutting Ø Capacity Med. wire mm	Med. wire inch	Hard wire mm	Hard wire inch	Cable mm	Cable inch	Wt. g
876-1218	0301140	140	5-1/2"	polished	plastic-coated	2.8	7/16"	1.8	5/64"	9.0	11/32"	100
876-1219	0301160	160	6-1/4"			3.1	1/8"	2.0	5/64"	10.0	25/64"	180
876-1220	0301180	180	7"			3.4	9/64"	2.2	5/64"	12.0	15/32	210
876-1221	0301200	200	8"			3.8	5/32"	2.5	3/32"	13.0	1/2"	270
876-1315	0301250	250	10"			3.8	5/32"	2.5	3/32"	15.0	37/64"	460
876-1316	0305140	140	5-1/2"	chrome plated	heavily insulated	2.8	7/64"	1.8	5/64"	9.0	23/64"	120
876-1320	0306160	160	6-1/4"	chrome plated	heavily insulated	3.1	1/8"	2.0	5/64"	10.0	25/64"	200
876-1321	0306180	180	7"		VDE-tested 1000 V	3.4	9/64"	2.2	5/64"	12.0	15/32"	230
876-1322	0306200	200	8"			3.8	5/32"	2.5	3/32"	13.0	1/2"	310
876-1326	0307250	250	10"	chrome plated	plastic-dipped VDE-tested 1000 V	3.8	5/32"	2.5	3/32"	15.0	19/32"	585

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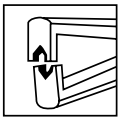
CATALOG 13

Wire Strippers

- with locking adjustable screw for setting the desired diameter (solid or stranded wire) up to 5 mm dia., resp. 10 mm^2
- internal knurled nut for one hand adjustment
- style 0: with spring action
- style 1: without spring action (not stocked)
- Material: special tool steel , oil-hardened

876-1268

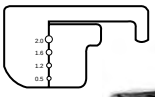


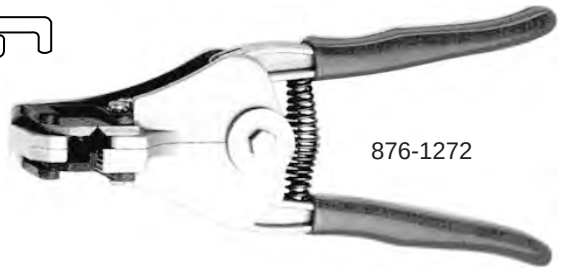
876-1333

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Style	Head	Handles	Wt. g
876-1268	1101160	160	6-1/4"	0	polished	plastic-coated	120
876-1332	1105160	160	6-1/4"		chrome plated	heavily insulated	140
876-1333	1106160	160	6-1/4"		chrome plated	heavily insulated VDE-tested 1000 V	140

Automatic Insulation Stripper

- strong light-metal body
- replaceable blades of special steel with 4 and 6 positions resp. for different wire cross sections
- leaves wire undamaged; even multi-stranded conductors are stripped cleanly. During stripping the wire is held firm by clamping jaws. A length stop ensures constant stripping length on repetitive work. A spring returns the stripper to the starting position.
- wire cutter at end of blade




876-1272

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Stripping Capacity mm^2	Wt. g
876-1272	1211180	180	7"	0.5, 1.2, 1.6, 2.0	380

Electricians' Pliers

- the ideal plier for cable work
- for cutting, stripping, crimping, gripping, bending
- for stripping wire of 0.9, 1.4, 1.8 mm dia. resp. 0.6, 1.5, 2.5 mm^2
- for crimping cable links of 0.75, 1.5, 2.5 mm^2
- precision stripping holes and cutting edges
- cutting edges separately induction-hardened
- cutting edge hardness approx. 60 HRc
- Material: Chrome Vanadium electric steel, oil hardened

876-1224

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head	Handles	Stripping Capacity mm	Stripping Capacity inch	Stripping Capacity mm^2	Wt. g
876-1224	1301160	160	6-1/4"	polished	plastic-ctd.	0.9, 1.4, 1.8	1/32", 3/64", 5/64"	0.6, 1.5, 2.5	120

Diagonal Insulation Strippers

- essential pliers for electrical installation work
- inductively hardened precision blades for soft wire
- blade hardness approx. 62HRc
- with insulation stripping holes for single and multiple strand cables 1.5 and 2.5 mm^2
- Material: high quality special tool steel , oil-hardened

876-1512

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Handles	Stripping Capacity mm^2	Wt. g
876-1512	1422160	160	6-1/4"	heavily insulated	1.5 + 2.5	190

All items on this page
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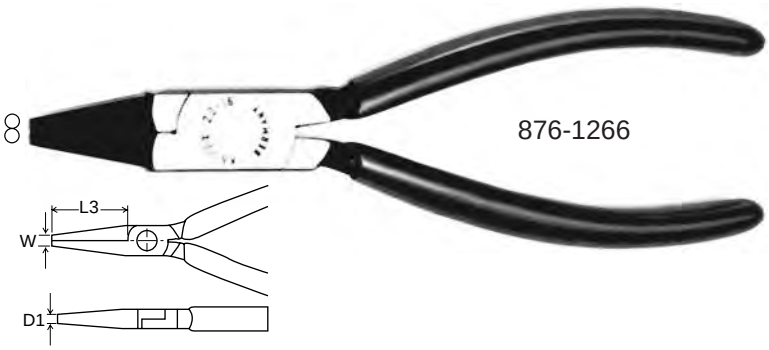
Round Nose Pliers

- short, round jaws, precision ground
- gripping surfaces smooth
- for forming wire loops
- Material: special tool steel, oil-hardened



SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head	Handles	L3 mm	L3 inch	Dimensions W mm	Dimensions W inch	D1 mm	D1 inch	Wt. g
876-1265	2201140	140	5-1/2"	polished	plastic-coated	28	1-3/32"	16.5	21/32"	2.5	3/32"	100
876-1266	2201160	160	6-1/4"			30	1-3/16"	18.0	23/32"	3.0	1/8"	130

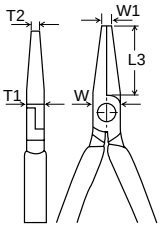
Flat Nose Assembly Pliers

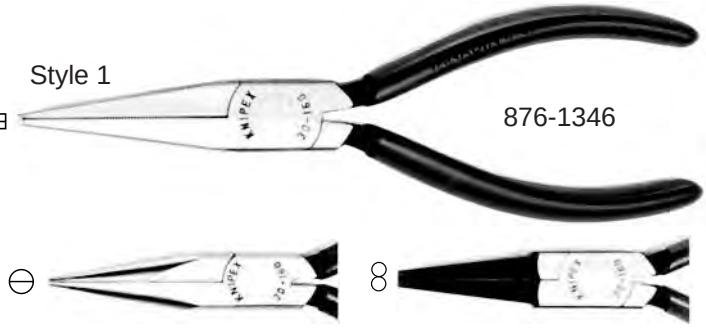
- specifically suitable for Business Machine repair work
- flat-wide jaws
- gripping surfaces serrated
- Material: Special tool steel, oil-hardened

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head	Handles	Wt. g
876-1269	2801200	200	8"	polished	plastic-coated	190

Long Nose Pliers

- Material: Chrome Vanadium electric steel, oil-hardened





Finishes

1. Chrome Head, Plastic Coated Handle.
2. Chrome Head, Heavily Insulated Handle.
3. Polished Head, Plastic Coated Handle.

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Style	Fin.	Dimensions L3 mm / inch	Dimensions W mm / inch	Dimensions T1 mm / inch	Dimensions W1 mm / inch	Dimensions T2 mm / inch	Wt. g
876-1346	3013140	140	5-1/2"	1	1	42.0 / 1-21/32"	15.0 / 19/32"	8.0 / 5/16"	2.5 / 3/32"	4.0 / 5/32"	80
876-1347	3013160	160	6-1/4"		1	46.5 / 1-27/32"	16.5 / 21/32"	9.5 / 3/8"	3.0 / 1/8"	5.0 / 13/64"	110
876-1349	3015160	160	6-1/4"		2	46.5 / 1-27/32"	16.5 / 21/32"	9.5 / 3/8"	3.0 / 1/8"	5.0 / 13/64"	140
876-1350	3015190	190	7-1/2"		2	50.0 / 1-31/32"	17.0 / 43/64"	8.0 / 5/16"	3.0 / 1/8"	7.0 / 17/64"	160
876-1356	3021140	140	5-1/2"	2	3	42.0 / 1-21/32"	15.0 / 19/32"	8.0 / 5/16"	2.5 / 3/32"	2.0 / 5/64"	100
876-1357	3021160	160	6-1/4"		3	50.0 / 1-31/32"	16.5 / 21/32"	9.5 / 3/8"	3.0 / 1/8"	2.5 / 3/32"	120
876-1358	3021190	190	7-1/2"		3	50.0 / 1-31/32"	17.0 / 43/64"	8.0 / 5/16"	3.0 / 1/8"	2.4 / 3/32"	130
876-1351	3033140	140	5-1/2"	3	1	37.5 / 1-15/32"	15.0 / 19/32"	8.0 / 5/16"	4.0 / 5/32"	2.0 / 5/64"	80
876-1355	3035190	190	7-1/2"		2	51.0 / 2"	16.0 / 5/8"	8.0 / 5/16"	3.8 / 5/32"	1.9 / 5/64"	130

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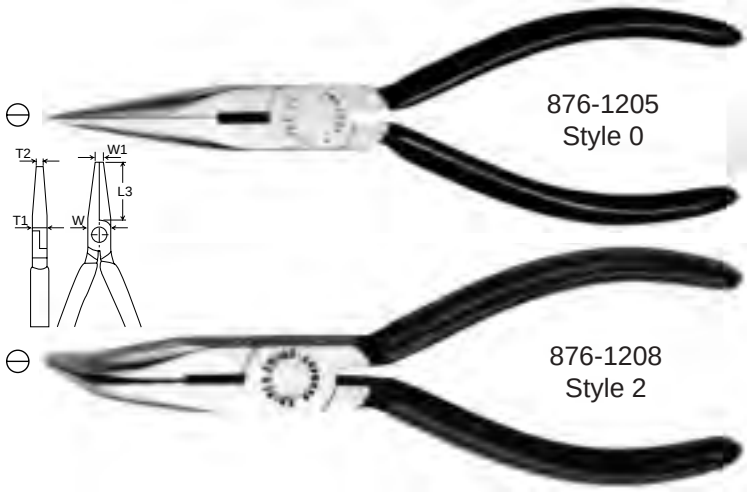
CATALOG 13

All items on this page Priced Singly.

Chain Nose Side Cutting Pliers
(Radio Pliers)

- with cutting edges for hard and soft wire
- flat-round jaws
- gripping surfaces serrated
- cutting edges separately induction-hardened
- cutting edge hardness approx. 60 HRc
- Style 0: straight jaws
- Style 2: jaws angled at 45°
- Material: special tool steel, oil-hardened



Finishes
1. Polished Head, Plastic Coated Handle
2. Chrome Plated Head, Plastic Coated Handle
3. Chrome Plated Head, Heavily Insulated Handle
4. Chrome Plated Head, Heavily Transparent Insulation Handle VDE Tested 1000 V

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Style	Fin.	Dimensions L3 mm / inch	W mm / inch	T1 mm / inch	W1 mm / inch	T2 mm / inch	Wt. g
876-1205	2501125	125	5"	0	1	27 / 1-1/16"	13.0 / 1/2"	7.0 / 9/32"	2.5 / 3/32"	1.8 / 5/64"	60
876-1206	2501140	140	5-1/2"	0	1	42 / 1-21/32"	15.0 / 19/32"	8.0 / 5/16"	2.5 / 3/32"	2.0 / 5/64"	80
876-1207	2501160	160	6-1/4"	0	1	50 / 1-15/16"	16.5 / 21/32"	9.5 / 3/8"	3.0 / 1/8"	2.5 / 3/32"	100
876-1335	2503140	140	5-1/2"	0	2	42 / 1-21/32"	15.0 / 19/32"	8.0 / 5/16"	2.5 / 3/32"	2.0 / 5/64"	80
876-1336	2503160	160	6-1/4"	0	2	50 / 1-15/16"	16.5 / 21/32"	9.5 / 3/8"	2.5 / 3/32"	2.5 / 3/32"	110
876-1337	2505140	140	5-1/2"	0	3	42 / 1-21/32"	15.0 / 19/32"	8.0 / 5/16"	2.2 / 5/64"	2.0 / 5/64"	100
876-1338	2505160	160	6-1/4"	0	3	50 / 1-15/16"	16.5 / 21/32"	9.5 / 3/8"	3.0 / 1/8"	2.5 / 3/32"	130
876-1339	2506160	160	6-1/4"	0	4	50 / 1-15/16"	16.5 / 21/32"	9.5 / 3/8"	3.0 / 1/8"	2.5 / 3/32"	140
876-1208	2521160	160	6-1/4"	2	1	50 / 1-15/16"	16.5 / 21/32"	9.5 / 3/8"	3.0 / 1/8"	2.5 / 3/32"	115

Snipe Nose Side Cutting Pliers
(Stork Beak Pliers)

- long, flat-round jaws
- gripping surfaces serrated
- with cutting edges for hard and soft wire
- cutting edges separately induction-hardened
- cutting edge hardness approx. 60 HRc
- Style 1: straight jaws
- Style 2: jaws angled at 45°
- Material: special tool steel, oil-hardened

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Style	Head	Handles	Wt. g
876-1209	2611200	200	8"	1	polished	plastic-coated	160
876-1340	2613200	200	8"		chrome plated	plastic-coated	160
876-1341	2615200	200	8"		chrome plated	heavily insulated	180
876-1342	2616200	200	8"		chrome plated	heavily insulated VDE-tested 1000 V	180
876-1210	2621200	200	8"	2	polished	plastic-coated	180
876-1343	2623200	200	8"		chrome plated	plastic-coated	160
876-1344	2625200	200	8"		chrome plated	heavily insulated	180

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All items on this page
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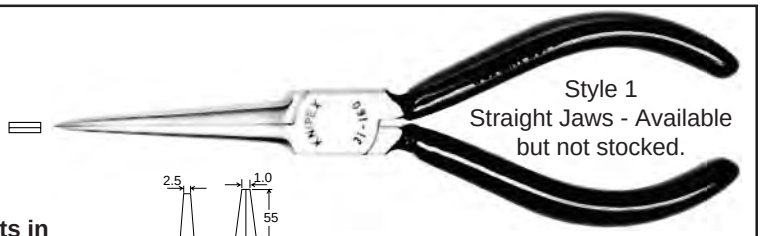
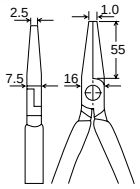
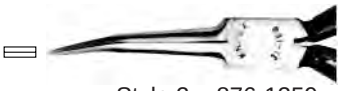
Electronics Pliers

(Needle Nose Pliers)

- **55 mm extra long jaws**
- **gripping surfaces smooth**
- **sharp edges carefully removed**
- **for the adjustment and bending of components in electronic equipment**
- **Style 1: straight jaws** (not stocked)
- **Style 2: 45° angled jaws**
- **Material: Chrome Vanadium electric steel, oil-hardened**







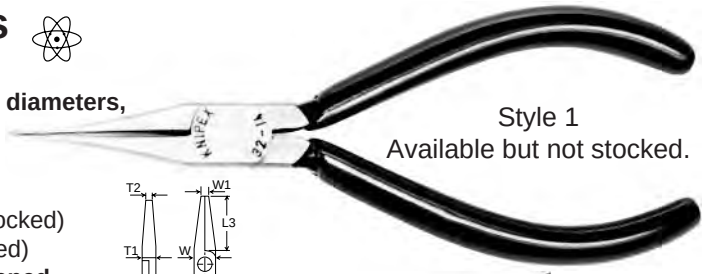
Style 2 876-1359

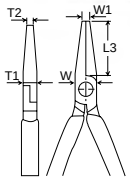
SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Style	Head	Handles	Wt. g
876-1359	3121160	160	6-1/4"	2 45°	polished	plastic-coated	80

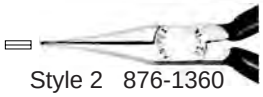
Relay Adjusting Pliers

- **gripping surfaces polished**
- **for gripping components and wires of the smallest diameters, as well as bending contact and relay springs**
- **Style 1: flat-pointed jaws** (not stocked)
- **Style 2: flat-wide jaws**
- **Style 3: jaws angled at an upward 40° curve** (not stocked)
- **Style 4: jaws right angled sideways (90°)** (not stocked)
- **Material: Chrome Vanadium electric steel, oil-hardened**

Finishes
1. Polished Head, Soft Plastic Coated Handles





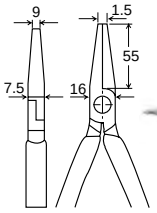


Style 2 876-1360

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Style	Fin.	Dimensions L3 mm / inch	W mm / inch	T1 mm / inch	W1 mm / inch	T2 mm / inch	Wt. g
876-1360	3221135	135	5-1/4"	2	1	34 / 1-11/32"	12.5 / 31/64"	7.0 / 9/32"	1.0 / 1/32"	3.5 / 9/64"	60

Duck Bill Pliers

- **jaws 9 mm wide and reducing to 1.5 mm thickness**
- **gripping surfaces smooth**
- **Material: Chrome Vanadium electric steel, oil-hardened**



SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head	Handles	Wt. g
876-1273	3301160	160	6-1/4"	polished	plastic-coated	100

All items on this page
Priced Singly.

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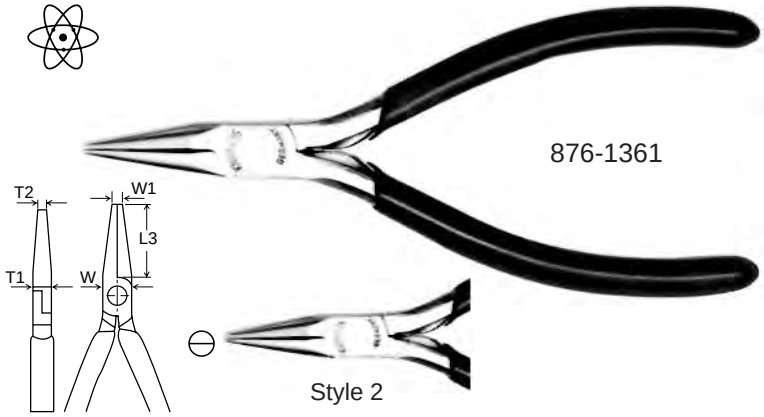
Electronics Pliers

- **zero play box joint**
- **smooth gripping surfaces**
- **precision tips for very fine electronic and precision assembly work**
- **with captive, frictionless double spring**
- **for gripping, holding and bending:**
  Style 1: flat-wide jaws (not stocked)
  Style 2: flat-round jaws
- **for forming wire loops or wire eyes:**
  Style 3: round-pointed jaws (not stocked)
- **Material: special tool steel, oil-hardened**

Finishes
1. Polished Head, Soft, Plastic Coated Handles



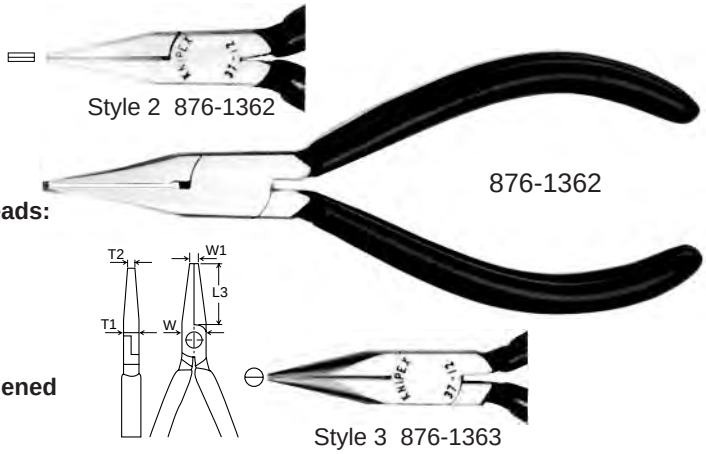
SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Style	Fin.	Dimensions L3 mm / inch	W mm / inch	T1 mm / inch	W1 mm / inch	T2 mm / inch	Wt. g
876-1361	3521115	115	4-1/2"	2	1	22.5 / 57/64"	9.5 / 3/8"	6.5 / 1/4"	2.0 / 5/64"	1.5 / 1/16"	50

Relay Adjusting Pliers

(Watchmakers Pliers)

- **smooth gripping surfaces**
- **sharp edges carefully removed**
- **for gripping and adjusting components and wire leads:**
  Style 1: flat-wide jaws (not stocked)
  Style 2: flat-pointed jaws
- **for bending contact and relay springs:**
  Style: 3: flat-round jaws
  Style: 4: round-pointed jaws (not stocked)
- **Material: Chrome Vanadium electric steel, oil- hardened**

Finishes
1. Polished Head, Soft Plastic Coated Handles



SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Style	Fin.	Dimensions L3 mm / inch	W mm / inch	T1 mm / inch	W1 mm / inch	T2 mm / inch	Wt. g
876-1362	3721125	125	5"	2	1	27 / 1-1/16"	12.5 / 31/64"	7.0 / 17/64"	2.0 / 5/64"	2.0 / 5/64"	60
876-1363	3731125	125	5"	3	1	27 / 1-1/16"	13 / 33/64"	7.0 / 17/64"	2.0 / 5/64"	1.7 / 1/16"	60

Mechanics' Pliers

- **strong, serrated gripping surfaces**
- **876-1211: for gaining entry to inaccessible parts**
- **876-1212: ideal for gripping different materials**
- **876-1213: ideal for gripping small hoses, clamps, spark plug covers and other small components**
- **Material: vanadium steel, oil-hardened**

Finishes
2. Polished Head, Plastic Coated Handles

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Style	Fin.	Dimensions L3 mm / inch	W mm / inch	T1 mm / inch	W1 mm / inch	T2 mm / inch	Wt. g
876-1211	3831200	200	8"		2	73 / 2-7/8"	17.5 / 11/16"	9.5 / 3/8"	3.0 1/8"	2.5 / 3/32"	170
876-1212	3871200	200	8"	70°	2	73 / 2-7/8"	17.5 / 11/16"	9.5 / 3/8"	3.0 / 1/8"	2.0 / 5/64"	160
876-1213	3891200	200	8"	45°	2	73 / 2-7/8"	17.5 / 11/16"	9.5 / 3/8"	— / —	2.5 / 3/32"	170

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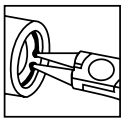
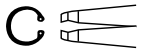
Internal Circlip Pliers



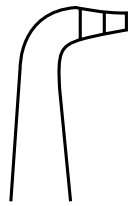
Style 1 straight
Style 2 ⊀ 90°



876-1236

- **solid style, forged**
- **precision non-slip tips**
- **Material: Chrome Vanadium electric steel, oil-hardened**

Model *876-1380, †876-1558, ■876-1385, and ▲876-1386 tips are tempered steel and are replaceable. Pliers are black powder coated sheet steel construction.

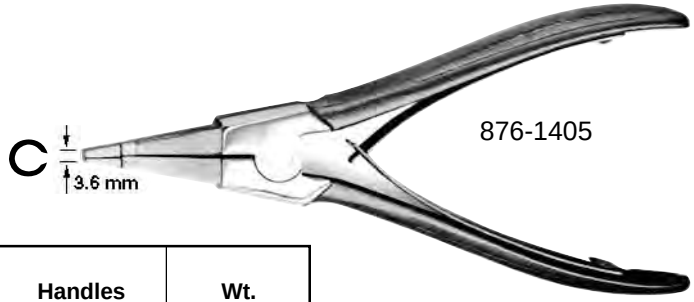
SPAENAUR No.	Mfg. No.	Style	Head	Handles	For Size of bore Ø mm	Length mm	Wt. g
876-1630	4411J0	1 Straight	polished	plastic-coated	8 -13	140	90
876-1235	4411J1				12 - 25	140	80
876-1236	4411J2				19 - 60	180	130
876-1237	4411J3				40 - 100	225	190
876-1238	4411J4				85 - 140	320	460
***876-1380**	4410J5		burnished	black, powder ctd.	122 - 300	570	1420
†876-1558	4410J6				252 - 400	580	1420
876-1658	4413J0		chrome plated	plastic-coated	8 -13	140	85
876-1381	4413J1				12 - 25	140	85
876-1382	4413J2				19 - 60	180	130
876-1383	4413J3				40 - 100	225	200
876-1384	4413J4				85 - 140	320	480
876-1632	4421J01	2  ⊀ 90°	polished	plastic-coated	8 -13	130	90
876-1239	4421J11				12 - 25	130	80
876-1240	4421J21				19 - 60	170	135
876-1241	4421J31				40 - 100	215	200
876-1242	4421J41				85 - 140	300	460
■876-1385	4420J51		burnished	black, powder ctd.	122 - 300	590	1480
▲876-1386	4420J61				252 - 400	600	1480
876-1659	4423J01		chrome plated	plastic-coated	8 -13	130	90
876-1387	4423J11				12 - 25	130	80
876-1388	4423J21				19 - 60	170	130
876-1389	4423J31				40 - 100	215	200
876-1390	4423J41				85 - 140	300	460

SPAENAUR No.	Mfg. No.	Description
***876-1425**	4419J5	Spare Tips for 876-1380 (U.P.Q. 1 Pair)
†876-1199	4419J6	Spare Tips for 876-1558 (U.P.Q. 1 Pair)
■876-1641	4429J51	Spare Tips for 876-1385 (U.P.Q. 1 Pair)
▲876-1654	4429J61	Spare Tips for 876-1386 (U.P.Q. 1 Pair)

Only use circlips which comply with DIN regulations. Loosen tight circlips before removing them. Only use internal circlip pliers for the specified diameter range. We recommend that goggles are always worn when working with these pliers.

Special Retaining Ring Pliers

- **for fitting horseshoe-shaped spring retaining rings without grip holes**
- **for shaft retaining devices**
- **Material: Chrome Vanadium electric steel**

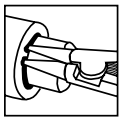


876-1405

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head	Handles (Checkered)	Wt. g
876-1405	4510170	170	6-3/4"	black oxide	black oxide	160

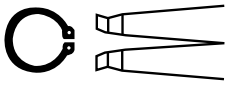
All items on this page Priced Singly.

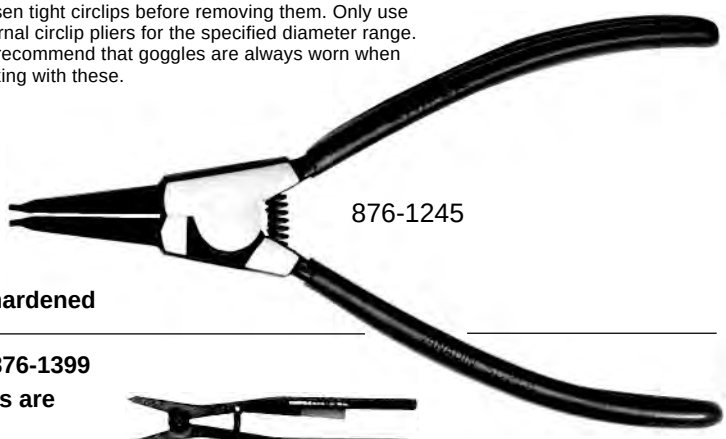
External Circlip Pliers



Style 1 Straight
Style 2 ⊀ 90°

Only use circlips which comply with DIN regulations. Loosen tight circlips before removing them. Only use external circlip pliers for the specified diameter range. We recommend that goggles are always worn when working with these.

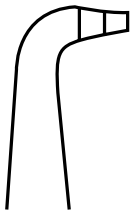




876-1245

- **solid style, forged**
- **precision non slip tips**
- **Material: Chrome Vanadium electric steel, oil-hardened**

Models *876-1391, †876-1392, ■876-1398 and ▲876-1399 tips are tempered steel and are replaceble. Pliers are black powder coated, sheet steel construction.

SPAENAUR No.	Mfg. No.	Style	Head	Handles	For Size of shaft Ø mm	Length mm	Wt. g
876-1243	4611A0	1 straight	polished	plastic-coated	3 - 10	140	80
876-1244	4611A1				10 - 25	140	80
876-1245	4611A2				19 - 60	180	140
876-1246	4611A3				40 - 100	210	200
876-1247	4611A4				85 - 140	315	490
***876-1391**	4610A5		burnished	black, powder ctd.	122 - 300	560	1440
†876-1392	4610A6				252 - 400	570	1420
876-1393	4613A0		chrome plated	plastic-coated	3 - 10	140	80
876-1395	4613A2				19 - 60	180	130
876-1396	4613A3				40 - 100	210	200
876-1397	4613A4				85 - 140	320	490
876-1248	4621A01	2  ⊀ 90°	polished	plastic-coated	3 - 10	125	80
876-1249	4621A11				10 - 25	125	80
876-1250	4621A21				19 - 60	170	130
876-1251	4621A31				40 - 100	200	200
876-1252	4621A41				85 - 140	300	490
■876-1398	4620A51		burnished	black, powder ctd.	122 - 300	580	1390
▲876-1399	4620A61				252 - 400	570	1400
876-1400	4623A01		chrome plated	plastic-coated	3 - 10	125	80
876-1401	4623A11				10 - 25	125	80
876-1402	4623A21				19 - 60	170	130
876-1403	4623A31				40 - 100	200	200
876-1404	4623A41				85 - 140	300	490

SPAENAUR No.	Mfg. No.	Description
***876-1427**	4619A5	Spare Tips for 876-1391 (U.P.Q. 1 Pair)
†876-1655	4619A6	Spare Tips for 876-1392 (U.P.Q. 1 Pair)
■876-1426	4629A51	Spare Tips for 876-1398 (U.P.Q. 1 Pair)
▲876-1656	4629A61	Spare Tips for 876-1399 (U.P.Q. 1 Pair)

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Carpenters' Pincers

- **especially favoured by craftsmen for precision workmanship, extreme wear resistance and good balance**
- **heavy duty**
- **Material: special tool steel, oil-hardened**

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head	Handles	Wt. g
876-1274	5000130	130	5-1/4"	polished	black atramentized	120
876-1275	5000160	160	6-1/4"			220

Concretors' Nippers

(Tower Pincers/Steel Fixers Nippers)

- **for concrete reinforcing wire**
- **to twist and cut binding wire in one operation**
- **precision and long life make these the most widely purchased tool of their kind in the world**
- **Material: special tool steel, oil-hardened**

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head	Handles	Wt. g
876-1253	9900200	200	8"	polished	black atramentized	220
876-1255	9900250	250	10"			400
876-1257	9900300	300	12"			480
876-1258	9901200	200	8"	polished	plastic-coated	235
876-1259	9901220	220	8-1/2"			350
876-1260	9901250	250	10"			415
876-1261	9901280	280	11"			485
876-1262	9901300	300	12"			510

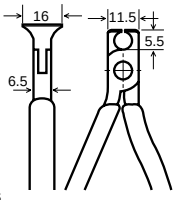
High Leverage Concretors' Nippers

- **for safe working to protect the wrist**
- **optimum cutting capacity with low force due to high leverage**
- **cutting capacity: soft wire up to max. 4.5 mm (3/16") in diameter**
- **high damping after cutting - easy on tendons and muscles**
- **Material: special tool steel, oil-hardened**

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head width mm	Head width inch	Head	Handles	Wt. g
876-1506	9910300	300	12"	25	1"	polished	black atramentized	465

Electronics End Cutting Nippers

- **box joint**
- **with captive, frictionless double spring**
- **cutting edge hardness approx. 56 HRc**
- **Style 0: bevelled, for cutting soft and medium-hard wires**
- **Style 1: non-bevelled, for cutting copper wire and diode leads flush with surface**
- **Material: special tool steel, oil-hardened**



Finishes

1. Polished Head, Soft Plastic-Coated Handles.

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Style	Finishes	Cutting Ø Capacity Soft Wire mm / inch	Cutting Ø Capacity Med-Hd Wire mm / inch	Cutting Ø Capacity Hard Wire mm / inch	Wt. g
876-1406	6401115	115	4-1/2"	0	1	0.3-1.6 / 1/64"-1/16"	1.0 / 3/64"	0.5 / 1/64"	55
876-1407	6411115	115	4-1/2"	1		0.3-1.4 / 1/64"-3/64"	0.8 / 1/32"	– / –	55

High Leverage End Cutting Nippers

- for piano wire, and soft wire
- cutting edges separately induction-hardened
- cutting edge hardness approx. 64 HRc
- Material: Chrome Vanadium electric steel, oil-hardened

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head	Handles	Cutting Ø Capacity Soft Wire mm / inch	Med-Hd Wire mm / inch	Hard Wire mm / inch	Piano Wire mm / inch	Wt. g
876-1408	6701140	140	5-1/2"	polished	plastic-coated	4.0 / 5/32"	3.1 / 1/8"	2.0 / 5/64"	1.5 / 1/16"	150
876-1409	6701160	160	6-1/4"			4.0 / 5/32"	3.4 / 9/64"	2.5 / 3/32"	2.0 / 5/64"	240
876-1410	6701200	200	8"			4.0 / 5/32"	4.2 / 11/64"	3.0 / 1/8"	2.5 / 3/32"	325
876-1412	6705160	160	6-1/4"	chrome plated	heavily insulated	4.0 / 5/32"	3.1 / 1/8"	2.5 / 3/32"	2.0 / 5/64"	260

End Cutting Nippers

- for hard and soft wire
- cutting edges separately induction-hardened
- cutting edge hardness approx. 60 HRc
- ideal for cutting soft and annealed tie wire
- Material: special quality high grade tool steel, oil-hardened

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head	Handles	Cutting Ø Capacity Soft Wire mm / inch	Med-Hd Wire mm / inch	Hard Wire mm / inch	Wt. g
876-1270	6801160	160	6-1/4"	polished	plastic-coated	4.0 / 5/32"	2.8 / 7/64"	2.3 / 3/32"	200

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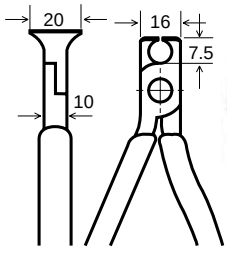
Mechanics End Cutting Nippers

- for piano wire, and thin copper wire
- cutting edges separately induction-hardened
- cutting edge hardness approx. 63 HRc
- Material: Chrome Vanadium electric steel, oil-hardened



SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head	Handles	Cutting Ø Capacity Soft Wire mm / inch	Med-Hd Wire mm / inch	Hard Wire mm / inch	Piano Wire mm / inch	Wt. g
876-1413	6903130	130	5-1/4"	chr. plated	plastic-coated	2.0 / 5/64"	1.3 / 3/64"	1.0 / 3/64"	0.75 / 1/32"	115

Diagonal Cutting Nippers

- for soft and hard wires
- induction-hardened precision cutting edges
- cutting edge hardness approx. 62 HRc

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head	Handles	Cutting Ø Capacity Soft Wire mm / inch	Cutting Ø Capacity Med-Hd Wire mm / inch	Cutting Ø Capacity Hard Wire mm / inch	Wt. g
876-1232	7001125	125	4-7/8"	polished	plastic-coated	3.0 / 1/8"	2.3 / 3/32"	1.5 / 1/16"	90
876-1233	7001160	160	6-1/4"			4.0 / 5/32"	2.8 / 7/64"	2.0 / 5/64"	170
876-1234	7001180	180	7"			4.0 / 5/32"	3.0 / 1/8"	2.5 / 3/32"	200
876-1415	7004140	140	5-1/2"	chrome plated	chrome plated	4.0 / 5/32"	2.5 / 3/32"	1.8 / 5/64"	105
876-1416	7004160	160	6-1/4"			4.0 / 5/32"	2.8 / 7/64"	2.0 / 5/64"	155
876-1417	7005125	125	4-7/8"	chrome plated	heavily insulated	3.0 / 1/8"	2.3 / 3/32"	1.5 / 1/16"	100
876-1419	7005160	160	6-1/4"			4.0 / 5/32"	2.8 / 7/64"	2.0 / 5/64"	190
876-1420	7005180	180	7"			4.0 / 5/32"	3.0 / 1/8"	2.5 / 3/32"	240
876-1421	7006125	125	4-7/8"	chrome plated	heavily insulated VDE-tested 1000 V	3.0 / 1/8"	2.3 / 3/32"	1.5 / 1/16"	105
876-1422	7006140	140	5-1/2"			4.0 / 5/32"	2.5 / 3/32"	1.8 / 5/64"	135
876-1423	7006160	160	6-1/4"			4.0 / 5/32"	2.8 / 7/64"	2.0 / 5/64"	190
876-1424	7006180	180	7"			4.0 / 5/32"	3.0 / 1/8"	2.5 / 3/32"	240

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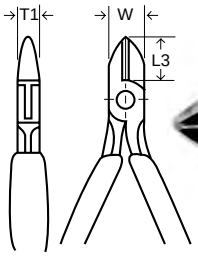
Electronic Diagonal Cutting Nippers

(heavy pattern)

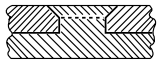
- box joint
- captive, frictionless double spring
- cutting edges separately induction-hardened
- cutting edge hardness approx. 60 HRc
- Style 1: additional with automatic holding device, no uncontrolled jump offs - no disturbance in circuits
- Material: special tool steel, oil-hardened



Finishes
1. Polished Head, Soft Plastic Coated Handles

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Style	Fin.	Dimensions L3 mm / inch	Dimensions W mm / inch	Dimensions T1 mm / inch	Cutting Ø Capacity Soft Wire mm / inch	Cutting Ø Capacity Hard Wire mm / inch	Wt. g
876-1367	7701115	115	4-1/2"	0	1	14 / 9/16"	11 / 7/16"	7.5 / 19/64"	1.6 / 1/16"	0.5 / 1/64"	70
876-1368	7711115	115	4-1/2"	1	1	14 / 9/16"	11 / 7/16"	7.5 / 19/64"	1.6 / 1/16"	0.5 / 1/64"	70

High Leverage Diagonal Cutting Nippers



- **with fixed, forged-on articulated axle for heaviest duty**
- **suitable for piano wire and equally for soft wire**
- **induction-hardened precision cutting edges**
- **cutting edge hardness approx. 64 HRc**
- **little effort is required thanks to the proper coordination of cutting edge angle, leverage ratio and handle shape**
- **the 250 mm long Diagonal Cutting Nippers are suitable for Cu-cable up to 16 mm^2 and Alu-cables up to 35 mm^2**
- **High Leverage Centre Cutters 876-1225 cut hard or thick wires with less effort than equally long Diagonal Cutting Nippers**
- **Material: Chrome Vanadium electric steel, oil-hardened**

876-1229

876-1377

876-1225
Centre Cutter

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head	Handles	Cutting Ø Capacity Soft Wire mm / inch	Med-Hd Wire mm / inch	Hard Wire mm / inch	Piano Wire mm / inch	Wt. g
876-1226	7401140	140	5-1/2"	polished	plastic-coated	4.0 / 5/32"	3.1 / 1/8"	2.0 / 5/64"	1.5 / 1/16"	130
876-1227	7401160	160	6-1/4"				3.4 / 9/64"	2.5 / 3/32"	2.0 / 5/64"	170
876-1228	7401180	180	7"				3.8 / 5/32"	2.7 / 7/64"	2.2 / 5/64"	220
876-1229	7401200	200	8"				4.2 / 11/64"	3.0 / 1/8"	2.5 / 3/32"	260
876-1230	7401250	250	10"				4.6 / 3/16"	3.5 / 9/64"	3.0 / 1/8"	380
876-1369	7404140	140	5-1/2"	chrome plated	chrome plated	4.0 / 5/32"	3.1 / 1/8"	2.0 / 5/64"	1.5 / 1/16"	140
876-1372	7404250	250	10"				4.6 / 3/16"	3.5 / 9/64"	3.0 / 1/8"	355
876-1374	7405140	140	5-1/2"	chrome plated	heavily insulated	4.0 / 5/32"	3.1 / 1/8"	2.0 / 5/64"	1.5 / 1/16"	150
876-1376	7405180	180	7"				3.8 / 5/32"	2.7 / 7/64"	2.2 / 5/64"	245
876-1377	7405200	200	8"				4.2 / 11/64"	3.0 / 1/8"	2.5 / 3/32"	285
876-1378	7405250	250	10"				4.6 / 3/16"	3.5 / 9/64"	3.0 / 1/8"	405
876-1379	7406160	160	6-1/4"	chrome plated	heavily insulated VDE-tested 1000 V		3.4 / 9/64"	2.5 / 3/32"	2.0 / 5/64"	200
876-1225	7491250	250	10"	polished	plastic-coated	5.0 / 13/64"	5.0 / 13/64"	3.8 / 5/32"	3.5 / 9/64"	390

All items on this page
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Electronic Super Knips

- **for soft wire - non-bevelled cutting edges, precision ground, for flush cutting**
- **cutting edges hardness approx. 56 HRc precise styled tips also cut tying wires from 0.2 mm dia.**
- **zero-play joint with high-grade steel rivet**
- **extremely easy action, fatigue-proof working**
- **with opening limit**
- **Material: INOX - stainless steel**

Finishes
1. Polished Head, Soft Plastic Coated handles

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Style	Fin.	Dimensions L3 mm / inch	Dimensions W mm / inch	Dimensions T1 mm / inch	Dimensions W1 mm / inch	Cutting Ø Capacity Soft Wire mm/inch	Cutting Ø Capacity Med-hd Wire mm / inch	Wt. g
876-1364	7803125	125	4-7/8"	0	1	9.0 / 11/32"	13.5 / 11/16"	7.5 / 19/64"	— / —	1.6 /1/16"	1.0 / 3/64"	50

Electronic Super Knips

- **for hard and soft wire**
- **cutting edge hardness approx. 63 HRc**
- **with induction-hardened cutting edges for longer tool life**
- **non-bevelled cutting edges, precision ground, for flush cutting**
- **precise styled tips also cut tying wires from 0.2 mm dia.**
- **zero play joint with high-grade steel rivet**
- **extremely easy action, fatigue-proof working**
- **Material: special tool steel**

Finishes
1. Burnished Head, Non Reflective Soft Plastic Coated Handles

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Style	Fin.	Dimensions L3 mm / inch	Dimensions W mm / inch	Dimensions T1 mm / inch	Cutting Ø Capacity Soft Wire mm / inch	Cutting Ø Capacity Med-hd Wire mm/inch	Cutting Ø Capacity Hard Wire mm / inch	Wt. g
876-1365	7861125	125	4-7/8"		1	9.0 / 11/32"	13.5 / 11/16"	7.5 / 19/64"	1.6 / 1/16"	1.2 / 3/64"	0.6 / 1/32"	50

Compact Wire and Bolt Cutters

- **for piano wire or for soft solid wire, bolts, nails, rivets and screws.**
- **induction-hardened precision cutting edges**
- **cutting edge hardness approx. 64 HRc**
- **exceptional cutting performance with little physical effort through lever action**
- **ergonomically styled handles**
- **Material: Chrome Vanadium electric steel, oil-hardened**

Finishes
1. Atramentized Head, Plastic Coated Handles

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Fin.	Cutting Ø Capacity Soft Wire mm / inch	Cutting Ø Capacity Med-Hd Wire mm / inch	Cutting Ø Capacity Hard Wire mm / inch	Cutting Ø Capacity Piano Wire mm / inch	Wt. g
876-1231	7101200	200	8"	1	6.0 / 15/64"	5.2 / 13/64"	4.0 / 5/32"	3.6 / 9/64"	340

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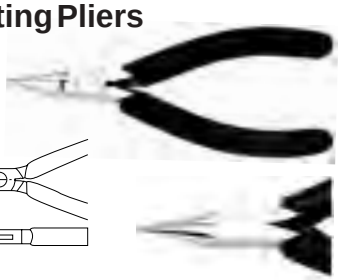
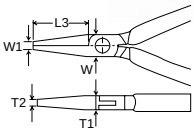
Electronic Pliers

Gripping and Adjusting Pliers





- **precision pliers for very fine installation work in electronics and fine mechanics**
- **for gripping, holding and bending**
- **smooth ground gripping surfaces**
- **edges carefully deburred**
- **box joint**
- **captive, low friction double spring for gentle, smooth closing and opening**
- **Material: special tool steel, oil-hardened**
- **highly polished, easy hold plastic coated handles**

SPAENAUR No. (Mfg. No.)	Length mm inch	Style	Dimensions W1 mm inch	L3 mm inch	W mm inch	T1 mm inch	T2 mm inch	Cutting Capacity *soft Ø mm/in.	Wt. g
876-1276 (3512)	115 4-1/2"	flat, wide jaws	2.0 0.079"	22.5 0.89"	9.5 0.37"	6.5 0.26"	4.0 0.16"	—	50
876-1277 (3522)	115 4-1/2"	flat-round jaws	2.0 0.079"	22.5 0.89"	9.5 0.37"	6.5 0.26"	1.5 0.059"	—	60
876-1278 (3532)	115 4-1/2"	pointed, round jaws for forming wire loops	2.0 0.079"	22.5 0.89"	9.5 0.37"	6.5 0.26"	1.0 0.039"	—	60
876-1279 (3542)	115 4-1/2"	45° angled, flat-round jaws	2.0 0.079"	22.5 0.89"	9.5 0.37"	6.5 0.26"	1.5 0.059"	—	50
876-1280 (3552)	145 5-3/4"	flat, long jaws	1.5 0.059	40.0 1.57"	12.0 0.47"	7.5 0.30"	4.0 0.16"	—	80
876-1281 (3562)	145 5-3/4"	flat-round, long jaws	2.5 0.098"	40.0 1.57"	12.0 0.47"	7.5 0.30"	1.5 0.059"	—	90
876-1282 (3572)	145 5-3/4"	round, long jaws	2.5 0.098"	40.0 1.57"	12.0 0.47"	7.5 0.30"	1.3 0.051"	—	80
876-1283 (3582)	145 5-34"	45° angled, flat-round long jaws	2.5 0.098"	35.0 1.38"	12.0 0.47"	7.5 0.30"	1.0 0.039"	—	80
876-1284 (3592)	145 5-3/4"	flat-round, long jaws, w/ cutting edges for copper	3.0 0.12"	40.0 1.57"	12.0 0.47"	7.5 0.30"	1.5 0.059"	1.0 0.039"	80

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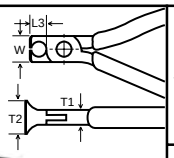
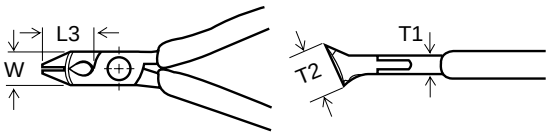
End Cutting Nipper



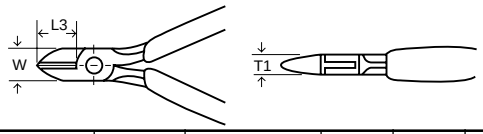
- with box joint, no play - reduces wear

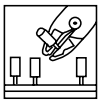
- captive, frictionless double spring to produce gentle and even operation
- cutting edge hardness approx. 56HRc
- Material: special tool steel, oil-hardened
- Head polished, heavy duty plastic coated handles



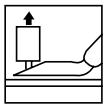
SPAENAUR No. (Mfg. No.)	Approx. Lgth. mm inch	Style	Dimensions L3 mm inch	W mm inch	T1 mm inch	T2 mm inch	Cutting Capacity Maximum *Soft mm inch	*Hard Ø mm/in.	Wt. g
876-1288 (6412)	115 4-1/2"	without bevel, for mirror cutting soft wire types	6.0 0.24"	11.0 0.43"	7.0 0.28"	16.0 0.63"	2.0 0.079"	0.5 0.020"	80
876-1290 (6432)	120 4-3/4"	flush	10.0 0.39"	11.0 0.43"	7.0 0.28"	17.0 0.67"	1.5 0.059"	0.5 0.020"	80
876-1291 (6452)	115 4-1/2"	short head, full flush	10.0 0.39"	10.5 0.41"	7.0 0.28"	12.0 0.47"	1.3 0.051"	—	60
876-1292 (6462)	120 4-3/4"	micro, flush	18.5 0.73"	9.5 0.37"	6.0 0.24"	5.0 0.20"	0.6 0.024"	—	60

Diagonal Cutting Nippers





- box joint
- cutting edges separately induction-hardened
- captive, low friction double spring for gentle, smooth closing and opening
- cutting edge hardness approx 60 HRc
- Material: special tool steel, oil-hardened
- head polished, plastic coated handles



876-1293 7702	115 4-1/2"	round, flush	14.0 0.55"	11.0 0.43"	7.5 0.30"	—	1.6 0.062"	0.5 0.020"	70
876-1294 7722	115 4-1/2"	with a small or no bevel for mirror	14.0 0.55"	11.0 0.43"	7.5 0.30"	—	1.3 0.051"	—	70
876-1295 7722	130 5"	with a small or no bevel for mirror	18.0 0.71"	14.0 0.55"	9.5 0.37"	—	2.0 0.079"	—	110
876-1296 7732	115 4-1/2"	pointed head with small or normal bevel	14.0 0.55"	11.0 0.43"	7.0 0.28"	—	1.3 0.051"	0.5 0.020"	70
876-1297 7742	115 4-1/2"	pointed head without bevel	14.0 0.55"	11.0 0.43"	7.0 0.28"	—	1.3 0.051"	—	75
876-1299 7742	130 5"	pointed head without bevel	18.0 0.71"	14.0 0.55"	9.5 0.37"	—	1.6 0.062"	—	115
876-1300 7752	115 4-1/2"	flat ground, flush	11.5 0.45"	14.0 0.55"	7.0 0.28"	—	1.0 0.039"	0.5 0.020"	70
876-1302 7772	115 4-1/2"	pointed mini head, with small bevel	10.5 0.41"	9.5 0.37"	6.0 0.24"	—	1.0 0.039"	—	55
876-1303 7782	130 5"	round head w/ recess and small bevel	16.0 0.63"	12.0 0.47"	7.0 0.28"	—	1.3 0.051"	—	85

Safety advice:
Always wear goggles when using cutting pliers.

*** Wire: soft, tensile strength approx.: 22 kp/mm^2, 220N/mm^2; material example: copper, plastic o.e.**
Wire: hard, tensile strength approx.: 180 kp/mm^2, 1800N/mm^2; material example: rope wire and spring wire.

All items on this page Priced Singly.

CATALOG 13

P

Pipe Gripping Pliers

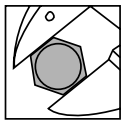
- with serrated gripping jaws
- 4-position adjustable slip joint
- ideally suitable for tightening and removing plastic pipe joints and unions, round union or swivel nuts etc., up to 65 mm dia.
- Material: Chrome Vanadium electric steel, oil-hardened

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head	Handles	Working Ø Cap. mm	Working Ø Cap. inch	Wt. g
876-1214	8103230	230	9-1/4"	chrome plated	plastic-coated	25 - 65	1" - 2-9/16"	280

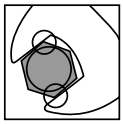
Plier Wrenches Patented

- plier and wrench in a single tool
- highly suitable for gripping, holding, pressing and bending work; and careful installation of surface-finished fittings
- grips all sizes up to 42 mm and 1-5/8"
- parallel, smooth jaws
- box joint
- fast adjustment at the touch of a button
- lever ratio greater than 10-1 for strong gripping power

876-1474



Plier Wrench: no play under pressure



Conventional Wrench: edge pressure could give surface marking

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head	Handles	Working Capacities mm	Working Capacities inch	Wt. g
876-1474	8603250	250	10"	nickel plated	plastic-coated	to 46	to 1-13/16"	560

KNIPEX - 'Cobra' Patented

(Pipe grip and spanner in one)

876-1203

- with box joint
- a new generation of Water pump Pliers, for easier and more secure work
- press button action for fast and firm adjustment directly on the work
- selected jaw opening is positively ensured
- 11-position adjustment
- 400 mm 'Cobra' with 15-position adjustment
- one hand adjustment
- the guard prevents operators' fingers being pinched
- gripping surfaces parallelogram-shaped with special hardened teeth
- hardness of jaws approx. 56 HRc
- self-gripping on pipes and nuts
- Material: Chrome Vanadium electric steel, oil-hardened

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head	Handles	Working Ø Cap. for pipes (dia.) inch	for nuts (across flats) mm	for nuts (across flats) inch	Wt. g
876-1202	8701180	180	7"			1/8" - 1-1/4"	6 - 30	1/4" - 1-3/16"	170
876-1657	8701250	250	10"			1/8" - 1-5/8"	6 - 36	1/4" - 1-7/16"	300
876-1203	8701300	300	12"	polished	plastic-coated	1/8" - 2"	7 - 48	9/32" - 1-7/8"	545
876-1204	8701400	400	15-1/2"			1/8" - 3"	10 - 65	3/8" - 2-9/16"	1000
876-1639	8703250	250	10"	chrome plated		1/8" - 1-5/8"	6 - 36	1/4" - 1-7/16"	290

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All items on this page Priced Singly.

KNIPEX - 'Alligator' Patented
(Pipe grip and spanner in one)

- with heavy duty box joint construction
- self-gripping on pipes and nuts
- gripping surfaces parallelogram-shaped
- special hardened teeth
- hardness of teeth approx. 56 HRc
- the guard prevents operators' fingers being pinched
- optimum lever action
- 7-position adjustment
- Material: Chrome Vanadium electric steel, oil-hardened

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head	Handles	Working Ø Cap. for pipes (dia.) inch	for nuts (across flats) mm	for nuts (across flats) inch	Wt. g
876-1200	8801250	250	10"	polished	plastic-coated	1/8" - 1-1/2"	6 - 36	1/4" - 1-13/32"	300
876-1201	8801300	300	12"			1/8" - 1-7/8"	7 - 48	9/32" - 1-7/8"	500
876-1640	8805250	250	10"	chrome plated	hvy. insulated	1/8" - 1-1/2"	6 - 36	1/4" - 1-13/32"	325

Water Pump Pliers with groove joint

- all strain removed from pivot bolt, hence no wear on pivot
- easy, convenient engagement through milled swivel giving 5 different positions
- positive, secure seating of the two plier halves in every setting position
- with guard
- gripping surfaces with special hardened teeth
- hardness of teeth approx. 56 HRc
- non slip joint
- Material: Chrome Vanadium electric steel, oil-hardened

P

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head	Handles	Working Ø Cap. for pipes (dia.) inch	for nuts (across flats) mm	for nuts (across flats) inch	Wt. g
876-1327	8901200	200	8"	polished	plastic coated	1/8" - 1-3/16"	6 - 25	1/4" - 1"	230
876-1328	8901250	250	10"			1/8" - 1-3/8"	6 - 36	1/4" - 1-13/32"	340

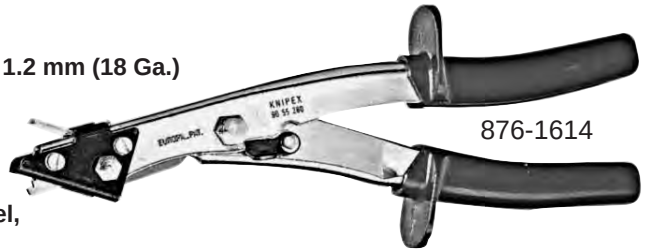
Have a question?

Call (800) 265-8772 or (519) 744-3521.

All items on this page Priced Singly.

Sheet Metal Nibbler

- with chip breaker
- for cutting iron, copper or aluminum plate up to max. 1.2 mm (18 Ga.) in thickness, plastic up to max. 2.0 mm in thickness
- easy to use
- clean, burr-free edges
- materials are cut without deforming
- Material: tool body made of high strength special steel, moving parts specially hardened and tempered



876-1614

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head	Handles	Wt. g
876-1614	9055280	280	11"	nickel plated	plastic-coated	480
876-1615	9059280	72	2-3/4"	spare blades		

876-1615
Spare blades

Revolving Punch Pliers

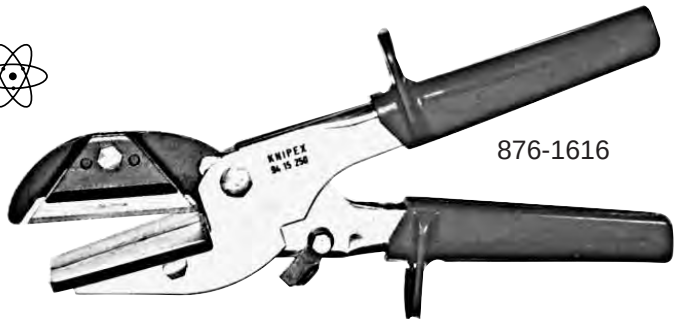
- with 6 replaceable punches
- for punching holes in leather, textile or plastic material
- punch dia.: 2.0 mm, 2.5 mm, 3.0 mm, 3.5 mm, 4.0 mm, 5 mm.
- punch dia.: 5/64", 3/32", 1/8", 9/64", 5/32", 3/16".
- pressed and shaped from high-strength sheet steel
- with opening spring and lock
- powder-coated for rust protection

876-1271

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Handles	Wt. g
876-1271	9070220	220	8-1/2"	Red lacquered	260

Ribbon Cable Cutter

- for crush-free cutting of ribbon cables up to 56 mm in width
- interchangeable cutting base with fence angle for perpendicular angled cutting
- replaceable, conventional cutting blade
- with opening spring and latch
- Material: handle and blade mounting made of special steel



876-1616

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head	Handles	Cutting Capacity Ribbon Cable mm	Cutting Capacity Ribbon Cable inch	Wt. g
876-1616	9415215	215	8-1/2"	nickel plated	plastic-coated	up to 56	2-7/32"	380

P

CATALOG 13

All items on this page
Priced Singly.

Cable Shears

Cu + Al Cable

- for copper and aluminum cables
- sharp, hardened blades, precision-ground
- for universal use for cutting, dismantling and stripping
- with jamming guard
- not suitable for steel wire
- Material: special forged tool steel

876-1222

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head	Handles	Cable Multiwire Cutting Ø Capacity mm	Cable Multiwire Cutting Ø Capacity inch	Cable Multiwire Cutting Ø Capacity mm²	Wt. g
876-1222	9511165	165	6-1/2"	burnished	plastic coated	15	19/32"	50	210

Cable Shears

- adjustable screw joint
- for copper and aluminum cables
- sharp, hardened blades, precision-ground
- easy, round cutting with one-handed operation
- for universal use for cutting, dismantling and stripping
- with jamming guard
- not suitable for steel wire
- Material: special steel, tempered pivot bolt and torsion-resistant nut

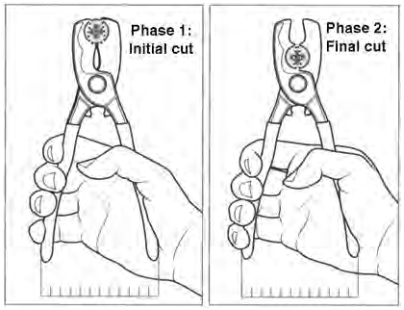
876-1479

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head	Handles	Cutting Ø Capacity mm	Cutting Ø Capacity inch	Cutting Ø Capacity mm²	Wt. g
876-1479	9516165	165	6-1/2"	chrome plated	heavily insulated VDE-tested 1000 V AC	15	19/32"	50	240

P

Cable Shears

- low effort required as a result of the good transmission ratio and a new type of blade geometry
- one-handed operation
- for copper and aluminum cables, single and multiple strand; with preliminary and final cut (first and second blade), cables up to 25 mm in diameter can be cut.
- blades induction hardened and precision ground
- easy, clean cutting with one-handed operation
- adjustable screw joint
- not suitable for steel wire and hard-drawn copper cables
- Material: special forged tool steel



876-1620

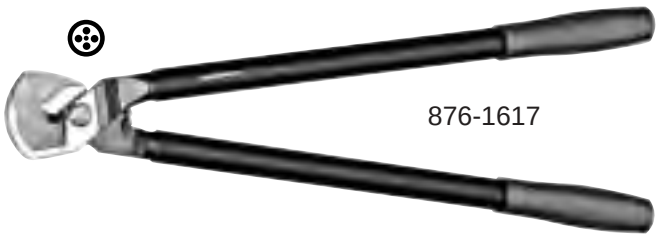
SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head	Handles	Cutting Ø Capacity mm	Cutting Ø Capacity inch	Cutting Ø Capacity mm²	Wt. g
876-1620	9511200	200	8"	burnished	plastic coated	20	51/64"	70	300

CATALOG 13

All items on this page Priced Singly.

Cable Shears

- cutting head forged, handles made of tempered tubing
- easy and clean cut achieved as a result of new cutting geometry
- low force requirement as a result of optimal transmission ratio
- short design, low weight
- not suitable for wire rope or steel wire
- Material: special tool steel



SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head	Handles	Cutting Ø Capacity mm	Cutting Ø Capacity inch	Cutting Ø Capacity mm²	Wt. g
876-1617	9511500	500	19-3/4"	polished	plastic-coated	27	1-1/16"	150	1010

Cable Shears

- low effort required as a result of double lever
- replaceable cutter head
- opening width of cutter head: 27 mm
- adjustable screw joint
- not suitable for wire rope or steel wire
- Material: special tool steel

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head	Handles	Cutting Ø Capacity mm	Cutting Ø Capacity inch	Cutting Ø Capacity mm²	Wt. g
876-1496	9521600	600	23-1/2"	polished	plastic-coated	27	1-1/16"	150	1840

P

CATALOG 13

All items on this page
Priced Singly.

Wire Rope Cutters

- **for medium-hard wire cables up to 6 mm dia. eg. Bowden cords, but also for cables and round steel**
- **blade hardness approx. 62 HRc**
- **cuts without burr**
- **special blade geometry prevents the wire cable splaying**
- **with opening spring and latch**
- **cutting head forged**

Cu + Al Cabl

Wire Rope

Steel Rod, Round Stee

SPAENAUR No.	Mfg. No.	O/A Length mm	O/A Length inch	Head	Handles	Cutting Ø Capacity Cu + Al Cbles mm²	Wire Rope mm	Wire Rope inch	Round Steel mm	Round Steel inch	Wt. g
876-1263	9561190	190	7-1/2"	polished	plastic-coated	15	6	1/4"	4	5/32"	320

P

Sales Desk open 7 a.m. to 6 p.m. E.S.T., Monday to Friday.

Call (800) 265-8772 or (519) 744-3521.

CATALOG 13

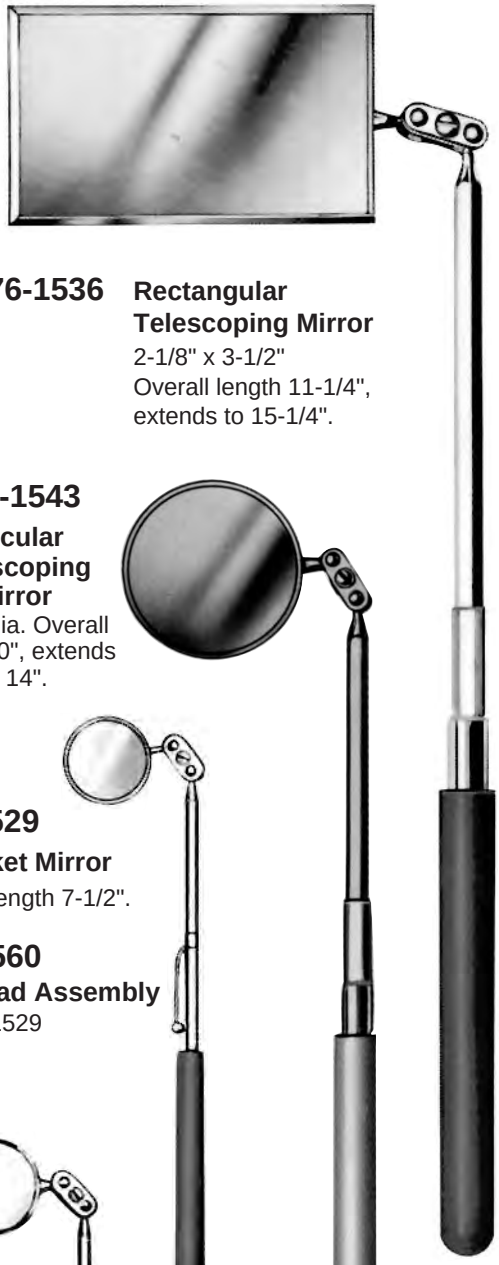
INSPECTION MIRRORS for all angle viewing

Original All-Angle Ball Joint Mirrors with brushed finish stainless steel mirror backs.

Fast, accurate visual inspection of hidden areas with an almost limitless number of positions. Double ball joint links swivel mirrors for viewing to 360°. Ullman's precision engineered links are manufactured from tempered spring steel to withstand the stresses of constant repositioning, move freely and hold desired position.

FEATURES:

- **Replaceable copper backed clear-view mirrors.**
- **Telescoping and pocket models.**
- **Non-rotating inner hex rods on telescopic models prevent mirrors from swinging out of alignment when in use.**
- **Insulating vinyl grip on all models.**



876-1536 **Rectangular Telescoping Mirror**
2-1/8" x 3-1/2"
Overall length 11-1/4", extends to 15-1/4".

876-1543
Circular Telescoping Mirror
2-1/4" dia. Overall length 10", extends to 14".

876-1529
Circular Pocket Mirror
7/8" dia. Overall length 7-1/2".

876-1560
Replacement Head Assembly
for 876-1529

REPLACEMENT MIRRORS

SPAENAUR No.	Mirror Size
876-1534	Oval 1" x 2"
876-1537	Rect. 2-1/8" x 3-1/2"

INSPECTION MIRROR WITH EXTRA LONG HANDLE

876-1667

Rectangular Telescoping Mirror, extra long handle
2-1/8" x 3-1/2". Overall length 17-1/4" extends to 27-1/4".

MAGNIFYING INSPECTION MIRROR

876-1668

Rectangular Magnifying Telescoping Mirror
2-1/8" x 3-1/2". Overall length 11-1/4", extends to 15-1/4".

876-1533
Oval Pocket Mirror
1" x 2".
Overall length 8-1/2".

MAGNIFYING MIRROR REPLACEMENT

SPAENAUR No.	Mirror Size
876-1669	Rect. 2-1/8" x 3-1/2"

Double ball joints of tempered spring steel move freely, hold desired position.

P

CATALOG 13

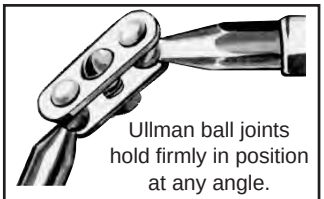
All items on this page Priced Singly.

Magnet Pick-up Tools

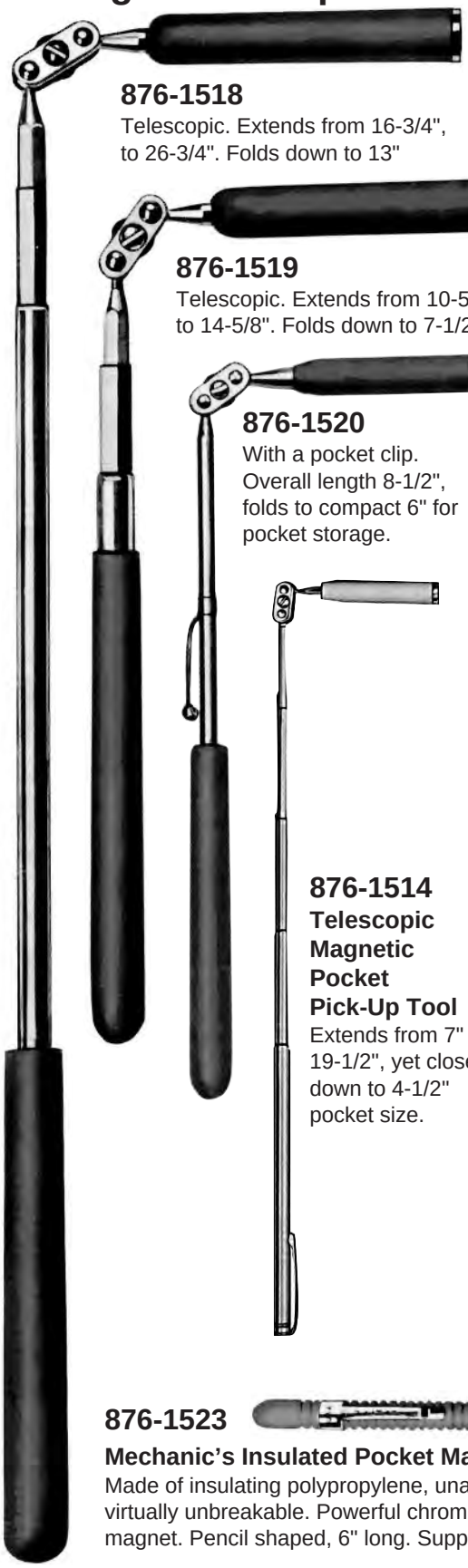
The original all-angle retrieving tool with Alnico V magnets and molded nylon heads.

It picks up elusive ferrous metal bolts, nuts, washers, etc. in hard-to-reach places, even metal hand tools dropped while working on engines, boats or any place where pipes, panels or parts get in the way. Perfect for use under water, oil, etc.

Magnet casings have high resistance to solvents, oil or grease.



Ullman ball joints hold firmly in position at any angle.



876-1518
Telescopic. Extends from 16-3/4", to 26-3/4". Folds down to 13"

876-1519
Telescopic. Extends from 10-5/8", to 14-5/8". Folds down to 7-1/2"

876-1520
With a pocket clip. Overall length 8-1/2", folds to compact 6" for pocket storage.

876-1514
Telescopic Magnetic Pocket Pick-Up Tool
Extends from 7" to 19-1/2", yet closes down to 4-1/2" pocket size.

876-1521
17-1/2" Spring-Flex Pick-up Tool
Tightly wound flexible shaft of spring tempered steel links to probe easily into most remote areas for ferrous metal objects. High power permanent magnet length provides lifetime pulling power. Overall length of 17-1/2".

876-1523
Mechanic's Insulated Pocket Magnet
Made of insulating polypropylene, unaffected by oil or gasoline, virtually unbreakable. Powerful chromium plated permanent magnet. Pencil shaped, 6" long. Supplied with a pocket clip.

HEAVY DUTY TELESCOPIC MAGNETIC PICK-UP TOOL

876-1664

Powerful enough to pick up ferrous metal objects weighing 5 lbs.
(under correct conditions)

- **Neodymium-Iron-Boron Extra High Flux Magnet For Greater Pick-up Power.**
- **Extends from 16-1/4" to 26-1/2" - Folds Down to 13".**
- **Insulating Vinyl Grip.**

The Neodymium-Iron-Boron Magnet is powerful and it out-performs the standard Alinco V Magnet 4 to 1.

With the adjustable telescoping handle you can pick up heavy ferrous objects where your hands can not reach.

P

CATALOG 13

All items on this page Priced Singly.

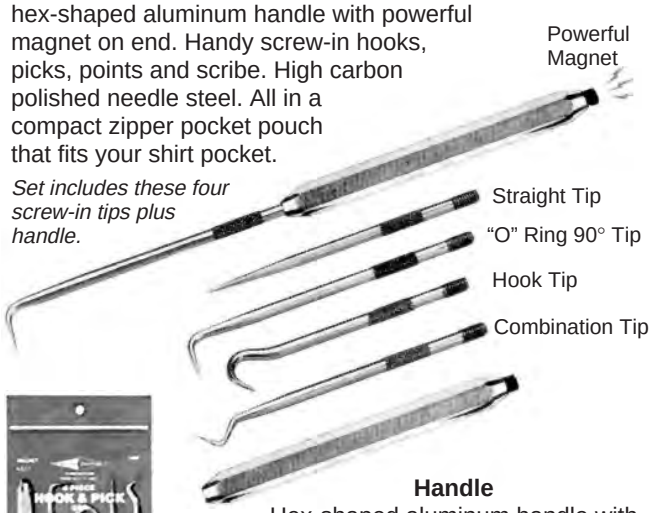
4-PIECE HOOK AND PICK SET

with aluminum handle and magnetic end.

876-1663

For separating wires, removing small fuses, “O” rings, retrieving washers and loose parts too small to pick up with your fingers. Bright-dipped, anodized, hex-shaped aluminum handle with powerful magnet on end. Handy screw-in hooks, picks, points and scribe. High carbon polished needle steel. All in a compact zipper pocket pouch that fits your shirt pocket.

Set includes these four screw-in tips plus handle.



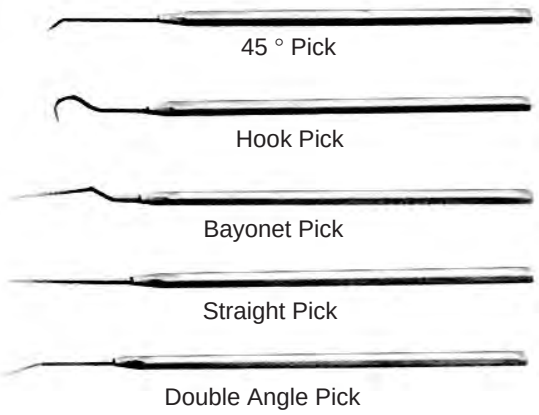
Handle
Hex-shaped aluminum handle with magnet. Flats permit tight grip at any angle. Magnet picks up nuts, bolts, screws and other ferrous parts.

Zipper Pocket Pouch
Keeps tools organized and prevents torn clothing.

5-PIECE MICRO PICK SET

876-1665

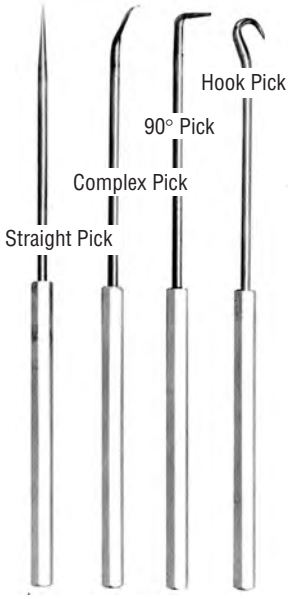
These picks are ideal for soldering, gluing, positioning, adjusting and retrieving small parts. Separates chips, scrapes and scribes molds in motor armatures, dies, etc. The needle tips are made of a high quality stainless steel and the set comes packaged in a zippered top vinyl pouch.



SWINGER

Combination reversible pick and hook. Like an extra strong fingernail for jobs in awkward places. Just swivel out the end you want, the other tucks safely away. Literally a tool of “1001 uses!” Lightweight aluminum handle. Overall length 7-7/8".

876-1538



876-1666

4-PIECE INDIVIDUAL HOOK AND PICK SET

Ideal for separating wires, removing small fuses, “O” rings, retrieving washers and loose parts too small to pick up with your fingers.
Each hook and pick is made of high carbon polished steel and is permanently attached to a hex shaped aluminum handle.

APPLICATIONS...

...release or install headlight springs.

...remove small fuses, stuck parts.

...separate small wires in awkward places.

...retrieve lost nuts, bolts, washers, tools from tight areas.

...remove springs from oil burner relay boxes.

P

CATALOG 13

All SPAENAUR No's. on this page Priced Singly.

UTILITY PACKING HOOK

with magnetic pick-up in handle.

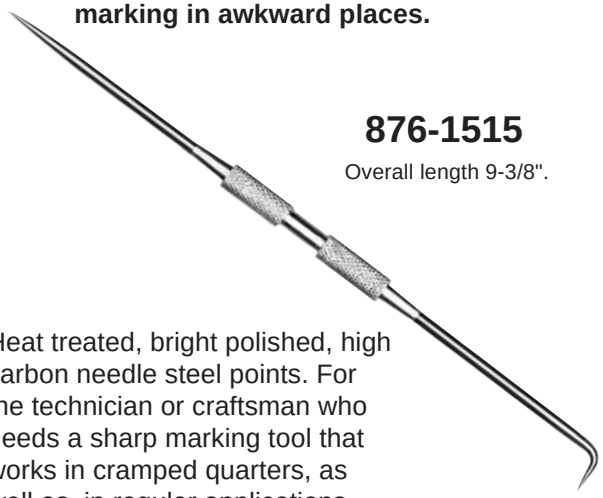
Used for removing springs, wadding, washers, "O" rings - prying stuck gaskets loose.

876-1670

Handy steel hook for any tool box; repairmen, technicians, service personnel.
7" long, has strong steel shaft and hook, knurled aluminum handle. Magnetic end retrieves dropped nuts, bolts, washers, parts.

DOUBLE POINTED SCRIBER

with straight and 90° angle points for marking in awkward places.



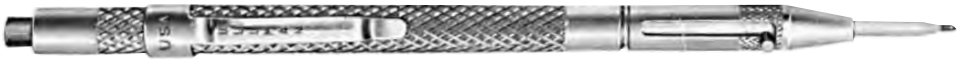
876-1515

Overall length 9-3/8".

Heat treated, bright polished, high carbon needle steel points. For the technician or craftsman who needs a sharp marking tool that works in cramped quarters, as well as, in regular applications. Knurled aluminum handle gives sure grip.

POCKET SCRIBER

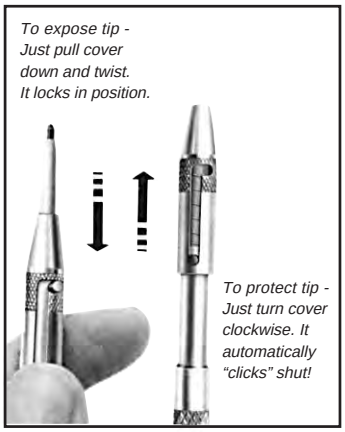
All-in-one"Push-Click" SAFETY COVER
on Tungsten Carbide with Magnetic Pick-Up.



Overall length 5-1/2".

876-1542

Sharp tungsten carbide tip cuts into hard surfaces, leaves clear mark on metal, glass, plastics, tools. Powerful magnet on end retrieves dropped metal items. Knurled handle, handy pocket clip.



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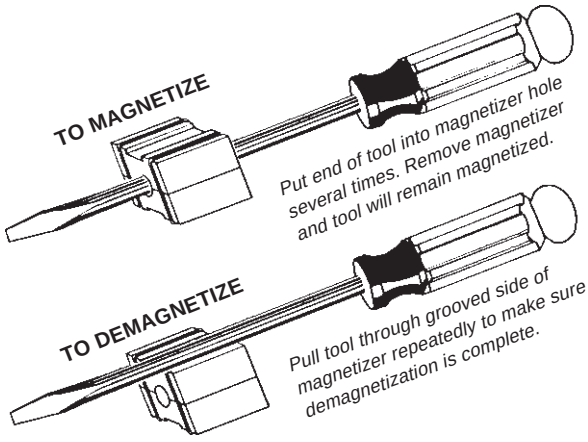
MAGNETIZER / DEMAGNETIZER

Magnetizes and demagnetizes screwdrivers and other small tools.
Works in seconds – simple to use.
Speeds up repair and assembly jobs. Picks up screws, nuts, metallic parts, cleans up filings, scraps and starts screws.

Overall size 1-1/16" x 1-1/16" x 1-1/16".

876-1544



CATALOG 13

All items on this page
Priced Singly.

MECHANICAL SCREW STARTERS for ferrous or non-ferrous screws

Standard Slotted Screw Starters

No more fumbling with hard-to-position screws! A simple twist of the Ullman alloy steel bit and screw is firmly held, ready for trouble-free starting. Tool, releases and resets automatically. Slender aluminum handles for easy access into close areas.

Should a screw, washer or nut be dropped into a hard-to-reach area, it can easily be retrieved by turning the tool around and using the strong full 1" permanent magnet on the opposite end of the aluminum handle screw starter.

SPAENAUR No.	Size
876-1530	Overall length 2-5/8".
876-1531	- with pocket clip. Overall length 5-5/8".
876-1532	Overall length 9-5/8".

Unit Package Quantity 1

876-1513 DOUBLE-ENDED SCREW STARTER with Nylon shaft.

Overall length 9" with Phillips and Slotted heads.

Slotted Drive — *Priced Singly* — Phillips Drive

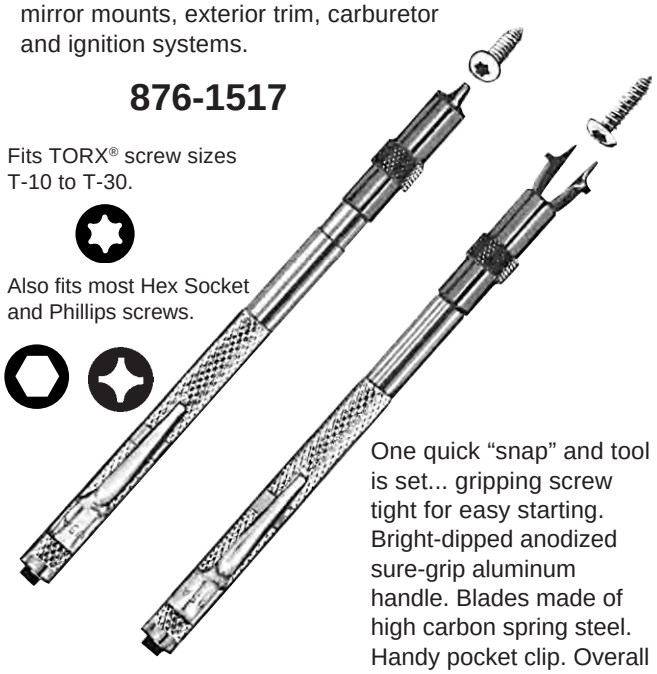
TORX® / PHILLIPS / HEX SOCKET SCREW STARTER

For headlight bezel, turnlight assemblies, mirror mounts, exterior trim, carburetor and ignition systems.

876-1517

Fits TORX® screw sizes T-10 to T-30.

Also fits most Hex Socket and Phillips screws.



Priced Singly

One quick “snap” and tool is set... gripping screw tight for easy starting. Bright-dipped anodized sure-grip aluminum handle. Blades made of high carbon spring steel. Handy pocket clip. Overall length 5-5/8". Permanent magnet at opposite end retrieves nuts or screws dropped in hard-to-reach areas.

NUT STARTER

876-1535

Use on all small size nuts to start nuts on bolt thread. Releases from nut as threads are engaged.

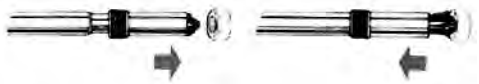
Priced Singly

Fits Sizes:

4-40 Thread 3/32" 2.5 mm to 5/16" 8 mm

- Snap in Nut
- Start Threads
- Self Releasing

Overall length 5-1/8".



1. Push head up. Insert blades into nut.

2. Snap head down. Blades grip nut tightly.

P

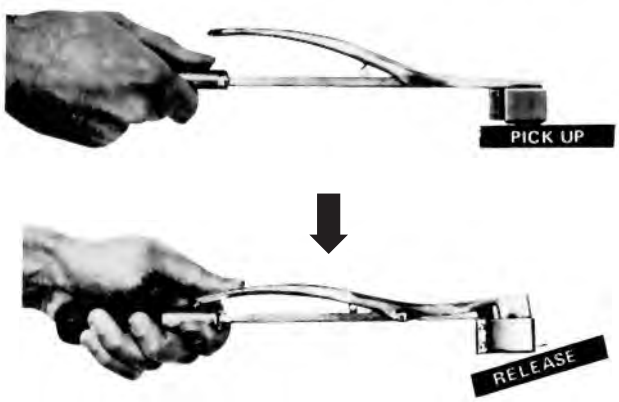
CATALOG 13

MAGNETIC SAFETY FEEDER TOOL

876-1522

Priced Singly

Feeds and retrieves hard-to-handle ferrous metal parts. Reduces press accidents, fatigue. Permanent magnet lifts up to 10 lbs. Chrome finished. Easy-grip fluted handle. Overall length 14".



SOCKET HOLDERS

WITH HEAVY-DUTY SPRING CLIPS

Bright, durable, plated steel rail with slide-on spring clips to hold sockets tight and rattle proof, yet easily removable. Screw into tool chest drawer or hang.

SPAENAUR No.	Size
876-1524	17" rack with sixteen 1/4" drive clips.
876-1525	17" rack with sixteen 3/8" drive clips.
876-1526	17" rack with sixteen 1/2" drive clips.
876-1528	17" rack with eight 3/4" drive clips.

Priced Singly

HEAVY-DUTY REPLACEMENT CLIPS

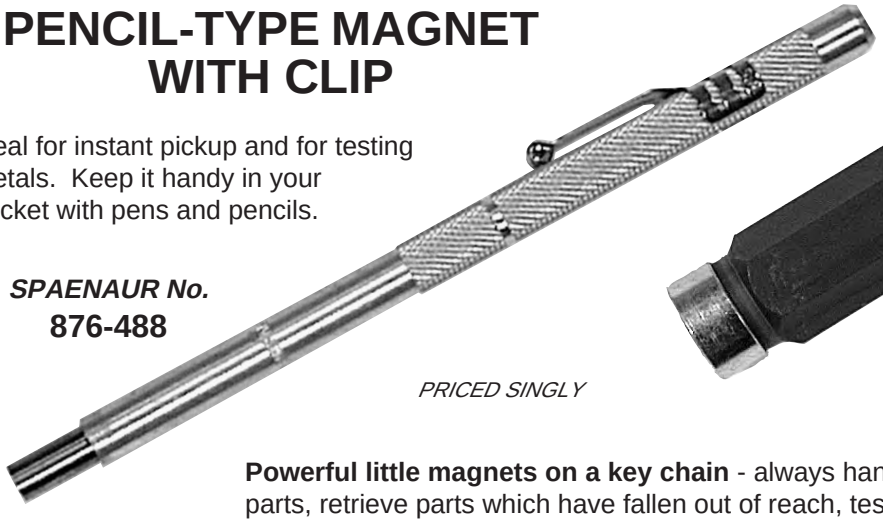
SPAENAUR No.	Size
876-1660	1/4" drive clips.
876-1661	3/8" drive clips.
876-1527	1/2" drive clips.
876-1662	3/4" drive clips.

All clips fit all Socket Holders and are sold in Unit Pkg. 10.

PENCIL-TYPE MAGNET WITH CLIP

Ideal for instant pickup and for testing metals. Keep it handy in your pocket with pens and pencils.

SPAENAUR No.
876-488



PRICED SINGLY

SPAENAUR No.
876-490

Powerful little magnets on a key chain - always handy. Pick up small parts, retrieve parts which have fallen out of reach, test metals.....

P

Lab-metal

Metal repair putty. Spreads like paste, hardens into metal. Adheres to metal, wood, plastic, glass. Apply right from the can. **No mixing** of two parts, no measuring or heat required. Lab-metal hardens simply by exposure to air.

APPLICATION:

Once hard Lab-metal can be milled, chiselled, drilled, tapped and machined. Filing, sanding, or grinding Lab-metal to a feather edge provides a smooth metallic repair. **Lab-metal will not shrink, chip, crack or peel.** Not affected by mild acids, gasoline, oil, or petroleum solvents. Alkalis will attack Lab-metal slowly, but only after extensive immersion. Lab-metal is aluminum filled, and will not rust, rot, or support mildew.

SPAENAUR No.

800-136 12 oz. can
800-137 24 oz. can

PERMANENT REPAIRS:

Withstands temperatures as low as -40°C (-40°F) and as high as 180°C (350°F), and can be painted with lacquer or enamel without danger of bubbling, lifting paint, chipping or peeling. Stands up to normal paint baking procedure. Thin with Lab-solvent for brushing or spraying a metallic coating. Many applications may be made from a single can ... simply add Lab-solvent before covering. Workability of Lab-metal is enhanced by dipping applicator into Lab-solvent.

Durable, permanent filler for patching seams and cracks; rebuilding worn metal surfaces; repairing dented metal; finishing welds; filling holes and imperfections in metal castings.

Hi-Temp Lab-metal

Hi-Temp Lab-metal developed for difficult repairs subject to excessive heat, **Hi-Temp Lab-metal withstands temperatures as high as 540°C (1000°F).** Apply directly from the can with a putty knife. No two-component mixing or measuring is necessary. For any application, the surface must be clean and dry; free of paint, oil, dirt, and any extraneous materials. Roughening the surface provides superior adhesion.

APPLICATION:

Many applications may be made from a single can. Once heat hardened, it can be machined, ground, filed, and sanded. Buffed to a satin smooth finish, **Hi-Temp Lab-metal leaves an undetectable repair.** Ideal for repairs in metalworking, welding, fabricating, heating, construction, die casting, and mold refinishing which may be subjected to high temperatures. Used to repair core boxes, boilers, mufflers, exhaust systems, molds, wood and coal burning stoves, grills, engines, radiators and industrial ovens.

SPAENAUR No.

800-138 14 oz. can

DRYING TIME

Depth of application determines drying time; hardening occurs as the diluent evaporates. The application must air dry for at least 24 hours, or until the product has hardened to metal state. When filling deep holes or cavities, the putty should be applied in thin layers, less than 1/4" thick, allow each layer to dry for 24 hours. In order for the hardened Hi-Temp Lab-metal to withstand exposure to 540°C (1000°F), it must be exposed to a minimum temperature of 235°C (425°F) for a period of a least one hour. (The curing process may be achieved by a more gradual "heat-up", as in the repair of an engine block. In this case, as the engine is heating, the Hi-Temp Lab-metal repair is curing.)

Lab-solvent

THINNER FOR LAB-METAL AND A METAL CLEANER.

A blend of solvents for thinning Lab-metal to paint consistency for brushing or spraying. Surfaces cleaned with Lab-solvent provide superior adhesion for Lab-metal and Hi-Temp Lab-metal. **Cuts and flushes oil, grease, and dirt off precision tools, bearings, gears, motors, condensers, controls, and other valuable equipment.** Leaves no film and does not corrode. To prevent hardening of Lab-metal and Hi-Temp Lab-metal in the can, wet the surface of the metal repair compound with Lab-solvent and cover tightly.

SPAENAUR No.

800-139 16 oz. can

All items on this page
Priced Singly.

Adhesives	Adhésifs	**Q2**
Surface Preparation	Préparation des surfaces	**Q5**
Thread Sealing	Scellage des filets	**Q6**
Threadlocking	Blocage des filets	**Q8**
Retaining Compounds	Composés de retenue	**Q10**
Coatings	Revêtements	**Q11**
Belt Repair/Urethanes	Réparation de courroies/uréthanes	**Q14**
Epoxies	Époxydes	**Q16**
Form-A-Thread Kit	Trousse «Form-A-Thread»	**Q17**
Flooring & Grout	Couvre-sols & coulis	**Q18**
Gasketing & Sealing	Matériaux d'étanchéité & scellage	**Q20**
Lubricants (anti-seize)	Lubrifiants (anti-grippant)	**Q22**
Wearing Compounds	Composés d'usure	**Q24**
Cleaners	Agents de nettoyage	**Q27**
Cleaners, Hand & Miscellaneous	Agent de nettoyage, divers et pour les mains	**Q28**
Quick Service Repair Kit	Trousse de réparation «Quick Service»	**Q29**

A cross reference chart for checking if a part is RoHS compliant or if a part has an updated part number has been added to the end of this electronic version of the catalog. Click here to jump to the cross reference chart.

NOTE:

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ADHESIVES

Loctite technology has made the productivity promises of cyanoacrylate adhesives a reality with the industry's widest selection of high-performance, application-specific, instant adhesives. Loctite® Instant Adhesives are available in a variety of viscosities, cure speeds, gap-filling capability and substrate compatibility. The ultra high-performance PRISM® family offers additional products that surpass the most stringent demands, including toughened formulations, low odour and low blooming products, surface insensitive and thermally resistant formulations.

380 Black Max® Toughened Instant Adhesive
The original elastomer modified instant adhesive. Bonds metal, rubber and plastic. Excellent peel, impact and shear strength.

401 PRISM® Surface Insensitive Instant Adhesive
A general-purpose surface insensitive adhesive for difficult-to-bond surfaces.

403 PRISM® Low Odour/Low Bloom Instant Adhesive
An adhesive for less precisely-fitted parts. Eliminates the need for sophisticated ventilation.

404 Quick Set™ Industrial Adhesive
A general-purpose instant adhesive for general maintenance and repair. Excellent for rubber bonding. See page Q28 for moisture protector and clean-up solvent.

411 PRISM® Clear Toughened Instant Adhesive
An adhesive formulated for excellent impact and peel strength in gap-filling applications.

430 Super Bonder® Instant Adhesive
A general industrial grade instant adhesive. Excellent choice for bonding close fitting metal parts.

444 Tak Pak® Instant Adhesive
An adhesive designed for printed circuit board assembly and repair. Cures instantly with Tak Pak® Accelerator.

454 PRISM® Surface Insensitive Instant Adhesive Gel
A general-purpose, no-run clear gel. Can be applied to vertical surfaces. Excellent for almost all surfaces. Ideal for porous substrates and rough and acidic surfaces.

495 Super Bonder® Instant Adhesive
A general-purpose adhesive designed to bond rubber, metal and plastic parts with gaps to .004".

498 Super Bonder® Thermal Cycling Resistant Instant Adhesive
A medium viscosity, high temperature product for all metals, and most plastics and rubbers. Resists temperatures to 223°F continuous or up to 250°F intermittent.

Series	Spaenaur No.	Mfr. No.	Container	Typical Use	Colour	Gap Fill	Category	Viscosity cP	Strength (PSI)* Tensile Shear	Temp. Range	Cure Speed**	Key Specs.
380	**800-150** **800-053** 800-151	38004 38050 38061	3 g tube 1 oz. bottle 1 lb. bottle	Close fitting parts	Black	.006"	Toughened Ethyl	200	3,750	-65°F to 225°F	Fixture - 90 sec. Full - 24 hrs.	-
401	**800-152** **800-054** 800-153	40104 40140 40161	3 g tube 20 g bottle 1 lb. bottle	General purpose	Clear	.005"	Surface insensitive Ethyl	110	3,200	-65°F to 180°F	Fixture - 15 sec. Full - 24 hrs.	Agriculture Canada approved
403	800-154 **800-055** 800-155	40304 40340 40361	3 g tube 20 g bottle 1 lb. bottle	Gap filling	Clear	.008"	Low odour/ low bloom Alkoxy	1,000	2,600	-65°F to 160°F	Fixture 50 sec. Full 24 hrs.	-
404	**800-056** **800-057** 800-156	46551 46548 46561	1/3 oz. bottle 4 oz. bottle 1 lb. bottle	Rubber O-Ring bonder	Clear	.005"	General purpose Ethyl	80	3,500	-65°F to 180°F	Fixture - 30 sec. Full - 24 hrs.	Comm. item std. A-A-3097 Type II, Class 2
406	800-157 **800-113** 800-158	40604 40640 40661	3 g tube 20 g bottle 1 lb. bottle	Wicking grade	Clear	.004"	Surface insensitive Ethyl	20	3,200	-65°F to 180°F	Fixture - 15 sec. Full - 24 hrs.	Comm. item std. A-A-3097 Type II, Class 1
410	800-159 **800-143** 800-160	41004 41045 41061	3 g tube 20 g bottle 1 lb. bottle	Gap filling	Black	.008"	Toughened Ethyl	3,500	3,200	-65°F to 225°F	Fixture - 90 sec. Full - 24 hrs.	-
411	800-161 **800-078** 800-162	41104 41145 41161	3 g tube 20 g bottle 1 lb. bottle	Clear gap filling	Clear	.008"	Toughened Ethyl	5,000	3,200	-65°F to 210°F	Fixture - 30 sec. Full - 24 hrs.	-
414	800-163 **800-058** 800-164	41404 41450 41461	3 g tube 1 oz. bottle 1 lb. bottle	Plastic bonder	Clear	.006"	General purpose Ethyl	110	3,200	-65°F to 180°F	Fixture - 20 sec. Full - 24 hrs.	Comm. item std. A-A-3097 Type II, Class 2
415	**800-112** 800-165	41550 41561	1 oz. bottle 1 lb. bottle	Gap filling metal bonder	Clear	.008"	General purpose Methyl	1,500	3,600	-65°F to 180°F	Fixture 30 sec. Full - 24 hrs.	Comm. item std. A-A-3097 Type I, Class 3
416	**800-059** 800-166	41650 41661	1 oz. bottle 1 lb. bottle	Gap filling plastic bonder	Clear	.008"	General purpose Ethyl	1,500	3,200	-65°F to 180°F	Fixture 30 sec. Full - 24 hrs.	Comm. item std. A-A-3097 Type II, Class 3
430	800-167 **800-111** 800-168	43004 43050 43061	3 g tube 1 oz. bottle 1 lb. bottle	Metal bonder for close fitting parts	Clear	.005"	General purpose Methyl	80	3,600	-65°F to 180°F	Fixture 30 sec. Full - 24 hrs.	Comm. item std. A-A-3097 Type I, Class 2
444	800-169 **800-082** 800-170	12292 20419 12294	20 g bottle 20 g kit† 1 lb. bottle	Tak Pak® Wire tacking adhesive	Clear	.007"	General purpose Ethyl	700	3,200	-65°F to 180°F	Fixture - 30 sec. Full - 24 hrs.	Comm. item std. A-A-3097 Type II, Class 3
454	**800-091** 800-171 **800-060** 800-172 800-173	45404 21925 45440 45474 45478	3 g tube 10 g syringe 20 g tube 200 g tube 300 g cartdg.	Porous surfaces	Clear	.010"	Surface insensitive Ethyl	Gel	3,200	-65°F to 180°F	Fixture - 15 sec. Full - 24hrs.	Agriculture Canada approved
480	**800-126** 800-174	48040 48061	20 g bottle 1 lb. bottle	General filling	Black	.006"	Toughened Ethyl	300	3,800	-65°F to 210°F	Fixture - 90 sec. Full - 24 hrs.	NSF/ANSI 61 Approved
495	800-175 **800-001** **800-061** **800-285**	49595 49504 49550 49561	.07 fl. oz. Gluematic® Pen 3 g tube 1 oz. bottle 1 lb. bottle	General purpose	Clear	.004"	General purpose Ethyl	45	2,750	-65°F to 180°F	Fixture - 20 sec. Full - 24 hrs.	Comm. item std. A-A-3097 Type II, Class 1
496	**800-144** 800-176	49650 49661	1 oz. bottle 1 lb. bottle	General purpose rubber bonder	Clear	.006"	General purpose Methyl	125	3,600	-65°F to 180°F	Fixture - 30 sec. Full - 24 hrs.	Comm. item std. A-A-3097 Type I, Class 2
498	**800-047** 800-177	49850 49861	1 oz. bottle 1 lb. bottle	Thermal cycling adhesive	Clear	.007"	General purpose Ethyl	500	3,000	-65°F to 250°F	Fixture - 50 sec. Full - 24 hrs.	-
499	800-178 800-179 **800-062** 800-180	49904 21924 49945 49974	3 g tube 10 g syringe 20 g tube 200 g tube	Thermal cycling gel adhesive	Clear	.010"	General purpose Ethyl	Gel	3,200	-65°F to 200°F	Fixture - 75 sec. Full - 24 hrs.	-

*Grit blasted Steel
** Varies with substrates

† Contains Adhesive 444 (20 g bottle), Accelerator 7452 (1.75 fl. oz. bottle).

ADHESIVES

These instant, acrylic, and rubber-based adhesives, provide an endless combination of cure speed, impact resistance, strength, temperature range, and solvent resistance to meet tough on-the-job requirements.

325 High Temperature SpeedBonder™
Solvent resistant, activator-cured in minutes. Forms flexible bonds on gaps up to 0.40". Designed for severe environments and temperatures to 350°F.

326 Fast Fixture SpeedBonder™
An all-purpose bonder. A structural adhesive that offers the strength of an epoxy and the speed of an instant adhesive. Solvent resistant. Cures in minutes. Ideal for applications requiring fast fixturing.

330 Depend® Adhesive
Depend® 330 sets in just minutes to a tough acrylic adhesive with high peel and impact strength. Bonds almost all combinations of materials, including glass. No-mix kit includes activator and adhesive.

Contact Adhesive
A professional contact adhesive that blends with black-coloured moldings and weatherstripping materials. Withstands temperature extremes and is resistant to gasoline, kerosene, and other solvents. Fast drying, waterproof.

Series	*Spaenaur No.*	Mfg. No.	Container	Typical Use	Colour	Gap Fill	Viscosity cP @ 20 RPM	Shear Strength (PSI)*	Temp. Range	Cure Speed	Recomd. Primer
312	800-181 **800-118** 800-182 800-183	03333 00144 31231 31243	10 ml kit[1] 50 ml kit[2] 50 ml bottle 1 litre bottle	Fast cure on close fitting parts	Amber	.003"	1,000	3,000	-65°F to 225°F	Fixture - 30 sec.* Full - 24 hrs.	736
325	**800-128** 800-184	32530 32586	50 ml bottle 1 litre bottle	High temperature applications	Amber	.040"	20,000	2,200	-65°F to 350°F	Fixture - 5 min. Full - 24 hrs.	7075
326	**800-120** 800-185	32629 32685	50 ml bottle 1 litre bottle	Fast fixturing applications	Amber	.020"	18,000	2,700	-65°F to 225°F	Fixture - 1 min. Full - 24 hrs.	7649
330	800-186 **800-052** **800-063** 800-187 800-188 800-189	20253 20251 20252 33058 33064 33081	3 ml kit[3] 25 ml kit[4] 250 ml kit[5] 250 ml tube 300 ml cartdg. 1 litre bottle	Rough or porous surfaces	Amber	.030"	67,500	3,300	-65°F to 250°F	Fixture - 5 min.* Full - 24 hrs.	7387
Contact Adhesive	**800-119**	30537	5 fl. oz. tube	Weatherstripping, vinyl, rubber, wood and metal	Thick yellow liquid	N/A	N/A	N/A	180°F	•Let dry 3-4 min. before assembly. Sets on contact.	N/A

[1] Contains 10 ml bottle of Speed Bonder 312™ and 40 g aerosol can of Locquic® Primer NF.
[2] Contains 50 ml bottle of Speed Bonder 312™ and 6 oz. aerosol can of Locquic® Primer NF.
[3] Contains 0.2 fl.oz. tube of Depend® 330 and 0.7 fl.oz. ampule activator.
[4] Contains 25 ml syringe of Depend® 330 and 25 g aerosol can activator.
[5] Contains 250 ml tube of Depend® 330 and 4.5 fl. oz. aerosol can activator.

*Varies with substrates
• Times are based on bonding steel to steel parts.

Bold Type Spaenaur No's. in Stock.
Light Type Spaenaur No's. available upon request.

SURFACE PREPARATION

Loctite offers a complete line of surface preparation products to ensure the maximum performance of Loctite® Adhesives and Sealants. Loctite® Accelerators are used to increase the cure speed and gap filling capabilities of Cyanoacrylate Adhesives. Activators are specially engineered curing agents for Structural Adhesives. Loctite® Primers are used to ensure cure on inactive surfaces and speed the cure of machinery adhesives.
All Loctite® Surface Preparation Products are available in ozone-safe (non-CFC) solvent-based and solventless formulations.

7452 Tak Pak® Accelerator
This accelerator, with aggressive cleaning properties, promotes the cure speed of all Loctite® Cyanoacrylate Adhesives.

7075 Activator
An acetone-based activator that promotes the proper cure of Loctite® Products 324 and 325.

7387 Activator
This activator promotes cures of most Loctite® Acrylic Adhesives. This is a flammable product.

7471 Primer T
A solvent-based primer speeds cure of all Loctite® Anaerobic Adhesives and ensures proper cure on inactive metals.

7649 Primer N
A solvent-based primer that features very long on-part life. Use to speed cures of all Loctite® Anaerobic Products and ensure proper cure on inactive metals. Ideal for cure conditions below room temperature.

770 PRISM® Primer
An adhesion promoter formulated for use with polyolefins and other low-energy surfaces. Use with Loctite® Cyanoacrylate Adhesives. Features fast dry time and long on-part life.

ACCELERATORS/PRIMERS

Series	*Spaenaur No.*	Mfg. No.	Container	Colour	Viscosity (mPas)	Base	On-Part Life	Dry Time	Applications
770	**800-132** 800-190	18396 18397	1.75 fl. oz. bottle 16 fl. oz. can	Colourless	1.25	Heptane	8 hrs.	30 sec.	All cyanoacrylates
7452	800-191 800-192 **800-127** 800-193 800-194	18490 18580 18637 18575 18576	1.75 fl. oz. brush-cap bottle 1.75 fl. oz. spray-cap bottle 0.7 fl. oz metered mist 1 qt. can 1 gal. can	Clear/amber	0.4	Acetone	1 min.	<30 sec.	All cyanoacrylates
7471	**800-117** 800-195 800-196	19267 22477 19268	1.75 fl. oz. bottle 4.5 oz. aerosol can 1 gal. can	Amber	2	Acetone/ Isopropanol	7 days	30-70 sec.	Anaerobics
7649	**800-115** **800-122** **800-086** 800-197	19269 21347 21348 19266	1.75 fl. oz. bottle 25 g aerosol can 4.5 oz. aerosol can 1 gal. can	Clear/green	2	Acetone	30 days	30-70 sec.	Anaerobics

ACTIVATORS

7075	800-280 **800-129**	21349 22671	1 qt. can 4.5 oz. aerosol can	Amber	2	Acetone	2 hrs.	3 min	324, 325
7387	**800-133** 800-198 800-199	18861 18862 21088	1.75 fl. oz. bottle 1 qt. can 4.5 oz. aerosol can	Light Brown	1.5	Heptane/ Isopropanol	2 hrs.	None	Structurals

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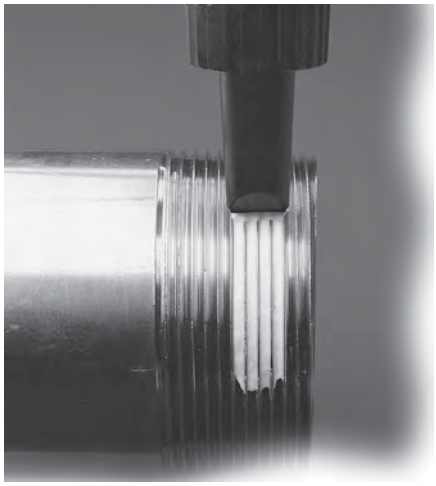
Tel: **1-800-265-8772** Fax: **519-744-0818**



THREAD SEALING

Loctite® Liquid Thread Sealants seal and secure metal pipes and fittings, filling the space between threaded metal parts, and hardening to prevent leakage. Designed for low and high pressure applications, liquid thread sealants seal instantly for low pressure testing. When fully cured, they seal to the burst strength of most piping systems.

511 Thread Sealant Fast Curing
A low strength, rapid fixture sealant for tapered/straight fluid fittings. Controlled strength for ease of disassembly.

545 Thread Sealant Hydraulic/Pneumatic Sealant
A liquid sealant for locking and sealing high pressure fluid power systems with tapered fittings. Contains no fillers and will not foul valves or fluid filtering systems.

565 PST® Thread Sealant Controlled Strength
A general-purpose instant sealant for tapered and straight/tapered fittings. Controlled strength for ease of disassembly.

567 PST® Thread Sealant High Temperature
Withstands temperatures to 400°F with excellent solvent resistance. Locks and seals tapered pipe threads and fittings, including high pressure applications. Disassembles with hand tools.

592 PST® Thread Sealant Slow Cure
Locks and seals threaded fittings. Parts may be repositioned up to 24 hours after application.

LIQUID THREAD SEALANTS

Series	*Spaenaur No.*	Mfr. No.	Container	Typical Use	Colour	Viscosity cP	Temp. Range	Seal to Operating Pressure Pressure Resistance	Recomm. Primer	Key Specs.
511	**800-141**	21452	50 ml tube	Low strength rapid fixture	Cream	19,000/ 60,000 Thixotropic	-65°F to 300°F	Seals operating pressures to 10, 000 psi	N	-
545	800-200 **800-029** **800-030**	54505 54531 54541	.5 ml capsule 50 ml bottle 250 ml bottle	Pneumatic hydraulic sealant No fillers	Purple	14,000	-65°F to 300°F	Seal operating pressures to 10,000 psi	N	Agriculture Canada approved
565	800-201 **800-031** **800-032** 800-202	56507 56531 56541 56571	6 ml tube 50 ml tube 250 ml tube 300 ml cartdg.	Controlled strength	White	300, 000	-65°F to 300°F	Seals operating pressures to 10,000 psi	N	AGA 4-90 UL MH8007 (N) NSF/ANSI 61 ULC-Canada approved Agriculture Canada approved
567	800-203 **800-033** **800-034**	56707 56747 56765	6 ml tube 50 ml tube 250 ml tube	For stainless steel fittings	White	540,000	-65°F to 400°F	Seals operating pressures to 10, 000 psi	N	UL MH8007 (N)
571	**800-145**	57141	250 ml bottle	Excellent solvent resistance	Brown	20,000	-65°F to 400°F	Seals operating pressures to 10,000 psi	N	
592	800-204 **800-036** **800-037**	59214 59231 59241	6 ml tube 50 ml tube 250 ml tube	Medium strength	White	350,000	-60°F to 400°F	Seals operating pressures to 10,000 psi	N	UL MH8007 (N)

Q

CATALOG 13

Bold Type Spaenaur No's. in Stock.
Light Type Spaenaur No's. available upon request.

THREAD SEALING

Loctite® thread sealants seal and secure plastic and metal pipes and fittings. By filling the space between threaded metal parts, thread sealants harden to prevent leaking. Designed for low and high pressure applications, thread sealants seal instantly for low pressure testing.
When fully cured, they seal to the burst strength of most piping systems. For repairs, parts may be disassembled with basic hand tools.

Pipe Joint Compound
Economical, general-purpose pipe thread sealant that won't shred like Teflon® tape and allows easy disassembly. Resists common shop fluids.

No More Leaks™ Plastic Pipe Sealant
Seals plastic pipes and allows easy disassembly. Specially formulated without the added lubricity of Teflon® to avoid cracked fittings caused by over-tightened plastic joints.

Thread Sealant with Teflon®
A general-purpose sealant with the added lubricity of Teflon® for metal pipes. Won't shred like Teflon tape and allows easy disassembly. Resists common shop fluids.

Product	*Spaenaur No.*	Mfr. No.	Container	Temp. Resistance	Adhesive Appearance	Pressure Resistance
No More Leaks™ Plastic Pipe Sealant	800-205 **800-206** 800-207	80725 80724 80726	2 fl. oz. tube 7 fl. oz. tube 1 pt. brush can	-65° to 400°F (-54° to 204°C)	White paste	5000 psi
Pipe Joint Compound	800-208 800-209	30556 30557	0.25 pt. brush can 1 pt. brush can	-65° to 400°F (-54° to 204°C)	Black Paste	5000 psi
Thread Sealant with Teflon®	**800-210** 800-211	30534 30561	0.25 pt. brush can 1 pt. brush can	-60° to 300°F (-51° to 149°C)	White Paste	5000 psi

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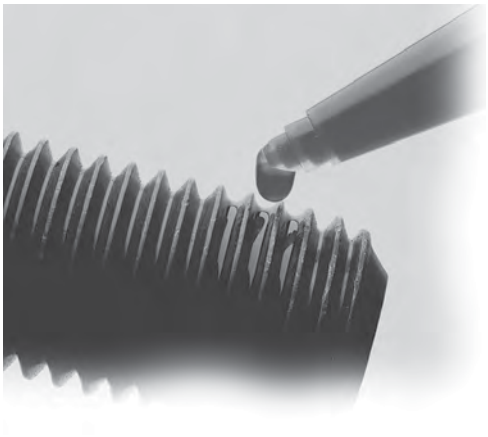

THREADLOCKING

Invented by Loctite Corporation as a revolutionary method to lock and seal threaded fasteners. Loctite® Liquid Threadlockers have found wide acceptance in a range of applications-from delicate electronic components to heavy construction equipment.
Loctite® Threadlockers are available in varying viscosities and strengths for virtually any application, including exposure to extreme environments.

222MS Threadlocker Low Strength/Small Screw
Ideal for fastener diameters of 1/4” (6 mm) and smaller. Controlled lubricity for accurate clamp loads. Parts can be separated using hand tools.

242® Threadlocker Medium Strength
A general-purpose, removable threadlocker for fasteners between 1/4" and 3/4" (6 to 20 mm) diameters. Controlled lubricity for accurate clamp loads. Parts can be separated using hand tools.

243 Threadlocker Oil Resistant/Medium Strength
A general-purpose, medium strength threadlocker with improved oil tolerance. For fasteners between 1/4" and 3/4" (6 to 20 mm) diameters.

262 Threadlocker Medium to High Strength
A permanent locking threadlocker for fasteners up to 3/4” (20 mm) diameter. High lubrication for easy assembly. Excellent for preventing rust and corrosion in extreme chemical/environmental conditions.

277 Threadlocker High Strength
Locks fasteners up to 1-1/2" (36 mm). Protects threads from rust and corrosion. Removable with heat and hand tools.

290 Threadlocker Wicking Grade
A medium-strength threadlocker for pre-assembled bolts up to 1/2" (12 mm). Penetrates threads by capillary action. Secures set screws and other assemblies after settings are completed. Seals welds and porous metal parts. Protects threads from rust and corrosion. Localized heating and hand tools are needed for disassembly.

425 Assure™ Threadlocker Surface Curing
Low strength, fast curing threadlocker for plastic fasteners. Can be applied before or after assembly.

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LIQUID THREADLOCKERS

Series	Spaenaur No.	Mfr. No.	Container	Typical Use	Colour	Viscosity cP	Torque in lbs. (M10 Steel Nuts & Bolts) Break/Prevail	Temp. Range	Cure Speed, Steel @ 25°C[x]	Recomm. Primer	Key Specs.
222MS	800-218 **800-010** **800-011** **800-012**	22205 22221 22231 22241	.5 ml capsule 10 ml bottle 50 ml bottle 250 ml bottle	Easy removal small screws	Purple	1,200/ 6,000 Thixotropic	62/27	-65°F to 300°F	Fixture - 20 min. Full - 24 hrs.	N or T	Mil- Spec (S-46163A) Type II, Grade M
242®	**800-064** **800-013** **800-014** **800-015**	24205 24221 24231 24241	.5 ml capsule 10 ml bottle 50 ml bottle 250 ml bottle	Removable grade up to 3/4" bolts	Blue	1,200/ 6,000 Thixotropic	115/53	-65°F to 300°F	Fixture - 10 min. Full - 24 hrs.	N or T	Mil-Spec (S-46163A) Type II, Grade N NSF/ANSI 61 approved
243	800-281 800-282 **800-283** **800-284**	23977 24077 24078 24079	.5 ml capsule 10 ml bottle 50 ml bottle 250 ml bottle	Up to 3/4" bolts with light oil contamination	Blue	2,250/ 12,000 Thixotropic	180/62	-65°F to 300°F	Fixture - 10 min. Full - 24 hrs.	N or T	NSF/ANSI 61 approved Agriculture Canada approved
262	800-219 **800-016** **800-017** **800-018**	26205 26221 26231 26241	.5 ml capsule 10 ml tube 50 ml bottle 250 ml bottle	Permanent locking up to 3/4" bolts	Red	1,800/ 5,000 Thixotropic	190/275	-65°F to 300°F	Fixture - 20 min. Full - 24 hrs.	N or T	Mil-Spec (S-46163A) Type II, Grade O Agriculture Canada Approved
271™	800-220 **800-019** **800-020** **800-021**	27105 27121 27131 27141	.5 ml capsule 10 ml bottle 50 ml bottle 250 ml bottle	High strength for fasteners up to 1" dia.	Red	500	230/320	-65°F to 300°F	Fixture - 10 min. Full - 24 hrs.	N or T	Mil-Spec (S-46163A) Type I, Grade K UL classified
272	**800-022** 800-221	27240 27270	50 ml bottle 250 ml bottle	High temperature applications	Red	9,500	200-220	-65°F to 450°F	Fixture - 30-min. Full - 24 hrs.	N or T	-
277	800-222 **800-023** **800-024**	21434 27731 27741	10 ml bottle 50 ml bottle 250 ml bottle	High strength for large bolts	Red	7,000	275/275	-65°F to 300°F	Fixture - 30 min. Full - 24 hrs.	N or T	Mil-Spec (S-46163A) Type I, Grade L
290	800-223 **800-025** **800-026** **800-027**	29005 29021 29031 29041	.5 ml capsule 10 ml bottle 50 ml bottle 250 ml bottle	Wicking grade for preassembled parts	Green	12	85/250	-65°F to 300°F	Fixture - 20 min. Full - 24 hrs.	N or T	Mil-Spec (S-46163A) Type III, Grade R NSF/ANSI 61 certified
425	**800-028** 800-224	42540 42561	20 g bottle 1 lb. bottle	For small plastic fasteners	Blue	60	5/4	-65°F to 180°F	Fixture - 2 min. Full - 24 hrs.	-	-

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Loctite® Grade A Adhesive/Sealant

Spaenaur No.
800-076

Mfr. No. 08831
Net 1.69 fl. oz. (50 ml)

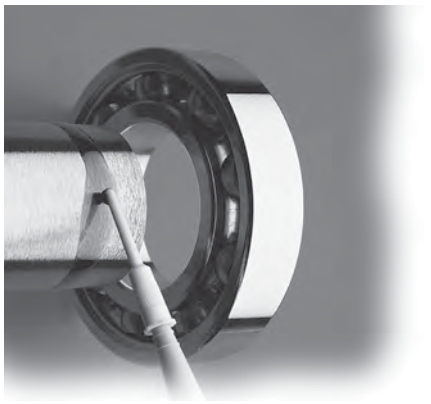
- **Low Viscosity**
- **Ideal for Fine Screws**
- **Locks, Seals Retains Fasteners**

Dispensing Needles

Prodcut	Spaenaur No.	Mfr. No.	Description	Size (mm)	Colour	Quantity	For use with
Dispense Needle	**800-009**	97221	16 gauge, polypropylene conical	1.2	Grey	10	High flow and/or high viscosity products

Other needle sizes are available.

Bold Type Spaenaur No's. in Stock.
Light Type Spaenaur No's. available upon request.



RETAINING COMPOUND

Loctite Corporation, the pioneer of anaerobic adhesives, has applied this technology to create retaining compounds that increase the shear strength of cylindrical, non-threaded assemblies. Finding wide acceptance as a standard method for assembling press and slip-fitted parts, Loctite® Retaining Compounds fill the "inner space" between components and cure to form a strong precision assembly. Formulated in a selection of viscosities, gap filling ability, flexibility and strength characteristics, Loctite® Retaining Compounds can be applied with automated process equipment or dispensed manually.

609 Retaining Compound General Purpose

A low viscosity retaining compound that bonds rigid metal assemblies. Ideal for gap distances up to 0.005" diameter. Fixtures in 10 minutes and provides a shear strength of 3,000 psi after 24 hours. Easily joins dissimilar metals. Withstands temperatures to 300°F.

620 Retaining Compound High Temperature

A high temperature (450°F), high viscosity liquid retaining compound. Provides a shear strength of over 3,500 psi on steel. Locks and secures metal cylindrical assemblies up to .015” diameter clearance. Prevents metal fretting and corrosion. Seals against leakage.

660 Quick Metal® Retaining Compound Press Fit Repair

A creamy, non-running adhesive/sealant. Repairs worn machine parts. Restores correct fit to mating assemblies. Fills gaps up to 0.020" diameter clearance.

680 Retaining Compound High Strength/High Viscosity

A retaining compound for joining fitted cylindrical parts. Fixtures in 10 minutes and provides a shear strength of 4,000 psi on steel after 24 hours. Fills diametral gap distances up to 0.015".

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Series	*Spaenaur No.*	Mfg. No.	Container	Typical Use	Colour	Gap Fill (Diametral)	Viscosity cP	Shear Strength Steel/Steel (PSI)*	Temp. Range	Cure Speed @ 25°C	Recomm. Primer	Key Specs.
609	800-212 **800-038** **800-039** **800-040**	60905 60921 60931 60941	.5 ml capsule 10 ml bottle 50 ml bottle 250 ml bottle	1st generation to augment press fits	Green	.005"	125	3,000	-65°F to 300°F	Fixture - 10 min. Full - 24 hrs.	T	Mil-Spec (R-46082B) Type I
620	800-213 800-214 **800-041** **800-042**	62005 62015 62040 62070	.5 ml capsule 10 ml bottle 50 ml bottle 250 ml bottle	For high temperature applications	Green	.015"	8,500/ 22,000 Thixotropic	3,800	-65°F to 450°F	Fixture - 1 hr. Full - 24 hrs.	N	-
660	**800-043** **800-044** 800-215	66010 66040 30287	6 ml tube 50 ml tube 250 ml tube	For repair of worn machinery parts	Silver	.020"	250,000/ 1,500,000	3,335	-65°F to 300°F	Fixture - 10 min. Full - 24 hrs.	N	Agriculture Canada approved
680	800-216 800-217 **800-045** **800-046**	68005 68015 68035 68060	.5 ml capsule 10 ml bottle 50 ml bottle 250 ml bottle	High strength for slip fitted parts	Green	.015"	1,250	4,000	-65°F to 300°F	Fixture - 10 min. Full - 24 hrs.	T	NSF/ANSI 61 approved

*Varies with substrates

CATALOG 13

COATINGS

Loctite offers a variety of coatings to protect, seal, insulate, prevent corrosion, colour code and add gripping power. Many products provide excellent resistance to acids, alkalis, salt and moisture that can damage equipment.

Colour Guard® Tough Rubber Coating
Inhibits rust and corrosion; seals, insulates and identifies almost any material in minutes. Creates a non-slip gripping surface. Rubber coating won't crack or chip. Acid and alkali resistant. Lasts for years. Use to 200°F. Dip, spray or brush to apply. Suggested applications include: tools, metal, electrical connections, masonry, wood, conveyors, glass, rope, fabric.

Extend® Rust Treatment
One-step rust treatment goes on white and converts rust to a durable, black, metal-protective coating in 10 minutes. Wirebrush parts and apply with brush or spray. Surface rust must be present. Use as a primer or finish coat. Resists temperatures to 250°F intermittent, 200°F continuous.

Maxi-Coat
Heavy duty coating provides long-term protection for metal parts, equipment and machinery. Forms a protective, waxy film which seals out moisture, air, acid and other corrosive elements. Great for protecting parts in storage. Removable.

Cold Galvanizing Compound
Sprays on metal surfaces to prevent corrosion even when surface is scratched. Ideal touch-up for welded seams. Highly resistant to salt corrosion and water. Not resistant to acid or alkaline solutions. Contains no ozone-depleting compounds.

Product	*Spaenaur No.*	Mfr. No.	Container	Coating Appear.	Coating Thick.	Drying Time	Temp. Resist.	Moisture Resist.	Salt Spray Test	Accelerated Weather Test
Color Guard® Tough Rubber Coating	**800-103**	34979	14.5 fl. oz. can	Black	1 dip: 8-10 mil	4 hours (allow 30 minutes between	-30°F to 200°F	Excellent/ ASTM E-96	Passed 1000 hours/ ASTM B-117	10 years with slight loss of thickness/ ASTM G-53-84
	800-225	34980	1 gal. can	Black						
	800-104	34982	14.5 fl. oz. can	Blue						
	800-279	34983	1 gal. can	Blue	1 Spray: 3-5 mil					
	800-114	34985	14.5 fl. oz. can	Red						
	800-226	34986	1 gal. can	Red						
	800-125	34988	14.5 fl. oz. can	Yellow						
	800-227	34989	1 gal. can	Yellow						

Product	*Spaenaur No.*	Mfr. No.	Container	Coating Appearance	Drying Time	Temp. Resistance	Key Spec.
Extend® Rust Treatment	**800-088**	30539	10.5 oz. net wt. aerosol	Converts from a white liquid to a black coating	30 minutes to touch	Up to 250°F (121°C)	-
	800-130	75430	1 qt. bottle				
	800-228	75448	1 gal. bottle				
	800-229	75465	5 gal. pail				
Maxi-Coat	800-400	51211	16 oz. net wt. aerosol	Yellow/off White	1-2 hours	Up to 200°F (93°)	-
Cold Galvanizing Compound	**800-089**	82039	15 oz. net wt. aerosol	Low gloss grey	15 min. to touch	Up to 400°F continuous; 600°F intermittent	Conforms to MIL-P-26915A Conforms to MIL-T-26433 Conforms to MIL-T-21035 Conforms to MIL-P-46105 Conforms to ASTM A239-41

Bold Type Spaenaur No's. in Stock.
Light Type Spaenaur No's. available upon request.

ANTI-SLIP COATING

Big Foot™ epoxy flooring products provide tough, long-lasting anti-skid surfaces for added safety. Easily applied to potentially hazardous surfaces. Big Foot coatings stand up to heavy traffic and harsh environments.

Big Foot™ Low Profile Pedestrian Grade
A two-component, water-borne epoxy for recreation and bare foot traffic areas.

Big Foot™ Heavy Duty Pedestrian Grade
For areas with heavy pedestrian or light rolling traffic. Ideal for ramps, walkways, locker rooms, stairs and assembly areas.

Big Foot™ Acrylic Pedestrian Grade
A single-component elastomeric anti-slip floor and deck coating for optimum adhesion to asphalt and flexible applications.

Big Foot™ Vehicular Grade
Withstands even the heaviest rolling equipment traffic. Resists liquids as harsh as jet fuels and hydraulic fluids. Superior adhesion forms a solid bond to metal, concrete and wood.

Big Foot™ Zero V.O.C.
This 100% reactive, solvent-free epoxy has the most aggressive profile in the Big Foot line. Use in odour-sensitive areas such as wineries, food processing plants, hospitals or for confined spaces.

Big Foot™ Glow Coat
A unique glow-in-the-dark formula gives off a luminescent glow in total darkness for up to four hours after only a few seconds of exposure to artificial light. For indoor use only.

Big Foot™ Metal Primer
Two-component, epoxy-polyamide primer increases adhesion between Big Foot anti-slip coatings and metal surfaces.

Big Foot™ Acrylic Primer
A single-component, clear, zero V.O.C., water-based primer designed for use with Big Foot™ Acrylic Pedestrian Grade coating.

Big Foot™ Primer/Sealer
Specially formulated to increase adhesion and coverage of all Big Foot anti-slip coatings. For use on concrete, wood, tile and other porous substrates. Water-based.

Product	*Spaenaur No.*	Mfg. No.	Container	Coverage	Colour	Mixed Viscosity, cP	Max. Temp., F°	Working time, Minutes	Functional Cure, Hours	Mix ratio by weight, r:h
Big Foot™ Low Profile Pedestrian Grade	800-230 800-231	95631 95641	1 gal. kit 1 gal. kit	90 ft.²	Black Grey	-	140	60	12	N/A
Big Foot™ Heavy Duty Pedestrian Grade	800-232 800-233 800-234 800-235	96211 96261 96215 96265	1 gal. can 1 gal. can 5 gal. pail 5 gal. pail	50 ft.²	Black Grey Black Grey	12,500	140	N/A	12	N/A
Big Foot™ Acrylic Pedestrian Grade	800-236	95591	1 gal. pail	70 ft.²	Grey	-	140	N/A	12	N/A
Big Foot™ Vehicular Grade	800-237 800-238 800-239 800-240	96221 96251 96225 96255	1 gal. kit 1 gal. kit 5 gal. kit 5 gal. kit	40 ft.²	Black Grey Black Grey	11,000	140	120	12	18:1
Big Foot™ Zero V.O.C.	800-241 800-242 800-243 800-244	96231 39915 96235 96245	1 gal. kit 1 gal. kit 5 gal. kit 5 gal. kit	35 ft.²	Black Grey Black Grey	10,000	140	60	24	8.5:1
Big Foot™ Glow Coat	800-245	96271	1 gal. can	70 ft.²	Luminescent	10,000	140	N/A	4	N/A
Big Foot™ Metal Primer	800-246	96132	1 gal. kit	250 ft.²	Clear	3,000	140	240	12	5.25:1
Big Foot™ Acrylic Primer	800-247	95581	1 gal. pail	250 ft.²	Clear	-	140	N/A	1-2	N/A
Big Foot™ Primer Sealer	800-248	94142	1 gal. kit	320 ft.²	Clear	500	140	120	3-6	6.5:1

APPLICATION SELECTION GUIDE	Asphalt	Wood	Concrete	Metal	Flexible coating	Weather resistant	Water-based	Chemical resistant	Anti-slip pedestrian	Anti-slip Vehicular	Anti-slip Zero V.O.C.	Anti-slip glow in the dark
Big Foot™ Low Profile Pedestrian Grade		●	●	●			●	◒	●			
Big Foot™ Heavy Duty Pedestrian Grade		●	●	●				●	●	◒		
Big Foot™ Acrylic Pedestrian Grade	●	●	●	●	●	●			●			
Big Foot™ Vehicular Grade		●	●	●				●	◒	●		
Big Foot™ Zero V.O.C.		●	●	●				●	◒	◒	●	
Big Foot™ Glow Coat	●	●	●	●			●	◒	◒	◒		●

● Preferred Choice ◒ Good Choice

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CATALOG 13

Bold Type Spaenaur No's. in Stock.
Light Type Spaenaur No's. available upon request.

BELT REPAIR/ URETHANES

Fixmaster® belt repair products are tough urethanes designed to repair conveyor belts and other damaged rubber equipment quickly and easily. Durable, flexible repairs can be performed using formulas for temporary or lasting wear.
Fixmaster® urethanes are two-component, repair materials that can be trowelled, cast, or brush-applied to rebuild or protect critical operating equipment. Tough, rubber-like properties provide protection from impact, abrasion and corrosion. Fixmaster® urethanes are non-shrinking and unaffected by oil, grease and water. Use of the recommended accessory products ensures maximum adhesion and product reliability.

Fixmaster® Rapid Rubber Repair Urethane
Our premium quality belt repair product is designed to repair conveyor belts and other damaged rubber equipment quickly and easily. Repairs will have the same durability and flexibility as the belt. The 400 ml cartridge requires the use of a Rapid Rubber Repair Gun. Also available in a kit with etching agent, cleaner and accelerator.

Fixmaster® Instant Belt Repair
A single-component, heat-curing material for fast, temporary belt repairs. Requires no priming. Equipment can be operated in 30 minutes.

Fixmaster® Flex Conveyor Belt Repair Kit
Makes long-lasting belt repairs. Recommended for applications where speed of application is not critical. Cures in 8-12 hours.

Fixmaster® Flex Brushable
This two-part urethane brushes on to form abrasion and impact-resistant linings.

Fixmaster® Flex 80 Liquid
A castable, two-part urethane for making moulds, fixtures, expansion joints and non-scratching holding fixtures.

Fixmaster® Flex 80 Putty
A trowelable, two-part urethane for rebuilding and repairing rubber parts and linings, providing impact, abrasion and corrosion-resistant protection.

NOTE:

To ensure safe transport, all Loctite® products are shipped via ground. To inquire about specific delivery times for your area, please contact a Spaenaur Sales Representative at 1-800-265-8772.

Afin d'assurer l'absence de risques dans la transportation des produits Loctite® l'expédition sera effectuée par la mode de terre. Afin de vous renseigner des heures spécifiques de livraison dans votre région, veuillez communiquer avec votre représentant de ventes Spaenaur au 1-800-265-8772.

Product	*Spaenaur No.*	Mfg. No.	Container	Coverage, in.² @ 1/4" Thick.	Colour	Max. operating temp., °F	Adhesive tensile Strength, psi	% Elongation	Hardness (Shore A)	Working Time, minutes	Functional cure, hours	Mix ratio by volume, r:h	Mix ratio by weight, r:h
Rapid Rubber Repair Urethane	800-249 800-250 800-253	96673 96671 96672	Kit 400 ml cartridge 150 ml coaxial cartridge	88	Black	180	1,300	360	82	1	2	1:1	N/A
Instant Belt Repair	800-254	97033	1 lb.	115	Yellow	150	175	650	65	N/A	30 min.	N/A	N/A
Flex Conveyer Belt Repair Kit	800-255	98693	1 lb. kit	94	Black	180	1,500	350	87	10	8	100:40	72:28
Flex Brushable	800-256	97401	1 lb. kit	2160 @ 20 mis.	Black	180	2,200	140	96	10	6	8.4:1	9:1
Flex 80 Liquid	800-257 800-258	97413 97412	1 lb. kit 6 lb. kit	27 in.3 162 in.3	Black	180	1,800	350	87	20	8	100:13.3	77:23
Flex 80 Putty	800-259 800-260	97423 97422	1 lb. kit 6 lb. kit	94 564	Black	180	1,500	350	87	10	8	100:40	72:28
Rapid Rubber Repair Gun	800-261	39635	Required for use with 400 ml Rapid Rubber Repair Urethane										
Rapid Rubber Repair Static Mixers	800-262	39633	Packaged 6/bag - for mixing and dispensing Rapid Rubber Repair Urethane in 400 ml cartridge										

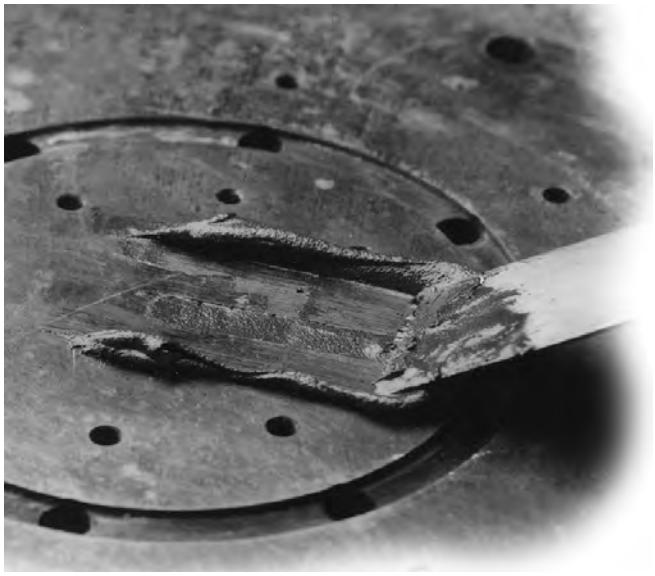
Properties based on mixing one lb. unit at 77°F, 7 days cure.

APPLICATION SELECTION GUIDE	Casting moulds, fixtures, parts	Conveyor belt repair: long term	Conveyor belt repair: temporary	Coating impellers, feeder bowls	Chutes, hoppers, deflection plates	Rebuilding rubber parts	Lining pumps	Forming expansion joints
Rapid Rubber Repair Urethan		●					◒	◒
Instant Belt Repair			●					
Flex Conveyor Belt Repair		◒						
Flex Brushable				●	◒	●	●	
Flex 80 Liquid	●			◒				●
Flex 80 Putty	◒				●	●	●	

● Preferred Choice ◒ Good Choice

Accessories Chart

Product	*Spaenaur No.*	Mfg. No.	Container	Coverage	Colour
Flex Rubber Primer Promotes adhesion to rubber and flexible parts	800-263	98468	2.4 fl. oz. can	Approx. 1 can	Clear
Flex Metal Primer Promotes adhesion to metal parts	800-264	98471	3.3 fl. oz. can	of each product	Clear
Etching Agent Enhances bonds to rubber	800-265	99626	3 fl. oz. bottle	for 2 lbs. of	Clear
Flex Accelerator Speeds the cure of Flex urethanes	800-266	97273	3.5 fl. oz. can	Urethane	Clear
Flex Cleaner Cleans and primes surfaces	800-267	39636	4 fl. oz. can	N/A	Clear



EPOXIES

Fixmaster® filled and general-purpose epoxies repair, rebuild and restore damaged parts to quickly return equipment to service. Cured epoxies can be drilled, tapped and machined - just like the original metal. These non-shrinking products are available in a range of performance characteristics for specific applications. Each epoxy is capable of bonding to metal, ceramic, wood, glass and some plastics.

Fixmaster® Fast Cure Epoxy Mixer Cups

Premeasured epoxy mixer cups. Bonds in 5-15 minutes. Excellent chemical resistance. Fills porosities and can be used to build up worn parts. Ideal for bonding glass, hard plastics, rubber and metal.

Fixmaster® Underwater Repair Epoxy

This putty-like material is ideal for plumbing, irrigation and marine applications because it is unaffected by chlorinated or salt water. It is hand kneadable and fully cures in 1 hour.

Product	*Spaenaur No.*	Mfg. No.	Container	Colour (cured)	Temp. resistance, °F	Adhesive tensile shear, psi	Working time, minutes	Fixture time†	Full Cure
Fixmaster® Fast Cure Epoxy Mixer Cups	**800-070** 800-268	21425 21426	10 - .12 fl. oz. cups 10 - 1 oz. cups	Grey	180	2000	5	10 min.	12 hours
Fixmaster® Underwater Repair Epoxy	**800-068**	82093	4 oz. stick	White	300	700	2	5 min.	1 hour

Properties based on ultimate cure.
Epoxy properties based on mixing 20 g. mass at 77°F.
† Time to reach handling strength.

Bonding Characteristics

Product	Gap filling	Fast Cure time	Ferrous Metal repair	Toughened formulation	Shock resistance	Water resistance	Plastic bonding	Rubber bonding	Metal bonding	Sandable Finish	Paintable Finish
Fast Cure Epoxy Mixer Cups	◓	◓					○	○	◓	●	○
Underwater Repair Epoxy	●	●			●	●	◓		●	●	●

● Preferred Choice ◓ Good Choice ○ Acceptable choice

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CATALOG 13

All Loctite® items Priced Singly.

Fixmaster® Fast Set Steel Putty

Steel filled. Non-sagging epoxy for filling and repairing damaged metal parts quickly. Functional cure in about 10 minutes.

Fixmaster® Metal Magic Steel™

Steel epoxy in stick form. Cut off a section, knead and apply to leaking pipes or damaged equipment. Cures in 10 minutes. NSF approved, Standard 61.

Product	*Spaenaur No.*	Mfg. No.	Container	Coverage, ft² @ 1/4" Thick.	Colour	Max. operating temp., °F	Compressive Strength, psi†	Tensile Strength, psi†	Hardness (Shore D)	Working Time, minutes	Functional cure, hours	Mix ratio by volume, r:h	Mix ratio by weight, r:h
Fast Set Steel Putty	**800-364**	39917	1 lb. kit	0.4	Grey	200	10,800	4,600	80	3	10 min.	1:1	6.3:1
Metal Magic Steel™	**800-069**	98853	4 oz.	7 in.²	Grey	250	12,000	2,500	80	3	10 min.	N/A	N/A

Properties are based on mixing one lb. mass at 77°F, 7 days cure.
†Ultimate Cure.

APPLICATION SELECTION GUIDE	Emergency metal repairs	Corrosion protection	Repairing pipes, tanks	Rebuilding shafts, keyways, bearings	Repairing threaded parts	Restoring tube sheets	Pump repair	Repairing engine blocks	Fixtures and prototypes	Rebuilding impellers, values	Repairing aluminium parts	Repairing stainless steel parts	Forming moulds fixtures	Wet surface repairs
Fast Set Steel Putty	●		●					◒						
Metal Magic Steel™	●		◒											◒

SPECIAL PRODUCTS

Form-A-Thread® Stripped Thread Repair Kit

Permanently repairs stripped threads and fasteners in five minutes (up to SAE Grade 5 English and 8.8 metric). Allows up to 128 lb. torque and 300°F. Resists most shop fluids.

Product	*Spaenaur No.*	Mfg. No.	Container	Max. Temperature Resistance	Adhesive Appearance
Form-A-Thread® Stripped Thread Repair Kit	**800-077**	28654	4.8 ml kit	300°F	Grey (mixed)

NOTE:

Spaenaur offers the complete Loctite® product line. If you are interested in an item not shown in our catalog, please contact a Spaenaur Sales Representative at 1-800-265-8772.

Spaenaur vous offre un inventaire complet de produits Loctite®. Si vous êtes intéressés dans un article qui n'est pas illustré dans votre catalogue, s'il vous plaît veuillez communiquer avec votre représentant de ventes au 1-800-265-8772.

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CATALOG 13

FLOORING & GROUT

Fixmaster® flooring products are specialty repair materials that fill or level industrial surfaces. A cost-effective, high-performance alternative to conventional flooring systems, these epoxies are non-shrinking and have good chemical and corrosion resistance and high compression strength.

Fixmaster® Deep Pour Grout
Aggregate-filled epoxy system for pours up to 6" deep, including self-leveling applications under rails and sole plates. High-strength material bonds to steel, concrete and itself. Withstands high torque loading.

Fixmaster® Fast Set Grout
Self-leveling, non-shrinking grout for installing machinery, setting anchor bolts. Cures quickly. Can be poured up to 1” thick. Compression strength and chemical resistance are superior to concrete. Forms strong bonds to old concrete and to itself.

Fixmaster® Floor Fill
Trowelable. For repairing and resurfacing cracks in concrete floors. Bonds to old and new concrete and provides greater strength and chemical resistance.

Fixmaster® High Performance Quartz
Trowelable epoxy for repairing and protecting floors exposed to concentrated acids, alkalis and solvents. Recommended for restoring and protecting old concrete.

Fixmaster® Magna-Crete®
A two-component, rapid-setting concrete repair and grouting system. Chemical resistant to most common liquids and chemicals. Bonds to concrete, wood, glass, steel and other construction materials.

Fixmaster® Marine Chocking
Self-leveling, fast-curing, non-shrinking grout. Outstanding chemical and vibration resistance and compressive strength to withstand maximum loads. Approved by American Bureau of Shipping.

Product	*Spaenaur No.*	Mfr. No.	Container	Coverage	Colour	Mixed Viscosity, cp	Maximum temperature, °F	Compressive strength, psi	Working Time, minutes	Functional cure, hours	Mix ratio by volume, r:h	Mix ratio by weight, r:h
Deep Pour Grout	800-270	99545	5 gal. kit	660 in^3	Black	Pourable	225	14,500	30	24	-	-
Fast Set Grout	800-271	39637	2 gal. kit	347 in^3	Red	5,500	200	14,500	10	12	100:11.7	100:6.5
Floor Fill	**800-272** 800-273	99361 99365	10 lb. kit 40 lb. kit	133 $in.^3$ 532 $in.^3$	Grey	Semi-Pourable	225	15,000	40	24	-	-
High Performance Quartz	800-274	96495	42 lb. kit	15 $ft.^{2}$*	Grey	Paste	150	12,000	60	24	-	-
Magna-Crete®	800-275 800-276	95551 95555	1 gal. kit 5 gal. kit	4.8 $ft.^{2}$* 21.6 $ft.^{2}$*	Grey	-	2000	13,000	15	1-2	-	-
Marine Chocking	800-277 800-278	97572 96102	2 gal. kit 2 gal. kit	370 $in.^3$	Green Orange	15,000	250	22,000	10	24	100:11.6	100:6.9

* Coverage at 1/4" thickness.

Bonding Characteristics

Product	Anchor bolt fastening	Chocking (ships)	Concrete floor repair	Engine installation	Grout heavy equipment 1" - 6"	Grout light equipment 1" or less	Leveling equipment	Acid/Chemical resistant floor repair	Ramps, loading docks	Highways, roadways	Leveling floors
Deep Pour Grout				◒	●	◒	◒				
Fast Set Grout	●			◒	◒	●	●				
Floor Fill			●	◒				◒			
High Performance Quartz			◒					●			
Magna-Crete®			●		◒	◒			●	●	●
Marine Chocking		●		●		◒	◒				

● Preferred Choice ◒ Good Choice

NOTE:

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Afin d'assurer l'absence de risques dans la transportation des produits Loctite® l'expédition sera effectuée par la mode de terre. Afin de vous renseigner des heures spécifiques de livraison dans votre région, veuillez communiquer avec votre représentant de ventes Spaenaur au 1-800-265-8772.

GASKETING & SEALING

Loctite has revolutionized the sealing of flanges in the automotive industry, in the assembly of heavy equipment and in the manufacture of various types of fluid power equipment.
A leader in form-in-place gasket makers, gasket dressings and general purpose sealants, Loctite offers a choice of anaerobics, RVT Silicones or solvents-based products to meet broad gasketing and sealing needs.

Instant Gasket
Makes high-performance, leakproof gaskets in one minute. Equipment can be returned to service immediately. Blowout resistant. Outperforms precut gaskets.

598 Black High Performance RVT Silicone Gasket Maker
Retains high flexibility and oil resistance for longer gasket life. Temperature range -75°F to 625°F (-59°C to 329°C) intermittent. Low odour, non-corrosive, low volatility. Resistant to most chemicals and solvents. Fills gaps to .25".

587 Blue High Performance RVT Silicone Gasket Maker
Forms tough, flexible gaskets directly on the flange. Offers excellent adhesion to oily surfaces. Low odour, non-corrosive, low volatility. Withstands temperatures to 500°F (260°C) intermittent. Resistant to most chemicals and solvents. Fills gaps to .25".

592 Copper High Performance RVT Silicone Gasket Maker
Premium silicone that can withstand operating environments to 700°F (371°C) intermittent. Superior oil resistance. Low odour, non-corrosive, low volatility, non-conductive. Resistant to most chemicals and solvents. Fills gaps to .25".

Superflex™ Blue RTV Silicone Adhesive Sealant
Cures to a tough, flexible rubber. Makes reliable “formed-in-place” gaskets that resist shrinking, cracking and migrating. Coats precut gaskets to increase reliability. Temperature range -65°F to 500°F (-54°C to 260°C) intermittent. Low volatility. Fills gaps to .25".

Superflex™ Red High Temp Silicone Adhesive Sealant
Makes gaskets that resist temperatures to 600°F (315°C) intermittent. Resists aging, weather and thermal cycling without shrinking, cracking, or hardening. Fills gaps to .25".

518 Gasket Eliminator® Flange Sealant
Forms a flexible, solvent-resistant seal that will not tear or decay. Seals to 300°F and fills gaps to 0.050". Can be used on flexible metal assemblies including aluminum surfaces. Easy disassembly and cleaning.

Product	*Spaenaur No.*	Mfr. No.	Container	Colour	Oil Resistance	Non-Corrosive	Temp. Resist.	Sealing Time	Key Specifications
Instant Gasket	**800-134**	30684	4 oz. can	Black	increased oil resistance	Non-corrosive	-75° to 600°F (-59° to 316°C)	Operating strength 15 psi - 1 min.	GM 998-5990 Ford WSE-M4G 323-A6 Chrysler GF-44-A
	800-286	30509	5 oz. cartridge						
	800-135	30507	7 oz. can						
Superflex™ RTV Silicone Adhesive Sealants	**800-124**	59330	80 ml tube	Black	-	-	-65° to 450°F (-54° to 232°C)	Tack free - 30 min. Full strength - 24 hrs.	-
	800-287	59375	300 ml cartridge	Black					
	800-288	30563	7.25 oz. can	Black					
	800-289	59530	80 ml tube	Clear					
	800-142	59575	300 ml cartridge	Clear					
	800-290	30562	7.25 oz. can	Clear					
	800-291	59430	80 ml tube	White					
	800-292	59475	300 ml cartridge	White					
	800-293	82518	7.25 oz. can	White					
Superflex™ Red High Temp RTV Silicone Adhesive Sealant	**800-008**	59630	80 ml tube	Red	-	-	-75° to 600°F (-59° to 316°C)	Tack free - 30 min. Full strength - 24 hrs.	-
	800-095	59675	300 ml cartridge						
	800-294	30564	7.25 oz. can						
	800-295	82279	12 oz. tube						
598 Black High Performance RTV Silicone Gasket Maker	**800-123**	59830	70 ml tube	Black	Excellent oil resistance	Non-corrosive	-75° to 625°F (-59° to 329°C)	Tack free - 30 min. Full strength - 24 hrs.	-
	800-296	59875	300 ml cartridge						
	800-297	59866	8.75 oz. can						
	800-298	59891	40 lb. pail						
587 Blue High Performance RTV Silicone Gasket Maker	**800-065**	58730	70 ml tube	Blue	Increased oil resistance	Non-corrosive	-75° to 500°F (-59° to 260°C)	Tack free - 30 min. Full strength - 24 hrs.	-
	800-066	58775	300 ml cartridge						
	800-299	30567	8.75 oz. can						
	800-300	58791	40 lb. pail						
592 Copper High Perform. RTV Silicone Gasket Maker	**800-107**	30542	70 ml tube	Copper	Increased oil resistance	Non-corrosive	-75° to 700°F (-59° to 371°C)	Tack free - 30 min. Full strength - 24 hrs.	-
	800-108	82046	300 ml cartridge						
Gasket Sealant #2	800-301	30513	1.5 oz. tube	Black	Oil resistant	Non-corrosive	-65° to 400°F (-54° to 204°C)	Remains tacky	Mil-S-45180 D Type II
	800-302	30514	3 oz. tube						
	800-096	30515	11 oz. tube						
	800-303	80964	5 gal. can						

Series	*Spaenaur No.*	Mfr. No.	Container	Typical Use	Colour	Gap Fill	Cured State	Viscosity cP	Temp. Range	Cure Speed	Recomm. Primer	Key Specs.
518 Gasket Elimin-ator® Flange Sealant	**800-084**	22423	Kit A (See below)	For all metals including aluminum flanges	Red	Unprimed - .010" Primed - .050"	Flexible	800,000/ 3,750,000 Thixotropic	-65°F to 300°F	Unprimed - 4 to 24 hrs. Primed - 30 min. to 4 hrs.	N	NSF/ANSI 61 certified Agriculture Canada approved
	800-085	22424	Kit B (See below)									
	800-304	51817	6 ml tube									
	800-305	51831	50 ml tube									
	800-306	51845	300 ml cartdg.									

Kit A contains a 25 ml syringe of sealant and a 0.88 oz. net wt. container of Primer.
Kit B contains a 300 ml cartridge of sealant and a 4.5 oz. net wt. container of Primer.

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LUBRICANTS (ANTI-SEIZE)

A variety of penetrants, greases, oils and anti-seize formulas are available for lasting, general purpose lubrication or specific applications.
Anti-seize compounds protect mated metal parts against friction, galling and corrosion.
Anti-seize compounds also reduce wrench torque to facilitate assembly and disassembly of threaded connections.
Super Lube® synthetic-based lubricants last four times longer than traditional petroleum-based greases and work in high and low temperatures, food grade and multi-purpose applications.

C5-A® Copper Based Anti-Seize
Exclusive formula suspends copper and graphite in a high-quality grease. Protects metal parts from rust, corrosion, galling and seizing at temperatures to 1800°F (982°C). Tested to MIL-A-907.

Silver Grade Anti-Seize
Heavy duty, temperature-resistant, petroleum-based lubricant compound fortified with graphite and metallic flake. Inert, will not evaporate or harden in extreme cold or heat. For use in assemblies up to 1600°F (871°C).

Nickel Anti-Seize
Copper-free. Recommended for stainless steel and other metal fittings. For preventing corrosion, seizing and galling in harsh, chemical environments, and temperatures to 2400°F (1315°C).

Penetrating Oil
Penetrates, lubricates and displaces moisture. Protects against rust and corrosion. Contains no ODCs.

Super Lube® Synthetic-Based Lubricant with PTFE Grease
Lasts four times longer than petroleum-based lubricants. Withstands temperatures from -45°F to 450°F (550°F intermittent). Contains PTFE for added protection against friction and wear. Non-flammable (aerosol is flammable). Contains no ODCs. NLGI #2 grease. Translucent white to slightly yellow.

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Product	*Spaenaur No.*	Mfr. No.	Container	Temp. Resist.	General purpose anti-seize	Extreme Chemical Resistance	For Maximum lubricity	Electrically conductive	For aluminum/ soft metals	For stainless steel	Copper-free formulation	For low speeds, high loads	High Purity
C5-A® Copper Based Anti-Seize	800-307	51299	2 g. pouch	1800°F (982°C)	●			◓	◓	◓			
	800-308	51277	7 g. pouch										
	800-309	51001	1 oz. tube										
	800-310	51002	4 oz. tube										
	800-311	51144	4 oz. brush-top can										
	800-312	51147	8 oz. brush-top can										
	800-313	51005	10 oz. brush-top can										
	800-314	51003	12 oz. aerosol										
	800-315	51004	13 oz. cartridge										
	800-316	51006	1 lb. can										
	800-317	51007	1 lb. brush-top can										
	800-318	51008	2.5 lb. can										
	800-319	51009	8 lb. can										
	800-320	51010	25 lb. pail										
	800-321	51011	42 lb. pail										
	800-322	51146	425 lb. drum										
Nickel Anti-Seize	**800-050**	77124	8 oz. brush-top can	2400°F (1315°C)		●		◓		◓	●		
	800-323	51286	13 oz. aerosol										
	800-324	51102	1 lb. can										
	800-051	77164	1 lb. brush-top can										
	800-325	51152	8 lb. can										
	800-326	77175	5 gal. pail										
Silver Grade Anti-Seize	800-327	80209	4 oz. brush-top can	1600°F (871°C)	◓			◓	◓	◓			
	800-048	76732	8 oz. brush-top can										
	800-328	76759	12 oz. aerosol										
	800-049	76764	1 lb. brush-top can										
	800-329	80206	1 gal. can										
	800-330	76775	5 gal. pail										

● Preferred Choice ◓ Good Choice

Product	*Spaenaur No.*	Mfr. No.	Container	Temp. Resist.	Food processing equipment	Close fitting parts	High Temp.	Electrically conductive	Electrical equipment	Gears, bearings, cable, conveyors	Hydraulic units (not brakes)	For high speed bearings	For low speeds, high loads	Chain-driven equipment	Disc braking systems	Solid film
Penetrating Oil	800-331	80032	1 pt. spout can	100°F (38°C)		◓										
	800-094	51221	12 oz. aerosol													
Super Lube® Grease with PTFE	**800-092**	20029	11 oz. aerosol	450°F (232°C)	●		○		●					●		
	800-093	82328	14.1 oz. grease cartdg.													

● Preferred Choice ◓ Good Choice ○ Acceptable Choice

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CATALOG 13

Bold Type Spaenaur No's. in Stock.
Light Type Spaenaur No's. available upon request.

WEARING COMPOUNDS

Nordbak® Wearing Compounds combine the superior wear properties of ceramic and the convenience of two-part epoxies to protect equipment from corrosion, abrasion and other wear encountered in harsh industrial environments. Available in trowelable and brushable formulations with special fillers for tough conditions.

Nordbak® Wearing Compound
Large ceramic beads and fine silicon carbide in a high performance epoxy system protects against sliding abrasion to 250°F. Non-sagging. Trowelable.

Nordbak® Fast Cure Wearing Compound
A faster version of Wearing Compound, this epoxy renews worn surfaces fast, reducing downtime to put equipment back in service in as little as three hours. Trowelable.

Nordbak® High Temperature Wearing Compound
Resists sliding abrasion and temperatures to 450°F. Must be post-cured for maximum temperature resistance and performance. Trowelable.

Nordbak® Ultra High Temperature Wearing Compound
Resists sliding abrasion and temperatures to 550°F. Must be post-cured for maximum temperature resistance and performance. Trowelable.

Nordbak® High Impact Wearing Compound
Rubber-modified epoxy protects against sliding abrasion and impact to 250°F. Trowelable.

Nordbak® Castable Wearing Compound
For casting wear-resistant parts. Pourable ceramic compound can be cast into any shape. Resists temperatures to 225°F.

Nordbak® Pneu-Wear
Filled with small ceramic beads and silicon carbide for maximum protection against fine particle abrasion to 250°F. Trowelable.

Nordbak® Fast Cure Pneu-Wear
Fast cure version of standard Pneu-Wear protects against fine particle abrasion to 225°F and cures in just 3 hours. Trowelable.

Nordbak® High Temperature Pneu-Wear
Protects against fine particle abrasion and temperatures to 450°F. Must be post-cured for maximum temperature resistance and performance. Trowelable.

WEARING COMPOUND

Nordbak® Ultra High Temperature Pneu-Wear
Protects against fine particle abrasion and temperatures to 550°F. Must be post-cured for maximum temperature resistance and performance. Trowelable.

Nordbak® Combo Bead Wearing Compound
This epoxy system combines the abrasion-resistant qualities of both large and small ceramic beads and silicon carbide. Protects against hard sliding abrasion and extends the life of material handling equipment. Trowelable.

Nordbak® Brushable Ceramic
Brushes on to form a smooth, corrosion-resistant coating. Protects against turbulence, abrasion and cavitation. Can also be used as a top coat over Nordbak wearing compounds for surface rebuilding and lasting protection. Resists temperatures to 200°F.

Nordbak® High Temperature Brushable Ceramic
Provides protection against turbulence, abrasion and cavitation up to 550°F. Must be post-cured for maximum temperature resistance and performance.

Nordbak® Chemical Resistant Coating
Smooth, glossy, low-friction finish protects against turbulence, abrasion and cavitation. This advanced epoxy protects equipment from extreme chemical attack and corrosion. Low viscosity epoxy can be applied by brush.

Nordbak® Ceramic Tile Adhesive
High strength. For securing tiles to vertical, horizontal and overhead surfaces. Excellent shock and impact resistance. Trowelable. Resists temperatures to 200°F.

For Properties Chart see page Q26.

NOTE:

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LOCTITE®

Product	*Spaenaur No.*	Mfg. No.	Container	Coverage,ft.² @1/4" thickness	Colour	Max. operating temperature, °F	Compressive strength, psi	Hardness (Shore D)	Working Time, minutes, 77°F	Functional cure, hours, 77°F	Mix ratio by volume, r:h	Mix ratio by weight, r:h
Wearing Compound	800-332 800-333	99813 99812	5 lb. kit 25 lb. kit	1.75 8.75	Grey	250	16,000	90	30	7	2:1	2:1
Fast Cure Wearing Compound	800-334	96373	6 lb. kit	2.1	Blue	225	10,000	90	10	3	2:1	2:1
High Temperature Wearing Compound	800-335	99112	25 lb. kit	9	Grey	450	15,000	85	30	▲	4:1	3.9:1
Ultra High Temperature Wearing Compound	800-336	96392	25 lb. kit	9	Grey	550	-	90	30	▲	2.44:1	2.85:1
High Impact Wearing Compound	800-337	39918	25 lb. kit	8.75	Grey	250	15,000	85	30	6	2:1	2:1
Castable Wearing Compound	800-338	98992	25 lb. kit	277 in.³	Grey	225	18,500	90	30	6	2:1	6.8:1
Pneu-Wear	800-339 800-340	98383 98382	3 lb. kit 25lb. kit	1.1 9	Grey	250	15,000	90	30	6	4:1	4:1
Fast Cure Pneu-Wear	800-341	96363	6 lb. kit	2.1	Blue	225	12,000	90	10	3	2:1	2:1
High Temperature Pneu-Wear	800-342	98372	25 lb. kit	8.8	Grey	450	15,000	90	30	▲	4:1	4:1
Ultra High Temp. Pneu-Wear	800-343	96332	25 lb. kit	8.8	Grey	550	-	90	30	▲	2:1	2.27:1
Combo Bead Wearing	800-344	96303	6 lb. kit	2.3	Grey	250	13,000	90	25	8	2:1	2:1
Brushable Ceramic	**800-073** 800-345 800-346	98733 98732 96443	2 lb. kit 6 lb. kit 2lb. kit	12* 36* 12*	Grey Grey White	200 200 200	12,500 12,500 12,500	85 85 85	30 30 15	6 6 5	2.75:1 2.75:1 2.9:1	4.8:1 4.8:1 4.8:1
High Temperature Brushable Ceramic	800-347	96433	2 lb. kit	21.5*	Red	550	16,000	90	120	▲	2.6:1	4.25:1
Chemical Resistant Coating	800-348	96092	12 lb. kit	74*	Grey	150	10,000	83	20	16	2.2:1	3.7:1
Ceramic Tile Adhesive	800-349	97762	20 lb. kit	12	Beige	200	14,000	88	60	12	1:1	3.7:1

Properties based on mixing one lb. mass at 77°F, ultimate cure. *20 mil thickness. ▲Requires heat cure. See Technical Data Sheet

Product	Fine particle abrasion	Multiple particle abrasion	Impact resistance	Chemical corrosion protection	High temp. resistance	Fast cure	Corrosion protection	Tile installation	Pump repair	Elbows	Fan housings	Cyclones	Chutes
Wearing Compound									◓	◓	●	◓	●
Fast Cure Wearing Compound						●			◑	◑	●	◑	●
High Temp. Wearing Compound					●				◓	◑	●	◓	●
Ultra High Temp. Wearing Compound					●				◓	◑	●	◓	●
High Impact Wearing Compound			●										
Castable Wearing Compound										●		●	
Pneu-Wear	●	◓							●	●	◓	●	◓
Fast Cure Pneu-Wear	●	◓				●			●	●	◓	●	◓
High Temp. Pneu-Wear	●	◓			●				●	●	◑	●	◑
Ultra High Temp. Pneu-Wear	●	◓			●				●	●	◓	●	◓
Combo Bead Wearing	◓	●								◑	◑	◑	◑
Brushable Ceramic				◓			●		◓				
High Temperature Brushable Ceramic				◓	●		●		◓				
Chemical Resistant Coating				●			◓						
Ceramic Tile Adhesive			◓					●					

● Preferred Choice ◓ Good Choice

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CATALOG 13

CLEANERS

Loctite offers a complete line of highly effective general-purpose or application-specific cleaners and degreasers. Included are both aqueous and solvent-based products, all of which are free of Class I ozone-depleting compounds.

Natural Blue® Cleaner & Degreaser
Biodegradable, all-purpose, industrial strength, concentrated cleaner and degreaser. Can be economically diluted with water. Natural Blue is formulated for wipe down, pressure spraying and immersion cleaning processes – at room temperature or heated. Pine-scented, non-flammable and non-toxic. Contains no ODCs.

ODC-Free Cleaner & Degreaser (Naphtha)
A non-aqueous, hydrocarbon-based solvent designed for cleaning and degreasing surfaces to be bonded with adhesives, as well as for general-purpose industrial cleaning. Safe on aluminum, rubber and most plastics, and will not cause flash rusting on water-sensitive parts. Dries residue free. Contains no ozone-depleting compounds. (Formerly referenced as 7070.)

Chisel® MC-Free Gasket Remover
Free of Methylene Chloride, Chisel® MC-Free Gasket Remover has a foaming action that lifts off gaskets from any type of assembly in minutes. Performs better than Methylene Chloride formulations on silicone gaskets and removes most spray paints from steel panels in less than 30 seconds. Convenient spray liquid penetrates and cleans intricate shapes and will not run off, even on vertical surfaces. Suitable for wood and plaster. Not for use on plastics, linoleum, or synthetic fibers.

Product	Function	Application
Natural Blue® Cleaner & Degreaser	Removes grease, grime, oil, soot, cutting fluids, mildew, stains, light carbon, animal fat, polishing compounds and ink.	Cleans engine parts, ovens, exhaust, and drilling rigs. Can be diluted for general wipe down cleaning. Formulated for pressure spraying and immersion cleaning processes, at room temperature or heated.
ODC-Free Cleaner & Degreaser	Removes grease, oil, lubrication fluids, metal cuttings and fines from parts, equipment and machinery.	Use as a spray or in immersion cleaning processes at room temperature or heated. Recommended as a final pre-assembly cleaning treatment for all surfaces bonded with adhesives.
Chisel® Gasket Remover	Removes pre-cut conventional gasket cements as well as formed-in-place chemical gaskets.	Removing silicones, baked-on gaskets, gaskets from aluminum and small, difficult-to-reach components, weatherstrip adhesive, dried oil, grease, paint, varnish.

Product	*Spaenaur No.*	Mfg. No.	Container	Drying Time	Residue/ Rinsibility	Odour
Natural Blue® Cleaner & Degreaser	800-350 **800-099** **800-097** **800-100** 800-351 800-352	82244 82249 82251 82253 82254 82255	4 fl. oz. bottle 24 fl. oz. spray bottle 1 gal. bottle 5 gal. pail 15 gal. pail 55 gal. drum	Equivalent to the evaporation rate of water. Wiping or blowers will accelerate dry time.	Rinses residue free with water	Pine scent
ODC-Free Cleaner & Degreaser	800-353 **800-035** 800-354	22355 20162 20260	15 oz. net wt. aerosol 16 fl. oz. pump spray 1 gal. can	5-20 min. (without wipe) 1-2 min. (with wipe)	No rinse and no residue	Mild citrus
Chisel® MC-Free Gasket Remover	800-401	34663	15.25 oz. net wt. aerosol	Leave on surface 10-15 min. Wipe/scrape clean	Waxy residue	Mild Solvent

Bold Type Spaenaur No's. in Stock.
Light Type Spaenaur No's. available upon request.

HAND CLEANERS

Formulated to remove grease, grime, paint, and adhesives, Loctite® waterless hand cleaners also contain multiple skin conditioners to help counteract the drying effects of frequent washing.

Fast Orange® Cream Hand Cleaner Fine Pumice Formula
Thicker consistency to scoop straight from container or use with dispenser (can only). Biodegradable, waterless, and petroleum-solvent-free; cleans with fresh-scented natural citrus power. Contains aloe, lanolin, jojoba, and other premium skin conditioners.

Fast Orange® Lotion Hand Cleaner Smooth Formula
For use by those who prefer a hand cleaner without pumice or have extra-sensitive skin. Biodegradable, waterless, and petroleum solvent-free; cleans with fresh-scented natural citrus power. Contains aloe, lanolin, jojoba and other premium skin conditioners.

Product	*Spaenaur No.*	Mfg. No.	Container
Fast Orange® Lotion Hand Cleaner (fine pumice formula)	800-355	25108	7.5 fl. oz. squeeze bottle
	800-102	25116	15 fl. oz. squeeze bottle
	800-356	25217	64 fl. oz. bottle with pump
	800-357	25104	1 gal. flat-top bottle
	800-098	25218	1 gal. bottle with pump
	800-358	25915	2 x 1 gal. bottle with pump
Fast Orange® Lotion Hand Cleaner (smooth formula)	800-359	23108	7.5 fl. oz. squeeze bottle
	800-101	23116	15 fl. oz. squeeze bottle
	800-360	23217	64 fl. oz. bottle with pump
	800-361	23218	1 gal. flat-top bottle
	800-362	23104	1 gal. bottle with pump
	800-363	23915	2 x 1 gal. bottle with pump

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Loctite® CleanUp Solvent

Spaenaur No.
800-116 Net 1 fl. oz (29.5 ml)

For clean-up and disassembly of parts bonded with Quick Set™ 404 Adhesive and SuperBonder® Instant Adhesives.

X-NMS Clean-up Solvent

Spaenaur No.
800-080 Net 2 fl. oz (59 ml)

A chemical specifically designed for clean-up of instant adhesives. It quickly and safely dissolves cured cyanoacrylate-based adhesives in bonds or on equipment or clothes.

Loctite® Equipment Flushing Solvent

Spaenaur No.
800-079 Net 16 fl. oz can

A chemical specifically designed to flush liquid anaerobic and cyanoacrylate adhesive and sealants from Loctite application equipment feedlines and applicators.

Loctite® Water Proofing Solution

Spaenaur No.
800-083 Net 1 fl. oz (29.5 ml)

Special solution for use with Quick Set™ 404 Adhesive to protect the bond from moisture.

CATALOG 13

QUICK SERVICE REPAIR KIT 101

***SPAENAUR Tool Kit No.* 800-087**

Priced Singly.

Use it to…
Lock Bolts, Studs, Screws and Nuts; Seal Piping, Plugs and Fittings; Seal Flange Surfaces; Mount Bearings, Bushings and Sleeves; and bond almost any surface in seconds.

Contents of KIT, listed below, offers a selection of Adhesives/Sealants designed to handle a variety of maintenance problems.

PRISM™ Surface Insensitive Instant Adhesive

Bonds Surfaces That *Didn't* Bond Instantly Before

- Fast, strong bonds on porous or acidic surfaces
- Gel formula allows controlled, precise application, even on vertical or overhead surfaces.
- Fills gaps to bond poorly matched parts.

Typical Applications

Leather, wood, ceramic, paper, plastics, foam and freshly plated surfaces.

SUPERFLEX™ ULTRA BLUE™ Silicone

High Performance/Oil Resistant Adhesive/Sealant and Gasketing Compound Replaces Two-Part Adhesives, Pre-Formed Gaskets, Caulks and Sealants

- Low odour, low volatility
- More oil resistant than other silicones
- Gap filling ability for stamped metal parts
- Non-corrosive to aluminum, iron and steel

Typical Applications

Superior silicone for gear box repair • High temperature to 227°C (500°F) applications • Gasket dressing to upgrade conventional metal and precut gaskets • Formed-in-place gasketing, repairing and replacing preformed materials.

THREADLOCKERS

Positively Lock and Seal Screws and Bolts Against Vibration, Loosening and Leakage

- **Removable Threadlocker 242 (Blue)**
  General purpose, medium strength protects against loosening, corrosion and leaks.
- **Permanent Threadlocker 262 (Red)**
  High strength for fasteners that must withstand heavy shock and vibration or extreme environmental conditions. Removable only with heat and heavy tools.

PST®

Permanently Stops Leaks On Any Metal Fitting

- Replaces tapes or dopes; won't shrink or shred
- Withstands high pressure applications
- Excellent chemical resistance

Typical Applications

Use on any metal for a wide variety of pipe sealing applications including those carrying industrial acids, solvents, chemicals, gases and steam.

QUICK METAL™ Press Fit Repair

For Bearing and Sleeve Assembly

- Salvage worn parts
- Prevents costly downtime — keeps machinery on line and running
- Adds reliability to repairs — use with new parts to prevent future breakdowns

Typical Applications

Re-fit worn shafts, housings, couplings • Repair worn keyways and loose set screws • Stop bearing spinout • Form-in-place shims • Protect new parts from wear.

MASTER GASKET™ Flange Sealant

Replaces Conventional Flange Gaskets for Improved Sealing

- Fills surface irregularities for tighter fit
- Resists caustics and solvents
- Flexes to maintain seal

Typical Applications

Pump couplings air compressors, heat exchangers, gear cases, gas and diesel engines. All types of rigid metal parts.

Tel: 1-800-265-8772 Fax: 519-744-0818

Comparative Chart - Inch & Metric	Tableau de comparaison pouce et métrique	R2
Conversion Chart - Inch & Metric	Tableau de conversion pouce et métrique	R3
Metric System of Measurements	Système de mesure métrique	R4
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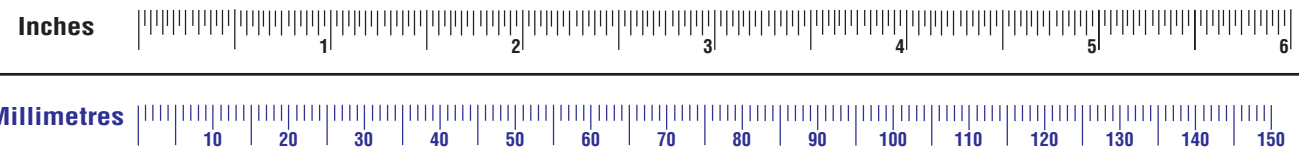
Torque Conversion Chart	Tableau de conversion torque	R6
Tension Loads & Tightening Torques	Torsions de serrage et tensions à charge	R7
Thread Size Comparison Chart	Tableau de comparaison pour filets	R8
Inch Series Head Dimension Chart	Dimensions pour divers styles de têtes de vis - pouce	R10
Metric Series Head Dimension Chart	Dimensions pour divers styles de têtes de vis - métrique	R11
Tapping Screws Selector Guide	Guide de selection pour vis taraudeuses	R12
Recommended Drill and Hole Sizes for Types "AB" and "B" Tapping Screws	Grosseur de foret et trou recommendés pour genres "AB" et "B" vis taraudeuses	R13
Approx. Hole Size in Sheet Metal for Steel Types D (1), F and T (23) Thread Cutting Screws	Grosseur de trou approximatif de métal en feuilles pour genres d'acier D (1), F et T (23) de vis à filetage coupante	R14
Corrosion Guide	Guide de corrosion	R15
Compound Selection Guide	Guide de selection des composés	R19
Plastics Properties Chart	Tableau des propriétés des plastiques	R20

GAUGE or DIAMETER	DECIMAL (INCHES)	MILLIMETRES
No. 0000	0.021	.53
No. 000	0.034	.86
No. 00	0.047	1.19
No. 0	0.060	1.524
No. 1	0.073	1.854
No. 2	0.086	2.184
No. 3	0.099	2.515
No. 4	0.112	2.845
No. 5	0.125	3.175
No. 6	0.138	3.505
No. 8	0.164	4.166
No. 10	0.190	4.826
No. 12	0.216	5.486

FASTENER COMPARISON CHART

INCH		METRIC
INCH EQUIVALENT		METRIC SIZE - PITCH
UNF	UNC	ISO and IFI RECOMMENDED
1-72	1-64	M2 x 0.4
3-56	3-48	M2.5 x 0.45
4-48	4-40	M3 x 0.5
6-40	6-32	M3.5 x 0.6
8-36	8-32	M4 x 0.7
10-32	10-24	M5 x 0.8
1/4-28	1/4-20	M6 x 1
5/16-24	5/16-18	M8 x 1.25
3/8-24	3/8-16	M10 x 1.5
7/16-20	7/16-14	M12 x 1.75
1/2-20	1/2-13	M14 x 2
5/8-18	5/8-11	M16 x 2
3/4-16	3/4-10	M20 x 2.5
1-12	1-8	M24 x 3
1-1/8-12	1-1/8-7	M30 x 3.5
1-1/4-12	1-1/4-7	M36 x 4



Fractions, Decimals and Millimetres

Inches Fractions	Inches Decimals	MM	Inches Fractions	Inches Decimals	MM	Inches Fractions	Inches Decimals	MM	Inches Fractions	Inches Decimals	MM
-	.0004	.01	25/32	.781	19.844	-	2.165	55.	3-11/16	3.6875	93.663
-	.004	.10	-	.7874	20.	2-3/16	2.1875	55.563	-	3.7008	94.
-	.01	.25	51/64	.797	20.241	-	2.2047	56.	3-23/32	3.719	94.456
1/64	.0156	.397	**13/16**	.8125	20.638	2-7/32	2.219	56.356	-	3.7401	95.
-	.0197	.50	-	.8268	21.	-	2.244	57.	3-3/4	3.750	95.250
-	.0295	.75	53/64	.828	21.034	2-1/4	2.250	57.150	-	3.7795	96.
1/32	.03125	.794	27/32	.844	21.431	2-9/32	2.281	57.944	3-25/32	3.781	96.044
-	.0394	1.	55/64	.859	21.828	-	2.2835	58.	3-13/16	3.8125	96.838
3/64	.0469	1.191	-	.8661	22.	2-5/16	2.312	58.738	-	3.8189	97.
-	.059	1.5	**7/8**	.875	22.225	-	2.3228	59.	3-27/32	3.844	97.631
1/16	.0625	1.588	57/64	.8906	22.622	2-11/32	2.344	59.531	-	3.8583	98.
5/64	.0781	1.984	-	.9055	23.	-	2.3622	60.	3-7/8	3.875	98.425
-	.0787	2.	29/32	.9062	23.019	2-3/8	2.375	60.325	-	3.8976	99.
3/32	.094	2.381	59/64	.922	23.416	-	2.4016	61.	3-29/32	3.9062	99.219
-	.0984	2.5	**15/16**	.9375	23.813	2-13/32	2.406	61.119	-	3.9370	100.
7/64	.109	2.778	-	.9449	24.	2-7/16	2.438	61.913	3-15/16	3.9375	100.013
-	.1181	3.	61/64	.953	24.209	-	2.4409	62.	3-31/32	3.969	100.806
1/8	.125	3.175	31/32	.969	24.606	2-15/32	2.469	62.706	-	3.9764	101.
-	.1378	3.5	-	.9843	25.	-	2.4803	63.	**4**	4.000	101.600
9/64	.141	3.572	63/64	.9844	25.003	**2-1/2**	2.500	63.500	4-1/16	4.062	103.188
5/32	.156	3.969	**1**	1.000	25.400	-	2.5197	64.	4-1/8	4.125	104.775
-	.1575	4.	-	1.0236	26.	2-17/32	2.531	64.294	-	4.1338	105.
11/64	.172	4.366	1-1/32	1.0312	26.194	-	2.559	65.	4-3/16	4.1875	106.363
-	.177	4.5	1-1/16	1.062	26.988	2-9/16	2.562	65.088	4-1/4	4.250	107.950
3/16	.1875	4.763	-	1.063	27.	2-19/32	2.594	65.881	4-5/16	4.312	109.538
-	.1969	5.	1-3/32	1.094	27.781	-	2.5984	66.	-	4.3307	110.
13/64	.203	5.159	-	1.1024	28.	2-5/8	2.625	66.675	4-3/8	4.375	111.125
-	.2165	5.5	1-1/8	1.125	28.575	-	2.638	67.	4-7/16	4.438	112.713
7/32	.219	5.556	-	1.1417	29.	2-21/32	2.656	67.469	**4-1/2**	4.500	114.300
15/64	.234	5.953	1-5/32	1.156	29.369	-	2.6772	68.	-	4.5275	115.
-	.2362	6.	-	1.1811	30.	2-11/16	2.6875	68.263	4-9/16	4.562	115.888
1/4	.250	6.350	1-3/16	1.1875	30.163	-	2.7165	69.	4-5/8	4.625	117.475
-	.2559	6.5	1-7/32	1.219	30.956	2-23/32	2.719	69.056	4-11/16	4.6875	119.063
17/64	.2656	6.747	-	1.2205	31.	2-3/4	2.750	69.850	-	4.7244	120.
-	.2756	7.	**1-1/4**	1.250	31.750	-	2.7559	70.	4-3/4	4.750	120.650
9/32	.281	7.144	-	1.2598	32.	2-25/32	2.781	70.6439	4-13/16	4.8125	122.238
-	.2953	7.5	1-9/32	1.281	32.544	-	2.7953	71.	4-7/8	4.875	123.825
19/64	.297	7.541	-	1.2992	33.	2-13/16	2.8125	71.4376	-	4.9212	125.
5/16	.3125	7.938	1-5/16	1.312	33.338	-	2.8346	72.	4-15/16	4.9375	125.413
-	.315	8.	-	1.3386	34.	2-27/32	2.844	72.2314	**5**	5.000	127.000
21/64	.328	8.334	1-11/32	1.344	34.131	-	2.8740	73.	-	5.1181	130.
-	.335	8.5	1-3/8	1.375	34.925	2-7/8	2.875	73.025	5-1/4	5.250	133.350
11/32	.344	8.731	-	1.3779	35.	2-29/32	2.9062	73.819	**5-1/2**	5.500	139.700
-	.3543	9.	1-13/32	1.406	35.719	-	2.9134	74.	-	5.5118	140.
23/64	.359	9.128	-	1.4173	36.	2-15/16	2.9375	74.613	5-3/4	5.750	146.050
-	.374	9.5	1-7/16	1.438	36.513	-	2.9527	75.	-	5.9055	150.
3/8	.375	9.525	-	1.4567	37.	2-31/32	2.969	75.406	**6**	6.000	152.400
25/64	.391	9.922	1-15/32	1.469	37.306	-	2.9921	76.	6-1/4	6.250	158.750
-	.3937	10.	-	1.4961	38.	**3**	3.000	76.200	-	6.2992	160.
13/32	.406	10.319	**1-1/2**	1.500	38.100	3-1/32	3.0312	76.994	**6-1/2**	6.500	165.100
-	.413	10.5	1-17/32	1.531	38.894	-	3.0315	77.	-	6.6929	170.
27/64	.422	10.716	-	1.5354	39.	3-1/16	3.062	77.788	6-3/4	6.750	171.450
-	.4331	11.	1-9/16	1.562	39.688	-	3.0709	78.	**7**	7.000	177.800
7/16	.438	11.113	-	1.5748	40.	3-3/32	3.094	78.581	-	7.0866	180.
29/64	.453	11.509	1-19/32	1.594	40.481	-	3.1102	79.	-	7.4803	190.
15/32	.469	11.906	-	1.6142	41.	3-1/8	3.125	79.375	7-1/2	7.500	190.500
-	.4724	12.	1-5/8	1.625	41.275	-	3.1496	80.	-	7.8740	200.
31/64	.484	12.303	-	1.6535	42.	3-5/32	3.156	80.169	**8**	8.000	203.200
-	.492	12.5	1-21/32	1.6562	42.069	3-3/16	3.1875	80.963	-	8.2677	210.
1/2	.500	12.700	1-11/16	1.6875	42.863	-	3.1890	81.	8-1/2	8.500	215.900
-	.5118	13.	-	1.6929	43.	3-7/32	3.219	81.756	-	8.6614	220.
33/64	.5156	13.097	1-23/32	1.719	43.656	-	3.2283	82.	**9**	9.000	228.600
17/32	.531	13.494	-	1.7323	44.	3-1/4	3.250	82.550	-	9.0551	230.
35/64	.547	13.891	**1-3/4**	1.750	44.450	-	3.2677	83.	-	9.4488	240.
-	.5512	14.	-	1.7717	45.	3-9/32	3.281	83.344	9-1/2	9.500	241.300
9/16	.563	14.288	1-25/32	1.781	45.244	-	3.3071	84.	-	9.8425	250.
-	.571	14.5	-	1.8110	46.	3-5/16	3.312	84.1377	**10**	10.000	254.001
37/64	.578	14.684	1-13/16	1.8125	46.038	3-11/32	3.344	84.9314	-	10.2362	260.
-	.5906	15.	1-27/32	1.844	46.831	-	3.3464	85.	-	10.6299	270.
19/32	.594	15.081	-	1.8504	47.	3-3/8	3.375	85.725	**11**	11.000	279.401
39/64	.609	15.478	1-7/8	1.875	47.625	-	3.3858	86.	-	11.0236	280.
5/8	.625	15.875	-	1.8898	48.	3-13/32	3.406	86.519	-	11.4173	290.
-	.6299	16.	1-29/32	1.9062	48.419	-	3.4252	87.	-	11.8110	300.
41/64	.6406	16.272	-	1.9291	49.	3-7/16	3.438	87.313	**12**	12.000	304.801
-	.6496	16.5	1-15/16	1.9375	49.213	-	3.4646	88.	13	13.000	330.201
21/32	.656	16.669	-	1.9685	50.	3-15/32	3.469	88.106	-	13.7795	350.
-	.6693	17.	1-31/32	1.969	50.006	**3-1/2**	3.500	88.900	14	14.000	355.601
43/64	.672	17.066	**2**	2.000	50.800	-	3.5039	89.	15	15.000	381.001
11/16	.6875	17.463	-	2.0079	51.	3-17/32	3.531	89.694	-	15.7480	400.
45/64	.703	17.859	2-1/32	2.03125	51.594	-	3.5433	90.	16	16.000	406.401
-	.7087	18.	-	2.0472	52.	3-9/16	3.562	90.4877	17	17.000	431.801
23/32	.719	18.256	2-1/16	2.062	52.388	-	3.5827	91.	-	17.7165	450.
-	.7283	18.5	-	2.0866	53.	3-19/32	3.594	91.281	18	18.000	457.201
47/64	.734	18.653	2-3/32	2.094	53.181	-	3.622	92.	19	19.000	482.601
-	.7480	19.	2-1/8	2.125	53.975	3-5/8	3.625	92.075	-	19.6850	500.
3/4	.750	19.050	-	2.126	54.	3-21/32	3.656	92.869	20	20.000	508.001
49/64	.7656	19.447	2-5/32	2.156	54.769	-	3.6614	93.			

METRIC TABLES

LINEAR : One METRE (m) = 10 decimetre (dm) = 100 centimetre (cm) = 1000 millimetres (mm)
1000 metres = One kilometre (km)

SQUARE : One SQUARE METRE (m^2) = 100 sq. decimetres (dm^2) = 10000 sq. centimetres (cm^2) = 1000 000 sq. millimetres (mm^2)

CUBIC : One CUBIC METRE (m^3) = 1000 cu. decimetre (dm^3) = 1000 000 cu. centimetres (cm^3)

CAPACITY : One LITRE (L) = 10 decilitres (dL) = 1000 millilitres (mL)
100 litres = One hectolitre (hL)

WEIGHT : One KILOGRAM (kg) = 100 decagrams (dkg) = 1000 grams (g)
100 kilos = One metric cent (q)
1000 kilos = One ton (t)

PRESSURE : KILO PER SQUARE CENTIMETRE (kg/cm^2)
One kilo per sq. centimetre = One ATMOSPHERE (atm)

TEMPERATURE : CENTIGRADE degree (°C) = CELCIUS degree (°C)

METRIC CONVERSION EQUIVALENTS

LINEAR

INCH to METRIC		METRIC to INCH	
1 inch =	25.400 millimetres	1 millimetre =	.0393700 inches
1 inch =	2.540 centimetres	1 centimetre =	.393700 inches
1 foot =	304.800 millimetres	1 metre =	39.3700 inches
1 foot =	30.480 centimetres	1 metre =	3.2808 feet
1 foot =	0.3048 metres	1 metre =	1.0936 yards
1 yard =	91.4400 centimetres	1 kilometre =	.62137 miles
1 yard =	0.9144 metres		
1 mile =	1.609.35 metres		
1 mile =	1.609 kilometres		

AREA

SQ. INCH to METRIC		METRIC to SQ. INCH	
1 sq. inch =	645.16 sq. millimetres	1 sq. millimetre =	.00155 sq. inches
1 sq. inch =	6.4516 sq. centimetres	1 sq. centimetre =	.1550 sq. inches
1 sq. foot =	929.00 sq. centimetres	1 sq. metre =	10.7640 sq. feet
1 sq. foot =	.0929 sq. metres	1 sq. metre =	1.196 sq. yard
1 sq. yard =	.836 sq. metres	1 sq. kilometre =	.38614 sq. miles
1 sq. mile =	2.5889 sq. kilometres		

CUBIC

CU. INCH to METRIC		METRIC to CU. INCH	
1 cu. inch =	16.387 cu. centimetres	1 cu. centimetre =	.0610 cu. inches
1 cu. foot =	.02832 cu. metres	1 cu. metre =	35.314 cu. feet
1 cu. yard =	.765 cu. metres	1 cu. metre =	1.308 cu. yards

CAPACITY

IMPERIAL to METRIC		METRIC to IMPERIAL	
1 fluid ounce =	28.413 millilitres	1 millilitre =	0.035195 fluid oz.
1 fluid ounce =	0.02841 litres	1 centilitre =	0.35195 fluid oz.
1 pint =	0.56826 litres	1 decilitre =	3.5195 fluid oz.
1 quart =	1.13652 litres	1 litre =	0.88 quarts
1 gallon =	4.546 litres	1 hectolitre =	21.9969 gallons

WEIGHT

AVOIR DUPOIS to METRIC		METRIC to AVOIR DUPOIS	
1 grain =	64.7989 milligrams	1 gram =	15.432 grains
1 ounce =	28.35 grams	1 dekogram =	.353 ounces
1 pound =	.4536 kilograms	1 kilogram =	2.2046 pounds
1 short ton (2000 lbs.) =	907.200 kilograms	1 metric cent =	220.46 pounds
1 short ton (2000 lbs.) =	9.072 metric cents	1 ton =	2204.6 pounds
1 short ton (2000 lbs.) =	.9072 ton	1 ton =	1.102 short tons

PRESSURE

POUNDS/INCHES to METRIC		METRIC to POUNDS/INCHES	
1 pound per square inch =	.0703 kilogram per square centimetre	1 kilogram/sq. centimetre =	14.223 pounds/sq. inch
1 pound per square inch =	.0703 atmosphere (metric)	1 kilogram/sq. centimetre =	1 atmosphere

TEMPERATURE

FAHRENHEIT to CELSIUS	CELSIUS to FAHRENHEIT
(_°F minus 32°) x .556 = _°Celsius	(1.8 x _°C) plus 32° = _°Fehrenheit

R

CATALOG 13

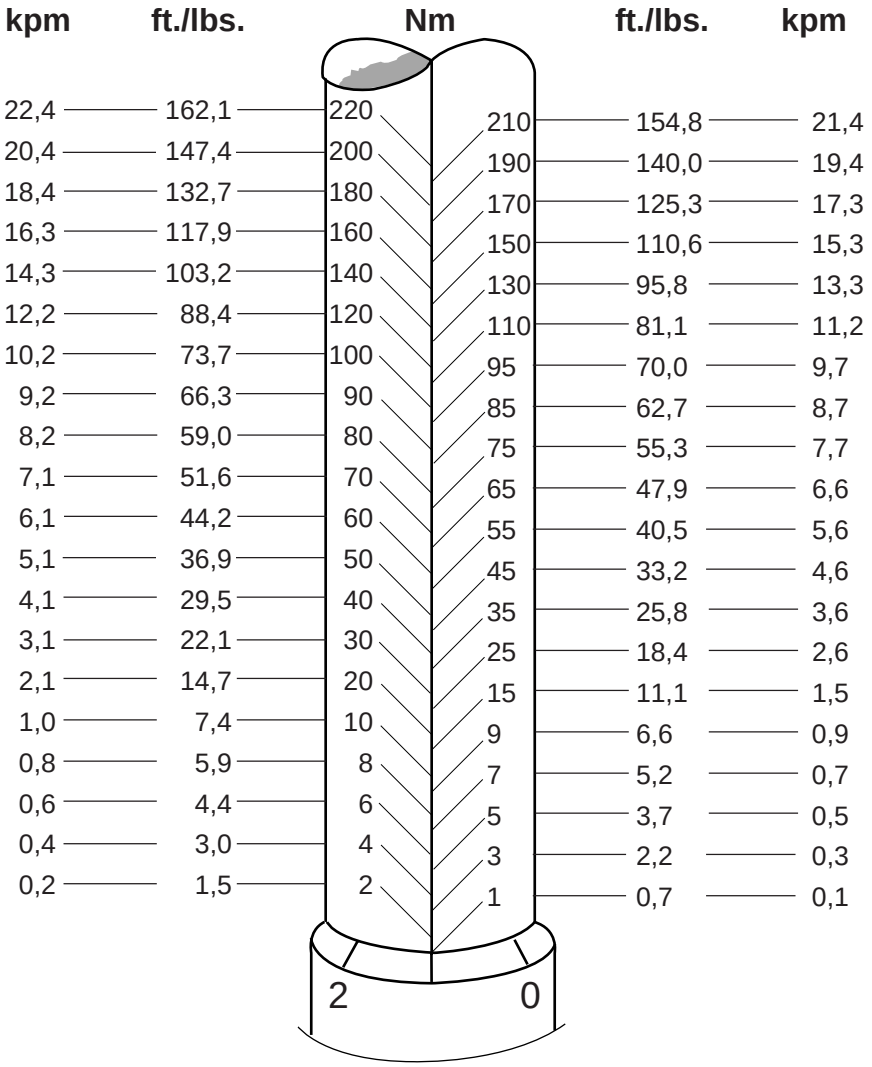
1/64	.015625
1/32	.03125
3/64	.046875
1/16	.0625
5/64	.078125
3/32	.09375
7/64	.109375
1/8	.125
9/64	.140625
5/32	.15625
11/64	.171875
3/16	.1875
13/64	.203125
7/32	.21875
15/64	.234375
1/4	.25
17/64	.265625
9/32	.28125
19/64	.296875
5/16	.3125
21/64	.328125
11/32	.34375
23/64	.359375
3/8	.375
25/64	.390625
13/32	.40625
27/64	.421875
7/16	.4375
29/64	.453125
15/32	.46875
31/64	.484375
1/2	.5
33/64	.515625
17/32	.53125
35/64	.546875
9/16	.5625
37/64	.578125
19/32	.59375
39/64	.609375
5/8	.625
41/64	.640625
21/32	.65625
43/64	.671875
11/16	.6875
45/64	.703125
23/32	.71875
47/64	.734375
3/4	.75
49/64	.765625
25/32	.78125
51/64	.796875
13/16	.8125
53/64	.828125
27/32	.84375
55/64	.859375
7/8	.875
57/64	.890625
29/32	.90625
59/64	.921875
15/16	.9375
61/64	.953125
31/32	.96875
63/64	.984375
1	.

SPAENAUR

Conversion Chart

Torque Values

ft/lbs.	Nm
1	1,4
2	2,7
3	4,1
4	5,4
5	6,8
6	8,1
7	9,5
8	10,9
9	12,2
10	13,6
15	20,4
20	27,1
25	33,9
30	40,7
35	47,5
40	54,3
45	61,1
50	67,9
60	81,4
70	95,0
80	108,6
90	122,1
100	135,7
120	162,8
140	190,0
160	217,1
180	244,2
200	271,4



1 Nm ≥ 0, 1019 kpm
1 kpm ≥ 9,807 Nm

1 ft/lbs. ≥ 1,3569 Nm
1 Nm ≥ 0,7370 ft./lbs.

Remarks During continuous operation with Reversible Ratchet and square drive Insert Tools the max. torque values are limited as follows: square drive 1/4" max. 40 Nm, 3/8" max. 80 Nm and 1/2" max. 300 Nm.

The max. torque values of Open End-, Flare Nut- and Box Wrenches depend on respective wrench size (DIN 899) and can be smaller than the max. torque value of the tool in operation.

Torque Wrench to be reset to smallest value after operation!

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CATALOG 13

Tension Loads and Tightening Torques

Tension load Fsp and tightening torque Msp for bolts with standard metric threads according to DIN 13 (M1.6-M2.5-M3 through M39) respective (M1.7-M2-M2.3-M2.6) and the washer face dimensions of hexagon heads according to DIN 912,931,934,6912,7984,7990.

The values Fsp and Msp shown in the tables are both based on the SI-Unit N (Newton).
1N=0.102kp, 1Ncm=0.102kpcm, 1Nm=0.102kpm, 1kp=9.81N, 1kpcm=9.81Ncm, 1kpm=9.81Nm

The tension loads Fsp shown in the left table refer to 90% utilisation of the yield limit $Ó_{0.2}$ (DIN 267) based on the tension comparison δ_{red} in relation to appropriate thread co-efficient of friction µ.

The initial load table helps to determine which quality of screw under a given co-efficient of friction is required to obtain a predetermined assembly force F_M ($Fsp \geq F_M$).

Tightening Torques Msp are calculated from tension loads Fsp based on the assumption $\mu=\mu_K=\mu_{ges.}$

To determine the tightening torque Msp based on 90% utilisation of the bolt yield limit on bolts of given quality and dimension, refer to the table on the right. These values depend upon bolt head friction (μ_K) without consideration of differing thread frictions.

To arrive at the final torque tightening figure, deduct from the tabulated figure obtained, half the known tolerance band of the Torque Wrench used.

Compilation of tables and directions for their use according to VDI 2230

Thread - co-efficient of friction µ	Initial (Tension) load Fsp (N)				Thread	Bolt Head co-efficient of friction μ_k	Tightening Torque Msp (Ncm)			
	6.9	8.8	10.9	12.9			6.9	8.8	10.9	12.9
0,10	475	565	795	955		0,10	12,5	14,5	21	25
0,14	440	520	730	875	**M1,6**	0,14	15	18	25	30
0,16	420	495	700	840		0,16	16	19	27	32
0,10	560	665	935	1120		0,10	15,5	18,5	26	31
0,14	520	610	860	1030	**M1,7**	0,14	19	22	31	38
0,16	495	585	825	990		0,16	20	24	34	40
0,10	790	940	1320	1590		0,10	26	30	43	51
0,14	730	865	1210	1460	**M2**	0,14	31	37	52	62
0,16	700	825	1160	1400		0,16	34	40	56	67
0,10	1140	1350	1900	2280		0,10	41	49	69	83
0,14	1050	1250	1750	2100	**M2,3**	0,14	51	60	84	101
0,16	1010	1190	1680	2020		0,16	54	65	91	109
0,10	1320	1570	2210	2650		0,10	52	62	88	105
0,14	1220	1450	2030	2440	**M2,5**	0,14	64	76	107	128
0,16	1170	1380	1950	2340		0,16	69	82	115	138
0,10	1460	1730	2440	2930		0,10	59	70	99	119
0,14	1350	1600	2250	2700	**M2,6**	0,14	73	86	121	145
0,16	1290	1530	2150	2580		0,16	78	93	130	156
0,10	2020	2390	3370	4040		0,10	92	109	154	184
0,14	1860	2210	3110	3730	**M3**	0,14	113	134	189	225
0,16	1790	2120	2980	3580		0,16	122	145	205	245
0,10	2710	3210	4520	5420		0,10	142	168	235	285
0,14	2500	2960	4170	5000	**M3,5**	0,14	173	205	290	345
0,16	2400	2840	4000	4790		0,16	187	220	310	375
0,10	3500	4150	5830	7000		0,10	210	250	350	425
0,14	3230	3830	5380	6460	**M4**	0,14	260	305	430	515
0,16	3100	3670	5160	6190		0,16	280	330	465	555
0,10	5720	6780	9540	11450		0,10	415	490	690	830
0,14	5280	6260	8810	10550	**M5**	0,14	510	605	850	1020
0,16	5070	6010	8450	10150		0,16	550	650	915	1100
							Tightening Torque Msp (Nm)			
0,10	8080	9570	13450	16150		0,10	7,1	8,5	12	14,5
0,14	7450	8830	11240	14900	**M6**	0,14	8,7	10,5	14,5	17,5
0,16	7150	8470	11900	14300		0,16	9,4	11	15,5	19
0,10	11800	14000	19650	23600		0,10	11,5	14	19,5	23
0,14	10900	12950	18200	21800	**M7**	0,14	14,5	17	24	29
0,16	10450	12400	17450	20900		0,16	15,5	18,5	26	31
0,10	14800	17550	24700	29600		0,10	17	20	29	34
0,14	13700	16200	22800	27400	**M8**	0,14	21	25	35	42
0,16	13150	15550	21900	26300		0,16	23	27	38	46
0,10	23600	27900	39300	47200		0,10	34	41	57	69
0,14	21800	25800	36300	43600	**M10**	0,14	42	50	71	85
0,16	20900	24800	34900	41800		0,16	46	54	76	92
0,10	34400	40700	57300	68700		0,10	59	70	99	119
0,14	31800	37700	53000	63500	**M12**	0,14	73	87	122	147
0,16	30500	36100	50800	61000		0,16	79	94	132	159
0,10	47200	55900	78600	94300		0,10	94	112	157	189
0,14	43600	51700	72700	87300	**M14**	0,14	117	138	195	235
0,16	41900	49600	69800	83800		0,16	126	150	210	250
0,10	64800	76800	108000	129500		0,10	144	170	240	285
0,14	60100	71200	100000	120000	**M16**	0,14	179	210	300	360
0,16	57700	68400	96100	115500		0,16	194	230	325	385
0,10	78900	93500	131500	157500		0,10	199	235	330	395
0,14	73000	86500	121500	146000	**M18**	0,14	245	290	410	490
0,16	70100	83000	117000	140000		0,16	265	315	445	530
0,10	101500	120000	169000	202500		0,10	280	330	465	560
0,14	93900	111000	156500	187500	**M20**	0,14	350	410	580	695
0,16	90100	107000	150000	180500		0,16	375	445	625	755
0,10	126500	150000	211000	253000		0,10	375	445	625	755
0,14	117500	139000	195500	235000	**M22**	0,14	470	555	785	940
0,16	112500	133500	188000	225000		0,16	510	605	850	1020
0,10	146000	173000	243000	292000		0,10	480	570	800	965
0,14	135000	160000	225000	270000	**M24**	0,14	560	710	1000	1200
0,16	130000	154000	216000	260000		0,16	650	770	1080	1300
0,10	192000	227000	320000	384000		0,10	710	840	1180	1420
0,14	178000	211000	297000	356000	**M27**	0,14	890	1050	1480	1780
0,16	171000	203000	285000	342000		0,16	965	1140	1610	1930
0,10	233000	276000	289000	466000		0,10	965	1140	1610	1930
0,14	216000	256000	361000	433000	**M30**	0,14	1200	1430	2010	2410
0,16	208000	246000	346000	416000		0,16	1310	1550	2180	2610
0,10	291000	344000	484000	581000		0,10	1300	1540	2170	2600
0,14	270000	320000	450000	539000	**M33**	0,14	1630	1940	2720	3270
0,16	259000	307000	432000	518000		0,16	1770	2100	2950	3540
0,10	341000	404000	568000	682000		0,10	1680	1990	2790	3350
0,14	316000	375000	527000	633000	**M36**	0,14	2100	2490	3500	4200
0,16	304000	360000	507000	608000		0,16	2300	2700	3790	4550
0,10	410000	485000	663000	819000		0,10	2170	2570	3610	4330
0,14	380000	451000	634000	761000	**M39**	0,14	2720	3220	4540	5440
0,16	366000	433000	610000	731000		0,16	2960	3500	4930	5910

THREAD SIZE COMPARISON CHART

Major Dia.		NORTH AMERICAN						METRIC			BRITISH				
		Dia. Size	No. of Threads/Inch					Dia.	Thread Pitch in mm		Dia. Size	No. of Threads/Inch			
Inch	mm	Gauge	UNC	UNF	UNEF	UNM	NPT	mm	Coarse	Fine	Gauge	BA	BSW	BSF	BSP
.0118	0.30	0.30 mm				318									
.0138	0.35	0.35 mm				282									
.0157	0.40	0.40 mm				254									
.0177	0.45	0.45 mm				254									
.0189	0.48										20	211-3/4			
.0197	0.50	0.50 mm				203									
.0209	0.53	0000		160											
.0213	0.54										19	181-1/2			
.0217	0.55	0.55 mm				203									
.0236	0.60	0.60 mm				169									
.0244	0.62										18	169-1/4			
.0276	0.70	0.70 mm				145					17	149-1/2			
.0311	0.79										16	133-3/4			
.0315	0.80	0.80 mm				127									
.0340	0.86	000		120											
.0354	0.90	0.90 mm				113					15	121			
.0394	1.0	1.00 mm				102		M1	0.25	0.2	14	110-1/2			
.0433	1.10	1.10mm				102									
.0470	1.19	00		90	96										
.0472	1.20	1.20 mm				102		M1.2	0.25	0.2	13	101-1/2			
.0512	1.30										12	90-3/4			
.0551	1.40	1.40 mm				85		M1.4	0.3	0.2					
.0591	1.50							M1.5	0.3		11	82			
.0600	1.52	0		80											
.0629	1.60							M1.6	0.35	0.2					
.0669	1.70							M1.7	0.35	0.2, 0.25	10	72-1/2			
.0709	1.80							M1.8	0.35	0.2					
.0730	1.85	1	64	72											
.0748	1.90										9	65			
.0787	2.00							M2	0.40	0.25, 0.35					
.0860	2.18	2	56	64											
.0866	2.20							M2.2	0.45		8	59			
.0906	2.30							M2.3	0.4	.025, 0.35					
.0984	2.50							M2.5	0.45	0.35	7	53			
.0990	2.51	3	48	56											
.1024	2.60							M2.6	0.45	0.25, 0.35					
.1102	2.80										6	48			
.1120	2.84	4	40	48											
.1181	3.00							M3	0.5	0.35					
.1250	3.18	5	40	44							1/8"		40		
.1260	3.20										5	43			
.1380	3.50	6	32	40				M3.5	0.6	0.35					
.1417	3.60										4	38-1/2			
.1575	4.00							M4	0.7	0.5					
.1614	4.10										3	34-3/4			
.1640	4.17	8	32	36											
.1772	4.50							M4.5	0.75						
.1850	4.70										2	31-3/4			
.1875	4.76										3/16"		24	32	
.1900	4.83	10	24	32											
.1969	5.00							M5	0.8	0.5					
.2087	5.30										1	28-1/4			
.2160	5.49	12	24	28	32										
.2188	5.56										7/32"			28	
.2362	6.00							M6	1.0	0.75	0	25-1/2			
.2500	6.35	1/4"	20	28	32						1/4"		20	26	
.2756	7.00							M7	1.0						
.2812	7.14										9/32"			26	
.3125	7.94	5/16"	18	24	32						5/16"		18	22	
.3125	7.94	1/16"					27								
.3150	8.00							M8	1.25	1.0					
.3543	9.00							M9	1.25						
.3750	9.53	3/8"	16	24	32						3/8"		16	20	
.3830	9.73										1/8"				28
.3937	10.00							M10	1.5	1.25					
.4050	10.29	1/8"					27								
.4331	11.00							M11	1.5	1.0					
.4375	11.11	7/16"	14	20	28						7/16"		14	18	
.4724	12.00							M12	1.75	1.25, 1.5					
.5000	12.70	1/2"	13	20	28						1/2"		12	16	
.5180	13.16										1/4"				19
.5400	13.72	1/4"					18								
.5512	14.00							M14	2.0	1.5					

Thread Size Comparison Chart continued from facing page.

Major Dia.		NORTH AMERICAN						METRIC			BRITISH				
		Dia. Size Gauge	No. of Threads/Inch					Dia.	Thread Pitch in mm		Dia. Size Gauge	No. of Threads/Inch			
Inch	mm		UNC	UNF	UNEF	8UN	NPT	mm	Coarse	Fine		BA	BSW	BSF	BSP
.5625	14.29	9/16"	12	18	24						9/16"		12	16	
.6250	15.88	5/8"	11	18	24						5/8"		11	14	
.6299	16.00							M16	2.0	1.0, 1.5					
.6560	16.66										3/8"				19
.6750	17.15	3/8"					18								
.6875	17.46	11/16"			24						11/16"		11	14	
.7087	18.00							M18	2.5	1.5, 2.0					
.7500	19.05	3/4"	10	16	20										
.7874	20.00							M20	2.5	1.5, 2.0					
.8124	20.64	13/16"			20						13/16"		1	12	
.8250	20.96										1/2"				14
.8400	21.34	1/2"					14								
.8661	22.00							M22	2.5	1.5, 2.0					
.8750	22.23	7/8"	9	14	20						7/8"		9	11	
.9020	22.91										5/8"				14
.9375	23.81	15/16"			20										
.9449	24.00							M24	3.0	1.5, 2.0					
1.000	25.40	1"	8	12, 14	20	8					1"		8	10	
1.0236	26.00							M26		1.5					
1.0410	26.44										3/4"				14
1.0500	26.67	3/4"					14								
1.062	26.99	1-1/16"			18										
1.063	27.00							M27	3.0	1.5, 2.0					
1.125	28.55	1-1/8"	7	12	18	8					1-1/8"		7	9	
1.1811	30.00							M30	3.5	1.5, 2.0					
1.187	30.16	13/16"			18										
1.189	30.20										7/8"				14
1.250	31.75	1-1/4"	7	12	18	8					1-1/4"		7	9	
1.2598	32.00							M32		1.5, 2.0					
1.2992	33.00							M33	3.5	1.5, 2.0					
1.309	33.25										1"				11
1.3125	33.34	1-5/16"			18										
1.3150	33.40	1"					11-1/2								
1.375	34.93	1-3/8"	6	12	18	8					1-3/8"			8	
1.3780	35.00							M35	4.0	1.5					
1.4173	36.00							M36	4.0	1.5, 3.0					
1.4375	36.51	1-7/16"			18										
1.4920	37.90										1-1/8"				11
1.500	38.10	1-1/2"	6	12	18	8					1-1/2"		6	8	
1.5354	39.00							M39	4.0	2.0, 3.0					
1.5625	39.69	1-9/16"			18										
1.56748	40.00							M40		2.0, 3.0					
1.625	41.28	1-5/8"			18	8					1-5/8"			8	
1.6500	41.91										1-1/4"				11
1.6535	42.00							M42	4.5	3.0					
1.6600	42.16	1-1/4"					11-1/2								
1.6875	42.86	1-11/16"			18										
1.745	44.32										1-3/8"				11
1.750	44.45	1-3/4"	5			8					1-3/4"		5	7	
1.7717	45.00							M45	4.5	3.0					
1.875	47.62	1-7/8"				8									
1.8820	47.80										1-1/2"				11
1.8898	48.00							M48	5.0	3.0					
1.900	48.26	1-1/2"					11-1/2								
2.000	50.80	2"	4-1/2			8					2"		4-1/2	7	
2.0472	52.00							M52	5.0	3.0					
2.2047	56.00							M56	5.5	4.0					
2.250	57.15	2-1/4"	4-1/2			8					2-1/4"		4	6	
2.347	59.61										2"				11
2.3622	60.00							M60	5.5	4.0					
2.375	60.33	2"					11-1/2								
2.500	63.50	2-1/2"	4			8					2-1/2"		4	6	
2.5197	64.00							M64	6.0	4.0					
2.677	68.00							M68	6.0	4.0					
2.750	69.85	2-3/4"	4			8									
2.835	72.00							M72		6.0					
2.992	76.00							M76		6.0					
3.000	76.20	3"	4			8									
3.149	80.00							M80		6.0					
3.250	82.55	3-1/4"	4			8									
3.346	85.00							M85		6.0					
3.500	88.90	3-1/2"	4			8									
3.543	90.00							M90		6.0					
3.750	95.25	3-3/4"	4			8									
3.937	100.00							M100		6.0					
4.000	101.60	4"	4			8									

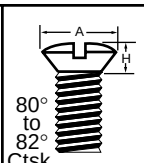
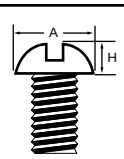
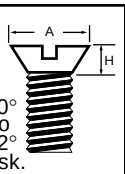
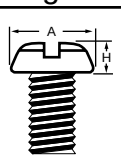
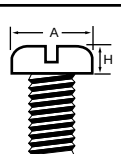
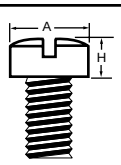
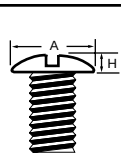
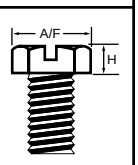
Inch Series Head Dimension Chart

Dimensions pour divers styles de têtes de vis mécaniques

For Reference Only

For Machine and Sheet Metal Screws with Slotted and Cross Recessed Drives.

A= Head Dia. **H**= Overall Height of Head **A/F**= Across Flats

All Dimensions in Inches		 80° to 82° Ctsk.				 80° to 82° Ctsk.											
Nom. Screw DIA.		**OVAL**		**ROUND**		**FLAT**		**BINDING**		**PAN**		**FILLISTER**		**TRUSS**		**HEX**	
		A	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A/F**	**H**
0000	Max.	–	–	0.041	0.022	0.043	0.011	0.046	0.014	0.042	0.016	0.038	0.025	0.049	0.014	–	–
(.021")	Min.	–	–	0.035	0.016	0.037	–	0.040	0.009	0.036	0.010	0.032	0.015	0.043	0.010	–	–
000	Max.	–	–	0.062	0.031	0.064	0.016	0.073	0.021	0.066	0.023	0.059	0.035	0.077	0.022	–	–
(.034")	Min.	–	–	0.056	0.025	0.058	–	0.067	0.015	0.060	0.017	0.053	0.027	0.071	0.018	–	–
00	Max.	0.093	0.042	0.089	0.045	0.092	0.028	0.098	0.028	0.090	0.032	0.082	0.047	0.106	0.030	–	–
(.047")	Min.	0.083	0.034	0.080	0.036	0.076	–	0.090	0.023	0.082	0.025	0.072	0.039	0.098	0.024	–	–
0	Max.	0.119	0.056	0.113	0.053	0.119	0.035	0.126	0.032	0.116	0.039	0.096	0.055	0.131	0.037	–	–
(.060")	Min.	0.099	0.041	0.099	0.043	0.099	–	0.119	0.026	0.104	0.031	0.083	0.047	0.119	0.029	–	–
1	Max.	0.146	0.068	0.138	0.061	0.146	0.043	0.153	0.041	0.142	0.046	0.118	0.066	0.164	0.045	0.125	0.044
(.073")	Min.	0.123	0.052	0.122	0.051	0.123	–	0.145	0.035	0.130	0.038	0.104	0.058	0.149	0.037	0.120	0.036
2	Max.	0.172	0.080	0.162	0.069	0.172	0.051	0.181	0.050	0.167	0.053	0.140	0.083	0.194	0.053	0.125	0.050
(.086")	Min.	0.147	0.063	0.146	0.059	0.147	–	0.171	0.043	0.155	0.045	0.124	0.066	0.180	0.044	0.120	0.040
3	Max.	0.199	0.092	0.187	0.078	0.199	0.059	0.208	0.059	0.193	0.060	0.161	0.095	0.226	0.061	0.188	0.055
(.099")	Min.	0.171	0.073	0.169	0.069	0.171	–	0.197	0.052	0.180	0.051	0.145	0.077	0.211	0.051	0.181	0.044
4	Max.	0.225	0.104	0.211	0.086	0.225	0.067	0.235	0.068	0.219	0.068	0.183	0.107	0.257	0.069	0.188	0.060
(.112")	Min.	0.195	0.084	0.193	0.075	0.195	–	0.223	0.061	0.205	0.058	0.166	0.088	0.241	0.059	0.181	0.049
5	Max.	0.252	0.116	0.236	0.095	0.252	0.075	0.263	0.078	0.245	0.075	0.205	0.120	0.289	0.078	0.188	0.070
(.125")	Min.	0.220	0.095	0.217	0.083	0.220	–	0.249	0.069	0.231	0.065	0.187	0.100	0.272	0.066	0.181	0.058
6	Max.	0.279	0.128	0.260	0.103	0.279	0.083	0.290	0.087	0.270	0.082	0.266	0.132	0.321	0.086	0.250	0.093
(.138")	Min.	0.244	0.105	0.240	0.091	0.244	–	0.275	0.078	0.256	0.072	0.208	0.111	0.303	0.074	0.244	0.080
8	Max.	0.332	0.152	0.309	0.120	0.332	0.100	0.344	0.105	0.322	0.096	0.270	0.156	0.384	0.102	0.250	0.110
(.164")	Min.	0.292	0.126	0.287	0.107	0.292	–	0.326	0.095	0.306	0.085	0.250	0.133	0.364	0.088	0.244	0.096
10	Max.	0.385	0.176	0.359	0.137	0.385	0.116	0.399	0.123	0.373	0.110	0.313	0.180	0.448	0.118	0.312	0.120
(.190")	Min.	0.340	0.148	0.334	0.123	0.340	–	0.378	0.112	0.357	0.099	0.292	0.156	0.425	0.103	0.305	0.105
12	Max.	0.438	0.200	0.408	0.153	0.438	0.132	0.454	0.141	0.425	0.125	0.357	0.205	0.511	0.134	0.312	0.155
(.216")	Min.	0.389	0.169	0.382	0.139	0.389	–	0.430	0.130	0.407	0.112	0.334	0.178	0.487	0.118	0.305	0.139
1/4"	Max.	0.507	0.232	0.472	0.175	0.507	0.153	0.525	.0165	0.492	0.144	0.414	0.237	0.573	0.150	0.375	0.190
(.250")	Min.	0.452	0.197	0.443	0.160	0.452	–	0.498	0.152	0.473	0.130	0.389	0.202	0.546	0.133	0.367	0.172
5/16"	Max.	0.635	0.290	0.590	0.216	0.635	0.191	0.656	0.209	0.615	0.178	0.518	0.295	0.698	0.183	0.500	0.230
(.313")	Min.	0.568	0.249	0.557	0.198	0.568	–	0.622	0.194	0.594	0.162	0.490	0.262	0.666	0.162	0.489	0.280
3/8"	Max.	0.762	0.347	0.708	0.256	0.762	0.230	0.788	0.253	0.740	0.212	0.622	0.355	0.823	0.215	0.562	0.295
(.375")	Min.	0.685	0.290	0.670	0.237	0.685	–	0.746	0.235	0.716	0.195	0.590	0.315	0.787	0.191	0.551	0.270
7/16"	Max.	0.812	0.345	0.750	0.328	0.812	0.223	–	–	0.863	0.247	0.625	0.368	0.948	0.248	–	–
(.438")	Min.	0.723	0.295	0.707	0.307	0.723	–	–	–	0.837	0.228	0.589	0.321	0.907	0.221	–	–
1/2"	Max.	0.875	0.354	0.813	0.355	0.875	0.223	–	–	0.987	0.281	0.750	0.412	1.073	0.280	–	–
(.500")	Min.	0.775	0.299	0.766	0.332	0.775	–	–	–	0.958	0.260	0.710	0.362	1.028	0.250	–	–
9/16"	Max.	1.000	0.410	0.938	0.410	1.000	0.260	–	–	1.041	0.315	0.812	0.466	1.198	0.312	–	–
(.563")	Min.	0.889	0.350	0.887	0.385	0.889	–	–	–	1.000	0.293	0.768	0.410	1.149	0.279	–	–
5/8"	Max.	1.125	0.467	1.000	0.438	1.125	0.298	–	–	1.172	0.350	0.875	0.521	1.323	0.345	–	–
(.625")	Min.	1.002	0.399	0.944	0.411	1.002	–	–	–	1.125	0.325	0.827	0.461	1.269	0.309	–	–
3/4"	Max.	1.375	0.578	1.250	0.547	1.375	0.372	–	–	1.435	0.419	1.000	0.612	1.573	0.410	–	–
(.750")	Min.	1.230	0.497	1.185	0.516	1.230	–	–	–	1.375	0.390	0.945	0.542	1.511	0.368	–	–
																Dimensions for hex regular slotted and unslotted head.	

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CATALOG 13

Metric Series Head Dimension Chart

Dimensions pour divers styles de têtes de vis mécaniques

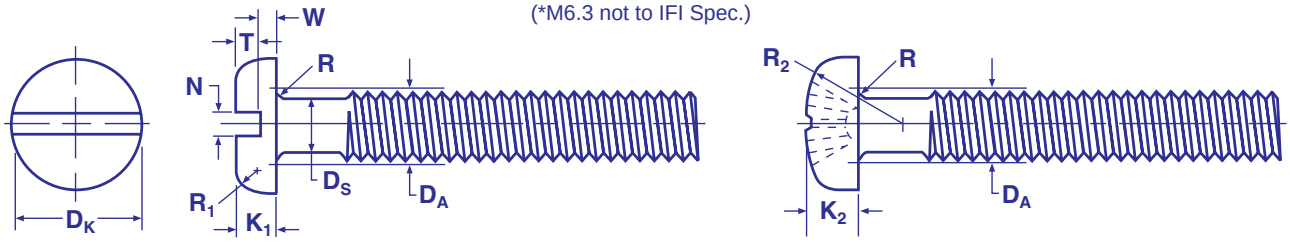
For Approximate Reference Only

All Dimensions in Millimetres	Slotted CHEESE DIN 84		Slotted PAN DIN 85		Slotted OVAL DIN 964		Slotted FLAT DIN 963		Unslotted HEX CAP DIN 933/931		Phillips FLAT DIN 965		Phillips OVAL DIN 966		Phillips RAISED CHEESE DIN 7985	
DIA.	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**	**A**	**H**
M1	2	0.7			1.9	0.6	1.9	0.6								
M1.2	2.3	0.8			2.3	0.72	2.3	0.72								
M1.4	2.6	0.9			2.6	0.84	2.6	0.84								
M1.6	3	1			3	0.96	3	0.96	3.2	1.1	3	0.96	3	0.96	3.2	1.3
M1.7	3.2	1.1							3.5	1.2						
M1.8	3.4	1.2														
M2	3.8	1.3			3.8	1.2	3.8	1.2	4	1.4	3.8	1.2	3.8	1.2	4	1.6
M2.3	4.4	1.5							4.5	1.6						
M2.5	4.5	1.6			4.7	1.5	4.7	1.5	5	1.7	4.7	1.5	4.7	1.5	5	2
M2.6	5	1.7							5	1.8						
M3	5.5	2	6	1.8	5.6	1.65	5.6	1.65	5.5	2	5.6	1.65	5.6	1.65	6	2.4
M3.5	6	2.4	7	2.1	6.5	1.93	6.5	1.93	6	2.4	6.5	1.93	6.5	1.93	7	2.7
M4	7	2.6	8	2.4	7.5	2.2	7.5	2.2	7	2.8	7.5	2.2	7.5	2.2	8	3.1
M5	8.5	3.3	10	3	9.2	2.5	9.2	2.5	8	3.5	9.2	2.5	9.2	2.5	10	3.8
M6	10	3.9	12	3.6	11	3	11	3	10	4	11	3	11	3	12	4.6
M8	13	5	16	4.8	14.5	4	14.5	4	13	5.5	14.5	4	14.5	4	16	6
M10	16	6	20	6	18	5	18	5	17	7	18	5	18	5	20	7.5

The approved NORTH AMERICAN STYLE, METRIC, SLOTTED and PHILLIPS PAN HEAD MACHINE SCREW fully meets the specifications of IFI 513, 1982. The head dimensions and contours differ from the European Style DIN 85, and instead, conform to the traditional style which is preferred by Canadian customers. The Metric coarse thread is interchangeable with all other coarse-threaded Metric fasteners as listed in this catalog.

MACHINE SCREWS - SLOTTED and PHILLIPS PAN HEAD
Head Style is to IFI 513, 1982

(*M6.3 not to IFI Spec.)



Nom Screw Size and Thread Pitch	D_S Body Dia.		D_K Head Dia.		K_1 Head Height Slotted Head		K_2 Head Height Phillips Head		R_1 Head Radius (Sltd.)	R_2 Head Radius (Phillips)	D_A Fillet Transition Dia.	R Fillet Radius	N Slot Width		T Slot Depth	W Unslotted Thickness
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Ref.	Max.	Min.	Max.	Min.	Min.	Min.
M2 x 0.4	2.00	1.65	4.0	3.7	1.3	1.1	1.6	1.4	0.8	3.2	2.6	0.1	0.7	0.5	0.5	0.4
M2.5 x 0.45	2.50	2.12	5.0	4.7	1.5	1.3	2.1	1.9	1.0	4.0	3.1	0.1	0.8	0.6	0.6	0.5
M3 x 0.5	3.00	2.58	5.6	5.3	1.8	1.6	2.4	2.2	1.2	5.0	3.5	0.1	1.0	0.8	0.7	0.7
M3.5 x 0.6	3.50	3.00	7.0	6.6	2.1	1.9	2.6	2.3	1.4	6.0	4.1	0.1	1.2	1.0	0.8	0.8
M4 x 0.7	4.00	3.43	8.0	7.6	2.4	2.2	3.1	2.8	1.6	6.5	4.7	0.2	1.5	1.2	1.0	0.9
M5 x 0.8	5.00	4.36	9.5	9.1	3.0	2.7	3.7	3.4	2.0	8.0	5.7	0.2	1.5	1.2	1.2	1.2
M6 x 1	6.00	5.21	12.0	11.5	3.6	3.3	4.6	4.3	2.5	10.0	6.8	0.3	1.9	1.6	1.4	1.4
M6.3 x 1*	6.30	5.51	12.0	11.6	3.9	3.5	4.3	4.0	2.5	13	-	0.3	1.9	1.6	1.7	1.4
M8 x 1.25	8.00	7.04	16.0	15.5	4.8	4.5	6.0	5.6	3.2	13.0	9.2	0.4	2.3	2.0	1.9	1.9
M10 x 1.5	10.00	8.86	20.0	19.4	6.0	5.7	7.5	7.1	4.0	16.0	11.2	0.4	2.8	2.5	2.4	2.4

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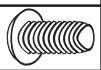
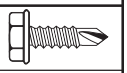
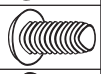
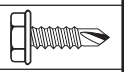
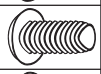
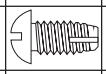
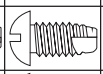
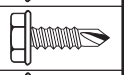
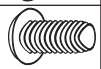
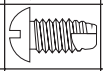
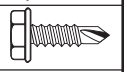
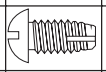
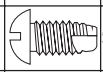
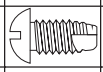
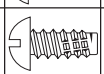
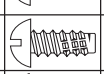
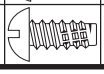
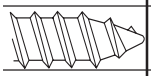
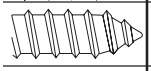
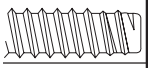
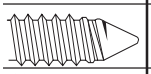
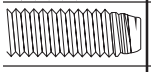
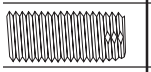
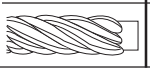
TAPPING SCREWS Selector Guide

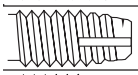
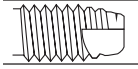
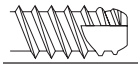
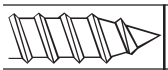
Guide de selection pour vis taraudeuses

KIND OF MATERIAL	THREAD-FORMING				THREAD-ROLLING	THREAD-CUTTING					SELF DRILLING
	Type A and AB	Type B (Z)	Type C	Type U		Type F	Type BF	Type 1	Type 23	Type 25	TEKS® & SUPER TEKS®
A.S.A. Type designation	A AB	B	C	U		F	BF	D	T	BT	
SHEET METAL .015" to .050" thick *(Steel, Brass, Aluminum, Monel, etc.)*											
SHEET STAINLESS STEEL .015" to .050" thick											
SHEET METAL .050" to .200" thick *(Steel, Brass, Aluminum, etc.)*											
STRUCTURAL STEEL .200" to 1/2" thick											
CASTINGS *(Aluminum, Magnesium, Zinc, Brass, Bronze, etc.)*											
CASTINGS *(Grey Iron, Malleable Iron, Steel, etc.)*											
FORGINGS *(Steel, Brass, Bronze, etc.)*											
PLASTICS: PLYWOOD, Resin Impregnated and Natural Woods											
PLASTICS: FIBERGLAS, etc.											
PLASTICS: PHENOL FORMALDEHYDE, Molded, Cast & Laminated											
PLASTICS: UREA FORMALDEHYDE and MELAMINE FORMALDEHYDE Molded											
PLASTICS: CELLULOSE ACETATES and NITRATES Acrylic and Styrene - Molded											
PLASTICS: NYLON and ACETEL, Molded											
PLASTICS: POLYCARBONATE and A.B.S. Molded											

TYPE DESIGNATIONS FOR TAPPING AND METALLIC DRIVE SCREWS

Thread-Forming

Type	Manuf.	A.S.A.	Federal	Notes
	A	A	A	Being replaced by Type AB
	AB	AB	none	Type B with Gimlet Point
	B	B	B	
	BP	BP	BP	Type B Thread with a Pointed Pilot
	C	C	C	
	SWAGE-FORM	SW	SW	
	U	U	U	

Type	Manuf.	A.S.A.	Federal	Notes
	F	F	CF	Thread-Cutting
	BF	BF	BF	
	1	D	CS	
	23	T	CG	
	25	BT	BG	
	InFast	none	none	Self-Drilling
	Teks	none	none	
	none	none	none	Thread-Rolling

Note: We reserve the option to supply Type A Thread, wherever Type AB is shown in this catalog.

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CATALOG 13

Recommended Drill and Hole Sizes for TYPES "AB" and "B" TAPPING SCREWS

Diameter of Screw	IN SHEET STEEL: Thickness of Metal — No. of Gauge (U.S. Standard)	IN SHEET STEEL: Thickness of Metal — Thickness in Decimal Parts of an Inch	IN SHEET STEEL: Pierced Hole — Diameter Hole Required	IN SHEET STEEL: Drilled or Clean-Punched Hole — Diameter Hole Required	IN SHEET STEEL: Drilled or Clean-Punched Hole — Drill Size	IN SHEET ALUMINUM: Thickness of Metal — No. of Gauge (B. & S.)	IN SHEET ALUMINUM: Thickness of Metal — Thickness in Decimal Parts of an Inch	IN SHEET ALUMINUM: Pierced Hole — Diameter Hole Required	IN SHEET ALUMINUM: Drilled or Clean-Punched Hole — Diameter Hole Required	IN SHEET ALUMINUM: Drilled or Clean-Punched Hole — Drill Size	IN CASTINGS OF ALUMINUM, ZINC, WHITE METAL, ETC. — Diameter Hole Required	IN CASTINGS OF ALUMINUM, ZINC, WHITE METAL, ETC. — Drill Size
No. 2	28 26 24 22	.015" .018" .025" .031"		.063" .063" .067" .070"	No. 52 No. 52 No. 51 No. 50	22 20 18 16	.025" .031" .040" .050"		.063" .063" .063" .067"	No. 52 No. 52 No. 52 No. 51	.078"	No. 47
	20 18 16	.037" .050" .062"		.073" .073" .076"	No. 49 No. 49 No. 48	14	.064"		.070"	No. 50		
No. 4	28 26 24 22	.015" .018" .025" .031"	.086" .086" .093" .098"	.086" .086" .089" .093"	No. 44 No. 44 No. 43 No. 42	22 20 18 16	.025" .031" .040" .050"	.086" .093" .093"	.086" .086"	No. 44 No. 44 No. 44	.104"	No. 37
	20 18 16 14	.037" .050" .062" .078"	.100"	.093" .096" .099" .101"	No. 42 No. 41 No. 39 No. 38	14 12 10	.064" .080" .101"		.089" .089" .093"	No. 43 No. 43 No. 42		
No. 6	28 26 24 22 20	.015" .018" .025" .031" .037"	.106" .106" .106" .110" .110"	.104" .104" .106" .106" .110"	No. 37 No. 37 No. 36 No. 36 No. 35	22 20 18 16 14	.025" .031" .040" .050" .064"	.110" .110" .110" .113"	.104" .104" .104" .106"	No. 37 No. 37 No. 37 No. 36	.128"	No. 30
	18 16 14 12	.050" .062" .078" .109"		.111" .116" .120" .128"	No. 34 No. 32 No. 31 No. 30	12 10 8 6 1/4"	.080" .101" .128" .162" .250"		.110" .111" .113" .116" .120"	No. 35 No. 34 No. 33 No. 32 No. 31		
No. 7	26 24 22 20 18	.018" .025" .031" .037" .050"	.121" .121" .121" .121" .121"	.116" .116" .116" .116" .120"	No. 32 No. 32 No. 32 No. 32 No. 31	22 20 18 16 14	.025" .031" .040" .050" .064"	.121" .121" .121" .121"	.116" .116" .116" .120"	No. 32 No. 32 No. 32 No. 31	.144"	No. 27
	16 14 12	.062" .078" .109"		.128" .136" .140"	No. 30 No. 29 No. 28	12 10 8 6 1/4"	.080" .101" .128" .162" .250"		.128" .136" .136" .136" .140"	No. 30 No. 29 No. 29 No. 29 No. 28		
No. 8	26 24 22 20 18 16	.018" .025" .031" .037" .050" .062"	.131" .131" .131" .136" .140"	.116" .116" .116" .116" .128" .136"	No. 32 No. 32 No. 32 No. 32 No. 30 No. 29	22 20 18 16 14 12	.025" .031" .040" .050" .064" .080"	.120" .120" .131" .136"	.120" .128" .136" .140"	No. 31 No. 30 No. 29 No. 28	.152"	No. 24
	14 12 1/8" 10	.078" .109" .125" .140"		.140" .149" .149" .152"	No. 28 No. 25 No. 25 No. 24	10 8 6 1/4" 3/8"	.101" .128" .162" .250" .375"		.147" .149" .152" .152" .152"	No. 26 No. 25 No. 24 No. 24 No. 24		
No. 10	26 24 22 20 18 16	.018" .025" .031" .037" .050" .062"	.144" .144" .144" .147" .155"	.144" .144" .144" .144" .144" .152"	No. 27 No. 27 No. 27 No. 27 No. 27 No. 24	22 20 18 16 14 12	.025" .031" .040" .050" .064" .080"	.144" .144" .144" .144"	.144" .144" .144" .147"	No. 27 No. 27 No. 27 No. 26	.177"	No. 16
	14 12 1/8" 10 8	.078" .109" .125" .140" .171"		.157" .161" .169" .169" .173"	No. 22 No. 20 No. 18 No. 18 No. 17	10 8 6 1/4" 3/8"	.101" .128" .162" .250" .375"		.147" .154" .159" .166" .166"	No. 26 No. 23 No. 21 No. 19 No. 19		
No. 12	24 22 20 18 16 14	.025" .031" .037" .050" .062" .078"	.185" .185" .185" .185"	.166" .166" .166" .169" .177" .182"	No. 19 No. 19 No. 19 No. 18 No. 16 No. 14	22 20 18 16 14 12	.025" .031" .040" .050" .064" .080"	.161" .161" .161" .166"	.161" .166" .173"	No. 20 No. 19 No. 17	.199"	No. 8
	12 1/8" 10 8	.109" .125" .140" .171"		.185" .196" .196" .201"	No. 13 No. 9 No. 9 No. 7	10 8 6 1/4" 3/8"	.101" .128" .162" .250" .375"		.180" .182" .189" .193" .199"	No. 15 No. 14 No. 12 No. 10 No. 8		
No. 14	22 20 18 16 14 12	.031" .037" .050" .062" .078" .109"	.209" .209" .209"	.185" .185" .191" .199" .204" .209"	No. 13 No. 13 No. 11 No. 8 No. 6 No. 4	22 20 18 16 14 12	.025" .031" .040" .050" .064" .080"	.189" .189" .189" .199"	.199" .201"	No. 8 No. 7	.234"	15/64"
	1/8" 10 8 3/16" 6	.125" .140" .171" .187" .203"		.228" .228" .234" .234" .234"	No. 1 No. 1 15/64" 15/64" 15/64"	10 8 6 1/4" 3/8"	.101" .128" .162" .250" .375"		.204" .209" .213" .221" .228"	No. 6 No. 4 No. 3 No. 2 No. 1		

Approximate Hole Sizes in Sheet Metals for

Inch

Steel Types D(1), F and T(23) Thread Cutting Screws

Pouces

Screw Size / Thread per inch	Metal Thickness	IN STEEL Hole Diameter	IN STEEL Drill Size/No.	IN ALUMINUM ALLOY Hole Diameter	IN ALUMINUM ALLOY Drill Size/No.
2-56	0.050	0.073	49	0.070	50
	0.060	0.073	49	0.073	49
	0.083	0.073	49	0.073	49
	0.109	0.073	49	0.073	49
	0.125	0.076	48	0.073	49
	0.140	0.076	48	0.073	49
3-48	0.050	0.081	46	0.078	5/64
	0.060	0.081	46	0.081	46
	0.083	0.082	45	0.082	45
	0.109	0.086	44	0.082	45
	0.125	0.086	44	0.082	45
	0.140	0.086	44	0.086	44
	0.187	0.089	43	0.086	44
4-40	0.050	0.089	43	0.089	43
	0.060	0.089	43	0.089	43
	0.083	0.094	42	0.089	43
	0.109	0.096	41	0.094	42
	0.125	0.098	40	0.094	42
	0.140	0.098	40	0.094	3/32
	0.187	0.102	38	0.098	40
5-40	0.050	0.106	36	0.102	38
	0.060	0.106	36	0.102	38
	0.083	0.106	36	0.104	37
	0.109	0.106	36	0.104	37
	0.125	0.109	7/64	0.106	36
	0.140	0.110	35	0.106	36
	0.187	0.116	32	0.110	35
	0.250	0.116	32	0.113	33
6-32	0.050	0.110	35	0.109	7/64
	0.060	0.113	33	0.109	7/64
	0.083	0.116	32	0.111	34
	0.109	0.116	32	0.113	33
	0.125	0.116	32	0.116	32
	0.140	0.120	31	0.116	32
	0.187	0.125	1/8	0.120	31
	0.250	0.125	1/8	0.125	1/8
8-32	0.050	0.136	29	0.136	29
	0.060	0.140	28	0.136	29
	0.083	0.140	28	0.136	29
	0.109	0.144	27	0.140	28
	0.125	0.144	27	0.140	28
	0.140	0.147	26	0.144	27
	0.187	0.150	25	0.147	26
	0.250	0.150	25	0.150	25
	0.312	0.150	25	0.150	25
10-24	0.050	0.152	24	0.150	25
	0.060	0.154	23	0.152	24
	0.083	0.161	20	0.154	23
	0.109	0.161	20	0.157	22
	0.125	0.166	19	0.159	21
	0.140	0.170	18	0.161	20
	0.187	0.173	17	0.166	19
	0.250	0.173	17	0.172	11/64
	0.312	0.173	17	0.173	17
	0.375	0.173	17	0.173	17
10-32	0.050	0.159	21	0.161	20
	0.060	0.166	19	0.161	20
	0.083	0.166	19	0.161	20
	0.109	0.170	18	0.166	19
	0.125	0.170	18	0.166	19
	0.140	0.170	18	0.166	19
	0.187	0.177	16	0.172	11/64
	0.250	0.177	16	0.177	16
	0.312	0.177	16	0.177	16
	0.375	0.177	16	0.177	16
12-24	0.060	0.180	15	0.177	16
	0.083	0.182	14	0.180	15
	0.109	0.188	3/16	0.182	14
	0.125	0.191	11	0.185	13
	0.140	0.191	11	0.188	3/16
	0.187	0.199	8	0.191	1
	0.250	0.199	8	0.199	8
	0.312	0.199	8	0.199	8
	0.375	0.199	8	0.199	8
	0.500	0.199	8	0.199	8
1/4" -20	0.083	0.213	3	0.206	5
	0.109	0.219	7/32	0.209	4
	0.125	0.221	2	0.213	3
	0.140	0.221	2	0.213	3
	0.187	0.228	1	0.221	2
	0.250	0.228	1	0.228	1
	0.312	0.228	1	0.228	1
	0.375	0.228	1	0.228	1
	0.500	0.228	1	0.228	1
1/4" -28	0.083	0.221	2	0.219	7/32
	0.109	0.228	1	0.221	2
	0.125	0.228	1	0.221	2
	0.140	0.234	A	0.221	2
	0.187	0.234	15/64	0.228	1
	0.250	0.234	15/64	0.234	15/64
	0.312	0.234	15/64	0.234	15/64
	0.375	0.234	15/64	0.234	15/64
	0.500	0.234	15/64	0.234	15/64
5/16" -18	0.109	0.277	J	0.266	H
	0.125	0.277	J	0.272	I
	0.140	0.281	9/32	0.272	I
	0.187	0.290	L	0.281	K
	0.250	0.290	L	0.290	L
	0.312	0.290	L	0.290	L
	0.375	0.290	L	0.290	L
	0.500	0.290	L	0.290	L
5/16" -24	0.109	0.290	L	0.281	K
	0.125	0.290	L	0.281	9/32
	0.140	0.290	L	0.281	9/3
	0.187	0.295	M	0.290	L
	0.250	0.295	M	0.295	M
	0.312	0.295	M	0.295	M
	0.375	0.295	M	0.295	M
	0.500	0.295	M	0.295	M
3/8" -16	0.125	0.339	R	0.328	21/64
	0.140	0.339	R	0.332	Q
	0.187	0.348	S	0.339	R
	0.250	0.358	T	0.348	S
	0.312	0.358	T	0.348	S
	0.375	0.358	T	0.348	S
	0.500	0.358	T	0.348	
3/8" -24	0.125	0.348	S	0.344	11/32
	0.140	0.348	S	0.344	11/32
	0.187	0.358	T	0.348	S
	0.250	0.358	T	0.358	T
	0.312	0.358	T	0.358	T
	0.375	0.358	T	0.358	T
	0.500	0.358	T	0.358	T

Because conditions vary widely, it may be necessary to change the hole size to suit a particular application.

Decimals shown are standard drill sizes rounded to the nearest 0.001 inch.

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CATALOG 13

Corrosion Guide

Buyers, metallurgists and engineers alike are continually faced with the question: "What material shall I use for this application?" This "Guide" is a helpful source of information in dealing with such questions.

It must be emphasized that while this guide provides useful basic information, it should not be regarded as the final word in choosing the best material for any given application. All environmental conditions should be carefully taken into account.

The input of most of the leading primary metal and plastic producers is reflected in this compilation. Where conflicting opinions were encountered, the lower corrosion rating has in each case been listed.

	Brass and Naval Bronze	Silicon Bronze	Monel Metal	Stainless Types 410, 416 and 430 (Magnetic)	Stainless Types 302, 303, 304 and 305 18-8 (A2)	Stainless Type 316 (A4)	Copper	Aluminum	Nylon
Acetate Solvents, Crude	Fair	Good	Good	Good	Excel	Excel	Good	Excel	Good
Acetate Solvents, Pure	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel
Acetate Acid, Crude	Fair[1]	Good	Good	Poor[2]	Good	Excel	Good	Good	Poor
Acetate Acid, Pure	Fair[1]	Good	Good	Poor[2]	Good	Excel	Good	Excel	Poor
Acetic Acid Vapors	Poor	Good	Fair	Poor	Good	Excel	Good	Good	Poor
Acetic Anhydride	Poor	Good	Good	Poor	Good	Excel	Good	Excel	Poor
Acetone	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel
Acetylene	[3]	Poor	Good	Excel	Excel	Excel	Poor	Excel	
Alcohols	Good	Excel	Excel	Excel	Excel	Excel	Excel	Good	Good
Aluminum Sulfate	Fair[1]	Good	Good	Poor	Fair	Good	Good	Fair	Poor
Alums	Fair[1]	Good	Good	Poor	Fair	Good	Good	Excel	Fair
Amonia Gas[4]	Poor[5,6]	[6]	[6]	Excel	Excel	Excel	[6]	Excel	Good[36]
Ammonium Chloride	Fair[1]	Good	Excel	Fair	Fair	Excel	Good	Poor	Fair
Ammonium Hydroxide	Poor	Poor	Fair	Excel	Excel	Excel	Poor	Good	Good[36]
Ammonium Nitrate	Poor	Fair	Fair	Excel	Excel	Excel	Fair	Excel	Fair
Ammonium Phosphate (Ammoniacal)	Poor	Poor	Good	Excel	Excel	Excel	Poor	Poor	Good
Ammonium Phosphate (Neutral)	Fair	Fair	Good	Good	Excel	Excel	Fair	Fair	Excel
Ammonium Phosphate (Acid)	Fair[1]	Fair	Good	Fair	Good	Excel	Fair	Fair	Fair
Ammonium Sulfate	Fair[1]	Fair	Good	Good	Excel	Excel	Fair	Good[35]	Fair
Asphalt	Good	Excel	Excel	Good	Excel	Excel	Excel	Excel	Excel
Beer	Good	Good	Excel	[7]	Excel	Excel	Good	Excel	Excel
Beet Sugar Liquors	Good	Excel	Excel	Good	Excel	Excel	Excel	Excel	Good
Benzene or Benzol[8]	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel
Benzine[8]	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel
Borax	Good	Good	Excel	Excel	Excel	Excel	Good	Good	Good
Boric Acid	Fair[1]	Good	Excel	Fair	Good	Excel	Good	Excel	Good
Butane, Butylene, Butadiene[9]	Excel[34]	Excel[34]	Excel	Excel[10]	Excel[10]	Excel[10]	Excel[34]	Excel	Excel
Calcium Bisulfite	Poor	Good	Poor	Poor	Good	Excel	Good	Poor	Good
Calcium Hypochlorite	Fair	Fair	Fair	Poor	Fair	Good	Fair	Poor	Fair
Cane Sugar Liquors	Good	Excel	Excel	Good	Excel	Excel	Excel	Excel	Good
Carbon Dioxide (Dry)	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel

Numerals refer to notes on page R18.
Continued ...

	Brass and Naval Bronze	Silicon Bronze	Monel Metal	Stainless Types 410, 416 and 430 (Magnetic)	Stainless Types 302, 303, 304 and 305 18-8 (A2)	Stainless Type 316 (A4)	Copper	Aluminum	Nylon
Carbon Dioxide (Wet & Aqueous)	Fair[11]	Good[11]	Good[11]	Excel[11]	Excel	Excel	Good[11]	Excel	Excel
Carbon Disulfide	Fair	Poor	Fair	Good	Excel	Excel	Poor	Excel	Excel
Carbon Tetrachloride[12]	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Good	Excel
Chlorine (Dry)	Good	Good	Excel	Good	Good	Good	Good	Poor	Poor
Chlorine (Wet)	Poor	Fair	Fair	Poor	Poor	Fair	Fair	Poor	Poor
Chromic Acid	Poor	Poor	Fair	Fair	Good	Excel	Poor	Poor	Poor
Citric Acid	Fair[1]	Good	Good	Fair	Good	Excel	Good	Good	Good
Coke Oven Gas	Fair	Fair	Good	Excel	Excel	Excel	Fair	Good	Fair
Sulfate	Poor	Fair	Fair	Excel	Excel	Excel	Fair	Poor	Fair
Core Oils	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel
Cottonseed Oil	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel
Creosote	Fair	Good	Excel	Excel	Excel	Excel	Good	Good	
Ethers	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel
Ethylene Glycol	Good	Excel	Excel	Excel	Excel	Excel	Excel	Good	Good
Ferric Chloride	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor
Ferric Sulfate	Poor	Fair	Fair	Excel	Excel	Excel	Fair	Good	Poor
Formaldehyde	Good	Good	Excel	Excel	Excel	Excel	Good	Good	Good
Formic Acid	Fair[1]	Good	Good	Poor	Good	Excel	Good	Poor	Poor
Freon	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Good	Excel
Furfural	Good	Good	Excel	Excel	Excel	Excel	Good	Excel	Excel
Gasoline (Sour)	Fair	Poor	Poor	Fair	Excel	Excel	Poor	Poor	Excel
Gasoline (Refined)	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel
Gelatin	Fair[13]	Excel[13]	Excel	Fair[13]	Excel	Excel	Excel[13]	Excel	Excel
Glucose	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel
Glue	Fair	Excel	Excel	Excel	Excel	Excel	Excel	Fair	Excel
Glycerine or Glycerol	Good	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Good
Hydrochloric Acid	Poor	Fair[14]	Fair[14]	Poor	Poor	Poor	Fair[14]	Poor	Poor
Hydrocyanic Acid (Hydrogen Cyanide)	Poor	Poor	Good	Fair	Excel	Excel	Poor	Excel	Excel
Hydrofluoric Acid	Poor	Fair	Excel	Poor	Poor	Poor	Fair	Poor	Poor
Hydrogen Fluoride	Fair	Good	Excel	Fair	Good	Good	Good	Poor	Poor
Hydrogen[9]	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel
Hydrogen Peroxide	Poor	Fair	Good	Excel	Excel	Excel	Fair	Good	Fair
Hydrogen Sulfide (Dry)	Fair[6]	Poor[6]	Fair[6]	Good	Excel	Excel	Poor[6]	Excel	Good[37]
Hydrogen Sulfide (Wet & Aqueous)	Fair	Poor	Fair	Fair[15]	Good	Excel	Poor	Excel	Good[37]
Lacquers and Lacquer Solvents	Fair	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel
Lime-Sulfur	Poor	Fair	Good	Good	Excel	Excel	Fair	Poor	Good
Magnesium Chloride	Fair	Good	Excel	Fair	Good	Excel	Good	Poor	Excel
Magnesium Hydroxide	Good	Excel	Excel	Excel	Excel	Excel	Excel	Fair	Good
Magnesium Sulfate	Good	Excel	Excel	Excel	Excel	Excel	Excel	Good	Excel
Mercuric Chloride	Poor	Poor	Poor	Poor	Poor	Fair[16]	Poor	Poor	
Mercury	Poor	Poor	Good	Excel	Excel	Excel	Poor	Poor	Excel
Milk	Fair	Fair	Fair	Good	Excel	Excel	Fair	Excel	Excel
Molasses	Good	Excel	Excel	Good	Excel	Excel	Excel	Excel	Excel

Numerals refer to notes on page R18.
Continued ...

	Brass and Naval Bronze	Silicon Bronze	Monel Metal	Stainless Types 410, 416 and 430 (Magnetic)	Stainless Types 302, 303, 304 and 305 18-8 (A2)	Stainless Type 316 (A4)	Copper	Aluminum	Nylon
Natural Gas	Good	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel
Nickel Chloride[17]	Poor	Fair	Good	Poor	Fair	Good	Fair	Poor	Poor
Nickel Sulfate[17]	Fair	Good	Excel	Fair	Good	Excel	Good	Poor	Poor
Nitric Acid	Poor	Poor	Poor	Good[18]	Good	Good	Poor	Fair	Poor
Oleic Acid	Fair[19]	Good[24]	Excel	Good[20]	Good[20]	Excel	Good[24]	Excel	Excel
Oxalic Acid	Fair	Good	Excel	Fair	Good	Excel	Good	Poor	Poor
Oxygen[9]	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Good
Palmitic Acid	Fair[19]	Good[24]	Excel	Good[20]	Good[20]	Excel	Good[24]	Excel	Excel
Petroleum Oils (Sour)	Fair	Poor	Poor	Fair	Excel	Excel	Poor	Poor	Excel
Petroleum Oils (Refined)	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel
Phosphoric Acid 25%	Poor	Good[21]	Good[22]	Poor	Fair[23]	Excel	Good[21]	Poor	Poor
Phosphoric Acid 25%, 50%	Poor	Good[21]	Good[22]	Poor	Poor	Good	Good[21]	Poor	Poor
Phosphoric Acid 50%, 85%	Poor	Good[21]	Good[22]	Poor	Poor	Good	Good[21]	Excel	Excel
Picric Acid	Poor	Poor	Poor	Good	Excel	Excel	Poor	Fair	Poor
Potassium Chloride	Fair	Good	Excel	Fair	Good	Excel	Good	Poor	Excel
Potassium Hydroxide	Poor	Fair	Excel	Excel	Excel	Excel	Fair	Poor	Good[38]
Potassium Sulfate	Good	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel
Propane[9]	Excel	Excel	Excel	Excel[10]	Excel[10]	Excel[10]	Excel	Excel	Excel
Rosin (Dark)	Good	Good	Excel	Excel	Excel	Excel	Good	Excel	Excel
Rosin (Light)	Poor	Poor	Good	Excel	Excel	Excel	Poor	Good	Excel
Shellac	Good	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel
Soda Ash (Sodium Carbonate)	Good	Good	Excel	Excel	Excel	Excel	Excel	Poor	Excel
Sodium Bicarbonate	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Good	Excel
Sodium Bisulfate	Fair[1]	Good	Excel	Poor	Poor	Excel	Good	Fair	Fair
Sodium Chloride	Fair	Good	Excel	Fair	Good	Excel	Good	Good	Excel
Sodium Cyanide	Poor	Poor	Good	Excel	Excel	Excel	Poor	Poor	Good
Sodium Hydroxide	Poor	Fair	Excel	Excel	Excel	Excel	Fair	Excel	Good[38]
Sodium Hypochlorite	Excel	Fair	Fair	Excel	Fair	Good	Fair	Excel	Fair
Sodium Metaphosphate	Fair	Good	Excel	Good	Excel	Excel	Good	Fair	Excel
Sodium Nitrate	Fair	Good	Excel	Excel	Excel	Excel	Good	Excel	Excel
Sodium Perborate	Fair	Good	Excel	Excel	Excel	Excel	Good	Fair	
Sodium Peroxide	Fair	Good	Excel	Excel	Excel	Excel	Good	Fair	Fair
Sodium Phosphate (Alkaline)	Fair	Good	Excel	Excel	Excel	Excel	Good	Poor	Good
Sodium Phosphate (Neutral)	Good	Excel	Excel	Excel	Excel	Excel	Excel	Poor	Excel
Sodium Phosphate (Acid)	Fair	Good	Excel	Poor	Good	Excel	Good	Poor	Fair
Sodium Silicate	Fair	Good	Excel	Excel	Excel	Excel	Good	Good	Good
Sodium Sulfate	Good	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel
Sodium Sulfide	Poor	Poor	Good	Excel	Excel	Excel	Poor	Poor	Good
Sodium Thiosulfate (Hypo)	Poor	Poor	Good	Excel	Excel	Excel	Poor	Excel	Good[39]
Sludge Acid	Poor	Good	Good	Poor	Poor	Fair	Good	Poor	
Stearic Acid	Fair[19]	Good[24]	Excel	Good[20]	Good[20]	Excel	Good[24]	Excel	Excel
Sulfate Liquors	Poor	Poor	Good	Poor	Poor	Poor	Excel	Excel	Good

Numerals refer to notes on page R18.
Continued ...

	Brass and Naval Bronze	Silicon Bronze	Monel Metal	Stainless Types 410, 416 and 430 (Magnetic)	Stainless Types 302, 303, 304 and 305 18-8 (A2)	Stainless Type 316 (A4)	Copper	Aluminum	Nylon
Sulfur	Fair	Fair	Fair	Excel	Excel	Excel	Fair	Excel	Good
Sulfur Chloride	Poor	Poor	Good	Poor	Fair	Good	Poor	Poor	Poor
Sulfur Dioxide (Dry)[9]	Fair	Excel	Excel	Excel	Excel	Excel	Excel	Good	Good
Sulfur Dioxide (Wet)	Poor	Good	Poor	Poor	Good	Excel	Good	Fair	Fair
Sulfuric Acid 10%	Poor	Good[25]	Good[25]	Poor	Poor	Good[25]	Good	Poor	Poor
Sulfuric Acid 10%, 75%	Poor	Fair	Good	Poor	Poor	Poor	Fair	Poor	Poor
Sulfuric Acid 75%, 95%	Poor	Fair[26]	Fair[26]	Fair[27]	Fair[27]	Good[27]	Fair[26]	Poor	Poor
Sulfuric Acid 95%	Poor	Fair	Poor	Good	Good	Good	Poor	Fair	Poor
Sulfurous Acid	Poor	Good	Poor	Poor	Fair	Good	Good	Poor	Fair
Tar	Good	Excel	Excel	Good	Excel	Excel	Excel	Excel	Excel
Tartaric Acid	Fair[1]	Good	Good	Fair	Good	Excel	Good	Good	Fair
Toluene or Toluol[8]	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel
Trichloroethylene[12]	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Good
Turpentine	Fair[28]	Excel	Excel	Good[28]	Excel	Excel	Excel	Excel	Excel
Varnish[29]	Good	Good	Excel	Excel	Excel	Excel	Good	Excel	Excel
Vegetable Oils[29]	Good	Good	Excel	Excel	Excel	Excel	Good	Excel	Excel
Vinegar[25]	Poor	Good	Good	Fair	Good	Excel	Good	Excel	Fair
Water (Acid Mine Water)	Poor	[30]	[30]	[31]	[31]	[31]	[30]	Fair	Good
Water (Fresh)	Fair[32]	Good	Excel	Excel	Excel	Excel	Good	Excel	Excel
Water (Salt)	Fair[32]	Good	Excel	Fair[33]	Good[33]	Good[33]	Good	Good	Excel
Whiskey	Good	Good	Good	Fair	Excel	Excel	Good	Fair	Excel
Wines	Good	Good	Good	Fair	Excel	Excel	Good	Fair	Excel
Xylene or Xylol[8]	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel	Excel
Zinc Chloride	Poor	Good	Excel	Poor	Poor	Good	Good	Poor	Good[39]
Zinc Sulfate	Fair	Good	Excel	Fair	Good	Excel	Good	Good	Good[39]

NOTES

1. Subject to dezincification and/or stress corrosion; especially at elevated temperatures and with concentrated solutions.
2. May be useful with cold dilute acid.
3. Alloys containing up to 60% copper acceptable; high copper alloys not acceptable.
4. Temperature assumed to be below that at which gas cracks and liberates nascent nitrogen.
5. Subject to stress corrosion with low concentrations.
6. Apparently resistant to dry gas at ordinary temperatures; attacked rapidly by moist gas and by hot gas.
7. Not recommended for use with beverage grade.
8. Chemicals used for treating in manufacture assumed to be absent.
9. Temperature assumed to be no higher than that normally encountered in compression, storage, and distribution.
10. Useful at elevated temperatures.
11. Not recommmended for use with carbonated beverages.
12. Water assumed to be absent.
13. Not recommended for use with edible grades.
14. Only with dilute or unaerated solutions.
15. Subject to stress corrosion by moist gas; and to severe general corrosion by saturated aqueous solution.
16. Subject to stress corrosion.
17. None of these materials recommended for use with nickel plating solutions.
18. Higher chromium alloys (over 18%) preferred.
19. Not recommended for temperature over 100° C (212°F).
20. Alloys with less that 18% Cr. not recommended for temperatures over 100° C (212° F). Others not recommended for temperatures over 200° C (390° F).
21. Up to 60° C (140° F).
22. Up to 90° C (200° F).
23. At room temperature.
24. Not recommended for temperatures over 200° C (390° F.)
25. Non-ferrous alloys preferred when unaerated and at temperatures above normal. Stainless Steel best when aerated and at normal to moderate temperatures.
26. With cold acid only.
27. In the absence of exposure to moist air.
28. Crude produce may contain acids which corrode these materials.
29. Some of these ratings may not apply when handling light colored products at elevated temperatures (200° C) (390° F).
30. Good with water containing no oxidizing salts; fair with water containing oxidizing salts.
31. Excellent with water containing oxidizing salts; not good with water containing no oxidizing salts.
32. Subject to dezincification with hot and/or aerated waters.
33. Subject to pitting attack.
34. Copper may act as a catalyst for undesirable reactions.
35. Free sulphuric acid absent.
36. Good at concentrations under 10% and below 38° C (100° F).
37. Suitable for limited service at concentrations under 50% and below 38° C (100° F).
38. Good only at concentrations under 10% and below 38° C (100° F).
39. Good only at concentrations under 20% and below 38° C (100° F).

COMPARATIVE PROPERTIES OF NATURAL AND SYNTHETIC RUBBERS
COMPARAISON DES PROPRIÉTÉS DES CAOUTCHOUCS NATURELS ET SYNTHÉTIQUES

Material	Neoprene Chloroprene	Nitrile Butadiene Acrylonitrile	EPDM Ethylene Propolene Polymer	Butadiene Styrene	NATURAL RUBBER Polyisoprene	SANTOPRENE® TPE
Solid Duro Range	40-80	40-80	40-90	60-80	40-60	35-87
ASTM Code	CR	NBR	EPDM	SBR	NR	-
Sponge Duro Range	20-80	-	20-80	-	-	-
Tensile Strength PSI	1500-2000	1000-1500	1000-2000	1000-2000	1500-3000	520-4000
Tear Resistance	good	fair	fair	fair	very good	fair
Abrasion Resistance	excellent	good	excellent	very good	excellent	very good
Compression Set	good	good	good	good	good	good
Acid Resistance	very good	good	excellent	fair to good	fair to good	excellent
Rebound - cold	very good	good	very good	good	excellent	very good
- hot	very good	good	very good	good	excellent	very good
Adhesion to Metals	excellent	excellent	good	very good	excellent	good
Resistance to Oxidation	very good	good	excellent	fair	good	excellent
Lubricating Oil	good	very good	poor	poor	poor	poor
Flame	good	poor	poor	poor	poor	good
Animal & Vegetable Oil	good	very good	good	good	good	good
Sunlight Aging	very good	poor	excellent	poor	poor	very good
Oil & Gasoline	good	excellent	poor	poor	poor	poor
Ozone	very good	fair	excellent	poor	fair	excellent
Water Absorption	good	good	very good	very good	excellent	very good

Material	HYPALON Chlorosulfonated Polyethylene	EPICHLORI-HYDRIN	SILICONE Polysiloxane Polymer	VITON Fluoroelastomer	CPE Chlorinated Polyethylene	EPDM NEOPRENE BLEND-SPONGE	FLEXIBLE POLYVINYL CHLORIDE
Solid Duro Range	70	60	30-80	75	-	-	40-90
ASTM Code	CSM	-	SI	FPM	CPE	EPDM-CR	PVC
Sponge Duro Range	-		50-80	80	50-80	20-80	-
Tensile Strength PSI	1500	1000-1500	900-1100	1400	-	-	1500-3500
Tear Resistance	fair	good	poor to good	fair	fair	good	good
Abrasion Resistance	excellent	good	poor	good	good	excellent	good
Compression Set	fair	fair	good	good	good	good	fair
Acid Resistance	very good	fair	good	excellent	very good	very good	very good
Rebound - cold	fair	good	excellent	good	fair	very good	fair
- hot	good	good	excellent	very good	good	very good	fair
Adhesion to Metals	excellent	fair	excellent	good	good	good	fair
Resistance to Oxidation	very good	good	excellent	excellent	excellent	excellent	very good
Lubricating Oil	very good	excellent	fair	excellent	good	fair	good
Flame	good	fair	good	excellent	good	fair	good
Animal & Vegetable Oil	good	excellent	very good	excellent	good	good	poor
Sunlight Aging	excellent	good	excellent	excellent	excellent	excellent	good
Oil & Gasoline	good	very good	fair	excellent	good	fair	fair
Ozone	excellent	very good	excellent	excellent	excellent	excellent	excellent
Water Absorption	very good	good	excellent	very good	very good	very good	good

This is a guide of recommendations only, based on studies of technical literature, polymer manufacturers claims, and field tests. Different compounding of elastomers, production methods, and the results of excelerated laboratory testing conditions could alter these properties and characteristics.

Plastics Properties Chart

Inch

Tableau des propriétés des plastiques

Pouces

PROPERTIES	MATERIALS							
	Low Density Polyethylene	**Medium Density Polyethylene**	**High Density Polyethylene**	**Poly-propylene**	**Styrene**	**Nylon**	**Fiber Filled Nylon**	**Delrin®**
SPECIFIC GRAVITY	0.910-0.925	0.926-0.940	0.941-0.965	0.902-0.906	0.98-1.1	1.13-1.15	1.17-1.52	1.425
TENSILE STRENGTH PSI	600-2,300	1,200-3,500	3,100-5,500	4,300-5,500	3,000-6,800	9,000-12,000	13,000-35,000	10,000-12,000
ELONGATION %	90-800	50-600	15-100	200-700	5-80	60-300	1.5-10	15
COMPRESSIVE STRENGTH PSI	-	-	3,200	5,500-8,000	4,000-9,000	6,700-12,500	13,000-24,000	18,000
FLEXURAL STRENGTH PSI	-	4,800-7,000	1,000	6,000-8,000	5,000-10,000	No Break	15,500-40,000	14,000-15,500
SPECIFIC HEAT CAL/°C/gm	0.55	0.55	0.55	0.46	0.32-0.35	0.4	0.3-0.35	0.35
RESISTANCE TO HEAT °F	180-200	220-250	250	250-320	140-175	180-300	300-400	185
HEAT DISTORTION TEMPERATURE °F	100-121 (66 PSI)	120-165 (66 PSI)	140-180 (66 PSI)	205-230 (66 PSI)	210 Max. (264 PSI)	360-365 (66 PSI)	400-510 (66 PSI)	338 (66 PSI)
WATER ABSORPTION % 24 HR. 1/8" THICKNESS	<0.01	0.01	0.01	0.01	0.05-0.6	1.5	0.2-2.0	0.25
EFFECT OF SUNLIGHT	Crazes rapidly unless black colour or ultraviolet inhibitor is used.			Crazes Rapidly	Some Strength Loss	Discolours Slightly	Discolours Slightly	Chalks Slightly
EFFECT OF WEAK ACIDS	Resistant	Very Resistant	Very Resistant	None	None	Resistant	Resistant	Resists Some
EFFECT OF STRONG ACIDS	Attacked by Oxidizing Acid	Attacked by Slowly Oxi-dizing Acids	Attacked by Slowly Oxi-dizing Acids	Attacked by Oxidizing Acids	Attacked by Oxidizing Acids	Attacked	Attacked	Attacked
EFFECT OF WEAK ALKALIES	Resistant	Very Resistant	Very Resistant	None	None	None	None	Resists Some
EFFECT OF STRONG ALKALIES	Resistant	Very Resistant	Very Resistant	Very Resistant	None	None	None	Resists Some
EFFECT OF ORGANIC SOLVENTS	Resistant Below (60°C)	Resistant Below (60°C)	Resistant Below (80°C)	Resistant Below (80°C)	Soluble in Some	Resists Most	Resists Most	Excellent Resistance
EFFECT OF OILS AND GREASES	Attacked by Some	Attacked by Some	Slight	Attacked by Some	-	None	None	None
IMPACT STRENGTH FT./LB./IN. NOTCH	No Break	0.5-16	1.5-20	.4	0.5-11.0	1.0-5.5	1.3-6	1.4

ASTM test methods apply.

SPAENAUR cannot be held responsible for the accuracy of these figures.

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CATALOG 13

DIN/ISO Illustrated Index	Index illustré de produits DIN et ISO	3
Product Index	Index des produits en anglais	13
Product Index - French	Index des produits	33
Terms & Conditions	Termes et conditions de ventes	50
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Spaenaur maintains 800 separate product lines, with 70,000 different items in our warehouses. We carry virtually every type of commercial fastener. Whether you need standard nuts, bolts and screws, custom-made parts, or a special plating finish, you don't have to look any farther than Spaenaur.

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Wera

About DIN and ISO

For many years, DIN (Deutsches Institut für Normung e.V.) standards have been the internationally recognized standard for metric fasteners. With the growing acceptance of The International Organization for Standardization (ISO), many products are also becoming standardized according to ISO specifications.

The Spaenaur catalog indicates the DIN standard for most of the metric fasteners in our product line. In the future, many DIN standards will be replaced by ISO standards.

As market availability of DIN and ISO standard products evolves, Spaenaur will adjust our product offering accordingly. The DIN/ISO Index cross references products to the Spaenaur catalog. For DIN items we also show the nearest ISO standard, and vice versa.

Please note that some DIN and ISO standard fasteners may be found across many pages. The page reference given is to direct you to the general area where that fastener will be found.

Please consult the product index for detailed page references.

Au sujet des normes DIN et ISO

Les normes DIN (Deutsches Institut für Normung e.V.) ont été reconnues depuis longtemps comme étant le standard international en matière de normes métriques. Toutefois, l'influence sans cesse croissante sur l'industrie de l'Organisation internationale de normalisation (ISO) fait que de plus en plus de produits deviennent également conformes aux normes ISO.

La plupart des produits métriques montrés dans le catalogue Spaenaur sont représentés sous les normes DIN. Il est prévu que plusieurs de ces normes DIN seront éventuellement remplacées par les normes ISO.

Par conséquent, Spaenaur devra reviser les produits qu'elle offre suivant ceux qui sont disponibles en normes DIN et ISO sur le marché. Le catalogue Spaenaur présente les produits sous un index DIN/ISO combiné. Les produits qui sont indiqués comme étant conformes à une norme DIN montrent aussi la plus proche norme ISO correspondante, et vice-versa.

Veuillez noter que certaines attaches satisfaisant aux normes DIN/ISO peuvent se retrouver à différents endroits. La page correspondante donnée vous indique l'endroit général où la pièce peut être trouvée. Veuillez consulter l'index des produits pour obtenir les pages correspondantes précises.

DIN 1A
Taper Pins – Hardened
Goupilles coniques
pg. E99 *~ISO 2339*

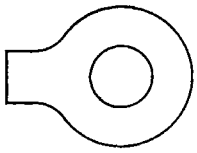
DIN 1B
Taper Pins – Not Hardened
Goupilles coniques
pg. E99 *~ISO 2339*

DIN 7
Dowel Pins –
Not Hardened
Goupilles cylindriques
pg. E94 *~ISO 2338*

DIN 9
Taper Pin Reamers
Alésoirs
pg. P69

DIN 84
Machine Screws - Slot Drive
– Cheese Head / Vis de
mécanique à tête fendue
pg. B40 *~ISO 1207*

DIN 85
Machine Screws - Slot Drive
– Pan Head / Vis de
mécanique à tête fendue
pg. B41 *~ISO 1580*



DIN 93
Long Tab Washers
Plaques d'arrêt à talon
pg. D28

DIN 94
Cotter Pins
Goupilles fendues
pg. E52 *~ISO 1234*

DIN 125A
Flat Washers - Reg. Style
Rondelles sans chanfrein
pg. D12 *~ISO 7089/90*

DIN 125B
Flat Washers –
Single Chamfer Style
Rondelles avec chanfrein
pg. D13 *~ISO 7089/90*

DIN 126
Flat Washers – Coarse
Rondelles en acier
pg. D16 *~ISO 7091*

DIN 127A
Spring (Split) Lockwashers -
Barbed Ends, for use with
DIN 931 and DIN 933
Rondelles ressort
pg. D26

Continues to page 12.

DIN 127B
Spring (Split) Lockwashers - Plain Ends, for use with DIN 931 and DIN 933.
Rondelles ressort
pg. D25

DIN 128A
Lockwashers – Split Bowed Type
Rondelles ressort
pg. D28

DIN 128B
Lockwashers – Split Twisted Type
Rondelles ressort
pg. D29

DIN 137A
Bowed Spring Washers
Rondelles tendeuses à ressort
pg. D68

DIN 137B
Single Wave Spring Washers
Rondelles tendeuses à ressort
pg. D68

DIN 175
Drill Rod Rounds
Acier en rondin
pg. E124

DIN 206
Hand Reamers with Parallel Shank and Squared End
Alésoirs
pg. P70

DIN 208
Machine Reamers with Morse Taper
Alésoirs
pg. P71

DIN 212
Machine Reamers with Parallel Shank
Alésoirs
pg. P72

DIN 223
Round Dies – Right Hand
Écrous taraudeur rond
pg. P93

DIN 225
Die Stocks for Round Split Dies
Filière-à-coussinets
pg. P100

DIN 315
Heavy Wing Nuts
Écrous à oreilles
pg. C57

DIN 316
Wing Screws
Vis à oreilles
pg. B333

DIN 327B
Slot Cutter, Short Series, with Parallel Shank Center Cutting
Fraises
pg. P68

DIN 335
Precisions – Countersinks, 90° with Parallel Shank and with Morse Taper shank
Fraise de précision
pg. P65

DIN 338
Straight Shank Twist Drills
Forets droits en acier rapide
pg. P54

DIN 345
Twist Drills with Morse Taper Shank
Forets
pg. P61

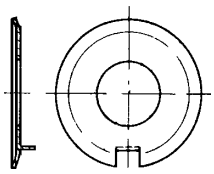
DIN 373
Counterbores with Parallel Shank and Solid Pilot for Through-Holes
Forets
pg. P67

DIN 374
Spiral Point, Long Reduced Shank Machine Taps – Fine Thread - Right Hand
Ficières
pg. P89

DIN 376
Spiral Point, Long Reduced Shank Machine Taps – Coarse Thread - Right Hand
Ficières
pg. P89

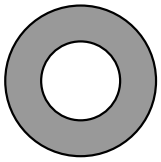
DIN 377
Tap Extensions
Outics pour ficières
pg. P99

DIN 382
Hexagon Dies – Right Hand
Écrous taraudeur hexagone
pg. P96



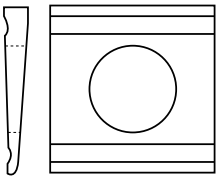
DIN 432

External Tab Washers
Plaques d'arrêt avec ergot
pg. D13



DIN 433

Flat Washers
with reduced O.D.
Rondelles en acier
pg. D17 *~ISO 7092*



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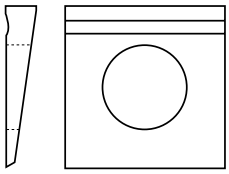

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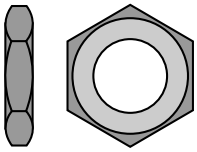

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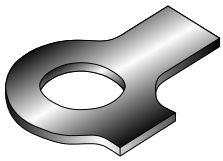

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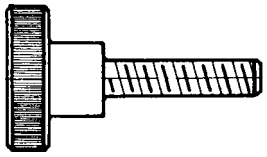

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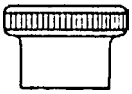

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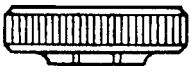

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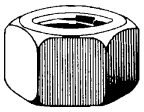

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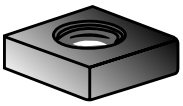

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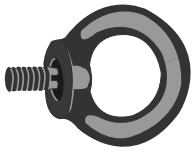

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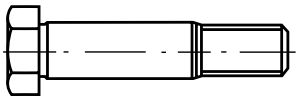

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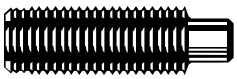

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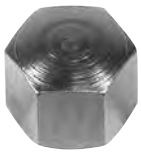

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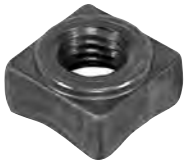

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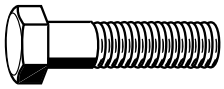

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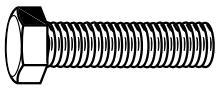

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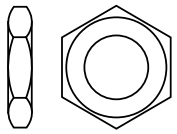

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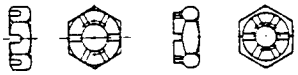

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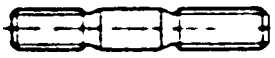

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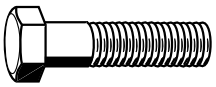

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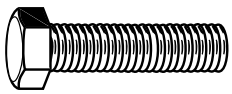

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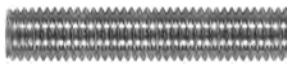

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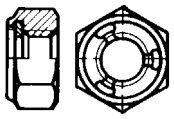

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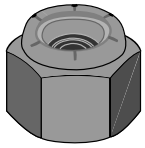

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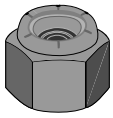

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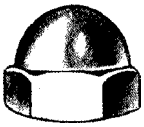

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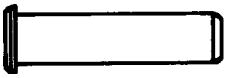

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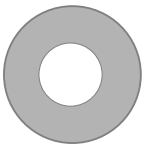

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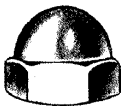

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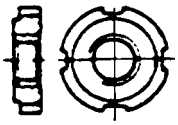

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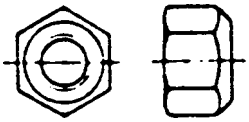

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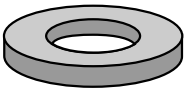

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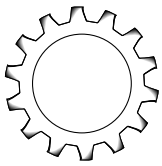

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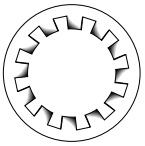

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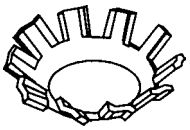

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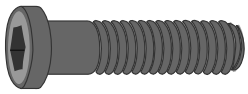
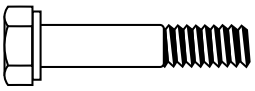
pg. E120 *~ISO 2491*

DIN 6888
Woodruff Keys
Clavettes «Woodruff»
pg. E118 *~ISO 3912*

DIN 6911
Short Hex Key
with Pilot Point
Clé hexagonale courte
avec pointe-pilote
pg. P10

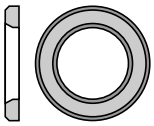


DIN 6912
Hex Socket Cap Screws – Low head style with pilot recess for wrench key
Vis à tête à 6 pans creux
pg. B258

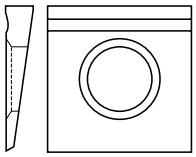


DIN 6914
High-Strength Hex Head Bolts
Boulons de précision hexagonaux
pg. B203 *~ISO 7412*

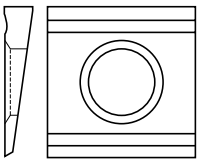
DIN 6915
Heavy Hexagon Nuts
Écrous hexagonaux
pg. C21 *~ISO 7414*



DIN 6916
Flat Washers - Hardened for use with DIN 6914
Rondelles en acier
pg. D18 *~ISO 7416*

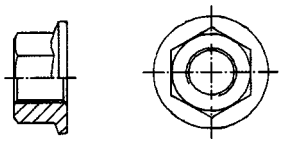


DIN 6917
Square Beveled Washers – 14% Slope for "I" Beams, Countersunk
Plaquettes obliques carreau
pg. D76



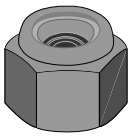
DIN 6918

Square Beveled Washers – 8% Slope for "U" Beams, Countersunk
Plaquettes obliques carreau
pg. D76



DIN 6923

Hex Flange Nuts
Écrous hexagonaux à bride
pg C41



DIN 6924

Nylon Insert Hex Locknuts
Écrous indésserrables à garniture en nylon
pg. C35

DIN 7250

Centre Punches
Pointeaux
pg. P122

DIN 7256

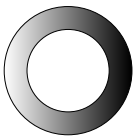
Pointed Chisels
Burins pointu
pg. P123

DIN 7343

Coiled Spring Pins
Goupilles à ressort en spirale
pg. E115 *ISO 8750*

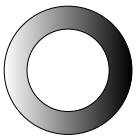
DIN 7349

Flat Washers - for use with DIN 1481
Rondelles en acier
pg. D16



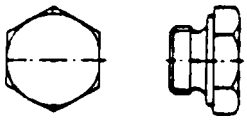
DIN 7603A

Sealing Rings - Flat Gasket
Anneaux de scellage
pg. D20



DIN 7603C

Sealing Rings - Packing Gasket
Anneaux de scellage
pg. D20

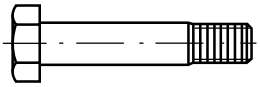


DIN 7604A

Hex Head Pipe Plugs with Shoulder / Bouchon hexagonaux pour tuyau
Adapteur interchangeable
pg. H10

DIN 7967

"Buddy" Hexagon Locknuts
Écrous indesserrables hexagonaux
pg. C53

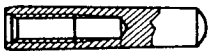


DIN 7968

Hexagon Head Fitting Bolt
Boulons hexagonaux
pg. B195

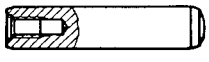
DIN 7977

Taper Pins with External Parallel Thread
Goupilles coniques
pg. E102 *~ISO 8737*



DIN 7978A

Taper Pins with Internal Thread
Goupilles coniques
pg. E103 *~ISO 8736*

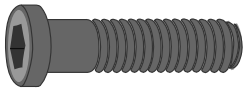


DIN 7979D

Flattened Dowel Pins with Internal Thread
Goupilles cylindriques
pg. E104 *~ISO 8733/35*

DIN 7980

Spring (Split) Lockwashers for use with DIN 912
Rondelles ressort
pg. D27



DIN 7984

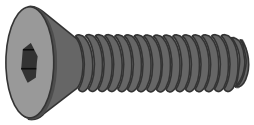
Hex Socket Cap Screws – Low Head Style
Vis à tête cylindrique à 6 pans creux
pg. B256

DIN 7985

Machine Screws - Phillips Drive - Raised Cheese Head
Vis de mécanique à tête Phillips
pg. B67 *~ISO 7045*

DIN 7989A

Flat Washers for Steel Construction
Rondelles en acier
pg. D18

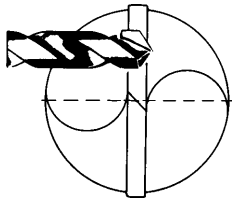


DIN 7991

90° Countersunk Flat head Hex Socket Cap Screws
Vis à tête à 6 pans creux
pg. B271

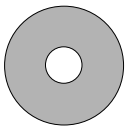
DIN 8037

Carbide Tipped Straight Shank Twist Drills
Forets
pg. P63



DIN 8039

Carbide Tipped Straight Shank Masonry Drills
Forets pour maçonnerie
pg. P64



DIN 9021A

Fender Washers
Rondelles en acier

pg. D17 *~ISO 7093*

DIN 11023

Safety Lynch Pins
Clavettes d'essieu de sûreté

pg. E74

DIN 11024

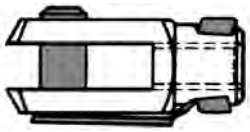
Hitch Pins –
Double Loop Style
Agrafes pour goupilles d'attelage

pg. E64

DIN 70615

Hexagon Nuts
with small A/F
Écrous hexagonaux

pg.C12



DIN 71752

Metric Fork Heads
Fourehettes a tête métrique

pg. E103

ISO 529

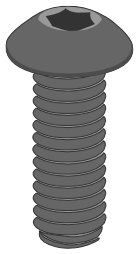
Straight Flute Taps
Filières

pg. B305, P85

ISO 7379

Hex Socket Shoulder Screws
Vis à tête à 6 pans creux

pg. B274 *~DIN 9841*



ISO 7380

Button Head Hex Socket Cap Screws
Vis à tête à 6 pans creux

pg. B270

ISO 8750

Coiled Springs Pins
Goupilles à ressort en spirale

pg. E115 *~DIN 7343*

ISO 8752

Spring Tension Pins
Goupilles tendeuses
à ressort

pg. E105 *~DIN 1481*

UNI 5587

Hex Thick Nuts
Class 6 & 8
Écrous hexagonaux épais

pg. C14

ISO 1207

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- Cheese Head
Vis de mécanique
à tête fendue

pg. B40 *~DIN 84*

ISO 1234

Cotter Pins
Goupilles fendues

pg. E52 *~DIN 94*

ISO 1580

Machine Screws - Slot Drive
- Pan Head
Vis de mécanique
à tête fendue

pg. B41 *~DIN 85*

ISO 2009

Machine Screws
Slot Drive - Flat Head
Vis de mécanique
à tête fendue

pg. B40 *~DIN 963*

ISO 2010

Machine Screws
Slot Drive - Oval Head
Vis de mécanique
à tête fendue

pg. B41 *~DIN 964*

ISO 2338

Dowel Pins -
Not Hardened
Goupilles cylindriques

pg. E94 *~DIN 7*

ISO 2339

Taper Pins - Hardened
Goupilles coniques

pg. E99 *~DIN 1A*

ISO 2339

Taper Pins - Not Hardened
Goupilles coniques

pg. E100 *~DIN 1B*

ISO 2491

Shaft Keys
Clavettes d'arbre

pg. E120 *~DIN 6885A*

ISO 2936

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Clés

pg. P9 *~DIN 911*

ISO 3266

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Boulons à oeil matricé

pg. B321 *~DIN 580*

ISO 3799

Grease Nipples
Graisseurs hyrauliques

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ISO 3912

Woodruff Keys
Clavettes «Woodruff»

pg. E118 *~DIN 6888*

ISO 4014

Hexagon Cap Screws
Partially threaded - Unslotted
Boulons de précision
hexagonaux

pg. B194 *~DIN 931*

ISO 4017

Hexagon Cap Screws
Fully threaded - Unslotted
Boulons de précision
hexagonaux

pg. B190 *~DIN 933*

ISO 4026

Hex Socket Set Screws
Flat Point
Vis de pression à
6 pans creux

pg. B301 *~DIN 913*

ISO 4027
Hex Socket Set Screws
Cone Point
Vis de pression à
6 pans creux
pg. B300 *~DIN 914*

ISO 4028
Hex Socket Set Screws
Dog Point
Vis de pression à
6 pans creux
pg. B302 *~DIN 915*

ISO 4029
Hex Socket Set Screws
Cup Point
Vis de pression à
6 pans creux
pg. B298 *~DIN 916*

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Hexagon Nuts
Écrous hexagonaux
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ISO 4034
Hexagon Nuts
Écrous hexagonaux
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ISO 4035/ 4036
Hexagon Low Nuts
Écrous hexagonaux
pg. C13 *~DIN 439B*

ISO 4762
Hex Socket Cap Screws
Vis à tête cylindrique à
6 pans creux
pg. B250 *~DIN 912*

ISO 4766
Headless - Set Screws -
Slot Drive - Flat Pt.
Vis de pression
fendues sans tête
pg. B297 *~DIN 551*

ISO 7035/ 7036/7037
Slotted and Castellated
Hexagon Nuts
Écrous hexagonaux à
créneaux
pg. C17 *~DIN 935*

ISO 7040
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Écrous à garniture
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pg. C33 *~DIN 985*

ISO 7042
Prevailing Torque
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Écrous indesserrables
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Vis de mécanique
à tête Phillips
pg. B67 *~DIN 7985*

ISO 7046
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Vis mécanique
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pg. B65 *~DIN 965*

ISO 7047
Machine Screws
Phillips Drive - Oval Head
Vis mécanique
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ISO 7089/90
Flat Washers - Reg. Style
Rondelles sans chanfrein
pg. D12 *~DIN 125A*

ISO 7089/90
Flat Washers -
Single Chamfer Style
Rondelles avec chanfrein
pg. D13 *~DIN 125B*

ISO 7091
Flat Washers - Coarse
Rondelles en acier
pg. D16 *~DIN 126*

ISO 7092
Flat Washers
with reduced O.D.
Rondelles en acier
pg. D17 *~DIN 433*

ISO 7093
Fender Washers
Rondelles en acier
pg. D17 *~DIN 9021A*

ISO 7412
High-Strength Hex
Head Bolts
Boulons de précision
hexagonaux
pg. B203 *~DIN 6914*

ISO 7414
Heavy Hexagon Nuts
Écrous hexagonaux
pg. C21 *~DIN 6915*

ISO 7416
Flat Washers - Hardened
for use with DIN 6914
Rondelles en acier
pg. D18 *~DIN 6916*

ISO 7434
Headless - Set Screws -
Slot Drive - Cone Pt.
Vis de pression
fendues sans tête
pg. B297 *~DIN 553*

ISO 8675
Hexagon Cap Screws
Fully Threaded
Boulons de précision
hexagonaux
pg. B198 *~DIN 961*

ISO 8677
Carriage Bolts - Round Head
Square Neck
Boulons de carrosserie
pg. B311 *~DIN 603/603 Mu*

ISO 8733
Flattened Dowel Pins
with Internal Thread
Goupilles cylindriques
pg. E104 *~DIN 7979D*

ISO 8734
Rounded Dowel Pins -
Hardened (Chamfered
one end)
Goupilles cylindriques
pg. E92 *~DIN 6325*

ISO 8736
Taper Pins
with Internal Thread
Goupilles coniques
pg. E103 *~DIN 7978A*

ISO 8737
Taper Pins with External
Parallel Thread
Goupilles coniques
pg. E102 *~DIN 7977*

ISO 8738
Flat Washers for
Clevis Pins
Rondelles en acier
pg. D19 *~DIN 1440*

ISO 8740
Grooved Pins - Full Length
Goupilles cylindriques
pg. E94 *~DIN 1473*

ISO 8744
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with Full Length Taper
Goupilles cylindriques
pg. E94 *~DIN 1471*

ISO 8745
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Half Length Taper
Goupilles cylindriques
pg. E94 *~DIN 1472*

ISO 8765
Hexagon Cap Screws
Partially Threaded
Boulons de précision
hexagonaux
pg. B200 *~DIN 960*

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11. COMMANDES SPÉCIALISÉES: Commandes spécialisées ou produits modifiés spécifiquement pour vous, ne peuvent pas être annulés. Ceci inclut les produits faít ou reçus en grande quantité.

12. APPLICATIONS GÉNÉRALES DES TERMES: Ces termes et conditions exposés brièvement dans le catalogue prédominent. Ces termes et conditions ne peuvent pas être modifiés, supprimés ou variés par aucun employer, agent ou représentant chez Spaenaur Inc. à l'exception de l'entremise d'un document écrit et signé par un responsable autorisé avec signature de la compagnie Spaenaur Inc.

13. GARANTIE - RESTRICTION DE RESPONSABILITÉ: Spaenaur vend de la marchandise de qualité commerciale et nous garantissons que la marchandise vendue sera de qualité du marché, au moment de livraison. La responsabilité de Spaenaur est limitée strictement au remplacement de la marchandise défectueuse ou de remboursement du prix d'achat. Notre garantie remplace toute autre garantie pour ce produit. Vous devez informer Spaenaur dans les 90 jours de livraison de la marchandise qui paraît de ne pas respecter la garantie. Les spécifications du produit classées au catalogue peuvent changer sans avertissement. Les illustrations ne sont pas nécessairement exactes.

févier 2001

APPLICATION FOR CREDIT

GENERAL INFORMATION

SPAENAUR

FAX FORM TO (519) 744-3240
INQUIRIES CALL (519) 744-6305 OR (800) 263-5367

LEGAL BUSINESS NAME
OPERATING AS
NAME OF PARENT (IF SUBSIDIARY)
ADDRESS
PHONE ( ) FAX ( ) EMAIL WEBSITE
ONTARIO SALES TAX EXEMPT? q YES q NO GOODS AND SERVICES TAX EXEMPT? q YES q NO

BUSINESS DETAILS

LEGAL STATUS q CORPORATION q PARTNERSHIP q SOLE PROPRIETOR SIC CODE
NUMBER OF YEARS IN BUSINESS TYPE OF BUSINESS
PRODUCTS SOLD ANNUAL REVENUE LAST YEAR
PRESIDENT/PRINCIPAL OWNER
HOME ADDRESS HOME PHONE ( )
OFFICER/PARTNER
HOME ADDRESS HOME PHONE ( )
OFFICER/PARTNER
HOME ADDRESS HOME PHONE ( )
HAS THE BUSINESS OR ANY OF THE ABOVE PEOPLE BEEN INVOLVED IN BANKRUPTCY? IF YES, PLEASE EXPLAIN.

BANK REFERENCE

BANK NAME ACCOUNT MANAGER
ADDRESS PHONE ( )

TRADE REFERENCES

SUPPLIER NAME FAX ( )
PHONE ( ) ADDRESS
SUPPLIER NAME FAX ( )
PHONE ( ) ADDRESS
SUPPLIER NAME FAX ( )
PHONE ( ) ADDRESS

CREDIT LIMIT REQUESTED _____

TERMS

1. Any of the above named owners/officers are authorized to purchase on this account as well as the following people:
   a. _____ c. _____
   b. _____ d. _____
2. All accounts are due 30 days following the date of invoice. A service charge of 1.5% per month (18% per annum) may be added to overdue amounts.
3. If business is a partnership, all debts are incurred jointly and severally.
4. Undersigned certifies all information is true and correct.
5. Undersigned personally guarantees all debts incurred in the business name. This guarantee shall be a continuing guarantee to secure whatever balance may be due from time to time.

Authorized Signature_____ Title_____

Print Name_____ Date_____

REV 07/23/2001

DEMANDE DE CRÉDIT

RENSEIGNEMENTS GÉNÉRAUX

SPAENAUR

ENVOYEZ PAR TÉLÉCOPIEUR AU (519) 744-3240
COMMUNIQUEZ AU (519) 744-6305 OR (800) 263-5367

NOM D'AFFAIRE LÉGAL

TITRE DE FONCTIONNEMENT

NOM DE LA MAISON MÈRE (SI SUBSIDIAIRE)

ADDRESSE

TÉLÉPHONE ( ) TÉLÉCOPIEUR ( ) COURRIEL SITE WEB

EXEMPTEZ DE LA TAXE PROVINCIALE q OUI q NON EXEMPTÉ DE LA TAXE SUR LES PRODUITS ET SERVICES q OUI q NON

DÉTAILLES D'AFFAIRES

STATUT LÉGAL q CORPORATION q PARTENARIAT q PROPRIÉTAIRE EXCLUSIF CODE CTI

NOMBRE D'ANNÉES EN AFFAIRE GENRE D'ENTREPRISE

VOLUME DES VENTES VOLUME DES VENTES DE L'AN DERNIER

PRÉSIDENT/PROPRIÉTAIRE PRINCIPAL

ADDRESSE À DOMICILE TÉLÉPHONE À DOMICILE ( )

RESPONSABLE/PARTENAIRE

ADDRESSE À DOMICILE TÉLÉPHONE À DOMICILE ( )

RESPONSABLE/PARTENAIRE

ADDRESSE À DOMICILE TÉLÉPHONE À DOMICILE ( )

EST- CE -QUE L'ENTREPRISE OU LES PERSONNES SUSNOMMÉES ONT FAITES FAILLITES? SI OUI, VEUILLEZ EXPLIQUER.

RÉFÉRENCES BANCAIRES

NOM DE LA BANQUE NOM GÉRANT DE COMPTE

ADDRESSE TÉLÉPHONE ( )

RÉFÉRENCES COMMERCIALES

NOM DU FOURNISSEUR TÉLÉCOPIEUR ( )

TÉLÉPHONE ( ) ADDRESSE

NOM DU FOURNISSEUR TÉLÉCOPIEUR ( )

TÉLÉPHONE ( ) ADDRESSE

NOM DU FOURNISSEUR TÉLÉCOPIEUR ( )

TÉLÉPHONE ( ) ADDRESSE

LIMITE DE CRÉDIT DEMANDÉE _____

TERMES

1. Le(s) propriétaire(s)/responsables susnommés sont autorisés d'acheter sur ce compte, ainsi que les acheteurs agréés:
   a. _____ c. _____
   b. _____ d. _____
2. Le compte doit étre réglé dans les 30 jours suite à la date de la facturaction. Un frais de gestion de compte de 1.5% par mois (18% pas an) pourra être ajouté aux montants en échéance.
3. Si votre commerce est un partenariat, toutes les dettes sont contractées conjointement et séparément.
4. Les soussignés certifient que les informations sont conformes et correctes.
5. Les soussignés garantissent toutes les dettes contractées au nom de l'entreprise . Cette garantie sera continuelle afin d'obtenir les paiements en échéance, si il y a lieu.

Signature autorisée_____ Titre_____

Nom Imprimé_____ Date_____

REV 07/23/2001

SPAENAUR

New Part Number Cross Reference

Catalog 13 Page	Legacy Part No	New Spaenaur Part No	New Description	Specification Change	RoHS
B5	B-1517	380-F09-1T	MACHINE SCREW SLOT ROUND HD #2-56 UNC X 1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B5	MS-1047	380-F06-1Y	MACHINE SCREW BINDING SLOT HEAD #2-56 UNC X 3/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-	No	No
B5	MS-36	380-F12-1K	MACHINE SCREW SLOT ROUND HD #2-56 UNC X 3/16" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B5	MS-38	380-F13-1W	MACHINE SCREW SLOT ROUND HD #2-56 UNC X 5/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B5	MS-39	380-F04-1A	MACHINE SCREW ROUND SLOT HEAD #2-56 UNC X 3/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-LATEST	No	No
B5	MS-40	380-F19-1C	MACHINE SCREW SLOT ROUND HEAD #2-56 UNC X 1" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-LATEST	No	No
B6	1025	380-F52-1M	MACHINE SCREW ROUND SLOT HEAD #4-36 NS X 3/8" LG LOW CARBON STEEL TRIVALENT ZINC PLTD ANSI B18.6.3	No	No
B6	B-1511	380-F26-1M	MACHINE SCREW ROUND SLOT HEAD #4-40 UNC X 1/4" LONG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-LATEST	No	No
B6	B-410	380-F53-1X	MACHINE SCREW ROUND SLOT HD #4-40 UNC X 1" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B6	MS-118	380-F38-1M	MACHINE SCREW SLOT FILLISTER HEAD #4-40 UNC X 7/16" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-1972	No	No
B6	MS-168	380-F31-1P	MACHINE SCREW BINDING SLOT HEAD #4-40 UNC X 1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B6	MS-189	380-F45-1C	MACHINE SCREW BINDING SLOT HEAD #4 - 40 UNC X 1/8" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-1972	No	No
B6	MS-45	380-F11-1T	MACHINE SCREW ROUND SLOT HEAD #4-40 UNC X 3/16" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-1972	No	No
B6	MS-47	380-F10-1N	MACHINE SCREW ROUND SLOT HEAD #4-40 UNC X 3/8" LONG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B6	MS-48	380-F02-1M	MACHINE SCREW ROUND SLOT HEAD #4-40 UNC X 5/8" LOW CARBON STEEL CLEAR TRIVALENT PLATED ANSI B18.6.3-1972	No	No
B6	MS-51	380-F33-1K	MACHINE SCREW ROUND SLOT HEAD #4-40 UNC X 1 1/2" LOW CARBON STEEL TRIVALENT ZINC PLATED, ASME B18.6.3-1972	No	No
B6	MS-82	380-F14-1M	MACHINE SCREW SLOT FLAT HD #4-40 UNC X 3/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B7	1024	380-F37-1W	MACHINE SCREW ROUND SLOT HEAD #6-32 UNC X 1/4" LONG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-1972	No	No
B7	391-078	391-C13-1W	MACHINE SCREW, INDENTED HEX HEAD #6-32 UNC X 3/4" LG (HEX 1/4"AF) LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-LATEST	No	No
B7	B-1513	380-F42-1A	MACHINE SCREW ROUND SLOT HEAD #6-32 UNC X 1 1/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-1972	No	No
B7	B-396	380-F22-1N	MACHINE SCREW SLOT ROUND HEAD #6-32 UNC X 1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B7	MS-209	380-F27-1X	MACHINE SCREW SLOT BINDING UNDERCUT #6-32 UNC X 1/4" LG LOW CARBON STEEL ZINC CHROMATE PLTD ANSI B18.6.3-1972	No	No

Note: Items highlighted in blue indicate a change in product characteristics as well as RoHS compliance.

Contact us at:
1-800-265-8772
or
service@spaenaur.com

Catalog 13 Page	Legacy Part No	New Spaenaur Part No	New Description	Specification Change	RoHS
B7	MS-52	380-F36-1C	MACHINE SCREW ROUND SLOT HEAD #6-32 UNC X 3/16" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ASME B18.6.3-1972	No	No
B7	MS-56	380-F41-1X	MACHINE SCREW ROUND SLOT HEAD #6-32 UNC X 2 1/2" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-1972	No	No
B8	1789	380-F29-1P	MACHINE SCREW TRUSS SLOT HEAD #8-32 UNC X 3/8" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B8	2114	380-D01-1W	MACHINE SCREW SLOT BINDING HEAD #8-32 UNC X 3/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-1972	No	No
B8	1484-A	380-F49-1W	MACHINE SCREW SLOT ROUND HD #10-24 UNC X 5/16" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-LATEST	No	No
B8	380-792	380-F44-1Y	MACHINE SCREW SLOT FILLISTER HD #8-32 UNC X 1" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-1972	No	No
B8	B-1514	380-F05-1P	MACHINE SCREW ROUND SLOT HEAD #8-32 UNC X 3/8" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-1972	No	No
B8	MS-1095	380-F21-1C	MACHINE SCREW SLOT ROUND HD #10-24 UNC X 6" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-LATEST	No	No
B8	MS-11	380-F23-1T	MACHINE SCREW SLOT ROUND HD #8-32 UNC X 4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B8	MS-1115	380-F18-1Y	MACHINE SCREW SLOT ROUND HD #10-24 UNC X 2 1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B8	MS-1264	380-F35-1T	MACHINE SCREW TRUSS SLOT HEAD #8-32 UNC X 1/4" LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B8	MS-132	380-F46-1N	MACHINE SCREW FILLISTER SLOT HEAD #8 - 32 UNC X 1/4" LOW CARBON STEEL TRIVALENT ZINC ANSI B18.6.3	No	No
B8	MS-152	380-F47-1T	MACHINE SCREW BINDING SLOT HEAD #8 - 32 UNC X 5/8" LOW CARBON STEEL TRIVALENT ZINC ANSI B18.6.3	No	No
B8	MS-203	380-F30-1A	MACHINE SCREW SLOT TRUSS HD #8-32 UNC X 3 1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B8	MS-237H	391-C10-1N	MACHINE SCREW, INDENTED HEX HEAD #10-24 UNC X 5/8"(HEX 5/16"AF) LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-PLATED	Yes	Yes
B8	MS-354H	391-C03-1X	MACHINE SCREW, INDENTED HEX HEAD #10-24 UNC X 1/2"(HEX 5/16"AF) LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B8	MS-355H	391-C02-1M	MACHINE SCREW, INDENTED HEX HEAD #10-24 UNC X 3/4" LG (HEX 5/16"AF) LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-LATEST	No	No
B8	MS-356H-TV	391-C08-1N	MACHINE SCREW, INDENTED HEX HEAD #10-24 UNC X 1" LG (HEX 5/16"AF) LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B8	MS-41	380-F17-1P	MACHINE SCREW FILLISTER SLOT HEAD #10-24 UNC X 5/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-1972	No	No
B8	MS-411H	391-C06-1Y	MACHINE SCREW, INDENTED HEX HEAD #8-32 UNC X 3/4" (HEX 1/4" AF) LOW CARBON STEEL TRIVALENT ZINC PLATED, ASME B18.6.3-LATEST	No	No
B8	MS-429	380-F03-1X	MACHINE SCREW BINDING SLOT HEAD #8-32 UNC X 1/4" LG (UNDERCUT HEAD) LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-	No	No

Catalog 13 Page	Legacy Part No	New Spaenaur Part No	New Description	Specification Change	RoHS
B8	MS-467H	391-C07-1C	MACHINE SCREW, INDENTED HEX HEAD #8-32 UNC X 3/8"(HEX 1/4"AF) LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-LATEST	No	No
B8	MS-469H	391-C05-1P	MACHINE SCREW, INDENTED HEX HEAD #10-24 UNC X 3/8"(HEX 5/16"AF) LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B8	MS-59	380-F01-1K	MACHINE SCREW ROUND SLOT HEAD #8-32 UNC X 2 1/4" LOW CARBON STEEL TRIVALENT ZINC PLATED, ASME B18.6.3	No	No
B8	U-1/2	380-F34-1N	MACHINE SCREW SLOT OVAL HD #10-24 UNC X 1/2" LG LOW CARBON STEEL NICKEL PLATED ANSI B18.6.3-1972	No	No
B9	882	380-F07-1C	MACHINE SCREW ROUND SLOT HEAD #12-24 UNC X 7/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B9	B-1505	380-F25-1W	MACHINE SCREW ROUND SLOT HEAD #10-32 UNF X 1" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B9	B-979	380-F15-1X	MACHINE SCREW SLOT FILLISTER HEAD #10-32 UNF X 1 1/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-1972	No	No
B9	MS-1215H	391-C15-1X	MACHINE SCREW INDENTED HEX SLOT HD #10-32 UNF X 5/16" (HEX 5/16" AF) LOW CARBON STEEL TRIVALENT ZINC ANSI B18.6.3	No	No
B9	MS-1231H	391-C14-1M	MACHINE SCREW,INDENTD HEX WASHER HD 1/4"-20 UNC X 3/8" (HEX 7/16"AF) LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-LATEST	No	No
B9	MS-145	380-F43-1P	MACHINE SCREW FILLISTER SLOT HEAD #10-32 UNF X 1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-LATEST	No	No
B9	MS-195	380-F28-1A	MACHINE SCREW BINDING SLOT HEAD #10-32 UNF X 3/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-LATEST	No	No
B9	MS-236H-TV	391-C12-1C	MACHINE SCREW, INDENTED HEX HEAD #10-32 UNF X 1/2"(HEX 5/16"AF) LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-	No	No
B9	MS-244	380-F20-1Y	MACHINE SCREW SLOT ROUND HD #12-24 UNC X 1" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-1972	No	No
B9	MS-314	380-F32-1Y	MACHINE SCREW SLOT TRUSS HD #10-32 UNF X 1/2" LONG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-1972	No	No
B9	MS-357H	391-C04-1A	MACHINE SCREW, INDENTED HEX HEAD #10-32 UNF X 3/4" LG (HEX 5/16"AF) LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3, LATEST	No	No
B9	MS-358H	391-C01-1W	MACHINE SCREW INDENTED HEX HEAD #10-32 UNF X 1" LG (HEX 5/16" AF) LOW CARBON STEEL ZINC CHROMATE PLTD ANSI B18.6.3-1972	No	No
B9	MS-472H	391-C09-1T	MACHINE SCREW, INDENTED HEX HEAD #10-32 UNF X 3/8" (HEX 5/16" AF) LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B9	MS-498	380-F51-1W	MACHINE SCREW SLOT TRUSS HD #10-32 UNF X 3/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-1972	No	No
B10	769	380-F08-1N	MACHINE SCREW ROUND SLOT HEAD 1/4"-20 UNC X 1 1/4" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B10	802	380-F39-1X	MACHINE SCREW FLAT SLOT HEAD 1/4"-20 UNC X 3/4" LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-1972	No	No
B10	MS-1116	380-F24-1K	MACHINE SCREW ROUND SLOT HEAD 1/4"-20 UNC X 1 3/4" LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-1972	No	No

Catalog 13 Page	Legacy Part No	New Spaenaur Part No	New Description	Specification Change	RoHS
B10	MS-1175	380-F54-1A	MACHINE SCREW ROUND SLOT HEAD 5/16"- 18 UNC X 2 1/4" LOW CARBON STEEL ZINC PLATED ANSI B18.6.3-1972	No	No
B10	MS-383	380-F48-1K	MACHINE SCREW ROUND SLOT HEAD 5/16"-18 UNC X 2 1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-	No	No
B11	380-785	380-F50-1K	MACHINE SCREW ROUND SLOT HEAD 3/8"-16 UNC X 2" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-1972	No	No
B11	380-786	380-F40-1M	MACHINE SCREW ROUND SLOT HEAD 3/8"-16 UNC X 2 1/2" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B11	MS-285	380-F16-1A	MACHINE SCREW SLOT FLAT HD 3/8"-16 UNC X 1 1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-1972	No	No
B18	MS-521	400-B02-1C	MACHINE SCREW ROUND SLOT HEAD #6-32 UNC X 3/4" BRASS PLAIN FINISH ANSI B18.6.3-1972	No	No
B19	MS-591	400-B01-1Y	MACHINE SCREW FLAT SLOT HEAD 1/4"-20 UNC X 1/2" BRASS ANSI B18.6.3-1972	No	No
B24	MS-2224	420-A01-1X	MACHINE SCREW FILLISTER SLOT HEAD 1/4"-20 UNC X 2" 18-8 STAINLESS STEEL ANSI B18.6.3-1972	No	No
B26	445-016	445-B02-1Y	MACHINE SCREW PAN SLOT HEAD #4-40 UNC X 1/4" NYLON 6/6 NATURAL	No	No
B26	445-125	445-B01-1A	MACHINE SCREW SLOT PAN HEAD #8-32 UNC X 1/2" LG NYLON 6/6 NATURAL	No	No
B26	445-129	445-B03-1C	MACHINE SCREW BINDING SLOT HEAD #8-32 X 3/16" NYLON 6/6 NATURAL	No	No
B27	445-080	445-B04-1N	MACHINE SCREW BINDING SLOT HEAD 1/4"-20 UNC X 3/4" NYLON 6/6 NATURAL	No	No
B29	1403	385-B74-1W	MACHINE SCREW PHILLIPS FLAT HEAD #4-40 UNC X 1/4" LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-1972	No	No
B29	2029	385-B55-1K	MACHINE SCREW PHILLIPS ROUND HEAD #8-32 UNC X 1/4" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-LATEST	No	No
B29	385-006	385-B22-1X	MACHINE SCREW PHILLIPS ROUND HD #4-40 UNC X 3/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B29	385-007	385-B90-1C	MACHINE SCREW PHILLIPS ROUND #4-40 UNC X 1/2" LG LOW CARBON STEEL ZINC PLATED ANSI B18.6.3, LATEST REVISION	No	No
B29	385-009	385-B34-1X	MACHINE SCREW PHILLIPS ROUND HD #4-40 UNC X 3/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B29	385-012	385-B95-1M	MACHINE SCREW PHILLIPS ROUND #8-32 UNC X 5/16" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3, LATEST REVISION	No	No
B29	385-015	385-B63-1Y	MACHINE SCREW PHILLIPS ROUND #8-32 X 1 1/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ASME B18.6.3	No	No
B29	385-031	385-B05-1K	MACHINE SCREW PHILLIPS FLAT HD #4-40 UNC X 1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-1972	No	No
B29	385-032	385-B30-1T	MACHINE SCREW PHILLIPS FLAT HD #4-40 UNC X 5/8" LG LOW CARBON STEEL ZINC PLATED ANSI B18.6.3	No	No
B29	385-034	385-B32-1W	MACHINE SCREW PHILLIPS FLAT (UNDERCUT) HD #6-32 UNC X 3/16" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B29	385-038	385-B29-1K	MACHINE SCREW PHILLIPS FLAT HD #8-32 UNC X 1/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B29	385-040	385-B88-1C	MACHINE SCREW PHILLIPS FLAT #8-32 UNC X 1" LG LOW CARBON STEEL ZINC PLATED ANSI B18.6.3	No	No
B29	385-044	385-B43-1K	MACHINE SCREW, PHILLIPS FLAT HD #8-32 UNC X 2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No

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B29	385-073	385-B47-1A	MACHINE SCREW PHILLIPS PAN HD #2-56 UNC X 5/16" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3 LATEST	No	No
B29	385-076	385-B53-1N	MACHINE SCREW PHILLIPS PAN HD #4-40 UNC X 3/16" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B29	385-077	385-B44-1W	MACHINE SCREW PHILLIPS PAN HEAD #4-40 UNC X 1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B29	385-078	385-B69-1M	MACHINE SCREW PHILLIPS PAN HD #4-40 UNC X 5/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3,-1972	No	No
B29	385-079	385-B12-1P	MACHINE SCREW PHILLIPS PAN HD #6-32 UNC X 1/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B29	385-080	385-B45-1M	MACHINE SCREW PHILLIPS PAN HD #6-32 UNC X 5/16" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3 LATEST	No	No
B29	385-081	385-B70-1W	MACHINE SCREW PHILLIPS PAN HD #6-32 UNC X 1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B29	385-085	385-B24-1P	MACHINE SCREW PHILLIPS PAN HD #6-32 UNC X 7/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-LATEST	No	No
B29	385-086	385-B25-1Y	MACHINE SCREW PHILLIPS PAN HD #6-32 UNC X 1" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B29	385-088	385-B52-1C	MACHINE SCREW PHILLIPS PAN HD #8-32 UNC X 1/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B29	385-089	385-B89-1N	MACHINE SCREW PHILLIPS PAN HD #8-32 UNC X 5/16" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3, LATEST REVISION	No	No
B29	385-091	385-B21-1M	MACHINE SCREW PHILLIPS PAN HD #8-32 UNC X 5/8" LG LOW CARBON STEEL TRIVALENT PLATED ANSI B18.6.3-1972	No	No
B29	385-092	385-B56-1W	MACHINE SCREW, PHILLIPS PAN HD #8-32 UNC X 3/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3 LATEST	No	No
B29	385-094	385-B51-1Y	MACHINE SCREW PHILLIPS PAN HD #8-32 UNC X 1" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B29	385-138	385-B27-1N	MACHINE SCREW FILLISTER PHILLIPS HD #8-32 UNC X 5/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-	No	No
B29	385-166	385-B19-1M	MACHINE SCREW PHILLIPS TRUSS #4-40 UNC X 3/16" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B29	385-172	385-B28-1T	MACHINE SCREW PHILLIPS TRUSS HD #6-32 UNC X 3/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B29	385-174	385-B96-1X	MACHINE SCREW PHILLIPS TRUSS #6-32 X 5/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B29	385-203	385-B66-1T	MACHINE SCREW PHILLIPS FLAT HEAD (100 DEGREE COUNTERSUNK) #4-40 UNC X 1/4" LG STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-LATEST	No	No
B29	385-204BO	385-B41-1N	MACHINE SCREW PHILLIPS FLAT HD (100 DEGREE CTSK) #4-40 UNC X 3/16" LG LOW CARBON STEEL BLACK OXIDE FINISH ANSI B18.6.3-1972	No	No
B29	385-248	385-C07-1C	MACHINE SCREW PHILLIPS FLAT HEAD #6-32 UNC X 3/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-1972	No	No
B29	385-257	385-B67-1K	MACHINE SCREW PAN PHILLIPS HEAD #4-40 UNC X 1/4" LOW CARBON STEEL TRIVALENT ZINC PLATED, ASME B18.6.3-	No	No
B29	385-274	385-B46-1X	MACHINE SCREW PAN PHILLIPS HEAD #2-56 UNC X 3/16" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-1972	No	No

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B29	385-277-TV	385-B68-1C	MACHINE SCREW PAN PHILLIPS HEAD #8-32 UNC X 3/8" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-	No	No
B29	385-282	385-B09-1A	MACHINE SCREW PAN PHILLIPS HEAD #4-40 UNC X 3/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-LATEST	No	No
B29	385-283	385-B87-1Y	MACHINE SCREW FLAT PHILLIPS HEAD #3-48 UNC X 5/16" STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-LATEST	No	No
B29	385-284	385-B72-1T	MACHINE SCREW PAN PHILLIPS HEAD #4-40 UNC X 3/4" LOW CARBON STEEL TRIVALENT ZINC PLATED ASME B18.6.3-LATEST	No	No
B29	385-286	385-B78-1T	MACHINE SCREW PAN PHILLIPS HEAD #6-32 UNC X 7/16" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-	No	No
B29	385-287	385-B71-1P	MACHINE SCREW PAN PHILLIPS HEAD #6-32 UNC X 3/8" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-LATEST	No	No
B29	385-288	385-B77-1P	MACHINE SCREW PHILLIPS PAN HD #4-40 UNC X 5/16" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B29	B-334	385-B03-1N	MACHINE SCREW PHILLIPS FLAT HEAD #8-32 UNC X 1/2" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B29	B-335	385-B36-1P	MACHINE SCREW PHILLIPS FLAT HEAD #8-32 UNC X 3/4" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B29	MS-1233P	385-B07-1M	MACHINE SCREW PHILLIPS PAN HEAD #8-32 UNC X 1/2" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B29	MS-1241P	385-B93-1K	MACHINE SCREW PHILLIPS FLAT HD #4-40 UNC X 3/16" L 80-82 DEGREE UNDERCUT HEAD STEEL TRIVALENT ZINC CHROMATE PLATED ANSI B18.6.3-1972	No	No
B29	MS-1272P	385-B62-1P	MACHINE SCREW PHILLIPS BINDING HEAD #4-40 UNC X 3/8" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B29	MS-1297P	385-B13-1Y	MACHINE SCREW PHILLIPS BINDING UNDERCUT HD #6-32 UNC X 1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-1972	No	No
B29	MS-1299P	385-C03-1X	MACHINE SCREW PHILLIPS BINDING HEAD #6-32 UNC X 1" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B29	MS-1329P	385-B80-1T	MACHINE SCREW PHILLIPS FLAT HEAD #6-32 UNC X 3/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ASME B18.6.3-LATEST	No	No
B29	MS-1340P	385-B49-1Y	MACHINE SCREW PHILLIPS BINDING HEAD #4-40 UNC X 1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-LATEST	No	No
B29	MS-179P	385-B42-1T	MACHINE SCREW PHILLIPS ROUND HEAD #6-32 UNC X 7/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-LATEST	No	No
B29	MS-208P	385-B73-1X	MACHINE SCREW PHILLIPS ROUND HEAD #8-32 UNC X 3/8" LOW CARBON STEEL TRIVALENT ZINC PLATED ASME B18.6.3-1972	No	No
B29	MS-245P	385-B11-1A	MACHINE SCREW PHILLIPS FLAT HEAD #6-32 UNC X 1/4" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B29	MS-247P	385-B06-1W	MACHINE SCREWS ROUND PHILLIPS HEAD #6-32 UNC X 1/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-LATEST	No	No
B29	MS-335P	385-B58-1X	MACHINE SCREW PHILLIPS FLAT HEAD #8-32 UNC X 3/8" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-LATEST	No	No
B29	MS-338P	385-B20-1W	MACHINE SCREW PHILLIPS BINDING HEAD #8-32 UNC X 1/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B29	MS-343P	385-B92-1T	MACHINE SCREW PHILLIPS TRUSS HEAD #8-32 UNC X 5/16" LG LOW CARBON STEEL TRIVALENT ZINC CHROMATE PLATED,ANSI B18.6.3-LATEST	No	No

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B30	1876	385-B61-1A	MACHINE SCREW PHILLIPS FLAT HEAD #10-24 UNC X 1/2" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B30	385-049	385-B08-1X	MACHINE SCREW PHILLIPS FLAT HD #10-32 UNF X 5/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B30	385-051	385-B64-1C	MACHINE SCREW PHILLIPS FLAT HD #10-32 UNF X 1" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ASME B18.6.3	No	No
B30	385-097	385-B85-1A	MACHINE SCREW PHILLIPS PAN HD #10-24 UNC X 5/16" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3 LATEST	No	No
B30	385-099	385-B26-1C	MACHINE SCREW PHILLIPS PAN HD #10-24 UNC X 1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B30	385-111	385-B02-1C	MACHINE SCREW PHILLIPS PAN HD #10-32 UNF X 1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3 LATEST	No	No
B30	385-113	385-B14-1C	MACHINE SCREW PHILLIPS PAN HD #10-32 UNF X 3/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B30	385-114	385-B40-1C	MACHINE SCREW PHILLIPS PAN HD #10-32 UNF X 7/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B30	385-115	385-B33-1M	MACHINE SCREW PHILLIPS PAN HD #10-32 UNF X 1" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3 LATEST	No	No
B30	385-119	385-B39-1N	MACHINE SCREW PHILLIPS PAN HD #10-32 UNF X 2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B30	385-193	385-B37-1Y	MACHINE SCREW PHILLIPS TRUSS HD #10-32 UNF X 3/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-LATEST.	No	No
B30	385-262	385-B23-1A	MACHINE SCREW PAN PHILLIPS HEAD #12-24 UNC X 1/2" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B30	385-265	385-B86-1P	MACHINE SCREW PAN PHILLIPS HEAD #12-24 UNC X 7/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-1972	No	No
B30	385-268	385-B35-1A	MACHINE SCREW PAN PHILLIPS HEAD #12-24 UNC X 1 1/2" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-LATEST	No	No
B30	B-337	385-B16-1T	MACHINE SCREW PHILLIPS FLAT HEAD #10-32 UNF X 1/2" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B30	B-341	385-B10-1X	MACHINE SCREW PHILLIPS ROUND HEAD #10-32 UNF X 1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-LATEST	No	No
B30	MS-1004P	385-B48-1P	MACHINE SCREW PHILLIPS ROUND HEAD #10-24 UNC X 1 3/4" LG LOW CARBON STEEL TRIVALENT CLEAR ZINC PLATED, ANSI B18.6.3-1972	No	No
B30	MS-1207P	385-B57-1M	MACHINE SCREW PHILLIPS ROUND HEAD #10-32 UNF X 1 1/2" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B30	MS-1214P	385-B15-1N	MACHINE SCREW PHILLIPS TRUSS HEAD #10-32 UNF X 1/2" LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B30	MS-1239P	385-B59-1A	MACHINE SCREW PHILLIPS ROUND HEAD #10-32 UNF X 1/4" LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-LATEST	No	No
B30	MS-1246P	385-B83-1M	MACHINE SCREW PHILLIPS ROUND HEAD #10-24 UNC X 3/4" LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B30	MS-1279P	385-C05-1P	MACHINE SCREW PHILLIPS ROUND HEAD #10-32 UNF X 1" LOW CARBON STEEL TRIVALENT CLEAR ZINC PLATED ANSI B18.6.3-1972	No	No
B30	MS-1301P	385-B98-1P	MACHINE SCREW PHILLIPS BINDING HEAD #10-32 UNF X 3/4" LOW CARBON STEEL TRIVALENT ZINC PLTD ANSI B18.6.3-1972	No	No
B30	MS-1303P	385-B18-1W	MACHINE SCREW PHILLIPS BINDING HEAD #10-32 UNF X 1/4" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3 LATEST	No	No

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B30	MS-1308P	385-B54-1T	MACHINE SCREW PHILLIPS BINDING HEAD #10-24 UNC X 3/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-1972	No	No
B30	MS-1330P	385-B01-1Y	MACHINE SCREW PHILLIPS BINDING HEAD #10-32 UNF X 3/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-	No	No
B30	MS-250P	385-C04-1A	MACHINE SCREW PHILLIPS BINDING HEAD #10-32 UNF X 5/16" LOW CARBON STEEL ZINC PLATED ANSI B18.6.3-1972	No	No
B30	MS-341P	385-C06-1Y	MACHINE SCREW PHILLIPS BINDING HD #10-32 UNF X 1/2" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B30	MS-342P	385-B60-1X	MACHINE SCREW PHILLIPS BINDING HEAD #10-32 UNF X 5/8" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B30	MS-422P	385-B65-1N	MACHINE SCREW PHILLIPS FLAT HEAD #10-24 UNC X 7/8" LOW CARBON STEEL TRIVALENT ZINC PLATED, ASME B18.6.3-	No	No
B31	385-026	385-B91-1N	MACHINE SCREW PHILLIPS ROUND HD 1/4"-20 UNC X 2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B31	385-061	385-B84-1X	MACHINE SCREW PHILLIPS FLAT HD 1/4"-20 UNC X 1 1/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B31	385-159	385-B79-1K	MACHINE SCREW PHILLIPS FILLISTER HD 1/4"-20 UNC X 1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B31	385-197	385-B82-1W	MACHINE SCREW PHILLIPS TRUSS HD 1/4"-20 X 1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-LATEST	No	No
B31	385-200	385-B94-1W	MACHINE SCREW, PHILLIPS TRUSS 1/4"-20 X 2 1/2" LG LOW CARBON STEEL TRIVALENT ZINC ANSI B18.6.3	No	No
B31	385-208	385-B38-1C	MACHINE SCREW PHILLIPS PAN HD 1/4"-20 UNC X 1-1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3 LATEST	No	No
B31	386-001	386-C01-1K	MACHINE SCREW POZIDRIVE FLAT HD 1/4"-20 UNC X 1" LG LOW CARBON STEEL TRIVALENT ZINC CHROMATE PLATED, ANSI B18.6.3-1972	No	No
B31	MS-1002P	385-C01-1W	MACHINE SCREW PHILLIPS TRUSS HEAD 5/16"-18 UNC X 1 1/2" LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-1972	No	No
B31	MS-1064P	385-B50-1P	MACHINE SCREW PHILLIPS BINDING HEAD 5/16"-18 UNC X 3/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B31	MS-1310P	385-B76-1K	MACHINE SCREW PHILLIPS TRUSS HEAD 1/4"-20 UNC X 1" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-LATEST	No	No
B31	MS-1311P	385-C02-1M	MACHINE SCREW PHILLIPS TRUSS HEAD 1/4"-20 UNC X 1 1/4" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B31	MS-1321P	385-B04-1T	MACHINE SCREW PHILLIPS TRUSS HEAD 1/4"-20 UNC X 3/4" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B31	MS-391P	385-B17-1K	MACHINE SCREW PHILLIPS ROUND HEAD 1/4"-20 UNC X 1 1/2" LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B31	MS-452P	385-B31-1K	MACHINE SCREW PHILLIPS BINDING HEAD 1/4"-20 UNC X 1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ASME B18.6.3-LATEST	No	No
B31	MS-454P	385-B81-1K	MACHINE SCREW PHILLIPS FLAT HEAD 1/4"-20 UNC X 1 1/2" LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B34	424-045	424-F15-1Y	MACHINE SCREW FLAT PHILLIPS HEAD #4-40 UNC X 3/4" 18-8 STAINLESS STEEL ANSI B18.6.3-1972	No	No
B34	424-055	424-F21-1K	MACHINE SCREW PHILLIPS PAN HD #2-56 UNC X 1/2" LG 18-8 STAINLESS STEEL ANSI B18.6.3-1972	No	No
B34	424-056	424-F11-1P	MACHINE SCREW PHILLIPS PAN HD #6-32 UNC X 1/4" LG 18-8 STAINLESS STEEL ANSI B18.6.3	No	No

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B34	424-101	424-F18-1T	MACHINE SCREW PHILLIPS TRUSS #4-40 UNC X 1/4" 18-8 STAINLESS STEEL ANSI B18.6.3 LATEST	No	No
B34	424-119	424-F10-1W	MACHINE SCREW PHILLIPS FLAT HD #6-32 UNC X 5/16" LG 18-8 STAINLESS STEEL ANSI B18.6.3-1972	No	No
B34	424-446	424-F09-1M	MACHINE SCREW TRUSS PHILLIPS HEAD #10-24 UNC X 3/8" 18-8 STAINLESS STEEL ANSI B18.6.3	No	No
B34	424-457	424-F04-1C	MACHINE SCREW PAN PHILLIPS HEAD #4-40 UNC X 1/4" 18-8 STAINLESS STEEL ANSI B18.6.3-1972	No	No
B34	424-461	424-F08-1W	MACHINE SCREW PHILLIPS PAN HD #4-40 UNC X 3/16" LONG 18-8 STAINLESS STEEL ANSI B18.6.3-1972	No	No
B34	424-500	424-F19-1K	MACHINE SCREW PAN PHILLIPS HEAD #8-32 UNC X 5/8" 18-8 STAINLESS STEEL ANSI B18.6.3-1972	No	No
B34	MS-2343P	424-F02-1P	MACHINE SCREW FLAT PHILLIPS HEAD 4-40 UNC X 1/4" 18-8 STAINLESS STEEL ANSI B18.6.3-1972	No	No
B34	MS-2345P	424-F14-1X	MACHINE SCREW FLAT PHILLIPS HEAD #4-40 UNC X 3/8" 18-8 STAINLESS STEEL ANSI B18.6.3-1972	No	No
B34	MS-2351P	424-F13-1M	MACHINE SCREW BINDING PHILLIPS HEAD #6-32 UNC X 1/4" 18-8 STAINLESS STEEL ANSI B18.6.3, LATEST REVISION	No	No
B34	MS-2356P	424-F17-1N	OVAL PHILLIPS HEAD MACHINE SCREW #6-32 UNC X 1/2" LONG 18-8 STAINLESS STEEL ANSI B18.6.3-LATEST	No	No
B34	MS-2360P	424-F24-1X	MACHINE SCREW OVAL PHILLIPS HEAD #6-32 UNC X 3/4" LG 18-8 STAINLESS STEEL ANSI B18.6.3-1972	No	No
B34	MS-2427P	424-F06-1T	MACHINE SCREW PAN PHILLIPS HEAD #4-40 UNC X 3/8" LONG 18-8 STAINLESS STEEL ANSI B18.6.3-1972	No	No
B34	MS-2428P	424-F01-1A	MACHINE SCREW PHILLIPS PAN HD #6-32 UNC X 3/8" LG 18-8 STAINLESS STEEL ANSI B18.6.3-1972	No	No
B35	424-465	424-F20-1T	MACHINE SCREW PHILLIPS FLAT HD #10-32 UNF X 1 1/2" LONG 18-8 STAINLESS STEEL ANSI B18.6.3-1972	No	No
B35	424-489	424-F23-1M	MACHINE SCREW ROUND PHILLIPS HEAD #10-32 UNF X 1-1/4" LG 18-8 STAINLESS STEEL	No	No
B35	MS-2023P	424-F03-1Y	MACHINE SCREW BINDING PHILLIPS HEAD 1/4"-20 UNC X 3/8" 18-8 STAINLESS STEEL ANSI B18.6.3-1972	No	No
B35	MS-2389P	424-F22-1W	MACHINE SCREW FLAT PHILLIPS HEAD #10-32 UNF X 3/4" 18-8 STAINLESS STEEL ANSI B18.6.3-LATEST	No	No
B36	395-004	395-H11-1K	MACHINE SCREW SQUARE SOCKET FLAT HD #6-32 UNC X 3/4" LONG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B36	395-043	395-H41-1A	MACHINE SCREW SQUARE SKT ROUND HEAD #10-32 UNF X 1/2" LG LOW CARBON STEEL TRIVALENT ZINC CHROMATE PLTD ANSI B18.6.3	No	No
B36	395-052	395-H06-1C	MACHINE SCREW SQ SOCKET ROUND HEAD #8-32 UNC X 1/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B36	395-054	395-H16-1P	MACHINE SCREW SQUARE SKT ROUND HEAD #10-24 UNC X 1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-1972	No	No
B36	395-055-TV	395-H22-1T	MACHINE SCREW SQ SOCKET ROUND HD #10-24 UNC X 3/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B36	395-058	395-H30-1P	MACHINE SCREW SQ SOCKET ROUND HD #10-32 UNF X 1/4" LG LOW CARBON STEEL TRIVALENT ZINC ANSI B18.6.3-1972	No	No

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B36	395-059	395-D02-1X	MACHINE SCREW SQ SOCKET ROUND HD #10-32 UNF X 3/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-1972	No	No
B36	395-082	395-H09-1K	MACHINE SCREW SQ SOCKET ROUND HD #6-32 UNC X 3/4" LONG STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-1972	No	No
B36	395-085	395-H35-1K	MACHINE SCREW SQ SOCKET ROUND HD #10-32 UNF X 5/8" LG STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B36	MS-1076	395-H49-1M	MACHINE SCREW SQ SOCKET ROUND HD #10-24 UNC X 1 3/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B36	MS-1142	395-H39-1A	MACHINE SCREW SQ SOCKET TRUSS HD #8-32 UNC X 1" LG LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B36	MS-1221	395-H14-1X	MACHINE SCREW SQ SOCKET TRUSS HD #8-32 UNC X 1 1/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B36	MS-1290	395-H47-1K	MACHINE SCREW SQ SOCKET TRUSS HEAD #10-24 UNC X 1/2" LG LOW CARBON STEEL TRIVALENT ZINC CHROMATE PLTD ANSI B18.6.3-1972	No	No
B36	MS-1291	395-H38-1X	MACHINE SCREW SQ SOCKET TRUSS HD #10-24 UNC X 1" LG LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B36	MS-1293	395-H51-1M	MACHINE SCREW SQ SOCKET TRUSS HD #10-24 UNC X 3/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
B36	MS-1334	395-H02-1X	MACHINE SCREW SQUARE SKT ROUND HEAD #8-32 UNC X 1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B36	MS-1335	395-H53-1A	MACHINE SCREW SQUARE SKT ROUND HEAD #6-32 UNC X 1/2" LG LOW CARBON STEEL TRIVALENT ZINC ANSI B18.6.3-1972	No	No
B36	MS-1336	395-H05-1Y	MACHINE SCREW SQ SOCKET ROUND HEAD #6-32 UNC X 1-1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-1972	No	No
B36	MS-1337	395-H34-1T	MACHINE SCREW SQ SOCKET ROUND HD #6-32 UNC X 2" LG LOW CARBON STEEL ZINC TRIVALENT CHROMATE PLATED, ASME B18.6.3-1972	No	No
B36	MS-425	395-H50-1W	MACHINE SCREW SQUARE SKT ROUND HEAD #10-24 UNC X 1 1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-1972	No	No
B36	MS-432	395-H04-1P	MACHINE SCREW SQUARE SKT ROUND HD #10-32 UNF X 3/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B36	MS-433	395-H52-1X	MACHINE SCREW SQ SOCKET ROUND HD #10-32 UNF X 7/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B36	MS-434	395-H29-1Y	MACHINE SCREW SQUARE SKT ROUND HEAD #10-32 UNF X 1" LG LOW CARBON STEEL ZINC TRIVALENT	No	No
B36	MS-455	395-H01-1M	MACHINE SCREW SQ SOCKET ROUND HD #8-32 UNC X 3/8" LG LOW CARBON STEEL TRIVALENT ZINC PLTD ANSI B18.6.3-1972	No	No
B37	395-046	395-H07-1N	MACHINE SCREW SQUARE SKT TRUSS HEAD 1/4"-20 UNC X 5/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-1972	No	No
B37	395-077	395-H17-1Y	MACHINE SCREW SQUARE SOCKET FLAT HD 1/4"-20 UNC X 3/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3	No	No
B37	MS-1128	395-H36-1W	MACHINE SCREW SQUARE SKT ROUND HEAD 1/4" - 20 UNC X 1/2" LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B37	MS-1289	395-H03-1A	MACHINE SCREW SQ SOCKET ROUND HD 1/4"-20 UNC X 3/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No

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B37	MS-1331	395-H44-1C	MACHINE SCREW SQUARE SKT ROUND HEAD 1/4"-20 UNC X 1" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-LATEST	No	No
B37	MS-436	395-H45-1N	MACHINE SCREW SQ SOCKET ROUND HD #10-32 UNF X 1 1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-1972	No	No
B38	395-100	395-H43-1Y	MACHINE SCREW SOCKET/SLOT DRIVE LARGE TRUSS HEAD #8-32 UNC X 3/8" (7/16" HEAD DIA) LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3-LATEST	No	No
B38	395-101	395-H08-1T	MACHINE SCREW SQ SOCKET/SLOT DRIVE LARGE TRUSS HEAD (OD .426") #8-32 UNC X 1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B38	395-110	395-H48-1W	MACHINE SCREW SLOT/SQ SKT TRUSS HD #8-32 UNC X 2" LG LOW CARBON STEEL TRIVALENT PLATED ANSI B18.6.3, LATEST REVISION	No	No
B38	395-111	395-H37-1M	MACHINE SCREW SLOT/SQUARE SOCKET COMBINATION PAN HD #10-32 UNF X 1/4" LG LOW CARBON STEE TRIVALENT ZINC PLATED	No	No
B38	395-114	395-H18-1C	MACHINE SCREW COMBINATION SLOT/SQUARE SOCKET PAN HEAD #8-32 UNC X 3/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B38	395-122	395-H13-1M	MACHINE SCREW SQ SKT/SLOT PAN HD #6-32 UNC X 1/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B38	395-123	395-H23-1K	MACHINE SCREW SLOT/SQUARE SKT PAN #6-32 UNC X 3/8" LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3, LATEST REVISION	No	No
B38	395-130	395-H32-1C	MACHINE SCREW SLOT/SQ SOCKET PAN HD #8-32 UNC X 1/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B38	395-132	395-H25-1M	MACHINE SCREW SLOT/SQ SOCKET PAN HD #8-32 UNC X 1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B38	395-137	395-H42-1K	MACHINE SCREW SLOT/SQ SOCKET PAN HD #8-32 UNC X 1 1/2" LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B38	395-143	395-H31-1Y	MACHINE SCREW SLOT/AQUARE PAN HD #10-24 UNC X 3/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B38	395-145	395-H33-1N	MACHINE SCREW SLOT/SQ SOCKET PAN HD #10-24 UNC X 1 1/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B38	395-151	395-D01-1M	MACHINE SCREW SLOT/SQ SOCKET PAN HD #10-32 UNF X 3/8" LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B38	395-152	395-H24-1W	MACHINE SCREW SLOT/ROBERTSON PAN HD #10-32 UNF X 1/2" LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B38	395-175	395-H21-1N	MACHINE SCREW COMBINATION SLOT/SQUARE TRUSS HEAD #8-32 UNC X 1 1/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B39	395-156	395-H20-1C	MACHINE SCREW COMBINATION SLOT/SQUARE SOCKET PAN HEAD #10-32 UNF X 1 1/4" LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B39	395-159	395-H26-1X	MACHINE SCREW SLOT/SQ SOCKET PAN HD #12-24 UNC X 1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3, LATEST REVISION	No	No
B39	395-162	395-H28-1P	MACHINE SCREW SLOT/SQ SOCKET PAN HD 1/4"-20 UNC X 3/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.3, LATEST REVISION	No	No
B39	395-163	395-H40-1W	MACHINE SCREW SLOT/SQ SOCKET PAN HD 1/4"-20 UNC X 1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B39	395-166	395-H19-1N	MACHINE SCREW COMBINATION SLOT/SQUARE SOCKET PAN HEAD 1/4"-20 UNC X 1" LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No

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B39	395-178	395-H12-1W	MACHINE SCREW, SQ SKT/SLOT TRUSS HD 1/4"-20 UNC X 5/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B39	395-179	395-H27-1A	MACHINE SCREW SLOT/SQ SOCKET TRUSS 1/4"-20 UNC X 3/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B39	395-208	395-H46-1T	MACHINE SCREW SLOT/SQ SKT ROUND HD 1/4"-20 X 1-1/2" LG STEEL ZINC PLATED	No	No
B40	382-001	382-B01-1T	MACHINE SCREW SLOT CHEESE HD DIN 84 M1 X 0.25MM PITCH X 2MM LG CL 5.8 LOW CARBON STEEL PLAIN DIN 84/5.8 M1X2	No	No
B41	382-043	382-B07-1P	MACHINE SCREW CHEESE SLOT HEAD M2 X 0.40MM X 18MM LOW CARBON STEEL ZINC TRIVALENT PLATED DIN 84/4.8-ZP M2X18	No	No
B41	382-309	382-B10-1Y	MACHINE SCREW PAN SLOT HEAD M2.5 X 0.45 X 25MM LG FULL THREAD LOW CARBON STEEL TRIVALENT ZINC PLATED IFI 513-1982	No	No
B42	382-316	382-B12-1N	MACHINE SCREW PAN SLOT HEAD M3 X 0.50 X 16MM LG FULL THREAD LOW CARBON STEEL TRIVALENT ZINC PLATED IFI 513-1982	No	No
B42	382-329	382-B16-1M	MACHINE SCREW PAN SLOT HEAD M3.5 X 0.60 X 35MM LG FULL THREAD LOW CARBON STEEL TRIVALENT ZINC PLATED IFI 513-1982	No	No
B43	382-335	382-B15-1W	MACHINE SCREW PAN SLOT HEAD M4 X 0.70MM PITCH X 16MM LOW CARBON STEEL TRIVALENT ZINC PLTD IFI 513-1982 FULL THREAD	No	No
B43	382-340	382-B14-1K	MACHINE SCREW PAN SLOT HEAD M4 X 0.70MM PITCH X 40MM LOW CARBON STEEL TRIVALENT ZINC IFI 513-1982 FULL THREAD	No	No
B43	382-345	382-B13-1T	MACHINE SCREW PAN SLOT HEAD M5 X 0.80MM PITCH X 16MM LOW CARBON STEEL TRIVALENT ZINC IFI 513-1982 FULL THREAD	No	No
B43	382-532	382-B03-1T	MACHINE SCREW PAN SLOT HEAD DIN 85 M4 X 0.70 X 40MM LOW CARBON STEEL ZINC PLTD DIN 85/4.8-ZP M4X40	No	No
B43	382-776	382-B02-1K	MACHINE SCREW SLOT FLAT HD DIN 963 M5 X 0.80 X 20MM CL 4.8 STEEL ZINC PLATED DIN 963/4.8-ZP M5X20	No	No
B44	382-217	382-B04-1M	MACHINE SCREW CHEESE SLOT HEAD M6 X 1.00MM PITCH X 55MM LOW CARBON STEEL ZINC CHROMATE PLTD DIN 84/4.8-ZP M6X55	No	No
B44	382-248	382-B06-1A	MACHINE SCREW SLOT FLAT HD DIN 963 M5 X 0.80MM PITCH X 50MM LG CL 4.8 LOW CARBON STEEL ZINC CHROMATE PLATED DIN 963/4.8-ZP M5X50	No	No
B44	382-349	382-B11-1C	MACHINE SCREW PAN SLOT HEAD M5 X 0.80 X 35MM LG, FULL THREAD LOW CARBON STEEL TRIVALENT ZINC PLATED, IFI 513-1982 FULL THREAD	No	No
B45	382-014	382-B08-1Y	MACHINE SCREW OVAL SLOT HD DIN 964 M8 X 1.25 X 50MM LG CL 4.8 STEEL TRIVALENT ZINC PLATED DIN 964/4.8-ZP M8X50	No	No
B45	382-453	382-B09-1C	MACHINE SCREW CHEESE SLOT HD DIN 84 M8 X 1.25 X 70MM 4.8 STEEL ZINC PLATED DIN 84/4.8-ZP M8X70	No	No
B46	382-820	382-B05-1X	MACHINE SCREW FLAT SLOT HD DIN 963 M12 X 1.75 X 25MM CL 4.8 STEEL TRIVALENT ZINC PLATED DIN 963/4.8-ZP M12X25	No	No
B51	421-156	421-A01-1M	MACHINE SCREW SLOT CHEESE HD DIN 84 M2.5 X 10MM LG A2 STAINLESS STEEL DIN 84/A2 M2.5X10	No	No
B51	421-158	421-A02-1T	MACHINE SCREW SLOT CHEESE HD DIN 84 M2.5 X 0.40P X 14MM A2 STAINLESS STEEL DIN 84/A2 M2.5X14	No	No

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B53	421-107-RC	421-A03-1A	MACHINE SCREW FLAT SLOT HD DIN 963 M5 X 0.80P X 16MM A2 STAINLESS STEEL DIN 963/A2 M5X16	No	No
B53	421-299	421-A04-1P	MACHINE SCREW PAN SLOT HD, DIN 85 M4 X 0.70 X 4MM A2 STAINLESS STEEL DIN 85/A2 M4X4	No	No
B53	421-371	421-A06-1C	MACHINE SCREW SLOT CHEESE HD DIN 84 M4 X 0.80 X 8MM LG A4 STAINLESS STEEL DIN 84/A4 M4X8	No	No
B53	421-526	421-A07-1N	MACHINE SCREW CHEESE SLOT HEAD METRIC DIN 84 M5 X 0.80P X 30MM A4 STAINLESS STEEL	No	No
B54	421-053	421-A05-1Y	MACHINE SCREW PAN SLOT HD DIN 85 M6 X 1.00P X 10MM A2 STAINLESS STEEL DIN 85/A2 M6X10	No	No
B61	446-105	446-W02-1K	SLOT MACHINE SCREW CHEESE HEAD M3 X 0.50 X 12MM NYLON 6/6 NATURAL	No	No
B61	446-131	446-W01-1T	MACHINE SCREW SLOT PAN HEAD M2 X .40 X 5MM NYLON 6/6 NATURAL	No	No
B63	353-066	353-M01-1P	HEX HEAD CAP SCREW METRIC M8 X 1.25 X 80MM LG FULL THREAD NYLON 6.6 NATURAL	No	No
B65	388-085	388-A15-1K	MACHINE SCREW PHILLIPS FLAT DIN 965 M5 X 0.80 X 30MM LG CL 4.8 LOW CARBON STEEL ZINC PLATED DIN 965/4.8-ZP M5X30	No	No
B65	388-156	388-A06-1X	MACHINE SCREW PHILLIPS FLAT DIN 965 M4 X 0.7 X 60MM FULL THREAD LOW CARBON STEEL ZINC PLATED DIN 965/4.8-ZP M4X60	No	No
B65	388-205	388-A14-1T	MACHINE SCREW PHIL OVAL HD DIN 966 M4 X 0.70 X 40MM CL 4.8 STEEL TRIVALENT ZINC PLATED DIN 966/4.8-ZP M4X40	No	No
B66	388-002	388-A05-1M	MACHINE SCREW PHILLIPS PAN HD M2 X 0.4 X 5MM LG, FULL THREAD LOW CARBON STEEL TRIVALENT ZINC CHROMATE PLATED, IFI 513-1982	No	No
B66	388-008-TV	388-A11-1Y	MACHINE SCREW PHILLIPS PAN HD M2.5 X 0.45 X 6MM LG, FULL THREAD LOW CARBON STEEL TRIVALENT ZINC PLATED IFI 513-1982	No	No
B66	388-009	388-A04-1W	MACHINE SCREW PHILLIPS PAN M2.5 X 10MM, PITCH 0.45,FULL THREAD LOW CARBON STEEL TRIVALENT ZINC PLT IFI 513-1982	No	No
B66	388-010	388-A03-1K	MACHINE SCREW PHILLIPS PAN HD M2.5 X 0.45 X 16MM LG LOW CARBON STEEL TRIVALENT ZINC PLTD IFI 513-1982	No	No
B66	388-011	388-A09-1Y	MACHINE SCREW PHILLIPS PAN HD M3 X 5MM, PITCH 0.5, FULLY THREADED LOW CARBON STEEL TRIVALENT ZINC PLATED IFI 513-1982	No	No
B66	388-012	388-A10-1P	MACHINE SCREW PHILLIPS PAN HD M3 X 0.5 X 8MM LG, FULLY THREADED LOW CARBON STEEL TRIVALENT ZINC PLATED, IFI 513-1982	No	No
B66	388-013	388-A01-1N	MACHINE SCREW PHILLIPS PAN HD M3 X 0.5 X 12MM LG FULL THREAD LOW CARBON STEEL TRIVALENT ZINC PLATED, IFI 513-1982	No	No
B66	388-019	388-A17-1M	MACHINE SCREW PHILLIPS PAN HD M3.5 X 0.6 X 10MM LG, FULL THREAD LOW CARBON STEEL TRIVALENT ZINC PLATED IFI 513	No	No
B66	388-023	388-A07-1A	MACHINE SCREW PHILLIPS PAN HD M4 X 0.7 PITCH X 10MM LG, FULL THRD LOW CARBON STEEL TRIVALENT ZINC PLATED IFI 513-1982	No	No
B66	388-024	388-A02-1T	MACHINE SCREW PHILLIPS PAN HD M4 X 0.7 PITCH X 16MM LG, FULL THRD LOW CARBON STEEL TRIVALENT ZINC PLATED IFI 513-1982	No	No
B66	388-122	388-A08-1P	MACHINE SCREW PHILLIPS PAN DIN 7985 M4 X 5MM CL 4.8 STEEL BLUE ZINC PLATED DIN 7985/4.8-ZP M4X5	No	No
B66	388-234	388-A13-1N	MACHINE SCREW PHILLIPS PAN DIN 7985 M2 X 8MM CL 4.8 STEEL TRIVALENT ZINC PLATED DIN 7985/4.8-ZP M2X8	No	No

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B66	388-249	388-A16-1W	MACHINE SCREW PHILLIPS PAN DIN 7985 M3 X 8MM CL 4.8 STEEL ZINC PLATED DIN 7985/4.8-ZP M3X8	No	No
B67	425-020	425-G09-1T	MACHINE SCREW PHILLIPS FLAT DIN 965 M3 X 0.50 X 16MM A2 STAINLESS STEEL PLAIN DIN 965/A2 M3X16	No	No
B67	425-036	425-G05-1M	MACHINE SCREW PHILLIPS PAN DIN 7985 M2.5 X 0.45 X 6MM, A2 STAINLESS STEEL PLAIN DIN 7985/A2 M2.5X6	No	No
B67	425-039	425-G01-1N	MACHINE SCREW PHILLIPS PAN HD M2.5 X 0.45 X 12MM LG A2 STAINLESS STEEL DIN 7985/A2 M2.5X12	No	No
B67	425-043	425-G08-1N	MACHINE SCREW PHILLIPS PAN DIN 7985 M3 X 0.5 X 8MM, A2 STAINLESS STEEL PLAIN DIN 7985/A2 M3X8	No	No
B67	425-044	425-G04-1W	MACHINE SCREW PAN PHILLIPS HEAD M3 X 0.50 X 10MM A2 STAINLESS STEEL PLAIN DIN 7985/A2 M3X10	No	No
B67	425-050	425-G03-1K	MACHINE SCREW PHILLIPS PAN DIN 7985 M4 X 0.7 PITCH X 12MM LG, A2 STAINLESS STEEL DIN 7985/A2 M4X12	No	No
B67	425-060	425-G13-1N	MACHINE SCREW PHILLIPS PAN HD M6 X 1.00 X 16MM A2 STAINLESS STEEL DIN 7985/A2 M6X16	No	No
B67	425-081	425-G02-1T	MACHINE SCREW PHILLIPS FLAT DIN 965 M3 X 0.50 X 10MM A2 STAINLESS STEEL DIN 965/A2 M3X10	No	No
B67	425-102	425-G06-1X	MACHINE SCREW PAN PHILLIPS HEAD M2 X 0.40 PITCH X 6MM LGTH A2 STAINLESS STEEL DIN 7985/A2 M2X6	No	No
B69	035-011	035-P01-1C	HANGER BOLT METRIC M10 X 1.50 PITCH X 50MM O/A LGTH (APPROX 18.25MM MACHINE THREAD LGTH) STEEL PLAIN	Yes	Yes
B70	625-001	625-A01-1A	HEXDRIVE KNIFE THREAD INSERT FOR SOFT WOOD, FLANGED #8-32 INTERNAL THREAD DIE CAST ZINC ALLOY	No	No
B70	625-002	625-A02-1P	HEXDRIVE KNIFE THREAD INSERT FOR SOFT WOOD, FLANGED 1/4"-20 INTERNAL THREAD X 13MM LGTH DIE CAST ZINC ALLOY	No	No
B70	625-003	625-A03-1N	HEX DRIVE KNIFE THREAD INSERT FOR SOFT WOOD, FLANGED 1/4"-20 INTERNAL THREAD X 20MM LGTH DIE CAST ZINC ALLOY	No	No
B70	625-004	625-A04-1Z	HEXDRIVE KNIFE THREAD INSERT FOR SOFT WOOD, FLUSH DESIGN 1/4"-20 INTERNAL THREAD X 13MM LGTH DIE CAST ZINC ALLOY	No	No
B70	625-005	625-A05-1S	HEXDRIVE KNIFE THREAD INSERT FOR SOFT WOOD, FLUSH DESIGN 1/4"-20 INTERNAL THREAD X 20MM LGTH DIE CAST ZINC ALLOY	No	No
B70	625-013-RC	625-A06-1T	THREADED WOOD INSERT 3/8"-16 UNC X 18.5MM OD X 18MM LG STEEL PLAIN	No	No
B70	876-808	876-F06-1T	POWER DRIVE TOOL FOR E-Z LOK INSERTS FOR 3/8" INT THREAD STEEL	No	No
B70	876-829	876-B62-1X	TOOL FOR HEXDRIVE KNIFE THREAD INSERTS, 1/4"-20 UNC ALLOY STEEL	No	No
B72	226-100	226-G01-1W	DOWEL NUT JOINT CONNECTOR 5/16"-18 UNC THREAD .787"LGTH X .472" DIAM STEEL ZINC PLATED	No	No
B74	983-S	576-E02-1W	WOOD SCREW OVAL SLOT HEAD #6 X 1" BRASS (UNHARD) NICKEL PLATED ANSI B18.6.1-1981	No	No
B74	WS-110	577-D01-1A	WOOD SCREW ROUND SLOT HEAD #6 X 3/4" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.1	No	No
B74	WS-524	WS-524-C	WOOD SCREW FLAT SLOT HEAD #3 X 3/8" BRASS ANSI B18.6.1-1981	No	No
B74	WS-524	576-E01-1K	WOOD SCREW FLAT SLOT HEAD #3 X 3/8" BRASS ANSI B18.6.1-1981	No	No
B77	B-355	585-P01-1M	WOOD SCREW FLAT PHILLIPS HEAD #8 X 3/4" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.1	No	No

Note: Items highlighted in blue indicate a change in product characteristics as well as RoHS compliance.

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B77	B-357	585-P02-1X	WOOD SCREW FLAT PHILLIPS HEAD #8 X 1 1/2" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.1-LATEST	No	No
B78	WS-125	593-K07-1W	WOOD SCREW, ROUND SQUARE SOCKET HD #8 X 7/8" LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.6.1	No	No
B78	WS-142	593-K01-1P	WOOD SCREW, ROUND SQUARE SOCKET HD #6 X 3/8" LOW CARBON STEEL TRIVALENT ZINC CHROMATE PLTD ANSI B18.6.1-1981	No	No
B78	WS-57	593-K02-1Y	WOOD SCREW, SQUARE SOCKET FLAT HD #6 X 1" LG LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B78	WS-66	593-K05-1T	WOOD SCREW, FLAT SQUARE SOCKET HEAD #8 X 1 1/2" LOW CARBON STEEL ZINC PLATED	No	No
B78	WS-84	593-K09-1X	WOOD SCREW, OVAL SQUARE SOCKET HEAD #8 X 1 1/2" LOW CARBON STEEL ZINC TRIVALENT ANSI B18.6.1-	No	No
B79	WS-104	593-K08-1M	WOOD SCREW, SQUARE SOCKET OVAL HD #10 X 2 1/2" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.1-1981	No	No
B79	WS-162	593-K03-1C	WOOD SCREW, ROUND SQUARE SOCKET HD #10 X 3" LOW CARBON STEEL ZINC PLATED ANSI B18.6.1-1981	No	No
B79	WS-165	593-K10-1M	WOOD SCREW, SQUARE SOCKET ROUND HD #12 X 1 3/4" LG LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.1-1981	No	No
B79	WS-176	593-K06-1K	WOOD SCREW, FLAT SQUARE SOCKET HEAD #14 X 2 1/2" LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B81	593-023	593-K04-1N	WOOD SCREW, DEEP-ROOT 2/3 THREAD ROUND SQUARE SOCKET WASHER HEAD #8 DIA X 1 3/4" LG STEEL CASE HARDENED, CLEAN AND WAX	Yes	Yes
B96	ST-142	520-B02-1M	TAPPING SCREW, PAN SLOT HEAD #4-24 X 1" LG, TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4-1981	No	No
B97	ST-160B	520-B01-1W	TAPPING SCREW, TRUSS SLOT HEAD #4 X 3/8" LG, TYPE B LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATE ANSI B18.6.4-1981	No	No
B98	521-056	521-A01-1P	TAPPING SCREW,PAN SLOT HEAD TYPE A #10 X 1 1/4" 18-8 STAINLESS STEEL ANSI B18.6.4-1981	No	No
B99	1936	530-B02-1N	TAPPING SCREW, PAN PHILLIPS HD #6 X 3/8" LG, TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATE ANSI B18.6.4	No	No
B99	1938	530-B53-1T	TAPPING SCREW, PHILLIPS PAN HD #8 X 1/4", TYPE AB, LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4-1981	No	No
B99	1939	530-B14-1N	TAPPING SCREW, PAN PHILLIPS HD #8 X 3/8" LG, TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4	No	No
B99	1940	530-B60-1A	TAPPING SCREW, PAN PHILLIPS HD #8-15 X 1/2" LG, TYPE A LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4	No	No
B99	1946	530-B52-1N	TAPPING SCREW, PHILLIPS FLAT HD #6 X 1/2" LG, TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4-1981	No	No
B99	2366	530-B30-1K	TAPPING SCREW, PHILLIPS PAN HD #10 X 3/4" LG, TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATE ANSI B18.6.4-LATEST	No	No
B99	530-002	530-B24-1Y	TAPPING SCREW PHILLIPS FLAT HD #4-24 X 1/2" LONG, TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4	No	No
B99	530-024	530-B54-1K	TAPPING SCREW PHILLIPS FLAT HD #10 X 2" LG, TYPE AB HARDENED STEEL TRIVALENT ZINC PLATED	No	No
B99	530-042	530-B29-1W	TAPPING SCREW PHILLIPS PAN HD #4 X 3/4" LG, TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4,	No	No

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B99	530-043	530-B19-1X	TAPPING SCREW PHILLIPS PAN HD #4-24 X 1" LG, TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATE ANSI B18.6.4, LATEST REVISION	No	No
B99	530-052	530-B50-1Y	TAPPING SCREW PHILLIPS PAN HD #10 X 2" LG, TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4-1981	No	No
B99	530-063	530-B36-1Y	TAPPING SCREW PHILLIPS TRUSS HD #6 X 5/8" LG, TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4	No	No
B99	530-125	530-B18-1M	TAPPING SCREW PHILLIPS PAN HD #2 DIA X 1/2" LG, TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATE ANSI B18.6.4	No	No
B99	530-735	530-B16-1K	TAPPING SCREW, PHILLIPS PAN HD #10 X 1-1/4" LG, TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4	No	No
B99	B-1121	530-B41-1T	TAPPING SCREW, PAN PHILLIPS HEAD #8 X 3/4" LG, TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4	No	No
B99	B-1260	530-B37-1C	TAPPING SCREW, PHILLIPS PAN HD #8 X 1" LG, TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4-1981	No	No
B99	B-387	530-B23-1P	TAPPING SCREW PHILLIPS FLAT HD #4-24 X 1/4" LG, TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4	No	No
B99	ST-170P	530-B56-1M	TAPPING SCREW, FLAT PHILLIPS HD #6 X 3/4" LG, TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4-LATEST	No	No
B99	ST-200P	530-B51-1C	TAPPING SCREW, PHILLIPS PAN HD #4-24 X 1/4" LG, TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4-1981	No	No
B99	ST-342P	530-B40-1N	TAPPING SCREW, PAN PHILLIPS HD #12 X 1/2" LG, TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4-1981	No	No
B99	ST-344P	530-B34-1A	TAPPING SCREW, PHILLIPS PAN HD #4-24 X 3/8" LG, TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4-1981	No	No
B99	ST-348P	530-B55-1W	TAPPING SCREW, TRUSS PHILLIPS HD #8 X 3/4" LG, TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4-1981	No	No
B99	ST-39P	530-B69-1Y	TAPPING SCREW PHILLIPS #8 FLAT HD #10 X 1/2" (WITH #8 HEAD) TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4	No	No
B99	ST-463P	530-B57-1X	TAPPING SCREW PHILLIPS PAN HD #12 X 1" LG, TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4-1981	No	No
B99	ST-484P	530-B25-1C	TAPPING SCREW PHILLIPS PAN HD #6 X 5/16" LG, TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4-1981	No	No
B99	ST-495P	530-B61-1P	TAPPING SCREW, TRUSS PHILLIPS HD #6 X 1/2" LG, TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4	No	No
B99	ST-606P	530-B08-1A	TAPPING SCREW, PAN PHILLIPS HEAD #4-24 X 1/2" LG, TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ASME B18.6.4-1981	No	No
B99	ST-648P	530-B49-1C	TAPPING SCREW, PHILLIPS PAN #10 X 1" LG, TYPE AB LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED ASME B18.6.4-LATEST	No	No
B99	ST-659P	530-B58-1A	TAPPING SCREW, PHILLIPS #6 FLAT HD #8 X 1 1/4" (#6 TRIM HEAD) TYPE A LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4	No	No
B99	ST-695P	530-B15-1T	TAPPING SCREW, PHILLIPS TRUSS HD #10 X 1/2" LG, TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4-LATEST	No	No
B100	530-035	530-B63-1C	FLAT PHILLIPS HEAD TYPE AB TAPPING SCREW #14 X 1" LG LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATE ANSI B18.6.4	No	No

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B100	530-060	530-B10-1A	TAPPING SCREW PHILLIPS LOW PROFILE ROUND WASHER HEAD, TYPE AB #8 X 5/8" LG (3/8" HEAD OD) LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATE ANSI B18.6.4-1981	No	No
B100	530-074	530-B45-1X	TAPPING SCREW, PHILLIPS FLAT HD #4 X 1/2" LG, TYPE B LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED ANSI B18.6.4-LATEST	No	No
B100	530-084	530-B20-1M	TAPPING SCREW PHILLIPS PAN HD #2 X 5/16" LG, TYPE B LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED, ANSI B18.6.4	No	No
B100	530-085	530-B48-1Y	TAPPING SCREW PHILLIPS PAN HD #4 X 3/8" LG, TYPE B LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ASME B18.6.4 LATEST	No	No
B100	530-089	530-B13-1C	TAPPING SCREW PHILLIPS PAN HD #8 X 1" LG, TYPE B LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4	No	No
B100	530-122	530-B26-1N	TAPPING SCREW PHILLIPS TRUSS HD #10 X 1/2" LG, TYPE B HARDENED STEEL TRIVALENT ZINC PLATED	No	No
B100	530-685	530-B46-1A	TAPPING SCREW, PHILLIPS LOW PROFILE ROUND WASHER HEAD, TYPE AB #8 X 1/2" LG (3/8" HEAD OD) LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4-LATEST	No	No
B100	530-721	530-B06-1M	TAPPING SCREW PHILLIPS PAN HD #8 X 5/16" LG, TYPE B LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATE ANSI B18.6.4-1981	No	No
B100	530-722	530-B47-1P	TAPPING SCREW, PHILLIPS WAFER HEAD #8 X 1/2" (HEAD DIA 7/16") TYPE AB LOW CARBON STEEL CASE HARD TRIVALENT, ANSI B18.6.4-1981	No	No
B100	530-726	530-B03-1T	TAPPING SCREW, PAN PHILLIPS HD #4 X 1/4" LG, TYPE B LOW CARB STEEL CASE HARDENED TRIVALENT ZINC PLATED ANSI B18.6.4	No	No
B100	530-728	530-B04-1K	TAPPING SCREW, PHILLIPS/SLOT PAN HD #8 X 3/8" LG, TYPE B LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4	No	No
B100	530-736-TV	530-B35-1P	TAPPING SCREW, PAN PHILLIPS HD #2 X 3/16" LG, TYPE B LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATE ANSI B18.6.4	No	No
B100	530-737	530-B42-1K	TAPPING SCREW, PHILLIPS PAN HD #2 X 1/4" LG, TYPE B LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4	No	No
B100	530-744	530-B32-1M	TAPPING SCREW PHILLIPS PAN HD #2 X 3/8" LONG, TYPE B LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED ANSI B18.6.4	No	No
B100	B-1408	530-B27-1T	TAPPING SCREW, PHILLIPS PAN HD #8 X 5/8" LG, TYPE B LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATE ANSI B18.6.4-LATEST	No	No
B100	B-1412	530-B09-1P	TAPPING SCREW, PAN PHILLIPS HD #8 X 3/4" LG, TYPE B LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED,ANSI B18.6.4	No	No
B100	ST-209PB	530-B39-1T	TAPPING SCREW, PHILLIPS PAN HD #6 X 5/16" LG, TYPE B LOW CARB STEEL CASE HARDENED ZINC CHROMATE PLATED ANSI B18.6.4-1981	No	No
B100	ST-212P	530-B31-1W	TAPPING SCREW, PHILLIPS FLAT HD #14 X 1 1/2" LG, TYPE B LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4-1981	No	No
B100	ST-49P	530-B21-1X	TAPPING SCREW, TRUSS PHILLIPS HD #12 X 1/2" LG, TYPE B LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATE ANSI B18.6.4-LATEST	No	No
B100	ST-508P	530-B38-1N	TAPPING SCREW, PHILLIPS PAN HD #8 X 1/2" LG, TYPE B LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4-1981	No	No

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B100	ST-532P	530-B28-1K	TAPPING SCREW, PHILLIPS FLAT HD #8 X 5/8" LG, TYPE B LOW CARB STEEL CASE HARDENED TRIVALENT ZINC PLATED ANSI B18.6.4-1981	No	No
B100	ST-592P	530-B12-1Y	TAPPING SCREW, FLAT PHILLIPS HEAD,TYPE A #14 X 7/8" LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATING ANSI B18.6.4-1981	No	No
B100	ST-634P	530-B05-1W	TAPPING SCREW, PHILLIPS PAN HD #10 X 3/8" LG, TYPE B LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4	No	No
B101	535-022	535-A08-1A	TAPPING SCREW, SLOT/SQ SKT PAN HD #8 X 1/4" LG, TYPE B LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED ANSI B18.6.4	No	No
B101	ST-307B	535-A06-1M	TAPPING SCREW, SQUARE SOCKET PAN HD #8 X 3/8" LG, TYPE B LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
B101	ST-319B	535-A19-1X	TAPPING SCREW, SQUARE SOCKET PAN HD #6 X 3/8" LG, TYPE B LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
B102	531-012	531-A02-1A	TAPPING SCREW PHILLIPS PAN #4-24 X 1/2" LG, TYPE A 18-8 STAINLESS STEEL ANSI B18.6.4-LATEST	No	No
B102	531-027	531-A01-1W	TAPPING SCREW PHILLIPS PAN HD #6 X 5/8" LG, TYPE A 18-8 STAINLESS STEEL ANSI B18.6.4-LATEST	No	No
B102	531-125	531-A03-1X	TAPPING SCREW PHILLIPS TRUSS HD #10 X 2" LG, TYPE A 18-8 STAINLESS STEEL ANSI B18.6.4-1981	No	No
B103	535-001	535-A05-1W	TAPPING SCREW, PAN SQUARE SOCKET HD #6 X 5/16" LG, TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED	No	No
B103	535-012	535-A23-1W	TAPPING SCREW, SQ SOCKET TRUSS HD #10 X 1/2" LG, TYPE A LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
B103	535-013	535-A33-1X	TAPPING SCREW, SQ SOCKET TRUSS HD #6 X 3/8" LONG, TYPE A LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED	No	No
B103	ST-226	535-A07-1X	TAPPING SCREW,SQUARE SOCKET OVAL HD #6 X 3/4" LG, TYPE AB LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC CHROMATE PLATED	No	No
B103	ST-238	535-A32-1M	TAPPING SCREW, OVAL SQ SOCKET HEAD #12 X 1 1/2" LG, TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC	No	No
B103	ST-256	535-A02-1N	TAPPING SCREW, SQ SOCKET FLAT HD #6 X 3/8" LG, TYPE A LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATE	No	No
B103	ST-271	535-A17-1W	TAPPING SCREW, SQUARE SOCKET PAN HD #4-24 X 1/4" LG, TYPE A LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED ANSI B18.6.4, LATEST REVISION	No	No
B103	ST-272	535-A09-1P	TAPPING SCREW, SQUARE SOCKET PAN HD #4-24 X 3/8" LG, TYPE AB LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC CHROMATE PLATED	No	No
B103	ST-273	535-A22-1W	TAPPING SCREW, SQUARE SOCKET PAN HD #6 X 1/4" LG, TYPE AB LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED ANSI B18.6.4, LATEST REVISION	No	No
B103	ST-278	535-A24-1Y	TAPPING SCREW, SQUARE SOCKET PAN HD #8 X 3/8" LG, TYPE AB LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
B103	ST-279	535-A13-1C	TAPPING SCREW, SQUARE SOCKET PAN HD #8 X 1/2" LG, TYPE AB LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No

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B103	ST-281	535-A01-1C	TAPPING SCREW, SQUARE SOCKET PAN HD #8 X 3/4" LG, TYPE AB LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC CHROMATE	No	No
B103	ST-286	535-A18-1M	TAPPING SCREW, SQUARE SOCKET PAN HD #10 X 3/4" LG, TYPE AB LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
B103	ST-289	535-A28-1K	TAPPING SCREW SQUARE SOCKET PAN HD #12 X 3/4" LG TYPE AB LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC CHROMATE PLATED	No	No
B103	ST-29	535-A12-1Y	TAPPING SCREW, SQ SOCKET TRUSS HD #6-20 X 1/2" LG, TYPE AB LOW CARB STEEL CASE HARD TRIVALENT CLEAR ZINC PLATED, ANSI B18.6.4	No	No
B103	ST-291	535-A04-1K	TAPPING SCREW, PAN SQUARE SOCKET HD #14 X 3/4" LG, TYPE AB LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED ANSI B18.6.4, LATEST REVISION	No	No
B103	ST-296	535-A21-1X	TAPPING SCREW SQ SOCKET TRUSS HD #6 X 5/8" LG, TYPE AB LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
B103	ST-300	535-A31-1W	TAPPING SCREW SQUARE SKT TRUSS HD #10 X 5/8" LG, TYPE A LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED	No	No
B103	ST-303	535-A03-1T	TAPPING SCREW, SQ SOCKET TRUSS HD #12 X 3/4" LG, TYPE AB LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED ANSI B18.6.4-	No	No
B103	ST-313	535-A27-1T	TAPPING SCREW, SQUARE SOCKET PAN HD #8 X 1 1/4" LG, TYPE A LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
B103	ST-347	535-A26-1N	TAPPING SCREW, PAN SQUARE SOCKET HD #10 X 1 1/2" LG, TYPE A LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED ANSI B18.6.4, LATEST REVISION	No	No
B103	ST-467	535-A34-1A	TAPPING SCREW SQ SOCKET TRUSS HD #6 X 1 1/2" LG, TYPE AB LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC CHROMATE PLATED	No	No
B103	ST-492	535-A10-1A	TAPPING SCREW SQ SOCKET TRUSS HD #10 X 3/4" LG, TYPE AB LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
B103	ST-505	535-A16-1K	TAPPING SCREW, SQ SOCKET FLAT HD #10 X 2" LG, TYPE A LOW CARBON STEEL CASE HARDENED ZINC PLATED	No	No
B103	ST-663	535-A29-1W	TAPPING SCREW SQUARE SOCKET FLAT HD #6 X 1 1/4" LG, TYPE AB LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
B103	ST-665	535-A11-1P	TAPPING SCREW SQUARE SOCKET FLAT HD #8 X 3/8" LG, TYPE AB LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC CHROMATE	No	No
B103	ST-680	535-A14-1N	TAPPING SCREW, PAN SQUARE SOCKET HD #14 X 5/8" LG, TYPE AB LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
B103	ST-95R	535-A20-1M	TAPPING SCREW SQUARE SOCKET FLAT HD #10 X 3/4" LG, TYPE AB LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
B105	540-013	540-A01-1N	TAPPING SCREW, PAN TORX HD, TYPE AB M4.8 X 19MM WITH T20 RECESS LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
B108	525-158	525-D16-1T	TAPPING SCREW,INDENT HEX WASHER HD #8 X 1" (HEX 1/4" AF) TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4-LATEST	No	No

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B108	B-1097	525-D04-1T	TAPPING SCREW,INDENTED SLOT HEX HD #8 X 5/16" (HEX 1/4" A/F) TYPE B LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4	No	No
B108	ST-380H	525-D19-1M	TAPPING SCREW, SLOTTED INDENTED HEX WASHER HEAD, TYPE AB #8-18 X 3/4" LG (HEX 1/4" AF) LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4-1981	No	No
B108	ST-57H	525-D03-1N	TAPPING SCREW, SLOT INDENTED HEX WASHER HEAD, TYPE AB #8 X 3/8" LG (HEX 1/4" AF) LOW CARB STEEL CASE HARD CLEAR TRIVALENT PLATING ANSI B18.6.4-1981	No	No
B108	ST-585H	525-D09-1A	TAPPING SCREW, SLOT INDENTED HEX WASHER HEAD #8 X 5/16" (HEX 1/4" AF) TYPE B LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4-LATEST	No	No
B108	ST-655H	525-D17-1K	TAPPING SCREW,INDENTED HEX WASHER HEAD, TYPE B #8 X 1/2" (HEX 1/4" AF) LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4-LATEST	No	No
B109	2110	525-D23-1A	TAPPING SCREW,UNSLOTTED,INDENTED HEX HEAD,TYPE AB 5/16" X 3/4" (HEX 1/2" AF) LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4-1981	No	No
B109	2370	525-D07-1M	TAPPING SCREW,INDENTD HEX WASHER HD #14 X 5/8" (HEX 3/8" AF) TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4	No	No
B109	525-142	525-D02-1C	TAPPING SCREW,INDENTD HEX WASHER HD #14 X 1" LG (HEX 3/8" AF) TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4-1981	No	No
B109	ST-352H	525-D21-1M	TAPPING SCREW,INDENTED HEX HEAD, #14 X 1 3/4" (HEX 7/16" AF) TYPE AB LOW CARB STEEL CASE HARD TRIVALENT CLEAR ZINC PLATED ANSI B18.6.4-1981	No	No
B109	ST-355H	525-D22-1X	TAPPING SCREW, INDENTED HEX HEAD 5/16" X 5/8" (HEX 1/2" AF) TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4, LATEST REVISION	No	No
B109	ST-357H	525-D12-1P	TAPPING SCREW, INDENTED HEX HD 5/16" X 2" (HEX 1/2" AF) TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4-1981	No	No
B109	ST-365H	525-D11-1A	TAPPING SCREW,INDENTD HEX WASHER HD #14 X 1" LG (HEX 7/16" AF) TYPE AB LOW CARB STEEL CASE HARD ZINC TRIVALENT PLATED ANSI B18.6.4-1981	No	No
B109	ST-368H	525-D13-1Y	TAPPING SCREW,INDENTD HEX WASHER HD 5/16" X 3/4" (HEX 1/2" AF) TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4	No	No
B109	ST-369H	525-D08-1X	TAPPING SCREW,INDENTD HEX WASHER HD 5/16" X 1" (HEX 1/2" AF) TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4, LATEST REVISION	No	No
B109	ST-389H	525-D10-1X	TAPPING SCREW, SLOTTED INDENTED HEX WASHER HEAD, TYPE AB #10 X 1" LG (HEX 5/16" AF) LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATE ANSI B18.6.4	No	No
B109	ST-42H	525-D05-1K	TAPPING SCREW,INDENTD HEX WASHER HD #14 X 1/2" (HEX 3/8" AF) TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4-LATEST	No	No
B109	ST-717H	525-D14-1C	TAPPING SCREW, SLOTTED INDENTED HEX WASHER HEAD, TYPE B #10 X 3/8" (HEX 5/16" AF) LOW CARB STEEL CASE HARDENED TRIVALENT ZINC PLATED ANSI B18.6.4-LATEST	No	No
B110	530-100	530-B11-1P	HI-LO TAPPING SCREW PHILLIPS PAN HD #4 X 1/4" LONG HARDENED LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.4 LATEST	No	No

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B110	530-102	530-B44-1M	HI-LO TAPPING SCREW PHILLIPS PAN HD #4-24 X 3/8" LONG LOW CARB STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
B110	530-103	530-B43-1W	HI-LO TAPPING SCREW PHILLIPS PAN HD #4 X 1/2" LONG LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED ASME B18.6.4-1981	No	No
B110	530-106	530-B01-1C	HI-LO TAPPING SCREW PHILLIPS PAN HD #6 X 3/8" LONG LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATE	No	No
B110	530-107	530-B07-1X	HI-LO TAPPING SCREW PHILLIPS PAN HD #6 X 1/2" LONG LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED	No	No
B110	530-108	530-B33-1X	HI-LO TAPPING SCREW PHILLIPS PAN HD #8 X 1/4" LONG LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4	No	No
B110	530-110	530-B17-1W	HI-LO TAPPING SCREW PHILLIPS PAN HD #8 X 1/2" LONG HARDENED LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.4	No	No
B110	530-113	530-B22-1A	HI-LO TAPPING SCREW PHILLIPS PAN HD #10 X 3/4" LONG LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED	No	No
B114	ST-326H	525-D01-1Y	TAPPING SCREW, SLOT INDENTED HEX WASHER HEAD,TYPE A #8 X 1/2" (HEX 1/4" AF) LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC CHROMATE ANSI B18.6.4-LATEST	No	No
B116	492-004	492-C17-1C	THREAD-CUTTING SCREW, PHILLIPS PAN #2-56 UNC X 1/4" LONG, TYPE F LOW CARB STEEL, CASE HARDENED TRIVALENT ZINC PLATED ANSI B18.6.4	No	No
B116	492-072	492-C14-1A	THREAD-CUTTING SCREW, SQUARE SOCKET ROUND HEAD, TYPE 1 1/4"-20 UNC X 5/8" LONG LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED, ANSI B18.6.4	No	No
B116	492-076	492-C12-1M	THREAD-CUTTING SCREW, PHILLIPS PAN, #4-40 UNC X 1/4" LONG, TYPE F LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED	No	No
B116	492-077	492-C07-1T	THREAD-CUTTING SCREW, SQ SKT ROUND, #10-24 UNC X 1/2" LONG, TYPE F LOW CARBON STEEL, CASE HARDENED TRIVALENT ZINC PLATED, ANSI B18.6.4	No	No
B116	492-078	492-C31-1C	THREAD-CUTTING SCREW SQ SKT BINDING #6-32 UNC X 7/8" LONG, TYPE 1 LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ASME B18.6.4	No	No
B116	492-082	492-C21-1T	THREAD-CUTTING SCREW SQUARE SOCKET PAN HD, TYPE F #8-32 UNC X 1" LG STEEL TRIVALENT ZINC PLATED	No	No
B116	B-435P	492-C35-1W	THREAD-CUTTING SCREW, PHILLIPS OVAL HEAD, TYPE F 1/4"-20 UNC X 1" LONG LOW CARB STEEL CASE HARD TRIVALENT ZINC	No	No
B116	ST-120	492-C20-1N	THREAD-CUTTING SCREW, PAN SQUARE SOCKET HEAD, TYPE F #10-32 UNF X 1" LONG LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED	No	No
B116	ST-182P	492-C32-1N	THREAD-CUTTING SCREW, PHILLIPS ROUND HEAD, TYPE 1 1/4"-20 UNC X 3/4" LONG LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED	No	No
B116	ST-184P	492-C03-1P	THREAD-CUTTING SCREW PHILLIPS TRUSS #6-32 UNC X 3/8" LONG, TYPE 1 LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4 LASTEST	No	No
B116	ST-195	492-C09-1W	THREAD-CUTTING SCREW SQ SKT FLAT HD #10-32 UNF X 5/8" LONG, TYPE 23 LOW CARB STEEL, CASE HARDENED TRIVALENT ZINC PLATED	No	No
B116	ST-220	492-C33-1T	THREAD-CUTTING SCREW FLAT SQ SKT HD 1/4"-20 UNC X 1-1/2" LG, TYPE F LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED	No	No

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B116	ST-305	492-C16-1Y	THREAD-CUTTING SCREW, SQUARE SOCKET ROUND HEAD, TYPE F #10-32 UNF X 1/2" LONG LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4	No	No
B116	ST-309	492-C26-1A	THREAD-CUTTING SCREW, SQ SKT PAN HD #8-32 UNC X 1/2" LONG, TYPE F LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED	No	No
B116	ST-330	492-C22-1K	THREAD-CUTTING SCREW, PAN SOCKET HD #10-24 UNC X 1/2" LG, TYPE 1 LOW CARD STEEL CASE HARD TRIVALENT ZINC PLATE	No	No
B116	ST-471P	492-C18-1N	THREAD-CUTTING SCREW, PHILLIPS PAN #10-24 UNC X 3/4" LONG, TYPE F LOW CARB STEEL,CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4 LATEST	No	No
B116	ST-476P	492-C06-1N	THREAD-CUTTING SCREW, PHILLIPS FLAT #10-32 UNF X 1" LONG, TYPE F LOW CARB STEEL CASE HARD TRIVALENT ZINC CHROME PLATED	No	No
B116	ST-486P	492-C24-1X	THREAD-CUTTING SCREW, PHILLIPS TRUSS HD, TYPE 1 #10-24 UNC X 3/8" LONG LOW CARB STEEL CASE HARD ZINC PLATE B18.6.4, LATEST REVISION	No	No
B116	ST-515P	492-C34-1K	THREAD-CUTTING SCREW, PAN PHILLIPS HEAD, TYPE 1 #8-32 UNC X 3/8" LONG LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATE ANSI B18.6.4, LATEST REVISION - NOT ROHS COMPLIANT	No	No
B116	ST-565P	492-C10-1K	THREAD-CUTTING SCREW, PHILLIPS FLAT HEAD, TYPE F #8-32 UNC X 7/16" LONG LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4	No	No
B116	ST-583	492-C11-1W	THREAD-CUTTING SCREW FLAT SOCKET HD #6-32 UNC X 3/8" LG, TYPE F LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4	No	No
B116	ST-593P	492-C13-1X	THREAD-CUTTING SCREW TRUSS PHIL HD #8-32 UNC X 5/16" LONG, TYPE F LOW CARB STEEL CASE HARDENED TRIVALENT ZINC PLTED	No	No
B116	ST-595P	492-C04-1Y	THREAD-CUTTING SCREW, PAN PHILLIPS HEAD, TYPE 1 #10-32 UNF X 5/8" LONG LOW CARBON STEEL, CASE HARDENED TRIVALENT ZINC PLATED	No	No
B116	ST-59P	492-C08-1K	THREAD-CUTTING SCREW, PHILLIPS BINDING HEAD, TYPE F #4-40 UNC X 3/16" LONG LOW CARB STEEL CASE HARD TRIVALENT ZINC	No	No
B116	ST-608P	492-C29-1C	THREAD-CUTTING SCREW, PHILLIPS PAN #8-32 UNC X 1-1/4" LONG, TYPE 1 LOW CARB STEEL, CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4	No	No
B116	ST-633P	492-C02-1A	THREAD-CUTTING SCREW PHILLIPS TRUSS 1/4"-20 UNC X 1" LONG, TYPE F LOW CARB STEEL, CASE HARD TRIVALENT ZINC CHROMATE PLATED	No	No
B116	ST-639P	492-C15-1P	THREAD-CUTTING SCREW, PHILLIPS ROUND HEAD, TYPE 1 #6-32 UNC X 3/8" LONG LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4, LATEST REVISION	No	No
B116	ST-657P	492-C19-1T	STEEL THREAD CUTTING SCREW, PAN PHILLIPS HEAD, TYPE 1 #8-32 UNC X 1/2" LONG LOW CARB STEEL, CASE HARDENED TRIVALENT ZINC PLATED ANSI B18.6.4-1981	No	No
B116	ST-688	492-C25-1A	THREAD-CUTTING SCREW, SQ SOCKET PAN #6 X 3/8" LG, TYPE 25 LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4, LATEST REVISION	No	No
B116	ST-728P	492-C27-1P	THREAD CUTTING SCREW, PHILLIPS PAN #8-32 UNC X 3/4" LONG, TYPE F LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4-1981	No	No
B118	B-466	490-C01-1P	THREAD-CUTTING SCREW, SLOT FLAT HD 1/4"-20 UNC X 1/2" LONG, TYPE 1 LOW CARB STEEL, CASE HARD TRIVALENT ZINC CHROMATE PLATED, ASME B18.6-1966	No	No

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B119	2013	491-P14-1K	THREAD-CUTTING SCREW, INDENTED HEX HEAD, TYPE 1 1/4"-20 UNC X 3/4" L(HEAD 7/16" AF) LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATE ANSI B18.6.4	No	No
B119	491-051	491-P21-1P	THREAD-CUTTING SCREW INDENTD HEX HD #10-32 UNF X 1/2", 5/16" AF,TYPE 23 LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4	No	No
B119	B-434	491-P03-1W	THREAD-CUTTING SCREW, INDENTED HEX WASHER HEAD, TYPE 1 1/4"-20 UNC X 1/2" L (HEAD 3/8" AF) LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4-LATEST	No	No
B119	B-434-S	491-P12-1N	THREAD-CUTTING SCREW, INDENTED HEX WASHER HEAD, TYPE 1 1/4"-20 UNC X 5/8" L (HEAD 3/8" AF) LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4, LATEST REVISION	No	No
B119	B-739	491-P22-1Y	THREAD-CUTTING SCREW, INDENTED HEX WASHER HEAD, TYPE 1 5/16"-18 UNC X 1/2" L (HEAD 1/2"AF) LOW CARBON STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4-1966	No	No
B119	B-865	491-P10-1Y	THREAD-CUTTING SCREW, INDENTED HEX HEAD, TYPE 1 3/8"-16 UNC X 1" LG (HEAD 9/16" AF) LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4, LATEST REVISION	No	No
B119	ST-491H	491-P25-1T	THREAD-CUTTING SCREW, INDENTED HEX SLOT HEAD, TYPE F, #8-32 UNC X 1/2" LG (HEAD 1/4" AF) LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4-LATEST	No	No
B119	ST-504H	491-P05-2X	THREAD-CUTTING SCREW, INDENTED HEX WASHER HEAD, TYPE 1 #10-24 UNC X 5/8" L (HEAD 5/16" AF) LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED ANSI B18.6.4	No	No
B119	ST-504H	491-P05-1X	THREAD-CUTTING SCREW, INDENTED HEX WASHER HEAD, TYPE 1 #10-24 UNC X 5/8" L (HEAD 5/16" AF) LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED ANSI B18.6.4	No	No
B119	ST-516H	491-P08-1Y	THREAD-CUTTING SCREW, INDENTED HEX WASHER HEAD, TYPE 1 #12-24 UNC X 5/8" L (HEAD 5/16" AF) LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4	No	No
B119	ST-538H-TV	491-P13-1T	THREAD-CUTTING SCREW, INDENTED HEX WASHER HEAD, TYPE 1 #12-24 UNC X 1/2" L (HEAD 5/16" AF) LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATE ANSI B18.6.4	No	No
B119	ST-55H	491-P23-1C	THREAD CUTTING SCREW, INDENTED HEX WASHER HEAD, TYPE 1 #10-24 UNC X 7/16" L (HD 5/16" AF) LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED ANSI B18.6.4-	No	No
B119	ST-602H	491-P07-1P	THREAD-CUTTING SCREW, INDENT HEX SLOT WASHER HEAD, TYPE F #6-32 UNC X 1/4" L (HEAD 1/4" AF) LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4	No	No
B119	ST-613H	491-P17-1X	THREAD-CUTTING SCREW, INDENTED HEX HEAD, TYPE F #10-32 UNF X 1/2" L (HEAD 5/16" AF) LOW CARBON STEEL CASE HARD TRIVALENT ZINC CHROM ANSI B18.6.4-1966	No	No
B119	ST-643H	491-P09-1C	THREAD-CUTTING SCREW, INDENTED HEX WASHER HEAD, TYPE 1 1/4"-20 UNC X 1" LG (HEAD 3/8" AF) LOW CARBON STEEL, CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4-1966	No	No

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B119	ST-645H	491-P02-1K	THREAD-CUTTING SCREW, INDENTED HEX WASHER HEAD, TYPE 1, 5/16"-18 UNC X 1" LG (HEAD 1/2" AF) LOW CARBON STEEL, CASE HARDENED TRIVALENT ZINC PLATED ANSI B18.6.4	No	No
B119	ST-654H	491-P04-1M	THREAD-CUTTING SCREW, UNSLOTTED INDENTED HEX WASHER HEAD, TYPE F 1/4"-20 UNC X 3/4" L (HEAD 3/8" AF) LOW CARBON STEEL, CASE HARDENED TRIVALENT ZINC PLATED ANSI B18.6.4-1966	No	No
B119	ST-666H	491-P01-1T	THREAD-CUTTING SCREW, INDENTED HEX HEAD, TYPE 1 3/8"-16 UNC X 1-3/4" L(HD 9/16" AF) LOW CARBON STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4	No	No
B119	ST-735H	491-P06-1A	THREAD CUTTING SCREW, INDENTED HEX WASHER HEAD, TYPE 1 5/16"-18 UNC X 5/8"LG(HEAD 1/2" AF) LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATE B18.6.4-	No	No
B120	491-102	491-P18-1A	INDENTED HEX WASHER HEAD THREAD ROLLING SCREW #4-40 UNC X 3/8" LONG LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATE ANSI B18.6.4-1981	No	No
B120	491-105	491-P20-1A	THREAD ROLLING SCREW INDENTED HEX WASHER HD #6-32 UNC X 3/8" LONG HARDENED LOW CARBON STEEL TRIVALENT ZINC PLTD	No	No
B120	491-107	491-P11-1C	THREAD-ROLLING SCREW, INDENTED HEX WASHER HD #8-32 UNC X 3/8" LONG LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4	No	No
B120	491-108	491-P19-1P	INDENTED HEX WASHER HEAD THREAD ROLLING SCREW #8-32 UNC X 1/2" LONG LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
B120	491-118	491-P15-1W	THREAD-ROLLING SCREW INDENTED HEX WASHER HEAD 1/4"-20 UNC X 3/4" LONG HARDENED LOW CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.6.4	No	No
B120	492-104	492-C23-1W	THREAD ROLLING SCREW PHIL PAN HD #6-32 UNC X 1/4" LONG LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATE	No	No
B120	492-105	492-C28-1Y	THREAD ROLLING SCREW PHIL PAN HD #6-32 UNC X 3/8" LONG STEEL ZINC PLATED AND WAXED ANSI B18.6.4	Yes	Yes
B120	492-107	492-C05-1C	THREAD ROLLING SCREW PHIL PAN HD #8-32 UNC X 3/8" LONG LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATE ANSI B18.6.4	No	No
B122	B-1122	376-H05-1X	TYPE "U" DRIVE SCREW ROUND HEAD #2 GA (.098") X 1/8" LG, USE DRILL #44, LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED ANSI B18.6.4-1986	No	No
B122	B-1124	376-H10-1Y	TYPE U DRIVE SCREW ROUND HEAD #2 GA (.098") X 1/4" LONG USE DRILL NO 44, STEEL CASE HARDENED ZINC PLATED ANSI B18.6.4	No	No
B122	B-1124A	376-H01-1T	TYPE U DRIVE SCREW ROUND HEAD #4 GA (.114") X 1/4" LONG USE DRILL NO 37, LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4	No	No
B122	B-1126	376-H06-1A	TYPE U DRIVE SCREW ROUND HEAD #8 GA (.164") X 3/8" LONG, USE DRILL SIZE 27, STEEL CASE HARDENED TRIVALENT ZINC PLATED ANSI B18.6.4	No	No
B122	B-1493	376-H07-1Y	TYPE U DRIVE SCREW ROUND HEAD #0 GA X 1/4" LG (.073" X 1/4") USE DRILL NO. 51, LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED ANSI B18.6.4	No	No
B122	B-1573	376-H11-1C	TYPE U DRIVE SCREW ROUND HEAD #0 GA X 3/16" LG (.073" X 3/16") USE DRILL # 51, STEEL CASE HARDENED ZINC PLATED ANSI B18.6.4	No	No

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B122	B-1800	376-H12-1N	TYPE U DRIVE SCREW ROUND HEAD #4 GA X 3/8" LG (.114" X 3/8") DRILL NO 37 STEEL CASE HARDENED TRIVALENT ZINC PLATED ANSI B18.6.4	No	No
B122	B-1809	376-H04-1M	TYPE U DRIVE SCREW ROUND HEAD #10 GA X 1/4" LG (.179" X 1/4") USE DRILL NO 20, LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B 18.6.3	No	No
B122	B-1856	376-H02-1K	TYPE U DRIVE SCREW ROUND HEAD #4 GA (.114") X 3/16" LONG USE DRILL NO 37, LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATE ANSI B18.6.4-	No	No
B122	B-1857	376-H03-1W	TYPE U DRIVE SCREW ROUND HEAD #6 GA X 1/4" LG (.138" X 1/4") USE DRILL NO 31, LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED ANSI B18.6.4	No	No
B122	B-1864	376-H09-1C	TYPE U DRIVE SCREW ROUND HEAD #10 GA (.179") X 3/8" LG, USE DRILL #20, STEEL CASE HARD TRIVALENT ZINC PLTD ANSI B18.6.4	No	No
B122	B-1865	376-H08-1Y	TYPE U DRIVE SCREW ROUND HEAD #10 GA (.179") X 1/2" LONG USE DRILL NO 20, LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED ANSI B18.6.4-1981	No	No
B122	B-1872	376-H13-1T	TYPE U DRIVE SCREW ROUND HEAD #14 GA X 3/4" LG (.239" X 3/4") USE DRILL NO.2, STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
B125	516-910	516-A02-1P	TAPPING SCREW,ROUND ONE-WAY SLOT HD #14 X 3/4" LG, TYPE A 18-8 STAINLESS STEEL	No	No
B128	381-395	381-G03-1C	FLAT HEAD SOCKET SECURITY SCREW #6-32 UNC X 1/2" LONG 18-8 STAINLESS STEEL ANSI B18.3-1986	No	No
B134	381-208	381-G01-1P	SECURITY THREAD-CUTTING SCREW, 6-LOBE BUTTON HD, TYPE F #10-24 UNC X 1" LG, RECESS TR25 LOW CARBON CASE HARDENED STEEL TRIVALENT ZINC PLATED	Yes	Yes
B136	381-1001	381-G02-1Y	SECURITY PIN-HEX SKT MACHINE SCREW BUTTON HEAD M4 X 8MM A2 STAINLESS STEEL	No	No
B137	877-541	877-C01-1N	HEX KEY FOR PIN-HEX SOCKET SECURITY SCREWS 3MM A/F ALLOY STEEL YELLOW ZINC	No	No
B138	460-015	460-B03-1A	SEMS THREAD-CUTTING SCREW INDENTED HEX HD TYPE 1 W/ 9/16" OD EXTERNAL TOOTH LOCKWASHER 5/16"-18 UNC X 1/2" (1/2" AF) LOW CARBON STEEL TRIVALENT ZINC PLT	No	No
B140	460-019	460-B04-1P	SEMS MACHINE SCREW PHILLIPS PAN HD, EXTERNAL TOOTH LOCKWASHER 17/64" OD #6-32 UNC X 3/8" LG LOW CARBON STEEL ZINC PLATED ANSI B18.13	No	No
B140	460-020	460-B01-1M	"SEMS" MACHINE SCREW, PHILLIPS PAN HD, EXTERNAL TOOTH LOCKWASHER #4-40 UNC X 1/4" LONG LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.13	No	No
B140	460-021	460-B02-1X	"SEMS" MACHINE SCREW PHILLIPS PAN HEAD W/ EXTERNAL TOOTH LOCKWASHER, #6-32 UNC X 1/4" LONG STEEL TRIVALENT ZINC PLATED ANSI B18.13	No	No
B140	460-023	460-B05-1Y	"SEMS" MACHINE SCREW PHILLIPS PAN HD W/INTERNAL TOOTH LOCKWASHER #8-32 UNC X 3/8" LONG STEEL TRIVALENT ZINC PLATED	No	No
B142	MS-477H	391-C11-1T	MACHINE SCREW INDENTED HEX WASHER HD (13/16" HEAD OD), DOG PT 5/16"-18 UNC X 1" LG (HEX 1/2" AF) LOW CARBON STEE TRIVALENT ZINC PLATED	No	No
B143	328-007	328-F14-1N	FLANGE SCREW SERRATED HEX WASHER HD #10-24 UNC X 1/2" LONG LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
B143	328-010	328-F07-1X	FLANGE SCREW,SERRATED HEX WASHER HD #10-32 UNF X 1/2" LG LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
B143	328-014	328-F02-1N	FLANGE SCREW SERRATED HEX WASHER HD 1/4"-20 UNC X 3/4" LG LOW CARB STEEL CASE HARD TRIVALENT CLEAR ZINC PLATED	No	No

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B143	328-015	328-F01-1C	FLANGE SCREW SERRATED HEX WASHER HD 1/4"-20 UNC X 1" LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
B143	328-016	328-F11-1P	FLANGE SCREW,SERRATED HEX WASHER HD 1/4"-20 UNC X 1 1/4" LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED	No	No
B143	328-017	328-F09-1P	FLANGE SCREW SERRATED HEX WASHER HD 1/4"-20 UNC X 1 1/2" LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
B143	328-018	328-F12-1Y	FLANGE SCREW SERRATED HEX WASHER HD 5/16"-18 UNC X 5/8" LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
B143	328-019-TV	328-F13-1C	FLANGE SCREW SERRATED HEX WASHER HD 5/16"-18 UNC X 1" LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED	No	No
B143	328-020	328-F15-1T	FLANGE SCREW SERRATED HEX WASHER HD 5/16"-18 UNC X 1 1/4" LOW CARBON STEEL TRIVALENT ZINC PLATED CASE HARDENED	No	No
B143	328-021	328-F05-1W	FLANGE SCREW SERRATED HEX WASHER HD 3/8"-16 UNC X 3/4" LONG LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
B143	328-022	328-F04-1K	FLANGE SCREW SERRATED HEX WASHER HD 3/8"-16 UNC X 1" LOW CARBON STEEL TRIVALENT ZINC PLATED CASE HARDENED	No	No
B143	328-023	328-F10-1A	FLANGE SCREW,SERRATED HEX WASHER HD 1/4"-20 UNC X 2" LG LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
B143	328-033	328-F03-1T	FLANGE SCREW SERRATED HEX WASHER HD 5/16"-18 UNC X 3/4" LG LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
B143	328-036	328-F06-1M	FLANGE SCREW,SERRATED HEX WASHER HD 3/8"-16 UNC X 1-1/4" LG LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
B143	328-037	328-F08-1A	FLANGE SCREW,SERRATED HEX WASHER HD 3/8"-16 UNC X 1 1/2" LG LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
B144	328-219	328-F16-1K	HEX FLANGE SERRATED BOLT M6 X 20MM CLASS 90 STEEL BLACK FINISH	No	No
B153	614-035	614-C01-1T	SELF-CLINCHING STUD #10-24 UNC X 1-1/2" LGTH CARBON STEEL HEAT TREATED ZINC PLATED	Yes	Yes
B155	573-113	573-B01-1N	SPOT WELD SCREW LJ SERIES #10-24 UNC X 1/2" LONG LOW CARBON STEEL PLAIN FINISH	No	No
B156	573-004	573-B03-1K	WELD SCREW, PROJECTION, MN TYPE, 3 WELD PROJECTIONS UNDER THE HEAD 1/4"-20 UNC X 5/8" C1010 LOW CARBON STEEL PLAIN	No	No
B156	573-013	573-B02-1T	WELD SCREW, PROJECTION, MN TYPE, 3 WELD PROJECTIONS UNDER THE HEAD 1/4"-20 UNC X 1 1/4" C1010 LOW CARBON STEEL LIGHT ANTI-RUST	Yes	Yes
B156	573-019	573-B05-1M	PROJECTION WELD SCREW MN SERIES #10-32 UNF X 1/2" LONG LOW CARBON STEEL LIGHT ANTI-RUST	Yes	Yes
B156	573-042	573-B04-1W	PROJECTION WELD SCREW "MN" SERIES #10-32 UNF X 3/8" LONG LOW CARBON STEEL PLAIN LIGHT ANTI-RUST	Yes	Yes
B164	325-121	325-A01-1P	HEX HEAD CAP SCREW 3/8"-16 UNC X 3 1/2" GRADE 2 STEEL HOT DIP GALVANIZED ANSI B18.2.1-1965	No	No
B164	325-135	325-A02-1Y	HEX HEAD CAP SCREW 1/2"-13 UNC X 8" LG GRADE 2 STEEL HOT DIP GALVANIZED ANSI B18.2.1-1965	No	No
B164	325-140	325-A04-1N	HEX HEAD CAP SCREW 5/8"-11 UNC X 4" A307 STEEL HOT DIP GALVANIZED ASME B18.2.1-1965	No	No
B165	326-353	326-G09-1M	HEX HEAD CAP SCREW FULL THREAD 5/16"-18 UNC X 3" LG SAE J429 GRADE 5 STEEL TRIVALENT ZINC PLATED	No	No
B165	326-354	326-G12-1X	HEX HEAD CAP SCREW FULLY THREADED 3/8"-16 UNC X 1 1/8" GRADE 5 STEEL TRIVALENT ZINC PLATED ANSI B18.2.1, LATEST REVISION	No	No

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B165	326-357	326-G11-1M	HEX HEAD CAP SCREW 3/8"-16 UNC X 2 1/2" LG FULL THREAD GRADE 5 STEEL TRIVALENT ZINC PLATED ANSI B18.2.1, LATEST REVISION	No	No
B165	326-371	326-G10-1W	HEX HEAD CAP SCREW FULLY THREADED 5/8"-11 UNC X 4" LG GRADE 5 STEEL TRIVALENT ZINC PLATED ANSI B18.2.1, LATEST REVISION	No	No
B165	326-375	326-G01-1A	HEX HEAD CAP SCREW FULLY THREADED 3/4"-10 UNC X 3 1/2" LG GRADE 5 STEEL ZINC PLATED ANSI B18.2.1	No	No
B165	FT-13	326-G06-1T	HEX HEAD CAP SCREW SAE 7/16"-14 UNC X 2" LG, FULL THREAD GRADE 5 MEDIUM CARBON STEEL QUENCHED & TEMPERED ZINC CHROMATE ANSI B18.2.1-1965	No	No
B165	FT-3	326-G05-1N	HEX HEAD CAP SCREW SAE 1/4"-20 UNC X 1 1/4" FULLY THREADED GRADE 5 MEDIUM CARBON STEEL TRIVALENT ZINC PLATED, ANSI B18.2.1-1965	No	No
B165	FT-9	326-G07-1K	HEX HEAD CAP SCREW FULLY THREADED 3/8"-16 UNC X 1 1/2" LG SAE GRADE 5 STEEL ZINC CHROMATE ANSI B18.2.1-1965	No	No
B166	HC-38	326-G08-1W	HEX HEAD CAP SCREW SAE 5/16"-18 UNC X 5" LG GRADE 5 MEDIUM CARBON STEEL TRIVALENT ZINC PLATED ASME B18.2.1-1965	No	No
B167	HC-141	326-G02-1P	HEX HEAD CAP SCREW SAE GRADE 5 UNF 5/16" - 24 UNF X 1 1/2" GRADE 5 MEDIUM CARBON STEEL ZINC CHROMATE PLATED ANSI B18.2.1-1965	No	No
B178	329-036	329-B01-1Y	HEX HEAD CAP SCREW, L9 3/8"-16 X 6" LONG LAMALLOY L9 ZINC DICHROMATE PLATED	No	No
B181	172-020	172-R01-1C	STOVER LOCK NUT 5/8"-18 UNF LAMALLOY L9 ZINC DICHROMATE	No	No
B183	346-065	346-D03-1X	HEX HEAD CAP SCREW 1/2"-13 UNC X 2 1/4" 316 STAINLESS STEEL ANSI B18.2.1-1965	No	No
B183	CS-2025	343-C03-1W	HEX HEAD CAP SCREW 3/8"-16 UNC X 1 1/2" 18-8 STAINLESS STEEL ANSI B18.2.1-1965	No	No
B183	CS-2035	343-C02-1K	HEX HEAD CAP SCREW 7/16"-14 UNC X 1" 18-8 STAINLESS STEEL ANSI B18.2.1-1965	No	No
B183	CS-2045	343-C01-1T	HEX HEAD CAP SCREW 1/2"-13 UNC X 2" LG 18-8 STAINLESS STEEL ANSI B18.2.1 LATEST	No	No
B183	CS-2301	346-D01-1W	HEX HEAD CAP SCREW 1/2"-13 UNC X 1 3/4" LONG 316 STAINLESS STEEL ANSI B18.2.1-1965	No	No
B183	CS-2345	346-D02-1M	HEX HEAD CAP SCREW 3/8"-16 UNC X 3 1/2" STAINLESS STEEL T-316 ANSI B18.2.1-1965	No	No
B186	CS-506	337-K14-1K	HEX HEAD CAP SCREW 1/4"-20 UNC X 1 1/4" FULLY THREADED SILICON BRONZE	Yes	No
B186	CS-511	337-K20-1P	HEX HEAD CAP SCREW FULLY THREADED 1/4"- 20 UNC X 2 1/2" SILICON BRONZE	Yes	No
B186	CS-517	337-K15-1W	HEX HEAD CAP SCREW FULLY THREADED 5/16"- 18 UNC X 1/2" SILICON BRONZE	Yes	No
B186	CS-519	337-K16-1M	HEX HEAD CAP SCREW FULLY THREADED 5/16"- 18 UNC X 3/4" SILICON BRONZE	Yes	No
B186	CS-525	337-K17-1X	HEX HEAD CAP SCREW FULLY THREADED 5/16"- 18 UNC X 1 1/2" SILICON BRONZE	Yes	No
B186	CS-534	337-K18-1A	HEX HEAD CAP SCREW FULLY THREADED 3/8"- 16 UNC X 1/2" SILICON BRONZE	Yes	No
B186	CS-542	337-K08-1Y	HEX HEAD CAP SCREW FULLY THREADED 3/8"-16 UNC X 1 1/2" LG SILICON BRONZE	Yes	No
B186	CS-544	337-K06-1A	HEX HEAD CAP SCREW FULLY THREADED 3/8"-16 UNC X 2" SILICON BRONZE	Yes	No
B186	CS-545	337-K04-1M	HEX HEAD CAP SCREW FULLY THREADED 3/8"-16 UNC X 2 1/4" LG SILICON BRONZE	Yes	No
B186	CS-548	337-K11-1C	HEX HEAD CAP SCREW FULLY THREADED 3/8"-16 UNC X 3" LG SILICON BRONZE	Yes	No

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B186	CS-553	337-K01-1T	HEX HEAD CAP SCREW FULLY THREADED 3/8"-16 UNC X 4-1/2" LONG SILICON BRONZE	No	No
B186	CS-554	337-K07-1P	HEX HEAD CAP SCREW FULLY THREADED 3/8"-16 UNC X 5" LG SILICON BRONZE	Yes	No
B186	CS-559	337-K10-1Y	HEX HEAD CAP SCREW FULLY THREADED 7/16"-14 UNC X 1 3/4" SILICON BRONZE	No	No
B186	CS-569	337-K09-1C	HEX HEAD CAP SCREW FULLY THREADED 1/2"-13 UNC X 1 1/2" SILICON BRONZE PLAIN FINISH	No	No
B186	CS-570	337-K21-1P	HEX HEAD CAP SCREW 1/2"-13 UNC X 1 3/4" SILICON BRONZE FULLY THREADED	Yes	Yes
B186	CS-572-RC	337-K13-1T	HEX HEAD CAP SCREW FULLY THREADED 1/2"-13 UNC X 2 1/4" LG SILICON BRONZE ANSI B18.2.1-1981	No	No
B186	CS-575	337-K05-1X	HEX HEAD CAP SCREW FULLY THREADED 1/2"-13 UNC X 3" LG SILICON BRONZE	Yes	No
B186	CS-578	337-K02-1K	HEX HEAD CAP SCREW FULLY THREADED 1/2"-13 UNC X 3 3/4" LG SILICON BRONZE	Yes	No
B186	CS-587	337-K03-1W	HEX HEAD CAP SCREW FULLY THREADED 5/8"-11 UNC X 1 3/4" LG SILICON BRONZE	Yes	No
B186	CS-627	337-K12-1N	HEX HEAD CAP SCREW FULLY THREADED 1/4"-28 UNF X 1" SILICON BRONZE	Yes	No
B186	CS-637	337-K19-1A	HEX HEAD CAP SCREW FULLY THREADED 3/8"- 24 UNF X 1 1/4" SILICON BRONZE	No	No
B190	330-056	330-H07-1C	HEX HEAD CAP SCREW DIN 933 M6 X 1.00 X 50MM LG FULL THREAD CL 8.8 MEDIUM CARBON STEEL PLAIN DIN 933/8.8 M6X50	No	No
B190	330-123	330-H02-1M	HEX HEAD CAP SCREW DIN 933 M12 X 1.75 X 35MM FULL THREAD CL 8.8 MEDIUM CARBON STEEL PLAIN DIN 933/8.8 M12X35	No	No
B190	330-143	330-H05-1P	HEX HEAD CAP SCREW DIN 933 M14 X 2.00 X 35MM LG, FULL THREAD CL 8.8 MEDIUM CARBON STEEL PLAIN DIN 933/8.8 M14X35	No	No
B194	330-633	330-H06-1Y	HEX HEAD CAP SCREW, DIN 931 M10 X 1.50 X 300MM LG, PARTIAL THRD CLASS 8.8 STEEL PLAIN FINISH DIN 931/8.8 M10X300	No	No
B199	330-268ZP	330-H01-1W	HEX HEAD CAP SCREW, DIN 961 M14 X 1.5 X 35MM LG, FULL THREAD CL 8.8 STEEL ZINC PLATED DIN 961/8.8-ZP M14X35	No	No
B201	330-294ZP	330-H03-1X	HEX HEAD CAP SCREW, DIN 960 M8 X 1.0 X 80MM PARTIAL FINE THREAD CLASS 8.8 STEEL ZINC PLATED DIN 960/8.8-ZP M8X80	No	No
B201	330-304ZP	330-H08-1N	HEX HEAD CAP SCREW, DIN 960 M12 X 1.25 X 50MM LG, PARTIAL THRD CL 8.8 STEEL TRIVALENT ZINC PLATED DIN 960/8.8	No	No
B202	332-016	332-B01-1C	HEX HEAD CAP SCREW DIN 933 M8 X 1.25 X 25MM LG, FULL THREAD CL 10.9 MEDIUM CARBON STEEL PLAIN DIN 933/10.9 M8X25	No	No
B205	332-024YZ	332-B04-1M	HEX HEAD CAP SCREW, DIN 931, M8 X 60MM LG, PARTIAL THREAD CLASS 10.9 STEEL YELLOW ZINC PLATED DIN 931/10.9-YZ M8X60	Yes	No
B205	332-037YZ	332-B03-1W	HEX HEAD CAP SCREW, DIN 931, M10 X 60MM LG, PARTIAL THREAD CL 10.9 STEEL YELLOW ZINC PLATED DIN 931/10.9-YZ M10X60	No	No
B206	344-015	344-W02-1Y	HEX HEAD CAP SCREW DIN 933 M6 X 1.00 X 12MM LG, FULL THREAD A2 STAINLESS STEEL DIN 933/A2 M6X12	No	No
B206	344-048	344-W01-1N	HEX HEAD CAP SCREW DIN 933 M12 X 1.75 X 35MM LG, FULL THREAD A2 STAINLESS STEEL DIN 933/A2 M12X35	No	No
B206	344-168	344-W03-1K	HEX HEAD CAP SCREW DIN 933 M10 X 1.50 X 30MM FULL THREAD A4 STAINLESS STEEL DIN 933/A4 M10X30	No	No
B206	344-283	344-W05-1M	HEX HEAD CAP SCREW, DIN 933 M5 X .80 PITCH X 50MM LG, FULL THRD A2 STAINLESS STEEL DIN 933/A2 M5X50	No	No
B207	344-209	344-W06-1X	HEX HEAD CAP SCREW DIN 931 M8 X 1.25 X 130MM LG, PARTIAL THRD A2 STAINLESS STEEL DIN 931/A2 M8X130	No	No

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B207	344-224	344-W04-1W	HEX HEAD CAP SCREW DIN 931 M10 X 1.50 X 150MM PARTIAL THREAD A2 STAINLESS STEEL DIN 931/A2 M10X150	No	No
B234	HX-195	363-A02-1M	HEX SOCKET CAP SCREW 1960 SERIES #6-32 UNC X 1" LG ALLOY STEEL QUENCHED & TEMPERED PLAIN FINISH ANSI B18.3-1986	No	No
B234	HX-301	363-A03-1X	HEX SOCKET CAP SCREW 1960 SERIES 1/4"-20 UNC X 2 1/4" ALLOY STEEL QUENCHED & TEMPERED PLAIN FINISH ANSI B18.3-1986	No	No
B235	HX-112	363-A01-1W	HEX SOCKET CAP SCREW 1960 SERIES 3/8"-16 UNC X 1 1/4" ALLOY STEEL QUENCHED & TEMPERED PLAIN FINISH ANSI B18.3-1986	No	No
B235	HX-141	363-A08-1N	HEX SOCKET CAP SCREW 1960 SERIES 5/8"-11 UNC X 1 1/2" ALLOY STEEL QUENCHED & TEMPERED PLAIN FINISH ANSI B18.3-1986	No	No
B235	HX-147	363-A07-1C	HEX SOCKET CAP SCREW 1960 SERIES 5/8"-11 UNC X 3" ALLOY STEEL QUENCHED & TEMPERED PLAIN FINISH ANSI B18.3-1986	No	No
B235	HX-187	363-A10-1N	HEX SOCKET CAP SCREW 1960 SERIES 1"-8 UNC X 3 1/4" ALLOY STEEL QUENCHED & TEMPERED PLAIN FINISH ANSI B18.3-1986	No	No
B237	363-466	363-A09-1T	HEX SOCKET CAP SCREW 1 1/2"-12 UNF X 4" LONG ALLOY STEEL ANSI B18.3-1986	No	No
B238	363-417	363-A11-1T	HEX SOCKET FLAT HEAD CAP SCREW 5/8"-11 UNC X 3" LONG ALLOY STEEL QUENCH & TEMP PLAIN ANSI B18.3-1986	No	No
B238	HX-204	363-A06-1Y	HEX SOCKET FLAT HEAD CAP SCREW 6"-32 UNC X 3/8" ALLOY STEEL QUENCHED & TEMPERED PLAIN FINISH ANSI B18.3-1986	No	No
B238	HX-219	363-A13-1W	HEX SOCKET FLAT HEAD CAP SCREW #10-32 UNF X 1" ALLOY STEEL QUENCHED & TEMPERED PLAIN FINISH ANSI B18.3-1986	No	No
B239	363-386	363-A04-1A	HEX SOCKET BUTTON HEAD CAP SCREW #10-32 UNF X 1/4" LG ALLOY STEEL QUENCHED & TEMPERED PLAIN FINISH ANSI B18.3-1986	No	No
B239	363-527	363-A05-1P	BUTTON HEAD HEX SOCKET CAP SCREW 1/4"-28 UNF X 3/4" LG ALLOY STEEL PLAIN ANSI B18.3-1986	No	No
B240	370-001	370-C07-1Y	HEX SOCKET CAP SCREW #0-80 UNF X 3/16" LONG 18-8 STAINLESS STEEL ANSI B18.3-1986	No	No
B240	HX-2003	370-C03-1M	HEX SOCKET CAP SCREW #4-40 UNC X 3/8" LGTH 18-8 STAINLESS STEEL ANSI B18.3	No	No
B240	HX-2006	370-C06-1P	HEX SOCKET CAP SCREW #6-32 UNC X 3/8" LGTH 18-8 STAINLESS STEEL ANSI B18.3	No	No
B240	HX-2013	370-C08-1C	HEX SOCKET CAP SCREW #10-24 UNC X 3/8" LGTH 18-8 STAINLESS STEEL ANSI B18.3-LATEST	No	No
B240	HX-2018	370-C04-1Y	HEX SOCKET CAP SCREW #10-32 UNF X 1/2" LGTH 18-8 STAINLESS STEEL ANSI B18.3	No	No
B240	HX-2041	370-C02-1W	HEX SOCKET CAP SCREW 3/8"-16 UNC X 2" LGTH 18-8 STAINLESS STEEL ANSI B18.3-1986	No	No
B241	370-313	370-C01-1K	FLAT HEAD HEX SOCKET CAP SCREW, 82 DEGREE COUNTERSUNK #10-32 UNF X 1" LGTH 18-8 STAINLESS STEEL ANSI 18.3-1986	No	No
B241	370-316	370-C05-1A	FLAT HEAD HEX SOCKET CAP SCREW 82 DEGREE CONTERSUNK 1/4" - 20 UNC X 3/4" LGTH 18-8 STAINLESS STEEL ANSI B18.3-1986	No	No
B241	370-356	370-C09-1N	FLAT HEAD HEX SOCKET CAP SCREW 82 DEGREE COUNTERSUNK 5/16-18 UNC X 1/2" LGTH 18-8 STAINLESS STEEL ANSI B18.3-1986	No	No

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B246	364-801	364-A01-1K	HEX SOCKET SHOULDER SCREW 1/4" X 1/2" SHOULDER (#10-24 THRD) 18-8 STAINLESS STEEL ANSI B18.3-1986	No	No
B250	367-011	367-B01-1M	HEX SOCKET CAP SCREW DIN 912 M3 X 0.50 X 12MM LG, FULL THREAD CL 8.8 MED CARB STEEL PLAIN DIN 912/8.8/FULL M3X12	No	No
B252	367-144	367-B03-1A	HEX SOCKET CAP SCREW DIN 912 M12 X 1.75 X 110MM LG, PARTIAL THRD CL 8.8 MED CARBON STEEL PLAIN DIN 912/8.8/PART M12X110	No	No
B253	367-236	367-B02-1X	HEX SOCKET CAP SCREW DIN 912 M24 X 3.00 X 300MM LG, PARTIAL THRD CL 8.8 MED CARB STEEL PLAIN DIN 912/8.8/PART M24X300	No	No
B256	366-439	366-W12-1C	HEX SKT LOW HD CAP SCREW DIN 7984 M16 X 2.00 PITCH X 35MM CL 8.8 MED CARB STEEL PLAIN DIN 7984/8.8 M16X35	No	No
B258	373-436	373-B06-1K	LOW SOCKET HEAD CAP SCREW W/PILOT RECESS, DIN 6912 M6 X 1.00 X 10MM A2 STAINLESS STEEL DIN 6912/A2 M6X10	No	No
B262	366-1019	366-W04-1W	HEX SOCKET CAP SCREW, DIN 912 M8 X 40MM LG, FULLY THREADED CL 12.9 ALLOY STEEL PLAIN DIN 912/12.9/FULL M8X40	No	No
B262	366-1032	366-W13-1N	HEX SOCKET CAP SCREW, DIN 912 M12 X 50MM LG, FULL THREAD CL 12.9 ALLOY STEEL PLAIN DIN 912/12.9/FULL M12X50	No	No
B264	366-745	366-W14-1T	HEX SOCKET CAP SCREW DIN 912 M6 X 1.00 X 45MM LG, PARTIAL THREAD CL 12.9 MED CARB ALLOY STEEL PLAIN DIN 912/12.9/PART M6X45	No	No
B266	366-326YZ	366-W09-1Y	HEX SOCKET CAP SCREW DIN 912 M3 X 0.50 X 5MM LG FULL THREAD CL 12.9 HEAT TREATED ALLOY STEEL YELLOW ZINC PLATED DIN 912/12.9-YZ/FULL M3X5	No	No
B266	366-717YZ	366-W10-1P	HEX SOCKET CAP SCREW DIN 912 M4 X 0.70 X 16MM FULL THREAD CL 12.9 HEAT TREATED ALLOY STEEL YELLOW ZINC PLATED DIN 912/12.9-YZ/FULL M4X16	No	No
B266	366-718YZ	366-W07-1Y	HEX SOCKET CAP SCREW DIN 912 M4 X 0.70 X 20MM LG FULL THREAD CL 12.9 HEAT TREATED ALLOY STEEL YELLOW ZINC PLATED DIN 912/12.9-YZ/FULL M4X20	No	No
B266	366-726YZ	366-W11-1Y	HEX SOCKET CAP SCREW DIN 912 M5 X 0.80 X 10MM LG, FULL THREAD CL 12.9 HEAT TREATED ALLOY STEEL YELLOW ZINC PLATED DIN 912/12.9-YZ/FULL M5X10	Yes	No
B266	366-727YZ	366-W16-1W	HEX SOCKET CAP SCREW DIN 912 M5 X 0.80 X 12MM FULL THREAD CL 12.9 HEAT TREATED ALLOY STEEL YELLOW ZINC PLATED DIN 912/12.9-YZ/FULL M5X12	No	No
B266	366-739YZ	366-W08-1P	HEX SOCKET CAP SCREW DIN 912 M6 X 1.00 X 16MM LG, FULL THREAD CL 12.9 HEAT TREATED ALLOY STEEL YELLOW ZINC PLATED DIN 912/12.9-YZ/FULL M6X16	No	No
B268	373-003	373-B05-1K	HEX SOCKET CAP SCREW DIN 912 M3 X 0.50 X 12MM LG, FULL THREAD A2 STAINLESS STEEL PLAIN DIN 912/A2/FULL M3X12	No	No
B268	373-076	373-B11-1K	HEX SOCKET CAP SCREW DIN 912 M12 X 1.75P X 100MM PARTIAL THREAD A2 STAINLESS STEEL DIN 912/A2/PART M12X100	No	No
B268	373-100	373-B01-1M	HEX SOCKET CAP SCREW DIN 912 M8 X 1.25 X 80MM LG, PARTIAL THREAD A2 STAINLESS STEEL DIN 912/A2/PART M8X80	No	No
B268	373-171-RC	373-B07-1N	HEX SOCKET CAP SCREW, DIN 912 M10 X 1.50 X 65MM, PARTIAL THREAD A2 STAINLESS STEEL DIN 912/A2/PART M10X65	No	No

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B268	373-180-RC	373-B09-1K	HEX SOCKET CAP SCREW, DIN 912 M12 X 1.75 X 75MM PARTIAL THREAD A2 STAINLESS STEEL DIN 912/A2/PART M12X75	No	No
B270	366-617	366-W02-1T	HEX SKT BUTTON HD CAP SCREW ISO7380 M6 X 1.00 PITCH X 20MM LG CL 10.9 MED CARB ALLOY STEEL PLAIN ISO 7380/10.9 M6X20	No	No
B270	366-653YZ	366-W01-1N	BUTTON HD HEX SKT CAP SCREW ISO7380 M3 X 6MM LONG CL 10.9 STEEL PLAIN ISO 7380/10.9 M3X6	No	No
B270	366-653YZ	366-W06-1M	BUTTON HEAD HEX SOCKET CAP SCREW, ISO 7380 M3 X 0.50 X 6MM LGTH CL 10.9 STEEL YELLOW ZINC PLATED ISO 7380/10.9-YZ M3X6	No	No
B270	366-656YZ	366-W15-1K	BUTTON HD HEX SKT CAP SCREW ISO7380 M3 X 0.50 X 8MM LGTH CL 10.9 STEEL YELLOW ZINC PLATED ISO 7380/10.9-YZ M3X8	No	No
B270	373-310	373-B03-1A	BUTTON HEAD HEX SOCKET CAP SCREW M5 X 20MM LG A2 STAINLESS STEEL ISO 7380/A2 M5X20	No	No
B271	366-574YZ	366-W05-1M	HEX SKT FLAT HD CAP SCREW, DIN 7991 M4 X 12MM LG, FULL THREAD CL 10.9 STEEL YELLOW ZINC DICHROMATE DIN 7991/10.9-YZ/FULL M4X12	No	No
B273	373-214-RC	373-B08-1T	CTSK FLAT HD HEX SOCKET CAP SCREW, M6 X 1.0P X 20MM LG, FULL THREAD A2 STAINLESS STEEL DIN 7991/A2/FULL M6X20	No	No
B273	373-256	373-B04-1P	HEX SKT CAP SCREW FLAT HD DIN 7991 M3 X 0.50 X 6MM LG, FULL THREAD A2 STAINLESS STEEL DIN 7991/A2/FULL M3X6	No	No
B273	373-266-RC	373-B10-1T	FLAT HEAD HEX SOCKET CAP SCREW M5 X 0.80 X 8MM LG, FULL THREAD A2 STAINLESS STEEL DIN 7991/A2/FULL M5X8	No	No
B275	365-030	365-P02-1P	HEX SOCKET SHOULDER SCREW ISO 7379 12MM X 40MM SHOULDER, M10 THREAD CL 12.9 ALLOY STEEL PLAIN ISO 7379/12.9 12X40/M10	No	No
B275	365-031	365-P01-1A	HEX SOCKET SHOULDER SCREW ISO 7379 12MM X 50MM SHOULDER, M10 THREAD CL 12.9 ALLOY STEEL PLAIN ISO 7379/12.9 12X50/M10	No	No
B275	365-072	365-P03-1Y	HEX SOCKET SHOULDER SCREW ISO 7379 24MM X 70MM - M20 THREAD CL 12.9 ALLOY STEEL PLAIN ISO 7379/12.9 24X70/M20	No	No
B284	SS-186	478-E01-1P	HEX SOCKET SET SCREW CUP POINT #10-32 UNF X 1" ALLOY STEEL HEAT TREATED PLAIN ANSI B18.3-1986	No	No
B285	SS-245	478-E03-1C	HEX SOCKET SET SCREW CUP POINT 5/8"-11 UNC X 3/4" ALLOY STEEL HEAT TREATED PLAIN ANSI B18.3-1986	No	No
B288	479-007	479-D02-1K	HEX SOCKET SET SCREW, CUP POINT #4-40 UNC X 1/2" LONG 18-8 STAINLESS STEEL ANSI B18.3-1986	No	No
B288	SS-2039	479-D01-1T	HEX SOCKET SET SCREW, CUP POINT 1/4"-20 UNC X 1/2" LGTH 18-8 STAINLESS STEEL ANSI B18.3-1986	No	No
B296	477-257	477-D01-1W	HEX SKT SET SCREW FLAT PT HEADLESS 1/2"-13 UNC X 3/4" NYLON 6/6 NATURAL FINISH	No	No
B298	481-007	481-C01-1W	HEX SOCKET SET SCREW, CUP POINT M2 X 0 .4O PITCH X 4MM CL 45H ALLOY STEEL PLAIN FINISH DIN 916/45H M2X4	No	No
B299	482-070	482-W03-1T	HEX SOCKET SET SCREW CUP PT DIN 916 M5 X 5MM A2 STAINLESS STEEL DIN 916/A2 M5X5	No	No
B299	482-075	482-W01-1C	HEX SOCKET SET SCREW, CUP POINT M5 X 40MM LG A2 STAINLESS STEEL DIN 916/A2 M5X40	No	No

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B299	482-097	482-W02-1N	HEX SOCKET SET SCREW CUP PT DIN 916 M12 X 16MM A2 STAINLESS STEEL DIN 916/A2 M12X16	No	No
B301	481-373	481-C03-1K	HEX SOCKET SET SCREW, FLAT PT M6 X 1.00 PITCH X 20MM CL 45H ALLOY STEEL PLAIN DIN 913/45H M6X20	No	No
B302	481-197	481-C02-1T	HEX SOCKET SET SCREW, FULL DOG PT M6 X 1.00 PITCH X 40MM LG CL 45H ALLOY STEEL PLAIN DIN 915/45H M6X40	No	No
B305	878-012	878-K04-1K	ROUND SPLIT DIE, BRITISH STANDARD WHITWORTH 1/2"-12 BSW (1-5/16" OD) HIGH SPEED STEEL PLAIN	No	No
B307	038-135	038-H03-1Y	LAG SCREW HEX HEAD 5/8" DIA X 4" STEEL HOT DIP GALVANIZED	No	No
B307	LB-32	038-H05-1N	HEX HEAD LAG SCREW 1/2" X 2" STEEL BLACK	No	No
B307	LB-43	038-H01-1A	LAG SCREW HEX HEAD 5/8" X 2-1/2" STEEL TRIVALENT ZINC FINISH	Yes	Yes
B308	014-001	014-K01-1W	CARRIAGE BOLT ROUND HD SQUARE NECK #8-32 UNC X 3/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
B308	014-081	014-K02-1M	CARRIAGE BOLT ROUND HD SQUARE NECK #8-32 UNC X 5/8" LONG GRADE 2 STEEL TRIVALENT ZINC PLATED	No	No
B308	014-153	014-K08-1C	CARRIAGE BOLT ROUND HD SQUARE NECK 5/16"-18 UNC X 2-1/4" FULL THREAD LOW CARBON STEEL BRIGHT ZINC PLATED	No	No
B308	CB-1ZP	014-K05-1P	CARRIAGE BOLT ROUND HD SQUARE NECK #10-24 UNC X 3/4" LG LOW CARBON STEEL ZINC PLATED ANSI B18.5	No	No
B308	CB-2	014-K06-1Y	CARRIAGE BOLT ROUND HEAD SQ NECK #10-24 UNC X 1" LONG LOW CARBON STEEL PLAIN FINISH ANSI B18.5-LATEST	No	No
B309	014-120	014-K04-1A	CARRIAGE BOLT ROUND HD SQUARE NECK 3/8"-16 UNC X 1 1/2" LG FULL THREAD GRADE 2 LOW CARBON STEEL HOT GALVANIZED FINISH, ANSI B18.5-1978	No	No
B309	014-135	014-K09-1T	CARRIAGE BOLT ROUND HD SQUARE NECK 1/2"-13 UNC X 3 1/2" FULL THREAD ASTM A307 GRADE A STEEL HOT DIP GALVANIZED FINISH ANSI B18.5-1978	No	No
B309	014-142	014-K16-1A	CARRIAGE BOLT ROUND HD SQUARE NECK 5/8"-11 UNC X 3" LG FULL THREAD STEEL HOT DIP GALVANIZED FINISH ANSI B18.5-1978	No	No
B309	014-200	014-K14-1M	CARRIAGE BOLT ROUND HD SQUARE NECK FULLY THREADED 1/4"-20 UNC X 3/4" LG SAE J429 GRADE 5 STEEL PLAIN FINISH	Yes	Yes
B309	014-224	014-K12-1P	CARRIAGE BOLT ROUND HD SQUARE NECK 3/8"-16 UNC X 1 1/4" LG GRADE 5 STEEL PLAIN FINISH ANSI B18.5-1978	No	No
B309	014-230	014-K15-1X	CARRIAGE BOLT ROUND HD SQUARE NECK FULLY THREADED 3/8"-16 UNC X 2 3/4" LG SAE J429 GRADE 5 STEEL PLAIN FINISH	Yes	Yes
B310	014-834	014-K10-1P	CARRIAGE BOLT ROUND HD SQUARE NECK 1/2"-13 UNC X 1 1/2" LG 18-8 STAINLESS STEEL	No	No
B310	014-837	014-K11-1T	CARRIAGE BOLT ROUND HD SQUARE NECK 1/2" - 13 UNC X 3" L 18-8 STAINLESS STEEL ANSI B18.5	No	No
B310	014-842	014-K03-1X	CARRIAGE BOLT ROUND HD SQUARE NECK 5/8"-11 UNC X 4" LONG 18-8 STAINLESS STEEL	No	No
B310	042-002	042-H01-1Y	SQUARE HEAD MACHINE BOLT 3/4"-10 UNC X 2-1/2" GRADE 2 LOW CARBON STEEL PLAIN ANSI B18.2.1	No	No
B310	MB-800	042-H03-1N	MACHINE BOLT SQUARE HEAD 3/8"-16 UNC X 2" LOW CARBON STEEL PLAIN FINISH ANSI B18.2.1	No	No
B310	MB-802	042-H05-1K	MACHINE BOLT SQUARE HEAD FULLY THREADED 1/2"-13 UNC X 2" ASTM A307 LOW CARBON STEEL PLAIN FINISH	No	No

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B310	MB-805	042-H04-1T	MACHINE BOLT SQUARE HEAD (NO NUT) 5/16"-18 UNC X 1 1/2" LG LOW CARBON STEEL ASTM A307 PLAIN FINISH	No	No
B310	MB-819	042-H02-1C	MACHINE BOLT SQUARE HEAD (NO NUT) 1/4"-20 UNC X 3/4" LG STEEL LOW CARBON PLAIN FINISH ANSI B18.2.1	No	No
B313	B-1284	018-P02-1X	ELEVATOR BOLT, 3/8"-16 UNC X 1 1/2" STEEL PLAIN ANSI B18.5	No	No
B313	B-794	018-P01-1M	ELEVATOR BOLT, FLAT COUNTERSUNK HD, 5/16"-18 UNC X 2" STEEL PLAIN PER ASME B18.5 1990 (R1998)	No	No
B316	UB-6	030-L01-1N	ROUND BEND U-BOLT (BOLT ONLY) FOR 1-1/2" PIPE, 5/16"-18 THREAD, 2-1/32" IINTERNAL WIDTH, 2-5/8" APRROX INSIDE LENGTH STEEL ZINC PLATED	No	No
B320	024-801	024-T02-1X	EYE BOLT PLAIN TYPE W/HEX NUT 1/2"-13 UNC X 4-1/2" SHANK LGTH (2" THREAD LGTH) 1" EYE ID, 2" EYE OD 304 STAINLESS STEEL, FORGED	No	No
B325	024-168	024-T06-1C	GATE HOOK & (2) EYES 3" HOOK LENGTH, .177" WIRE DIA. STEEL ZINC PLATED	No	No
B326	024-144	024-T04-1P	SCREW EYE 15/32" OAL .054" WIRE DIAM 1/8 EYE ID STEEL ZINC PLATED	No	No
B326	024-154	024-T05-1A	SCREW EYE 2 5/8" O/A LGTH, .262" WIRE DIAM 23/32" EYE ID STEEL ZINC PLATED	No	No
B327	024-857	024-T01-1M	TURNBUCKLE BODY 1/2"-13 UNC RHT & LHT X 6" TAKE-UP 316 STAINLESS STEEL FORGED	No	No
B333	570-040	570-M01-1Y	WING SCREW, M8 X 1.25 X 30MM LG FULL THREAD, 40MM WING WDTH MALLEABLE CASTING/STEEL TRIVALENT ZINC PLATED	No	No
B345	871-022-RC	871-A01-1A	FULLY THREADED ROD DIN 975 M10 X 1 METRE LGTH A4 STAINLESS STEEL DIN 975/A4 M10X1MTR	No	No
B345	873-008	873-B01-1C	FULLY THREADED ROD, DIN 975 M8 X 1.25 PITCH X 1 MT LGTH NYLON POLYAMID 6.6, NATURAL DIN 975/PA6.6 M8X1MTR	No	No
B351	656-257	656-B62-1P	SELF ALIGNING SPHERICAL WASHER (TOP HALF) 7/8" BOLT SIZE HEAT TREATED STEEL BLACK OXIDE	No	No
C2	727	155-P03-1A	HEXAGON NUTS DC/DC #6-32 UNC (5/16" AF X 7/64" THK) STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-	No	No
C2	728	155-P04-1P	HEXAGON NUT, DC/DC #8-32 UNC (11/32" AF X 1/8" THK) STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-LATEST	No	No
C2	729	155-P02-1X	HEXAGON NUTS #10-32 UNF (3/8" W AF X 1/8" THK) STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-	No	No
C2	730	155-P08-1T	HEXAGON NUT, DC/DC #10-24 UNC (3/8" AF X 1/8" THK) STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
C2	731	155-P22-1T	HEXAGON NUT DC/DC #12-24 UNC (7/16" W AF X 5/32" THK) STEEL ZINC PLATED ANSI B18.6.3-1986	No	No
C2	733	155-P06-1C	HEX MACHINE SCREW NUT 1/4"-20 UNC (7/16" WAF X 3/16" THK) STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
C2	B-1518	155-P07-1N	HEXAGON NUT, DC/DC #2-56 UNC (3/16" AF X 1/16" THK) STEEL TRIVALENT ZINC PLATED ANSI B18.6.3	No	No
C2	B-1522	155-P05-1Y	HEXAGON NUT #8-32 UNC (1/4" AF X 3/32" THK) STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-LATEST	No	No
C2	B-753	155-P11-1K	HEXAGON NUT #4-40 UNC (1/4" AF X 3/32" THK) STEEL TRIVALENT ZINC PLATED ANSI B18.6.3, LATEST REVISION	No	No
C2	HN-16B	157-T01-1K	HEXAGON NUT #10-32 UNF (3/8" A/F X 1/8" TH) BRASS PLAIN ANSI B18.2.2 LATEST	No	No
C2	HN-2002	159-W03-1P	HEXAGON NUT DOUBLE CHAMFERED DOUBLE COUNTERSUNK 4-40 UNC (1/4" A/F X 3/32" THICK) 18-8 STAINLESS STEEL ANSI B18.6.3-LATEST	No	No

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C2	HN-201	155-P01-1M	MACHINE SCREW NUT #4-40 UNC (3/16" A/F X 1/16" THK) STEEL TRIVALENT ZINC PLATED ANSI B18.6.3-LATEST	No	No
C2	N-104	205-K02-1W	REGULAR SQUARE NUT 5/16"-18 UNC (9/16" AF X 17/64" TH) LOW CARBON STEEL PLAIN FINISH ANSI B18.2.2-1986	No	No
C2	N-106	205-K01-2K	REGULAR SQUARE NUT 7/16"-14 UNC (3/4" AF X 3/8" THK) GRADE 5 STEEL PLAIN FINISH ANSI B18.2.2-1986	No	No
C2	N-106	205-K01-1K	REGULAR SQUARE NUT 7/16"-14 UNC (3/4" AF X 3/8" THK) LOW CARBON STEEL PLAIN FINISH ANSI B18.2.2-1986	No	No
C3	155-343	155-P19-1N	FINISHED FULL HEX NUT, HOT FORMED 1-1/4"-12 UNF, (1 7/8" AF X 1 1/16" THK) GRADE 5 STEEL ZINC PLATED SAE J995	No	No
C3	155-372	155-P10-1T	FINISHED FULL HEX NUT 1 1/8"-12 UNF GRADE 5 STEEL ZINC PLATED ANSI B18.2.2-1982	No	No
C3	B-103	155-P23-1K	FULL FINISHED HEX NUT 3/8"-24 UNF (9/16" AF X 21/64" THK) GRADE 5 STEEL TRIVALENT ZINC PLATED ANSI B18.2.2-1982	No	No
C3	B-97	155-P16-1P	FULL FINISHED HEX NUT 5/8"-11 UNC (15/16" AF X 35/64"THK) SAE GRADE 5 STEEL ZINC PLATED ASME B18.2.2-1982	No	No
C5	155-320	155-P24-1W	HEX NUT, FINISHED FULL 1/2"-13 UNC LHT (LEFT HAND THREAD) 3/4" A/F X 7/16" THK GRADE 5 STEEL PLAIN FINISH	No	No
C5	155-324	155-P21-1N	FINISHED FULL HEX NUT LEFT HND THRD 1/4"-20 UNC LEFT HAND 7/16" A/F X 7/32" THK GRADE 5 STEEL PLAIN FINISH	No	No
C5	155-325	155-P25-1M	HEX NUT, FINISHED FULL 5/16"-18 UNC LHT (LEFT HAND THREAD) 1/2" A/F X 17/64" THK GRADE 5 STEEL PLAIN FINISH	No	No
C6	155-331	155-P12-1K	HEX NUT FINISHED, TAPPED OVERSIZE 5/16"-18 UNC (1/2" A/F X 17/64"THK) GRADE 2 STEEL HOT GALVANIZED FINISH	No	No
C6	155-336	155-P15-1A	HEX NUT FINISHED, TAPPED OVERSIZE 5/8"-11 UNC (15/16"AF X 35/64" THK) STEEL HOT DIP GALVANIZED FINISH	No	No
C7	159-010	159-W01-1X	FINISHED HEX JAM NUT 7/16"-14 UNC (11/16"AF X 1/4"THK) 18-8 STAINLESS STEEL ANSI B18.2.2-1986	No	No
C7	HN-2010	159-W02-1A	HEXAGON NUT FINISHED FULL 1/4"-20 UNC (7/16" A/F X 7/32" THK) 18-8 STAINLESS STEEL ANSI B18.2.2-1986	No	No
C7	HN-2029	159-W06-1N	HEXAGON NUT FINISHED FULL 1 1/8"-7 UNC (1 11/16" A/F X 31/32"TH) 18-8 STAINLESS STEEL ANSI B18.2.2-1986	No	No
C10	156-283	156-F06-1M	HEXAGON NUT DIN 934 M30 X 1.50 FINE PITCH CL 8 STEEL PLAIN DIN 934/8/FINE M30X1.50	No	No
C11	156-113ZP	156-F05-1N	HEX NUT, DIN 934 M5 X 0.80 COARSE CL 10 STEEL ZINC PLATED DIN 934/10-ZP M5	No	No
C12	158-005NP	158-R01-1T	HEX NUT DIN 934 M4 X 0.70 BRASS, NICKEL PLATED DIN 934/BR-NP M4	No	No
C12	160-007	160-A01-1N	HEXAGON NUT, DIN 934 M2.5 X 0.45 PITCH, 5MM A/F, 2MM TH A2 STAINLESS STEEL	No	No
C12	160-010	160-A07-1A	HEXAGON NUT, DIN 934 M3 X .50 PITCH, 5.5MM A/F, 2.4MM TH A2 STAINLESS STEEL DIN 934/A2 M3	No	No
C12	160-058-RC	160-A03-1K	HEXAGON NUT, COARSE THREAD, DIN 934 M16 X 2.00 PITCH, 24MM A/F, 13MM TH A4 STAINLESS STEEL	No	No
C13	156-057ZP	156-F04-1A	HEX LOW NUT, DIN 439, M2.5 X 0.45 PITCH COARSE THREAD CL 4 STEEL ZINC PLATED DIN 439B/04-ZP M2.5	No	No
C13	160-033-RC	160-A04-1W	HEX LOW NUT, DIN 439B M5 X 0.80 PITCH A2 STAINLESS STEEL	No	No
C15	156-035	156-F03-1X	HEXAGON LOW NUT, DIN 936 M8 X 1.0 FINE THREAD CL 4/6 STEEL PLAIN DIN 936/4/6/FINE M8X1.00	No	No
C15	160-801	160-A05-1M	JAM NUT, DIN 936 M10 A2 STAINLESS STEEL PLAIN DIN 936/A2 M10	No	No

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C16	HN-111	155-P26-1X	FULL FINISHED HEX SLOTTED NUT 1/4"-28 UNF (7/16" AF X 7/32" THK) GRADE 5 STEEL PLAIN FINISH	No	No
C21	156-203	156-F01-1W	COUPLING NUT, METRIC M10 X 1.50 PITCH, 15MM WAF, 44MM 3MM LGTH STEEL TRIVALENT ZINC PLATED	No	No
C22	175-800	175-B08-1A	K-LOK HEX NUT W/EXTERNAL TOOTH LOCKWASHER #4-40 UNC X 1/4" AF X 7/64" O/A THK 18-8 STAINLESS STEEL	No	No
C22	N-180K	175-B02-1P	K-LOK HEX NUT, EXT TOOTH LOCKWASHER #4-40 UNC (1/4" A/F X 1/8"O/A TH) STEEL TRIVALENT ZINC PLATED	No	No
C22	N-1K	175-B03-1Y	K-LOK HEX NUT, EXT TOOTH LOCKWASHER 6-32 UNC (5/16" A/F X 9/64" O/A TH) STEEL, TRIVALENT ZINC PLATED	No	No
C22	N-2K	175-B06-1T	K-LOK HEX NUT, EXT TOOTH LOCKWASHER 8-32 UNC (11/32"A/F X 5/32" O/A TH) STEEL TRIVALENT ZINC PLATED	No	No
C22	N-3K	175-B05-1N	K-LOK HEX NUT W/EXT TOOTH LOCKWASHR 10-24 UNC (3/8" A/F X 5/32" O/A TH) STEEL TRIVALENT ZINC PLATED	No	No
C22	N-4K	175-B04-1C	K-LOK HEX NUT, EXT TOOTH LOCKWASHER 10-32 UNF (3/8" A/F X 5/32" O/A TH) STEEL TRIVALENT ZINC PLATED	No	No
C22	N-5K	175-B01-1A	K-LOK HEX NUT W/EXTERNAL TOOTH LOCKWASHER 1/4"-20 UNC(7/16"AF X 15/64"O/A TH) LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
C23	175-101	175-B07-1K	K-LOK HEX NUT W/EXTERNAL TOOTH LOCKWASHER M4 X 0.7 7AF 4.0 O/A HT STEEL ZINC PLATED	No	No
C28	179-001	179-W08-1M	NYLON INSERT HEX LOCK NUT REF #79NM-62, .313-.305" WAF #6-32 UNC .178" .010" O/A HEIGHT 18-8 STAINLESS STEEL	No	No
C28	179-002	179-W07-1K	HEX LOCK NUT WITH NYLON INSERT, REF #79NM-82, .345-.336" WAF #8-32 UNC, .229".010 O/A HEIGHT 18-8 STAINLESS STEEL IFI 100/107-1993	No	No
C28	179-010	179-W01-1P	NYLON INSERT HEX LOCK NUT 1/4"-28 UNF, (.439-.430" WAF, .313" .015" O/A HEIGHT) 18-8 STAINLESS STEEL 79NE-048	No	No
C28	HN-170	178-C02-1C	HEX LOCK NUT, NYLON INSERT, REF.NO.21NM-62, .313-.305" WAF #6-32 UNC, .178".010" O/A HEIGHT STEEL TRIVALENT ZINC PLATED	No	No
C28	HN-173	178-C06-1X	HEX LOCK NUT NYLON INSERT, REF.NO. 21NM-02, .376-.367" WAF 10-32 UNF, .239".010" 0/A HEIGHT STEEL TRIVALENT ZINC PLATED	No	No
C28	HN-175	178-C03-1N	HEX LOCK NUT NYLON INSERT REF. NO. 21NE-040, .439-430 WAF 1/4"-20 UNC, .313".015"O/A HT STEEL, TRIVALENT ZINC PLATED	No	No
C28	HN-179	178-C05-1P	HEXAGON LOCK NUT NYLON INSERT, REF.NO.21NE-066, .564-.553" WAF 3/8"-16 UNC, .453".015" O/A HT STEEL ZINC PLATED	No	No
C28	HN-2035	179-W03-1C	HEX LOCK NUT WITH NYLON INSERT, REF. # 79NE-083, .751-.741" WAF 1/2"-13 UNC .594" .015" O/A HT 18-8 STAINLESS STEEL	No	No
C28	HN-2037	179-W04-1N	HEX LOCK NUT WITH NYLON INSERT, REF. #79NE-040, .439-.430" WAF 1/4"-20 UNC, .313" .015" O/A HT 18-8 STAINLESS STEEL IFI 100/107-1993	No	No
C28	HN-2041	179-W02-1Y	HEX LOCK NUT WITH NYLON INSERT, REF#79NE-.058, .502-.492" WAF, 5/16"-18 UNC, .344" .015"O/A HT, 18-8 STAINLESS STEEL	No	No
C28	HN-251	178-C01-1Y	NYLON INSERT HEX LOCKNUT, #4-40 UNC, .251-.243" WAF, .143" .010" O/A HEIGHT STEEL TRIVALENT ZINC PLATED REF.NO. 21NM-40,	Yes	Yes
C33	178-528	178-C04-1T	NYLON INSERT HEX LOCKNUT, DIN 985 M4 X 0.70 CLASS 8 STEEL ZINC PLATED DIN 985/8-ZP M4	No	No

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C34	178-585	178-C07-1M	NYLON INSERT HEX LOCKNUT, DIN 985 M12 X 1.50 FINE PITCH CL 10 STEEL TRIVALENT ZINC PLATED DIN 985/10-ZP/FINE M12X1.50	No	No
C34	179-802	179-W09-1X	NYLON INSERT LOCKNUT DIN 985 M4 X 0.70 A2 STAINLESS STEEL DIN 985/A2 M4	No	No
C35	178-307	178-C08-1X	NYLON INSERT HEX LOCKNUT, DIN 982 M12 X 1.75 CL 8 STEEL TRIVALENT ZINC PLATED DIN 982/8-ZP M12	No	No
C35	178-379YZ	178-C09-1A	NYLON INSERT PREVAILING TORQUE LOCKNUT (HIGH PROFILE STYLE) DIN692 M5 X 0.80MM PITCH (8.0MM A/F X 6.5MM THK) CLASS 8 STEEL YELLOW ZINC PLATED DIN 6924/8-YZ M5	No	No
C41	224-214	224-G01-1X	HEX NUT WITH SERRATED FLANGE M10 CLASS 8 STEEL PLAIN FINISH	No	No
C48	208-212	208-K03-1T	LONG PILOT 3-PROJECTION WELD NUT STANDARD SERIES, 1/4"-20 UNC LOW CARBON STEEL PLAIN	No	No
C48	208-213	208-K02-1N	LONG PILOT 3-PROJECTION WELD NUT, STANDARD SERIES, 5/16"-18 UNC LOW CARBON STEEL PLAIN	No	No
C49	208-023	208-K07-1X	TAB WELD NUT P1 SERIES 3/8"-16 UNC LOW CARBON STEEL PLAIN	No	No
C49	208-031	208-K05-1W	TAB WELD NUT P2 SERIES SIZE #10-32 UNF LOW CARBON STEEL PLAIN	No	No
C50	N-213	208-K01-1C	TAB WELD NUT, CENTRAL THREAD 3/8"-16 UNC LOW CARBON STEEL PLAIN FINISH	No	No
C50	N-236	208-K04-1K	TAB WELD NUT, S1 SERIES 1/4"-20 UNC LOW CARBON STEEL PLAIN FINISH	No	No
C50	N-244	208-K06-1M	TAB WELD NUT CENTRAL THREAD #10-32 THREAD LOW CARBON STEEL PLAIN FINISH RoHS and C of C available	No	No
C52	208-047	208-K08-1A	SQUARE WELD NUT, DIN 928 M8 STEEL PLAIN FINISH DIN 928/8 M8	No	No
C53	N-169	177-H02-1X	LOCKNUT ACORN TYPE #6-32 UNC, 5/16" HEX WIDTH AF STAMPED STEEL ZINC NICKEL PLATED	No	No
C58	155-006	155-P09-1K	THIN HEXAGON NUT 1/8"-27, 9/16" AF X 1/8" THK STEEL ZINC PLATED	No	No
C58	HN-44	155-P18-1C	THIN HEXAGON LOCKNUT 3/8"-32 UNEF (1/2" AF X 3/32" THK) STEEL ZINC PLATED	No	No
C58	N-15A	145-B02-1C	ROUND KNURLED NUT #10-32 UNF (1/2" OD X 21/64" HT.) BRASS NICKEL PLATED	No	No
C60	N-2012	147-M02-1K	CAP NUT 1/2"-13 UNC (3/4" A/F X 13/16" TH.) 18-8 STAINLESS STEEL	No	No
C61	151-024	151-A01-1W	DOME NUT, DIN 1587 M8 X 1.25 (13MM A/F X 15MM HT.) A2 STAINLESS STEEL DIN 1587/A2 M8	No	No
C62	CRP-51	076-G01-1P	WASHER CAP TYPE PUSHNUT FOR 1/2" ROD, WASHER DIA 15/16", .328" O/A HT. STEEL ELECTRO ZINC TRIVALENT CHROMATE	No	No
C63	2262	191-M02-1N	TEE WELD NUT ROUND BASE 3 HOLES 1" FLANGE DIA. 3/8"-16 UNC X 7/16" BARREL HT STEEL PLAIN	No	No
C63	191-024	191-M04-1N	8-32 UNC TEE NUT, 3 PRONG ROUND BASE 12.7MM DIAM BARREL 5.6MM DIAM X 6.4MM LG STEEL PLAIN FINISH	No	No
C63	191-025	191-M05-1T	10-32 UNF TEE NUT, 3 PRONG ROUND BASE 18MM DIAM BARREL 6.2MM DIAM X 7.9MM LG STEEL PLAIN FINISH	No	No
C65	191-303	191-M08-1M	M5 X 0.80P TEE NUT, 4 PRONG ROUND BASE 19.1MM DIAM BARREL 6.2MM DIAM X 7.9MM LG STEEL PLAIN FINISH	No	No
C65	191-306	191-M03-1C	M8 X 1.25 TEE NUT, 4 PRONG ROUND BASE 22.2MM DIAM BARREL 9.4MM DIAM X 9.5MM LG STEEL PLAIN FINISH	No	No
C65	191-308	191-M06-1K	M10 X 1.50P TEE NUT, 4 PRONG ROUND BASE 25.4MM DIAM BARREL 11.5MM DIAM X 11.1MM LG STEEL PLAIN FINISH	No	No
C65	191-309	191-M07-1W	M4 X 0.70P TEE NUT, 4 PRONG ROUND BASE 18.3MM DIAM BARREL 5.3MM DIAM X 6.4 LG STEEL PLAIN FINISH	No	No

Catalog 13 Page	Legacy Part No	New Spaenaur Part No	New Description	Specification Change	RoHS
C72	193-163	193-E01-1X	SLEEVE NUTS TRUSS SLOT HEAD 1/4"-20 UNC X 1/4" (.003") LONG X 3/8" (.003") BARREL DIA X 9/16" (.003") HEAD DIA ALUMINUM PLAIN	No	No
C72	B-795	191-M01-1P	SLEEVE NUT SLOTTED FLAT CTSK HEAD, TAPPED #8-32 UNC THRU HEAD, 5/16" (.005) HD DIA, 3/8"(.015)LG, 13/64" (.005) BARREL DIA, SLOT .045-.055" WIDE X .030-.045" DEEP STEEL TRIVALENT ZINC PL	No	No
C92	202-165	202-P07-1A	"U" TYPE SPRING NUT "DH" DESIGN, #10-32 UNF (.025-.062" PANEL RANGE) X .66 LG X .44 WD SPRING STEEL HEAT TREATED PHOSPHATE & OIL	No	No
C93	TN-176	202-P08-1P	SPRING NUT "U" TYPE FOR #10-12A SMS PANEL RANGE .025-.064" SPRING STEEL HEAT TREATED PLAIN FINISH	No	No
C95	202-026	202-P03-1K	SPRING NUT "U" TYPE FOR 1/4"-20 UNC MS,PANEL.051-.109" SPRING STEEL HEAT TREATED PHOSPHATE & OIL	No	No
C100	202-074	202-P05-1M	SPEED GRIP NUT RETAINER #10-32 UNF(.064"-.105"PANEL RANGE) SPRING STEEL, ZINC PLATED	No	No
C101	202-016	202-P01-1N	ANCHOR NUT, MOUNTING HOLE .460-.465" SQUARE, .031" R OR .503- .508" SQUARE, .13" R 5/16"-18 UNC, PANEL RANGE 093-.126" SPRING STEEL HEAT TREATED PHOSPHATE & OIL	No	No
C102	202-132	202-P04-1W	NUT RETAINER 3/8"-16 UNC PANEL RANGE .162"-.210" SPRING STEEL ZINC ELECTROPLATE	No	No
C113	B-1074	202-P02-1T	SPRING NUT PUSH-ON RECTANGULAR TYPE FOR .495-.505" DIAM STUD .905-.935" LENGTH, .740-.760" WIDTH SPRING STEEL HEAT TREATED PLAIN	No	No
C125	C-322	086-F46-1X	TRIM CLIP, "U"-TYPE .140"-.200" PANEL RANGE SPRING STEEL, PHOSPHATE & OIL	No	No
C134	086-209	086-F41-1W	LOW PROFILE BUTTON HEAD DART FASTENER, .170-.234" PANEL RANGE NYLON NATURAL COLOUR	No	No
C138	202-511	202-P06-1X	PANEL NUT,METRIC,EXTRUDED,"U" TYPE M8 X 1.25 THREAD, PANEL 0.8MM-4.0MM SPRING STEEL HEAT TREATED BLACK PHOSPHATE AND OILED	No	No
C140	N-266P	225-K01-1M	NYLON EXPANSION NUT #14 SCREW, 21/64" SQUARE HOLE SIZE, .031"-.172" PANEL THK RANGE 9/16" HEAD DIA, 13/32" LGTH NYLON NATURAL	No	No
C145	177-406	177-H01-1M	STANDARD MOLDED RETAINING WASHER 25/64" OD X .152" ID X .031" THK NYLON	No	No
C163	200-024	201-G02-1P	SELF-CLINCHING NUT 1/4"-20 UNC X 0.056" MIN SHEET TK. CARBON STEEL, ZINC CLEAR PLATED	No	No
C166	201-047	201-G01-1A	SELF-CLINCHING NUT M4 X 0.7 (1.4MM MIN SHEET THK) CARBON STEEL ZINC CLEAR PLATED	No	No
C169	215-125	215-A08-1X	A-H SERIES THREADED HEX INSERT #8-32 X .020 - .080" GRIP RANGE STEEL PLATED WITH TRIVALENT ZINC PLATING	No	No
C169	215-128	215-A36-1P	A-H SERIES THREADED HEX INSERT 1/4"-20 X .030-.165" GRIP INSERT STEEL PLATED WITH TRIVALENT ZINC PLATING	No	No
C169	215-132	215-A01-1Y	A-H SERIES THREADED HEX INSERT 3/8"-16 X .027-.150" GRIP RANGE STEEL PLATED WITH TRIVALENT ZINC PLATING	Yes	Yes
C169	215-133	215-A54-1T	A-H SERIES THREADED HEX INSERT 3/8"-24 X .027-.150" GRIP RANGE STEEL PLATED WITH TRIVALENT ZINC PLATING	No	No
C171	215-052	215-A18-1W	A-K SERIES KNURLED THREADED INSERT STANDARD OPEN END #8-32 UNC X .020-.080" GRIP STEEL, TRIVALENT ZINC PLATED	No	No
C171	215-053	215-A43-1K	A-K SERIES KNURLED THREADED INSERT STANDARD OPEN END #10-24 UNC X .020-.130" GRIP STEEL PLATED WITH TRIVALENT ZINC PLATING ROHS COMPLIANT MATERIAL	No	No

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C171	215-054	215-A04-1T	A-K SERIES KNURLED THREADED INSERT STANDARD OPEN END #10-32 UNF X .020-.130" GRIP STEEL, TRIVALENT ZINC PLATED	No	No
C171	215-055	215-A34-1X	A-K SERIES KNURLED THREADED INSERT STANDARD OPEN END 1/4"-20 UNC X .027-.165" GRIP STEEL PLATED WITH TRIVALENT ZINC	No	No
C171	215-056	215-A29-1K	A-K SERIES KNURLED THREADED INSERT STANDARD OPEN END 1/4"-28 UNF X .027-.165" GRIP STEEL, TRIVALENT ZINC PLATED	No	No
C171	215-057	215-A37-1Y	A-K SERIES KNURLED THREADED INSERT STANDARD OPEN END 5/16"-18 UNC X .027-.150" GRIP STEEL, TRIVALENT ZINC PLATING	No	No
C171	215-059	215-A41-1N	A-K SERIES KNURLED THREADED INSERT STANDARD OPEN END 3/8"-16 UNC X .027-.150" GRIP STEEL TRIVALENT ZINC PLATED	No	No
C171	215-061	215-A26-1C	A-K SERIES KNURLED THREADED INSERT STANDARD OPEN END #6-32 UNC X .080-.130" GRIP STEEL PLATED W/TRIVALENT ZINC PLTD	No	No
C171	215-062	215-A23-1A	A-K SERIES KNURLED THREADED INSERT STANDARD OPEN END #8-32 UNC X .080-.130" GRIP STEEL PLATED WITH TRIVALENT ZINC PLATING	No	No
C171	215-063	215-A47-1A	A-K SERIES KNURLED THREADED INSERT STANDARD OPEN END #10-24 UNC X .130-.225" GRIP STEEL, TRIVALENT ZINC PLATED	No	No
C171	215-064	215-A13-1Y	A-K SERIES KNURLED THREADED INSERT STANDARD OPEN END #10-32 UNF X .130-.225" GRIP STEEL PLATED WITH TRIVALENT ZINC	No	No
C171	215-065	215-A38-1C	A-K SERIES KNURLED THREADED INSERT STANDARD OPEN END 1/4"-20 UNC X .165-.260" GRIP STEEL, TRIVALENT ZINC PLATING	No	No
C171	215-066	215-A51-1Y	A-K SERIES KNURLED THREADED INSERT STANDARD OPEN END 1/4"-28 UNF X .165-.260" GRIP STEEL, TRIVALENT ZINC PLATING	No	No
C171	215-067	215-A57-1M	A-K SERIES KNURLED THREADED INSERT STANDARD OPEN END 5/16"-24 UNF X .150-.312" GRIP STEEL, TRIVALENT ZINC PLATED ROHS COMPLIANT MATERIAL	No	No
C171	215-069	215-A09-1A	A-K SERIES KNURLED THREADED INSERT STANDARD OPEN END 3/8"-16 UNC X .150-.312" GRIP STEEL PLATED WITH TRIVALENT ZINC PLATING	No	No
C171	216-030	216-K11-1X	A-K SERIES KNURLED THREADED INSERT M4 X .50-2.0MM GRIP STEEL PLATED WITH TRIVALENT ZINC PLATING	No	No
C171	216-031	216-K01-1P	A-K SERIES KNURLED THREADED INSERT M5 X .50-3.3MM GRIP STEEL PLATED WITH TRIVALENT ZINC PLATING ROHS COMPLIANT MATERIAL	No	No
C171	216-032	216-K13-1P	A-K SERIES KNURLED THREADED INSERT M6 X .70-4.2MM GRIP STEEL, TRIVALENT ZINC PLATED	No	No
C171	216-033	216-K09-1X	A-K SERIES KNURLED THREADED INSERT M8 X 0.70MM-3.8MM GRIP STEEL TRIVALENT ZINC PLATED	No	No
C171	216-035	216-K07-1W	A-K SERIES KNURLED THREADED INSERT M4 X 2.0-3.3MM GRIP STEEL TRIVALENT ZINC PLATED	No	No
C171	216-037	216-K06-1K	A-K SERIES KNURLED THREADED INSERT M6 X 4.20-6.6MM GRIP STEEL PLATED WITH TRIVALENT ZINC PLATING	No	No
C171	216-038	216-K22-1M	A-K SERIES KNURLED THREADED INSERT M8 X 3.80-7.9MM GRIP STEEL PLATED W/TRIVALENT ZINC PLATING ROHS COMPLIANT MATERIAL	No	No
C173	215-071	215-A49-1Y	A-L SERIES KNURLED THREADED INSERT STANDARD OPEN END #6-32 UNC X .020-.080" GRIP STEEL TRIVALENT ZINC PLATED	Yes	Yes
C173	215-072	215-A10-1X	A-L SERIES KNURLED THREADED INSERT STANDARD OPEN END #8-32 UNC X .020-.080" GRIP STEEL TRIVALENT PLATED	Yes	Yes
C173	215-073	215-A21-1M	A-L SERIES KNURLED THREADED INSERT STANDARD OPEN END #10-24 UNC X .020-.130" GRIP STEEL, TRIVALENT ZINC PLATED	Yes	Yes
C173	215-074	215-A22-1X	A-L SERIES KNURLED THREADED INSERT STANDARD OPEN END #10-32 UNF X .020-.130" GRIP STEEL, TRIVALENT ZINC PLATED	Yes	Yes

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C173	215-075	215-A32-1W	A-L SERIES KNURLED THREADED INSERT STANDARD OPEN END 1/4"-20 UNC X .027-.165" GRIP STEEL W/TRIVALENT ZINC PLTD.	Yes	Yes
C173	215-076	215-A48-1P	A-L SERIES KNURLED THREADED INSERT STANDARD OPEN END 1/4"-28 UNF X .027-.165" GRIP STEEL, TRIVALENT ZINC PLATING ROHS COMPLIANT MATERIAL	Yes	Yes
C173	215-077	215-A40-1C	A-L SERIES KNURLED THREADED INSERT STANDARD OPEN END 5/16"-18 UNC X .027-.150" GRIP STEEL, TRIVALENT ZINC PLATED	No	No
C173	215-081	215-A07-1M	A-L KNURLD THREADED INSERT OPEN END #6-32 UNC X.080-.130" GRIP STEEL PLATED WITH TRIVALENT ZINC PLATING	Yes	Yes
C173	215-082	215-A17-1K	A-L SERIES KNURLED THREADED INSERT STANDARD OPEN END #8-32 UNC X .080-.130" GRIP STEEL TRIVALENT ZINC PLATED	Yes	Yes
C173	215-083	215-A03-1N	A-L SERIES KNURLED THREADED INSERT STANDARD OPEN END #10-24 UNC X .130-.225" GRIP STEEL PLATED WITH TRIVALENT ZINC PLATING ROHS COMPLIANT PRODUCT.	Yes	Yes
C173	215-084	215-A35-1A	A-L SERIES KNURLED THREADED INSERT STANDARD OPEN END #10-32 UNF X .130"-.225" GRIP STEEL PLATED WITH TRIVALENT ZINC PLATING	Yes	Yes
C173	215-085	215-A50-1P	A-L SERIES KNURLED THREADED INSERT STANDARD OPEN END 1/4"-20 UNC X .165-.260" GRIP STEEL, TRIVALENT ZINC PLATED ROHS COMPLIANT MATERIAL	Yes	Yes
C173	215-087	215-A02-1C	A-L SERIES KNURLED THREADED INSERT STANDARD OPEN END 5/16" - 18 UNC X .150 - .312" GRIP STEEL PLATED W/TRIVALENT ZINC PLTG ROHS COMPLIANT MATERIAL	Yes	Yes
C173	215-089	215-A05-1K	A-L SERIES KNURLED THREADED INSERT STANDARD OPEN END 3/8"-16 UNC X .150-.312" GRIP STEEL PLATED WITH TRIVALENT ZINC PLATING ROHS COMPLIANT PRODUCT	Yes	Yes
C173	215-090	215-A58-1X	A-L SERIES KNURLED THREADED INSERT STANDARD OPEN END 3/8"-24 UNF X .150-.312" GRIP STEEL TRIVALENT ZINC PLATED	Yes	Yes
C173	215-A52-1C	215-A52-1C	A-L SERIES KNURLED THREADED INSERT STANDARD OPEN END 3/8"-16 UNC X .027-.150" GRIP STEEL TRIVALENT ZINC PLATED	No	No
C173	216-042	216-K03-1C	A-L SERIES KNURLED THREADED INSERT M6 X 1MM .70-4.2MM GRIP RANGE STEEL WITH TRIVALENT ZINC PLATING ROHS COMPLIANT MATERIAL	Yes	Yes
C173	216-043	216-K04-1N	A-L SERIES KNURLED THREADED INSERT M8 X .70-3.8MM GRIP STEEL PLATED WITH TRIVALENT ZINC PLATING ROHS COMPLIANT MATERIAL	Yes	Yes
C173	216-044	216-K05-1T	A-L SERIES KNURLED THREADED INSERT M10 X .70-3.8MM GRIP STEEL PLATED WITH TRIVALENT ZINC PLATING	Yes	Yes
C173	216-046	216-K16-1N	A-L SERIES KNURLED THREADED INSERT M5 X 3.3-5.7MM GRIP STEEL PLATED WITH TRIVALENT ZINC	No	No
C173	216-047	216-K02-1Y	A-L SERIES KNURLED THREADED INSERT M6 X 4.20-6.6MM GRIP STEEL, TRIVALENT ZINC PLATED ROHS COMPLIANT MATERIAL	Yes	Yes
C173	216-049	216-K15-1C	A-L SERIES KNURLED THREADED INSERT M10 X 3.80-7.9MM GRIP STEEL, TRIVALENT ZINC PLATED	No	No
C175	215-092	215-A53-1N	A-O SERIES BLIND THREADED INSERT #8-32 UNC X .020-.080" GRIP STEEL, TRIVALENT ZINC PLATED	No	No
C175	215-093	215-A11-1A	A-O SERIES BLIND THREADED INSERT #10-24 UNC X .020-.130" GRIP STEEL PLATED WITH TRIVALENT ZINC	No	No
C175	215-095	215-A39-1N	A-O SERIES BLIND THREADED INSERT 1/4"-20 UNC X .030-.165" GRIP STEEL, TRIVALENT ZINC PLATING	No	No

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C175	215-096	215-A59-1A	A-O SERIES BLIND THREADED INSERT STANDARD 1/4"-28 UNF X .030-.165" GRIP STEEL, TRIVALENT ZINC PLATING ROHS COMPLIANT MATERIAL	No	No
C175	215-097	215-A46-1X	A-O SERIES BLIND THREADED INSERT STANDARD 5/16"-18 UNC X .040-.200" GRIP STEEL PLATED WITH TRIVALENT ZINC PLATING ROHS COMPLIANT MATERIAL	No	No
C175	215-099	215-A25-1Y	A-O SERIES BLIND THREADED INSERT 3/8"-16 UNC X .040-.200" GRIP STEEL, TRIVALENT ZINC PLATED	No	No
C175	216-050	216-K08-1M	A-O SERIES BLIND THREADED INSERT M4 X .50-2.0MM GRIP STEEL TRIVALENT ZINC PLATED	No	No
C175	216-051	216-K10-1M	A-O SERIES BLIND THREADED INSERT M5 X .8-3.2MM GRIP STEEL ZINC PLATED WITH TRIVALENT ZINC PLATING	No	No
C175	216-052	216-K21-1W	A-O SERIES BLIND THREADED INSERT M6 X 1.0-4.2MM GRIP STEEL PLATED W/TRIVALENT ZINC PLATING ROHS COMPLIANT MATERIAL	No	No
C176	TAA912-3P	880-A03-1X	POWER INSTALLATION TOOL 300 OR 350 RPM (WORKS FOR BOTH)	No	No
C181	215-101	215-A27-1N	A-T SERIES KNURLED THREADED INSERT STANDARD OPEN END #4-40 UNC X .370" LGTH STEEL TIN ZINC TRIVALENT	No	No
C181	215-102	215-A45-1M	A-T SERIES KNURLED THREADED INSERT STANDARD OPEN END #6-32 UNC X .370" LGTH STEEL, PLAIN ZINC PLATED, ROHS COMPLIANT MATERIAL	No	No
C181	215-103	215-A42-1T	A-T SERIES KNURLED THREADED INSERT STANDARD OPEN END #8-32 UNX X .370" LGTH STEEL, PLAIN ZINC NO CLEAR COAT	Yes	Yes
C181	215-106	215-A20-1W	A-T SERIES KNURLED THREADED INSERT STANDARD OPEN END 1/4"-20 UNC X .515" LGTH STEEL PLATED WITH PLAIN ZINC	No	No
C181	215-107	215-A31-1K	A-T SERIES KNURLED THREADED INSERT STANDARD OPEN END 1/4"-28 UNF X .530" LGTH STEEL PLATED WITH PLAIN ZINC	No	No
C181	215-108	215-A14-1C	A-T SERIES KNURLED THREADED INSERT STANDARD OPEN END 5/16"-18 UNC X .615" LGTH STEEL, PLAIN ZINC NO CLEAR COAT	Yes	Yes
C181	215-110	215-A06-1W	A-T SERIES KNURLED THREADED INSERT STANDARD OPEN END 3/8"-16 UNC X .745" LGTH STEEL, PLAIN ZINC NO CLEAR COAT	Yes	Yes
C181	215-112	215-A33-1M	A-T SERIES KNURLED THREADED INSERT STANDARD OPEN END 1/2"-13 UNC X .935" LGTH STEEL PLATED WITH PLAIN ZINC	No	No
C181	215-302	215-A55-1K	A-T SERIES KNURLED THREADED INSERT STANDARD OPEN END #6-32 UNC X .390" LGTH 6061-T6 ALUMINUM PLATED WITH PLAIN ZINC ROHS COMPLIANT MATERIAL	No	No
C181	216-055	216-K17-1T	A-T SERIES KNURLED THREADED INSERT M3 X 9.40MM LGTH STEEL PLATED WITH PLAIN ZINC	No	No
C181	216-057	216-K14-1Y	A-T SERIES KNURLED THREADED INSERT M5 X 9.40MM LGTH STEEL PLATED, TIN/ZINC TRIVALENT PLATING	No	No
C181	216-058	216-K19-1W	A-T SERIES KNURLED THREADED INSERT M6 X 13.08MM LGTH STEEL PLATED TIN ZINC TRIVALENT	No	No
C181	216-060	216-K18-1K	A-T SERIES KNURLED THREADED INSERT M10 X 18.92MM LGTH STEEL PLATED WITH PLAIN ZINC	No	No
C183	215-114	215-A30-1T	A-W SERIES KNURLED THREADED INSERT #6-32 UNC X .390" LGTH STEEL, PLATED WITH ZINC PLATING	No	No
C183	215-115	215-A24-1P	A-W SERIES KNURLED THREADED INSERT #8-32 UNC X .390" LGTH STEEL PLATED WITH PLAIN ZINC	No	No
C183	215-117	215-A15-1N	A-W SERIES KNURLED THREADED INSERT #10-32 UNF X .390" LGTH STEEL PLATED WITH CLEAR TIN ZINC	Yes	Yes
C183	215-118	215-A19-1M	A-W SERIES KNURLED THREADED INSERT 1/4"-20 UNC X .515" LGTH STEEL, CLEAR TIN ZINC FINISH	Yes	Yes
C183	215-120	215-A28-1T	A-W SERIES KNURLED THREADED INSERT 5/16"-18 UNC X .630" LGTH STEEL, PLAIN ZINC PLATED	No	No
C183	215-122	215-A12-1P	A-W SERIES KNURLED THREADED INSERT 3/8"-16 UNC X .740" LGTH STEEL PLATED WITH PLAIN ZINC	No	No
C183	216-063	216-K20-1K	A-W SERIES KNURLED THREADED INSERT M5 X 9.91MM LGTH STEEL, PLAIN ZINC PLATED	No	No

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C183	216-064	216-K12-1A	A-W SERIES KNURLED THREADED INSERT M6 X 13.46MM LGTH STEEL PLATED WITH PLAIN ZINC NO CLEAR COAT	Yes	Yes
C186	TAAT202-440	880-A02-1M	#4-40 CONVERSION KIT FOR INSERT PLACING TOOL	No	No
C189	196-042	196-F03-1C	FLAT HD RIVET NUT OPEN END KEYLESS #8-32 UNC X 0.010-0.075" GRIP STEEL, TRIVALENT ZINC PLATING	No	No
C189	196-060	196-F01-1P	FLAT HD RIVET NUT OPEN END KEYLESS 1/4"-20 UNC X 0.020-0.080" GRIP STEEL WITH TRIVALENT ZINC PLATING ROHS COMPLIANT MATERIAL	Yes	Yes
C189	196-072	196-F02-1Y	RIVET NUT, FLAT HD OPEN END KEYLESS 5/16"-18 UNC X 0.030-0.125" GRIP STEEL ZINC PLATED WITH TRIVALENT CHROMATE	No	No
C189	196-085	196-F04-1N	FLAT HD RIVET NUT OPEN END KEYLESS 3/8"-16 UNC X 0.115-0.200" GRIP STEEL, TRIVALENT ZINC PLATED ROHS COMPLIANT MATERIAL	No	No
C189	197-030	197-F01-1A	RIVET NUT FLAT HD OPEN END KEYLESS #4-40 UNC X 0.010-0.060" GRIP ALUMINUM	No	No
C204	628-516	628-B29-1G	PRESS INSERT 240 SERIES #4-40 UNC BRASS	No	No
C204	628-518	628-B31-1G	PRESS INSERT 240 SERIES #8-32 UNC BRASS	No	No
C204	628-519	628-B32-1W	PRESS INSERT 240 SERIES #10-32 BRASS	No	No
C204	628-520	628-B33-1M	PRESS INSERT 240 SERIES #10-24 UNC BRASS	No	No
C204	628-521	628-B34-1X	PRESS INSERT 240 SERIES 1/4"-20 BRASS	No	No
C204	628-526	628-B39-1S	FLANGED PRESS INSERT 260 SERIES #6-32 UNC BRASS	No	No
C204	628-529	628-B42-1E	PRESS INSERT FOR PLASTIC,260 SERIES 1/4"-20 (.326" D X .500" L) BRASS	No	No
C204	628-530	628-B43-1G	FLANGED PRESS INSERT 260 SERIES 5/16"-18 BRASS	No	No
C204	628-531	628-B44-1W	FLANGED PRESS INSERT 260 SERIES 3/8"-16 UNC BRASS	No	No
C204	628-800	628-B50-1P	FLANGED PRESS INSERT 260 SERIES #10-32 UNF 303 STAINLESS STEEL	No	No
C209	194-004	194-G01-1M	RIVKLE BLIND RIVET NUT FLAT CYLINDRICAL HEAD OPEN END KEYLESS M4 X 1.0-2.0MM GRIP RANGE, FOR 6MM HOLE DIA., STEEL CLEAR ZINC PLATED	Yes	Yes
C210	195-020	195-H03-1N	RIVKLE BLIND RIVET NUT FLAT CYLINDRICAL HEAD OPEN END KEYLESS M6 X 3.00-5.50 GRIP RANGE 19.3mm LENGTH ALUMINUM PLAIN	No	No
C211	194-203	194-G03-1A	RIVKLE BLIND RIVET NUT COUNTERSUNK HEAD OPEN END KEYLESS M5 X 1.50-4.00mm GRIP RANGE STEEL, CLEAR ZINC PLATED	Yes	Yes
C211	194-303	194-G02-1X	RIVKLE BLIND RIVET NUT COUNTERSUNK HEAD CLOSED END KEYLESS M5 X 1.50-4.00mm GRIP RANGE STEEL, CLEAR ZINC PLATED	No	No
C211	195-302	195-H02-1C	RIVKLE BLIND RIVET NUT COUNTERSUNK HEAD CLOSED END KEYLESS M6 X 1.50-4.50 GRIP RANGE ALUMINUM PLAIN	No	No
C214	627-004	627-B04-1G	E-Z LOK THREAD INSERT FOR METAL SELF-LOCKING EXTERNAL THREAD 3/8"-16 UNC INTERNAL THRD 9/16"-12 UNC EXTERNAL THRD .515" LGTH STEEL BLACK OXIDE	No	No
C214	627-006	627-B81-1W	E-Z LOK THREAD INSERT FOR METAL SELF-LOCKING EXTERNAL THREAD 1/2"-13 UNC INTERNAL THRD 3/4"-10 UNC EXTERNAL THRD .656" LGTH, STEEL BLACK OXIDE	No	No
C214	627-007	627-B05-1W	E-Z LOK THREADED INSERT, SELF LOCKING EXTERNAL THREAD 5/8"-11 UNC INTERNAL THREAD, 7/8"-9 UNC EXTERNAL THREAD, .687" LGTH STEEL, BLACK OXIDE	No	No
C214	627-009	627-B06-1M	E-Z LOK THREADED INSERT, SELF LOCKING EXTERNAL THREAD 3/4"-10 UNC INTERNAL THREAD, 1"-8 UNC EXTERNAL THREAD .781" LGTH STEEL BLACK OXIDE	No	No

Catalog 13 Page	Legacy Part No	New Spaenaur Part No	New Description	Specification Change	RoHS
C214	627-010	627-B07-1X	E-Z LOK THREADED INSERT, SELF LOCKING EXTERNAL THREAD 1"-8 UNC INTERNAL THREAD, 1-3/8"-12 UNC EXTERNAL THREAD, 1.250" LGTH STEEL, BLACK OXIDE	No	No
C214	627-011	627-B93-1W	E-Z LOK THREADED INSERT, SELF LOCKING EXTERNAL THREAD #10-32 UNF INTERNAL THREAD, 3/8"-16 UNC EXTERNAL THREAD, .406" LGTH STEEL, BLACK OXIDE	No	No
C214	627-012	627-B89-1T	E-Z LOK THREADED INSERT, SELF-LOCKING EXTERNAL THREAD 1/4"-28 UNF INTERNAL THRD 7/16"-14 EXTERNAL THRD, .437" LGTH STEEL BLACK OXIDE	No	No
C214	627-015	627-B80-1G	E-Z LOK THREADED INSERT, SELF LOCKING EXTERNAL THREAD 7/16"-20 UNF INTERNAL THREAD, 5/8"-11 UNC EXTERNAL THREAD, .656" LGTH STEEL BLACK OXIDE	No	No
C214	627-017	627-B09-1P	E-Z LOK THREADED INSERT, SELF- LOCKING EXTERNAL THREAD 5/8"-18 UNF INTERNAL THREAD, 7/8"-9 UNC EXTERNAL THRD, .687" LGT STEEL, BLACK OXIDE	No	No
C214	627-205	627-B97-1P	E-Z LOK THREADED INSERT, SELF-LOCKING EXTERNAL THREAD, M16 X 2.0MM INTERNAL THRD 1"-8 UNC EXTERNAL THRD, .781" LGTH STEEL BLACK OXIDE	No	No
C214	627-208	627-B18-1M	E-Z LOK THREADED INSERT, SELF LOCKING INTERNAL THREAD, M12 X 1.25MM INTERNAL THREAD, 5/8"-18 UNF EXTERNAL THRD, .703" LG STEEL BLACK OXIDE	No	No
C214	627-210	627-B82-1M	E-Z LOK THREADED INSERT, SELF-LOCKING EXTERNAL THREAD, M14 X 1.25MM INTERNAL THREAD, 3/4"-16 UNF EXTERNAL THRD, .453" LG STEEL BLACK OXIDE	No	No
C214	627-211	627-B83-1X	E-Z LOK THREADED INSERT, SELF-LOCKING EXTERNAL THREAD, M14 X 1.25MM INTERNAL THREAD, 3/4"-16 UNF EXTERNAL THRD, .703" LG STEEL BLACK OXIDE	No	No
C214	627-213	627-B84-1A	E-Z LOK THREADED INSERT, SELF-LOCKING EXTERNAL THREAD, M10 X 1.5MM INTERNAL THREAD 9/16"-12 UNC EXTERNAL THRD, 1.0" LG STEEL BLACK OXIDE	No	No
C214	627-217	627-B85-1P	E-Z LOK THREADED INSERT SPARK PLUG SERIES M18 X 1.5 INT X 1"-12 UNF EXT STEEL, BLACK OXIDE	No	No
C214	876-798	876-B60-1W	DRIVE TOOL FOR E-Z LOK THREAD INSERTS 3/4"-10 3/4"-16 (INT.THRD) ALLOY STEEL	No	No
C215	627-803	627-B79-1W	E-Z LOK THREADED INSERT, SELF LOCKING THREAD 3/8"-16 UNC INTERNAL THRD 9/16"-12 UNC EXTERNAL THRD .515" LGTH 303 STAINLESS STEEL PASSIVATED	No	No
C215	627-808	627-B86-1Y	E-Z LOK THREADED INSERT, SELF LOCKING EXTERNAL THREAD 5/16"-24 UNF INTERNAL THRD 1/2"-13 UNC EXTERNAL THRD .484"LGTH 303 STAINLESS STEEL PASSIVATED	No	No
C215	627-809	627-B25-1Z	E-Z LOK THREADED INSERT, SELF LOCKING EXTERNAL THREAD 3/8"-24UNF IT X 9/16"-12UNF ET X .515"LG 303 STAINLESS STEEL PASSIVATED	No	No
C215	627-811	627-B87-1Z	E-Z LOK THREADED INSERT, SELF LOCKING EXTERNAL THREAD 1/2"-20 UNF INTERNAL THRD 3/4"-10 UNC EXTERNAL THRD .656" LGTH 303 STAINLESS STEEL PASSIVATED	No	No
C220	627-088	627-B92-1K	HELICOIL SCREW THREAD INSERT, STANDARD FREE RUNNING STYLE 1/4"-20 UNC X .500" LGT 18-8 STAINLESS STEEL	No	No

Catalog 13 Page	Legacy Part No	New Spaenaur Part No	New Description	Specification Change	RoHS
C221	627-104	627-B88-1C	HELICOIL SCREW THREAD INSERT, STANDARD FREE RUNNING STYLE 1/2"-13 UNC X 1.00" LGT 18-8 STAINLESS STEEL PLAIN	No	No
C222	627-174	627-B95-1X	HELICOIL SCREW THREAD INSERT, STANDARD FREE RUNNING STYLE 1/4"-28 UNF X .500" LGT 18-8 STAINLESS STEEL PLAIN	No	No
C223	627-249	627-B96-1A	HELICOIL SCREW THREAD INSERT, STANDARD FREE RUNNING 1-1/2" - 12 UNF X 3.000" LGT 18-8 STAINLESS STEEL PLAIN	No	No
C224	627-257	627-B90-1N	HELICOIL SCREW THREAD INSERT, STANDARD FREE RUNNING, METRIC COARS M2.5 X 0.45MM X 5.0MM LGT 18-8 STAINLESS STEEL PLAIN	No	No
C224	627-291	627-B94-1M	HELICOIL SCREW THREAD INSERT, STANDARD FREE RUNNING, METRIC COARS M8 X 1.25MM X 16.0MM LGT 18-8 STAINLESS STEEL PLAIN	No	No
C226	627-329	627-B91-1T	HELICOIL SCREW THREAD INSERT, STANDARD FREE RUNNING, METRIC FINE M12 X 125MM X 12.0MM LGT 18-8 STAINLESS STEEL PLAIN	No	No
D2	59-SN-ZP	656-B37-1Y	S.A.E. FLAT WASHER FOR #8 BOLT (3/16" X 7/16" X .047") STEEL TRIVALENT ZINC PLATED	No	No
D2	656-042	656-B48-1P	S.A.E. FLAT ROUND WASHER, BOLT SIZE #6 5/32" ID X 3/8" OD X .047" THK STEEL TRIVALENT ZINC PLATED.	No	No
D2	656-043	656-B07-1M	S.A.E. FLAT WASHER, ROUND, BOLT SIZE #10 7/32" ID X 1/2" OD X .062" THK STEEL TRIVALENT ZINC PLATED	No	No
D2	656-044	656-B33-1M	S.A.E. FLAT WASHER, ROUND, BOLT SIZE 1/4" 9/32" ID X 5/8" OD X .062" THK STEEL TRIVALENT ZINC PLATED	No	No
D2	656-045	656-B47-1A	S.A.E. FLAT WASHER, ROUND, BOLT SIZE 5/16", 11/32" ID X 11/16" OD X .051/.081" THK, STEEL TRIVALENT ZINC PLATED	No	No
D2	656-046	656-B02-1Z	S.A.E. FLAT WASHER, ROUND, BOLT SIZE 3/8" 13/32" ID X 13/16" OD X .062" THK STEEL TRIVALENT ZINC PLATED	No	No
D2	656-048	656-B05-1G	S.A.E. FLAT WASHER, ROUND, BOLT SIZE 1/2" 17/32" ID X 1-1/16" OD X .093" THK STEEL TRIVALENT ZINC PLATED	No	No
D2	656-050	656-B24-1P	S.A.E. FLAT WASHER ROUND, SIZE 5/8", 21/32" ID X 1-5/16" OD X .094" THK STEEL TRIVALENT ZINC PLATED	No	No
D2	656-054	656-B09-1A	S.A.E. FLAT WASHER, ROUND, BOLT SIZE 7/16" 15/32" ID X 59/64" OD X .062" THK STEEL TRIVALENT ZINC PLATED	No	No
D2	89-SN	656-B58-1X	USS FLAT WASHER, FOR 3/16" BOLT, 1/4" ID X 9/16" OD X .036-.065" THK STEEL PLAIN	Yes	Yes
D2	89-SN-ZP	656-B46-1X	USS FLAT WASHER, FOR 3/16" BOLT, 1/4" ID X 9/16" OD X .036-.065" THK STEEL TRIVALENT ZINC PLATED	No	No
D2	90-SN-ZP	656-B01-1Y	USS FLAT WASHER FOR 1/4" BOLT (5/16" ID X 3/4" OD X .062" THK) STEEL TRIVALENT ZINC PLATED	No	No
D2	W-272	656-B49-1Y	FLAT WASHER, ROUND, BOLT SIZE 1-1/4" 1-3/8" ID X 3" OD X .156" THK STEEL PLAIN	No	No
D3	768	656-B34-1Y	FLAT FENDER WASHER, BOLT SIZE 5/16" 11/32" ID X 1-1/4" OD X .056/.066" THK, STEEL TRIVALENT ZINC PLATED	No	No
D3	1294	656-B28-1E	FLAT FENDER WASHER, BOLT SIZE 3/8" 7/16" ID X 1-3/4" OD X .078" THK STEEL TRIVALENT ZINC CHROMATE PLATED	No	No
D3	1700	656-B19-1M	FLAT FENDER WASHER, ROUND BOLT SIZE 5/16" 11/32"ID X 1 1/2"OD X .068-.097"THK STEEL TRIVALENT ZINC PLATED	No	No
D3	2227	656-B66-1T	FLAT FENDER WASHER, ROUND BOLT SIZE 3/8" 25/64" ID X 1-1/2" OD X .083" THK STEEL TRIVALENT ZINC PLATED	No	No

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Catalog 13 Page	Legacy Part No	New Spaenaur Part No	New Description	Specification Change	RoHS
D3	1183-ZP	656-B54-1T	FLAT WASHER FOR #8 BOLT 11/64" ID X 3/4" OD X .031" THK STEEL TRIVALENT ZINC PLATED	No	No
D3	656-021	656-B10-1X	FLAT FENDER WASHER, BOLT SIZE #10 .196" ID X 1" OD X .062" THK STEEL TRIVALENT ZINC PLATED	No	No
D3	656-022	656-B65-1N	FLAT FENDER WASHER, BOLT SIZE #8 3/16" ID X 1-1/8"OD X .056/.064"THK STEEL TRIVALENT ZINC PLATED	No	No
D3	656-028	656-B12-1P	FLAT FENDER WASHER, BOLT SIZE #10, 7/32" ID X 1-1/4" OD X .035" THK STEEL TRIVALENT ZINC PLATED	No	No
D3	W-158	656-B18-1W	FLAT FENDER WASHER, BOLT SIZE 5/8", 41/64" ID X 2-1/2" OD X .187" THK STEEL TRIVALENT ZINC PLATED	No	No
D3	W-166	656-B03-1S	FLAT FENDER WASHER, BOLT SIZE 1/2" 17/32" ID X 2" OD X 0.150" NOM THK STEEL TRIVALENT ZINC PLATED	No	No
D3	W-167	656-B45-1M	FLAT WASHER, ROUND, FOR BOLT SIZE 1/4" 9/32" ID X 1-3/16" OD X .031" THK STEEL, TRIVALENT ZINC PLATED	No	No
D3	W-179	656-B56-1W	FLAT ROUND FENDER WASHER, 3/8" BOLT 13/32" ID (.401/.421") X 1-1/4" OD (1.24/1.26") X .120" THK (.113/.127") STEEL TRIVALENT ZINC PLATED	No	No
D3	W-249	656-B43-1K	FLAT FENDER WASHER, BOLT SIZE #10 7/32" ID X 7/8" OD X .062" THK STEEL TRIVALENT ZINC PLATED	No	No
D4	2078	656-B15-1S	FLAT WASHER, ROUND, BOLT SIZE 3/8" 7/16" ID X 3/4" OD X .054" THK STEEL TRIVALENT ZINC	No	No
D4	2007-ZP	656-B32-1W	ROUND FLAT WASHER FOR #8 BOLT (3/16" X 1/2" X .062") STEEL, TRIVALENT ZINC PLATED	No	No
D4	656-012	656-B50-1P	FLAT WASHER, ROUND, BOLT SIZE 5/16" 3/8" ID (.005") X 1" OD (.010") X .180/.194" THK STEEL PLAIN	No	No
D4	656-014	656-B11-1A	FLAT WASHER, ROUND, BOLT SIZE #12 .243" ID X .840" OD X .125" TH STEEL TRIVALENT ZINC PLATED	No	No
D4	656-029	656-B53-1N	FLAT WASHER, ROUND, BOLT SIZE 1/4", 17/64" (.261/.271") ID X 1/2" (.490/.510") OD X .032" (.027/.033") THK STEEL NICKEL PLATED	No	No
D4	656-031	656-B31-1G	FLAT WASHER, ROUND, BOLT SIZE 5/16" 21/64" ID X 19/32" OD X .062" THK STEEL TRIVALENT ZINC PLATED	No	No
D4	656-036	656-B30-1E	FLAT WASHER, ROUND, BURR, BOLT SIZE #4 1/8" ID X 3/8" OD X .035" THK STEEL TRIVALENT ZINC PLATED	No	No
D4	656-037	656-B38-1C	FLAT WASHER, ROUND, BOLT SIZE #5 .130" ID X 7/16" OD X .040" THK STEEL TRIVALENT ZINC PLATED	No	No
D4	656-038	656-B63-1Y	FLAT WASHER, ROUND, BURR, BOLT SIZE #6 9/64" ID X 7/16" OD X .047" THK STEEL, TRIVALENT ZINC PLATED	No	No
D4	656-040	656-B59-1A	FLAT WASHER, ROUND, BOLT SIZE #10, 13/64" ID X 3/8" OD X .050" THK STEEL TRIVALENT ZINC PLATED	No	No
D4	656-041	656-B60-1X	FLAT WASHER, ROUND, BOLT SIZE #12, .227" ID X 5/8" OD X .050" TH STEEL TRIVALENT ZINC PLATED	No	No
D4	656-055	656-B44-1W	FLAT WASHER, ROUND 3/8" (7/16" ID X 1" OD X .083" THK) STEEL TRIVALENT ZINC PLATED	No	No
D4	656-061	656-B64-1C	FLAT WASHER 1/8" ID X 3/8" OD X .042" THK STEEL, TRIVALENT ZINC PLATED	No	No
D4	656-118	656-B13-1Y	FLAT WASHER, ROUND, BOLT SIZE #6 .142" ID X 5/16" OD X .031" THK STEEL TRIVALENT`ZINC PLATED	No	No
D4	656-119	656-B08-1X	FLAT WASHER, ROUND, BOLT SIZE #4 .125" ID X .281" OD X .021" THK STEEL COPPER PLATED	No	No

Catalog 13 Page	Legacy Part No	New Spaenaur Part No	New Description	Specification Change	RoHS
D4	656-123	656-B25-1Y	STEEL FLAT WASHER, ROUND 3/8" (7/16" (.433/.443") ID X 1" (.990/1.01") OD X .024" (.021/.029") THK) STEEL TRIVALENT ZINC PLATED	No	No
D4	B-1526	656-B35-1A	FLAT WASHER, BOLT SIZE #14 1/4" ID X 5/8" OD X .046" THK STEEL TRIVALENT ZINC PLATED	No	No
D4	W-147	656-B42-1T	FLAT WASHER, ROUND, BOLT SIZE 3/8", 25/64" ID X 11/16" OD X .125" THK STEEL, TRIVALENT ZINC PLATED	No	No
D4	W-157	656-B21-1M	FLAT WASHER, ROUND, BOLT SIZE 5/16" 11/32" ID X 1-1/8" OD X .078" TH STEEL TRIVALENT ZINC PLATED	No	No
D4	W-159	656-B52-1C	FLAT WASHER ROUND, BOLT SIZE 1/4", 17/64"(.261/.271) ID X 5/8" (.620/.630)OD X .062"(.056/.064)THK STEEL TRIVALENT ZINC PLATED	No	No
D4	W-160	656-B41-1N	FLAT WASHER, ROUND, BOLT SIZE 3/8", 25/64"(.383/.393")ID X 3/4" (.740/.760")OD X .130"(.128/.142") THK, STEEL TRIVALENT ZINC PLATED	No	No
D4	W-175	656-B14-1Z	FLAT WASHER, ROUND, BOLT SIZE 3/8" 13/32" ID X 5/8" OD X .040" THK STEEL TRIVALENT ZINC PLATED	No	No
D4	W-178	656-B29-1G	FLAT WASHER, ROUND, BOLT SIZE 5/16" 11/32" ID X 7/8" OD X .125" THK STEEL TRIVALENT ZINC PLATED	No	No
D4	W-180	656-B17-1G	FLAT WASHER ROUND BOLT SIZE 1/4" 17/64" ID X 3/4" OD X .062" THK STEEL TRIVALENT ZINC PLATED	No	No
D4	W-190	656-B26-1Z	FLAT WASHER, ROUND, BOLT SIZE 5/16" 21/64" ID X 7/8" OD X .062" THK STEEL TRIVALENT ZINC FINISH	No	No
D4	W-216CP	656-B23-1A	FLAT WASHER, ROUND, BOLT SIZE #8 .170" ID X 3/8" OD X .031" THK STEEL TRIVALENT ZINC PLATED	No	No
D4	W-277	656-B04-1E	FLAT WASHER, ROUND, BOLT SIZE #4 1/8" ID X 5/16" OD X .032" THK STEEL TRIVALENT ZINC PLATED	No	No
D4	W-280	656-B36-1P	FLAT WASHER, ROUND, BOLT SIZE 5/16" 3/8" ID X 3/4" OD X .065" THK STEEL TRIVALENT ZINC PLATED	No	No
D4	W-295	656-B27-1S	FLAT WASHER, ROUND, BOLT SIZE #6 .144" ID X 5/16" OD X .040" THK STEEL TRIVALENT ZINC PLTD	No	No
D4	W-332	656-B06-1W	FLAT WASHER, ROUND, BOLT SIZE #10 .203" ID X 1/2" OD X .047" THK STEEL NICKEL PLATED	No	No
D5	W-149	656-B39-1N	FLAT WASHER, ROUND, BOLT SIZE 7/8" 59/64" (.005) ID X 1-19/64" (.010") OD X .031" (.029-.034") THK, STEEL TRIVALENT ZINC PLATED	No	No
D5	W-152	656-B20-1W	FLAT WASHER, ROUND, BOLT SIZE 1" 1-1/32" ID X 1-3/8" OD X .062" THK STEEL TRIVALENT ZINC PLATED ANSI B18.22.	No	No
D5	W-202	656-B40-1C	FLAT WASHER, ROUND, BOLT SIZE 5/8" 41/64" ID X 1-5/16" OD X .125" THK STEEL TRIVALENT ZINC PLATED	No	No
D5	W-260	656-B51-1Y	FLAT WASHER, ROUND, BOLT SIZE 5/8" 41/64" (.635-.645") ID X 1" (.990-1.01") OD X .065" (.056-.064") THK STEEL TRIVALENT ZINC CHROMATE	No	No
D5	W-320	656-B16-1E	FLAT WASHER, ROUND, BOLT SIZE 1/2" 17/32" ID X 1 1/4" OD X .125" THK STEEL TRIVALENT ZINC PLATED	No	No
D6	658-011	658-C01-1E	FLAT WASHER, ROUND, BOLT SIZE #10 13/64" ID X 3/4" OD X .060" THK 18-8 STAINLESS STEEL	No	No
D6	658-016	656-B57-1M	FLAT WASHER FOR 1/2" BOLT (9/16" ID X 1-3/8" OD X .109" THK) STEEL TRIVALENT ZINC PLATED	Yes	Yes
D6	658-016	658-B03-1Y	FLAT WASHER, ROUND, BOLT SIZE 1/4" .265" ID X 1/2" OD X .045"-.075" TH 18-8 STAINLESS STEEL AN960C-416	No	No

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Catalog 13 Page	Legacy Part No	New Spaenaur Part No	New Description	Specification Change	RoHS
D6	658-060	658-B08-1W	ROUND FLAT WASHER #6 NOM 5/32" ID X 5/16"OD X.032 THK 18-8 STAINLESS STEEL	No	No
D6	W-2019	658-B06-1T	FLAT WASHER, ROUND, BOLT SIZE #4 1/8" ID X 5/16" OD X .032" THK 18-8 STAINLESS STEEL	No	No
D6	W-2020	658-B05-1N	FLAT WASHER,ROUND, BOLT SIZE #6 .147" ID X 3/8" OD X .031" THK 18-8 STAINLESS STEEL	No	No
D6	W-2070	658-B04-1C	FLAT WASHER, ROUND, BOLT SIZE #8 11/64" ID X 3/8" OD X .031" THK 18-8 STAINLESS STEEL	No	No
D6	W-2071	658-B02-1P	FLAT WASHER, ROUND, BOLT SIZE #10, .200" ID X 7/16" OD X .037" THK 18-8 STAINLESS STEEL	No	No
D7	658-019	658-B07-1K	FLAT WASHER 1/2"BOLT (.531" ID X 1.00" OD X .056/071" THK) 316 STAINLESS STEEL	No	No
D7	658-058	658-B10-1W	1" HIGH STRENGTH FLAT WASHER 1.057/1.067" ID 1.990/2.010" OD .121/.129" THK 17-7(PH) STAINLESS STEEL HEAT TREATED TO RC 40/48	Yes	Yes
D7	W-2300	658-B01-1A	FLAT WASHER, ROUND, BOLT SIZE #4 1/8" ID X 5/16" OD X .031" THK 316 STAINLESS STEEL	No	No
D7	W-2304	658-B11-1M	FLAT WASHER, ROUND, BOLT SIZE #10 .200" ID X 7/16" OD X .022-.042" TH 316 STAINLESS STEEL	No	No
D8	649-004	649-B02-1N	FLAT WASHER, ROUND, BOLT SIZE 1/2" 9/16" ID X 1-3/8" OD X .091" THK BRASS PLAIN	No	No
D8	W-520	649-B03-1M	FLAT WASHER, ROUND, BOLT SIZE 3/4", 13/16" ID X 1-7/8" OD X .114"/.130" THK BRASS PLAIN	No	No
D9	653-001	653-W02-1T	LEAD FLAT WASHER, BOLT SIZE #12, 1/4" ID X 1/2" OD X .050/.055" THK, LEAD PLAIN	No	No
D9	W-3002	647-D01-1E	WASHER, FLAT, ROUND, BOLT SIZE #6 .147" ID X 3/8" OD X .032" THK ALUMINUM PLAIN	No	No
D9	W-3003	656-B22-1X	WASHER, FLAT, ROUND, BOLT SIZE #8 .172" ID X 3/8" OD X .032" THK ALUMINUM PLAIN	No	No
D9	W-5900	653-W01-1A	LEAD FLAT WASHER, BOLT SIZE #10 7/32" ID X 9/16" OD .048"-.052 THK LEAD PLAIN	No	No
D10	654-002	654-G02-1A	FLAT WASHER, ROUND, BOLT SIZE #4 .115" ID X .250" OD X .032" TH 6/6 NYLON NATURAL	No	No
D10	654-101	654-G04-1Y	STAMPED FLAT WASHER #6 (.150" ID X 5/16" OD X .045" TH) TEFLON TFE	No	No
D10	W-5005	654-G01-1X	FLAT WASHER, ROUND, BOLT SIZE 5/16" .344" ID X .687" OD X .064" TH 6/6 NYLON NATURAL	No	No
D11	W-22F	638-C01-1C	FIBRE WASHER FLAT, ROUND 1/8" ID X 1/4" OD X 1/32" THK VULCANIZED RED FIBRE	No	No
D11	W-252F	638-C02-1N	FIBRE WASHER, FLAT, ROUND .123" ID X 3/8" OD X 1/32" THK VULCANIZED RED FIBRE	No	No
D11	W-34F	638-C03-1T	FIBRE WASHER FLAT, ROUND 1/4" ID X 1/2" OD X 1/32" THK VULCANIZED RED FIBRE	No	No
D12	657-005ZP	657-W02-1W	FLAT WASHER, ROUND DIN 125A M3, 3.2MM ID X 7MM OD X .5MM THK STEEL ZINC PLATED DIN 125A/ST-ZP M3	No	No
D12	657-007ZP	657-W03-1M	FLAT WASHER, ROUND DIN 125A M4 (4.3MM ID X 9MM OD X .8MM THK) STEEL ZINC PLATED DIN 125A/ST-ZP M4	No	No
D12	657-009ZP	657-W04-1Y	FLAT WASHER, ROUND DIN 125A M6 (6.4MM ID X 12MM OD X 1.6MM THK) STEEL ZINC PLATED DIN 125A/ST-ZP M6	No	No
D12	657-014YZ-C	657-W05-1A	FLAT WASHER, ROUND DIN 125A BOLT M14 (15MM ID X 28MM OD X 2.5MM THK) STEEL YELLOW ZINC PLATED DIN 125A/ST-YZ M14	No	No
D12	657-021ZP	657-W07-1Y	FLAT WASHER, ROUND, DIN 125A M30 (31MM ID X 56MM OD X 4MM THK) STEEL TRIVALENT ZINC PLATED DIN 125A/ST-ZP M30	No	No

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D15	650-011	650-K01-1C	FLAT WASHER, ROUND, DIN 125A, M8 (8.4MM ID X 16MM OD X 1.6MM THK) BRASS PLAIN DIN 125A/BR M8	No	No
D15	650-016	650-K02-1N	FLAT WASHER, ROUND, DIN 125A, BOLT SIZE M18 19MM ID X 34MM OD X 3MM TH BRASS PLAIN DIN 125A/BR M18	No	No
D15	659-002	659-F06-1N	FLAT WASHER, ROUND, DIN 125A BOLT SIZE M2 2.2MM ID X 5MM OD X .3MM THK A2 STAINLESS STEEL DIN 125A/A2 M2	No	No
D15	659-005	659-F03-1P	FLAT WASHER, ROUND, DIN 125A M3 (3.2MM ID X 7MM OD X .5MM THK) A2 STAINLESS STEEL PLAIN DIN 125A/A2 M3	No	No
D15	659-007	659-F04-1Y	FLAT WASHER, ROUND, DIN 125A, BOLT SIZE M4 4.3MM ID X 9MM OD X .8MM THK A2 STAINLESS STEEL DIN 125A/A2 M4	No	No
D15	659-009	659-F01-1X	FLAT WASHER, ROUND, DIN 125A, M6, 6.4MM ID X 12.5MM OD X 1.6MM TH A2 STAINLESS STEEL DIN 125A/A2 M6	No	No
D15	659-012	659-F02-1A	FLAT WASHER, ROUND, DIN 125A, BOLT SIZE M10 10.5MM ID X 20.0MM OD X 2.0MM THK A2 STAINLESS STEEL	No	No
D15	659-047	659-F05-1C	FLAT WASHER, ROUND, DIN 125A M2.5 A2 STAINLESS STEEL DIN 125A/A2 M2.5	No	No
D17	657-084ZP-RC	657-W01-1K	FLAT WASHER W/ REDUCED O.D. DIN 433 M2.5 (2.7MM X 5MM X 0.5MM) STEEL ZINC PLATE DIN 433/ST-ZP M2.5	No	No
D17	657-085ZP	657-W06-1P	FLAT WASHER W/REDUCED O.D. DIN 433 M3 STEEL ZINC PLATED DIN 433/ST-ZP M3	No	No
D17	657-801	657-W11-1N	FLAT WASHER, REDUCED O.D., DIN 433 M6 (6.4MM X 11MM X 1.6MM) A4 STAINLESS STEEL DIN 433/A4 M6	No	No
D17	657-807	657-W09-1N	FLAT FENDER WASHER DIN 9021A M4 4.3MM ID X 12MM OD X 1.0 NOM THK A2 STAINLESS STEEL DIN 9021A/A2 M4	No	No
D19	657-248ZP	657-W08-1C	FLAT WASHER FOR PINS, DIN 1440 28MM ID X 42MM OD X 5MM THK STEEL TRIVALENT ZINC PLATED DIN 1440/ST-ZP 28	No	No
D21	661-892	661-W01-1M	SEAL RING - COPPER WITH ASBESTOS-FREE FILLING, DIN 7603 20 X 26 X 2 COPPER NATURAL DIN 7603C/COPPER 20X26	No	No
D22	15-SN	663-W05-1A	HELICAL SPLIT LOCKWASHER, MEDIUM BOLT SIZE #10 (.062"WIDE X .047"TH) CARBON STEEL HEAT TREATED TRIVALENT ZINC PLATED, ANSI B18.21.1 LATEST	No	No
D22	18-SN	663-W06-1P	HELICAL SPLIT LOCK WASHER, MEDIUM SIZE 3/8" (.141" WIDE X .094" THK) CARBON STEEL HEAT TREATED ZINC PLTD ANSI B18.21.1-1972(R1983)	No	No
D22	W-307	663-W04-1X	REGULAR HELICAL (SPLIT) LOCKWASHER BOLT SIZE #2 (.035" WIDE X .020"TH) SPRING STEEL HEAT TREATED MECHANICAL ZINC CLEAR, ANSI B18.21.1-LATEST	Yes	Yes
D22	W-309	663-W02-1W	REGULAR HELICAL (SPLIT) LOCKWASHER, BOLT SIZE #4 (.040" WIDE X .025" MEAN THICKNESS) SPRING STEEL HEAT TREATED MECHANICAL ZINC PLATED ANSI B18.21.1	No	No
D22	W-312	663-W03-1M	REGULAR HELICAL SPLIT LOCKWASHER BOLT SIZE #8(.055" WIDE X .040" TH) CARBON STEEL HEAT TREATED MECHANICAL ZINC PLTD ANSI B18.21.1-LATEST	Yes	Yes
D23	663-082	663-W07-1Y	HELICAL SPLIT LOCK WASHER MEDIUM STYLE, BOLT SIZE 1/4" (.109" WIDE X .062"TH) STEEL HOT DIP GALVANIZED ANSI B18.21.1-1972(R1983)	No	No
D23	W-2021	667-P08-1N	HELICAL SPLIT LOCKWASHER, REGULAR BOLT SIZE #2 (.035" WIDE X .020"TH) 18-8 STAINLESS STEEL ANSI B18.21.1-1972(R1983)	No	No

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D23	W-2023	667-P03-1X	HELICAL SPLIT LOCKWASHER, REGULAR, BOLT SIZE #4 (.040" WD X .031" TH) 18-8 STAINLESS STEEL ANSI B18.21.1-LATEST	No	No
D23	W-2024	667-P04-1A	REGULAR HELICAL SPLIT LOCKWASHER, BOLT SIZE #6(.047" WIDE X .031"TH) 18-8 STAINLESS STEEL ANSI B18.21.1	No	No
D23	W-2026	667-P02-1M	HELICAL SPLIT LOCKWASHER, REGULAR BOLT SIZE #10(.062" WIDE X .047"TH) 18-8 STAINLESS STEEL ANSI B18.21.1	No	No
D23	W-2028	667-P06-1W	HELICAL SPLIT LOCKWASHER, REGULAR BOLT SIZE 1/4"(.109"WIDE X .062"TH) 18-8 STAINLESS STEEL ANSI B18.21.1	No	No
D23	W-2030	667-P01-1W	REGULAR HELICAL SPLIT LOCKWASHER BOLT SIZE 3/8" (.141" W X .094" TH) 18-8 STAINLESS STEEL PLAIN ANSI B18.21.1-1972(R1983)	No	No
D23	W-2316	667-P09-1T	HELICAL SPLIT LOCKWASHER, REGULAR BOLT SIZE #6(.047" WIDE X .031" TH) 316 STAINLESS STEEL ANSI B18.21.1	No	No
D23	W-2318	667-P07-1C	HELICAL SPLIT LOCKWASHER, REGULAR SIZE #10 (.062" WIDE X .047" THK) 316 STAINLESS STEEL ANSI B18.21.1-LATEST	No	No
D24	667-005	667-P05-1P	HIGH COLLAR SPLIT LOCKWASHER FOR #4 BOLT 18-8 STAINLESS STEEL ANSI B18.21.1-1972(R1983)	No	No
D24	B-491	663-W01-1K	LIGHT HELICAL SPLIT LOCKWASHER #10 (.055" WIDE X .040"TH) CARBON STEEL HEAT TREATED MECHANICAL ZINC PLATED ANSI B27.1-LATEST	No	No
D24	W-357	663-W08-1C	DOUBLE COIL HELICAL LOCKWASHER 3/8"(.141" WIDTH X .094" THICKNESS) CARBON STEEL HEAT TREATED HOT DIP GALVANIZED	No	No
D25	668-001	668-A03-1C	HELICAL SPLIT LOCKWASHER DIN 127B BOLT SIZE M2 (2.1MM ID X 4.4MM OD) A2 STAINLESS STEEL DIN 127B/A2 M2	No	No
D25	668-004	668-A01-1P	HELICAL SPLIT LOCKWASHER DIN 127B BOLT SIZE M3 (3.1MM ID X 6.2MM OD) A2 STAINLESS STEEL DIN 127B/A2 M3	No	No
D25	668-026	668-A02-1Y	HELICAL SPLIT LOCKWASHER, DIN 127B M2.5 A2 STAINLESS STEEL DIN 127B/A2 M2.5	No	No
D27	664-051ZP	664-C02-1K	SPLIT LOCKWASHER HIGH COLLAR STYLE M4 SPRING STEEL ZINC PLATED DIN 7980/ST-ZP M4	No	No
D27	664-057ZP	664-C06-1A	SPLIT LOCKWASHER HIGH COLLAR STYLE M14, PLAIN ENDS SPRING STEEL ZINC PLATED DIN 7980/ST-ZP M14	No	No
D28	657-116	657-W12-1T	TAB WASHER WITH LONG TAB, DIN 93 M33 (34 MM ID) STEEL PLAIN DIN 93/ST M33	No	No
D28	664-096YZ	664-C05-1X	BOWED SPLIT LOCKWASHER DIN 128A M22 SPRING STEEL YELLOW ZINC PLATED DIN 128A/ST-YZ M22	No	No
D29	657-134	657-W10-1C	TAB WASHER WITH LONG AND SHORT TAB M42 (43MM ID X 78MM OD X 1.6MM THK) STEEL PLAIN DIN 463/ST M42	No	No
D29	664-108ZP	664-C01-1T	TWISTED SPLIT LOCKWASHER DIN 128B M4 SPRING STEEL ZINC PLATED DIN 128B/ST-ZP M4	No	No
D30	1064	671-W02-1T	EXT TOOTH LOCKWASHER CTSK 82 DEGREE #8 BOLT (.322" OD X .017"-.021" TH) CARB STEEL HEAT TREATED TRIVALENT ZINC CHROM ANSI B18.21.1-1972(R1983)	No	No
D30	1065	671-W05-1M	EXTERNAL TOOTH LOCKWASHER (82 DEGREE COUNTERSUNK) SIZE #12(.430"-.410" OD X .022" TH) CARBON STEEL HEAT TREATED ZINC ANSI B18.21.1-1972(R1983)	No	No
D30	1740	671-W03-1K	INTERNAL TOOTH (FLAT) LOCKWASHER #10 (0.381"-0.365" OD) X 0.023" TH CARBON STEEL HEAT TREATED ZINC PLATED ANSI B18.21.1-LATEST	No	No

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D30	1750	671-W07-1X	INTERNAL TOOTH (FLAT) LOCKWASHER BOLT SIZE #6 (.285"-.275" OD X .017" TH) CARBON STEEL HEAT TREATED ZINC CHROM PLATED ANSI B18.21.1-1972(R1983)	No	No
D30	46-SN	671-W04-1W	EXTERNAL TOOTH (FLAT) LOCKWASHER BOLT SIZE #10(.410"-.395" OD X .023"TH) CARBON STEEL HEAT TREATED ZINC PLATED ANSI B18.21.1-1972(R1983)	No	No
D30	54-SN	671-W09-1Y	INTERNAL TOOTH (FLAT) LOCKWASHER BOLT SIZE #4 (.270-.255" OD X .017" THK) CARBON STEEL HEAT TREATED TRIVALENT ZINC PLATED ANSI B18.21.1-	No	No
D30	B-403	671-W01-1N	INTERNAL TOOTH (FLAT) LOCKWASHER BOLT SIZE 1/2" (.867"-.900" OD X .041" TH) CARBON STEEL HEAT TREATED ZINC PLATED, ANSI B18.21.1-LATEST	No	No
D30	W-2046-RC	675-A01-1A	EXTERNAL TOOTH (FLAT) LOCKWASHER BOLT SIZE #4 (.260"-.245" OD X .017" TH) 410 STAINLESS STEEL ANSI B18.21.1-1972(R1983)	No	No
D30	W-2048	675-A03-1Y	EXTERNAL TOOTH (FLAT) LOCKWASHER BOLT SIZE #8 (.381"-.365"OD X .021"TH) 410 STAINLESS STEEL ANSI B18.21.1-LATEST	No	No
D30	W-2059	675-A02-1N	INTERNAL TOOTH (FLAT) LOCKWASHER BOLT SIZE #4,.270-.255"OD X .017"TH 410 STAINLESS STEEL ANSI B18.21.1-LATEST	No	No
D33	674-023-C	674-E01-1P	INTERNAL TOOTH (FLAT) LOCKWASHER, METRIC, DIN 6797J BOLT SIZE M5 (5.3 ID X 10 OD X .6 TH) PHOSPHOR BRONZE DIN 6797J/BRONZE M5	No	No
D33	676-020	676-F01-1N	INTERNAL TOOTH LOCKWASHER DIN 6797J M3 (3.2MM ID X 6MM OD X .40MM TH) A2 STAINLESS STEEL DIN 6797J/A2 M3	No	No
D34	672-105	672-K01-1C	EXTERNAL OVERLAP TOOTH LOCKWASHER TYPE V FOR COUNTERSUNK HEAD SCREWS M12 STEEL BLACK DIN 6798V/ST M12	No	No
D34	676-054	676-F02-1T	INTERNAL OVERLAP TOOTH LOCKWASHER, SIZE M3 (3.2 ID X 6 OD X .4MM TH) A2 STAINLESS STEEL DIN 6798J/A2 M3	No	No
D40	677-002	677-B01-1C	DISC-LOCK WASHER, BOLT SIZE 1/4"(6MM), .262" ID X .495" OD X .127" THK PER PAIR HARDENED STEEL ZINC PLATED	No	No
D40	677-004	677-B02-1N	DISC LOCK WASHER, BOLT SIZE 3/8"(10 MM), .409" ID X .705" OD X .160" THK PER PAIR HARDENED STEEL ZINC PLATED	No	No
D40	677-007	677-A99-1M	DISC-LOCK WASHER, BOLT SIZE 9/16"(14MM), .572" ID X 1.128" OD X .175" THK PER PAIR HARDENED STEEL ZINC PLATED	No	No
D40	677-008	677-B04-1K	DISC-LOCK WASHER, BOLT SIZE 5/8"(16MM), .651" ID X 1.257" OD X .188" THK PER PAIR HARDENED STEEL ZINC PLATED	No	No
D40	677-011	677-B03-1T	DISC-LOCK WASHER, BOLT SIZE 1" (25MM), 1.015" ID X 1.626" OD X .256" THK PER PAIR HARDENED STEEL ZINC PLATED	No	No
D50	DS-30	680-B02-1W	DISC SPRING AI-502523 BOLT 1/4" .500" OD X .258" ID X .023" TH CHROME VANADIUM STEEL, SELF-COLOUR	No	No
D60	681-347	681-D04-1M	DISC SPRING DIN 2093B 80MM OD X 41MM ID X 3.0MM TH SPRING STEEL HEAT TREATED PLAIN SELF-COLOUR DIN 2093 80X41X3.0	No	No
D64	680-038	680-B05-1A	WIDE CONTACT BELLEVILLE WASHER, BOLT SIZE M6 .717" OD X .240" ID X .055" TH SPRING STEEL HEAT TREATED TRIVALENT ZINC PLATED	Yes	Yes
D67	W-162	680-B03-1T	BOWED SPRING TENSION WASHER 17/64"ID X 1/2"OD X .012"TH PHOSPHOR BRONZE PLAIN FINISH	No	No

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D67	W-258	649-B04-1K	BOWED SPRING TENSION WASHER 49/64" ID X 1" OD X .020"TH SPRING STEEL HEAT TREATED PLAIN	No	No
D67	W-270	680-B01-1K	BOWED SPRING TENSION WASHER 0.505" ID X 3/4" OD X 0.015" TH SPRING STEEL HEAT TREATED PLAIN	No	No
D68	681-103YZ	681-D02-1K	BOWED SPRING WASHER DIN 137A M4 (4.3MM ID) SPRING STEEL MECHANICAL YELLOW ZINC PLATED, DIN 137A/ST-YZ M4	No	No
D69	681-128	681-D01-1E	DOUBLE WAVE SPRING WASHER METRIC BOLT SIZE M8 8.1MM ID X 14.15MM OD X 0.1MM TH SPRING STEEL HEAT TREATED PLAIN	No	No
D70	2000	696-K01-1P	SPACER CUP WASHER FOR 1/4" BOLT .281" ID X 3/4" OD X 1/4" O/A HT. STEEL TRIVALENT ZINC PLATED TOL: .280" .010" O.A. HEIGHT .028"/.032" THK	No	No
D70	642-001	642-A01-1T	FLANGE TYPE COUNTERSUNK WASHER #10 ID X 0.709/0.729" OD 18-8 STAINLESS STEEL PLAIN	No	No
D70	643-005	643-A01-1N	COUNTERSUNK WASHER FLANGE TYPE FOR #8 SCREW, .615" OD BRASS, NICKEL PLATED	No	No
D70	W-163	641-A03-1M	WIDE FLANGE COUNTERSUNK WASHER 1/4" ID X 1-3/16" OD X .035" THK STEEL TRIVALENT ZINC PLATED	No	No
D70	W-371NP	641-A01-1K	COUNTERSUNK FINISHING (SCREW) WASHERS #6 SCREW DIA X 7/16" OD STEEL NICKEL PLATED	No	No
D70	W-87	641-A02-1W	CUP WASHER 5/32" ID X 9/16" OD STEEL TRIVALENT ZINC PLATED	No	No
D70	W-88	641-A04-1X	STEEL CUP WASHER 3/16" ID X 3/4" OD STEEL TRIVALENT ZINC PLATED	No	No
D71	315-002	315-G32-1A	NEOPRENE WASHER 5/16" ID X 7/16" OD X 1/16" TH NEOPRENE BLACK 60-70 DURO	No	No
D71	315-052	315-G21-1C	FLAT WASHER 3/4" OD X 3/16" ID X 1/8" TH NITRILE BLACK, 805 DURO	No	No
D71	RB-146	315-G05-1X	NEOPRENE WASHER, LATHE CUT 3/16" ID X 5/8" OD X 3/32" TH NEOPRENE BLACK, 65-70 DURO	No	No
D71	RB-290	315-G09-1C	NEOPRENE FLAT WASHER 5/32" ID X 5/16" OD X 1/32" TH NEOPRENE BLACK 75-85 DURO	No	No
D71	RB-292	315-G02-1K	NEOPRENE WASHER 3/8" ID X 1" OD X 1/8" TH NEOPRENE BLACK, 65-75 DURO	No	No
D72	315-065	315-G34-1Y	RUBBER WASHER FOR #14 SCREW (5/8"OD X 3/32" TH) EPDM BLACK, 70 DURO	No	No
D72	315-400	315-G11-1C	RED SILICONE WASHER .375" OD X .125" ID X .062" THK SILICONE RUBBER, RED	No	No
D73	W-5805	230-W01-1X	NYLTITE ROLLED WASHER SCREW SIZE #6 NYLON DUPONT ZYTEL NATURAL	No	No
D75	230-125	230-W03-1P	SHOULDER WASHER 1/4" LONG X .290" HD DIA X .140" ID NYLON 6/6 NATURAL	No	No
D78	656-168	656-B61-1A	ARBOR SHIM WITHOUT KEYWAY 1/2" ID X 3/4" OD X .062" THK STEEL AISI 1010 PLAIN	No	No
D80	603-034	603-B03-1W	SHIM STOCK .010"(.254MM)TH X 12" X 120" ROLL C1010 LOW CARBON STEEL PLAIN FINISH	No	No
D82	603-505	603-B01-1T	SHIM STOCK .005"(.127MM)TH X 6" X 100" ROLL BRASS PLAIN 100" PER PACK	No	No
D82	603-510	603-B02-1K	SHIM STOCK .010"(.254MM)TH X 6" X 100" ROLL BRASS PLAIN 100" PER PACK	No	No
E2	291-010	291-F01-1X	FLAT HEAD SOLID RIVET 3/16" X 13/32" LONG STEEL, TRIVALENT ZINC PLATED	No	No
E2	291-014	291-F13-1X	SOLID RIVET, TRUSS HEAD 3/16" X 1 7/8" LONG STEEL TRIVALENT ZINC PLATED	No	No
E2	291-179	291-F05-1C	SOLID STEEL RIVET ROUND HEAD 5/16" DIA X 1 5/16" LGTH C1008 STEEL ANNEALED PLAIN ANSI B18.1.1-1972 (R1981)	No	No

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E2	RVT-153	291-F06-1N	SOLID STEEL RIVET ROUND HEAD 1/4" DIA X 2-1/2" LGTH C1008 STEEL ANNEALED TO RB60 PLAIN TOLERANCES: C1006/1008 MATERIAL HEAD DIA. .460"/.430" HEAD HGT. .196"/.180" ANSI B18.1.1-1972 (R1981)	No	No
E2	RVT-156	291-F14-1A	SOLID STEEL RIVET COUNTERSUNK HEAD 1/8" DIA X 3/8" L C1006 STEEL ANNEALED PLAIN ANSI B18.1.1-1972 (R1981)	No	No
E2	RVT-257	291-F15-1P	SOLID STEEL RIVET TRUSS HEAD 1/4" DIA X 1/2" L C1006 STEEL ANNEALED PLAIN	No	No
E2	RVT-76	291-F03-1P	SOLID STEEL RIVET ROUND HEAD 3/8" DIA X 1" LG C1008 STEEL ANNEALED PLAIN ANSI B18.1.1-1972 (R1981)	No	No
E2	RVT-94	291-F07-1C	SOLID STEEL RIVET TRUSS HEAD 3/16" DIA X 1/2" LG C1008 STEEL ANNEALED PLAIN ANSI B18.1.1-1972 (R1981)	No	No
E3	RVT-172	291-F11-1W	SOLID STEEL RIVET BUTTON RD HEAD 3/4" DIA X 2-1/2" LGTH LOW CARBON STEEL PLAIN ANSI B18.1.2-1972(R1983)	Yes	Yes
E3	RVT-187	291-F12-1M	SOLID STEEL BUTTON HEAD RIVET 5/8" DIA X 2-1/2" LGTH LOW CARBON STEEL PLAIN ANSI B18.1.2-1972(R1983)	No	No
E3	RVT-192	291-F10-1K	SOLID STEEL BUTTON HEAD RIVET 3/4" DIA X 1-7/8" LGTH LOW CARBON STEEL PLAIN	No	No
E3	RVT-194	291-F08-1K	SOLID STEEL BUTTON HEAD RIVET 3/4" DIA X 2-1/4" LGTH LOW CARBON STEEL ANNEALED PLAIN ASME B18.1.2-1972(R1983)	No	No
E3	RVT-201	291-F02-1A	SOLID STEEL ROUND HEAD RIVET 3/4" DIA X 3-1/2" LGTH LOW CARBON STEEL ANNEALED PLAIN	Yes	Yes
E3	RVT-204	291-F04-1Y	SOLID STEEL BUTTON HEAD RIVET 3/4" DIA X 5" LGTH LOW CARBON STEEL ANNEALED PLAIN ANSI B18.1.2-1972(R1983)	No	No
E5	RVT-2035	294-W01-1P	SOLID RIVET, ROUND HEAD 3/16" DIA X 1" LGTH 18-8 STAINLESS STEEL	No	No
E5	RVT-4054	290-G01-1T	SOLID COPPER RIVET, 90 DEGREE COUNTERSUNK HEAD 5/16" DIA X 2" LG COPPER PLAIN FINISH	No	No
E7	1737	293-D01-1W	SOLID STEEL SHOULDER RIVET FLAT HD 1/4" LARGE SHOULDER DIA X 3/16" SMALL SHLDR DIA X 13/32" O/A LGTH LOW CARBON STEEL PLAIN TOLERANCES: DIA. OF LARGE SHLDR : 1/4" LENGTH OF LARGE SHLDR : 5/32" DIA. OF	No	No
E7	1738	293-D04-1A	SOLID STEEL SHOULDER RIVET FLAT HD 3/16" SMALL SHLDR DIA X 7/32" LGTH, 1/4" LARGE SHLDR DIA X 3/16" LGTH, 1/2" HEAD DIA., 1/2" OVERALL LENGTH STEEL PLAIN FINISH, DESIGN PER APPROVED PRINT ON JANUARY 2	No	No
E7	293-607	293-D03-1X	FLAT HEAD TUBULAR SHOULDER RIVET 1/8" X 11/32" O/A LGTH (3/16" X 3/32" SHOULDER) STEEL TRIVALENT ZINC PLATED	No	No
E7	293-608	293-D02-1M	FLAT HEAD TUBULAR SHOULDER RIVET 11/64"X 5/32" SMALL SHLDR 15/64"X 5/32" LARGE SHLDR 3/8" O/A LGTH, STEEL BRASS PLATED TOLERANCES: DIA. LARGE SHLDR: 15/64" LENGTH LARGE SHLDR: 5/32" DIA. SMALL SHLDR:	No	No
E8	292-021	292-K01-1C	SHALLOW TUBULAR RIVET OVAL HEAD 1/4" DIA X 5/8" L X 1/2" HEAD DIA STEEL NICKEL PLATED	No	No
E9	292-141	292-K07-1X	OVAL HEAD TUBULAR RIVET 1/8" X 5/32" L (9/32" HEAD DIA) STEEL NICKEL PLATED ANSI B18.7-LATEST	No	No
E10	292-195	292-K06-1M	TUBULAR RIVET, OVAL HEAD 9/64" X 3/16" L (5/16" HEAD DIA) STEEL NICKEL PLATED	No	No
E10	292-234	292-K02-1N	TUBULAR RIVET, OVAL HEAD 9/64" X 5/8" L (5/16" HEAD DIA) STEEL NICKEL PLATED	No	No
E11	292-303	292-K08-1A	OVAL HEAD TUBULAR RIVET 3/16" X 7/16" L (3/8" HEAD DIA) STEEL TRIVALENT ZINC PLATED	No	No

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E11	292-344	292-K04-1K	TUBULAR RIVET, OVAL HEAD 1/4" X 1-1/4" L (7/16" HEAD DIA) STEEL, NICKEL PLATED	No	No
E12	292-405	292-K05-1W	TUBULAR RIVET, 90 DEGREE CTSK HEAD 1/8" X 1/4" L (15/64" HEAD DIA) STEEL TRIVALENT ZINC PLATED	No	No
E13	294-002	294-W02-1C	OVAL HEAD TUBULAR RIVET 1/8" DIA X 1/8" LG (7/32" HEAD DIA) 302 STAINLESS STEEL	No	No
E13	294-010	294-W03-1C	TUBULAR RIVET, OVAL HEAD 1/8" DIA X 3/16" LG (7/32" HD DIA) 430 STAINLESS STEEL MEETS SPECIFICATIONS OF ANSI B18.1.1-1972(R1980)	No	No
E14	293-022	293-D05-1P	OVAL HEAD SPLIT RIVET 9/64"DIA X 3/8" LONG 5/16" HEAD DIAM STEEL NICKEL PLATED	No	No
E15	286-070	286-W02-1W	OVAL HEAD TUBULAR RIVET 1/8" X 13/32" L (9/32" HEAD DIA) ALUMINUM	No	No
E15	286-071	286-W01-1C	TUBULAR RIVET, OVAL HD 1/8" X 5/16" LG (5/16" HEAD DIA) ALUMINUM	No	No
E18	310-312	310-A13-1A	POP RIVET DOME HEAD OPEN END 1/8" D X .640" L (.376-.500" GRIP) ALUMINUM BODY, COATED STEEL MANDREL IFI SPEC. 114 GRADE 19	No	No
E18	PR-52	310-A08-1W	POP RIVET DOME HEAD OPEN END 1/8" DIA X .265"LGT X.063-.125"GRIP ALUMINUM BODY, COATED STEEL MANDREL IFI SPEC. 114 GRADE 19	No	No
E19	310-339	310-A05-1N	POP RIVET DOME HEAD, OPEN END 1/8" X .640" LONG (.376"-.500" GRIP) ALUMINUM IFI SPEC. 114 GRADE 11	No	No
E19	PR-60	310-A03-1Y	POP RIVET DOMED HEAD OPEN END 3/16" X .815" L X .501"/.625" GRIP ALUMINUM RIVET/ALUMINUM MANDREL IFI SPEC. 114 GRADE 11	No	No
E19	PR-65	310-A06-1T	POP RIVET DOMED HEAD OPEN END 1/8" DIA X .328" LGTH (.126"/.187" GRIP) ALUMINUM BODY/ALUMINUM MANDREL IFI SPEC. 114 GRADE 11	No	No
E20	310-318	310-A14-1P	SOFT-SET POP RIVET DOME HD OPEN END 1/8" D X .328" L (.126-.187" GRIP) 1100 ALUMINUM/ALUMINUM MANDREL IFI SPEC. 114 GRADE 11	No	No
E20	PR-61LF	310-A07-1K	POP RIVET LARGE FLANGE DOME HEAD 3/16" DIA X .565" LGTH X .251"/.375" GRIP ALUMINUM/ ALUMINUM MANDREL IFI SPEC. 114 GRADE 11	No	No
E21	PR-103	310-A11-1M	POP RIVET DOMED HEAD CLOSED END 1/8" DIA X .295" LGTH X .063"/.125" GRIP ALUMINUM BODY, COATED STEEL MANDREL	No	No
E25	310-043	310-A04-1C	POP RIVET DOME HEAD, OPEN END 1/4" X .740" LG (.376"-.500" GRIP) STEEL TRIVALENT ZINC PLATED	No	No
E27	310-805	310-A01-1A	POP RIVET DOMED HEAD OPEN END 3/16" X .565" L X .251"/.375" GRIP 300 SERIES STAINLESS STEEL RIVET, COATED STEEL MANDREL	No	No
E27	310-820	310-A10-1W	POP RIVET DOME HEAD OPEN END 1/8" D X.313 NOM BODY LGTH (.063"/.125" GRIP) 300 SERIES STAINLESS STEEL BODY, STAINLESS STEEL MANDREL	No	No
E27	310-822	310-A09-1M	POP RIVET DOME HEAD OPEN END 1/8" D X .390" L (.188"/.250" GRIP) 300 STAINLESS STEEL IFI 114-1986	No	No
E27	310-826	310-A02-1P	POP RIVET DOME HEAD, OPEN END 1/8" X .640" LG (.376"-.500" GRIP) 300 SERIES STAINLESS STEEL	No	No
E38	301-412	301-M01-1C	CHERRY Q RIVET, LARGE HEAD, 3/16" DIA X .251"-.375" GRIP X .575" LGT STEEL RIVET-STEEL MANDREL, ZINC PLATED	No	No
E42	304-302	304-K01-1A	DRIVE RIVET, UNIVERSAL HEAD, 1/8" DIA X 1/4" LG, 5/32" NOM GRIP 2117 ALUMINUM RIVET / 302SS PIN	No	No
E48	CP-66	091-A02-1X	HAMMERLOCK COTTER PIN 5/32" X 2" STEEL PLAIN	No	No

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E49	091-197	091-A01-1M	ROUND COTTER PIN, EXTENDED PRONG 7/32" X 2 1/2" STEEL PLAIN	No	No
E49	CP-117	091-A03-1A	ROUND COTTER PIN EXTENDED PRONG 1/4" X 1 1/4" STEEL PLAIN	No	No
E49	CP-3	091-A04-1P	ROUND COTTER PIN, EXTENDED PRONG CHISEL POINT 1/16" X 1" STEEL PLAIN	No	No
E50	CP-2023	093-F02-1Y	COTTER PIN ROUND EXTENDED PRONG 1/8" X 1-1/2" STAINLESS STEEL 18-8 ANSI B18.8.1-1972(1983)	No	No
E53	091-365ZP	091-A05-1Y	METRIC COTTER PIN, DIN 94 5MM X 56MM STEEL ZINC PLATED DIN 94/ST-ZP 5X56	No	No
E55	093-814	093-F01-1P	COTTER PIN 2MM X 12MM A2 STAINLESS STEEL PLAIN DIN 94/A2 2X12	No	No
E55	093-831	093-F05-1T	COTTER PIN 2.5MM X 28MM A2 STAINLESS STEEL DIN 94/A2 2.5X28	No	No
E55	093-868	093-F04-1N	COTTER PIN, DIN 94 5MM X 28MM A2 STAINLESS STEEL DIN 94/A2 5X28	No	No
E55	093-870	093-F06-1K	COTTER PIN 5MM X 36 MM A2 STAINLESS STEEL DIN 94/A2 5X36	No	No
E55	093-872	093-F03-1C	COTTER PIN 5MM X 45 MM A2 STAINLESS STEEL DIN 94/A2 5X45	No	No
E58	090-105	090-G02-1A	HAIRPIN COTTER INTERNAL TYPE 3/32"(0.080") WIRE X 1 3/16" O/A LGTH TEMPERED STEEL WIRE ZINC PLATED	No	No
E58	B-1640	090-G07-1T	HAIRPIN COTTER, INTERNAL TYPE 0.072" WIRE DIA X 1-3/32" O/A LGTH. MB SPRING WIRE ELECTRO ZINC PLATED	No	No
E58	CP-139H	090-G04-1Y	HAIRPIN COTTER INTERNAL TYPE WIRE DIA .243", 5" OVERALL LGTH STEEL TRIVALENT ZINC PLATED	No	No
E58	CP-96H	090-G06-1N	HAIRPIN COTTER INTERNAL TYPE 3/32"(0.094") WIRE DIAM 1 5/8" OVERALL LENGTH STEEL TRIVALENT ZINC PLATED	No	No
E67	CP-132H	090-G03-1P	HAIRPIN COTTER, EXTERNAL TYPE, 7/8" CENTRE EYE ID X 2 1/4" O/A LG, 0.125GA SPRING STEEL TRIVALENT ZINC PLATED	No	No
E67	CP-137H	090-G05-1C	HAIRPIN COTTER EXTERNAL TYPE CENTRE EYE 5/8",OAL 61/64",WIRE .047" SPRING STEEL TRIVALENT ZINC PLATED	No	No
E70	233-215	233-F44-1T	TENSION LOCK HITCH PIN WITH TOGGLE 1/2" DIA. X 3-1/2" USABLE LGTH. CARBON STEEL TRIVALENT ZINC PLATED	No	No
E70	233-234	233-F45-1K	BENT PULL PIN COMPLETE W/HAIR PIN 3/4" X 3 1/2" USABLE LGTH CARBON STEEL TRIVALENT ZINC PLATED	No	No
E70	B-2007	233-F46-1W	PIN-LOCK HITCH PIN WITH HAIRPIN SHOULDER STYLE 1" DIA. X 4 1/2" USABLE LGTH. CARBON STEEL TRIVALENT ZINC PLATED	No	No
E71	233-240	233-F41-1C	LOCK PIN WITH SPRING STEEL SQUARE SECURITY SNAP 1/4" X 2-1/2" USABLE LGTH CARBON STEEL TRIVALENT ZINC PLATED	No	No
E71	233-244	233-F48-1A	LOCK PIN WITH SPRING STEEL SECURITY SNAP 3/8" X 2-1/2" USABLE LGTH CARBON STEEL TRIVALENT ZINC PLATED	No	No
E71	233-943	233-F47-1X	LOCK PIN ROUND WIRE HANDLE 5/16" DIA X 1-3/8" LG 18-8 STAINLESS STEEL	No	No
E71	B-1998	233-F42-1N	LOCK PIN WITH SPRING STEEL SQUARE SECURITY SNAP 3/8" DIA X 2-1/4" USABLE LGTH CARBON STEEL TRIVALENT ZINC PLATED	No	No
E73	142-155	142-A02-1P	SAFETY PIN 2 3/4" O/A L, 1 11/16" THROAT L, 5/8" IW (.091" WIRE DIAMETER) STEEL TRIVALENT ZINC PLATED	No	No
E73	142-156	142-A01-1A	SAFETY PIN (.120" WIRE DIAMETER) 4-1/4" O/A LG, 2 13/16" THROAT LG, 13/16" IW STEEL TRIVALENT ZINC PLATED	No	No
E73	142-157	142-A03-1Y	SAFETY PIN (.148" WIRE DIAMETER) 5 3/4" O/A LG, 3 3/4" THROAT LG, 1 1/8" IW STEEL TRIVALENT ZINC PLATED	No	No
E76	805-503	805-503-A	LYNCH PIN ASSORTMENT INCH	No	No

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E76	B-2012	233-F35-1X	LYNCH PIN W/SNAP MINI RING (NO CHAIN OR COTTER PIN) 3/16" DIAM X 1-1/4" OAL LENGTH PIN APPROX. 1-1/8" INSIDE RING DIAM 1010 STEEL PIN W/ SPRING STEEL RING TRIVALENT ZINC PLATED YELLOW FINISH	No	No
E76	B-2014	233-F40-1Y	LYNCH PIN W/O CHAIN - SPRING STEEL SNAP RING 5/16" X 2-11/32" PIN LGTH HIGH CARB STEEL CORE HARDENED YELLOW ZINC DICHROMATE	No	No
E80	233-274	233-F17-1T	QR HITCH PINS WITHOUT SHOULDER WITH ROUND RING SPRING LOADED BALL 1/4" SHANK DIA. X 3.80" GRIP STEEL C1144 STRESS RELV ZINC PLATED	No	No
E80	233-823	233-F49-1P	QUICK RELEASE PIN W/O SHOULDER W/ROUND RING 7/16" DIA X 2" GRIP 303/302 SS	No	No
E84	086-042	086-F43-1K	LANYARDS ONE-PIECE MOLD RETAINER, APPROX. BREAKING STRENGTH 35 LBS 10"APPROX. L X .200 EYELET ID X .093" THK 6/6 NYLON BLACK ULTRAVIOLET STABILIZED	No	No
E85	1057	233-F22-1M	CLEVIS PIN CROSS DRILLED & CNTRSUNK 5/16" DIA X 7/8" TO HOLE CENTRE X 1" LG UNDER HEAD, 1/8" HOLE DIA LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
E85	233-001	233-F52-1Y	CLEVIS PIN CROSS DRILLED & CNTRSUNK 1/8" DIA X 3/8" TO HOLE CENTRE X 7/16" LGTH UNDER HEAD, 1/16" HOLE LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED TOLERANCES: 12L14 STEEL HEAD DIAMETER: .260"	No	No
E85	233-002	233-F50-1A	CLEVIS PIN SAE STANDARD HARDENED CROSS DRILLED & COUNTERSUNK 3/16" DIA X 1/2" TO HOLE CENTER X .580" UNDER HEAD, .080" HOLE LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED TOLERANCES: C1010 STEEL	No	No
E85	233-004	233-F18-1K	CLEVIS PIN SAE STANDARD HARDENED CROSS DRILLED & COUNTERSUNK 5/16" DIA X 13/16" TO HOLE CENTER X .940" UNDER HEAD, .111" HOLE DIA, LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
E85	233-005	233-F13-1P	CLEVIS PIN, SAE STANDARD, CROSS DRILLED & COUNTERSUNK, 3/8" X 15/16" TO HOLE CENTER X 1.060" UNDER HEAD, .111" HOLE LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
E85	233-009	233-F20-1K	CLEVIS PIN, SAE STANDARD, CROSS DRILLED & COUNTERSUNK, 3/4" X 1-23/32" TO HOLE CENTRE X 1.910" UNDER HEAD, .174" HOLE DIA, LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
E85	233-011	233-F08-1M	CLEVIS PIN CROSS DRILLED & CNTRSUNK 3/16" DIA X 1-1/2" TO HOLE CENTRE X 1-5/8" UNDER HEAD, 3/32" HOLE DIA LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
E85	233-012	233-F16-1N	CLEVIS PIN, CROSS DRILLED & CNTRSNK 3/16" X 1-1/16" TO HOLE CENTRE X 1-3/16" UNDER HEAD 3/32" HOLE DIA C1010/1018 STEEL CASE HARDENED TRIVALENT ZINC PLATED TOLERANCES: UNDER HEAD TO CENTRE HOLE: 1-1/1	Yes	Yes
E85	B-1710	233-F06-1K	CLEVIS PIN CROSS DRILLED & CNTRSUNK 1/4" DIA X 1-9/32" TO HOLE CENTRE X 1-3/8" UNDER HEAD, 3/32" HOLE C1018 STEEL CASE HARDENED TRIVALENT ZINC PLATED TOLERANCES: C1010/1018 STEEL HEAD DIA: .380"/.360"	No	No

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E85	B-1712	233-F09-1X	CLEVIS PIN CROSS DRILLED & COUNTERSUNK 5/16" X 13/16" TO HOLE CENTRE X 31/32" UNDER HOLE 1/8" HOLE C1018 STEEL CASE HARDENED TRIVALENT ZINC	No	No
E85	B-1718	233-F39-1C	CLEVIS PIN CROSS DRILLED & CNTRSUNK 1/4" DIA X 29/32" TO HOLE CENTRE X 1" UNDER HEAD, 3/32" HOLE C1018 STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
E85	B-1719	233-F05-1T	CLEVIS PIN CROSS DRILLED & CNTRSUNK 1/4" DIA X 1-5/32" TO HOLE CENTRE X 1-1/4" UNDER HEAD, 3/32"HOLE C1008-C1018 STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
E85	B-1721	233-F32-1K	CLEVIS PIN CROSS DRILLED & CNTRSUNK 1/4" DIA X 1-17/32" TO HOLE CENTRE X 1-5/8" UNDER HEAD, 3/32" HOLE DIA C1018 STEEL CASE HARDENED TRIVALENT ZINC PLATED TOLERANCES: UNDER HEAD TO CENTRE HOLE: 1-17/3	No	No
E85	B-1772	233-F21-1W	CLEVIS PIN CROSS DRILLED & CNTRSUNK 1/4" DIA X 1-5/8" TO HOLE CENTRE X 1-3/4" LGTH UNDER HEAD, 3/32" HOLE C1018 STEEL CASE HARDENED TRIVALENT ZINC PLATED TOLERANCES: C1010/1018 STEEL HEAD DIA: .380"/.	No	No
E85	B-1801	233-F14-1Y	CLEVIS PIN CROSS DRILLED & CNTRSUNK 1/4" DIA X 1-29/32" TO HOLE CENTRE X 2" UNDER HEAD, 3/32" HOLE C1018 STEEL CASE HARDENED TRIVALENT ZINC PLATED TOLERANCES: C1010/1018 STEEL UNDER HEAD TO CENTRE OF	No	No
E85	B-359	233-F37-1P	CLEVIS PIN CROSS DRILLED & CTSK 1/4" X 3/4" TO HOLE CENTRE X 27/32" UNDER HEAD 3/32" HOLE C1018 STEEL CASE HARDENED TRIVALENT ZINC PLATED TOLERANCES: C1010/1018 STEEL HEAD DIA: .380/.360 HEAD HGT: .10	No	No
E85	B-360	233-F24-1A	CLEVIS PIN CROSS DRILLED & CNTRSUNK 1/4" X 1" TO HOLE CENTRE X 1-3/32" UNDER HEAD 3/32" HOLE DIA C1018 STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
E85	B-361	233-F51-1P	CLEVIS PIN CROSS DRILLED & CNTRSUNK 5/16" X 15/16" TO HOLE CENTRE X 1-1/16" UNDER HEAD X 1/8" HOLE DIA C1018 STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
E85	B-362	233-F23-1X	CLEVIS PIN CROSS DRILLED & CTSK 5/16" X 1" TO HOLE CENTRE X 1 1/8" UNDER HEAD, 1/8" HOLE DIA C1018 STEEL CASE HARDENED TRIVALENT ZINC PLATED TOLERANCES: C1010/1018 STEEL HEAD DIA: .440"/.420" HEAD HEI	No	No
E85	B-363	233-F30-1N	CLEVIS PIN CROSS DRILLED & CTSK 5/16" X 1 1/8" TO HOLE CENTRE X 1 1/4" UNDER HEAD 1/8" HOLE DIA C1018 STEEL CASE HARDENED TRIVALENT ZINC TOLERANCES: C1010/1018 STEEL HEAD DIA: .440/.420 HEAD HEIGHT: .	No	No
E85	B-364	233-F10-1M	CLEVIS PIN CROSS DRILLED & CNTRSUNK 5/16 X 1-3/8 TO HOLE CENTRE X 1-1/2" UNDER HEAD 1/8" HOLE DIA C1018 STEEL CASE HARDENED TRIVALENT ZINC CHROMATE PLATED TOLERANCES: C1010/C1018 STEEL UNDER HEAD TO C	No	No
E85	B-365	233-F34-1M	CLEVIS PIN CROSS DRILLED & CNTRSUNK 5/16" X 1-7/16" TO HOLE CENTRE X 1-9/16" UNDER HEAD 1/8" HOLE DIA C1018 STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No

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E85	B-368	233-F38-1Y	CLEVIS PIN CROSS DRILLED & CNTRSUNK 5/16" X 1-3/4" TO HOLE CENTRE X 1-7/8" UNDER HEAD 1/8" HOLE DIA C1018 STEEL CASE HARDENED TRIVALENT ZINC PLATED TOLERANCES: C1010/C1018 STEEL UNDER HEAD TO CENTRE O	No	No
E86	1059	233-F12-1A	CLEVIS PIN CROSS DRILLED & CNTRSUNK 3/8" X 1" TO HOLE CENTRE X 1-1/8" UNDER HEAD 5/32" HOLE C1010 STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
E86	233-065	233-F33-1W	CLEVIS PIN 1/2" DIA X 3-27/32" TO HOLE CENTER 4" LGTH UNDER HEAD, 5/32" HOLE DIA STEEL TRIVALENT ZINC PLATED	No	No
E86	B-1753	233-F19-1W	CLEVIS PIN CROSS DRILLED & CNTRSUNK 1/2" DIA X 1-3/32" TO HOLE CENTRE X 1-1/4" UNDER HEAD, 5/32" HOLE DIA C1018 STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
E86	B-1803	233-F04-1N	CLEVIS PIN CROSS DRILLED & CNTRSUNK 5/8" DIA X 1-27/32" TO HOLE CENTRE X 2" UNDER HEAD, 5/32" HOLE DIA C1018 STEEL CASE HARDENED TRIVALENT ZINC PLATED TOLERANCES: C1018 STEEL UNDER HEAD TO CENTRE HOLE	No	No
E86	B-1804	233-F29-1T	CLEVIS PIN CROSS DRILLED & CNTRSUNK 5/8" DIA X 3-11/32" TO HOLE CENTRE X 3-1/2" UNDER HEAD, 5/32"HOLE DIA C1018 STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
E86	B-1805-TV	233-F25-1P	CLEVIS PIN CROSS DRILLED & CNTRSUNK 1/2" DIA X 3.343" TO HOLE CENTRE X 3-1/2" UNDER HEAD, 5/32" HOLE DIA C1010/C1018 STEEL CASE HARDENED TRIVALENT ZINC PLATED TOLERANCES: CHAMFER 45 DEGREES CASE HAR	No	No
E86	B-1970	233-F26-1Y	CLEVIS PIN CROSS DRILLED & CNTRSUNK 3/8" X 2-15/32" TO HOLE CENTRE X 2-5/8" UNDER HEAD 1/8" HOLE DIA C1010/C1018 STEEL CASE HARDENED TRIVALENT ZINC CHROMATE PLATED HEAD DIA: .510"/.490" HEAD HEIGHT: .	No	No
E86	B-370	233-F27-1C	CLEVIS PIN 3/8" X 5/8" TO HOLE CENTER X 3/4" LG UNDER HD, 5/32" HOLE C1018 STEEL CASE HARDENED TRIVALENT ZINC PLATED ANSI B18.8.1-LATEST	No	No
E86	B-372	233-F11-1X	CLEVIS PIN CROSS-DRILLED & CNTRSUNK 3/8" X 7/8" TO HOLE CENTRE X 1" UNDER HEAD 5/32" HOLE DIA C1018 STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
E86	B-374	233-F28-1N	CLEVIS PIN CROSS-DRILLED & CTSK 3/8" X 1-1/4" TO HOLE CENTRE X 1-3/8" UNDER HEAD 5/32" HOLE DIA C1018 STEEL CASE HARDENED TRIVALENT ZINC PLATED, TOLERANCES: C1010/C1018 STEEL UNDER HEAD TO CENTRE OF H	No	No
E86	B-378	233-F02-1Y	CLEVIS PIN CROSS-DRILLED & CNTRSUNK 3/8" X 1-7/8" TO HOLE CENTRE X 2" UNDER HEAD, 5/32" HOLE DIA C1018 STEEL CASE HARDENED TRIVALENT ZINC	No	No
E86	B-379	233-F03-1C	CLEVIS PIN CROSS-DRILLED & CNTRSUNK 3/8" X 2-1/4" TO HOLE CENTRE X 2-3/8" UNDER HEAD 5/32" HOLE DIA C1018 STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
E86	B-379A	233-F53-1C	CLEVIS PIN CROSS-DRILLED & CNTRSUNK 3/8" X 2-1/8" TO HOLE CENTRE X 2-1/4" UNDER HEAD 5/32" HOLE DIA C1018 STEEL CASE HARDENED TRIVALENT ZINC TOLERANCES: C1010/1018 STEEL UNDER HEAD TO CENTRE OF HOLE 2	No	No

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E86	B-384	233-F31-1T	CLEVIS PIN CROSS DRILLED & CNTRSUNK 7/16" X 1-1/2" TO HOLE CENTRE X 1-21/32" UNDER HEAD 5/32" HOLE C1018 STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No
E86	B-386	233-F01-1P	CLEVIS PIN CROSS DRILLED & CNTRSUNK 1/2" DIA X 1-5/8" TO HOLE CENTRE X 1-25/32" UNDER HEAD, 5/32" HOLE C1018 STEEL CASE HARDENED TRIVALENT ZINC PLTED TOLERANCES: C1010 STEEL HEAD DIA: .630"/.610" HEAD	No	No
E87	234-006	234-D01-1A	CLEVIS PIN 1/4" DIA X 13/32" TO HOLE CENTER X 1/2" LGTH U/H, 3/32" HOLE DIA 300 SERIES STAINLESS STEEL NOT HARDENED, PLAIN	No	No
E88	238-1350	238-D13-1K	PULL DOWEL PINS PRECISION GROUND 1/4" DIA X 3/4" LONG ALLOY STEEL CASE HARD PLAIN	No	No
E88	B-1780	233-F07-1W	CLEVIS PIN UNIVERSAL STYLE NOT HARDENED WITH 7 HOLES IN SHANK 7/16" X 2 1/2" U/H - 7/64" DIA HOLES C1018 STEEL NOT HARDENED TRIVALENT ZINC	No	No
E90	238-046	238-D05-1A	STANDARD DOWEL PIN 1/4" DIA X 2 1/4" LG ALLOY STEEL CASE HARDENED PRECISION GROUND	No	No
E90	238-1345	238-D12-1T	DOWEL PIN 3/32" DIA X 3/4" LG ALLOY STEEL, PRECISION GROUND ANSI B18.8.2-1995	No	No
E92	238-114	238-D03-1M	DOWEL PIN DIN 6325,PRECISION GROUND 3MM X 10MM LGTH (m6 TOLERANCE) ALLOY STEEL CASE HARDENED DIN 6325/ST 3m6X10	No	No
E92	238-287	238-D07-1Y	HARDENED DOWEL PIN, DIN 6325 1.5MM X 5MM, M6 TOLERANCE STEEL PLAIN, PRECISION GROUND DIN 6325/ST 1.5M6X5	No	No
E95	238-1307	238-D04-1X	DOWEL PIN DIN 7 8MM X 30MM, h8 TOLERANCE A1 STAINLESS STEEL PRECISION GROUND, NOT HARDENED	No	No
E103	238-1103	238-D08-1C	TAPER PIN WITH INTERNAL THREAD 8MM X 45MM O/A LGTH STEEL PLAIN (GROUND) DIN 7978A/ST 8X45	No	No
E107	240-041	240-K01-1T	SLOTTED SPRING TENSION PIN NOM DIA 1/4" X 2" LGTH TYPE 420 STAINLESS STEEL PLAIN	No	No
E107	240-068	240-K02-1K	SLOTTED SPRING TENSION PIN NOM DIA 5/32" X 1" LGTH TYPE 420 STAINLESS STEEL PLAIN ANSI B18.8.2-1978	No	No
E108	TP-136	239-D01-1T	SLOTTED SPRING TENSION PIN NOM DIA 1/4" X 1-1/8" LGTH HI CARB SPRING STEEL PLAIN	No	No
E108	TP-47	239-D03-1W	SLOTTED SPRING TENSION PIN NOM DIA 1/16" X 5/16" LGTH HI CARB SPRING STEEL PLAIN	No	No
E108	TP-57	239-D02-1X	SLOTTED SPRING TENSION PIN NOM DIA 5/64" X 3/8" LGTH HI CARB SPRING STEEL PLAIN	No	No
E109	TP-46ZP	239-D05-1X	SLOTTED SPRING TENSION PIN 1/16" X 1/4" SPRING STEEL ZINC PLATED	No	No
E110	238-546	238-D09-1N	HEAVY DUTY TENSION PIN, ISO 8752 2.5MM X 30MM HI CARB SPRING STEEL PLAIN ISO 8752 2.5X30	No	No
E110	238-561	238-D02-1W	HEAVY DUTY TENSION PIN ISO 8752 3MM X 30MM HI CARB SPRING STEEL PLAIN ISO 8752 3X30	No	No
E110	238-590	238-D10-1C	HEAVY DUTY TENSION PIN DIN 1481 4MM X 22MM HI CARB SPRING STEEL PLAIN ISO 8752 4X22	No	No
E111	238-1279	238-D06-1P	HEAVY DUTY TENSION PIN ISO 8752 20MM X 50MM HI CARB SPRING STEEL PLAIN ISO 8752 20X50	No	No
E111	238-718	238-D11-1N	HEAVY DUTY TENSION PIN DIN 1481 13MM X 55MM HI CARB SPRING STEEL PLAIN ISO 8752 13X55	No	No

Catalog 13 Page	Legacy Part No	New Spaenaur Part No	New Description	Specification Change	RoHS
E112	239-375	239-D04-1M	COILED SPRING PIN STANDARD DUTY NOM DIA 7/32" X 2-1/2" LGTH HIGH CARBON SPRING STEEL PLAIN	No	No
E117	WK-5	131-A01-1T	WOODRUFF KEY 1/8" W X 5/8" DIA. CARBON STEEL SAE 1035 PLAIN FINISH	No	No
E121	131-450	131-A02-1K	SQUARE KEY BAR 1/16" SQUARE X 12" C1018 STEEL TRIVALENT ZINC PLATED	No	No
E121	131-476	131-J01-1A	KEYSTOCK 1/2" SQUARE X 36" LG STEEL ZINC PLATED	No	No
E123	132-431	132-A02-1T	KEY STOCK, RECTANGULAR, DIN 6880 22MM X 14MM X 1 METRE STEEL PLAIN DIN 6880/ST 22X14X1MTR	No	No
E123	132-434	132-A03-1K	SQUARE KEY STOCK 18MM X 18MM X 1 METRE LGTH STEEL PLAIN DIN 6880/ST 18X18X1MTR	No	No
E123	132-435	132-A05-1M	KEY STOCK, RECTANGULAR 32MM X 18MM X 1 MTR STEEL PLAIN DIN 6880/ST 32X18X1MTR	No	No
E123	132-460	132-A01-1N	KEY STOCK METRIC SQUARE 3MM X 3MM X 1 METRE C45K STEEL PLAIN FINISH DIN 6880/ST	No	No
E123	132-809	132-A04-1W	SQUARE KEY STOCK 8MM X 8MM X 1 METRE A2 STAINLESS STEEL PLAIN FINISH DIN 6880/A2	No	No
E133	R1000-14	250-F08-1C	RETAINING RING EXTERNAL 9/64" SHAFT X .102" FREE DIA X .025" TH HIGH CARBON SPRING STEEL PLAIN	No	No
E133	R1000-25ZP	250-F03-1M	EXTERNAL RETAINING RING 1/4" SHAFT DIA SPRING STEEL TRIVALENT ZINC PLATED	No	No
E133	R1000-43ZP	250-F10-1C	EXTERNAL RETAINING RING 7/16" SHAFT DIA (.687" RING O.D.) SPRING STEEL TRIVALENT ZINC PLATED	No	No
E133	R1000-50ZP	250-F01-1K	EXTERNAL RETAINING RING 1/2" SHAFT DIA SPRING STEEL TRIVALENT ZINC PLATED	No	No
E133	R1000-X21ZP	250-F04-1X	EXTERNAL RETAINING RING 7/32" SHAFT DIA SPRING STEEL TRIVALENT ZINC PLATED	No	No
E133	R1000-X31ZP	250-F02-1W	EXTERNAL RETAINING RING 5/16" SHAFT DIA SPRING STEEL TRIVALENT ZINC PLATED	No	No
E134	R1200-15ZP	252-G03-1P	EXTERNAL RETAINING RING 5/32" SHAFT DIA SPRING STEEL TRIVALENT ZINC PLATED	No	No
E134	R1200-18ZP	252-G02-1A	EXTERNAL RETAINING RING 3/16" SHAFT DIA SPRING STEEL TRIVALENT ZINC PLATED	No	No
E134	R1200-25ZP	252-G01-1X	EXTERNAL RETAINING RING 1/4" SHAFT DIA SPRING STEEL TRIVALENT ZINC PLATED	No	No
E135	R2000-100ZP	253-K03-1A	EXTERNAL RETAINING RING 1" SHAFT DIA SPRING STEEL TRIVALENT ZINC PLATED	No	No
E135	R2000-25ZP	253-K01-1M	EXTERNAL RETAINING RING 1/4" SHAFT DIA SPRING STEEL TRIVALENT ZINC PLATED	No	No
E135	R2000-31ZP	253-K02-1X	EXTERNAL RETAINING RING 5/16" SHAFT DIA SPRING STEEL TRIVALENT ZINC PLATED	No	No
E136	R3000-X102ZP	254-A04-1A	INTERNAL RETAINING RING 1.023" HOUSING DIA SPRING STEEL ZINC PLATED	No	No
E136	R3000-X112ZP	254-A01-1W	INTERNAL RETAINING RING 1 1/8" HOUSING DIA SPRING STEEL, TRIVALENT ZINC PLATED	No	No
E136	R3000-X156ZP	254-A08-1N	INTERNAL RETAINING RING 1 9/16" HOUSING DIA SPRING STEEL TRIVALENT ZINC PLATED	No	No
E136	R3000-X168ZP	254-A09-1T	INTERNAL RETAINING RING 1 11/16" HOUSING DIA SPRING STEEL TRIVALENT ZINC PLATED	No	No
E136	R3000-X200ZP	254-A02-1M	INTERNAL RETAINING RING 2" HOUSING DIA SPRING STEEL TRIVALENT ZINC PLATED	No	No
E136	R3000-X62ZP	254-A10-1N	INTERNAL RETAINING RING 5/8" HOUSING DIA SPRING STEEL TRIVALENT ZINC PLATED	No	No
E136	R3000-X87	254-A03-1X	INTERNAL RETAINING RING, 7/8" HOUSING DIA SPRING STEEL TRIVALENT ZINC PLATED	No	No
E137	R3000-550ZP	254-A07-1C	INTERNAL RETAINING RING 5 1/2" HOUSING DIA SPRING STEEL, TRIVALENT ZINC PLATED	No	No
E137	R3000-575ZP	254-A06-1Y	INTERNAL RETAINING RING 5 3/4" HOUSING DIA SPRING STEEL ZINC PLATED	No	No
E137	R3000-875ZP	254-A05-1P	INTERNAL RETAINING RING 8 3/4" HOUSING DIA SPRING STEEL TRIVALENT ZINC PLATED	No	No
E138	255-300	255-D11-1X	RETAINING RING EXTERNAL 1/4" (.250) SHAFT PH-15-7MO STAINLESS STEEL	No	No

Catalog 13 Page	Legacy Part No	New Spaenaur Part No	New Description	Specification Change	RoHS
E138	R3100-112ZP	255-D12-1A	EXTERNAL RETAINING RING 1 1/8" SHAFT DIA SPRING STEEL TRIVALENT ZINC PLATED	No	No
E138	R3100-125ZP	255-D07-1W	EXTERNAL RETAINING RING 1 1/4" SHAFT DIA SPRING STEEL TRIVALENT ZINC PLATED	No	No
E138	R3100-131ZP	255-D15-1C	EXTERNAL RETAINING RING 1 5/16" SHAFT DIA SPRING STEEL ZINC PLATED	No	No
E138	R3100-150ZP	255-D06-1K	EXTERNAL RETAINING RING 1-1/2" SHAFT DIA SPRING STEEL TRIVALENT ZINC PLATED	No	No
E138	R3100-31ZP	255-D08-1M	EXTERNAL RETAINING RING 5/16" SHAFT DIA SPRING STEEL, TRIVALENT ZINC PLATED	No	No
E138	R3100-37	255-D10-1M	EXTERNAL RETAINING RING 3/8" SHAFT DIA SPRING STEEL TRIVALENT ZINC PLATED	Yes	Yes
E138	R3100-62	255-D03-1C	EXTERNAL RETAINING RING 5/8" SHAFT DIA X .579" FREE DIA HIGH CARBON SPRING STEEL PLAIN	No	No
E138	R3100-62ZP	255-D05-1T	EXTERNAL RETAINING RING 5/8" SHAFT DIA SPRING STEEL TRIVALENT ZINC PLATED	No	No
E139	R3100-187	255-D02-1Y	EXTERNAL RETAINING RING 1 7/8" SHAFT DIA X 1.735" FREE DIA HIGH CARBON SPRING STEEL PHOSPHATE FINISH	No	No
E139	R3100-354ZP	255-D13-1P	EXTERNAL RETAINING RING 3.543" SHAFT DIA SPRING STEEL TRIVALENT ZINC PLATED	No	No
E139	R3100-600ZP	255-D16-1N	EXTERNAL RETAINING RING 6" SHAFT DIA HIGH CARBON SPRING STEEL TRIVALENT ZINC PLATED	No	No
E139	R3100-700ZP	255-D14-1Y	EXTERNAL RETAINING RING 7" SHAFT DIA SPRING STEEL TRIVALENT ZINC PLATED	No	No
E140	255-502	255-D04-1N	RETAINER RING EXTERNAL DIN 471 6MM SHAFT DIA X 5.7MM GROOVE DIA HIGH CARBON SPRING STEEL PLAIN DIN 471 6	No	No
E140	255-508	255-D01-1P	RETAINING RING EXTERNAL DIN 471 12MM SHAFT DIA X 11.5MM GROOVE DIA HIGH CARBON SPRING STEEL PLAIN DIN 471 12	No	No
E140	255-517	255-D09-1X	RETAINING RING EXTERNAL DIN 471 25MM SHAFT DIA X 23.9MM GROOVE DIA HIGH CARBON SPRING STEEL PLAIN DIN 471 25	No	No
E144	R4100-137ZP	258-C01-1C	EXTERNAL RETAINING RING 1-3/8" SHAFT DIA SPRING STEEL TRIVALENT ZINC PLATED	No	No
E145	277-080	277-B02-1Y	EXTERNAL GRIP RING 3/4" SHAFT DIA CARBON SPRING STEEL TRIVALENT ZINC PLATED	No	No
E145	R6100-50ZP	260-G01-1W	EXTERNAL RETAINING RING 1/2" SHAFT DIA SPRING STEEL TRIVALENT ZINC PLATED	No	No
E147	277-204	277-B01-1P	CRIMP RING RETAINER FOR .187" GROOVE DIA. STEEL TRIVALENT ZINC PLATED	No	No
E149	250-504	250-F07-1Y	RETAINING RING EXTERNAL DIN 6799 3/4MM SHAFT DIA X 2.3MM GROOVE DIA HIGH CARB SPRING STEEL PLAIN FINISH DIN6799/ST 2.3	No	No
E149	250-506	250-F06-1P	RETAINING RING EXTERNAL DIN 6799 5MM/7MM SHAFT DIA X 4MM GROOVE DIA HIGH CARBON SPRING STEEL PLAIN DIN 6799/ST 4	No	No
E149	250-507	250-F05-1A	RETAINING RING EXTERNAL DIN 6799 6MM/8MM SHAFT DIA X 5MM GROOVE DIA HIGH CARBON SPRING STEEL PLAIN DIN 6799/ST 5	No	No
F3	112-232	112-G01-1Y	ASSEMBLED TUBE CLOSURES 7/8" OD ROUND TUBE (16-18 GA) STEEL, ZINC PLATED	Yes	Yes
F4	112-080	112-G02-1C	SWIVEL TYPE FURNITURE GLIDE FOR ROUND TUBING 7/8" X 29/32" BASE STEEL ZINC PLATED	Yes	Yes
F4	UH-84	112-G03-1N	SWIVEL GLIDE-SQUARE INTERNAL METAL PLATFORM, FOR 3/4" SQUARE TUBING #16-18 GAUGE STEEL, PLASTIC BASE, RUBBER CUSHION, NICKEL PLATED PLATFORM	No	No
F5	UH-80	112-G04-1T	SWIVEL GLIDE ADJUSTABLE 1 11/16" BASE, 3/8"-16 X 1 1/2" LG SHANK, WHITE POLY/STEEL NICKEL PLTD BASE, STEEL TRIVALENT ZP SHANK	No	No

Catalog 13 Page	Legacy Part No	New Spaenaur Part No	New Description	Specification Change	RoHS
F6	112-137	112-G07-1M	STANDARD LEG LEVELER 3/8"-16 X 1.467" USEABLE THRD LGTH 1.779" O/A LGTH, BASE 1-3/8" AF X .312" HT X .058" THK C1008-1010 STEEL TRIVALENT ZINC PLATED	No	No
F6	112-251	112-G06-1W	STANDARD LEG LEVELER 3/8"-16 X 1.71"USEABLE THRD LGTH X 2.03" O/A LGTH, BASE 1-1/16" AF X .302" HT X .058" THK C1008-1010 STEEL ZINC PLATED	No	No
F10	112-203	112-G08-1X	SQUARE METAL THREADED ADAPTORS 7/8" TUBE OD X 16-18 GAUGE X 5/16"-18 UNC STEEL TRIVALENT ZINC PLATED	No	No
F11	112-188	112-G05-1K	ROUND TUBE CONNECTOR 1-1/2" TUBE OD X 16-18 GA X 1/4"-20 UNC SPRING STEEL ZINC TRIVALENT PLATED	No	No
F17	073-011	073-T01-1X	PICTURE HANGER WITH 2 MOUNTING HOLES FOR #8 ROUND HEAD SCREWS 3/8" WIDE X 1 5/8" LONG STEEL ZINC PLATED	No	No
G2	HAS-28	079-A01-1M	GEAR CLAMP ALL STAINLESS STEEL 1 3/4" NOM. X 1 15/16"-2 1/4" I.D. RANGE STAINLESS STEEL	No	No
G2	HAS-64	079-A02-1X	GEAR CLAMP ALL STAINLESS STEEL 4" X 2-1/2"-4 1/2" I.D. RANGE STAINLESS STEEL	No	No
G4	079-017	079-A03-1A	INNER SHIELD HOSE CLAMP NOM 1-1/4" RANGE STAINLESS STEEL BAND WITH ZINC PLATED SCREW	No	No
G4	079-025	079-A05-1Y	INNER SHIELD MICRO HOSE CLAMP, NOM 7/16" RANGE SS BAND WITH ZINC PLATED SCREW	No	No
G4	079-807	079-A04-1P	GEAR TYPE HOSE CLAMPS 1-3/4" NOM. 316 SS	No	No
G4	079-812	079-A07-1N	GEAR TYPE HOSE CLAMP 3-3/4" NOM. 316 SS	No	No
G6	079-888	079-A06-1C	WORM DRIVE HOSE CLAMP 70-95MM RANGE 316 STAINLESS STEEL	No	No
G13	B-1695	080-A03-1T	SPRING GRIP HOSE CLAMP 5/16" NOM. DIA X .062" WIRE DIA SPRING STEEL TRIVALENT ZINC PLATED	No	No
G14	080-033	080-A01-1C	DOUBLE STRAND WIRE TYPE HOSE CLAMP 0.500" NOM CLAMP DIA X .059" WIRE DIA HIGH TENSILE WIRE ZINC PL RED COLOUR	No	No
G14	080-034	080-A04-1K	DOUBLE STRAND WIRE TYPE HOSE CLAMP 0.562" NOM CLAMP DIA X.070"WIRE DIA HIGH TENSILE WIRE ZINC PL SILVER COLOUR	No	No
G14	080-035	080-A06-1M	DOUBLE STRAND WIRE TYPE HOSE CLAMP 0.625" NOM CLAMP DIA .070" WIRE DIA HIGH TENSILE WIRE GEOMET COATING, GEOGREEN COLOUR	No	No
G14	080-036	080-A02-1N	DOUBLE STRAND WIRE TYPE HOSE CLAMP 0.688" NOM CLAMP DIA X .070" WIRE DIA HIGH TENSILE WIRE ZINC PL RED COLOUR	No	No
G14	080-043	080-A05-1W	DOUBLE STRAND WIRE TYPE HOSE CLAMP 1.125" NOM CLAMP DIA .098" WIRE DIAM HIGH TENSILE WIRE GREEN GEOMET FINISH	No	No
G15	993-981	993-G03-1T	PLIER FOR CLAMPING FLEXIBLE HOSES UP TO 30MM DIA., 180MM LG PLASTIC BLUE	Yes	Yes
G27	086-483	086-F18-1W	DOUBLE TUBE CLAMP, CLOSED TYPE, NOT INSULATED, 3/8" TUBE DIAS., .625" C TO C, STEEL ZINC W/CLEAR CHROMATE	Yes	Yes
G27	086-536	086-F54-1T	DOUBLE TUBE CLAMPS - CLOSED TYPE (PVC INSULATED) 1/4" TUBE DIAS., .593" C TO C STEEL ZINC WITH CLEAR CHROMATE BLACK VINYL CUSHION ROHS COMPLIANT MATERIAL	Yes	Yes
G27	086-540	086-F55-1K	DOUBLE TUBE CLAMPS - CLOSED TYPE (PVC INSULATED) 5/16" TUBE DIAMETER .687" C TO C STEEL ZINC W/CLEAR CHROMATE BLACK VINYL CUSHION ROHS COMPLIANT MATERIAL	Yes	Yes

Note: Items highlighted in blue indicate a change in product characteristics as well as RoHS compliance.

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G27	086-541	086-F13-1Y	DOUBLE TUBE CLAMP, CLOSED TYPE, (PVC INSULATED) 3/8" TUBE DIA., .593" C TO C STEEL ZINC W/CLEAR CHROMATE BLACK VINYL CUSHION ROHS COMPLIANT MATERIAL	Yes	Yes
G27	086-543	086-F19-1M	DOUBLE TUBE CLAMP, CLOSED TYPE, (PVC INSULATED) 3/8" TUBE DIAS., .718" C TO C STEEL ZINC W/CLEAR CHROMATE, BLACK VINYL CUSHION	Yes	Yes
G27	086-544	086-F47-1A	DOUBLE TUBE CLAMPS - CLOSED TYPE (PVC INSULATED) 3/8" TUBE DIAS., .781" C TO C STEEL ZINC W/CLEAR CHROMATE BLACK VINYL CUSHION	No	No
G27	086-551	086-F59-1A	DOUBLE TUBE CLAMPS - CLOSED TYPE (PVC INSULATED) 1/2" TUBE DIAS., .656" C TO C STEEL ZINC W/CLEAR CHROMATE BLACK VINYL CUSHION ROHS COMPLIANT PRODUCT	Yes	Yes
G27	086-554	086-F56-1W	DOUBLE TUBE CLAMPS - CLOSED TYPE (PVC INSULATED) 1/2" TUBE DIAS., .843" C TO C STEEL ZINC W/CLEAR CHROMATE BLACK VINYL CUSHION ROHS COMPLIANT MATERIAL	Yes	Yes
G27	086-555	086-F50-1P	DOUBLE TUBE CLAMPS - CLOSED TYPE (PVC INSULATED) 1/2" TUBE DIAS., .906" C TO C STEEL ZINC WITH CLEAR CHROMATE BLACK VINYL CUSHION	Yes	Yes
G28	086-585	086-F53-1N	DOUBLE TUBE CLAMPS - CLOSED TYPE (PVC INSULATED) 1" TUBE DIAS., .968" C TO C STEEL ZINC W/CLEAR CHROMATE BLACK VINYL CUSHION ROHS COMPLIANT MATERIAL	Yes	Yes
G29	086-030	086-F42-1T	"J" CABLE CLIP, OPEN TYPE .312" DIA CAPACITY, .968" C TO C STEEL ZINC/W CLEAR CHROMATE BLACK VINYL CUSHION ROHS COMPLIANT MATERIAL	No	No
G29	C-948PC	086-F02-1C	CABLE & WIRE CLIP, LIGHT-DUTY CLOSED TYPE - FURNISHED OPEN, 3/16" DIA CAPACITY, .500" C TO C STEEL ZINC WITH CLEAR CHROMATE BLACK VINYL CUSHION	No	No
G29	C-949	086-F08-1X	CABLE & WIRE CLIP, LIGHT-DUTY CLOSED TYPE - FURNISHED OPEN, 1/4" DIA CAPACITY, .500" C TO C STEEL ZINC / CLEAR CHROMATE	Yes	Yes
G29	C-949PC	086-F52-1C	CABLE & WIRE CLIP, LIGHT-DUTY CLOSED TYPE - FURNISHED OPEN, 1/4" DIA CAPACITY, .531" C TO C STEEL ZINC W/CLEAR CHROMATE BLACK VINYL CUSHION ROHS COMPLIANT MATERIAL	No	No
G29	C-951	086-F38-1C	CABLE & WIRE CLIP, LIGHT-DUTY CLOSED TYPE - FURNISHED OPEN, 3/8" DIA CAPACITY, .562" C TO C STEEL ZINC WITH CLEAR CHROMATE ROHS COMPLIANT PRODUCT	Yes	Yes
G29	C-951PC	086-F01-1Y	CABLE & WIRE CLIP, LIGHT-DUTY CLOSED TYPE - FURNISHED OPEN, 3/8" DIA CAPACITY, .593" C TO C STEEL ZINC WITH CLEAR CHROMATE BLACK VINYL CUSHION	No	No
G29	C-952	086-F21-1M	CABLE & WIRE CLIP, LIGHT-DUTY, CLOSED TYPE - FURNISHED OPEN, 7/16" DIA. CAPACITY, .593" C TO C, STEEL ZINC/W CLEAR CHROMATE	Yes	Yes
G29	C-953	086-F24-1P	CABLE & WIRE CLIP, LIGHT-DUTY CLOSED TYPE - FURNISHED OPEN, 1/2"DIA CAPACITY, .625" C TO C STEEL ZINC W/CLEAR CHROMATE	Yes	Yes
G29	C-953PC	086-F45-1M	CABLE & WIRE CLIP, LIGHT-DUTY CLOSED TYPE - FURNISHED OPEN, 1/2" DIA CAPACITY, .656" C TO C STEEL ZINC W/CLEAR CHROMATE, BLACK VINYL CUSHION	Yes	Yes
G29	C-955PC	086-F04-1T	CABLE & WIRE CLIP, LIGHT-DUTY CLOSED TYPE - FURNISHED OPEN, 5/8" DIA CAPACITY, .718" C TO C STEEL ZINCW/CLEAR CHROMATE BLACK VINYL CUSHION	No	No

Catalog 13 Page	Legacy Part No	New Spaenaur Part No	New Description	Specification Change	RoHS
G29	C-956PC	086-F03-1N	CABLE & WIRE CLIP, LIGHT-DUTY CLOSED TYPE - FURNISHED OPEN, 3/4" DIA CAPACITY, .781" C TO C STEEL ZINC W/CLEAR CHROMATE BLACK VINYL CUSHION	No	No
G29	C-957PC	086-F17-1K	CABLE & WIRE CLIP, LIGHT-DUTY CLOSED TYPE - FURNISHED OPEN, 7/8" DIA CAPACITY, .843" C TO C, STEEL ZINC W/CLEAR CHROMATE BLACK VINYL CUSHION	Yes	Yes
G29	C-958	086-F36-1P	CABLE & WIRE CLIP, LIGHT-DUTY CLOSED TYPE - FURNISHED OPEN, 1" DIA CAPACITY, .906" C TO C STEEL ZINC WITH CLEAR CHROMATE BLACK VINYL CUSHION ROHS COMPLIANT MATERIAL	Yes	Yes
G31	703-005	703-H01-1A	TUBE CLAMP WITH POLYVINYL CUSHION 5/16" TUBE DIAMETER .040" METAL THICKNESS 1010 STEEL PREGALVANIZED	No	No
G33	086-590	086-F35-1A	"HALF" CLIP 1/4" CLAMP DIA, 7/32" HOLE DIA .437" C TO C STEEL ZINC W/CLEAR CHROMATE	Yes	Yes
G33	086-591	086-F37-1Y	"HALF" CLIP 3/8" CLAMP DIA, 9/32" HOLE DIA .531" C TO C STEEL ZINC W/CLEAR CHROMATE ROHS COMPLIANT MATERIAL	Yes	Yes
G33	086-593	086-F14-1C	"HALF" CLIP 1/2" CLAMP DIA, 7/32" HOLE DIA .625" C TO C STEEL ZINC W/CLEAR CHROMATE	Yes	Yes
G33	086-596	086-F49-1Y	"HALF" CLIP 11/16" CLAMP DIA, 9/32" HOLE DIA .812" C TO C STEEL ZINC W/CLEAR CHROMATE	Yes	Yes
G33	086-598	086-F20-1W	"HALF" CLIP 13/16" CLAMP DIA, 9/32" HOLE DIA, .875" C TO C, STEEL ZINC W/CLEAR CHROMATE	Yes	Yes
G33	086-600	086-F07-1M	"HALF" CLIP, CUSHIONED 1/4" CLAMP DIA, 7/32" HOLE DIA, .500" C TO C, STEEL ZINC W/CLEAR CHROMATE BLACK VINYL CUSHION	Yes	Yes
G33	086-601	086-F23-1A	"HALF" CLIP, CUSHIONED 5/16" CLAMP DIA, 7/32" HOLE DIA, .531" C TO C, STEEL ZINC W/CLEAR CHROMATE BLACK VINYL CUSHION	Yes	Yes
G33	086-604	086-F10-1X	"HALF" CLIP, CUSHIONED 3/8" CLAMP DIA, 9/32" HOLE DIA .562" C TO C STEEL ZINC W/CLEAR CHROMATE BLACK VINYL CUSHION	Yes	Yes
G33	086-607	086-F05-1K	"HALF" CLIP, CUSHIONED 1/2" CLAMP DIA, 7/32" HOLE DIA .687" C TO C STEEL ZINC W/CLEAR CHROMATE BLACK VINYL CUSHION	Yes	Yes
G33	086-608	086-F15-1N	"HALF" CLIP, CUSHIONED 1/2" CLAMP DIA, 9/32" HOLE DIA, .687" C TO C, STEEL ZINC W/CLEAR CHROMATE BLACK VINYL CUSHION ROHS COMPLIANT MATERIAL	Yes	Yes
G33	086-610	086-F48-1P	"HALF" CLIP, CUSHIONED 9/16" CLAMP DIA, 9/32" HOLE DIA .750" C TO C STEEL ZINC W/CLEAR CHROMATE BLACK VINYL CUSHION	Yes	Yes
G33	086-612	086-F22-1X	"HALF" CLIP, CUSHIONED 5/8" CLAMP DIA, 9/32" HOLE DIA, .812" C TO C, STEEL ZINC W/CLEAR CHROMATE, BLACK VINYL CUSHION	Yes	Yes
G33	086-616	086-F11-1A	"HALF" CLIP, CUSHIONED 3/4" CLAMP DIA, 9/32" HOLE DIA, .875" C TO C, STEEL ZINC W/CLEAR CHROMATE, BLACK VINYL CUSHION	Yes	Yes
G33	C-622	086-F06-1W	"HALF" CLIP 3/8" CLAMP DIA, 7/32" HOLE DIA, .531" C TO C, STEEL ZINC WITH CLEAR CHROMATE	Yes	Yes
G33	C-623	086-F39-1N	"HALF" CLIP 7/16" CLAMP DIA., 9/32" HOLE DIA .562" C TO C STEEL ZINC W/CLEAR CHROMATE ROHS COMPLIANT MATERIAL	Yes	No
G33	C-625	086-F16-1T	"HALF" CLIP 9/16" CLAMP DIA., 9/32" HOLE DIA, .687" C TO C, STEEL ZINC W/CLEAR CHROMATE	Yes	Yes

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G33	C-627	086-F12-1P	"HALF" CLIP 5/8" CLAMP DIA., 9/32" HOLE DIA .750" C TO C STEEL ZINC W/CLEAR CHROMATE	Yes	Yes
G33	C-628	086-F25-1Y	"HALF" CLIP 3/4" CLAMP DIA., 9/32" HOLE DIA .812" C TO C STEEL ZINC W/CLEAR CHROMATE	Yes	Yes
G38	607-029	607-H31-1T	SPACER, BUTTITE ROLLED FOR #4 BOLT,1/4"LG,.021" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-032	607-H79-1T	SPACER, BUTTITE ROLLED FOR #4 BOLT, 7/16" LG,.021" WALL TH LOW CARBON (1010) STEEL *TRIVALENT* ZINC PLATED	No	No
G38	607-033	607-H14-1Y	SPACER, BUTTITE ROLLED FOR #4 BOLT,1/2"LG,.021" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED TOLERANCES: LENGTH: .005" MIN.I.D.: .118" MAX.I.D.: .124"	No	No
G38	607-041	607-H04-1N	SPACER, BUTTITE ROLLED FOR #6 BOLT,1/4"LG,.021" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-045	607-H51-1P	SPACER, BUTTITE ROLLED FOR #6 BOLT,1/2"LG,.021" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-055	607-H12-1A	SPACER, BUTTITE ROLLED FOR #8 BOLT,5/16"LG,.027" WALL TH LOW CARBON (1010) STEEL TRIVALENT PLATED	No	No
G38	607-056	607-H39-1C	SPACER, BUTTITE ROLLED FOR #8 BOLT,3/8"LG,.027" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-062	607-H64-1Y	SPACER, BUTTITE ROLLED FOR #8 BOLT, 1" LG,.027" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-068	607-H34-1M	SPACER, BUTTITE ROLLED FOR #10 BOLT, 3/8"LG, .027" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-069	607-H42-1N	SPACER, BUTTITE ROLLED FOR #10 BOLT 7/16"LG,.027" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-070	607-H44-1K	SPACER, BUTTITE ROLLED FOR #10 BOLT,1/2"LG,.027" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-072	607-H30-1N	SPACER, BUTTITE ROLLED FOR #10 BOLT,3/4"LG,.027" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PL	No	No
G38	607-075	607-H11-1X	SPACER, BUTTITE ROLLED FOR #10 BOLT, 1 1/8" LG, .027" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-077	607-H37-1P	SPACER, BUTTITE ROLLED FOR #10 BOLT,1-1/2" LG, .027" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-082	607-H78-1N	SPACER, BUTTITE ROLLED FOR #10 BOLT,2 1/4"LG,.027" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PL	No	No
G38	607-083	607-H26-1Y	SPACER, BUTTITE ROLLED FOR 1/4" BOLT,3/8" LG,.036" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-085	607-H27-1C	SPACER, BUTTITE ROLLED FOR 1/4" BOLT,1/2"LG,.036" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-086	607-H21-1W	SPACER, BUTTITE ROLLED FOR 1/4" BOLT,5/8" LG,.036" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-087	607-H02-1Y	SPACER, BUTTITE ROLLED FOR 1/4" BOLT,3/4" LG,.036" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATING	No	No
G38	607-088	607-H10-1M	SPACER, BUTTITE ROLLED FOR 1/4" BOLT,7/8" LG,.036" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-089	607-H06-1K	SPACER, BUTTITE ROLLED FOR 1/4" BOLT, 1" LG, .036" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-091	607-H56-1K	SPACER, BUTTITE ROLLED FOR 1/4" BOLT, 1 1/4" LG, .036" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No

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G38	607-092	607-H32-1K	SPACER, BUTTITE ROLLED FOR 1/4" BOLT,1-1/2"LG,.036"WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-094	607-H23-1X	SPACER, BUTTITE ROLLED FOR 1/4" BOLT, 1-7/8" LG, .036" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-099	607-H17-1T	SPACER, BUTTITE ROLLED FOR 5/16" BOLT,1/2"LG,.042" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-101	607-H67-1T	SPACER, BUTTITE ROLLED FOR 5/16" BOLT,3/4"LG,.042" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PL	No	No
G38	607-103	607-H43-1T	SPACER, BUTTITE ROLLED FOR 5/16" BOLT,1" LG,.042" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-104	607-H58-1M	SPACER, BUTTITE ROLLED FOR 5/16" BOLT,1 1/8" LG,.042" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-105	607-H33-1W	SPACER, BUTTITE ROLLED FOR 5/16" BOLT,1 1/4" LG,.042" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-106	607-H38-1Y	SPACER, BUTTITE ROLLED FOR 5/16" BOLT,1 1/2" LB,.042" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PL	No	No
G38	607-107	607-H36-1A	SPACER, BUTTITE ROLLED FOR 5/16" BOLT,1 3/4" LG, .042" WALL THICKNESS LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-109	607-H50-1A	SPACER, BUTTITE ROLLED FOR 5/16" BOLT,2" LG,.042" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-113	607-H63-1P	SPACER, BUTTITE ROLLED FOR 5/16" BOLT, 2-3/4" LG, .042" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PL	No	No
G38	607-115	607-H07-1W	SPACER, BUTTITE ROLLED FOR 3/8" BOLT, 1/2"LG,.048" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-116	607-H13-1P	SPACER, BUTTITE ROLLED FOR 3/8" BOLT, 5/8"LG, .048 WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PL	No	No
G38	607-117	607-H05-1T	SPACER, BUTTITE ROLLED FOR 3/8" BOLT, 3/4"LG, 0.48"WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-119	607-H28-1N	SPACER, BUTTITE ROLLED FOR 3/8" BOLT, 1" LG, .048" WALL TH LOW CARBON (1010) STEEL *TRIVALENT* ZINC PLATED	No	No
G38	607-120	607-H57-1W	SPACER, BUTTITE ROLLED FOR 3/8" BOLT,1 1/8" LG,.048" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PL TOLERANCES: LENGTH: .010" MIN.I.D.: .385" MAX.I.D.: .395"	No	No
G38	607-121	607-H18-1K	SPACER, BUTTITE ROLLED FOR 3/8" BOLT, 1-1/4" LG, .048" WALL TH, LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-122	607-H29-1T	SPACER, BUTTITE ROLLED FOR 3/8" BOLT, 1 1/2" LG, .048" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PL	No	No
G38	607-125	607-H81-1T	SPACER,BUTTITE ROLLED FOR 3/8" BOLT,2" LG,.048" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC	No	No
G38	607-129	607-H70-1K	SPACER, BUTTITE ROLLED FOR 3/8" BOLT,2-3/4" LG,.048" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PL	No	No
G38	607-134	607-H19-1W	SPACER, BUTTITE ROLLED FOR 7/16" BOLT, 1" LG,.048" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-135	607-H61-1X	SPACER, BUTTITE ROLLED FOR 7/16" BOLT, 1 1/8" LG, .048" WALL THK LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-137	607-H69-1W	SPACER, BUTTITE ROLLED FOR 7/16" BOLT,1 1/2" LG,.048" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PL	No	No

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G38	607-141	607-H84-1M	SPACER, BUTTITE ROLLED FOR 7/16" BOLT,2 1/8" LG,.048" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-148	607-H16-1N	SPACER, BUTTITE ROLLED FOR 1/2" BOLT,5/8" LG,.062" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-151	607-H59-1X	SPACER, BUTTITE ROLLED FOR 1/2" BOLT,1" LG,.062" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-153	607-H52-1Y	SPACER, BUTTITE ROLLED FOR 1/2" BOLT 1-1/4" LG,.062" WALL THK LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-154	607-H46-1M	SPACER, BUTTITE ROLLED 1/2" BOLT,1 1/2" LG,.062" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-155	607-H47-1Y	SPACER, BUTTITE ROLLED FOR 1/2" BOLT 1-3/4" LG, .062" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-159	607-H80-1N	SPACER, BUTTITE ROLLED FOR 1/2" BOLT,2 1/4" LG, .062" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-167	607-H40-1Y	SPACER, BUTTITE ROLLED FOR 5/8" BOLT,3/4" LG,. 072" WALL LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-169	607-H45-1W	SPACER, BUTTITE ROLLED FOR 5/8" BOLT,1" LG, .072" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-172	607-H49-1P	SPACER, BUTTITE ROLLED FOR 5/8" BOLT,1 1/2" LG, .072" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-184	607-H53-1C	SPACER, BUTTITE ROLLED FOR 5/8" BOLT,4" LG, .072" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLTED	No	No
G38	607-197	607-H60-1M	SPACER, BUTTITE ROLLED FOR 3/4" BOLT,3" LG, .078" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-212	607-H62-1A	SPACER, BUTTITE ROLLED FOR 7/8" BOLT, 2-3/4" LG, .083" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G38	607-232	607-H41-1C	SPACER, BUTTITE ROLLED FOR 5/16" BOLT 13/32" LG, .042" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G39	607-254	607-H65-1C	SPACER, BUTTITE ROLLED, METRIC, STANDARD DUTY FOR M3 BOLT, 14 MM LG, 0.5M WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED TOLERANCES: LENGTH: .15MM MIN.I.D.: 3.15MM MAX.I.D.: 3.30MM	No	No
G39	607-289	607-H15-1C	SPACER, BUTTITE ROLLED, METRIC, STANDARD DUTY FOR M4 BOLT, 8MM LG, 0.7 MM WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G39	607-292	607-H01-1P	SPACER, BUTTITE ROLLED, METRIC, STANDARD DUTY FOR M4 BOLT,14MM LG, 0.7MM WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATING	No	No
G39	607-296	607-H87-1P	SPACER, BUTTITE ROLLED, METRIC, STANDARD DUTY FOR M4 BOLT,22MM LG, 0.7MM WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC	No	No
G39	607-300	607-H74-1A	SPACER, BUTTITE ROLLED, METRIC, STANDARD DUTY FOR M4 BOLT, 30MM LG, 0.7MM WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G39	607-314	607-H89-1C	SPACER, BUTTITE ROLLED, METRIC, STANDARD DUTY FOR M5 BOLT, 6MM LG, 0.7MM WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PL	No	No
G39	607-316	607-H24-1A	SPACER, BUTTITE ROLLED, METRIC, STANDARD DUTY FOR M5 BOLT, 10MM LG, 0.7MM WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No

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G39	607-324	607-H66-1N	SPACER, BUTTITE ROLLED, METRIC, STANDARD DUTY FOR M5 BOLT, 26MM LG, 0.7MM WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G39	607-326	607-H82-1K	SPACER, BUTTITE ROLLED, METRIC, STANDARD DUTY FOR M5 BOLT, 30MM LG, 0.7MM WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC	No	No
G39	607-333	607-H73-1X	BUTTITE ROLLED SPACER STANDARD DUTY FOR M5 BOLT, 65MM LG, 0.7MM WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G39	607-340	607-H03-1C	SPACER, BUTTITE ROLLED, METRIC, STANDARD DUTY FOR M6 BOLT, 6MM LG, 0.9MM WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G39	607-346	607-H48-1A	SPACER, BUTTITE ROLLED, METRIC, STANDARD DUTY FOR M6 BOLT 18MM LG, 0.9MM WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PL	No	No
G39	607-347	607-H91-1C	SPACER, BUTTITE ROLLED, METRIC, STANDARD DUTY FOR M6 BOLT, 20MM LG, 0.9MM WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G39	607-349	607-H83-1W	SPACER, BUTTITE ROLLED, METRIC, STANDARD DUTY FOR M6 BOLT, 24MM LG, 0.9MM WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G39	607-358	607-H85-1X	SPACER, BUTTITE ROLLED, METRIC, STANDARD DUTY FOR M6 BOLT, 60MM LG, 0.9MM WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PL	No	No
G39	607-360	607-H92-1N	SPACER, BUTTITE ROLLED, METRIC, STANDARD DUTY FOR M6 BOLT, 70MM LG, 0.9MM WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G39	607-361	607-H72-1M	SPACER, BUTTITE ROLLED, METRIC, STANDARD DUTY FOR M6 BOLT, 75MM LG, 0.9MM WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G39	607-394	607-H08-1M	SPACER, BUTTITE ROLLED, METRIC, STANDARD DUTY FOR M8 BOLT, 12MM LG, 1.1MM WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATING	No	No
G39	607-415	607-H71-1W	SPACER, BUTTITE ROLLED, METRIC, STANDARD DUTY FOR M8 BOLT, 90MM LG, 1.1MM WALL TH LOW CARB 1010 STEEL TRIVALENT ZINC PLATED	No	No
G39	607-421	607-H20-1K	SPACER, BUTTITE ROLLED, METRIC, STANDARD DUTY FOR M10 BOLT, 12MM LG,1.2MM WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G39	607-422	607-H75-1P	SPACER, BUTTITE ROLLED, METRIC, STANDARD DUTY FOR M10 BOLT, 14MM LG,1.2MM WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC	No	No
G39	607-424	607-H22-1M	SPACER, BUTTITE ROLLED, METRIC, STANDARD DUTY FOR M10 BOLT, 18MM LG,1.2MM WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G39	607-427	607-H54-1N	SPACER, BUTTITE ROLLED, METRIC, STANDARD DUTY FOR M10 BOLT, 24MM LG,1.2MM WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G39	607-430	607-H90-1Y	SPACER, BUTTITE ROLLED, METRIC, STANDARD DUTY FOR M10 BOLT, 30MM LG,1.2MM WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
G39	607-455	607-H76-1Y	SPACER, BUTTITE ROLLED, METRIC, STANDARD DUTY FOR M12 BOLT, 30MM LG, 1.6MM WALL LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No

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G40	608-090	608-D01-1A	SPACER, ROUND, TUBULAR, NOT TAPPED #10(.192")ID X 5/16" OD X 1" LGTH ALUMINUM ALLOY 2011T3	No	No
G41	607-003	607-H09-1X	SPACER, ROUND, NOT TAPPED, SEAMLESS ID FOR 1/4" SCREW (.270"), 5/8" OD X 3/8" LGTH LOW CARBON STEEL TRIVALENT ZINC PLATED TOLERANCES: O.D. & LENGTH: .005" I.D. .012"/-.000"	No	No
G41	SPA-25	607-H86-1A	SPACER, ROUND, NOT TAPPED, SEAMLESS ID FOR #10 SCREW, 9/32"OD X 1/2" LG LOW CARBON STEEL, TRIVALENT ZINC PLATED	No	No
G41	SPA-6	607-H68-1K	SPACER, ROUND, NOT TAPPED, SEAMLESS ID FOR #6 SCREW,7/32"OD X 3/16" LG LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
G41	SPA-61	605-A01-1M	SPACER, ROUND, TAPPED, SEAMLESS, MACHINED FROM BRASS ROD #4-40 UNC, 3/16" OD X 1/4" LGTH BRASS, NICKEL PLATED	No	No
G42	606-148	606-W01-1W	#10 SPACER, ROUND, NOT THREADED .196" ID X .3125" OD X .500" LGTH PHENOLIC	No	No
G44	605-015-RC	605-A02-1X	SPACER, HEX MALE/FEMALE, THREADED, #4-40 UNC, 1" LGTH, 1/4" A.F. HOLE DEPTH 1/4", STUD LGTH 3/16" BRASS NICKEL PLATED	No	No
G46	614-904	614-C02-1K	SELF-CLINCHING STANDOFF,TAPPED THRU PANEL HOLE SIZE .213/.215" #4-40 UNC X 7/16" LENGTH 300 STAINLESS STEEL PASSIVATED	No	No
G51	WT-36	622-B03-1A	COPPER ALLOY RING TONGUE TERMINAL, WIRE SIZE 22-18 GA., NON-INSULATED HOLE DIA 13/32" STUD SIZE 3/8 COPPER ALLOY CHROMATE PLATED	No	No
G51	WT-42	622-B02-1X	COPPER ALLOY RING TONGUE TERMINAL, WIRE SIZE 12-10 GA., NON-INSULATED HOLE DIA 13/64" STUD SIZE 10 COPPER ALLOY CHROMATE PLATED	No	No
G51	WT-43	622-B01-1P	RING TONGUE TERMINAL, NON-INSULATED 12-10 AWG, 1/4" STUD, 16/32" RING WIDTH COPPER ALLOY, TIN PLATED	No	No
G54	622-134	622-B05-1Y	FEMALE COUPLER, SOLDERLESS, FULLY NYLON INSULATED 16-14 GA. WIRE, TAKES 1/4" BLADE ELECTROLYTIC COPPER, BRIGHT TIN PLATE, BLUE PLASTIC INSULATION	No	No
G54	622-179	622-A01-1Z	FULLY INSULATED NYLON COUPLER, FITS .250 X .032 TAB 12-10 WIRE SIZE FEMALE ELECTROLYTIC COPPER, HEAVY BRIGHT TIN PLATE,YELLOW PLASTIC INSULATION	No	No
G55	622-151	622-B04-1P	WIRE NUT TWIST-ON WITH INSERT #22 - #14 NYLON	No	No
G56	622-150	622-B06-1C	COPPER CLOSED END CONNECTOR, SOLDERLESS, INSULATED 22-14 GA. WIRE ELECTROLYTIC COPPER, TIN PLATE CLEAR NYLON INSULATION	No	No
H3	88-SN	244-A01-1P	PRONGED PLUG BUTTON FOR 1" HOLE X .062/.078" PANEL BRASS, NICKEL PLATED	No	No
H9	246-240	246-A01-1X	HEX SOCKET SCREW PLUG, DIN 908 M8 X 1.0 FINE THREAD STEEL PLAIN, WITHOUT RINGSEAL DIN 908/ST M8X1	No	No
H9	246-253	246-A02-1A	HEX SOCKET PLUG WITH PARALLEL THREAD & SHOULDER, DIN 908 G 1/4, STEEL ZINC PLATED DIN 908/ST G1/4A	No	No
H13	113-802	113-W01-1P	GREASE FITTING, 90 DEGREES, 1/4"-28 UNF TAPER THREAD, 3/8" HEX, 3/4" O/A HT, STAINLESS STEEL PLAIN	No	No
H14	113-005	113-W03-1C	METRIC GREASE FITTING M8 X 1.00MM PITCH,SHORT 45 DEGREE ANGLE (9MM A/F X 20MM O/A HT) STEEL TRIVALENT ZINC PLATED	No	No
H15	113-073	113-W02-1Y	POINTED ADAPTER FOR GREASE GUN FOR TYPE D DIN 3405 M10 X 1 X 2 STEEL ZINC PLATED	No	No

Catalog 13 Page	Legacy Part No	New Spaenaur Part No	New Description	Specification Change	RoHS
H16	610-023	610-A04-1Y	UTILITY SPRING,COMPRESSION TYPE,PLAIN ENDS, 2.2 COILS/INCH 1 3/16"OD, 11"LG O/A, 0.092"GA WIRE MB HRD DRAWN SPR STL WIRE BLACK JAPAN	No	No
H16	B-619	610-A01-1X	UTILITY SPRING, COMPRESSION TYPE, SQUARED OR CLOSED ENDS, 10 COILS/IN 5/16" OD, 11 1/2" LENGTH O/A, 0.047" GAUGE WIRE MB HARD DRAWN SPRING STEEL WIRE WHITE ZINC PLATED	No	No
H16	B-625	610-A02-1A	COMPRESSION UTILITY SPRING, SQUARED OR CLOSED ENDS, 3.5 COILS/INCH, 3/4" OD, 10" LG O/A, 0.091" GA WIRE MB HARD DRAWN SPRING STEEL WIRE ZINC PLATED	No	No
H17	610-049	610-A06-1N	EXTENSION SPRING HOOK CENTRED .062" WIRE DIAMETER 9/16" OD X 3 5/8" LGTH MUSIC WIRE, PLAIN FINISH	No	No
H18	610-013	610-A03-1P	UTILITY SPRING,COMPRESSION TYPE, SQUARED OR CLOSED ENDS,TOTAL C 7/16" OD, 2 1/2" O/A L, 18 TOTAL COILS .035" GAUGE OF WIRE MB HARD DRAWN SPRING STEEL WIRE PLAIN	No	No
H21	697-042	697-W01-1A	MUSIC WIRE #38 GA (0.125") DIA X 1-LB/COIL .80/1.00 CARB SPRING WIRE PLAIN	No	No
H35	C-1129	086-F44-1W	CLIP-WINDSHIELD REVEAL MOULDING CHRYSLER 1968-72	Yes	Yes
J2	245-122	245-W01-1A	HOLE PLUG BINDER HEAD MATTE FINISH .375" HOLE X .031/.140" PANEL THK 6/6 NYLON NATURAL	No	No
J2	245-139	245-W03-1Y	HOLE PLUG BINDER HEAD MATTE FINISH .625" HOLE X .031/.072" PANEL THK 6/6 NYLON BLACK	No	No
J4	316-021	316-H02-1A	ANTI-VIBRATION MOUNT SINGLE ENDED CYLINDRICAL 20MM X 20MM THRD M6 X 1.00 X 15MM LG VULCANIZED RUBBER 50-60 DURO	No	No
J5	316-013	316-H04-1Y	ANTI-VIBRATION MOUNT SINGLE ENDED THREADED INSERT STYLE 30MM OD X 20MM HT M8-1.25 X 23MM LG VULCANIZED RUBBER 50-60 DURO	No	No
J5	316-044	316-H03-1P	ANTI-VIBRATION MOUNT DOUBLE-ENDED 25MM OD X 15MM HT / M6X19MM THRD VULCANIZED NATURAL RUBBER 50-60 DURO	No	No
J6	315-206	315-G39-1W	DOUBLE-ENDED ANTI-VIBRATION MOUNT 1/4"-20 X 1/2" STUD LGHT UNC (25MM X 20MM) VULCANIZED RUBBER, DURO 57	No	No
J6	315-210	315-G46-1Y	DOUBLE-ENDED ANTI-VIBRATION MOUNT 3/8"-16 UNC (50 X 30) VULCANIZED RUBBER DURO 57	No	No
J6	315-216	315-G38-1K	SINGLE-ENDED ANTI-VIBRATION MOUNT, OPPOSITE END INSERT, (WITHOUT INTERNAL BASE PLATE STOP) #8-32 UNC (10 X 10) VULCANIZED RUBBER DURO 57	No	No
J6	315-218	315-G10-1Y	ANTI-VIBRATION MOUNT, SINGLE-ENDED OPPOSITE END INSERT 1/4"-20 UNC (20 X 15) VULCANIZED RUBBER, DURO 57	No	No
J6	315-224	315-G47-1C	ANTI-VIBRATION MOUNT SINGLE-ENDED OPPOSITE END INSERT 3/8"-16 UNC (50 X 30) VULCANIZED RUBBER, DURO 57	No	No
J7	315-236	315-G44-1A	SINGLE-ENDED ANTI-VIBRATION MOUNT #8-32 UNC (10X10) VULCANIZED NATURAL RUBBER DURO 57	No	No
J7	315-240	315-G33-1P	SINGLE-ENDED ANTI-VIBRATION MOUNT 5/16"-18 UNC (40X28) VULCANIZED RUBBER, DURO 57	No	No
J8	315-633	315-G45-1P	BOLT-ON ANTI-VIBRATION MOUNT 1 1/8" DIA WITH #10-32 UNF SCREW NATURAL RUBBER BLACK, 40-50 DURO	No	No

Catalog 13 Page	Legacy Part No	New Spaenaur Part No	New Description	Specification Change	RoHS
J8	RB-345	315-G41-1W	BOLT-ON ANTI-VIBRATION MOUNT 3/8"-16 UNC WITH PROTRUDING BOLT (APPROX. 3/4" LONG) 2" OD X 1 3/32" X 2 1/8" O/A LGTH SBR BLACK, 50-55 DURO	No	No
J12	314-057	314-F02-1Y	NOVIBRA ANTI-VIBRATION MOUNT, SOFT TYPE RAEM MAX LOAD 440 LB 110 MM DIA X 42MM HT M16 THRD NATURAL RUBBER / STEEL / GREEN	No	No
J14	314-082	314-F01-1P	NOVIBRA ANTI-VIBRATION MOUNT MEDIUM TYPE SAW MAX LOAD 6615 LBS 148MM SQUARE X 52MM H NATURAL RUBBER / STEEL / BLACK	No	No
J16	314-104	314-F03-1C	NOVIBRA VT-UPPER "B" ANTI-VIBRATION MOUNT, MEDIUM TYPE 60 DEG. IRH, OVER 155 LB MAX COMPRES, M8 THREAD NATURAL RUBBER & STEEL / BLACK	No	No
J28	317-004	317-W25-1C	TUBE CAP POLYET 5/32" ID X 19/32" INSIDE LGTH LOW DENSITY POLYETHYLENE COLOUR RED	Yes	Yes
J28	317-014	317-W16-1K	TUBE CAP POLYET 7/16"ID X 7/8" INSIDE LGTH LOW DENSITY POLYETHYLENE COLOUR RED	Yes	Yes
J28	317-017	317-W23-1P	TUBE CAP POLYET 9/16" ID X 5/8" INSIDE LGTH LOW DENSITY POLYETHYLENE COLOUR RED	Yes	Yes
J29	317-049	317-W02-1N	TUBE CAP POLYET 2 3/4" ID X 1" INSIDE LGTH LOW DENSITY POLYETHYLENE COLOUR RED	Yes	Yes
J29	317-066	317-W17-1W	SHALLOW TUBE CAP 5/16" ID X 3/8" INSIDE LGTH LOW DENSITY POLYETHYLENE COLOUR ORANGE	Yes	Yes
J29	317-075	317-W12-1Y	SHALLOW TUBE CAP 1" ID X 5/8" INSIDE LGTH LOW DENSITY POLYETHYLENE COLOUR RED	Yes	Yes
J30	317-098	317-W24-1Y	LONG TUBE CAP 5/8" ID X 1 1/2" INSIDE LGTH LOW DENSITY POLYETHYLENE COLOUR RED	Yes	Yes
J30	317-105	317-W05-1W	LONG TUBE CAP 1" ID X 1 3/4" INSIDE LGTH LOW DENSITY POLYETHYLENE COLOUR RED	No	No
J30	317-109	317-W27-1T	LONG TUBE CAP 1 1/4" ID X 1 1/2" INSIDE LGTH LOW DENSITY POLYETHYLENE COLOUR RED	Yes	Yes
J31	317-130	317-W13-1C	TAPERED CAP & PLUG 11/16" X 5/16" LOW DENSITY POLYETHYLENE COLOUR RED	Yes	Yes
J32	317-163	317-W26-1N	TAPERED CAP & PLUG 1 3/8" I.D. X 9/16" LENGTH LOW DENSITY POLYETHYLENE COLOUR RED	Yes	Yes
J32	317-183	317-W09-1P	TAPERED CAP & PLUG 2 13/64" I.D. X 3/4" LENGTH LOW DENSITY POLYETHYLENE COLOUR RED	Yes	Yes
J32	317-186	317-W11-1W	TAPERED CAP & PLUG 2 19/32" I.D. X 3/8" LENGTH LOW DENSITY POLYETHYLENE COLOUR RED	Yes	Yes
J32	317-190	317-W08-1A	TAPERED CAP & PLUG 2 51/64" I.D. X 3/4" LENGTH LOW DENSITY POLYETHYLENE COLOUR RED	Yes	Yes
J33	317-193	317-W14-1N	TAPERED CAP & PLUG 2 21/32" X 3/4" LOW DENSITY POLYETHYLENE COLOUR RED	Yes	Yes
J34	317-237	317-W20-1M	PULL PLUG 9/16" I.D. X 3/8" LENGTH LOW DENSITY POLYETHYLENE COLOUR RED	Yes	Yes
J34	317-249	317-W22-1A	PULL PLUG 25/32" I.D. X 1/2" LENGTH LOW DENSITY POLYETHYLENE COLOUR RED	Yes	Yes
J34	317-250	317-W18-1M	PULL PLUG 13/16" ID X 17/32" LENGTH LOW DENSITY POLYETHYLENE COLOUR RED	Yes	Yes
J35	317-262	317-W03-1T	PULL PLUG 1 5/32 X 5/8 LOW DENSITY POLYETHYLENE COLOUR RED	Yes	Yes

Catalog 13 Page	Legacy Part No	New Spaenaur Part No	New Description	Specification Change	RoHS
J35	317-283	317-W21-1X	PULL PLUG 2 5/32" X 1" LOW DENSITY POLYETHYLENE COLOUR RED	Yes	Yes
J35	317-285	317-W07-1X	PULL PLUG 2 15/32" X 1" LOW DENSITY POLYETHYLENE COLOUR RED	Yes	Yes
J35	317-290	317-W19-1X	PULL PLUG 3 9/32 X 3/4 LOW DENSITY POLYETHYLENE COLOUR RED	Yes	Yes
J35	317-292	317-W15-1T	PULL PLUG 3 5/8" ID X 3/4" LENGTH LOW DENSITY POLYETHYLENE COLOUR RED	Yes	Yes
J37	245-008	245-W02-1P	PLASTIC PLUG BUTTON, FLUSH TYPE 15/16" HOLE X .03-.08" PANEL THK POLYETHYLENE, BLACK	No	No
J40	317-339	317-W04-1K	STANDARD THREADED CAP RIBBED 1/2"-20 THREAD LOW DENSITY POLYETHYLENE COLOUR RED	Yes	Yes
J40	317-340	317-W10-1A	STANDARD THREADED CAP RIBBED 1/2" - 20 THRD LOW DENSITY POLYETHYLENE COLOUR RED	Yes	Yes
J40	317-356	317-W01-1C	STANDARD THREADED CAP RIBBED 1"-14 THRD LOW DENSITY POLYETHYLENE COLOUR RED	Yes	Yes
J41	317-482	317-W06-1M	PIPE THREAD PROTECTOR CLOSED END 1/4" NPT LOW DENSITY POLYETHYLENE COLOUR BLACK	No	No
J44	315-907	315-G03-1W	FLAT BOTTOM WASHER FOR SNAP CAPS .250" HOLE DIA. UV - STAB POLYPROPYLENE NEUTRAL	No	No
J45	315-103	315-G01-1T	HEX DOME PROTECTION CAP FOR 5/16" DIA BOLT (.484" A/F) POLYETHYLENE BLACK	No	No
J46	315-015	305-C01-1X	NYLON DRIVE RIVET TRUSS HEAD .187" DIA X .285" LGT X .062"/.187" GRIP NYLON 6/6 NATURAL	Yes	Yes
J46	RB-30	315-G12-1N	RUBBER BOLT CAP BUMPER 5/8" OD X 7/16" HT SBR COMPOUND BLACK, 55-60 DURO	No	No
J47	315-042	315-G35-1C	RUBBER BUMPER RECESS TYPE WITHOUT STEEL WASHER 1/2"OD X 5/16" O/A HT 1/4" RECESS DIAM, 5/32" BORE DIAM NON-MARKING SBR BLACK 60 5 DURO	Yes	Yes
J47	315-646	315-G36-1N	POLY BUMPER 1/2" BASE X 1/4"HT X 9/32" ID POLYASTOMER GREY	No	No
J47	315-653	315-G40-1K	RECESSED BUMPER 1" OD X 5/16" HT POLYLASTOMER BROWN, 75 DURO	No	No
J47	RB-172	315-G30-1M	RECESSED RUBBER BUMPER, NO INSERT 1" OD X 1" HT X 5/8" SCREW HEAD DEPTH X 1/4" SCREW HEAD OPENING X 1/8" SCREW SHAFT OPENING GR-S (SBR) BLACK, 60-DURO	No	No
J49	RB-126	315-G19-1P	RUBBER PLUG BUMPER BUTTON TYPE 5/16"OD X 27/32" O/A LGTH, 3/64"GR SBR BLACK, 40 5 DURO	No	No
J50	B-1335	315-G28-1P	RUBBER PLUG BUMPER 15/32"OD X 3/32"HT X 25/32"O/A LGTH FOR 9/32" HOLE DIA X 1/16" GROOVE SBR COMPOUND BLACK 40-45 DURO.	No	No
J53	315-558	315-G42-1M	SOLID GROMMET FOR PANEL HOLE 9/32"DIA X 1/16"TH PVC-329 BLACK, 55 DURO	No	No
J54	315-283	315-G20-1A	RUBBER BUMPER W/STEEL MACHINE SCREW 27/64" HEAD DIA X 9/32" HEAD HT (#6-32 UNC X 1/4" SCREW) SBR BLACK 60 DURO	No	No
J56	315-026	315-G13-1T	RUBBER TIP 5/32" ID SBR BLACK 60 DURO	No	No
J61	315-599	315-G16-1M	BUSHING, SLEEVED 9/32" SLEEVE DIA X 5/32" BORE PVC-329 BLACK, 55 DURO RoHS and C of C available	No	No
J61	RB-46	315-G43-1X	RUBBER BUSHING STEP TYPE 9/16"OD X 3/16" ID X 1/4"TH SBR BLACK DURO 55 - 65	Yes	Yes
J62	315-285	315-G31-1X	RUBBER BUSHING 1/8" ID X 3/8" OD X 1/4" STEM DAI SBR BLACK, 60 DURO	No	No
J63	315-716	315-G06-1A	SNAP-IN BUSHING .625" HOLE DIA X 1/2" ID X 23/32" HEAD DIA X 13/32" HT X .125" MAX GRIP THK, NYLON BLACK	No	No

Note: Items highlighted in blue indicate a change in product characteristics as well as RoHS compliance.

Catalog 13 Page	Legacy Part No	New Spaenaur Part No	New Description	Specification Change	RoHS
J68	315-520	315-G23-1K	DIAPHRAGM GROMMET FOR PANEL HOLE 1" 25.5mm DIA X 2.4mm PANEL THK X 8.4mm HGT PVC-329 BLACK 55 DURO	No	No
J69	315-257	315-G49-1T	RUBBER GROMMET 1/4" ID X 1/16" GROOVE WITDTH X 7/16" GROOVE DIA BUNA N BLACK 50 DURO	No	No
J69	315-263	315-G07-1P	RUBBER GROMMET 5/16" ID X 1/16" GROOVE WIDTH X 7/16" GROOVE DIA X 5/8" OD X 9/32" THK, SBR BLACK 60 DURO	No	No
J69	315-355	315-G18-1A	RUBBER GROMMET 1/2" OD X 1/4" ID X 7/32" TH, 3/8" GR DIA X 1/16" GROOVE WIDTH SBR BLACK 55-65 DURO	No	No
J70	315-308	315-G15-1W	RUBBER GROMMET (DIMENSIONALLY EQUIV TO AN931-5-12) 1" OD X 5/16" ID X 1/16" GROOVE WIDTH X 3/4" GROOVE DIA BUNA N BLACK, 50 DURO	No	No
J71	315-315	315-G08-1Y	RUBBER GROMMET 11/16" ID X 1/4" GROOVE WIDTH X 1" GROOVE DIA X 1-5/16" OD X 9/16" THK, SBR BLACK, 60 DURO	No	No
J71	RB-106	315-G17-1X	RUBBER GROMMET 1-7/8" OD X 1 1/4" ID X 3/32" GROOVE WDTH X 1 1/2" GROOVE DIA. X 3/8" O/A THICKNESS SBR BLACK 55-65 DURO	No	No
J71	RB-153	315-A01-1E	RUBBER GROMMET 2-7/8" OD X 2-1/8" ID X 1/2" TH, 2-1/2 GR DIA X 1/8 ROUND EDGE SBR BLACK, DURO 55-65	No	No
J71	RB-247	315-G04-1M	RUBBER GROMMET (DIMENSIONALLY EQUIV TO AN931-12-17) 3/4" ID X 1-3/8" OD X 1-1/16" HOLE SIZE X 3/8" THK. SBR BLACK, 55-65 DURO	No	No
J71	RB-250	315-A02-1G	RUBBER GROMMET (DIMENSIONALLY EQUIV TO AN931-C12-17) 1-3/8" OD X 3/4" ID X 9/16" TH, 1-1/16" GR DIA X 1/4 SBR BLACK, 55-65 DURO	No	No
J72	RB-57	315-G26-1X	RUBBER GROMMET 9/16" OD X 1/8" ID X 3/16" TH, 1/4" GRV X 1/16" COMP 011 SBR BLACK, 55-65 DURO	No	No
J72	RB-59	315-G14-1K	RUBBER GROMMET 3/8" OD X 9/64" ID X 3/8" TH, 1/4" GR DIA X 1/16" GROOVE WIDTH COMP 034 SBR BLACK. 60 DURO	No	No
J73	RB-334	315-G48-1N	RUBBER LABORATORY STOPPER TOP 1-9/16" X 1-5/16" BOTTOM X 1" SIZE 8 NATURAL RUBBER BLACK, 45-55 DURO	No	No
J85	135-119	135-W01-1P	CRANK HANDLE, FEMALE 3/8-16" THREAD, 2.60 HANDLE LENGTH THERMOPLASTIC MATERIAL BLACK,	No	No
J88	134-208	134-C11-1A	BALL KNOB, WITH BRASS INSERT 1" OD, #10-24 UNC X 1/2" DEEP BLACK	Yes	Yes
J88	134-600	134-C12-1P	BALL KNOB, METRIC WITH BRASS INSERT M10 X 1.5 PITCH X 3/4" DEEP PHENOLIC BLACK	Yes	Yes
J88	134-603	134-C02-1C	BALL KNOB, WITH BRASS INSERT 1 5/8" O.D., M12 X 1.75 X 7/8" DEEP BLACK	Yes	Yes
J88	K-51-1	134-C03-1N	BALL KNOB, WITH BRASS INSERT 1" O.D., 5/16"-18 UNC X 1/2" DEEP BLACK	Yes	Yes
J88	K-52	134-C04-1T	BALL KNOB, WITH BRASS INSERT 1 3/16" O.D., 3/8"-16 X 3/4" DEEP BLACK	Yes	Yes
J91	825-173	825-B01-1P	O-RING CORD 0.070" DIA ACTUAL .005" X 100FT NITRILE 70 DURO	No	No
J92	OR-050N	318-A01-1Y	O-RING NITRILE 5.239" ID X .070" W. NITRILE DURO 70	No	No
J99	204-005	204-A01-1W	GERMAN METRIC O-RING 70 DURO 5MM ID X 9MM OD X 2MM W NITRILE	No	No
K2	RW-26	825-B06-1X	THERMOPLASTIC ELASTOMER U CHANNEL 1/16" SLOT WIDTH X 13/32" SLOT DEPTH X 1/2" O/A HEIGHT X 1/4" O/A WIDTH X 100 FT LGTH SANTOPRENE TPE, 70 DURO	No	No
K3	825-230	825-B02-1Y	EXTRUDED "U" SHAPED RUBBER CHANNEL 3/8" SLOT WIDTH X 1/8" LEG WIDTH X 3/4" SLOT DEPTH X 1" O/A DEPTH X 50 FT/COIL, BLACK EPDM,DURO 55 5	No	No

Catalog 13 Page	Legacy Part No	New Spaenaur Part No	New Description	Specification Change	RoHS
K6	825-045	825-B03-1C	"U" SHAPED EXTRUSION 3/4" O/A HT X 3/8" BASE X 1/8" INSIDE GAP X 50 FT EPDM COMPOUND, DURO 70 5	No	No
K9	RW-107	825-B09-1X	BOAT GUNWALE STRIPPING (EDGE TRIM) 3/16" SLOT WIDTH X 11/16" O/A WIDTH X 15/16" O/A HT X 200 FT/LGTH WHITE VINYL, 70 5 DURO.	No	No
K12	825-086	825-B04-1N	PUSH-ON TRIM SEAL .079"-.099" GRIP RANGE X 1.249" O/A HT X 82 FT LGTH EPDM	No	No
K13	825-064	825-B08-1P	TRIM SEAL GRIP FLANGED EDGES .040 - .070" GRIP X 25 FT ROLL SPONGE & SOLID EPDM	No	No
K17	LC-8	825-B10-1M	RIGID CHANNEL (FOR DIVISION BARS) 1/8" INSIDE WIDTH X 25/64" OUTSIDE WIDTH X 15/32" O/A HT X 96" LGTH BLACK VELVET COVERING	No	No
K23	362	892-W03-1K	STICKER-TITE SELF SEALING SPONGE WEATHERSTRIP, ADHESIVE ONE SIDE 5/32" X 1" WIDE (2 X 50FT ROLLS) BUNA S(SBR) OPEN CELL MEDIUM DENSITY	No	No
K23	892-462	892-W01-1P	STICKER-TITE SELF SEALING SPONGE WEATHERSTRIP, ADHESIVE ONE SIDE 1/2" THICK X 3/4" WIDE X 50FT/ROLL POLYESTER URETHANE FOAM GREY COLOUR	No	No
K25	892-452	892-W02-1Y	SEAL KING FOAM TAPE SEALANT, CLOSED CELL, ADHESIVE ONE SIDE 1/8"TH X 3/4" WIDE (3.2MM TH X 18MM WIDE)100FT ROLL POLYVINYL CHLORIDE BLACK	No	No
K30	876-210	876-F04-1C	DELUXE WINDSHIELD KNIFE WITH TEMPERED STEEL BLADE ALUMINUM HANDLE WITH STEEL CABLE PULL HANDLE	Yes	No
L22	096-650	096-H02-1X	CATCH ONLY FOR CLAMP FASTENER 2 RIVET HOLES STEEL BRIGHT ZINC PLATED	No	No
L27	096-613	096-H03-1A	LATCH STRIKE, RIVET MOUNTING .199-.202" RIVET HOLES DIA. STEEL TRIVALENT ZINC PLATED PASSIVATED	Yes	No
L30	096-611	096-H01-1M	TENSION LATCH, SECONDARY LOCK TYPE FOR RIVET MOUNTING STEEL ZINC PLATING	No	No
L36	110-050	110-B01-1X	CLIP-ON RECEPTACLE FOR 1/4-TURN FASTENER 50F SERIES GENERAL PURPOSE .98" L X .80" W STEEL, CAD PLATED GOLD CHROMATE	No	No
L46	099-276	099-B06-1A	RECESS GRAB HANDLE FOR INSIDE RELEASE 133MM LG X 60MM WD MOULDED, BLACK	No	No
L69	099-328	099-B01-1T	STRIKER ASSEMBLY FOR ROTARY LATCH 5/16"-18 UNC X 1 1/4" O/A LGTH STEEL ZINC PLATED	No	No
L85	D-3189	099-B03-1W	DOOR HOLDBACK (KEEPER & HOOK) 1 1/2" HOOK PROJECTION STEEL, GALVANIZED FINISH	No	No
L91	099-231	099-B07-1M	SUPPORT STAYS MINIATURE (WITHOUT BRACKETS) 6"- CLOSED STEEL CLEAR ZINC	Yes	Yes
L105	098-063	098-G02-1Y	BUTT HINGE, HEAVY WEIGHT, NO HOLES, NOT SWAGED, RIVETED PIN 2 1/2" X 2 1/2" OPEN X .119" GA PLAIN STEEL	No	No
L107	098-808	098-G04-1N	BUTT HINGE NONREMOVABLE PIN 2" X 3" OPEN X .120" GA 304 STAINLESS STEEL	No	No
L109	098-185	098-G03-1C	LEFT LIFT-OFF HINGES 100MM O/A HT X 75MM WIDTH MILD STEEL CLEAR ZINC PLATED	No	No
L114	098-202	098-G01-1P	FULL OPENING HINGE WITH STEP 1-1/8" WIDE X 1-3/4" LONG STEEL NICKEL PLATED	No	No
L117	099-461	099-B05-1X	HOOD FASTENER STRAP GRASP ONLY, 4 13/16" O/A LGTH NATURAL RUBBER BLACK 60-DURO (COMPONENT OF SN#099-451)	No	No
L118	099-468	099-B02-1K	FASTENER STRAP WITH GRASP ONLY 5 1/16" O/A LGTH EPDM COMPOUND BLACK, 60-DURO (COMPONENT OF SN#099-458)	No	No
M6	888-099	888-A01-1X	VELSTICK HOOK 80 - WHITE 25 MM X 1.2 METRE NYLON	No	No

Note: Items highlighted in blue indicate a change in product characteristics as well as RoHS compliance.

Catalog 13 Page	Legacy Part No	New Spaenaur Part No	New Description	Specification Change	RoHS
M16	810-224	810-B02-1P	FIBERTEX ELASTIC CABLE 5/32" DIA X 500 FT SPOOL	No	No
M16	810-233	810-B01-1A	HEAVY DUTY POLYPROPYLENE ELASTIC CABLE 5/16" DIA X 300 FT SPOOL	No	No
M17	121-065	121-C19-1T	SHOCKCORD ATTACHMENTS (10/PK) FOR 3/16" SHOCKCORD STEEL, BLACK PLASTIC COATED (HOOK 121-C06-1N & RING 121-C01-1X)	Yes	No
M17	121-066	121-C05-1C	SHOCKCORD ATTACHMENTS (10/PK) FOR 1/4" SHOCKCORD STEEL, BLACK PLASTIC COATED (HOOK 121-C04-1Y & RING 121-C03-1P)	Yes	No
M17	121-067	121-C20-1N	SHOCKCORD ATTACHMENTS (10/PK) FOR 5/16" SHOCKCORD STEEL, BLACK PLASTIC COATED (HOOK 121-C07-1T & RING 121-C03-1P)	Yes	No
M17	121-068	121-C21-1T	SHOCKCORD ATTACHMENTS (10/PK) FOR 3/8" SHOCKCORD STEEL, BLACK PLASTIC COATED (HOOK 121-C08-1K & RING 121-C03-1P)	Yes	No
M17	121-069	121-C22-1K	SHOCKCORD ATTACHMENTS (10/PK) FOR 13/32" SHOCKCORD STEEL, BLACK PLASTIC COATED (HOOK 121-C09-1W & RING 121-C18-1N)	Yes	No
M17	121-070	121-C23-1W	SHOCKCORD ATTACHMENTS (10/PK) FOR 1/2" SHOCKCORD STEEL, BLACK PLASTIC COATED (HOOK 121-C10-1K & RING 121-C18-1N)	Yes	No
M17	121-071	121-C24-1M	SHOCKCORD ATTACHMENTS (10/PK) FOR 5/32" SHOCKCORD STEEL, DICHROMATE FINISH (HOOK 121-C11-1W & RING 121-C01-1X)	Yes	No
M17	121-072	121-C25-1X	SHOCKCORD ATTACHMENTS (10/PK) FOR 3/16" SHOCKCORD STEEL, DICHROMATE FINISH (HOOK 121-C12-1M & RING 121-C01-1X)	Yes	No
M17	121-073	121-C26-1A	SHOCKCORD ATTACHMENTS (10/PK) FOR 1/4" SHOCKCORD STEEL, DICHROMATE FINISH (HOOK 121-C13-1X & RING 121-C03-1P)	Yes	No
M17	121-074	121-C27-1P	SHOCKCORD ATTACHMENTS (10/PK) FOR 5/16" SHOCKCORD STEEL, DICHROMATE FINISH (HOOK 121-C14-1A & RING 121-C03-1P)	Yes	No
M17	121-075	121-C28-1Y	SHOCKCORD ATTACHMENTS (10/PK) FOR 3/8" SHOCKCORD STEEL, DICHROMATE FINISH (HOOK 121-C15-1P & RING 121-C03-1P)	Yes	No
M17	121-076	121-C29-1C	SHOCKCORD ATTACHMENTS (10/PK) FOR 13/32" SHOCKCORD STEEL, DICHROMATE FINISH (HOOK 121-C16-1Y & RING 121-C18-1N)	Yes	No
M17	121-077	121-C30-1Y	SHOCKCORD ATTACHMENTS (10/PK) FOR 1/2" SHOCKCORD STEEL, DICHROMATE FINISH (HOOK 121-C17-1C & RING 121-C18-1N)	Yes	No
M22	895-214	895-T01-1C	BOAT GUNWALE TIE DOWN 1 3/4" WD X 18' LGTH BLACK NYLON	No	No
M39	550-SB	106-W03-1N	DURABLE STUD BRASS PLAIN	No	No
M39	550-SS	106-W02-1C	SNAP FASTENER STUD 14.28MM FLANGE DIA STEEL NICKEL PLATED	No	No
M39	665-D	106-W01-1Y	SNAP FASTENER CAP 24 LIGNE (.600"), 5/16" BARREL LGTH BRASS NICKEL PLATED	No	No
M39	B-1287	106-W07-1M	BABY DURABLE SOCKET, REGULAR ACTION BRASS, NICKEL PLATED	No	No
M42	952-D	106-W06-1W	LIFT-THE-DOT SCREW STUD, SINGLE HEIGHT, #8 X 3/8" STEEL TAPPING SCREW BRASS-STUD, NICKEL PLATED	No	No
M43	106-102	106-W04-1T	STUD, STYLE 15 KLIKIT SNAP FASTENER 3/8" OD. X 1/8" TH. X .155" BARREL DIA. BRASS, NICKEL PLATED	No	No
M43	106-103	106-W05-1K	EYELET, STYLE 15, KLIKIT SNAP FASTENER 3/8" OD X 1/8" TH, 13/64" BARREL LGTH BRASS, NICKEL PLATED	No	No
M44	116-301	116-A05-1Y	TELESCOPING SHOE EYELET 7/32" ID, SIZE #0 ALUMINUM PLAIN TRADE SIZE #505	No	No
M45	116-103	116-A01-1M	VENTILATOR GROMMET 3/4" HOLE DIA, 1" TOP O.D. STEEL BRASS PLATED	No	No
M45	116-104	116-A02-1X	VENTILATOR GROMMET 9/16" HOLE DIA, 3/4" TOP O.D. STEEL BRASS PLATED (COMPONENT OF #116-A06-1C)	No	No
M45	116-105	116-A03-1A	BRASS SHEET METAL GROMMET 3/16" HOLE DIA, SIZE #00 BRASS PLAIN (COMPONENT OF SN# 7344)	No	No

Catalog 13 Page	Legacy Part No	New Spaenaur Part No	New Description	Specification Change	RoHS
M45	116-111	116-A04-1P	SHEET BRASS GROMMET 3/8" HOLE DIA, SIZE #2 BRASS PLAIN (COMPONENT OF SN#7347)	No	No
M45	116-204	116-A07-1N	VENTILATOR WASHER 9/16" HOLE DIA 3/4" TOP O.D. STEEL ZINC PLATED (COMPONENT OF #116-A06-1C)	No	No
M45	24-SN	116-A06-1C	PERFORATED VENTILATOR GROMMET AND WASHER 144/PK 9/16" HOLE DIA, 3/4" TOP OD BRASS GROMMET/STEEL WASHER PLAIN (116-A02-1X 116-A07-1N)	No	No
M49	E-35	104-C01-1N	ROLLED FLANGE HEAD EYELET 3/32" (.089 BARREL OD) X 5/32" LG BRASS PLAIN	No	No
M49	E-69	104-C04-1W	EYELET, REG ROLLED FLANGE HEAD 6/32" X 9/32" BRASS PLAIN	No	No
M49	E-79	104-C03-1K	REG ROLLED FLANGE HEAD BRASS EYELET 7/32" X 9/32" BRASS PLAIN	No	No
M49	GE-6A	104-C02-1T	REG ROLLED FLANGE HEAD EYELET 9/32"DIA X 3/16"LG, 1/2" FLANGE DIA ALUMINUM PLAIN	No	No
M54	T-152	876-F02-1P	TUFTING TOOL FOR PRONG BUTTON 5.5" OVERALL LENGTH	Yes	No
M63	MH-37	121-C32-1N	ROUND RING 1 1/4" ID X 13/64" WIRE DIAM STEEL CAD PLATED	No	No
M70	121-124	121-C02-1A	SNAP HOOK 70MM LG X 7MM DIA WIRE FORGED STEEL ZINC PLATED SIMILAR TO DIN 5299 FORM E	No	No
M70	121-126	121-C31-1C	SNAP HOOK WITH SAFETY SCREW 100MM LG X 10MM DIA WIRE 10MM SNAP OPENING FORGED STEEL ZINC PLATED	Yes	Yes
N15	990-845	990-G01-1K	ADJUSTABLE TWO ARM PULLER WITH REPLACEABLE ARMS 520 X 208MM SPECIAL STEEL GALVANIZED	No	No
N21	991-139	991-B01-1A	MECHANICAL NUT SPLITTER FOR NUTS 13MM-24MM AF SPECIAL STEEL GALVANIZED	No	No
N64	992-783	992-H01-1X	TAPER KEY 95 MM LONG 78/89/100MM WIDE SPECIAL STEEL	Yes	Yes
P7	130-095	130-T03-1C	SHORT ARM SECURITY HEX KEY 5/32" A/F DRILLED ON BOTH ENDS ALLOY STEEL	No	No
P7	SS-305KL	130-T02-1Y	HEX KEY, SPECIAL LONG ARM 3/4" HEX WIDTH ALLOY STEEL PLAIN	No	No
P7	SS-64KL	130-T04-1N	HEXAGON KEY, SPECIAL LONG ARM, 3/32" HEX WIDTH ALLOY STEEL PLAIN	No	No
P8	876-1675	876-F05-1Y	BALLDRIVER HEX SCREWDRIVER 7/64" HEX BLACK PLASTIC HANDLE	Yes	No
P13	130-320	130-T01-1P	FOLD-UP TORX KEY SET, 7 SIZES: T10,T15,T20,T25,T27,T30,T40 ALLOY STEEL PLAIN	No	No
P43	876-188	876-F01-1A	SPANNER HAND SCREWDRIVER #10 X 7-1/2" O/A LGTH. PLASTIC HANDLE STEEL SHANK	No	No
P47	875-116	875-A01-1K	JOBBER'S LENGTH DRILL, HEAVY DUTY, 135 DEGREE SPLIT POINT 3/8" DIA COBALT HSS, GOLD FINISH	No	No
P80	874-124	874-T01-1Y	STARTING (TAPER) TAP 3/8"-16 UNC HIGH SPEED STEEL	No	No
P80	874-418	874-T05-1K	SET OF 3 TAPS, INCH, #12-24 UNC HIGH SPEED STEEL	No	No
P80	878-113	878-K06-1M	ADJUSTABLE ROUND SPLIT DIE 5/8"-18 UNF, 1-1/2" OD HIGH SPEED STEEL	Yes	No
P80	878-122	878-K03-1T	ADJUSTABLE DIE ROUND SPLIT 5/16" - 18 UNC, 1" OD HIGH SPEED STEEL	No	No
P83	877-028	877-C02-1T	"T" TYPE TAP WRENCH CAPACITY 1/4" - 1/2" STEEL	No	No
P85	874-904	874-T03-1N	SET OF 3 METRIC TAPS ISO 529 M2.5 X 0.45 COARSE THREAD RIGHT HND HIGH SPEED STEEL	No	No
P85	874-906	874-T04-1T	SET OF 3 METRIC TAPS ISO 529 M3 X 0.5 COARSE THREAD RIGHT HAND HIGH SPEED STEEL	No	No

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P93	878-610	878-K05-1W	ADJUSTABLE ROUND DIE METRIC M5 X 0.8 COARSE (13/16" OD) HIGH SPEED STEEL	No	No
P93	878-620	878-K02-1N	ADJUSTABLE ROUND DIE M18 X 2.5 COARSE (1.5" OD) HIGH SPEED STEEL	Yes	No
P97	878-953	878-K01-1C	TAP & DIE SET, 11 FINE METRIC SIZES M3 X 0.35 TO M20 X 1.5 W/ 3 WRENCHES AND 3 DIE STOCKS HIGH SPEED STEEL PLAIN IN WODDEN BOX	No	No
P109	877-503	877-C04-1W	COMBINATION BOLT, HEX NUT & WASHER SIZER, PLASTIC GAUGE U.S.S., S.A.E, AND METRIC POLYSTYRENE OFF-WHITE	No	No
P124	121-519	121-C33-1T	STANDARD OVAL BLANK TAG (TWO 1/8" HOLES) 5/8" X 1-1/2" X .032" THK BRASS PLAIN	No	No
P139	874-1656	874-T02-1C	METRIC THREAD FILE #0.80/1/1.25/1.5/1.75/2/2.5/3MM STEEL PLAIN FINISH	No	No
P177	876-1535	876-F03-1Y	NUT STARTER FITS NUTS 2.5MM - 8MM, 5 1/8" STEEL	No	No
Q3	800-001	800-B01-1N	LOCTITE SUPER BONDER 495 INSTANT ADHESIVE, 3 GRAM NET WT. TUBE REFRIGERATION REQUIRED	No	No
Q3	800-047	800-B30-1W	LOCTITE SUPERBONDER 498 28G BOTTLE REFRIGERATION REQUIRED	No	No
Q3	800-053	800-B36-1C	LOCTITE BLACK MAX 380 TOUGHENED INSTANT ADHESIVE 1 OZ. BOTTLE, REFRIGERATION REQUIRED CLOSE FITTING PARTS COLOUR BLACK, .006" GAP FILL TOUGHENED ETHYL, 200 cP VISCOSITY, 3750 PSI, -65F TO 225F FIXTURE	No	No
Q3	800-054	800-B37-1N	LOCTITE PRISM 401 SURFACE INSENSITIVE INSTANT ADHESIVE 20G BOTTLE, GENERAL PURPOSE REFRIGERATION REQUIRED, CLEAR, .005" GAP FILL SURFACE INSENSITIVE ETHYL, 110 cP 3,200 PSI, -65F TO 180F FIXTURE - 15	No	No
Q3	800-055	800-B38-1T	LOCTITE PRISM 403 LOW ODOUR/ LOW-BLOOM INSTANT ADHESIVE REFRIGERATION REQUIRED 20G BOTTLE, GAP FILLING COLOUR CLEAR, .008" GAP FILL LOW ODOUR/LOW BLOOM ALKOXY, 1000 cP 2,600 PSI, -65F TO 160F FIXTURE	No	No
Q3	800-056	800-B39-1K	LOCTITE QUICK SET 404 INSTANT ADHESIVE, REFRIGERATION REQUIRED 1/3 OZ.BOTTLE RUBBER O-RING BONDER COLOUR CLEAR, .005" GAP FILL GENERAL PURPOSE ETHYL, 80 cP 3,500 PSI, -65F TO 180F FIXTURE - 30 SEC. FU	No	No
Q3	800-057	800-B40-1T	LOCTITE QUICK SET 404 INSTANT ADHESIVE 4 OZ BOTTLE, RUBBER O-RING BONDER COLOUR CLEAR, .005" GAP FILL GENERAL PURPOSE ETHYL, 80 cP 3,500 PSI, -65F TO 180F FIXTURE - 30 SEC. FULL - 24 HRS. COMM. ITEM S	No	No
Q3	800-058	800-B41-1K	LOCTITE SUPER BONDER 414 INSTANT ADHESIVE 1 OZ BOTTLE, PLASTIC BONDER COLOUR CLEAR, .006" GAP FILL GENERAL PURPOSE ETHYL, 3,200 cP 3,200 PSI, -65F TO 180F FIXTURE - 20 SEC. FULL - 24 HRS. COMM. ITEM S	No	No
Q3	800-059	800-B58-1P	LOCTITE SUPER BONDER 416 INSTANT ADHESIVE 1 OZ BOTTLE GAP FILLING PLASTIC BONDER COLOUR CLEAR, .008" GAP FILL GENERAL PURPOSE ETHYL, 1,500 cP 3,200 PSI, -65F TO 180F FIXTURE - 30 SEC. FULL - 24 HRS. C	No	No
Q3	800-060	800-B64-1T	LOCTITE PRISM 454 SURFACE INSENSITIVE INSTANT ADHESIVE 20G TUBE REFRIGERATION REQUIRED	No	No
Q3	800-061	800-B60-1P	LOCTITE SUPER BONDER 495 INSTANT ADHESIVE, 1 OZ. NET WT. BOTTLE REFRIGERATION REQUIRED	No	No

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Q3	800-078	800-B74-1C	LOCTITE PRISM 411 CLEAR TOUGHENED INSTANT ADHESIVE 20 GRAM BOTTLE, CLEAR GAP FILLING COLOUR CLEAR, .008" GAP FILL TOUGHENED ETHYL, 5,000 cP 3,200 PSI, -65F TO 210F FIXTURE - 30 SEC. FULL - 24 HRS.	No	No
Q3	800-091	800-B51-1N	PRISM 454 INSTANT ADHESIVE GEL 3gm TUBE REFRIGERATION REQUIRED	No	No
Q3	800-111	800-B50-1C	LOCTITE SUPER BONDER 430 INSTANT ADHESIVE 28.4 gr (1 oz) BOTTLE REFRIGERATION REQUIRED	No	No
Q3	800-113	800-B49-1N	LOCTITE PRISM 406 SURFACE INSENSITIVE INSTANT ADHESIVE 20 GR BOTTLE, WICKING GRADE COLOUR CLEAR, .004" GAP FILL SURFACE INSENSITIVE ETHYL, 20 cP 3,200 PSI, -65F TO 180F FIXTURE - 15 SEC. FULL - 24 HRS	No	No
Q3	800-126	800-B45-1A	BLACK INSTANT ADHESIVE 20 GRAM BOTTLE REFRIGERATION REQUIRED	No	No
Q3	800-143	800-B44-1X	LOCTITE PRISM 410 BLACK TOUGHENED INSTANT ADHESIVE 20 GRAM BOTTLE, GAP FILLING COLOUR BLACK, .008" GAP FILL TOUGHENED ETHYL, 3,500 cP 3,200 PSI, -65F TO 225F FIXTURE - 90 SEC. FULL - 24 HRS. REFRIGERA	No	No
Q4	800-052	800-B35-1Y	LOCTITE DEPEND 330 ACRYLIC ADHESIVE 25ML KIT	Yes	No
Q4	800-119	800-B73-1Y	SUPER WEATHERSTRIP ADHESIVE 147 ML TUBE	Yes	No
Q4	800-120	800-B52-1T	SPEEDBONDER 326 STRUCTURAL ADHESIVE 50 ML BOTTLE	No	No
Q5	800-086	800-B59-1Y	LOCTITE 7649 PRIMER N (ACETONE) 4.5 OZ AEROSOL CAN CAUTION: FLAMMABLE	Yes	No
Q5	800-115	800-B53-1K	PRIMER N7649 (ACETONE) 52 ML	Yes	No
Q5	800-129	800-B46-1P	ACTIVATOR 7075 (ACETONE) 128 GR AEROSOL	Yes	No
Q5	800-133	800-B42-1W	DEPEND ACTIVATOR 7387 52 ml BOTTLE	Yes	No
Q6	800-029	800-B21-1A	LOCTITE HYDRAULIC SEALANT 545 PURPLE 50ML	Yes	No
Q6	800-030	800-B22-1P	LOCTITE HYDRAULIC SEALANT 545 250ML	Yes	No
Q6	800-031	800-B23-1Y	LOCTITE PIPE SEALANT 565 50ML	Yes	No
Q6	800-032	800-B24-1C	LOCTITE PIPE SEALANT 565 250ML	Yes	No
Q6	800-033	800-B25-1N	LOCTITE PIPE SEALANT 567	Yes	No
Q6	800-034	800-B26-1T	LOCTITE PIPE SEALANT 567 250ML	Yes	No
Q6	800-036	800-B28-1W	LOCTITE PIPE SEALANT 592 50ML	Yes	No
Q6	800-037	800-B29-1M	LOCTITE PIPE SEALANT 592 250ML	Yes	No
Q9	800-009	800-B02-1T	ADHESIVE DISPENSER NEEDLE 16 GAUGE POLYPROPYLENE TAPERED, GREY	Yes	No
Q9	800-011	800-B03-1K	222MS LIQUID THREADLOCKER 50 ml BOTTLE	No	No
Q9	800-012	800-B04-1W	222MS LIQUID THREADLOCKER 250 ml BOTTLE	Yes	No
Q9	800-013	800-B05-1M	LOCTITE THREADLOCKER ADHESIVE 242 10ML BOTTLE	No	No
Q9	800-014	800-B06-1X	LOCTITE THREADLOCKER ADHESIVE 242 50 ML BOTTLE	Yes	No
Q9	800-015	800-B07-1A	LOCTITE THREADLOCKER ADHESIVE 242 250ML BOTTLE	Yes	No
Q9	800-016	800-B08-1P	LOCTITE THREADLOCKER ADHESIVE 262 10 ML BOTTLE	Yes	No

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Q9	800-017	800-B09-1Y	LOCTITE THREADLOCKER ADHESIVE 262 50ML BOTTLE	No	No
Q9	800-018	800-B10-1P	LOCTITE THREADLOCKER ADHESIVE 262 250ML BOTTLE	No	No
Q9	800-019	800-B11-1Y	LOCTITE THREADLOCKER ADHESIVE 271 10ML BOTTLE	Yes	No
Q9	800-020	800-B12-1C	LOCTITE THREADLOCKER ADHESIVE 271 50ML BOTTLE	Yes	No
Q9	800-021	800-B13-1N	LOCTITE THREADLOCKER ADHESIVE 271 250ML BOTTLE	Yes	No
Q9	800-022	800-B14-1T	LOCTITE THREADLOCKER ADHESIVE 272 50ML BOTTLE	No	No
Q9	800-023	800-B15-1K	LOCTITE THREADLOCKER ADHESIVE 277 50ML BOTTLE	Yes	No
Q9	800-024	800-B16-1W	LOCTITE THREADLOCKER ADHESIVE 277 250ML BOTTLE	Yes	No
Q9	800-025	800-B17-1M	LOCTITE THREAD LOCKER ADHESIVE 290 10ML BOTTLE	No	No
Q9	800-026	800-B18-1X	LOCTITE THREADLOCKER ADHESIVE 290 50ML BOTTLE	Yes	No
Q9	800-027	800-B19-1A	LOCTITE THREADLOCKER ADHESIVE 290 250ML BOTTLE	Yes	No
Q9	800-028	800-B20-1X	LOCTITE THREADLOCKER ADHESIVE 425 20g BOTTLE REFRIGERATION REQUIRED	No	No
Q9	800-064	800-B61-1Y	LOCTITE REMOVABLE THREADLOCKER 242 0.5 ML TUBE	Yes	No
Q10	800-038	800-A77-1P	LOCTITE RETAINING COMPOUND 609 10ML BOTTLE REFRIGERATION REQUIRED	No	No
Q10	800-039	800-A78-1Y	LOCTITE RETAINING COMPOUND 609 50ML BOTTLE REFRIGERATION REQUIRED	No	No
Q10	800-040	800-A79-1C	LOCTITE RETAINING COMPOUND 609 250ML BOTTLE	Yes	Yes
Q10	800-042	800-A81-1C	LOCTITE RETAINING COMPOUND 620 250ML BOTTLE REFRIGERATION REQUIRED	No	No
Q10	800-043	800-A82-1N	LOCTITE QUICK METAL RETAINING COMPOUND 660 6ML TUBE REFRIGERATION REQUIRED	No	No
Q10	800-044	800-A83-1T	LOCTITE QUICK METAL RETAINING COMPOUND 660 50ML TUBE REFRIGERATION REQUIRED	No	No
Q10	800-045	800-A84-1K	LOCTITE RETAINING COMPOUND 680 50ML BOTTLE REFRIGERATION REQUIRED	No	No
Q10	800-046	800-A85-1W	LOCTITE RETAINING COMPOUND 680 250ML BOTTLE REFRIGERATION REQUIRED	No	No
Q11	800-088	800-A86-1M	EXTEND RUST TREATMENT 10.25oz AEROSOL REFRIGERATION REQUIRED	No	No
Q11	800-089	800-A87-1X	COLD GALVANIZING COMPOUND 15oz AEROSOL REFRIGERATION REQUIRED	No	No
Q11	800-103	800-A90-1A	COLOURGUARD TOUGH RUBBER COATING (BLUE) 429 ml CAN REFRIGERATION REQUIRED	No	No
Q11	800-103	800-A89-1P	COLOURGUARD TOUGH RUBBER COATING (BLACK) 429 ml CAN REFRIGERATION REQUIRED	No	No
Q11	800-114	800-A91-1P	COLORGUARD RUBBER COATING PROTECTOR 429 ml CAN RED COLOUR REFRIGERATION REQUIRED	No	No
Q11	800-125	800-A92-1Y	LOCTITE COLOUR GUARD, YELLOW 429 ml CAN REFRIGERATION REQUIRED	No	No
Q11	800-130	800-A88-1A	EXTEND RUST TREATMENT 1 QUART REFRIGERATION REQUIRED	No	No
Q11	800-227	800-A93-1C	LOCTITE COLOUR GUARD, YELLOW 1 GAL CAN REFRIGERATION REQUIRED	No	No
Q16	800-068	800-A94-1N	FIXMASTER UNDERWATER REPAIR EXOXY 4 OZ	No	No
Q16	800-070	800-A95-1T	RAPIDMETAL FAST CURE METAL FILLED EPOXY MAKES 10 (12 FLUID OUNCE CUPS) REFRIGERATION REQUIRED	No	No
Q17	800-069	800-A96-1K	FIXMASTER METAL REPAIR STICK 4 OZ REFRIGERATION REQUIRED	No	No
Q17	800-077	800-A97-1W	FORM-A-THREAD REPAIR KIT REFRIGERATION REQUIRED	No	No

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Q21	800-008	800-A98-1M	SUPERFLEX 596 HI-TEMP RTV SILCONE ADHESIVE SEALANT (RED) 80 ML TUBE REFRIGIRATION REQUIRED	No	No
Q21	800-065	800-A99-1X	587 BLUE HIGH PERFORMANCE SILICONE GASKET MAKER 70 ML (2.36 FL.OZ) TUBE REFRIGERATION REQUIRED	No	No
Q21	800-066	800-B62-1C	587 BLUE HIGH PERFORMANCE SILICONE GASKET MAKER 300ML CARTRIDGE REFRIGERATION REQUIRED	No	No
Q21	800-095	800-B47-1Y	SUPERFLEX 596 HI-TEMP SILICONE 300ml CARTRIDGE REFRIGERATION REQUIRED	No	No
Q21	800-096	800-B55-1M	FORM-A-GASKET #2 200ml TUBE	Yes	No
Q21	800-107	800-B54-1W	5920 COPPER HIGH PERFORMANCE SILICONE GASKET MAKER 70 ML TUBE	Yes	No
Q21	800-108	800-B56-1X	5920 COPPER HIGH PERFORMANCE SILICONE GASKET MAKER 300 ML CARTRIDGE	Yes	No
Q21	800-123	800-B48-1C	598 BLACK HIGH PERFORMANCE SILICONE GASKET, 70 ML TUBE	Yes	No
Q21	800-124	800-B43-1M	SUPERFLEX BLACK RTV SILICONE ADHESIVE SEALANT 80ML TUBE	Yes	No
Q21	800-142	800-B65-1K	SUPERFLEX 595 SILICONE CLEAR ADHESIVE 300 ML CARTRIDGE	No	No
Q23	800-048	800-B31-1M	LOCTITE SILVERGRADE ANTISEIZE THREAD COMPOUND 767 8 oz. NET WT. BRUSH-TOP	No	No
Q23	800-050	800-B33-1A	LOCTITE NICKEL GRADE ANTI-SEIZE 771 8 Oz. Net Wt. BOTTLE, BRUSH-TOP	Yes	No
Q23	800-051	800-B34-1P	LOCTITE NICKEL GRADE ANTI-SEIZE 771 454G BOTTLE	Yes	No
Q23	800-094	800-B57-1A	PENETRATING OIL 340gr (12OZ) AEROSOL	Yes	No
Q26	800-073	800-B66-1W	NORDBAK BRUSHABLE CERAMIC - GREY 2 LB. NET WT. KIT	No	No
Q27	800-035	800-B27-1K	LOCTITE ODC-FREE CLEANER & DEGREASER 16 OZ PUMP SPRAY CAN	Yes	No
Q27	800-097	800-B71-1A	NATURAL BLUE CLEANER DEGREASER 1 gal. BOTTLE	Yes	No
Q27	800-100	800-B72-1P	NATURAL BLUE CLEANER DEGREASER 5gal PAIL	Yes	No
Q29	800-087	800-B70-1X	LOCTITE QUICK SERVICE REPAIR KIT 101	No	No
	4518	825-B05-1N	"U" SHAPED EXTRUDED CHANNEL 1/2" BASE X 1/2" HT X 50-FT. SBR COMPOUND 60 DURO. 5	No	No
	84038	800-A42-1Y	RETAINING COMPOUND 638 SLIP FIT MAXIMUM STRENGTH 250 ML BOTTLE REFRIGERATION REQUIRED	No	No
	90424	994-H01-1W	TORQUE TOOL ASSORTMENT 28 PARTS IN SHEET METAL BOX W/PLASTIC INSERT HAZET# 6292-1CT/28	No	No
	93418	800-A74-1M	HYSOL E-60HP EPOXY 50 ML DUAL CARTRIDGE LOCTITE 29319 REFRIGERATION REQUIRED	No	No
	93474	800-A75-1X	LOCTITE PRISM 4471 INSTANT ADHESIVE 20GM BOTTLE #44740	Yes	Yes
	286039	286-W03-1T	SOLID RIVET 78 DEGREE COUNTERSNK HD 1/16" DIA X 3/8" LG ALUMINUM-1100F PLAIN FINISH MEETS SPECIFICATIONS OF ASME B18.1.1-1972 (R1981)	No	No
	800049	800-B32-1X	LOCTITE SILVERGRADE ANTISEIZE THREAD COMPOUND 767 1 LB (454G) BRUSH TOP PLASTIC CAN	No	No
	014-018	014-K07-1C	CARRIAGE BOLT ROUND HD SQUARE NECK 1/4"-20 UNC X 1-1/2" LG FULL THREAD LOW CARBON STEEL BRIGHT ZINC PLATED	No	No

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	014-168	014-K13-1W	CARRIAGE BOLT ROUND HD SQUARE NECK 1/4"-20 UNC X 1/2" LG, FULL THREAD ASTM A 307 LOW CARBON STEEL TRIVALENT ZINC PLATED ANSI B18.5-1978	No	No
	038-162	038-H04-1C	HEX HEAD LAG SCREW 5/8" X 4" LONG STEEL ZINC PLATED	No	No
	155-384	155-P20-1C	FULL FINISHED HEX NUT 7/8"-14 UNF (1-5/16" AF X 3/4" THK) GRADE 2 STEEL ZINC PLATED ANSI B18.2.2-1982	No	No
	202-211	202-P09-1Y	"U" TYPE SPEED NUT #8-32 UNC .045"-.062" PANEL RANGE SPRING STEEL BLACK PHOSPHATE & OIL	No	No
	233-025	233-F43-1N	BENT PULL PIN W/ HITCH PIN CLIP 1/2" DIA X 3" USABLE LGTH CARBON STEEL TRIVALENT ZINC PLATED	No	No
	316-076	316-H01-1X	ANTI-VIBRATION MOUNT DOUBLE-ENDED 40MM OD X 30MM HT / M8X23MM LGTH VULCANIZED RUBBER 50-60 DURO	No	No
	395-238	395-H10-1T	MACHINE SCREW SLOT/SQ SKT ROUND HD #4-40 UNC X 3/8" LG LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
	424-121	424-F16-1C	MACHINE SCREW PHILLIPS FLAT #6-32 UNC X 5/8" LONG 18-8 STAINLESS STEEL ANSIB 18.6.3-1972	No	No
	478-062	478-E02-1Y	HEX SKT SET SCREW FLAT PT HEADLESS #10-32 UNF X 3/16" LONG ALLOY STEEL HEAT TREATED PLAIN ANSI B18.3-1986	No	No
	508-404	508-T01-1W	TEKS SELF-DRILLING SCREW WAFER HD SQ SKT, DRILL POINT #4 WITH WINGS #12-24 X 2 5/8", .540" HEAD LOW CARB STEEL CASE HARDENED ZINC CHROMATE PLATED	No	No
	525-003	525-D15-1N	TAPPING SCREW,INDENTD HEX WASHER HD 5/16" X 5/8" (HEX 1/2" AF) TYPE AB LOW CARB STEEL CASE HARD TRIVALENT ZINC CHROMATE PLATED ASME B18.6.4, LATEST REVISION	No	No
	525-004-TV	525-D18-1D	TAPPING SCREW, INDENTED HEX WASHER HEAD, TYPE B #10 X 3/8" (HEX 5/16" AF) LOW CARB STEEL CASE HARD TRIVALENT ZINC PLATED, ANSI B18.6.4-LATEST	No	No
	601-175	607-H55-1T	SPACER, BUTTITE ROLLED FOR 5/8" BOLT, 2" LG, .072" WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
	607-004	607-H88-1Y	BUTTITE SPACER ROLLED 3/8" BOLT SIZE, 1-7/16" LG .048" WALL TH LOW CARBON STEEL TRIVALENT ZINC PLATED	No	No
	607-456-TV	607-H77-1C	SPACER, BUTTITE ROLLED, METRIC, STANDARD DUTY FOR M12 BOLT, 35MM LG, 1.6MM WALL TH LOW CARBON (1010) STEEL TRIVALENT ZINC PLATED	No	No
	664-918	664-C04-1M	BOWED SPLIT LOCKWASHER, METRIC M12 (2.4MM THK .4MM) A2 STAINLESS STEEL SIMILAR TO DIN 128A	No	No
	677-400	677-A48-1W	NORD-LOCK WASHER HEAT TREATED, BOLT SIZE #5 (M3), GLUED PAIR 3.4MM ID X 7.0MM OD X 1.8MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-401	677-A47-1G	NORD-LOCK WASHER HEAT TREATED, BOLT SIZE #6 (M3.5), GLUED PAIR 3.9MM ID X 7.6MM OD X 1.8MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-402	677-A46-1E	NORD-LOCK WASHER HEAT TREATED, BOLT SIZE #6 (M3.5), GLUED PAIR 3.9MM ID X 9.0MM OD X 1.8MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-403	677-A45-1S	NORD-LOCK WASHER HEAT TREATED, BOLT SIZE #8 (M4), GLUED PAIR 4.4MM ID X 7.6MM OD X 1.8MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-404	677-A44-1Z	NORD-LOCK WASHER HEAT TREATED, BOLT SIZE #8 (M4), GLUED PAIR 4.4MM ID X 9.0MM OD X 1.8MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No

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	677-405	677-A61-1G	NORD-LOCK WASHER HEAT TREATED, BOLT SIZE #10 (M5), GLUED PAIR 5.4MM ID X 9.0MM OD X 1.8MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-406	677-A43-1Y	NORD-LOCK WASHER HEAT TREATED, BOLT SIZE #10 (M5), GLUED PAIR 5.4MM ID X 10.8MM OD X 1.8MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-407	677-A66-1P	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M6 (6MM), GLUED PAIR 6.5MM ID X 10.8MM OD X 1.8MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-408	677-A76-1X	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M6 (6MM), GLUED PAIR 6.5MM ID X 13.5MM OD X 2.5MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-409	677-A62-1W	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE 1/4", GLUED PAIR .28" ID X .45" OD X .07" TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-410	677-A63-1M	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE 1/4", GLUED PAIR .28" ID X .53" OD X 0.10" TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-411	677-A67-1Y	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M8 (5/16") GLUED PAIR 8.7MM ID X 13.5MM OD X 2.5MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-412	677-A79-1Y	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M8 (5/16") GLUED PAIR 8.2MM ID X 16.6MM OD X 2.5MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-413	677-A68-1Z	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE 3/8", GLUED PAIR .406" ID X .654" OD X .098" TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-414	677-A81-1Y	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE 3/8", GLUED PAIRS .406" ID X .827" OD X .098" TH STEEL HARDENED, DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-415	677-A69-1S	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M10, GLUED PAIR 10.7MM ID X 16.6MM OD X 2.5MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-416	677-A84-1E	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M10, GLUED PAIRS 10.7MM ID X 21MM OD X 2.5MM TH STEEL HARDENED, DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-417	677-A70-1Z	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE 7/16"(11MM), GLUED PAIR .449"ID X .728"OD X .098"TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-418	677-A86-1W	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M12, GLUED PAIRS 13MM ID X 19.5MM OD X 2.5MM TH STEEL HARDENED, DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-419	677-A78-1P	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M12, GLUED PAIR 13MM ID X 25.4MM OD X 3.4MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-420	677-A71-1S	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE 1/2", GLUED PAIR .531"ID X .768"OD X .098"THK STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No

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	677-421	677-A77-1A	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE 1/2" GLUED PAIR .531" ID X 1.00" OD X .134" THK STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-422	677-A72-1E	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M14 (9/16") GLUED PAIR 15.2MM ID X 23MM OD X 3.4MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-423	677-A73-1G	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M14 (9/16") GLUED PAIR 15.2MM ID X 30.7MM OD X 3.4MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-424	677-A75-1M	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M16 (5/8") GLUED PAIR 17MM ID X 25.4MM OD X 3.4MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-425	677-A74-1W	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M16 (5/8") GLUED PAIR 17MM ID X 30.7MM OD X 3.4MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-426	677-A42-1P	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M18, GLUED PAIR 19.5MM ID X 29.0MM OD X 3.4MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-427	677-A41-1A	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M18, GLUED PAIR 19.5MM ID X 34.5MM OD X 3.4MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-428	677-A80-1P	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE 3/4", GLUED PAIRS, .787" ID X 1.209" OD X .134" TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-429	677-A65-1A	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE 3/4" GLUED PAIR .787"ID X 1.535"OD X .134"TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-430	677-A83-1S	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M20, GLUED PAIRS 21.4MM ID X 30.7MM OD X 3.4MM TH STEEL HARDENED, DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-431	677-A64-1X	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M20 (20MM), GLUED PAIR 21MM ID X 39MM OD X 3.4MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-432	677-A56-1Z	NORD-LOCK WASHER, HEAT TREATED BOLT SIZE M22 (7/8"), GLUED PAIR 23.4MM ID X 34.5MM OD X 3.4MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-433	677-A55-1Y	NORD-LOCK WASHER, HEAT TREATED BOLT SIZE M22 (7/8") GLUED PAIR 23.4MM ID X 42MM OD X 4.6MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-434	677-A54-1P	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M24 (24MM) GLUED PAIR 25.1MM ID X 39MM OD X 3.4MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-435	677-A53-1A	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M24 (24MM) GLUED PAIR 25.3MM ID X 48.5MM OD X 4.6MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-436	677-A59-1G	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE 1", GLUED PAIR 1.098"ID X 1.535" OD X .134"THK STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No

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	677-437	677-A60-1E	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE 1", GLUED PAIR 1.098"ID X 1.909" OD X .181"THK STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-438	677-A58-1E	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M27 (1-1/16") GLUED PAIR 28.4MM ID X 42MM OD X 6.6MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-439	677-A57-1S	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M27 (1-1/16"), GLUED PAIR 28.5MM ID X 48.5MM OD X 4.6MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-440	677-A82-1Z	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M30 (1-1/8") GLUED PAIRS 31.4MM ID X 47MM OD X 6.6MM TH HARDENED STEEL, DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-441	677-A40-1X	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M30 (1-1/8") GLUED PAIRS 31.4MM ID X 58.5 OD X 6.6MM TH HARDENED STEEL, DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-442	677-A85-1G	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M33 (1-1/4") GLUED PAIRS 34.4MM ID X 48.5MM OD X 6.6MM TH HARDENED STEEL, DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-443	677-A52-1X	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M36 (1-3/8") GLUED PAIR 37.4MM ID X 55MM OD X 6.6MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-444	677-A51-1M	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE 1-1/2" (M39), GLUED PAIR 40.4MM ID X 58.5MM OD X 6.6MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-445	677-A50-1W	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M42 (1-5/8") GLUED PAIR 43.2MM ID X 63MM OD X 6.6MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-446	677-A39-1A	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M33 (1-1/4") GLUED PAIRS 34.4MM ID X 58.5MM OD X 6.6MM TH HARDENED STEEL, DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-447	677-A38-1X	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M36 (1-3/8") GLUED PAIR 37.4MM ID X 63MM OD X 6.6MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-448	677-A03-1A	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M45 (1-3/4") GLUED PAIR 46.2MM ID X 70MM OD X 7.0MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-449	677-A02-1X	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M48 (1-7/8") GLUED PAIR 49.6MM ID X 75MM OD X 7.0MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-450	677-A01-1M	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M52 (2") GLUED PAIR 53.6MM ID X 80MM OD X 7.0MM TH STEEL HARDENED DELTA PROTEKT ZINC FLAKE COAT	No	No
	677-900	677-A87-1M	NORD-LOCK WASHER, GLUED M5(#10)5.4MM ID X 9MM OD X 2.2MM TH 316 STAINLESS STEEL PLAIN	No	No

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	677-901	677-A93-1Y	NORD-LOCK WASHER, GLUED 1/4" (.283"ID X .453"OD X .087"THK) 316 STAINLESS STEEL PLAIN	No	No
	677-902	677-A96-1E	NORD-LOCK WASHER, GLUED PAIRS BOLT SIZE M8 (5/16") 8.7MM ID X 13.5MM OD X 2.2MM TH 316 STAINLESS STEEL PLAIN	No	No
	677-903	677-A92-1P	NORD-LOCK WASHER, BOLT SIZE 3/8" GLUED .406"ID X .630"OD X .087"THK 316 STAINLESS STEEL PLAIN	No	No
	677-904	677-A91-1A	NORD-LOCK WASHER, BOLT SIZE 7/16" (11MM) - GLUED .449" ID X .728" OD X .087" THK 316 STAINLESS STEEL PLAIN	No	No
	677-905	677-A89-1A	NORD-LOCK WASHER, BOLT SIZE M12 (12MM) - GLUED 13MM ID X 19.5MM OD X 2.2MM TH 316 STAINLESS STEEL PLAIN	No	No
	677-906	677-A94-1Z	NORD-LOCK WASHER , BOLT SIZE M14 (9/16") 15.2MM ID X 23MM OD X 3.2MM TH 316 STAINLESS STEEL PLAIN	No	No
	677-907	677-A95-1S	NORD-LOCK WASHER, GLUED BOLT SIZE M16 (5/8") 17MM ID X 25.4MM OD X 3.2MM TH 316 STAINLESS STEEL PLAIN	No	No
	677-908	677-A90-1X	NORD-LOCK WASHER BOLT SIZE M6 - GLUED 6.5MM ID X 10.8MM OD X 2.2MM TH 316 STAINLESS STEEL PLAIN	No	No
	677-909	677-A88-1X	NORD-LOCK WASHER, BOLT SIZE 10MM - GLUED 10.7 MM ID X 16.0 MM OD X 2.2MM THK 316 STAINLESS STEEL PLAIN	No	No
	677-910	677-A49-1M	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE 1", GLUED PAIR 1.098"ID X 1.909" OD X .181"THK 316 STAINLESS STEEL	No	No
	677-911	677-A37-1M	NORD-LOCK WASHER HEAT TREATED, BOLT SIZE #5 (M3), GLUED PAIR 3.4MM ID X 7.0MM OD X 1.8MM TH 316 STAINLESS STEEL	No	No
	677-912	677-A36-1W	NORD-LOCK WASHER HEAT TREATED, BOLT SIZE #6 (M3.5), GLUED PAIR 3.9MM ID X 7.6MM OD X 1.8MM TH 316 STAINLESS STEEL	No	No
	677-913	677-A35-1G	NORD-LOCK WASHER HEAT TREATED, BOLT SIZE #6 (M3.5), GLUED PAIR 3.9MM ID X 9.0MM OD X 1.8MM TH 316 STAINLESS STEEL	No	No
	677-914	677-A34-1E	NORD-LOCK WASHER HEAT TREATED, BOLT SIZE #8 (M4), GLUED PAIR 4.4MM ID X 7.6MM OD X 1.8MM TH 316 STAINLESS STEEL	No	No
	677-915	677-A33-1S	NORD-LOCK WASHER HEAT TREATED, BOLT SIZE #8 (M4), GLUED PAIR 4.4MM ID X 9.0MM OD X 1.8MM TH 316 STAINLESS STEEL	No	No
	677-916	677-A32-1Z	NORD-LOCK WASHER HEAT TREATED, BOLT SIZE #10 (M5), GLUED PAIR 5.4MM ID X 10.8MM OD X 1.8MM TH 316 STAINLESS STEEL	No	No
	677-917	677-A31-1Y	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M6 (6MM), GLUED PAIR 6.5MM ID X 13.5MM OD X 2.5MM TH 316 STAINLESS STEEL	No	No
	677-918	677-A30-1P	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE 1/4", GLUED PAIR .28" ID X .53" OD X 0.10" TH 316 STAINLESS STEEL	No	No
	677-919	677-A29-1Y	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M8 (5/16") GLUED PAIR 8.2MM ID X 16.6MM OD X 2.5MM TH 316 STAINLESS STEEL	No	No
	677-920	677-A28-1P	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE 3/8", GLUED PAIRS .406" ID X .827" OD X .098" TH 316 STAINLESS STEEL	No	No
	677-921	677-A27-1A	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M10, GLUED PAIRS 10.7MM ID X 21MM OD X 2.5MM TH 316 STAINLESS STEEL	No	No

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	677-922	677-A26-1X	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M12, GLUED PAIR 13MM ID X 25.4MM OD X 3.4MM TH 316 STAINLESS STEEL	No	No
	677-923	677-A25-1M	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE 1/2", GLUED PAIR .531"ID X .768"OD X .098"THK 316 STAINLESS STEEL	No	No
	677-924	677-A24-1W	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE 1/2" GLUED PAIR .531" ID X 1.00" OD X .134" THK 316 STAINLESS STEEL	No	No
	677-925	677-A23-1G	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M14 (9/16") GLUED PAIR 15.2MM ID X 30.7MM OD X 3.4MM TH 316 STAINLESS STEEL	No	No
	677-926	677-A22-1E	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M16 (5/8") GLUED PAIR 17MM ID X 30.7MM OD X 3.4MM TH 316 STAINLESS STEEL	No	No
	677-927	677-A21-1S	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M18, GLUED PAIR 19.5MM ID X 29.0MM OD X 3.4MM TH 316 STAINLESS STEEL	No	No
	677-928	677-A20-1Z	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M18, GLUED PAIR 19.5MM ID X 34.5MM OD X 3.4MM TH 316 STAINLESS STEEL	No	No
	677-929	677-A19-1S	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE 3/4", GLUED PAIRS, .787" ID X 1.209" OD X .134" TH 316 STAINLESS STEEL	No	No
	677-930	677-A18-1Z	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE 3/4" GLUED PAIR .787"ID X 1.535"OD X .134"TH 316 STAINLESS STEEL	No	No
	677-931	677-A17-1Y	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M20, GLUED PAIRS 21.4MM ID X 30.7MM OD X 3.4MM TH 316 STAINLESS STEEL	No	No
	677-932	677-A16-1P	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M20 (20MM), GLUED PAIR 21MM ID X 39MM OD X 3.4MM TH 316 STAINLESS STEEL	No	No
	677-933	677-A15-1A	NORD-LOCK WASHER, HEAT TREATED BOLT SIZE M22 (7/8"), GLUED PAIR 23.4MM ID X 34.5MM OD X 3.4MM TH 316 STAINLESS STEEL	No	No
	677-934	677-A14-1X	NORD-LOCK WASHER, HEAT TREATED BOLT SIZE M22 (7/8") GLUED PAIR 23.4MM ID X 42MM OD X 3.2MM TH 316 STAINLESS STEEL	No	No
	677-935	677-A13-1M	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M24 (24MM) GLUED PAIR 25.1MM ID X 39MM OD X 3.4MM TH 316 STAINLESS STEEL	No	No
	677-936	677-A12-1W	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M24 (24MM) GLUED PAIR 25.3MM ID X 48.5MM OD X 4.6MM TH 316 STAINLESS STEEL	No	No
	677-937	677-A11-1G	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE 1", GLUED PAIR 1.098"ID X 1.535" OD X .134"THK 316 STAINLESS STEEL	No	No
	677-938	677-A10-1E	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M27 (1-1/16") GLUED PAIR 28.4MM ID X 42MM OD X 4.6MM TH 316 STAINLESS STEEL	No	No
	677-939	677-A09-1G	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M27 (1-1/16"), GLUED PAIR 28.5MM ID X 48.5MM OD X 4.6MM TH 316 STAINLESS STEEL	No	No
	677-940	677-A08-1E	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M30 (1-1/8") GLUED PAIRS 31.4MM ID X 47MM OD X 6.6MM TH 316 STAINLESS STEEL	No	No

Catalog 13 Page	Legacy Part No	New Spaenaur Part No	New Description	Specification Change	RoHS
	677-941	677-A07-1S	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M30 (1-1/8") GLUED PAIRS 31.4MM ID X 58.5 OD X 6.6MM TH 316 STAINLESS STEEL	No	No
	677-942	677-A06-1Z	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M33 (1-1/4") GLUED PAIRS 34.4MM ID X 48.5MM OD X 6.6MM TH 316 STAINLESS STEEL	No	No
	677-943	677-A05-1Y	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE M36 (1-3/8") GLUED PAIR 37.4MM ID X 55MM OD X 6.6MM TH 316 STAINLESS STEEL	No	No
	677-944	677-A04-1P	NORD-LOCK WASHER, HEAT TREATED, BOLT SIZE 1-1/2" (M39), GLUED PAIR 40.4MM ID X 58.5MM OD X 6.6MM TH 316 STAINLESS STEEL	No	No
	800-041	800-A80-1Y	LOCTITE RETAINING COMPOUND 620 50ML BOTTLE REFRIGERATION REQUIRED	No	No
	800-080	800-A02-1A	X-NMS 768 CLEAN UP SOLVENT FOR INSTANT ADHESIVES REFRIGERATION REQUIRED CAUTION: FLAMMABLE 59ML BOTTLE	No	No
	800-146	800-A31-1C	TAK PAK 382 ULTRA PERFORMANCE CYANOACRYLATE INSTANT ADHESIVE KIT, (20gm NET WT. ADHESIVE, REFRIGERATION REQUIRED 25ml SYRINGE ADHESIVE, 13ml ACTIVATOR 7452)	No	No
	800-147	800-A41-1P	LOCTITE MANUAL SYRINGE APPLICATOR FOR USE WITH ANY PRODUCT IN STANDARD 30ml SYRINGE LOCTITE#98026	No	No
	800-148	800-A53-1P	MOLY DRY FILM 12 OZ AEROSOL REFRIGERATION REQUIRED	No	No
	800-149	800-A64-1A	IMPRUV 349 LIGHT CURE ACRYLIC ADHESIVE 50ml BOTTLE REFRIGERATION REQUIRED	No	No
	800-150	800-A09-1W	LOCTITE 380 BLACK MAX TOUGHENED INSTANT ADHESIVE 3g TUBE REFRIGERATION REQUIRED	No	No
	800-151	800-A10-1K	LOCTITE BLACK MAX 380 TOUGHENED INSTANT ADHESIVE 1 LB BOTTLE REFRIGERATION REQUIRED	No	No
	800-152	800-A11-1W	LOCTITE PRISM 401 SURFACE INSENSITIVE INSTANT ADHESIVE 3G TUBE REFRIGERATION REQUIRED	No	No
	800-153	800-A12-1M	LOCTITE PRISM 401 SURFACE INSENSITIVE INSTANT ADHESIVE 1 LB BOTTLE REFRIGERATION REQUIRED	No	No
	800-160	800-A30-1Y	LOCTITE PRISM 410 BLACK TOUGHENED INSTANT ADHESIVE 1 LB BOTTLE REFRIGERATION REQUIRED	No	No
	800-163	800-A13-1X	LOCTITE SUPER BONDER 414 INSTANT ADHESIVE 3G TUBE REFRIGERATION REQUIRED	No	No
	800-166	800-A14-1A	LOCTITE SUPER BONDER 416 CYANOACRYLATE INSTANT ADHESIVE 1LB BOTTLE REFRIGERATION REQUIRED	No	No
	800-169	800-A15-1P	TAK PAK 444 INSTANT ADHESIVE 20G BOTTLE REFRIGERATION REQUIRED	No	No
	800-170	800-A16-1Y	LOCTITE #444 ADHESIVE 1 LB. NET WT BOTTLE REFRIGERATION REQUIRED	No	No
	800-175	800-A17-1C	LOCTITE SUPER BONDER 495 INSTANT ADHESIVE, .07 FL. OZ. GLUEMATIC PEN	No	No
	800-179	800-A18-1N	LOCTITE SUPER BONDER 499 INSTANT ADHESIVE, THERMAL CYCLING RESISTANT GEL, REFRIGERATION REQUIRED 10GM SYRINGE	No	No
	800-190	800-A19-1T	PRISM PRIMER 770 (HEPTANE) 16 FL OZ CAN REFRIGERATION REQUIRED	No	No
	800-191	800-A20-1N	7452 ACCELERATOR (ACETONE) 1.75 FL OZ BRUSH-CAP BOTTLE REFRIGERATION REQUIRED	No	No

Catalog 13 Page	Legacy Part No	New Spaenaur Part No	New Description	Specification Change	RoHS
	800-192	800-A21-1T	TAK PAK 7452 ACCELERATOR (ACETONE) 1.75 FL OZ SPRAY-CAP BOTTLE CAUTION: FLAMMABLE REFRIGERATION REQUIRED	No	No
	800-198	800-A22-1K	DEPEND ACTIVATOR 7387 1 QT. CAN REFRIGERATION REQUIRED	No	No
	800-199	800-A23-1W	DEPEND 7387 ACTIVATOR (HEPTANE/ISOPROPYL ALCOHOL) 4.5 OZ AEROSOL CAN REFRIGERATION REQUIRED	No	No
	800-205	800-A24-1M	NO MORE LEAKS PLASTIC PIPE SEALANT 2 OZ TUBE REFRIGERATION REQUIRED	No	No
	800-206	800-A08-1K	NO MORE LEAKS PLASTIC PIPE SEALANT 16 OZ TUBES REFRIGERATION REQUIRED	No	No
	800-209	800-B76-1T	PIPE JOINT COMPOUND 1 PT BRUSH CAN REFRIGERATION REQUIRED	No	No
	800-210	800-A25-1X	THREAD SEALANT WITH PTFE 1 PT BRUSH CAN REFRIGERATION REQUIRED	No	No
	800-214	800-A26-1A	LOCTITE RETAINING COMPOUND 620 HIGH TEMPERATURE 10ML BOTTLE REFRIGERATION REQUIRED	No	No
	800-221	800-A27-1P	LOCTITE THREADLOCKER ADHESIVE 272 250ML BOTTLE REFRIGERATION REQUIRED	No	No
	800-222	800-A28-1Y	LOCTITE THREADLOCKER ADHESIVE 277 10ML BOTTLE REFRIGERATION REQUIRED	No	No
	800-246	800-B77-1K	BIG FOOT METAL PRIMER 1 GAL KIT CLEAR LOCTITE #96132 REFRIGERATION REQUIRED	No	No
	800-272	800-A29-1C	FLOOR FILL 10 LB KIT GREY REFRIGERATION REQUIRED	No	No
	800-283	800-A06-1N	LOCTITE THREADLOCKER 243 REMOVEABLE OIL RESISTANT /MEDIUM STRENGTH 50ML BOTTLE	No	No
	800-284	800-A32-1N	LOCTITE THREADLOCKER 243 REMOVEABLE OIL RESISTANT /MEDIUM STRENGTH 250 ML BOTTLE	No	No
	800-294	800-A33-1T	SUPERFLEX 596 HI-TEMP SILICONE 7.25 OZ CAN RED	No	No
	800-297	800-A34-1K	598 BLACK HIGH PERFORMANCE SILICONE GASKET MAKER 190 ML. (6.422 OZ)CAN	No	No
	800-299	800-A35-1W	587 BLUE HIGH PERFORMANCE SILICONE GASKET MAKER 8.75 OZ CAN REFRIGERATION REQUIRED	No	No
	800-301	800-A36-1M	FORM-A-GASKET #2 1.5 OZ. TUBE REFRIGERATION REQUIRED	No	No
	800-305	800-A07-1T	LOCTITE 518 GASKET ELIMINATOR FLANGE SEALANT 50ML TUBE REFRIGERATION REQUIRED	No	No
	800-309	800-A37-1X	C5-A COPPER BASED ANTI-SEIZE 1 OZ. TUBE REFRIGERATION REQUIRED	No	No
	800-312	800-A38-1A	C5-A COPPER BASED ANTI-SEIZE 8 OZ. BRUSH-TOP CAN REFRIGERATION REQUIRED	No	No
	800-313	800-A39-1P	C5-A COPPER BASED ANTI-SEIZE 10 OZ. BRUSH-TOP CAN REFRIGERATION REQUIRED	No	No
	800-315	800-A03-1P	C5-A COPPER BASED ANTI-SEIZE 13 OZ. CARTRIDGE REFRIGERATION REQUIRED	No	No
	800-317	800-A47-1W	C5-A COPPER BASED ANTI-SEIZE 1 LB NET WT BRUSH TOP CAN REFRIGERATION REQUIRED	No	No
	800-327	800-B63-1N	LOCTITE SILVER GRADE ANTI-SEIZE THREAD COMPOUND 767 4 OZ. BRUSH-TOP CAN REFRIGERATION REQUIRED	No	No
	800-328	800-A40-1A	SILVER GRADE ANTI-SEIZE, 12 OZ AEROSOL REFRIGERATION REQUIRED	No	No
	800-364	800-A46-1K	FIXMASTER FAST SET STEEL PUTTY 1 LB (454 g) REFRIGERATION REQUIRED	No	No
	800-365	800-A04-1Y	4204 THERMAL RESISTANT INSTANT ADHESIVE 2O GM TUBE REFRIGERATION REQUIRED	No	No
	800-367	800-A05-1C	SUPER BONDER 422 INSTANT ADHESIVE 1 OZ BOTTLE REFRIGERATION REQUIRED	No	No

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	800-368	800-A76-1A	LOCTITE MANUAL APPLICATOR FOR 2-PART EPOXIES AND ACRYLICS IN 50ml DUAL CARTRIDGES REFRIGERATION REQUIRED	No	No
	800-372	800-A65-1P	INSTANT ADHESIVE 4471 PRISM 1 LB BOTTLE REFIGERATION REQUIRED	No	No
	800-373	800-A01-1X	FLANGE SEALANT 510 GASKET ELIMINATOR HIGH TEMP. 50 ML TUBE REFRIGERATION REQUIRED	No	No
	800-400	800-A43-1C	MAXI-COAT RUST INHIBITOR 12 OZ AEROSOL CAN REFRIGERATION REQUIRED	No	No
	800-402	800-A57-1T	LOCTITE TEFLON SEALING TAPE 1/2" X 520" X .003" WHITE TAPE REFRIGERATION REQUIRED	No	No
	800-405	800-A58-1K	VIPERLUBE SYNTHETIC GREASE .42 oz TUBE REFRIGERATION REQUIRED	No	No
	800-406	800-A59-1W	VIPERLUBE SYNTHETIC GREASE 3 oz TUBE REFRIGERATION REQUIRED	No	No
	800-407	800-A60-1K	VIPERLUBE SYNTHETIC GREASE 10.1oz AEROSOL CAN REFRIGERATION REQUIRED	No	No
	800-408	800-A61-1W	VIPERLUBE SYNTHETIC GREASE 400gr (14oz) CARTRIIDGE REFRIGERATION REQUIRED	No	No
	800-409	800-A62-1M	VIPERLUBE SYNTHETIC GREASE 400gr CAN REFRIGERATION REQUIRED	No	No
	800-410	800-A49-1X	SILICONE LUBRICANT 13OZ AEROSOL REFRIGERATION REQUIRED	No	No
	800-411	800-A63-1X	MAXIMUM STRENGTH SPRAY ADVESIVE 16.75 oz (NET WT) AEROSOL REFRIGERATION REQUIRED	No	No
	800-500	800-A66-1Y	LOCTITE 248 MEDIUM STRENGTH THREADLOCKER STICK 9 GRAM STICK BLUE REFRIGERATION REQUIRED	No	No
	800-501	800-A68-1N	LOCTITE 248 MEDIUM STRENGTH THREADLOCKER STICK 19 GRAM STICK BLUE REFRIGERATION REQUIRED	No	No
	800-502	800-A71-1T	LOCTITE C5-A COPPER ANTI-SEIZE STICK 20 GRAM STICK COPPER REFRIGERATION REQUIRED	No	No
	800-503	800-A67-1C	LOCTITE 268 HIGH STRENGTH THREADLOCKER STICK 9 GRAM STICK RED REFRIGERATION REQUIRED	No	No
	800-504	800-A69-1T	LOCTITE 268 HIGH STRENGTH THREADLOCKER STICK 19 GRAM STICK RED REFRIGERATION REQUIRED	No	No
	800-505	800-A70-1N	LOCTITE PST 561 PIPE THREAD SEALANT STICK REFRIGERATION REQUIRED 19 GRAM STICK WHITE	No	No
	800-506	800-A72-1K	LOCTITE SILVER GRADE ANTI-SEIZE STICK 20 GRAM STICK SILVER REFRIGERATION REQUIRED	No	No
	800-510	800-A50-1M	GEAR, CHAIN AND CABLE LUBRICANT 12 OZ AEROSOL REFRIGERATION REQUIRED	No	No
	800-511	800-A51-1X	SOLVO-RUST PENETRATING OIL 13OZ AEROSOL REFRIGERATION REQUIRED	No	No
	800-512	800-A52-1A	WHITE LITHIUM GREASE 10.75 OZ AEROSOL REFRIGERATION REQUIRED	No	No
	800-513	800-A54-1X	ELECTRICAL CONTACT CLEANER 11 OZ AEROSOL REFRIGERATION REQUIRED	No	No
	800-515	800-A56-1N	MULTI PURPOSE GLASS CLEANER 18.75 OZ AEROSOL REFRIGERATION REQUIRED	No	No
	800-516	800-A55-1C	NON-CHLORINATED PARTS CLEANER 14.75 OZ AEROSOL REFRIGERATION REQUIRED	No	No
	800-517	800-A48-1M	MARINE GRADE ANTI-SEIZE 1 LB BRUSH TOP CAN REFRIGERATION REQUIRED	No	No
	800-519	800-B75-1N	THREADLOCKER 2432 LOW HALOGEN/LOW SULPHUR 50 ML BOTTLE REFRIGERATION REQUIRED	No	No
	800-520	800-A45-1T	LOCTITE INDUSTRIAL HAND WIPES PRE-MOISTENED, 130 COUNT PER TUB (9 1/2 X 12) REFRIGERATION REQUIRED	No	No

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	800-521	800-A44-1N	LOCTITE INDUSTRIAL HAND WIPES PRE-MOISTENED, 75 COUNT PER TUB (9 1/2 X 12) REFRIGERATION REQUIRED	No	No
	800-601	800-A73-1W	NEEDLES FOR ADHESIVE DISPENSERS 20-GAUGE, POLYPROPYLENE TAPERED, PINK	No	No
	80-084	800-B68-1X	MASTER GASKET 518 FLANGE SEALANT KIT (CONTAINS 25ML SYRINGE AND 0.88OZ NET WT PRIMER)	No	No
	991-PH3	991-B03-1Y	TRINAMIC SCREWDRIVER FOR PHILLIPS-RECESS SCREWS SIZE PH3, BLADE WITH HEX BOLSTER BLADE LGTH 150MM, O/A LGTH 265.5MM ISO 8764-2	No	No
	N-2001-1	147-M01-1T	CAP NUT #6-32 UNC (5/16" A/F X 19/64" TH.) 18-8 STAINLESS STEEL	No	No
	OR-912N-RC	318-A02-1C	O-RING FOR TUBE FITTING .924"ID X .116"W, FOR 3/4" OD TUBE NITRILE DURO 70	No	No
	RVT-143ZP-RC	291-F09-1W	SOLID STEEL TINNERS RIVET FLAT HEAD .159" DIA X 5/16" LGTH- 3LB SIZE C1008 STEEL ANNEALED TRIVALENT ZINC PLATED, ASME B18.1.1-LATEST	No	No
	ST297	535-A15-1T	TAPPING SCREW SQ SOCKET TRUSS HD #8 X 1/2" LG, TYPE A LOW CARBON STEEL CASE HARDENED TRIVALENT PLATING	No	No
	ST-322H-TV	491-P24-1N	THREAD-CUTTING SCREW, INDENTED HEX HD, TYPE F #8-32 UNC X 5/16" LG (1/4" A/F HD) LOW CARB STEEL CASE HARD TRIVALENT CLEAR ZINC PLATED, ANSI B18.6.4-1966	No	No
	ST50H-TV	491-P16-1M	THREAD-CUTTING SCREW INDENTD HEX HD 1/4"-20 UNC X 1"(HD 3/8" AF)TYPE 1 LOW CARB STEEL CASE HARD TRIVALENT ZINC CHROM ANSI B18.6.4-	No	No
	ST-60	535-A30-1K	TAPPING SCREW, PAN SQ SOCKET HEAD #6 X 2" LG, TYPE AB LOW CARBON STEEL CASE HARDENED TRIVALENT ZINC PLATED	No	No

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