



A DOVER COMPANY



CLAMPING TECHNOLOGY

March 2011

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CAD FILES
AVAILABLE
ONLINE





THE BEST PRODUCTS. UNMATCHED SERVICE. WORLDWIDE.

With a support network spanning the globe, DE-STA-CO offers consistent, comprehensive service to any location in the world. Whether your operations are localized or span multiple continents, you will always have access to the highest levels of customer service and technical support.

WWW.DESTACO.COM

Our global website is a one-stop engineering resource center available to customers worldwide. Users have total access to comprehensive product information, data sheets and CAD information.



OUR GLOBAL WEBSITE ALSO OFFERS:

- Access to local sales representatives and dealers
- Sizing software
- Customer service access
- Expert application advice
- Training information
- Downloadable literature

EXTENSIVE CAD CAPABILITIES

DE-STA-CO supports a wide variety of CAD programs, ranging from AutoCAD to SolidWorks. Our innovative online digital catalog features a 3D CAD library that allows engineers to configure individual 3D models from DE-STA-CO's extensive product lines.





Introduction **i-3 – i-6**

Manual Clamping Technology **Section 1 – 9**



- 1 Vertical Hold Down Clamps
- 2 Horizontal Hold Down Clamps
- 3 Straight Line Action Clamps
- 4 Variable Stroke Straight Line Action Clamps - System RAKO
- 5 Precision Clamping
- 6 Pull Action Latch Clamps
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- 10 Pneumatic Clamps
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- 12 Pneumatic Swing Clamp Accessories
- 13 Pneumatic Accessories
- 14 Pneumatic Power Cylinders
- 15 Pneumatic Power Clamps
- 16 Pneumatic Pin Packages
- 17 Pneumatic Sheet Metal Grippers
- 18 Pneumatic Pivot Units

Hydraulic Clamping Technology **Section 19**

- Cylinders
- Thru-Hole Rams
- Swing/Pull Clamps
- Power Supplies
- Accessories

Technical Appendix **Section 20**

- Manual Clamping Technology
- Pneumatic Clamping Technology

Index **Section 21**

DE-STA-CO offers the widest variety of manual, hydraulic and pneumatic products on the market. Availability of specials and custom components ensures a perfect solution to your specific applications.



Vertical Clamps



Horizontal Clamps



Straight Line Action Clamps



Latch Clamps



Pneumatic Toggle Clamps



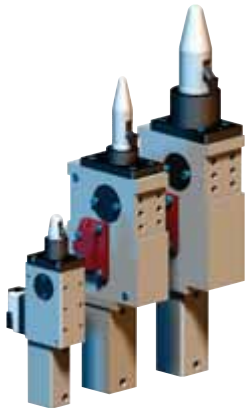
Hydraulic and Pneumatic Clamps



Lightweight Power Clamps



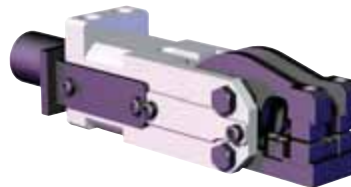
Hydraulic Power Booster



Pneumatic Pin Clamps



High Temperature Gripper



Cam Style Grippers



Mini Clamps



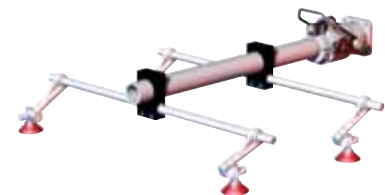
Vacuum Products



Geometric End Effector Spidergrip™

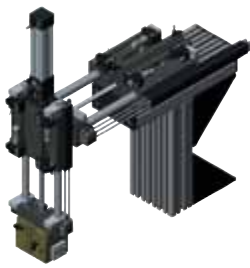


Modular End Effector Bodybuilder™



Standard and Micro Round Tooling Systems

With an incredibly broad variety of standard-setting products, DE-STA-CO raises the bar for total automation solutions. Complementary engineered products can be tailored to meet your unique automation needs



DIRECTCONNECT™ Pick and Place Modules



Rotary Actuators



Three Jaw Parallel Grippers



Electric Parallel Grippers



Base Slides



Highly Configurable Parallel Grippers



Robotic Automatic Tool Changers



Index Drives



Ring Index Drives



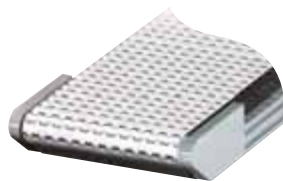
Linear Parts Handlers



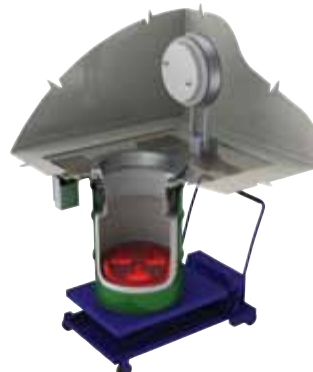
Precision Link Conveyors



Direct Drive Conveyors



Modular Conveyors



Bagless Transfer System (CRL)



Three Piece Manipulator (CRL)

Today's manufacturing challenges are tougher than ever. Regardless of the industry or application, DE-STA-CO offers workholding solutions to meet your needs.

Our products are ideal for a wide range of industries and manufacturing processes.



Best Solutions...Unique Part Numbers...Expert Support

DE-STA-CO offers special engineering services which will work extensively with the customer to create solutions that achieves maximum performance and accuracy required in every industry.

Whether it requires building a system with standard products, modifying an existing product or designing a completely unique component,

DE-STA-CO has solutions that can help you clamp down on productivity.



Hi-temp clamping for composite airframe manufacturing



Pneumatic clamp with manual actuation handle



Plier clamp modified for mounting plate



Stainless steel clamp with special hook and locking tab



Latch clamp used as a safety latch for re-usable containers and carts



Vertical clamp with bar weldment and spring loaded swivel handle



Squeeze action plier clamp with non-marring jaws



Stainless steel staight line clamp used in chemical machining process



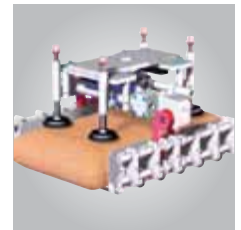
Application required a gripper with long stroke and high grip force in rim handling applications.



Carbon fiber end effector tooling.



Application required grippers to be installed on a very tight centerline with this 8 bank gripper.



Articulating package palletizing end effector tooling system.



Custom Cams

	Series	Section Page	Max. Holding Capacity N [lb.f.]						Height Under Clamping Bar mm [inch]					Overall Height mm [inch]												
			0 to 1000	1000 to 2000	2000 to 3000	3000 to 5000	5000 to 7000	7000 to 10000	10000+	0 to 25	25 to 40	40 to 55	55 to 70	70 to 85	85 to 100	100+	0 to 50	50 to 100	100 to 125	125 to 150	150 to 175	175 to 200	200 to 225	225 to 250	250 to 275	275+
			[0 to 225]	[225 to 450]	[450 to 675]	[675 to 1125]	[1125 to 1575]	[1575 to 2250]	[2250+]	[0 to 0.98]	[0.98 to 1.57]	[1.57 to 2.17]	[2.17 to 2.76]	[2.76 to 3.35]	[3.35 to 3.94]	[3.94+]	[0 to 1.97]	[1.97 to 3.94]	[3.94 to 4.92]	[4.92 to 5.91]	[5.91 to 6.89]	[6.89 to 7.87]	[7.87 to 8.86]	[8.86 to 9.84]	[9.84 to 10.83]	[10.83+]
	2002	1.3																								
	2007	1.5																								
	2010	1.7																								
	201	1.9																								
	202	1.11																								
	207	1.15																								
	210	1.19																								
	247	1.21																								
	267	1.21																								
	516	1.25																								
	518	1.26																								
	528	1.27																								
	548/578	1.28																								
	533/535	1.29																								
	558	1.31																								
	91090	1.32																								
	317	1.33																								
	527	1.35																								
	7-101	1.36																								
	7-58	1.36																								
	7-59	1.36																								
	7-60	1.36																								
	7-61	1.36																								
	229	1.37																								
	501	1.39																								
	503	1.39																								
	505	1.39																								
	506	1.39																								



Overall Length mm [inch]										Overall Width mm [inch]					Suitable Application Area							Standard Material			Arm Style	Mounting Style				Service Environment			
50 to 75 [1.97 to 2.95]	75 to 100 [2.95 to 3.94]	100 to 125 [3.94 to 4.92]	125 to 150 [4.92 to 5.91]	150 to 175 [5.91 to 6.89]	175 to 200 [6.89 to 7.87]	200 to 225 [7.87 to 8.86]	225 to 250 [8.86 to 9.84]	0 to 20 [0 to 0.78]	20 to 40 [0.78 to 1.57]	40 to 60 [1.57 to 2.36]	60 to 80 [2.36 to 3.15]	80 to 100 [3.15 to 3.94]	100+ [3.94+]	Welding	Assembly	Checking Fixtures	Machining	Woodworking	Closures	Food Processing	Duty Cycle	Steel	Stainless Steel	Toggle Lock Plus	Accom. Workpiece Variation	U-Bar Version	Solid Arm Version	Straight Base	Flanged Base	Welded	Normal	Harsh/Dirty	
	█							█					○	●	●	●	●	●	○	○	✓		✓			✓	✓	✓	✓		✓		
		█						█	█				○	●	●	●	●	●	○	○	✓		✓			✓	✓	✓	✓		✓		
				█	█			█		█			○	●	●	●	●	○	○	○	○	✓		✓			✓	✓	✓	✓		✓	
█								█	█				●	●	●	○	●	●	○	○	○	✓	✓			✓	✓	✓	✓		✓		
█								█	█		█		●	●	●	○	●	●	○	○	○	✓	✓			✓	✓	✓	✓		✓		
	█	█						█	█	█			●	●	●	●	●	○	○	○	○	✓	✓	✓		✓	✓	✓	✓		✓		
			█	█				█		█		█	○	●	●	●	○	○	○	○	○	✓	✓	✓		✓	✓	✓	✓		✓		
				█				█		█	█		○	●	●	○	○	○	○	○	○	✓	✓	✓		✓	✓	✓	✓		✓		
					█			█		█		█	○	●	●	○	○	○	○	○	○	✓	✓	✓		✓	✓	✓	✓		✓		
						█		█		█		█	○	●	●	○	○	○	○	○	○	✓	✓	✓		✓	✓	✓	✓		✓		
							█	█		█		█	○	●	●	○	○	○	○	○	○	✓	✓	✓		✓	✓	✓	✓		✓		
█								█		█			○	●	○	○	○	○	○	○	○	✓	✓	✓		✓	✓	✓	✓		✓		
	█	█						█		█			○	●	○	○	○	○	○	○	○	✓	✓	✓		✓	✓	✓	✓		✓		
		█	█					█		█			○	●	○	○	○	○	○	○	○	✓	✓	✓		✓	✓	✓	✓		✓		
			█					█		█			○	●	○	○	○	○	○	○	○	✓	✓	✓		✓	✓	✓	✓		✓		

● Excellent/High ○ Fair/Medium ● Poor/Low ⊗ Not Recommended

Series 2002 Product Overview

Features:

- Large hand clearance for improved safety
- Bolt pattern interchangeable with 202 Series
- Three times the holding capacity of 202 Series
- Hardened bushings at key pivot points
- Near vertical clamping contact

Applications:

- Checking fixtures
- Assembly & test
- Light machining
- Woodworking

Also Available:

See page 8.1 for accessories
Accepts M6 or 1/4 spindle accessories

Covered under one or more U.S./International Patents

2002-U
Flanged Base
U-Bar



2002-S
Flanged Base
Solid Bar



2002-UB
Straight Base
U-Bar



2002-SB
Straight Base
Solid Bar



2002-UR
Flanged Base
U-Bar
with
DE-STA-CO®
Toggle Lock
Plus



2002-SR ⓘ
Flanged Base
Solid Bar
with
DE-STA-CO®
Toggle Lock
Plus



2002-UBR
Straight Base
U-Bar
with
DE-STA-CO®
Toggle Lock
Plus



2002-SBR ⓘ
Straight Base
Solid Bar
with
DE-STA-CO®
Toggle Lock
Plus



2002-U207
Flanged Base
U-Bar
Interchangeable
with 207 Series



2002-UR207
Flanged Base
U-Bar
Interchangeable
with 207 Series,
DE-STA-CO®
Toggle
Lock Plus



Note:
Clamps shown with included accessories. To order without spindle, add (-LS) to the end of model (Ex: 2002-U-LS)

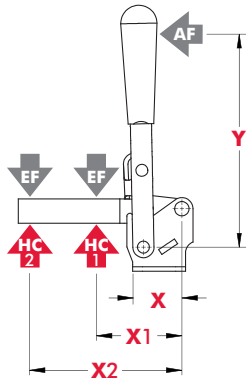
Series 2002 Technical Information

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight	Accessories (Supplied)		
					Bolt Retainer	Spindle Assembly	Flanged Washers
2002-U	2700 N [600 lbf]	75°	66°	0,22kg [0.48lb]	---	215208-M	215105
2002-S					2002115-E	---	---
2002-UB					---	215208-M	215105
2002-SB					2002115-E	---	---
2002-UR		---	215208-M	215105			
2002-SR ⓘ		2002115-E	---	---			
2002-UBR		---	215208-M	215105			
2002-SBR ⓘ		2002115-E	---	---			
2002-U207		90°	72°	0,26kg [0.57lb]	---	215208-M	215105
2002-UR207		75°	57°		---	215208-M	215105

ⓘ This item is available upon request



Series 2002 Holding Capacities

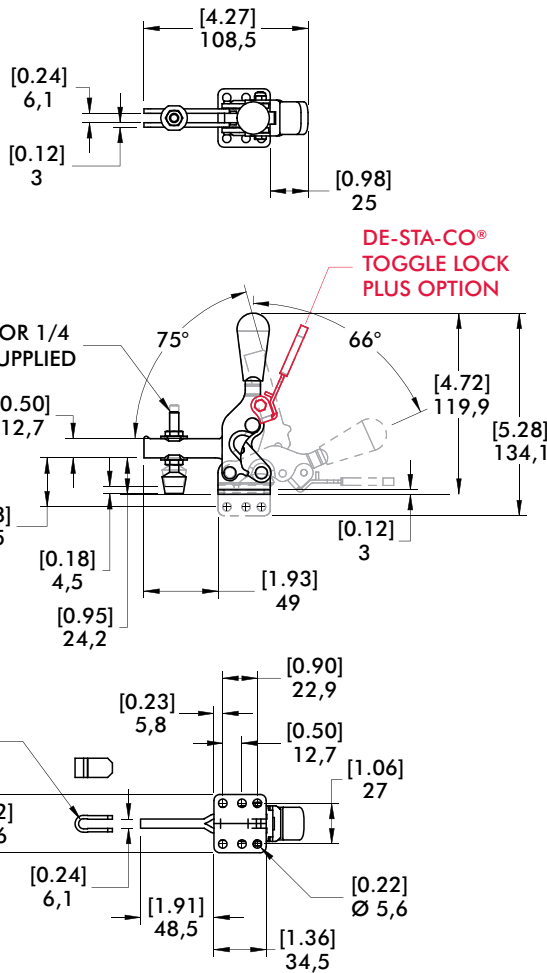


Model	X	X1	X2	Y	±HC1	±HC2	±EF(X1):AF	±EF(X2):AF
2002-()	[1.12] 28,5	[1.45] 37	[2.64] 67	[3.66] 93	[600 lbf] 2700N	[295 lbf] 1310N	11:1	5:1

Dimensions shown "mm [inch]" ± HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Refer to page 20.5 for additional information.

Series 2002 Standard Clamp Dimensions
-U/-S/-UB/-SB/-UR/-SR/-UBR/-SBR

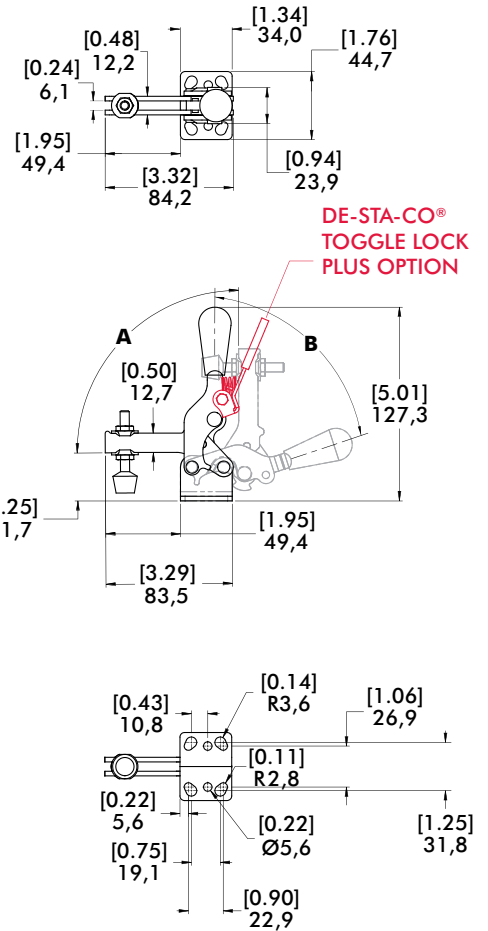
2002-U
Flanged Base
U-Bar



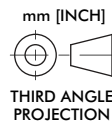
2002-SB
Straight Base
Solid Bar



2002-U207/2002-UR207
with interchangeable Series 207
Mounting Pattern



Model	A	B
2002-U--207	90°	72°
2002-UR207	75°	57°



Series 2007 Product Overview

Features:

- Large hand clearance for improved safety
- Bolt pattern interchangeable with 207 Series
- Over two times the holding capacity of 207 Series
- Hardened bushings at key pivot points
- Near vertical clamping contact

Applications:

- Checking fixtures
- Assembly & test
- Light machining
- Woodworking

Also Available:

See page 8.1 for accessories
Accepts M8 or 5/16 spindle accessories

Covered under one or more U.S./International Patents

2007-U
Flanged Base
U-Bar



2007-S
Flanged Base
Solid Bar



2007-UB
Straight Base
U-Bar



2007-SB
Straight Base
Solid Bar



2007-UR
Flanged Base
U-Bar
with
DE-STA-CO®
Toggle Lock
Plus



2007-SR ⓘ
Flanged Base
Solid Bar
with
DE-STA-CO®
Toggle Lock
Plus



2007-UBR
Straight Base
U-Bar
with
DE-STA-CO®
Toggle Lock
Plus



2007-SBR ⓘ
Straight Base
Solid Bar
with
DE-STA-CO®
Toggle Lock
Plus



Note:
Clamps shown with included accessories. To order without spindle, add (-LS) to the end of model (Ex: 2007-U-LS)

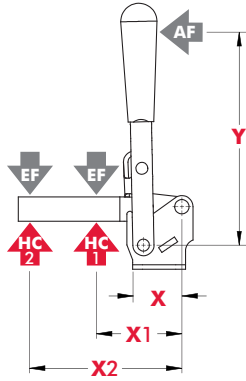
Series 2007 Technical Information

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight	Accessories (Supplied)		
					Bolt Retainer	Spindle Assembly	Flanged Washers
2007-U	4450 N [1000 lbf]	76°	64°	0,54kg [1.20lbs]	---	2007208-M	507107
2007-S					2007115-E	---	
2007-UB					---	2007208-M	507107
2007-SB					2007115-E	---	
2007-UR					---	2007208-M	507107
2007-SR ⓘ					2007115-E	---	
2007-UBR					---	2007208-M	507107
2007-SBR ⓘ					2007115-E	---	

ⓘ This item is available upon request



Series 2007 Holding Capacities

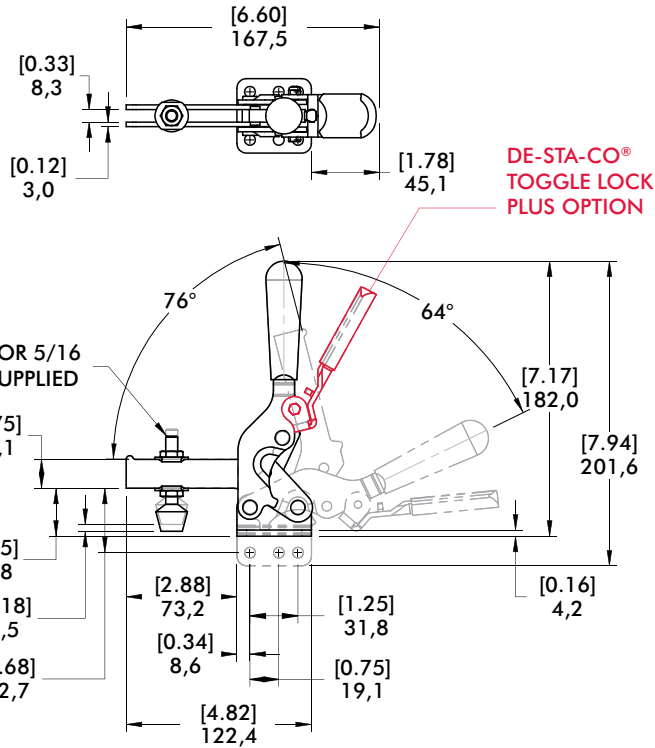
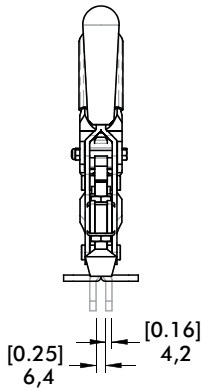


Model	X	X1	X2	Y	±HC1	±HC2	±EF(X1):AF	±EF(X2):AF
2007-()	[1.59] 40,5	[1.95] 49,5	[3.92] 99,5	[5.16] 131	[1000lbf.] 4450N	[470lbf.] 2090N	10:1	5.3:1

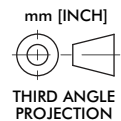
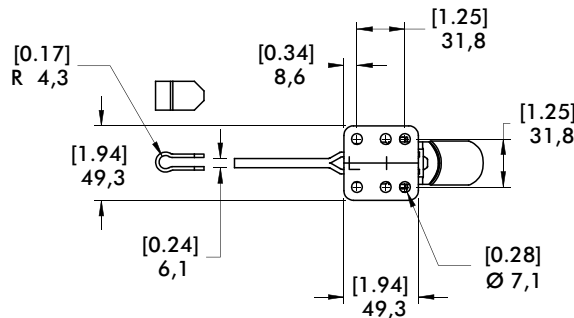
Dimensions shown "mm [inch]" ± HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Refer to page 20.5 for additional information.

Series 2007 Standard Clamp Dimensions
-U/-S/-UB/-SB/-UR/-SR/-UBR/-SBR

2007-U
Flanged Base
U-Bar



2007-SB
Straight Base
Solid Bar



Series 2010 Product Overview

Features:

- Large hand clearance for improved safety
- Bolt pattern interchangeable with 210 Series
- Over two times the holding capacity of 210 Series
- Hardened bushings at key pivot points
- Near vertical clamping contact

Applications:

- Checking fixtures
- Assembly & test
- Light machining
- Woodworking

Also Available:

See page 8.1 for accessories
Accepts M10 or 3/8 spindle accessories

Covered under one or more U.S./International Patents

2010-U
Flanged Base
U-Bar



2010-S
Flanged Base
Solid Bar



2010-UB
Straight Base
U-Bar



2010-SB
Straight Base
Solid Bar



2010-UR
Flanged Base
U-Bar
with DE-STA-CO®
Toggle Lock Plus



2010-SR ⓘ
Flanged Base
Solid Bar
with DE-STA-CO®
Toggle Lock Plus



2010-UBR
Straight Base
U-Bar
with DE-STA-CO®
Toggle Lock Plus



2010-SBR ⓘ
Straight Base
Solid Bar
with DE-STA-CO®
Toggle Lock Plus



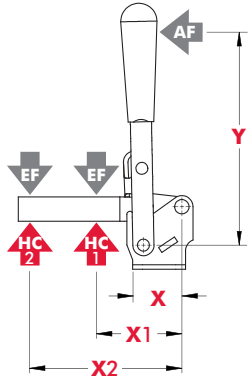
Note:
Clamps shown with included accessories. To order without spindle, add (-LS) to the end of model (Ex: 2010-U-LS)

Series 2010 Technical Information

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight	Accessories (Supplied)		
					Bolt Retainer	Spindle Assembly	Flanged Washers
2010-U	6230 N [1400 lbf]	78°	66°	1,16kg [2.56lbs]	---	240208-M	235106
2010-S					2010115-E	---	
2010-UB					---	240208-M	235106
2010-SB					2010115-E	---	
2010-UR					---	240208-M	235106
2010-SR ⓘ					2010115-E	---	
2010-UBR					---	240208-M	235106
2010-SBR ⓘ					2010115-E	---	

ⓘ This item is available upon request

Series 2010 Holding Capacities

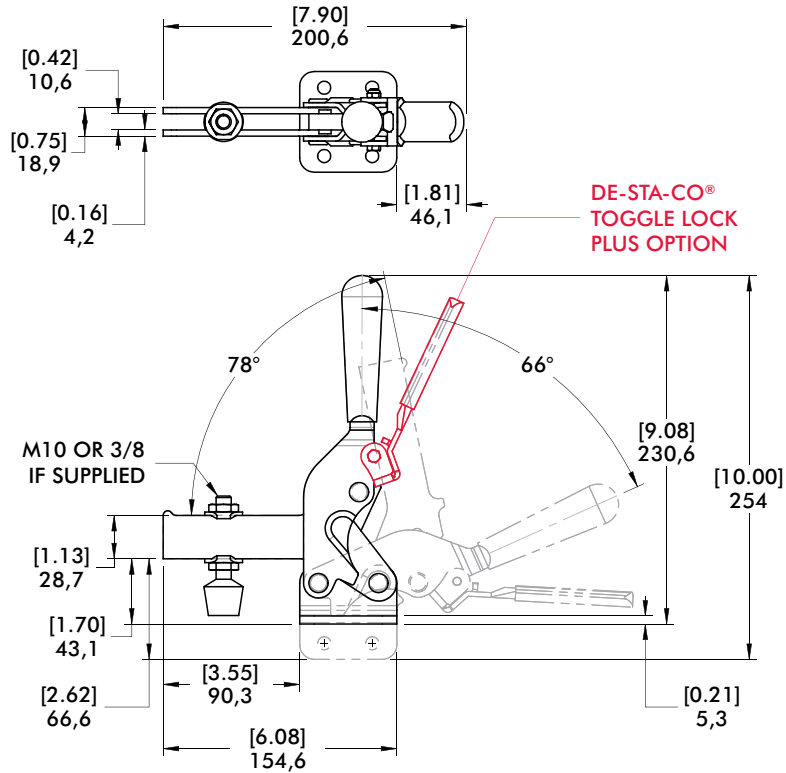
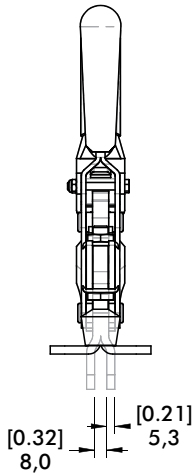


Model	X	X1	X2	Y	±HC1	±HC2	±EF(X1):AF	±EF(X2):AF
2010-()	[2.04] 51,8	[2.44] 62	[4.88] 124	[7.00] 178	[1400lbf.] 6230N	[720lbf.] 3200N	13:1	6:1

Dimensions shown "mm [inch]" ± HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Refer to page 20.5 for additional information.

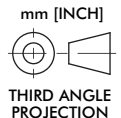
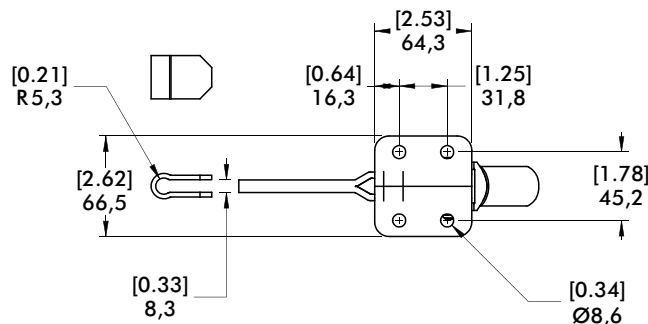
Series 2010 Standard Clamp Dimensions -U/-S/-UB/-SB/-UR/-SR/-UBR/-SBR

2010-U
Flanged Base
U-Bar



DE-STA-CO®
TOGGLE LOCK
PLUS OPTION

2010-SB
Straight Base
Solid Bar



Series 201 Product Overview

Features:

- Smallest series in the Vertical Handle series
- Stainless steel version available

Applications:

- Checking fixtures
- Assembly & test
- Woodworking

Also Available:

See page 8.1 for accessories

812-U Pneumatic Toggle Clamp
(See page 10.3)

201-U[†]
Flanged Base
U-Bar



201-UB[†]
Straight Base



201-TU
Straight
Base, U-Bar,
T-Handle



201-USS
Flanged Base
U-Bar, Stainless
Steel

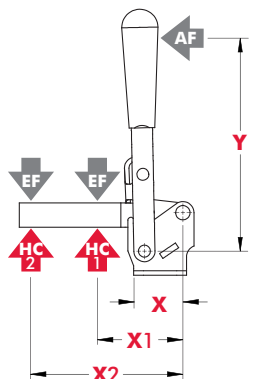


Note:
Clamps shown with included accessories. [†]To order without spindle, add (-LS) to the end of model (Ex: 201-U-LS)

Series 201 Technical Information

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight	Accessories (Supplied)	
					Spindle Assembly	Flanged Washers
201-U	440 N [100 lbf]	100°	55°	0,70kg [0.15lbs]	305208-M	102111
201-UB						
201-TU	560 N [125 lbf]				201943	102911
201-USS						

Series 201 Holding Capacities

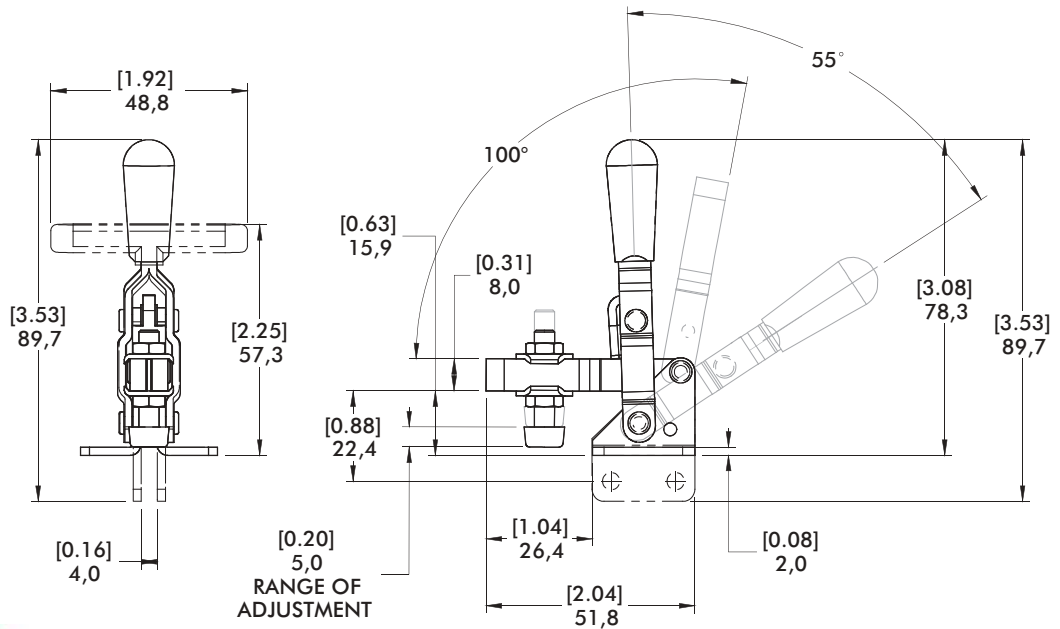
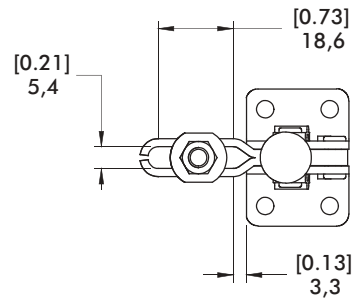


Model	X	X1	X2	Y	‡HC1	‡HC2	‡EF(X1):AF	‡EF(X2):AF
U/UB				[2.25] 57	[100lbf.] 440N	[55lbf.] 245N	9:1	6:1
TU	[0.87] 22	[1.06] 27	[1.75] 44,5	[1.38] 35			8.4:1	4:4:1
USS				[1.38] 57	[125lbf.] 560N	[60lbf.] 270N	9:1	6:1

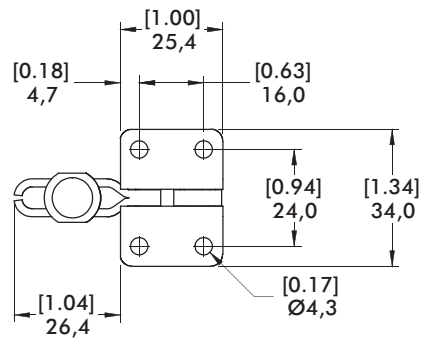
Dimensions shown "mm [inch]" ‡ HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Refer to page 20.5 for additional information.

Series 201 Standard Clamp Dimensions
-U/-UB/-TU/-USS

201-U⁺
Flanged Base
U-Bar



201-UB⁺
Straight Base



mm [INCH]
THIRD ANGLE PROJECTION

Series 202 Product Overview

Features:

- Two bar styles available
- Low profile T-Handle version available
- Available in stainless steel
- Accommodates M6 or 1/4" spindle accessories

Applications:

- Checking fixtures
- Assembly & test
- Light machining
- Woodworking

Also Available:

See page 8.1 for accessories

802-U Pneumatic Toggle Clamp
(See page 10.5)

202-U[†]
Flanged Base
U-Bar



202-UL
Flanged Base
Long U-Bar



202-USS
Flanged Base
U-bar, Stainless
Steel



202
Flange Base
Solid Bar



202-SS
Flanged Base
Solid Bar
Stainless Steel



202-UB[†]
Straight Base
U-bar



202-B
Straight Base
Solid Bar



202-TU
Flanged Base
U-bar,
T-Handle



202-T
Flanged Base
Solid Bar
T-Handle



202-U-L[Ⓢ]
Flanged Base
Open U-Bar



202-UB-L[Ⓢ]
Straight Base
Open U-Bar



Note:
Clamps shown with included accessories. [†]To order without spindle, add (-LS) to the end of model (Ex: 202-U-LS)

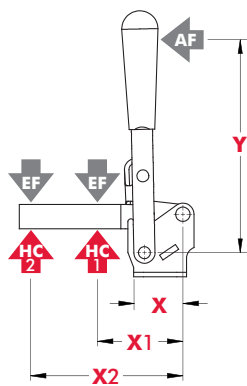


Series 202 Technical Information

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight	Accessories (Supplied)	
					Spindle Assembly	Flanged Washers
202-U	890 N [200 lbf]	105°	65°	0,16kg [0.35lbs]	202208-M	215105
202-UL					202943	215905
202-USS	1110 N [250 lbf]			202208-M	---	
202	890 N [200 lbf]			202943	---	
202-SS	1110 N [250 lbf]			0,16kg [0.35lbs]	202208-M	215105
202-UB				0,15kg [0.33lbs]		
202-B				0,17kg [0.38lbs]		
202-TU	890 N [200 lbf]					
202-T				0,16kg [0.35lbs]	---	---
202-U-L ⓘ						
202-UB-L ⓘ						

ⓘ This item is available upon request

Series 202 Holding Capacities



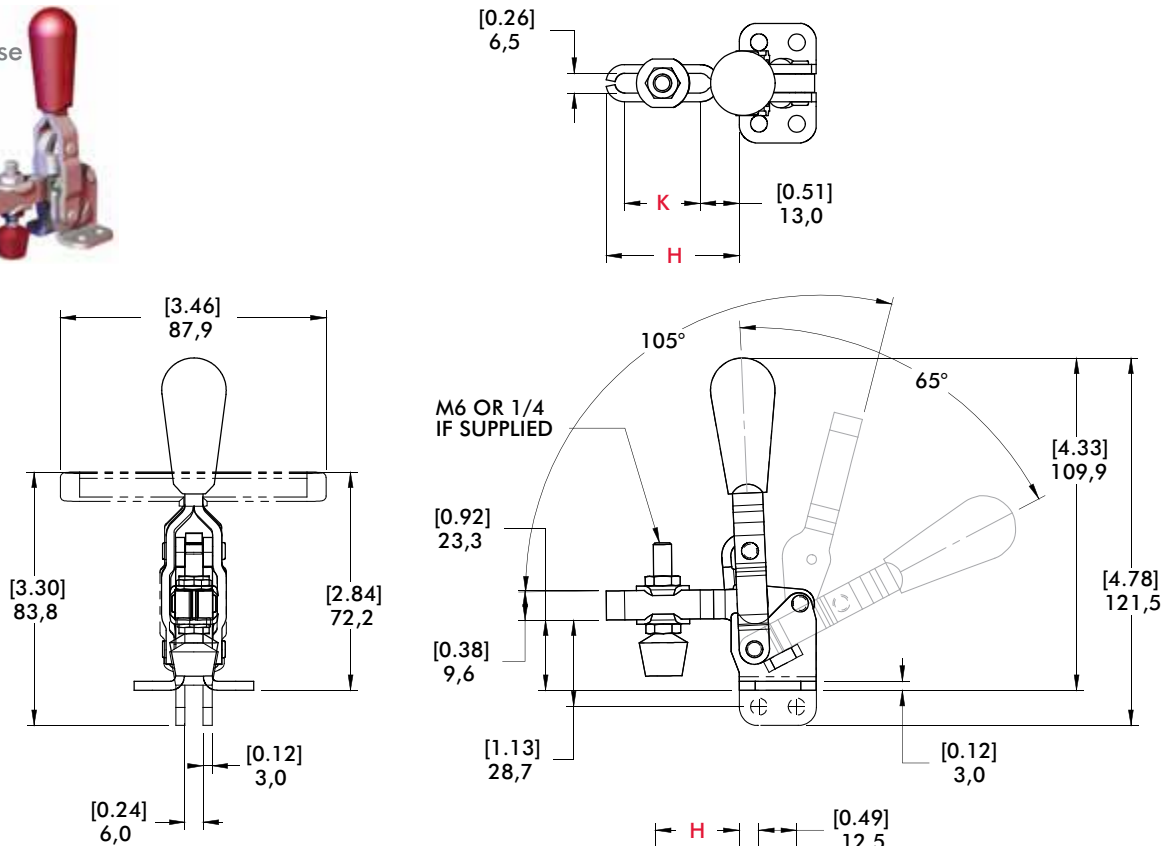
Model	X	X1	X2	Y	‡HC1	‡HC2	‡EF(X1):AF	‡EF(X2):AF
202-U			[2.25] 57	[3.42]	[200 lbf] 890N	[140 lbf] 625N		5:1
202-UL		[1.25] 32	[2.88] 73	87	890N	[150 lbf] 670N	10:1	4:1
202-USS			[2.25] 57	[3.00] 76	[250 lbf] 1110N	[250 lbf] 1110N		5:1
202			[1.88] 48	[3.42] 87	---	[200 lbf] 890N	---	8:1
202-SS				[3.00] 76	---	[250 lbf] 1110N	---	
202-UB	[0.79] 20	[1.25] 32	[2.25] 57	[3.42]	[200 lbf] 890N	[140 lbf] 625N	10:1	5:1
202-B			[1.88] 48	87	---	[200 lbf] 890N	---	8:1
202-TU		[1.25] 32	[2.25] 57	[2.13]	[200 lbf] 890N	[140 lbf] 625N	11:1	7:1
202-T			[1.88] 48	54	---	[200 lbf] 890N	---	6:1
202-U-L ⓘ		[1.25] 32	[2.25] 57	[3.42]	[200 lbf] 890N	[140 lbf] 625N	10:1	5:1
202-UB-L ⓘ								

Dimensions shown "mm [inch]" ‡ HC = Holding Capacity, EF = Exerting Force, AF = Applied Force

ⓘ This item is available upon request

Series 202 Standard Clamp Dimensions
202/-U/-UL/-USS/-SS/-UB/-B/-TU/-T

202-U[†]
Flanged Base
U-Bar

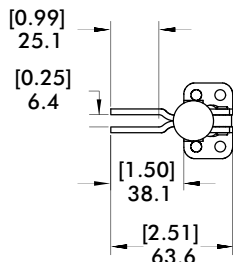


Series 202 Open Bar

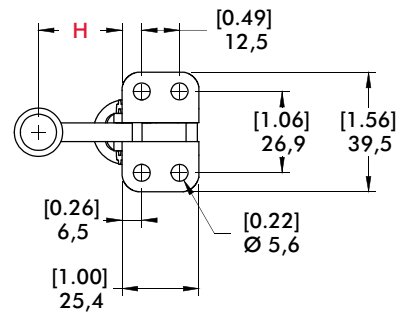
Flanged Base
Model
202-U-L ⓘ



See page (8.7) for Complete offering of Open bar accessories



Straight Base
Model
202-UB-L ⓘ



mm [INCH]
THIRD ANGLE PROJECTION

Bar Style	Clamp Models	H	K
	202-U/202-UB/ 202-USS/202-TU	[1.73] 44,1	[0.98] 25
	202-UL ⓘ	[2.29] 58,1	[1.51] 38,4
	202/202-B/ 202-T/202-SS	[1.31] 33,3	---
	202-U-L ⓘ/ 202-UB-L ⓘ	[1.50] 38,1	---

ⓘ This item is available upon request

Application Areas

Clamping during the assembling, drilling, testing, gluing, locking of covers and much more. The vertical clamp is the most frequently used product whenever clamping products are to be integrated with a manual fixture.

The essential product features

- In the clamping position, the handle is vertical
- Vertical clamps open at an angle between 75° and 215°
- Vertical clamps are offered with U-shaped or heavy-duty solid clamping bars
- Vertical clamps have a straight or flanged base.
The heavy-duty vertical clamps possess a base that can be welded on without a hole pattern



Series 207 Product Overview

Features:

- Largest selection of arm and mounting options
- Low profile T-Handle version available
- Available in stainless steel

Applications:

- Checking fixtures
- Assembly & test
- Light machining
- Woodworking

Also Available:

See page 8.1 for accessories

807-U Pneumatic toggle clamp
(See page 10.7)

807-S Pneumatic toggle clamp
(See page 10.7)

Accepts M8 or 5/16 spindle accessories

207-U[†]
Flanged Base
U-Bar



207-UL
Flanged Base
Long U-Bar



207-USS
Stainless
Flanged Base
U-Bar



207-S
Flanged Base
Solid Bar



207-L
Flanged Base
Long Solid Bar



207-TU
Flanged Base
T-Handle
U-Bar



207-TUL
Flanged Base
T-Handle
Long U-Bar



207-UR[†]
Flanged Base
U-Bar
with
DE-STA-CO[®]
Toggle Lock
Plus



207-LR
Flanged Base
Long Solid Bar
with
DE-STA-CO[®]
Toggle Lock
Plus



207-UB[†]
Straight Base
U-Bar



207-ULB[†]
Straight Base
Long U-Bar



207-SB
Straight Base
Solid Bar



207-LB
Straight Base
Long Solid
Bar



207-LBR[†]
Straight Base
Long Solid
Bar with
DE-STA-CO[®]
Toggle Lock
Plus



207-UF[†]
U-Bar
Dual Mount



207-SF[†]
Solid Bar
Dual Mount



207-U-L[†]
Flange Base
Open Bar



207-UB-L[†]
Straight Base
Open Bar



Note:

Clamps shown with included accessories

[†]To order without spindle, add (-LS) to the end of model

(Ex: 207-UB-LS)

[†] This item is available upon request

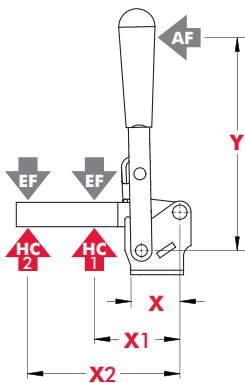


Series 207 Technical Information

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight	Accessories (Supplied)								
					Bolt Retainer	Spindle Assembly	Flanged Washers						
207-U	1670 N [375 lbf]	99°	57°	0,30kg [0.67lb]	---	225208-M	507107						
207-UR				0,45kg [1.00lb]									
207-UL				0,30kg [.67lb]									
207-USS	2000 N [450 lbf]			---	---	0,32kg [0.70lb]	---	507907					
207-S	2220 N [500 lbf]			99°	57°	0,31kg [0.69lb]	207105	---	---				
207-L						0,34kg [0.74lb]							
207-LR						0,45kg [1.00lb]							
207-UB	1670 N [375 lbf]					99°	57°	0,33kg [0.72lb]	---	225208-M	507107		
207-ULB								0,31kg [0.69lb]					
207-SB								0,34kg [0.75lb]					
207-LB	2220 N [500 lbf]							---	---	0,45kg [1.00lb]	207105	---	---
207-LBR ⓘ	1670 N [375 lbf]							99°	57°	0,33kg [0.72lb]	---	---	507107
207-TU		0,31kg [0.69lb]											
207-TUL		0,34kg [0.75lb]											
207-UF ⓘ	1670 N [375 lbf]	96°	56°							0,43kg [0.94lb]	---	225208-M	507107
207-SF ⓘ	2220 N [500 lbf]	90°	57°							0,38kg [0.84lb]	207105	---	---
207-U-L ⓘ	1670 N [375 lbf]	99°	57°	0,38kg [0.84lb]	---					---	---		
207-UB-L ⓘ													

ⓘ This item is available upon request

Series 207 Holding Capacities

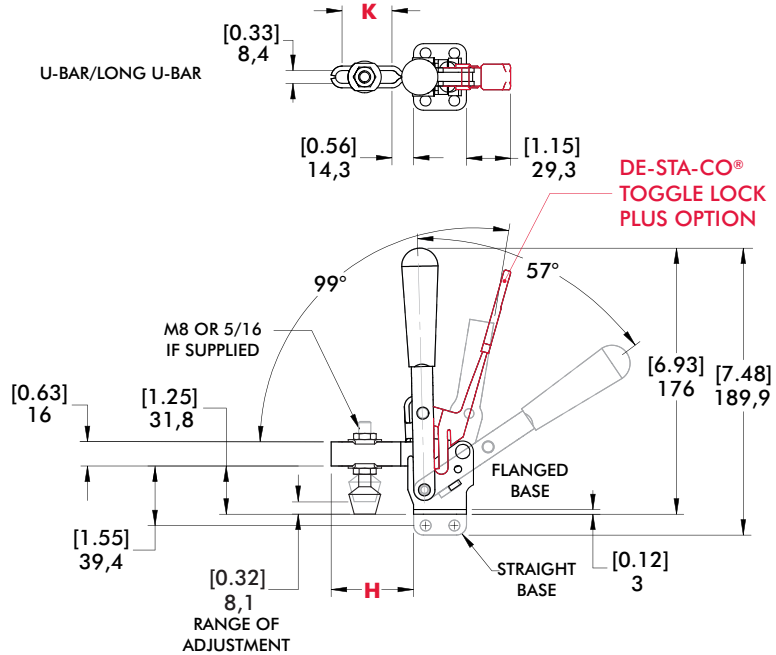
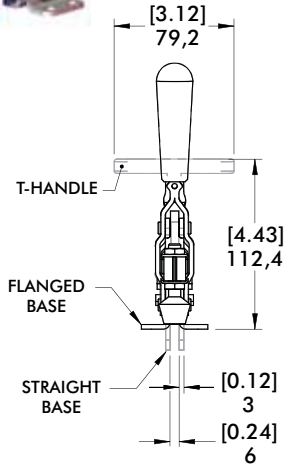


Model	X	X1	X2	Y	±HC1	±HC2	±EF(X1):AF	±EF(X2):AF
U/UB/UR		[2.00] 50,8	[3.75] 95,3		[375 lbf] 1670N	[225 lbf] 1000N	12:1	6:1
UL/ULB		[3.88] 98,5	[5.00] 127			[150 lbf] 670N	7:1	4:1
USS		[2.00] 50,8	[3.75] 95,3	[4.90] 124,5	[450 lbf] 2000N	[1070 lbf] 240N		5:1
S/SB		[2.88] 73,0	[5.00] 127		[500 lbf] 2220N	[350 lbf] 1560N	10:1	7:1
L/LR LB/LBR	[1.28] 32,6	[2.88] 73,0	[5.00] 127					5:1
TU		[2.00] 50,8	[3.75] 95,3	[3.66] 9	[375 lbf] 1670N	[225 lbf] 1000N	6:1	4:1
TUL		[3.88] 98,5	[5.00] 127			[150 lbf] 670N	4:1	3:1
U-L		[2.00] 50,8	[3.75] 95,3	[4.90] 124,5	[375 lbf] 1670N	[2225 lbf] 1000N	12:1	6:1
UB-L								

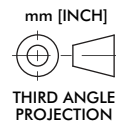
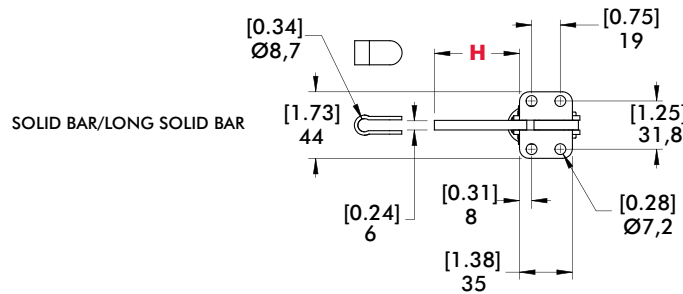
Dimensions shown "mm [inch]" ± HC = Holding Capacity, EF = Exerting Force, AF = Applied Force

Series 207 Standard Clamp Dimensions
 -U/-UL/-S/-L/-TU/-TUL/-UR/-LR/-UB/-ULB/-SB/-LB/-LBR

207-U^t
 Flanged Base
 U-Bar



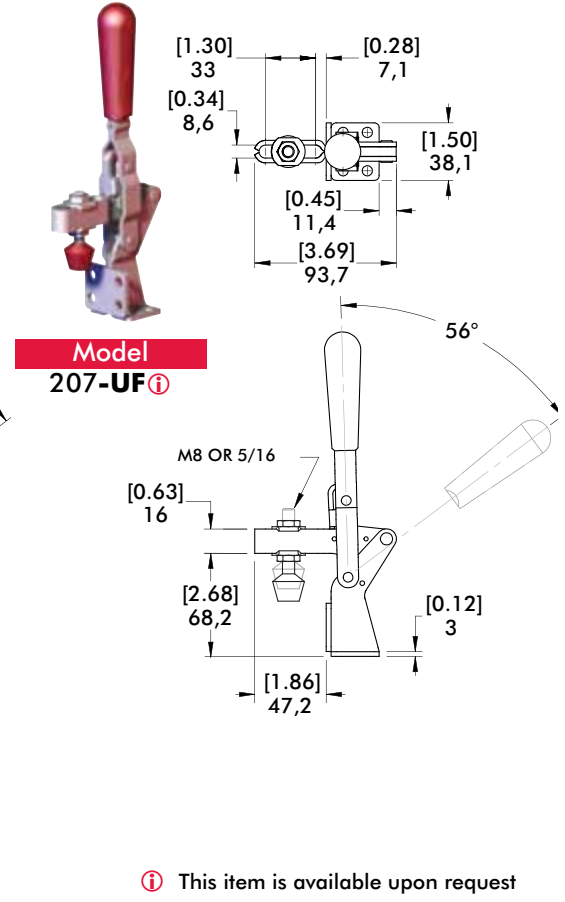
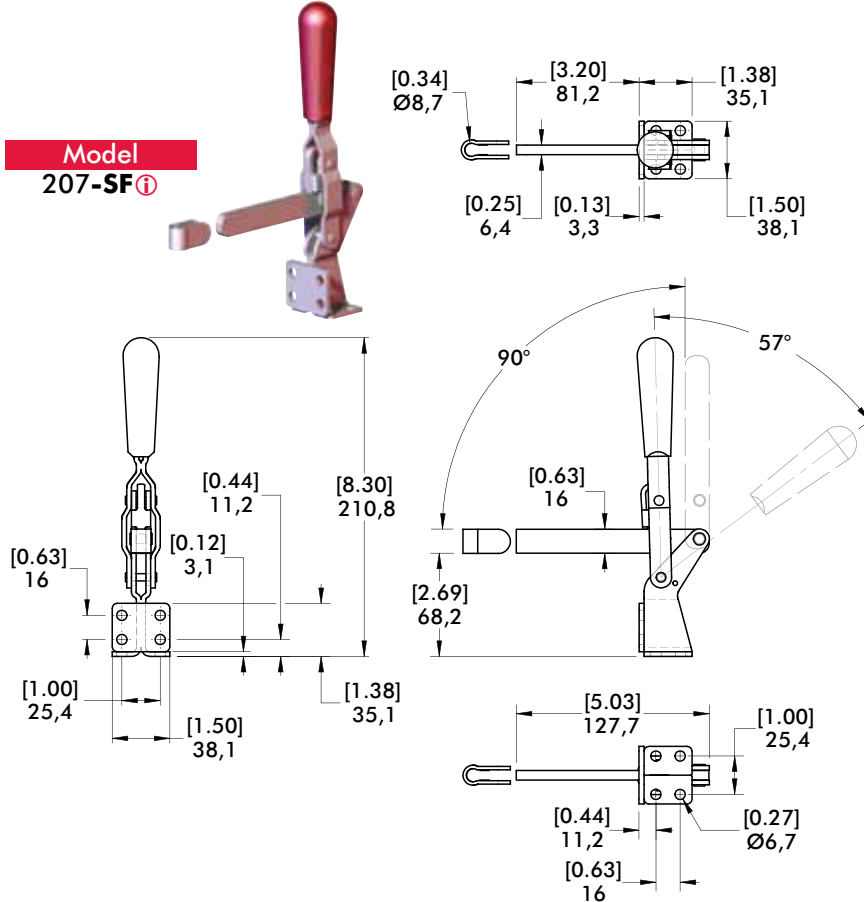
207-SB
 Straight Base
 Solid Bar



Bar Style	Clamp Models	H	K
	207-U/207-UR/207-TU/207-UB	[2.14] 54,4	[1.30] 33
	207-UL/207-ULB/207-TUL	[3.84] 97,6	[2.94] 74,6
	207-S/207-SB/207-TS	[2.21] 56,2	---
	207-L/207-LR/207-LB/207-LBR ⓘ	[3.48] 88,4	---

ⓘ This item is available upon request

Series 207 Standard Clamp Dimensions - Dual Mount

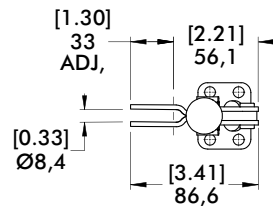


ⓘ This item is available upon request

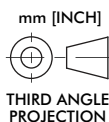
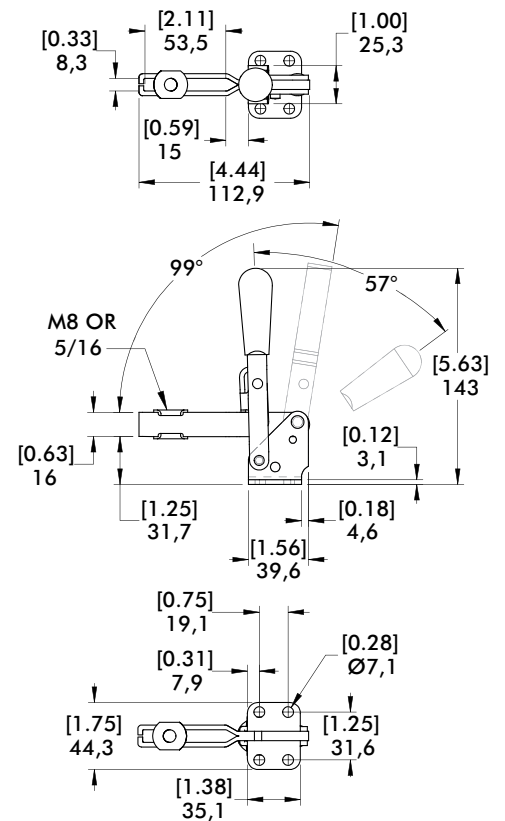
Series 207 Open Bar

207-USS Stainless Steel

See page 8.7 for Complete offering of Open bar accessories



Model 207-USS



Series 210 Product Overview

Features:

- DE-STA-CO® Toggle Lock Plus versions available
- Available in stainless steel
- Accommodates M10 or 3/8 spindle accessories

Applications:

- Assembly & test
- Light machining
- Light welding

Also Available:

See page 8.1 for accessories
 810-U Pneumatic Toggle Clamp
 (See page 10.9)
 810-S Pneumatic Toggle Clamp
 (See page 10.9)

210-U[†]
 Flanged Base
 U-Bar



210-USS
 Flanged Base
 U-bar, Stainless
 Steel



210-S
 Flanged Base
 Solid Bar



210-UB[†]
 Straight Base
 U-bar



210-SB
 Straight Base,
 Solid Bar



210-UR[†]
 Flanged Base
 U Bar
 with
 DE-STA-CO®
 Toggle Lock
 Plus



210-SR
 Flanged Base
 Solid Bar
 with
 DE-STA-CO®
 Toggle Lock
 Plus



210-UBR[†]Ⓢ
 Straight Base
 U Bar
 with
 DE-STA-CO®
 Toggle Lock
 Plus



210-TU
 Flanged Base
 U Bar,
 T-Handle



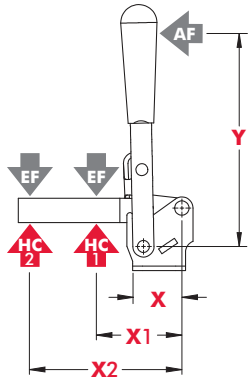
Note:
 Clamps shown with included accessories. [†]To order without spindle, add (-LS) to the end of model (Ex: 210-U-LS)

Series 210 Technical Information

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight	Accessories (Supplied)		
					Bolt Retainer	Spindle Assembly	Flanged Washers
210-U	2670 N [600 lbf]	103°	58°	0,59kg [1.29lbs]	---	240208-M	235106
210-USS	3340 N [750 lbf]				---	237943	235906
210-S					210114	---	---
210-UB	2670 N [600 lbf]			---	240208-M	235106	
210-SB	3340 N [750 lbf]			210114	---	---	
210-UR	2670 N [600 lbf]			---	240208-M	235106	
210-SR	3340 N [750 lbf]			210114	---	---	
210-UBR[†]Ⓢ	2670 N [600 lbf]			---	240208-M	235106	
210-TU				---	---		

Ⓢ This item is available upon request

Series 210 Holding Capacities



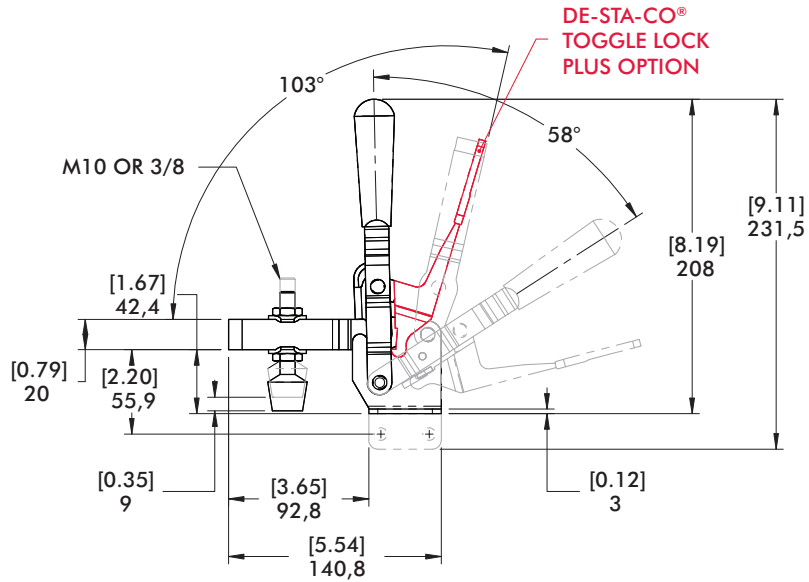
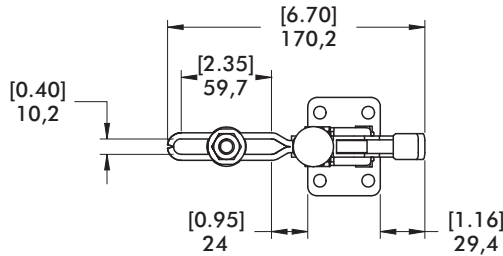
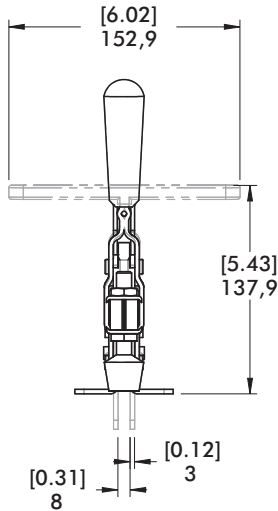
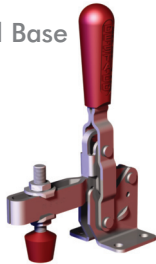
Model	X	X1	X2	Y	±HC1	±HC2	±EF(X1):AF	EF(X2):AF
U/UB/ UR/UBR ⓘ	[1.54] 39	[2.38] 60,5	[4.88] 124	[6.75] 171,5	[600lbf.] 2670N	[290lbf.] 1290N	14:1	7:1
USS		[3.62] 92,0	[5.25] 133	[4.50]	[750lbf.] 3340N	[360lbf.] 1600N		
S/SR/SB		[2.38] 60,5	[4.88] 124	114,5	[600lbf.] 2670N	[290lbf.] 1290N	11:1	9:1
TU		[2.38] 60,5	[4.88] 124		[600lbf.] 2670N	[290lbf.] 1290N		

Dimensions shown "mm [inch]" ± HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Refer to page 20.5 for additional information. ⓘ This item is available upon request

Series 210 Standard Clamp Dimensions
-U/-USS/-S/-UB/-SB/-UR/-SR/-UBR/-TU

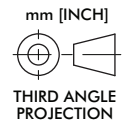
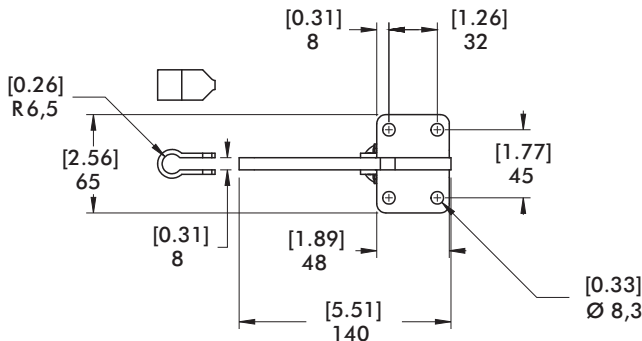
210-U[†]

Flanged Base
U-Bar



210-SR

Flanged Base
Solid Bar
with
DE-STA-CO®
Toggle Lock
Plus



Series 247, 267 Product Overview

Features:

- Hardened steel bushings
- Large bar guides for greater lateral stability on Model 247
- Series 247 accommodates M12 or 1/2 spindle accessory
- Series 267 accommodates M16 or 5/8 spindle accessory

Applications:

- Assembly & test
- Light machining
- Welding

Also Available:

See page 8.1 for accessories
 847-U Pneumatic Toggle Clamp (See page 10.15)
 847-S Pneumatic Toggle Clamp (See page 10.15)

247-U
Flanged Base
U-Bar



247-S
Flanged Base
Solid Bar



247-UB ⓘ
Straight Base
U-Bar



267-U
Flanged Base
U-Bar



267-S ⓘ
Flanged Base
Solid Bar



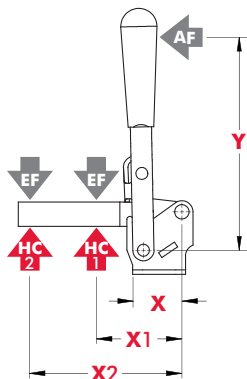
Note:
 Clamps shown with included accessories. To order without spindle, add (-LS) to the end of model (Ex: 247-U-LS)

Series 247, 267 Technical Information

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight	Accessories (Supplied)		
					Bolt Retainer	Spindle Assembly	Flanged Washers
247-U				1,07kg [2.36lbs]	---	247208-M	247109
247-S	4400 N [1000 lbf]	120°	67°	1,08kg [2.36lbs]	210114	---	---
247-UB ⓘ				1,07kg [2.36lbs]	---	247208-M	247109
267-U				2,18kg [4.80lbs]	---	247203-M	267102
267-S ⓘ	5340 N [1200 lbf]	140°	72°	1,98kg [4.36lbs]	110122	---	---

ⓘ This item is available upon request

Series 247 Holding Capacities

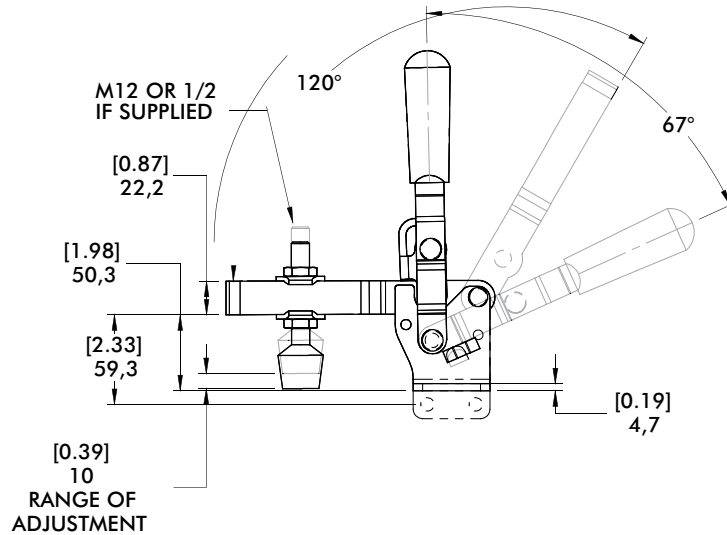
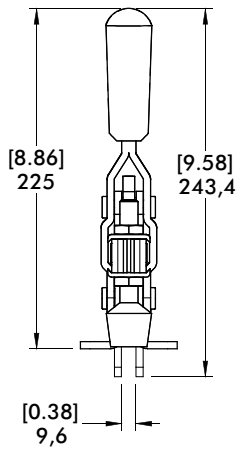
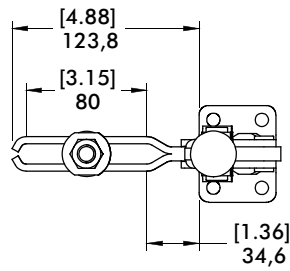


Model	X	X1	X2	Y	‡HC1	‡HC2	‡EF(X1):AF	‡EF(X2):AF
247-U/ 247-UB ⓘ	[1.69]	[3.00] 76,2	[6.13] 155,7	[6.71]	[1000lbf.] 4450N	[480lbf.] 2140N	12:1	6:1
247-S	43	[4.56] 115,8	[7.00] 177,8	170,5		[650lbf.] 2900N	10:1	5:1
267-U	[2.50]	[4.00] 101,6	[8.00] 203,2	[9.25]	[1200lbf.] 5340N	[600lbf.] 2670N	18:1	
267-S ⓘ	63,5	[6.00] 152,4	[8.75] 222,3	235		[820lbf.] 3650N	12:1	8:1

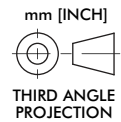
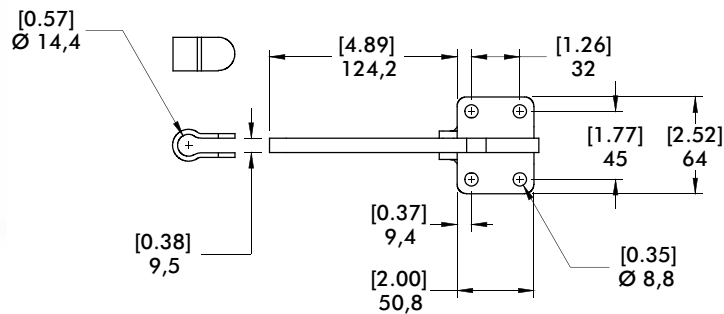
Dimensions shown "mm [inch]" ‡ HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
 Refer to page 20.5 for additional information. ⓘ This item is available upon request

Series 247 Standard Clamp Dimensions
-U/-S/-UB

247-U
Flanged Base
U-Bar

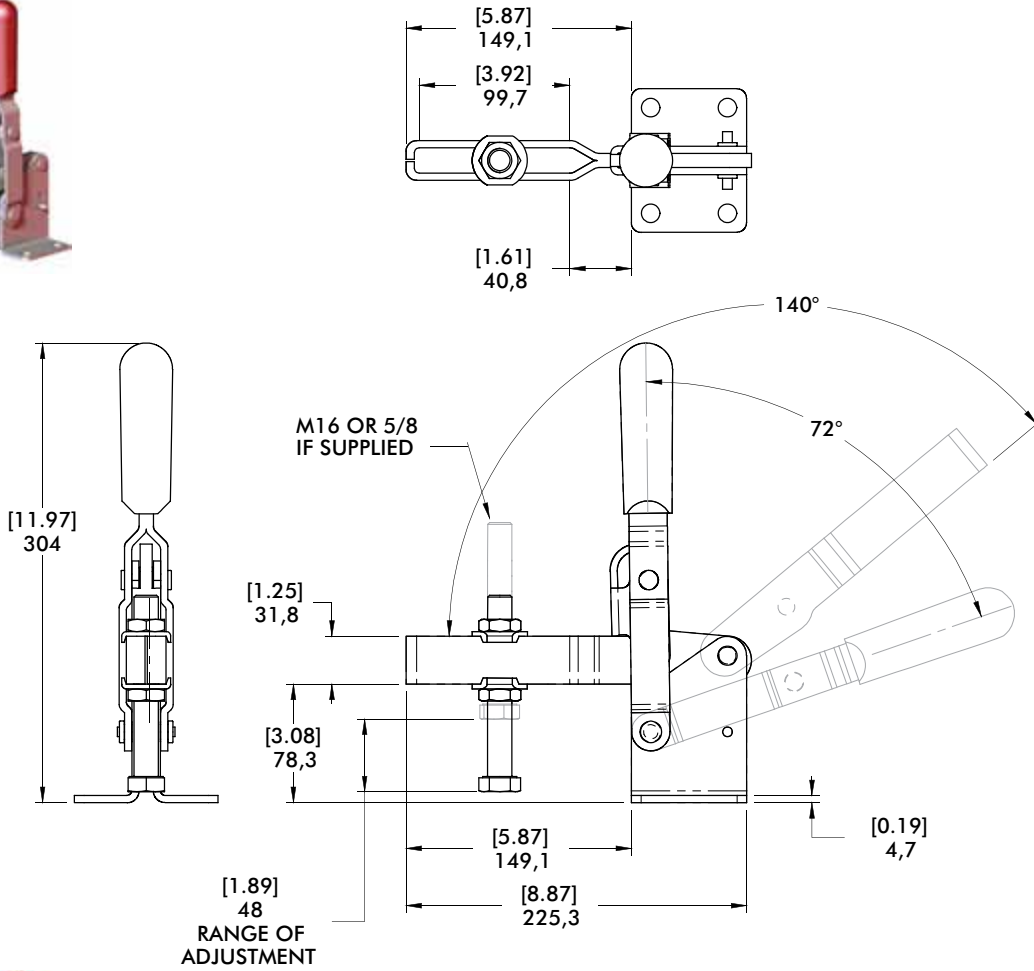


247-S
Flanged Base
Solid Bar

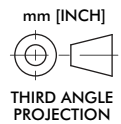
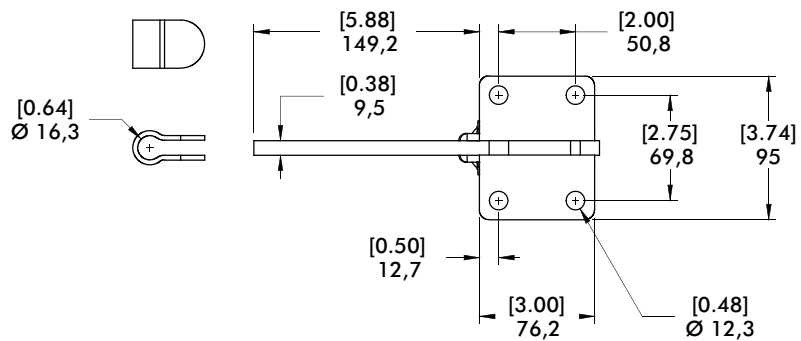


Series 267 Standard Clamp Dimensions
-U/-S

267-U
Flanged Base
U-Bar



267-S
Flanged Base
Solid Bar





Model 210-U
used in an airframe
assembly fixture

Model 210-U
shown being used
in a checking fixture
application.



Model 533-LB
and **227-UB** shown
with black finish in
a fixture for used for
optical inspection.

Series 516 Product Overview

Features:

- Hardened steel pins and bushings strength and long life
- Replaceable pivot pins
- Large, solid clamping arm is easily modified to suit application requirements
- Similar in size to Model 207

Applications:

- Light machining
- Welding
- Molding
- Medium to heavy duty clamping applications

Also Available:

See page 8.1 for accessories
 846 Pneumatic Toggle Clamp
 (See page 10.11)

516
Weldable Base
Solid Bar



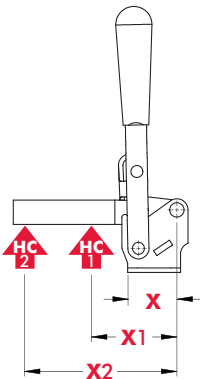
516-B
Flanged Base
Solid Bar



Series 516 Technical Information

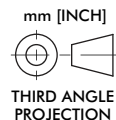
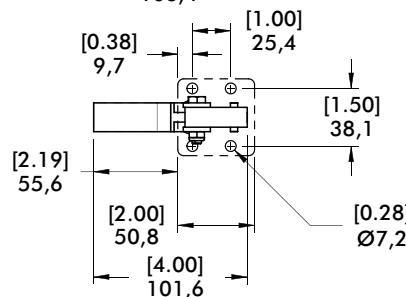
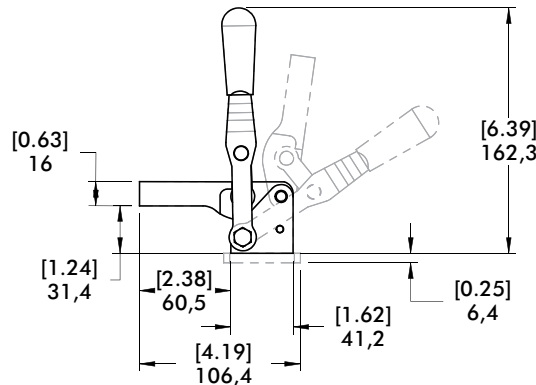
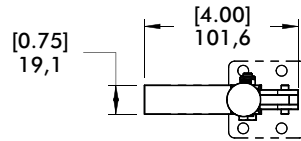
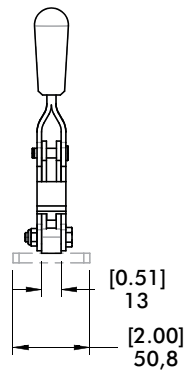
Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight
516	3440 N [750 lbf]	122°	66°	0,57kg [1.25lbs]
516-B				0,77kg [1.69lbs]

Series 516 Holding Capacities, Standard Clamp Dimensions



Model	X	X1	X2	±HC1	±HC2
516/516-B	[1.31] 33	[2.00] 50,8	[3.35] 85	[750lbf.] 3440N	[340lbf.] 1510N

Dimensions shown "mm [inch]" ± HC = Holding Capacity
 Refer to page 20.5 for additional information.





Features:

- Forged clamping arm
- Large clearance under the bar
- Ergonomic safety handle

Applications:

- Assembly & test
- Light machining
- Welding

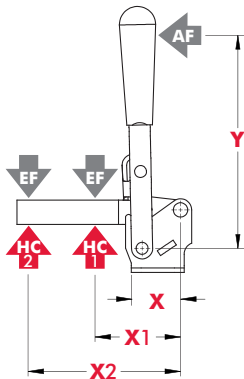
518
Flanged Base
Solid Bar



Series 518 Technical Information

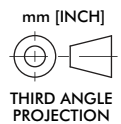
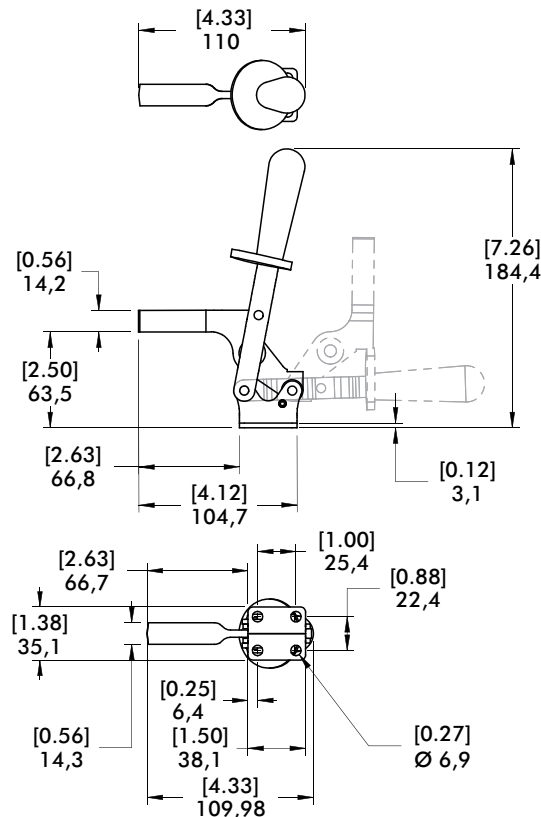
Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight
518	2220 N [500 lbf]	90°	75°	0,37kg [0.82lbs]

Series 518 Holding Capacities, Standard Clamp Dimensions



Model	X	X1	X2	Y	±HC1	±HC2	±EF(X1):AF	±EF(X2):AF
518	[1.38] 35	[2.50] 63,5	[4.00] 101,5	[5.50] 140	[500lbf.] 2220N	[310lbf.] 1380N	14:1	11:1

Dimensions shown "mm [inch]" ± HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Refer to page 20.5 for additional information.



Series 528 Product Overview

Features:

- Hardened steel bushings at pivot points for long life
- Solid bar may be modified to suit application requirements

Applications:

- Assembly & test
- Light machining
- Welding
- Medium to heavy duty clamping requirements

528
Flanged Base
Solid Bar



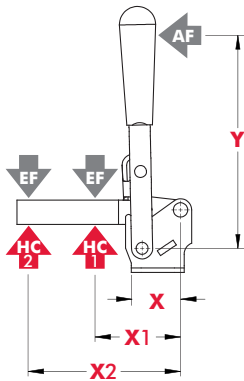
528-F
Front Mount
Base Solid Bar



Series 528 Technical Information

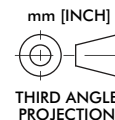
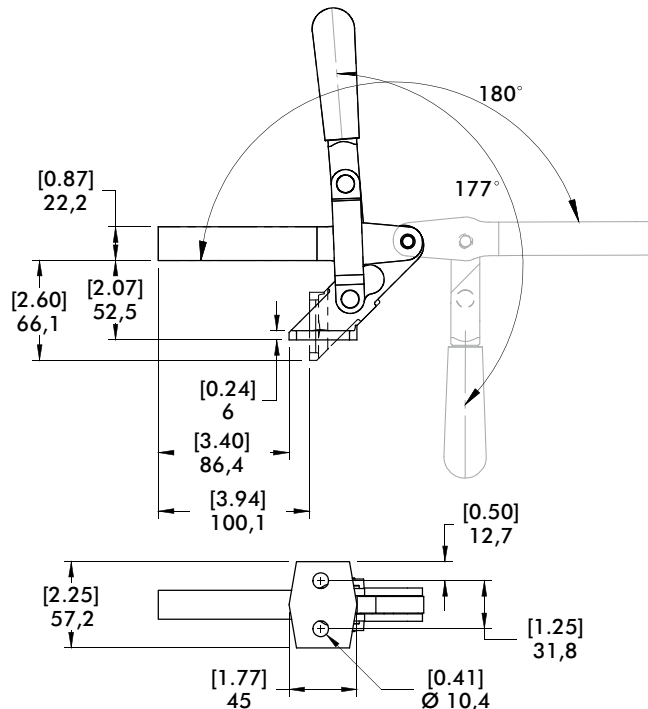
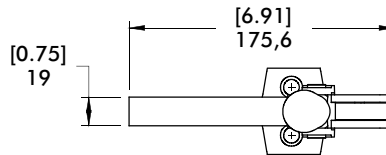
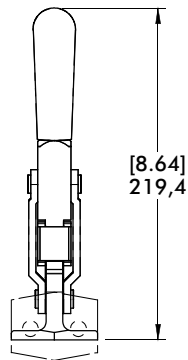
Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight
528	4450 N [1000 lbf]	180°	177°	[2.50lbs] 1,13kg
528-F				

Series 528 Holding Capacities, Standard Clamp Dimensions



Model	X	X1	X2	Y	±HC1	±HC2	±EF(X1):AF	±EF(X2):AF
528	[1.38]	[3.50]	[6.00]	[5.50]	[1000lbf.]	[580lbf.]	23:1	12:1
528-F	35	89	152	140	4450N	2580N		

Dimensions shown "mm [inch]" ±HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Refer to page 20.5 for additional information.





Series 548, 578 Product Overview

Features:

- Large bar guides for lateral stability
- Hardened steel pins and bushings for long life
- Replaceable pins

Applications:

- Assembly & test
- Light machining
- Welding
- Heavy duty clamping requirements

548
Straight Base
Solid Bar



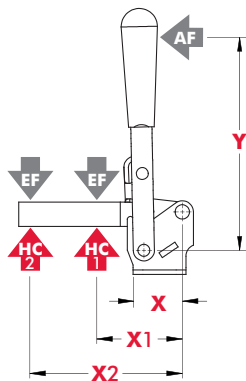
578
Straight Base
Solid Bar



Series 548, 578 Technical Information

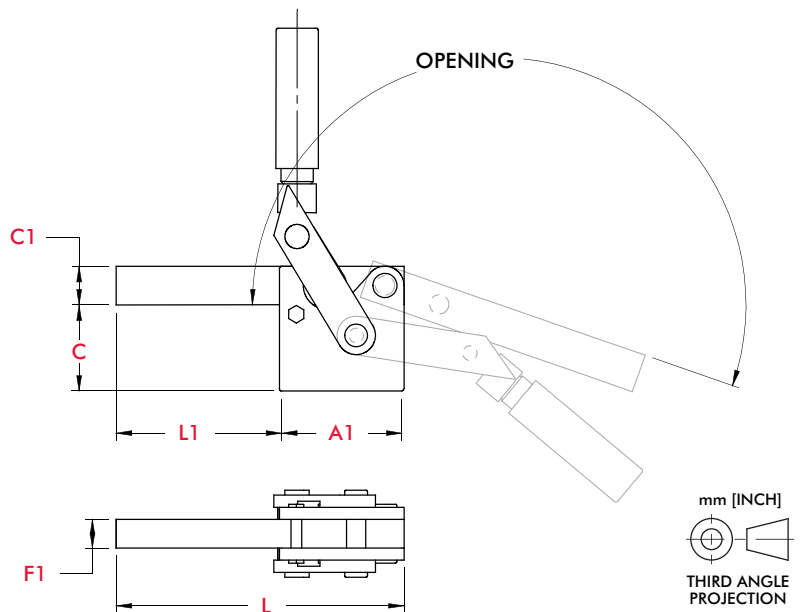
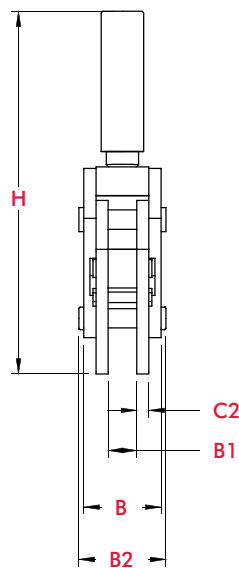
Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight
548	11100N [2500lbf]	199°	129°	2,40kg [5.30lbs]
578	17800N [4000lbf]			4,14kg [9.12lbs]

Series 548, 578 Holding Capacities, Standard Clamp Dimensions



Model	X	X1	X2	Y	±HC1	±HC2	±EF(X1):AF	±EF(X2):AF
548	[2.75] 70	[3.50] 89	[6.00] 152	[7.50] 190	[2500lbf] 11100N	[1500lbf.] 6680N	4.5:1	3.4:1
578	[4.25] 108	[4.50] 114	[7.00] 178	[10.31] 262	[4000lbf] 17800N	[2500lbf.] 11100N	7.6:1	4.2:1

Dimensions shown "mm [inch]" ± HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Refer to page 20.5 for additional information.



Model	A1	B	B1	B2	C	C1	C2	F1	H	L	L1
548	[3.25] 82,6	[2.01] 51	[0.75] 19,1	[2.26] 57,5	[2.24] 56,9	[1.00] 25,4	[0.31] 7,9	[0.75] 19,1	[9.45] 240	[7.50] 190,5	[4.25] 107,9
578	[4.02] 102,1	[2.38] 60,5	[0.87] 22,1	[2.70] 68,6	[2.79] 70,9	[1.26] 32	[0.37] 9,5	[0.87] 22,1	[11.04] 280,3	[8.62] 219	[4.61] 117,1

Series 533, 535 Product Overview

Features:

- Hardened steel bushings and pivot pins
- Large bar guides for greater lateral support
- Solid clamping bar may be modified to suit application requirements

Applications:

- Welding
- Heavy duty clamping applications

Also Available:

See page 8.1 for accessories

533-L
Flanged Base
Solid Bar



533-LB
Straight Base
Solid Bar



535-L
Flanged Base
Solid Bar



535-LB
Straight Base
Solid Bar



Series 533, 535 Technical Information

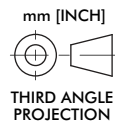
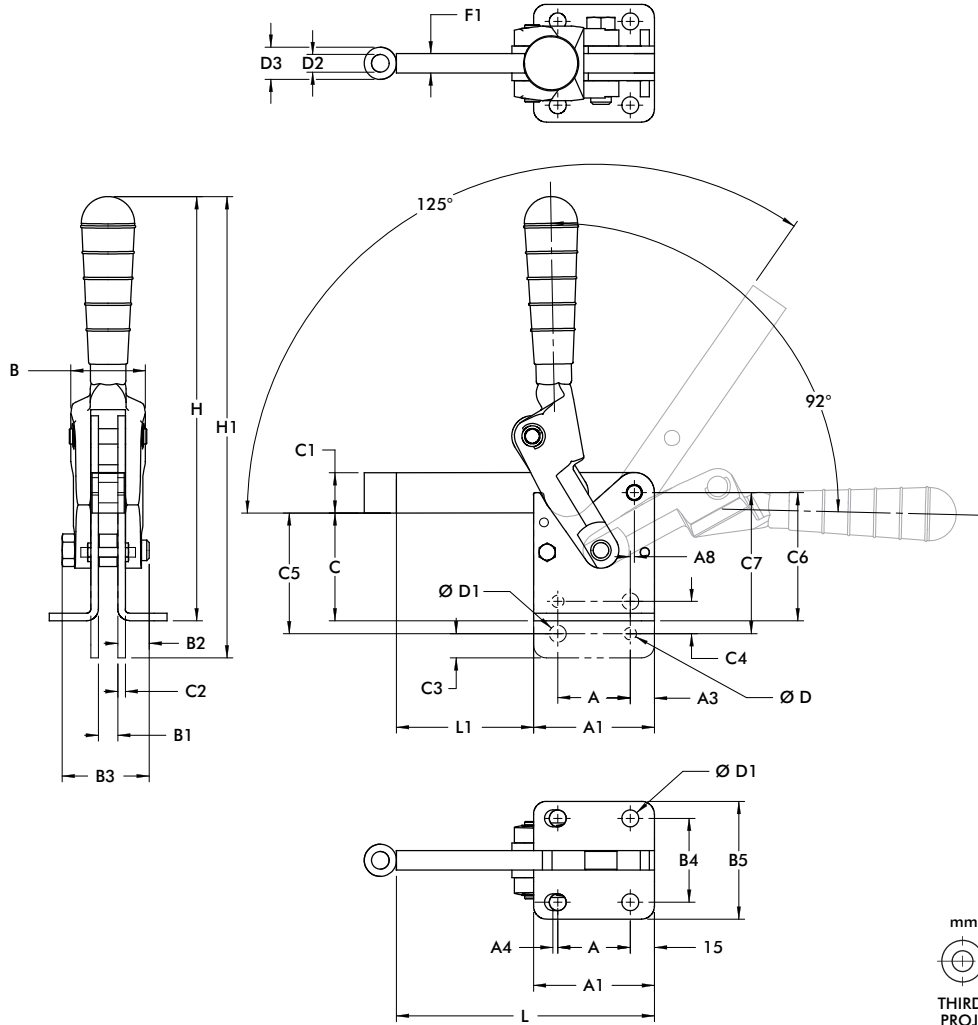
Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight	Accessories (Supplied)
					Bolt Retainer
533-L	7000 N [1575 lbf]	120°	90°	1,00kg [2.20lbs]	533108-M
533-LB					
535-L	10000 N [2250 lbf]			1,85kg [4.087lbs]	535108-M
535-LB					

Series 533, 535 Standard Clamp Dimensions -L/-LB

533-L
Flanged Base
Solid Bar



535-L
Flanged Base
Solid Bar



Model	A	A1	A3	A4	A8	B	B1	B2	B3	B4	B5	C	C1	C2
533-L	[1.18] 30	[2.36] 59,9		[0.08] 2	[0.20] 5,1	[1.52] 38,6	[0.39] 9,9	[0.69] 15,5	[1.75] 44,5	[1.77] 45	[2.44] 62	[1.86] 47,2	[0.79] 20,1	
533-LB			[0.59] 15							--	--	--		[0.19] 4,8
535-L	[1.77] 45	[2.95] 74,9		--	[0.18] 4,6	[1.89] 48	[0.47] 11,9	[0.89] 22,6	[2.13] 54,1	[2.05] 52,1	[2.87] 72,9	[2.63] 66,8	[0.98] 24,9	
535-LB										--	--	--		

Model	C3	C4	C5	C6	C7	D	D1	D2	D3	F1	H	H1	L	L1
533-L	--	--	--	[2.24] 56,9	--	--	[0.33] 8,4	[0.35] 8,9	[0.59] 15	[0.39] 9,9	[8.6] 218,4	--	[4.92] 125	[2.56] 65
533-LB	[0.39] 9,9	[0.59] 15	[1.86] 55,1	--	[2.56] 65	[0.22] 5,6					--	[9.31] 236,5		
535-L	--	--	--	[3.13] 79,5	--	--	[0.41] 10,4	[0.43] 10,9	[0.79] 20,1	[0.47] 11,9	[10.35] 262,9	--	[6.30] 160	[3.35] 85,1
535-LB	[0.59] 15	[0.79] 20,1	[2.95] 74,9	--	[3.44] 87,4	[0.30] 7,6					--	[11.26] 286		

Series 558 Product Overview

Features:

- Forged alloy steel handle and links for rugged service
- Hardened steel pins and bushings
- Hold down bar can be machined to suit application requirements

Applications:

- Welding
- Heavy duty clamping requirements

Also Available:

Model 858 Pneumatic Toggle clamp
See page 10.17

558



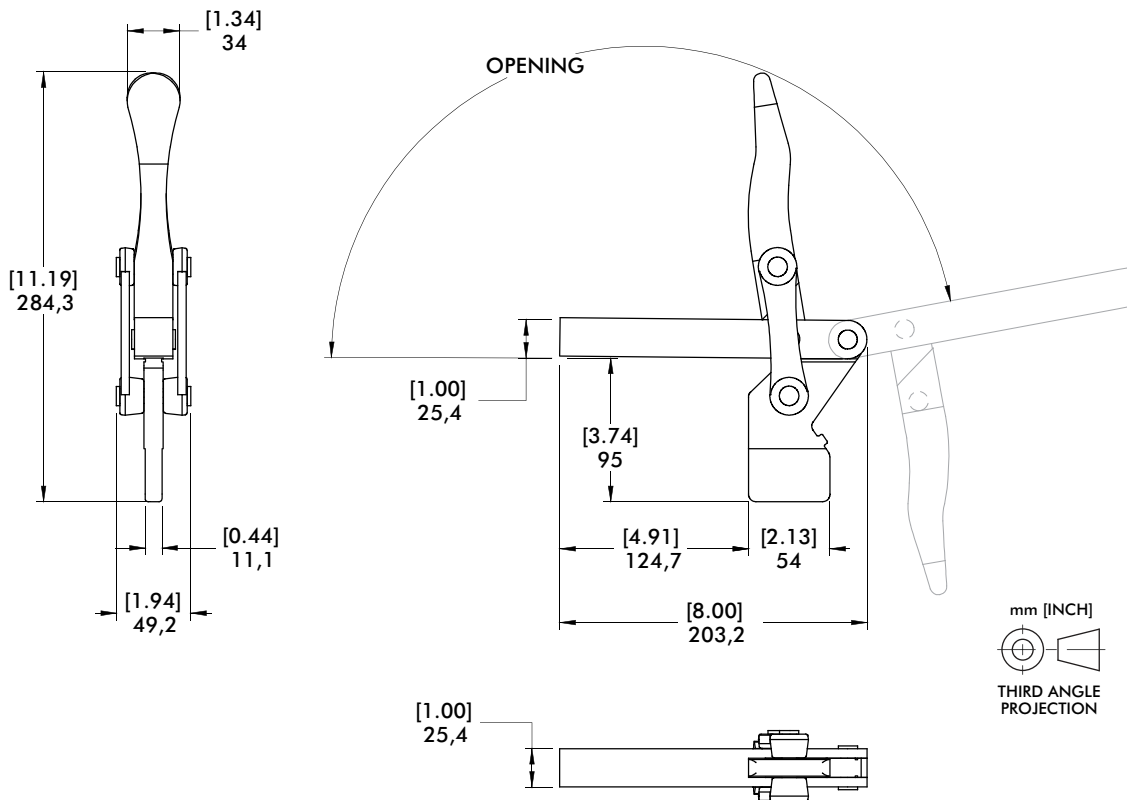
Series 558 Technical Information

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight
558	11100 N [2500 lbf]	192°	64°	2,27kg [5.0lbs]

Series 558 Holding Capacities, Standard Clamp Dimensions

Model	X	X1	±HC1	±HC2
558	65,8 [2.59]	76,2 [3.00]	[2500 lbf] 11100 N	[1500 lbf] 6680 N

Dimensions shown "mm [inch]", ± HC = Holding Capacity



Series 91090 Product Overview

Features:

- Front flange mount
- Accepts M8 or 5/16" spindle accessory (not supplied)

Applications:

- Assembly & test
- Checking fixtures
- Light machining
- Woodworking

Also Available:

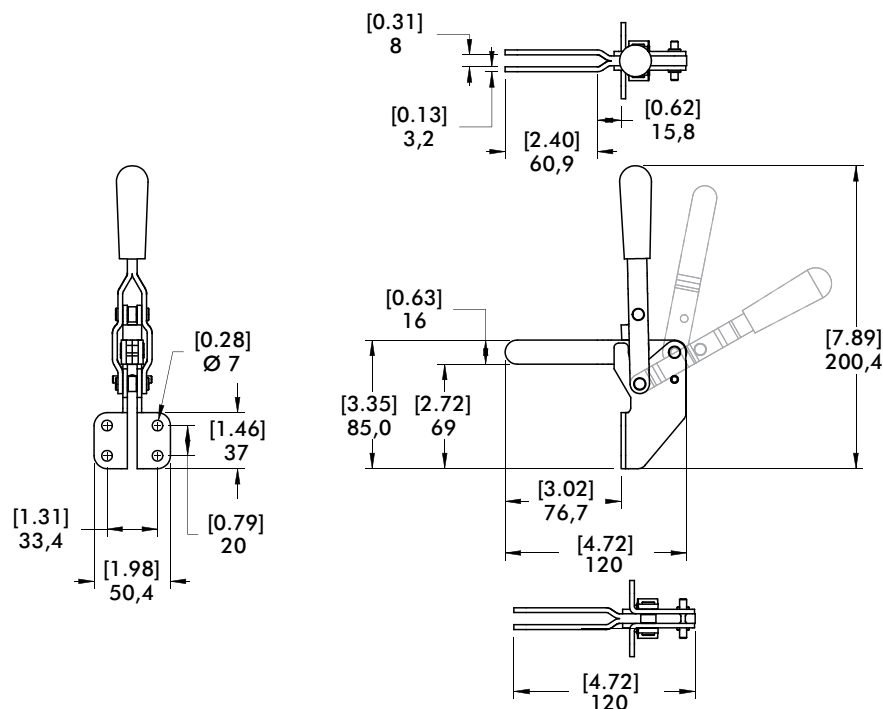
See page 8.1 for accessories

91090
Front Flanged Base
Open Bar



Series 91090 Technical Information, Standard Clamp Dimensions

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight	Recommended Accessories		
					Bolt Retainer	Spindle Assembly	Flanged Washers
91090	1710 N [385 lbf]	100°	60°	0,37kg [0.81lbs]	---	507208-M	507107



Series 317 Product Overview

Features:

- Dual mounting surfaces
- Large bar opening angle
- Accommodates M8 or 5/16" spindle accessories

Applications:

- Assembly & test
- Checking fixtures
- Light machining
- Woodworking

Also Available:

See page 8.1 for accessories
 817-U Pneumatic Toggle Clamp
 (See page 10.21)
 817-S Pneumatic Toggle Clamp
 (See page 10.21)

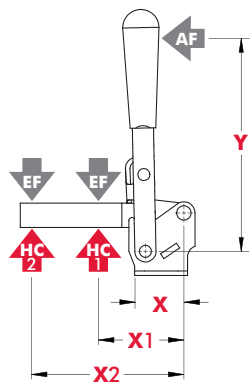


Note:
 Clamps shown with included accessories. To order without spindle, add (-LS) to the end of model (Ex: 317-U-LS)

Series 317 Technical Information

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight	Accessories (Supplied)		
					Bolt Retainer	Spindle Assembly	Flanged Washers
317-U	1670 N [375 lbf]	185°	60°	0,34kg [0.75lbs]	---	507208-M	507107
317-S	1780 N [400 lbf]				207105	---	---

Series 317 Holding Capacities

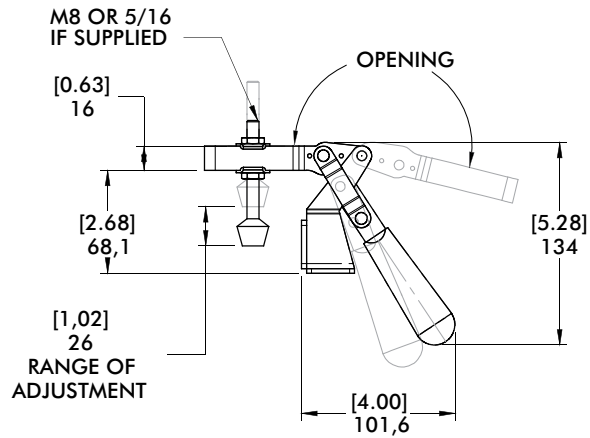
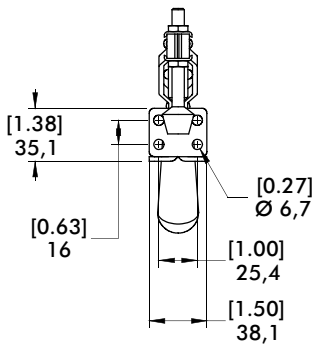
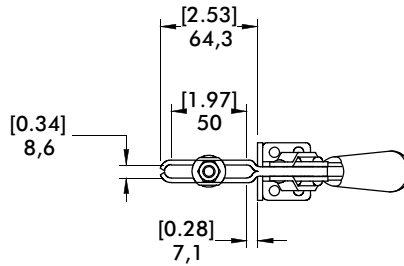


Model	X	X1	X2	Y	±HC1	±HC2	±EF(X1):AF	±EF(X2):AF
317-U	[1.57] 40,0	[2.00] 50,8	[3.75] 95,3	[4.00]	[375 lbf] 1670 N	[200lbf.] 900N	17:1	8:1
317-S		[2.50] 63,5	[5.00] 127,0	101,6	[400 lbf] 1780 N	[190lbf.] 850N	13:1	5:1

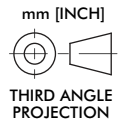
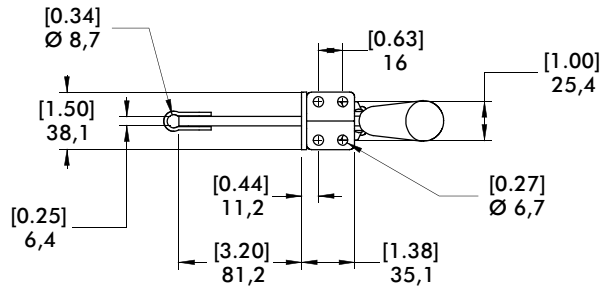
Dimensions shown "mm [inch]" ± HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
 Refer to page 20.5 for additional information.

Series 317 Standard Clamp Dimensions
-U/-S

317-U
U-Bar



317-S
Solid Bar



Series 527 Product Overview

Features:

- Hardened steel bushings at pivot points
- Solid bar can be modified to suit application requirements
- Thumb lever on link for easy opening

Applications:

- Assembly & test
- Light machining
- Woodworking

527
Flanged Base



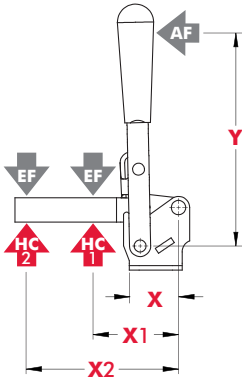
527-F
Front Mount



Series 527 Technical Information

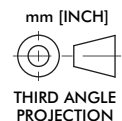
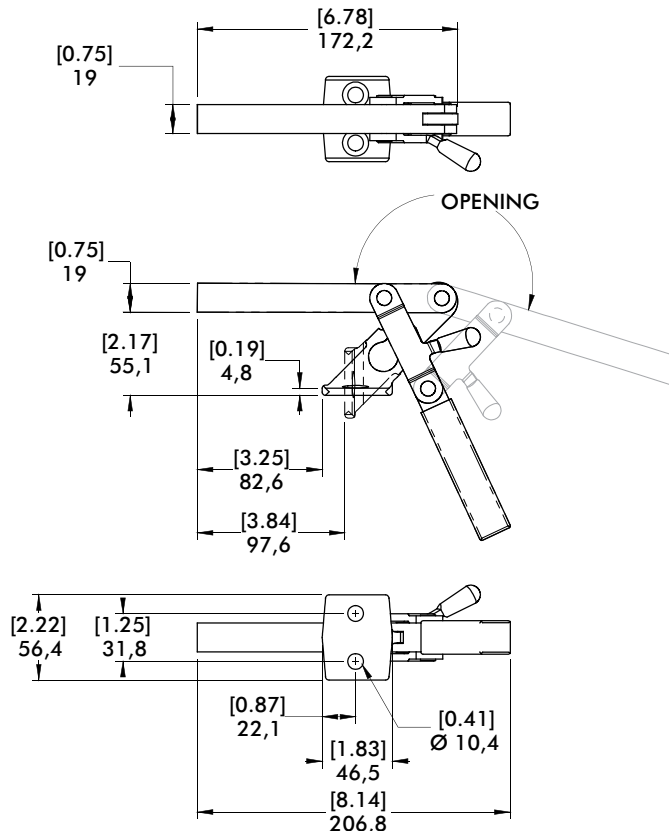
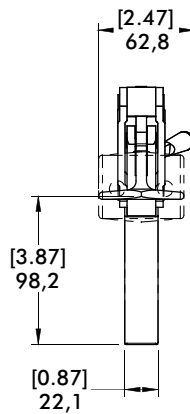
Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight
527	4450 N [1000 lbf]	195°	65°	[2.50lbs] 1,13kg
527-F				

Series 527 Holding Capacities, Standard Clamp Dimensions



Model	X	X1	X2	Y	±HC1	±HC2	±EF(X1):AF	±EF(X2):AF
527	[3.12] 79,2	[3.50] 89,0	[6.00] 152,4	[4.00] 101,6	[1000lbf.] 4450N	[580lbf.] 2580N	23:1	12:1
527-F	[2.53] 64,3							

Dimensions shown "mm [inch]" ± HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Refer to page 20.5 for additional information.



Heavy Duty Cam Action Series Product Overview

Features:

- Cam action accommodates variable workpiece thickness
- Heavy duty construction
- Solid clamp arms may be modified to suit application requirements

Applications:

- Light machining
- Welding
- Assembly

7-101



7-58

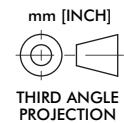
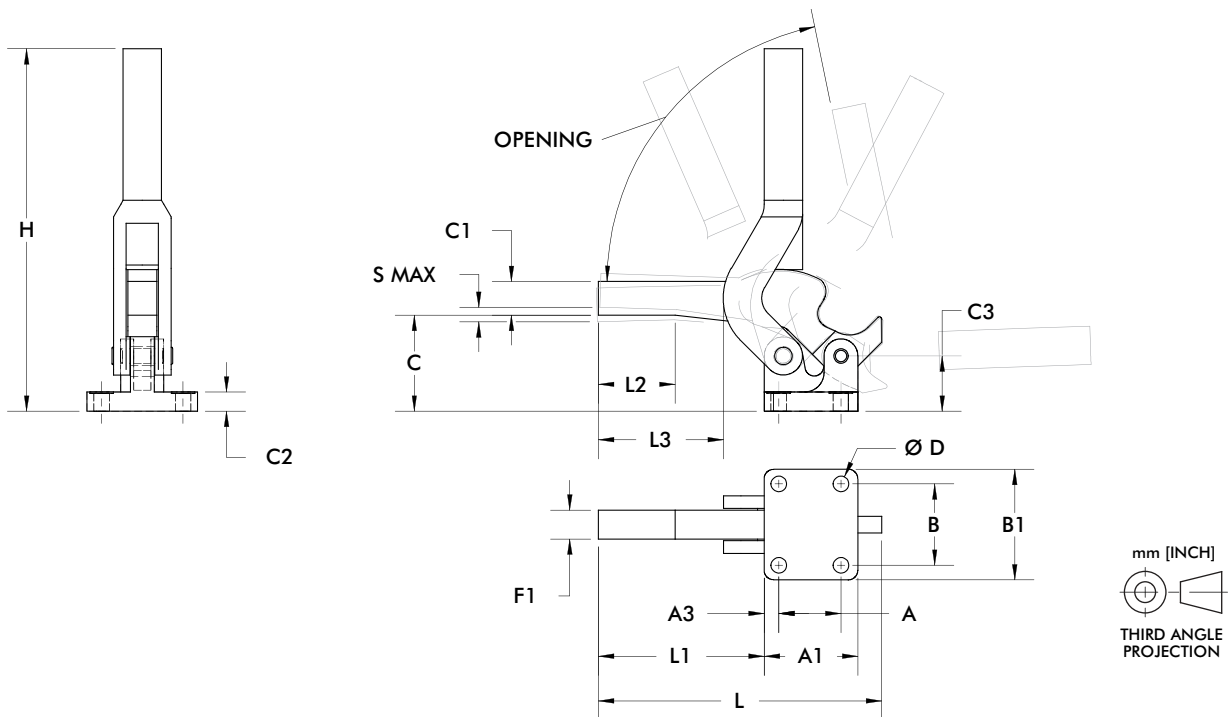


Technical Information

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Weight
7-101	2110 N [475 lbf]	80°	0,45kg [1.0lbs]
7-58	2670 N [600 lbf]	95°	0,91kg [2.0lbs]
7-59	4450 N [1000 lbf]	95°	1,36kg [3.0lbs]
7-60	7120 N [1600 lbf]	80°	2,27kg [5.0lbs]
7-61 ⓘ	16680 N [3750 lbf]	90°	6,80kg [15.0lbs]

ⓘ This item is available upon request

Heavy Duty Cam Action Series Standard Clamp Dimensions - Flanged Base



Model	A	A1	A3	B	B1	C	C1	C2	C3	D	F1	H	L	L1	L2	S max.
7-101	[0.75] 19,1	[1.25] 31,8	[0.25] 6,1	[1.25] 31,8	[1.75] 44,5	[1.44] 36,6	[0.50] 12,7	[0.31] 7,9	[1.00] 25,4	[0.22] 5,6	[0.50] 12,7	[5.00] 127	[4.63] 117,6	[3.12] 79,3	-	[0.13] 3,3
7-58	[1.00] 25,4	[1.69] 42,9	[0.34] 8,6	[1.62] 41,2	[2.25] 57,2	[1.87] 47,5	[0.56] 14,2	[0.38] 9,7	[1.12] 28,5	[0.28] 7,1	[0.50] 12,7	[7.00] 177,8	[6.99] 177,6	[2.55] 64,8	-	[0.13] 3,3
7-59	[1.38] 35,1	[2.06] 52,3	[0.39] 9,9	[1.88] 47,8	[2.50] 63,5	[2.19] 55,6	[0.63] 16	[0.44] 11,2	[1.25] 31,8	[0.34] 8,6	[0.63] 16	[8.50] 215,9	[6.00] 152,4	[3.50] 88,9	[1.24] 31,5	[0.19] 4,8
7-60	[1.62] 41,2	[2.44] 62	[0.44] 11,2	[2.12] 53,9	[2.88] 73,2	[2.50] 63,5	[0.88] 22,4	[0.50] 12,7	[1.44] 36,6	[0.41] 10,4	[0.75] 19,1	[9.50] 241,3	[7.40] 188	[4.38] 111,3	[1.97] 50	[0.25] 6,4
7-61 ⓘ	[2.00] 50,8	[3.00] 76,2	[0.50] 12,7	[3.50] 88,9	[4.50] 114,3	[2.86] 72,6	[1.25] 31,8	[0.62] 15,8	[1.68] 42,7	[0.53] 13,5	[1.13] 28,7	[13.93] 353,8	[9.76] 247,9	[5.93] 150,6	-	[0.38] 9,7

Series 229 Product Overview

Features:

- Cam action clamp holds workpieces of varying height
- Total clamping range of 8mm [.31in.]
- Accommodates M12 or 1/2" accessories

Applications:

- Assembly & test
- Light machining
- Welding

Also Available:

See page 8.1 for accessories

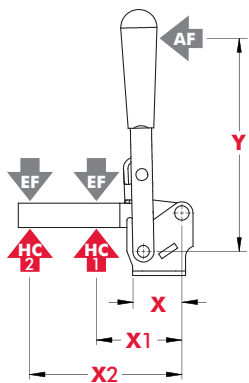
229
Flanged Base
Open Bar



Series 229 Technical Information

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight	Accessories (Supplied)	
					Spindle Assembly	Flanged Washers
229	4450 N [1000 lbf]	115°	180°	1,17kg [2.59lbs]	229203	247109

Series 229 Holding Capacities

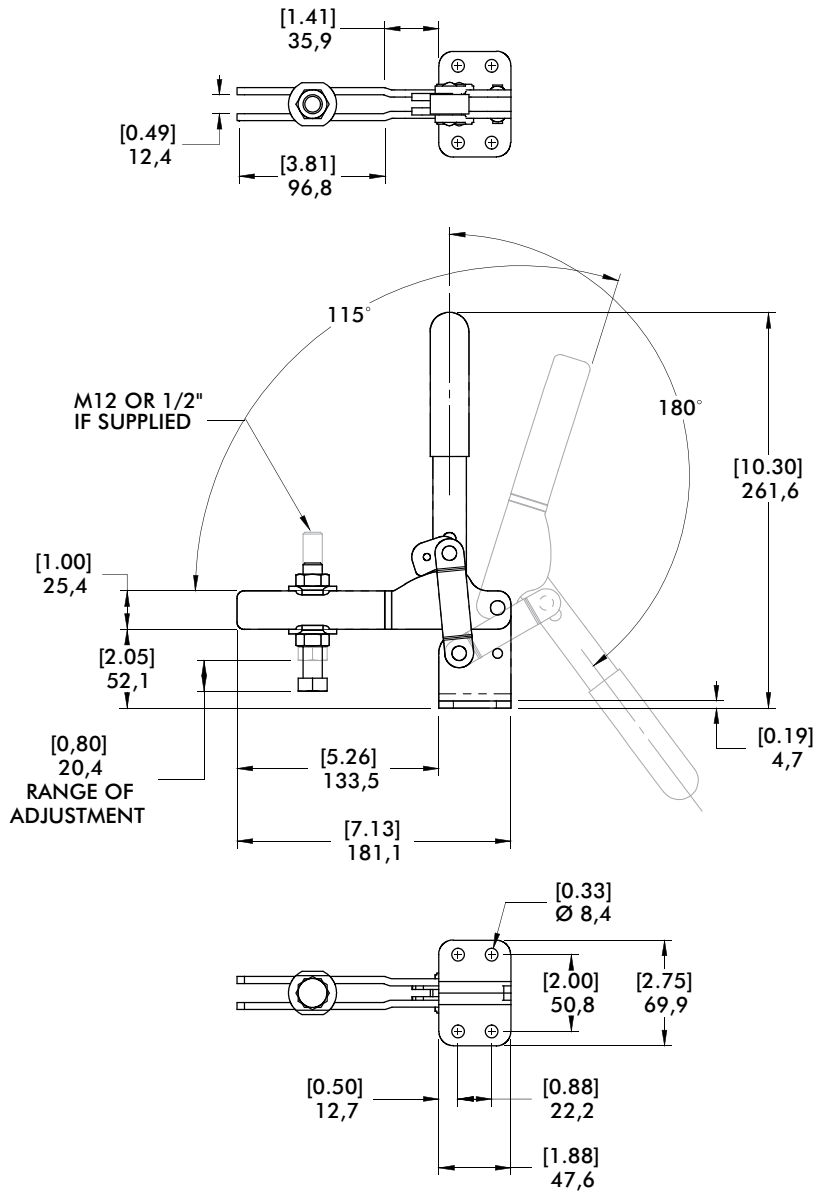


Model	X	X1	X2	Y	±HC1	±HC2	±EF(X1):AF	±EF(X2):AF
229	[1.53] 38,9	[3.00] 76,2	[6.12] 155,4	[7.06] 179,3	[1000lbf.] 4450N	[500lbf.] 2230N	7:1	3:1

Dimensions shown "mm [inch]" ± HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Refer to page 20.5 for additional information.

Series 229 Standard Clamp Dimensions

229
Flanged Base
Open Bar



Series 500 Product Overview

Features:

- Hardened pivot pins and bushings
- Weldable clamping bar
- LSC version with locking spring clip for securing the handle in the open position
- Modular design allows you to set up the clamp to meet application requirements

Applications:

- Welding
- Assembly
- Heavy duty, production clamping applications

Also Available:

See page 1.42 for accessories

501-**B** ⓘ
Swivel Base



501-**LB** ⓘ
Long Base



503-**MB**
Swivel Base



503-**MLB**
Long Base



503-**MBLSC** ⓘ
Swivel Base
with Locking
Spring Clip



503-**MLBLSC** ⓘ
Long Base
with Locking
Spring Clip



505-**MB**
Swivel Base



505-**MLB**
Long Base



505-**MBLSC** ⓘ
Swivel Base
with Locking
Spring Clip



505-**MLBLSC** ⓘ
Long Base
with Locking
Spring Clip



506-**MB**
Swivel Base



506-**MLB** ⓘ
Long Base



506-**MBLSC** ⓘ
Swivel Base
with Locking
Spring Clip

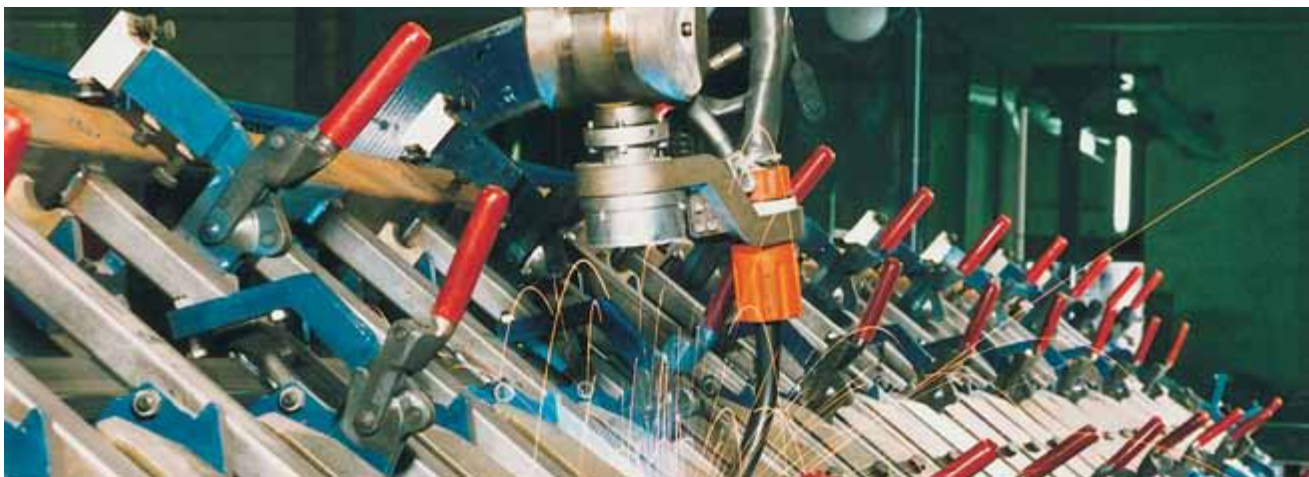


506-**MLBLSC** ⓘ
Long Base
with Locking
Spring Clip



Model 505-MLB in a robotic welding fixture

ⓘ This item is available upon request



Series 500 Technical Information

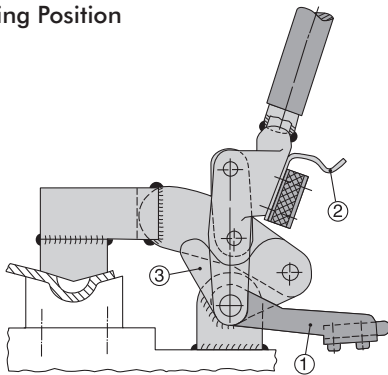
Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Weight
501-B ⓘ	2000 N [450 lbf]	200°	0,18kg [0.40lbs]
501-LB ⓘ			0,20kg [0.44lbs]
503-MB	0,70kg [1.54lbs]		
503-MLB	7000 N [1575 lbf]		0,80kg [1.76lbs]
503-MBLSC ⓘ			0,90kg [1.98lbs]
503-MLBLSC ⓘ			1,40kg [3.09lbs]
505-MB	11000 N [2475 lbf]		1,50kg [3.31lbs]
505-MLB			1,60kg [3.53lbs]
505-MBLSC ⓘ			2,60kg [5.73lbs]
505-MLBLSC ⓘ			2,80kg [6.17lbs]
506-MB	22500 N [5060 lbf]	3,00kg [6.61lbs]	
506-MLB ⓘ			
506-MBLSC ⓘ			
506-MLBLSC ⓘ			

Note:

The clamping bars are made from forged alloy steel and must be heated to 200°C(400°F) prior to welding. We recommend welding the handles, clamp arms, and mounting bases when disassembled. Welding of non pre-heated parts may only be done with the addition of welding fillers.

ⓘ This item is available upon request

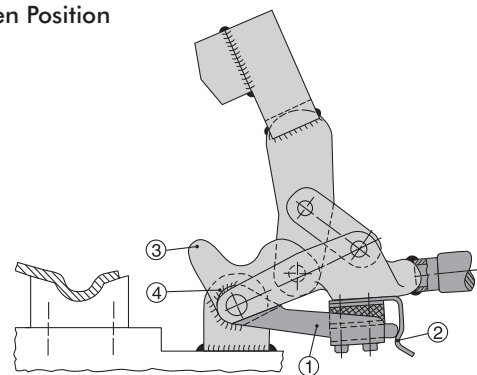
Clamping Position



Patented spring latch hold-open device

1. Mount the clamp and place it in the closed position
2. Position the bracket ① in the leaf spring ②

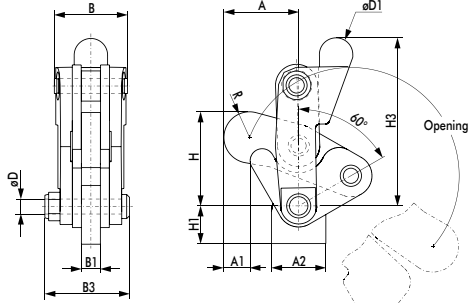
Open Position



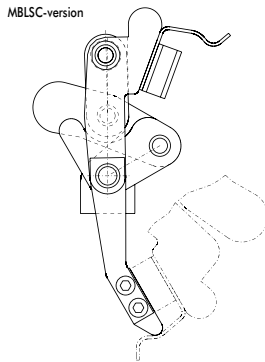
3. Swivel the clamp into the open position
4. In this position, weld the bracket ① with the bar guide feature ③ at point ④

Series 500 Standard Clamp Dimensions
-B/-LB/-MB/-MLB/-MBLSC/-MLBLSC

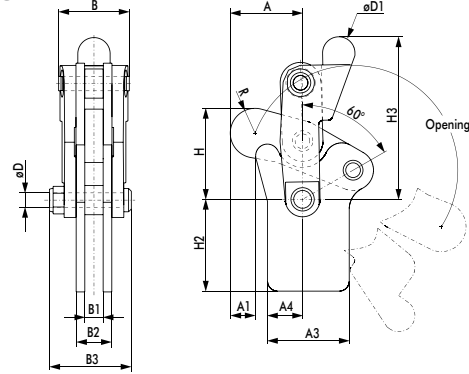
Swivel Base



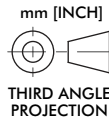
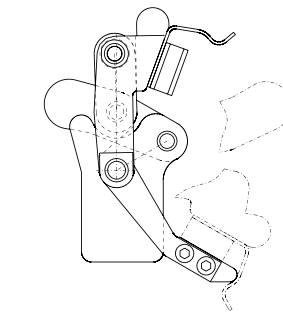
503-MB
Swivel Base



Long Base



503-MLB
Long Base



Swivel Base Dimensions

Model	A	A1	A2	B	B1	B3	ØD	ØD1	H	H1	H3	R
501-B ⓘ	[1.13] 28,6	[0.56] 14,3	[0.75] 19,1	[0.79] 20,0	[0.25] 6,4	[1.09] 27,8	[0.19] 4,8	[0.50] 12,7	[1.12] 28,5	[0.79] 20	[2.20] 56	[0.37] 9,5
503-MB	[1.54] 39,2	[0.50] 12,8	[1.12] 28,5	[1.52] 38,5	[0.39] 10	[1.82] 46,2	[0.31] 8	[0.69] 17,5	[1.96] 49,8	20	[3.51] 89,1	[0.53] 13,5
503-MBLSC ⓘ	[1.54] 39,2	[0.50] 12,8	[1.12] 28,5	[1.52] 38,5	[0.39] 10	[1.82] 46,2	[0.31] 8	[0.69] 17,5	[1.96] 49,8	20	[3.51] 89,1	[0.53] 13,5
505-MB	[2.22] 56,5	[1.02] 25,9	[1.38] 35	[1.89] 48	[0.48] 12,3	[2.31] 58,6	[0.37] 9,5	[0.87] 22,2	[2.79] 70,8	[1.10] 28	[4.33] 110,1	[0.72] 18,3
505-MBLSC ⓘ	[2.22] 56,5	[1.02] 25,9	[1.38] 35	[1.89] 48	[0.48] 12,3	[2.31] 58,6	[0.37] 9,5	[0.87] 22,2	[2.79] 70,8	[1.10] 28	[4.33] 110,1	[0.72] 18,3
506-MB	[2.82] 71,7	[1.27] 32,3	[1.97] 50	[1.91] 48,4	[0.63] 16	[2.72] 69	[0.47] 12	[0.94] 24	[3.45] 87,7	[1.29] 32,8	[5.30] 134,6	[0.84] 21,4
506-MBLSC ⓘ	[2.82] 71,7	[1.27] 32,3	[1.97] 50	[1.91] 48,4	[0.63] 16	[2.72] 69	[0.47] 12	[0.94] 24	[3.45] 87,7	[1.29] 32,8	[5.30] 134,6	[0.84] 21,4

Long Base Dimensions

Model	A	A1	A3	A4	B	B1	B2	B3	ØD	ØD1	H	H2	H3	R
501-LB ⓘ	[1.13] 28,6	[0.50] 12,8	[1.13] 28,6	[0.56] 14,3	[0.79] 20	[0.25] 6,4	[0.51] 13	[1.09] 27,8	[0.19] 4,8	[0.50] 12,7	[1.12] 28,5	[1.32] 33,5	[2.21] 56,1	[0.37] 9,5
503-MLB	[1.54] 39,2	12,8	[1.75] 44,5	[0.75] 19	[1.52] 38,5	[0.39] 10	[0.79] 20	[1.82] 46,2	[0.31] 8	[0.69] 17,5	[1.96] 49,8	[1.97] 50	[3.51] 89,1	[0.53] 13,5
503-MLBLSC ⓘ	[1.54] 39,2	12,8	[1.75] 44,5	[0.75] 19	[1.52] 38,5	[0.39] 10	[0.79] 20	[1.82] 46,2	[0.31] 8	[0.69] 17,5	[1.96] 49,8	[1.97] 50	[3.51] 89,1	[0.53] 13,5
505-MLB	[2.22] 56,5	[1.02] 25,9	[2.09] 53	[1.08] 27,5	[1.89] 48	[0.48] 12,3	[0.88] 22,3	[2.31] 58,6	[0.37] 9,5	[0.87] 22,2	[2.79] 70,8	[2.50] 63,5	[4.33] 110,1	[0.72] 18,3
505-MLBLSC ⓘ	[2.22] 56,5	[1.02] 25,9	[2.09] 53	[1.08] 27,5	[1.89] 48	[0.48] 12,3	[0.88] 22,3	[2.31] 58,6	[0.37] 9,5	[0.87] 22,2	[2.79] 70,8	[2.50] 63,5	[4.33] 110,1	[0.72] 18,3
506-MLB	[2.82] 71,7	[1.27] 32,3	[2.58] 65,5	[1.45] 36,9	[1.91] 48,4	[0.63] 16	[1.10] 28	[2.72] 69	[0.47] 12	[0.94] 24	[3.45] 87,7	[3.00] 76,2	[5.30] 134,6	[0.84] 21,4
506-MLBLSC ⓘ	[2.82] 71,7	[1.27] 32,3	[2.58] 65,5	[1.45] 36,9	[1.91] 48,4	[0.63] 16	[1.10] 28	[2.72] 69	[0.47] 12	[0.94] 24	[3.45] 87,7	[3.00] 76,2	[5.30] 134,6	[0.84] 21,4



Features:

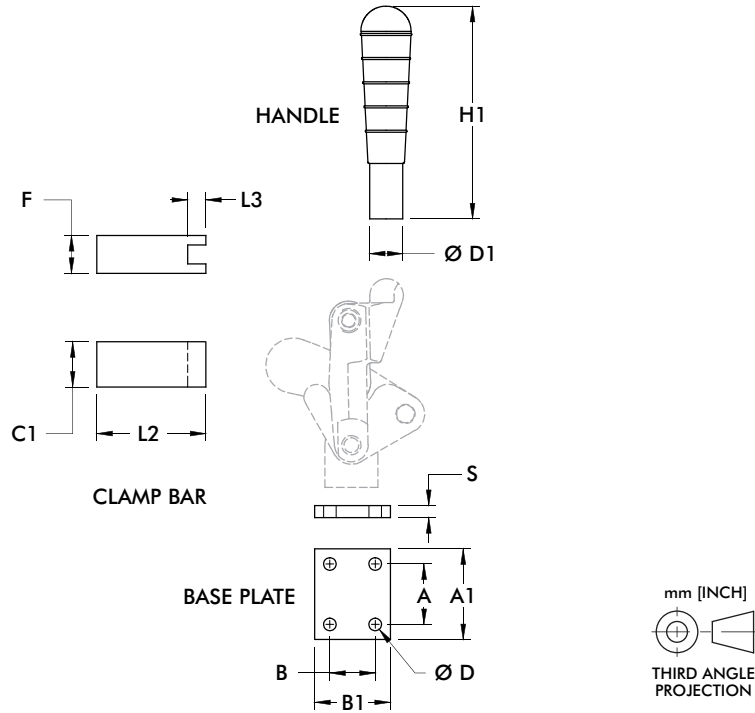
- Used with 500 Series Vertical Clamps
- Allows you to customize the clamp to suit application requirements

Applications:

- Welding
- Assembly
- Heavy duty, production clamping applications



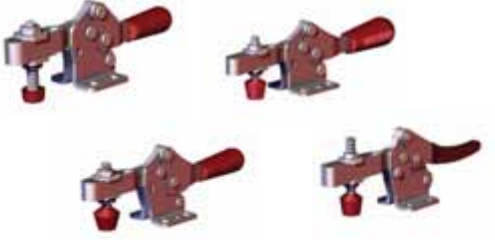



Also Available:

See page 1.39 for clamp linkage



Use with	Part No.	Handle						Clamping Bar				Base Plate			
		ØD1	H1	C1	F	L2	L3	A	A1	B	B1	ØD	S		
	501503 ⓘ	6x10	61	-	-	-	-	-	-	-	-	-	-		
501	501501 ⓘ	-	-	15	15	40	10	-	-	-	-	-	-		
	503502	-	-	-	-	-	-	25	40	35	50	6.3	8		
503	503503-L	Ø18	129.5	-	-	-	-	-	-	-	-	-	-		
	503501	-	-	25	20	50	8	-	-	-	-	-	-		
	503502	-	-	-	-	-	-	25	40	35	50	6.3	8		
505	505503-L	Ø22	159	-	-	-	-	-	-	-	-	-	-		
	505501	-	-	30	25	60	12	-	-	-	-	-	-		
	505502	-	-	-	-	-	-	40	60	30	50	8.1	8		
506	506503-L	Ø28	188	-	-	-	-	-	-	-	-	-	-		
	506501	-	-	35	30	75	15	-	-	-	-	-	-		
	506502	-	-	-	-	-	-	50	70	45	65	8.1	8		

ⓘ This item is available upon request Note: Dimensions shown in millimeters.

	Series	Section Page	Max. Holding Capacity N[lbf.]						Height Under Clamping Bar mm [inch]					Overall Height mm [inch]						
			0 to 1000 [0 to 225]	1000 to 2000 [225 to 450]	2000 to 3000 [450 to 675]	3000 to 5000 [675 to 1125]	5000 to 7000 [1125 to 1575]	7000 to 10000 [1575 to 2250]	0 to 10 [0 to 0.39]	10 to 20 [0.39 to 0.79]	20 to 30 [0.79 to 1.18]	30 to 40 [1.18 to 1.57]	40 to 50 [1.57 to 1.97]	50 to 60 [1.97 to 2.36]	0 to 25 [0 to 0.98]	25 to 40 [0.98 to 1.57]	40 to 55 [1.57 to 2.17]	55 to 70 [1.57 to 2.76]	70 to 85 [2.76 to 3.35]	85 to 100 [3.35 to 3.94]	100+ [1.57+]
	2005	2.3	■										■							
	2013	2.5		■										■						
	2017	2.7			■										■					
	2027	2.9				■										■				
	2037	2.11					■										■			
	213	2.13		■										■						
	217	2.15	■	■												■				
	227	2.17			■												■			
	237	2.19				■												■		
	245	2.21					■												■	
	205	2.23	■											■						
	215	2.25		■	■											■				
	225	2.27			■												■			
	235	2.29				■												■		
	305	2.31	■											■						
	307	2.31		■												■				
	309	2.31				■													■	
	206	2.33	■												■					
	515	2.35				■											■			



Overall Length mm [inch]		Overall Width mm [inch]		Suitable Application Area						Standard Material	Arm Style	Mounting Style	Service Environment																			
50 to 75 [1.97 to 2.95]	75 to 100 [2.95 to 3.94]	100 to 125 [3.94 to 4.92]	125 to 150 [4.92 to 5.91]	150 to 175 [5.91 to 6.89]	175 to 200 [6.89 to 7.87]	200 to 225 [7.87 to 8.86]	225 to 250 [8.86 to 9.84]	250+ [9.84+]	0 to 25 [0 to 0.98]	25 to 40 [0.98 to 1.57]	40 to 55 [1.57 to 2.17]	55 to 70 [1.57 to 2.76]	Welding	Assembly	Checking Fixtures	Machining	Woodworking	Closures	Food Processing	Duty Cycle	Steel	Stainless Steel	Toggle Lock Plus	U-Bar Version	Solid Arm Version	Straight Base	Flanged Base	Weld-On Mounting	Normal	Harsh/Dirty		
●													●	●	●	●	●	●	⊗	○	✓			✓	✓		✓	✓	✓	✓		
		●								●			○	●	●	●	●	●	●	⊗	○	✓		✓		✓	✓		✓	✓	✓	✓
			●								●		○	●	●	●	●	●	●	⊗	○	✓		✓		✓	✓		✓	✓	✓	✓
				●								●	○	●	●	●	●	●	●	⊗	○	✓		✓		✓	✓		✓	✓	✓	✓
					●							●	○	●	●	●	●	●	●	⊗	○	✓		✓		✓	✓		✓	✓	✓	✓
						●						●	○	●	●	●	●	●	●	○	○	✓	✓		✓		✓	✓		✓	✓	✓
							●					●	○	●	●	●	●	●	●	○	○	✓	✓		✓		✓	✓		✓	✓	✓
								●				●	○	●	●	●	●	●	●	○	○	✓	✓		✓		✓	✓		✓	✓	✓
									●			●	○	●	●	●	●	●	●	○	○	✓	✓		✓		✓	✓		✓	✓	✓
										●		●	○	●	●	●	●	●	●	○	○	✓	✓		✓		✓	✓		✓	✓	✓
											●	○	●	●	●	●	●	●	●	○	○	✓	✓		✓		✓	✓		✓	✓	✓
													●	○	●	●	●	●	●	○	○	✓	✓		✓		✓	✓		✓	✓	✓
														●	○	●	●	●	●	○	○	✓	✓		✓		✓	✓		✓	✓	✓
															●	○	●	●	●	○	○	✓	✓		✓		✓	✓		✓	✓	✓
																●	○	●	●	○	○	✓	✓		✓		✓	✓		✓	✓	✓
																	●	○	●	○	○	✓	✓		✓		✓	✓		✓	✓	✓
																		●	○	○	○	✓	✓		✓		✓	✓		✓	✓	✓

● Excellent/High ○ Fair/Medium ● Poor/Low ⊗ Not Recommended

Series 2005 Product Overview

Features:

- Increased handle clearance reduces pinch points
- Mounting pattern interchangeable with Model 205 with 3 times the holding capacity

Applications:

- Assembly
- Closures

Also Available:

See page 8.1 for accessories
Accommodates M4 or #8 spindle accessory

Covered under one year or more U.S./International Patents

2005-U
U-Bar



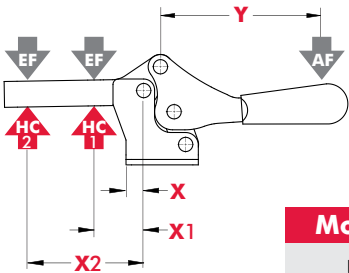
2005-S
Solid Bar



Series 2005 Technical Information

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight	Accessories (Supplied)	
					Spindle Assembly	Flanged Washers
2005-U	800 N [180 lbf]	74°	62°	0,05kg [0.10lb]	205208-M	105106
2005-S	450 N [100 lbf]					--

Series 2005 Holding Capacities

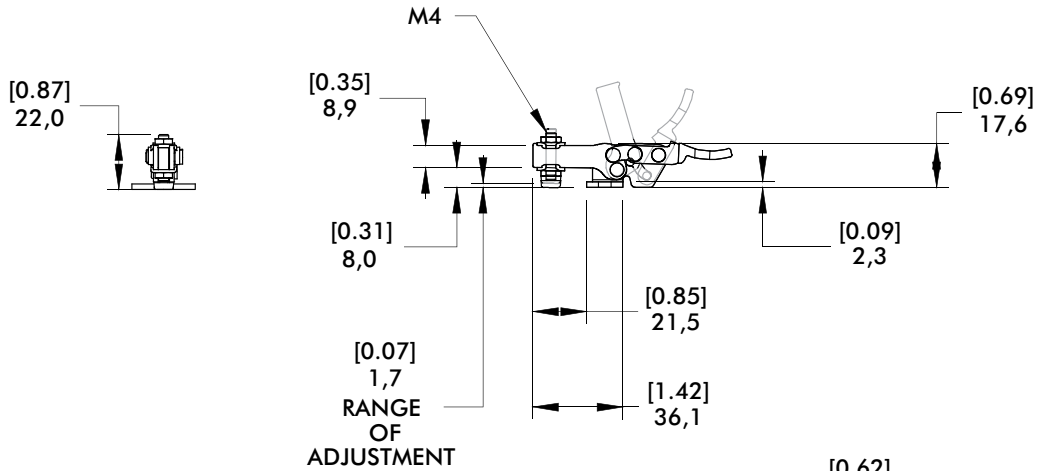
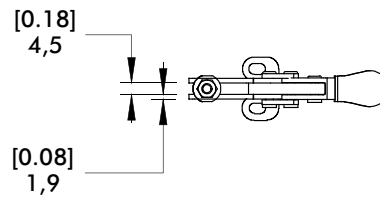


Model	X	X1	X2	Y	±HC1	±HC2	±EF(X1):AF	±EF(X2):AF
U	[0.48]	[0.62] 15,8	[1.05] 26,7	[1.20]	[180lbf.] 800N	[120lbf.] 530N	5:1	2.5:1
S	12,2	--	[1.15] 29,2	30,5	--	[100lbf.] 450N	--	

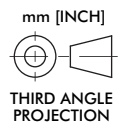
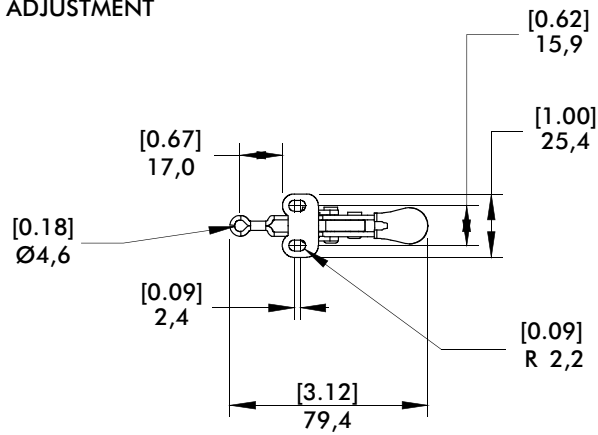
Dimensions shown "mm [inch]" ± HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Refer to page 20.5 for additional information.

Series 2005 Standard Clamp Dimensions -U/-S

2005-U
U-Bar



2005-S
Solid Bar



Series 2013 Product Overview

Features:

- Increased handle clearance reduces pinch points
- Common mounting hole pattern to Model 213
- Fixed handle pivot provides smooth action
- Nearly 2 times the holding capacity Model 213

Applications:

- Checking fixtures
- Assembly & test
- Light machining
- Woodworking
- Closures

Also Available:

See page 8.1 for accessories
Accommodates M5 or #10 spindle accessory

Covered under one year or more U.S./International Patents

2013-U
Flanged Base
U-Bar



2013-UR
Flanged Base, U-Bar
with DE-STA-CO®
Toggle Lock
Plus



2013-UB
Straight Base, U-Bar



2013-UBR
Straight Base, U-Bar
with DE-STA-CO®
Toggle Lock
Plus

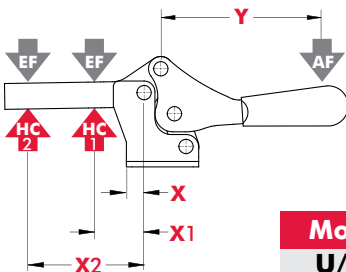


Note:
Clamps shown with included accessories. To order without spindle, add (-LS) to the end of model (Ex: 2013-UB-LS)

Series 2013 Technical Information

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight	Accessories (Supplied)	
					Spindle Assembly	Flanged Washers
2013-U	1310 N [295 lbf]	71°	58°	0,17kg [0.37lb]	2013208-M	102111
2013-UR						
2013-UB						
2013-UBR						

Series 2013 Holding Capacities



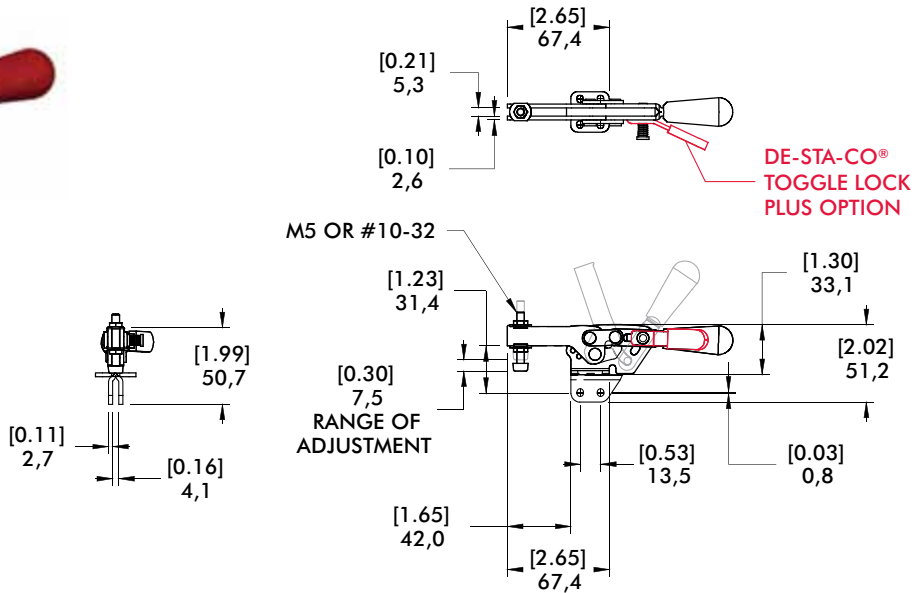
Model	X	X1	X2	Y	‡HC1	‡HC2	‡EF(X1):AF	‡EF(X2):AF
U/UR	[0.63]	[0.95]	[1.95]	[2.34]	[295lbf.]	[175lbf.]	6:1	4:1
UB/UBR	16	24	49,5	59,5	1310N	780N		

Dimensions shown "mm [inch]" ‡ HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Refer to page 20.5 for additional information.

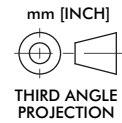
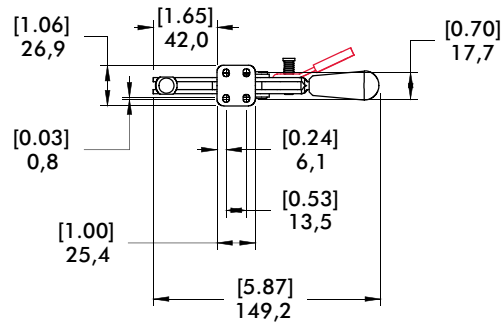


Series 2013 Standard Clamp Dimensions -U/-UR/-UB/-UBR

2013-U
Flanged Base
U-Bar



2013-UBR
Straight Base, U-Bar
with DE-STA-CO®
Toggle Lock
Plus



Series 2017 Product Overview

Features:

- Increased handle clearance reduces pinch points
- Common mounting hole pattern to Model 217
- Fixed handle pivot provides smooth action
- Over 2½ times the holding capacity Model 217

Applications:

- Checking fixtures
- Assembly & test
- Light machining
- Woodworking
- Closures

Also Available:

See page 8.1 for accessories

Accommodates M6 or ¼" spindle accessory

Covered under one year or more U.S./International Patents

2017-U
Flanged Base
U-Bar



2017-UR
Flanged Base, U-Bar
with DE-STA-CO®
Toggle Lock
Plus



2017-UB
Straight Base
U-Bar



2017-UBR
Straight Base, U-Bar
with DE-STA-CO®
Toggle Lock
Plus



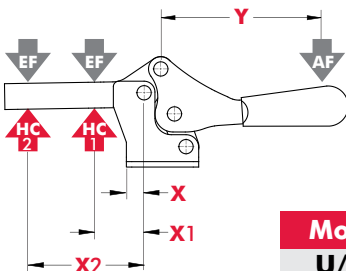
Note:

Clamps shown with included accessories. To order without spindle, add (-LS) to the end of model (Ex: 2017-UB-LS)

Series 2017 Technical Information

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight	Accessories (Supplied)	
					Spindle Assembly	Flanged Washers
2017-U	2500 N [560 lbf]	73°	69°	0,44kg [0.97lb]	215208-M	215105
2017-UR						
2017-UB						
2017-UBR						

Series 2017 Holding Capacities

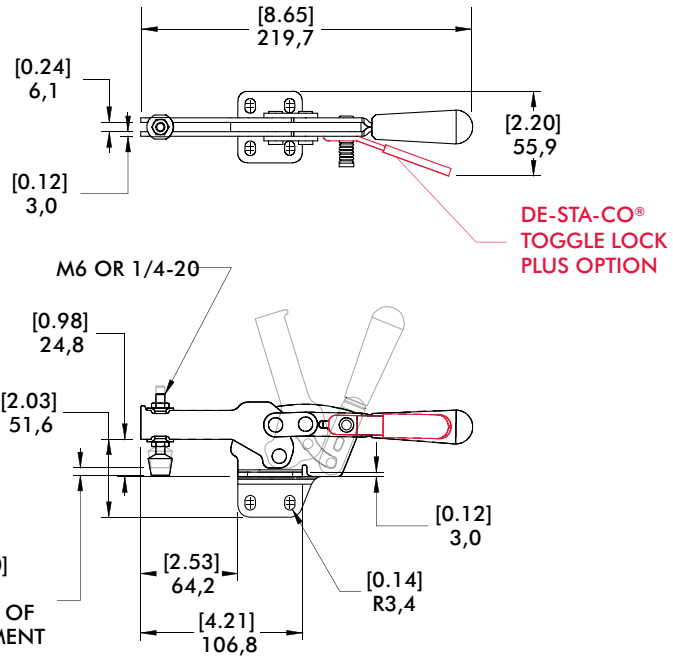
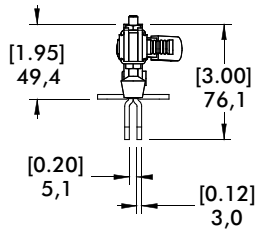


Model	X	X1	X2	Y	‡HC1	‡HC2	‡EF(X1):AF	‡EF(X2):AF
U/UR	[1.08]	[1.65]	[3.15]	[2.54]	[560lbf.]	[245lbf.]	5:1	2.5:1
UB/UBR	27,4	42	80	64,5	2500N	1090N		

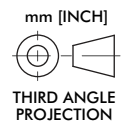
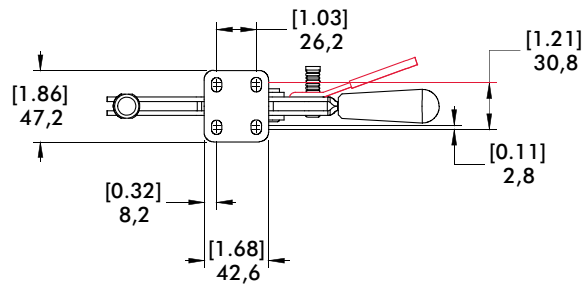
Dimensions shown "mm [inch]" ‡ HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Refer to page 20.5 for additional information.

Series 2017 Standard Clamp Dimensions -U/-UR/-UB/-UBR

2017-U
Flanged Base
U-Bar



2017-UBR
Straight Base, U-Bar
with DE-STA-CO®
Toggle Lock
Plus



Series 2027 Product Overview

Features:

- Increased handle clearance reduces pinch points
- Common mounting hole pattern to Model 227
- Fixed handle pivot provides smooth action
- Over 1½ times the holding capacity Model 227

Applications:

- Checking fixtures
- Assembly & test
- Light machining
- Woodworking
- Closures

Also Available:

See page 8.1 for accessories
Accommodates M8 or 5/16" spindle accessory

Covered under one year or more U.S./International Patents

2027-U
Flanged Base
U-Bar



2027-UR
Flanged Base, U-Bar
with DE-STA-CO®
Toggle Lock
Plus



2027-UB
Straight Base
U-Bar



2027-UBR
Straight Base, U-Bar
with DE-STA-CO®
Toggle Lock
Plus

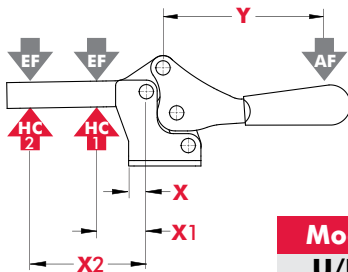


Note:
Clamps shown with included accessories. To order without spindle, add (-LS) to the end of model (Ex: 2027-UB-LS)

Series 2027 Technical Information

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight	Accessories (Supplied)	
					Spindle Assembly	Flanged Washers
2027-U	3740 N [840 lbf]	68°	70°	0,61kg [1.34lb]	2007208-M	507107
2027-UR						
2027-UB						
2027-UBR						

Series 2027 Holding Capacities



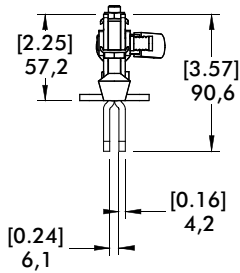
Model	X	X1	X2	Y	‡HC1	‡HC2	‡EF(X1):AF	‡EF(X2):AF
U/UR	[1.02]	[1.75]	[3.30]	[2.54]	[840lbf.]	[480lbf.]	5:1	3:1
UB/UBR	25,8	44,5	83,8	64,5	3740N	2140N		

Dimensions shown "mm [inch]" ‡ HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Refer to page 20.5 for additional information.

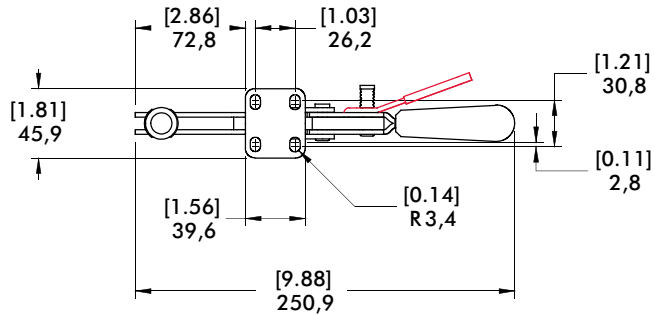
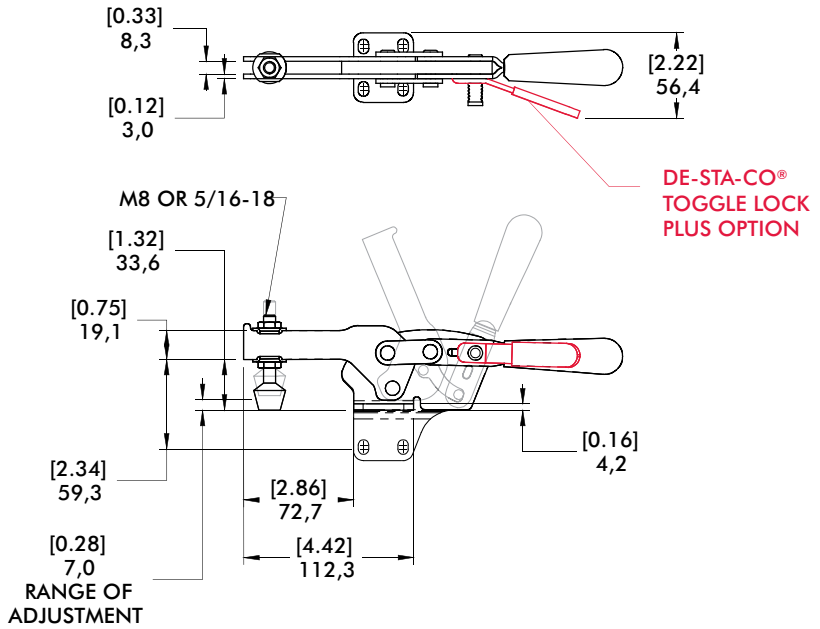


Series 2027 Standard Clamp Dimensions -U/-UR/-UB/-UBR

2027-U
Flanged Base
U-Bar



2027-UBR
Straight Base, U-Bar
with DE-STA-CO®
Toggle Lock
Plus



mm [INCH]
THIRD ANGLE PROJECTION



Series 2037 Product Overview

Features:

- Increased handle clearance reduces pinch points
- Common mounting hole pattern to Model 237
- Fixed handle pivot provides smooth action
- Over 2½ times the holding capacity Model 237

Applications:

- Checking fixtures
- Assembly & test
- Light machining
- Woodworking
- Closures

Also Available:

See page 8.1 for accessories
Accommodates M10 or 3/8" spindle accessory

Covered under one year or more U.S./International Patents

2037-U
Flanged Base
U-Bar



2037-UR
Flanged Base, U-Bar
with DE-STA-CO®
Toggle Lock
Plus



2037-UB
Straight Base
U-Bar



2037-UBR
Straight Base, U-Bar
with DE-STA-CO®
Toggle Lock
Plus



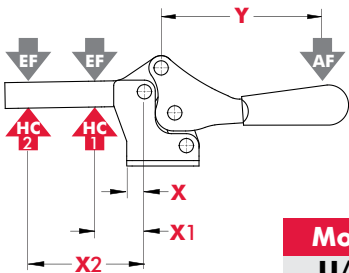
Note:

Clamps shown with included accessories. To order without spindle, add (-LS) to the end of model (Ex: 2037-UB-LS)

Series 2037 Technical Information

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight	Accessories (Supplied)	
					Spindle Assembly	Flanged Washers
2037-U	7470 N [1680 lbf]	73°	72°	1,34kg [2.95lb]	240208-M	235106
2037-UR						
2037-UB						
2037-UBR						

Series 2037 Holding Capacities

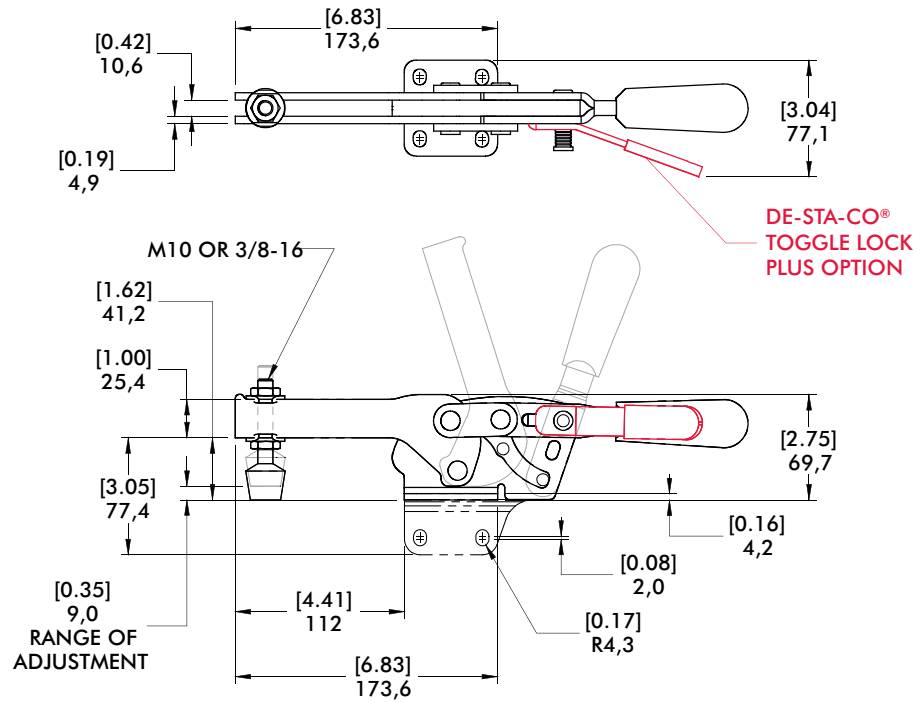
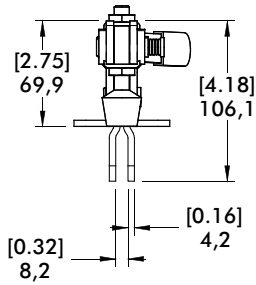


Model	X	X1	X2	Y	±HC1	±HC2	±EF(X1):AF	±EF(X2):AF
U/UR	[1.39]	[2.20]	[5.05]	[3.81]	[1680lbf.]	[700lbf.]	5:1	3:1
UB/UBR	35,3	56	128,3	97	7470N	3120N		

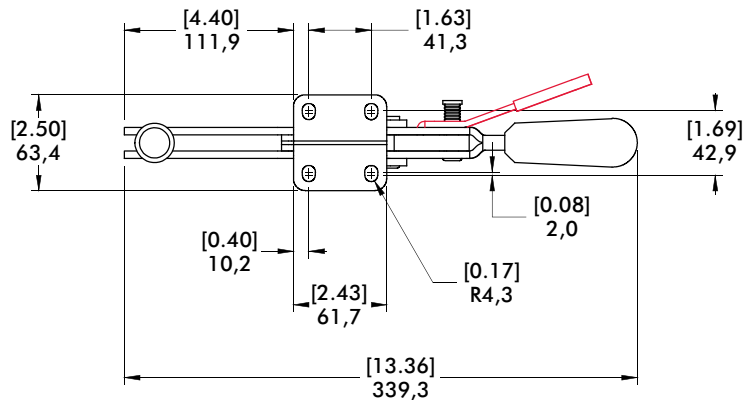
Dimensions shown "mm [inch]" ± HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Refer to page 20.5 for additional information.

Series 2037 Standard Clamp Dimensions
-U/-UR/-UB/-UBR

2037-U
Flanged Base
U-Bar



2037-UBR
Straight Base, U-Bar
with DE-STA-CO®
Toggle Lock
Plus



Series 213 Product Overview
Features:

- Low profile
- Large handle clearance in the open position
- Available in stainless steel

Applications:

- Assembly
- Checking fixtures
- Closures
- Woodworking

Also Available:

See page 8.1 for accessories
Accommodates M5 or #10 spindle accessory

213-U[†]
Flanged Base
U-Bar

213-USS
Flanged Base
U-Bar, Stainless
Steel

213-UB[†]
Straight Base
U-Bar

213-U-L[†]
Flanged Base
Open Bar

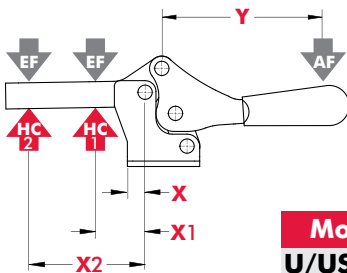
213-UB-L[†]
Straight Base
Open Bar


Note:
Clamps shown with included accessories. [†]To order without spindle, add (-LS) to the end of model (Ex: 213-U-LS)

Series 213 Technical Information

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight	Accessories (Supplied)	
					Spindle Assembly	Flanged Washers
213-U	670 N [150 lbf]	90°	60°	0,08kg [0.17lb]	213208-M	102111
213-USS					201943	102911
213-UB					213208-M	102111
213-U-L[†]					--	--
213-UB-L[†]					--	--

[†] This item is available upon request

Series 213 Holding Capacities


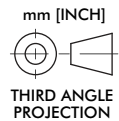
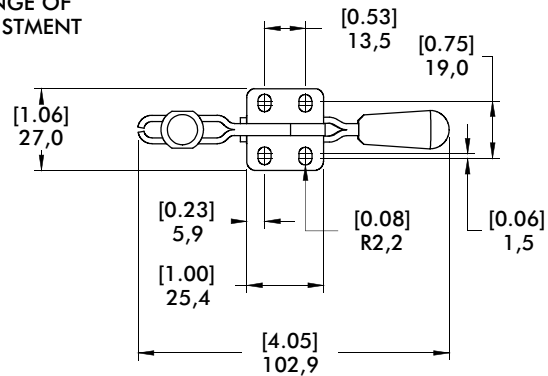
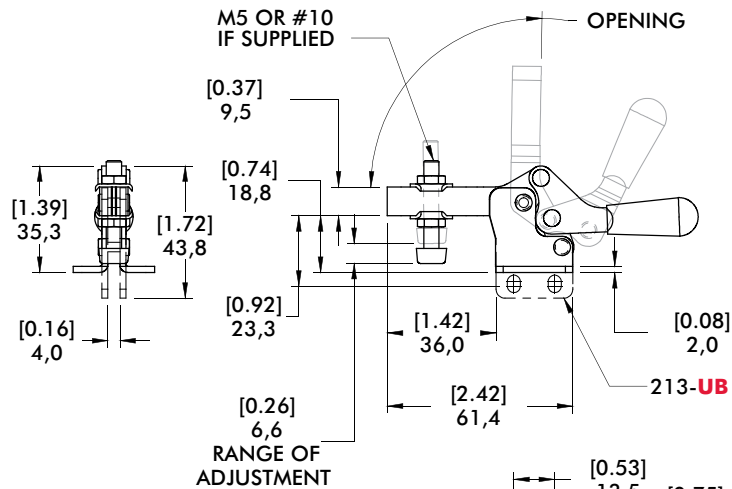
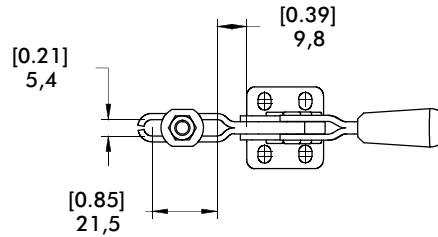
Model	X	X1	X2	Y	‡HC1	‡HC2	‡EF(X1):AF	‡EF(X2):AF
U/USS/UB	[0.36]	[0.75]	[1.63]	[1.81]	[150lbf.]	[70lbf.]	7:1	3:1
U-L/UB-L	9,3	19	41,4	46	670N	310N		

Dimensions shown "mm [inch]" ‡ HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Refer to page 20.5 for additional information.



Series 213 Standard Clamp Dimensions
-U/-USS/-UB

213-U[†]
Flanged Base
U-Bar

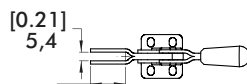


Series 213 Open Bar

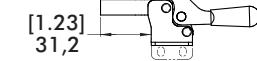


Flanged Base
Model
213-U-L ⓘ

See page 8.7 for Complete offering of Open bar accessories



Straight Base
Model
213-UB-L ⓘ



See page 2.14 for dimensions not shown

Series 217 Product Overview

Features:

- Low profile
- Large handle clearance in the open position
- Available in stainless steel

Applications:

- Assembly
- Checking fixtures
- Closures
- Woodworking

Also Available:

See page 8.1 for accessories

Accommodates M6 or 1/4" spindle accessory

217-U[†]
Flanged Base
U-Bar



217-USS
Flanged Base
U-Bar, Stainless
Steel



217-UB[†]
Straight Base
U-Bar



217-U-L[ⓘ]
Flanged Base
Open Bar



217-UB-L[ⓘ]
Straight Base
Open Bar



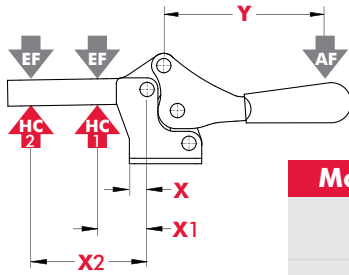
Note:
Clamps shown with included accessories. [†]To order without spindle, add (-LS) to the end of model (Ex: 2010-U-LS)

Series 217 Technical Information

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight	Accessories (Supplied)	
					Spindle Assembly	Flanged Washers
217-U	900 N [200 lbf]	91°	61°	0,18kg [0.40lb]	202208-M	215105
217-USS	1110 N [250 lbf]				202943	215105
217-UB	900 N [200 lbf]	91°	61°	0,18kg [0.40lb]	202208-M	215105
217-U-L[ⓘ]					--	--
217-UB-L[ⓘ]					--	--

[ⓘ] This item is available upon request

Series 217 Holding Capacities



Model	X	X1	X2	Y	±HC1	±HC2	±EF(X1):AF	±EF(X2):AF
U					[200lbf.] 900N	[80lbf.] 360N		
USS	[0.53] 13,5	[1.13] 28,6	[2.63] 66,8	[2.93] 74,5	[250lbf.] 1110N	[100lbf.] 440N	7:1	3:1
UB/U-L/ UB-L					[200lbf.] 900N	[80lbf.] 360N		

Dimensions shown "mm [inch]" ± HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Refer to page 20.5 for additional information.

Series 217 Standard Clamp Dimensions -U/-USS/-UB

Series 217 Open Bar

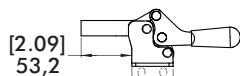
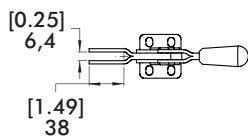


Flanged Base
Model
217-U-L ⓘ



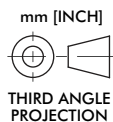
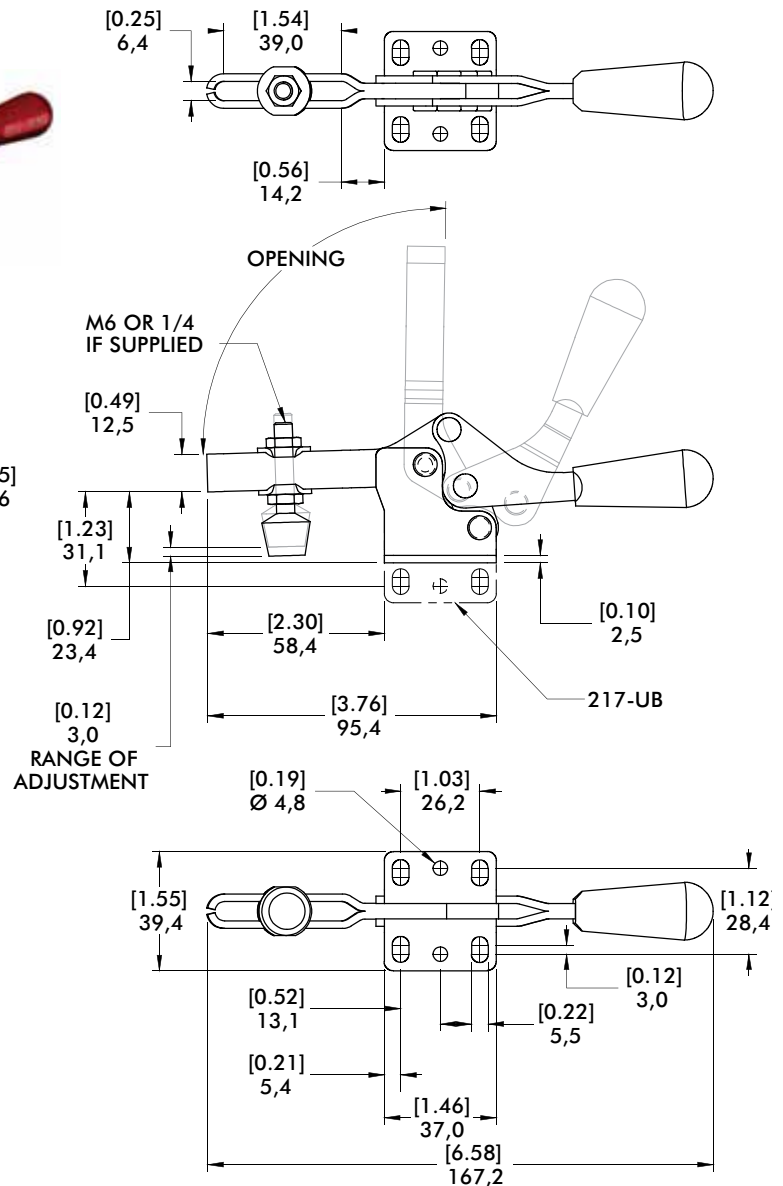
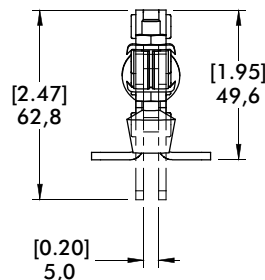
Straight Base
Model
217-UB-L ⓘ

See page 8.7 for Complete offering of Open bar accessories



See page 2.16 for dimensions not shown

217-U[†]
Flanged Base
U-Bar



Series 227 Product Overview

Features:

- Low profile
- Large handle clearance in the open position.
- Available in stainless steel

Applications:

- Assembly
- Checking fixtures
- Closures
- Woodworking

Also Available:

See page 8.1 for accessories
Accommodates M6 or 5/16" spindle accessory

227-U[†]
Flanged Base
U-Bar



227-USS
Flanged Base
U-Bar, Stainless
Steel



227-UB[†]
Straight Base
U-Bar



227-U-L[ⓘ]
Flanged Base
Open Bar



227-UB-L[ⓘ]
Straight Base
Open Bar



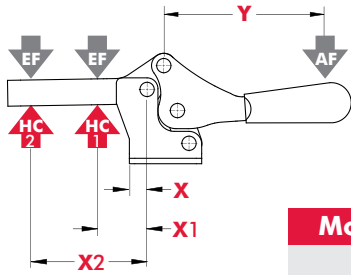
Note:
Clamps shown with included accessories. [†]To order without spindle, add (-LS) to the end of model (Ex: 227-U-LS)

Series 227 Technical Information

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight	Accessories (Supplied)	
					Spindle Assembly	Flanged Washers
227-U	2220 N [500 lbf]	91°	56°	0,31 kg [0.68lb]	225208-M	507107
227-USS	2670 N [600 lbf]				207943	507907
227-UB					225208-M	507107
227-U-L[ⓘ]	2220 N [500 lbf]				--	--
227-UB-L[ⓘ]						

[ⓘ] This item is available upon request

Series 227 Holding Capacities

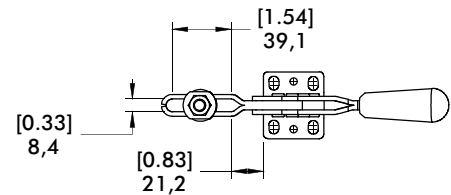


Model	X	X1	X2	Y	±HC1	±HC2	±EF(X1):AF	±EF(X2):AF
U					[2220lbf.] 500N	[225lbf.] 1000N		
USS	[0.39] 10,0	[1.25] 31,8	[2.75] 70,0	[3.58] 91,0	[600lbf.] 2670N	[270lbf.] 1200N	8:1	3:1
UB/U-L/ UB-L					[2220lbf.] 500N	[225lbf.] 1000N		

Dimensions shown "mm [inch]" ± HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Refer to page 20.5 for additional information.

Series 227 Standard Clamp Dimensions -U/-USS/-UB

227-U[†]
Flanged Base
U-Bar

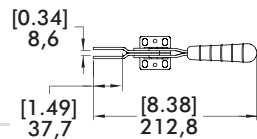


Series 227 Open Bar



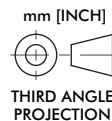
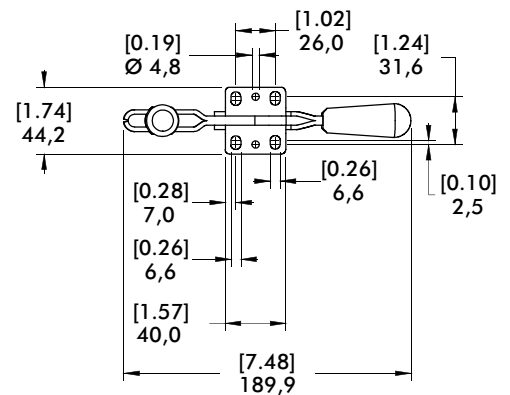
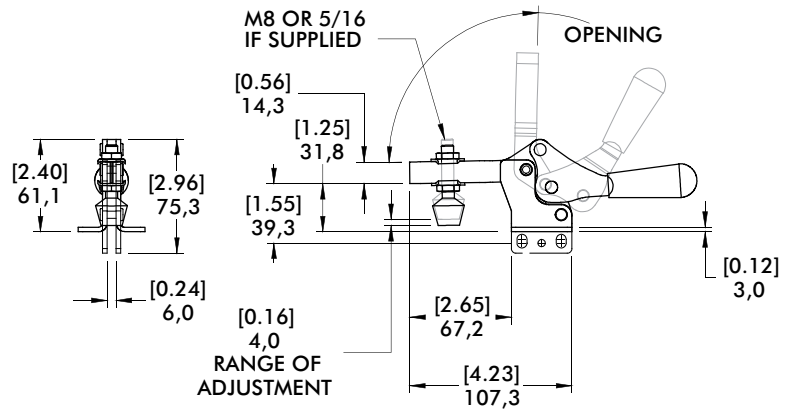
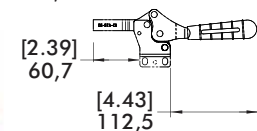
Flanged Base
Model
227-U-L ⓘ

See page 8.7 for Complete offering of Open bar accessories



Straight Base
Model
227-UB-L ⓘ

See page 2.18 for dimensions not shown



Series 237 Product Overview

Features:

- Low profile
- Large handle clearance in the open position.
- Available in stainless steel

Applications:

- Assembly
- Checking fixtures
- Welding

Also Available:

See page 8.1 for accessories

Accommodates M10 or 3/8" spindle accessory

237-U[†]
Flanged Base
U-Bar



237-USS[†]
Flanged Base
U-Bar, Stainless
Steel



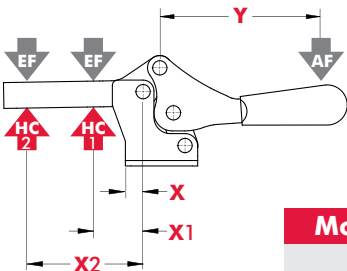
Note:
Clamps shown with included accessories. [†]To order without spindle, add (-LS) to the end of model (Ex: 237-U-LS)

Series 237 Technical Information

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight	Accessories (Supplied)	
					Spindle Assembly	Flanged Washers
237-U	3340 N [750 lbf]	93°	59°	0,73kg [1.60lb]	240208-M	235106
237-USS [†]	3780 N [850 lbf]				237943	235906

[†] This item is available upon request

Series 237 Holding Capacities

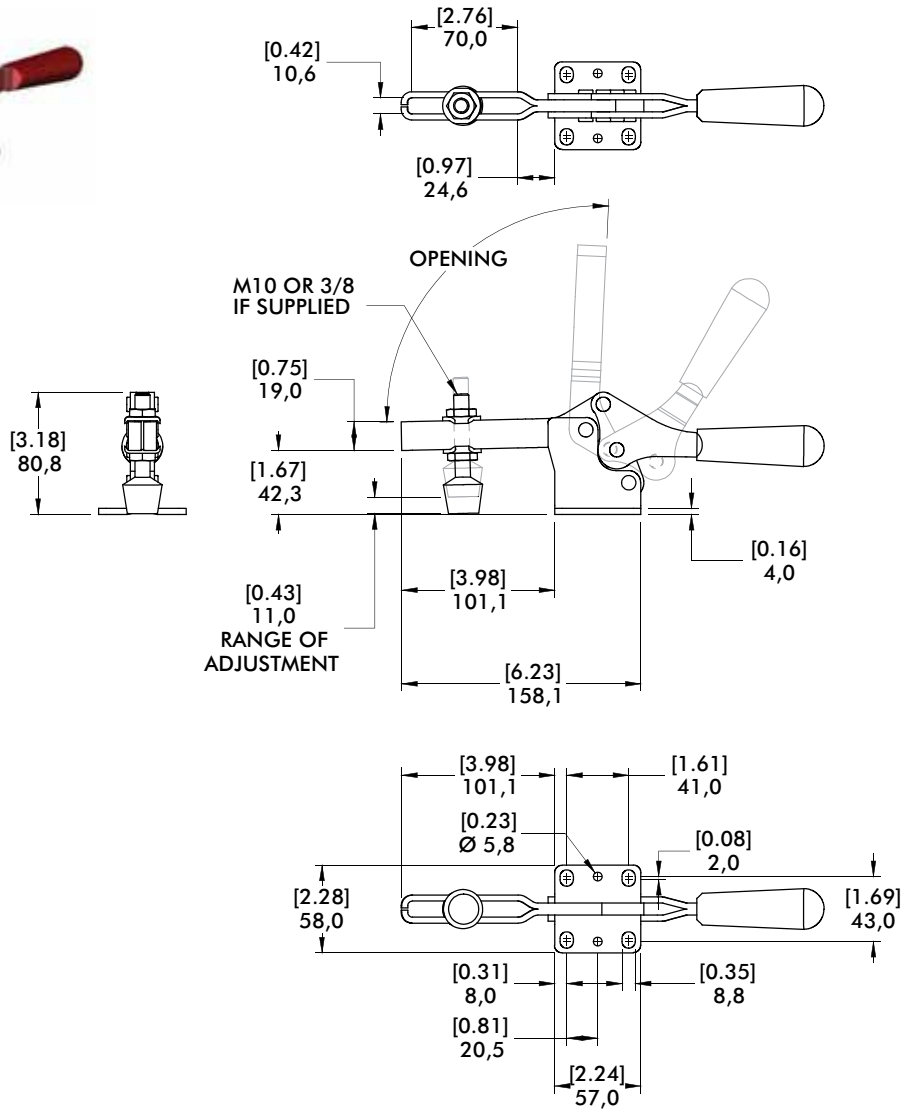


Model	X	X1	X2	Y	±HC1	±HC2	±EF(X1):AF	±EF(X2):AF
U	[0.81]	[1.75]	[4.50]	[5.25]	[750lbf.] 3340N	[290lbf.] 1290N	6:1	2:1
USS	20,6	44,5	114,3	133,3	[850lbf.] 3780N	[330lbf.] 1470N		

Dimensions shown "mm [inch]" ± HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Refer to page 20.5 for additional information.

Series 237 Standard Clamp Dimensions -U/-USS

237-U⁺
Flanged Base
U-Bar



Series 245 Product Overview

Features:

- Low profile
- Large handle clearance in the open position.

Applications:

- Assembly
- Checking fixtures
- Welding

Also Available:

See page 8.1 for accessories
Accommodates M12 or 1/2" spindle accessory

245-U
Flanged Base
U-Bar

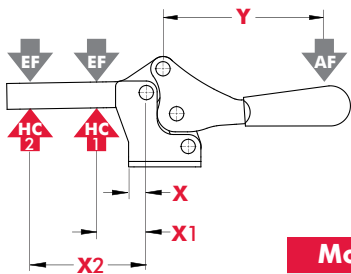


Note:
Clamps shown with included accessories. To order without spindle, add (-LS) to the end of model (Ex: 245-U-LS)

Series 245 Technical Information

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight	Accessories (Supplied)	
					Spindle Assembly	Flanged Washers
245-U	4450 N [1000 lbf]	105°	74°	1,32kg [2.90lb]	247208-M	247109

Series 245 Holding Capacities

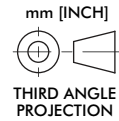
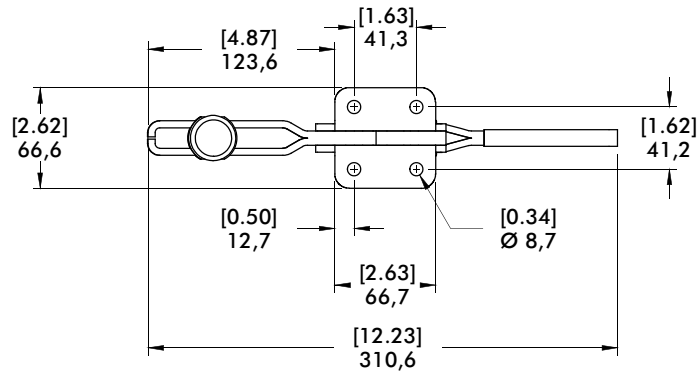
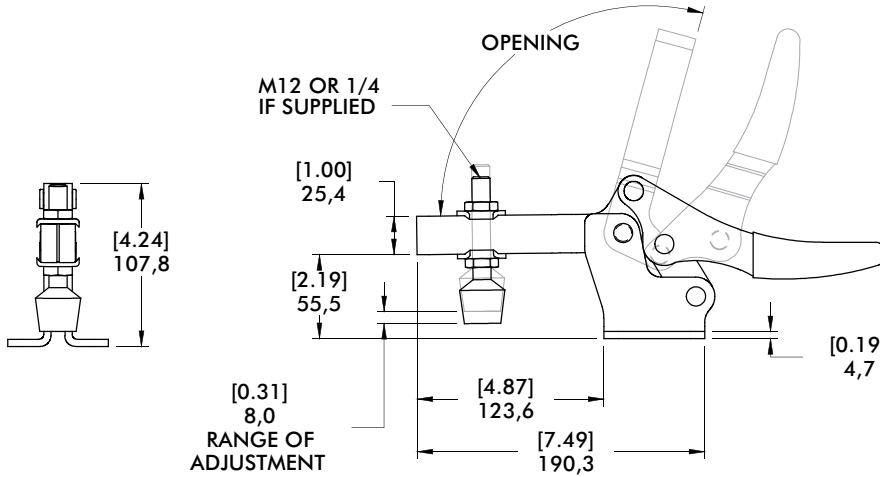
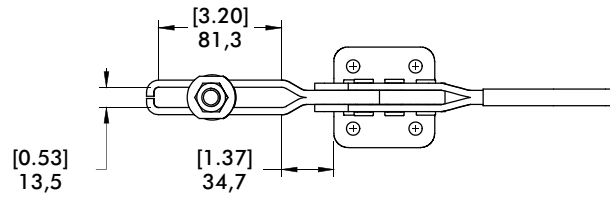


Model	X	X1	X2	Y	‡HC1	‡HC2	‡EF(X1):AF	‡EF(X2):AF
U	[0.50] 12,7	[2.00] 50,8	[5.00] 127	[6.09] 154,7	[1000lbf.] 4450N	[400lbf.] 1780N	11:1	5:1

Dimensions shown "mm [inch]" ‡ HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Refer to page 20.5 for additional information.

Series 245 Standard Clamp Dimensions

245-U
Flanged Base
U-Bar



Series 205 Product Overview

Features:

- Smallest of the Horizontal Hold Down clamps
- Ideal for light duty clamping in tight spaces
- Stainless steel models furnished without plastic grip

Applications:

- Assembly
- Closures
- Woodworking
- Light duty clamping

Also Available:

See page 8.1 for accessories

Accommodates M4 or #8 spindle accessory

205-U[†]
Flanged Base
U-Bar



205-UB[†] ⓘ
Straight Base
U-Bar



205-UL ⓘ
Left Flanged
Base, U-Bar



205-UR ⓘ
Right Flanged
Base, U-Bar



205-USS
Flanged Base
U-Bar, Stainless
Steel



205-S[†]
Flanged Base
Solid Bar



205-SB[†] ⓘ
Straight Base
Solid Bar



205-SL ⓘ
Left Flanged Base,
Solid Bar



205-SR ⓘ
Right Flanged
Base, Solid Bar



205-SSS
Flanged Base
Solid Bar, Stainless
Steel



Note:
Clamps shown with included accessories. [†]To order without spindle, add (-LS) to the end of model (Ex: 205-U-LS)

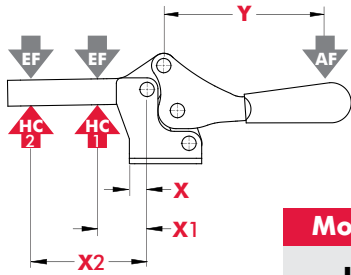
Series 205 Technical Information

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight	Accessories (Supplied)	
					Spindle Assembly	Flanged Washers
205-U	270N [60 lbf]	90°	80°	0,03kg [0.06lb]	205208-M	105106
205-UB ⓘ						
205-UL ⓘ						
205-UR ⓘ	340N [75 lbf]	94°	82°		205943	105906
205-USS						
205-S	270N [60 lbf]	94°	82°		205208-M	--
205-SB ⓘ						
205-SL ⓘ						
205-SR ⓘ						
205-SSS	340N [75 lbf]				205943	

ⓘ This item is available upon request



Series 205 Holding Capacities

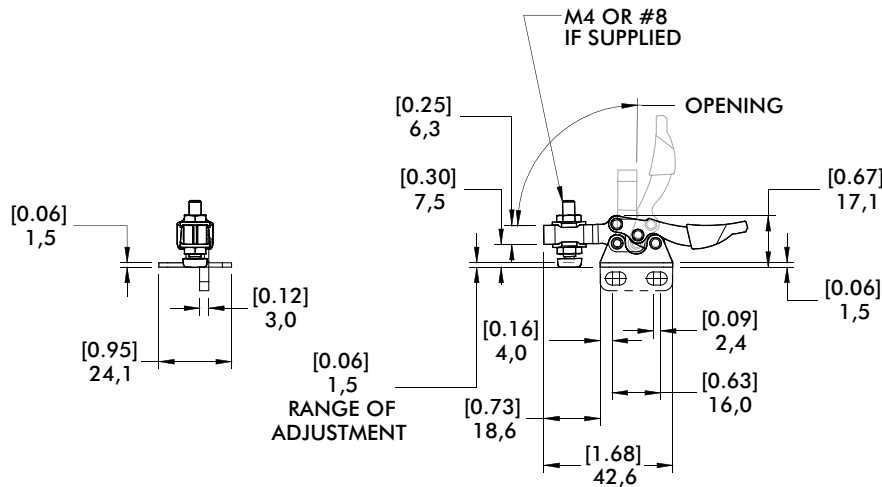
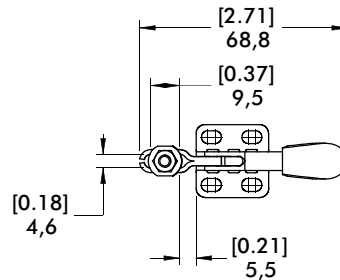


Model	X	X1	X2	Y	±HC1	±HC2	±EF(X1):AF	±EF(X2):AF
U		[0.43] 11			[60lbf.] 270N	[50lbf.] 220N	9:1	5:1
USS	[0.22] 5,6		[0.81] 20,5	[1.31] 33,2	[75lbf.] 340N	[65lbf.] 290N		
S		--			--	[60lbf.] 270N	--	4:1
SSS						[75lbf.] 340N		

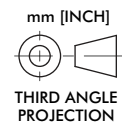
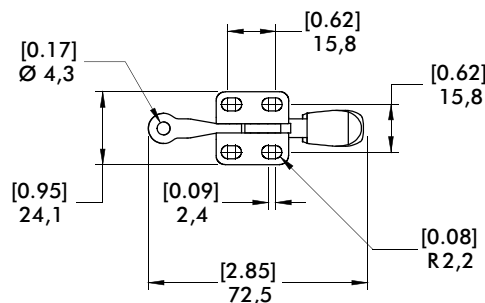
Dimensions shown "mm [inch]" ± HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Refer to page 20.5 for additional information.

Series 205 Standard Clamp Dimensions -U/-UB/-UL/-UR/-USS/-S/-SB/-SL/-SR/-SSS

205-U[†]
Flanged Base
U-Bar



205-S[†]
Flanged Base
Solid Bar



Series 215 Product Overview

Features:

- Low profile
- Stainless steel model furnished without plastic grip

Applications:

- Assembly
- Checking fixtures
- Closures
- Woodworking

Also Available:

See page 8.1 for accessories

Accommodates M6 or 1/4" spindle accessory

215-U[†]
Flanged Base
U-Bar



215-USS
Flanged Base
U-Bar, Stainless
Steel



215-UB[†] ⓘ
Straight Base
U-Bar



215-S
Flanged Base
Solid Bar



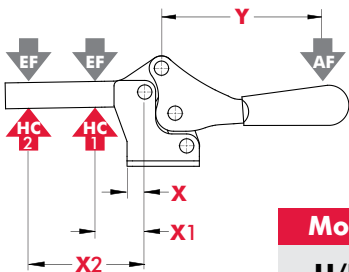
Note:
Clamps shown with included accessories. [†]To order without spindle, add (-LS) to the end of model (Ex: 215-UB-LS)

Series 215 Technical Information

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight	Accessories (Supplied)		
					Spindle Assembly	Flanged Washers	Bolt Retainer
215-U	890 N [200 lbf]	87°	78°	0,15kg [0.34lb]	202208-M	205105	--
215-USS	1110 N [250 lbf]				202943	205105	
215-UB ⓘ	890 N [200 lbf]				202208-M	205105	
215-S	890 N [200 lbf]				--	--	205105

ⓘ This item is available upon request

Series 215 Holding Capacities

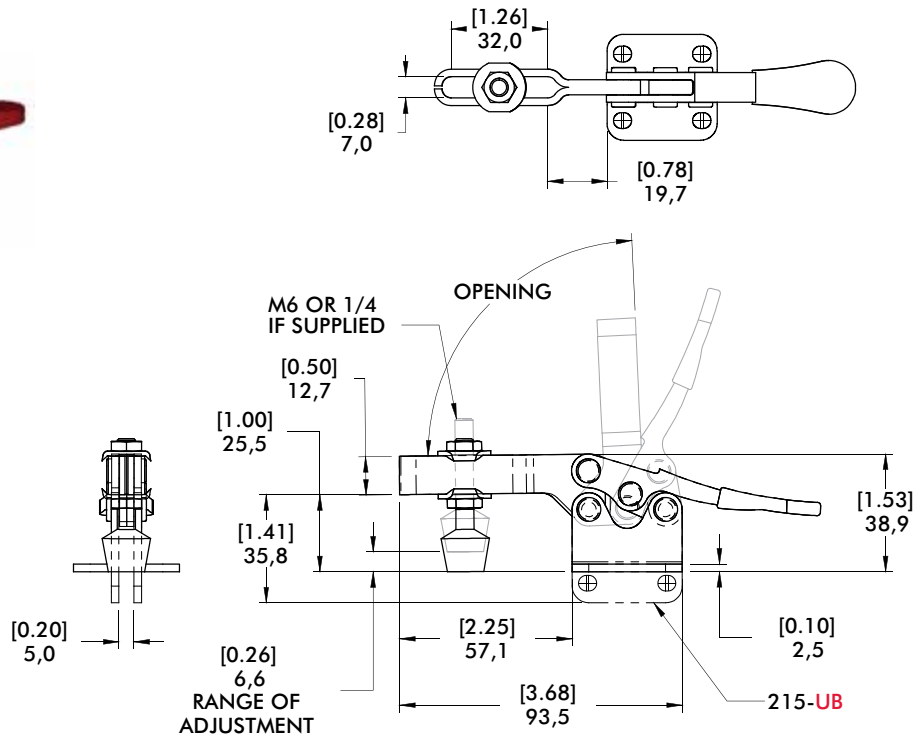


Model	X	X1	X2	Y	±HC1	±HC2	±EF(X1):AF	±EF(X2):AF
U/UB		[1.00]	[1.06]		[200lbf.] 890N	[80lbf.] 360N	9:1	4:1
USS	[0.22] 5,6	25,4	27	[2.72] 69	[250lbf.] 1110N	[110lbf.] 490N	6:1	
S		[1.63] 41,4	[2.88] 73		[200lbf.] 890N			

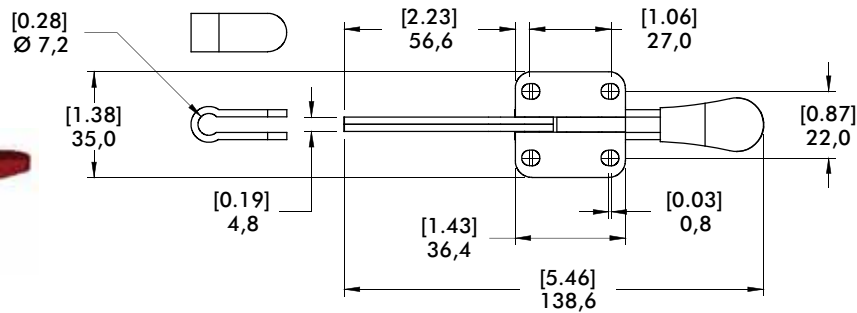
Dimensions shown "mm [inch]" ± HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Refer to page 20.5 for additional information.

Series 215 Standard Clamp Dimensions -U/-USS/-UB/-S

215-U⁺
Flanged Base
U-Bar



215-S
Flanged Base
Solid Bar



mm [INCH]
THIRD ANGLE PROJECTION

Series 225 Product Overview

Features:

- Low profile
- Stainless steel model furnished without plastic grip
- Available with DE-STA-CO® Toggle Lock Plus

Applications:

- Assembly
- Checking fixtures
- Closures
- Woodworking

Also Available:

See page 8.1 for accessories
Accommodates M8 or 5/16" spindle accessory

Covered under one year or more U.S./International Patents

225-U[†]
Flanged Base
U-Bar



225-USS
Flanged Base, U-Bar,
Stainless Steel



225-UR[†]
Flanged Base, U-Bar
with DE-STA-CO®
Toggle Lock
Plus



225-UB[†] ⓘ
Straight Base
U Bar



225-UBSS ⓘ
Straight Base, U Bar,
Stainless Steel



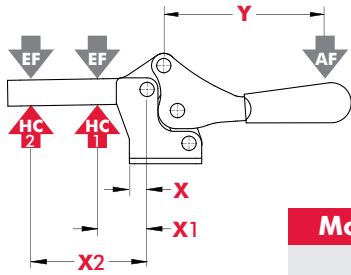
Note:
Clamps shown with included accessories. [†]To order without spindle, add (-LS) to the end of model (Ex: 225-U-LS)

Series 225 Technical Information

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight	Accessories (Supplied)	
					Spindle Assembly	Flanged Washers
225-U	2220 N [500 lbf]	92°	70°	0,25kg [0.55lb]	225208-M	507107
225-USS	2760 N [600 lbf]				207943	507907
225-UR	2220 N [500 lbf]			225208-M	507107	
225-UB ⓘ				0,25kg [0.55lb]	207943	507907
225-UBSS ⓘ	2760 N [600 lbf]			207943	507907	

ⓘ This item is available upon request

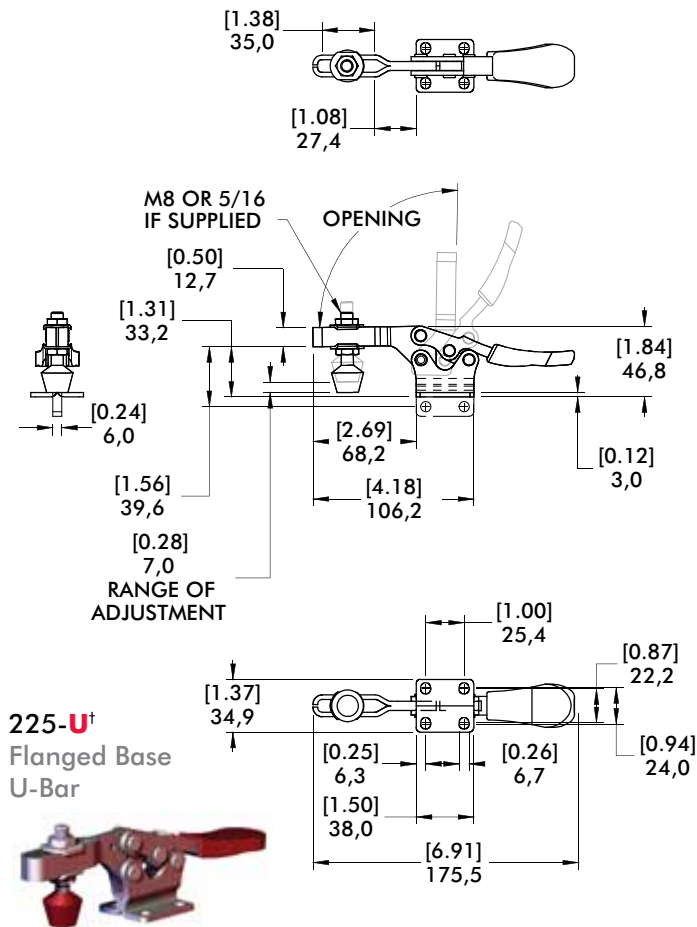
Series 225 Holding Capacities



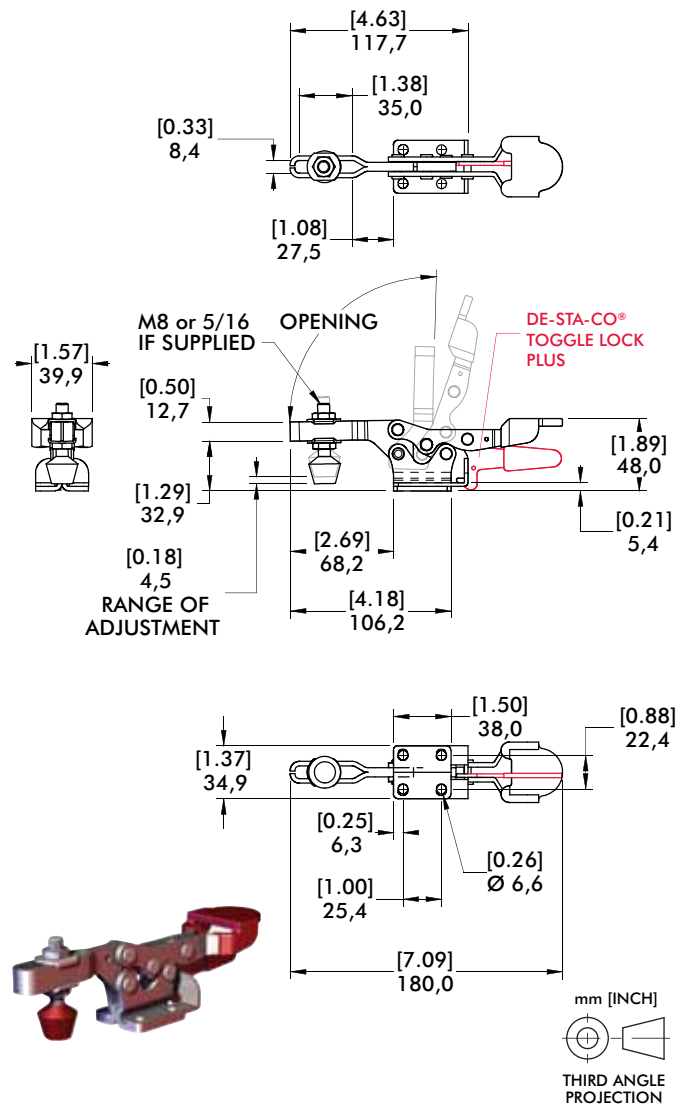
Model	X	X1	X2	Y	±HC1	±HC2	±EF(X1):AF	±EF(X2):AF
U					[500lbf.] 2220N	[250lbf.] 1110N		
USS	[0.12] 3,0	[1.25] 31,8	[2.50] 63,5	[3.56] 90,4	[600lbf.] 2760N	[300lbf.] 1340N	12:1	5:1
UR/UB					[500lbf.] 2220N	[250lbf.] 1110N		
UBSS					[600lbf.] 2760N	[300lbf.] 1340N		

Dimensions shown "mm [inch]" ± HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Refer to page 20.5 for additional information.

Series 225 Standard Clamp Dimensions -U/-USS-/UB-/UBSS



Series 225-UR Standard Clamp Dimensions



Series 235 Product Overview

Features:

- Low profile
- Available with DE-STA-CO® Toggle Lock Plus
- Available in stainless steel

Applications:

- Assembly
- Checking fixtures
- Welding
- Closures
- Woodworking

Also Available:

See page 8.1 for accessories

Accommodates M10 or 3/8" spindle accessory

Covered under one year or more U.S./International Patents

235-U[†]
Flanged Base
U-Bar



235-USS
Flanged Base, U-Bar,
Stainless Steel



235-UR[†]
Flanged Base, U-Bar
with DE-STA-CO®
Toggle Lock
Plus



235-UB[Ⓜ]
Straight Base
U-Bar



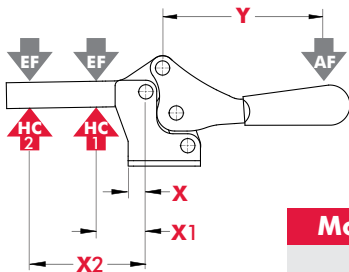
Note:
Clamps shown with included accessories. [†]To order without spindle, add (-LS) to the end of model (Ex: 235-U-LS)

Series 235 Technical Information

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight	Accessories (Supplied)	
					Spindle Assembly	Flanged Washers
235-U	3340 N [750 lbf]	92°	70°	0,67kg [1.47lb]	240208-M	235106
235-USS	3780 N [850 lbf]				237943	235906
235-UR	3340 N [750 lbf]			0,74kg [1.64lb]	240208-M	235106
235-UB[Ⓜ]				0,67kg [1.47lb]		

[Ⓜ] This item is available upon request

Series 235 Holding Capacities

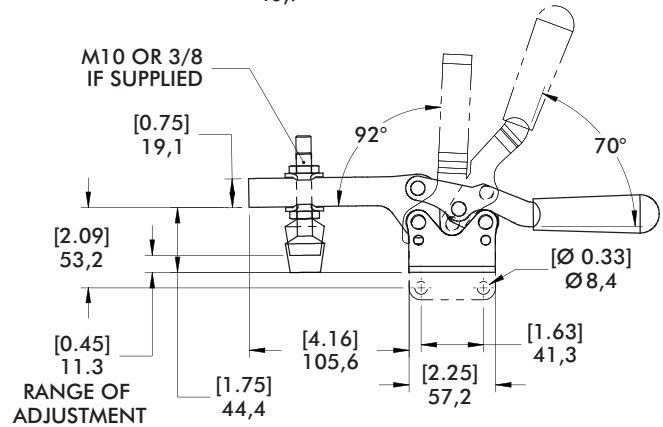
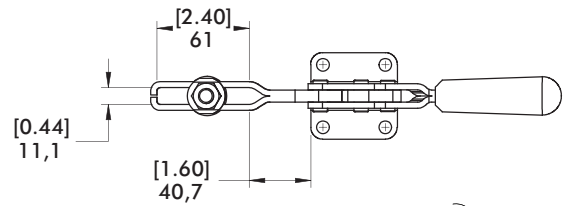
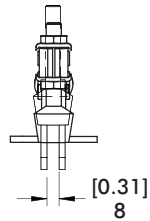


Model	X	X1	X2	Y	‡HC1	‡HC2	‡EF(X1):AF	‡EF(X2):AF
U					[750lbf.] 3340N	[300lbf.] 1330N		
USS	[0.25] 6,4	[1.75] 44,5	[4.13] 105	[5.75] 146	[850lbf.] 3780N	[360lbf.] 1600N	9:1	5:1
UR/UB					[750lbf.] 3340N	[300lbf.] 1330N		

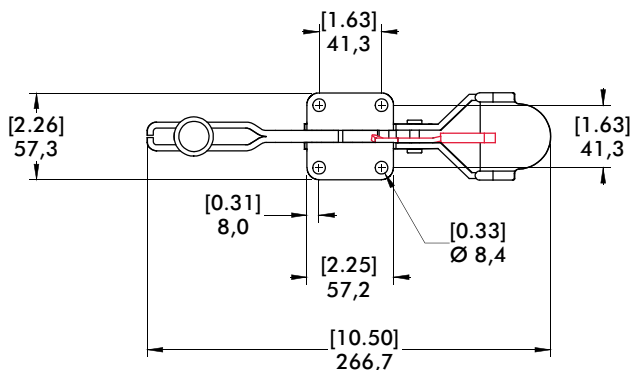
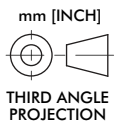
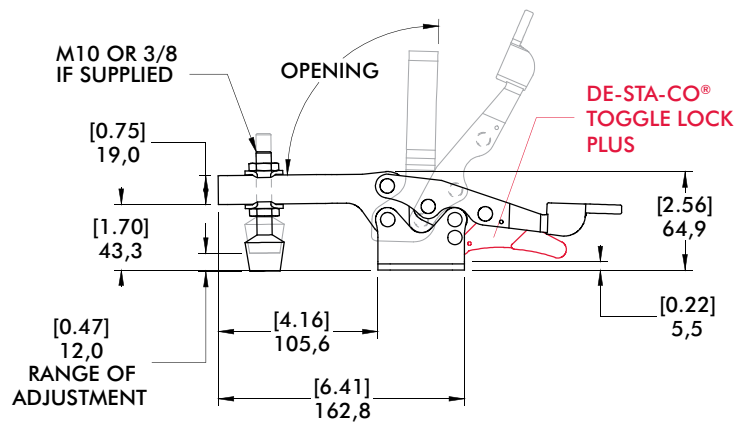
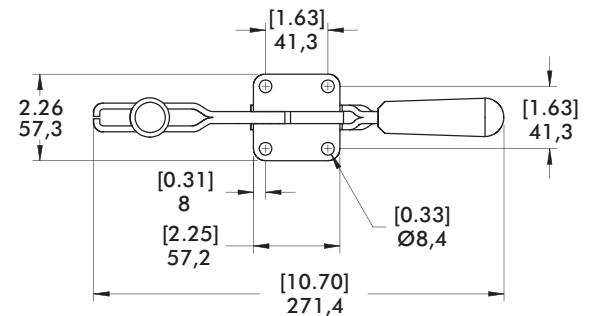
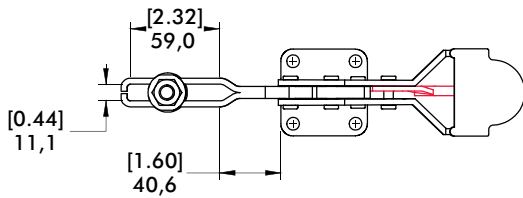
Dimensions shown "mm [inch]" ‡ HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Refer to page 20.5 for additional information.

Series 235 Standard Clamp Dimensions -U/-USS/-UR/-UB

235-U[†]
Flanged Base
U-Bar



Series 235-UR
Standard Clamp Dimensions



235-UR[†]
Flanged Base, U-Bar
with DE-STA-CO[®]
Toggle Lock
Plus



Series 305, 307, 309 Product Overview

Features:

- Compact design suitable for use in confined spaces
- Available with DE-STA-CO® Toggle Lock Plus
- Stainless steel models available

Applications:

- Assembly & Test
- Light Machining
- Closures
- Woodworking

Also Available:

See page 8.1 for accessories

305-U[†]
Flanged Base
U-Bar



305-USS
Flanged Base
U-Bar, Stainless
Steel



305-UR[†]
Flanged Base,
U-Bar with
DE-STA-CO®
Toggle
Lock
Plus



307-U[†]
Flanged Base
U-Bar



307-USS
Flanged Base
U-Bar, Stainless
Steel



307-UR[†]
Flanged Base,
U-Bar with
DE-STA-CO®
Toggle
Lock
Plus



309-U[†]
Flanged Base
U-Bar



309-USS
Flanged Base
U-Bar, Stainless
Steel



309-UR[†] ⓘ
Flanged Base,
U-Bar with
DE-STA-CO®
Toggle
Lock
Plus



Note: Clamps shown with included accessories. [†]To order without spindle, add (-LS) to the end of model (Ex: 307-U-LS)

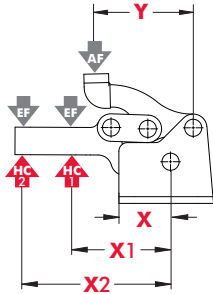
Series 305, 307, 309 Technical Information

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight	Accessories (Supplied)	
					Spindle Assembly	Flanged Washers
305-U	670 N [150 lbf]	90°	170°	0,06kg [0.13lb]	305208-M	102111
305-USS	900 N [200 lbf]				201943	102911
305-UR	670 N [150 lbf]				305208-M	102111
307-U	1560 N [350 lbf]	92°	173°	0,24kg [0.54lb]	307208-M	507107
307-USS					207943	507907
307-UR					307208-M	507107
309-U	3340 N [750 lbf]	90°	168°	1,30kg [0.59lb]	309208	235106
309-USS					237943	235906
309-UR ⓘ					309208	235106

ⓘ This item is available upon request



Series 305, 307, 309 Holding Capacities

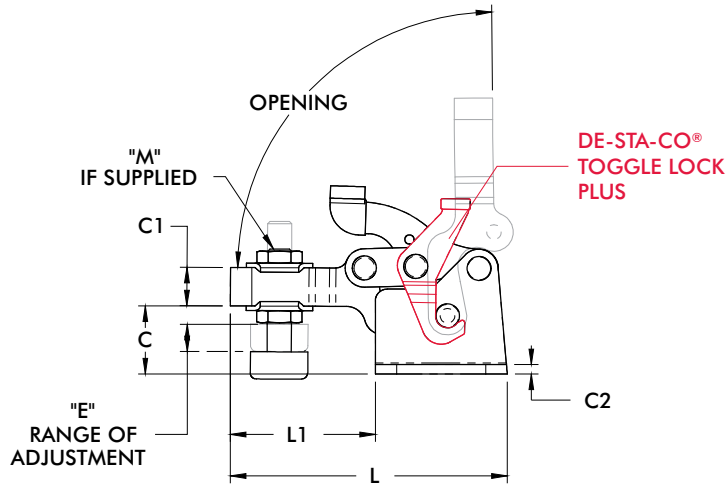
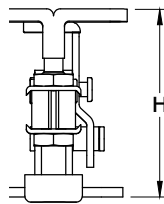
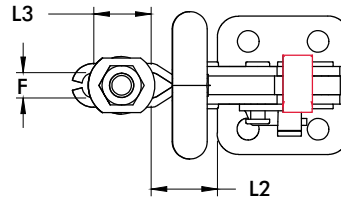


Model	X	X1	X2	Y	±HC1	±HC2	±EF(X1):AF	±EF(X2):AF
305-U/UR	[0.58]	[1.38]	[1.88]	[1.14]	[150lbf.] 670N	[110lbf.] 490N	3:1	2:1
305-USS	14,6	35	47,7	29	[200lbf.] 900N	[150lbf.] 670N		
307-U/UR/USS	[0.94]	[1.88]	[2.50]	[1.77]	[350lbf.] 1560N	[260lbf.] 1160N	4:1	
309-U/UR/USS	[1.34]	[2.50]	[3.50]	[2.70]	[750lbf.] 3340N	[530lbf.] 2360N		

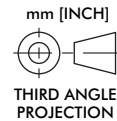
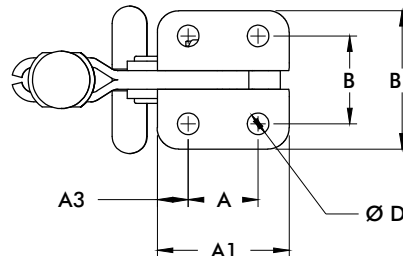
Dimensions shown "mm [inch]" ± HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Refer to page 20.5 for additional information.

Series 305, 307, 309 Standard Clamp Dimensions
-U/-USS/-UR

305-U[†]
Flanged Base
U-Bar



307-UR[†]
Flanged Base,
U-Bar with
DE-STA-CO[®]
Toggle
Lock
Plus



Model	A	A1	A3	B	B1	C	C1	C2	D	F	H	L	L1	L2	L3	M
305-U/UR	[0.53] 13,5	[1.02] 25,9	[0.25] 6,4	[0.63] 16,0	[1.00] 25,4	[0.48] 12,2	[0.31] 7,9	[0.08] 2,0	[0.18] 4,6	[0.21] 5,3	[1.43] 36,3	[2.21] 56,1	[1.19] 30,2	[0.51] 13,0	[0.50] 12,7	[#10] M5
307-U/UR	[0.91] 23,1	[1.72] 43,7	[0.40] 10,2	[1.14] 29,0	[1.80] 45,7	[0.89] 22,6	[0.50] 12,7	[0.12] 3,0	[0.28] 7,1	[0.33] 8,4	[2.36] 59,9	[3.61] 91,7	[1.89] 48,0	[0.86] 21,8	[0.75] 19,1	[5/16] M8
309-U/UR	[1.38] 35,1	[2.52] 64,0	[0.58] 14,7	[1.50] 38,1	[2.47] 62,7	[1.31] 33,3	[0.75] 19,1	[0.12] 3,0	[0.33] 8,4	[0.44] 10,4	[3.53] 89,7	[5.19] 131,8	[2.68] 68,1	[1.28] 32,5	[1.06] 26,9	[3/8-1/6] M10

Series 206 Product Overview

Features:

- All stainless steel construction
- Offers good bar clearance under clamping bar while maintaining low profile

Applications:

- Assembly
- Chemical processing
- Closures
- Light duty clamping

Also Available:

See page 8.1 for accessories
Accommodates M4 or #8 spindle accessory

206-SS

Flanged Base
Low U-Bar,
Stainless Steel



206-HSS

Flanged Base
High U-Bar,
Stainless Steel



Series 206 Technical Information

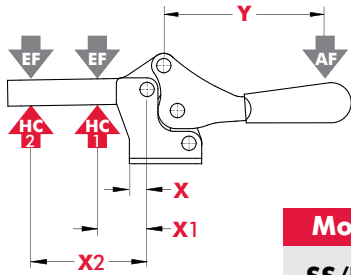
Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight	Accessories (Supplied)	
					Spindle Assembly	Flanged Washers
206-SS	440 N [100 lbf]	90°	90°	0,03kg [0.07lb]	205943	105906
206-HSS						

Model 206-HSS shown securing a platen on a prototyping machine.





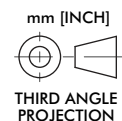
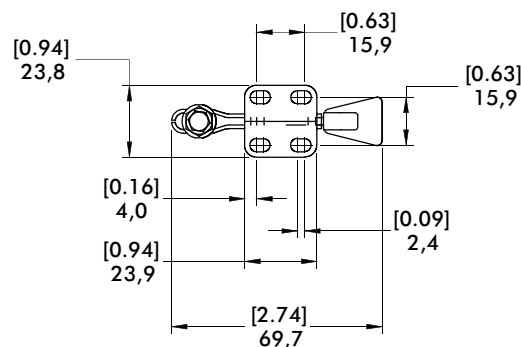
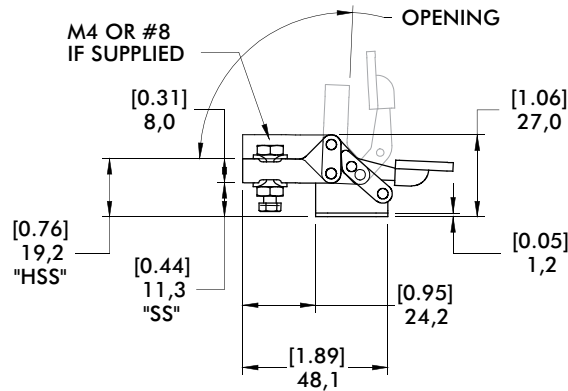
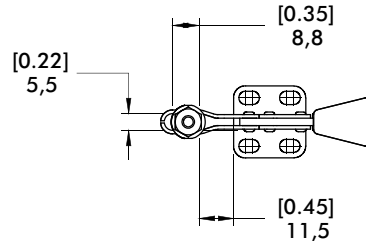
Series 206 Holding Capacities



Model	X	X1	X2	Y	±HC1	±HC2	±EF(X1):AF	±EF(X2):AF
SS/HSS	[0.20] 5	[0.43] 11	[1.06] 27	[1.14] 29	[100lbf.] 440N	[50lbf.] 220N	5:1	3:1

Dimensions shown "mm [inch]" ± HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Refer to page 20.5 for additional information.

Series 206 Standard Clamp Dimensions -SS/-HSS



Series 515 Product Overview

Features:

- Hardened steel pins and bushings strength and long life
- Replaceable pivot pins
- Large, solid clamping arm is easily modified to suit application requirements

Applications:

- Welding
- Assembly
- Light machining
- Medium to heavy duty clamping applications

Also Available:

See page 8.1 for accessories

515
Weldable Base
Solid Bar



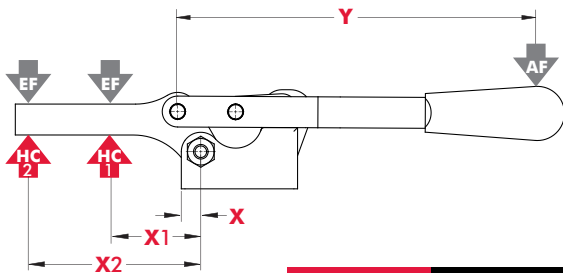
515-B
Flanged Base
Solid Bar



Series 515 Technical Information

Model	Max. Holding Capacity	Clamp Bar Opening (+10°)	Handle Opening (+10°)	Weight
515	3560 N [800 lbf]	85°	72°	0,73kg [1.60lb]
515-B				

Series 515 Holding Capacities

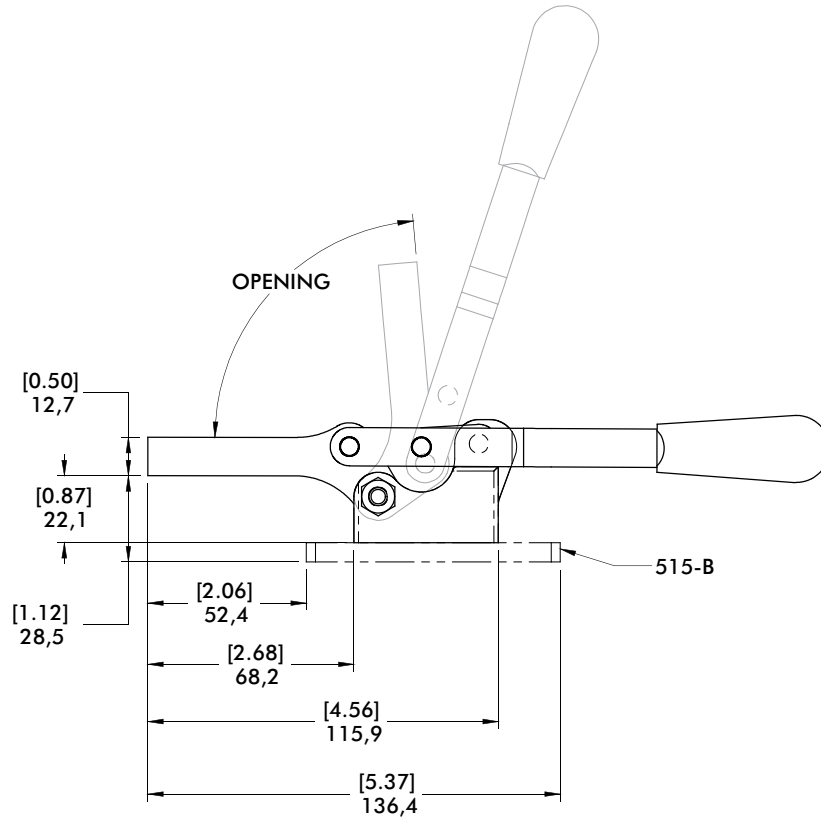
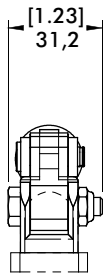
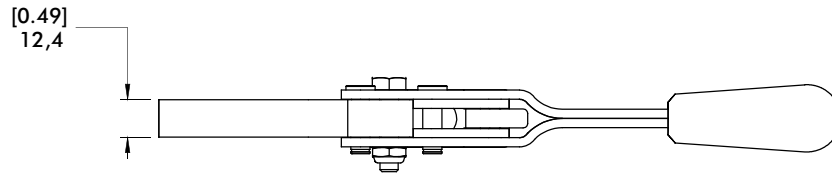


Model	X	X1	X2	Y	‡HC1	‡HC2	‡EF(X1):AF	‡EF(X2):AF
515	[0.31] 8	[1.50]	[2.63]	[5.51]	[800lbf.]	[400lbf.]	11:1	5:1
515-B	[0.94] 24	38	66,8	140	3560N	1780N		

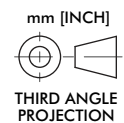
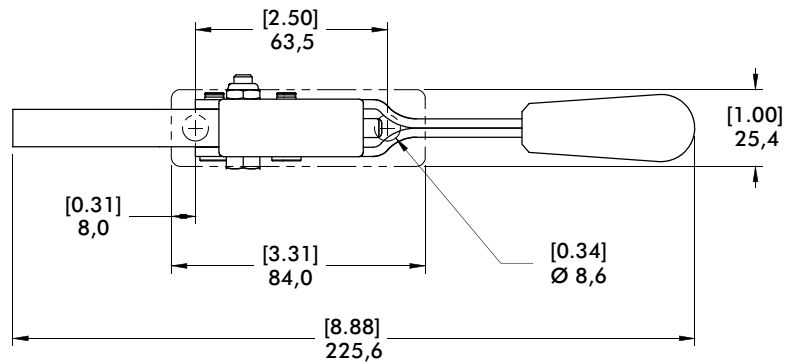
Dimensions shown "mm [inch]" ‡ HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Refer to page 20.5 for additional information.

Series 515 Standard Clamp Dimensions

515
Weldable Base
Solid Bar



515-B
Flanged Base
Solid Bar



		Max. Holding Capacity N[lbf.]							Plunger Travel mm [inch]								
		0 to 1000 [0 to 225]	1000 to 2000 [225 to 450]	2000 to 3000 [450 to 675]	3000 to 5000 [675 to 1125]	5000 to 7000 [1125 to 1575]	7000 to 10000 [1575 to 2250]	10000+ [2250+]	0 to 20 [0 to 0.79]	20 to 40 [0.79 to 1.57]	40 to 60 [1.57 to 2.36]	60 to 80 [2.36 to 3.15]	80 to 105 [3.15 to 4.13]				
Series	Section.Page																
		6001	3.3	■									■				
		601	3.4	■									■				
		6015	3.5			■							■				
		603	3.7			■							■				
		608	3.7				■							■			
		605	3.9		■								■				
		606	3.10		■								■				
		607	3.11				■							■			
		609	3.12		■								■				
		610	3.13				■							■			
		615	3.14		■								■				
		620	3.15			■							■				
		630	3.16										■		■		
		640	3.17										■				■
		650	3.18										■			■	
		95030	3.19			■							■				
		95040	3.19				■						■				
		95050	3.19										■		■		
		95060	3.19										■		■		
		602	3.21	■									■				
		604	3.21		■									■			
		624	3.21				■									■	
		6004	3.23		■									■			



Overall Height mm [inch]		Overall Length mm [inch]		Overall Width mm [inch]		Suitable Application Area					Standard Material			Service Environment															
0 to 40 [0 to 1.57]	40 to 60 [1.57 to 2.36]	60 to 80 [2.36 to 3.15]	80 to 100 [3.15 to 3.94]	100 to 120 [3.15 to 4.72]	120 to 140 [4.72 to 5.51]	60 to 80 [2.36 to 3.15]	80 to 120 [2.36 to 4.72]	120 to 160 [4.72 to 6.30]	160 to 200 [6.30 to 7.87]	200 to 240 [7.87 to 9.45]	240 to 280 [9.45 to 11.02]	280+ [11.02+]	0 to 30 [0 to 1.18]	30 to 45 [1.18 to 1.77]	45 to 60 [1.77 to 2.36]	60 to 75 [2.36 to 2.95]	75 to 90 [2.95 to 3.54]	Welding	Assembly	Checking Fixtures	Machining	Woodworking	Food Processing	Duty Cycle	Steel	Stainless Steel	Toggle Lock Plus	Normal	Harsh/Dirty
█						█												○	●	●	●	●	○	○	✓	✓		✓	
█						█							█					○	●	●	●	●	○	○	✓	✓		✓	
█						█							█					○	●	●	●	●	○	○	✓	✓	✓	✓	
		█						█							█			●	●	●	●	●	○	○	✓	✓	✓	✓	
			█					█							█			●	●	●	●	●	○	○	✓			✓	
				█				█							█			●	●	●	●	●	○	○	✓			✓	
					█			█							█			●	●	●	●	●	○	○	✓			✓	
						█		█							█			○	●	●	●	●	○	○	✓			✓	
							█								█			○	●	●	●	●	○	○	✓			✓	
									█						█			○	●	●	●	●	○	○	✓			✓	
										█					█			○	●	●	●	●	○	○	✓			✓	
											█				█			○	●	●	●	●	○	○	✓			✓	
												█			█			○	●	●	●	●	○	○	✓			✓	
													█		█			○	●	●	●	●	○	○	✓			✓	
																█		○	●	●	●	●	○	○	✓			✓	
																	█	○	●	●	●	●	○	○	✓			✓	
																		○	●	●	●	●	○	○	✓			✓	
																		○	●	●	●	●	○	○	✓			✓	

● Excellent/High ○ Fair/Medium ● Poor/Low ⊗ Not Recommended

Series 6001 Product Overview

Features:

- Heavier duty version of Model 601 with 50% more holding capacity
- Mounting pattern interchangeable with Model 601
- Allow handle to fall below mounting plane to lock in retracted position

Applications:

- Assembly
- Testing
- Soldering
- Gluing

Also Available:

See page 8.1 for accessories

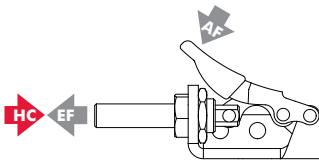
▲ 6001
● 6001-M



▲ 6001-SS
● 6001-MSS

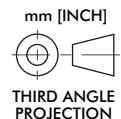
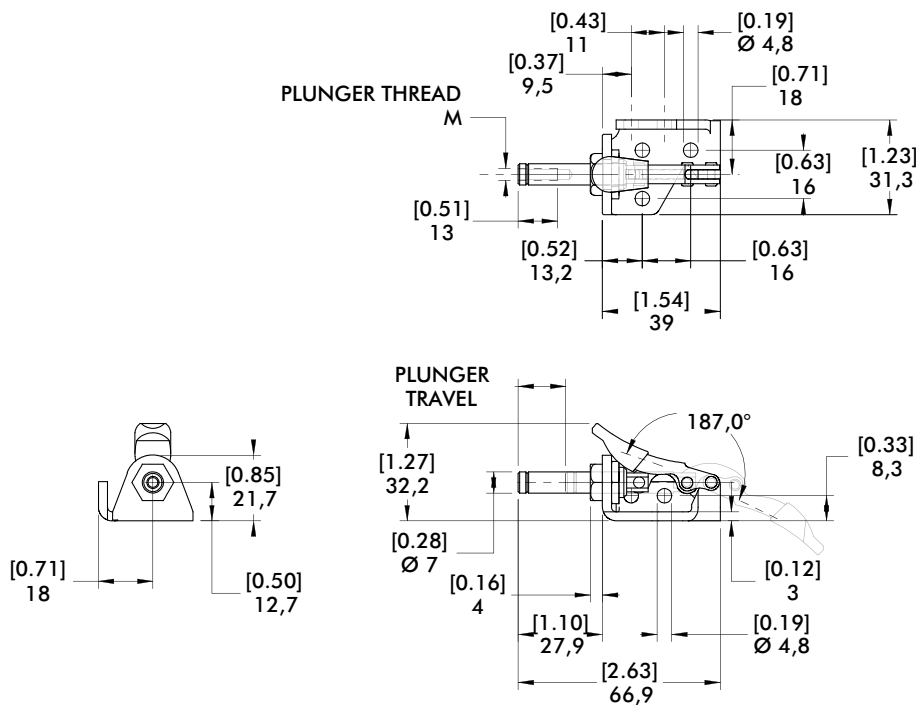


Series 6001 Technical Information, Holding Capacities, Standard Clamp Dimensions



Model	Max. Holding Capacity	Weight	EF:AF (pushing/pulling)	Plunger Travel	(M) Plunger Thread	Spindle (Recommended)	Spindle Included
▲ 6001					#8-32	105203	No
● 6001-M	[150 lbf] 670 N	[0.12lb] 0,05kg	14:1/25:1	[0.63] 16	M4	205208-M	No
▲ 6001-SS					#8-32	205943	Yes
● 6001-MSS					M4	102908-M	Yes

HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Preferred Market: ▲ NA/SA ■ Europe ● Global



Features:

- Compact straight line action clamp

Applications:

- Assembly
- Testing
- Soldering
- Gluing

Also Available:

See page 8.1 for accessories

▲ 601



● 601-M



● 601-O
Straight Base
U-Bar



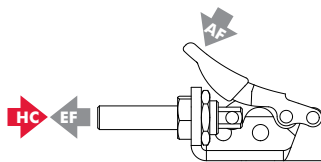
● 601-SS
Stainless steel



● 601-OSS ⓘ
Stainless steel
External
thread

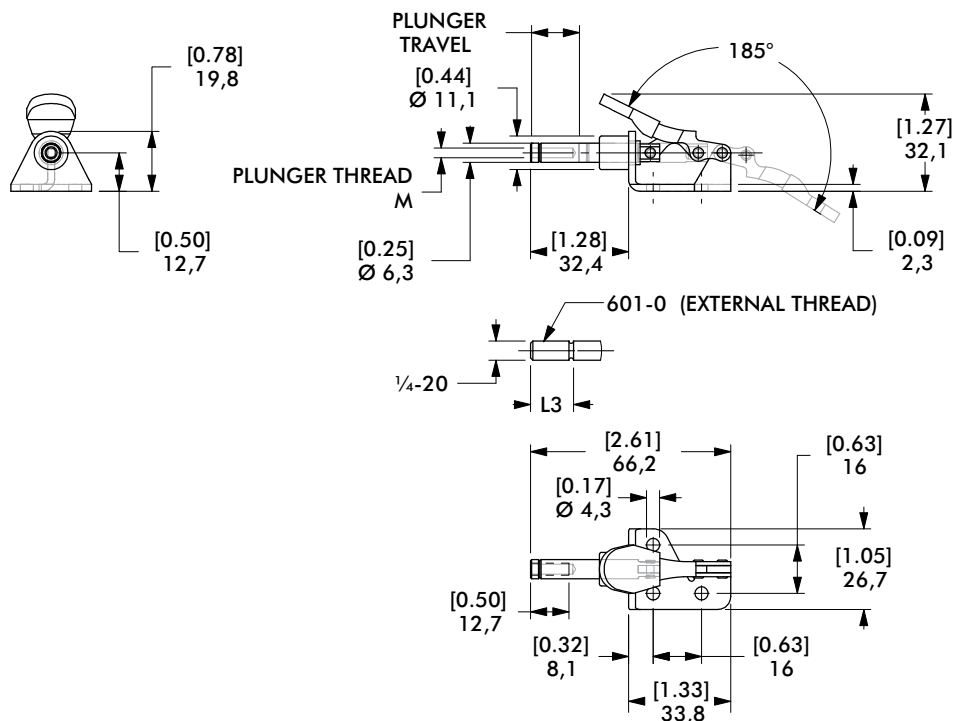


Series 601 Technical Information, Holding Capacities, Standard Clamp Dimensions



Model	Max. Holding Capacity	Weight	EF:AF (pushing/pulling)	Plunger Travel (M)	Plunger Thread (M)	Spindle (Recommended)	Spindle Included
▲ 601					#8-32	105203	Yes
● 601-M	[100 lbf]	[0.09lb]	14:1/25:1	[0.63] 16	M4	205208-M	No
● 601-O	440 N	0,04kg			1/4-20	--	
● 601-SS					#8-32	205943	Yes
● 601-OSS ⓘ					1/4-20	--	No

ⓘ This item is available upon request HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
 Preferred Market: ▲ NA/SA ■ Europe ● Global



Series 6015 Product Overview

Features:

- Smallest of the solid base Straight Line Action clamps
- Compact design combined with high holding capacity
- Allow handle to fall below mounting plane to lock in retracted position

Applications:

- Assembly
- Checking fixtures
- Tensioning devices

Also Available:

See page 8.1 for accessories

Covered under one year or more U.S./International Patents

- ▲ 6015
- 6015-M



- ▲ 6015-SS,
- 6015-MSS
- Stainless Steel



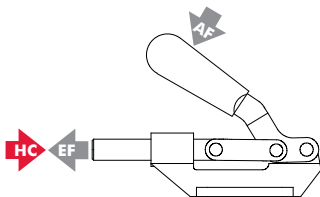
- ▲ 6015-R,
- 6015-MR
- with DE-STA-CO® Toggle Lock Plus



- 6015-MRSS
- Stainless Steel with DE-STA-CO® Toggle Lock Plus



Series 6015 Technical Information, Holding Capacities



Model	Max. Holding Capacity	Weight	EF:AF (pushing/pulling)	Plunger Travel	(M) Plunger Thread	Recommended Spindle (Not Supplied)
▲ 6015	[560 lbf] 2500 N				1/4-20	205203
● 6015-M					M6	205203-M
▲ 6015-SS	[630 lbf] 2800 N				1/4-20	202943 (supplied)
● 6015-MSS		[0.35lb] 0,15kg	35:1	[0.70] 17,8	M6	202916-M (supplied)
▲ 6015-R	[560 lbf] 2500 N				1/4-20	205203
● 6015-MR						205203-M
● 6015-MRSS	[630 lbf] 2800 N				M6	202943-M* (supplied)

HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
 Preferred Market: ▲ NA/SA ■ Europe ● Global

Series 6015 Standard Clamp Dimensions 6015/-M/-SS/-MSS/-R/-MR/-MRSS

▲ 6015
● 6015-M



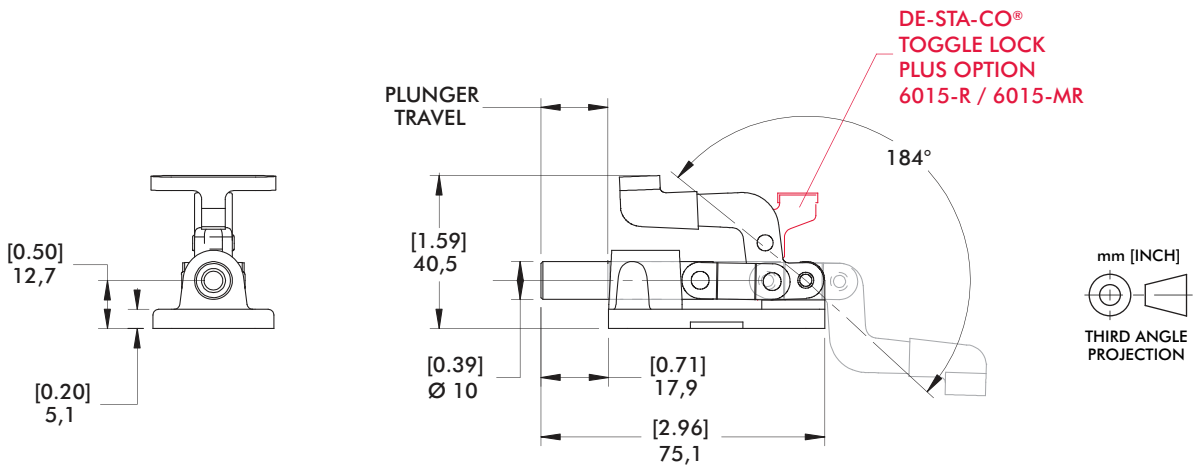
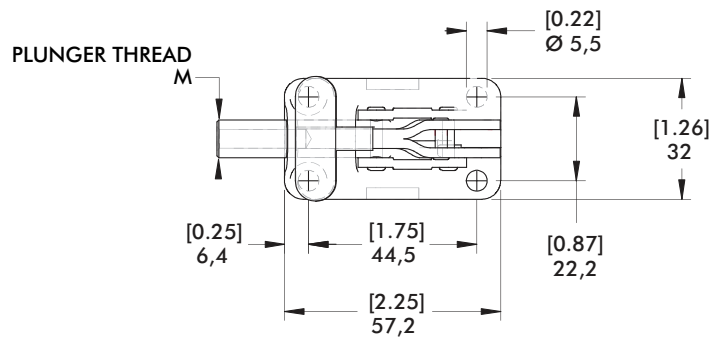
▲ 6015-SS,
● 6015-MSS
Stainless Steel



▲ 6015-R,
● 6015-MR
with DE-STA-CO®
Toggle Lock
Plus



● 6015-MRSS
Stainless Steel
with DE-STA-CO®
Toggle Lock
Plus



Series 603, 608 Product Overview

Features:

- Allow handle to rotate and fall below mounting plane to lock in retracted position
- Large holding capacities for their size
- Available with DE-STA-CO® Toggle Lock Plus

Applications:

- Assembly & test
- Checking fixtures
- Welding fixtures
- Tensioning devices

Also Available:

- See page 8.1 for accessories
- 803 Pneumatic Toggle Clamp
See page 10.26
- 803-ME Pneumatic Toggle Clamp
See page 10.26

Covered under one year or more U.S./International Patents

▲ 603

● 603-M



▲ 603-SS

● 603-MSS
Stainless Steel



▲ 603-R

● 603-MR
with
DE-STA-CO®
Toggle Lock
Plus

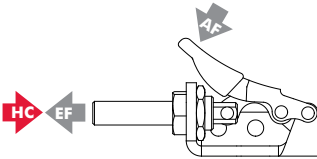


▲ 608

● 608-M



Series 603, 608 Technical Information, Holding Capacities



Model	Max. Holding Capacity	Weight	EF:AF (pushing/pulling)	Plunger Travel	(M) Plunger Thread	Recommended Spindle (Not Supplied)
▲ 603	[600 lbf] 2670 N				5/16-18	207203
● 603-M					M8	207203-M
▲ 603-SS	[840 lbf] 3740 N	[0.83lb] 0,38kg	23:1/34:1	[1.25] 31,8	5/16-18	207943
● 603-MSS					M8	207943-M (supplied)
▲ 603-R	[600 lbf] 2670 N				5/16-18	207203
● 603-MR					M8	207203-M
▲ 608	[850 lbf] 3780 N	[1.25lb] 0,57kg	44:1/50:1	[1.63] 41,3	3/8-16	210203
● 608-M					M10	210203-M

HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Preferred Market: ▲ NA/SA ■ Europe ● Global



Series 603, 608 Standard Clamp Dimensions 603/608/-M/-SS/-MSS/-R/-MR

▲ 603

● 603-M



▲ 603-SS

● 603-MSS
Stainless Steel



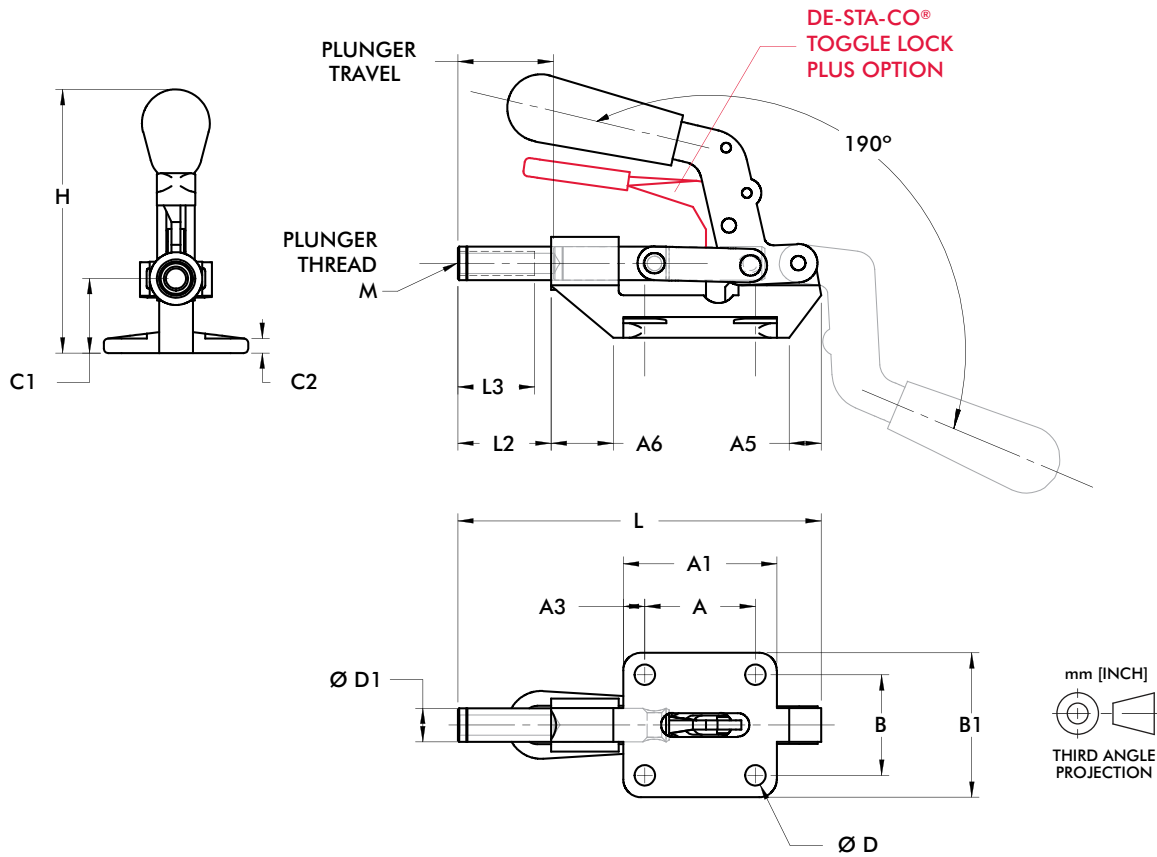
▲ 603-R

● 603-MR
with
DE-STA-CO®
Toggle Lock
Plus



▲ 608

● 608-M



Model	A	A1	A3	A5	A6	B	B1	C1	C2	D	D1	H	L	L2	L3	
603				[0.58] 15	[0.94] 24								[4.73] 120	[1.22] 31		
603-M				[0.62] 16	[0.88] 22								[4.80] 122	[1.30] 33		
603-SS	[1.44] 37	[2.00] 51	[0.28] 7	[0.58] 15	[0.94] 24	[1.31] 33	[1.88] 48	[0.97] 25					[4.73] 120	[1.22] 31	[1.00] 25	
603-MSS				[0.62] 16	[0.88] 22				[0.19] 5		[0.27] 7	[0.44] 11	[3.43] 87	[4.80] 122	[1.30] 33	
603-R				[0.58] 15	[0.94] 24								[4.73] 120	[1.22] 31		
603-MR				[0.62] 16	[0.88] 22								[4.80] 122	[1.30] 33		
608 608-M	[1.63] 41	[2.25] 57	[0.31] 8	[0.75] 19	[1.40] 36	[1.63] 41	[2.25] 57	[1.25] 32			[0.33] 8	[0.62] 16	[4.12] 105	[6.00] 152	[1.60] 41	[1.25] 32

Dimensions shown mm [inch]

Series 605 Product Overview

Features:

- For push/pull clamping
- Allow handle to rotate and fall below mounting plane to lock in retracted position

Applications:

- Assembly & test
- Woodworking
- Tensioning devices

Also Available:

See page 8.1 for accessories
Reverse action version Model 615/615-M

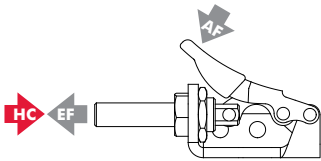
▲ 605
● 605-M



▲ 605-R,
● 605-MR
with
DE-STA-CO®
Toggle Lock
Plus

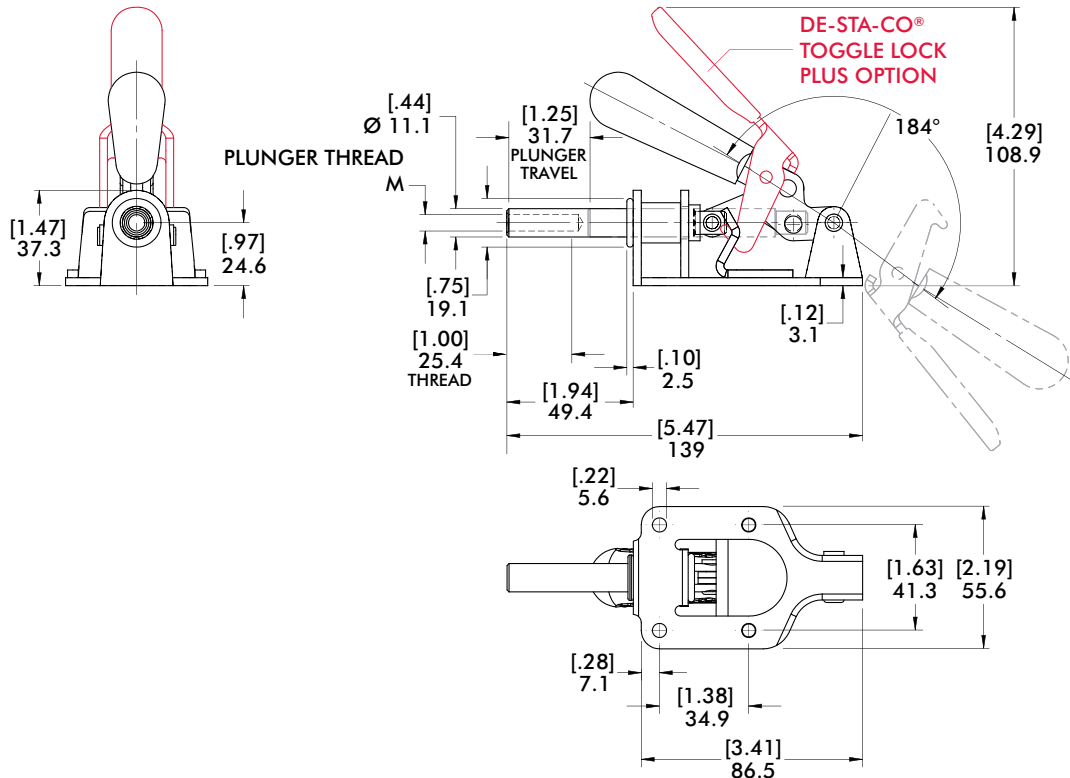


Series 605 Technical Information, Holding Capacities, Standard Clamp Dimensions



Model	Max. Holding Capacity	Weight	EF:AF (pushing/pulling)	Plunger Travel	(M) Plunger Thread	Recommended Spindle (Not Supplied)
▲ 605					5/16-18	207203
● 605-M	[300 lbf] 1330 N	[0.69lb] 0,31kg	45:1/40:1	[1.25] 31,8	M8	207203-M
▲ 605-R					5/16-18	207203
● 605-MR					M8	207203-M

HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Preferred Market: ▲ NA/SA ■ Europe ● Global



Features:

- Handle and linkage swivel 125° for mounting flexibility
- Narrow base for tight spaces

Applications:

- Assembly & test
- Woodworking
- Tensioning devices

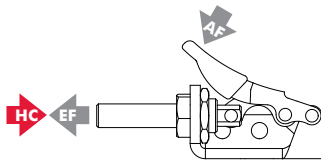
Also Available:

See page 8.1 for accessories

- ▲ 606
- 606-M

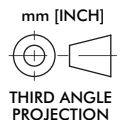
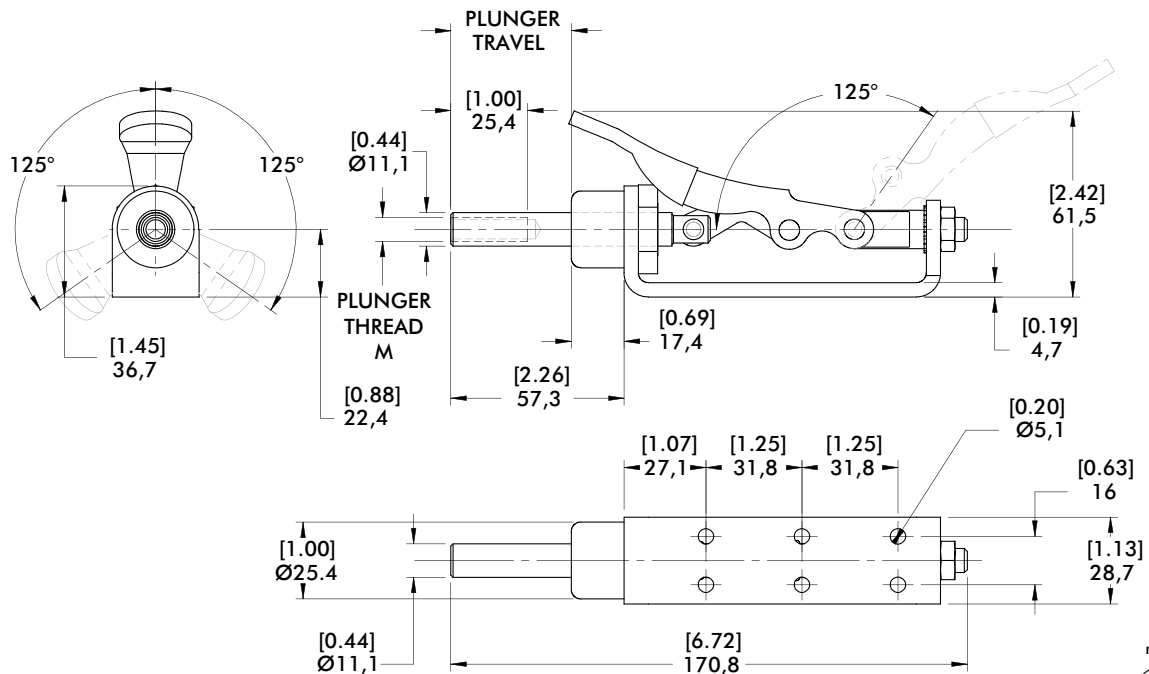


Series 606 Technical Information, Holding Capacities, Standard Clamp Dimensions



Model	Max. Holding Capacity	Weight	EF:AF (pushing/pulling)	Plunger Travel	(M) Plunger Thread	Recommended Spindle (Not Supplied)
▲ 606	[450 lbf] 2000 N	[0.81lb] 0,37kg	33:1	40 [1.57]	5/16-18	207203
● 606-M					M8	207203-M

HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
 Preferred Market: ▲ NA/SA ■ Europe ● Global



Series 607 Product Overview

Features:

- Low profile and high holding capacity for its size
- Available with round or square plunger to resist torsional loads
- Allow handle to rotate and fall below mounting plane to lock in retracted position

Applications:

- Assembly & test
- Welding
- Tensioning devices

Also Available:

See page 8.1 for accessories

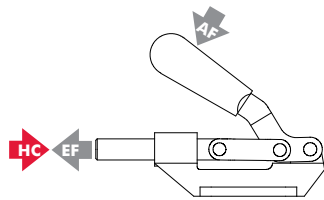
- ▲ 607
- 607-M



- ▲ 607-SQ
- 607-SQM with Square Plunger

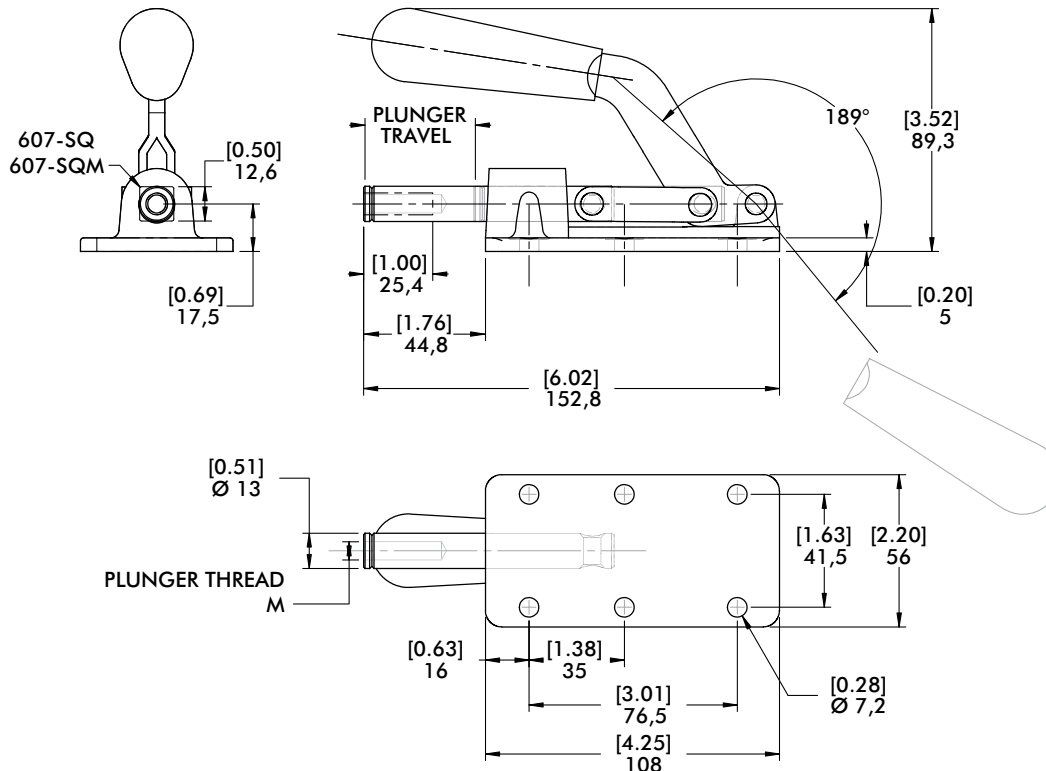


Series 607 Technical Information, Holding Capacities, Standard Clamp Dimensions



Model	Max. Holding Capacity	Weight	EF:AF (pushing/pulling)	Plunger Travel	(M) Plunger Thread	Recommended Spindle (Not Supplied)
▲ 607					5/16-18	207203
● 607-M	[800 lbf] 3560 N	[1.63lb] 0,74kg	37:1/64:1	[1.63] 41,4	M8	207203-M
▲ 607-SQ					5/16-18	207203
● 607-SQM					M8	207203-M

HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Preferred Market: ▲ NA/SA ■ Europe ● Global



Features:

- Low profile and high holding capacity for its size
- Flanged or straight base
- Allow handle to rotate and fall below mounting plane to lock in retracted position

Applications:

- Assembly & test
- Welding
- Tensioning devices

Also Available:

See page 8.1 for accessories

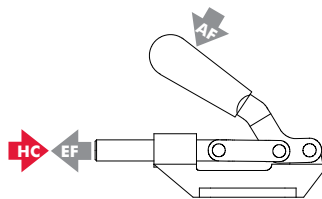
609
Flanged Base



609-B
Straight Base

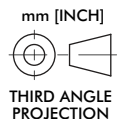
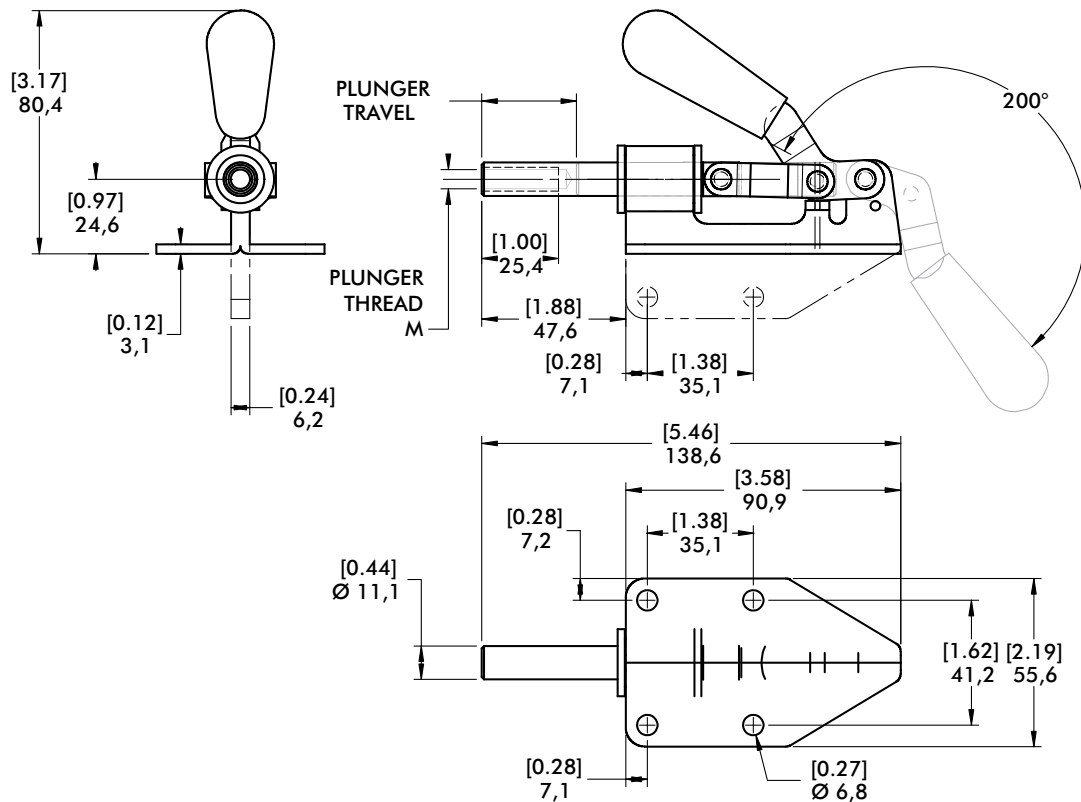


Series 609 Technical Information, Holding Capacities, Standard Clamp Dimensions



Model	Max. Holding Capacity	Weight	EF:AF (pushing/pulling)	Plunger Travel	(M) Plunger Thread	Recommended Spindle (Not Supplied)
609	[300 lbf] 1330 N	[0.88lb] 0,40kg	36:1/47:1	[1.25] 31,8	5/16-18	207203
609-B						

HC = Holding Capacity, EF = Exerting Force, AF = Applied Force



Series 610 Product Overview

Features:

- For push/pull clamping
- Allow handle to rotate and fall below mounting plane to lock in retracted position

Applications:

- Assembly & test
- Woodworking
- Tensioning devices

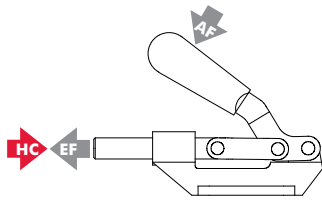
Also Available:

See page 8.1 for accessories

- ▲ 610
- 610-M

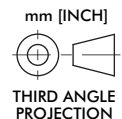
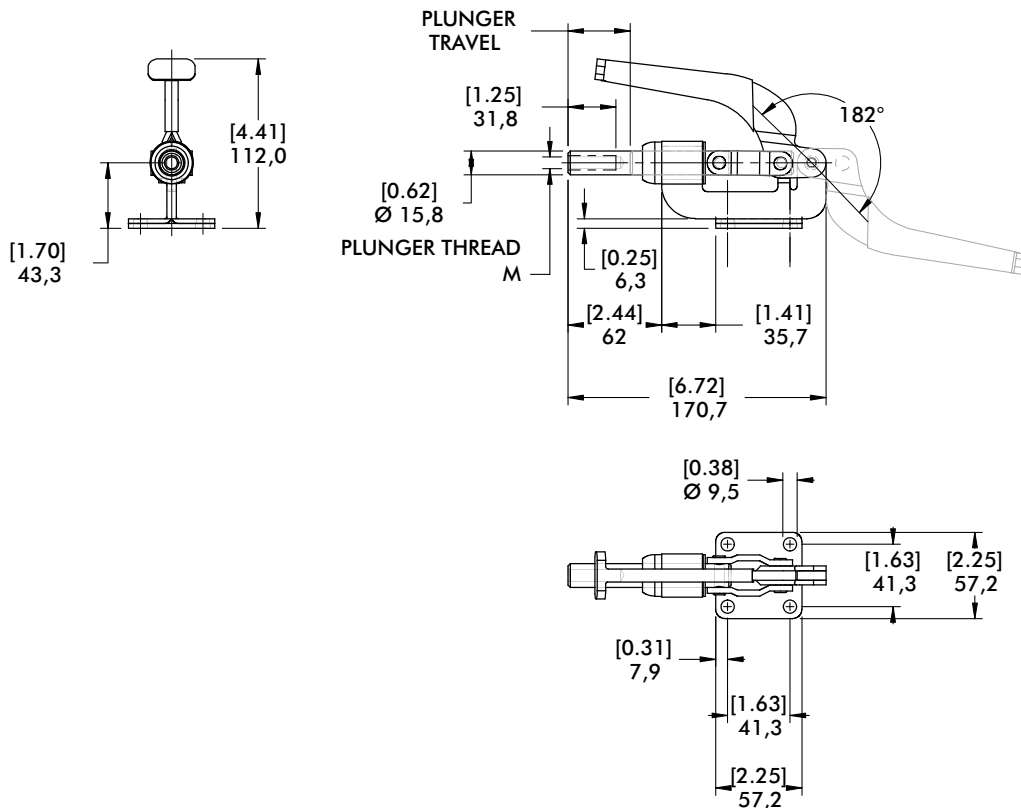


Series 610 Technical Information, Holding Capacities, Standard Clamp Dimensions



Model	Max. Holding Capacity	Weight	EF:AF (pushing/pulling)	Plunger Travel (M)	(M) Plunger Thread	Recommended Spindle (Not Supplied)
▲ 610	[800 lbf] 3560 N	[1.69lb] 0,77kg	51:1/70:1	[1.63] 41,4	3/8-16	210203
● 610-M					M10	210203-M

HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
 Preferred Market: ▲ NA/SA ■ Europe ● Global



Features:

- Reverse handle action.
- Plunger locks in the extended position only as the handle is moved downward

Applications:

- Assembly & test
- Woodworking
- Tensioning devices

Also Available:

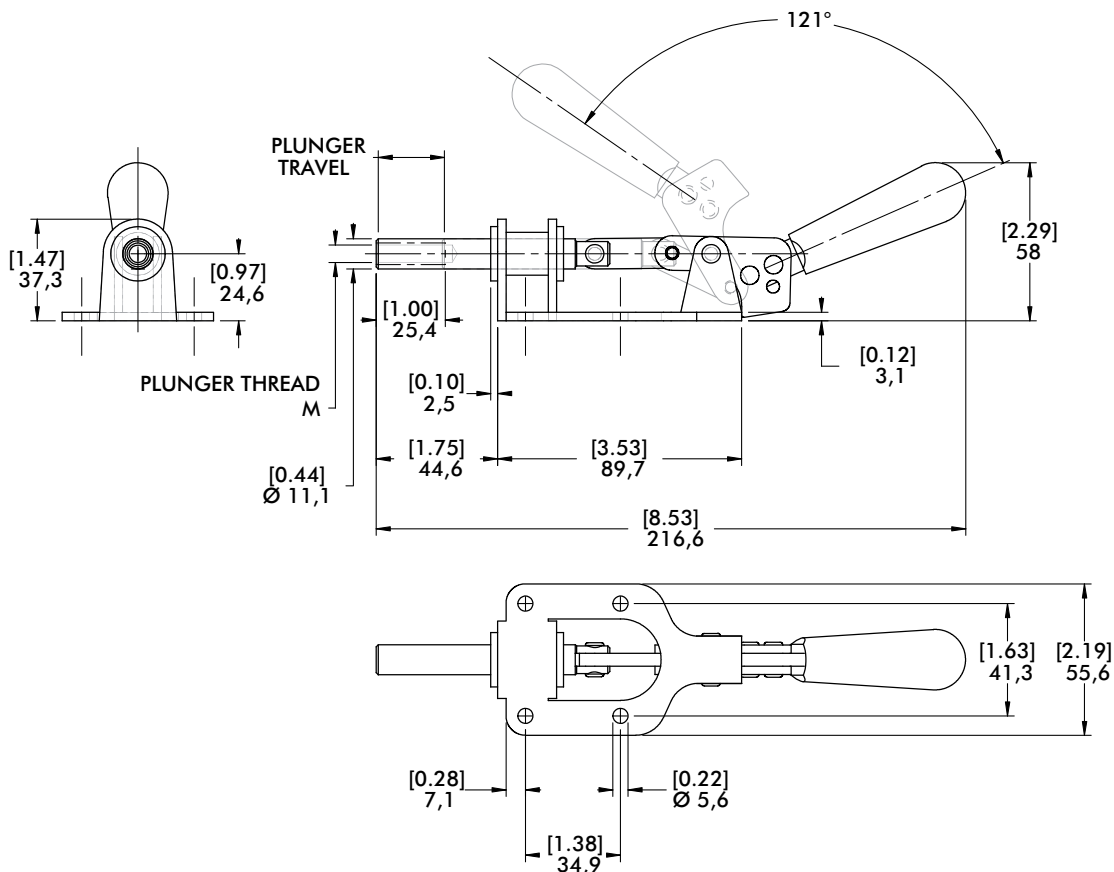
See page 8.1 for accessories

615



Series 615 Technical Information, Holding Capacities, Standard Clamp Dimensions

Model	Max. Holding Capacity	Weight	Plunger Travel	(M) Plunger Thread	Recommended Spindle (Not Supplied)
615	[300 lbf] 1330 N	[0.69lb] 0,31kg	[0.97] 24,6	5/16-18	207203



Series 620 Product Overview

Features:

- Reverse handle action
- Plunger locks in the extended position only as the handle is moved downward

Applications:

- Assembly & test
- Woodworking
- Tensioning devices

Also Available:

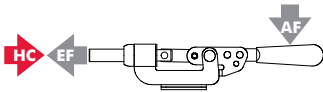
See page 8.1 for accessories

- ▲ 620
- 620-M

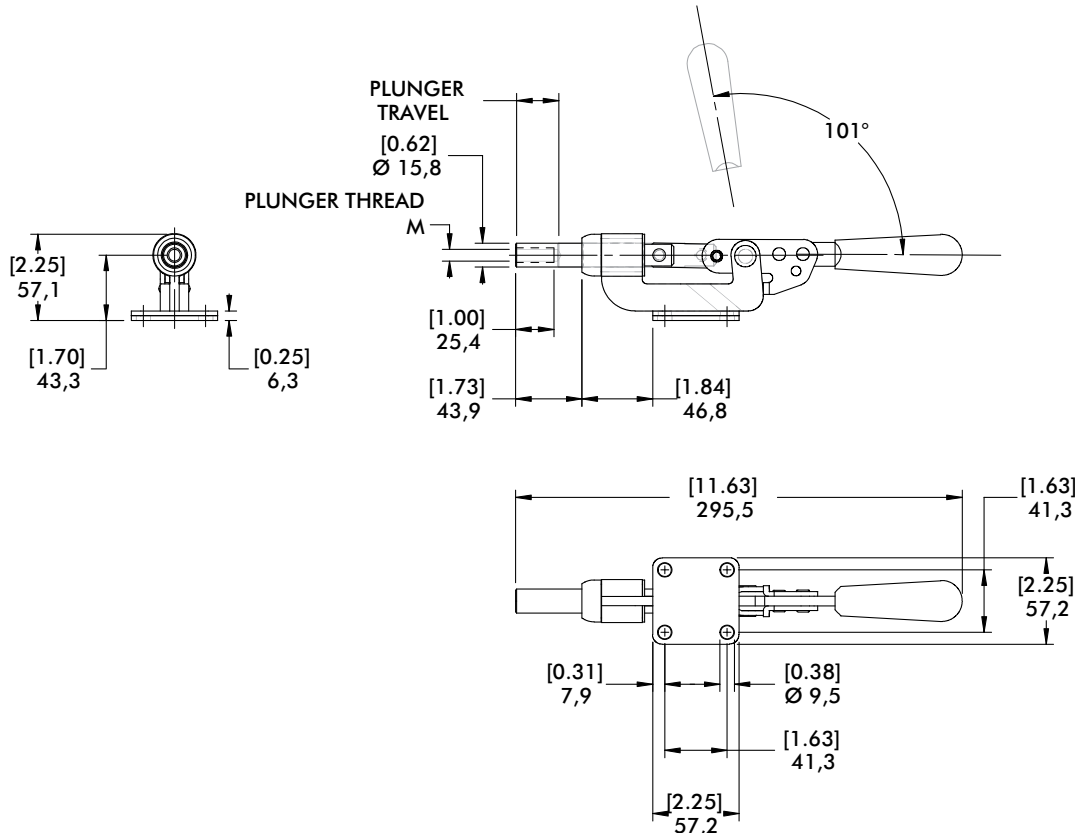


Series 620 Technical Information, Holding Capacities, Standard Clamp Dimensions

	Model	Max. Holding Capacity	Weight	EF:AF (pushing/pulling)	Plunger Travel	(M) Plunger Thread	Recommended Spindle (Not Supplied)
▲	620	[600 lbf] 2670 N	[1.50lb] 0,68kg	44:1	[1.11] 28,2	3/8-16	210203
●	620-M					M10	210203-M



HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
 Preferred Market: ▲ NA/SA ■ Europe ● Global





Series 630 Product Overview

Features:

- For push/pull clamping
- Allow handle to rotate and fall below mounting plane to lock in retracted position
- Available with DE-STA-CO® Toggle Lock Plus

Applications:

- Assembly & test
- Welding
- Tensioning devices

Also Available:

See page 8.1 for accessories
830, 830-ME Pneumatic Toggle Clamp (See page 10.29)

Covered under one year or more U.S./International Patents

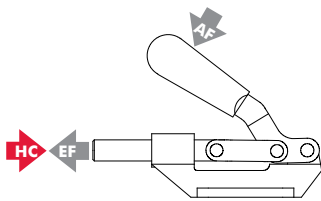
- ▲ 630
- 630-M



- ▲ 630-R
- 630-MR with DE-STA-CO® Toggle Lock Plus

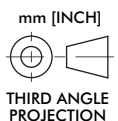
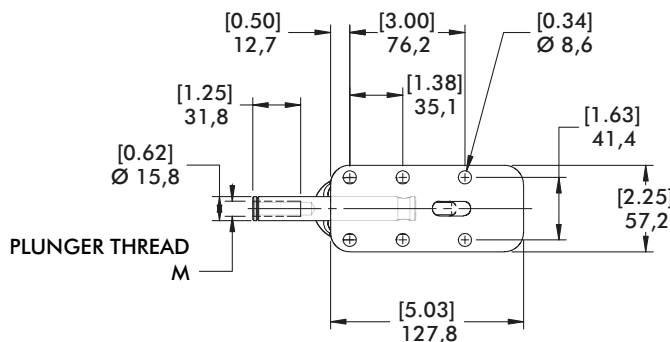
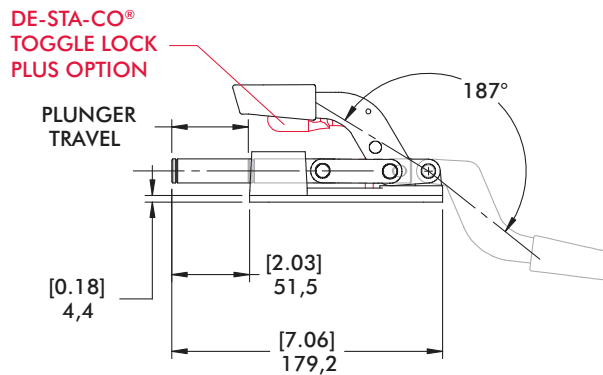
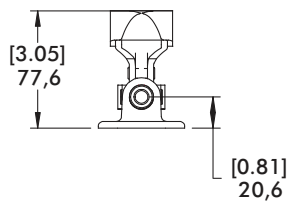


Series 630 Technical Information, Holding Capacities, Standard Clamp Dimensions



Model	Max. Holding Capacity	Weight	EF:AF (pushing/pulling)	Plunger Travel	(M) Plunger Thread	Recommended Spindle (Not Supplied)
▲ 630					3/8-16	210203
● 630-M	[2,500 lbf] 11100 N	[1.90lb] 0,89kg	36:1/23:1	[2.00] 50,8	M10	210203-M
▲ 630-R					3/8-16	210203
● 630-MR					M10	210203-M

HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Preferred Market: ▲ NA/SA ■ Europe ● Global



Series 640 Product Overview

Features:

- For heavy duty push/pull clamping
- Longest stroke of our Straight Line Action Clamps
- Allow handle to rotate and fall below mounting plane to lock in retracted position
- Available with DE-STA-CO® Toggle Lock Plus

Applications:

- Assembly & test
- Welding
- Tensioning devices

Also Available:

See page 8.1 for accessories

Covered under one year or more U.S./International Patents

▲ 640

● 640-M



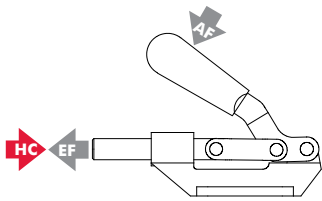
▲ 640-R

● 640-MR

with
DE-STA-CO®
Toggle Lock
Plus

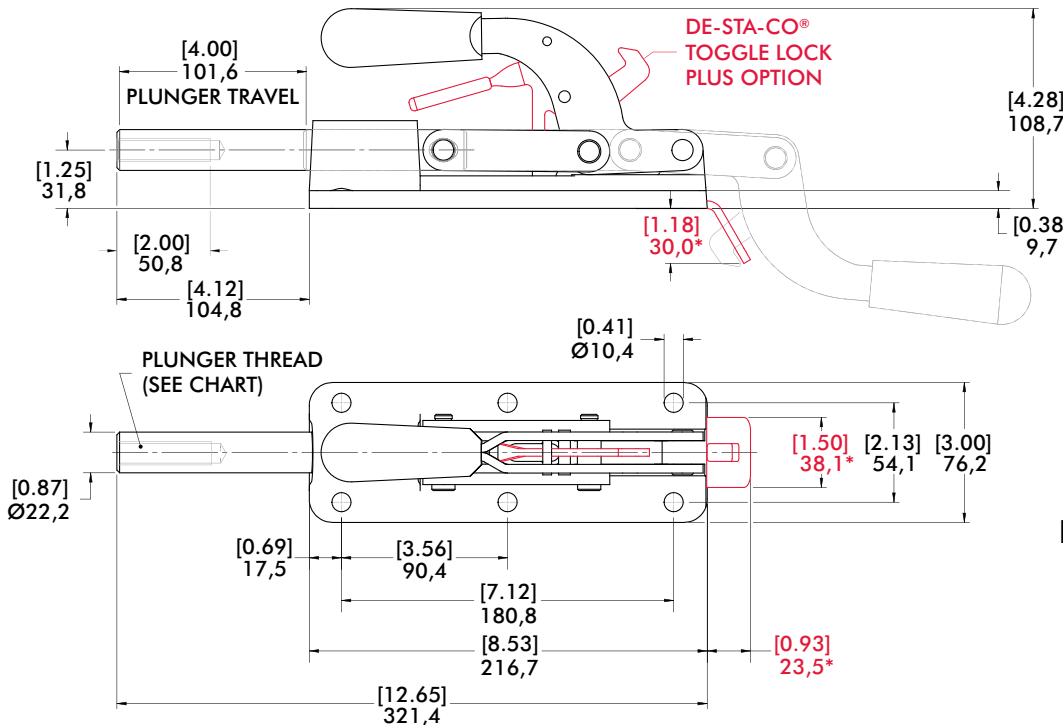


Series 640 Technical Information, Holding Capacities, Standard Clamp Dimensions



Model	Max. Holding Capacity	Weight	EF:AF (pushing)	Plunger Travel	(M) Plunger Thread	Recommended Spindle (Not Supplied)
▲ 640					1/2-13	220203
● 640-M	[7,500 lbf] 33400 N	[6.78lb] 3,08kg	35:1	[4.00] 101,6	M12	220203-M
▲ 640-R					1/2-13	220203
● 640-MR					M12	220203-M

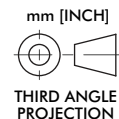
HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Preferred Market: ▲ NA/SA ■ Europe ● Global



Extended (640-R shown)



Retracted (640-R shown)



(*) Dimensions above in **RED** applies to the **640-R/640-MR** only

Features:

- For heavy duty push/pull clamping
- Largest of our Straight Line Action Clamps
- Forged steel base and handle
- Allow handle to rotate and fall below mounting plane to lock in retracted position

Applications:

- Assembly
- Welding
- Staking, light presswork
- Tensioning devices

Also Available:

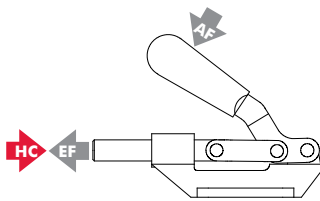
See page 8.1 for accessories

▲ 650

● 650-M

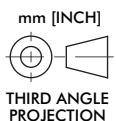
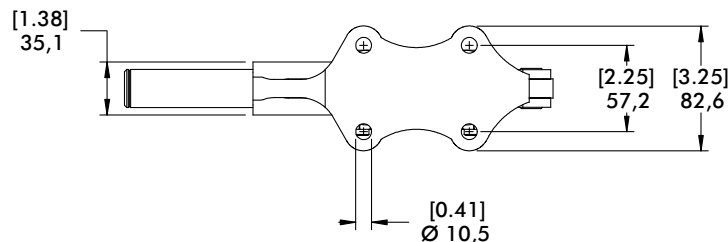
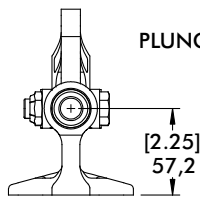
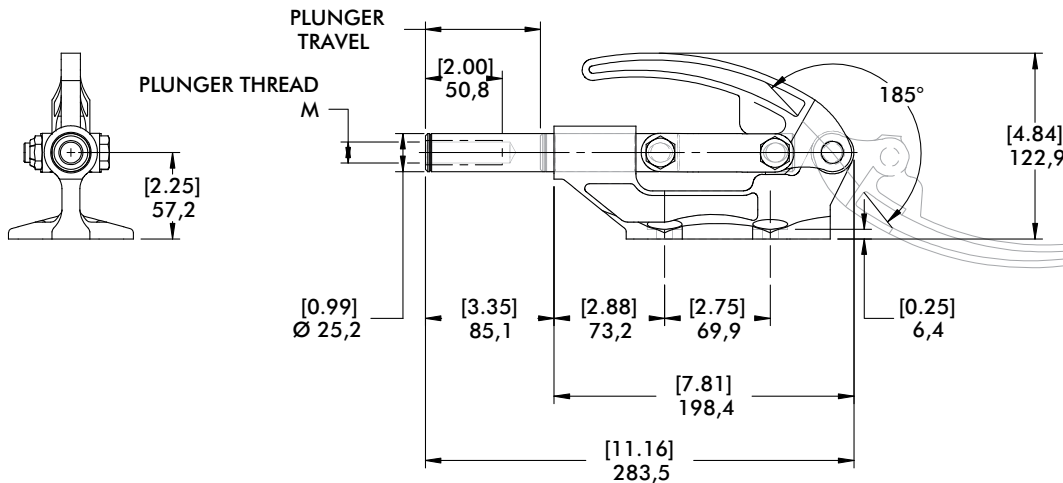


Series 650 Technical Information, Holding Capacities, Standard Clamp Dimensions



Model	Max. Holding Capacity	Weight	EF:AF (pushing)	Plunger Travel	(M) Plunger Thread	Recommended Spindle (Not Supplied)
▲ 650	[16,000 lbf] 71200 N	[5.69lb] 2,58kg	25:1	[3.00] 76,6	5/8-11	250203
● 650-M					M16	250203-M

HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
 Preferred Market: ▲ NA/SA ■ Europe ● Global



Series 95030, 95040, 95050, 95060 Product Overview

Features:

- Low profile with high holding capacities
- Cast steel base and handle
- Allow handle to rotate and fall below mounting plane to lock in retracted position

Applications:

- Assembly
- Testing
- Tensioning devices

Also Available:

See page 8.1 for accessories

95030

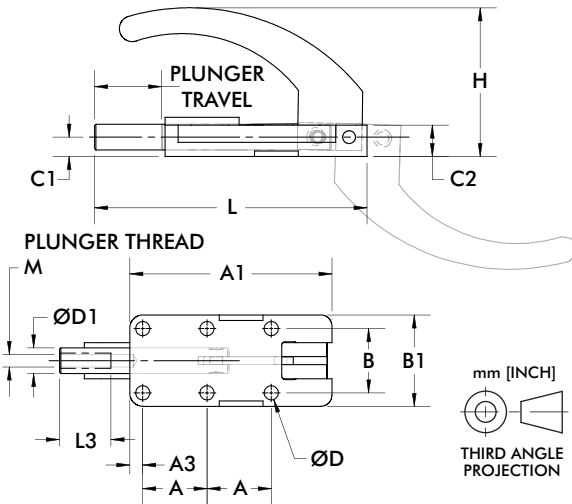
95040

95050 ⓘ

95060 ⓘ



Series 95030, 95040, 95050, 95060 Technical Information, Holding Capacities



Model	Max. Holding Capacity	Weight	Plunger Travel	(M) Plunger Thread	Recommended Spindle (Not Supplied)
95030	[550 lbf] 2450 N	[0.80lb] 2,58kg	[0.98] 24,9	M6	205203-M
95040	[1100 lbf] 4900 N	[1.60lb] 0,73kg	[1.50] 38,1	M8	207203-M
95050 ⓘ	[1650 lbf] 7340 N	[2.10lb] 0,95kg	[1.97] 50	M12X	220203-M
95060 ⓘ	[3960 lbf] 17600 N	[6.4lb] 2,9kg	[2.36] 60		

ⓘ This item is available upon request

HC = Holding Capacity, **EF** = Exerting Force, **AF** = Applied Force

Part No.	A	A1	A3	B	B1	C1	C2	ØD	ØD1	H	L	L3
95030	[0.98] 25	[3.09] 78,6	[0.20] 5	[0.98] 25	[1.40] 35,5	[0.30] 7,5	[0.48] 12,2	[0.22] 5,5	[0.39] 10	[2.28] 57,8	[4.17] 106	[0.79] 20
95040	[1.38] 35	[4.35] 110,6	[0.34] 8,6	[1.38] 35	[2.00] 50,7	[0.39] 10	[0.72] 18,3	[0.26] 6,5	[0.55] 14	[2.82] 71,7	[5.86] 148,9	[0.98] 25
95050 ⓘ	[1.77] 45	[5.54] 170,6	[0.40] 10,1	[1.77] 45	[2.60] 66	[0.55] 14	[0.94] 23,8	[0.33] 8,4	[0.75] 19	[3.21] 81,5	[7.48] 189,9	[1.57] 40
95060 ⓘ	[2.17] 55	[6.73] 170,9	[0.40] 10,1	[2.17] 55	[2.99] 76	[0.63] 16	[1.08] 27,4	[0.41] 10,5	[0.87] 22	[3.55] 90,2	[9.17] 233	[1.57] 40

ⓘ This item is available upon request Dimensions shown mm [inch]



Notes

Series 602, 604, 624 Product Overview

Features:

- Versatile and compact straight line action clamps
- Threaded body for through hole mounting
- **-SS** models are stainless steel

Applications:

- Assembly
- Checking fixtures
- Welding fixtures
- Tensioning devices

Also Available:

See page 8.1 for accessories

- ▲ 602
- ▲ 602-SS
- 602-MM
- 602-MMSS



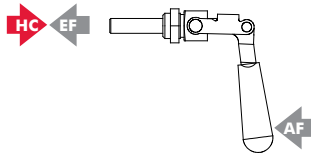
- ▲ 604
- ▲ 604-SS
- 604-MM
- 604-MMSS ⓘ



- ▲ 624
- 624-SS
- 624-MM



Series 602, 604, 624 Technical Information, Holding Capacities, Standard Clamp Dimensions



Model	Max. Holding Capacity	Weight	EF:AF (pushing/pulling)	Plunger Travel	(M) Plunger Thread	Spindle (Recommended)	Mounting Nut (Supplied)
▲ 602					1/4-20	205203	602105
▲ 602-SS	[200 lbf] 900 N	[0.12lb] 0,05kg	31:1/28:1	[0.75] 19	M6	202943	602905
● 602-MM						205203-M	602105-M
■ 602-MMSS						202943-M	602905-M
▲ 604	[300 lbf] 1330 N				5/16-18	207203	606104
▲ 604-SS	[400 lbf] 1780 N	[0.44lb] 0,20kg	45:1/26:1	[1.50] 38		--	606904
● 604-MM	[300 lbf] 1330 N				M8	207943	606104-M
● 604-MMSS ⓘ	[400 lbf] 1780 N					207943-M (included)	606904-M
▲ 624					3/8-16	210203	624105
● 624-SS	[700 lbf] 3110 N	[1.63lb] 0,74kg	49:1/21:1	[2.63] 66		237943 (included)	624905
● 624-MM					M10	210203-M	624105-M

ⓘ This item is available upon request **HC** = Holding Capacity, **EF** = Exerting Force, **AF** = Applied Force
 Preferred Market: ▲ NA/SA ■ Europe ● Global



Series 602, 604, 624 Standard Clamp Dimensions 602/604/624/-SS/-MM/-MMSS

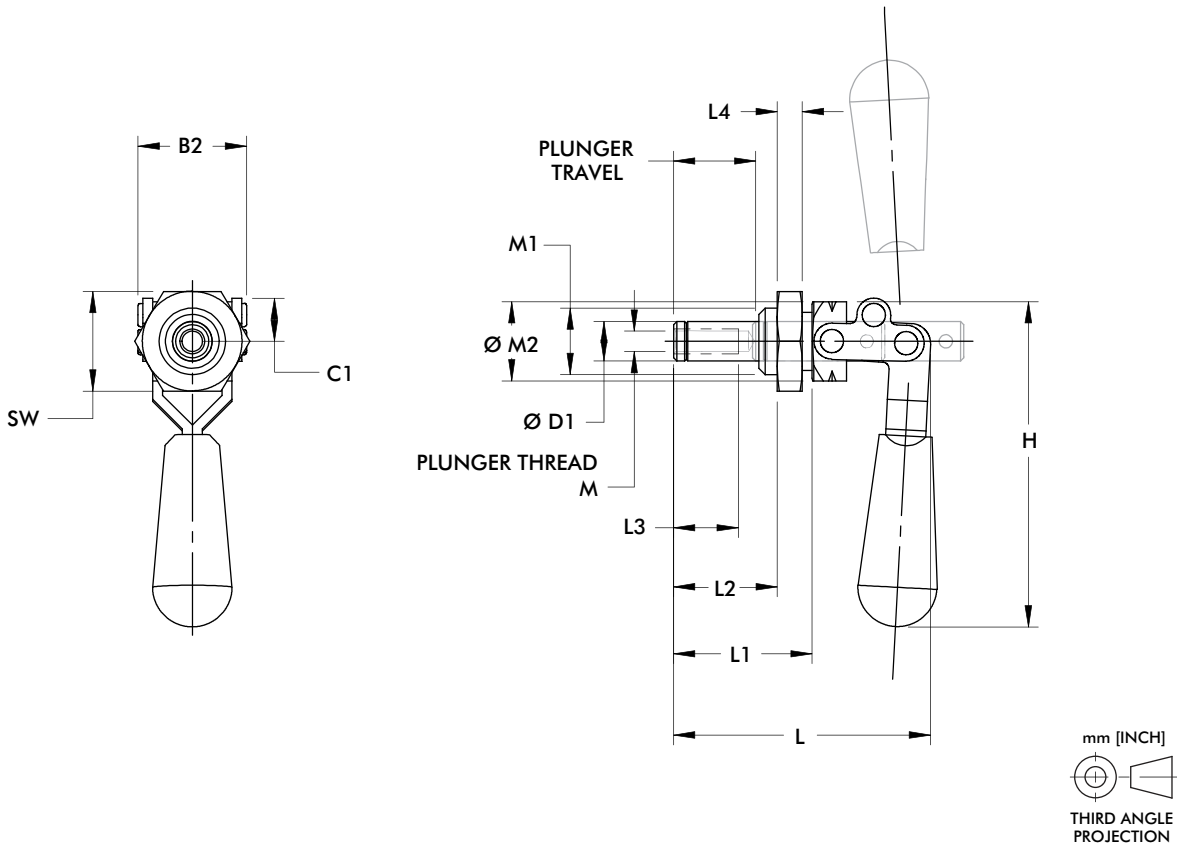
- ▲ 602
- ▲ 602-SS
- 602-MM
- 602-MMSS



- ▲ 604
- ▲ 604-SS
- 604-MM
- 604-MMSS^①



- ▲ 624
- 624-SS
- 624-MM



Model no.	B2	C1	ØD1	H	L	L1	L2	L3	L4	M1	M2	SW
602	[1.03] 26									5/8-18		0.44 in
602-SS		[0.88] 22	[0.37] 9	[3.13] 80	[2.62] 67	[1.31] 33	[0.97] 25	[0.63] 16			[0.75] 19	
602-MM										M16x1.5		24mm
602-MMSS												
604									[0.25] 6	3/4-16		1.00 in
604-SS		[0.50] 13	[0.44] 11	[4.16] 106	[4.95] 126	[2.18] 55	[1.82] 46	[1.00] 25			[0.88] 22	
604-MM										M20x1.5		30mm
604-MMSS												
624	[1.81] 46	[0.75] 19	[0.62] 16	[5.60] 142	[6.68] 170	[3.62] 92	[3.24] 82	[1.25] 32		1-14	[1.25] 32	1.50 in
624-MM										M27x2		41mm

Dimensions shown mm [inch]

Series 6004 Product Overview

Features:

- Similar in size to Model 604, with a solid body
- 50% more holding capacity than 604
- May be mounted through a hole or in a tapped hole.
- Locks over center in the extended and retracted position

Applications:

- Assembly
- Checking fixtures
- Welding fixtures
- Tensioning devices

Also Available:

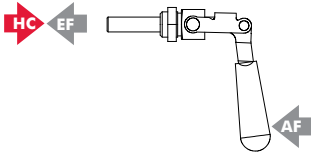
See page 8.1 for accessories

Covered under one year or more U.S./International Patents

- ▲ 6004
- 6004-MM

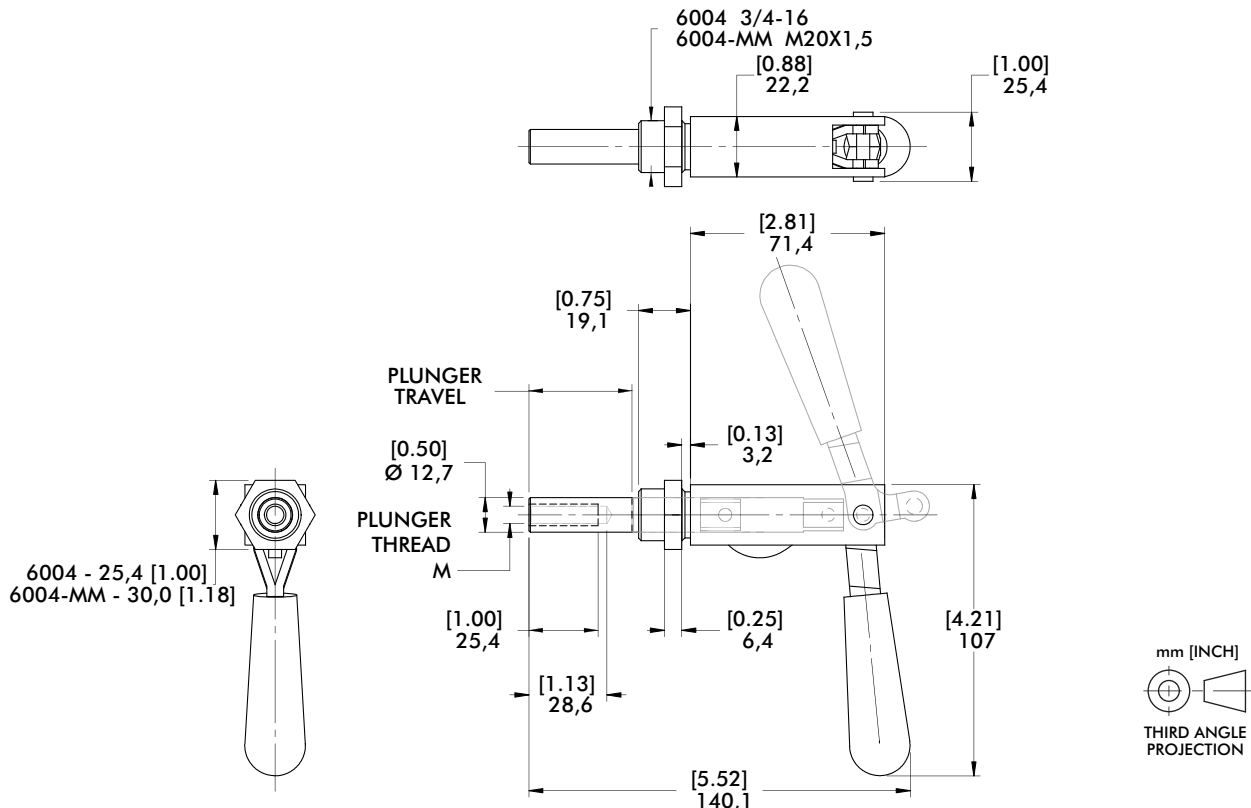


Series 6004 Technical Information, Holding Capacities, Standard Clamp Dimensions



Model	Max. Holding Capacity	Weight	EF:AF (pushing/pulling)	Plunger Travel	(M) Plunger Thread	Spindle (Recommended)	Mounting Nut (Supplied)
▲ 6004	[450 lbf] 2000 N	[0.81lb] 0,37kg	14.4:1	38 [1.50]	5/16-18 M8	207203	606104
● 6004-MM						207203-M	606104-M

HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
 Preferred Market: ▲ NA/SA ■ Europe ● Global

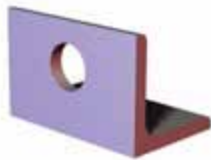


Mounting Plates for Series 602, 604, 624, 6004 Product Overview

Features:

- Mounting accessories for Threaded Body Straight Line Action Clamps

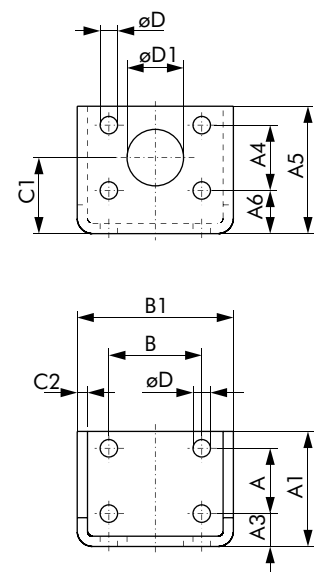
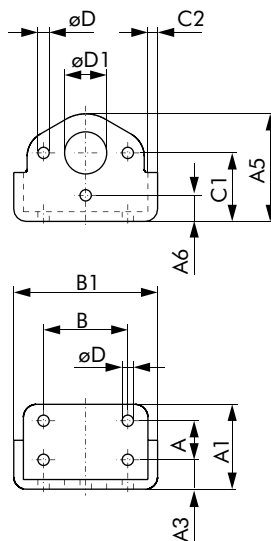
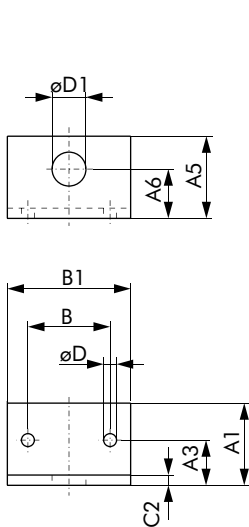
602106-M



604106, 604106-M



624106-M



Item Number	For Use With	A	A1	A3	A4	A5	A6	B	B1	C1	C2	D	D1
602106-M	602 602-MM	--	[1.57] 40	[0.87] 22	--	[1.57] 40	[0.94] 24	[1.57] 40	[2.36] 60	--	[0.20] 5	[0.25] 6,3	[0.65] 16,5
604106	604 6004	[0.75] 19,1	[1.60] 40,6	[0.55] 14	--	[2.05] 52,1	[0.50] 12,7	[1.62] 41,1	[2.80] 71,1	[1.30] 33	[0.19] 4,7	[0.22] 5,6	[0.75] 19,1
604106-M	604-MM 6004-MM												
624106-M	624 624-MM	[1.25] 31,8	[2.20] 56	[0.63] 16	[1.25] 31,8	[2.44] 62	[0.83] 21	[1.78] 45,2	[2.99] 76	[1.46] 37	[0.20] 5	[0.33] 8,5	[1.08] 27,5

Dimensions shown mm [inch]

FO Series

Type of Mounting:

- Foot mount

Type of Actuation:

- Hand wheel or hand lever (one-handed operation)
- Locking lever and Plunger (two-handed operation)



FL Series

Type of Mounting:

- Flange mount

Type of Actuation:

- Locking lever or hand wheel (one-handed operation)
- Locking lever and Plunger (two-handed operation)



G Series

Type of Mounting:

- Through hole mount

Type of Actuation:

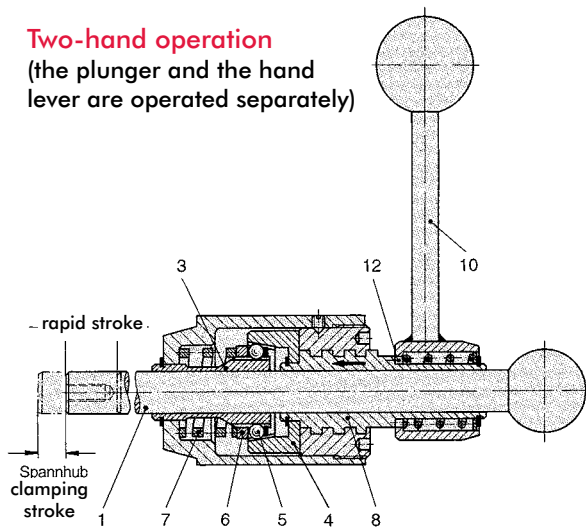
- Locking lever and Plunger (two-handed operation)
- Hand wheel or hand lever (one-handed operation)



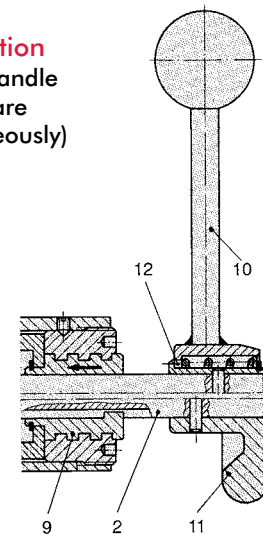
Variable Stroke Straight-Line Action Technical Information

		Model	Holding Capacity max. [lbs] N	Page	Accessories	Model	Page
Flanged base		FO-082-40	[335] 1500	4.3	Plunger 	12/100	4.4
		FO-120	[675] 3000			12/200	
	FO-121-45	[675] 3000	12/300				
	FO-122-45	[675] 3000	16/100				
			16/200				
			16/300				
			16/400				
			16/500				
			22/100				
			22/200				
			22/300				
Front flange		FL-120	[675] 3000			4.3		Swivel thrust pad	K508	4.5
		FL-121-45	[675] 3000	K612			
		FL-122-45	[675] 3000			K816	
		FL-160	[2020] 9000			K1222	
		FL-161-60	[2020] 9000				
		FL-162-60	[2020] 9000				
Threaded mount		G-082-40	[335] 1500	4.3			
		G-120	[675] 3000				
		G-121-45	[675] 3000				
		G-122-45	[675] 3000				
		F-160	[2,020] 9000	4.3			

Two-hand operation
(the plunger and the hand lever are operated separately)



One-hand operation
(the plunger and handle lever/hand wheel are operated simultaneously)



DE-STA-CO's variable stroke straight-line clamps are used in applications where workpiece thicknesses and workpiece tolerances vary. These clamps are suitable for clamping between ribs and hollow spaces difficult to reach.

Compact design and different types of operation allow for application of the straight-line clamps in fixtures for mass production as well as for single part production.

Mounting types

- Foot base (FO Series)
- Flange mount (FL Series)
- Through hole mount (G Series)

Type of operation

- Two hand operation
- The hand lever (10) and the plunger (1) are separate. The hand lever is connected to the clamping mechanism. The plunger can be removed from the clamp
- One-hand operation
- The hand lever (10) or the hand wheel (11) and the plunger (2) are linked. The plunger is retained within the clamp.

Clamping operation

The plunger (1) or (2) which is guided within the clamp body contacts the workpiece. By rotating the hand lever (10) or the hand wheel (11) clock-wise the clamping stroke, S1 is engaged and the plunger is tightly gripped by the slotted clamping sleeve (3).

Operating principle

The hand lever (10) clock-wise rotation causes the threaded sleeve (8) and the conical sleeve (4) to which it is connected to move in the direction of the arrow shown in the drawing. The conical sleeve produces a force-locking connection between the slotted clamping sleeve (3) and the plunger by means of the ball bearings (5) located at the clamping sleeve's perimeter.

Due to the force-locking connection, the plunger rotates and produces the clamping stroke S1. The plungers rotation may be compensated for by means of a swivel hold-down piece.

The clamping strokes S1 specified in this catalog were measured with no opposing forces present while measurements were taken. When clamping this product against a workpiece, the clamping stroke S1 is reduced by the force-locking connection between the plunger and the workpiece. The straight-action clamp is unlocked by turning the hand lever or the hand wheel counter-clockwise. This method is used for both the one-hand and the two-hand operation types. This counter-clockwise rotation makes the conical sleeve (4) and the threaded sleeve (8) or (9) move backward. The pressure spring (7) pushes back the relieved ball bearings (5) via the pressure ring (6).

The force-locking connection between the slotted clamping sleeve and the plunger can be moved freely again. Straight-line clamps which are two-hand operated can also be applied to pull actions when the plunger is inserted in the clamp's housing in the opposite direction. On the one hand operated clamp, the rotation inducing the clamping stroke S1 is directly transmitted from the plunger (2) or the hand wheel to the threaded sleeve (9) via a groove-spring connection. The clamping and unclamping operations are executed in the same way as described before.

Handling

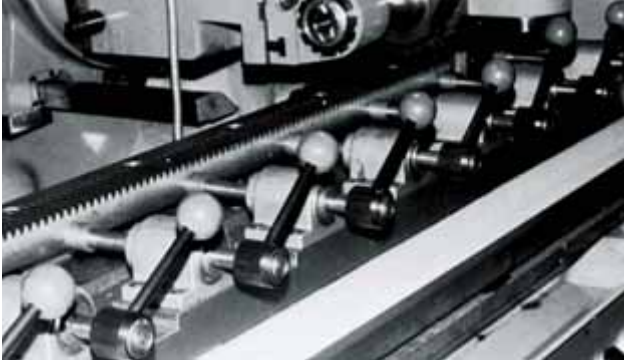
To change the position of the handle while in the clamped or the unclamped position, pull the hand lever off its spline (12) and set it in the desired position.

Important

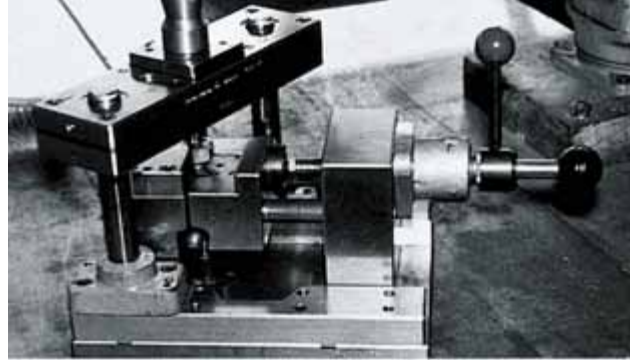
The holding forces specified in the catalog refer to the maximum load exerted on the clamp by counter-forces. For details concerning the clamping force FS exerted on the workpiece by the clamp and depending on the operation force FB (manual force), please see the chart on the next page.

The clamping force is proportional to the operation force. The achieved clamping force must not exceed the maximum holding force.

As the straight-line clamps, with the exception of the F-160 model, are designed only for axial load, we recommend to use an additional radial support for the plunger in the event of side load.



Model FO-161/60 on a milling machine



Model FL-160 with plunger 16/100 on a punching fixture

Different Designs



FO Series

Mounting type: flange base foot mount
Operating method: one-hand or two-hand operation











FL Series

Mounting type: front flange mount
Operating method: one-hand or two-hand operation



G Series

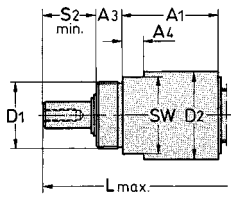
Mounting type: through hole mount
Operating method: one-hand or two-hand operation

Mounting type	Operating method			Model	Max. holding capacity [lbs.] N	Clamping force F_S with an operating force F_B		Rapid stroke		Weight	
	Two-hand operation  Plunger and hand lever	One-hand operation  Hand lever	One-hand operation  Hand wheel			FB [lbs.] N	FS [lbs.] N	S [mm]	S1 [mm]	[lbs.] Kg	
Foot mount 			•	FO-082-40	[335] 1500		[100] 450	40	2,5	[0.72] 0,325	
		•		FO-120¹⁾	[675] 3000		[425] 1900	100, 200, 300	3	[1.19] 0,540	
			•	FO-121-45	[675] 3000		[425] 1900	45	3	[1.47] 0,665	
			•	FO-122-45	[675] 3000		[100] 450	40	3	[1.34] 0,610	
Flange mount 		•		FO-160¹⁾	[2020] 9000		[560] 2500	100, 200, 300	4	[2.73] 1,240	
			•	FO-161-160	[2020] 9000		[560] 2500	60	4	[3.40] 1,540	
			•	FO-162-60	[2020] 9000		[190] 850	60	4	[3.15] 1,430	
		•		FO-220¹⁾	[4045] 18000		[675] 3000	100, 200, 300	4	[5.85] 2,655	
Through hole mount 			•	FO-221-80	[4045] 18000	[22] 100	[675] 3000	80	4	[7.46] 3,385	
		•		FL-120¹⁾	[675] 3000		[425] 1900	100, 200, 300	3	[1.07] 0,485	
			•	FL-121-45	[675] 3000		[425] 1900	45	3	[1.34] 0,610	
			•	FL-122-45	[675] 3000		[100] 450	40	3	[1.21] 0,550	
Through hole mount 			•	FL-160¹⁾	[2020] 9000		[560] 2500	100, 200, 300	4	[2.49] 1,130	
			•	FL-161-60	[2020] 9000		[560] 2500	60	4	[3.15] 1,430	
			•	FL-162-60	[2020] 9000		[190] 850	60	4	[2.92] 1,325	
		•		G-082-40	[335] 1500		[100] 450	40	2,5	[0.66] 0,300	
Through hole mount 		•		G-120¹⁾	[675] 3000		[425] 1900	100, 200, 300	3	[1.01] 0,470	
			•	G-121-45	[675] 3000		[425] 1900	45	3	[1.31] 0,595	
			•	G-122-45	[675] 3000		[100] 450	40	3	[1.18] 0,335	



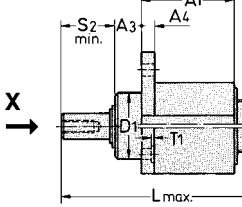
Two-hand operation (the plunger and the hand lever are operated separately)

Through hole mount

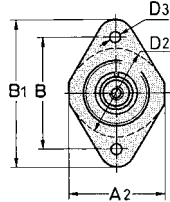


Part no. G-120/--

Flange mount

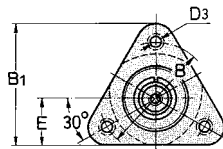


View "X"



Part no. FL-120/--

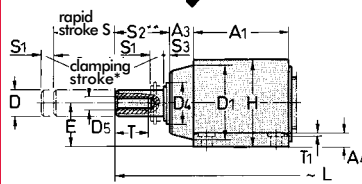
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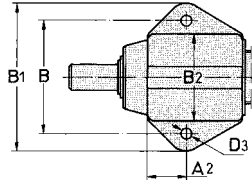
Part no. FL-160/--

Foot mount

*without counter-force effect

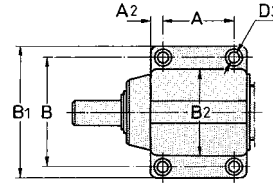


View "Y"

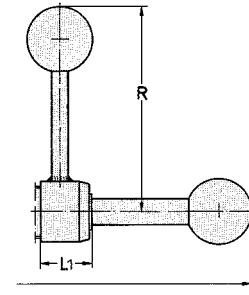


Part no. FO-120/--

View "Y"



Part no. FO-160/--
FO-220/--



Accessories (order separately)

Plunger

Part no. Ø length	For rapid stroke S	Weight ~ [lbs.] kg	For clamps
12/100	100	[0.30] 0,135	FO-120
12/200	200	[0.62] 0,280	FL-120
12/300	300	[0.82] 0,370	G-120
16/100F	100	[0.88] 0,400	FO-160 FL-160
16/200F	200	[1.10] 0,500	
16/300F*	300	[1.54] 0,700	
22/100	100	[2.20] 1,000	FO-220
22/200	200	[2.40] 1,090	
22/300	300	[3.06] 1,390	

Swivel thrust pad

Part no.	Thread	Weight ~ [lbs.] Kkg
K-612	M6	[0.02] 0,007
K-816	M8	[0.03] 0,015
K-1222	M12	[0.08] 0,035

Important

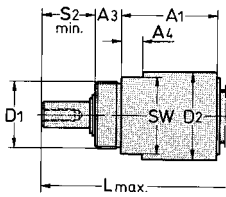
The straight-line clamps are designed only for **axial load**. In case of side load, we recommend an additional radial support of the plunger.

Mounting type	Part no. without plunger	Available rapid strokes S (order plunger separately)	A	A1	A2	A3	A4	A8	B	B1	B2	Dh8	D1	D2	D3	D4
Foot mount	FO-120	100, 200, 300	-	44	19	12	6,3	8,5	52	68	40	12	35	-	6,5	20
	FO-160	100, 200, 300	40	62	11	12	12	10	70	90	52	16	46	-	9	25
	FO-220	100, 200, 300	50	75	13	20	15	12	90	115	69	22	60	-	11	36
Flange mount	FL-120	100, 200, 300	-	44	44	12	6	8,5	52	68	-	12	30f7	40	6,5	20
	FL-160	100, 200, 300	-	60	-	14	14	10	68	73	-	16	40f7	52	9	25
Through hole mount	G-120	100, 200, 300	-	44	-	12	10	8.5	-	-	-	12	M30x1,5	40	-	20

Mounting type	Part no. without plunger	D5	D9	D10	E	E1	H	L with rapid strokes:			L1	R	S2	S3	SW	SW1	T	T1	T3
								~	100	200										300
Foot mount	FO-120	M6	30	6	20	12,5	42	228	328	428	24	95	2,5	2,5	-	11	12	-	10
	FO-160	M8	35	8	30	14,8	58	280	380	480	33	130	3	3	-	13	15	1	14
	FO-220	M12	40	9,5	35	19,5	71	295	395	495	35	197	3	3	-	17	25	1	18
Flange mount	FL-120	M6	30	6	-	12,5	-	228	328	428	24	95	2,5	2,5	-	11	12	-	10
	FL-160	M8	35	8	28	14,8	-	280	380	480	33	130	3	3	-	13	15	1	14
Through hole mount	G-120	M6	30	6	-	12,5	-	228	328	428	24	95	2,5	2,5	35	11	12	-	12

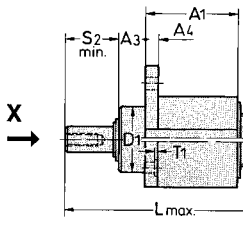
One-hand operation (the plunger and the hand wheel are operated simultaneously)

Through hole mount

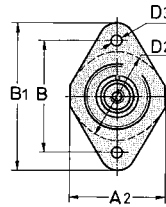


Part no. G-082/40
G-122/45

Flange mount

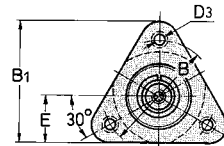


View "X"



Part no. FL-122/45

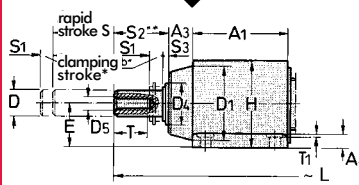
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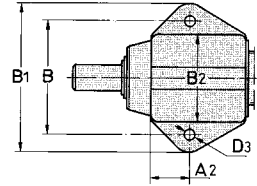
Part no. FL-162/60

Foot mount

*without counter-force effect

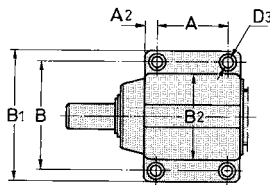


View "Y"

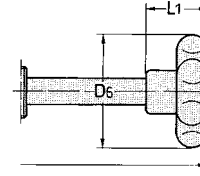


Part no. FO-082/45

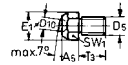
View "Y"



Part no. FO-162/60



Accessories (order separately)



Swivel thrust pad

Part no.	Thread	Weight ~ [lbs.] kg
K-508	M5	[0.01] 0,004
K-508	M6	[0.02] 0,007
K-508	M8	[0.03] 0,015
K-508	M12	[0.08] 0,035

Important

The straight-line clamps are designed only for axial load. In case of side load, we recommend an additional radial support of the plunger.

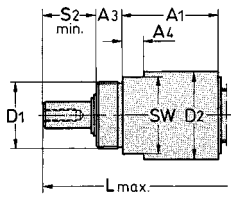
Mounting type	Part no. with plunger	A	A1	A2	A3	A4	A5	B	B1	B2	Dh8	D1	D2	D3	D4
Foot mount	FO-082-40	-	37	15,3	10	5	6	44	56	35	8	30	-	4,5	16
	FO-122-45	-	44	19	12	6,3	8,5	52	68	40	12	35	-	6,5	20
Flange mount	FO-162-60	40	62	11	12	12	10	70	90	52	16	46	-	9	25
	FL-122-45	-	44	44	12	6	85	52	68	-	12	30f7	40	6,5	20
Through hole mount	FL-162-60	-	60	-	14	14	10	68	73	-	16	40f7	52	9	25
	G-082-40	-	37	-	10	8	6	-	-	-	8	M24x1,5	35	-	16
	G-122-45	-	44	-	12	10	8,5	-	-	-	12	M30x1,5	40	-	20

Mounting type	Part no. with plunger	D5	D9	D10	E	E1	H	L	L1	S2	S3	SW	SW1	T	T1	T3
Foot mount	FO-082-40	M5	40	5	18	9,2	36	128	26	9	2,5	-	8	8	-	8
	FO-122-45	M6	75	6	20	12,5	42	153	27	15	2,5	-	11	12	-	10
Flange mount	FO-162-60	M8	75	8	30	14,8	58	196	35	18	3	-	13	15	1	14
	FL-122-45	M6	52	6	-	12,5	-	153	27	15	2,5	-	11	12	-	10
Through hole mount	FL-162-60	M8	75	8	28	14,8	-	196	35	18	3	-	13	15	1	14
	G-082-40	M5	40	5	-	9,2	-	128	26	9	2,5	30	8	12	-	8
	G-122-45	M6	52	6	-	12,5	-	153	27	15	2,5	35	11	12	-	10



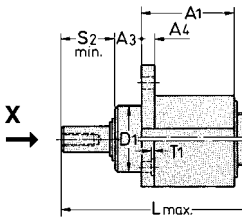
One-hand operation (the plunger and the hand lever are operated simultaneously)

Through hole mount

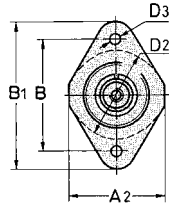


Part no. G-121/45

Flange mount

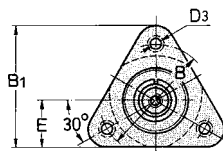


View "X"



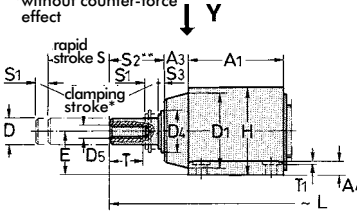
Part no. FL-121/45

View "X"

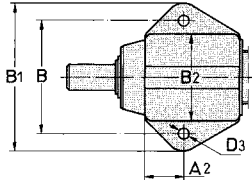


Part no. FL-161/60

Foot mount

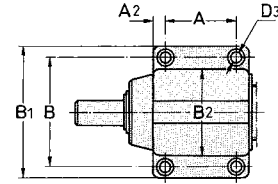


View "Y"

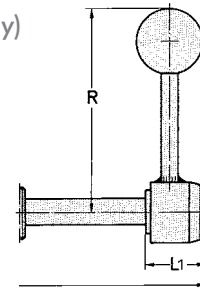


Part no. FO-121/45

View "Y"



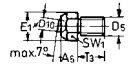
Part no. FO-161/60
FO-221/80



Important
The straight-line clamps are designed only for **axial load**. In case of side load, we recommend an additional radial support of the plunger.

Accessories (order separately)

Swivel thrust pad



Part no.	Thread	Weight ~ [lbs.] kg
K-612	M6	[0.02] 0,007
K-816	M8	[0.03] 0,015
K-1222	M12	[0.08] 0,035

Mounting type	Part no. with plunger	A	A1	A2	A3	A4	A5	B	B1	B2	Dh8	D1	D2	D3	D4
Foot mount	FO-121-45	-	44	19	12	6,3	8,5	52	68	40	12	35	-	6,5	20
	FO-161-60	40	62	11	12	12	10	70	90	52	16	46	-	9	25
	FO-221-80	50	75	13	20	15	12	90	115	69	22	60	-	11	36
Flange mount	FL-121-45	-	44	44	12	6	8,5	52	68	-	12	30f7	40	6,5	20
	FL-161-60	-	60	-	14	14	10	68	73	-	16	40f7	52	9	25
Through hole mount	G-121-45	-	44	-	12	10	8,5	-	-	-	12	M30x1,5	40	-	20

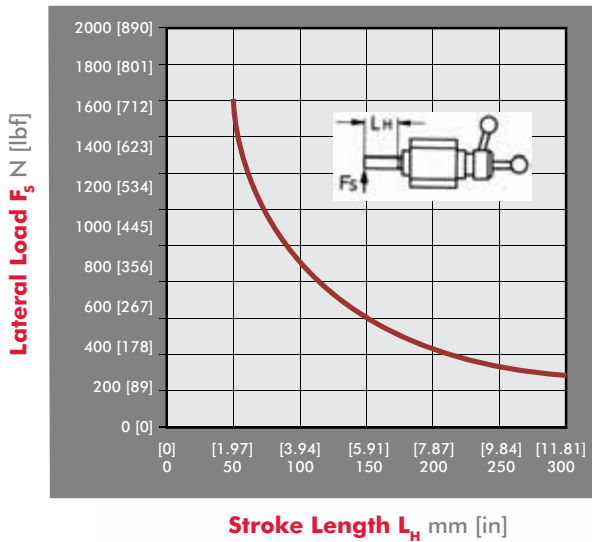
Mounting type	Part no. with plunger	D5	D10	E	E1	H	L	L1	R	S2	S3	SW	SW1	T	T1	T3
Foot mount	FO-121-45	M6	6	20	12,5	42	153	27	95	15	2,5	-	11	12	-	10
	FO-161-60	M8	8	30	14,8	58	196	35	130	18	3	-	13	15	1	14
	FO-221-80	M12	9,5	35	19,5	71	245	40	197	20	3	-	17	25	1	18
Flange mount	FL-121-45	M6	6	-	12,5	-	153	27	95	15	2,5	-	11	12	-	10
	FL-161-60	M8	8	28	14,8	-	196	35	130	18	3	-	13	15	1	14
Through hole mount	G-121-45	M6	6	-	12,5	-	153	27	95	15	2,5	35	11	12	-	10



Technical features:

- High holding capacity of [2020 lbf] 9000N lbs.
- High side load capacity
- Plunger guide
- Wiper ring avoiding contamination of clamping mechanism
- Block style base provides for variable mounting
- Low weight due to the aluminium housing
- 50 mm horizontal and vertical hole pattern

Allowable side load F_s depending on the stroke length L_H



Accessories (order separately)

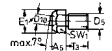
Plunger



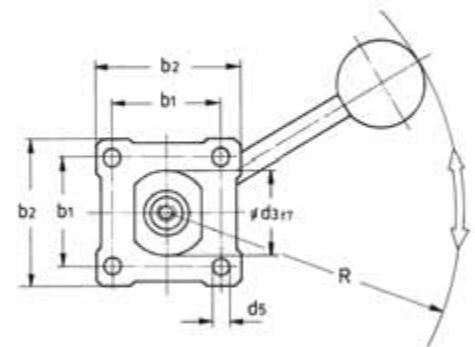
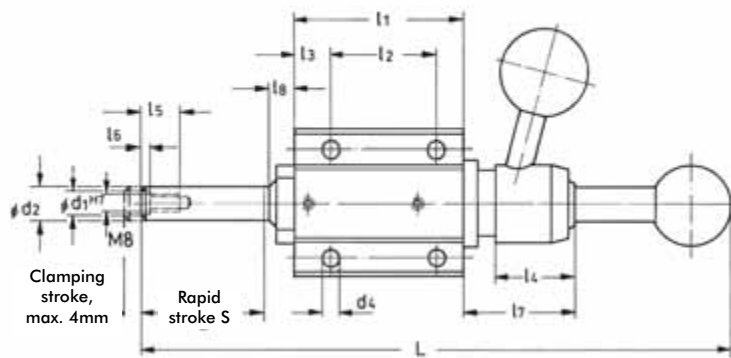
Part no.	For rapid stroke S	D _{h8}	D ₅	D ₉	L ~	T ~	Weight ~ [lbs.] kg
16/100F	100	16	M8	35	280	15	[0.90] 0,4
16/200F	200	16	M8	35	380	15	[1.10] 0,5
16/300F*	300	16	M8	35	480	15	[1.54] 0,7

*400 and 500 mm strokes available on request

Swivel thrust pad



Part no.	A ₅	D ₅	D ₁₀	E ₁	T ₃	SW ₁	Weight ~ [lbs.] kg
K-816	10	M8	8	14,8	14	13	[0.08] 0,035





Part no. without plunger	Max. holding cap. [lbs] N	F_s^* [lbs] N	~L													Weight ~ [lbs.] kg						
			b ₁	b ₂	For rapid strokes: 100			11	12	13	14	15	16	17	18		d ₁ ^{H7}	d _{2H8}	d ₃	d ₄	d ₅	R
F-160	[2020] 9000N	[110] 500N	50	68	250	350	451	80	50	18	35	20	2	50	12	10	16	40	8,3	8,5	165	[3.30] 1,5

* F_s =exerting force at an operating force of [22lbf] 100N.



These DE-STA-CO Precision Manual Clamps are used in applications requiring a higher level of precision and repeatability over our standard clamping products. These clamps feature components manufactured to a higher level of precision and include features that make them the preferred choice for applications such as automotive prototype production jigs and as locating devices.

Model	Holding capacity	Page	
	<p>614-M</p>	<p>5000N [1125lbf]</p>	<p>5.2</p>
	<p>670-1MBPLS 675-1MBPLS 690-1MBPLS 695-1MBPLS</p>	<p>10680N [2400lbf] 10680N [2400lbf] 22240N [5000lbf] 22240N [5000lbf]</p>	<p>5.4</p>
	<p>52H-5</p>	<p>160Nm [120ft-lbf]</p>	<p>5.6</p>
	<p>52H05-6</p>	<p>1000Nm [735ft-lbf]</p>	<p>5.8</p>
	<p>56H4-2</p>	<p>---</p>	<p>5.15</p>

Series 614 Product Overview

Features:

- Single hole threaded mount or side mount
- Precision hardened and ground plunger is designed for anti-rotation under torsional loads
- Locks in the extended or retracted position

Applications:

- Assembly
- Checking fixtures
- Locaters and positioners

Also Available:

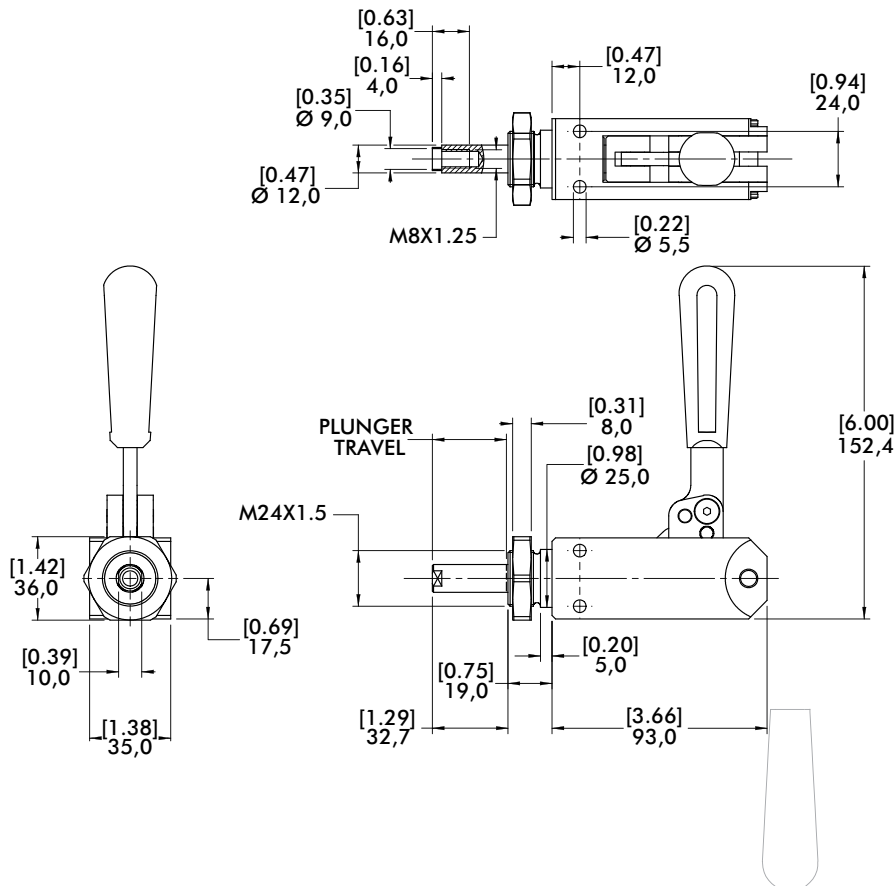
See page 8.1 for accessories

614-M



Series 614 Technical Information, Holding Capacities, Standard Clamp Dimensions

Model	Max. Holding Capacity	Weight	Plunger Travel	Plunger Thread	Mounting Nut (Supplied)
614-M	[1125 lbf] 5000 N	[1.81lb] 0,82kg	[1.26] 32	M8	614-1-10





Notes

Series 670, 675, 690, 695 Product Overview

Features:

- Precision clamping for high production
- Adjustable collet-type bushing minimizes radial plunger movement
- Plunger has a flat surface for anti rotation
- Pre-load nut and hold open device included

Applications:

- Assembly
- Welding

670-1MBPLS



675-1MBPLS



690-1MBPLS



695-1MBPLS ⓘ

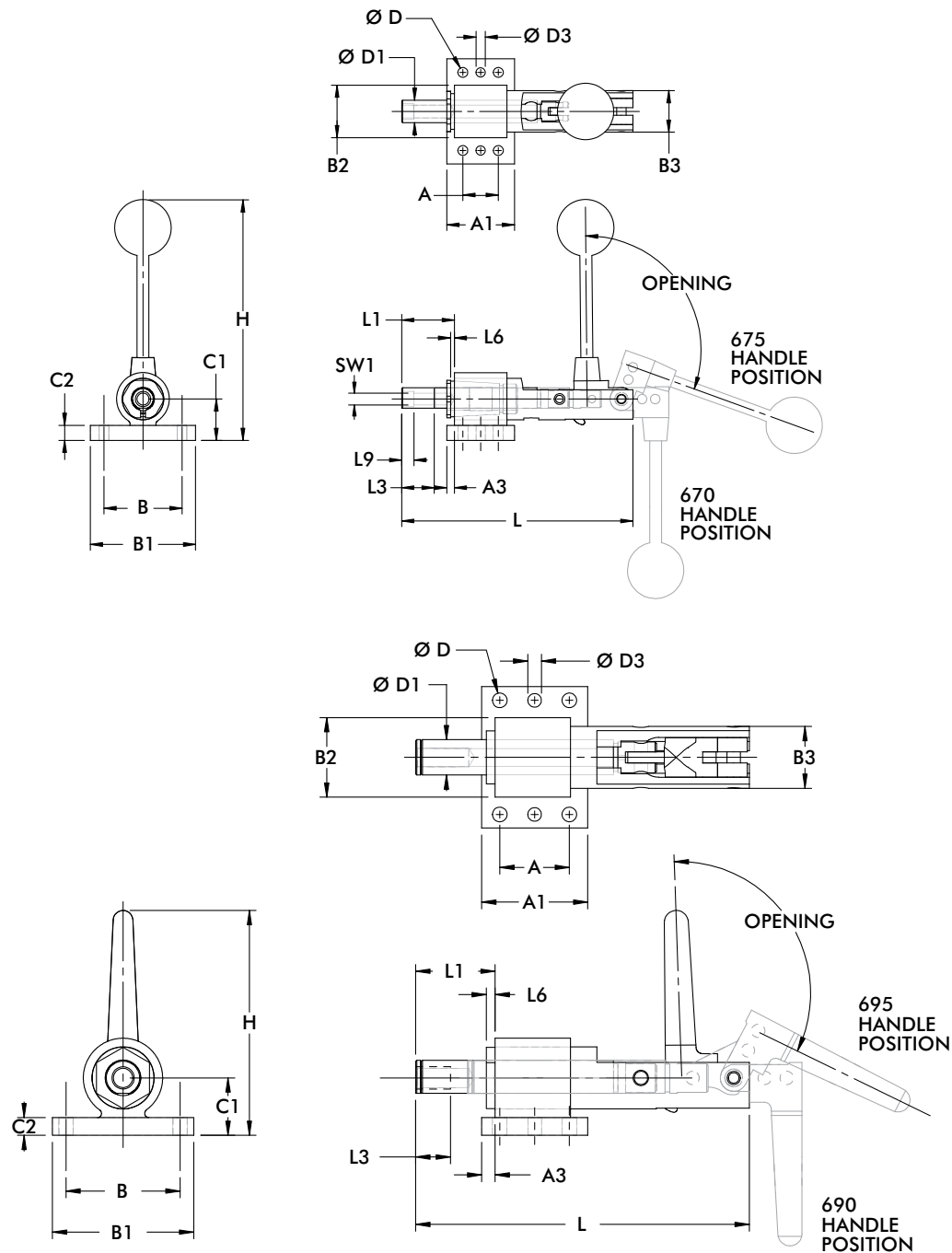


Series 670, 675, 690, 695 Technical Information, Holding Capacities

Model	Max. Holding Capacity	Weight	Plunger Travel	Plunger Thread
670-1MBPLS	[2400 lbf] 10680 N	[4.2lb] 1,91 kg	[2.25] 57,2	M12
675-1MBPLS		[4.0lb] 1,81 kg	[1.10] 28	
690-1MBPLS	[5000 lbf] 22240 N	[8.2lb] 3,72kg	[3.00] 76,2	M16
695-1MBPLS ⓘ		[7.2lb] 3,27kg	[1.50] 38,1	

ⓘ This item is available upon request

Series 670, 675, 690, 695 Standard Clamp Dimensions



Model	A	A1	A3	B	B1	B2	B3	C1	C2	ØD	ØD1	ØD3	H	L	L1	L3	L6	L9	SW1
670-1MB														268	75.5				
670-1MBPLS	30	57	6.4	66	89	44.5	35	34.8		8.4	19	7.8	206			35		10.3	13H
675-1MB														195	44.4				7
675-1MBPLS									12.7								0-8		
690-1MB														338	85.9				
690-1MBPLS	50	76.2	9.5	82	102	-	44.4	41.3		10.5	25	9.8	162			25		-	-
695-1MB														240	47.8				
695-1MBPLS																			

Series **52H50** Product Overview

Manual Clamp interchangeable with 82M-6

Manual clamp with toggle lock mechanism is interchangeable with 82M-6 in application and operating dimensions.

Application

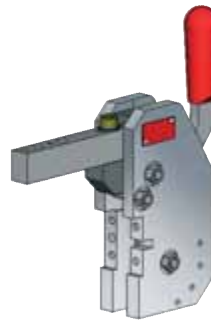
- Mainly in jigs for Automotive prototype production

Technical features

- Robust steel device
- Different clamping arm dimensions available
- Clamping arm mountable in horizontal or vertical position
- Compact design
- Opening angle adjustable by using hold open device
- Hold open device available

Technical data

- Standard opening angle 120°
- Holding capacity 160Nm
- Weight 5,0 kg



52H50-503-2-0
Clamping position horizontal



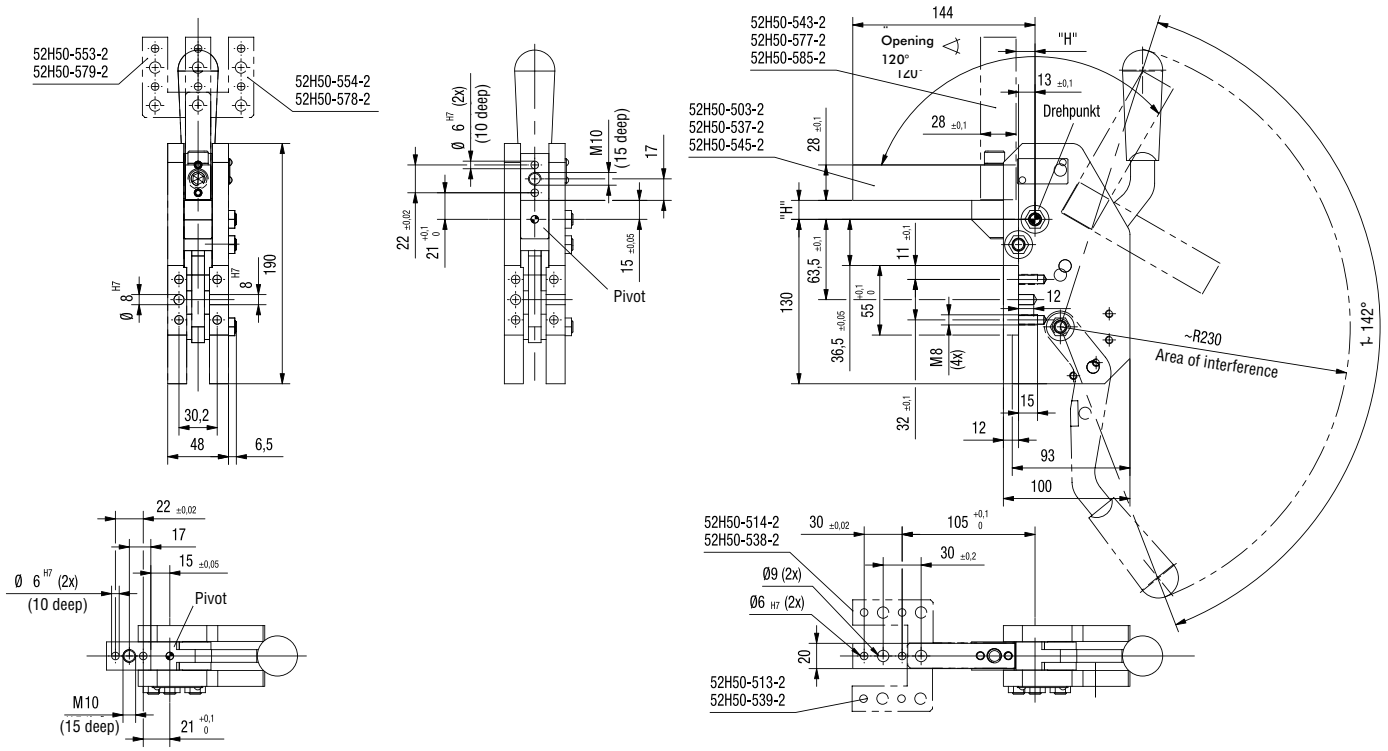
52H50-543-2-0
Clamping position vertical

Order no. Code for **52H50-5...**

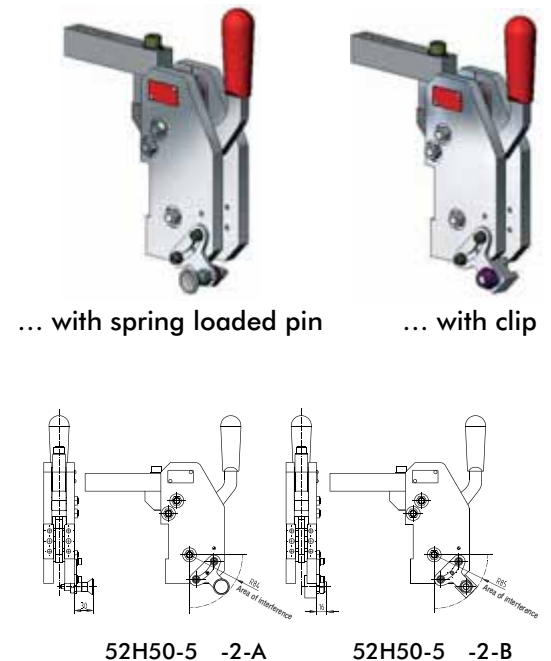
Example Order no.: **52H50** - **503** - **2** - **A**

<p>90° - Version</p> <p>180° - Version</p>	<p>Horizontal</p>			<p>0 = without locking device</p> <p>A = locking device with spring loaded pin</p> <p>(two hand unlocking device)</p>
	<p>Vertical</p>			
<p>Basic model</p>	<p>Clamp arms</p>			<p>Locking device</p>

Series 52H50 Standard Dimensions



Model	Opening angle	Weight ~ (kg)	Holding capacity max. (Nm)	Clamping arm position	"H"		
52H50-503-2- 52H50-543-2- 52H50-537-2- 52H50-577-2- 52H50-545-2- 52H50-585-2-	120°	5	160	central	15		
52H50-513-2- 52H50-553-2- 52H50-539-2- 52H50-579-2- 52H50-514-2- 52H50-554-2- 52H50-538-2- 52H50-578-2-					left	15	
						right	25
							15
							25
							15
				25			



Spare parts

Description	Order no.
Handle	250301

Accessories (for belated mounting)

Description	Order no.
Hold open device „A“	52H50-5-2-A
Hold open device „B“	52H50-5-2-B

Series **52H05-6** Product Overview

Modular Manual Clamp

Applications

Clamping, holding, gripping and positioning of metal sheets and other parts, mainly in jigs for prototype-shop

Features

- Compact closed aluminium body
- Toggle action mechanism with locking unit for open position
- Handlever can be welded in correct position
- Handlever can be mounted left or right side of body
- Interchangeable with pneumatic clamp 82M-6

- Opening angle adjustable in 15° steps (15°–120°)
- Wide range of clamping arm variants
- Mounting areas of front, back and sides
- Inductive sensing module with LED display



52H05-623KAA
Modular manual clamp, interchangeable with 82M-6

Model		Standard	Max. holding torque	Drive shaft for clamping arm variant	Clamping position	Weight
without sensing	with inductive sensing opening Connector M12x1 fixed angle					
		Nm			Kg	
52H05-623KAA	52H05-623KA1/ 52H05-623KA2	120°	1000	lateral, U-centric/ U-side	horizontal/ vertical	4,1
52H05-623SAA	52H05-623SA1/ 52H05-623KA2	120°	1000	lateral, U-centric/ U-side	horizontal/ vertical	4,1

Order numbering code for **52H05-6.....**

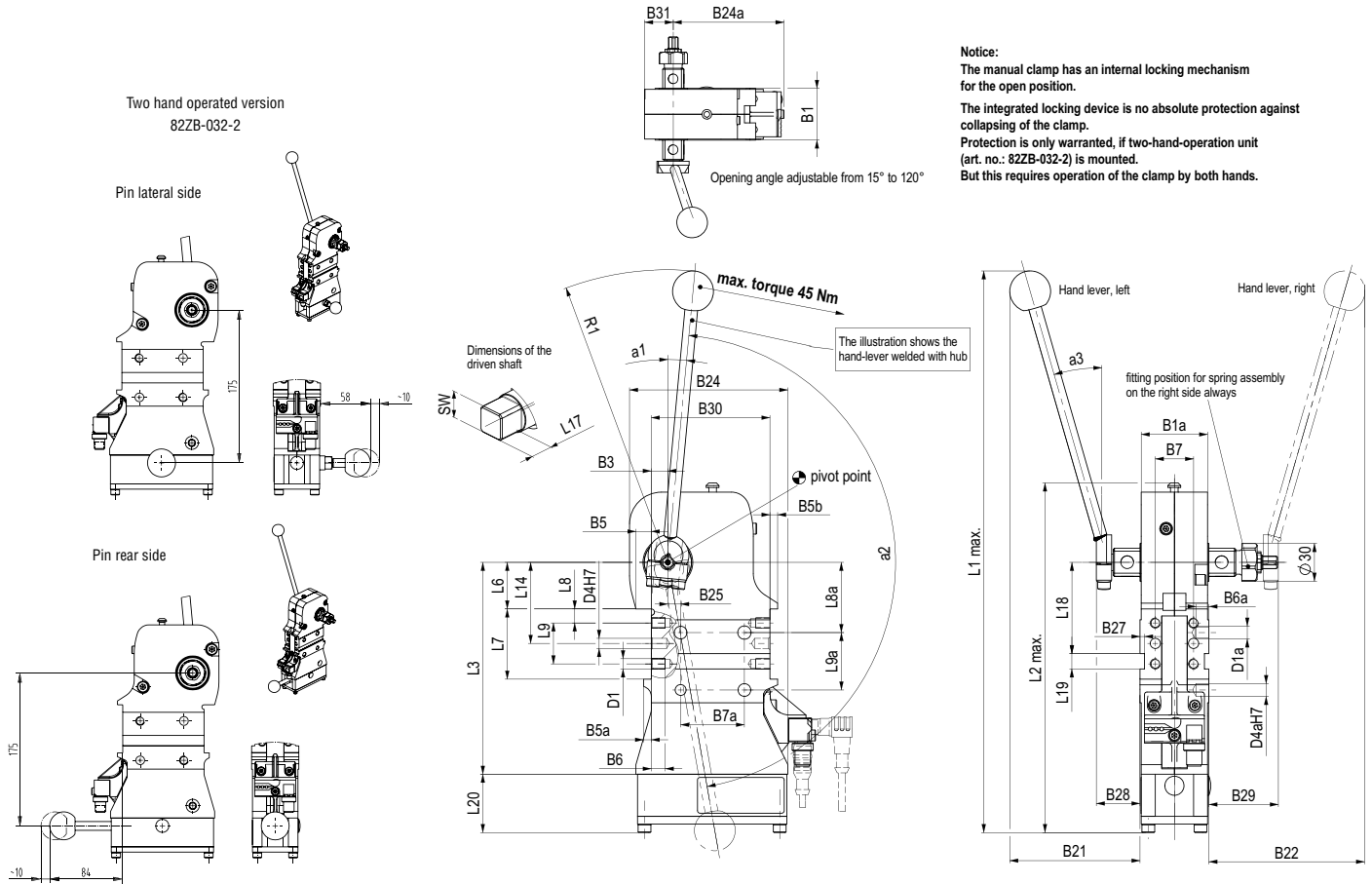
Example Order no.: **52H05 - 623 K AA**

<p>52H05-623</p> <p>Basic model</p>	<p>K = with handlever welded. Handlever-Set 8KB-053-1</p> <p>S = Handlever weldable Handlever-Set 8KB-052-1</p> <p>Handlever</p>	<p>AA = without sensing 82M-000000AA (8AB-066-2)</p> <p>A1 = inductive sensing 82M-000000A1 Fabr. Turck</p> <p>A2 = inductive sensing 82M-000000A2 Fabr. Pepperl & Fuchs</p> <p>Sensing system</p>	<p>Accessory Two hand operation 82ZB-032-2</p> <p>Assembly at hold open pin is possible on rear side or lateral side.</p> <p>Accessories</p>
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Series 52H05-6 Standard Dimensions

Spare parts

Specification	Structure component	Order no.	Comment
Hand lever set (weldable)	52H05-6...	8KB-052-1	
Hand lever set welded	52H05-6...	8KB-053-1	
Complete sensor box for A1 sensing system	52H05-6...A1	82M-000000A1	Fabr. Turck
Box without sensors	52H05-6...AA	82M-000000AA	
Complete sensor box for A2 sensing system	52H05-6....A2	82M-000000A2	Fabr. Pepperl and Fuchs



Notice:
The manual clamp has an internal locking mechanism for the open position.
The integrated locking device is no absolute protection against collapsing of the clamp.
Protection is only warranted, if two-hand-operation unit (art. no.: 82ZB-032-2) is mounted.
But this requires operation of the clamp by both hands.

Model	B1	B1	B3	B5	B5 α	B5b	B6	B6 α	B7*	B7 α *	B22	B24	B24 α	B25	B27	B28	B29	B30	B31	D1	D1 α
52H05-6230...	54	52	13	12	6	6	11	9	30	50	100	119	119	10	3,5	36	54	93	30	M8	M10

Model	D4	D4 α	L1	L2	L3	L6	L7	L8	L8 α	L9	L9 α	L14	L17	L18	L19	L20	SW	α 1	α 2	α 3	R1
52H05-6230...	8	10	366	260	166	36,5	55	11	55	32	45	63,5	21	71,5	12	30	22	5°	160°	16°	240

Series **52H05-6** Clamping Arm Variants

Clamping arm design

U-type central clamping arm

Clamping position

Horizontal or Vertical



U-type central clamping arm, horizontal clamping position

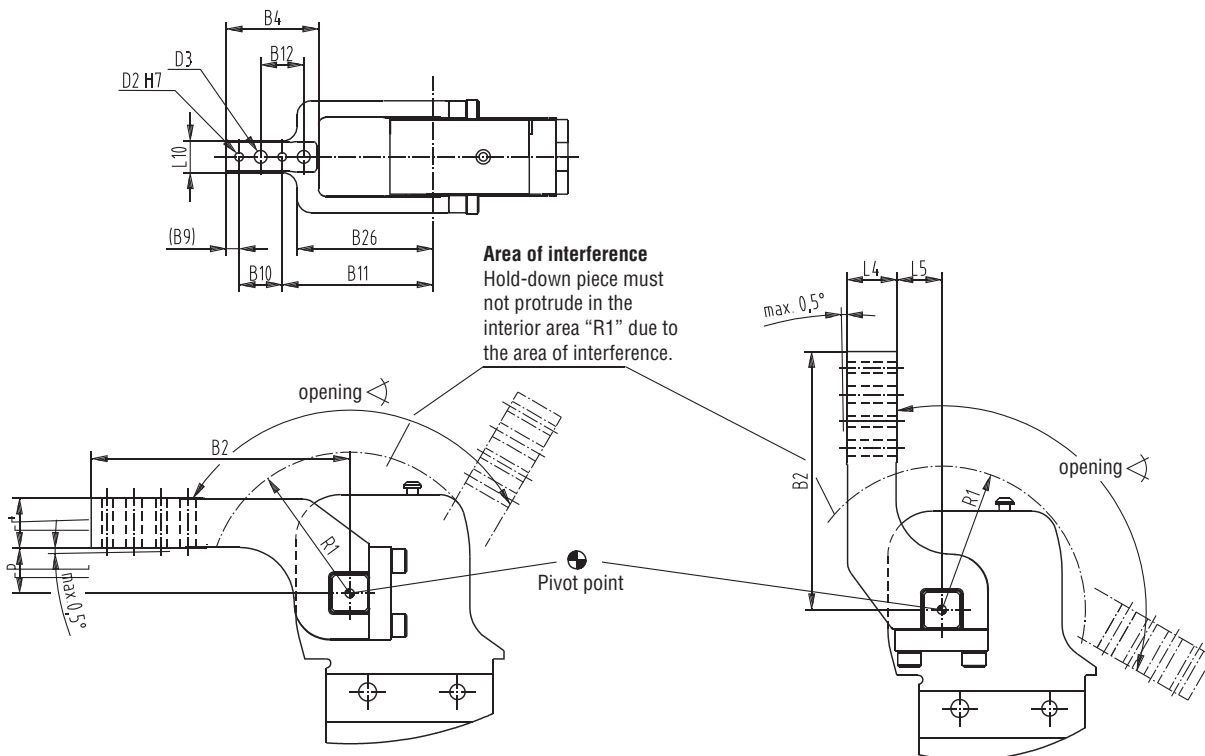
Technical data U-type central clamping arms

Model	Order no. for set of U-type central clamping arms	Max. opening angle for clamping position		Weight Kg	B2	B4	B9	B10	B11	B12	B26	D2	D3	L4	L5	L10	R1
		Horz.	Vert.														
52H05-6	8UM 631-15-144	120°	105°	1,1	144	64.3	9	30	105	30	95	6	9	28	15	20	80
	8UM 631-25-144	120°	120°	1,1	144	64.3	9	30	105	30	95	6	9	28	25	20	80
	8UM 631-45-144	120°	120°	1,3	144	64.3	9	30	105	30	95	6	9	28	45	20	80
	8UM 631-75-204	120°	120°	1,7	204	82	9	30	165	30	107	6	9	30	75	20	80

U-type central clamping arms for **52H05-6**

Horizontal clamping arm position

Vertical clamping arm position



Series **52H05-6** Clamping Arm Variants

Clamping arm design

Lateral / Left

Lateral / Right

Lateral / Both Sides

Clamping position

Horizontal or Vertical

Horizontal or Vertical

Horizontal or Vertical



Lateral clamping arm, horizontal clamping position

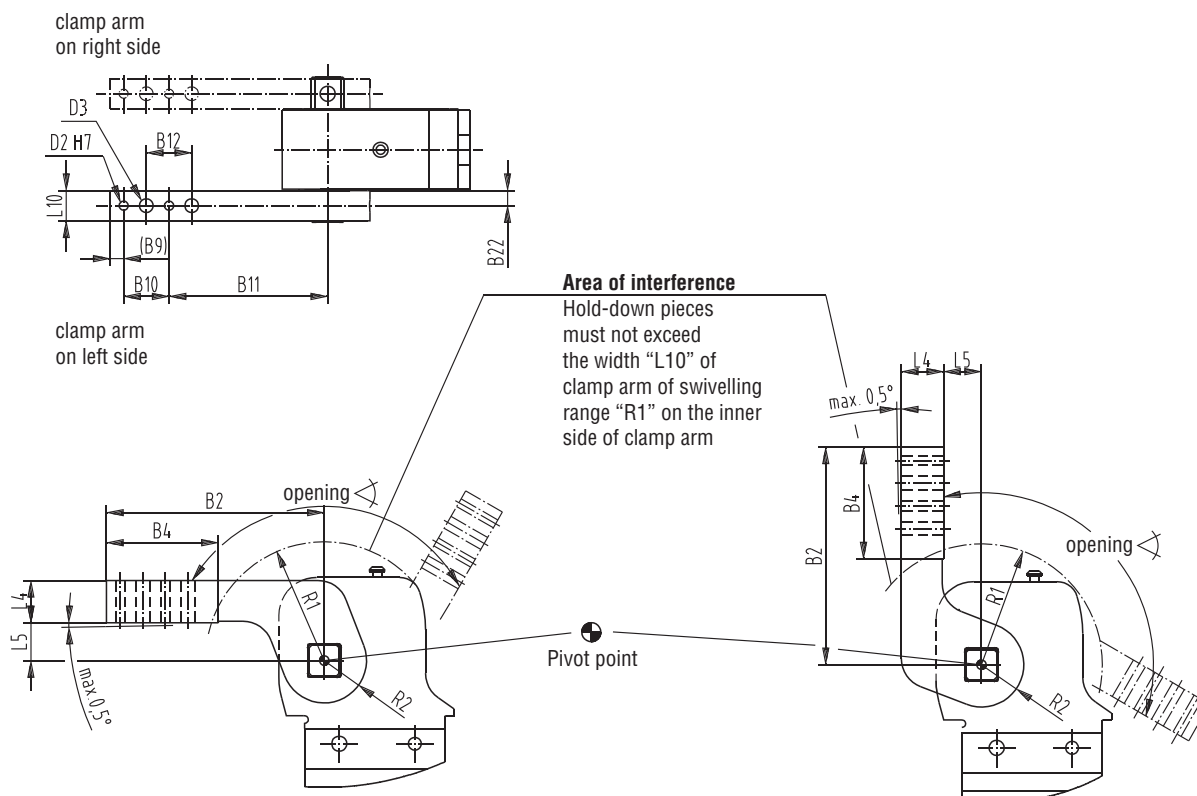
Technical data (lateral clamping arms)

Model	Order no. for set of lateral clamping arms	Opening angle for clamping position		Weight Kg	B2	B4	B9	B10	B11	B12	B22	D2	D3	L4	L5	L10	R1	R2
		Horz.	Vert.															
52H05-6	8JG-080-1-01	120°	120°	0,9	144	74	9	30	105	30	10	6	9	28	15	20	80	28
	8S631-25-144	120°	120°	1	144	74	9	30	105	30	10	6	9	28	25	20	80	28
	8S631-75-204	120°	120°	1,5	204	78	9	30	165	30	10	6	9	30	75	20	80	28

Lateral clamping arms for **52H05-6**

Horizontal clamping arm position

Vertical clamping arm position



Series **52H05-6** Clamping Arm Variants

Clamping arm design

U-type clamping arm, Left

U-type clamping arm, Right

Clamping position

Horizontal or Vertical

Horizontal or Vertical

U-type clamping arm, left,
horizontal clamping position



U-type clamping arm, right,
horizontal clamping position



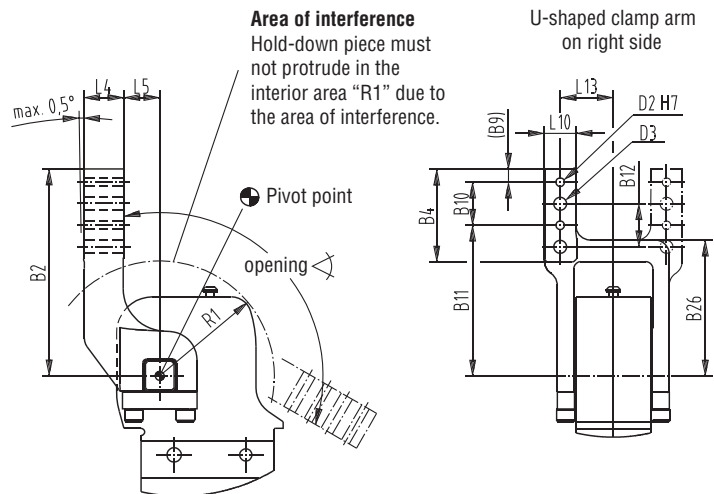
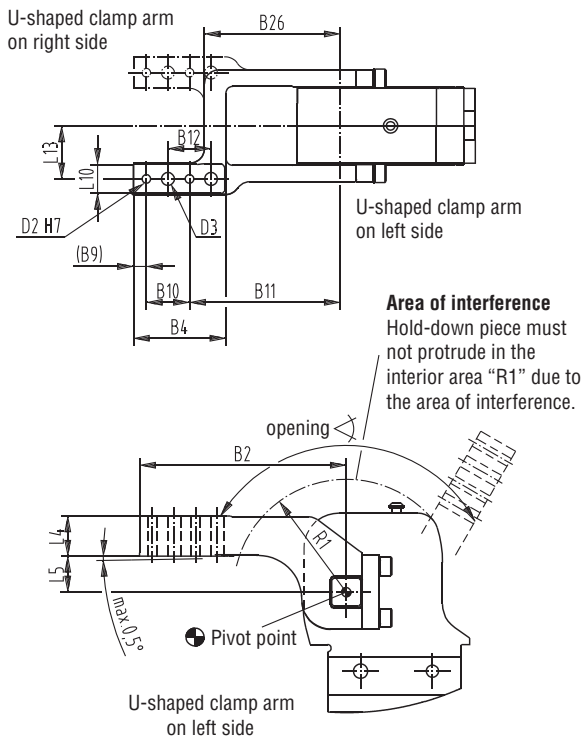
Technical data (U-type clamping arms, left and right)

Order no. for set of U-type central clamping arms for 52H05-6		Max. opening angle for clamping position		Weight Kg	B2	B4	B9	B10	B11	B12	B26	D2	D3	L4	L5	L10	L13	R1
		Horz.	Vert.		±0,02	±0,2	±0,2	H7	∅	±0,1	-0,5° max.	±0,1						
8UL631-15-144	8UR631-15-144	120°	105°	1,1	144	64.3	9	30	105	30	95	6	9	28	15	20	37	80
8UL631-25-144	8UR631-25-144	120°	120°	1,1	144	64.3	9	30	105	30	95	6	9	28	25	20	37	80
8UL631-45-144	8UR631-45-144	120°	120°	1,3	144	64.3	9	30	105	30	95	6	9	28	45	20	37	80
8UL631-75-204	8UR631-75-204	120°	120°	1,7	204	82	9	30	165	30	107	6	9	30	75	20	37	80

Lateral U-type clamping arms for **52H05-6**

Horizontal clamping arm position

Vertical clamping arm position



Specification			Order no. for set 52H05-6	Comment
Clamping arm variant	Fulcrum Distance	Clamping Position		
U-central	15	horizontal / vertical	8UM631-15-144	sets of U-type clamping arms consist of clamping arm, links and screws
U-central	25	horizontal / vertical	8UM631-15-144	
U-central	45	horizontal / vertical	8UM631-45-144	
U-central	75	horizontal / vertical	8UM631-75-204	
U-left	15	horizontal	8UL631-15-144	
U-left	25	horizontal	8UL631-25-144	
U-left	45	horizontal	8UL631-45-144	
U-left	75	horizontal	8UL631-75-204	
U-left	15	vertical	8UR631-15-144	
U-left	25	vertical	8UR631-25-144	
U-left	45	vertical	8UR631-45-144	
U-left	75	vertical	8UR631-75-204	
U-right	15	horizontal	8UR631-15-144	
U-right	25	horizontal	8UR631-25-144	
U-right	45	horizontal	8UR631-45-144	
U-right	75	horizontal	8UR631-75-204	
U-right	15	vertical	8UL631-15-144	
U-right	25	vertical	8UL631-25-144	
U-right	45	vertical	8UL631-45-144	
U-right	75	vertical	8UL631-75-204	
Lateral right/left	15	horizontal / vertical	8JG-080-1-01	sets of lateral clamping arms consist of clamping arm & set screws
Lateral right/left	25	horizontal / vertical	8S631-25-144	
Lateral right/left	75	horizontal / vertical	8S631-75-204	
Lateral both sides				you need 2 sets of lateral clamping arms
Connector cable (1 connector socket & 5m cable)				
Connector socket M12x1			8EL-002-1	
Straight, 5-pin				
Connector socket M12x1			8EL-003-1	
Angular, 4-pin				
Two hand operating for hold open device			82ZB-032-2	Hold open device

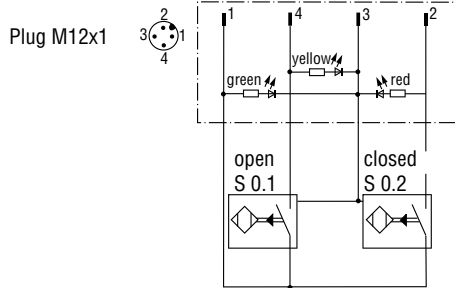
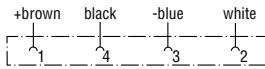
Shims for Clamping arm		Model no	A1	A2	D2	D3	B9	B10	B12	L10	
		82ZB-SH5001			0,1						
		82ZB-SH5002			0,2						
		82ZB-SH5005	65		0,5	6,5	9	10	30	30	16
		82ZB-SH5010			1,0						
		82ZB-SH5020			2,0						
		82ZB-SH5050			5,0						

Series **52H05-6** Accessories

Wiring diagram of electrical sensing system

Sensing system immune to interference from d.c. arc welding and a.c. arc welding

Pin assignment



Inductive design:

- A1 Connector plug M12x1, fixed (Turck)
- A2 Connector plug M12x1, fixed (Pepperl & Fuchs)

Series **56H40-2** Product Overview

Features:

- Compact design
- Low weight
- High accuracy of positioning due to twin piston rod guide
- Lateral and front-face mounting areas
- Length of stroke: 20mm, 40mm or 60mm available
- Various mounting bases for centring pin incl. precision bore holes and grooves or integrated thread
- Inductive sensing module with LED display
- Toggle Lock in extracted position prevents unattended retracting of piston rod

Application:

Accurate positioning of sheet metal parts in welding equipment and handling systems. At the end of the welding process, the pins are retracted from the pin holes. The component can thus be easily removed from the jig.

Key areas of application:

Automotive manufacturing, sheet processing industry, jig and general mechanical engineering.

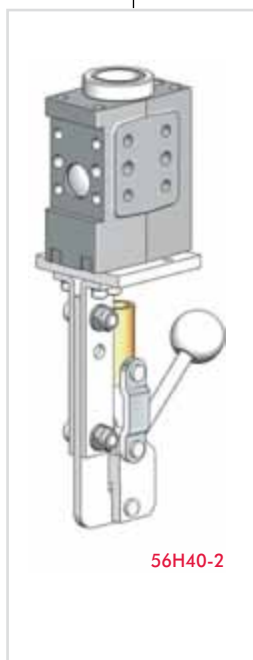


56H40-202C800A
stroke 40 mm and sensing kit



56H40-202C800C
stroke 60 mm and sensing kit

Order no. Example: **56H40-2 02 C8 00 A K** — K = ceramic coating plunger



Base Model

02 = Piston rod adapter
Ø16 mm, Cross groove

05 = Piston rod adapter
Ø 10 mm, Cross groove

Piston rod adapter

L4 (stroke 20/40) =
without sensing system
cover plate
86P0-200L4

L6 (stroke 60) =
without sensing system
cover plate
86P0-200L6

C8 =
with sensing system
86P0-200C8
(for stroke 20 / 40)
86P0-200C8006
(for stroke 60)
Fabr. Turck

D8 =
with sensing system
86P0-200D8
(for stroke 20 / 40)
86P0-200D8006
(for stroke 60)
P&F

C6 = with sensing system
86P0-200C6
(for stroke 20 / 40)
86P0-200C6006
(for stroke 60)

Inductive sensing system

00 = without accessories

E1 =
(only with A or B)
E2 = (only with C)
External guide

F1 =
Bellow
82ZB-013-3
(strokes 20 or 40)

G1 =
Bellow/adaptor
(strokes 20 or 40)

H1 =
Adaptor
86P0-20000H1

J1 =
(only with A or B)
External guide/
Adaptor
86P0-20000J1

Accessories

A = 40 mm stroke
C = 60 mm stroke
Anti - twist device
low accuracy
8CE-231-1

B = 20 mm stroke
Anti - twist device
low accuracy
8MF-071-1

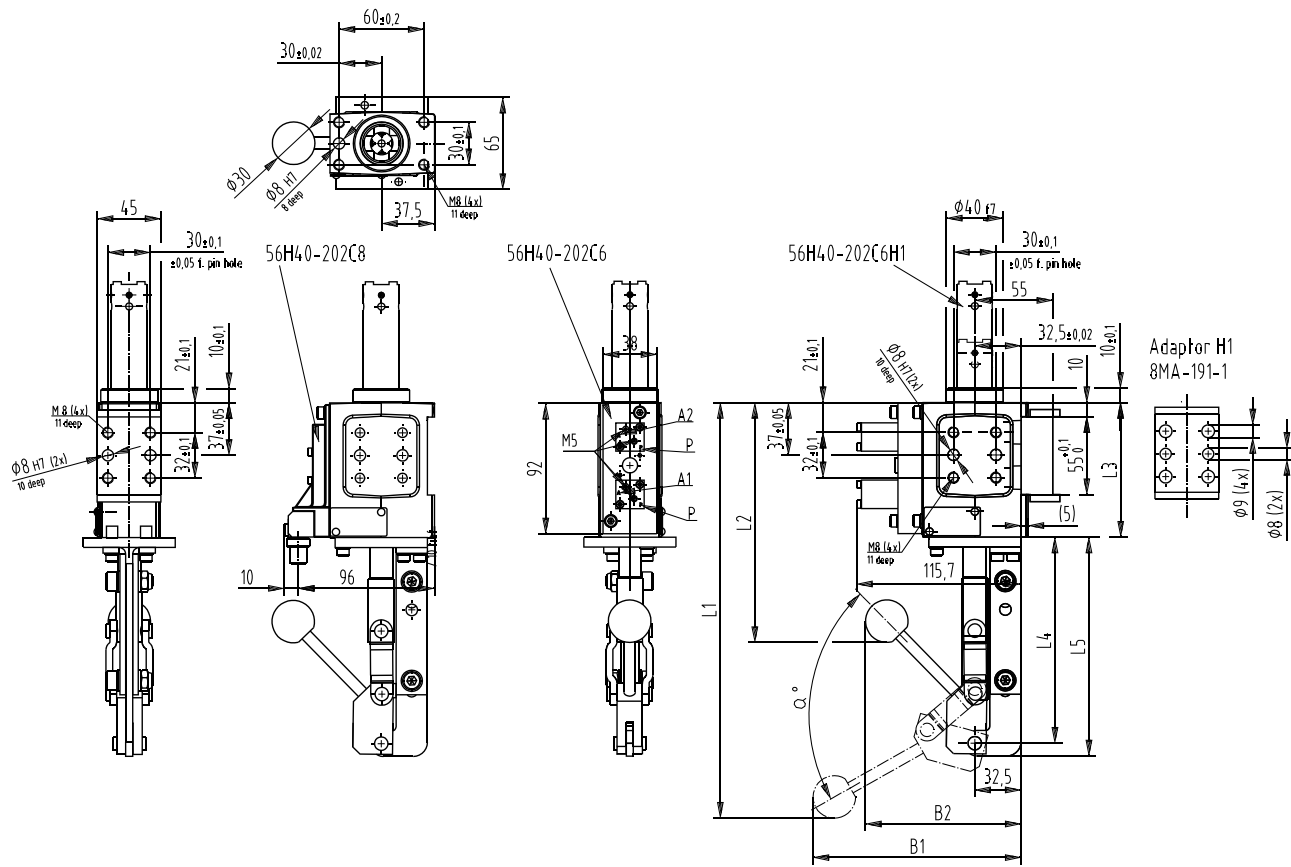
2 = 20 mm stroke
Anti - twist device
86P0-20000002

4 = 40 mm stroke
Anti - twist device
86P0-20000004

6 = 60 mm stroke
Anti - twist device
86P0-20000006

Stroke

Series 56H40-2 Clamp Dimensions



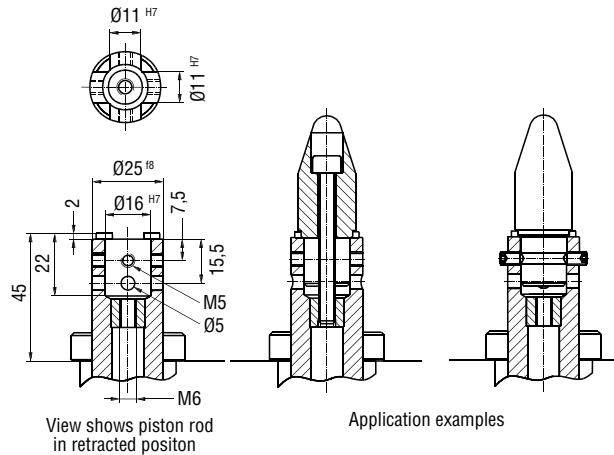
Pneumatic Position Control System:
 P = Compressed air connection for position control system
 A1 = Control connection for retracted position
 A2 = Control connection for extracted position

Series 56H40-2 Technical Information

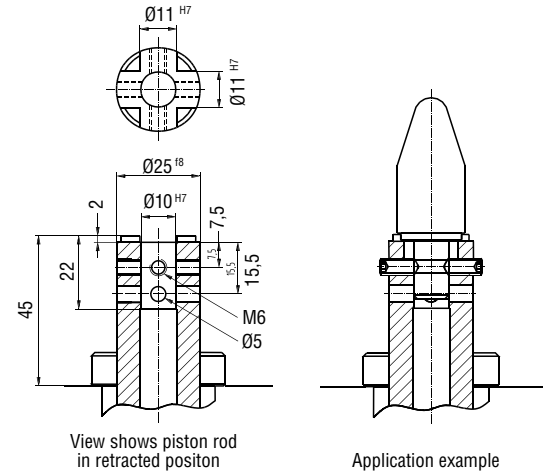
Model no.	Stroke +2 [mm]	Weight ~ [kg]	B1	B2	L1	L2	L3	L4	L5	W ~
56H40-2..2	20	2,0	182	140	312	138	95	166	175	40
56H40-2..4	40	2,0	182	140	312	138	95	146	155	75
56H40-2..6	60	2,5	133	157	385	182	115	146	155	90
56H40-2..B	20	2,0	182	140	312	138	95	166	175	40
56H40-2..A	40	2,0	182	140	312	138	95	146	155	75
56H40-2..C	60	2,5	133	157	385	182	115	146	155	90

Series **56H40-2** Standard Clamp Dimensions

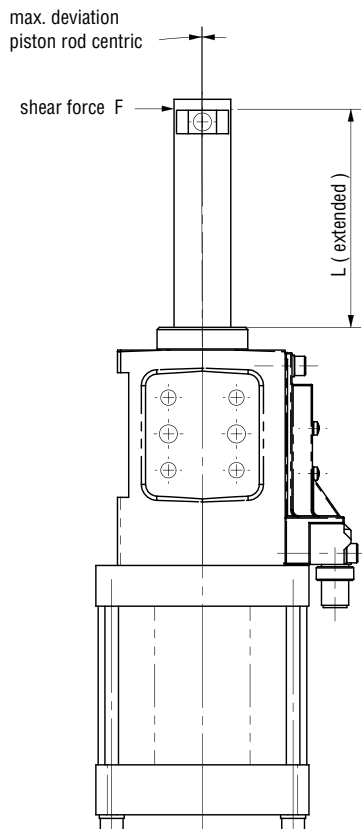
Pison Rod Model **-202** Detail mounting base $\varnothing 16$ mm for **56H40-2** (Also valid for electric pin package 96M-1002.)



Pison Rod Model **-205** Detail mounting base $\varnothing 10$ mm for **56H40-2** (Also valid for electric pin package 96M-1005.)



Max deflection for centering pin for **56H40-2**

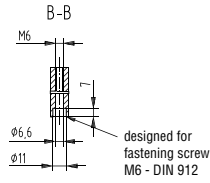
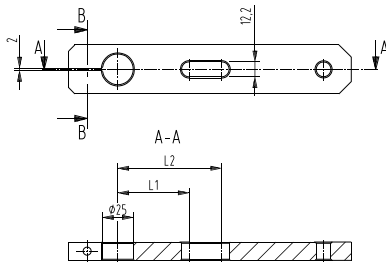


Model no.	Sheer force N [lbs]	L mm [in]	Stroke mm [in]	Deviation mm [in]
56H40-2...B / 2	200 [45]	52 [2.0]	20 [0.08]	0,06 [0.002]
56H40-2...A / 4	200 [45]	70 [2.8]	40 [1.60]	0,09 [0.004]
56H40-2...C / 6	200 [45]	90 [3.5]	60 [2.40]	0,12 [0.007]

Caution: Generally we recommend using an external guide when the transverse force is more than 200 N [45 lbs]. Also independently of the stroke, less transverse forces, when the overall height L2 > 120 mm [4.7 in] (L2 = extended piston rod plus centering pin).

Series **56H40-202C8E1A** Pin packages with external guide (Accessory)

Example application of an off-center centering pin for **56H40-2**



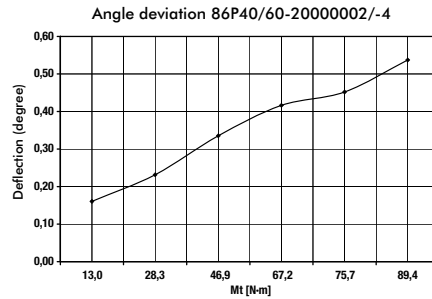
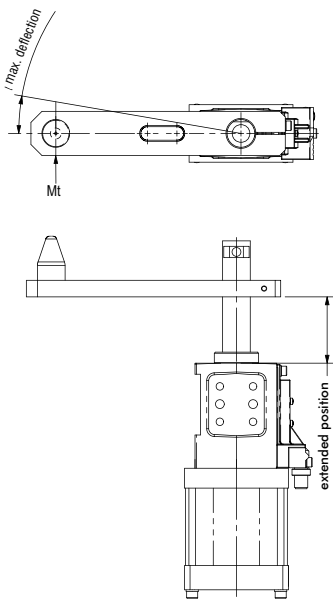
The component shown in this example is to be made by the customer

Model no.	L1	L2
86P40/60-2...E1	58	62
86P40/60-2...E2		
86P40/60-2...J1*	80,5	84,5

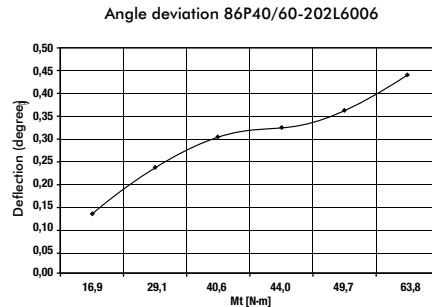
* J1 is not available with stroke 60 mm.



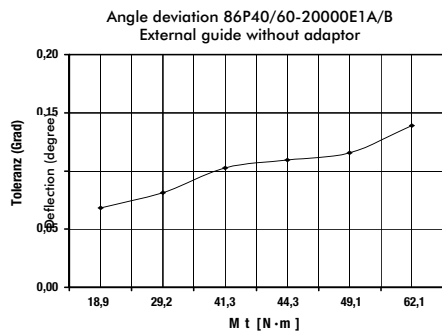
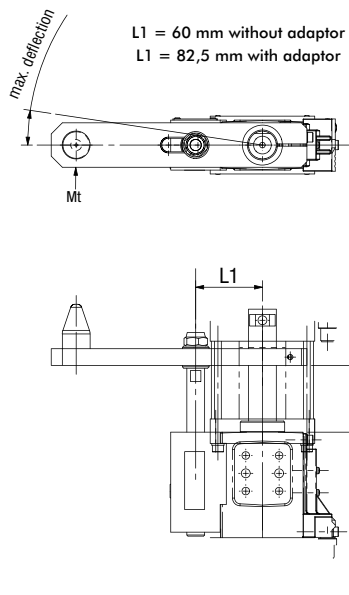
Internal anti-rotation device



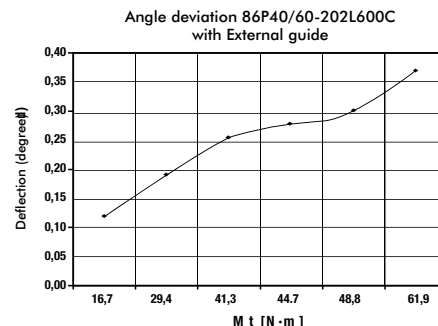
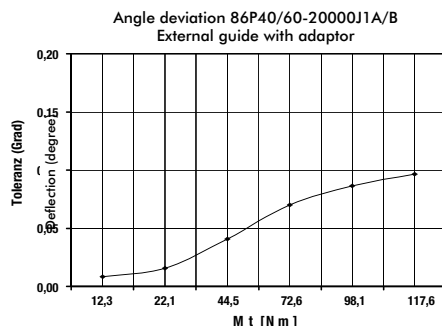
Caution: Generally we recommend using an external guide when the transverse force is more than 200 N [45 lbs] Also independently of the stroke, less transverse forces, when the overall height L2 > 120 mm [4.7 in] (L2 = extended piston rod plus centering pin).



External guide **82ZB-009-2, 82ZB-010-2, 82ZB-090-1**

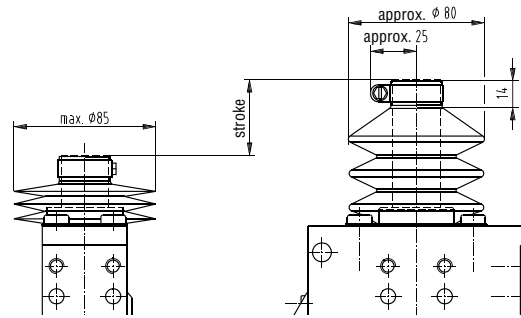


Caution: Generally we recommend using an external guide when the transverse force is more than 200 N [45 lbs] Also independently of the stroke, less transverse forces, when the overall height L2 > 120 mm [4.7 in] (L2 = extended piston rod plus centering pin).



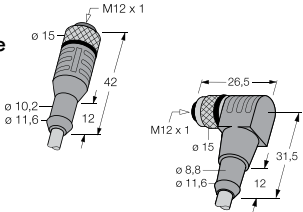




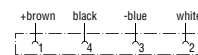
Piston rod cover 82ZB-013-3 (accessory part)



Accessories

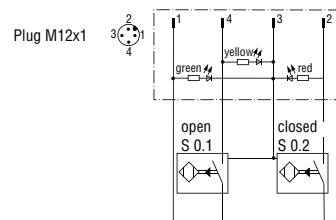
Order No.	Specification	Comment
82ZB-009-2 (only with A+B) 82ZB-090 (with C)	External guide 	use without bellows only
82ZB-013-3 (only stroke 20 0.40)	Bellows 	Use without external guide only
8EL-002-1 8EL-003-1	Connecting cable (1 connector socket & 5 m cable) Connector socket M12x1 straight, 5-pin Connector socket M12x1 angular, 4-pin 	

Wiring diagram of electrical sensing system
Sensing system immune to interference from d.c. arc welding and a.c. arc welding



Inductive design:

- C8 Connector plug M12x1, fixed (Turck)
- D8 Connector plug M12x1, fixed (Pepperl & Fuchs)



Major spare parts

Order no. for	Specification
56H40-2	
86PO-200C8 86PO-200D8	End position sensing system C8 connector plug M12x1, fixed (Turck) D8 connector plug M12x1, fixed (Pepperl & Fuchs)
82ZB-046-1	Hand lever set

	Series	Section. Page	Max. Holding Capacity N [lbf.]					Drawing Movement mm [inch]					
			0 to 2000 [0 to 450]	2000 to 4000 [450 to 900]	4000 to 6000 [900 to 1350]	6000 to 10000 [1350 to 2250]	10000 to 20000 [2250 to 4500]	20000+ [4500+]	0 to 50 [0 to 1.97]	50 to 75 [1.97 to 2.95]	75 to 100 [2.95 to 3.94]	100 to 125 [3.94 to 4.92]	125 to 150 [4.92 to 5.91]
	3051	6.3											
	330	6.4											
	351	6.4											
	371	6.4											
	381	6.4											
	323	6.8											
	331	6.8											
	341	6.8											
	375	6.12											
	385	6.14											
	324	6.16											
	334	6.16											
	344	6.16											
	374	6.16											
	301	6.20											
	311	6.20											
	3011	6.21											
	353	6.22											



Overall Height mm [inch]						Overall Length mm [inch]						Overall Width mm [inch]						Standard Material			Hook Style			Service Environment				
0 to 50 [0 to 1.97]	50 to 75 [14.97 to 2.95]	75 to 100 [2.95 to 3.94]	100 to 125 [3.94 to 4.92]	125 to 150 [4.92 to 5.91]	150+ [5.91+]	50 to 100 [1.97 to 3.94]	100 to 150 [3.94 to 5.91]	150 to 200 [5.91 to 7.87]	200 to 250 [5.91 to 9.84]	250 to 300 [5.91 to 11.81]	300 to 350 [11.81 to 13.78]	0 to 40 [0 to 1.57]	40 to 50 [1.57 to 1.97]	50 to 60 [1.97 to 2.36]	60 to 70 [2.36 to 2.76]	70 to 80 [2.76 to 3.15]	80 to 90 [3.15 to 3.54]	Duty Cycle	Steel	Stainless Steel	Toggle Lock Plus	Fixed	Adjustable U-Hook	Adjustable J-Hook	Normal	Harsh/Dirty		
																		○	✓		✓			✓	✓			
																			○	✓	✓				✓	✓		
																			○	✓	✓	✓			✓	✓		
																			○	✓	✓	✓			✓	✓		
																			○	✓	✓	✓			✓	✓		
																			○	✓	✓	✓		✓		✓		
																			●	✓		✓		✓				✓
																			●	✓	✓	✓		✓				✓
																			○	✓	✓	✓		✓		✓		
																			○	✓	✓	✓		✓		✓		
																			○	✓	✓	✓		✓		✓		
																			●	✓		✓		✓				✓
																			●	✓	✓	✓		✓				✓

● Excellent/High ○ Fair/Medium ● Poor/Low ⊗ Not Recommended

Series 3051 Product Overview

Features:

- Safe, single handed operation
- Innovative controlled motion
- Secure toggle locking action
- Simple set-up and adjustment
- Clamp hook/arm moves and stays safely out of the way

Applications:

- Molding
- Closures for doors, lids, covers
- Assembly
- Checking fixtures

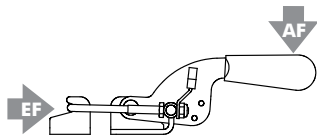
3051



3051-R

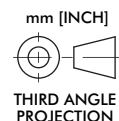
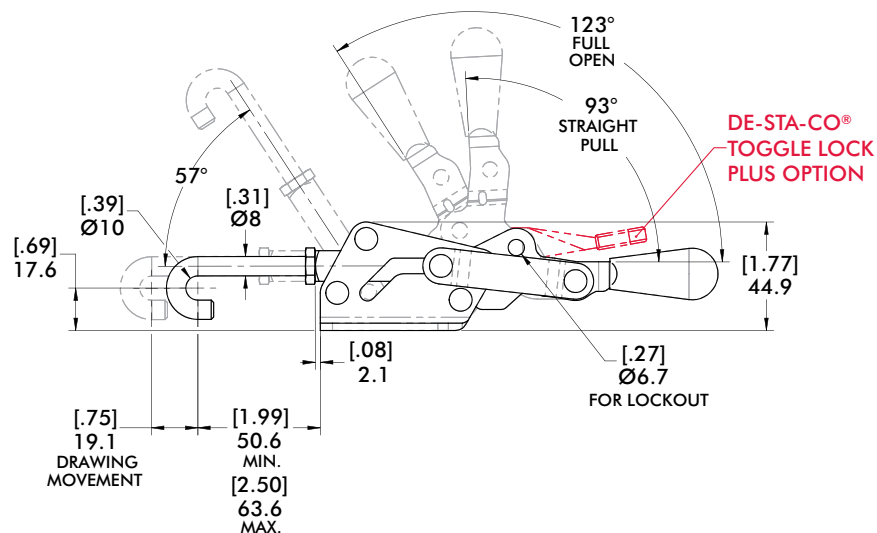
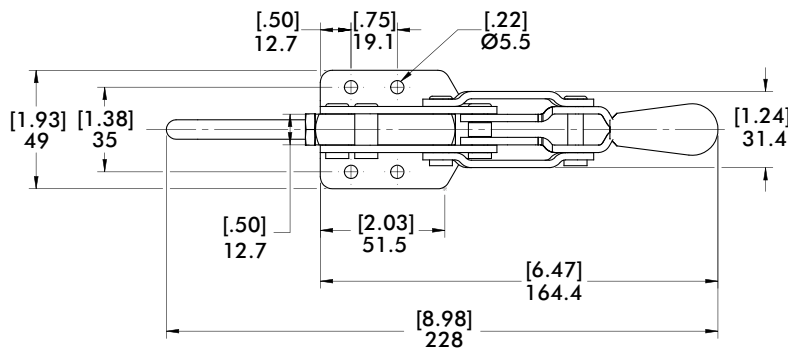


Series 3051 Technical Information, Holding Capacities, Standard Clamp Dimensions



Model	Max. Holding Capacity	Weight	EF:AF	Drawing Movement	Replacement Hook Assembly
3051	6700N [1500lbf]	0,50kg [1.0lb]	12:1	19,1 [0.75]	3051208
3051-R					

EF = Exerting Force, AF = Applied Force





Series 330, 351, 371, 381 Product Overview

Features:

- J-hook style latch clamps are supplied with threaded J-hooks for easy adjustment
- Supplied with patented thumb control lever for one handed operation
- DE-STA-CO® Toggle Lock Plus versions available
- Stainless steel version available as **-SS** models

Applications:

- Molding
- Closures for doors, lids, covers
- Assembly

Also Available:

- Clamps with longer hooks available Upon Request that are 25mm, 50mm, 100mm longer than standard length
- To order clamp with longer hook, add **-M-25**, **-M-50**, or **-M-100** to the end of the model. Example: 330-**M-50**

Covered under one year or more U.S./International Patents

330
330-SS



351
351-SS
with DE-STA-CO®
Toggle Lock
Plus



351-B
351-BSS
Narrow Base



351-R
with
DE-STA-CO®
Toggle Lock
Plus



371
371-SS



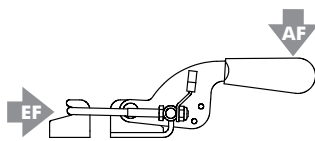
371-R
with
DE-STA-CO®
Toggle Lock
Plus



381
381-SS



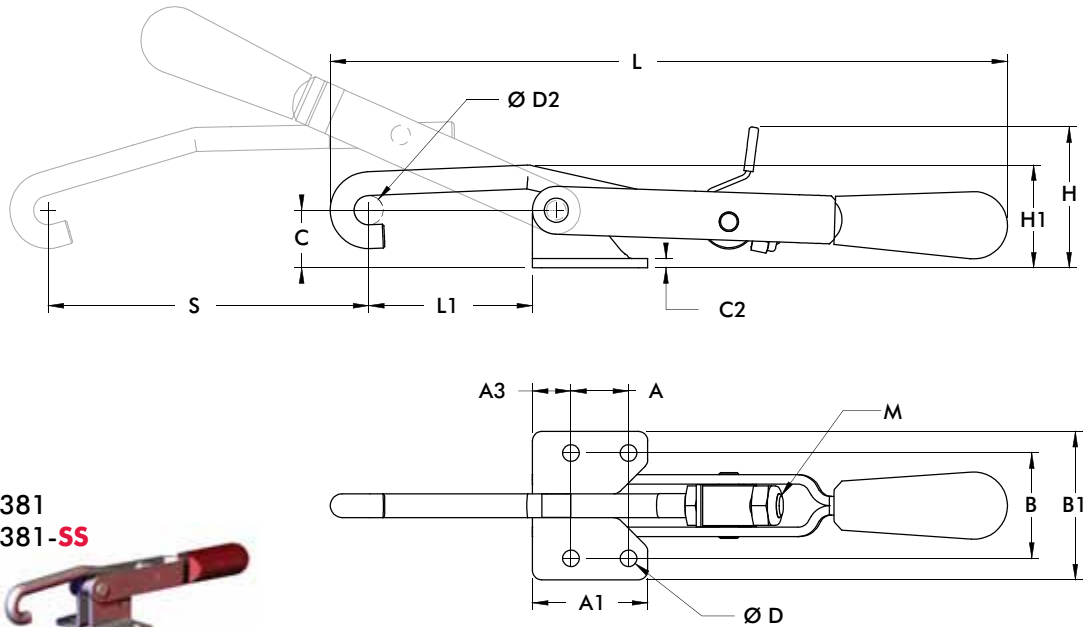
Series 330, 351, 371, 381 Technical Information, Holding Capacities



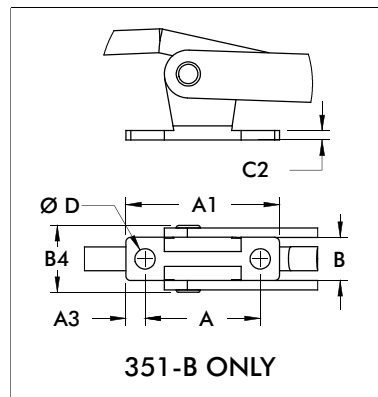
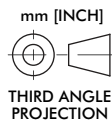
Model	Max. Holding Capacity	Weight	EF:AF	Drawing Movement	Replacement Hook Assembly
330	900 N [200 lbf]	0,11kg [0.24lb]	17:1	59,7 [2.35]	330215
330-SS					330915
351	1670 N [375 lbf]	0,28kg [0.61lb]	21:1	101,6 [4.00]	351215
351-SS	2000 N [450 lbf]				351915
351-B	1670 N [375 lbf]				351215
351-BSS					351915
351-R	0,36kg [0.8lb]	36:1	136,7 [5.38]	351215	
371				0,69kg [1.53lb]	371215
371-SS	3340 N [750 lbf]	0,85kg [1.88lb]	37:1	155,7 [6.13]	371915
371-R	371215				
381	4450 N [1000 lbf]	1,16kg [2.56lb]	37:1	155,7 [6.13]	381215
381-SS					381915

EF = Exerting Force, AF = Applied Force

Series 330, 351, 371, 381 Standard Clamp Dimensions
330/351/371/381/-SS/-B/-BSS



351-B
351-BSS
Narrow Base



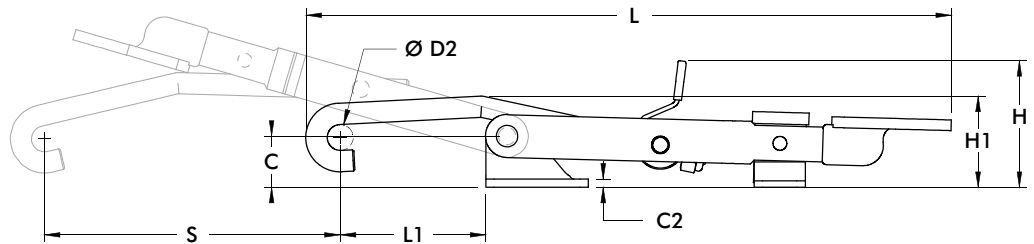
Model	A	A1	A3	B
330	[0.50] 12,7	[1.00] 25,4	[0.25] 6,4	[1.22] 30,9
330-SS				
351	[0.75] 19,1	[1.50] 38,1	[0.50] 12,7	[1.37] 34,8
351-SS				
351-B	[1.50] 38,1	[2.00] 38,1	[0.25] 6,4	[0.56] 14,3
371	[1.25] 31,8	[1.94] 49,2	[0.34] 8,7	[1.94] 49,2
371-SS				
381	[1.13] 28,6	[2.13] 54,1	[0.50] 12,7	[2.37] 60,3
381-SS				

Model	B1	B4	C	C2	ØD	ØD2	H	H1	L	L1 Max	M	S
330	[1.69] 42,9	-	[0.56] 14,2	[0.12] 3,1	[0.22] 5,6	[0.32] 8,1	[1.43] 36,2	[0.89] 22,6	[6.01] 152,7	[1.70] 43,3	M5	[2.35] 59,7
330-SS												
351	[1.93] 49,1	-	[0.75] 19,1	[0.12] 3,1	[0.22] 5,5	[0.38] 9,7	[1.83] 46,6	[1.34] 34	[8.82] 224	[2.13] 54,2	M8	[4.00] 101,6
351-SS												
351-B	-	[0.87] 22,1	[0.86] 21,8		[0.27] 6,7		[1.94] 49,3	[1.45] 36,8		[1.63] 41,4		
371	[2.63] 66,7	-	[1.42] 36,1	[0.16] 4	[0.34] 8,7	[0.50] 12,7	[2.58] 65,6	[2.23] 56,5	[11.89] 302	[2.81] 71,5	M10	[5.38] 136,7
371-SS												
381	[3.38] 85,9	-	[1.81] 46	[0.19] 4,7	[0.41] 10,3	[0.62] 15,7	[2.90] 73,6	[2.71] 68,8	[13.45] 341,7	[3.13] 79,5	M12	[6.13] 155,7
381-SS												

Series 351-R, 371-R Standard Clamp Dimensions

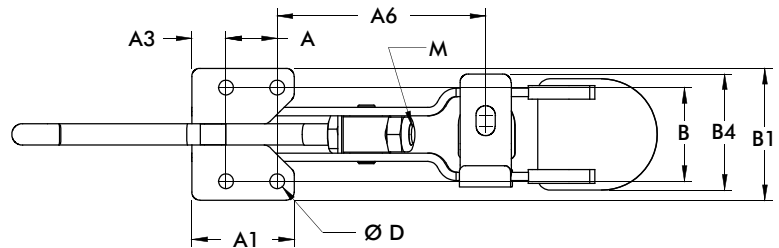
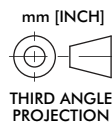
371-R

with
DE-STA-CO®
Toggle Lock
Plus



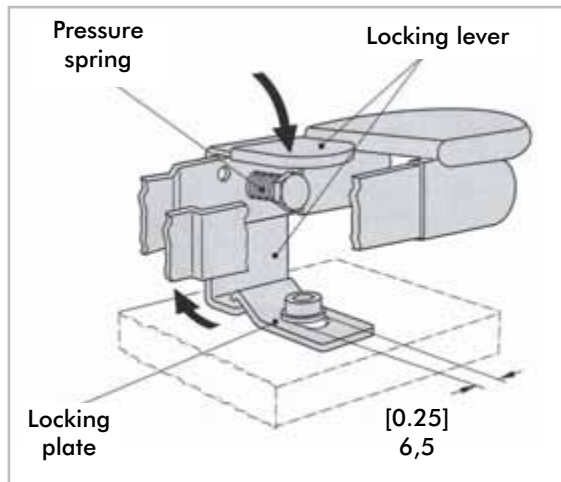
351-R

with
DE-STA-CO®
Toggle Lock
Plus



Model	A	A1	A3	A6	B	B1	B4	C	C2	ØD	H	H1
351-R	[0.75] 19,1	[1.50] 38,1	[0.50] 12,7	[3.06] 77,7	[1.37] 34,8	[1.93] 49,1	[1.70] 19,1	[0.75] 19,1	[0.12] 3,1	[0.22] 5,5	[1.85] 47,1	[1.34] 33,9
371-R	[1.25] 31,8	[1.94] 49,2	[0.34] 8,7	[4.73] 120,1	[1.94] 49,2	[2.63] 66,7	[2.25] 57,2	[1.42] 36,1	[0.16] 4	[0.34] 8,7	[2.65] 67,4	[2.22] 56,3

Model	L	L1	M	S
351-R	[9.45] 240	[2.13] 54,2	M8	[4.33] 110
371-R	[12.74] 323,6	[2.81] 71,4	M10	[5.59] 142



Model 351-R, 371-R

Information concerning the assembly and function of the clamps locking mechanism

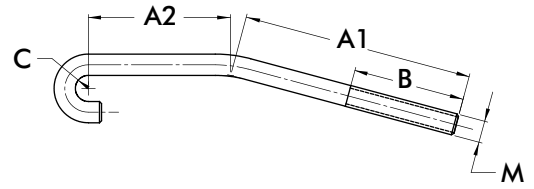
The locking plate which is supplied with the unit must be fastened with a screw (M6 or 1/4-20) as shown in this illustration. The screw head should be flat.

Function

When closing the latch clamp, the locking lever engages automatically. Actuate the locking lever to open the clamp.

Series **351-R, 371-R** Replacement Hook Assembly Standard Dimensions

Replacement Hook Assembly	A1	A2	B	C	M
330215	38,1	50,8	19,1	50,8	M5
330915	[1.50]	[2.00]	[0.75]	[2.00]	
351215	85,9	53,1	41,4	50,8	M8
351915	[3.38]	[2.09]	[1.63]	[2.00]	
371215	113,3	74,7	56,4	50,8	M10
371915	[4.46]	[2.94]	[2.22]	[2.00]	
381215	117,6	76,2	7,8	50,8	M12
381915	[4.63]	[3.00]	[0.31]	[2.00]	





Series 323, 331, 341 Product Overview

Features:

- U-hook style latch clamps are supplied with threaded U-hooks for easy adjustment
- Supplied with latch plate and patented thumb control lever for one handed operation
- DE-STA-CO® Toggle Lock Plus versions available
- Stainless steel version available as **-SS** models

Applications:

- Molding
- Closures for doors, lids, covers
- Assembly

Also Available:

- Clamps with longer hooks available Upon Request that are 25mm, 50mm, 100mm longer than standard length
- To order clamp with longer hook, add **-M-25**, **-M-50**, or **-M-100** to the end of the model. Example: 323-**M-50**

Covered under one year or more U.S./International Patents

323
323-SS



323-R
323-RSS
with DE-STA-CO®
Toggle Lock
Plus



331
331-SS



331-R
331-RSS
with
DE-STA-CO®
Toggle Lock
Plus



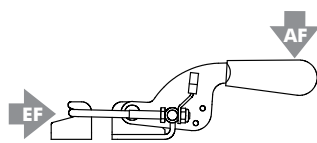
341
341-SS



341-R
341-RSS
with DE-STA-CO®
Toggle Lock
Plus



Series 323, 331, 341 Technical Information, Holding Capacities

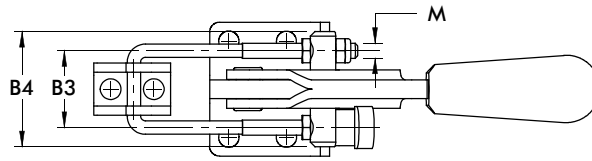


Model	Max. Holding Capacity	Weight	EF:AF	Drawing Movement	Latch Plate (Supplied)	Replacement Hook Assembly
323	1600 N [360 lbf]	0,07kg [0.15lb]	27:1	30 [1.18]	323104-M	323215
323-SS					323104-MSS	323915
323-R				323104-M	323215	
323-RSS				323104-MSS	323915	
331	3200 N [720 lbf]	0,25kg [0.56lb]	32:1	44,5 [1.75]	331005	331215
331-SS					331905	331915
331-R					331005	331215
331-RSS					331905	331915
341	8900 N [2000 lbf]	0,65kg [1.43lb]	29:1	63,5 [2.50]	341005	341215
341-SS					341905	341915
341-R					341005	341215
341-RSS					341905	341915

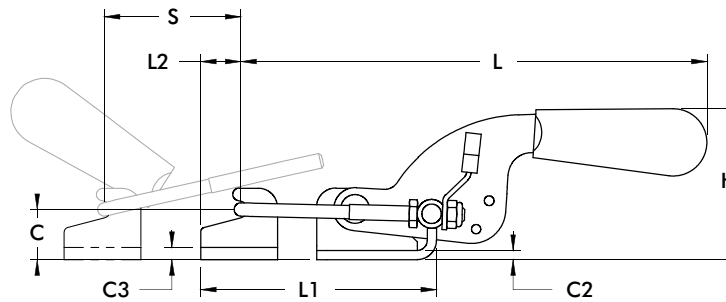
EF = Exerting Force, AF = Applied Force

Series **323, 323-R, 331, 341** Standard Clamp Dimensions
 323/331/341/-SS/-R/-RSS

323
323-SS



323-R
323-RSS
 with DE-STA-CO®
 Toggle Lock
 Plus



331
331-SS

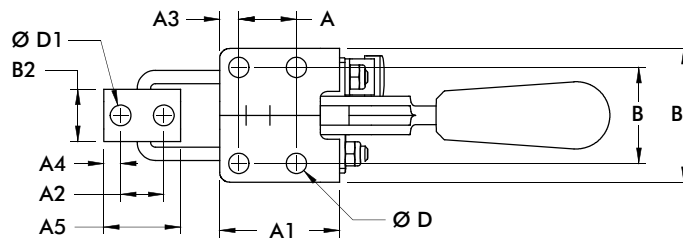


341
341-SS



mm [INCH]

 THIRD ANGLE
 PROJECTION

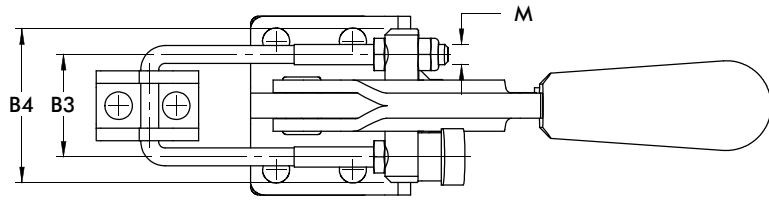


Model	A	A1	A2	A3	A4	A5	B	B1	B2	B3	B4	C	C2
323													
323-SS	[0.63]	[1.02]	[0.39]	[0.20]	[0.24]	[0.79]	[0.75]	[1.10]	[0.52]	[0.75]	[1.10]	[0.47]	[0.08]
323-R	16	26	10	5	6	20	19	28	13,2	19,1	28	12	2
323-RSS													
331	[0.75]	[1.56]	[0.56]	[0.25]	[0.22]	[1.00]	[1.25]	[1.74]	[0.68]	[1.00]	[1.50]	[0.66]	[0.12]
331-SS	19,1	39,7	14,3	6,4	5,6	25,4	31,8	44,3	17,3	25,4	38,1	16,7	3,1
341	[1.63]	[2.38]	[0.75]	[0.38]	[0.38]	[1.50]	[1.50]	[2.12]	[1.19]	[1.75]	[2.38]	[0.94]	[0.16]
341-SS	41.5	60.5	19.1	9.7	9.5	38.1	38.1	53.8	30.1	44.5	60.5	23.8	4

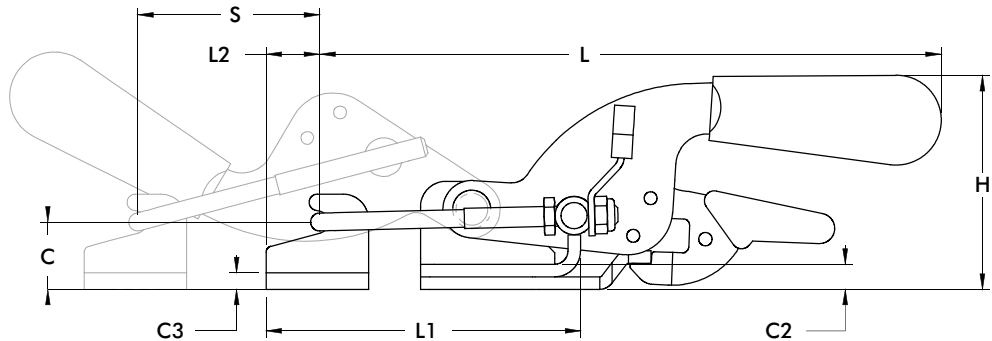
Model	C3	ØD	ØD2	H	L	L1 MAX	L2	M	S
323									
323-SS	[0.08]	[0.17]	[0.17]	[1.19]	[3.88]	[2.23]	[0.37]	M4	[1.18]
323-R	2	4,2	4,2	30,3	98,6	56,6	9,3	M4	30
323-RSS									
331	[0.12]	[0.27]	[0.27]	[1.97]	[6.07]	[3.07]	[0.52]	M5	[1.75]
331-SS	3,1	6,7	6,9	50	154,2	78	13,3	M5	45,5
341	[0.16]	[0.33]	[0.33]	[2.89]	[8.20]	[4.59]	[0.75]	M8	[2.50]
341-SS	4	8,5	8,5	73,4	208,3	116,6	19,1	M8	63,5

Series 331-R, 341-R Standard Clamp Dimensions
-R/-RSS

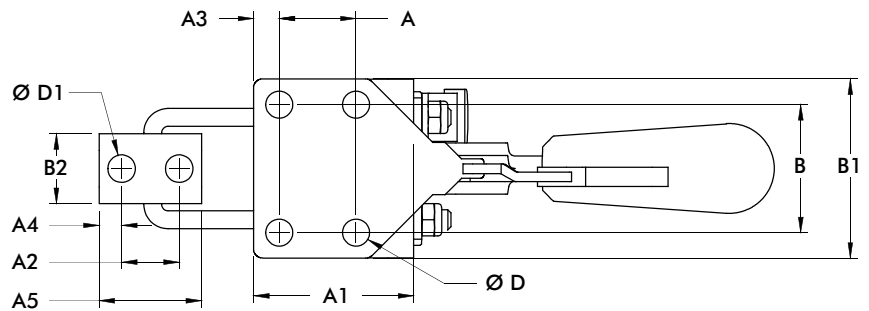
331-R
331-RSS
with
DE-STA-CO®
Toggle Lock
Plus



341-R
341-RSS
with DE-STA-CO®
Toggle Lock
Plus



mm [INCH]
THIRD ANGLE
PROJECTION

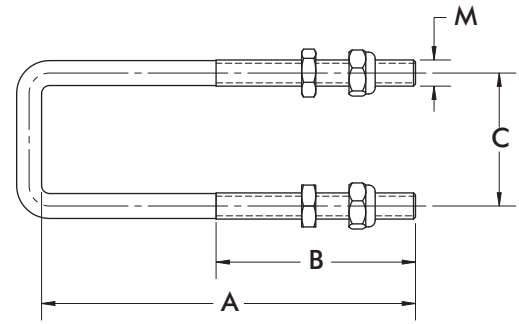


Model	A	A1	A2	A3	A4	A5	B	B1	B2	B3	B4	C	C2
331-R	[0.75]	[1.56]	[0.56]	[0.25]	[0.22]	[1.00]	[1.25]	[1.74]	[0.68]	[1.00]	[1.50]	[0.66]	[0.12]
331-RSS	19,1	39,7	14,3	6,4	5,6	25,4	31,8	44,3	17,3	25,4	38,1	16,7	3,1
341-R	[1.63]	[2.38]	[0.75]	[0.38]	[0.38]	[1.50]	[1.50]	[2.12]	[1.19]	[1.75]	[2.38]	[0.94]	[0.16]
341-RSS	41,5	60,5	19,1	9,7	9,5	38,1	38,1	53,8	30,1	44,5	60,5	23,8	4

Model	C3	ØD	ØD2	H	L	L1 MAX	L2	M	S
331-R	[0.12]	[0.27]	[0.27]	[2.01]	[6.07]	[3.07]	[0.52]		[1.75]
331-RSS	3,1	6,7	6,9	53,1	154,2	78	13,3	M5	45,5
341-R	[0.16]	[0.33]	[0.33]	[2.89]	[8.43]	[5.24]	[0.77]		[2.50]
341-RSS	4	8,5	8,5	73,4	214	133,2	19,4	M8	63.5

Series **323, 331, 341** Replacement Hook Assembly Standard Dimensions

Replacement Hook Assembly	A	B	C	M
323215	53,8 [2.12]	23,8 [0.94]	19,1 [0.75]	M4
323915				
331215	76,2 [3.00]	38,1 [1.50]	25,4 [1.00]	M5
331915				
341215	109,5 [4.31]	50,8 [2.00]	44,5 [1.75]	M8
341915				





Series 375 Product Overview

Features:

- Heavy duty U-hook style latch clamps are supplied with threaded U-hooks for easy adjustment
- Supplied patented thumb control lever for one handed operation
- DE-STA-CO® Toggle Lock Plus versions available

Applications:

- Molding
- Closures for doors, lids, covers
- Assembly

Also Available:

- Clamps with longer hooks available Upon Request that are 25mm, 50mm, 100mm longer than standard length
- To order clamp with longer hook, add **-M-25**, **-M-50**, or **-M-100** to the end of the model. Example: 375-**M-50**

Covered under one year or more U.S./International Patents

375



375-R

with DE-STA-CO® Toggle Lock Plus



375-B

Weld-on Mounting



375-BR ⓘ

Weld-on Mounting with DE-STA-CO® Toggle Lock Plus

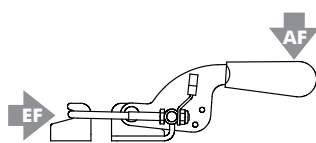


385102

Optional Latch Plate for 375, 375-R



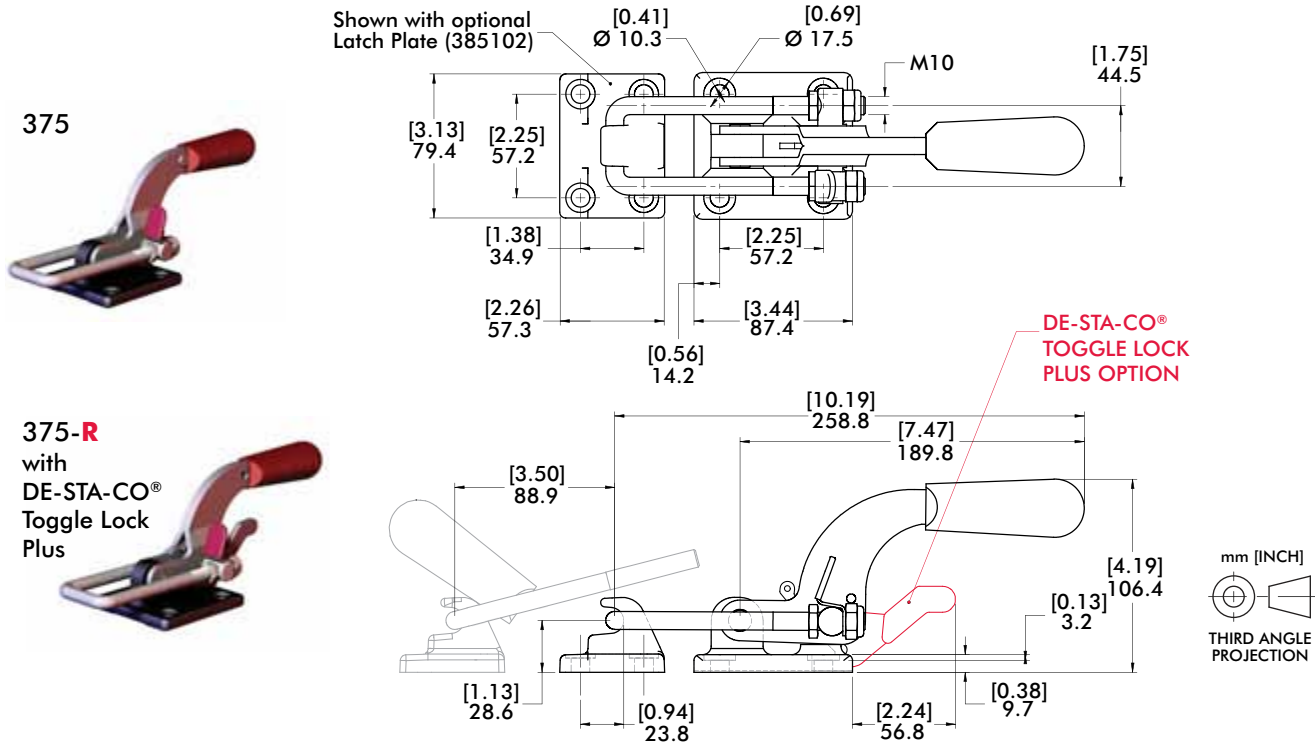
Series 375 Technical Information, Holding Capacities



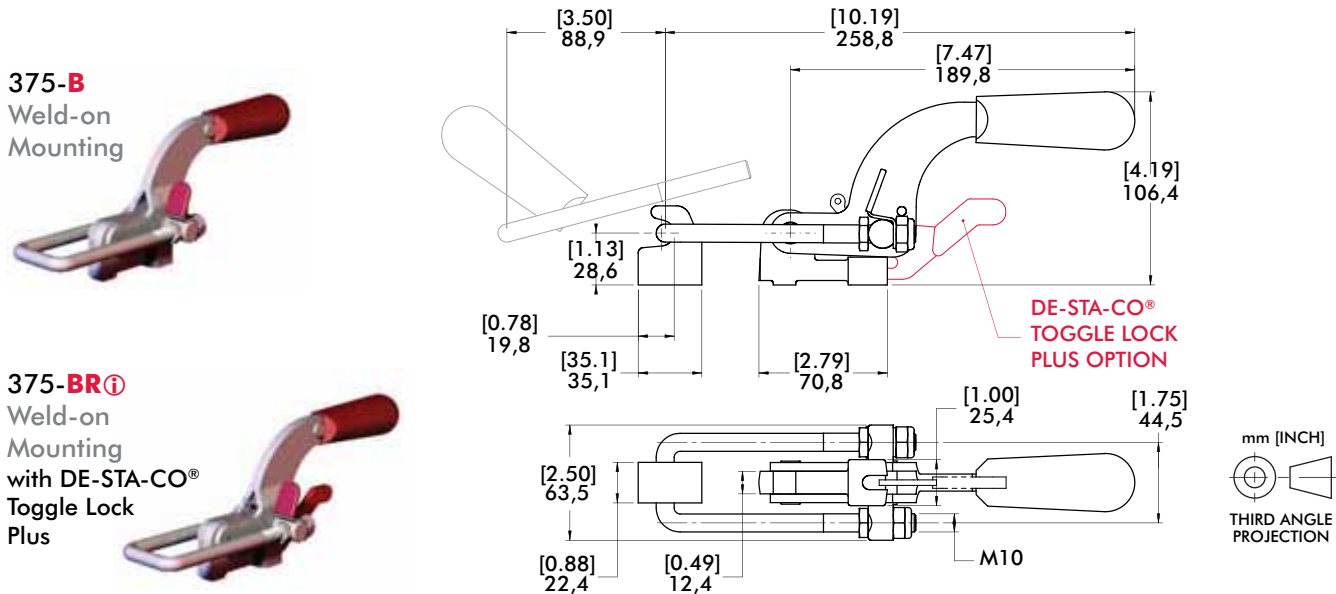
Model	Max. Holding Capacity	Weight	EF:AF	Drawing Movement	Latch Plate	Replacement Hook Assembly
375	[4000 lbf] 17800 N	[2.94lb] 1,33kg	44:1	88,9 [3.50]	385102 (Optional)	375215
375-R		[3.0lb] 1,36kg				
375-B		[2.56lb] 1,16kg			375509 (Supplied)	
375-BR ⓘ		[2.62lb] 1,19kg				

ⓘ This item is available upon request EF = Exerting Force, AF = Applied Force

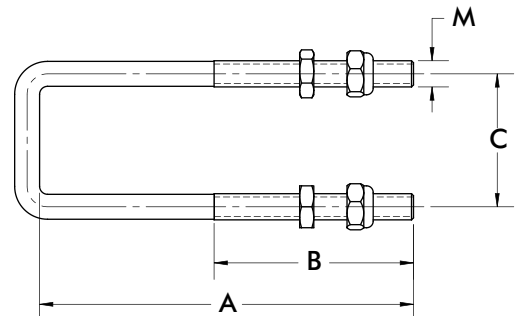
Series **375**, **375-R** Standard Clamp Dimensions



Series **375-B**, **375-BR** Standard Clamp Dimensions



Replacement Hook Assembly	A	B	C	M
375215	133 [5.24]	50,8 [2.00]	41,4 [1.63]	M10





Series 385 Product Overview

Features:

- Heavy duty U-hook style latch clamps are supplied with threaded U-hooks for easy adjustment
- Supplied with patented thumb control lever for one handed operation
- DE-STA-CO® Toggle Lock Plus versions available

Applications:

- Molding
- Closures for doors, lids, covers
- Assembly

Also Available:

- Clamps with longer hooks available Upon Request that are 25mm, 50mm, 100mm longer than standard length
- To order clamp with longer hook, add **-M-25**, **-M-50**, or **-M-100** to the end of the model. Example: 385-**M-50**

Covered under one year or more U.S./International Patents

385



385-R
with DE-STA-CO®
Toggle Lock
Plus



385-L
Low Profile
Handle



385-V2A ⓘ
Stainless Steel

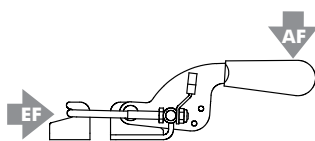


385102

Optional
Latch Plate
for 385, 385-R



Series 385 Technical Information, Holding Capacities



Model	Max. Holding Capacity	Weight	EF:AF	Drawing Movement	Latch Plate	Replacement Hook Assembly
385		[3.3lb] 1,50kg	44:1	55,6 [2.19]	385102 (Optional)	385215
385-R	[7500 lbf] 33300 N	[3.4lb] 1,54kg				
385-L		[3.3lb] 1,50kg			375509 (Supplied)	
385-V2A ⓘ	[6000 lbf] 26700 N				ⓘ 385904	

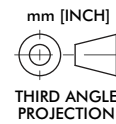
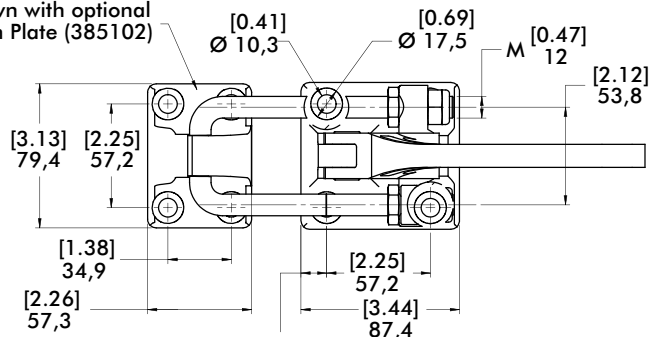
ⓘ This item is available upon request **EF** = Exerting Force, **AF** = Applied Force

Series 385, 385-R Standard Clamp Dimensions

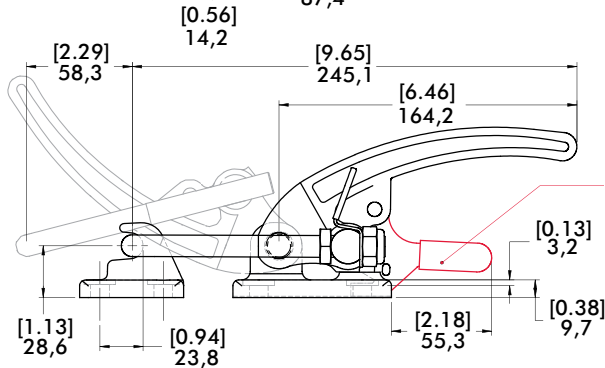
385



Shown with optional Latch Plate (385102)



385-R
with DE-STA-CO®
Toggle Lock
Plus



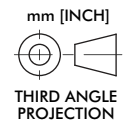
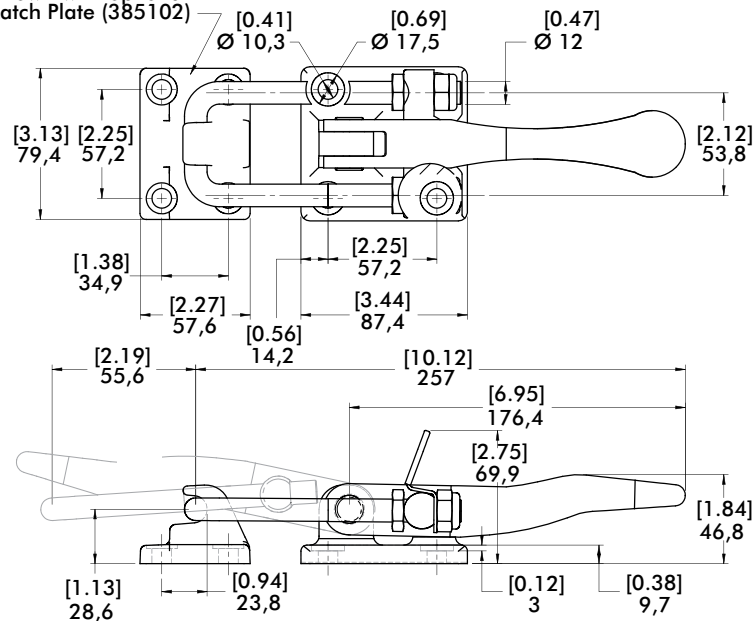
DE-STA-CO®
TOGGLE LOCK
PLUS OPTION

Series 385-L Standard Clamp Dimensions

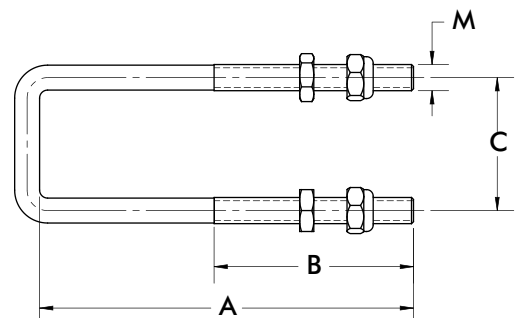
385-L
Low Profile
Handle



Shown with optional Latch Plate (385102)



Replacement Hook Assembly	A	B	C	M
385904				
385215	133 [5.24]	70 [2.75]	53,8 [2.12]	M12





Series 324, 334, 344, 374 Product Overview

Features:

- U-hook style latch clamps supplied with threaded U-hooks for easy adjustment
- Supplied with latch plate and patented thumb control lever for one handed operation
- DE-STA-CO® Toggle Lock Plus versions available
- Stainless steel available as **-SS** models.

Applications:

- Molding
- Closures for doors, lids, covers
- Assembly

Also Available:

- Clamps with longer hooks available Upon Request that are 25mm, 50mm, 100mm longer than standard length
- To order clamp with longer hook, add **-M-25**, **-M-50**, or **-M-100** to the end of the model. Example: 324-**M-50**

Covered under one year or more U.S./International Patents

324
324-**SS**



324-**R**
with DE-STA-CO®
Toggle Lock
Plus



334
334-**SS**



334-**R**
with DE-STA-CO®
Toggle Lock
Plus



344
344-**SS**



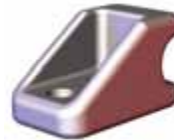
344-**R**
with DE-STA-CO®
Toggle Lock
Plus



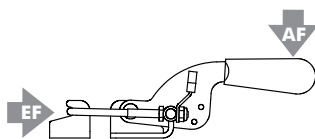
374



374107
Optional
Latch Plate
for 374



Series 324, 334, 344, 374 Technical Information, Holding Capacities



Model	Max. Holding Capacity	Weight	EF:AF	(S) Drawing Movement	Latch Plate (Supplied)	Replacement Hook Assembly
324					323101	324215
324-SS	[500 lbf] 2200 N	[0.25lb] 0,11kg	31:1	38,7 [1.53]	323901	324915
324-R					323101	324215
334					334101	334215
334-SS	[1000 lbf] 4450 N	[0.60lb] 0,27kg	51,7 [2.04]	51,7 [2.04]	334901	334915
334-R					334101	334215
344					344101	344215
344-SS	[2000 lbf] 8900 N	[1.50lb] 0,68kg	45:1	62,4 [2.46]	344901	344915
344-R					344101	344215
374	[4000 lbf] 17800 N	[2.10lb] 0,95kg			36:1	44,5 [1.75]	*374107 (Optional)	374215

EF = Exerting Force, AF = Applied Force

Series **324, 334, 344, 374** Standard Clamp Dimensions
324/334/374/-SS

324
324-SS



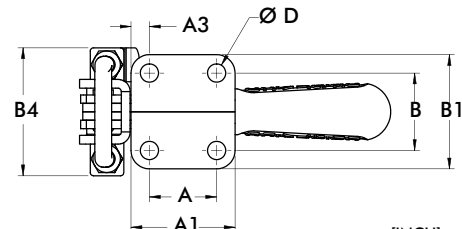
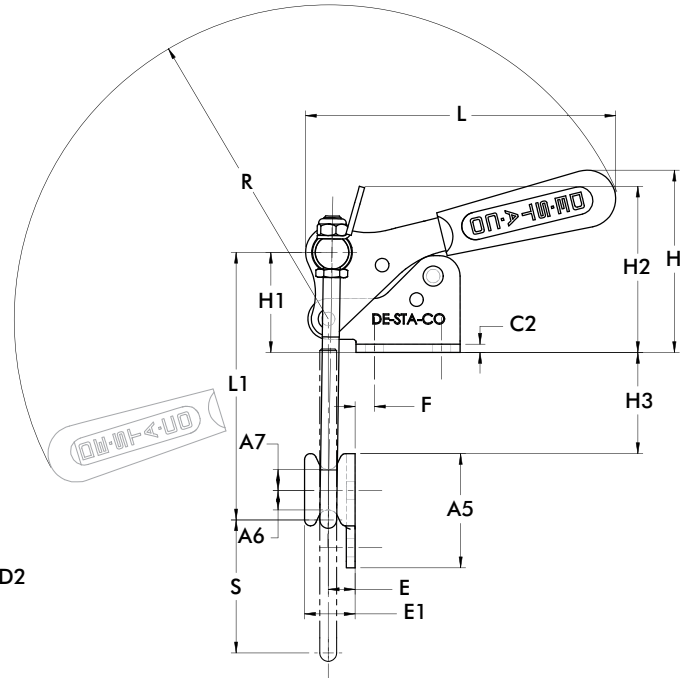
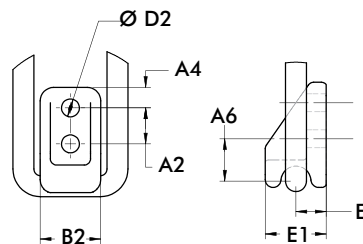
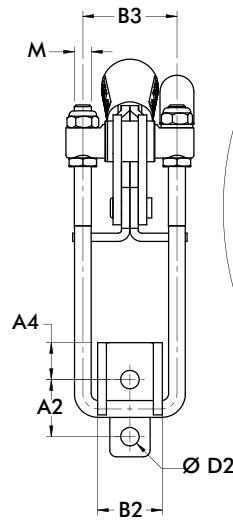
334
334-SS



344
344-SS



374



mm [INCH]
THIRD ANGLE PROJECTION

Model	A	A1	A2	A3	A4	A5	A6	A7	B	B1	B2	B3	B4	C2
324	[0.50]	[1.00]	[0.56]	[0.25]	[0.28]	[1.00]	[0.19]	[0.19]	[0.88]	[1.38]	[0.53]	[0.81]	[1.19]	[0.09]
324-SS	2,7	25,4	14,2	6,4	7,1	25,4	4,8	4,8	22,4	35,1	13,5	20,7	30,2	2,4
334	[0.75]	[1.31]	[0.81]	[0.28]	[0.41]	[1.50]	[0.28]	[0.28]	[1.00]	[1.56]	[0.68]	[1.13]	[1.63]	[0.12]
334-SS	19,1	33,3	20,6	7,1	10,4	38,1	7,1	7,1	25,4	39,6	17,4	28,7	41,4	3,1
344		[1.94]	[1.06]	[0.35]	[0.69]	[2.13]	[0.36]	[0.39]	[1.44]	[2.12]	[1.20]		[2.38]	[0.16]
344-SS	[1.25]	49,3	27	8,0	17,5	54	9,1	9,9	36,6	53,8	30,6		60,5	4
374	31,8	[2.43]	[0.67]	[0.68]	[0.38]	[1.96]	[0.70]	--	[1.50]	[2.50]	[1.13]	44,5	[2.36]	[0.37]
		61,7	17	17,3	9,7	49,7	17,9		38,1	63,5	28,6		60	9,4

Model	ØD	ØD2	F	H	H1	H2	H3	E	E1	L	L1 MAX	R	M	S
324	[0.20]	[0.17]	[2.25]	[1.91]	[1.10]	[1.97]	[0.92]	[0.19]	[0.38]	[3.49]	[2.56]	[3.49]	M4	[1.53]
324-SS	5,1	4,3	6,4	48,5	28	50,1	[23,4]	4,4	9,7	88,7	65,1	88,8		38,7
334	[0.28]	[0.22]	[0.28]	[2,37]	[1.55]	[2.68]	[1.34]	[0.35]	[0.63]	[4.10]	[3.70]	[4.12]	M6	[2.04]
334-SS	7,1	5,6	7,1	60,1	39,3	68	34	8,8	16	104,2	94	104,5		51,8
344	[0.34]	[0.34]	[0.35]	[3.39]	[1.86]	[7.09]	[1.73]	[0.50]	[0.94]	[5.77]	[5.00]	[5.84]	M8	[2.46]
344-SS	8,6	8,6	8,9	86,1	47,3	78,6	49,1	12,7	23,8	146,6	126,9	148,4		62,4
374	[0.41]	[0.33]	[0.68]	[2.38]	[1.36]	--	[2.40]	[0.56]	[1.13]	[6.60]	[6.04]	[6.04]	M10	[1,75]
	10,3	8,5	17,3	60,5	34,5		61	14,3	28,8	167,8	153,5	153,5		44,5

Series **324-R**, **334-R**, **344-R** Standard Clamp Dimensions
-R/-SS

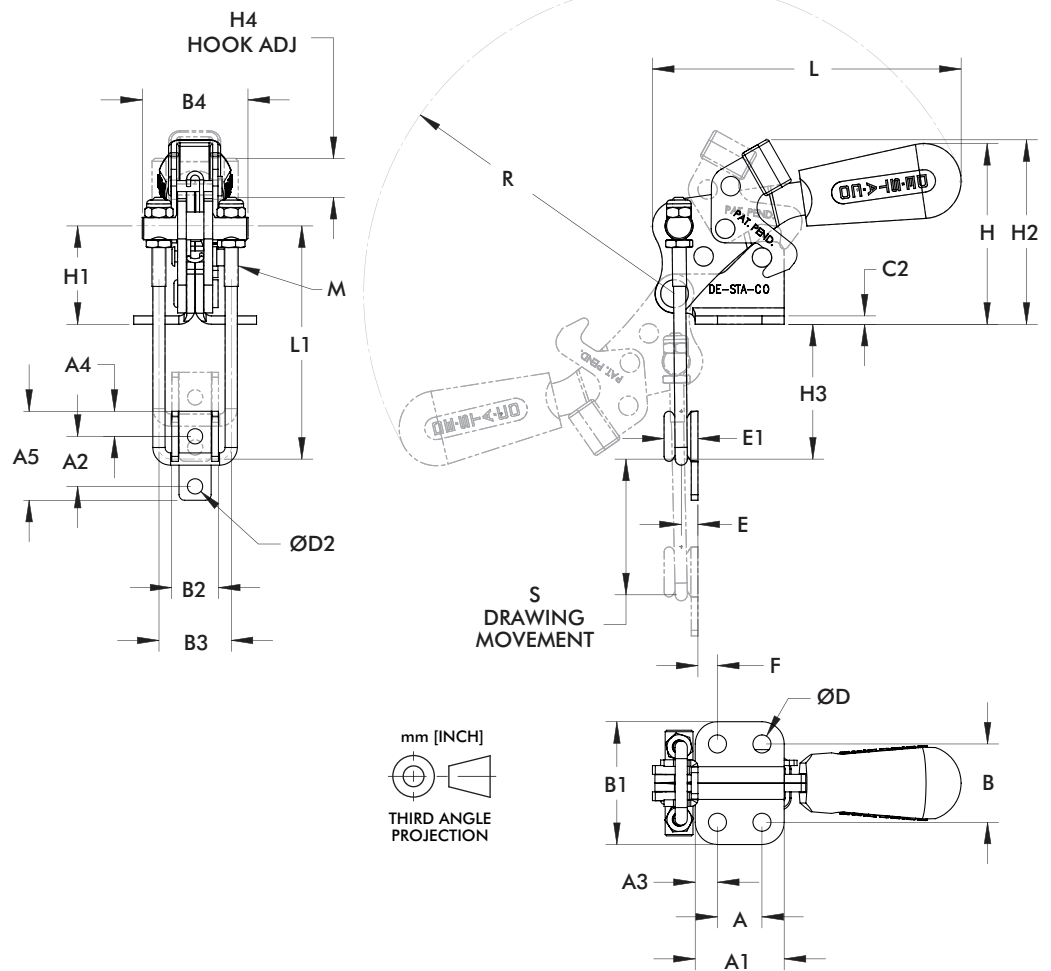
324-R
with DE-STA-CO®
Toggle Lock
Plus



334-R
with DE-STA-CO®
Toggle Lock
Plus



344-R
with DE-STA-CO®
Toggle Lock
Plus

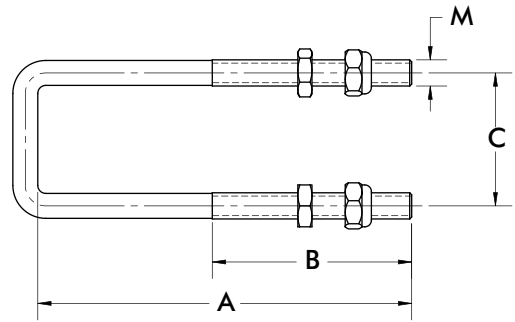


Model	B	B1	B2	B3	B4	C2	D	D2	E	E1	F	H	H1
324-R	[0.88] 22.4	[1.38] 35.1	[.52] 13.3	[0.81] 20.6	[0.44] 11.1	[0.09] 2.4	[0.20] 5.2	[0.17] 4.4	[0.20] 5.2	[0.17] 4.4	[0.22] 5.6	[2.03] 51.6	[1.11] 28.1
334-R	[1.00] 25.4	[1.56] 39.6	[0.68] 17.3	[1.13] 28.6	[1.63] 41.3	[0.12] 3.1	[0.28] 7.1	[0.22] 5.6	[0.35] 8.8	[0.63] 15.9	[0.18] 4.5	[2.37] 60.2	[1.55] 39.3
344-R	[1.00] 25.4	[1.56] 39.6	[0.68] 17.3	[1.13] 28.6	[1.63] 41.3	[0.12] 3.1	[0.28] 7.1	[0.22] 5.6	[0.35] 8.8	[0.63] 15.9	[0.18] 4.5	[2.37] 60.2	[1.55] 39.3

Model	H2	H3	H4	L	L1	M	S	R
324-R	[2.07] 52.7	[1.52] 38.5	[.44] 11.1	[3.47] 88.1	[2.62] 66.6	M4	[1.53] 38.7	[3.49] 88.8
334-R	[2.55] 64.7	[2.22] 56.3	[0.86] 21.8	[4.12] 104.6	[3.76] 95.6	M6	[2.04] 51.7	[4.10] 104.2
344-R	[3.39] 86.0	[3.17] 80.8	[1.17] 29.6	[5.77] 146.5	[5.04] 128.0	M8	[2.46] 62.4	[5.83] 148.1

Series **324, 334, 344, 374** Replacement Hook Assembly Standard Dimensions

Replacement Hook Assembly	A	B	C	M
324215	73 [2.87]	25,4 [1.00]	20,6 [0.81]	M4
324915				
334215	103,1 [4.06]	38,1 [1.50]	28,7 [1.13]	M6
344915				
344215	139,7 [5.50]	57,2 [2.25]	44,5 [1.75]	M8
344915				
374215	155,2 [6.12]	82,6 [3.25]		M10



Features:

- Fixed stop automatically limits handle travel at various clamping positions once the clamp is installed
- Model 301 available in stainless steel as 301-SS

Applications:

- Molding
- Closures for doors, lids, covers
- Assembly

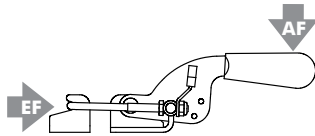
301
301-SS



311

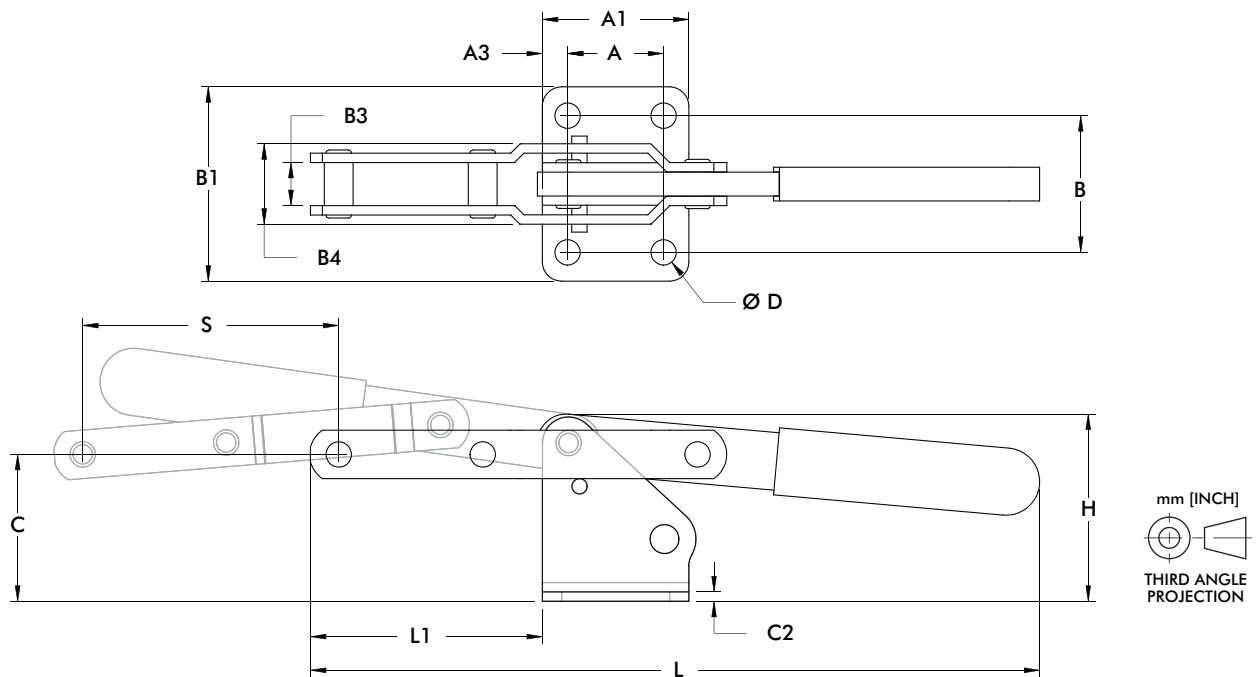


Series 301, 311 Technical Information, Holding Capacities, Standard Clamp Dimensions



Model	Max. Holding Capacity	Weight	EF:AF	Drawing Movement
301	1670 N [375 lbf]	0,32kg [0.70lb]	29:1	101,6 [4.00]
301-SS	2000 N [450 lbf]			
311	5340 N [1200 lbf]	0,53kg [1.16lb]	31:1	85,9 [3.38]

EF = Exerting Force, AF = Applied Force



Model	A	A1	A3	B	B1	B3	B4	C	C2	ØD	H	L	L1	S
301	[0.75]	[1.38]	[0.32]	[1.25]	[1.75]	[0.56]	[1.04]	[1.52]	[0.12]	[0.28]	[1.91]	[8.33]	[3.04]	[4.00]
301-SS	19,1	35,1	8	31,8	44,5	14,1	26,4	38,6	3,1	7,1	48,4	211,5	77,1	101,6
311	[1.25]	[1.91]	[0.33]	[1.78]	[2.53]	[0.56]	[1.05]	[1.91]	[0.12]	[0.33]	[2.44]	[9.49]	[3.02]	[3.88]
	31,8	48,4	8,3	45,2	64,3	14,3	26,6	48,6	3,1	8,4	61,9	241,2	76,7	85,9

Series 3011 Product Overview

Features:

- Heavy duty cast steel or stainless steel construction with ergonomic handle
- Replaceable stainless steel pivot pins

Applications:

- Molding
- Closures for doors, lids, covers
- Assembly

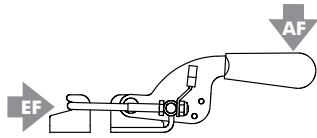
3011



3011-SS

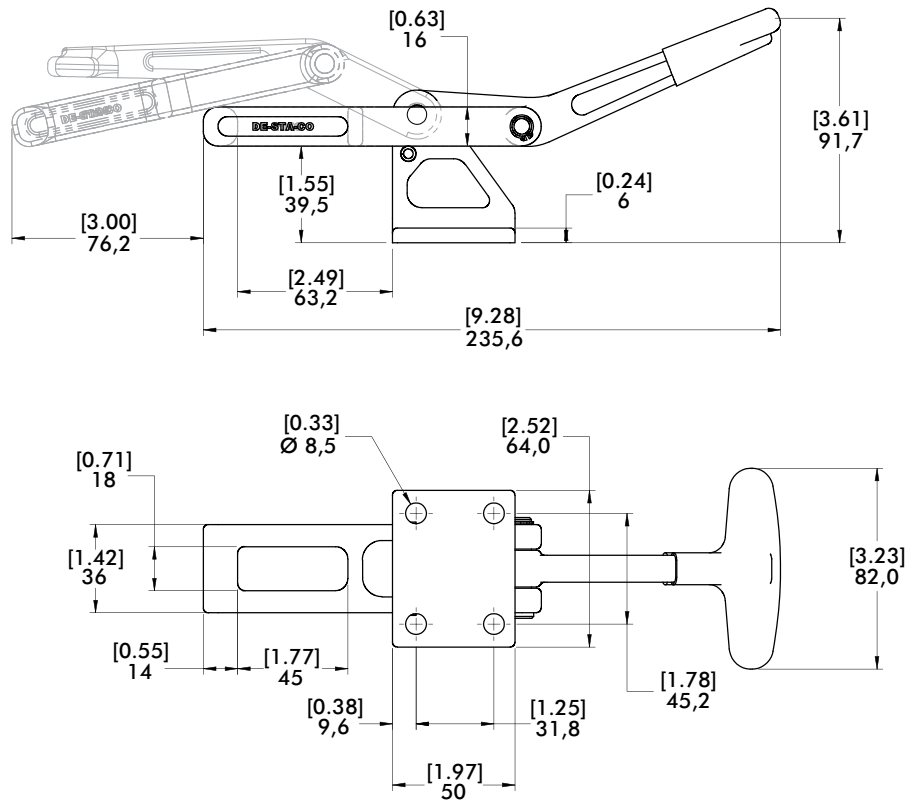


Series 3011 Technical Information, Holding Capacities, Standard Clamp Dimensions



Model	Max. Holding Capacity	Weight	EF:AF	Drawing Movement
3011	8900 N [2000 lbf]	0,91kg [2.00lb]	31:1	76,2 [3.00]
3011-SS				

EF = Exerting Force, AF = Applied Force





Series 353, 359 Product Overview

Features:

- Heavy duty cast steel clamps are designed to withstand the harshest environments
- Ideally suit for parting line clamping of rotational molds
- Replaceable stainless steel pivot pins
- Available in stainless steel as **359-35**, **359-65**

Applications:

- Molding
- Closures for doors, lids, covers

Also Available:

- Keeper plate
- Papered bolt assembly

353-35



359-35

Stainless Steel



353-65

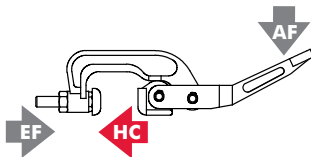


359-65

Stainless Steel



Series 353, 359 Technical Information, Holding Capacities



Model	Max. Holding Capacity	Weight	EF:AF	Drawing Movement	L	K	Keeper Plate (included)	Tapered Bolt Assembly (included)
353-35	[2800 lbf] 12460 N	[2.10lb] 0,95kg	23:1	12 [0.47]	[9.50] 241,5	[1.38] 35	353004	353908
359-35	[1400 lbf] 6230 N							
353-65	[2100 lbf] 9350 N	[2.30lb] 1,04kg	27:1		[10.69] 271,5	[2.56] 65	353004	
359-65	[1200 lbf] 5340 N						353904	

EF = Exerting Force, **AF** = Applied Force

Series **353, 359** Standard Clamp Dimensions

353-35



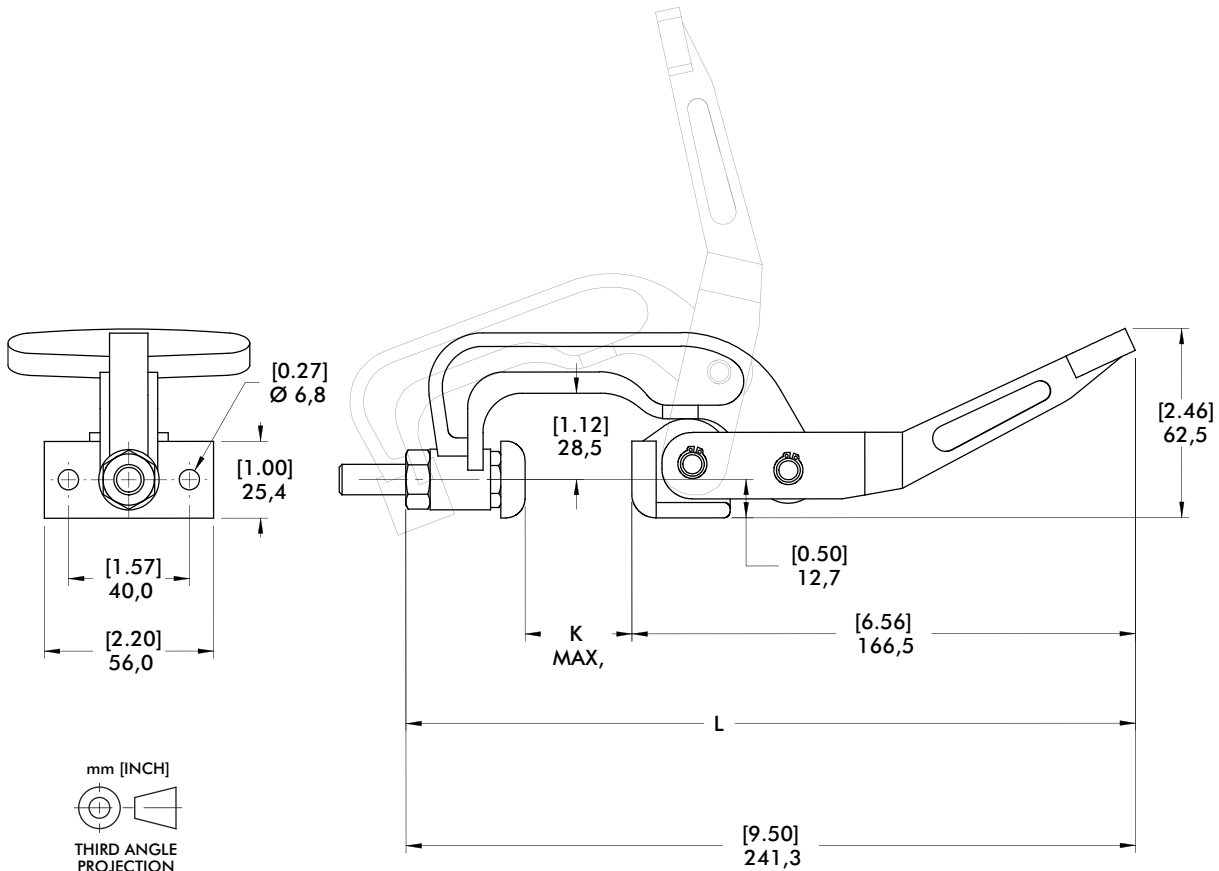
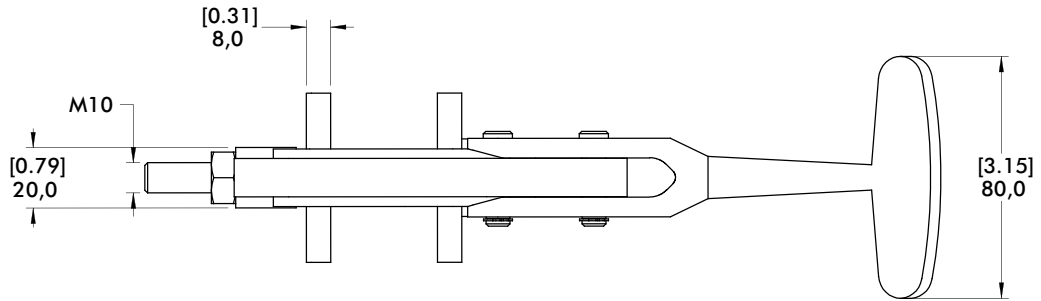
359-35
Stainless Steel



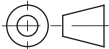
353-65



359-65
Stainless Steel



mm [INCH]



THIRD ANGLE PROJECTION

	Series	Section Page	Max. Holding Capacity N [lb.f.]					Maximum Clamping Thickness mm [inch]							
			0 to 1000 [0 to 225]	1000 to 2000 [225 to 450]	2000 to 3000 [450 to 675]	3000 to 4000 [675 to 900]	4000 to 5000 [900 to 1125]	5000 to 6000 [1125 to 1350]	0 to 10 [0 to 0.39]	10 to 20 [0.39 to 0.78]	20 to 30 [0.78 to 1.18]	30 to 40 [1.18 to 1.57]	40 to 60 [1.57 to 2.36]	60 to 80 [1.57 to 3.15]	80+ [2.26+]
	325	7.2													
	345	7.3													
	424	7.4													
	441	7.4													
	431	7.5													
	425	7.6													
	435	7.6													
	462	7.7													
	463	7.7													
	480	7.7													
	482	7.7													
	484	7.7													
	486	7.7													

Series 325 Product Overview

Features:

- Designed for attachment by welding or using mounting holes
- Available in stainless steel as **-SS** version
- Standard version includes M12 spindle, Stainless version includes 1/2-13 spindle

Applications:

- Molding
- Closures for doors, lids, covers

Also Available:

See page 8.1 for accessories

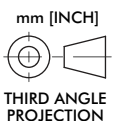
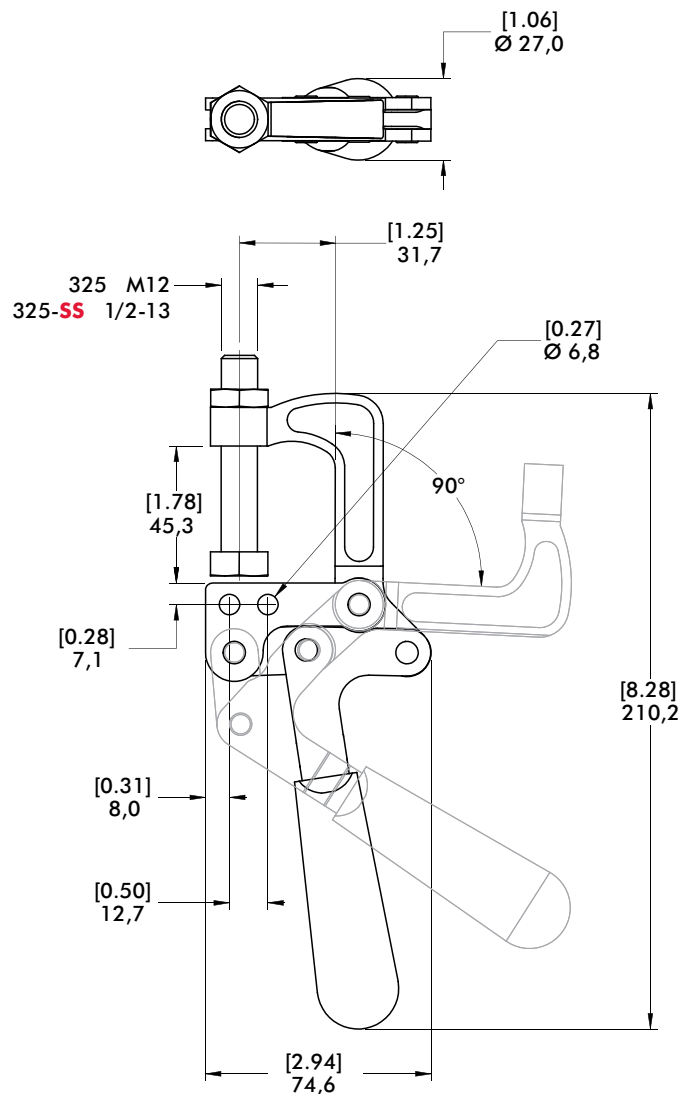
325,
325-SS



Series 325 Technical Information, Holding Capacities

Model	Max. Holding Capacity	Weight	Jaw Opening	Spindle (Supplied)
325	3560 N [800 lbf]	0,54kg [1.18lb]	90°	220203-M
325-SS				325907-M

Series 325 Standard Clamp Dimensions



Series 345 Product Overview

Features:

- Designed for welding or bolting at any point along the mounting bar
- Includes M10 swivel foot spindle
- Model 345-G includes sliding jaw with spindle

Applications:

- Welding fixtures
- Assembly fixtures
- Closures for doors, lids, covers

Also Available:

See page 8.1 for accessories

345,
345-G ⓘ

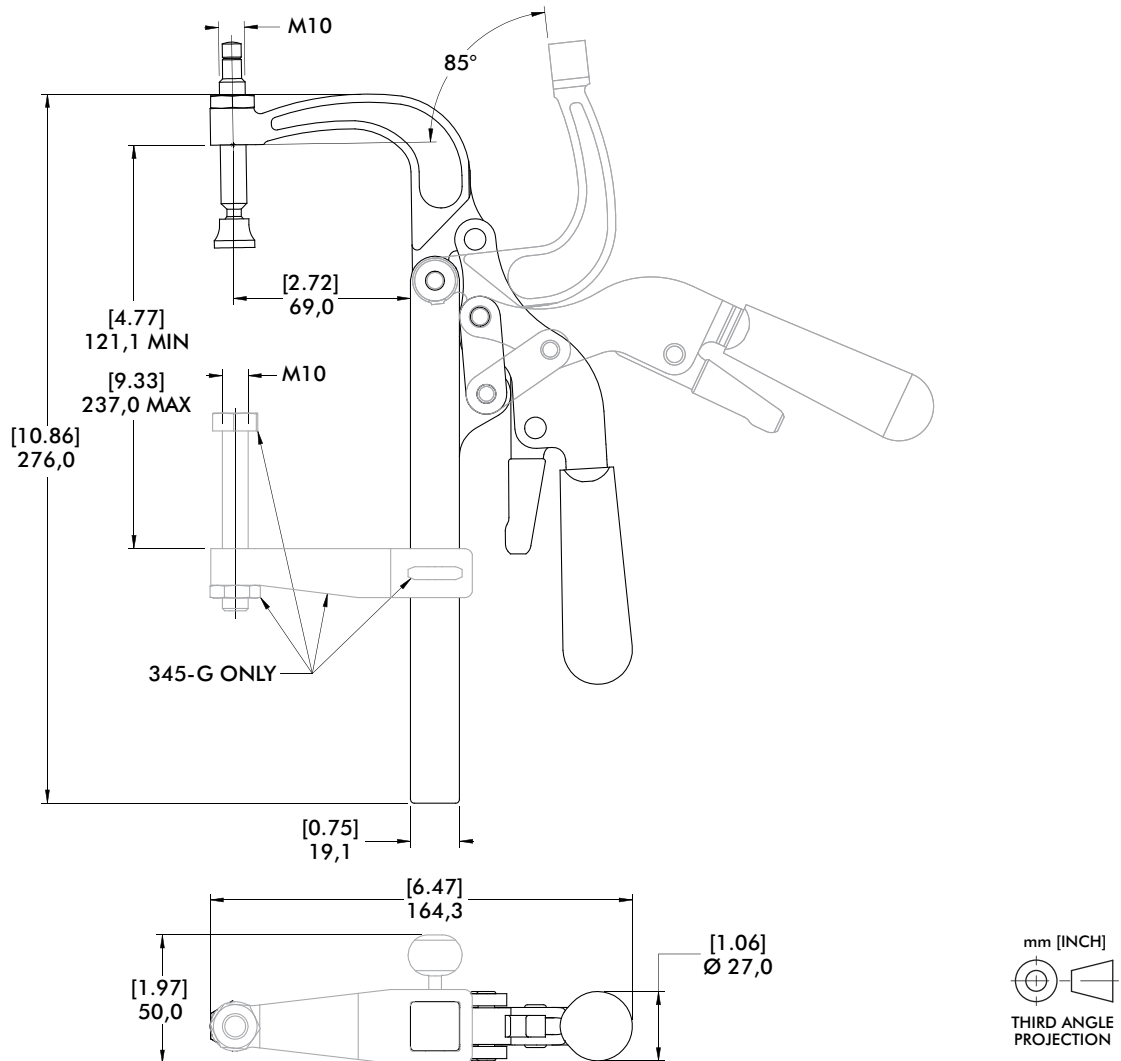


Series 345 Technical Information, Holding Capacities

Model	Max. Holding Capacity	Weight	Jaw Opening	Spindle (Supplied)
345	3560 N [800 lbf]	1,22kg [2.69lb]	85°	468206-M
345-G ⓘ		1,40kg [3.09lb]		468206-M 210203-M

ⓘ This item is available upon request.

Series 345 Standard Clamp Dimensions



Series 424, 441 Product Overview

Features:

- Compact clamps with forged alloy steel construction for high strength
- Versions ending with (-2) are supplied with two adjustable spindles

Applications:

- Welding
- Assembly

Also Available:

See page 8.1 for accessories

424



424-2

With Two Adjustable Spindles



441



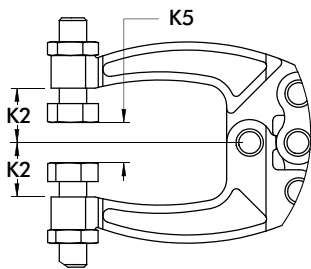
441-2

With Two Adjustable Spindles

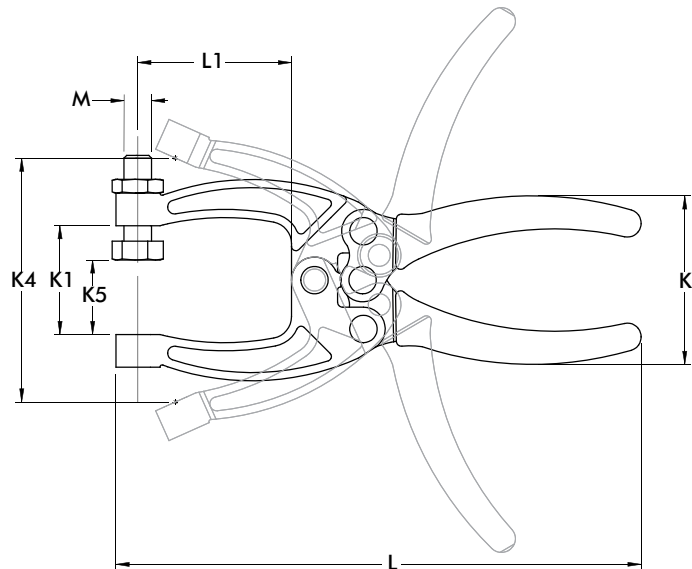
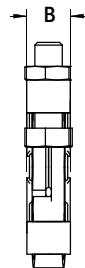


Series 424, 441 Technical Information, Holding Capacities, Standard Clamp Dimensions

Model	Max. Holding Capacity	Weight	(K5) Maximum Clamping Thickness	Spindle (Supplied)
424	900 N [200 lbf]	0,14kg [0.31lb]	16 [0.63]	424208-M
424-2			7,4 [0.29]	(2X) 431208-M
441	1560 N [350 lbf]	0,29kg [0.63lb]	23,3 [1.03]	441203-M
441-2			20,8 [0.82]	(2X) 461203-M



MODEL 424-2 & 441-2 AS SHOWN



mm [INCH]
THIRD ANGLE PROJECTION

Model	B	K	K1	K2	K4	L	L1	M
424	[0.66]	[1.91]	[1.00]	[0.50]	[2.06]	[4.63]	[1.08]	M6
424-2	16.8	48.5	25.4	12.7	52.3	117.6	27.4	
441	[0.50]	[2.07]	[1.25]	[0.63]	[2.80]	[6.03]	[1.77]	M8
441-2	12.7	52.5	31.8	15.9	71.2	153.1	44.9	

Series 431 Product Overview

Features:

- Tempered spring steel jaws provide exceptional jaw depth

Applications:

- Assembly
- Gluing, soldering

Also Available:

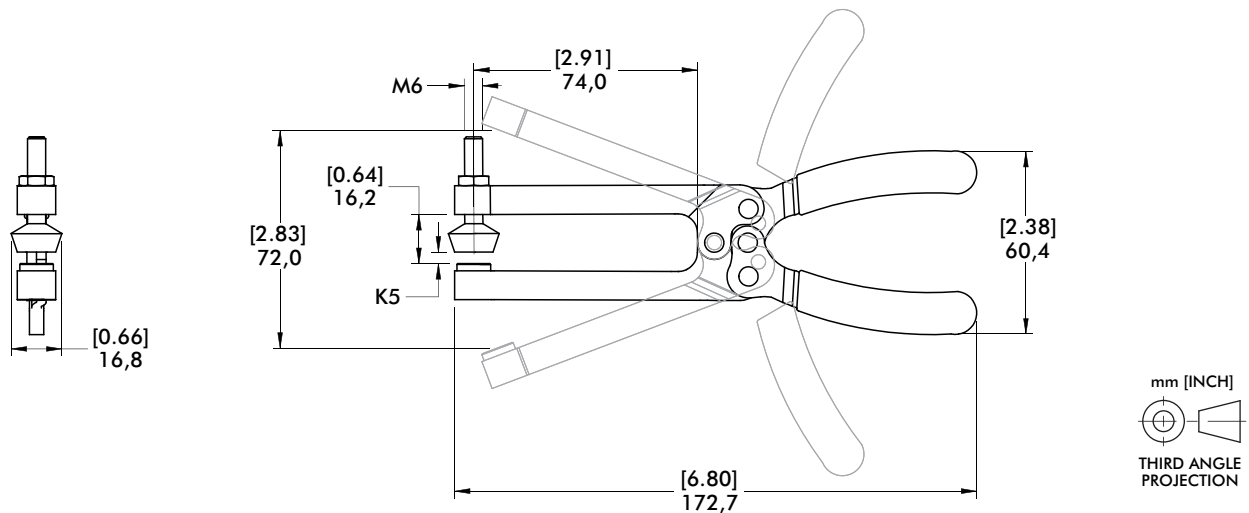
See page 8.1 for accessories

431



Series 431 Technical Information, Holding Capacities, Standard Clamp Dimensions

Model	Max. Holding Capacity	Weight	(K5) Maximum Clamping Thickness	Spindle (Supplied)
431	400 N [100 lbf]	0,14kg [0.31lb]	6,8 [0.27]	424208-M



Series 425, 435 Product Overview

Features:

- Two way trigger release allows for fast and easy opening of clamp

Applications:

- Assembly
- Welding
- Gluing, soldering

Also Available:

See page 8.1 for accessories

425 ⓘ

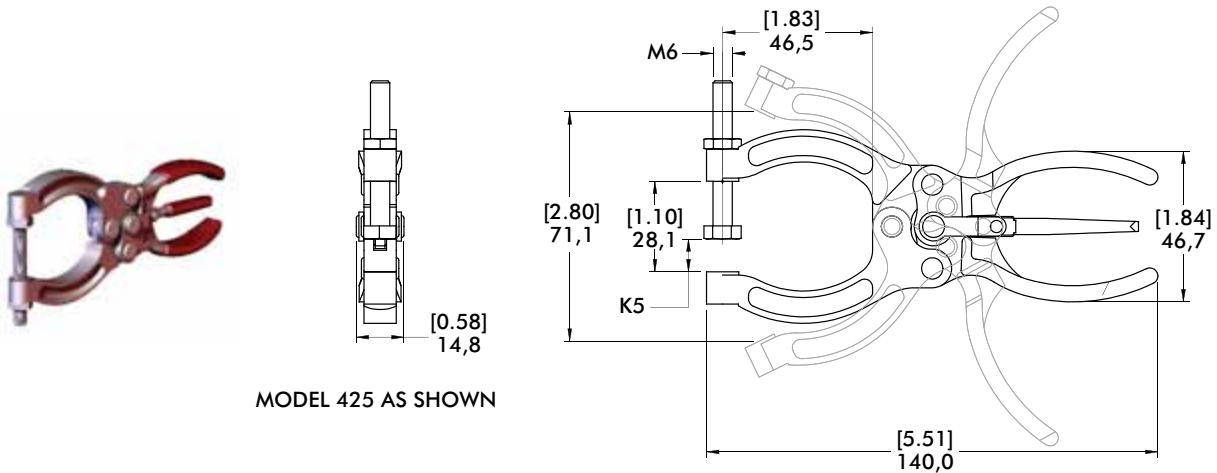
435



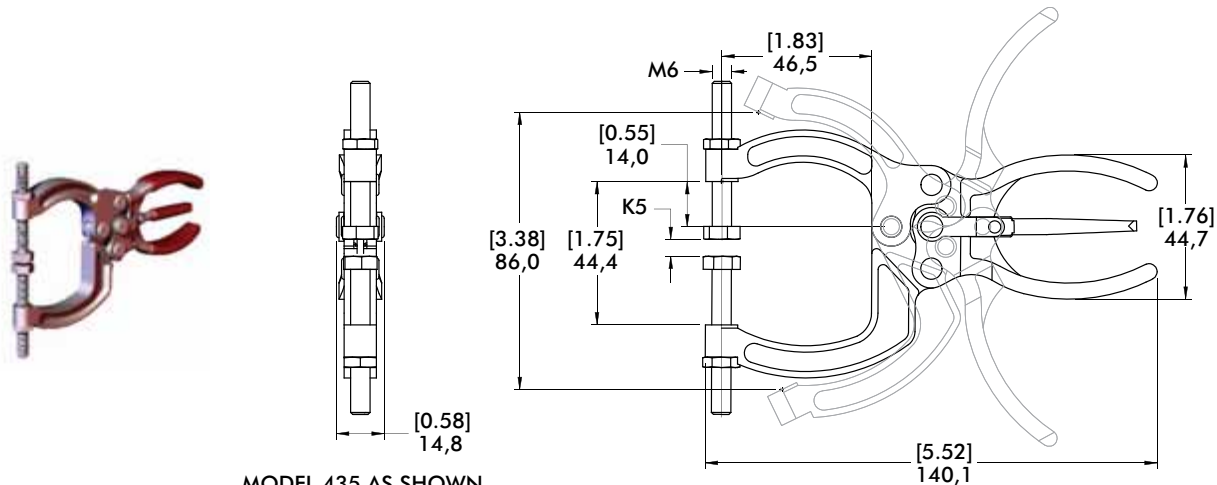
Series 425, 435 Technical Information, Holding Capacities, Standard Clamp Dimensions

Model	Max. Holding Capacity	Weight	(K5) Maximum Clamping Thickness	Spindle (Supplied)
425 ⓘ	2220 N [500 lbf]	0,14kg [0.31lb]	24 [0.94]	205203-M
435		0,23kg [0.50lb]	36,3 [1.43]	(2X) 205203-M

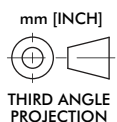
ⓘ This item is available upon request



MODEL 425 AS SHOWN



MODEL 435 AS SHOWN



Series 460, 480 Product Overview
Features:

- Drop forged alloy steel components for exceptional strength
- Two way trigger release allows for fast and easy opening of clamp

Applications:

- Assembly
- Welding

Also Available:

See page 8.1 for accessories

462

462-2

With Two Adjustable Spindles


463

480 ⓘ

482

484

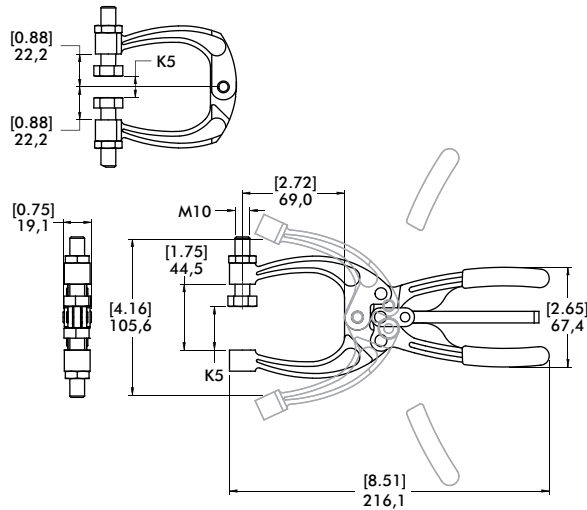
486

Series 460, 480 Technical Information, Holding Capacities

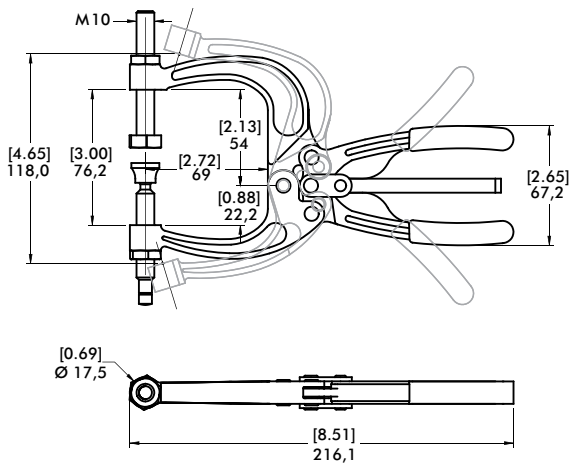
Model	Max. Holding Capacity	Weight	(K5) Maximum Clamping Thickness	Spindle (Supplied)
462	3110 N [700 lbf]	0,51kg [1.13lb]	29,5 [1.16]	468206-M
462-2			30,5 [1.20]	(2X) 491203-M
463		0,54kg [1.19lb]	54,2 [2.13]	468206-M 210203-M
480 ⓘ	†5340 N [1200 lbf]	0,59kg [1.31lb]	--	--
482	5340 N [1200 lbf]	0,79kg [1.75lb]	29,5 [1.16]	468206-M
484		0,91kg [2.00lb]	76,5 [3.01]	468206-M 210203-M
486		1,05kg [2.31lb]	138,4 [5.45]	(2X) 240203-M

ⓘ This item is available upon request. † with 65mm [2.56] jaw extension

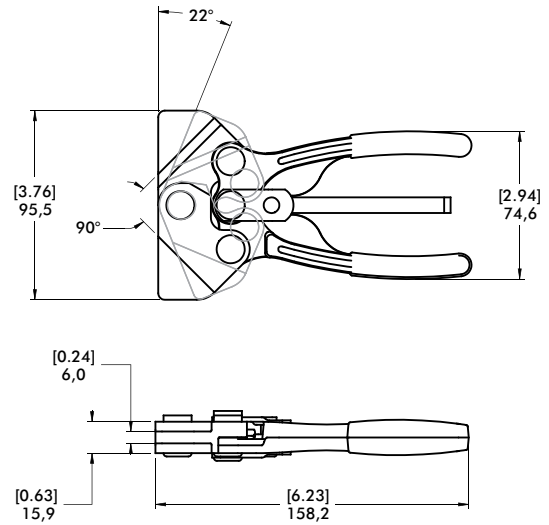
Series 460, 480 Standard Clamp Dimensions



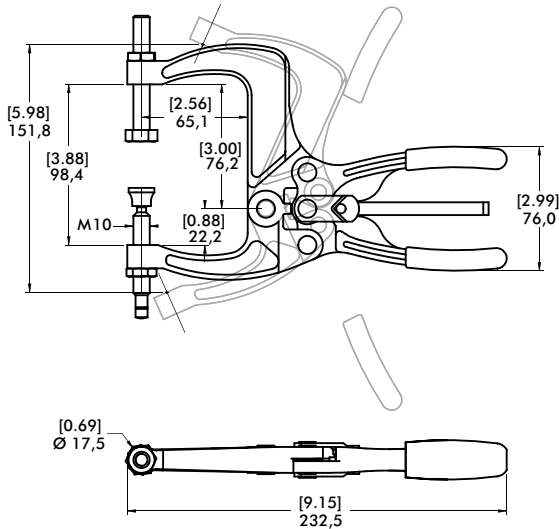
MODEL 462 AS SHOWN



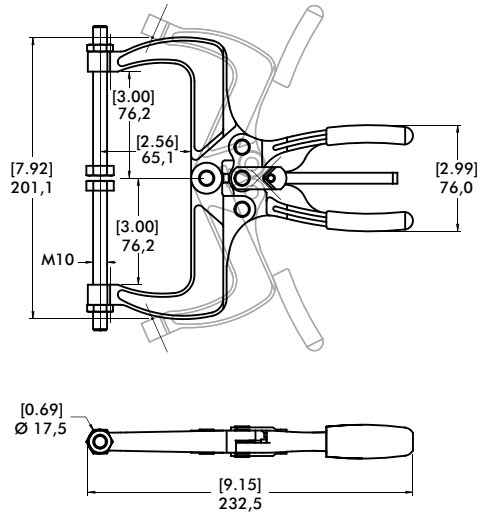
MODEL 463 AS SHOWN



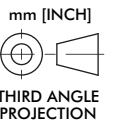
MODEL 480 AS SHOWN



MODEL 484 AS SHOWN



MODEL 486 AS SHOWN

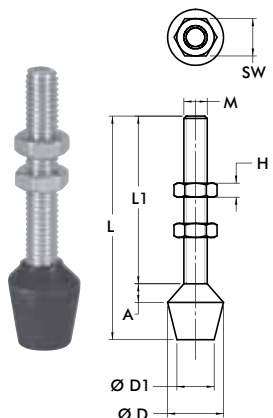




Manual Accessories

Flat-Tip Bonded Neoprene Spindle – Inch

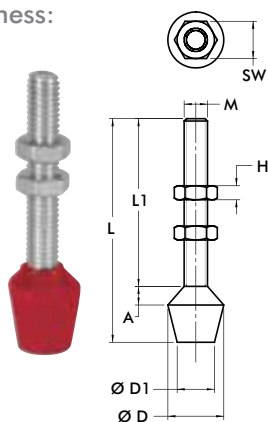
- Black neoprene, hardness: 70-80 Shore A
- Temperature Range: -20°C to 100°C [-22°F to 212°F]
- Oil resistant, LABS (silicone) free
- Includes jam nuts



Part No.	M	L	L1	SW	H	A	ØD	ØD1	
▲ 102208	#8-32	[1.25] 31,8	[0.94] 23,8	[0.34]	[0.13] 3,2	[0.06] 1,6	[0.56] 14,3	[0.44] 11,1	
▲ 105208		[1.00] 25,4	[0.69] 17,4	8,7		[0.13] 3,2	[0.06] 1,6	[0.56] 14,3	[0.44] 11,1
▲ 201208	#10-32	[1.38] 35,1	[1.01] 25,5	[0.38] 9,5	[0.16] 4	[0.13] 3,2	[0.63] 16	[0.47] 12	
▲ 202208		[1.63] 41,4	[1.08] 27,4	[0.38] 9,5		[0.13] 3,2			
▲ 215208	1/4-20	2.13 54,1	[1.58] 40,1	[0.44] 11,1	[0.16] 4	3	[0.66] 16,8	[0.50] 12,7	
▲ 424208		[1.50] 38,1	[1.12] 28,5	[0.44] 11,1		[0.13] 3,3			
▲ 431208		[1.00] 25,4	[0.62] 15,8	[0.44] 11,1		[0.13] 3,3			
▲ 225208	5/16-18	[2.25] 57,2	[1.54] 39,1	[0.50] 12,7	[0.19] 4,8	[0.20] 5	[0.83] 21	[0.55] 14	
▲ 507208		[3.00] 76,2	[2.29] 58,2	[0.50] 12,7	[0.19] 4,8		[0.83] 21	[0.55] 14	
▲ 240208	3/8-16	[3.25] 82,6	[2.31] 58,5	[0.56] 14,3	[0.22] 5,6	5	[1.02] 26	[0.79] 20	
▲ 527208		[3.50] 88,9	[2.50] 63,5			[0.56] 14,3	[0.22] 5,6	[0.88] 22,2	[0.63] 16
▲ 235208		[5.75] 146,1	[4.77] 121,1			[0.56] 14,3	[0.22] 5,6	[1.02] 26	[0.79] 20
▲ 247208	1/2-13	[3.87] 98,3	[2.73] 69,3	[0.75] 19,1	[0.31] 7,9	[0.28] 7	[1.18] 30	[0.95] 24	
▲ 267208	5/8-11	[5.00] 127	[3.63] 92,1	[0.94] 23,8	[0.38] 9,5	[0.38] 9,5	[1.38] 35,1	[1.00] 25,4	

Flat-Tip Bonded Neoprene Spindle – Metric

- Red neoprene, hardness: 80-85 Shore A
- Temperature Range: -20°C to 100°C [-22°F to 212°F]
- Oil resistant, LABS (silicone) free
- Includes jam nuts



Part No.	M	L	L1	SW	H	A	ØD	ØD1		
● 431208-M	M6	[1.00] 25,4	[0.6] 15,8	[0.39] 10	[0.13] 3,2	[0.13] 3,3	[0.66] 16,8	[0.66] 16,8		
● 424208-M		[1.63] 41,3	[1.25] 31,7			[0.13] 3,2	[0.66] 16,8	[0.66] 16,8		
● 202208-M		[1.73] 44	[1.18] 30			[0.12] 3	[0.63] 16	[0.47] 12		
● 215208-M	M8	[2.13] 54	[1.57] 40	[0.51] 13	[0.16] 4	[0.20] 5	[0.83] 21	[0.55] 14		
● 225208-M		[2.09] 53	[1.38] 35						[0.83] 21	[0.55] 14
● 2007208-M		[2.48] 63	[1.77] 45						[0.83] 21	[0.55] 14
● 507208-M	M10	[3.27] 83	[2.56] 65	[0.67] 17	[0.20] 5	[0.20] 5	[1.02] 26	[0.78] 20		
● 240208-M		[3.11] 79	[2.17] 55				[1.02] 26	[0.78] 20		
● 235208-M		[4.72] 120	[3.74] 95				[1.02] 26	[0.78] 20		
● 247208-M	M12	[4.02] 102	[2.87] 73	[0.75] 19	[0.24] 6	[0.28] 7	[1.18] 30	[0.94] 24		

Part No.	M	L	L1	SW	H	A	ØD
● 205208-M	M4	[0.87] 22	[0.79] 20	[0.28] 7	[0.09] 2,2	[0.11] 2,8	[0.32] 8
● 201208-M		[1.26] 32	[1.18] 30	[0.28] 7	[0.09] 2,2	[0.11] 2,8	[0.32] 8
● 305208-M	M5	[1.14] 29	[0.98] 25	[0.32] 8	[0.11] 2,7	[0.39] 10	[0.39] 10
● 213208-M		[1.34] 34	[1.18] 30				
● 2013208-M		[1.54] 39	[1.38] 35				
● 307208-M	M8	[1.69] 43	[1.38] 35	[0.51] 13	[0.16] 4	[0.75] 19	[0.75] 19

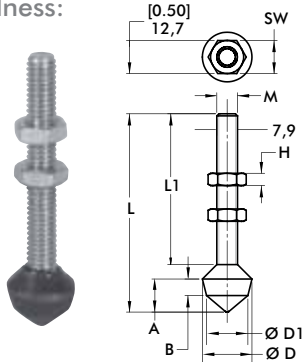
Part No.	D	L	L1	ØG
● 213208-M-L ⓘ	[0.24] 6	[1.34] 34	[1.18] 30	M5

ⓘ Item is available upon request.

Preferred Market: ▲ NA/SA ■ Europe ● Global

Cone-Tip Bonded Neoprene Spindle – Inch

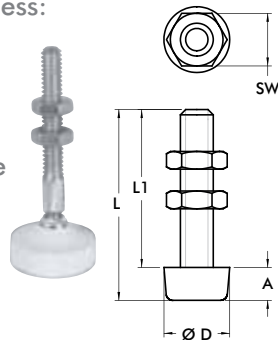
- Black neoprene, hardness: 70-80 Shore A
- Temperature Range: -20°C to 100°C [-22°F to 212°F]
- Oil resistant, LABS (silicone) free
- Includes jam nuts



Part No.	M	L	L1	SW	H	A	B	ØD	ØD1
▲ 305208	#10-32	[1.50] 38,1	[1.00] 25,4	[0.38] 9,5	[0.13] 3,3	[0.38] 9,5	[0.19] 4,8	[0.56] 14,2	[0.44] 11,2
▲ 213208	1/4-20	[2.25] 57,2	[1.56] 39,6	[0.44] 11,2	[0.16] 4,0				
▲ 509208	5/16-18	[3.00] 76,2	[2.28] 57,9	[0.50] 12,7	[0.19] 4,8	[0.50] 12,7	[0.25] 6,4	[0.75] 19,1	[0.63] 16
▲ 519208		[5.50] 139,7	[4.75] 120,7						
▲ 210208	3/8-16	[3.50] 88,9	[2.50] 63,5	[0.56] 14,2	[0.23] 5,8	[0.75] 19,1	[0.41] 10,4	[0.88] 22,4	[0.75] 19,1

Large Diameter Padded Swivel Foot Spindle-Inch

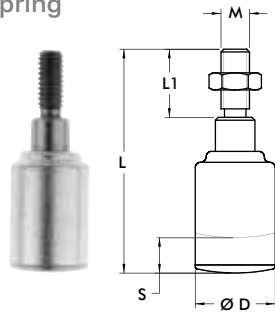
- White neoprene, hardness: 70-80 Shore A
- Temperature Range: -40°C to 105°C [-40°F to 220°F]
- Non-marking neoprene
- Includes jam nuts



Part No.	M	L	L1	SW	H	A	ØD	Swivel Angle
▲ 207209	1/4-20	[2.56] 65	[1.56] 39,6	[0.44] 11,2	[0.16] 4		[1.00] 25,4	14°
▲ 507209	5/16-18	[2.98] 75,7	[1.94] 49,3	[0.50] 12,7	[0.19] 4,8	[0.31] 8	[1.50] 38,1	24°
▲ 210209	3/8-16	[3.56] 90,4	[2.44] 62	[0.56] 14,2	[0.23] 5,8		[2.00] 50,8	26°

Plunger-matic Assemblies

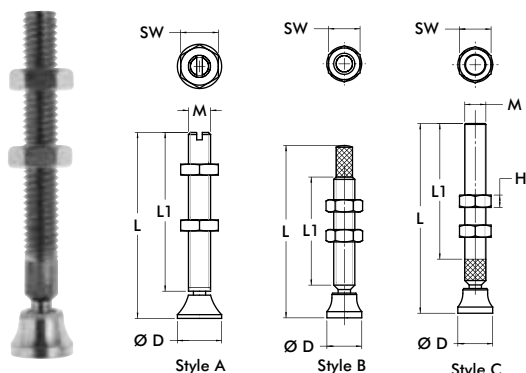
- For use with Straight Line Action clamps
- Internal compression spring compensates for variations in material thickness
- Zinc plated
- Includes jam nut



Part No.	M	L	L1	ØD	Max. Compression S	Spring Constant [lb./in] N/mm	Max. Force [lb.] N
▲ 905	5/16-18	[2.50] 63,5	[0.75] 19,1		[0.19] 4,8	[750] 131	[135] 600
● 905-M	M8			[0.88] 22,2			
▲ 920	3/8-16	[3.63] 92,2	[1.13] 28,6		[0.38] 9,6	[822] 144	[308] 1370
● 920-M	M10						

Swivel Foot Spindle

- Includes jam nuts



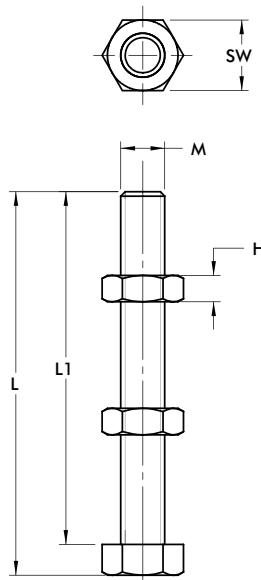
Part No.	M	Style	L	L1	SW	H	ØD	Swivel Angle
■ 207206-M	M6		[2.44] 62	[2.13] 54	[0.39] 10	[0.13] 3,2	[0.47] 12	30°
■ 507206-M	M8	A	[2.87] 73	[2.46] 62,5	[0.51] 13	[0.16] 4	[0.63] 16	24°
▲ 468206-M	M10	B	[3.00] 76,2	[2.00] 50,8	[0.67] 17	[0.20] 5	[0.79] 20	30°
■ 210206-M		A	[3.31] 84	[2.80] 71			[0.79] 20	
■ 250206-M	M12	A	[4.72] 120	[4.13] 105	[0.75] 19	[0.24] 6	[0.98] 25	30°
▲ 207206	1/4-20	C	[2.38] 60,5	[1.56] 39,6	[0.44] 11,2	[0.16] 4	[0.50] 12,7	14°
▲ 507206	5/16-18	C	[2.75] 69,9	[1.94] 49,3	[0.50] 12,7	[0.19] 4,8	[0.56] 14,2	24°
▲ 468206	3/8-16	B	[3.06] 77,7	[1.92] 48,8	[0.56] 14,2	[0.23] 5,8	[0.63] 16	26°
▲ 210206		C	[3.38] 85,9	[2.41] 61,2				
▲ 250206	1/2-13	C	[4.63] 117,6	[3.44] 87,4	[0.75] 19,1	[0.31] 7,9	[1.00] 25,4	24°

Preferred Market: ▲ NA/SA ■ Europe ● Global

Manual Accessories

Hex Head Spindle – Stainless Steel

- Includes Plain hexagonal head
- Includes Fully threaded
- Includes Stainless steel, type 303
- Includes Includes jam nuts



Part No.	M	L	L1	SW	H
▲ 205943	#8-32	[0.86] 21,8	[0.75] 19,1	[0.25] 6,4	[0.13] 3,2
▲ 201943	#10-32	[1,37] 34,8	[1,37] 34,8	[0.31] 8	
▲ 202943	1/4-20	[1.67] 42,4	[1.50] 38,1	[0.44] 11,1	[0.16] 4
▲ 207943	5/16-18	[2.72] 69	[2.50] 63,5	[0.50] 12,7	[0.19] 4,8
▲ 237943	3/8-16	[2.75] 69,9		[0.56] 14,2	[0.22] 5,6
▲ 245943	1/2-13	[2.72] 69	[2.38] 60,5	[0.75] 19,1	[0.31] 8
▲ 207943-M	M8	[2.78] 70,6	[2.56] 65	[0.51] 13	[0.16] 4

Hex Head Spindle

- Plain hexagonal head
- Fully threaded
- Zinc plated
- Includes jam nuts

Part No.	M	L	L1	SW	H
● 205203-M	M6	[1.93] 49	[1.77] 45	[0.39] 10	[0.13] 3,2
▲ 461203-M	M8	[1.20] 30,5	[0.98] 25	[0.51] 13	[0.16] 4
● 207203-M		[2.97] 75,5	[2.76] 70		
▲ 491203-M	M10	[1.85] 47	[1.57] 40	[0.67] 17	[0.20] 5
● 210203-M		[3.03] 77	[2.76] 70		
▲ 240203-M		[4.21] 107	[3.94] 100		
● 220203-M	M12	[3.46] 88	[3.15] 80	[0.75] 19	[0.24] 6
● 267203-M	M16	[5.12] 130	[4.72] 120	[0.94] 24	[0.28] 7
▲ 105203*	#8-32	[0.86] 21,8	[0.75] 19,1	[0.25] 6,4	[0.13] 3,3
▲ 305203	#10-32	[1.12] 28,4	[1.00] 25,4	[0.31] 8	

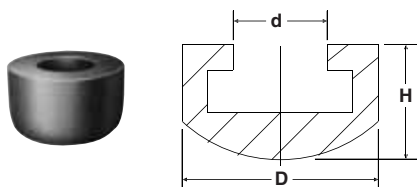
*Material: nylon

Part No.	M	L	L1	SW	H
▲ 205203	1/4-20	[1.92] 48,8	[1.75] 44,5	[0.44] 11,2	[0.16] 4
▲ 202203		[3.17] 80,5	[3.00] 76,2		
▲ 461203	5/16-18	[1.22] 31	[1.00] 25,4	[0.50] 12,7	[0.19] 4,8
▲ 441203		[1.97] 50	[1.75] 44,5		
▲ 207203		[2.72] 69,1	[2.50] 63,5		
▲ 491203	3/8-16	[1.75] 44,5	[1.50] 38,1	[0.56] 14,2	[0.23] 5,8
▲ 210203		[3.00] 76,2	[2.75] 69,9		
▲ 240203		[4.25] 108	[4.00] 101,6		
▲ 527203		[5.25] 133,4	[5.00] 127		
▲ 325203	1/2-13	[2.84] 72,1	[2.50] 63,5	[0.75] 19,1	[0.31] 7,9
▲ 220203		[3.34] 84,8	[3.00] 76,2		
▲ 250203	5/8-11	[4.42] 101,6	[4.00] 101,6	[0.38] 9,5	[0.38] 9,5

Preferred Market: ▲ NA/SA ■ Europe ● Global

Neoprene Caps

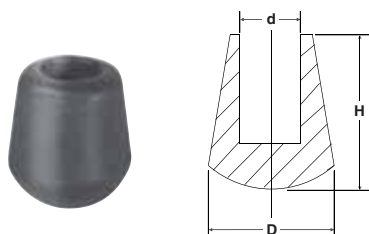
- Slip on head of hex-head spindles
- Hardness: 60-70 Shore A
- Temperature range:
-40°C to 105°C [-40°F to 220°F]



Part No.	D	d	H	For Spindle Diameter
● 215119	[0.63] 16	[2.50] 63,5	[0.44] 11,1	M6 or 1/4
● 225119	[0.75] 19,1	[0.31] 8	[0.50] 12,7	M8 or 5/16
● 235119	[0.88] 22,3	[0.38] 9,7	[0.53] 13,5	M10 or 3/8

Special Neoprene Caps

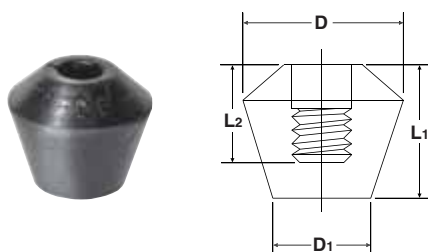
- Slip on threaded spindle rod
- Hardness: 60-70 Shore A
- Temperature range:
-40°C to 105°C [-40°F to 220°F]



Part No.	D	d	H	For Spindle Diameter
▲ 424107	[0.44] 11,1	[0.22] 5,6	[0.44] 11,1	M6 or 1/4
▲ 235110	[0.72] 18,3	[0.34] 8,6	[0.88] 22,3	M10 or 3/8

Polyurethane Caps

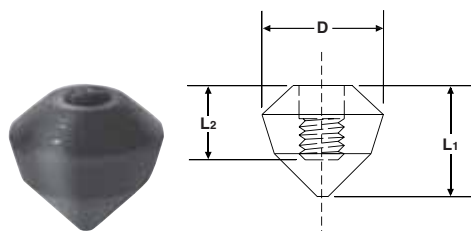
- Flat tip, internally threaded
- Hardness: 80 Shore A
- Temperature range:
-70°C to 95°C [-90°F to 200°F]



Part No.	D	D1	L1	L2	For Spindle Diameter
▲ 215219	[0.79] 20	[0.50] 12,7	[0.69] 17,5	[0.50] 12,7	1/4
▲ 225219	[0.81] 20,5	[0.63] 16	[0.88] 22,3	[0.63] 16	3/8

Polyurethane Caps – Cone-tip

- Cone tip, internally threaded
- Hardness: 80 Shore A
- Temperature range:
-70°C to 95°C [-90°F to 200°F]



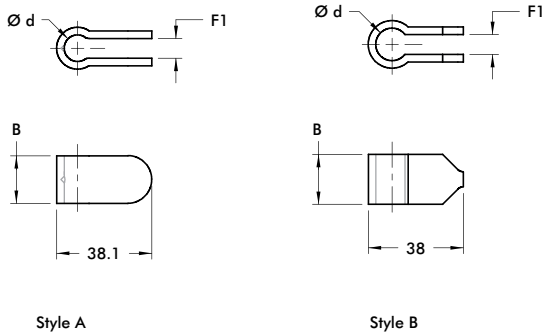
Part No.	D	L1	L2	For Spindle Diameter
▲ 215319	[0.81] 20,5	[0.75] 19,1	[0.50] 12,7	1/4
▲ 225319	[0.81] 20,5	[0.94] 23,9	[0.63] 16	3/8

Preferred Market: ▲ NA/SA ■ Europe ● Global

Manual Accessories

Bolt Retainers –

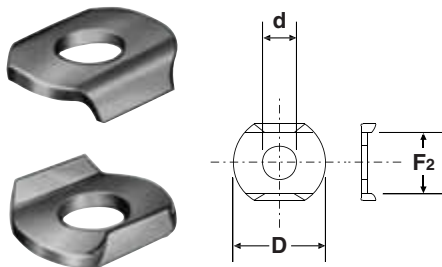
- For use with clamps featuring U-bar and open bar clamping arms



Part No.	A	B	Ød	F1	For Spindle Diameter	Style
▲ 207105	[1.25] 31,8	[0.63] 16	[0.33] 8,4	[0.25] 6,4	M8 or 5/16	A
■ 207105-M	[1.26] 32		[0.32] 8,2	[0.24] 6		B
▲ 210114	[1.50] 38,1	[0.75] 19,1	[0.53] 13,5	[0.31] 8	M10 or 3/8	A
■ 210114-M	[1.49] 38	[0.78] 20	[0.51] 13			B
▲ 247110	[1.63] 41,4	[0.88] 22,3	[0.56] 14,2	[0.38] 9,7	M12 or 1/2	A
■ 247110-M	[1.61] 41	[0.87] 22,2	[0.57] 14,4			B
● 110122	[1.88] 47,8	[1.25] 31,8	[0.64] 16,3		M16 or 5/8	A
▲ 250121		[1.00] 25,4			M12 or 1/2	
● 2002115-E	[0.97] 24,6	[0.50] 12,7	[0.26] 6,6	[0.23] 5,8	M6 or 1/4	
● 2007115-E	[1.26] 32	[0.75] 19,1	[0.34] 8,6		M8 or 5/16	B
● 2010115-E	[1.58] 40,1	[1.13] 28,7	[0.41] 10,4	[0.32] 8,1	M10 or 3/8	

Flanged Washers –

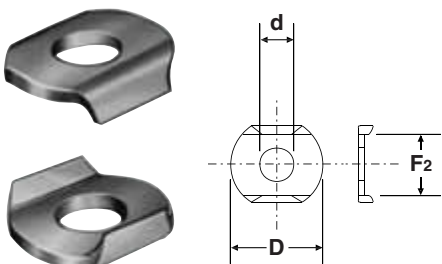
- For use with clamps featuring U-bar and open bar clamping arms
- Zinc plated



Part No.	ØD	Ød	F2	For Spindle Diameter
● 105106	[0.44] 11,2	[0.17] 4,3	[0.33] 8,3	M4 or #8
● 102111	[0.56] 14,2	[0.20] 5,1	[0.38] 9,6	M5 or #10
● 215105	[0.69] 17,5	[0.26] 6,7	[0.50] 12,7	M6 or 1/4
● 507107	[0.88] 22,4	[0.33] 8,4	[0.59] 15	M8 or 5/16
● 235106	[1.00] 25,4	[0.41] 10,5	[0.75] 19,1	M10 or 3/8
● 247109	[1.26] 32	[0.53] 13,5	[0.91] 23,2	M12 or 1/2
● 267102	[1.44] 36,5	[0.66] 16,8	[1.03] 26,2	M16 or 5/8

Flanged Washers-Stainless Steel

- For use with clamps featuring U-bar and open bar clamping arms



Part No.	ØD	Ød	F2	For Spindle Diameter
● 105906	[0.44] 11,2	[0.17] 4,3	[0.33] 8,3	M4 or #8
● 102911	[0.56] 14,2	[0.20] 5,1	[0.38] 9,6	M5 or #10
● 215905	[0.69] 17,5	[0.26] 6,7	[0.50] 12,7	M6 or 1/4
● 507907	[0.88] 22,4	[0.33] 8,4	[0.60] 15,2	M8 or 5/16
● 235906	[1.00] 25,4	[0.41] 10,5	[0.75] 19,1	M10 or 3/8
● 267902	[1.25] 31,8	[0.53] 13,5	[0.91] 23,2	M12 or 1/2

Preferred Market: ▲ NA/SA ■ Europe ● Global

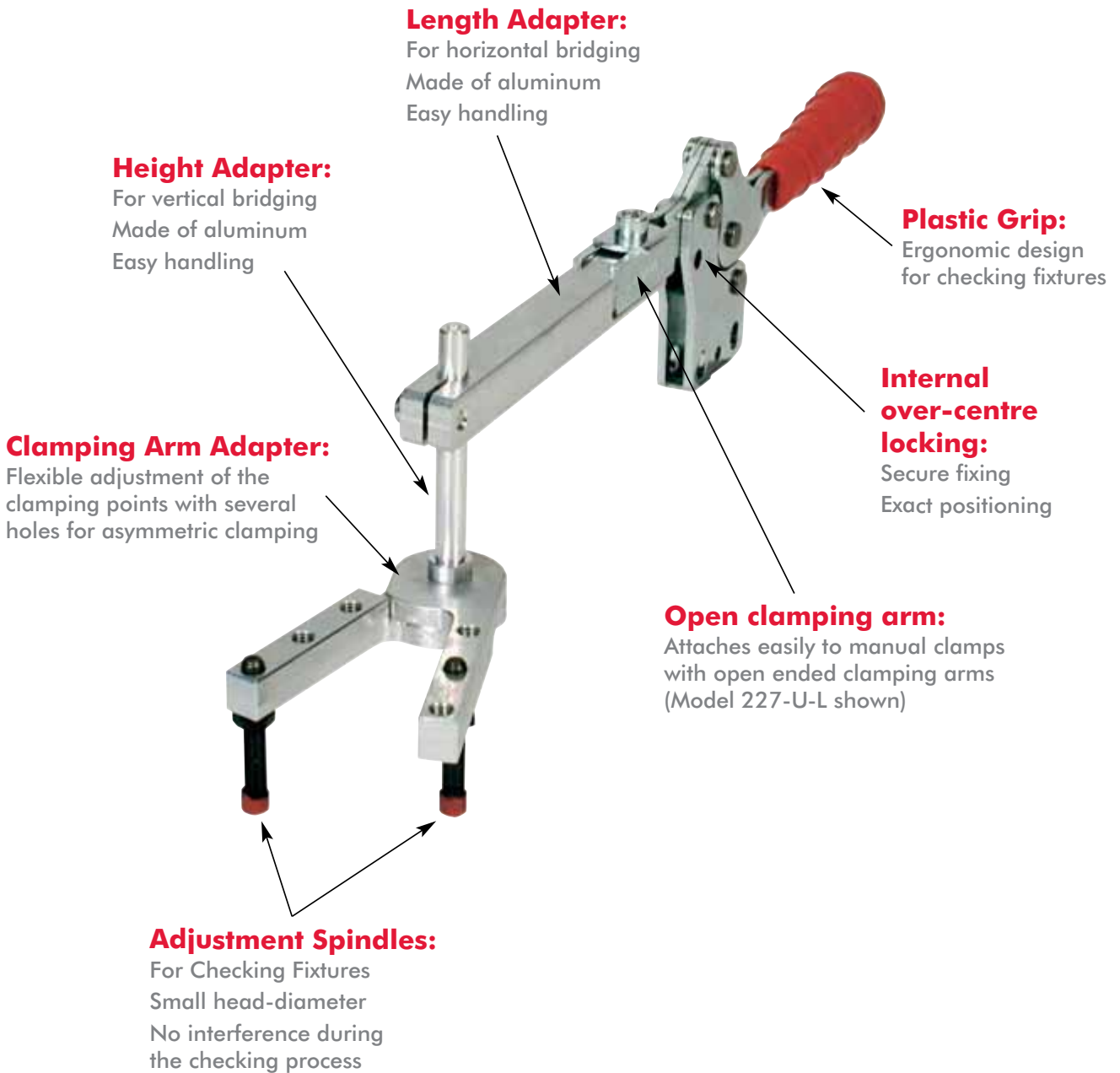
Adapters & Extensions

Features:

- Provides flexible adjustment of length and height
- Mounts to manual clamp models that feature open clamping arms
- Lightweight aluminum

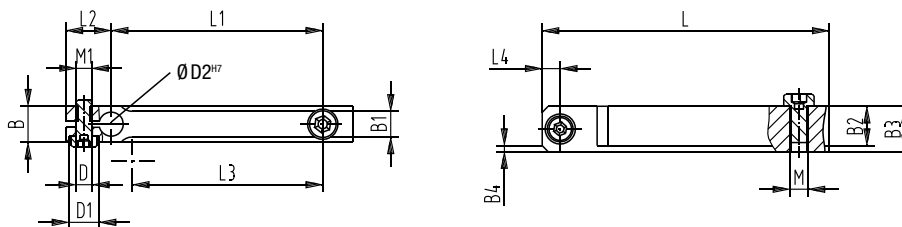
Application Areas:

- Checking fixtures
- Areas requiring multiple clamping points



Adapters & Extensions

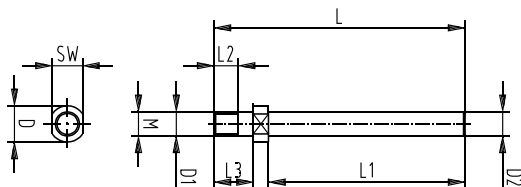
Length Adapter



Model no.	Length adapter	B	B1 +0, -1	B2	B3	B4	DØ	D1	D2 ^{H7}	L	L1 ±0,2	L2	L3	L4	M	M1
213-U-L / 213-UB-L	L-213-1-01 ⓘ	[0.39]	[0.22]	[0.31]	[0.39]	2x45°	[0.22]	--		[1.97]	[1.18]	[0.47]	[0.79]	[0.20]	M4	M5
2013-U / 2013-UB	L-213-1-02 ⓘ	10	5,5	8	10		5,5			[3.54]	[2.76]	12	20	5		
2013-UR / 2013-UBR										90	70					
202-U-L / 202-UB-L	L-217-1-01 ⓘ								[0.24]	[2.17]	[1.18]		[1.30]			
217-U-L / 217-UB-L									6	55	30		33			
2002-U-L / 2002-UB-L	L-217-1-02 ⓘ		[0.26]	[0.35]	[0.47]	2x45°	[0.22]			[3.74]	[2.76]				M5	M5
2017-U / 2017-UB			6,5	9	12		5,5			95	70		[1.89]			
2017-UR / 2017-UBR	L-217-1-03 ⓘ									[5.31]	[4.33]		48			
										135	110					
207-U-L / 207-UB-L	L-227-1-01 ⓘ	[0.47]						[0.39]		[2.17]	[1.18]	[0.59]	[1.30]	[0.24]		
227-U-L / 227-UB-L		12						10		55	30	15	33	6		
2007-U-LS / 2007-U-LS	L-227-1-02 ⓘ		[0.33]	[0.51]	[0.59]	2x45°	[0.22]		[0.31]	[3.74]	[2.76]				M6	M5
2027-U / 2027-UB			8,5	13	15		5,5		8	95	70					
2027-UR / 2027-UBR	L-227-1-03 ⓘ									[5.31]	[4.33]		[2.87]			
										135	110		73			
	L-227-1-04 ⓘ									[6.89]	[5.91]					
										175	150					

ⓘ Available upon request

Height Adapter

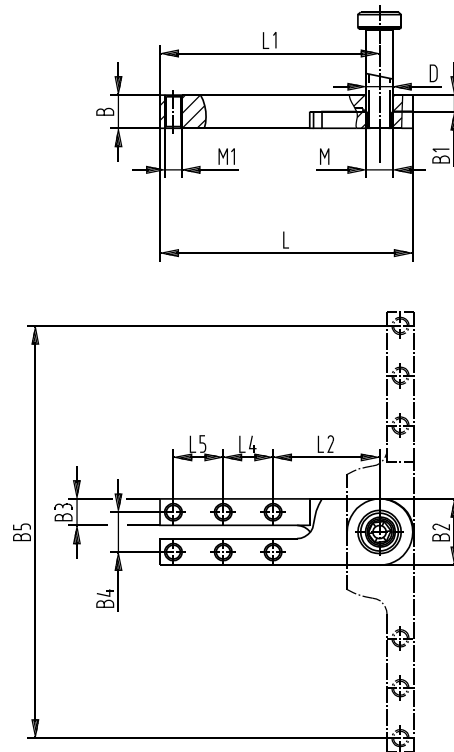


Model no.	Height adapter	DØ	D1 f7	D2 f7	L	L1	L2	L3	SW	M
213-U-L / 213-UB-L	L-213-2-01 ⓘ		[0.20]	[0.24]	[2.05]	[1.38]				
2013-U / 2013-UB			5	6	52	35				M5
2013-UR / 2013-UBR	L-213-2-02 ⓘ				[3.23]	[2.56]				
					82	65				
202-U-L / 202-UB-L		[0.39]						[0.47]	[0.31]	
217-U-L / 217-UB-L	L-217-2-01 ⓘ	10			[2.05]	[1.38]		12	8	
2002-U-LS / 2002-UB-LS			[0.24]	[0.24]	52	35				M6
2017-U / 2017-UB	L-217-2-02 ⓘ		6	6	[3.23]	[2.56]	[0.31]			
2017-UR / 2017-UBR					82	65	8			
207-U-L / 207-UB-L										
227-U-L / 227-UB-L	L-227-2-01 ⓘ		[0.31]	[0.31]	[2.09]	[1.38]		[0.51]	[0.39]	M8
2007-U-LS / 2007-U-LS		[0.31]	8	88	53	35		13	10	
2027-U / 2027-UB	L-227-2-02 ⓘ				[3.23]	[2.56]				
2027-UR / 2027-UBR					82	65				

ⓘ Available upon request

Adapters & Extensions

Clamping Arm Adapter



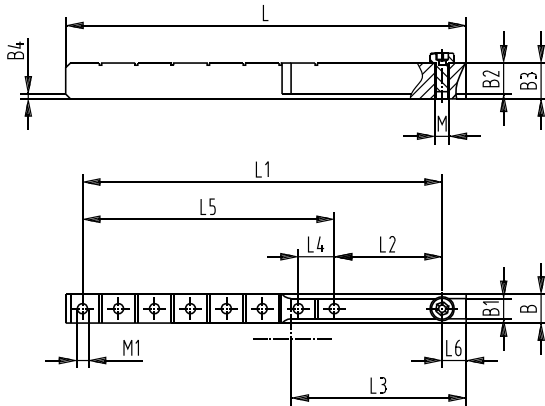
Model no.	Clamping arm adapter	B	B1	B2	B3	B4	B5	DØ H7	L	L1	L2	L4	L5	L6	M	M1
213-U-L / 213-UB-L 2013-U / 2013-UB 2013-UR / 2013-UBR	L-213-3-01 ⓘ							[0.20] 5					-		M5	M5
202-U-L / 202-UB-L 217-U-L / 217-UB-L 2002-U-LS / 2002-UB-LS 2017-U / 2017-UB 2017-UR / 2017-UBR	L-217-3-01 ⓘ	[0.39] 10	[0.20] 5	[0.79] 20	[0.31] 8	[0.47] 12	[3.70] 94	[0.24] 6	[2.40] 61	[2.01] 51					M6	M5
207-U-L / 207-UB-L 227-U-L / 227-UB-L 2007-U-LS / 2007-UB-LS 2027-U / 2027-UB 2027-UR / 2027-UBR	L-227-3-01 ⓘ						4.88 124	[0.31] 8	[2.99] 76	[2.60] 66			[0.59] 15		M8	M5

ⓘ Available upon request

Adapters & Extensions

Arm Extension:

- Easily cut to length
- Drilled & tapped for spindle attachment



Model no.	Extension link	B +0, -1	B1	B2	B3	B4	L ±0,2	L1	L2	L3	L4	L5	L6	M	M1
213-U-L / 213-UB-L 2013-U / 2013-UB 2013-UR / 2013-UBR	L-213-4-01 ⓘ	[0.39] 10	[0.22] 5,5	[0.31] 8	[0.39] 10	2x45°	[2.95] 75	[2.36] 60	[0.94] 24	[0.79] 20	[0.47] 12	[1.42] 36	[0.31] 8	M4	M5
202-U-L / 202-UB-L 217-U-L / 217-UB-L 2002-U-LS / 2002-UB-LS 2017-U / 2017-UB 2017-UR / 2017-UBR	L-217-4-01 ⓘ		[0.26] 6,5	[0.35] 9	[0.47] 12	2x45°	[5.00] 127	[4.33] 110	[1.38] 35	[1.89] 48		[2.95] 75	[0.39] 10	M5	M5
207-U-L / 207-UB-L 227-U-L / 227-UB-L 2007-U-LS / 2007-UB-LS 2027-U / 2027-UB 2027-UR / 2027-UBR	L-227-4-01 ⓘ	[0.47] 12	[0.33] 8,5	[0.51] 13	[0.59] 15	2x45°	[6.57] 167	[5.91] 150	[1.77] 45	[2.87] 73	[0.47] 12	[4.13] 105	[0.39] 10	M6	M5

ⓘ Available upon request

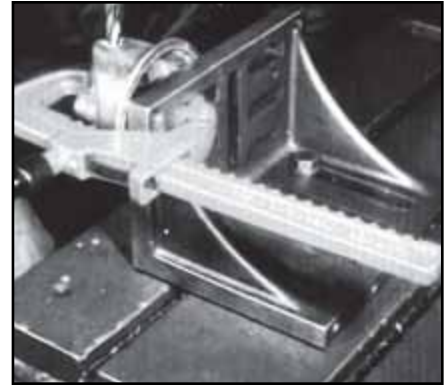


CARVER CLAMPS Applications

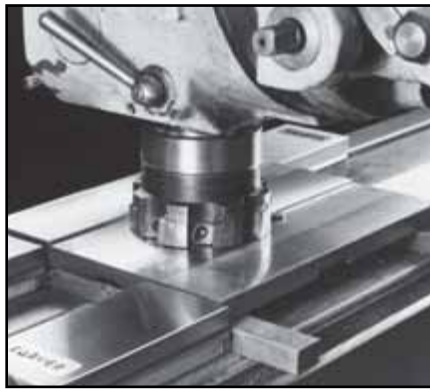
A single Carver Model T500-1 moving head, and two T500-2, fixed head Edge Grip clamps hold a part for milling.



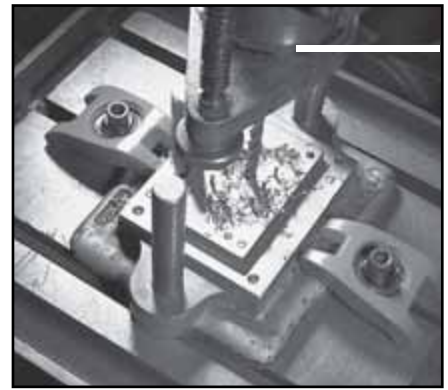
Carver Model T285-18 "C" style clamp used in a drilling operation.



Two low-profile T500 Carver Edge Grip clamps apply both horizontal and vertical clamping force to secure parts for a milling operation. This double action is beyond the capabilities of machine vises.



Two Carver Model T614-0 clamps secure a part fixture during a drilling application.



A circular part is held for a slot milling operation using Carver Model T550-2 heavy-duty Edge Grip clamps. The T550-2 clamps swivel a full 360° for infinite angular alignment.



Two versatile Carver Bar Style clamps used in a welding application. The clamps are supplied with two reversible jaws for either clamping or spreading.





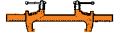


Carver heavy-duty Edge Grip Models T550-1 and T550-2 used in a milling application.






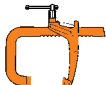
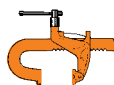
Two Carver Model T614-1 Buttress Style clamps provide exceptional stability to the workpiece in this milling process.



Bar-Style

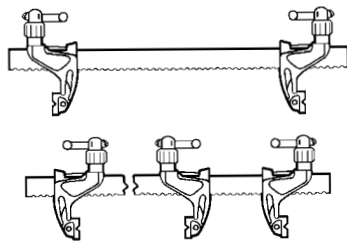
	Model	Holding Capacity max	Page
	T186-24 T186-36	[2500 lbf] 11300N	9.4-9.5
	T321-24 T321-36 T321-60	[1500 lbf] 5650N	
	T290-36 T290-60 T290-84	[4000 lbf] 18000N	
	T285-36 T285-60 T285-84	[2000 lbf] 9000N	
	T257-84	[6000 lbf] 27000N	

C-Style

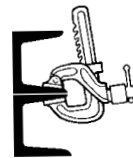
	Model	Holding Capacity max	Page
	T186-6 T186-12 T186-20	[2500 lbf] 11300N	9.6-9.7
	T321-10	[1270 lbf] 5650N	
	T290-9 T290-18 T290-40	[4000 lbf] 18000N	
	T285-9 T285-18	[2000 lbf] 9000N	
	T257-24 T257-36	[6000 lbf] 27000N	

Typical Applications

Bar Clamps



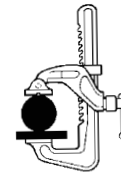
"C" Clamps



No obstruction from long screw. Ideal for structural steel fabrication.



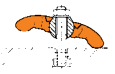
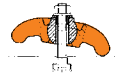
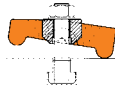
Unaffected by weld spatter. Screw is shielded and out of work area.




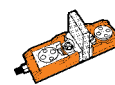
Holds rounds to flats. Limited movement of moveable jaw pad and grooved face ensure positive grip on round objects.



Buttress Style

	Model	Holding Capacity max	Page
	T614-0	[2900 lbf] 13000N	9.8-9.9
	T614-1	[14000 lbf] 62500N	
	T614-2	[18000 lbf] 80000N	

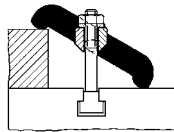
Edge Grip Style

	Model	Holding Capacity max	Page
	T500	[5050 lbf] 22500N Horizontal	9.10-9.11
		[2020 lbf] 9000N Vertical	
	T550	[10100 lbf] 45000N Horizontal	9.10-9.11
		[4045 lbf] 18000N Vertical	

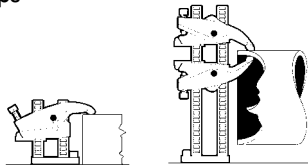
T-Slot Style

Typical Applications

Buttress Clamps

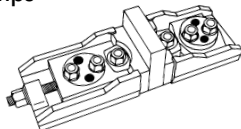






T-Slot Clamps



Ideal for use as manual die clamps. Eliminates the need for step blocks or riser blocks.

Edge Grip Clamps



	Model	Holding Capacity max	Page
	T400-4 T400-6 T400-8	[5100 lbf] 22700N	9.12-9.15
	T600-4 T600-6 T600-8	[3600 lbf] 16000N	
	T402-6 T402-12 T402-18 T402-24	[8160 lbf] 36300N	
	T602-6 T602-12 T602-18	[5620 lbf] 25000N	

Bar-Style Product Overview

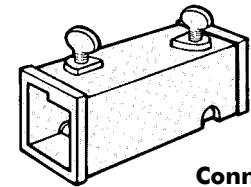
Features:

These rugged clamps, made from high-tensile, heat-treated steel, are designed for all types of applications requiring large holding capacities from 1270 lbf to 6000 lbf (5650N to 27000N). The clamps are highly versatile. For example, jaws can be reversed to provide spreading action, or several jaws can be used on a single bar both for fixturing and positive component location and clamping.

Available models include T321 Standard-Duty Deep Throat, T285 Medium-Duty Deep Throat, T186 Standard-Duty, T290 Medium-Duty and T257 Heavy-Duty. In addition, standard and medium-duty connectors are available to couple like bars together for increased clamping reaches.

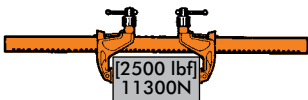
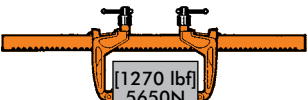
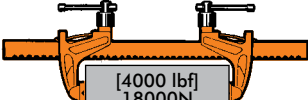
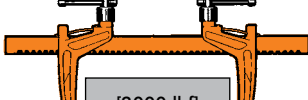
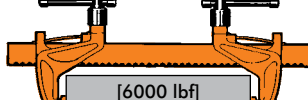


Model	For Bar Clamps Model	Weight [lbs.] kg
T186-13	T186-... and T321-...	[1.54] 0,7
T290-13	T285-... and T290-...	[2.87] 1,3



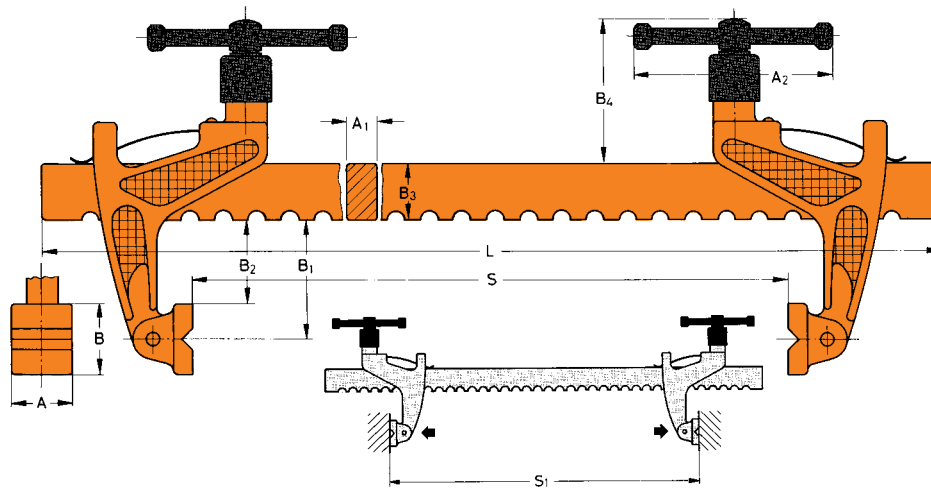
Connector

Bar-Style Technical Information, Holding Capacities

Holding Capacity	Throat Depth	Width Opening S		Width Opening S1		Model	Clamping Screw Ø	Weight [lbs.] kg	Consisting of:	
		min	max	min	max				1x	2x
 [2500 lbf] 11300N	[2.38] 60	[8.50] 215	[24] 600	[2.95] 75	[26.8] 680	T186-24 T186-36	M12	[7.50] 3,4	186-24-1	186-2
			[36] 900		[39] 990			[9.50] 4,4	186-36-1	
 [1270 lbf] 5650N	[4.7] 120	[5.50] 140	[24] 600	[3.15] 80	[27.2] 690	T321-24 T321-36 T321-60	M12	[7.70] 3,5	186-24-1	321-2
			[36] 900		[39.4] 1000			[9.00] 4,5	186-36-1	
			[60] 1500		[63] 1600			[13.00] 5,9	186-60-1	
 [4000 lbf] 18000N	[3.5] 90	[10.00] 250	[36] 900	[4.72] 120	[36.9] 1005	T290-36 Ⓢ T290-60 Ⓢ T290-84	M16	[20.50] 10,5	290-36-1	290-2
			[48] 1200		[63.8] 1620			[28.50] 14,0	290-60-1	
			[60] 1500		[87.4] 2220			[36.50] 18,0	290-84-1	
 [2000 lbf] 9000N	[8.0] 200	[6.00] 150	[36] 900	[4.72] 120	[42.7] 1085	T285-36 Ⓢ T285-60 Ⓢ T285-84	M16	[24.50] 10,5	290-36-1	285-2
			[48] 1200		[66.93] 700			[32.50] 15,0	290-60-1	
			[60] 1500		[90.6] 2300			[40.50] 19,0	290-84-1	
 [6000 lbf] 27000N	[4.5] 115	[12.00] 305	[84] 2100	[5.90] 150	[86.6] 2200	Ⓢ T257-84	M20	[61.00] 27,2	257-84-1	257-2

Ⓢ Available upon request

Bar-Style Technical Information, Holding Capacities, Standard Clamp Dimensions



Model	[inch] mm		A1	A2	B	B2	B3	B4	L
	A	B							
T186-24	[0.98]		[0.47]	[2.99]	[1.26]	[1.73]	[1.18]	[2.99]	[28]
T186-36	25		12	76	32	44	30	76	[40.2]
T321-24									710
T321-36	[0.98]		[0.47]	[2.99]	[1.26]	[4.09]	[1.18]	[2.99]	[40.2]
T321-60	25		12	76	32	104	30	76	1020
T290-36									[64]
Ⓢ T290-60	[1.50]		[0.79]	[5.51]	[2.00]	[2.56]	[1.57]	[4.13]	[42.1]
Ⓢ T290-84	38		20	140	51	65	40	105	1070
T285-36									[66.5]
Ⓢ T285-60	[1.50]		[0.79]	[5.51]	[2.00]	[7.09]	[1.57]	[4.13]	[66.5]
Ⓢ T285-84	38		20	140	51	180	40	105	1690
Ⓢ T257-84	[2.00]		[0.87]	[7.36]	[2.50]	[3.27]	[2.05]	[5.00]	[90.2]
	51		22	187	63,5	83	52	127	2290
									[91.9]
									2335

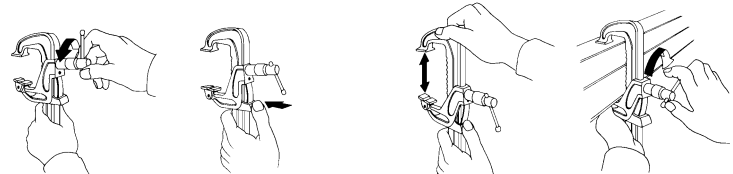
Ⓢ Available upon request

C-Style Product Overview

Features:

Operation is very simple. The operator slides the spring loaded moveable jaw toward the workpiece to the nearest notch where it locks into the detent. Hand tightening the screw advances the clamp jaw. The jaw advances the tilting pad directly into contact with the workpiece – there is no rotating to twist the work or the clamp out of position.

An unusual and very useful feature of these clamps is the ability to use the clamp for spreading or locating as well as squeezing..



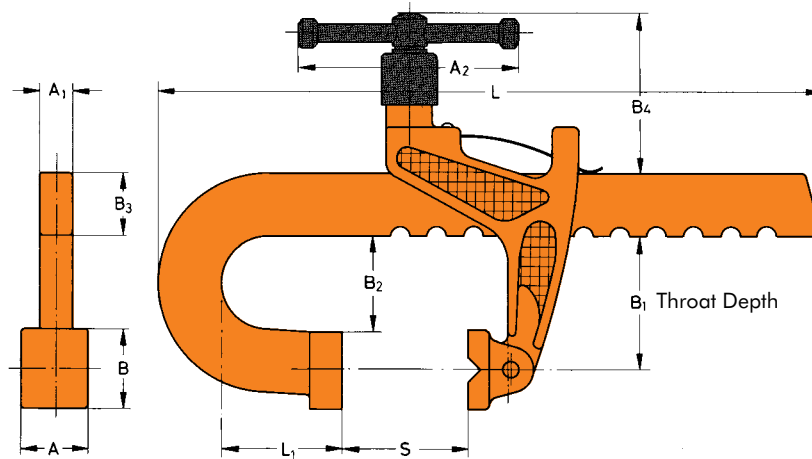
1. Loosen Screw 2. Push In Jaw Base 3. Slide Jaw Up or Down 4. Tighten Screw

C-Style Technical Information, Holding Capacities

Holding Capacity	Throat Depth B1 [in] mm	Width Opening S [in] mm	Model	Clamping Screw Ø	Weight [lbs.] kg	Consisting of:	
						1 x	1 x
 [2,500 lbf] 11300N	[2.38] 60	[0-6] 0-150 [0-12] 0-300 [0-20] 0-500	T186-6	M12	[2.75] 1,4 [3.75] 1,8 [5.51] 2,5	186-6-1	186-2
			T186-12			186-12-1	186-2
			ⓘ T186-20			186-20-1	186-2
 [1,270 lbf] 5650N	[4.7] 120	[0-10] 0-250	T321-10	M12	[4.4] 2,0	321-10-1	321-2
 [4,000 lbf] 18000N	[3.5] 90	[0-9] 0-225 [0-18] 0-450 [0-40] 0-1000	T290-9	M16	[10.00] 5,5 [13.50] 7,0 [23.15] 10,5	290-9-1	290-2
			T290-18			290-18-1	290-2
			ⓘ T290-40			290-40-1	290-2
 [2,000 lbf] 9000N	[8.0] 200	[0-9] 0-225 [0-18] 0-450	T285-9	M16	[12.00] 7,1 [13.50] 8,5	285-9-1	285-2
T285-18	285-18-1	285-2					
 [6,000 lbf] 27000N	[4.5] 115	[0-24] 0-610 [0-36] 0-914	T257-24	M20	[27.50] 13,1 [32.50] 15,8	257-24-1	257-2
T257-36	257-36-1	257-2					

ⓘ Available upon request

C-Style Technical Information, Holding Capacities, Standard Clamp Dimensions



Model	[inch] mm									
	A	A1	A2	B	B2	B3	B4	L	L1	
T186-6				[1.26] 32		[1.30] 33		[9.65] 245	[.79] 20	
T186-12	[0.98] 25	[0.51] 13	[3.00] 76	[1.26] 38	[1.69] 43	[1.30] 33	[3.00] 76	[15.55] 395	[.79] 20	
① T186-20				[1.38] 35		[1.18] 30		[24.61] 625	[1.18] 30	
T321-10	[0.98] 25	[0.51] 13	[3.00] 76	[1.38] 35	[4.02] 102	[1.32] 33,5	[3.00] 76	[14.2] 360	[1.00] 25	
T290-9								[16.53] 420		
T290-18	[1.57] 40	[0.79] 20	[5.51] 140	[2.36] 60	[2.56] 65	[1.57] 40	[4.13] 105	[25.78] 655	[2.56] 65	
① T290-40								[47.44] 1205		
T285-9								[16.53] 420		
T285-18	[1.57] 40	[0.79] 20	[5.51] 140	[2.36] 60	[7.09] 180	[1.57] 40	[4.13] 105	[25.78] 655	[2.56] 65	
T257-24								[33.46] 850		
T257-36	[2.00] 51	[0.87] 22	[7.36] 187	[2.36] 60	[3.35] 85	[2.00] 51	[5.00] 127	[45.87] 1165	[3.94] 100	

① Available upon request

Buttress Style Product Overview

Features:

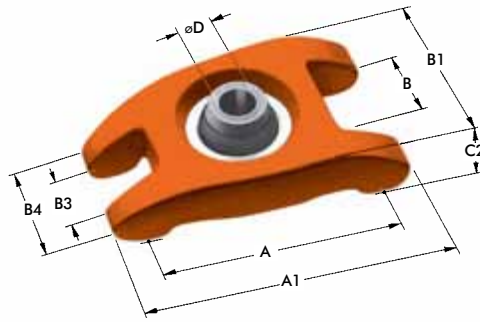
These workholding clamps are designed for use on thin or low-profile workpieces replacing ordinary strap clamps. They feature a self-aligning swiveling pivot which allows the tightening bolt to always remain vertical, preventing any side forces. The two-point contact offered by Models T614-0 and T614-1 also provides greater stability to the workpiece. Ideally suited for manual die clamping. Eliminates the need for step blocks or riser blocks.



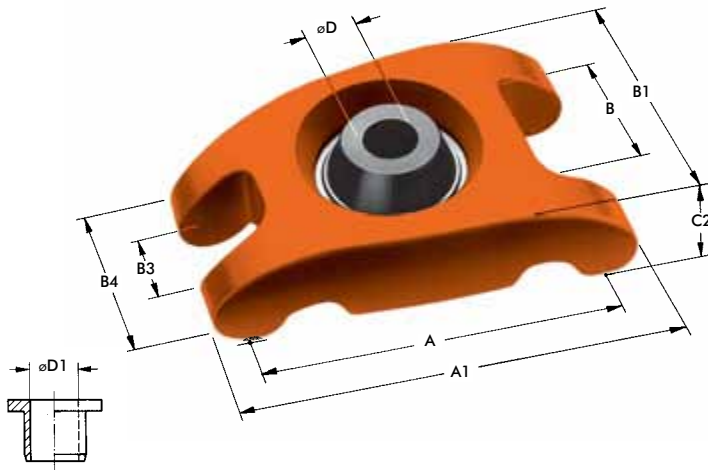
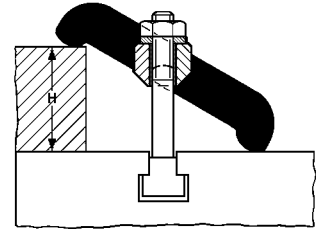
Buttress Style Technical Information, Holding Capacities

Holding Capacity	Working Height Range	For screw diameter	Model	Weight [lbs.] kg
	[0-1.75"] 0-45	[1/2"] M12	T614-0	[1.5] 0,6
	[0-2.25"] 0-57	[5/8"] M16 or [3/4"] M20	T614-1	[5.8] 2,7
	[0-3.00"] 0-75	[1"] M24	T614-2	[9.5] 4,3

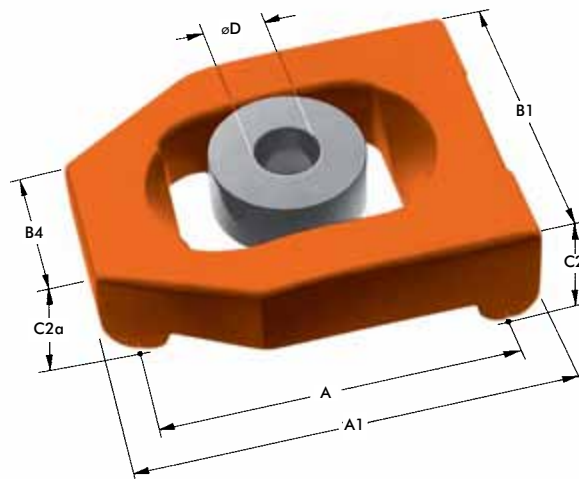
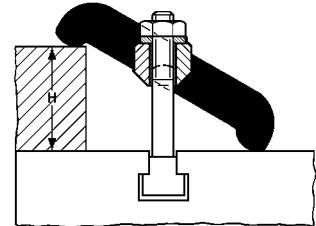
Buttress Style Standard Clamp Dimensions



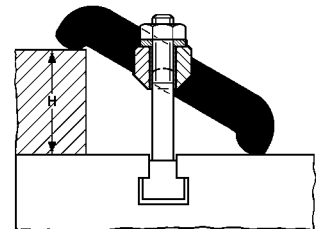
Holding capacity [2900 lbf] 13kN
Clamping height [1.75] 45mm max.
Model T614-0



Holding capacity [14000 lbf] 62.5kN
Clamping height [2.25] 57mm max.
Model T614-1
Delivery includes reducing bush with inner diameter 17 [0.67].
Reducer bushing is standard equipment



Holding capacity [18000 lbf] 80kN
Clamping height 75 [3.00] max.
Model T614-2



Model	[inch] mm									
	A	A1	B	B1	B3	B4	C2	C2a	ØD	ØD1
T614-0	[3.54] 90	[4.34] 110	[1.41] 36	[2.59] 66	[0.78] 40	[1.56] 40	1.02 26	-	[0.51] 13	-
T614-1	[5.28] 134	[6.31] 160	[2.09] 53	[3.94] 100	[1.14] 29	[2.56] 65	[1.81] 46	-	[0.83] 83	[0.67] 17
T614-2	[5.83] 148	[6.69] 170	-	[5.13] 130	-	[2.56] 65	[1.97] 50	[1.57] 40	[1.02] 26	-

Edge Grip Style Product Overview

Features:

These low-profile clamps apply both horizontal and vertical clamping force against the workpiece to pull it down onto the work table as well as clamp it in position. They are designed to be used with T-Slot tables (or bolted to a plate) and allow maximum cutter access to the workpiece's surface. Edge Grip clamps are excellent for milling, planing, grinding and general surfacing operations which are beyond the capabilities of machine vises.

Because the Edge Grip clamp set consists of two separate pieces – both locked to the T-Slot table – any length part (within the dimensions of the table) can be clamped.

The heavy-duty model also gives the additional advantage of swiveling through a full 360° for infinite angular alignment and gives a choice of two mounting hole sizes.

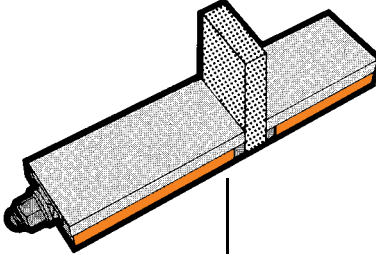
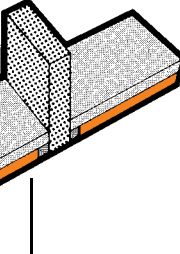
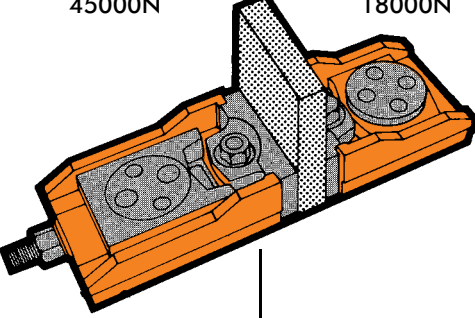
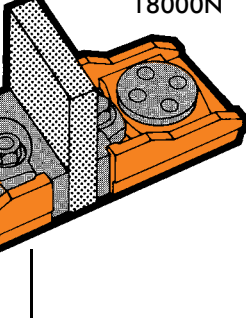
T500



T550

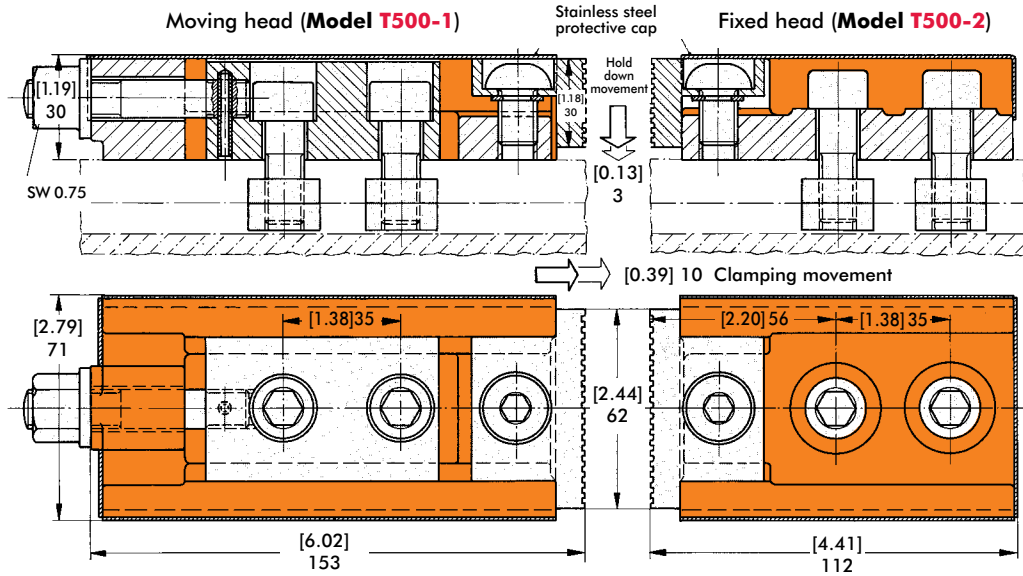


Edge Grip Style Technical Information, Clamping Force

Clamping force		The total set consists	For screw diameter	Model	Weight [lbs.] Kg.
Horizontal	Vertical				
[5050 lbf] 22500N 	[2020 lbf] 9000N 	1 moving head with swarf cover (T500-1) (T500-2) 1 fixed head with swarf cover 4 T-slot nuts 14 (M12) 4 button head socket screws (M12 x 35) 2 hex keys	[1/2"] M12	T500	[8.38] 3,8
[10100 lbf] 45000N 	[4045 lbf] 18000N 	1 Moving head (T550-1) 1 Fixed head (T550-1)	[5/8"] M16 or [3/4"] M20	T550	[52.91] 24

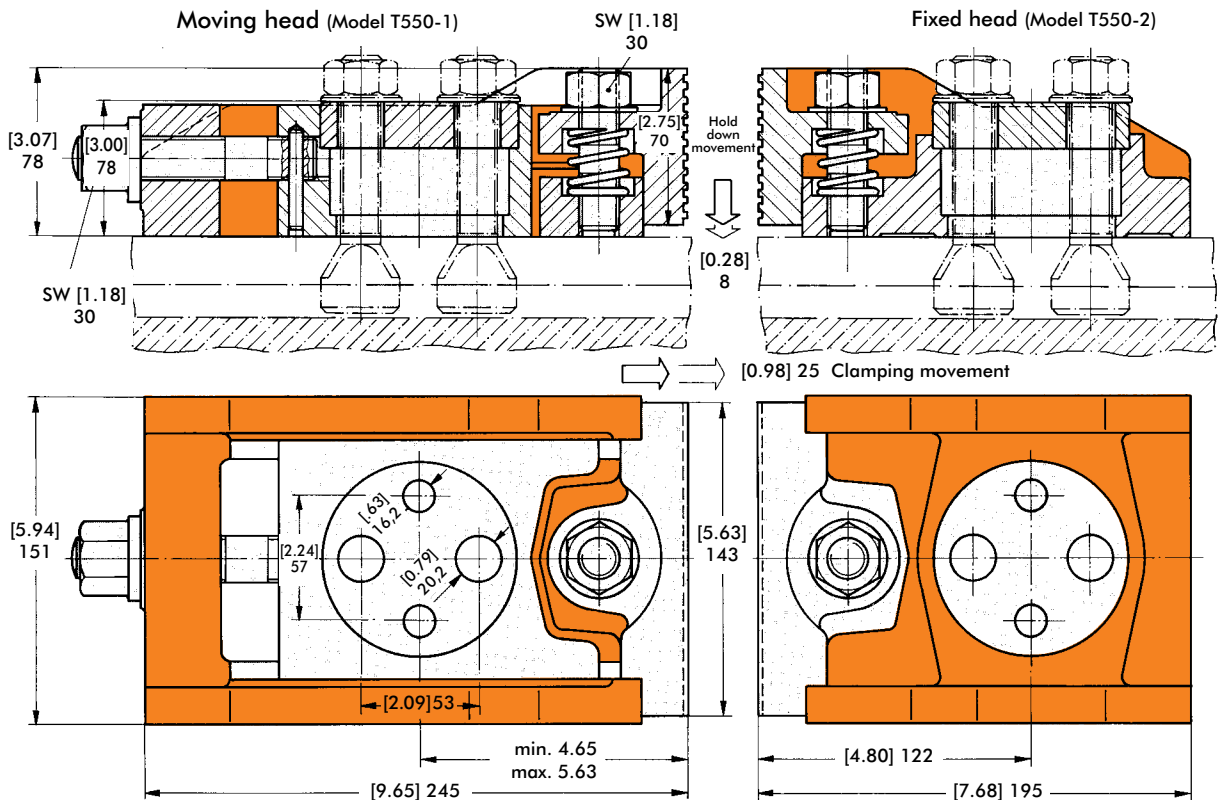
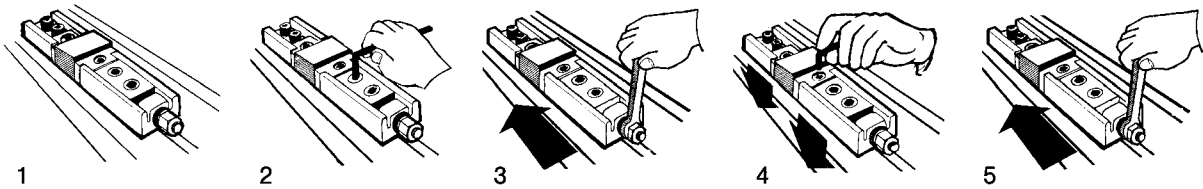
T Available upon request

Edge Grip Style Standard Clamp Dimensions



Operating instruction

1. Place clamps against workpiece and tighten cap screws on fixed head
2. Tighten anchor cap screws on moving head
3. Apply pressure with rear-nut slightly
4. Tighten down jaw screws on fixed and moving heads
5. Apply pressure with rear-nut



T-Slot Style Product Overview

Features:

These clamps provide rapid height adjustment and positive holding. They are designed with a single-unit clamp head and base. The DE-STA-CO Carver T-Slot Clamp is one single assembly – there are no loose parts. When setting up, the safety lock on the back is released and the clamp lifted on the base to the desired height. When the clamp screw is turned, 100% of the force is transmitted to the work-piece. Backing off the clamp adjusting screw and releasing the safety lock and lifting the clamp head makes for rapid job changeover.

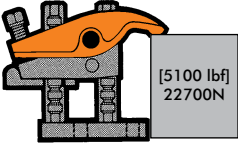
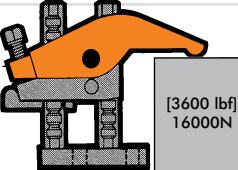
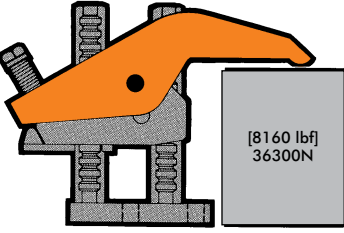
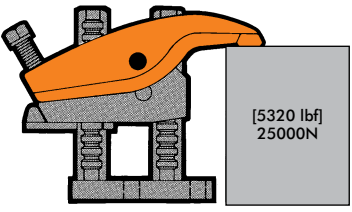


If the clamping height is more than [29.5in] 750mm the connector shown below will be delivered as standard equipment.

MODEL T81340



T-Slot Style Technical Information, Holding Capacities

Holding Capacity	Throat Depth		Working Height C		Model	Max. Torque	Accessories standard equipment	Weight [lbs.] kg
	a	b	min.	max.				
 <p>[5100 lbf] 22700N</p>	[0.55] 14	[1.30] 33	[0.50] 12	[4.00] 100	T400-4	36 ft. lbs. 49Nm	2 T-slot nuts with matching 14 mm bolt	[5.1] 2,3
			[0.50] 12	[6.00] 150	T400-6			[5.5] 2,5
			[2.00] 50	[8.00] 200	T400-8			[5.7] 2,6
 <p>[3600 lbf] 16000N</p>	[2.24] 57	[2.87] 73	[0.50] 12	[4.00] 100	T600-4	[30 ft. lbs.] 40Nm	2 T-slot nuts with matching 14 mm bolt	[5.9] 2,7
			[0.50] 12	[6.00] 150	T600-6			[6.4] 2,9
			[2.00] 50	[8.00] 200	T600-8			[6.6] 3,0
 <p>[8160 lbf] 36300N</p>	[1.73] 44	[2.68] 68	0	[6.00] 150	T402-6	[85 ft. lbs.] 115Nm	2 T-slot nuts with matching 18 mm bolt	[14.00] 6,4
			0	[12.00] 300	T402-12			[17.70] 8,0
			[6.00] 150	[18.00] 450	T402-18			[19.40] 8,8
			[12.00] 300	[24.00] 600	ⓈT402-24			[20.00] 9,0
 <p>[5320 lbf] 25000N</p>	[3.90] 99	[4.84] 123	0	[6.00] 150	T602-6	[70 ft. lbs.] 95Nm	2 T-slot nuts with matching 18 mm bolt	[16.00] 7,3
			0	[12.00] 300	T602-12			[19.80] 9,0
			[6.00] 150	[18.00] 450				[21.60] 9,8
			[12.00] 300	[24.00] 600	ⓈT602-18			[24.30] 11,0
			[18.00] 450	[30.00] 762				[28.00] 12,7

Ⓢ Available upon request

T-Slot Style Product Overview

These clamps provide rapid height adjustment and positive holding. They are designed with a single-unit clamp head and base, providing up to [8000 lbf] 35.6kn. of positive holding capacity for workpieces up to 60" high. The design applies 100% of the screw force directly onto the workpiece far more than any strap clamp arrangement. Additionally, there is no searching for the correct riser block height. The DE-STA-CO Carver T-Slot Clamp is one single assembly – there are no loose parts.

When setting up, the safety lock on the back is released and the clamp lifted on the base to the desired height. When the clamp screw is turned, 100% of the force is transmitted to the workpiece. Backing off the clamp adjusting screw and releasing the safety lock and lifting the clamp head makes for rapid job changeover.

Safety – No loose parts. Clamp and base are one unit.
Higher clamping force holds parts more securely and safely.

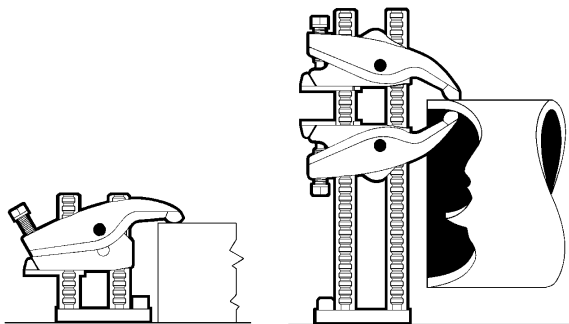
Speed – The clamp head adjusts much faster than an operator can select proper size spacers and bolts. Benefits include:

- Cuts set-up time by as much as 80%
- Reduces machine downtime
- Offers more rapid loading and unloading

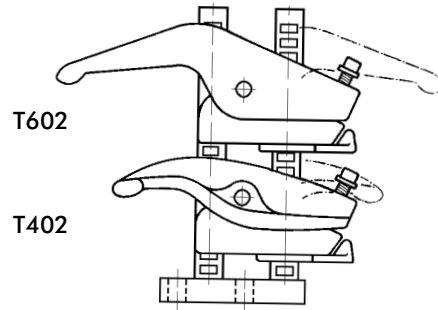
Economy – Tool tip technology and digital control have reduced machining time. Why lose these advantages on long set-up times? T-Slot clamps can reduce set-up time by as much as 80%. Benefit: Money saved.

Ease of Operation – Loosen adjusting screw and release safety catch to adjust height instantly.

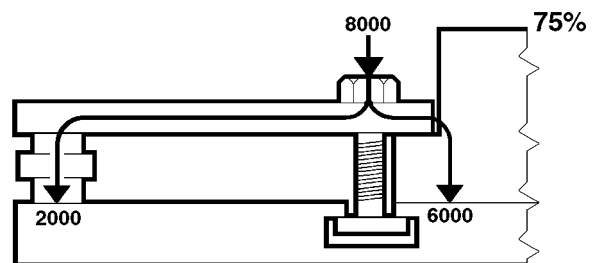
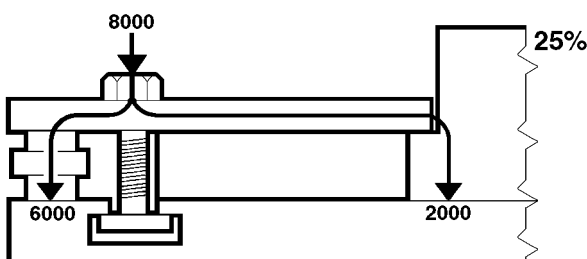
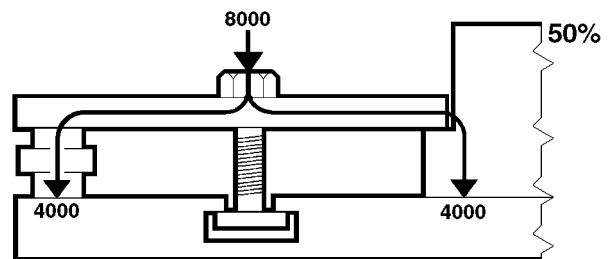
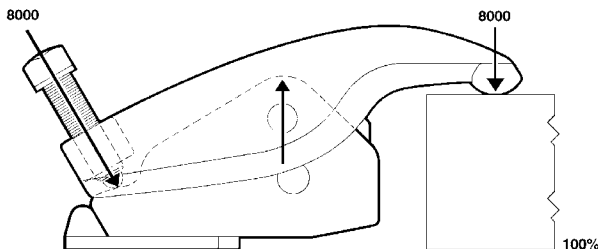
Versatility – Selection of bases gives clamping heights from 0" to 60". Two or more heads can be used on one base to position and hold down as well as support – ideal for fine height adjustment during set-up. Also eliminates riser blocks.



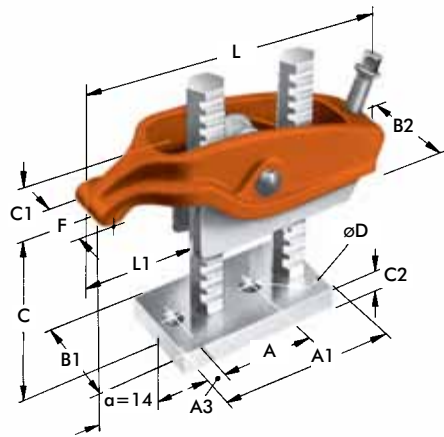
Ideal for use as manual die clamps. Eliminates the need for step blocks or riser blocks.



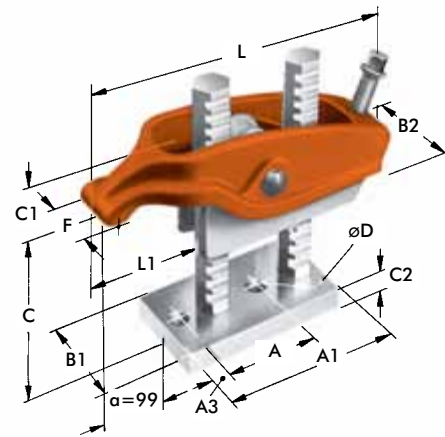
The T402 and T602 can be reversed on their bases to give added reach.



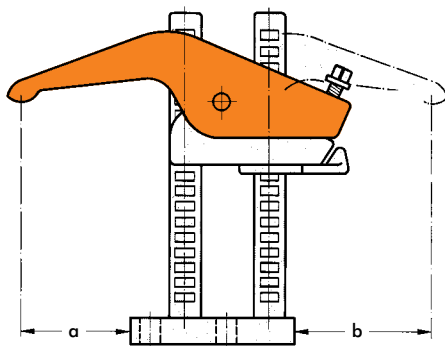
T-Slot Style Standard Clamp Dimensions



Model T400-..



Model T402-..



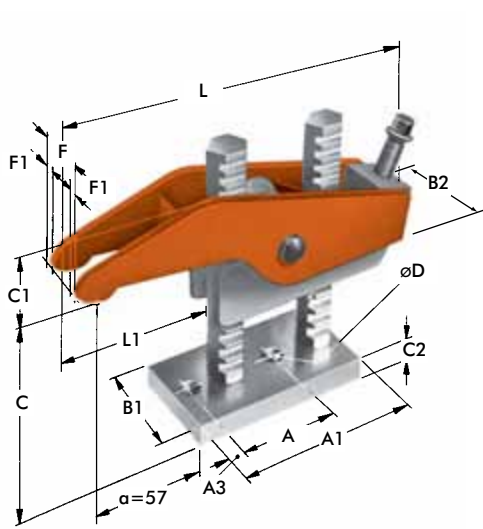
If the T402 is reversed on its base, the measurement of the throat depth will change.

	T400-..	T402-..
a	[0.55] 14	[1.73] 44
b	[1.30] 33	[2.68] 68

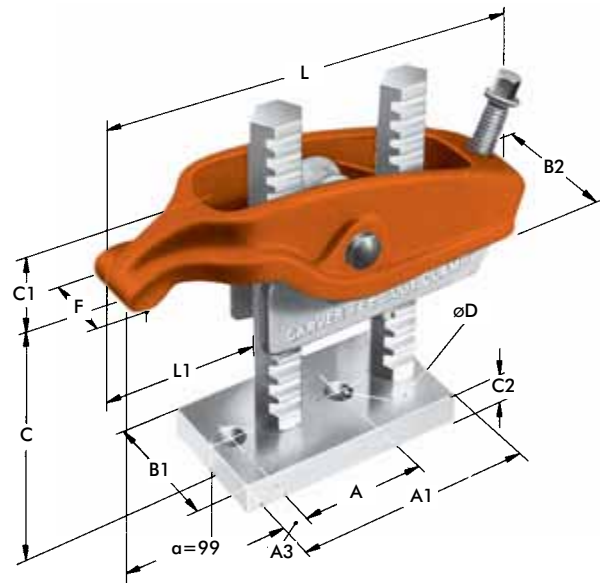
Model	A	A1	A3	B1	B2	C		C1	C2	ØD	F	L	Consisting of		Clamping Srew Size Ø	
						min	max						1x	1x		
T400-4						[1.00] 25	[4.00] 100							400-4-1	12mm	
T400-6	[2.12] 54	[3.78] 96,2	[0.41] 10,5	[2.00] 51	[2.00] 51	[1.00] 25	[6.00] 150	[1.09] 28	[0.63] 16	[0.53] 13,5	[1.02] 26	[6.30] 160	400-2	400-6-1		
T400-8						[2.50] 62	[8.00] 200							400-8-1		
T402-6						0	[6.00] 150								402-6-1	20mm
T402-12	[2.81] 71	[5.51] 140	[0.59] 15	[3.00] 76	[3.11] 79	0	[1200] 300	[1.77] 45	[0.75] 19	[0.66] 16,3	[1.50] 38	[9.65] 245	402-2	402-12-1		
T402-18						[6.00] 150	[18.00] 450							402-18-1		
ⓘ T402-24						[12.00] 300	[24.00] 600							402-24-1		

ⓘ Available upon request

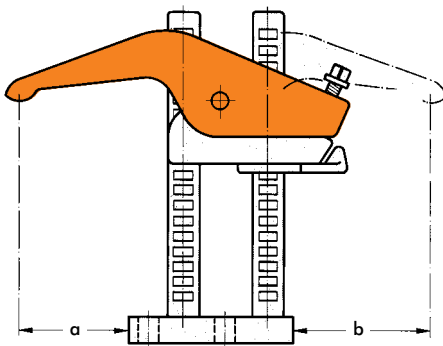
T-Slot Style Standard Clamp Dimensions



Model T600-..



Model T602-..



If the T602 is reversed on its base, the measurement of the throat depth will change.

	T600-..	T602-..
a	[2.24] 57	[3.90] 99
b	[2.87] 73	[4.84] 123

Model	A	A1	A3	B1	B2	C		C1	C2	ØD	F	F1	L	L1	Consisting of		Clamping Srew Size Ø
						min	max								1x	1x	
T600-4						[0.47] 12	[4.00] 100									600-4-1	
T600-6	[2.12] 54	[3.78] 96,2	[0.41] 10,5	[2.00] 51	[1.97] 50	[0.47] 12	[6.00] 150	[1.50] 38	[0.63] 16	[0.53] 13,5	[1.97] 50	[0.41] 10,5	[7.88] 200	[3.35] 85	600-2	600-6-1	12mm
T600-8						[1.97] 50	[8.00] 200									600-8-1	
T602-6						0	[6.00] 150									402-6-1	
T602-12	[2.81] 71	[5.51] 140	[0.59] 15	[3.11] 79	[3.11] 79	0	[1200] 300	[3.19] 81	[0.75] 19	[0.66] 16,3	[1.50] 38	-	[12.40] 315	[5.31] 135	602-2	402-12-1	20mm
ⓘ T602-18						[6.00] 150	[18.00] 450									402-18-1	

ⓘ Available upon request

DE-STA-CO Pneumatic Clamps use air-actuated cylinders to operate the clamping action. They are ideal for quick and repetitive production operations, and yet are portable and economical to use on short run jobs with temporary fixturing

	Series	Section. Page	Max. Holding Capacity N[lbf.]							Max. Exerting Force at 5bar[72PSI] N[lbf.]						
			0 to 1000 [0 to 225]	1000 to 2000 [225 to 450]	2000 to 3000 [450 to 675]	3000 to 5000 [675 to 1125]	5000 to 7000 [1125 to 1575]	7000 to 10000 [1575 to 2250]	10000 + [2250+]	0 to 1000 [0 to 225]	1000 to 2000 [225 to 450]	2000 to 3000 [450 to 675]	3000 to 4000 [675 to 900]	4000 to 5000 [900 to 1125]	5000 to 6000 [1125 to 1350]	6000 to 8000 [1350 to 1800]
	812	10.3	■							■						
	802	10.5	■								■					
	807	10.7			■							■				
	810	10.9				■							■			
	846	10.11				■							■			
	847	10.15				■								■		
	8007	10.13				■						■				
	858	10.17							■							■
	8021	10.19		■						■						
	8071	10.19		■								■				
	8101	10.19				■						■				
	817	10.21		■							■					
	827	10.21				■						■				
	868	10.23							■							■
	816	10.25	■								■					
	803	10.26			■								■			
	8031	10.27						■					■			
	830	10.29							■				■			
	850	10.30								■					■	
	800	10.31								■						
	1200	10.31								■						



Overall Height mm [inch]											Overall Length mm [inch]											Overall Width mm [inch]					Suitable Application Area				Arm Style		Service Environment	
0 to 50 [0 to 1.97]	50 to 75 [1.97 to 2.95]	75 to 100 [2.95 to 3.94]	100 to 125 [3.94 to 4.92]	125 to 150 [4.92 to 5.91]	150 to 175 [5.91 to 6.89]	175 to 200 [6.89 to 7.87]	200 to 225 [7.87 to 8.86]	225 to 250 [8.86 to 9.84]	250 to 275 [9.84 to 10.83]	275+ [10.83+]	125 to 150 [4.92 to 5.91]	150 to 175 [5.91 to 6.89]	175 to 200 [6.89 to 7.87]	200 to 225 [7.87 to 8.86]	225 to 250 [8.86 to 9.84]	250 to 300 [9.84 to 11.81]	300 to 400 [11.81 to 15.75]	400+ [15.75+]	20 to 40 [0.78 to 1.57]	40 to 60 [1.57 to 2.36]	60 to 80 [2.36 to 3.15]	80 to 100 [3.15 to 3.94]	100 to 120 [3.94 to 4.72]	Welding	Assembly	Light Machining	Duty Cycle	Accommodates Workpiece Variation	U-Bar Version	Solid Arm Version	Normal	Harsh/Dirty		
●										●									●	●				●	●	●	●		✓			✓		
	●										●								●	●	●			○	●	●	○		✓			✓		
		●										●							○	○	○			○	○	○	○		✓	✓		✓		
			●										●						○	○	○			○	○	○	○		✓	✓		✓		
				●										●					○	○	○			○	○	○	○		✓	✓		✓		
					●										●				○	○	○			○	○	○	○		✓	✓		✓		
						●										●			○	○	○			○	○	○	○		✓	✓		✓		
							●										●		○	○	○			○	○	○	○		✓	✓		✓		
								●										●	○	○	○			○	○	○	○	✓				✓		
									●										○	○	○			○	○	○	○	✓				✓		
																			○	○	○			○	○	○	○	✓				✓		

● Excellent/High ○ Fair/Medium ● Poor/Low ⊗ Not Recommended

Series 812 Product Overview

Features:

- Smallest of the pneumatic hold down series
- Pneumatic version of Model 201-U

Applications:

- Assembly
- Welding

Also Available:

See page 8.1 for spindle accessories
 See page 13.1 for sensing options
 High temperature version available
 Upon Request as Model 812-**U-HT**

812-**U**



Series 812 Technical Information, Holding Capacities

Model	Maximum Holding Capacity		Max. Exerting Force @ 5bar [72PSI]		Weight	Port Size	Spindle Accessory (Supplied)
	Inner	Outer	Inner	Outer			
812- U	[100 lbf] 440 N	[55 lbf] 245 N	[136 lbf] 613 N	[92 lbf] 413 N	[0.46lb] 0,21kg	M5	305208-M

See Technical Appendix Section for details.

Max. Cylinder Pressure: 17bar [250psig]*

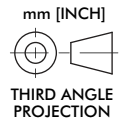
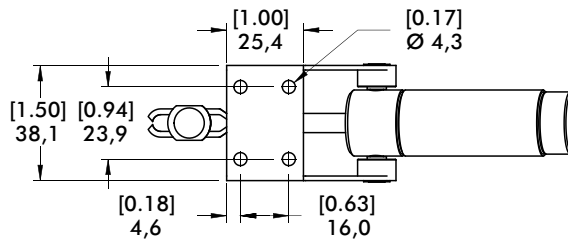
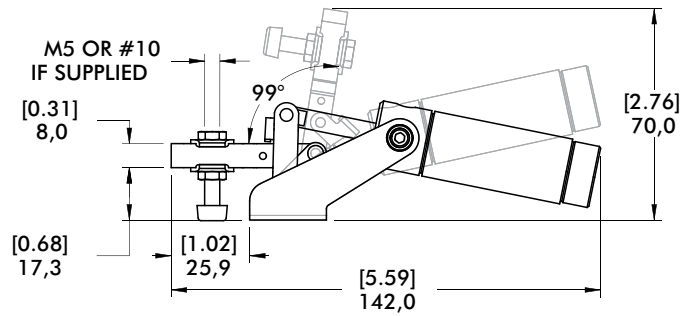
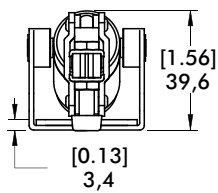
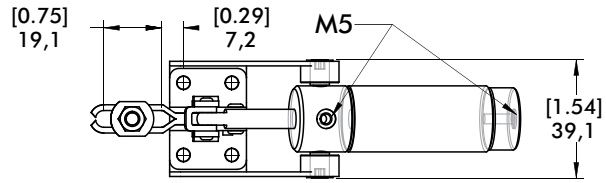
Max. Operating Temp: -23°C to 74°C [-10°F to 165°F]

Optional Sensors: 810156, 810158

*In no case should the inlet pressure be high enough to create an exerting force that exceed's the clamps' holding capacity.

Series 812 Standard Clamp Dimensions

812-U



Series 802 Product Overview

Features:

- Pneumatic version of Model 202-U
- Sensor ready for T-slot or round sensors

Applications:

- Assembly
- Welding

Also Available:

See page 8.1 for spindle accessories
 See page 13.1 for sensing options
 High temperature version available
 Upon Request, add **-HT** to model number. Example: 802-U-**HT**

- ▲ 802-U
- 802-UE



Series 802 Technical Information, Holding Capacities

Model	Maximum Holding Capacity		Max. Exerting Force @ 5bar [72PSI]		Weight	Port Size	Spindle Accessory (Supplied)
	Inner	Outer	Inner	Outer			
▲ 802-U	[200 lbf] 890 N	[110 lbf] 490 N	[450 lbf] 2010 N	[234 lbf] 1045 N	[1.60lb] 0,73kg	1/8 NPT G-1/8	202208-M
■ 802-UE							

See Technical Appendix Section for details. Preferred Market: ▲ NA ■ Europe/SA ● Global

Max Cylinder Pressure: 10bar [145psig]*
Max Operating Temp: -10°C to 90°C [-14°F to 194°F]
Replacement Seal Kit: 802450-32-1-00

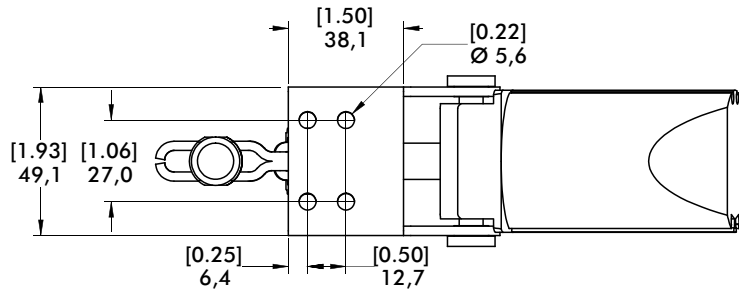
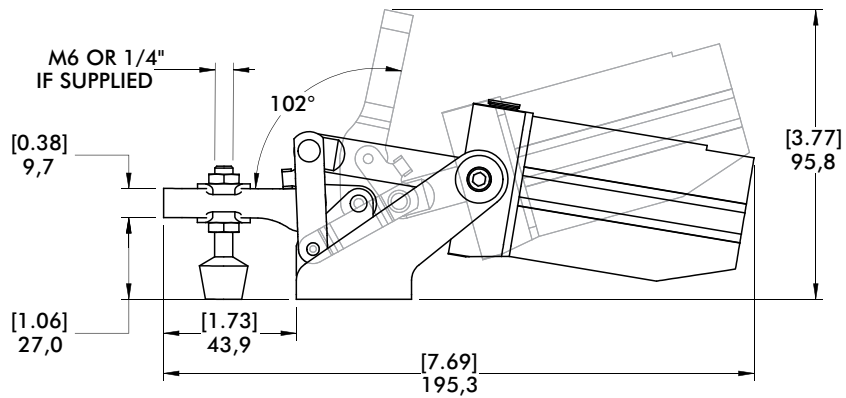
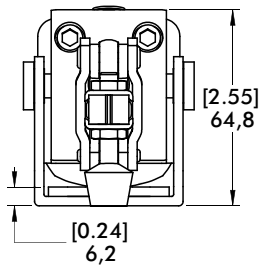
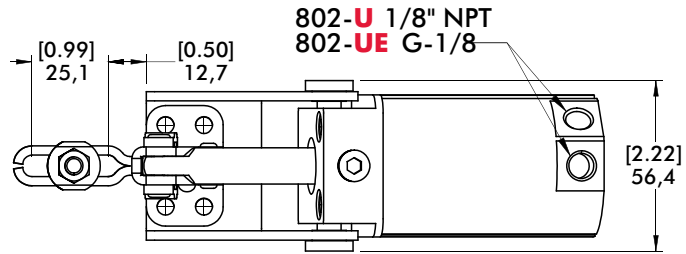
*In no case should the inlet pressure be high enough to create an exerting force that exceeds the clamps' holding capacity.

Sensor Accessories	Item Number
Round Reed Switch with Quick Disconnect	810169
T-slot Reed Switch with Quick Disconnect	8EA-109-1
Quick Disconnect 2M Extension Cable	CABL-010
Quick Disconnect 5M Extension Cable	CABL-013

See Pneumatic Accessories section for more options

Series 802 Standard Clamp Dimensions
-U/-UE

- ▲ 802-U
- 802-UE



mm [INCH]
THIRD ANGLE PROJECTION

Series 807 Product Overview

Features:

- Pneumatic version of Series 207 manual clamps
- Sensor ready for round or T-slot sensors.
- Built-in flow restriction eliminates need for external flow controls

Applications:

- Assembly
- Welding

Also Available:

See page 8.1 for spindle accessories
 See page 13.1 for sensing options
 High temperature version available
 Upon Request, add **-HT** to model number. Example: 807-U-**HT**

▲ 807-U
 ■ 807-UE



▲ 807-S
 ■ 807-SE



Series 807 Technical Information, Holding Capacities

Model	Maximum Holding Capacity		Max. Exerting Force @ 5bar [72PSI]		Weight	Port Size	Spindle Accessory (Supplied)
	Inner	Outer	Inner	Outer			
▲ 807-U ■ 807-UE	[375 lbf] 1670 N	[275 lbf] 1220 N	[576 lbf] 2573 N	[297 lbf] 1327 N	[1.66lb] 0,75kg	1/8 NPT	507107 (Flanged Washers)
▲ 807-S ■ 807-SE	[500 lbf] 2220 N	[260 lbf] 1160 N	[540 lbf] 2412 N	[180 lbf] 804 N		1/8 NPT	207107 (Bolt Retainer)

See Technical Appendix Section for details. Preferred Market: ▲ NA ■ Europe/SA ● Global

Max Cylinder Pressure: 10bar [145psig]*

Max Operating Temp: -10°C to 90°C [-14°F to 194°F]

Replacement Seal Kit: 802450-32-1-00

*In no case should the inlet pressure be high enough to create an exerting force that exceed's the clamps' holding capacity.

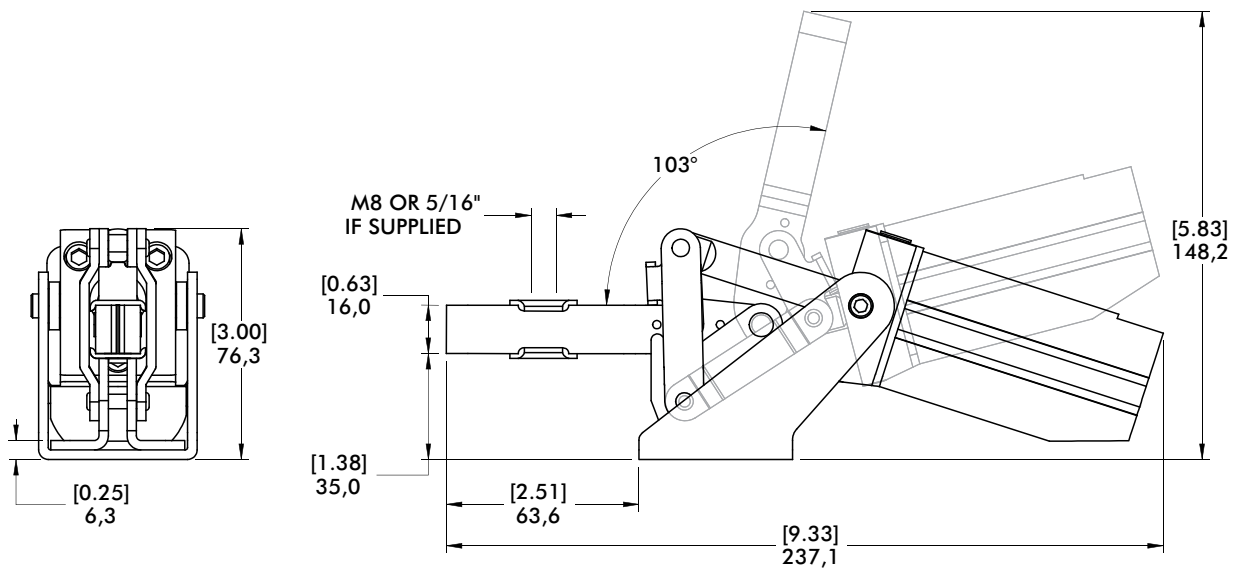
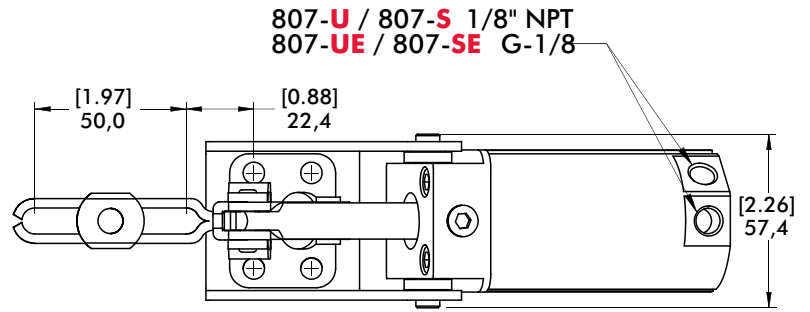
Sensor Accessories

	Item Number
Round Reed Switch with Quick Disconnect	810169
T-slot Reed Switch with Quick Disconnect	8EA-109-1
Quick Disconnect 2M Extension Cable	CABL-010
Quick Disconnect 5M Extension Cable	CABL-013

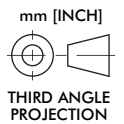
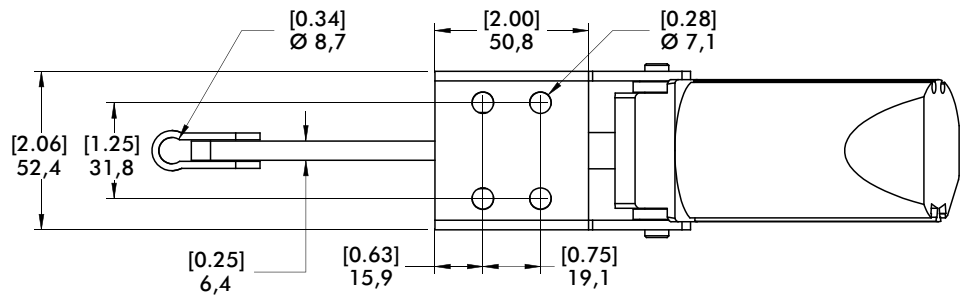
See Pneumatic Accessories section for more options

Series 807 Standard Clamp Dimensions
-U/-UE/-S/-SE

▲ 807-U
■ 807-UE



▲ 807-S
■ 807-SE



Series 810 Product Overview

Features:

- Pneumatic version of Series 210 manual clamps
- Sensor ready for round or T-slot style sensors
- Built-in flow restriction eliminates need for external flow controls

Applications:

- Assembly
- Welding

Also Available:

See page 8.1 for spindle accessories
 See page 13.1 for sensing options
 High temperature version available
 Upon Request, add **-HT** to model number. Example: 810-U-**HT**

▲ 810-U
 ■ 810-UE



▲ 810-S
 ■ 810-SE



Series 810 Technical Information, Holding Capacities

Model	Maximum Holding Capacity		Max. Exerting Force @ 5bar [72PSI]		Weight	Port Size	Spindle Accessory (Supplied)
	Inner	Outer	Inner	Outer			
▲ 810-U	[600 lbf]	[290 lbf]	[856 lbf]			1/8 NPT	507107
■ 810-UE	2670 N	1290 N	3834 N	[407 lbf]	[4.07lb]	G-1/8	(Flanged Washers)
▲ 810-S	[750 lbf]	[500 lbf]	[702 lbf]		1,85kg	1/8 NPT	207107
■ 810-SE	3340 N	2220 N	3143 N			G-1/8	(Bolt Retainer)

See Technical Appendix Section for details. Preferred Market: ▲ NA ■ Europe/SA ● Global

Max Cylinder Pressure: 10bar [145psig]*
Replacement Seal Kit: 810450-40-1-00

*In no case should the inlet pressure be high enough to create an exerting force that exceed's the clamps' holding capacity.

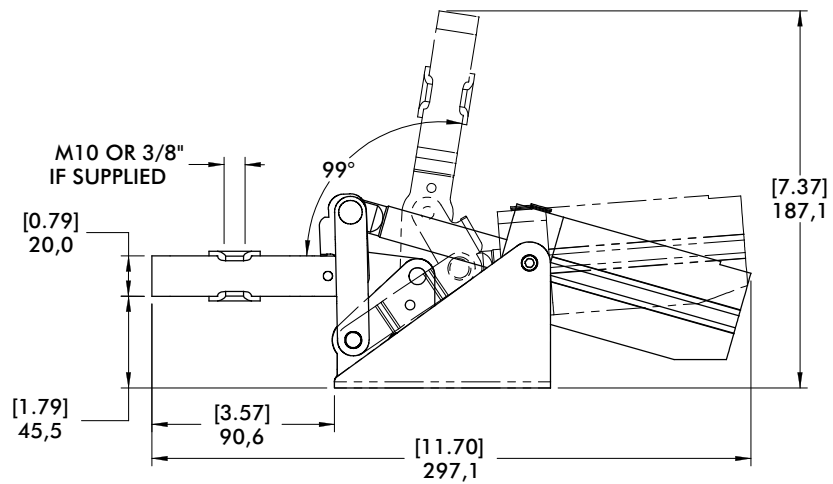
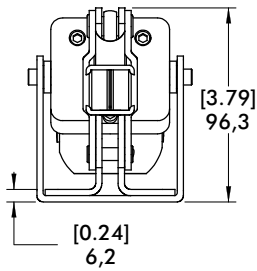
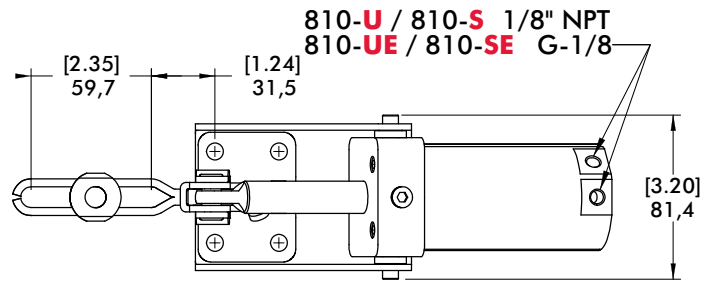
Sensor Accessories

	Item Number
Round Reed Switch with Quick Disconnect	810169
T-slot Reed Switch with Quick Disconnect	8EA-109-1
Quick Disconnect 2M Extension Cable	CABL-010
Quick Disconnect 5M Extension Cable	CABL-013

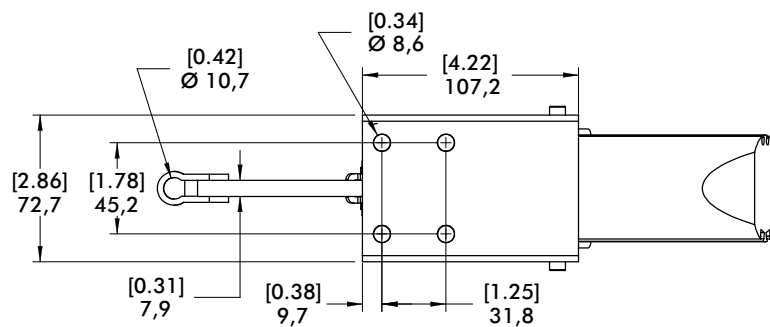
See Pneumatic Accessories section for more options

Series 810 Standard Clamp Dimensions
-U/-UE/-S/-SE

▲ 810-U
■ 810-UE



▲ 810-S
■ 810-SE



mm [INCH]
THIRD ANGLE PROJECTION

Series 846 Product Overview

Features:

- Similar in size to 807 but with higher holding capacity
- Large, solid clamping arm is easily modified to suit application requirements
- Sensor ready for round or T-slot style sensors

Applications:

- Assembly
- Welding

Also Available:

See page 13.1 for sensing options
 High temperature version available
 Upon Request, add **-HT** to model number. Example: 846-U**-HT**

846



Series 846 Technical Information, Holding Capacities

Model	Maximum Holding Capacity		Max. Exerting Force @ 5bar [72PSI]		Weight	Port Size
	Inner	Outer	Inner	Outer		
846	[750 lbf] 3340 N	[520 lbf] 2310 N	[786 lbf] 3520 N	[491 lbf] 2200 N	[4.18lb] 1,90kg	1/8 NPT

See Technical Appendix Section for details.

Max Cylinder Pressure: 10bar [145psig]*

Max Operating Temp: -10°C to 90°C [-14°F to 194°F]

Replacement Seal Kit: 810450-40-1-00

*In no case should the inlet pressure be high enough to create an exerting force that exceed's the clamps' holding capacity.

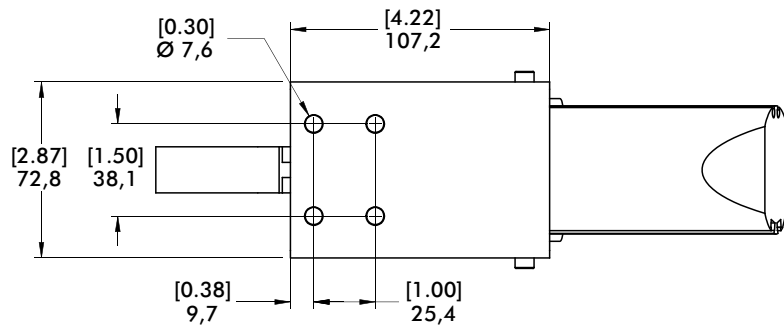
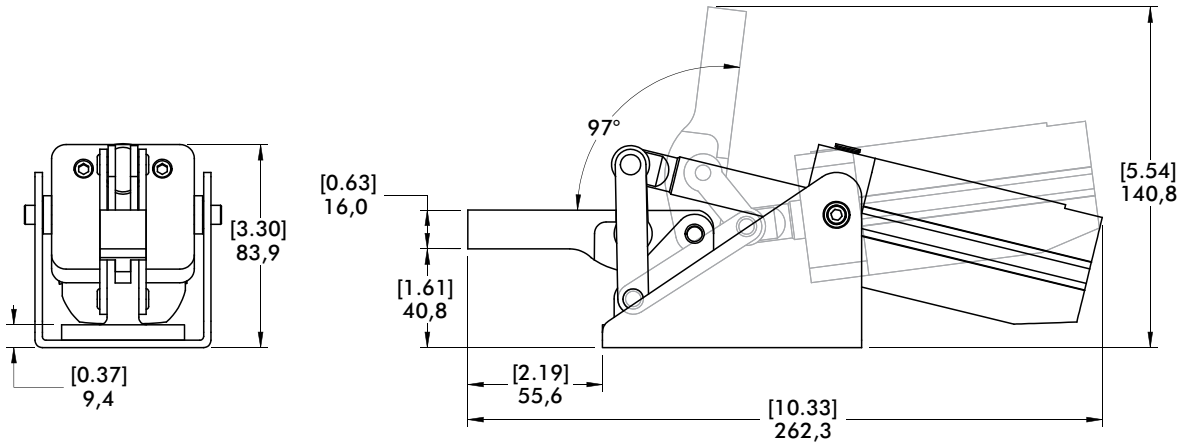
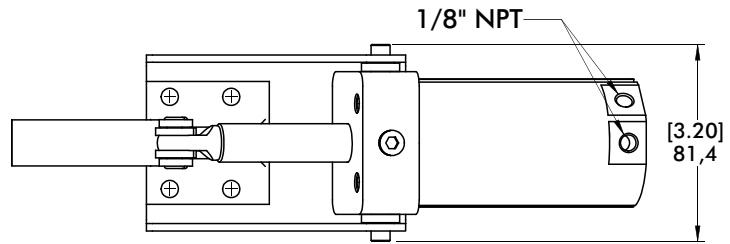
Sensor Accessories

	Item Number
Round Reed Switch with Quick Disconnect	810169
T-slot Reed Switch with Quick Disconnect	8EA-109-1
Quick Disconnect 2M Extension Cable	CABL-010
Quick Disconnect 5M Extension Cable	CABL-013

See Pneumatic Accessories section for more options

Series 846 Standard Clamp Dimensions

846



mm [INCH]
THIRD ANGLE
PROJECTION

Series 8007 Product Overview

Features:

- Hardened pins and bushing at all pivot points for long life cycle
- Solid clamping bar may be modified to suit application requirements
- Sensor ready for round or T-slot style sensors

Applications:

- Assembly
- Welding

Also Available:

See page 13.1 for sensing options

8007-E



8007-EHL



8007-EHR



Series 8007 Technical Information, Holding Capacities

Model	Maximum Holding Capacity		Max. Exerting Force @ 5bar [72PSI]		Weight	Port Size
	Inner	Outer	Inner	Outer		
8007-E					1,6kg [3.53lb]	G-1/8
8007-EHL	[830 lbf] 3700 N	[405 lbf] 1800 N	[606 lbf] 2700 N	[405 lbf] 1800 N	1,7kg [3.75lb]	
8007-EHR						

See Technical Appendix Section for details.

Max Cylinder Pressure: 10bar [145psig]*

Max Operating Temp: -10°C to 90°C [-14°F to 194°F]

*In no case should the inlet pressure be high enough to create an exerting force that exceed's the clamps' holding capacity.

Sensor Accessories

- Round Reed Switch with Quick Disconnect
- T-slot Reed Switch with Quick Disconnect
- Quick Disconnect 2M Extension Cable
- Quick Disconnect 5M Extension Cable

Item Number

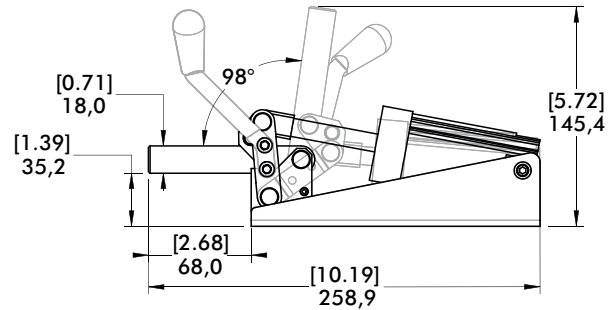
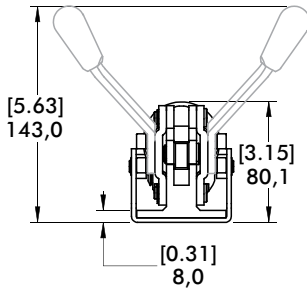
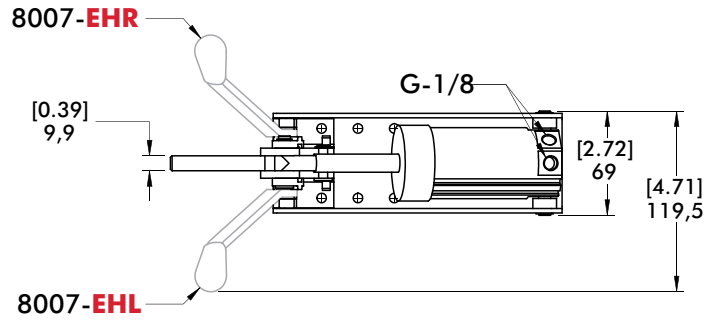
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- 8EA-109-1
- CABL-010
- CABL-013

See Pneumatic Accessories section for more options

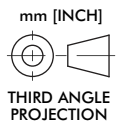
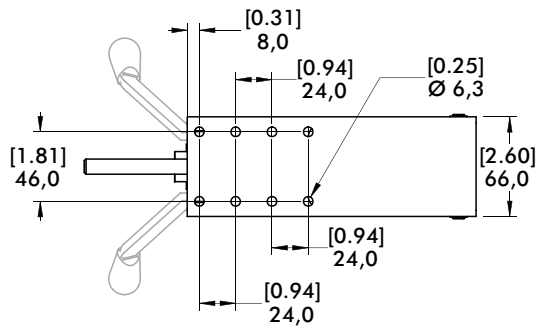
Series 8007 Standard Clamp Dimensions
-E/-EHL/-EHR



8007-EHR



8007-E



Series 847 Product Overview

Features:

- Pneumatic version of Series 247 manual clamps
- Switch ready for Ø4mm or 6,5mmX5mm sensors
- Built-in flow restriction eliminates need for external flow controls

Applications:

- Assembly
- Welding

Also Available:

See page 8.1 for spindle accessories
 See page 13.1 for sensing options
 High temperature version available
 Upon Request, add **-HT** to model number. Example: 847-U-**HT**

847-U



847-S



Series 847 Technical Information, Holding Capacities

Model	Maximum Holding Capacity		Max. Exerting Force @ 5bar [72PSI]		Weight	Port Size	Spindle Accessory (Supplied)
	Inner	Outer	Inner	Outer			
847-U	[1000 lbf] 4450 N	[480 lbf] 2135 N	[948 lbf] 4248 N	[450 lbf] 2018 N	[8.93lb] 4,05kg	1/4 NPT	247109 (Flanged Washers)
847-S	[1000 lbf] 4450 N	[650 lbf] 2890 N		[426 lbf] 1912 N		1/4 NPT	247110 (Bolt Retainer)

See Technical Appendix Section for details.

Max Cylinder Pressure: 10bar [145psig]*

Max Operating Temp: -10°C to 90°C [-14°F to 194°F]

Replacement Seal Kit: 847450-50-1-00

*In no case should the inlet pressure be high enough to create an exerting force that exceed's the clamps' holding capacity.

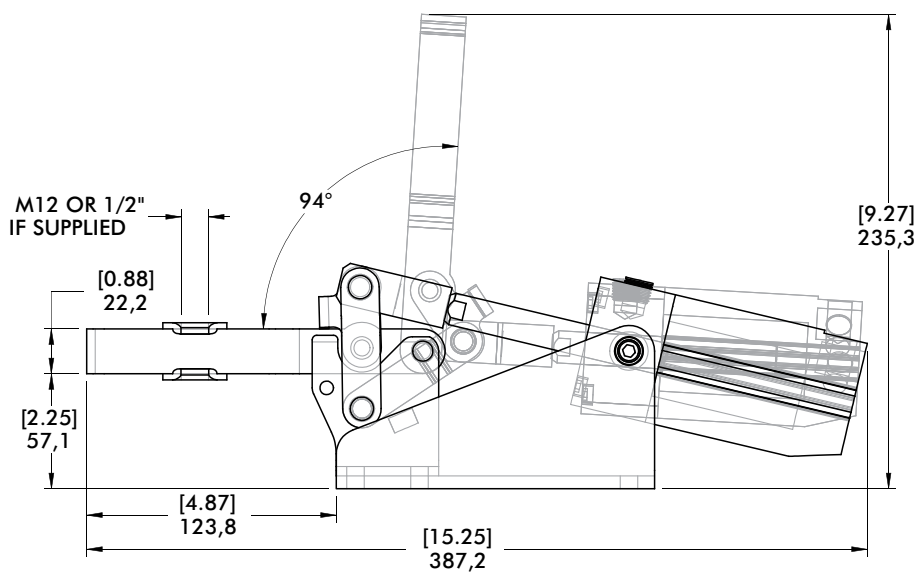
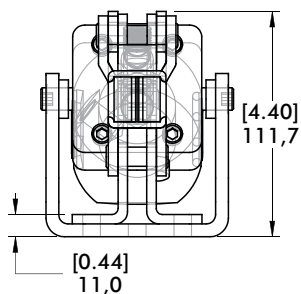
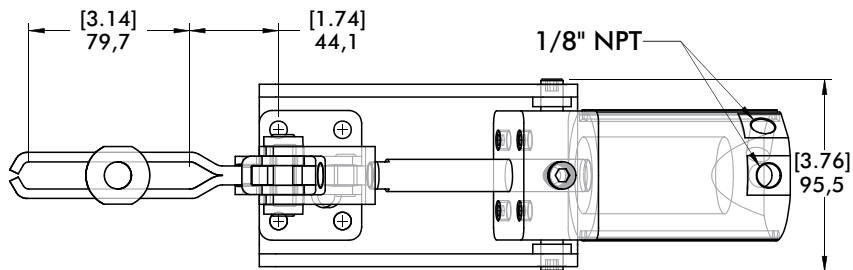
Sensor Accessories

	Item Number
Round Reed Switch with Quick Disconnect	810169
T-slot Reed Switch with Quick Disconnect	8EA-109-1
Quick Disconnect 2M Extension Cable	CABL-010
Quick Disconnect 5M Extension Cable	CABL-013

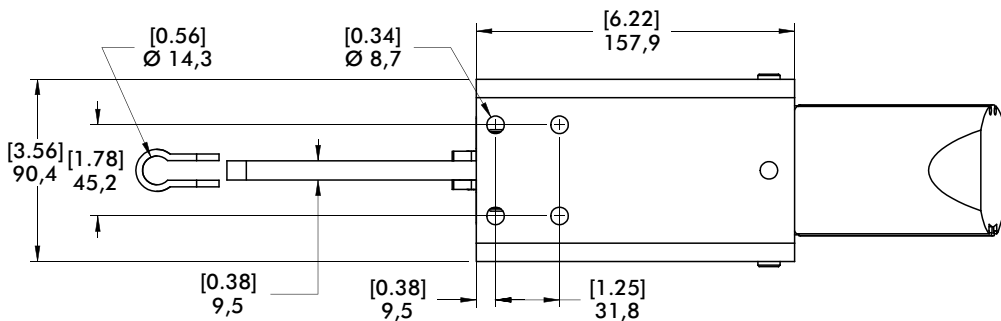
See Pneumatic Accessories section for more options

Series 847 Standard Clamp Dimensions
-U/-S

847-U



847-S



mm [INCH]
THIRD ANGLE PROJECTION

Series 858 Product Overview

Features:

- Hardened pins and bushing at all pivot points for long lifecycle
- Large, solid clamping arm is easily modified to suit application requirements
- Sensor ready for round or T-slot style sensors

Applications:

- Assembly
- Welding

Also Available:

See page 13.1 for sensing options
 High temperature version available
 Upon Request, add **-HT** to model number. Example: 858-U-**HT**

- ▲ 858
- 858-E



Series 858 Technical Information, Holding Capacities

Model	Maximum Holding Capacity		Max. Exerting Force @ 5bar [72PSI]		Max. Pressure at Max. Mechanical Advantage† bar [PSI]		Weight	Port Size
	Inner	Outer	Inner	Outer	Inner	Outer		
▲ 858	[4,000 lbf] 17800 N	[2,000 lbf] 8900 N	[1,530 lbf] 6857 N	[800 lbf] 3585 N	10 [145]	5,3 [77]	[16.11lb] 7.31kg	1/4 NPT
■ 858-E								G-1/4

See Technical Appendix Section for details. Preferred Market: ▲ NA ■ Europe/SA ● Global

Max Cylinder Pressure: 10bar [145psig]*
Max Operating Temp: -10°C to 90°C [-14°F to 194°F]
Replacement Seal Kit: 850450-63-1-00

*In no case should the inlet pressure be high enough to create an exerting force that exceeds the clamps' holding capacity.

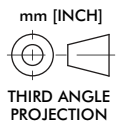
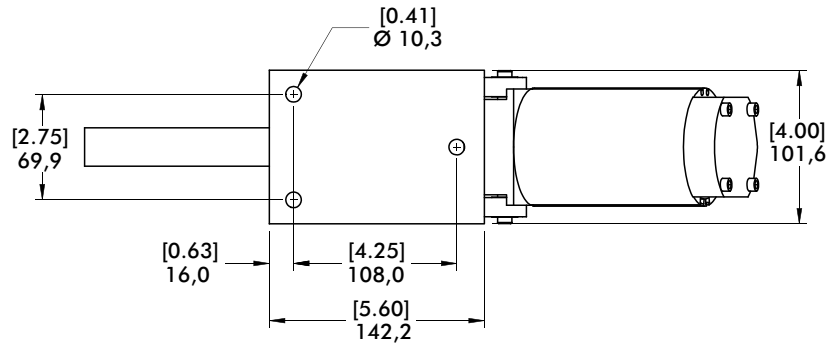
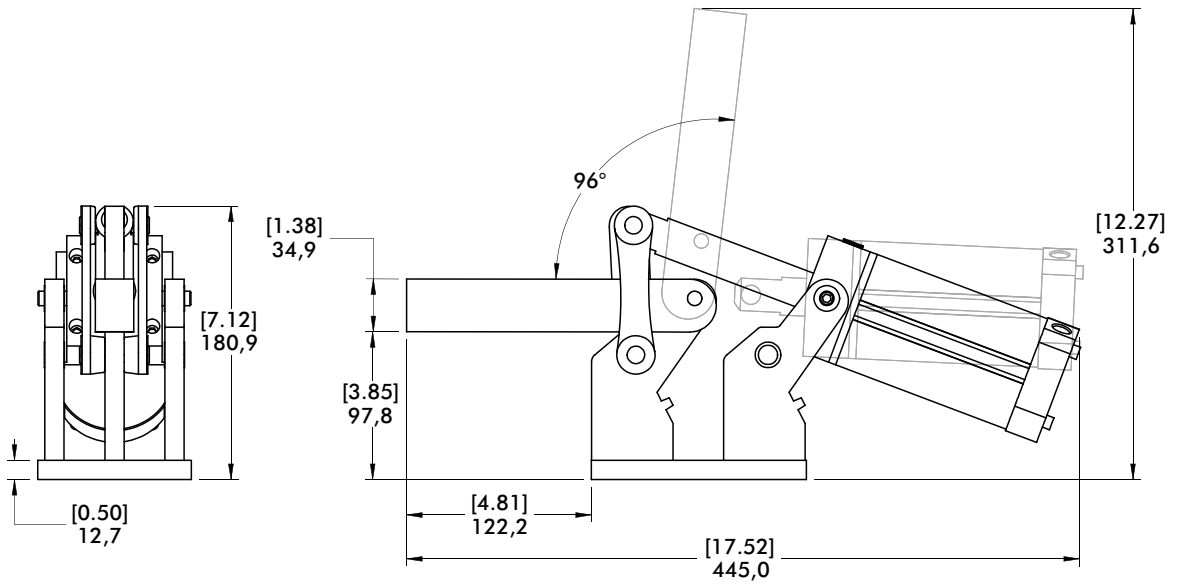
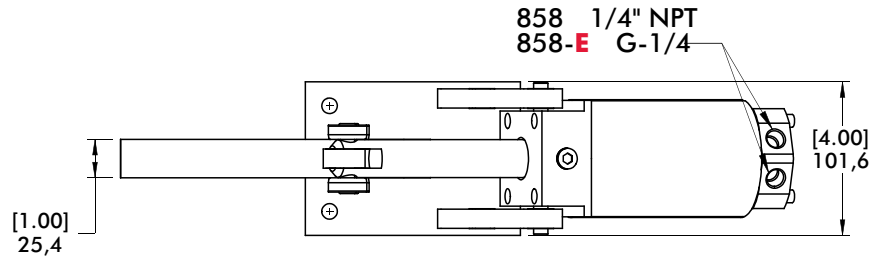
Sensor Accessories

	Item Number
Round Reed Switch with Quick Disconnect	810169
T-slot Reed Switch with Quick Disconnect	8EA-109-1
Quick Disconnect 2M Extension Cable	CABL-010
Quick Disconnect 5M Extension Cable	CABL-013

See Pneumatic Accessories section for more options

Series 858 Standard Clamp Dimensions

- ▲ 858
- 858-E



Series 8021, 8071, 8101 Product Overview

Features:

- Enclosed clamp for dirty environments such as spot and MIG welding
- Non-pivoting cylinder can be hard-piped into fixtures
- Sensor ready for round or T-slot style sensors

Applications:

- Assembly
- Welding

Also Available:

See page 8.1 for spindle accessories
 See page 13.1 for sensing options
 High temperature version available
 Upon Request, add **-HT** to model number. Example: 8071-U-**HT**



Series 8021, 8071, 8101 Technical Information, Holding Capacities

Model	Maximum Holding Capacity		Max. Exerting Force @ 5bar [72PSI]		Weight	Port Size	Spindle Accessory (Supplied)
	Inner	Outer	Inner	Outer			
▲ 8021	[390 lbf]	[255 lbf]	[169 lbf]	[100 lbf]	[2.30lb]	1/8 NPT	8021122
■ 8021-UE	1735 N	1135 N	760 N	449 N	1,04kg	G-1/8	(Flanged Washers)
▲ 8071	[450 lbf]	[310 lbf]	[496 lbf]	[283 lbf]	[2.80lb]	1/8 NPT	507107
■ 8071-UE	2000 N	1380 N	2218 N	1267 N	1,27kg	G-1/8	(Bolt Retainer)
▲ 8101 ⓘ	[700 lbf]	[370 lbf]	[491 lbf]	[253 lbf]	[7.30lb]	1/8 NPT	8101122
■ 8101-UE ⓘ	3110 N	1645 N	2202 N	1153 N	3,31kg	G-1/8	(Flanged Washers)

See Technical Appendix Section for details. Preferred Market: ▲ NA ■ Europe/SA ● Global

ⓘ This item is available upon request

Max Cylinder Pressure: 10bar [145psig]*

Max Operating Temp: -10°C to 90°C [-14°F to 194°F]

Replacement Seal Kit: 801450-40-1-00

*In no case should the inlet pressure be high enough to create an exerting force that exceed's the clamps' holding capacity.

Sensor Accessories

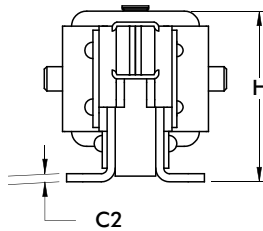
Item Number

Round Reed Switch with Quick Disconnect	810169
T-slot Reed Switch with Quick Disconnect	8EA-109-1
Quick Disconnect 2M Extension Cable	CABL-010
Quick Disconnect 5M Extension Cable	CABL-013

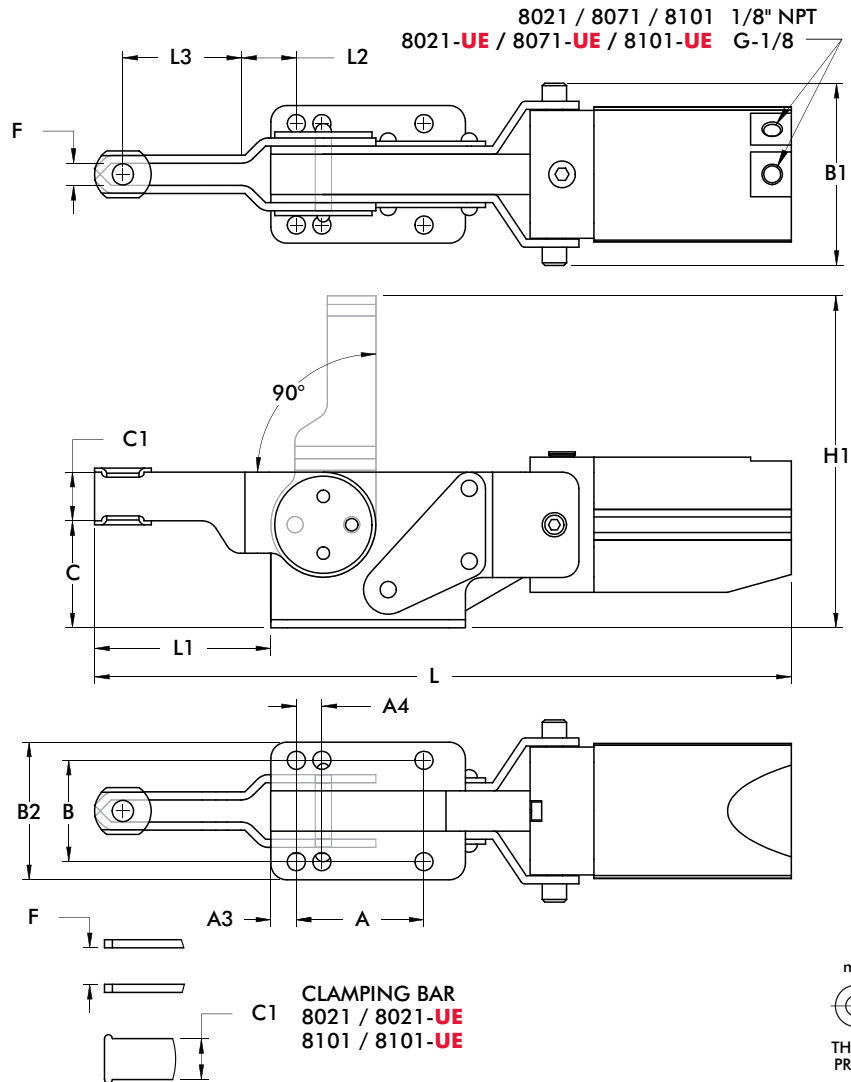
See Pneumatic Accessories section for more options

Series **8021, 8071, 8101** Standard Clamp Dimensions
8021/8071/8101/-UE

▲ 8021
■ 8021-UE



▲ 8071
■ 8071-UE



Model	A	A1	A3	A4	B	B1	B2	C	C1	C2	ØD	F
8021	[0.79]	[1.97]	[0.47]	-	[1.50]	[2.26]	[1.88]	[1.56]	[0.63]	[0.13]	[0.21]	[0.56]
8021-UE	20	50	12	-	38,2	57,4	47,9	39,6	16	3,2	5,3	14,3
8071	[1.97]	[3.00]	[0.39]	[0.39]	[1.56]	[2.81]	[2.12]	[1.65]	[0.75]	[0.13]	[0.28]	[0.34]
8071-UE	50	76,2	10	10	39,7	71,4	53,9	41,9	19,1	3,2	7,1	8,7
8101	[3.54]	[4.75]	[0.59]	-	[2.20]	[3.53]	[2.86]	[2.50]	[1.00]	[0.12]	[0.34]	[0.75]
8101-UE	90	120,7	15	-	55,9	89,8	72,6	63,5	25,4	3,1	8,7	19,0

Model	H	H1	L	L1	L2	L3	M
8021	[2.40]	[4.44]	[9.86]	[2.25]	[0.44]	[1.31]	1/4
8021-UE	60,9	112,8	250,4	57,2	11	33,2	M6
8071	[2.63]	[5.12]	[10.74]	[2.72]	[0.40]	[1.83]	5/16
8071-UE	66,9	130	272,9	69	10,1	46,5	M8
8101	[3.53]	[7.50]	[14.72]	[4.00]	[0.59]	[2.53]	3/8
8101-UE	89,7	190,5	373,9	101,6	14,9	64,3	M10

Series 817, 827 Product Overview

Features:

- Dual mounting surfaces for maximum flexibility
- Sensor ready for round or T-slot style sensors
- Built-in flow restriction eliminates need for external flow controls

Applications:

- Assembly
- Welding

Also Available:

See page 8.1 for spindle accessories
 See page 13.1 for sensing options
 High temperature version available
 Upon Request, add **-HT** to model number. Example: 827-U-**HT**

▲ 817-U
 ■ 817-UE



▲ 817-S
 ■ 817-SE



▲ 827-U
 ■ 827-UE



▲ 827-S
 ■ 827-SE



Series 817, 827 Technical Information, Holding Capacities, Mounting Options

Model	Maximum Holding Capacity		Max. Exerting Force @ 5bar [72PSI]		Weight	Port Size	Spindle Accessory (Supplied)
	Inner	Outer	Inner	Outer			
▲ 817-U	[375 lbf] 1670 N		[369 lbf] 1648 N		1,05kg [2.31lb]	1/8 NPT	507107 (Flanged Washers)
■ 817-UE		[200 lbf] 890 N		[225 lbf] 1005 N		G-1/8	
▲ 817-S	[450 lbf] 2000 N		[360 lbf] 1608 N		2,14kg [4.71lb]	1/8 NPT	207107 (Bolt Retainer)
■ 817-SE		[390 lbf] 1735 N		[309 lbf] 1383 N		G-1/8	
▲ 827-U	[600 lbf] 2670 N	[390 lbf] 1735 N		[309 lbf] 1383 N	2,14kg [4.71lb]	1/8 NPT	235106 (Flanged Washers)
■ 827-UE		[491 lbf] 2200 N		[281 lbf] 1257 N		G-1/8	
▲ 827-S	[700 lbf] 3110 N	[330 lbf] 1470 N		[281 lbf] 1257 N	2,14kg [4.71lb]	1/8 NPT	210114 (Bolt Retainer)
■ 827-SE						G-1/8	

See Technical Appendix Section for details. Preferred Market: ▲ NA ■ Europe/SA ● Global

Max Cylinder Pressure: 10bar [145psig]*

Max Operating Temp: -10°C to 90°C [-14°F to 194°F]

Replacement Seal Kit: 801450-40-1-00

*In no case should the inlet pressure be high enough to create an exerting force that exceeds the clamps' holding capacity.

Sensor Accessories

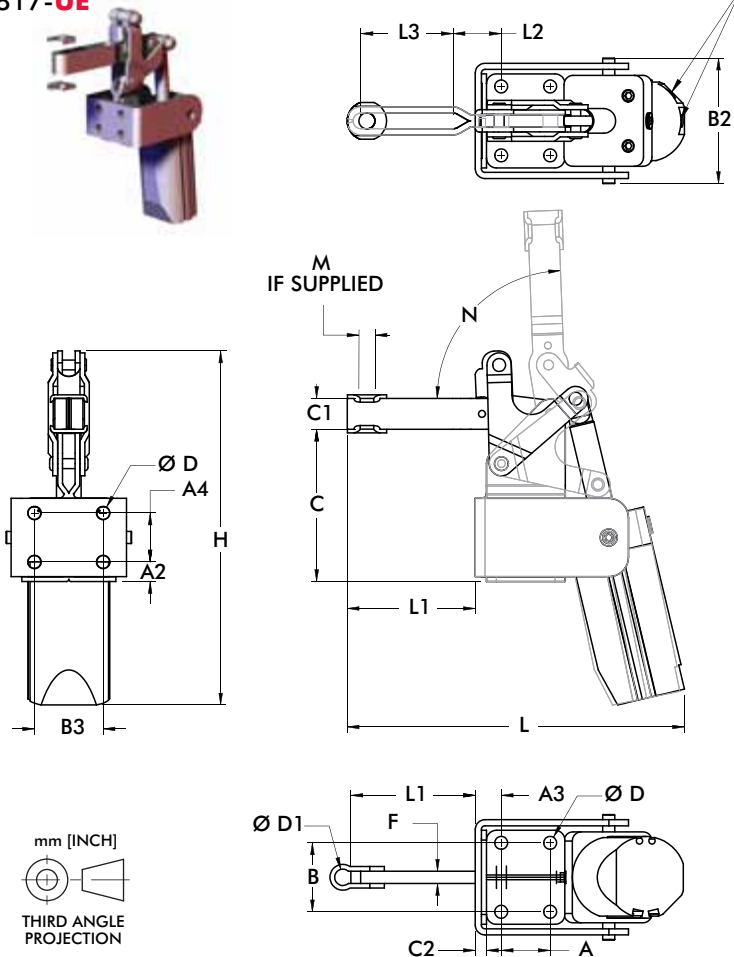
	Item Number
Round Reed Switch with Quick Disconnect	810169
T-slot Reed Switch with Quick Disconnect	8EA-109-1
Quick Disconnect 2M Extension Cable	CABL-010
Quick Disconnect 5M Extension Cable	CABL-013

See Pneumatic Accessories section for more options

Series **817, 827** Standard Clamp Dimensions
-U/-UE/-S/-SE

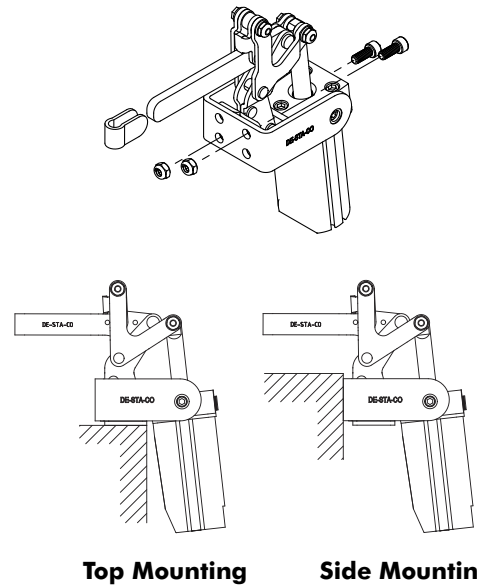
▲ **817-U**
■ **817-UE**

817-U / 817-S / 827-U / 827-S 1/8" NPT
817-UE / 817-SE / 827-UE / 827-SE G-1/8



Mounting Options:

Use two bolts in the "side" mounting holes, to secure mounting bracket, when "top" mounting.



Model	A	A2	A3	A4	B	B2	B3	C	C1	C2	C3	C4
817-U												
817-UE	[0.63]	[0.44]	[0.60]	[0.63]	[1.00]	[2.44]	[1.00]	[2.69]	[0.63]	[0.12]	[1.25]	[1.31]
817-S	16	11,2	15,1	16	25,4	62	25,4	68,3	16	3,1	31,8	33,3
817-SE												
827-U								[3.89]	[0.79]			[1.76]
827-UE	827-U	[1.25]	[0.50]	[0.66]	[1.25]	[1.76]	[3.20]	98,8	20	[0.12]	[2.00]	44,8
827-S		31,8	12,7	16,8	31,8	44,7	81,4	[3.91]	[0.75]	3,1	50,8	[1.78]
827-SE								99,2	19,1			45,3

Model	ØD	ØD1	F	H	L	L1	L2	L3	M	N
817-U					[6.24]	[2.37]	[0.19]	[1.90]		
817-UE	[0.27]	-	-	[7.51]	158,6	60,3	4,8	48,4	5/16	95°
817-S	6,7	[0.34]	[0.25]	190,7	[0.34]	[0.25]	-	-	M8	
817-SE		8,7	6,4		8,7	6,4				
827-U					[8.61]	[3.27]	[1.23]	[2.35]		
827-UE	[0.33]	-	-	[9.04]	218,7	83,1	31,2	59,7	3/8	88°
827-S	8,4	[0.42]	[0.31]	229,7	[8.49]	[3.18]	-	-	M10	
827-SE		10,7	7,9		215,6	80,7				

Series 868 Product Overview

Features:

- Hardened pins and bushing at all pivot points for long lifecycle
- Large, solid clamping arm is easily modified to suit application requirements
- Sensor ready for round or T-slot style sensors

Applications:

- Assembly
- Welding

Also Available:

See page 13.1 for sensing options
 High temperature version available
 Upon Request, add **-HT** to model number. Example: 868-U-**HT**

- ▲ 868
- 868-E



Series 868 Technical Information, Holding Capacities

Model	Maximum Holding Capacity		Max. Exerting Force @ 5bar [72PSI]		Weight	Port Size
	Inner	Outer	Inner	Outer		
▲ 868	[4000 lbf] 17800 N	[2400 lbf] 10675 N	[1704 lbf] 7637 N	[800 lbf] 3585 N	[17.0lb] 7,71kg	1/4 NPT
■ 868-E						G-1/4

See Technical Appendix Section for details. Preferred Market: ▲ NA ■ Europe/SA ● Global

Max Cylinder Pressure: 10bar [145psig]*
Max Operating Temp: -10°C to 90°C [-14°F to 194°F]
Replacement Seal Kit: 850450-63-1-00

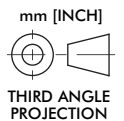
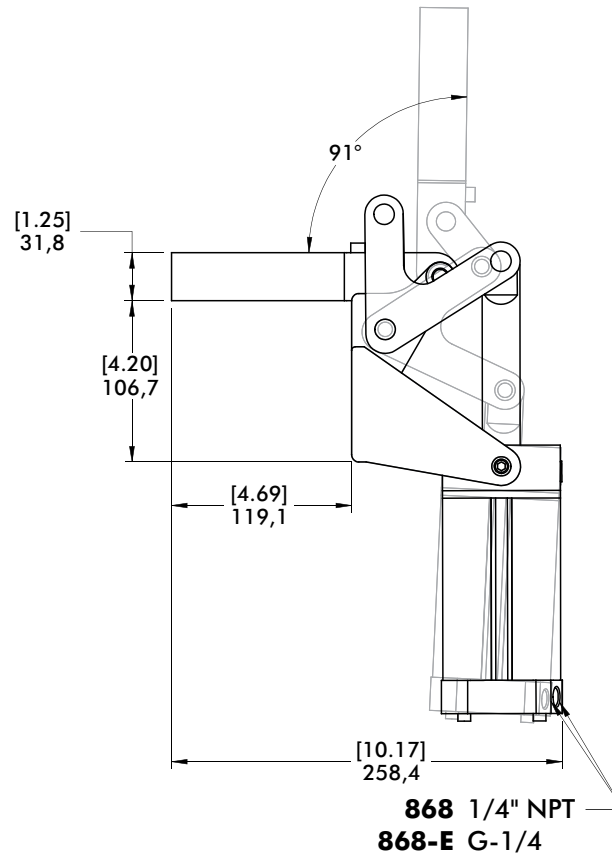
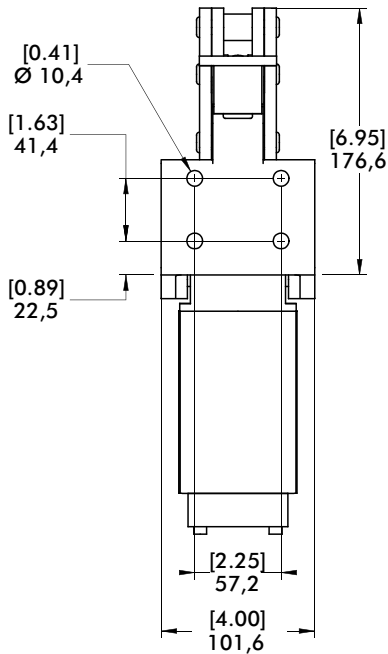
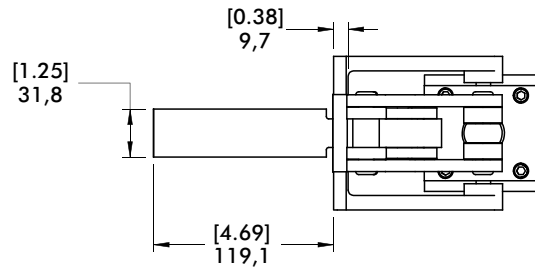
*In no case should the inlet pressure be high enough to create an exerting force that exceeds the clamps' holding capacity.

Sensor Accessories	Item Number
Round Reed Switch with Quick Disconnect	810169
T-slot Reed Switch with Quick Disconnect	8EA-109-1
Quick Disconnect 2M Extension Cable	CABL-010
Quick Disconnect 5M Extension Cable	CABL-013

See Pneumatic Accessories section for more options

Series 868 Standard Clamp Dimensions

- ▲ 868
- 868-E



Series 816 Product Overview

Features:

- Smallest of the pneumatic straight line action series
- Pneumatic version of Model 601

Applications:

- Assembly

Also Available:

See page 13.1 for sensing options

816 ⓘ
816-M ⓘ



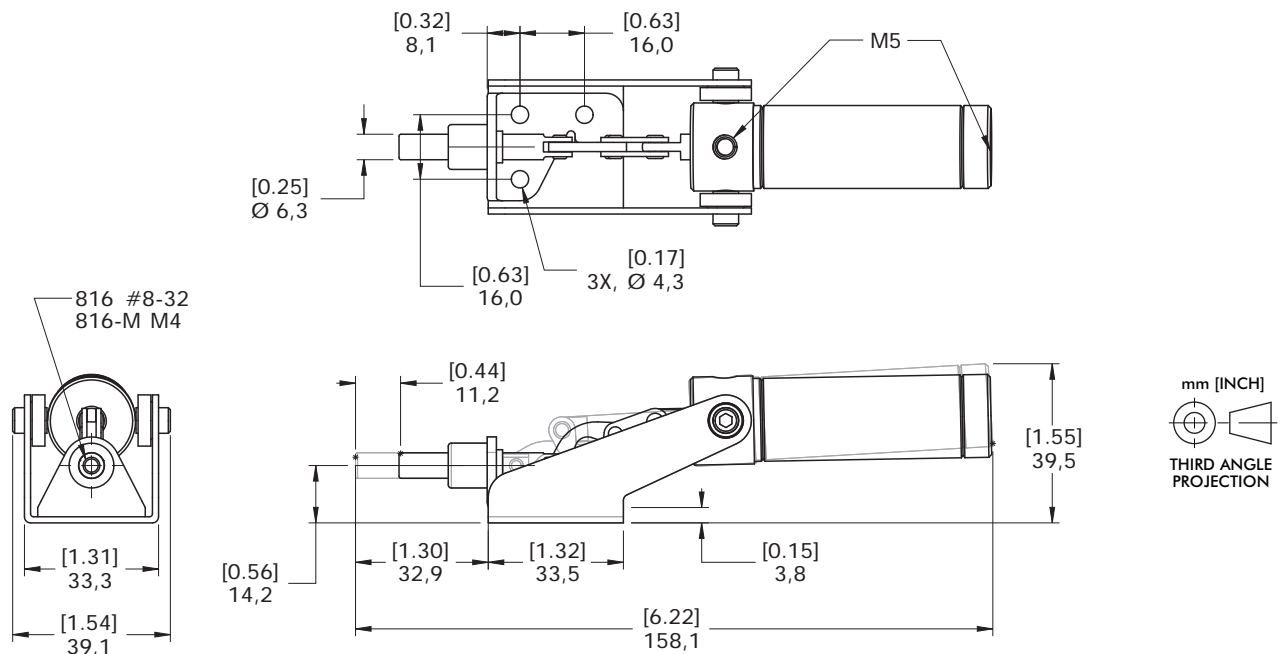
Series 816 Technical Information, Holding Capacities, Standard Clamp Dimensions

Model	Maximum Holding Capacity	Max. Exerting Force @ 5bar [72PSI]	Plunger Travel	Plunger Thread	Weight	Port Size	Spindle Accessory
816 ⓘ	[100 lbf] 440 N	[244 lbf] 1097 N	[0.44] 11,2	#8-32	[0.43lb] 0,20kg	M5	105203
816-M ⓘ				M4			205208-M

See Technical Appendix Section for details. ⓘ This item is available upon request

Max Cylinder Pressure: 17bar [250psig]*
Max Operating Temp: -23°C to 74°C [-10°F to 165°F]
Optional Sensors: 810156, 810158

*In no case should the inlet pressure be high enough to create an exerting force that exceed's the clamps' holding capacity.



Series 803 Product Overview

Features:

- Pneumatic version of Model 603 manual straight line action clamp
- Sensor ready for round or T-slot style sensors

Applications:

- Assembly
- Welding

Also Available:

See page 8.1 for spindle accessories
 See page 13.1 for sensing options
 High temperature version available
 Upon Request, add **-HT** to model number. Example: 803-U-**HT**

- ▲ 803
- 803-ME



Series 803 Technical Information, Holding Capacities, Standard Clamp Dimensions

Model	Maximum Holding Capacity	Max. Exerting Force @ 5bar [72PSI]	Plunger Travel	Plunger Thread	Weight	Port Size	Spindle Accessory (Not Supplied)
▲ 803	[600 lbf] 2670 N	[675 lbf] 3015 N	[0.75] 19,1	5/16-18	[1.86lb] 0,84kg	1/8 NPT	225208
■ 803-ME				M8		G-1/8	225208-M

See Technical Appendix Section for details. Preferred Market: ▲ NA ■ Europe/SA ● Global

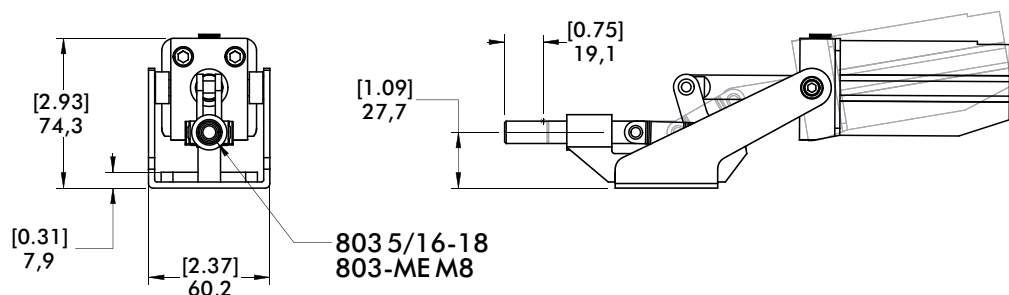
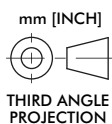
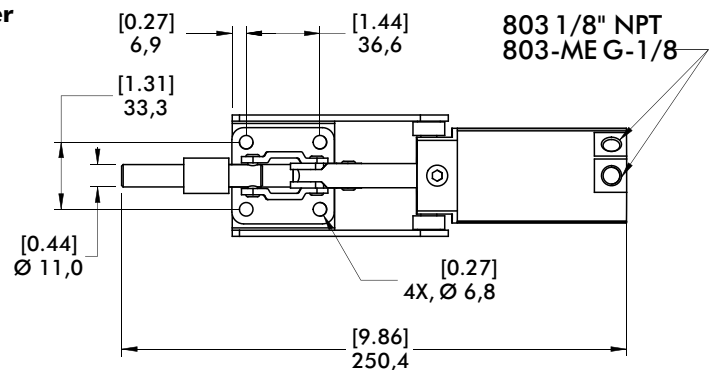
Max Cylinder Pressure: 10bar [145psig]
Max Operating Temp: -10°C to 90°C [-14°F to 194°F]
Replacement Seal Kit: 802450-32-1-00

*In no case should the inlet pressure be high enough to create an exerting force that exceed's the clamps' holding capacity.

Sensor Accessories

Round Reed Switch with Quick Disconnect	810169
T-slot Reed Switch with Quick Disconnect	8EA-109-1
Quick Disconnect 2M Extension Cable	CABL-010
Quick Disconnect 5M Extension Cable	CABL-013

See Pneumatic Accessories section for more options



Series 8031 Product Overview

Features:

- Fully enclosed straight line action clamp for the dirtiest environments
- Compact design with high holding capacity
- Sensor ready for round style sensors

Applications:

- Assembly
- Welding

Also Available:

See page 8.1 for spindle accessories
See page 13.1 for sensing options

8031 ⓘ



Series 8031 Technical Information, Holding Capacities, Standard Clamp Dimensions

Model	Maximum Holding Capacity	Max. Exerting Force @ 5bar [72PSI]	Plunger Travel	Plunger Thread	Weight	Port Size	Spindle Accessory (Not Supplied)
8031 ⓘ	[2000 lbf] 8900 N	[731 lbf] 3285 N	[0.75] 19,1	M8	[1.17lb] 2,58kg	1/8 NPT	225208-M

See Technical Appendix Section for details. ⓘ This item is available upon request

Max Cylinder Pressure: 10bar [145psig]*

Max Operating Temp: -10°C to 90°C [-14°F to 194°F]

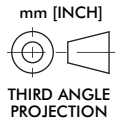
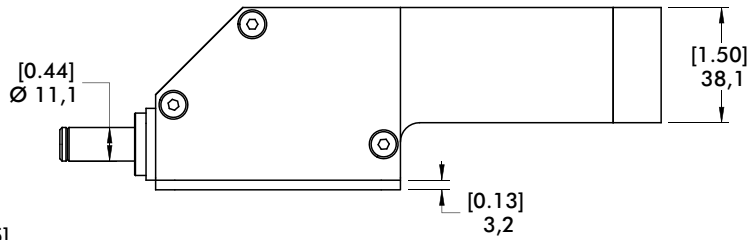
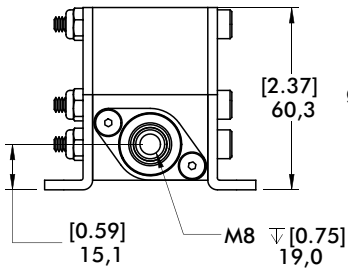
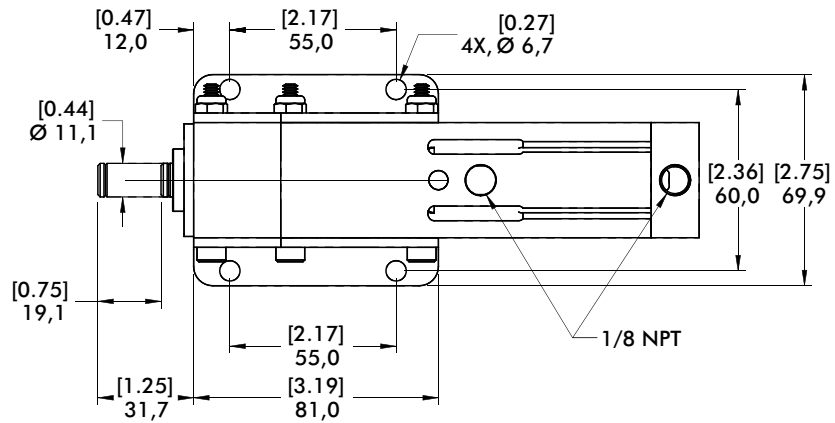
*In no case should the inlet pressure be high enough to create an exerting force that exceed's the clamps' holding capacity.

Sensor Accessories	Item Number
Round Reed Switch with Quick Disconnect	810169
Quick Disconnect 2M Extension Cable	CABL-010
Quick Disconnect 5M Extension Cable	CABL-013

See Pneumatic Accessories section for more options

Series 8031 Standard Clamp Dimensions

8031 ①



Model 8031 shown being used in a stir friction welding fixture



Series 830 Product Overview

Features:

- Pneumatic version of Model 630 manual straight line action clamp
- Sensor ready for round or T-slot style sensors
- Built-in flow restriction eliminates need for external flow controls

Applications:

- Assembly
- Welding

Also Available:

See page 8.1 for spindle accessories
 See page 13.1 for sensing options
 High temperature version available
 Upon Request, add **-HT** to model number. Example: 830-U-**HT**

- ▲ 830
- 830-ME



Series 830 Technical Information, Holding Capacities, Standard Clamp Dimensions

Model	Maximum Holding Capacity	Max. Exerting Force @ 5bar [72PSI]	Plunger Travel	Plunger Thread	Weight	Port Size	Spindle Accessory (Not Supplied)
▲ 830	[2500 lbf] 11100 N	[800 lbf] 3582 N	31,8 [1.25]	3/8-16 M10	2,79kg [6.14lb]	1/8 NPT G-1/8	210203 210203-M

See Technical Appendix Section for details. Preferred Market: ▲ NA ■ Europe/SA ● Global

Max Cylinder Pressure: 10bar [145psig]

Max Operating Temp: -10°C to 90°C [-14°F to 194°F]

Replacement Seal Kit: 810450-40-1-00

*In no case should the inlet pressure be high enough to create an exerting force that exceed's the clamps' holding capacity.

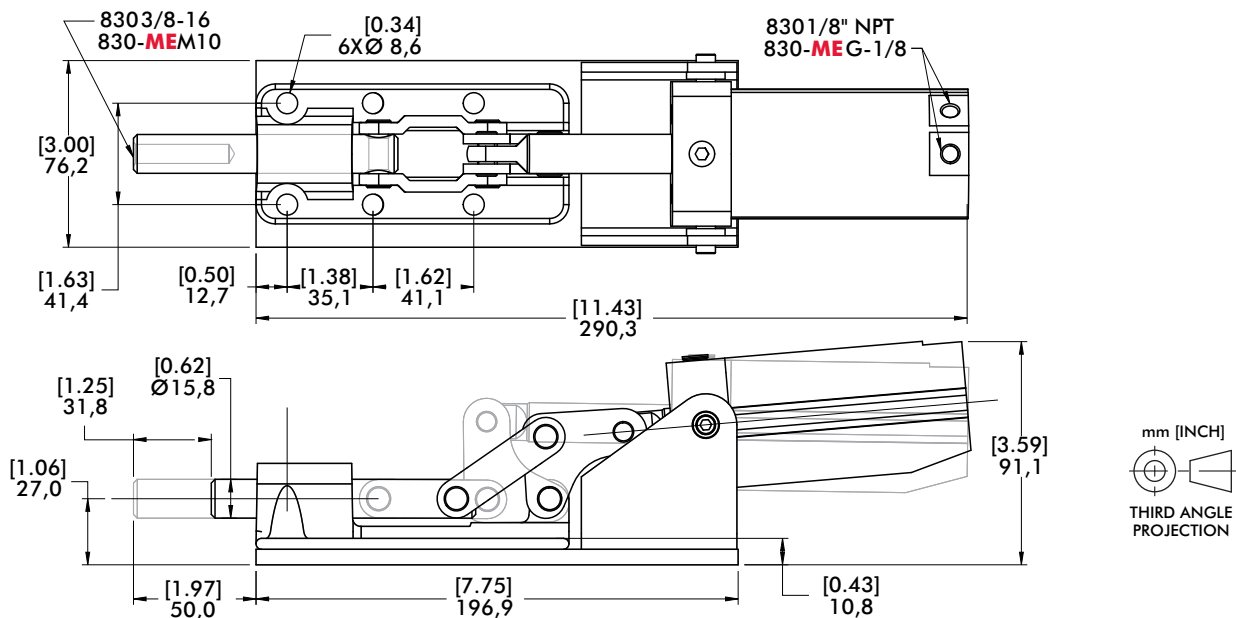
Sensor Accessories

- Round Reed Switch with Quick Disconnect
- T-slot Reed Switch with Quick Disconnect
- Quick Disconnect 2M Extension Cable
- Quick Disconnect 5M Extension Cable

Item Number

- 810169
- 8EA-109-1
- CABL-010
- CABL-013

See Pneumatic Accessories section for more options



Features:

- Pneumatic version of Model 650 manual straight line action clamp
- Sensor ready for round or T-slot style sensors
- Built-in flow restriction eliminates need for external flow controls

Applications:

- Assembly
- Welding
- Light press operations

Also Available:

See page 8.1 for spindle accessories
 See page 13.1 for sensing options
 High temperature version available
 Upon Request, add **-HT** to model number. Example: 850-U-**HT**

- ▲ 850 ⓘ
- 850-ME ⓘ



Series 850 Technical Information, Holding Capacities, Standard Clamp Dimensions

Model	Maximum Holding Capacity	Max. Exerting Force @ 5bar [72PSI]	Plunger Travel	Plunger Thread	Weight	Port Size	Spindle Accessory (Supplied)
▲ 850 ⓘ	[16,000 lbf] 71200 N	[1232 lbf] 5522 N	50,8 [2.00]	5/8-11 M16	7,56kg [16.66lb]	1/4 NPT G-1/4	225203 250203-M

See Technical Appendix Section for details. Preferred Market: ▲ NA ■ Europe/SA ● Global

ⓘ This item is available upon request

Max Cylinder Pressure: 10bar [145psig]
Max Operating Temp: -10°C to 90°C [-14°F to 194°F]
Replacement Seal Kit: 850450-63-1-00

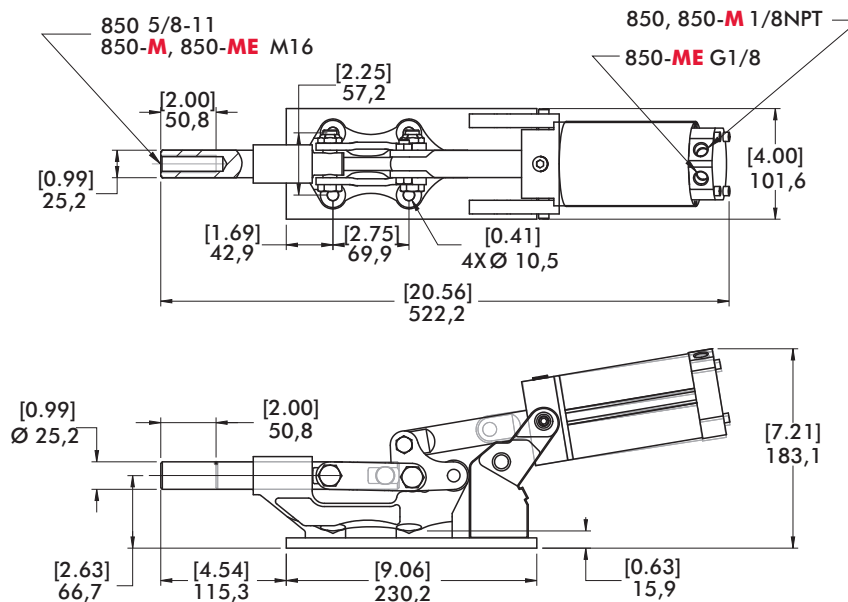
Sensor Accessories

- Round Reed Switch with Quick Disconnect
- T-slot Reed Switch with Quick Disconnect
- Quick Disconnect 2M Extension Cable
- Quick Disconnect 5M Extension Cable

Item Number

- 810169
- 8EA-109-1
- CABL-010
- CABL-013

See Pneumatic Accessories section for more options



Series 800, 1200 Product Overview

Features:

- Low profile and compact for mounting in tight spaces
- Uniform clamping force throughout full stroke
- Accommodates variable workpiece thickness
- Single acting

Applications:

- Assembly
- Welding
- Light machining

How it Works:

1. Clamp arm retracts fully for loading and unloading.
2. Clamp arm moves straight forward.
3. Clamp arm pivots down to hold workpiece.

800 1200 ⓘ
 800-E 1200-E ⓘ



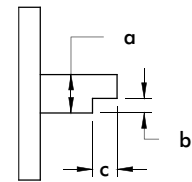
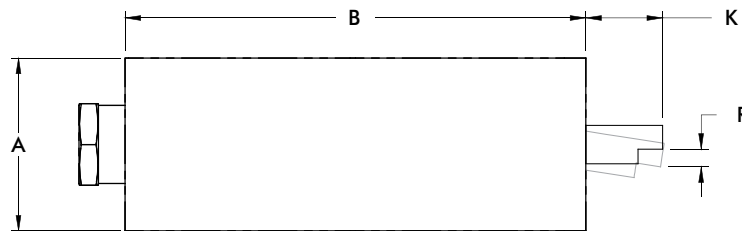
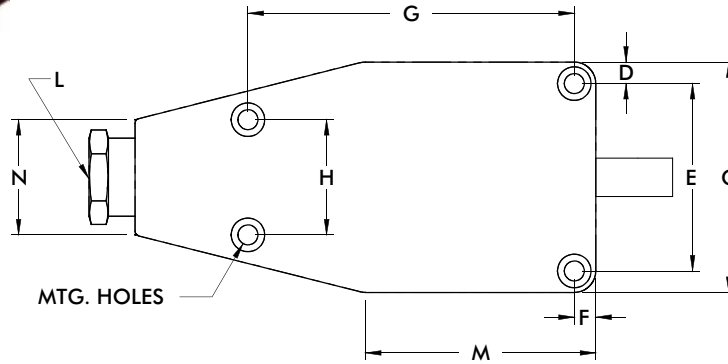
Series 800, 1200 Technical Information, Holding Capacities

Model	Inlet Pressure bar [PSI]	Exerting Force	Max. Pressure at Max. Mechanical Advantage† bar [PSI]	Clamping Range	Weight	Port Size
800	[70~150] 4,8~10,3	[850~1500 lbf] 385~680 N	4,8 [70]	[0.09] 2,3	[2.50lb] 1,13kg	1/4 NPT
800-E		[650~1200 lbf] 295~544 N		[0.16] 4,0		
1200 ⓘ		[750~1600 lbf] 340~725 N		[0.25] 6,4	[4.00lb] 1,81kg	
1200-E ⓘ		[550~1200 lbf] 250~544 N		[0.38] 9,6		

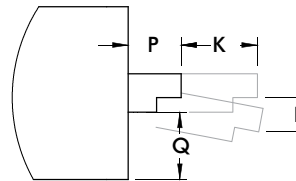
ⓘ This item is available upon request

Series 800, 1200 Standard Clamp Dimensions

800
800-E








Arm Configuration






Model E

Model	A	B	C	D	E	F	G	H	K	L	M	N	P	Q	R	MNTG HOLES
800	[1.63] 41,4	[4.81] 122,8	[2.72] 69,1	[0.25] 6,4	[2.21] 56,1	[0.25] 6,4	[3.13] 79,5	[1.19] 30,2	[0.50] 12,7		[2.31] 58,37	[1.50] 38,1	-	[0.59] 15,0	[0.09] 2,3	[0.26] 6,6
800-E										1/4 NPT			[0.50] 12,7		[0.16] 4,1	
1200	[2.25] 57,2	[6.00] 152,4	[3.00] 76,2	[0.28] 7,1	[2.44] 62	[0.28] 7,1	[4.25] 108	[1.50] 38,1	[1.00] 25,4		[3.00] 76,2	[1.38] 35,1	-	[0.63] 16	[0.25] 6,4	
1200-E													[0.69] 17,5		[0.38] 9,7	

	Series	Section Page	Cylinder Bore [inch] mm						Clamping Force @ 6bar [87psi] N [lbf.]						Stroke mm [inch]		
			[0.75 to 1.00] 19 to 25	[1.18 to 1.26] 30 to 32	[1.50 to 1.57] 38 to 40	[1.97] 50	[2.48] 63	[20 to 27] 90 to 120	[40 to 52] 180 to 230	[63 to 72] 280 to 320	[90 to 105] 400 to 470	[112 to 117] 500 to 520	[166 to 195] 740 to 870	[260 to 300] 1170 to 1330	[0.31 to 0.39] 8 to 10	[0.47 to 0.63] 12 to 16	[0.78 to 0.98] 20 to 25
9500 	9522	11.3	■						■							■	
	9530	11.3		■						■							■
	9540	11.3			■						■						■
89R 	89R20-010-2	11.5	■						■							■	
	89R32-010-2	11.5		■						■						■	
	89R40-010-2	11.5			■						■					■	
	89R40-025-2	11.5			■						■					■	
	89R50-025-2	11.5				■						■				■	
	89R63-025-2	11.5					■						■			■	
89B 	89B20-010-1	11.7	■						■							■	
	89B30-010-1	11.7		■						■						■	
	89B40-010-1	11.7			■						■					■	
	89B50-025-1	11.7				■						■				■	
	89B63-008-1	11.7					■						■			■	
8100, 8300 	8115	11.7	■						■							■	
	8116	11.7	■							■						■	
	8315	11.7			■						■					■	
	8316	11.7			■						■					■	
89E 	89E20-010-1	11.11	■						■							■	
	89E30-010-1	11.11		■						■						■	
	89E40-010-1	11.11			■						■					■	
	89E50-025-1	11.11				■						■				■	
	89E63-008-1	11.11					■						■			■	



	Series	Section Page	Cylinder Bore [inch] mm					Clamping Force @ 6bar [87psi] N [lbf.]					Stroke mm [inch]			
			[0.75 to 1.00] 19 to 25	[1.18 to 1.26] 30 to 32	[1.50 to 1.57] 38 to 40	[1.97] 50	[2.48] 63	[20 to 27] 90 to 120	[40 to 52] 180 to 230	[63 to 72] 280 to 320	[90 to 105] 400 to 470	[112 to 117] 500 to 520	[166 to 195] 740 to 870	[260 to 300] 1170 to 1330	[0.31 to 0.39] 8 to 10	[0.47 to 0.63] 12 to 16	[0.78 to 0.98] 20 to 25
8000, 8200, 8400 	8015	11.11	■					■							■	
	8016	11.11	■					■							■	
	8215	11.11			■					■					■	
	8216	11.11			■					■					■	
	8415	11.11		■					■						■	
	8416	11.11		■					■						■	
035-1 	035-125-190	11.15	■					■							■	
	035-125-290	11.15	■					■							■	
	035-132-190	11.15		■					■						■	
	035-132-290	11.15		■					■						■	
	035-140-190	11.15			■					■					■	
	035-140-290	11.15			■					■					■	
	035-150-190	11.15				■					■				■	
	035-150-290	11.15				■					■				■	
035-2 	035-225-190	11.15	■					■							■	
	035-225-290	11.15	■					■							■	
	035-232-190	11.15		■					■						■	
	035-232-290	11.15		■					■						■	
	035-240-190	11.15			■					■					■	
	035-240-290	11.15			■					■					■	
	035-250-190	11.15				■					■				■	
	035-250-290	11.15				■					■				■	

Series 9500 Product Overview

Features:

- No linear travel during rotation
- Rod cover to protect rod throughout the entire stroke
- Versatile arm connection
- Fixed orifice porting does not require external flow controls

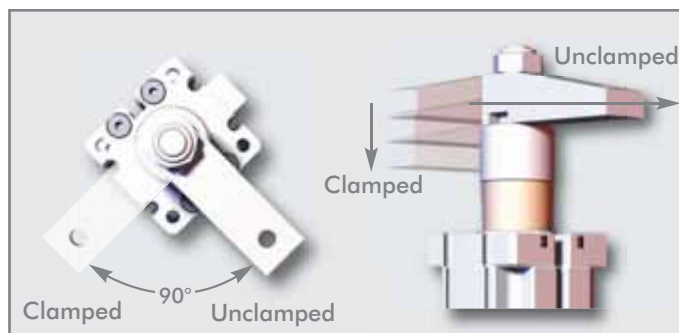
Applications:

- Assembly
- Welding
- Light machining

Also Available:

- See page 12.2 for clamping arms
- See page 13.1 for sensing options

Covered under one year or more U.S./International Patents



Shown with optional clamping arm.

Series 9500 Technical Information

Model	Total Stroke mm[in]	Swing Direction	Weight kg[lb.]	Effective Piston Area for Clamping cm ² [in. ²]	Clamp Volume cm ³ [in. ³]	Unclamp Volume cm ³ [in. ³]	Rod Force @ 6bar[87PSI] N[lbf.]	Seal Kit
9522L	[0.50] 13	LH	[0.94] 0,43	[0.61] 3,90	[0.61] 10	[0.76] 12,5	[53] 235	952290
9522R		RH						
9530L	[0.79] 20	LH	[1.38] 0,63	[1.03] 6,65	[1.33] 21,8	[1.58] 25,9	[90] 400	953090
9530GL								
9530R		RH						
9530GR								
9540L	[0.79] 20	LH	[2.13] 0,97	[1.84] 11,87	[2.36] 38,8	[2.69] 44	[160] 711	954090
9540GL								
9540R		RH						
9540GR								

Rotation Angle: 90°±5°

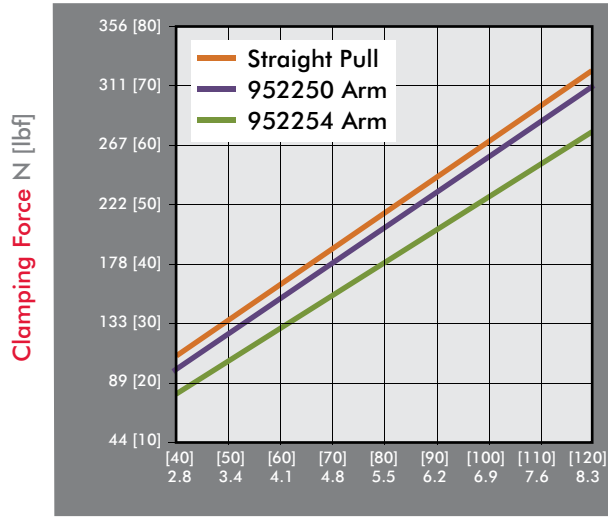
Repeatability: ±1°

Operating Pressure Range: 3bar[40psig] to 8bar[120psig]

Maximum Operating Temperature: 60°C[140°F]

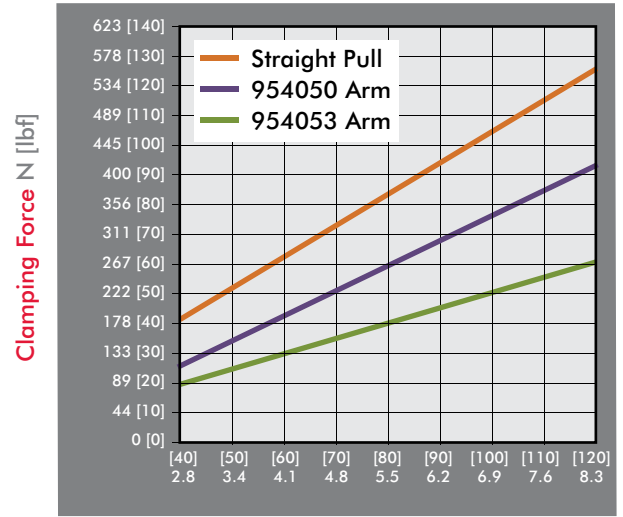
Series 9500 Standard Clamp Dimensions, Clamping Forces

Series 9522 Clamping Force



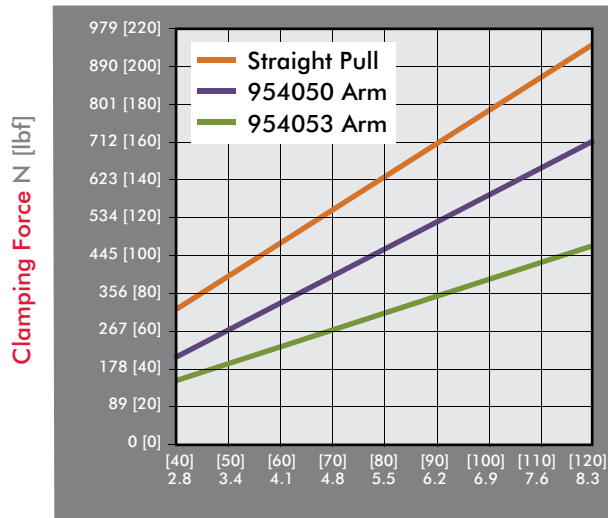
Inlet Pressure bar [PSI]

Series 9540 Clamping Force

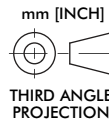
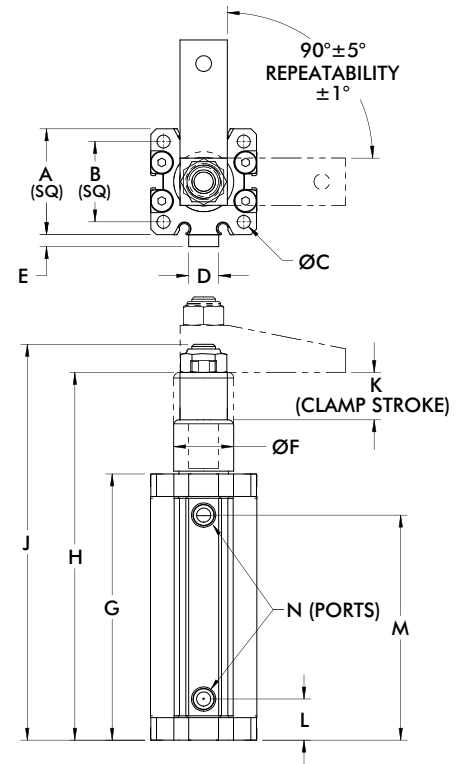


Inlet Pressure bar [PSI]

Series 9530 Clamping Force



Inlet Pressure bar [PSI]



Model	A	B	C	D	E	F	G	H	J	K	L	M	N
9522	[1.42] 36	[1.00] 25,4		--	--	[0.88] 22	[4.00] 102	[4.56] 116	[5.43] 138	[0.50] 13	[0.54] 14	[3.13] 80	M5
9530	[1.76] 44,7	[1.34] 34	[0.22] 5,5	[0.50] 12,7	[0.20] 5,1	[1.00] 25,4	[4.44] 112,7	[6.13] 155,7	[6.59] 167,3	[0.79] 20	[0.68] 17,4	[3.75] 95,3	1/8NPT
9530G													
9540	[2.05] 52	[1.57] 40		[0.63] 16	[0.35] 9	[1.14] 29	[4.78] 121,4	[6.50] 165	[6.94] 176,2		[0.84] 21,3	[3.97] 100,8	1/8NPT
9540G													G-1/8

Series 89R Product Overview

Features:

- Swing direction is field adjustable between left, right, or straight. (20mm not linear adjustable)
- Switch ready for Ø4mm or 6.5mmX5mm sensors
- Lightweight and robust, designed for several million cycles
- Clamp arm sold separately

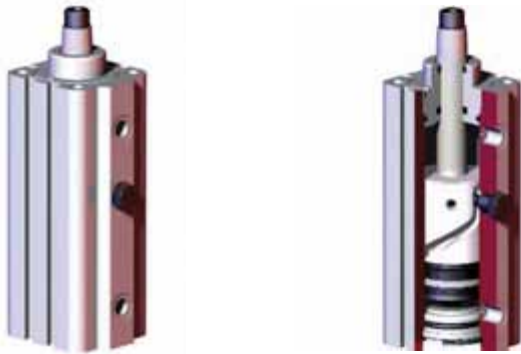
Applications:

- Assembly
- Welding
- Light machining

Also Available:

See page 12.2 - 12.5 for clamping arms and mounting accessories
See page 13.1 for sensing options

89R



Note:
Switches are optional. To order with (2) 8EA-109-1 switches, add **A** to the end of the model. Ex. 89R32-010-2**A**

Series 89R Technical Information

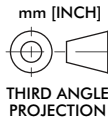
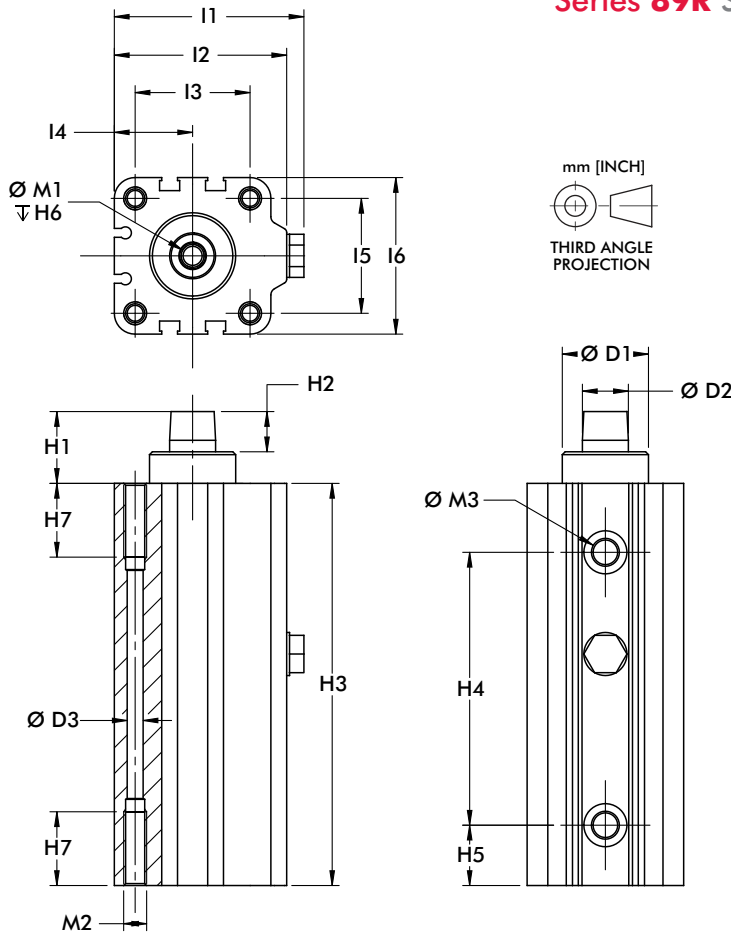
Model	Total Stroke mm[in]	Travel During Rotation mm[in]	Vertical Clamp Stroke mm[in]	Bore Size mm[in]	Clamp Volume cm ³ [in. ³]	Unclamp Volume cm ³ [in. ³]	Clamping Force @ 6bar[87PSI] N[lbf.]†	Weight kg[lb.]	Seal Kit
89R20-010-2	[0.83] 21	[0.43] 11		[0.79] 20	[0.03] 4,9	[0.40] 6,6	[22] 96	[0.66] 0,30	89R20-00
89R32-010-2	[1.10] 28	[0.61] 18	[0.39] 10	[1.26] 32	[1.18] 19,4	[1.37] 22,5	[67] 300	[1.32] 0,60	89R32-00
89R40-010-2	[1.24] 31,5	[0.85] 21,5		[1.57] 40	[2.03] 33,3	[2.42] 39,6	[103] 456	[2.09] 0,95	89R40-00
89R40-025-2	[1.83] 46,5				[3.00] 49,1	[3.57] 58,4		[2.43] 1,10	
89R50-025-2	[2.05] 52	[1.06] 27	[0.98] 25	[1.97] 50	[5.42] 88,9	[6.23] 102,1	[167] 744	[3.97] 1,80	89R50-00
89R63-025-2	[2.30] 58,5	[1.32] 33,5		[2.48] 63	[11.13] 164	[11.13] 182,4	[263] 1170	[6.17] 2,80	89R63-00

† with standard clamping arm

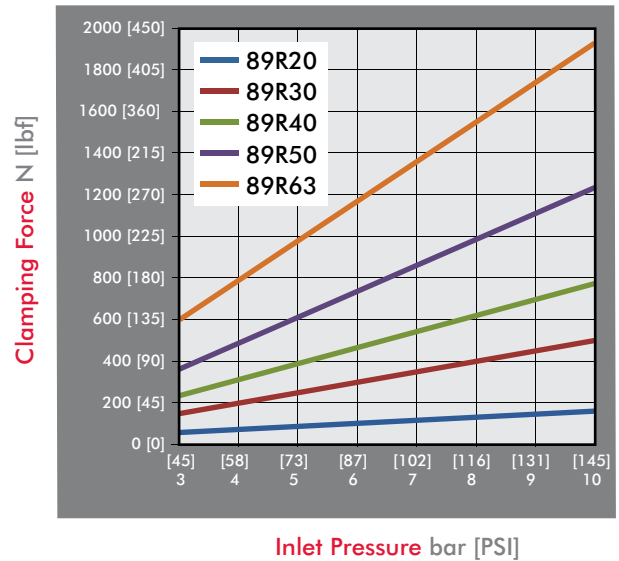
Rotation Angle: 90°±5°

Operating Pressure Range: 2bar[30psig] to 10bar[145psig]

Series 89R Standard Clamp Dimensions, Clamping Forces

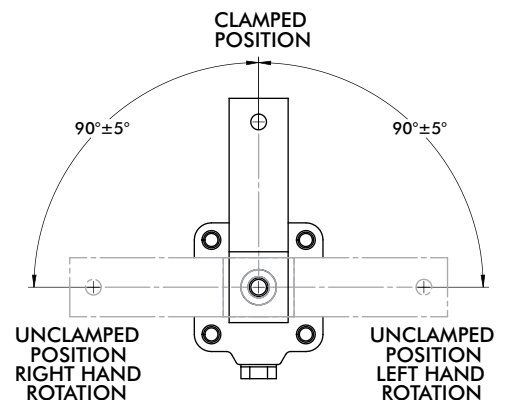


Series 89R Clamping Force (w/ standard clamping arm)



Model	ØD1	ØD2	ØD3	H1	H2	H3	H4	H5	H6	H7	L1	L2
89R20-010-2	[0.71] 18	[0.39] 10	[0.18] 4,6	[0.78] 19,8	[0.32] 8	[4.15] 105,5	[2.60] 66	[0.52] 13,2	[0.59] 15	[0.55] 14	[1.56] 39,5	[1.38] 35
89R32-010-2	[0.87] 22	[0.47] 12		[0.93] 23,7		[4.92] 125	[3.27] 83	[0.69] 17,5		[0.63] 16	[2.36] 60	[2.13] 54
89R40-010-2	[1.18] 30	[0.63] 16	[0.22] 5,5	[0.98] 25	[0.43] 11	[5.51] 140	[3.74] 95	[0.83] 21	[0.67] 17		[2.60] 66	[2.36] 60
89R40-025-2						[6.69] 170	[4.92] 125			[0.98] 25		
89R50-025-2	[1.57] 40	[0.71] 18	[0.29] 7,4	[1.24] 31,4		[7.70] 195,5	[5.39] 137	[1.05] 26,7	[0.98] 25		[3.09] 78,5	[2.85] 72,5
89R63-025-2	[1.77] 45	[0.78] 20	[0.37] 9,3	[1.30] 33	[0.59] 15	[8.33] 211,5	[6.08] 154,5	[1.04] 26,5			[3.74] 95	[3.46] 88

Model	L3	L4	L5	L6	M1	M2	M3
89R20-010-2	[0.87] 22	[0.63] 16	[0.87] 22	[1.26] 32	M5	M6	M5
89R32-010-2	[1.42] 36	[0.94] 24	[1.26] 32	[1.77] 45	M6		
89R40-010-2	[1.57] 40	[1.07] 27,3	[1.57] 40	[2.15] 54,5	M8	M8	G-1/8
89R40-025-2							
89R50-025-2	[1.57] 40	[1.28] 32,5	[2.56] 65		M10	M10	
89R63-025-2	[2.44] 62	[1.57] 40	[3.15] 80		M10	M12	G-1/4



Series 89B, 8100, 8300 Product Overview

Features:

- Proven, reliable designs
- Lightweight and robust, designed for several million cycles
- Can be mounted from the side or top

Applications:

- Assembly
- Welding
- Light machining

Also Available:

See page 12.2 - 12.5 for clamping arms and mounting accessories
See page 13.1 for sensing options

Series 89B ■



Available in 20, 30, 40, 50, and 63mm bore sizes.
Switches are optional. To order with (2) 8EA-109-1 switches, add **A** to the end of the model. Ex. 89B30-010-1**RA**
Clamping arm sold separately, see page 12.2-12.5

Series 8100, 8300 ▲



Switches are optional. To order with (2) 810169 switches, add **A** to the end of the model. Ex. 8115-A.
Supplied with clamping arm and spindle.
To order without clamping arm add **-LA** to the end of the model. Ex. 8115-**LA**

Series 89B, 8100, 8300 Technical Information

Model	Swing	Total Stroke mm[in]	Travel During Rotation mm[in]	Vertical Clamp Stroke mm[in]	Bore Size mm[in]	Clamp Volume cm ³ [in. ³]	Unclamp Volume cm ³ [in. ³]	Clamping Force @ 6bar[87PSI] N[lbf.]†	Weight kg[lb.]	Seal Kit
■ 89B20-010-1R	R	[0.79]	[0.39]		[0.79]	[0.29]	[0.38]	[22]	[1.70]	8940-3-00
■ 89B20-010-1L	L	20	10		20	4,71	6,28	97	0,77	
■ 89B30-010-1R	R	[0.83]	[0.43]	[0.39]	[1.18]	[0.76]	[0.91]	[63]	[2.43]	8945-3-00
■ 89B30-010-1L	L	21	11	10	30	12,47	14,85	280	1,10	
■ 89B40-010-1R	R	[0.94]	[0.55]		[1.57]	[1.55]	[1.84]	[103]	[3.26]	8950-3-00
■ 89B40-010-1L	L	24	14		40	25,34	30,16	460	1,48	
■ 89B50-025-1R	R	[1.57]	[0.59]	[0.98]	[1.97]	[4.17]	[4.79]	[194]	[5.73]	8952-3-00
■ 89B50-025-1L	L	40	15	25	50	68,37	78,55	865	2,6	
■ 89B63-008-1R	R	[1.02]	[0.71]	[0.32]	[2.48]	[4.45]	[4.95]	[298]	[6.24]	8955-3-00
■ 89B63-008-1L	L	26	18	8	63	72,89	81,06	1330	2,83	
▲ 8115	R	[0.85]	[0.47]	[0.38]	[0.75]	[0.25]	[0.38]	[25]	[0.68]	801560
▲ 8116	L	21,5	11,8	9,7	19,1	4,1	6,23	110	0,31	
▲ 8315	R	[1.25]	[0.75]	[0.50]	[1.50]	[2.01]	[2.26]	[89]	[2.00]	821560
▲ 8316	L	31,8	19,1	12,7	38,1	32,94	37,03	400	0,91	

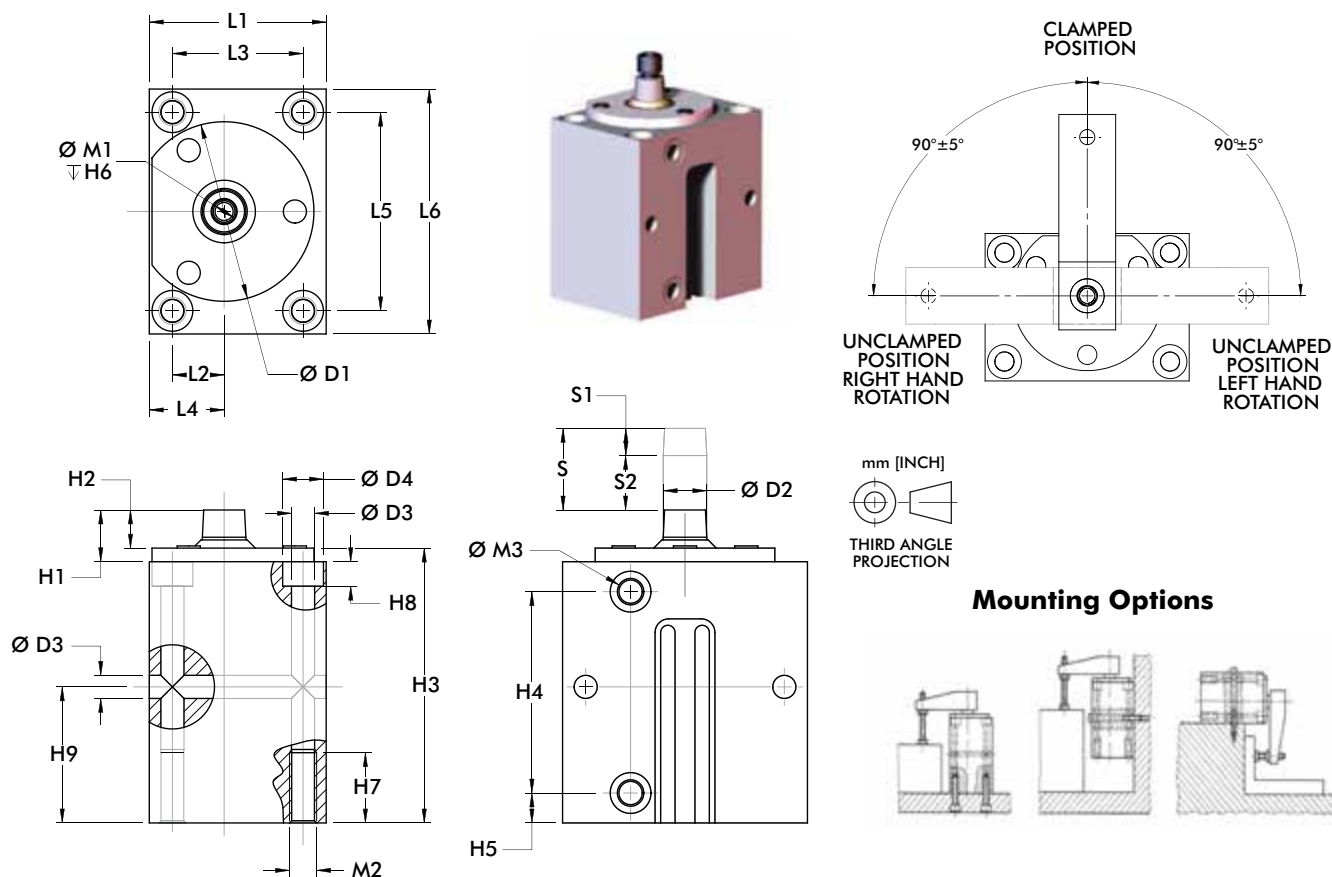
† with standard clamping arm Preferred Market: ▲ NA/SA ■ Europe ● Global

Operating Pressure Range:

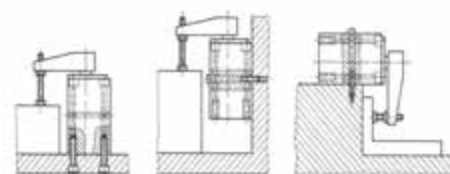
89B: 3bar [30psig] to 10bar [145psig] (89B20 8bar [116psig] max.)
8100, 8300: 3bar [30psig] to 9bar [130psig]



Series 89B Standard Clamp Dimensions



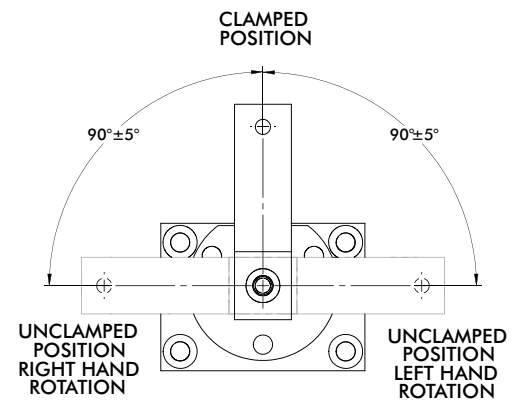
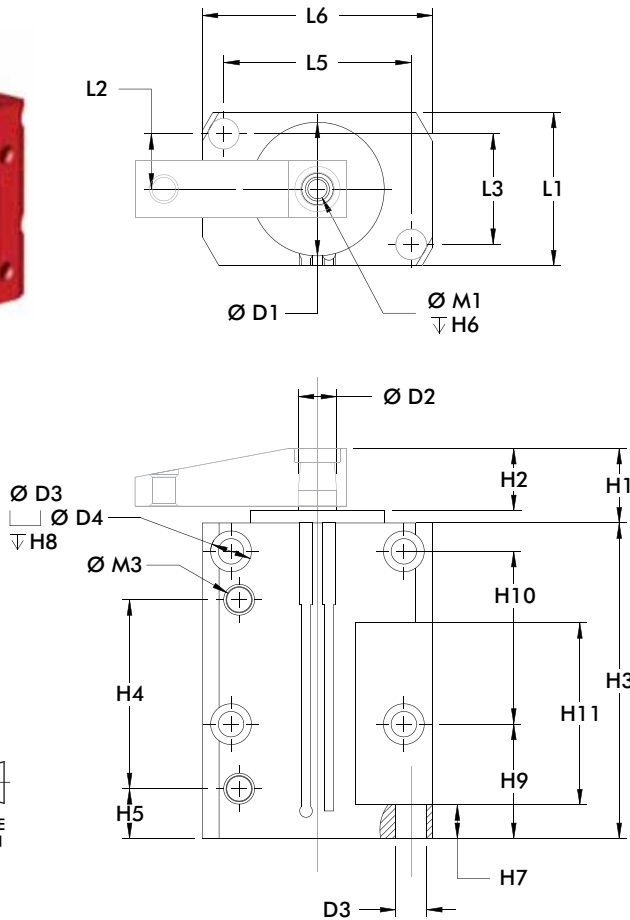
Mounting Options



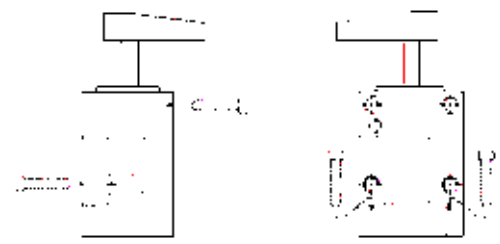
Model	ØD1	ØD2	ØD3	H1	H2	H3	H4	H5	H6	H7	L1	L2
89B20	[1.89] 48	[0.39] 10	[0.26] 6,6	[0.69] 17,5	[0.37] 9,5	[3.46] 88	[2.31] 58,7	[0.35] 9	[0.59] 15	[0.79] 20	[1.77] 45	[0.45] 11,5
89B32	[2.52] 64	[0.47] 12	[0.33]	[0.63] 16	[0.43] 11	[3.70] 94	[2.72] 69,2	[0.39] 10	[0.67] 17	[0.98]	[2.17] 55	[0.55] 14
89B40	[2.95] 75	[0.63] 16	8,5	[0.75] 19	[0.55] 14	[3.98] 101	[2.91] 74			25	[2.56] 65	[0.75] 19
89B50	[3.54] 90	[0.71] 18	[0.41]	[0.98] 25	[0.67] 17	[5.51] 140	[4.29] 109	[0.43] 11	[0.98] 25	[1.18]	[2.95] 75	[0.94] 24
89B63	[4.13] 105	[0.79] 20	10,5	[1.06] 27	[0.75] 19	[4.53] 115	[3.35] 85		[0.79] 20	30	[3.54] 90	[1.18] 30

Model	L3	L4	L5	L6	M1	M2	M3
89B20	[1.18] 30	[0.75] 19	[2.36] 60	[2.95] 75	M5	M8	M5
89B32	[1.50] 38	[0.89] 22,5	[2.68] 68	[3.35] 85	M6	M10	
89B40	[1.89] 48	[1.08] 27,5	[2.87] 73	[3.54] 90	M8		G-1/8
89B50	[2.17] 55	[1.34] 34	[3.54] 90	[4.33] 110		M12	
89B63	[2.76] 70	[1.57] 40	[3.94] 100	[4.72] 120	M10		G-1/4

Series 8100, 8300 Standard Clamp Dimensions



Mounting Options



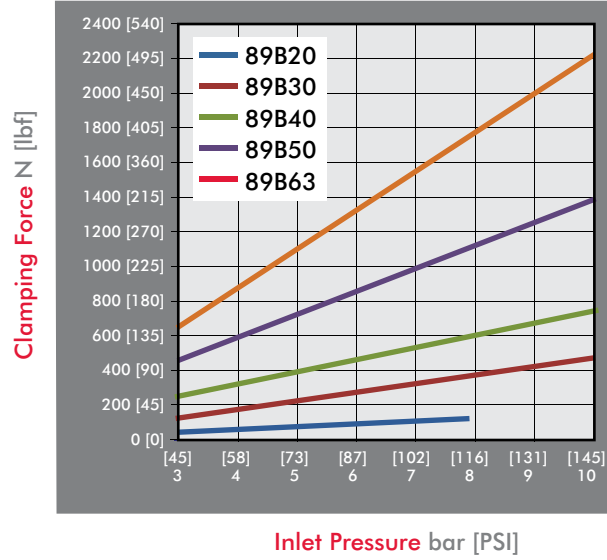
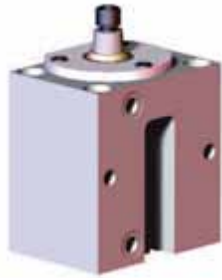
mm [INCH]
THIRD ANGLE PROJECTION

Model	ØD1	ØD2	ØD3	ØD4	H1	H2	H3	H4	H5	H6	H7	H8
8115	[1.23]	[0.44]	[0.20]	--	[0.53]	[0.41]	[3.37]	[1.45]	[0.35]	[0.75]	[0.25]	--
8116	31,2	11,2	5,1	--	13,5	10,4	85,6	36,8	8,9	19,1	6,4	--
8315	[1.74]	[0.50]	[0.33]	[0.53]	[0.97]	[0.81]	[4.11]	[2.46]	[0.65]	[0.67]	[0.44]	[1.00]
8316	44,2	12,7	8,4	13,5	24,6	20,6	104,4	62,5	16,5	17	11,2	25,4

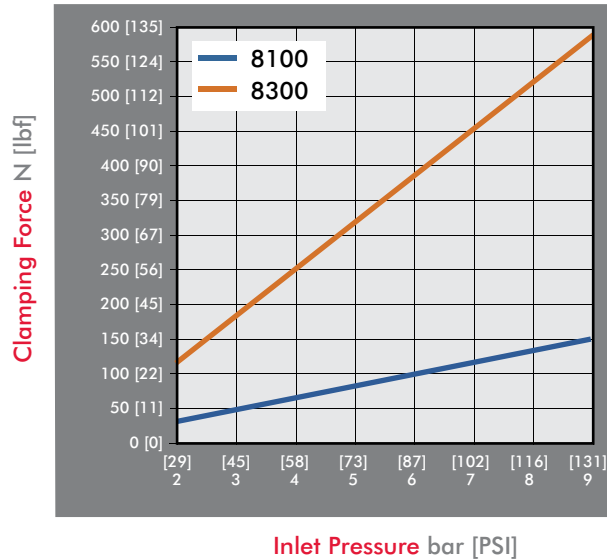
Model	H9	H10	H11	L1	L2	L3	L5	L6	M1	M3
8115	[1.37]	[1.00]	[1.00]	[1.25]	[0.47]	[0.94]	[0.94]	[1.25]	¼-20	#10-32
8116	34,8	25,4	25,4	31,8	11,9	23,9	23,9	31,8		
8315	[1.49]	[2.25]	[2.37]	[2.00]	[0.72]	[1.44]	[2.44]	[3.00]	5/16/18	1/8 NPT
8316	37,9	57,2	60,2	50,8	18,3	36,6	62	76,2		

Series 89B, 8100, 8300 Clamping Forces

Series 89B Clamping Force
(w/ standard clamping arm)



Series 8100, 8300 Clamping Force
(w/ standard clamping arm)



Series 89E, 8000, 8200, 8400 Product Overview

Features:

- Proven, reliable designs
- Lightweight and robust, designed for several million cycles
- Threaded body may be mounted in a tapped hole or through hole with mounting accessory

Applications:

- Assembly
- Welding
- Light machining

Also Available:

See page 12.2 - 12.5 for clamping arms and mounting accessories
See page 13.1 for sensing options

Series 89E ■



Available in 20, 30, 40, 50, and 63mm bore sizes
Clamping arms and mounting accessories sold separately, see page 12.2 - 12.5

Series 8000, 8200, 8400 ▲



Switches are optional. To order with (2) 810169 switches, add **A** to the end of the model. Ex. 8215-**A**.
Supplied with clamping arm and spindle.
To order without clamping arm add **-LA** to the end of the model. Ex. 8115-**LA**

Series 89E, 8000, 8200, 8400 Technical Information

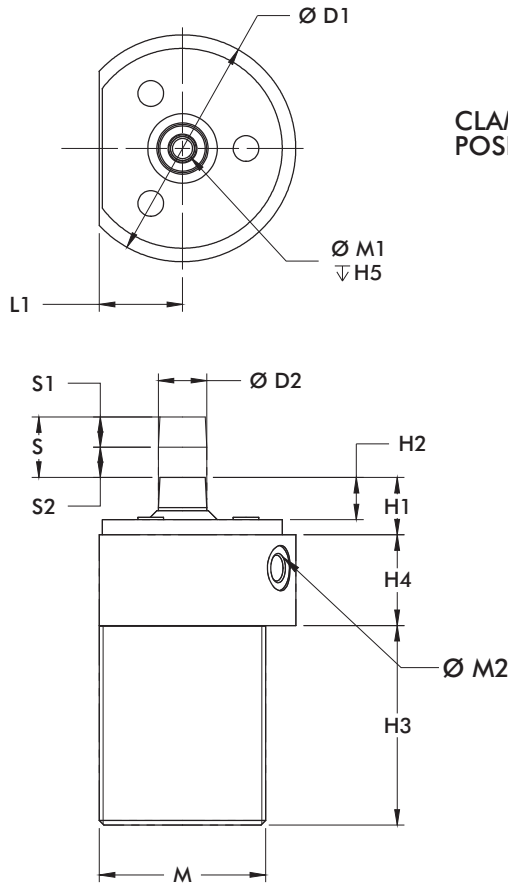
Model	Swing	Total Stroke mm[in]	Travel During Rotation mm[in]	Vertical Clamp Stroke mm[in]	Bore Size mm[in]	Clamp Volume cm ³ [in. ³]	Unclamp Volume cm ³ [in. ³]	Clamping Force @ 6bar[87PSI] N[lbf.]†	Weight kg[lb.]	Seal Kit
■ 89E20-010-1R	R	[0.79]	[0.39]		[0.79]	[0.29]	[0.38]	[22]	[0.62]	8940-3-00
■ 89E20-010-1L	L	20	10		20	4,71	6,28	97	0,28	
■ 89E30-010-1R	R	[0.83]	[0.43]	[0.39]	[1.18]	[0.76]	[0.91]	[63]	[0.88]	8945-3-00
■ 89E30-010-1L	L	21	11	10	30	12,47	14,85	280	0,40	
■ 89E40-010-1R	R	[0.94]	[0.55]		[1.57]	[1.55]	[1.84]	[103]	[1.57]	8950-3-00
■ 89E40-010-1L	L	24	14		40	25,34	30,16	460	0,71	
■ 89E50-025-1R	R	[1.57]	[0.59]	[0.98]	[1.97]	[4.17]	[4.79]	[194]	[2.91]	8952-3-00
■ 89E50-025-1L	L	40	15	25	50	68,37	78,55	865	1,32	
■ 89E63-008-1R	R	[1.02]	[0.71]	[0.32]	[2.48]	[4.45]	[4.95]	[298]	[4.63]	8955-3-00
■ 89E63-008-1L	L	26	18	8	63	72,89	81,06	1,330	2,10	
▲ 8015	R	[0.85]	[0.47]	[0.38]	[0.75]	[0.25]	[0.38]	[25]		801560
▲ 8016	L	21,5	11,8	9,7	19,1	4,10	6,23	110		
▲ 8215	R				[1.50]	[2.01]	[2.26]	[89]	[1.69]	821560
▲ 8216	L	[1.25]	[0.75]	[0.50]	38,1	32,94	37,03	400	0,77	
▲ 8415	R	31,8	19,1	12,7	[1.19]	[1.17]	[1.42]	[68]		841560
▲ 8416	L				30,2	19,17	23,27	300		

† with standard clamping arm Preferred Market: ▲ NA/SA ■ Europe ● Global

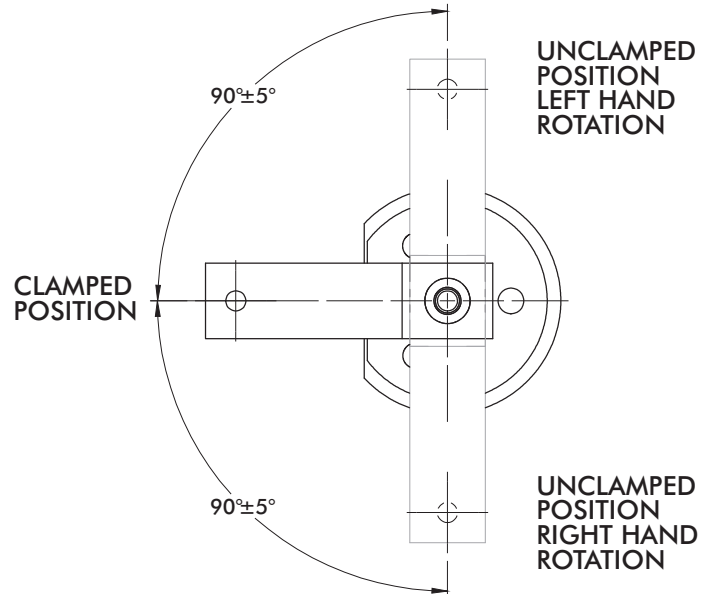
Operating Pressure Range:

89B: 3bar [30psig] to 10bar [145psig] (89B20 8bar [116psig] max.)
8100, 8300: 3bar [30psig] to 9bar [130psig]

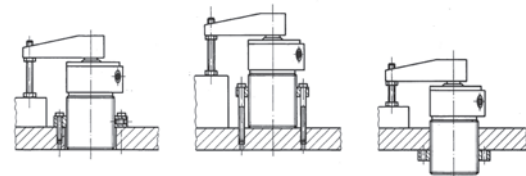
Series 89E Standard Clamp Dimensions



mm [INCH]
THIRD ANGLE PROJECTION

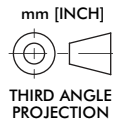
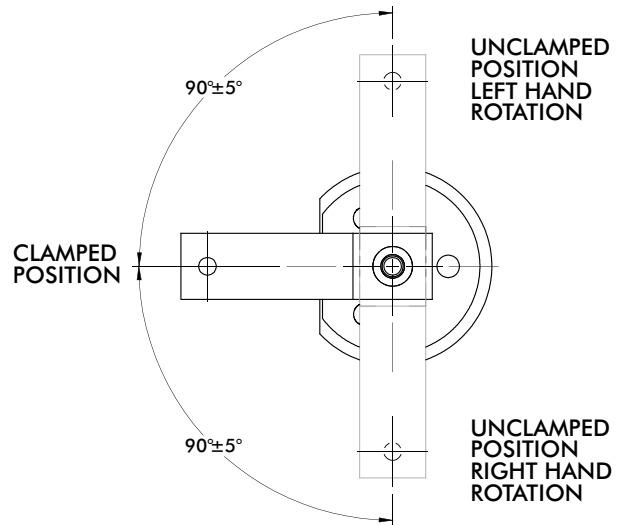
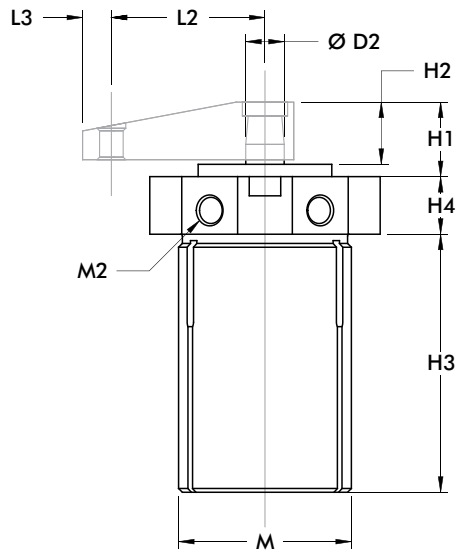
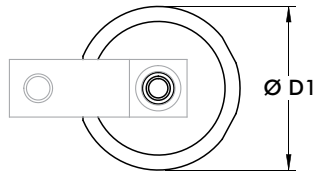
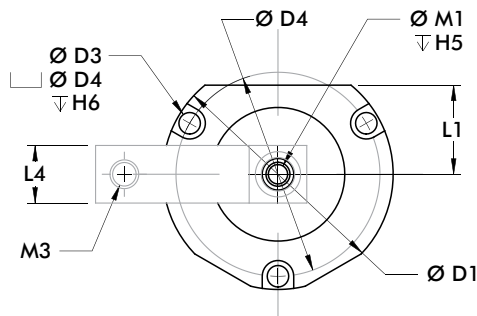


Mounting Options



Model	ØD1	ØD2	H1	H2	H3	H4	H5	L1	M	M1	M2
89E20	[1.89] 48	[0.39] 10	[0.69] 17,5	[0.37] 9,5	[2.36] 60	[1.10] 28	[0.59] 15	[0.75] 19	M36X1,5	M5	M5
89E32	[2.52] 64	[0.47] 12	[0.63] 16	[0.43] 11	[2.72] 69	[0.98] 25	[0.67] 17	[0.89] 22,5	M42X1,5	M6	
89E40	[2.95] 75	[0.63] 16	[0.75] 19	[0.55] 14	[2.60] 66	[1.38] 35		[1.08] 27,5	M55X2	M8	G-1/8
89E50	[3.54] 90	[0.71] 18	[0.98] 25	[0.67] 17	[4.09] 104	[1.50] 38	[0.98] 25	[1.36] 34,5	M68X2	M10	
89E63	[4.13] 105	[0.79] 20	[1.06] 27	[0.75] 19	[3.03] 77		[0.79] 20	[1.57] 40	M80X2		G-1/4

Series 8000, 8200, 8400 Standard Clamp Dimensions

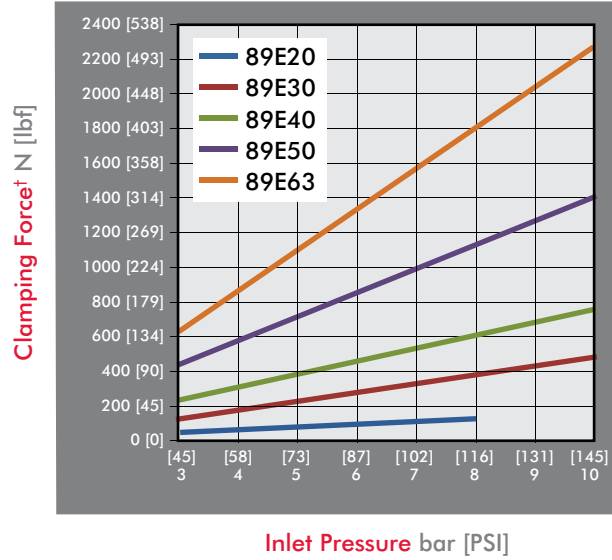


Model	ØD1	ØD2	ØD3	ØD4	H1	H2	H3	H4	H5	H6	L1	L2
8015	[1.25]	[0.44]	--	--	[0.53]	[0.41]	[2.87]	[0.50]	[0.75]	--	--	[1.12]
8016	31,8	11,1	--	--	13,5	10,4	72,9	12,7	19,1	--	--	28,4
8215	[3.00]		[0.28]	[2.66]	[0.97]	[0.81]	[3.36]			[0.25]	[1.16]	[2.00]
8216	76,2	[0.50]	7,1	67,6	24,6	20,6	85,3	[0.75]	[0.67]	6,4	29,5	50,8
		12,7	--	--				19,1	17	--	--	
8415	[2.13]		--	--	[0.94]	[0.78]	[3.17]			--	--	[1.56]
8416	54,1		--	--	23,9	19,8	80,5			--	--	39,6

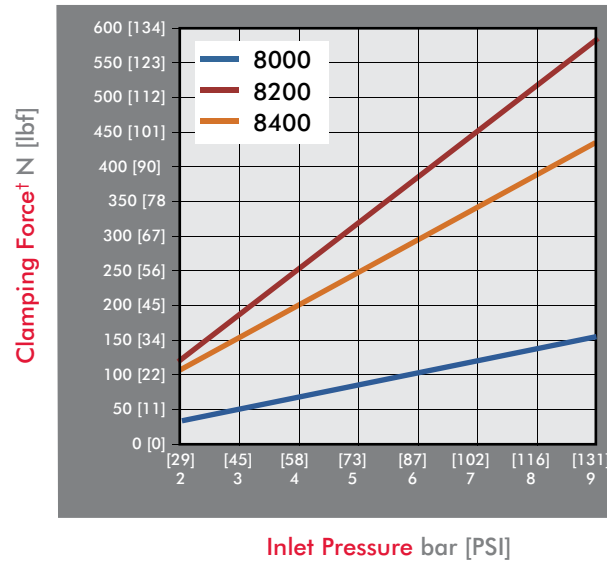
Model	L3	L4	M	M1	M2	M3
8015	[0.31]	[0.62]	1-1/8-16	1/4-20	#10-32	#10-32
8016	7,9	15,7				
8215			2-1/4-12			
8216	[0.38]	[0.75]		5/16-18	1/8 NPT	3/8-16
	9,6	19,1	1-3/4-12			
8415						
8416						

Series 89E, 8000, 8200, 8400 Clamping Forces

Series 89E Clamping Force
(w/ standard clamping arm)



Series 8000, 8200, 8400 Clamping Force
(w/ standard clamping arm)



Series 035 Product Overview

Features:

- Available with threaded body, or lower flange mounting
- Low profile for confined spaces
- Double locked arm attachment is bolted to piston rod and clamped around shaft diameter
- Available in 25, 32, 40, and 50mm bore sizes

Applications:

- Assembly
- Welding
- Light machining

Also Available:

See page 12.3 - 12.4 for clamping arms and 12.10 for mounting accessories

Series 035-1 ▲



Threaded body design for mounting through fixture plates.

Series 035-2 ▲



Flanged body design for quick and easy mounting

Series 035 Technical Information

Model	Swing	Total Stroke mm[in]	Travel During Rotation mm[in]	Vertical Clamp Stroke mm[in]	Bore Size mm[in]	Clamp Volume cm ³ [in. ³]	Unclamp Volume cm ³ [in. ³]	Clamping Force @ 6bar[87PSI] N[lbf.]†	Weight kg[lb.]	Seal Kit
▲ 035-125-190	R	[1.04]	[0.51]	[0.53]	[0.98]	[0.54]	[0.79]	[27]	[0.56]	905516
▲ 035-125-290	L	26,3	12,8	13,5	25	8,87	12,92	120	0,25	
▲ 035-132-190	R	[1.13]	[0.56]	[0.57]	[1.26]	[1.06]	[1.41]	[40]	[0.94]	905517
▲ 035-132-290	L	28,8	14,3	14,5	32	17,34	23,13	180	0,43	
▲ 035-140-190	R	[1.20]	[0.57]	[0.63]	[1.57]	[1.96]	[2.33]	[70]	[1.31]	905518
▲ 035-140-290	L	30,4	14,4	16	40	32,1	38,21	312	0,59	
▲ 035-150-190	R	[1.18]	[0.63]	[0.55]	[1.97]	[3.02]	[3.59]	[90]	[1.81]	905519
▲ 035-150-290	L	30	16	14	50	49,49	58,91	400	0,82	
▲ 035-225-190	R	[1.05]	[0.54]	[0.51]	[0.98]	[0.55]	[0.80]	[27]	[0.56]	905516
▲ 035-225-290	L	26,7	13,7	13	25	9	13,11	120	0,25	
▲ 035-232-190	R	[1.06]	[0.57]	[0.49]	[1.26]	[0.99]	[1.32]	[40]	[1.13]	905517
▲ 035-232-290	L	26,8	14,4	12,4	32	16,17	21,56	180	0,51	
▲ 035-240-190	R	[1.09]	[0.57]	[0.52]	[1.57]	[1.78]	[2.13]	[70]	[1.40]	905518
▲ 035-240-290	L	27,7	14,4	13,3	40	29,26	34,83	312	0,64	
▲ 035-250-190	R	[1.13]	[0.63]	[0.51]	[1.97]	[2.90]	[3.45]	[90]	[1.90]	905519
▲ 035-250-290	L	28,8	16	12,8	50	47,52	56,57	400	0,86	

† with standard clamping arm Preferred Market: ▲ NA/SA ■ Europe ● Global

Operating Pressure Range:
7bar [100psig] max.

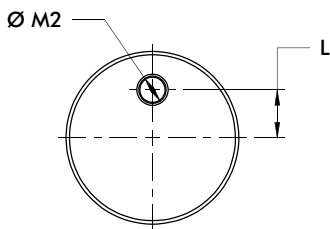
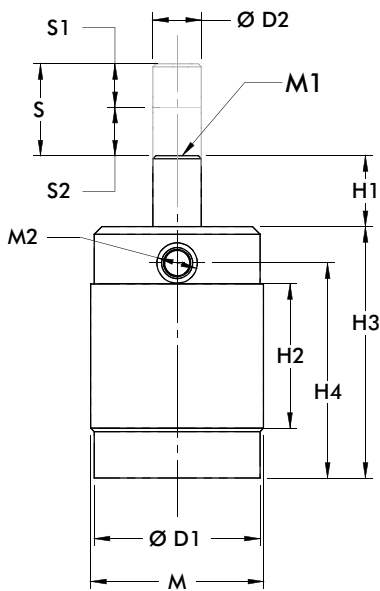
Application Note:

When arm length is longer than 80mm [3.15in.] pressure should be less than:
 25mm bore: 4,5bar [80psig]
 32/40mm bore: 5,5 bar [80 psig]
 50mm bore: 7 bar [100psig]

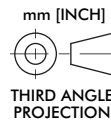
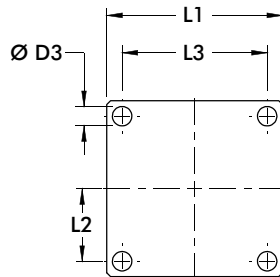
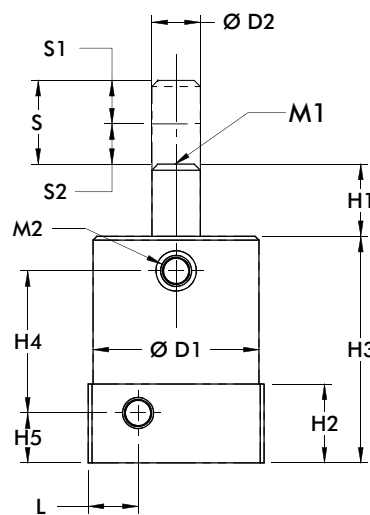
Series 035 Standard Clamp Dimensions



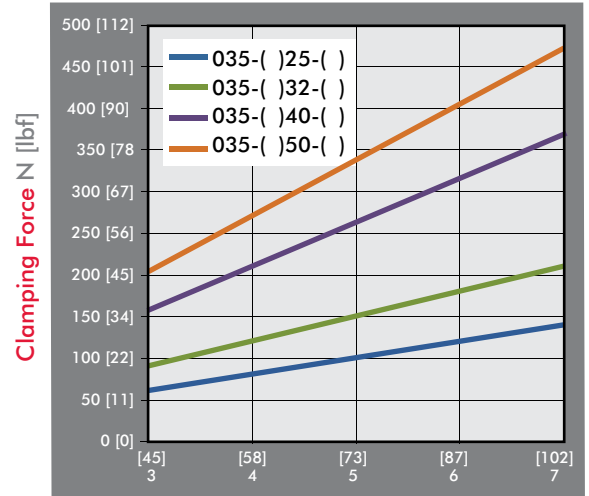
Series 035-1



Series 035-2



Series 035 Clamping Force (w/ standard clamping arm)



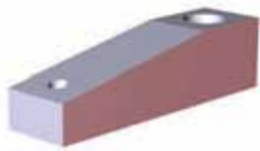
Inlet Pressure bar [PSI]

Model	ØD1	ØD2	H1	H2	H3	H4	H5	L	L1	L2	L3	M	M1	M1
035-125-()	[1.42] 36	[.55] 14	[0.57] 14,4	[1.50] 38,1	[2.76] 70	[2.25] 57,2	--	[0.35] 9	--	--	--	1-½ -16	1/4-20	#10-32
035-132-()	[1.79] 45,4	[0.63] 16	[0.75] 19,1	[1.72] 43,7	[3.87] 98,2	[2.63] 66,7	--	[0.45] 11,4	--	--	--	1-7/8-16	5/16-18	1/8 NPT
035-140-()	[2.16] 54,8	[0.76] 19,4	[1.88] 47,7	[3.28] 83,2	[2.80] 71	--	[0.70] 17,8	--	--	--	--	2-1/4-16	3/8-16	1/8 NPT
035-150-()	[2.36] 60	[0.79] 20	[2.00] 50,8	[3.48] 88,3	[2.95] 75	--	[0.50] 12,7	--	--	--	--	2-1/2-16	3/8-16	1/8 NPT
035-225-()	[1.38] 35	[.55] 14	[0.60] 15,2	[.91] 23	[2.62] 66,5	[1.60] 40,6	[0.50] 12,7	[0.57] 14,5	[1.57] 40	[0.61] 15,5	[1.22] 31	--	1/4-20	#10-32
035-232-()	[1.97] 50	[0.63] 16	[0.85] 21,6	[2.79] 71	[1.76] 44,6	[0.57] 14,5	[0.65] 16,5	[2.13] 54	[0.87] 22	[1.73] 44	--	5/16-18	1/8 NPT	1/8 NPT
035-240-()	[2.16] 54,8	[0.94] 23,9	[1.03] 26,1	[2.95] 75	[1.85] 47	[0.65] 16,5	[0.65] 16,5	[2.29] 58,2	[0.94] 24	[1.89] 48	--	3/8-16	1/8 NPT	1/8 NPT
035-250-()	[2.36] 60	[0.79] 20	[1.03] 26	[3.15] 80	[2.05] 52	[0.65] 16,5	[0.65] 16,5	[2.68] 68	[1.08] 27,5	[2.17] 55	--	3/8-16	1/8 NPT	1/8 NPT

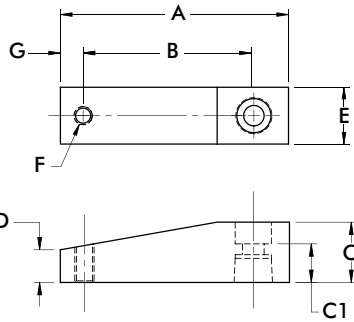
Standard Clamping Arm

Features:

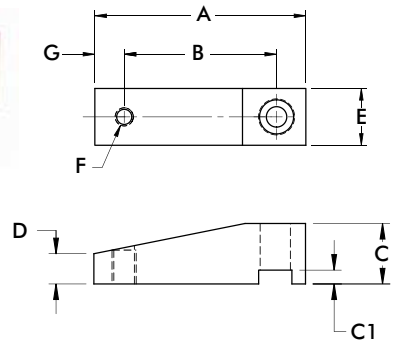
- For standard use
- Aluminum construction



Type A



Type B



Part Number	Type	Used with Model/series	A	B	C	C1	D	E	F	G	Weight [lbs] kg
8JG-215-1	A	89R20-010-2	[2.64]	[2.05]	[0.59]	[0.33]	[0.24]	[0.59]	M6	[0.28]	[0.08]
		89B20-010-1	67	52	15	8.5	6	15		7	0.04
		89E20-010-1									
8JG-217-1	A	89R32-010-2	[3.15]	[2.36]	[0.79]	[0.37]	[0.33]	[0.79]	M8	[0.39]	[0.14]
		89B30-010-1	80	60	20	9.5	8.5	20		10	0.06
		89E30-010-1									
8JG-218-1	A	89R40-010-2	[3.74]	[2.76]	[0.98]	[0.45]	[0.55]	[0.98]	M8	[0.39]	[0.28]
		89R40-025-2	95	70	25	11.5	14	25		10	0.13
		89B40-010-1									
89E40-010-1											
8JG-219-1	A	89R50-025-2	[4.17]	[3.15]	[1.18]	[0.59]	[0.67]	[1.18]	M8	[0.39]	[0.42]
		89B50-025-1	106	80	30	15	17	30		10	0.19
		89E50-025-1									
8JG-220-1	A	89R63-025-2	[4.72]	[3.54]	[1.38]	[0.67]	[0.79]	[1.38]	M10	[0.47]	[0.66]
		89B63-008-1	120	90	35	17	20	35		12	0.30
		89E63-008-1									
801528	A	8015/8016	[1.74]	[1.11]	[0.37]	[0.33]	[0.25]	[0.62]	#10-32	[0.32]	[0.03]
		8115/8116	44.2	28.2	9.4	8.3	6.4	15.7		8.1	0.01
801529	A	8015/8016	[2.87]	[2.24]	[0.37]	[0.33]	[0.25]	[0.62]	#10-32	[0.32]	[0.05]
		8115/8116	72.9	56.9	9.4	8.3	6.4	15.7		8.1	0.02
821512	A	8215/8216	[2.75]	[2.00]	[0.75]	[0.57]	[0.38]	[0.75]	3/8-16	[0.38]	[0.04]
		8415/8416	69.9	50.8	19.1	14.5	9.5	19.1		9.5	0.02
		8315/8316									
821513	A	8215/8216	[3.75]	[3.00]	[0.75]	[0.57]	[0.38]	[0.75]	3/8-16	[0.38]	[0.05]
		8315/8316	95.3	76.2	19.1	14.5	9.5	19.1		9.5	0.02
841512	A	8415/8416	[2.31]	[1.56]	[0.75]	[0.57]	[0.38]	[0.75]	3/8-16	[0.38]	[0.03]
			58.7	39.7	19.1	14.5	9.5	19.1		9.5	0.01
952250	B	9522	[2.28]	[1.77]	[0.59]	[0.16]	[0.30]	[0.59]	M6	[0.20]	[0.06]
			58	45	15	4	7.5	15		5	0.03
952253	B	9522	[3.07]	[2.56]	[0.59]	[0.16]	[0.30]	[0.59]	M6	[0.20]	[0.08]
			78	65	15	4	7.5	15		5	0.04
954050	B	9530/9540	[2.76]	[1.97]	[0.79]	[0.18]	[0.39]	[0.79]	M8	[0.39]	[0.12]
			70	50	20	4.6	10	20		10	0.05
954053	B	9530/9540	[3.94]	[3.15]	[0.79]	[0.18]	[0.39]	[0.79]	M8	[0.39]	[0.18]
			100	80	20	4.6	10	20		10	0.08

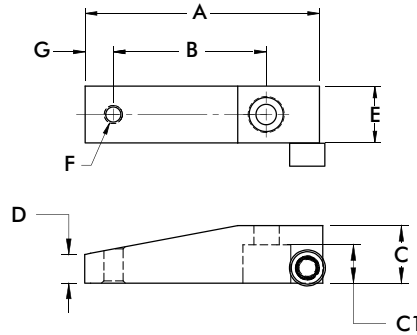
Standard Clamping Arm

Features:

- For standard use
- Aluminum construction



Type C



Part Number	Type	Used with Model/series	A	B	C	C1	D	E	F	G	Weight [lbs] kg
036-551-01	C	035-125-190	[2.38]	[1.36]	[0.63]	[0.40]	[0.31]	[0.75]	1/4-20	[0.32]	[0.10]
		035-125-290	60.5	34.5	15.9	10.2	8.0	19.1		8.0	0.05
		035-225-190									
		035-225-290									
036-551-02	C	035-125-190	[3.38]	[2.36]	[0.63]	[0.40]	[0.31]	[0.75]	1/4-20	[0.32]	[0.13]
		035-125-290	85.9	60.0	15.9	10.2	8.0	19.1		8.0	0.06
		035-225-190									
		035-225-290									
036-630-01	C	035-132-190	[3.10]	[2.00]	[0.75]	[0.50]	[0.38]	[0.75]	5/16-18	[0.38]	[0.15]
		035-132-290									
		035-232-190									
		035-232-290									
		035-140-190									
		035-140-290									
036-630-02	C	035-132-190	[4.73]	[3.63]	[0.75]	[0.50]	[0.38]	[0.75]	5/16-18	[0.38]	[0.21]
		035-132-290									
		035-232-190									
		035-232-290									
		035-140-190									
		035-140-290									
036-787-01	C	035-150-190	[4.00]	[2.75]	[1.00]	[0.70]	[0.50]	[1.00]	3/8-16	[0.38]	[0.33]
		035-150-290									
		035-250-190									
		035-250-290									
036-787-02	C	035-150-190	[6.36]	[5.00]	[1.00]	[0.70]	[0.50]	[1.00]	3/8-16	[0.38]	[0.49]
		035-150-290									
		035-250-190									
		035-250-290									

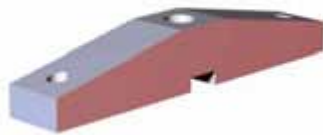
T-Style Clamping Arm

Features:

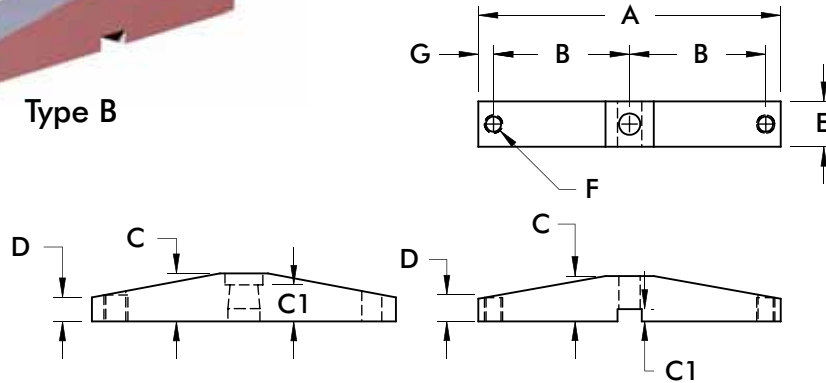
- For standard use
- Aluminum construction



Type A



Type B

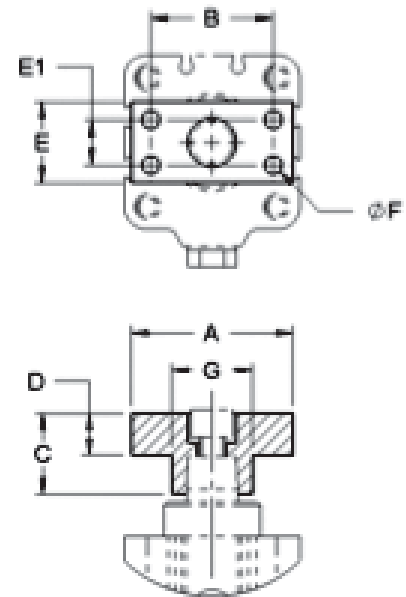
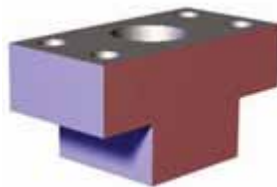
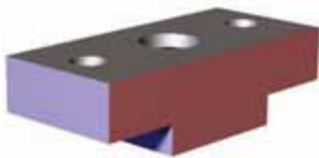


Part Number	Type	Used with Model/series	A	B	C	C1	D	E	F	G	Weight [lbs] kg
801530	A	8015/8016	[2.88]	[1.12]	[0.39]	[0.33]	[0.27]	[0.62]	#10-32	[0.32]	[0.05]
		8115/8116	73.0	28.4	9.9	8.3	6.9	15.7		8.1	0.02
801531	A	8015/8016	[5.12]	[2.25]	[0.39]	[0.33]	[0.27]	[0.62]	#10-32	[0.32]	[0.09]
		8115/8116	130.0	57.2	9.9	8.3	6.9	15.7		8.1	0.04
821554	A	8215/8216	[4.75]	[2.00]	[0.75]	[0.57]	[0.37]	[0.75]	3/8-16	[0.37]	[0.07]
		8415/8416	120.7	50.8	19.1	14.5	9.4	19.1		9.4	0.03
		8315/8316									
821555	A	8215/8216	[6.75]	[3.00]	[0.75]	[0.57]	[0.37]	[0.75]	3/8-16	[0.37]	[0.10]
		8415/8416	171.5	76.2	19.1	14.5	9.4	19.1		9.4	0.05
		8315/8316									
952254	B	9522	[3.94]	[1.77]	[0.59]	[0.16]	[0.31]	[0.59]	M6	[0.20]	[0.10]
			100.0	45.0	15.0	4.0	8.0	15.0		5.0	0.05
952255	B	9522	[5.51]	[2.56]	[0.59]	[0.16]	[0.31]	[0.59]	M6	[0.20]	[0.14]
			140.0	65.0	15.0	4.0	8.0	15.0		5.0	0.06
954054	B	9530/9540	[4.72]	[1.97]	[0.79]	[0.20]	[0.39]	[0.79]	M8	[0.39]	[0.08]
			120.0	50.0	20.0	5.0	10.0	20.0		10.0	0.04
954055	B	9530/9540	[7.09]	[3.15]	[0.79]	[0.20]	[0.39]	[0.79]	M8	[0.39]	[0.12]
			180.0	80.0	20.0	5.0	10.0	20.0		10.0	0.05

Blank Clamping Arm

Features:

- For attaching custom made clamp arms
- 360° rotatable arm
- Aluminum construction

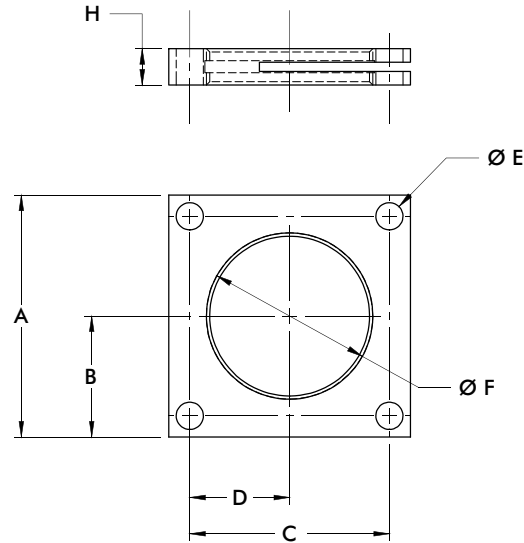
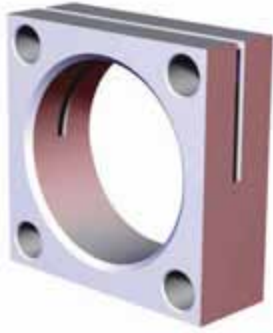


Part Number	Used with Model/series	A	B	C	D	E	E1	F	Weight [lbs] kg
8MA-084-1	89R20-010-2	[1.57]	[1.10]	[0.59]	[0.32]	[0.59]	--		[0.03]
	89B20-010-1	40	28	15	8	15			0,014
	89E20-010-1							[0.22]	
8MA-086-1	89R32-010-2		[1.38]	[0.79]	[0.43]	[0.79]	--	5,5 (2x)	[0.08]
	89B30-010-1		35	20	11	20			0,035
	89E30-010-1								
8MA-087-1	89R40-010-2	[1.97]							
	89R40-025-2	50							
	89B40-010-1		[1.50]	[0.98]	[0.51]	[0.98]	[0.55]	[0.22]	[0.11]
	89E40-010-1		38	25	13	25	14	5,5 (4x)	0,050
8MA-088-1	89R50-025-2	[2.36]	[1.77]	[1.18]	[0.59]	[1.18]	[0.59]	[0.28]	[0.19]
	89B50-025-1	60	45	30	15	30	15	7 (4x)	0,085
	89E50-025-1								
8MA-089-1	89R63-025-2	[2.56]	[1.89]	[1.38]	[0.67]	[1.38]	[0.71]	[0.35]	0.28
	89B63-008-1	65	48	35	17	35	18	9 (4x)	0,125
	89E63-008-1								
801532	8015/8016	[1.37]	[1.00]	[0.39]	[0.25]	[0.62]	--	#10-32	[0.03]
	8115/8116	34,8	25,4					(2x)	0,014
821556	8215/8216	[1.50]	[1.06]	[0.75]	[0.37]	[0.75]	--	1/4-20	[0.05]
	8315/8316	38,1	26,9					(2x)	0,020

Mounting Flanges

Features:

- For use with Threaded Body Pneumatic Swing Clamps
- Variable height adjustment
- For recessed mounting

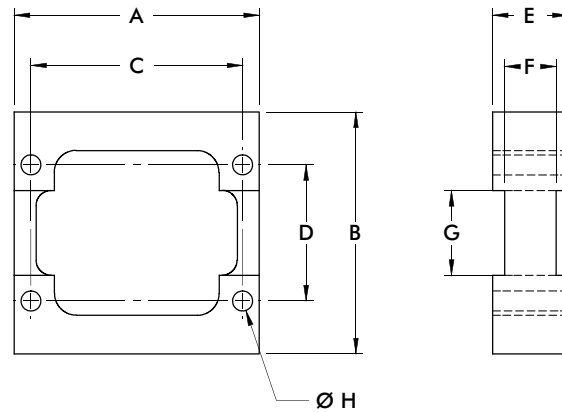


Part Number	Used with Model/series	A	B	C	D	E	F	H
8MA-219-1	89E20-010-1	[2.17] 55	[4.33] 27,5	[1.65] 42	[0.83] 21	[0.26] 6,6	M36X1,5	[0.31] 8
8MA-220-1	89E30-010-1	[2.76] 70	[1.38] 35	[2.13] 54	[1.06] 27		M42X1,5	[0.39] 10
8MA-221-1	89E40-010-1	[3.15] 80	[1.57] 40	[2.60] 66	[1.30] 33	[0.35] 9	M55X2	[0.47] 12
8MA-222-1	89E50-025-1	[3.54] 90	[1.77] 45	[2.99] 76	[1.50] 38		M68X2	[0.59] 15
8MA-223-1	89E63-008-1	[4.33] 110	[2.17] 55	[3.54] 90	[1.77] 45	[0.43] 11	M80X2	
801553	8115/8116	[1.38] 35	[0.69] 17,5	[1.08] 27,4	[0.54] 13,7	[0.20] 5,1	1 1/8-16	
821553	8215/8216	[2.50] 63,5	[1.25] 31,8	[2.12] 53,8	[1.06] 26,9	[0.28] 7,1	2 1/4-12	[0.50] 12.7
841550	8415/8416	[2.00] 50,8	[1.00] 25,4	[1.60] 40,6	[0.80] 20,3		1 3/4-12	

Body Mount Flanges

Features:

- For recessed mounting
- Variable height adjustment
- Can be used with switches
- For use with the **89R** Series Pneumatic Swing Clamps

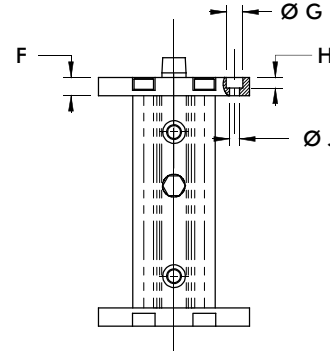
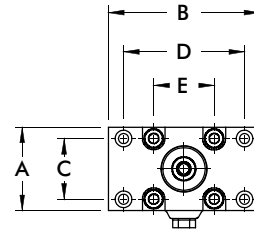


Part Number	Used with Model/series	A	B	C	D	E	F	G	H	Weight [lbs] kg
8MA-092-1	89R20-010-2	[2.24] 57	[2.17] 55	[1.85] 47	[0.94] 24	[0.59] 15	--	--	[0.28] 5,5	[0.22] 0,10
8MA-094-1	89R32-010-2	[3.19] 81	[2.95] 75	[2.55] 70	[1.57] 40	[0.79] 20	[0.47] 12	[0.98] 25	[0.26] 6,6	[0.44] 0,20
8MA-095-1	89R40-010-2 89R40-025-2		[3.15] 80		[1.77] 45	[0.98] 25	[0.67] 17	[1.10] 28		[0.55] 0,25
8MA-096-1	89R50-025-2	[4.00] 101,5	[3.94] 100	[3.37] 85,5	[1.97] 50			[1.46] 37	[0.35] 9	[0.88] 0,40
8MA-097-1	89R63-025-2	[4.80] 122	[4.72] 120	[4.09] 104	[2.68] 68	[1.18] 30	[0.79] 20	[0.43] 11	[0.43] 11	[1.43] 0,65

End Mount Flanges

Features:

- Can be mounted on bottom side or top side
- For use with **89R** Pneumatic Swing Clamps
- Variable height adjustment

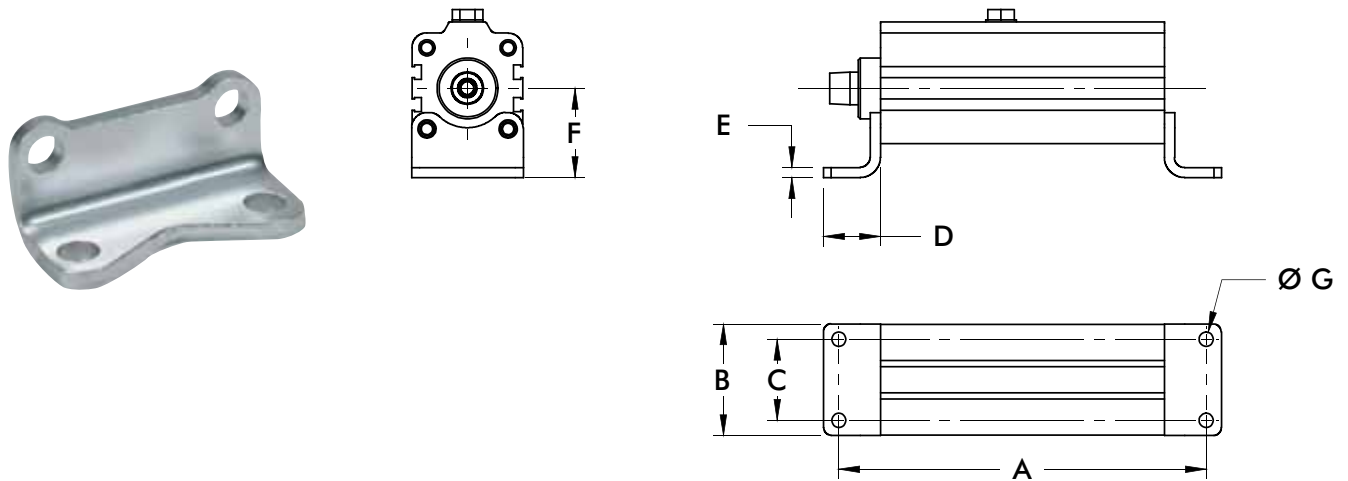


Part Number	Used with Model/series	A	B	C [±0.008] ±0,2	D [±0.008] ±0,2	E	F	G	H	J	Weight [lbs] kg
8MA-061-1	89R20-010-2	[1.26] 32	[2.56] 65	[0.71] 18	[1.97] 50	[0.87] 22	[0.39] 10				[0.07] 0,03
8MA-063-1	89R32-010-2	[1.97] 50	[3.15] 80	[1.26] 32	[2.52] 64	[1.26] 32	[0.47] 12	[0.43] 11	[0.28] 7	[0.26] 6,6	[0.20] 0,09
8MA-064-1	89R40-010-2	[2.17] 55	[3.94] 100	[1.57] 40	[3.15] 80	[1.57] 40					[0.29] 0,13
	89R40-025-2										
8MA-065-1	89R50-025-2	[2.56] 65	[4.72] 120	[1.77] 45	[3.94] 100	[1.97] 50	[0.59] 15	[0.59] 15	[0.35] 9	[0.33] 8,5	[0.46] 0,21
8MA-066-1	89R63-025-2	[3.15] 80	[5.12] 130	[2.36] 60	[4.33] 110	[2.44] 62				[0.35] 8,8	[0.66] 0,30

Mounting Feet

Features:

- Can be mounted on bottom side or front side
- Can be mounted on 4 sides of the cylinder
- For use with **89R** Series Pneumatic Swing Clamps

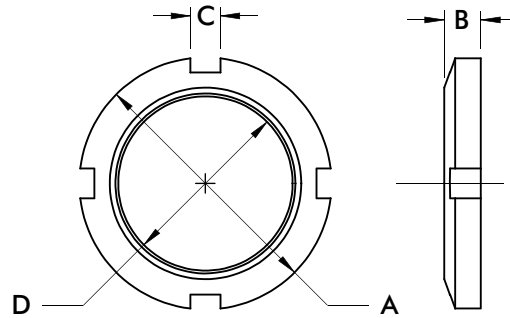


Part Number	Used with Model/series	A	B	C	D	E	F	G	Weight [lbs], kg
8MW-018-1	89R20-010-2	[5.41] 137,5	[1.38] 35	[0.87] 22	[0.87] 22	[0.16] 4	[0.63] 16		[0.08] 0,04
8MW-020-1	89R32-010-2	[6.54] 166	[1.97] 50	[1.38] 35			[0.71] 18	[0.28] 7	[0.15] 0,07
8MW-021-1	89R40-010-2	[7.13] 181	[2.17] 55	[1.57] 40	[1.10] 28	[0.20] 5			[0.22] 0,10
	89R40-025-2	[8.31] 211					[0.94] 24		
8MW-022-1	89R50-025-2	[9.39] 238,5	[2.64] 67	[1.97] 50	[1.26] 32	[0.24] 6		[0.35] 9	[0.33] 0,15
8MW-023-1	89R63-025-2	[10.37] 263,5	[3.35] 85	[2.44] 62	[1.57] 40		[1.06] 27	[0.43] 11	[0.52] 0,24

Jam Nuts

Features:

- For use with Threaded Body Pneumatic Swing Clamps
- Variable height adjustment
- For recessed mounting



Part Number	Used with Model/series	A	B	C	D	Weight [lbs] kg
051-150-160	035-125-190 035-125-290	[2.00] 50.8	[0.38] 9.7	[0.275] 7.0	1 1/2-16 UN	[0.13] 0.06
051-187-160	035-132-190 035-132-290	[2.63] 66.7	[0.38] 9.7	[0.312] 7.9	1 7/8-16 UN	[0.25] 0.11
051-225-160	035-140-190 035-140-290	[3.00] 76.2	[0.50] 12.7	[0.312] 7.9	2 1/4-16 UN	[0.40] 0.18
051-250-160	035-150-190 035-150-290	[3.25] 82.6	[0.50] 12.7	[0.312] 7.9	2 1/2-16 UN	[0.44] 0.20



Features:

- Sensors are activated by a magnetic ring installed on the cylinder piston
- All sensors feature an LED for easy set-up
- IP67 rated
- Temperature Range: -10°C to 60°C [14°F to 140°F]

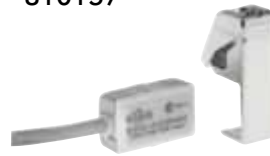
810169,
810173,
810174



8EA-109-1,
810170,
810171



810151,
810155,
810157



810156,
810158



810153

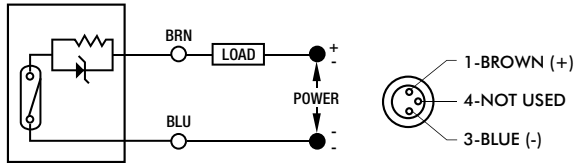


Sensors Technical Information

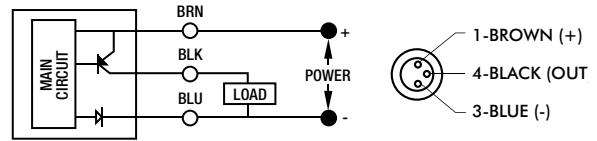
Item Number	Mount Style	Connector	Length	Function	Voltage	Max. Switching Current	Voltage Drop
810169	Round	M8 male quick connect	165mm [6.5in.]	Reed	5-120V AC/DC	50mA	3.0V
810173				PNP	4.5-28V DC	100mA	0.5V
810174				NPN	4.5-28V DC	100mA	0.5V
8EA-109-1	T-slot	M8 male quick connect	300mm [11.8in.]	Reed	10-30V DC	100mA	3.0V
810170				PNP	10-30V DC	100mA	2.0V
810171				NPN	10-30V DC	100mA	2.0V
810151	Tie Rod	No connector cord	2.7m [9ft.]	Reed	5-120V AC/DC	500mA	3.5V
810153				Reed	24-240V AC	4A	1.0V
810155				PNP	6-24V DC	500mA	1.0V
810157				NPN	6-24V DC	500mA	1.0V
810156	Band Clamp	No connector cord	2.7m [9ft.]	Reed	5-120V AC/DC	500mA	3.5V
810158				PNP	6-24V DC	500mA	1.0V

Wiring Schematics

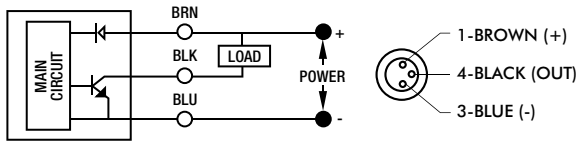
810169



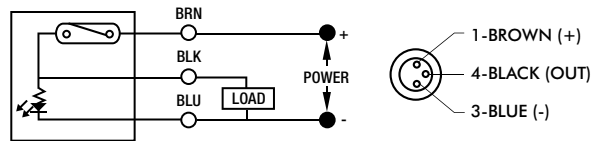
810170, 810173



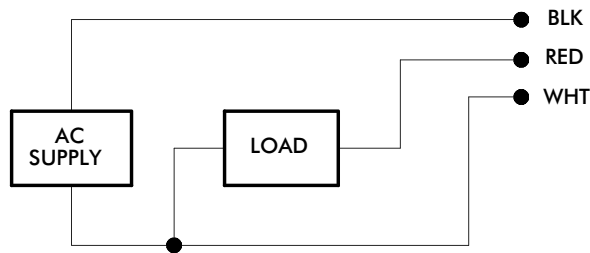
810171, 810174



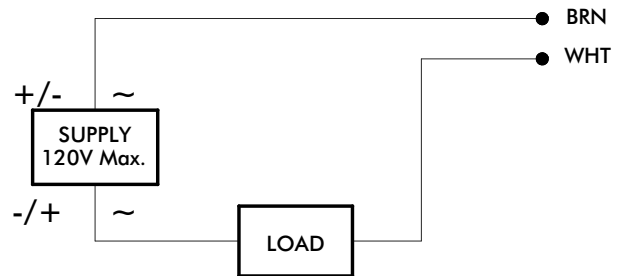
8EA-109-1



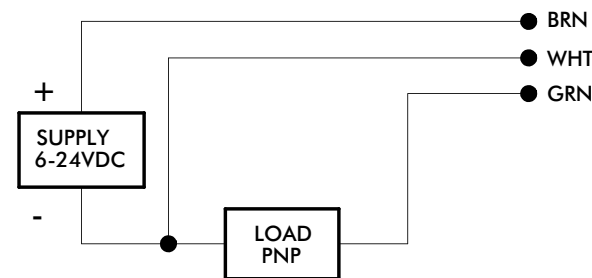
810153



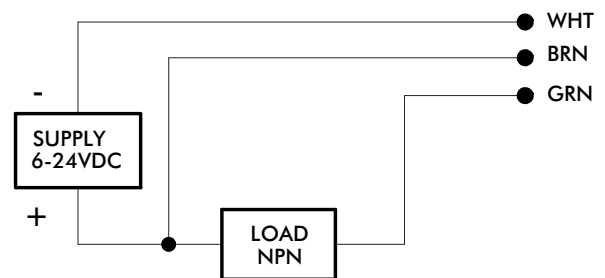
810151, 810156



810155, 810158



810157, 810158



Extension Cordsets

Features:

- For use with M8 quick connect sensors
- Threaded coupling nuts provide IP67 protection
- Robotic grade, oil and abrasion resistant polyurethane (PUR) cable

Item Number	Length	Rating	Temperature Rating
CABL-010	2 Meter [78in.]	120V AC/DC, 3A max.	-20°C to 80°C [-40°F to 176°F]
CABL-013	5meter [16.4ft.]		

Features

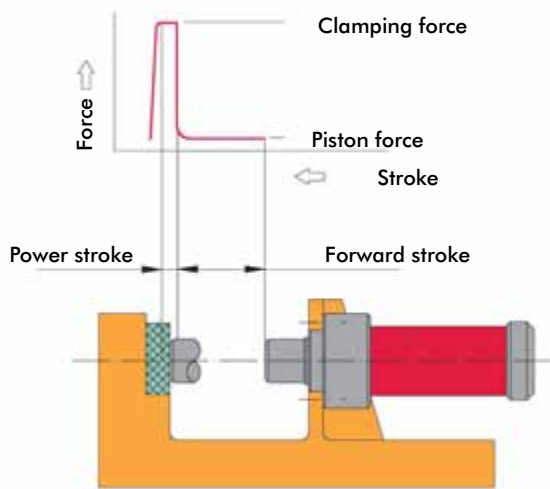
Your requirements

Power element of machines, tools and devices for the following applications:

- Clamping
- Coining
- Punching
- Riveting
- Stamping
- Pressing
- Notching
- Clinching

The solution

DE-STA-CO's double acting power cylinder, which is based on the wedge lever principle.



Product features

- Mechanical advantage: 10: 1
- Characteristic are the two steps of stroke: the forward stroke to move a certain distance and the power stroke with an amplified force on a short distance
- Exact positioning of cylinder by flange mount on cylinder's head
- Cylinder works in any position
- High durability because of solid and maintenance free wedge lever mechanics.
- End position control by magnetic field sensing

Technical Data	
Power forces at 6 bar	4 – 60 kN
Forward strokes	15 – 200 mm
Power strokes	6 and 7 mm*
Air pressure	max. 6 bar, min 3 bar
Mechanical advantage	max. 10:1
Cylinders require clean, water- and oil free air	

*power strokes up to max. 12 mm upon request

Round design: Type K and WK

- Piston rod with male thread (Type K) or ISO fit (Type WK)



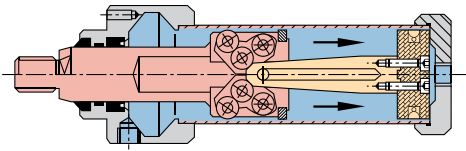
Rectangular design: Type WR

- Two piston rods prevent twisting

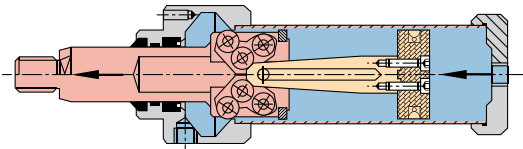


Application Recommendations

- Compressed air should be treated by filter, water separator and pressure regulator. Oiler is not allowed!
- For an adequate piston speed air hoses with 6mm I.D. should be used.
- Do not increase the max. air pressure of 6 bar, because this would reduce the cylinder's life cycle considerably.
- The piston rods of type K and WK are not secured against twisting, an external device should be provided.
- Piston rod should not be subjected to transversal forces. Force should always be exerted by coaxial force through the piston rod to the work piece.
- For Type WR, force must be transmitted via the centre of the pressure plate.
- Connection between rod and tool should be performed as frictional connection (coupling), not as form fitting connection.
- For punching operations we recommend a force reserve of approx. 30 %.
- If the cylinder is used for positioning in the extended rod position you should consider that a possible counter-force will cause an axial deflection of approx. 1 mm. This feature is due to the cylinder's design because after the nominal power stroke the clamping force drops down to the level of the piston force (see force-stroke diagram left side).
- Valves are not usable to avoid piston movement. If the piston should be positioned within the range of the forward stroke, both chambers of the cylinder have to be vented. If the cylinder should stay at a retracted position the piston rod chamber should be under pressure and the piston chamber should be vented.
- For further facts and additional applications features see operating instruction MAPnkz-2.

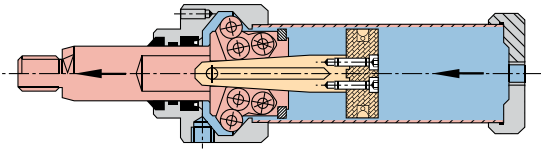


Basic position



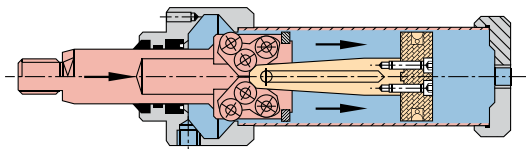
Forward stroke

Piston force is identical to the force of a common pneumatic cylinder with adequate piston diameter



Power stroke

Beginning of mechanical force amplification. Mechanical advantage max. 10:1

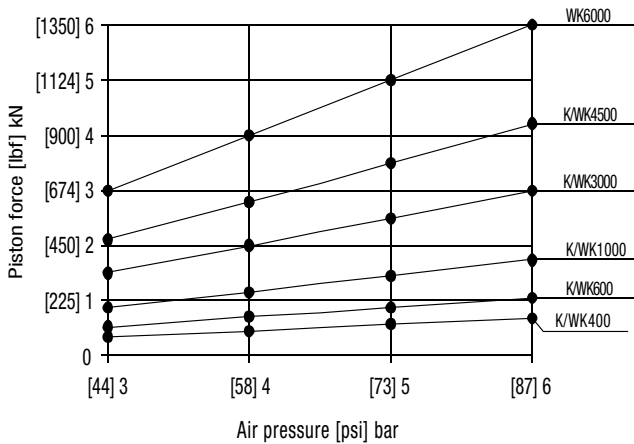


Return stroke

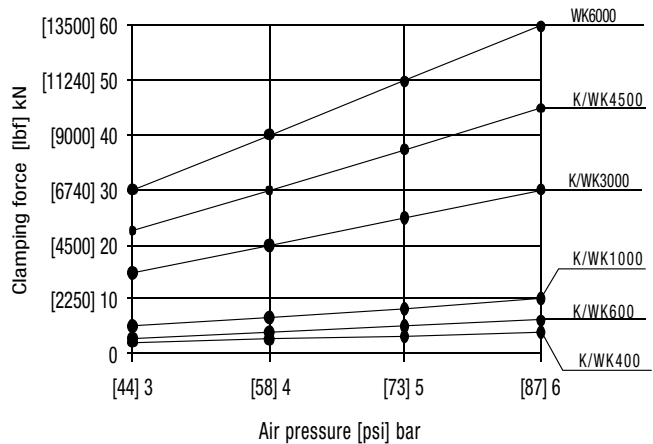
The return stroke can be initiated in any position of piston. The force during return stroke is approx. half of piston force.

Forces

Force within forward stroke



Clamping force within power stroke



Return stroke force: half of piston force

Type K Product Overview



- Piston rod with male thread

Note:

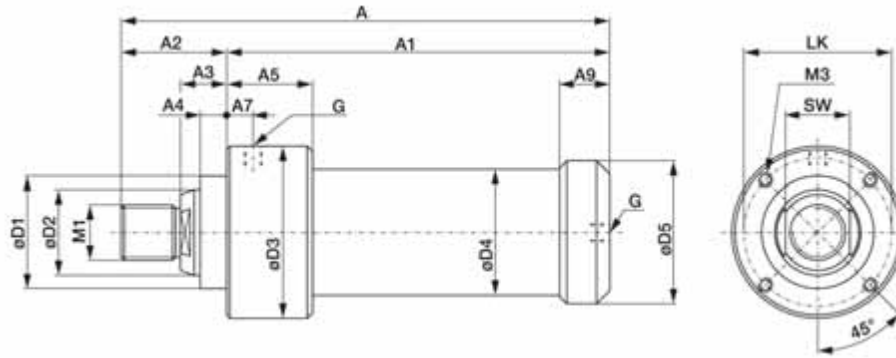
Operating pressure max. 6 bar [87psi], min 3 bar [44psi]. Use only clean, water- and oilfree compressed air. Piston rod is not secured against twisting and should not be loaded transversal. See page 14.2 for more information.

Type K Technical Information

Model	Piston force within forward stroke at 6 bar kN [lbf]	Forward stroke mm [in]	Piston dia. mm [in]	Power stroke mm [in]	Piston dia. mm [in]	Air consumption per double stroke at 6 bar dm ³ [ft ³]	Stroke frequency depending on total stroke [min ⁻¹]	Temperature range °C [°F]	Weight Kg [lbs]
K400-15-6-1	0,68 [153]	15 [0.59]	4 [900lbf]	6 [0.24]	40 [1.75]	0,71 [0.025]	5 to 30	- 5 to +75 [23 to 167]	1,20 [2.6]
K400-30-6-1		30 [1.18]				0,89 [0.031]			1,25 [2.8]
K400-50-6-1		50 [1.97]				1,14 [0.040]			1,30 [2.9]
K400-70-6-1		70 [2.76]				1,38 [0.049]			1,35 [3.0]
K400-120-6-1		120 [4.72]				1,98 [0.070]			1,50 [3.3]
K400-200-6-1		200 [7.87]				2,94 [0.104]			1,70 [3.7]
K600-15-6-1	1,06 [238]	15 [0.59]	6 [1350lbf]	6 [0.24]	50 [1.97]	1,34 [0.047]	5 to 30	- 5 to +75 [23 to 167]	2,05 [4.5]
K600-30-6-1		30 [1.18]				1,65 [0.058]			2,15 [4.7]
K600-50-6-1		50 [1.97]				2,06 [0.073]			2,30 [5.1]
K600-70-6-1		70 [2.76]				2,47 [0.087]			2,40 [5.3]
K600-120-6-1		120 [4.72]				3,50 [0.124]			2,70 [6.0]
K600-200-6-1		200 [7.87]				5,15 [0.182]			3,20 [7.1]
K1000-15-7-1	1,75 [393]	15 [0.59]	10 [2250lbf]	7* [0.27]	63 [2.48]	2,20 [0.078]	5 to 30	- 5 to +75 [23 to 167]	3,60 [7.9]
K1000-30-7-1		30 [1.18]				2,66 [0.094]			3,80 [8.4]
K1000-50-7-1		50 [1.97]				3,26 [0.115]			4,10 [9.0]
K1000-70-7-1		70 [2.76]				3,85 [0.136]			4,40 [9.7]
K1000-120-7-1		120 [4.72]				5,35 [0.189]			5,20 [11.5]
K1000-200-7-1		200 [7.87]				7,74 [0.273]			6,40 [14.1]
K3000-15-6-1	3 [674]	15 [0.59]	30 [4500lbf]	6* [0.24]	85 [3.35]	4,48 [0.158]	5 to 25	- 5 to +75 [23 to 167]	11,80 [26.0]
K3000-30-6-1		30 [1.18]				5,20 [0.184]			12,50 [27.6]
K3000-50-6-1		50 [1.97]				6,17 [0.218]			13,40 [29.5]
K3000-70-6-1		70 [2.76]				7,13 [0.252]			14,30 [31.5]
K3000-120-6-1		120 [4.72]				9,54 [0.337]			16,60 [36.6]
K3000-200-6-1		200 [7.87]				13,40 [0.473]			20,20 [44.5]
K4500-15-6-1	4,2 [944]	15 [0.59]	45 [10120lbf]	6* [0.24]	100 [3.94]	6,18 [0.218]	5 to 25	- 5 to +75 [23 to 167]	13,30 [29.3]
K4500-30-6-1		30 [1.18]				7,17 [0.253]			14,00 [30.9]
K4500-50-6-1		50 [1.97]				8,50 [0.300]			15,00 [33.1]
K4500-70-6-1		70 [2.76]				9,83 [0.347]			15,80 [34.8]
K4500-120-6-1		120 [4.72]				13,20 [0.466]			18,10 [39.9]
K4500-200-6-1		200 [7.87]				18,50 [0.653]			21,70 [47.8]

* Power strokes up to 12 mm and other forward strokes upon request

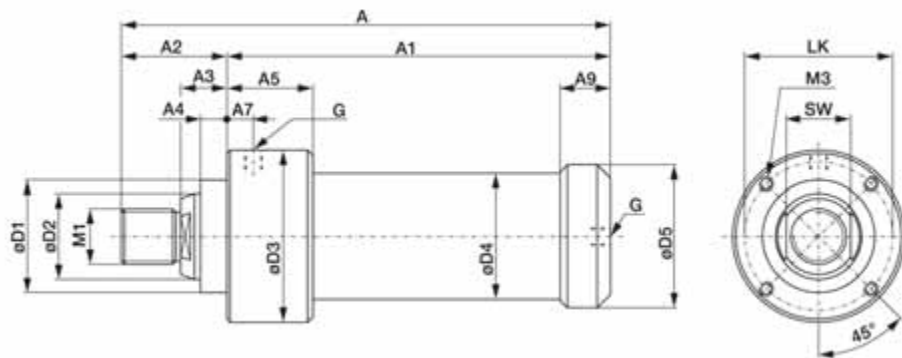
Type K in standard version



Model	Dimensions for standard version of type K Differences of dimensions for cylinder with magnet piston rings see chart on page 14.10																	
	A	A ₁	A ₂	A ₃	A ₄	A ₅	A ₇	A ₉	Ø D ₁	Ø D ₂	Ø D ₃	Ø D ₄	Ø D ₅	M ₁	M ₃	LK	SW	G
K400-15-6-1	186 [7.32]	145 [5.71]																
K400-30-6-1	201 [7.91]	160 [6.30]																
K400-50-6-1	221 [8.70]	180 [7.09]	41 [1.6]	21 [0.8]	12 [0.5]	39 [1.5]	10 [0.4]	23,5 [0.9]	40 _{h8} [1.6]	25 _{h7} [1.0]	63 [2.5]	44 [1.7]	49 [1.9]	M16 x 1,5 [0.06]	M5, 10mm deep [0.1]	54 [2.1]	21 [0.8]	1/8
K400-70-6-1	241 [9.49]	200 [7.87]																
K400-120-6-1	291 [11.46]	250 [9.84]																
K400-200-6-1	371 [14.61]	330 [12.99]																
K600-15-6-1	201 [7.91]	160 [6.30]																
K600-30-6-1	216 [8.50]	175 [6.89]																
K600-50-6-1	236 [9.29]	195 [7.68]	41 [1.6]	21 [0.8]	12 [0.5]	39 [1.5]	10 [0.4]	23,5 [0.9]	40 _{h8} [1.6]	25 _{h7} [1.0]	73 [2.9]	54 [2.1]	59 [2.3]	M16 x 1,5 [0.06]	M6, 10mm deep [0.1]	64 [2.5]	21 [0.1]	1/8
K600-70-6-1	256 [10.08]	215 [8.46]																
K600-120-6-1	306 [12.05]	265 [10.43]																
K600-200-6-1	386 [15.20]	345 [13.58]																
K1000-15-7-1	243 [9.57]	187 [7.36]																
K1000-30-7-1	258 [10.16]	202 [7.95]																
K1000-50-7-1	278 [10.94]	222 [8.74]	56 [2.2]	25 [1.0]	15 [0.6]	52 [2.0]	10 [0.4]	29 [1.1]	63 _{h8} [2.5]	40 _{h7} [1.6]	100 [3.9]	68 [2.7]	74,5 [2.9]	M24 [0.98]	M8, 12mm deep [1]	85 [3.3]	32 [1.3]	1/8
K1000-70-7-1	298 [11.73]	242 [9.53]																
K1000-120-7-1	348 [13.70]	292 [11.50]																
K1000-200-7-1	428 [16.85]	372 [14.65]																

Type K Technical Information (continued)

Type K in standard version



Model	Dimensions for standard version of type K Differences of dimensions for cylinder with magnet piston rings see chart on page 14.10																		
	A	A ₁	A ₂	A ₃	A ₄	A ₅	A ₇	A ₉	Ø D ₁	Ø D ₂	Ø D ₃	Ø D ₄	Ø D ₅	M ₁	M ₃	LK	SW	G	
K3000-15-6-1	315 [12.40]	235 [9.25]																	
K3000-30-6-1	330 [12.99]	250 [9.84]																	
K3000-50-6-1	350 [13.78]	270 [10.63]	50 [2.0]	35 [1.4]	20 [0.8]	70 [2.8]	20 [0.8]	45 [1.8]	85 _{h8} [3.3]	65 _{h7} [2.6]	130 [5.1]	95 [3.7]	108 [4.3]	M42 [1.65]	M10, 16mm deep [1.7]	112 [4.4]	55 [2.2]	1/4	
K3000-70-6-1	370 [14.57]	290 [11.42]																	
K3000-120-6-1	420 [16.54]	340 [13.39]																	
K3000-200-6-1	500 [19.69]	420 [16.54]																	
K4500-15-6-1	315 [12.40]	235 [9.25]																	
K4500-30-6-1	330 [12.99]	250 [9.84]																	
K4500-50-6-1	350 [13.78]	270 [10.63]	80 [3.1]	35 [1.4]	20 [0.8]	70 [2.8]	20 [0.8]	45 [1.8]	85 _{h8} [3.3]	65 _{h7} [2.6]	145 [5.7]	110 [4.3]	123 [4.8]	M42 [1.65]	[1.7] M10, 16mm deep	127 [5.0]	55 [2.2]	1/4	
K4500-70-6-1	370 [14.57]	290 [11.42]																	
K4500-120-6-1	420 [16.54]	340 [13.39]																	
K4500-200-6-1	500 [19.69]	420 [16.54]																	



Type WK Product Overview



• Piston rod with iso fit

Note:

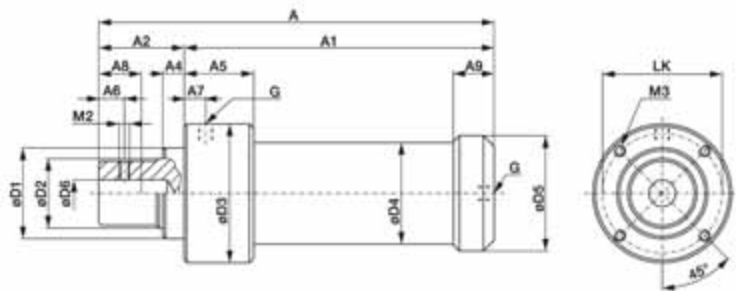
Operating pressure max. [87psi]6 bar, min [44psi] 3 bar. Use only clean, water- and oilfree compressed air. Piston rod is not secured against twisting and should not be loaded transversal. See page 14.2 for more information.

Model	Piston force within forward stroke at 6 bar kN [lbf]	Forward stroke mm [in]	Clamping force within power stroke at 6 bar kN [lbf]	Power stroke mm [in]	Piston dia. mm [in]	Air consumption per double stroke at 6 bar dm ³ [ft ³]	Stroke frequency depending on total stroke [min ⁻¹]	Temperature range °C [°F]	Weight [lbs] kg
WK400-15-6-1		15 [0.59]				0,71 [0.025]			1,20 [2.6]
WK400-30-6-1		30 [1.18]				0,89 [0.031]			1,25 [2.8]
WK400-50-6-1	0,68 [153]	50 [1.97]	4 [900lbf]	6 [0.24]	40 [1.75]	1,14 [0.040]	5 to 30	- 5 to +75 [23 to 167]	1,30 [2.9]
WK400-70-6-1		70 [2.76]				1,38 [0.049]			1,35 [3.0]
WK400-120-6-1		120 [4.72]				1,98 [0.070]			1,50 [3.3]
WK400-200-6-1		200 [7.87]				2,94 [0.104]			1,70 [3.7]
WK600-15-6-1		15 [0.59]				1,34 [0.047]			2,05 [4.5]
WK600-30-6-1		30 [1.18]				1,65 [0.058]			2,15 [4.7]
WK600-50-6-1	1,06 [238]	50 [1.97]	6 [1350lbf]	6 [0.24]	50 [1.97]	2,06 [0.073]	5 to 30	- 5 to +75 [23 to 167]	2,30 [5.1]
WK600-70-6-1		70 [2.76]				2,47 [0.087]			2,40 [5.3]
WK600-120-6-1		120 [4.72]				3,50 [0.124]			2,70 [6.0]
WK600-200-6-1		200 [7.87]				5,15 [0.182]			3,20 [7.1]
WK1000-15-7-1		15 [0.59]				2,20 [0.078]			3,60 [7.9]
WK1000-30-7-1		30 [1.18]				2,66 [0.094]			3,80 [8.4]
WK1000-50-7-1	1,75 [393]	50 [1.97]	10 [2250lbf]	7* [0.27]	63 [2.48]	3,26 [0.115]	5 to 30	- 5 to +75 [23 to 167]	4,10 [9.0]
WK1000-70-7-1		70 [2.76]				3,85 [0.136]			4,40 [9.7]
WK1000-120-7-1		120 [4.72]				5,35 [0.189]			5,20 [11.5]
WK1000-200-7-1		200 [7.87]				7,74 [0.273]			6,40 [14.1]
WK3000-15-6-1		15 [0.59]				4,48 [0.158]			11,80 [26.0]
WK3000-30-6-1		30 [1.18]				5,20 [0.184]			12,50 [27.6]
WK3000-50-6-1	3 [674]	50 [1.97]	30 [4500lbf]	6* [0.24]	85 [3.35]	6,17 [0.218]	5 to 25	- 5 to +75 [23 to 167]	13,40 [29.5]
WK3000-70-6-1		70 [2.76]				7,13 [0.252]			14,30 [31.5]
WK3000-120-6-1		120 [4.72]				9,54 [0.337]			16,60 [36.6]
WK3000-200-6-1		200 [7.87]				13,40 [0.473]			20,20 [44.5]
WK4500-15-6-1		15 [0.59]				6,18 [0.218]			13,30 [29.3]
WK4500-30-6-1		30 [1.18]				7,17 [0.253]			14,00 [30.9]
WK4500-50-6-1	4,2 [944]	50 [1.97]	45 [10120lbf]	6* [0.24]	100 [3.94]	8,50 [0.300]	5 to 25	- 5 to +75 [23 to 167]	15,00 [33.1]
WK4500-70-6-1		70 [2.76]				9,83 [0.347]			15,80 [34.8]
WK4500-120-6-1		120 [4.72]				13,20 [0.466]			18,10 [39.9]
WK4500-200-6-1		200 [7.87]				18,50 [0.653]			21,70 [47.8]
WK6000-30-6		[1.18] 30				[0.367] 10,40			24,00 [52.9]
WK6000-50-6	6,0 [1350]	[1.97] 50	60,0	6* [0.24]	125,0 [4.92]	[0.454] 12,85	5 to 25	- 5 to +75 [23 to 167]	24,50 [54.0]
WK6000-70-6		[2.76] 70	[13490lbf]			[0.536] 15,17			25,00 [55.1]
WK6000-120-6		[4.72] 120				[0.747] 21,15			26,50 [58.4]

* Power strokes up to 12 mm and other forward strokes upon request

Type WK Technical Information

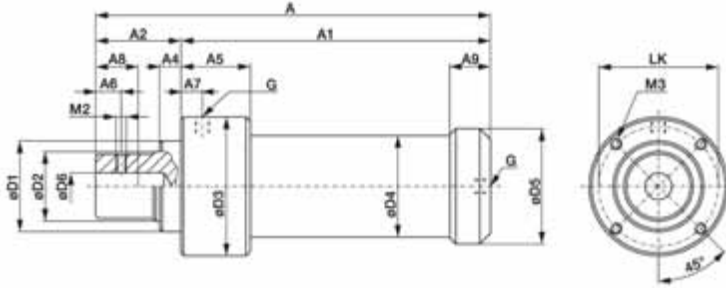
Type WK in standard version



Model	Dimensions for standard version of type WK Differences of dimensions for cylinder with magnet piston rings see chart on page 14.10																		
	A	A ₁	A ₂	A ₃	A ₄	A ₅	A ₇	A ₈ **	A ₉	Ø D ₁	Ø D ₂	Ø D ₃	Ø D ₄	Ø D ₅	Ø D ₆	M ₂	M ₃	LK	G
WK400-15-6-1	186 [7.32]	145 [5.71]																	
WK400-30-6-1	201 [7.91]	160 [6.30]																	
WK400-50-6-1	221 [8.70]	180 [7.09]	41	21	12	39	10	25	23,5	40 _{h7}	25 _{h7}	63	44	49	10 ^{H7}	M6	M5, 10mm deep [0.06]	[2.13] 54	1/8
WK400-70-6-1	241 [9.49]	200 [7.87]	[1.61]	[0.83]	[0.47]	[1.54]	[0.39]	[0.98]	[0.93]	[1.57]	[0.98]	[2.48]	[1.73]	[1.93]					
WK400-120-6-1	291 [11.46]	250 [9.84]																	
WK400-200-6-1	371 [14.61]	330 [12.99]																	
WK600-15-6-1	201 [7.91]	160 [6.30]																	
WK600-30-6-1	216 [8.50]	175 [6.89]																	
WK600-50-6-1	236 [9.29]	195 [7.68]	41	21	12	39	10	25	23,5	40 _{h7}	25 _{h7}	73	54	[2.32] 59	10 ^{H7}	M6	M6, 10mm deep [0.06]	[2.52] 64	1/8
WK600-70-6-1	256 [10.08]	215 [8.46]	[1.61]	[0.83]	[0.47]	[1.54]	[0.39]	[0.98]	[0.93]	[1.57]	[0.98]	[2.87]	[2.13]						
WK600-120-6-1	306 [12.05]	265 [10.43]																	
WK600-200-6-1	386 [15.20]	345 [13.58]																	
WK1000-15-7-1	243 [9.57]	187 [7.36]																	
WK1000-30-7-1	258 [10.16]	202 [7.95]																	
WK1000-50-7-1	278 [10.94]	222 [8.74]	56	25	15	52	10	40	29	63 _{h8}	40 _{h7}	99,5	68	74,5	20 ^{H7}	M8	M8, 12mm deep [0.98]	[3.35] 85	1/8
WK1000-70-7-1	298 [11.73]	242 [9.53]	[2.20]	[0.98]	[0.59]	[2.05]	[0.39]	[1.57]	[1.14]	[2.48]	[1.57]	[3.92]	[2.68]	[2.93]					
WK1000-120-7-1	348 [13.70]	292 [11.50]																	
WK1000-200-7-1	428 [16.85]	372 [14.65]																	

Continued on next page

Type WK in standard version



Model	Dimensions for standard version of type WK																		
	Differences of dimensions for cylinder with magnet piston rings see chart on page 14.10																		
	A	A ₁	A ₂	A ₃	A ₄	A ₅	A ₇	A ₈ **	A ₉	Ø D ₁	Ø D ₂	Ø D ₃	Ø D ₄	Ø D ₅	Ø D ₆	M ₂	M ₃	LK	G
WK3000-15-6-1	315 [12.40]	235 [9.25]																	
WK3000-30-6-1	330 [12.99]	250 [9.84]																	
WK3000-50-6-1	350 [13.78]	270 [10.63]	80 [3.15]	35 [1.38]	20 [0.79]	70 [2.76]	20 [0.79]	40 [1.57]	45 [1.77]	85 _{h8} [3.35]	65 _{h7} [2.56]	130 [5.12]	95 [3.74]	108 [4.25]	25 ^{H7}	M10	M10, 16mm deep [16]	112 [4.41]	1/4
WK3000-70-6-1	370 [14.57]	290 [11.42]																	
WK3000-120-6-1	420 [16.54]	340 [13.39]																	
WK3000-200-6-1	500 [19.69]	420 [16.54]																	
WK4500-15-6-1	315 [12.40]	235 [9.25]																	
WK4500-30-6-1	330 [12.99]	250 [9.84]																	
WK4500-50-6-1	350 [13.78]	270 [10.63]	80 [3.15]	35 [1.38]	20 [0.79]	70 [2.76]	20 [0.79]	40 [1.57]	45 [1.77]	85 _{h8} [3.35]	65 _{h7} [2.56]	145 [5.71]	110 [4.33]	123 [4.84]	25 ^{H7}	M10	M10, 16mm deep [1.65]	127 [5.00]	1/4
WK4500-70-6-1	370 [14.57]	290 [11.42]																	
WK4500-120-6-1	420 [16.54]	340 [13.39]																	
WK4500-200-6-1	500 [19.69]	420 [16.54]																	
WK6000-30-6	365 [14.37]	285 [11.22]																	
WK6000-50-6	385 [15.16]	305 [12.01]	80 [3.15]	20 [0.79]	48 [1.89]	24 [0.94]	22 [0.87]	40 [1.57]	53 [2.09]	85 _{h8} [3.35]	65 _{h7} [2.56]	178 [7.01]	135 [5.31]	148 [5.83]	25 ^{H7}	M10	M10, 16mm deep [1.65]	150 [5.91]	1/2
WK6000-70-6	405 [15.94]	325 [12.80]																	
WK6000-120-6	455 [17.91]	375 [14.76]																	

** Usable depth of bore with ISO fit D6

Type WR Product Overview

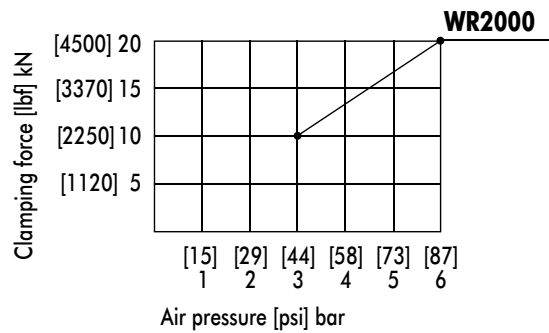
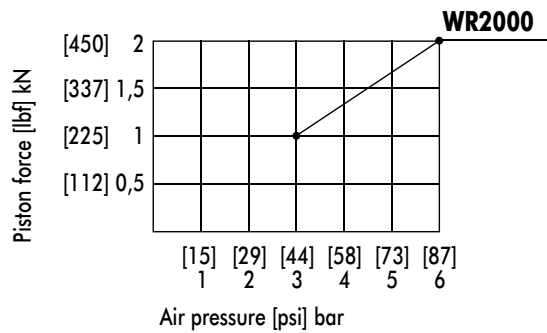
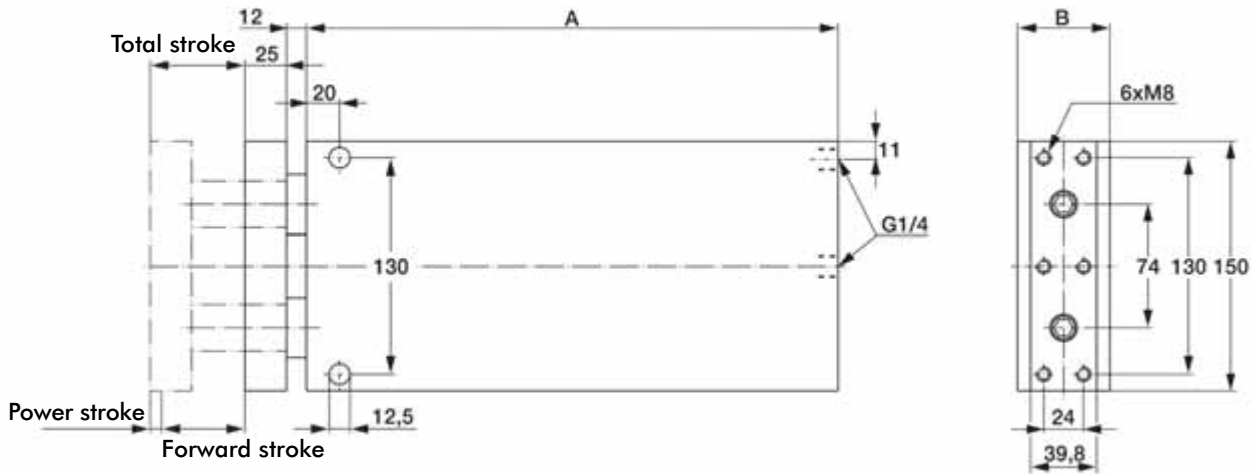


- Piston rods prevent twisting

Note:

Use only clean, water- and oilfree compressed air. Force must be transmitted via the centre of the pressure plate. One-sided loading of the pressure plate should be avoided. For punching applications contact our technical support! See page 14.2 for more information.

Type WR



Return stroke force: half of piston force

Air pressure: max. [87psi] 6 bar; min. [44psi] 3 bar

Model	Piston force within forward stroke at 6 bar kN [lbf]	Forward stroke mm [in]	Clamping force within power stroke at 6 bar [lbf] kN	Power stroke mm [in]	Piston dia. mm [in]	Air consumption per double stroke at 6 bar dm ³ [ft ³]	Stroke frequency depending on total stroke [min ⁻¹]	Temperature range °C [°F]	Weight kg [lbs]	A	B
WR 2000-15-7		15 [0.59]				2,44 [0.086]			12,5 [27.6]	285	51,6
WR 2000-30-7		30 [1.18]				2,95 [0.104]			14,0 [30.9]	300	51,6
WR 2000-50-7	2 [450]	50 [1.97]	20 [4500]	7 [0.27]	70 [2.76]	3,62 [0.128]	5 - 25	-5 up to +75 [23 to up167]	15,5 [34.1]	320	55,6
WR 2000-70-7		70 [2.76]				4,27 [0.151]			17,2 [37.9]	340	55,6
WR 2000-120-7		120 [4.72]				5,94 [0.210]			21,0 [46.3]	390	59,6

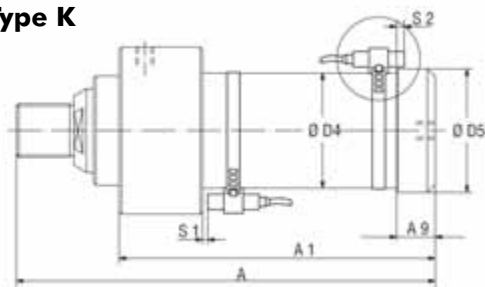
Pneumatic Power Cylinders Type K and WK with end position control by magnetic field sensors.

- For the sizes
K and WK 400.... , K and WK 600... ,
K and WK 1000.... K and WK 3000...,
K and WK 4500...
- Change of Model
Indicate „-A” at the end of Model instead of „-1”
for standard version!
Example:
K400 – 15 – 6 – 1 change to K400 – 15 – 6 – A
WK 3000 – 50 – 6 – 1 change to WK 3000 - 50 – 6 – A
- Change in construction
Only the dimensions Ø D4, Ø D5, A/A 1 and A9 are
different to the standard version.



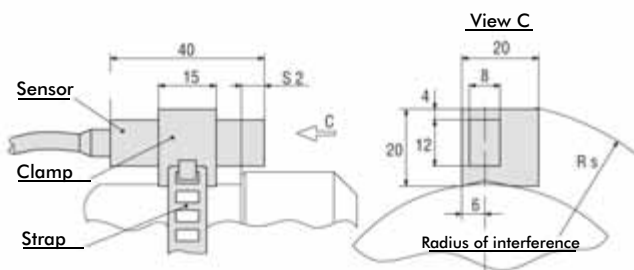
- Standard equipment (as shown above)
Pneumatic Power Cylinders with “-A” at the end of
Model are completely furnished with a magnetic
piston ring and with two mounted sensor sets
(Model SMB-102157, consisting of magnetic field
sensor with 3m cable, clamp and strap)

Type K

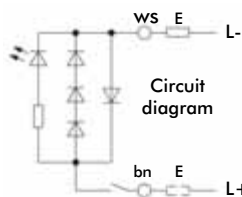


For sizes	Switching points of sensors		**Differences of dimensions compared with standard version				
	S1*	S2*	Ø D4	Ø D5	A/A 1	A9	Rs
K 400-...-A	5	12	-	-	+15	-	44
K 1000-...-A	10	18	-	-	+15	-	56
K 3000-...-A	5	14	90	97	-	30	67
K 45000-...-A	5	12	106	113	-	28,5	75

* Approx. data, because of magnet field variations. S1 refers to the max. power stroke and enlarges up to 60 mm, when smaller power strokes are used.

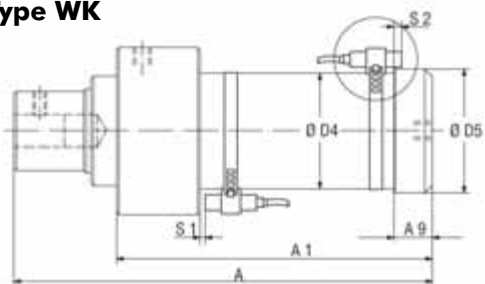


Circuit diagram and technical data of sensor set Model **SMB-102157**, consisting of magnetic field sensor with 3 m cable, clamp and strap (2 sets per cylinder are standard equipment).



Switching voltage	10...250 VAC/DC
Switching current	0,5 A
Switching power	20 W/30 VA
Function	normally open contact
Protection class	IP 67 (DIN 40050)
Indicator	LED

Type WK



Für Größe	Switching points of sensors		**Differences of dimensions compared with standard version				
	S1*	S2*	Ø D4	Ø D5	A/A 1	A9	Rs
WK 400-...-A	5	12	-	-	+15	-	44
WK 1000-...-A	10	18	-	-	+15	-	56
WK 3000-...-A	5	14	90	97	-	30	67
WK 45000-...-A	5	12	106	113	-	28,5	75

* Approx. data, because of magnet field variations. S1 refers to the max. power stroke and enlarges up to 60 mm, when smaller power strokes are used.

Magnetic field sensing -K



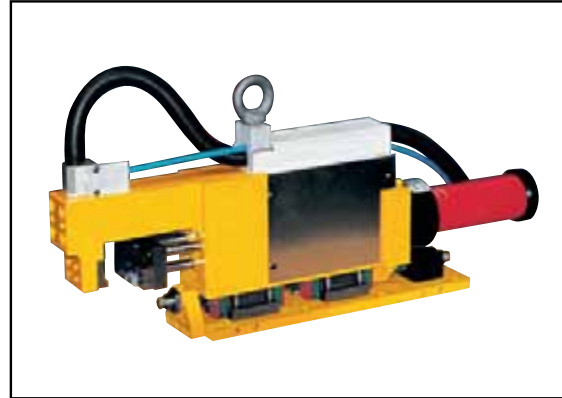
Sensor cage for T-slot proximity sensor

- **For the sizes**
K and WK 400.... , K and WK 600... , K and WK 1000.... ,
K and WK 3000..., K and WK 4500...
- **Change of Model**
Indicate „-K“ at the end of Model instead of „-A“ for standard version!
Example:
K400 – 15 – 6 – A change to K400 – 15 – 6 – K
WK 3000 – 50 – 6 – A change to WK 3000 - 50 – 6 – K
- **Benefits:**
Small radii of interference!
Customer specific T-slot sensors are usable!
- **Standard equipment:**
Pneumatic power cylinder with „-K“ at the end of Model are supplied with mounted sensor cages but without T-slot sensors.

Press frame



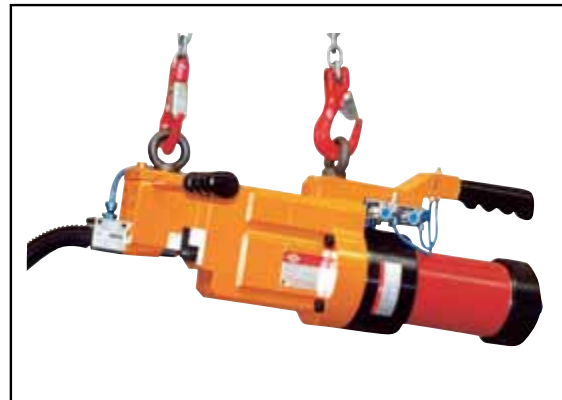
Radius clinching unit for profiled aluminium



Special punching unit for 2 holes Ø 3,4 in steel 0,9 mm



Special device for 2 holes Ø 12 in steel 1,2 mm



Mobile punching unit for holes Ø 6,2 in crossbeams



Device for holes Ø 8 in sheet metal



Stamping units placed in line



Stamping units placed in line



Welding fixture for exhaust components

	Series	Section Page	Holding Force at 5 bar					Clamping Force (N) at 5 bar					Piston Diameter						Material	
			0 to 100 [N]	100 to 500 [N]	500 to 1000 [N]	1000 to 2000 [N]	2000 to 4000 [N]	0 to 100 [N]	100 to 500 [N]	500 to 1000 [N]	1000 to 2000 [N]	2000 to 4000 [N]	Less than 25mm	25mm	32mm	40mm	50mm	63mm	80mm	Aluminum	Steel
	81L	15.4	■					■				■							■	
	82L-4	15.6	■					■				■							■	
	82L-2	15.11	■	■				■	■			■	■	■					■	
	82M	15.15		■	■				■					■	■	■			■	
	82G80	15.41					■			■								■		■
	82D	15.49	■	■				■	■										■	
	82U	15.55					■				■								■	
	GDP	15.57									■		■						■	
	82P	15.61									■		■						■	
	870/871	15.67			■				■						■					■



Weight					Air Consumption at 5 bar [dm3]				Application Area														
0 to 2 [Kg]	2-4 [Kg]	4-6 [Kg]	6-8 [Kg]	More than 8 [Kg]	0 to 0.5 [dm3]	0.50 to 1.00 [dm3]	1.00 to 2.00 [dm3]	More than 2.00 [dm3]	Welding	Assembly	Dirty Environment	End Effectors	Machining	Duty Cycle	Adjustable Opening Angle	Inductive Sensors Available	Dual Arms	Locating	Manual Version Available	Center Arm	Lateral Arms	Toggle Locking	
█					█				⊗	●	○	●	●	○								✓	✓
█					█				●	●	●	●	●	●	✓	✓			✓	✓	✓	✓	✓
█						█			●	●	●	○	●	●	✓	✓			✓	✓	✓	✓	✓
	█	█					█	█	●	●	●	●	●	●	✓	✓			✓	✓	✓	✓	✓
				█				█	●	●	●	⊗	●	●	✓	✓					✓	✓	✓
	█						█	█	●	●	●	○	●	●		✓	✓						✓
	█						█		○	●	○	○	●	●		✓		✓					✓
	█						█		●	●	●	●	●	●		✓		✓					✓
	█						█		○	●	○	●	●	●		✓		✓					✓
	█						█		⊗	●	○	●	●	●							✓		✓

● Excellent/High ○ Fair/Medium ● Poor/Low ⊗ Not Recommended

Series 81L Product Overview

Features:

- Lightweight, aluminum body
- Two mounting areas: front and side
- Toggle-action mechanism
- Can be quickly retrofitted with magnetic sensing system

Applications:

- Assembly
- Checking fixtures
- Handling systems

Also Available:

82LxG-2 Series: Enclosed version in similar sizes. See page 15.12

81L12-1



81L16-1



81L20-1



81L25-1



Series 81L Technical Information, Ordering Information

Model	Max. Holding Torque Nm [lb ft]	Max. Clamping Torque @5 bar [72 psi] Nm [lb ft]	Weight kg [lb]	Air Consumption @5 bar [72 psi] dm ³ [ft ³]	Max. Added Load (@ Position, "X") g [oz]
81L12-101	25 [18.4]	4,5 [3.3]	0,16 [0.4]	0,25 [0.01]	50 [1.8]
81L12-141	20 [14.8]	4,5 [3.3]	0,17 [0.4]	0,25 [0.01]	50 [1.8]
81L16-101	60 [44]	6 [4.4]	0,25 [0.6]	0,27 [0.01]	80 [2.8]
81L16-141	40 [29.5]	6,5 [4.8]	0,27 [0.6]	0,26 [0.01]	80 [2.8]
81L20-101	100 [73.8]	18 [13.3]	0,50 [1.1]	0,40 [0.01]	90 [3.2]
81L20-141	80 [59]	17 [12.5]	0,52 [1.2]	0,35 [0.01]	90 [3.2]
81L25-101	100 [73.8]	18 [13.3]	0,52 [1.2]	0,40 [0.01]	100 [3.5]

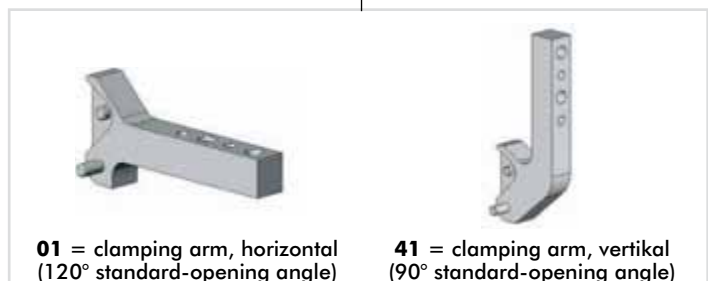
Example Order No.: **81L12-1** **01** **00**

00 = Standard Design



81L12-10100 81L16-10100 81L20-10100 81L25-10100

Base Model: Size



01 = clamping arm, horizontal (120° standard-opening angle)

41 = clamping arm, vertical (90° standard-opening angle)

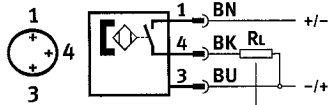
Arm Style

Series 81L Standard Clamp Dimensions, Accessories, Spare Parts

Accessories:

Part #	Description	Notes
8EA-109-1	Sensor	3-wire cable, M8x1 connector, 3-pin
82ZB-004-1	Adapter	Adapter for mounting 81L20-1, 81L25-1 to 25mm dia. bar

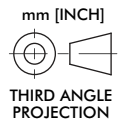
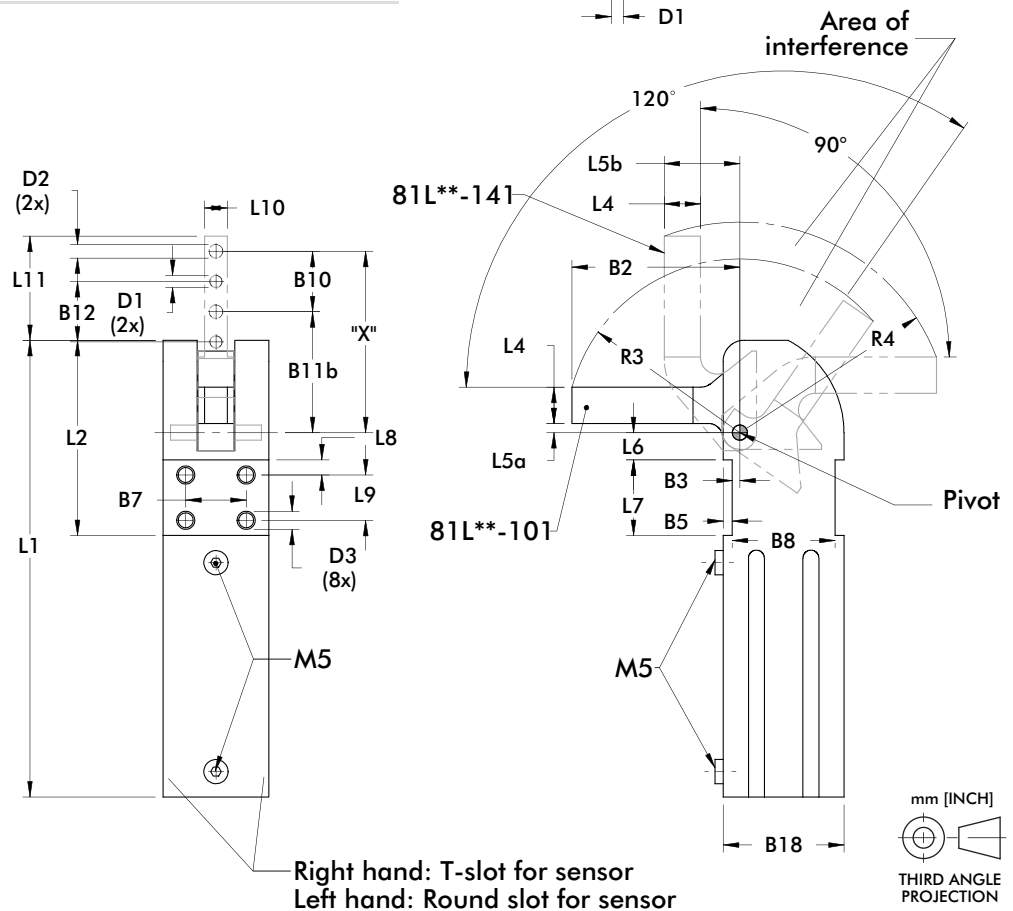
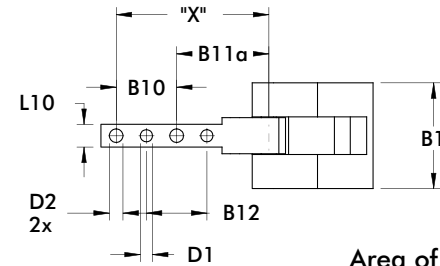
8EA-109-1



10V ... max. 30 VAC/VDC
Max. 500 mA
Max. 10 W

BN = Brown
BK = Black
BU = Blue
RL = Load

Power by compressed air, max. 6 bar Operation with oil-free air is permissible.



Spare Parts:

Model	Seal Kit
81L12-1	81L12-1-00
81L16-1	81L16-1-00
81L20-1	81L20-1-00
81L25-1	81L20-1-00

Model	D1 Ø [H7]	D2 Ø	D3 Ø	B1	B2	B3	B5	B7	B8	B10	B11a	B11b	B12
81L12-1	[0.12] 3	[0.13] 3,3	M4x6	[0.94] 24	[1.57] 40	[0.10] 2,5	[0.06] 1,5	[0.59] 15	[0.98] 25	[0.35] 9	[1.06] 27	[1.24] 31,5	[0.35] 9
81L16-1	[0.12] 3	[0.17] 4,3	M5x5	[1.12] 30	[1.97] 50	[0.08] 2	[0.08] 2	[0.79] 20	[1.02] 26	[0.59] 15	[1.18] 30	[1.56] 39,5	[0.59] 15
81L20-1	[0.16] 4	[0.18] 4,5	M6x8	[1.38] 35	[2.12] 55,5	[0.10] 2,5	[0.12] 3	[0.79] 20	[1.34] 34	[0.79] 20	[1.20] 30,5	[1.57] 40	[0.79] 20
81L25-1	[0.16] 4	[0.26] 6,5	M6x8	[1.38] 35	[2.58] 65,5	[0.10] 2,5	[0.12] 3	[0.79] 20	[1.34] 34	[0.79] 20	[1.59] 40,5	[1.97] 50	[0.79] 20

Model	B18	L1	L2	L4	L5a	L5b	L6	L7	L8	L9	L10	L11	R3	R4
81L12-1	[1.10] 28	[4.09] 104	[1.59] 40,5	[0.28] 7	[0.10] 2,5	[0.7] 17,5	[0.18] 4,5	[0.59] 15	[0.12] 3	[0.35] 9	[0.24] 6	[0.93] 23,5	[1.61] 41	[1.89] 48
81L16-1	[1.18] 30	[4.69] 119	[1.95] 49,5	[0.35] 9	[0.09] 2,3	[0.8] 20,5	[0.23] 5,8	[0.79] 20	[0.16] 4	[0.47] 12	[0.31] 8	[1.41] 35,8	[2.00] 51	[2.48] 63
81L20-1	[1.57] 40	[5.94] 151	[2.54] 64,5	[0.47] 12	[0.12] 3	[0.98] 25	[0.35] 9	[0.98] 25	[0.19] 5	[0.59] 15	[0.29] 7,5	[1.36] 34,5	[2.26] 57,5	[2.75] 70
81L25-1	[1.57] 40	[5.94] 151	[2.54] 64,5	[0.47] 12	[0.12] 3	[0.98] 25	[0.35] 9	[0.98] 25	[0.19] 5	[0.59] 15	[0.47] 12	[1.75] 44,5	[2.64] 67	[3.11] 79

Series 82L..-4 Product Overview

Features:

- Lightweight, enclosed aluminum body
- Two mounting areas: front and side
- Toggle-action mechanism
- Compatible with magnetic sensing system

Applications:

- Assembly
- Checking fixtures
- Handling systems

Also Available:

82Lxx-2 Series: Enclosed version in larger sizes

See page 15.12

82L..-403.
Horizontal clamping position



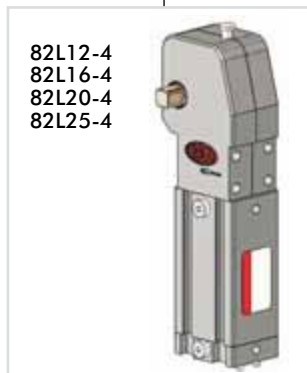
82L..-443.
Vertical clamping position



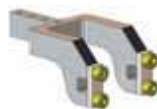
Series 82L..-4... Technical Information, Ordering Information

Model	Max. Holding Torque Nm [lb ft]	Max. Clamping Torque @5 bar [72 psi] Nm [lb ft]	Weight [with arm] kg [lb]	Air Consumption @5 bar [72 psi] dm ³ [ft ³]	Max. Added Load (@ Position, "X") g [oz]
82L12-403	35 [18.4]	10,4 [3.3]	0,23 [0.4]	0,25 [0.01]	50 [1.8]
82L12-443	35 [18.4]	8,7 [3.3]	0,23 [0.4]	0,25 [0.01]	50 [1.8]
82L16-403	40 [29.5]	12,4 [4.4]	0,33 [0.6]	0,27 [0.01]	80 [2.8]
82L16-443	40 [29.5]	11,0 [4.8]	0,33 [0.6]	0,27 [0.01]	80 [2.8]
82L20-403	50 [73.8]	21,0 [13.3]	0,42 [1.1]	0,35 [0.01]	90 [3.2]
82L20-443	50 [73.8]	19,3 [12.5]	0,42 [1.2]	0,35 [0.01]	90 [3.2]
82L25-403	80 [59]	31,8 [13.3]	0,66 [1.2]	0,40 [0.01]	100 [3.5]
82L25-443	80 [59]	28,5 [12.5]	0,66 [1.2]	0,40 [0.01]	100 [3.5]

Example Order No.: **82L12-4** **03** **0**



00 = without clamping arm
03 = U-bar, central 90°



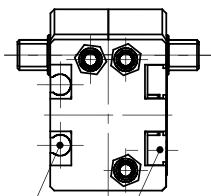
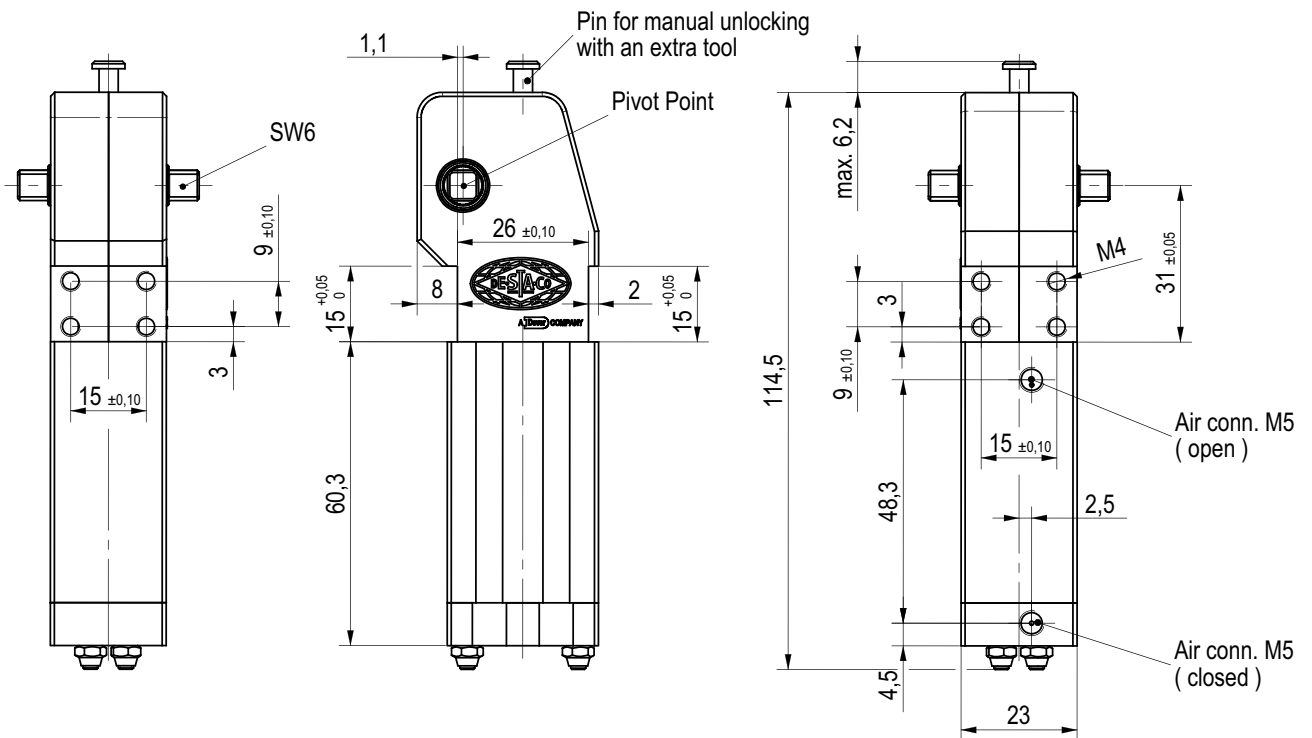
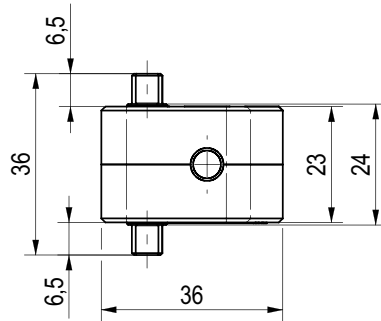
00 = without clamping arm
43 = U-bar, central 180°



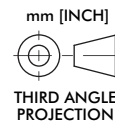
0 = opening angle standard 105°
3 = 90° opening angle
4 = 75° opening angle
5 = 60° opening angle
6 = 45° opening angle
7 = 30° opening angle
8 = 15° opening angle

105° standard opening angle

Series 82L12-4 Standard Clamp Dimensions

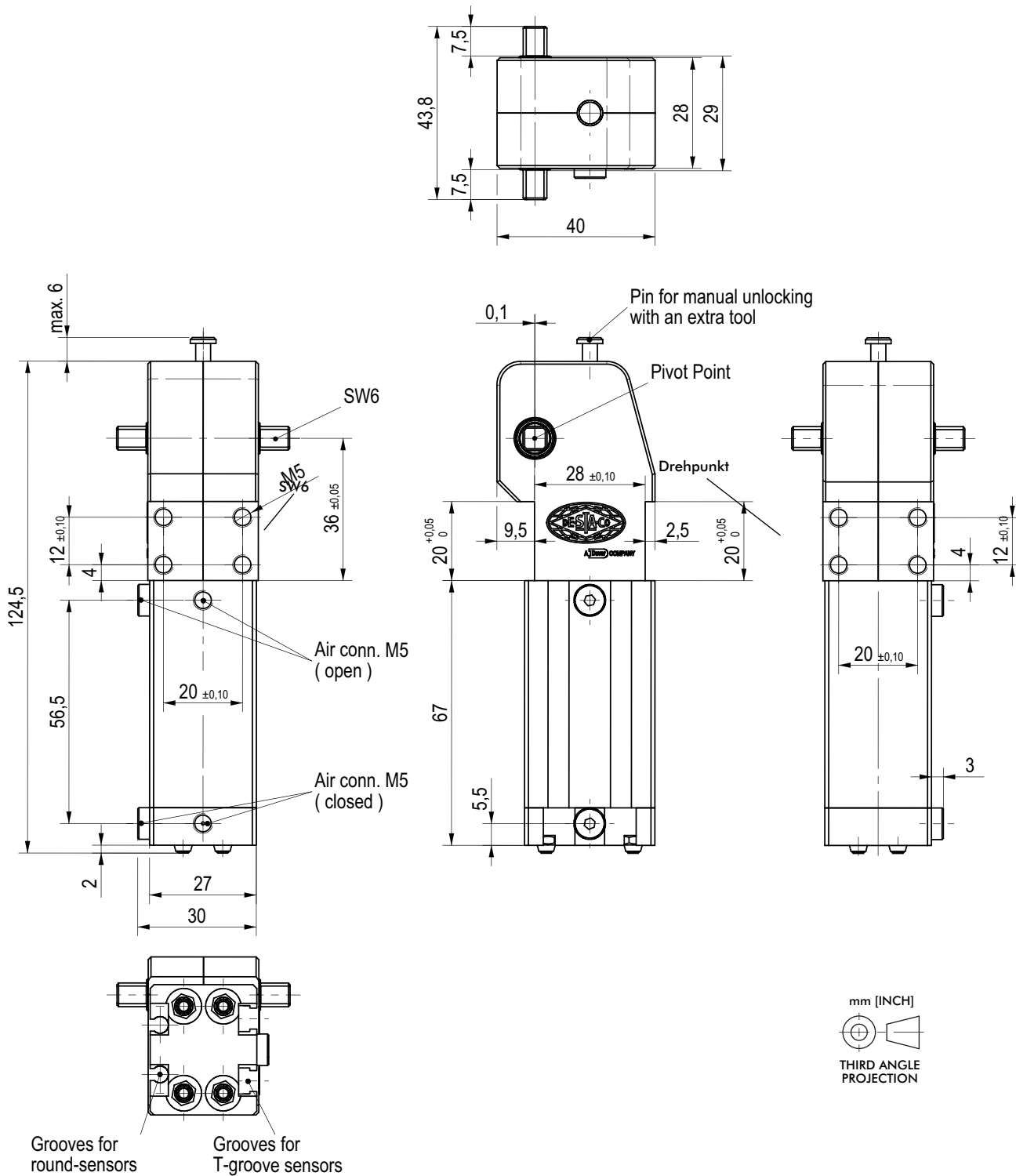


Grooves for round-sensors
Grooves for T-groove sensors



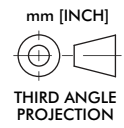
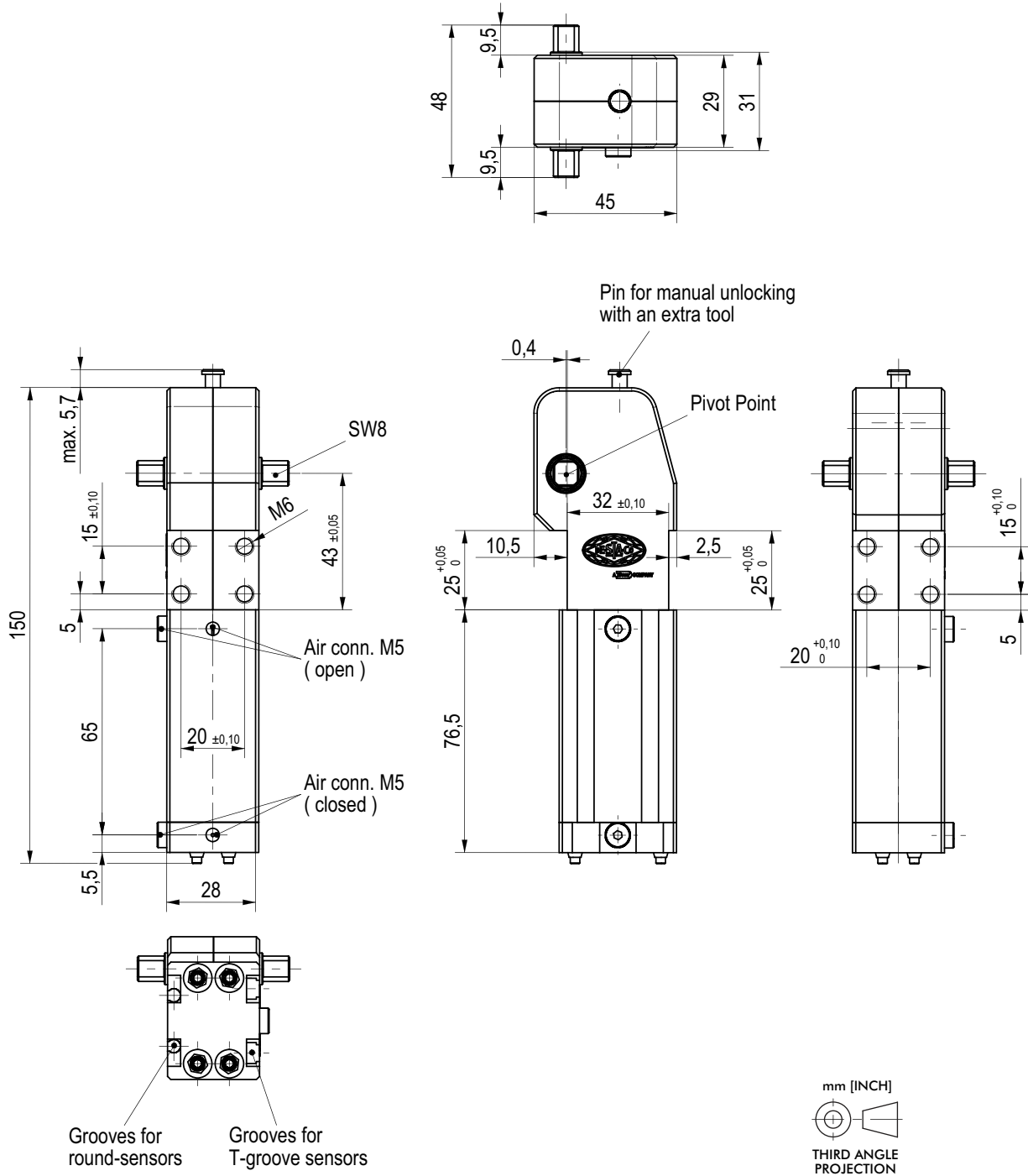
Power by compressed air, max. 6 bar
Operation with oil-free air is permissible.

Series 82L16-4 Standard Clamp Dimensions



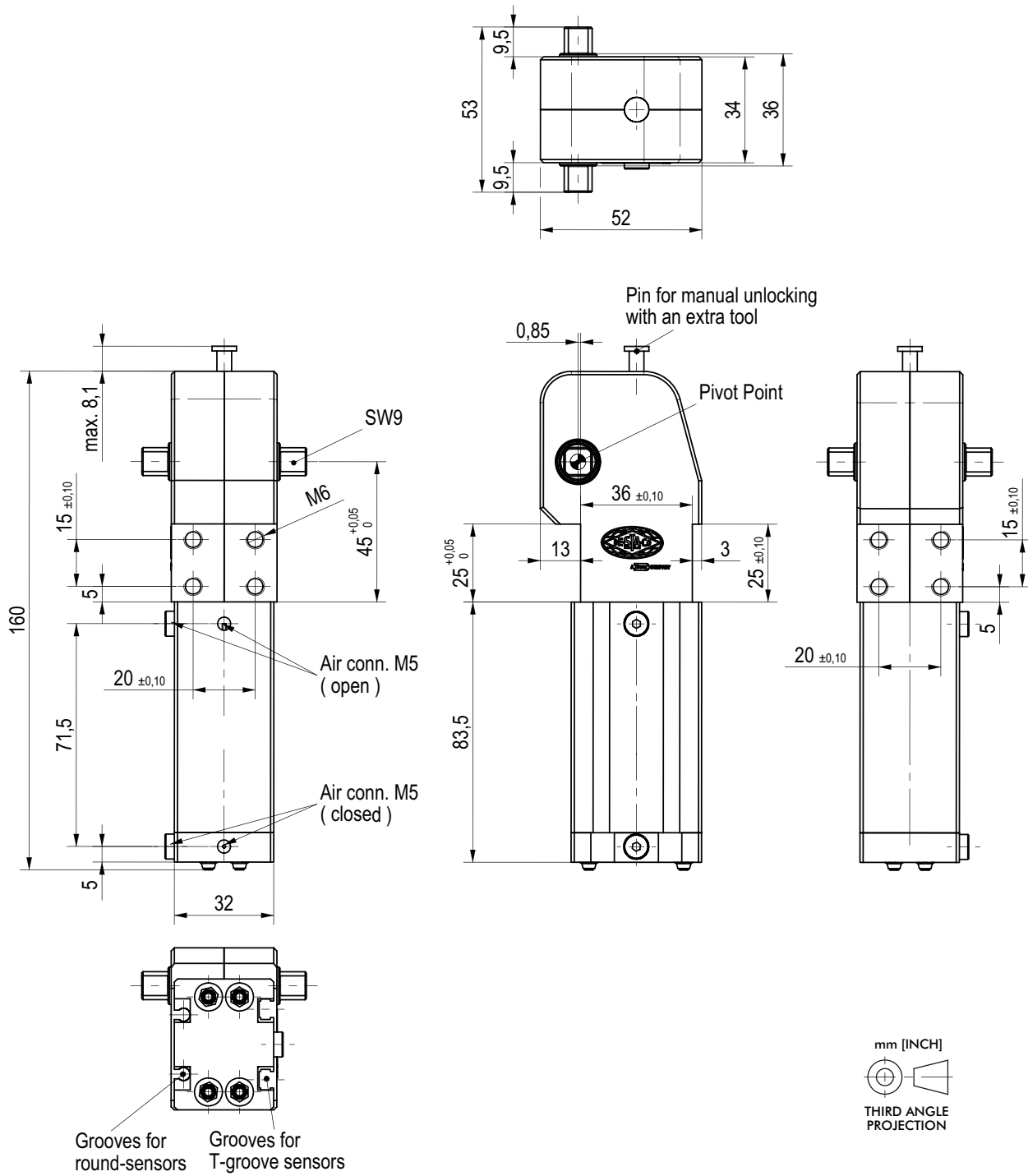
Power by compressed air, max. 6 bar
 Operation with oil-free air is permissible.

Series 82L20-4 Standard Clamp Dimensions



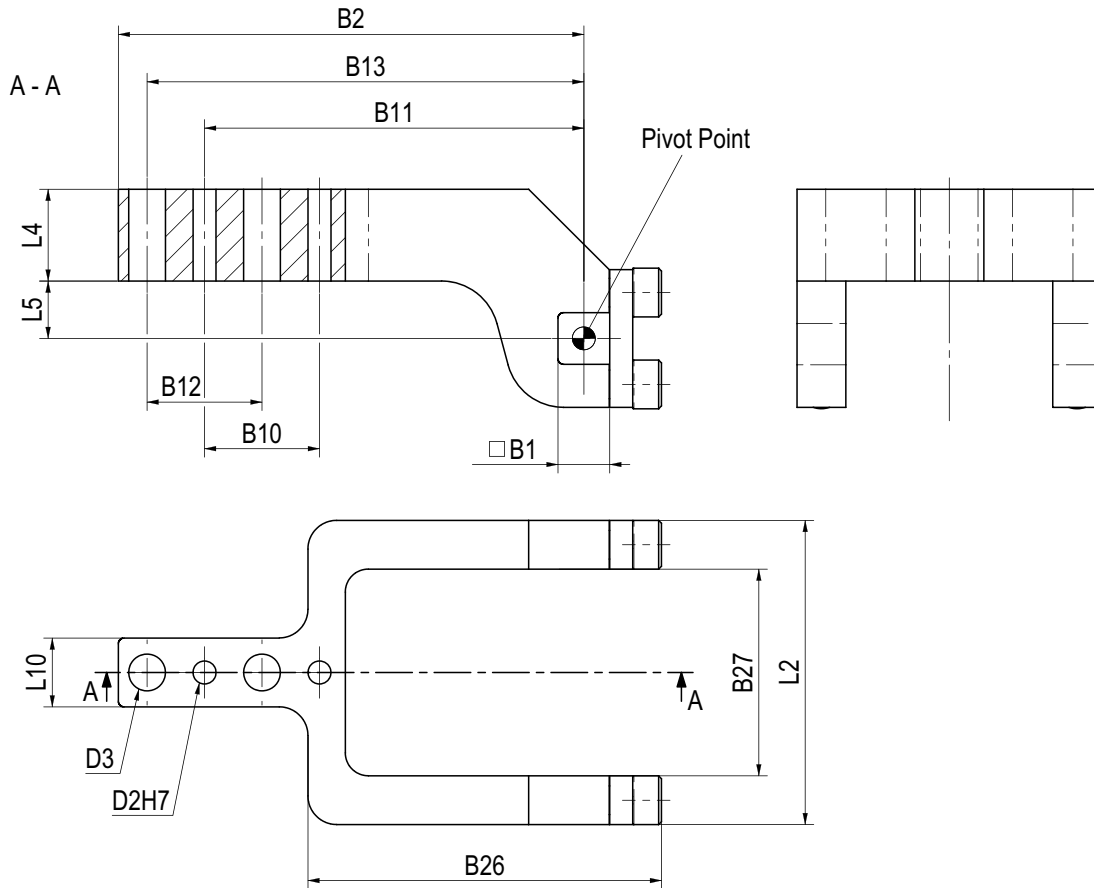
Power by compressed air, max. 6 bar
Operation with oil-free air is permissible.

Series 82L25-4 Standard Clamp Dimensions



Power by compressed air, max. 6 bar
 Operation with oil-free air is permissible.

Series 82L...-4... Clamp Arm Dimensions

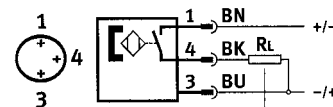


Model	Order no. for Arm	Max. Opening angle	B1	B2	B10 ±0,02	B11 ±0,02	B12 ±0,1	B13 ±0,1	B26	B27	D2 H7	D3	L2	L4	L5	L10
82L12-4...	8JG-401-1-01	105°	6	54	9	45.5	9	50	48.5	24	3	3.3	36	7	10	6
82L16-4...	8JG-402-1-01	105°	6	63	15	50.5	15	58	48.1	29	3	4.5	44	9.5	10	10
82L20-4...	8JG-403-1-01	105°	8	78	20	63	20	73	58	31	4	4.5	48	14	10	8
82L25-4...	8JG-404-1-01	105°	9	81	20	66	20	76	61.5	36	4	6.4	53	16	10	12

Accessories (order separately)

Part no.	Description	Notes
8EA-109-1	Sensor	3-wire cable, M8x1 connector, 3-pin
82ZB-004-1	Adapter	Adapter for mounting 81L20-1, 81L25-1 to 25mm dia. bar

8EA-109-1



10V ... max. 30 VAC/VDC
Max. 500 mA
Max. 10 W

BN = Brown
BK = Black
BU = Blue
RL = Load

Series **82L2G-2, 82L3G-2, 82L4G-2** Product Overview

Automation power clamps, lightweight design enclosed model, with and without hand lever

Features:

- shielded body, dirt-resistant
- compact design
- high holding torques
- long life cycle
- low weight (aluminium body)
- mounting areas at front and rear
- toggle action mechanism
- manual unlocking in case of pressure drop
- inductive sensing module (optional)

Application:

Clamping, holding, gripping and positioning of metal sheets and other parts, mainly in jigs and handling systems. Your best choice for carefully inserting and clamping components are the clamps with a hand lever.

Key areas of application:

Automotive manufacturing and sheet processing industry.

82L2G--203B800

without hand lever
Horizontal
clamping
position



82L2G--203B8H0

with hand lever
Horizontal
clamping
position



Order code for **82L..-2.....**

Example Order No.: **82L** **3G** - **2** **03** **B8** **H** **0** **B**

Series | **- 2 = Version** | **03 = ordering without clamping arm** | **0 = without sensing system** | **0 = without hand lever** | **B = Base Model. Power clamp without clamping arm. To be marked with an additional "B" Only with clamping arm "03"**

2G = pneumatic cylinder Ø25 (G1/8)
3G = pneumatic cylinder Ø32 (G1/8)
3N = pneumatic cylinder Ø32 (1/8-18 NPT)
4G = pneumatic cylinder Ø40 (G1/4)
4N = pneumatic cylinder Ø40 (1/4-18 NPT)

82L*-2**H***
82L3*-2*****
82L4*-2*****

Base Models

03 = U-clamp arm, central 90°
11 = lateral clamp arm, left 90°
12 = lateral clamp arm, right 90°
23 = 2x lateral clamp arm 90°
38 = H-clamp arm 90°

43 = U-clamp arm, central 180°
51 = lateral clamp arm, left 180°
52 = lateral clamp arm, right 180°
63 = 2x lateral clamp arm 180°
78 = H-clamp arm 180°

Clamp Arms

0 = without sensing system
C8 = system 8EA-097-1 (M8x1)

B7 = sensing system 8EA-096-1 (M12x1)
B8 = sensing system 8EA-100-1 (M12x1)

Sensing System

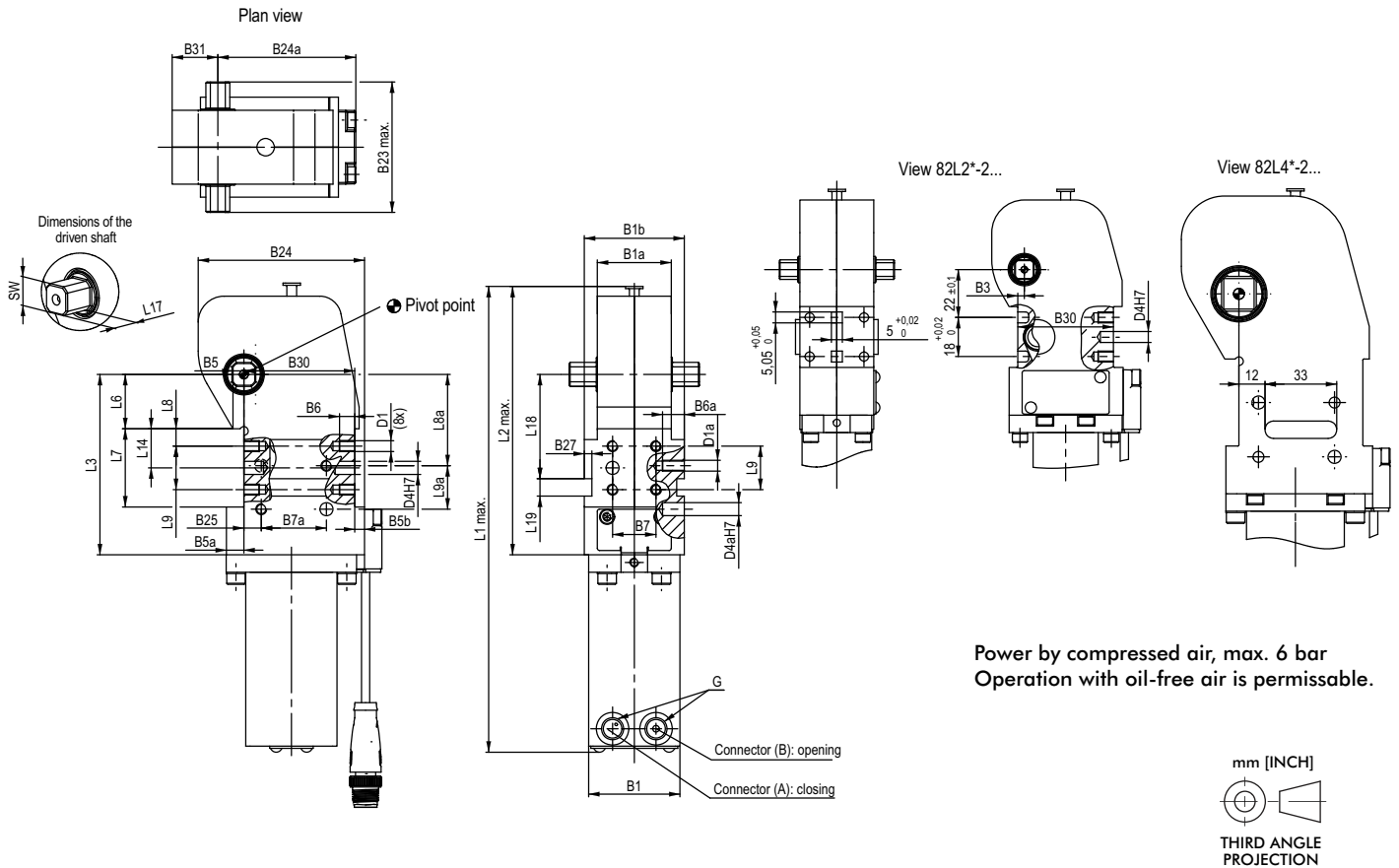
0 = without hand lever
H = with hand lever

Hand Lever

Opening Angle

- 0 = 105° standard opening angle
- 3 = 90° opening angle
- 4 = 75° opening angle
- 5 = 60° opening angle
- 6 = 45° opening angle
- 7 = 30° opening angle
- 8 = 15° opening angle

Series **82L2G-2, 82L3G-2, 82L4G-2** Technical Information, Standard Clamp Dimensions



Series **82L2G-2, 82L3G-2, 82L4G-2** Technical Information, Model without Hand Lever

Model	Max. holding torque Nm [lb ft]	Clamping torque at 5 bar Nm [lb ft]	Piston Ø mm [in]	Weight kg [lbs]	Air consumption per double stroke at 5 bar dm3 [ft3]	Connection G
82L2G-2...	75 [55]	25 [18]	25 [18]	1,0 [2.20]	0,4 [0.01]	G1/8 1/8-18 NPT
82L3G-2... 82L3N-2...	180 [133]	55 [41]	32 [24]	1,3 [2.86]	0,8 [0.03]	G1/8 1/8-18 NPT
82L4G-2... 82L4N-2...	380 [280]	120 [89]	40 [30]	1,9 [4.18]	1,2 [0.04]	G1/4 1/4-18 NPT

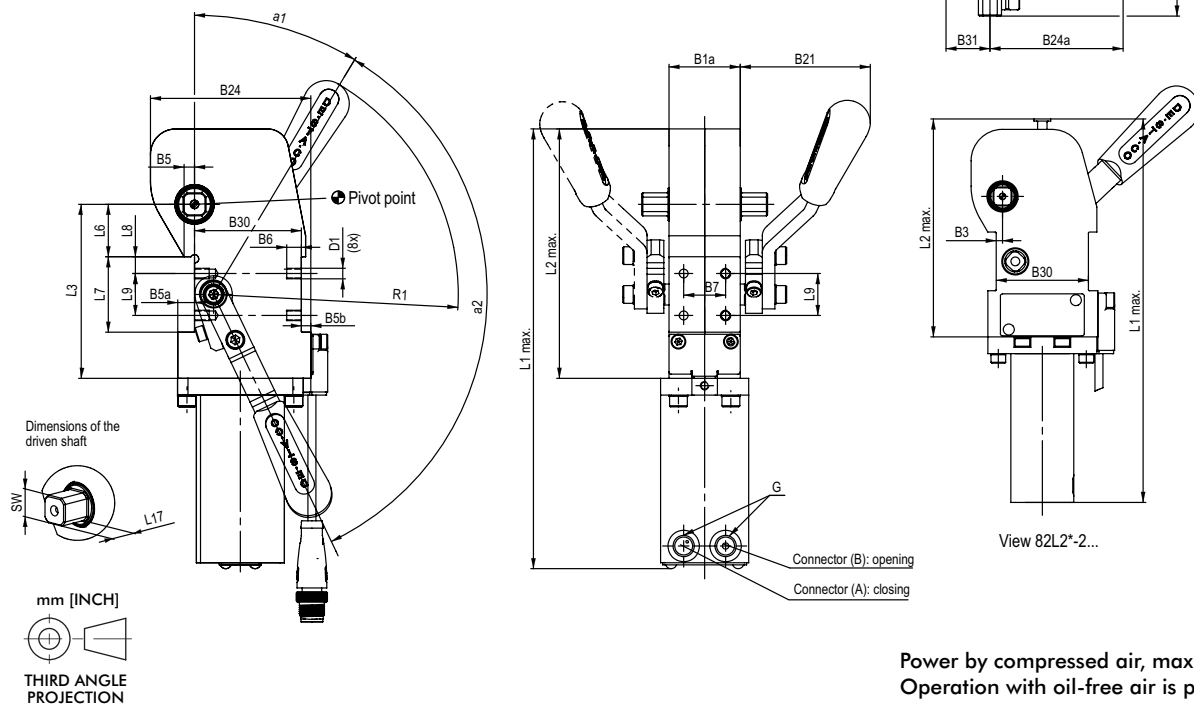
Model	B1	B1a	B1b	B3	B5	B5a	B5b	B6	B6a	B7 ± 0,1	B7a** ± 0,1	B23 max.	B24	B24a	B25 +0,1	B27	B30 ± 0,1	B31
82L2*-2...	32	34	-	3	4	4	4.5	7	-	25	-	53	60.5	53.5	-	-	44	15
82L3*-2...	42	34	46	-	5	8	4.5	7	10	20	30	60	76.5	63.5	8	3.5	51	21
82L4*-2...	45	40	-	-	6.5	6	4.5	10	10	25	35	74	88	69.5	9	3.5	57	26.5

Model	D1	D1a	D4 H7	D4a H7	L1 max.	L2 max.	L3	L6 ± 0,05	L7 + 0,1	L8 ± 0,1	L8a ± 0,1	L9 ± 0,1	L9a** ± 0,1	L14 ± 0,1	L17	L18	L19 N9	SW h9
82L2*-2...	M5	M5	5	-	183,5	104,5	67	17	28	5	-	18	-	14	8.5	-	-	9
82L3*-2...	M5	M5	6	6	215	124	83	25	36	8	42	20	20	18	12,5	48	8	11
82L4*-2...	M6	M6	6	6	245	141	92	30	40	10	50	20	25	20	16	58.5	8	16

*Tolerance for distance to dowel hole ±0,02

Series **82L2G-2, 82L3G-2, 82L4G-2** Standard Clamp Dimensions

Automation power clamps, lightweight design enclosed model, with hand lever



Power by compressed air, max. 6 bar
Operation with oil-free air is permissible.

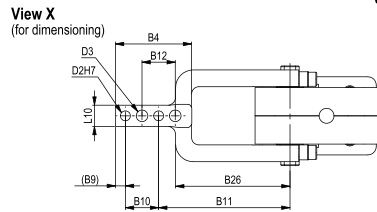
Series **82L2G-2, 82L3G-2, 82L4G-2** Technical Information, Model with Hand Lever

Model	Max. holding torque Nm [lb ft]	Clamping torque at 5 bar Nm [lb ft]	Piston Ø mm [in]	Weight kg [lbs]	Opening angle	Air consumption per double stroke at 5 bar dm3 [ft3]	Connection G	B1	B1α	B3	B5	B5α
82L2G-2...	75 [55]	25 [18]	25 [18]	1,1 [2.42]	105°	0,4 [0.01]	G1/8 1/8-18NPT	32	34	3	4	4
82L3G-2... 82L3N-2...	180 [133]	55 [41]	32 [24]	1,5 [3.30]		0,8 [0.03]	G1/8 1/8-18NPT	42	34	-	5	8
82L4G-2... 82L4N-2...	380 [280]	120 [89]	40 [30]	2,1 [4.62]		1,2 [0.04]	G1/4 1/4-18NPT	45	40	-	6,5	6

Model	B5b	B6	B7	B21	B23	B24	B24α	B30	B31	D1	L1	L2	L3	L6	L7	L8	L9	L17	SW	α1	α2	R1
			±0,1		max			±0,1			max.	max.		±0,05	+0,1	±0,1	±0,1		h9			
82L2G-2...	4,5	7	25	62	53	60,5	53,5	44	15	M5	183,5	104,5	67	17	28	5	18	8,5	9	36°	131°	117
82L3G-2... 82L3N-2...	4,5	7	20	62	60	76,5	63,5	51	21	M5	210	119	83	25	36	8	20	12,5	11	31°	124°	117
82L4G-2... 82L4N-2...	4,5	10	25	62	74	88	69,5	57	26,5	M6	241	137	92	30	40	10	20	16	16	31°	131°	117

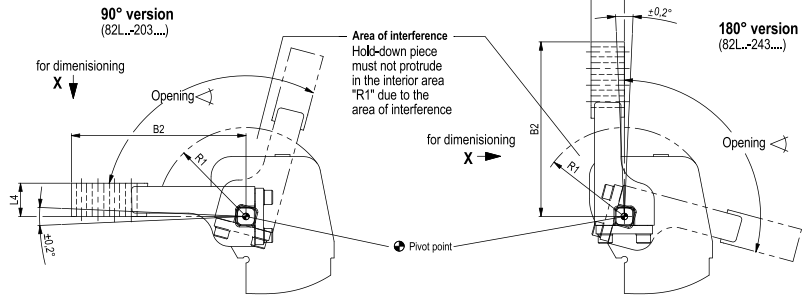
Series **82L2G-2, 82L3G-2, 82L4G-2** Clamp Arm Dimensions

U-bar for **82L__-2**



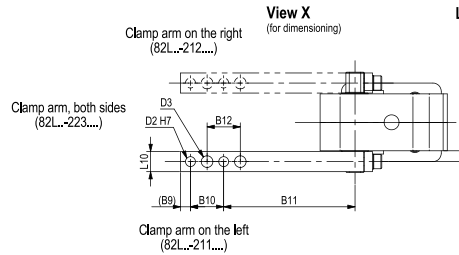
U-clamp arms, central

To complete the model number see model no. code.
Clamp arm sets consists of: Clamp arm, link and screws.

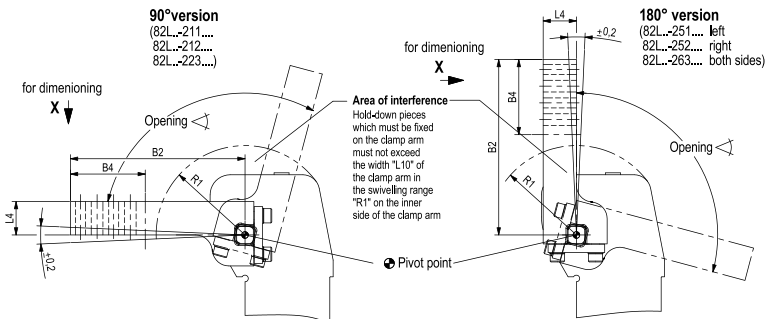


Model	Order no. for U-bar	Opening angle for 90° - Version	Opening angle for 180° - Version	Weight [kg]	B2	B4	B9	B10	B11	B12	B26	D2	D3	L4	L10	R1	
		max.	max.														
82L2*-2...	8JG-075-3-01	105°	105°	0,3	93	45	8	20	65	±0,2	±0,1	±0,2	H7	±0,1	20	12	45
82L3*-2...	8JG-065-2-02	105°	105°	0,37	105	45	6	20	79	±0,2	±0,1	±0,2	H7	±0,1	20	12	55
82L4*-2...	8JG-067-2-01	105°	105°	0,5	110	45	6	20	84	±0,2	±0,1	±0,2	H7	±0,1	20	12	58

Lateral arms for **82L__-2**



Lateral clamp arms



Model	Order no. for U-bar	Opening angle for 90° - Version	Opening angle for 180° - Version	Weight [kg]	B2	B4	B9	B10	B11	B12	B22	D2	D3	L4	L10	R1	
		max.	max.														
82L3*-2...	8JG-066-1-01	105°	105°	0,25	105	45	6	20	79	±0,2	±0,1	±0,2	H7	±0,1	20	12	55
82L4*-2...	8JG-068-1-01	105°	105°	0,3	92	45	6	20	66	±0,2	±0,1	±0,2	H7	±0,1	22	15	58

Series **82M-1** Product Overview

Features:

- modular design
- shielded body, dirt-resistant
- compact design
- high holding torques
- long life cycle
- low weight (aluminium body)
- wide range of clamping arm variants
- adjustable opening angle without need for accessory parts
- mounting areas at front, back and sides
- toggle action mechanism
- manual unlocking in case of pressure drop
- inductive sensing module with LED display

Application:

Clamping, holding, gripping and positioning of metal sheets and other parts, mainly in jigs and handling systems.

Key areas of application:

Automotive manufacturing, sheet processing industry, jig and general mechanical engineering.

82M-1 23040C8

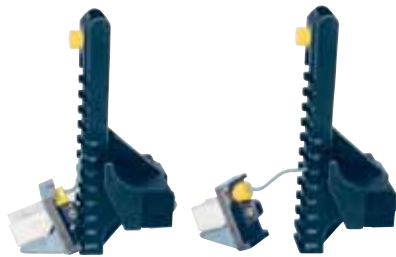
Lightweight, enclosed Modular automation power clamp



Simple adjusting of opening angle (pictures show sensor-box separated from clamp)



120° Opening angle (delivery condition)



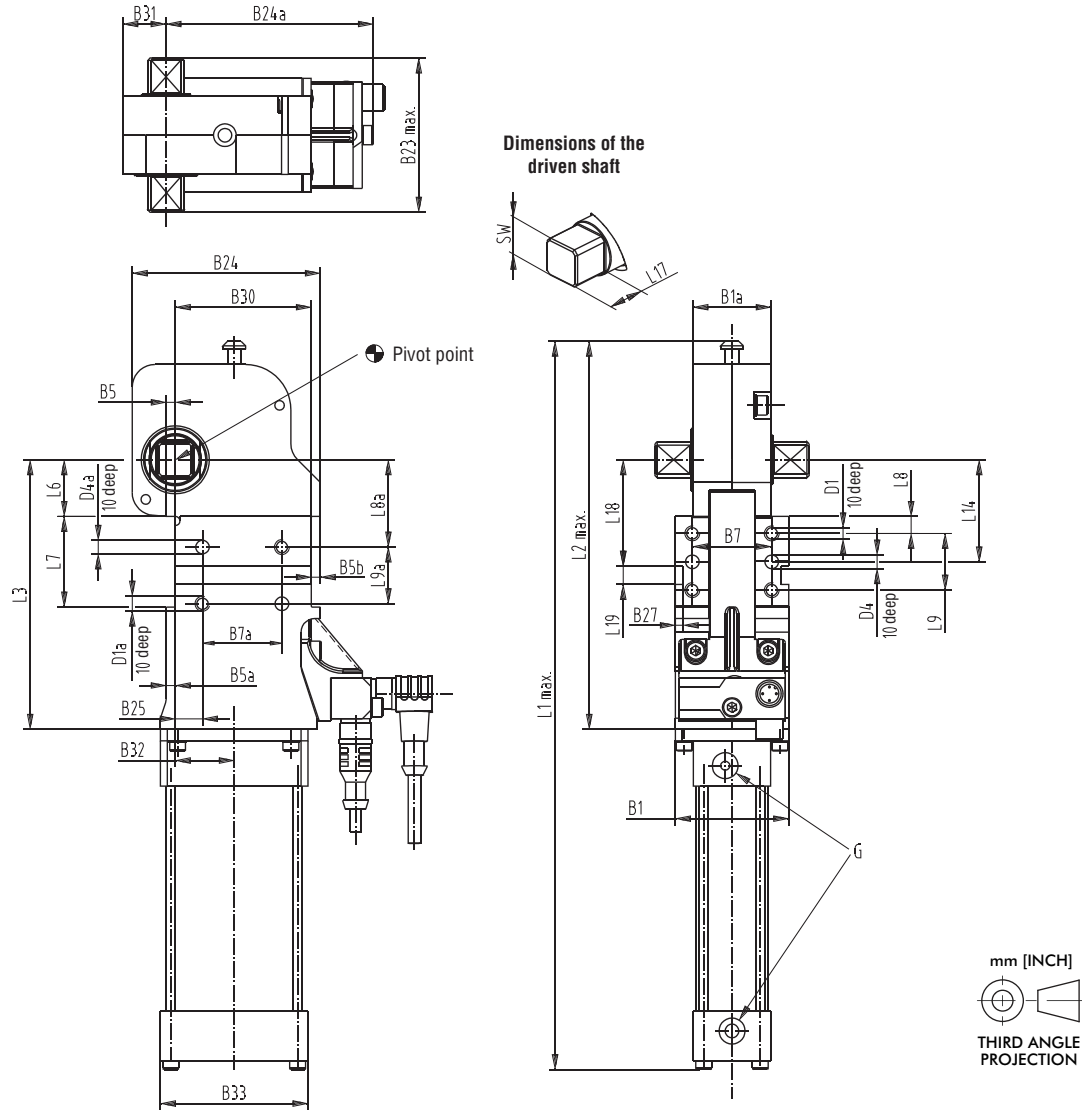
Click-out of bumper



Click-in in new position (60°) (sensor box fit for reassembling to clamp)

Model			Standard opening angle	Max. holding torque Nm [lb ft]	Clamping torque at 5 bar Nm [lb ft]	Drive shaft for clamping arm variant	Clamping position	Cylinder Ø mm [in]	Air consumption per double stroke at 5 bar dm³ [ft³]	Weight ~ kg [lbs]
w/o sensing	w/ ind. sensing Connector M12x1, fixed									
	Turck	Pepperl & Fuchs								
82M-12304000	82M-123040C8	82M-123040D8	120°	380 [280]	120 [89]	lateral, U-central	horizontal/vertical	40 [1.57]	1,2 [0.04]	2 [4.40]

Series 82M-1 Standard Clamp Dimensions



Power by compressed air, max. 6 bar
 Operation with oil-free air is permissible.

Model	Piston Ø	Connection G	B1 ±0,1	B1α	B5	B5α	B5b	B7 ¹⁾ ±0,1	B7α ¹⁾ ±0,1	B23 max.	B24
82M-123040_ _	40	G 1/4	50	34,5	4	4	4	35	35	68	83

Model	B24α	B25 ±0,1	B27 ±0,1	B30 ±0,1	B31	B32	B33	D1	D1α	D4 Ø	D4α Ø	L1 max.	L2 max.
82M-123040_ _	91,5	12	3,5	60	19	25,8	65	M6	M6	6	6	323	173

Model	L3	L6 ±0,05	L7 +0,1	L8 ±0,1	L8α ±0,1	L9 ±0,1	L9α ¹⁾ ±0,1	L14 ±0,1	L17	L18	L19 N9	SW h9
82M-123040_ _	119	25	40	7,5	38,5	25	25	45	16	47	8	16

1) Tolerance for distance to dowel hole ±0,02

Series **82M-1** Clamping Arm Variants

Clamping arm design

Clamping position

U-type central clamping arm

horizontal or vertical



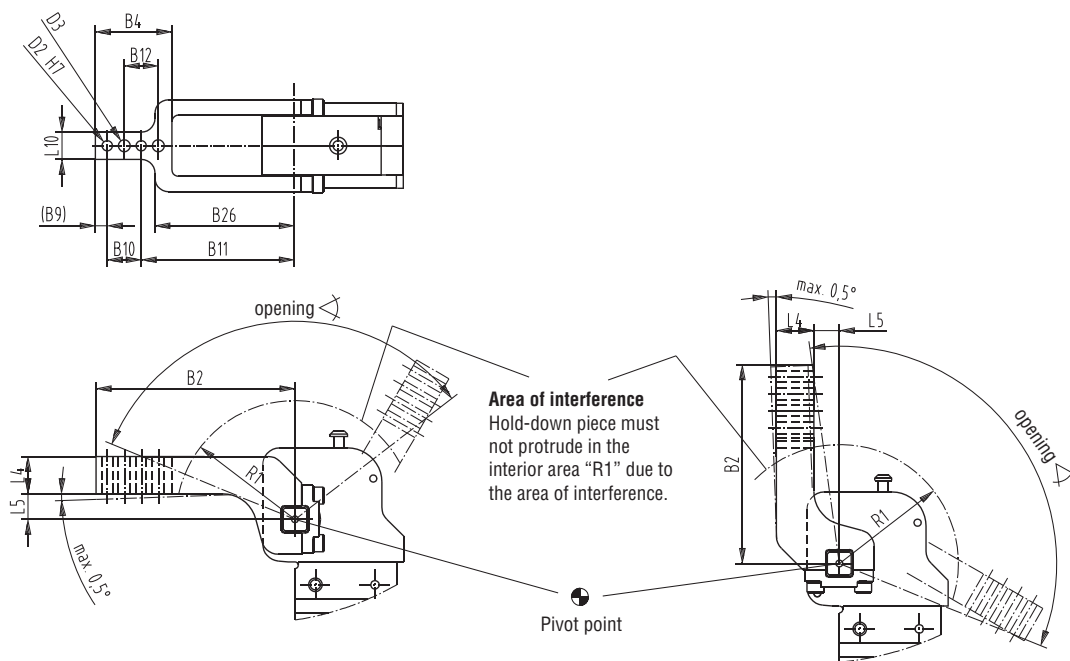
Central clamping arm, horizontal clamping position

U-type central clamping arm Technical Information

Model	Order no. for set of U-type central clamping arms	Opening angle for clamping position		Weght (kg)	B2	B4	B9	B10	B11	B12	B26	D2	D3	L4	L5	L10	R1
		horizontal	vertical											H7	Ø	Ø	max.)
82M-1...040..	8UM401-15-117	120°	120°	0,47	117	45	7	20	90	20	82	6	7	22	15	16	70
	8UM401-25-117	120°	120°	0,46	117	45	7	20	90	20	82	6	7	22	25	16	70
	8UM401-00-117	120°	105°	0,43	117	45	7	20	90	20	82	6	7	22	0	16	70
	8UM401-45-107	120°	120°	0.50	107	45	7	20	80	20	72	6	7	22	45	16	70

Horizontal clamping arm position

Vertical clamping arm position



Series 82M-1 Clamping Arm Variants

Lateral clamping arm, horizontal clamping position

Clamping arm design

- lateral / left
- lateral / right
- lateral / both sides

Clamping position

- horizontal or vertical
- horizontal or vertical
- horizontal or vertical



Lateral clamping arm, horizontal clamping position

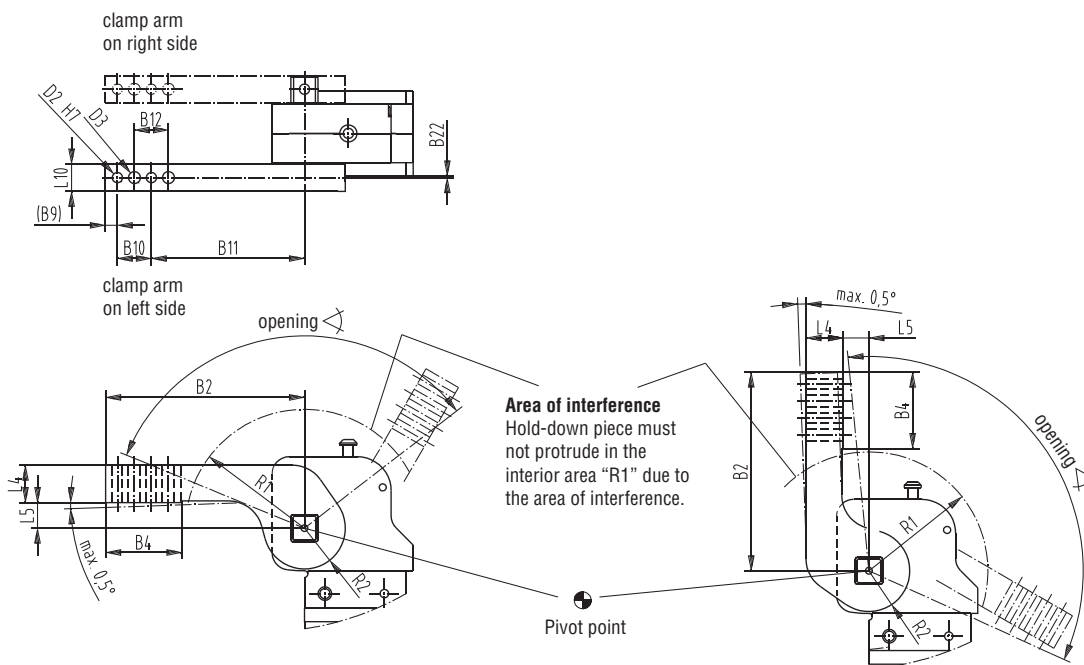
Lateral clamping arms Technical Information

Model	Order no. for set of lateral clamping arms	Opening angle for clamping position		Weight (kg)	B2	B4	B9	B10	B11	B12
		horizontal	vertical		±0,02	+0,1	±0,2			
82M-1...040..	8S401-15-117	120°	120°	0,5	117	45	7	20	90	20

Model	Order no. for set of lateral clamping arms	B22	D2	D3	L4	L5	L10	R1	R2
		1	H7	∅	±0,1	(-0,5°max)	16	70	24
82M-1..040..	8S401-15-117		6	7	22	15	16	70	24

Horizontal clamping arm position

Vertical clamping arm position



Series **82M-1** Clamping Arm Variants

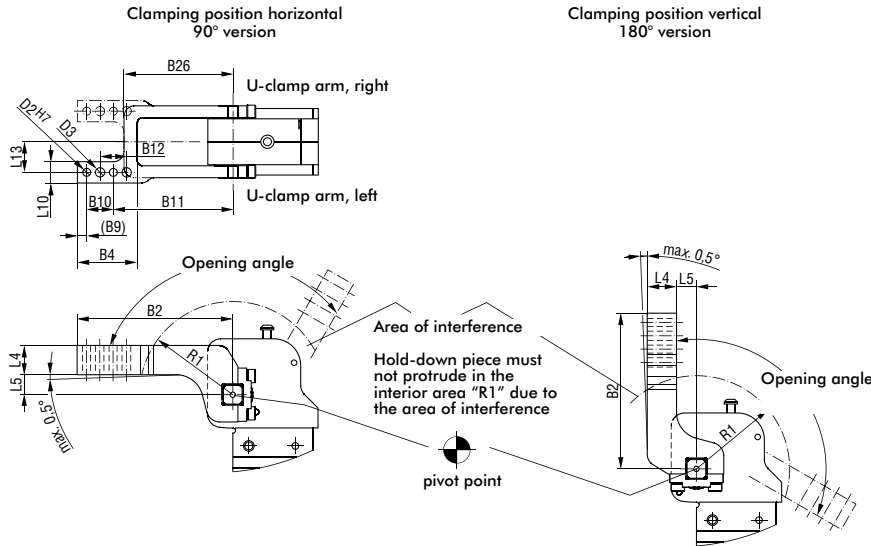
Clamp arm-variants Clamparm design U-type: left, right



U-type left
clamping position: horizontal



U-type right
clamping position: horizontal



U-clamp arm lateral Technical Information

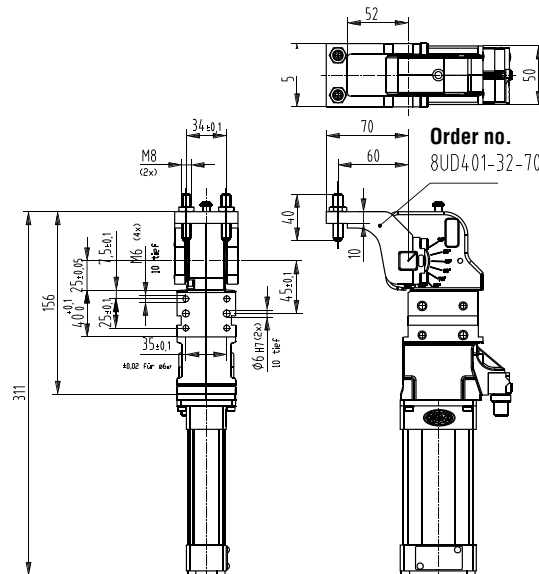
Order No. for set		Max. opening angle		Weight (kg)	B2	B4	B9	B10	B11	B12	B26	D2	D3	L4	L5	L10	L13	R1
left	right	horizontal	vertical															
U-type clamping arms for 82M-1		in clamping position						±0,02	±0,2			H7		±0,1	(-0,5°			±0,1
		horizontal										Ø	Ø	Ø	max.)			
8UL401-00..	8UR401-00..	120°	120°	0,47	117	45	7	20	90	20	82	6	7	22	15	16	23	70
8UL401-15..	8UR401-15..	120°	120°	0,5	107	45	7	20	80	20	72	6	7	22	45	16	23	70
8UL401-24..	8UR401-24..	120°	105°	0,43	117	45	7	20	90	20	82	6	7	22	0	16	23	70
8UL401-45..	8UR401-45..	120°	120°	0,47	117	45	7	20	90	20	82	6	7	22	25	16	23	70

Clamping arm special design with pressure bolt
Order no. 8UD401-32-70



82M-1 with arm 8UD401-32-70

Power by compressed air, max. 6 bar Operation with oil-free air is permissible.



Series **82M-1** Ordering Information, Standard Clamp Dimensions

Order No. code for 82M-1..040..

Example Order No.: **82M-1 23 0 40 C8**

82M - 1 = Basic model
without hand lever
without cylinder
without sensing system



Basic model

23 = drive shaft for lateral
clamp arms and
U-clamp arm



Drive shaft

0 = without hand lever

40 = pneumatic
cylinder Ø40



Cylinder

00 = without sensing system

C8 = inductive sensing system
82M-000040C8
Fabr. Turck

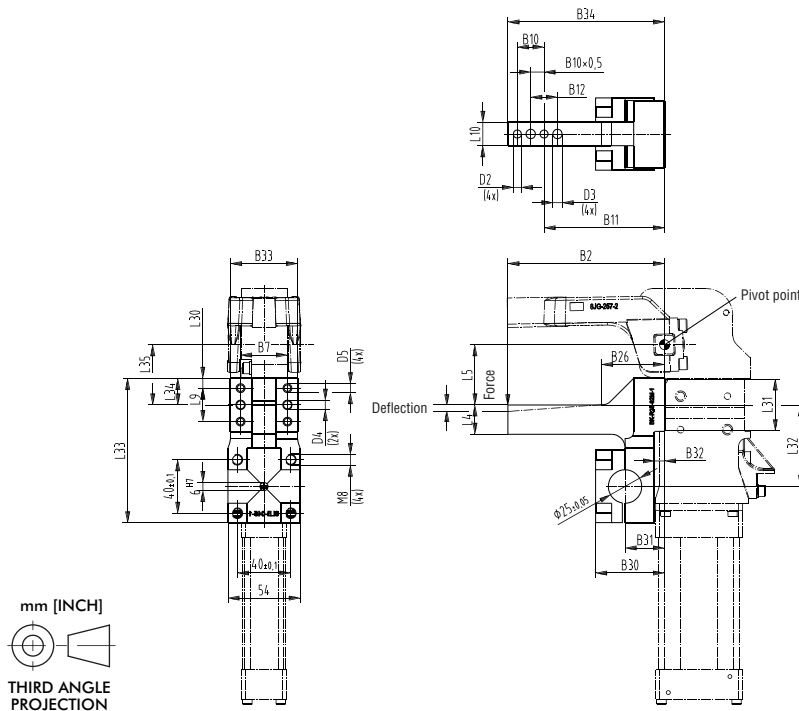


D8 = inductive sensing system
82M-000040D8
Fabr. Pepperl & Fuchs



Sensing system

Accessory: Counter Support



BK-R25-82M-1

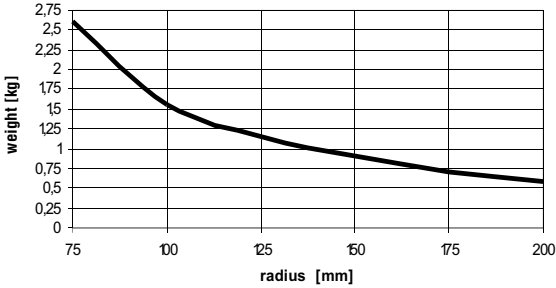
Model	B2	B7	B10	B11	B12	B26	B30	B31	B32	B33	B34	D2	D3	D4	D5	L4	L5	L9	L10	L30	L31	L32	L33	L34	L35	
		±0,1	±0,02									∅	∅	∅	∅	±0,1		±0,1			±0,1				±0,02	
		±0,02														H7	H7									
BK-R25-82M-1	117	35	20	90	20	47	53	29,5	7,5	50	117	6	7	6	6,6	22	45	25	17,5	7,35	39,7	61	108	19,85	45	

Series **82M-1** Technical Information

Concept guideline

(with reference to axis of clamping arm rotation)

maximum tooling weight 82M-...40

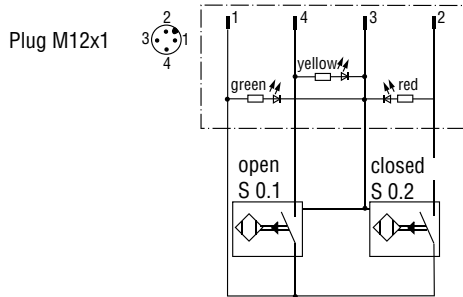
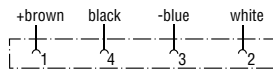


All details apply under an air pressure of 6 bar and opening and closure times of 1 second each.

Wiring diagram of electrical sensing system

Sensing system immune to interference from d.c. arc welding and a.c. arc welding

Pin assignment

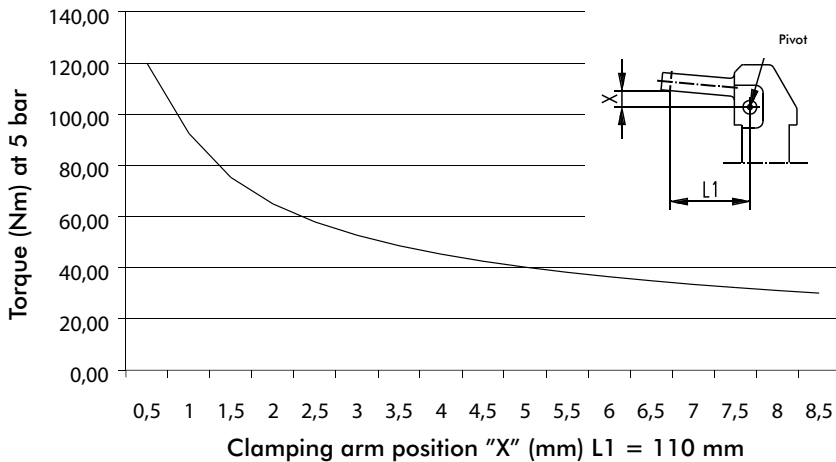


Inductive design:

- C8 Connecting plug M12x1, fixed (Turck)
- D8 Connecting plug M12x1, fixed (Pepperl & Fuchs)

Diagram of clamping force (at 5 bar)

Model 82M-1...40...



Specification			Order no. for Set 82M-1..040..	Comment
Clamping arm variant	Fulcrum distance	Clamping position		
U-central	15	horizontal / vertikal	8UM401-15-117	sets of U-type clamping arms consist of clamping arm, links and screws
U-central	25	horizontal / vertikal	8UM401-25-117	
U-central	45	horizontal / vertikal	8UM401-45-107	
U-central	0	horizontal / vertikal	8UM401-00-117	
U-left	15	horizontal	8UL401-15-117	
U-left	25	horizontal	8UL401-25-117	
U-left	45	horizontal	8UL401-45-107	
U-left	0	horizontal	8UL401-00-117	
U-left	15	vertical	8UR401-15-117	
U-left	25	vertical	8UR401-25-117	
U-left	45	vertical	8UR401-45-107	
U-left	0	vertical	8UR401-00-117	
U-right	15	horizontal	8UR401-15-117	
U-right	25	horizontal	8UR401-25-117	
U-right	45	horizontal	8UR401-45-107	
U-right	0	horizontal	8UR401-00-117	
U-right	15	vertical	8UL401-15-117	
U-right	25	vertical	8UL401-25-117	
U-right	45	vertical	8UL401-45-107	
U-right	0	vertical	8UL401-00-117	
Lateral right/left	15	horizontal / vertikal	8S401-15-117	sets of lateral clamping arms consist of clamping arm & set screws
Lateral both sides	15	horizontal / vertikal	8S401-15-117	need 2 sets of clamping arms
Connector cable (1 connector socket & 5 m cable)				
connector socket M12x1 straight, 5-pin			8EL-002-1	
connector socket M12x1 angular, 4-pin			8EL-003-1	
Counter support			BK-R25-82M-1	

Specification	Structural component	Order no..	Comment
Complete sensor box for D8	82M-123040D8	82M-000040D8	Pepperl & Fuchs
Complete sensor box for C8	82M-123040C8	82M-000040C8	Turck
Limit stop box without sensing system	82M-12304000	82M-00004000	
Complete cylinder, Ø40	82M-123040..	8PW-046-2	
Seal kit and piston, Ø40	82M-123040..	8PW-046-2-00	

Shims for Clamping arm		Model	A1	A2	D2	D3	B9	B10	B12	L10
		82ZB-SH4001		0,1						
82ZB-SH4002		0,2								
82ZB-SH4005		0,5								
82ZB-SH4010		1,0	42		6,5	7	6	20	20	12
82ZB-SH4020		2,0								
82ZB-SH4050		5,0								

Series **82M-5** Product Overview

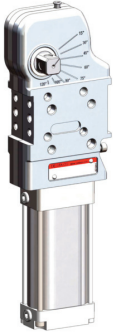
Features:

- Modular design
- Lightweight aluminum body
- Protected from dirty environments
- Field-adjustable opening angle
- Sealed roller bearing
- Multiple mounting surfaces
- Manual versions available

Application:

- Assembly
- Checking fixtures
- Handling systems

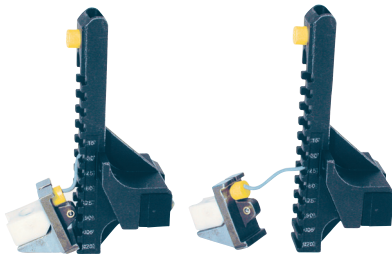
82M-5 Series



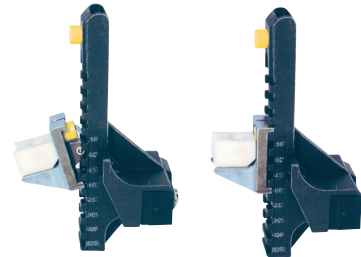
Simple adjusting of opening angle (pictures show sensor-box separated from clamp)



120° Opening angle
(delivery condition)



Click-out of bumper



Click-in in new position (60°)
(sensor box fit for reassembling to clamp)

Model	Max. holding torque Nm [lb ft]	Max. Clamping Torque @5 bar [72 psi] Nm [lb ft]	Weight kg [lb]	Max Opening Angle	Cylinder Size mm [in]	Air Consumption (per double stroke) @5 bar [72 psi] dm ³ [ft ³]
82M-5	800 [590]	270Nm [199]	3,3 [7.27]	120°	50 [1.97]	2,2 [0.08]

82M-5 Pre-Configured Clamp Quick-Order Numbers












Quick Order	Sensor	Handle
82M-5230050000		
82M-5230050C80	X	
82M-523KR50000		X
82M-523KR50C80	X	X

Series **82M-5** Ordering Information, Standard Clamp Dimensions

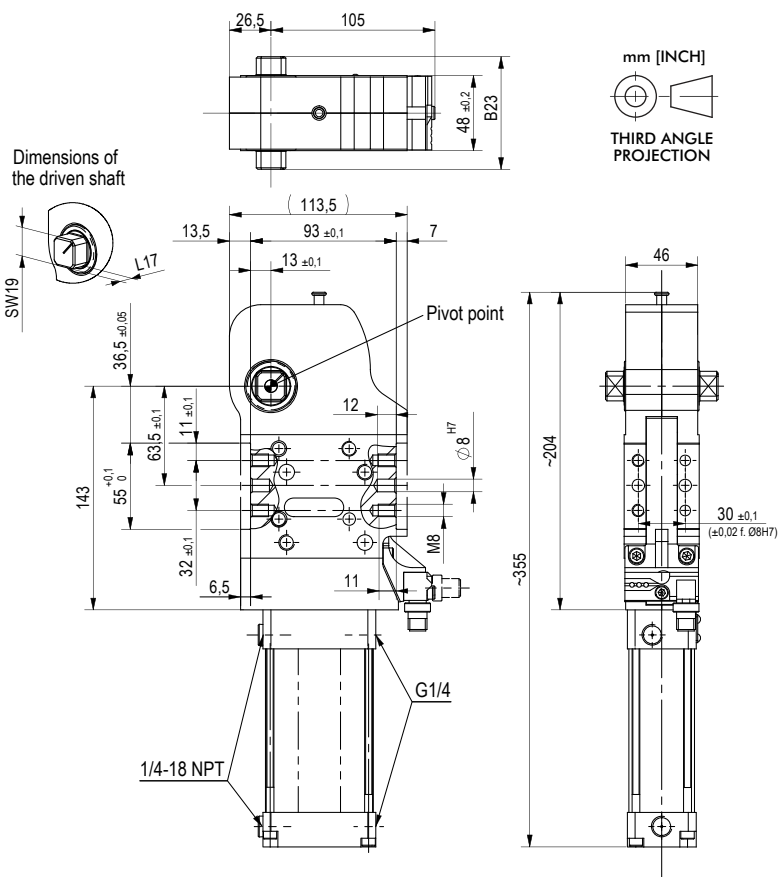
Order No. code for 82M-5...

Example Order No.: **82M-5 23 K R 50 C8 0**



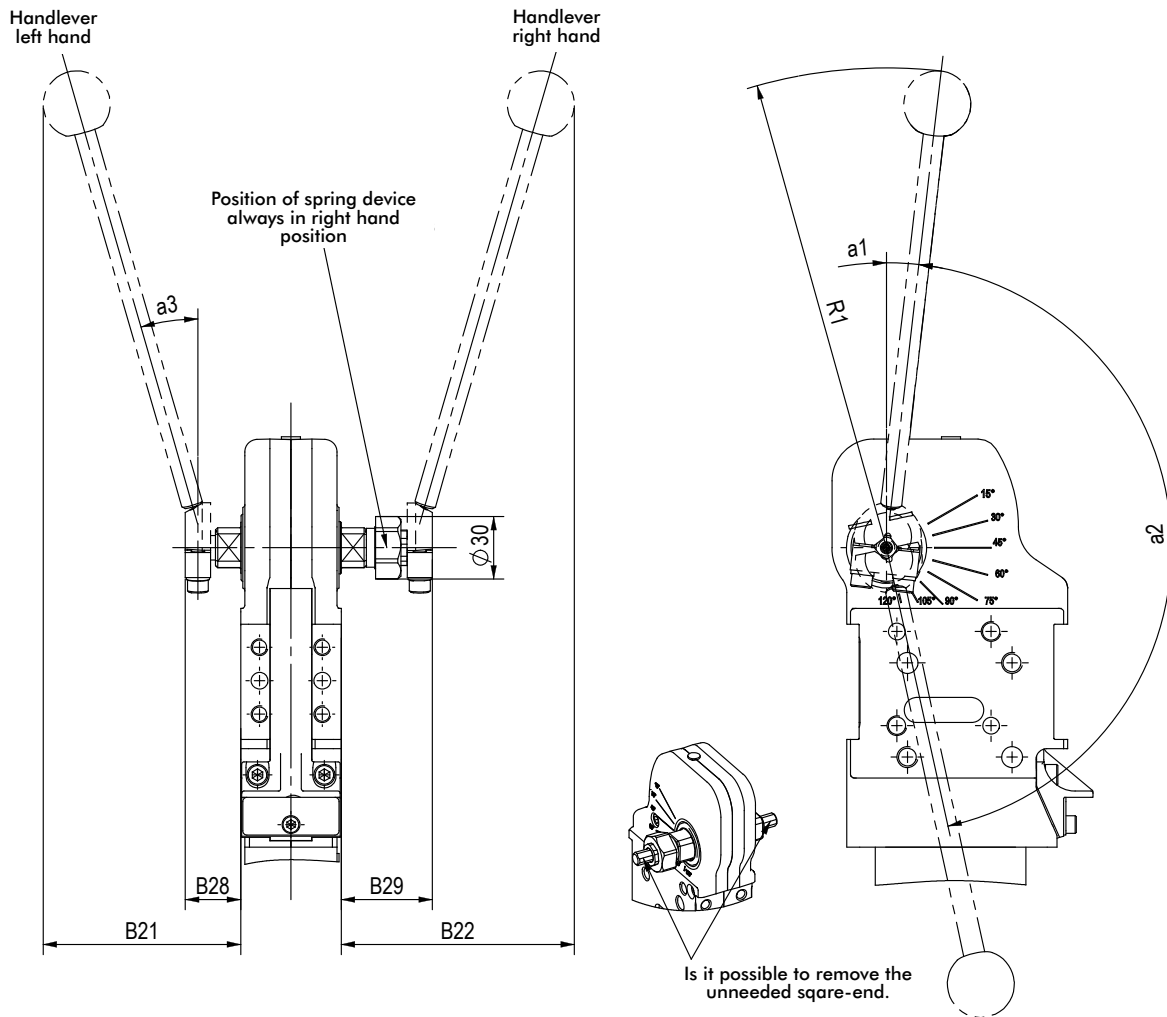
<p>82M - 5</p>  <p>Basic Model</p>	<p>03 = drive shaft for U-clamp arm</p>  <p>23 = drive shaft for lateral clamp arms</p>  <p>Drive Shaft</p>	<p>0 = ohne Handhebel</p> <p>K = with hand lever, welded 8KB-053-1</p>  <p>S = hand lever, attached (weldable) 8KB-052-1</p>  <p>Hand Lever</p>	<p>0 = without hand lever</p> <p>L = spring assembly "left"</p>  <p>R = spring assembly "right"</p>  <p>Cylinder</p>	<p>50 = G1/4 pneum. cylinder Ø50</p>  <p>5N = 1/4-18 NPT pneum. cylinder Ø50</p>  <p>Cylinder</p>	<p>00 = without sensors</p> <p>C8 = inductive sensing system</p>  <p>D8 = inductive sensing system</p>  <p>Inductive Sensing System</p>
---	--	---	--	--	---

Model	B23 max.	L17
82M-5030050..	72	12
82M-5230050..	90	21



Power by compressed air, max. 6 bar
Operation with oil-free air is permissible.

Series **82M-5** Handle Option



Technical information subject to change.

Model	a1	a3	B21	B22	B28	B29	R1
	~	~	~	~	max.	max.	~
82M-5_3S...	-	-	-	-	37	55	240
82M-5_3K...	5°	16°	104	124			

Model	Hand lever slew angle a2 with reference to opening angle of clamping arm							
	15°	30°	45°	60°	75°	90°	105°	120°
82M-5_3S...	55°	67°	82°	98°	113°	129°	144°	161°
82M-5_3K...								

Series 82M-5 Clamp Arm Variants



U bars central L5 = 15 mm



U bars central L5 = 25 mm



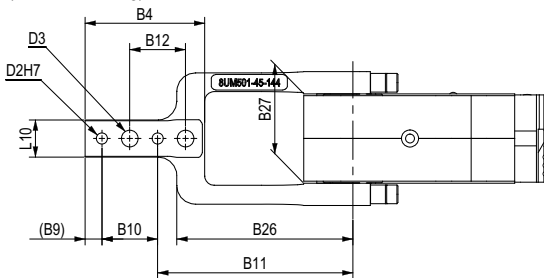
U bars central L5 = 45 mm

U-bars Central Technical Information

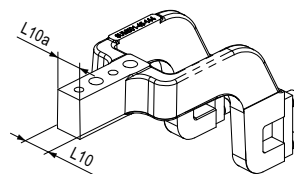
Model	Order no. for set U-clamp arm, central	Opening angle 90° version tolerance: + 5°	Opening angle 180° version tolerance: + 5°	Weight (kg)
82M-503 _ 50	8UM501-15-144	120°	105°	1,1
82M-523 _ 50	8UM501-25-144		120°	
	8UM501-45-144			

Model	Order no. for set U-clamp arm, central	B2	B4	B9	B10 ±0,02	B11 +0,1	B12 ±0,2	B26	B27 +0,2	D2 H7	D3	L4 ±0,1	L5 (-0,5° max)	L10 ±1,2	L10a ~	R1 ~	R2 ~	SW +0,02 -0,009
82M-503 _ 50	8UM501-15-144												15					
82M-523 _ 50	8UM501-25-144	144	64.3	9	30	105	30	95	48.1	6	9	28	25	20	19	75	32	19
	8UM501-45-144												45					

View X
(for dimensioning)

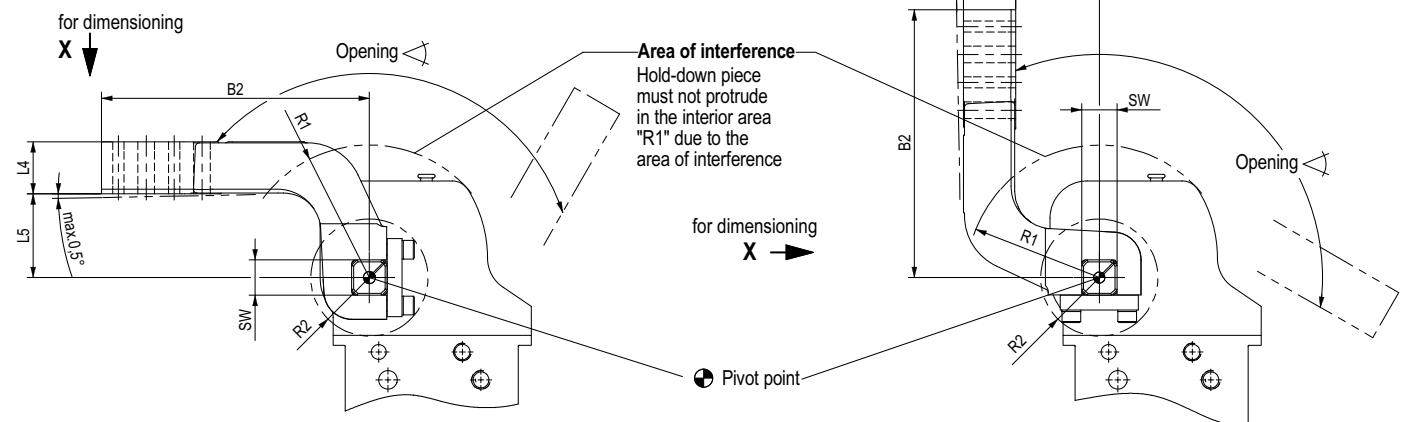


90° version



U-clamp arms, central

180° version



Series **82M-5** Clamp Arm Variants



Lateral arm L5=15mm

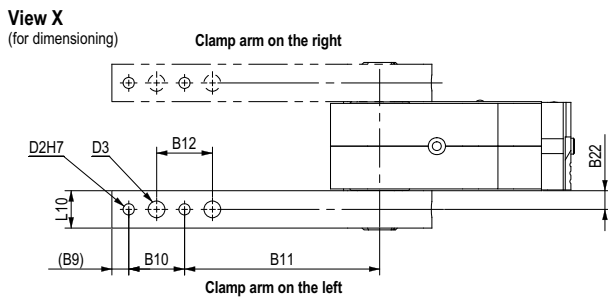


Lateral arm L5=25mm

Lateral Arm Technical Information

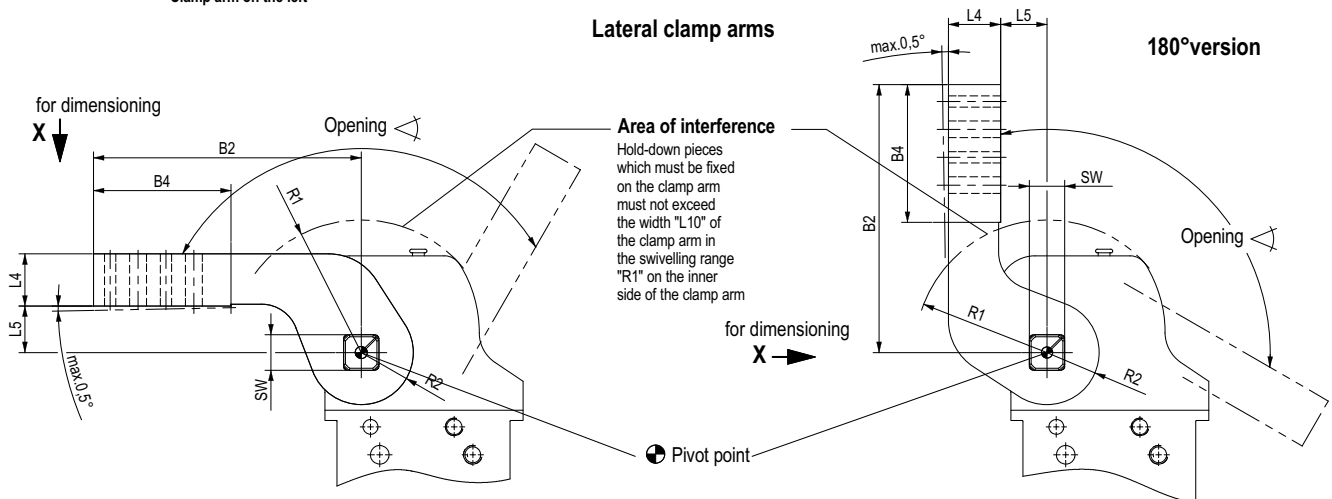
Model	Order no. for set U-clamp arm, lateral	GDC Opening angle 90°-vers.	GDC Opening angle 180°-vers	Weight [kg]	B2	B4	B9	B10 ±0,02	B11 ±0,1	B12 ±0,2	B22	D2 H7	D3	L4 ±0,1	L5 (0,5° max)	L10	R1	R2	SW J7
82M-5...	8JG-070-1-01	120°	105°	0,9	144	74	9	30	105	30	10	6	9	28	15	20	80	28	19
	8S501-25-144	120°	105°	1,0	144	74	9	30	105	30	10	6	9	28	25	20	80	28	19

90°version

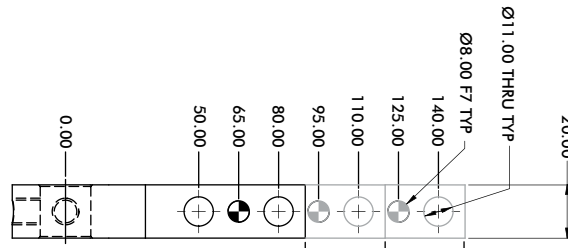
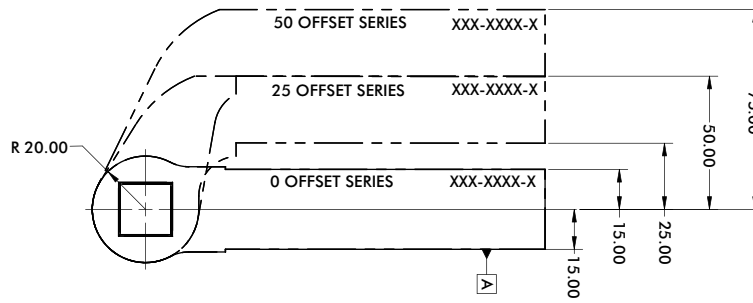


Lateral clamp arms

180°version



Series 82M-5 Clamp Arm Data (NAAMS)



(*) STANDARD ARM OFFERING

OFFSET	ARM STYLE	PART NUMBER
50	*228	B8JG-1228-1
25	*218	B8JG-1218-1
0	*208	B8JG-1208-1

OFFSET	ARM STYLE	PART NUMBER
50	*227	B8JG-1227-1
25	*217	B8JG-1217-1
0	*207	B8JG-1207-1

OFFSET	ARM STYLE	PART NUMBER
50	*226	B8JG-1226-1
25	*216	B8JG-1216-1
0	*206	B8JG-1206-1

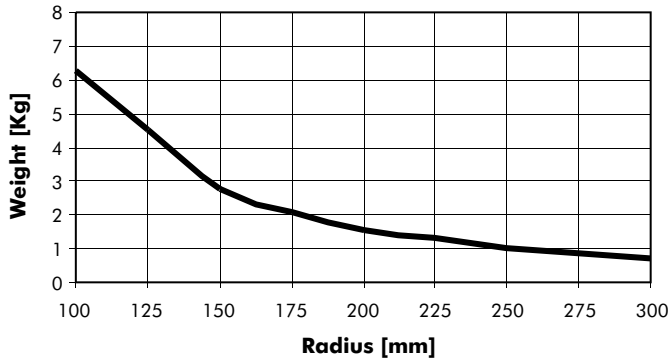
Arm Opening	120°	105°	90°	75°	60°	45°	30°	15°
Cylinder Stroke	76.0	68.5	61.3	54.2	46.8	39.3	31.6	21.1

Series **82M-5** Technical Information

Concept guideline

(with reference to axis of clamping arm rotation)

Maximum Tooling Weight 82M-5

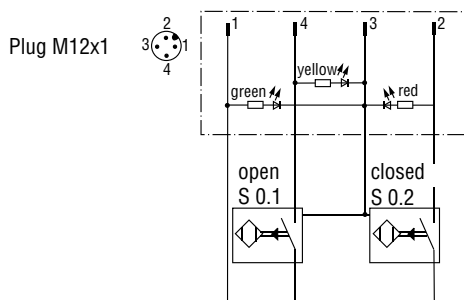
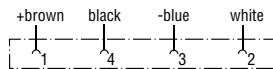


All details apply under an air pressure of 6 bar and opening and closure times of 1 second each.

Wiring diagram of electrical sensing system

Sensing system immune to interference from d.c. arc welding and a.c. arc welding

Pin assignment



Inductive design:

- C8 Connecting plug M12x1, fixed (Turck)
- D8 Connecting plug M12x1, fixed (Pepperl & Fuchs)



Accessories

Specification			Order no. for set	Comment
Clamping arm variant	Fulcrum distance	Clamping position		
U-central	15	horizontal / vertical	8UM501-15-144	sets of U-type clamping arms consist of clamping arm, links and screws
U-central	25	horizontal / vertical	8UM501-25-144	
U-central	45	horizontal / vertical	8UM501-45-144	
Lateral right/left	15	horizontal / vertical	8JG-070-1-01	sets of lateral clamping arms consist of clamping arm & set screws
Lateral right/left	25	horizontal / vertical	8S501-25-144	
Lateral both sides				need 2 sets of clamping arms

Spare Parts

Specification	Structural component	Comment
Hand lever set	8KB-053-1	
Complete sensor box for D8 sensing system	82M-0000050D8	Pepperl & Fuchs
Complete sensor box for C8 sensing system	82M-0000050C8	Turck
Sensor box without sensing system	82M-000005000	
Cylinder	8PW-085-1	
Seal Kit and piston	8PW-036-2-00	

Series **82M-6** Product Overview

Features:

- modular design
- shielded body, dirt-resistant
- compact design
- high holding torques
- long life cycle
- low weight (aluminium body)
- wide range of clamping arm variants
- adjustable opening angle without need for accessory parts (15°-steps from 15°...120°)
- mounting areas at front, back and sides
- toggle action mechanism
- manual unlocking in case of pressure drop
- inductive sensing module with LED display

Key areas of application:

Automotive manufacturing, sheet processing industry, jig and general mechanical engineering.

Application:

Clamping, holding, gripping and positioning of metal sheets and other parts, mainly in jigs and handling systems. Your best choice for carefully inserting and clamping components are the clamps with a handle lever.

82M-623__50...

82M-623__63...

Modular automation power clamp, shown without hand lever



Simple adjusting of opening angle (pictures show sensor-box separated from clamp)



120° Opening angle (delivery condition)



Click-out of bumper



Click-in in new position (60°) (sensor box fit for reassembling to clamp)

Model			Standard opening angle	Max. holding torque Nm [lb ft]	Clamping torque at 5 bar Nm [lb ft]	Drive shaft for clamping arm variant	Clamping position	Cylinder Ø mm [in]	Air consumption per double stroke at 5 bar dm³ [ft³]	Weight ~ kg [lbs]
w/o sensing	w/ ind. sensing Connector M12x1, fixed									
	Pepperl & Fuchs	Turck								
82M-62305000	82M-623050D8	82M-623050C8	120°	1000 [738]	270 [199]	lateral, U-central/ U-lateral	horizontal/ vertical	50 [1.97]	2,2 [0.08]	4,2 [9.24]
82M-62306300	82M-623063D8	82M-623063C8	120°	1000 [738]	420 [310]			63 [2.48]	3,8 [0.13]	4,6 [10.12]

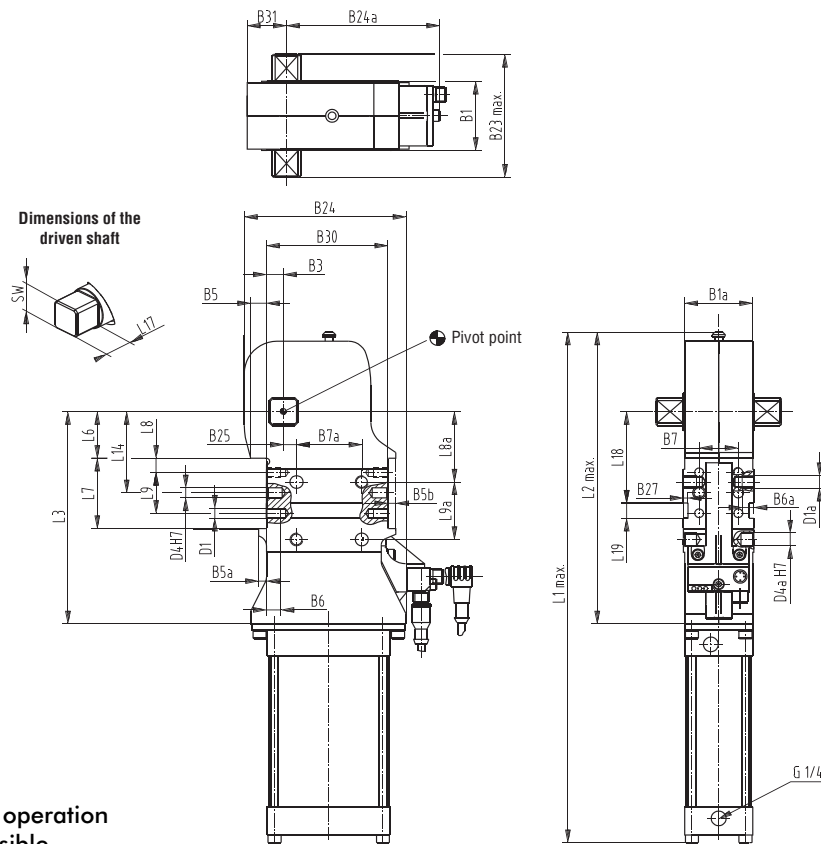
Series **82M-6** Standard Clamp Dimensions

Model	Connection	B1	B1 α	B3	B5	B5 α	B5b	B6	B6 α	B7 ¹⁾
	G	$\pm 0,1$		$\pm 0,1$						$\pm 0,1$
82M-623050__	G 1/4	54	52	13	12	6	6	11	9	30
82M-623063__	G 1/4	54	52	13	12	6	6	11	9	30

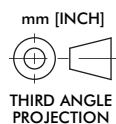
Model	B7 α ¹⁾	B23	B24	B24 α	B25	B27	B30	B31	D1	D1 α	D4	D4 α	L1
	$\pm 0,1$	max			$\pm 0,1$		$\pm 0,1$				H7	H7	max
										\emptyset	\emptyset		
82M-623050__	50	96	124	119	10	3,5	93	30	M8	M10	8	10	398
82M-623063__	50	96	124	119	10	3,5	93	30	M8	M10	8	10	399

Model	L2	L3	L6	L7	L8	L8 α	L9	L9 α ¹⁾	L14	L17	L18	L19	SW
	max		$\pm 0,05$	$+ 0,1$	$\pm 0,1$	$\pm 0,1$	$\pm 0,1$	$\pm 0,1$	$\pm 0,1$			N9	h9
82M-623050__	230	166	36,5	55	11	55	32	45	63,5	21	71,5	12	22
82M-623063__	230	166	36,5	55	11	55	32	45	63,5	21	71,5	12	22

1) Tolerance for distance to dowel hole $\pm 0,02$



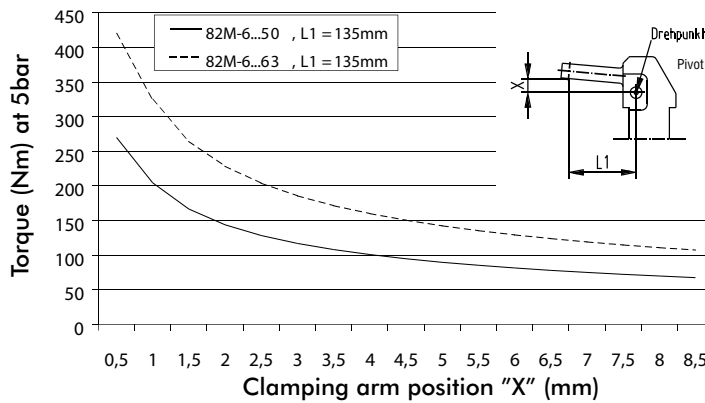
Medium: air, max. 6 bar, operation with oil-free air is permissible



Series **82M-6** Technical Information

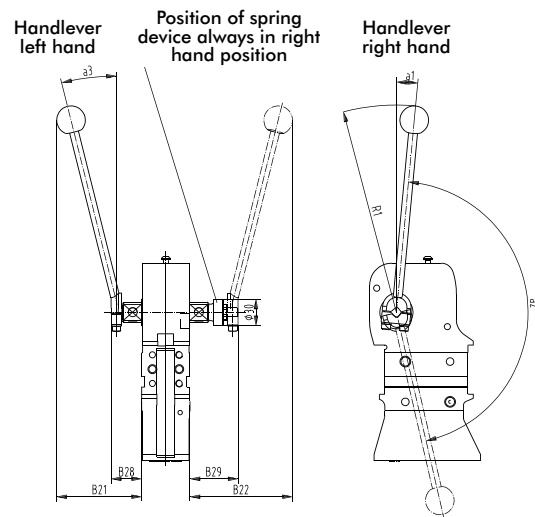
Diagram of Clamping Force (at 5 bar)

Models 82M-6...50.. /-6...63..



Modular automation power clamp, enclosed design, lightweight, with hand lever

82M-6.....
Additional dimensions for hand lever version



82M-6...KC8 modular automation power clamp, with hand lever (left hand)

Model			Standard opening angle	Max. holding torque [Nm]	Clamping torque at 5 bar [Nm]	Drive shaft for clamping arm variant	Clamping position	Cylinder Ø	Air consumption per double stroke at 5 bar [dm³]	Weight ~ [kg]
w/o sensing	w/ ind. sensing Connector M12x1, fixed									
	Pepperl & Fuchs	Turck								
82M-623K5000	82M-623K50D8	82M-623K50C8	120°	1000	270	lateral, U-central/ U-lateral	horizontal/ vertical	50	2,2	4,2
82M-623K6300	82M-623K63D8	82M-623K63C8	120°	1000	420			63	3,8	4,6

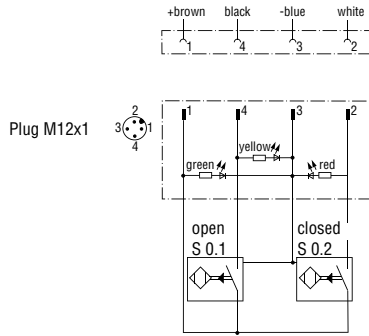
Technical data (additional dimensions of hand lever version)

Model	α1	B21	B22	B28	B29	R1	Hand lever slew angle α2							
	~	~	~	max	max	~	with reference to opening angle of clamping arm							
							15°	30°	45°	60°	75°	90°	105°	120°
82M-623K50_ _	5°	104	124	37	55	240	50°	65°	79°	93°	110°	125°	140°	160°
82M-623K63_ _	5°	104	124	37	55	240	50°	65°	79°	93°	110°	125°	140°	160°

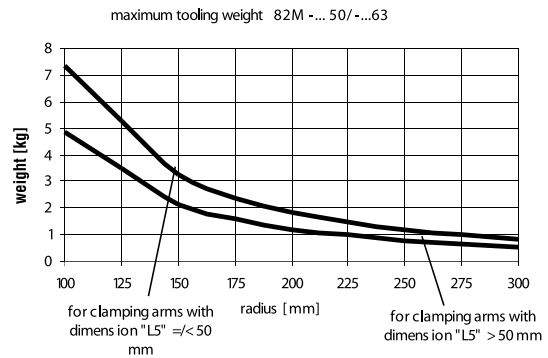
Series 82M-6 Technical Information

Concept guideline

(with reference to axis of clamping arm rotation)



Wiring diagram of electrical sensing system
Sensing system immune to interference from d.c. arc welding and a.c. arc welding



Inductive design:

- C8 Connecting plug M12x1, fixed (Turck)
- D8 Connecting plug M12x1, fixed (Pepperl & Fuchs)

All details apply under an air pressure of 6 bar and opening and closure times of 1 second each.

Pin assignment

Model numbering code for 82M-6.....

Example Order No.: **82M-6** **23** **K** **50** **C8**

<p>82M - 6 = with standard dimensions</p> <p>without hand lever, without cylinder, without sensing system</p> <p>Basic model</p>	<p>23 = drive shaft for lateral clamp arms and U-arms</p> <p>Drive shaft</p>	<p>00 = without hand lever</p> <p>K = with hand lever, welded 8KB-053-1</p> <p>Handlever</p>	<p>50 = pneumatic cylinder Ø50</p> <p>63 = pneumatic cylinder Ø63</p> <p>Cylinder</p>	<p>00 = without sensing system</p> <p>C8 = inductive sensing system 82M-00000C8 Fabr. Turck</p> <p>D8 = inductive sensing system 82M-00000D8 Fabr. Pepperl & Fuchs</p> <p>Sensing system</p>
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Spare parts, without or with hand lever

Specification	Structure component	Order no.	Comment
Hand lever set	82M-6.....	8KB-053-1	
Hand lever mechanism	82M-623.....	8KB-024-1	
Complete sensor box for D8 sensing system	82M-6.....D8	82M-00000D8	Pepperl & Fuchs
Complete sensor box for C8 sensing system	82M-6.....C8	82M-00000C8	Turck
Limit stop box without sensing system	82M-6.....00	82M-00000000	
Complete cylinder, Ø50	82M-6...50..	8PW-036-2	
Complete cylinder, Ø63	82M-6...63..	8PW-037-2	
Seal kit and piston, Ø50	82M-6...50..	8PW-036-2-00	
Seal kit and piston, Ø63	82M-6...63..	8PW-037-2-00	

Series **82M-6** Clamping Arm Variants

Clamping arm design

U-type central clamping arm

Clamping position

horizontal or vertical



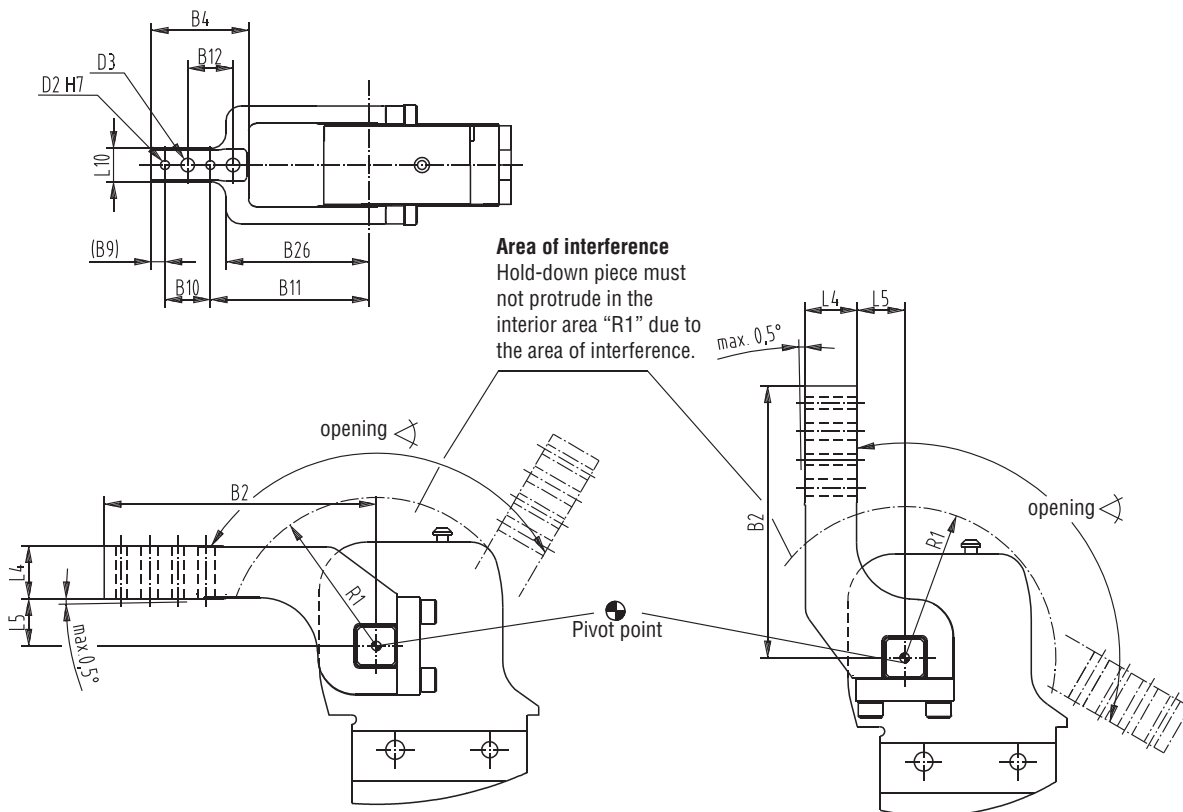
Central clamping arm, horizontal clamping position

U-type central clamping arm Technical Information

Model	Order no. for set of U-type central clamping arms	Opening angle for clamping position		Weght (kg)	B2	B4	B9	B10	B11	B12	B26	D2 H7	D3	L4	L5	L10	R1
		horizontal	vertical														
82M-6...50..	8UM 631-15-144	120°	105°	1,1	144	64,3	9	30	105	30	95	6	9	28	15	20	80
82M-6...50..	8UM 631-25-144	120°	120°	1,2	144	64,3	9	30	105	30	95	6	9	28	25	20	80
82M-6...63..	8UM 631-45-144	120°	120°	1,3	144	64,3	9	30	105	30	95	6	9	28	45	20	80
	8UM 631-75-204	120°	120°	1,7	204	82	9	30	165	30	107	6	9	30	75	20	80

Horizontal clamping arm position

Vertical clamping arm position



Series 82M-6 Clamping Arm Variants

Clamping arm design

- lateral / left
- lateral / right
- lateral / both sides

Clamping position

- horizontal or vertical
- horizontal or vertical
- horizontal or vertical



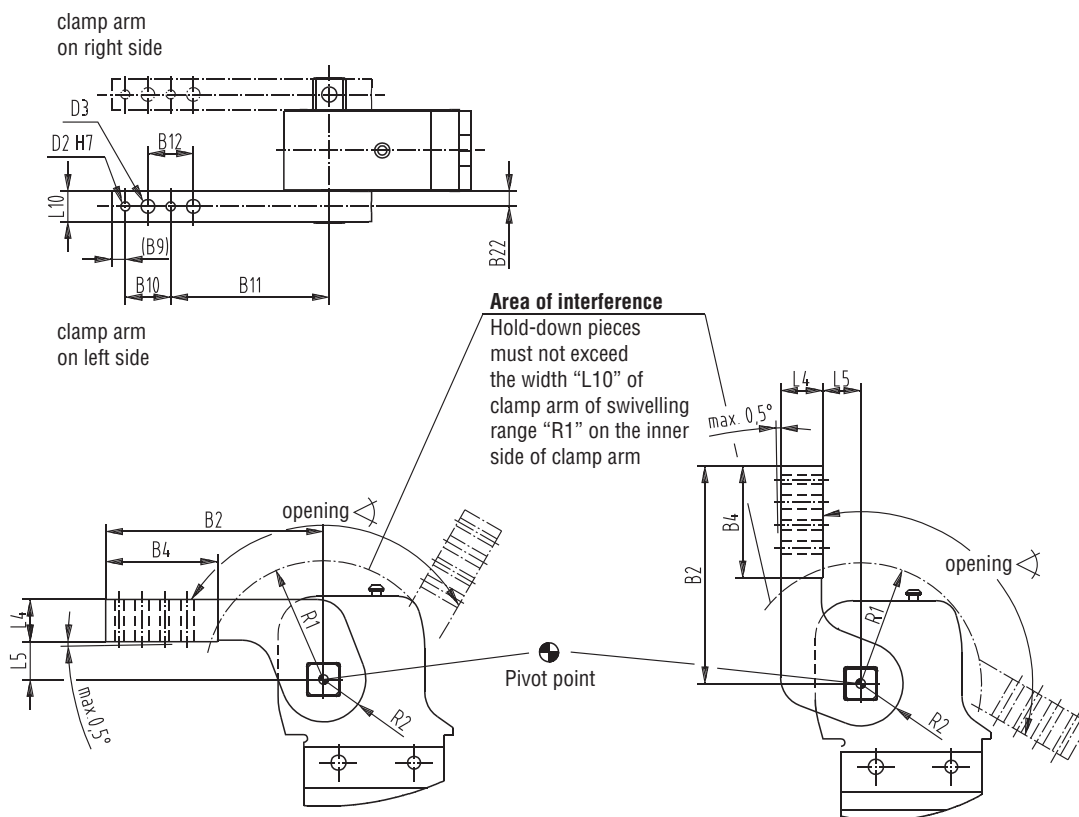
Lateral clamping arm, horizontal clamping position

Lateral clamping arms Technical Information

Model	Order no. for set of	Opening angle for		Weight (kg)	B2	B4	B9	B10	B11	B12	B22	D2	D3	L4	L5	L10	R1	R2
	U-type lateral	clamping position																	±0,02 ±0,1 ±0,2			H7 ±0,1 (-0,5°
	clamping arms	horizontal	vertical									∅	∅		max.)			
82M-6...50..	8JG-080-1-01	120°	120°	0,9	144	74	9	30	105	30	10	6	9	28	15	20	80	28
82M-6...63..	8S631-25-144	120°	120°	1	144	74	9	30	105	30	10	6	9	28	25	20	80	28
	8S631-75-204	120°	120°	1,5	204	78	9	30	165	30	10	6	9	30	75	20	80	28

Horizontal clamping arm position

Vertical clamping arm position



Series **82M-6** Clamping Arm Variants

Clamping arm design

U-type clamping arm, left

U-type clamping arm, right

Clamping position

horizontal or vertical

horizontal or vertical



U-type clamping arm, left, horizontal clamping position



U-type clamping arm, right, horizontal clamping position

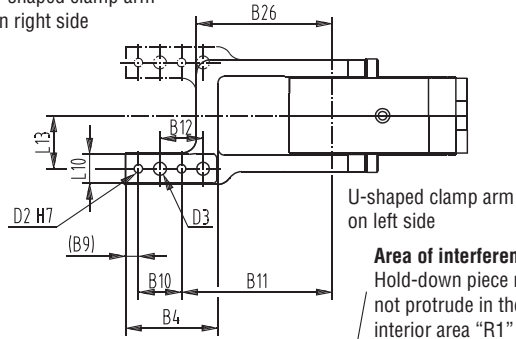
U-clamp arm lateral Technical Information

Order No. for set		Opening angle for clamping position		Weight (kg)	B2	B4	B9	B10	B11	B12	B26	D2	D3	L4	L5	L10	L13	R1
left	right	horizontal	vertical										Ø	Ø		max.)		
8UL631-15-144	8UR631-15-144	120°	105°	1,1	144	64,3	9	30	105	30	95	6	9	28	15	20	37	80
8UL631-25-144	8UR631-25-144	120°	120°	1,2	144	64,3	9	30	105	30	95	6	9	28	25	20	37	80
8UL631-45-144	8UR631-45-144	120°	120°	1,3	144	64,3	9	30	105	30	95	6	9	28	45	20	37	80
8UL631-75-204	8UR631-75-204	120°	120°	1,9	204	82	9	30	165	30	119	6	9	30	75	20	37	80

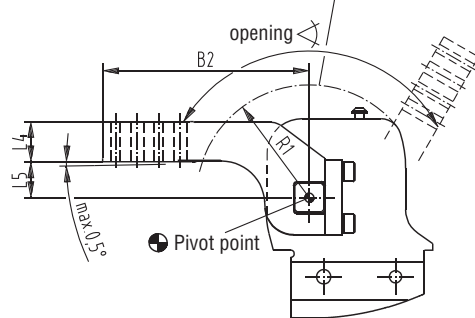
Horizontal clamping arm position

Vertical clamping arm position

U-shaped clamp arm on right side

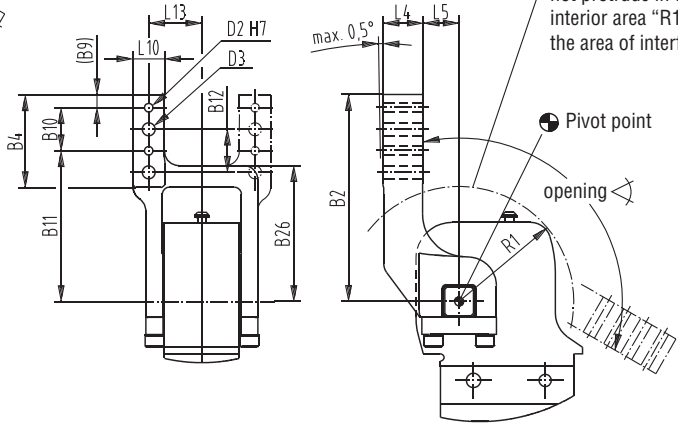


Area of interference
Hold-down piece must not protrude in the interior area "R1" due to the area of interference.



U-shaped clamp arm on left side

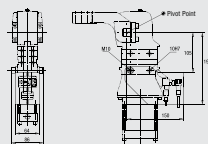
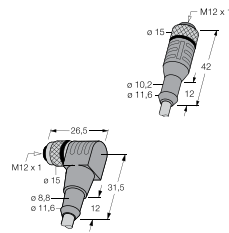
U-shaped clamp arm on right side



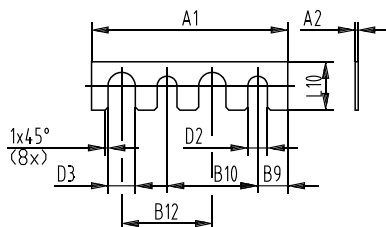
Area of interference
Hold-down piece must not protrude in the interior area "R1" due to the area of interference.

Series 82M-6 Accessory information

Specification			Order no. for set 82M-1..040..	Comment
Clamping arm variant	Fulcrum distance	Clamping position		
U-central	15	horizontal / vertical	8UM631-15-144	sets of U-type clamping arms consist of clamping arm, links and screws
U-central	25	horizontal / vertical	8UM631-25-144	
U-central	45	horizontal / vertical	8UM631-45-144	
U-central	75	horizontal / vertical	8UM631-75-204	
U-left	15	horizontal	8UL631-15-144	sets of lateral clamping arms consist of clamping arm & set screws
U-left	25	horizontal	8UL631-25-144	
U-left	45	horizontal	8UL631-45-144	
U-left	75	horizontal	8UL631-75-204	
U-left	15	vertical	8UR631-15-144	
U-left	25	vertical	8UR631-25-144	
U-left	45	vertical	8UR631-45-144	
U-left	75	vertical	8UR631-75-204	
U-right	15	horizontal	8UR631-15-144	
U-right	25	horizontal	8UR631-25-144	
U-right	45	horizontal	8UR631-45-144	
U-right	75	horizontal	8UR631-75-204	
U-right	15	vertical	8UL631-15-144	
U-right	25	vertical	8UL631-25-144	
U-right	45	vertical	8UL631-45-144	
U-right	75	vertical	8UL631-75-204	
lateral right/left	15	horizontal / vertical	8JG-080-1-01	sets of lateral clamping arms consist of clamping arm & set screws
lateral right/left	25	horizontal / vertical	8S631-25-144	
lateral right/left	75	horizontal / vertical	8S631-75-204	
lateral both sides	15	horizontal / vertical	8JG-080-1-01	you need 2 sets of lateral clamping arms
	25	horizontal / vertical	8S631-25-144	
	75	horizontal / vertical	8S631-75-204	
Modification set for models 82M-623...			8KB-028-1	if clamp w/o hand lever is to be modified to have hand lever
Connector cable (1 connector socket & 5 m cable)				
connector socket M12x1				
straight, 5-pin			8EL-002-1	
connector socket M12x1				
angular, 4-pin			8EL-003-1	
Anti ramming device			82ZB-011-1	



Shims for clamping arms



Model no	A1	A2	D2	D3	B9	B10	B12	L10
82ZB-SH5001	65	0,1	6,5	9	10	30	30	16
82ZB-SH5002		0,2						
82ZB-SH5005		0,5						
82ZB-SH5010		1,0						
82ZB-SH5020		2,0						
82ZB-SH5050		5,0						

Series **82M-6** Handle Options

Accessory: Hold open device

Locking device holds open clamps with additional manual actuation.

Application:

Pneumatic clamps with handlever. Hold open clamping arm.

Models 82ZB-039-1 (for 82M-6)



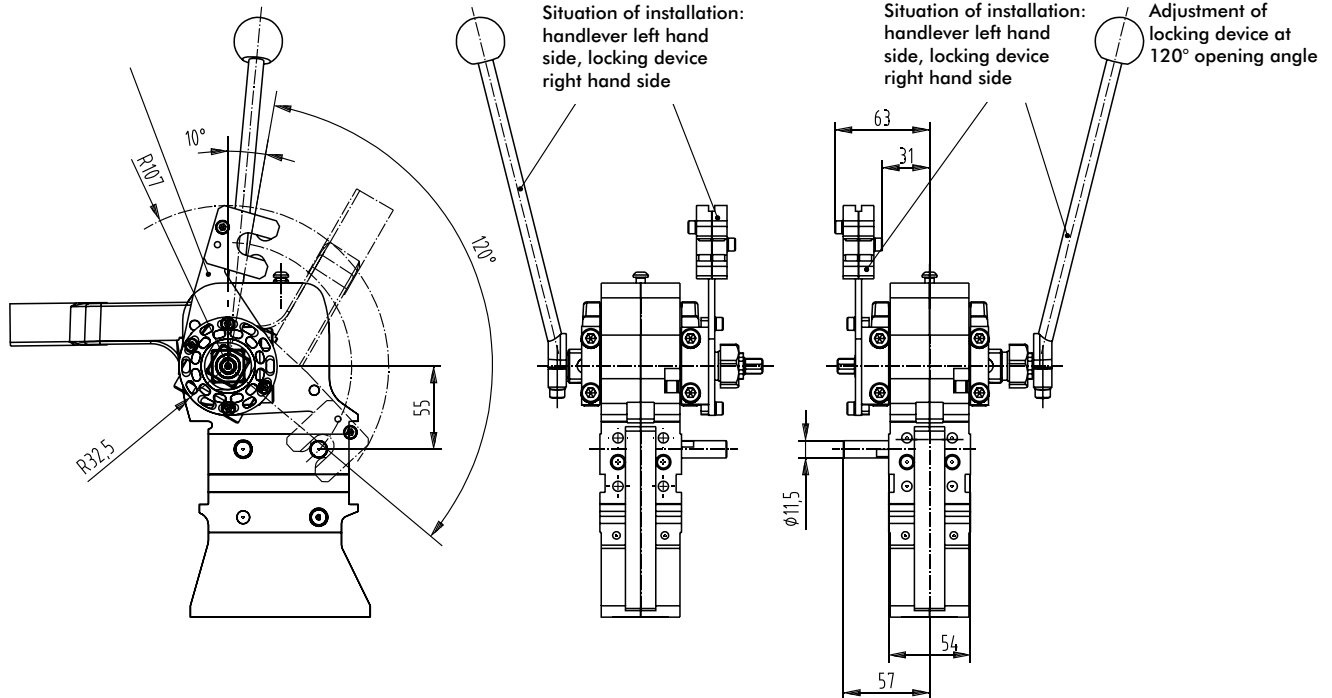
82ZB-039-1
Mounted at lateral arm



82ZB-039-1
Mounted at U-arm

View (shown with U-clamping arm)	Order no.	For clamp-series	Spare part clip (4 pieces needed)
	82ZB-039-1	82M-6	8MH-062-1

Accessory: Hold open device
Order No.: 82ZB-039-1



Series **82M-6** Accessory information

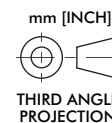
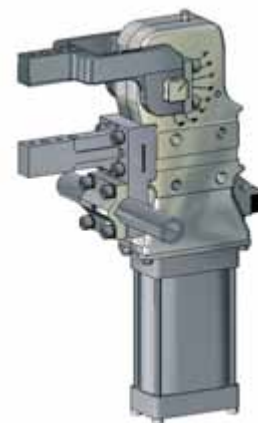
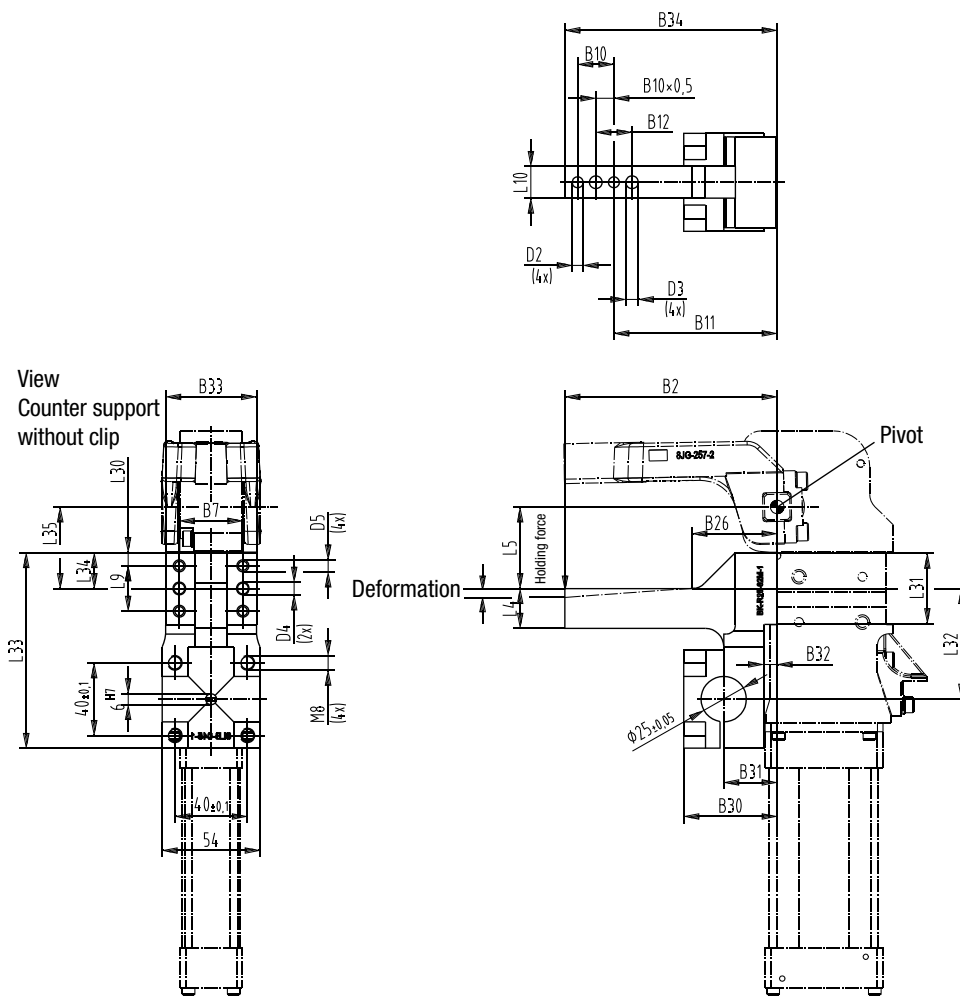
Accessory: Counter-support

Counter support adapter for clamping arm including adaptor for round profile 25mm.

Application:

Mounting clamps at 25mm round profile endeffector system.

Models BK-R25-82L50-1 (for model 82M-6)



Model	B2	B7	B10	B11	B12	B26	B30	B31	B32	B33	B34	D2	D3	D4	D5	L4	L5	L9	L10	L30	L31	L32	L33	L34	L35
	±0,1	±0,02										∅	∅	∅	∅	±0,1		±0,1			±0,1				±0,02
		±0,02										H7		H7											
BK-R25-82L50	144	30	30	92	30	54	67,5	44	22	54	131	6	9	8	9	31	45	32	20	10,85	54,7	73,5	109	26,85	63,5

View	Order no..	For clamp-series	Holding force max. [N]	Elastic Deformation at Holding force [mm]	Weight ~ [kg]
	BK-R25-82L50-1	82M-6	3000	0,25	0,75

Series **82G80-4** Product Overview

Automation power clamp, heavy-duty design, enclosed and narrow design

Features:

- Dirt-resistant
- Compact, enclosed design
- High holding torques
- Long life cycle
- Wide range of clamping arm variants
- Mounting areas at front, back and sides
- Toggle action mechanism
- Manual unlocking in case of pressure drop
- Inductive sensing module with LED display
- Shielded body

Application:

Clamping, holding, gripping and positioning of metal sheets and other parts, mainly in jigs and handling systems for high clamping and holding forces.

Key areas of application:

Automotive manufacturing, jig and general mechanical engineering.

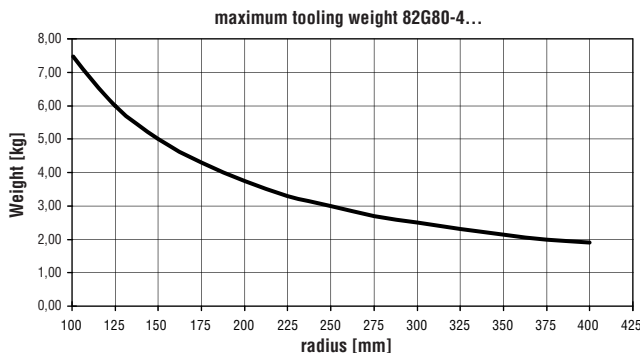


82G80-423C800B

Automation power clamp, heavy-duty design

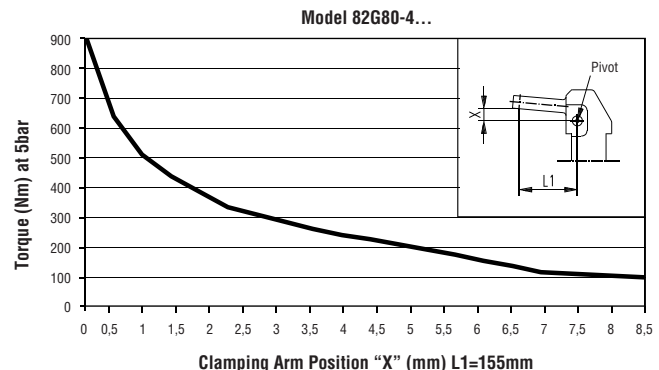
Model w/ ind. sensing Connector M12x1, fixed Turck	Clamping position	Standard opening angle	Driven shaft for clamping arm variants	Max. holding torque Nm [ft lb]	Clamping torque at 5 bar Nm [ft lb]	Cylinder Ø mm [in]	Air con- sumption per double stroke at 5 bar dm ³ [ft ³]	Weight ~ kg [lbs]
82G80-423C800B	horizontal	135°	lateral-both sides lateral-left lateral-right or U-central	2200 [1623]	850 [625]	80 [3.1]	5,8 [0.2]	14 [30.9]
82G80-463C800B	vertical	96°						

Concept guideline (with reference to axis of clamping arm rotation)

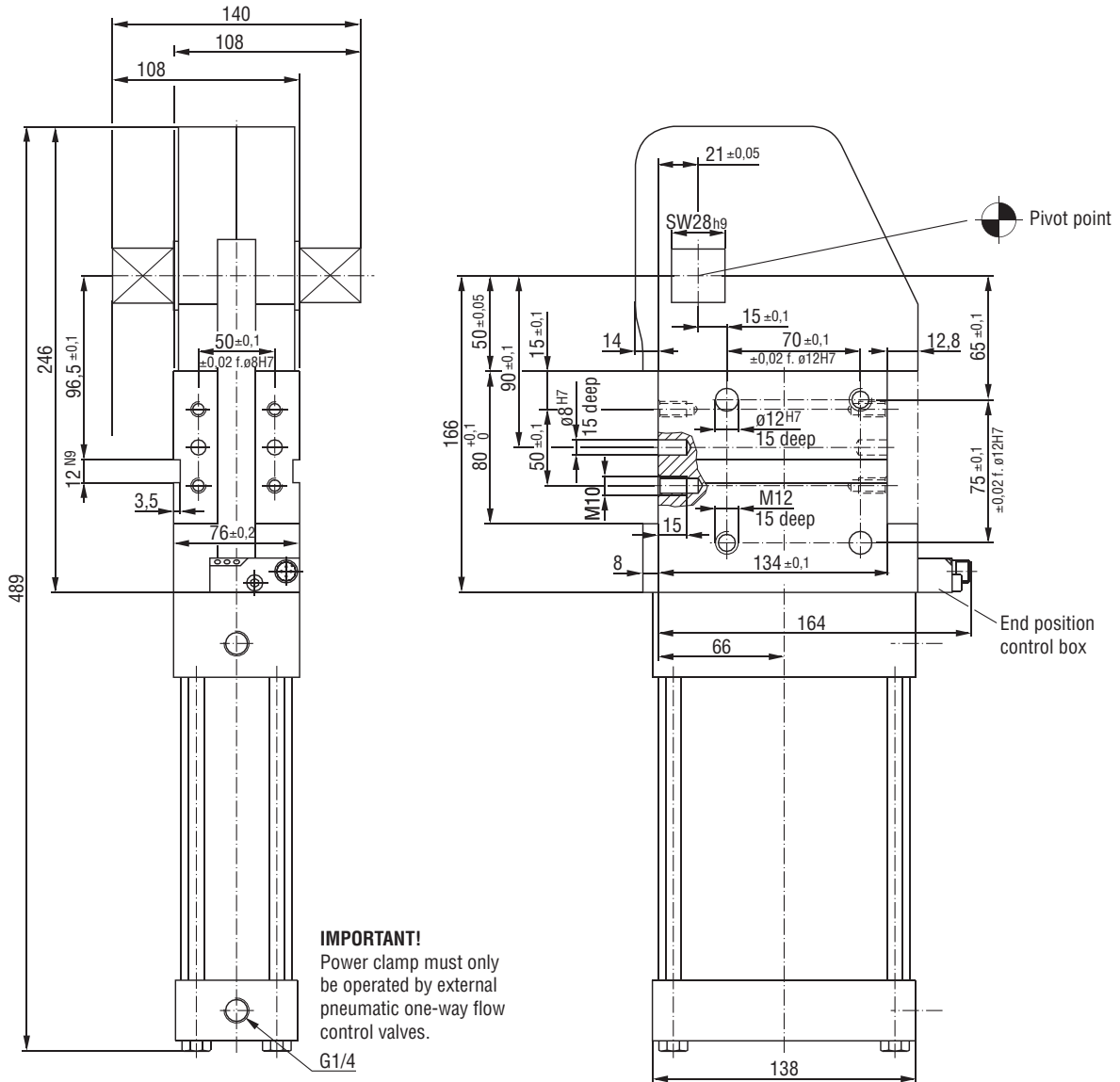


All details apply under an air pressure of 6 bar and opening and closure times of 1 second each.

Diagram of clamping force (at 5 bar)

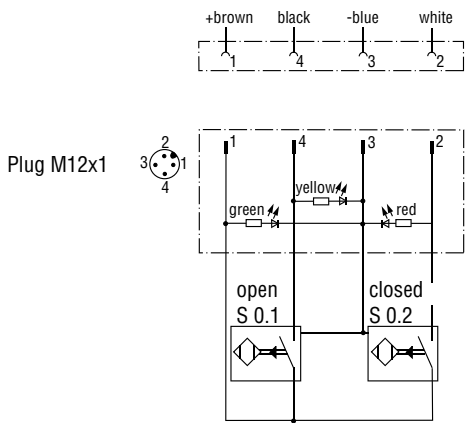


Series 82G80-4 Standard Dimensions



IMPORTANT!
Power clamp must only be operated by external pneumatic one-way flow control valves.

Power by compressed air, max. 6 bar
Operation with oil-free air is permissible.



Wiring diagram for electrical sensing system
Sensing system immune to interference from d.c. arc welding and a.c. arc welding

Inductive design:
• C8 Connecting plug M12x1, fixed Pin assignment

Series **82G80-4** Clamping Arm Variants



U-type Central clamping arm, horizontal clamping position

Technical data U-type central clamping arms

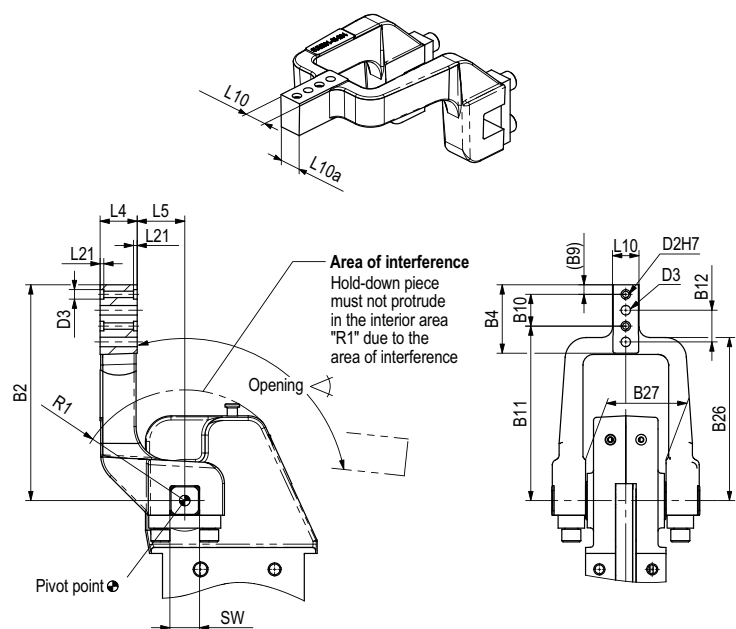
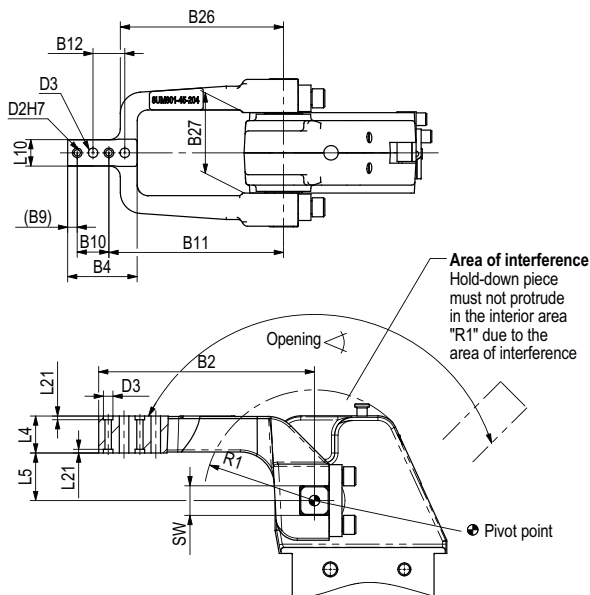
Model	Order no. U-type central clamping arm	Opening angle for clamping position		Weight [kg]	B2	B4	B9	B10 ±0,02	B11 +0,1
		horizontal	vertical						
82G80-4..C800B	8UM801-45-204 8JG-169-2-01	135°	96°	4,1	204	65,5	9	30	165
		135°	96°	3,5	179	65,5	9	30	140

Model	Order no. U-type central clamping arm	B12 ±0,02	B26	D2 H7	D3	L4 ±0,1	L5*** ±0,2	L10	L10a ~	L21	R1	SW J7
		30	129	6	9	35	20	25	23,7	3,5	108	28

*** Tolerance measured 80 mm from pivot point

Horizontal clamping arm position

Vertical clamping arm position



Series **82G80-4** Clamping Arm Variants



Lateral clamping arm, horizontal clamping position

Technical data lateral clamping arms

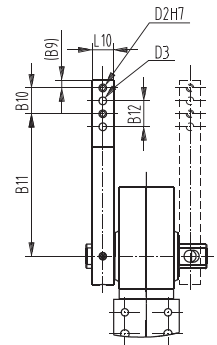
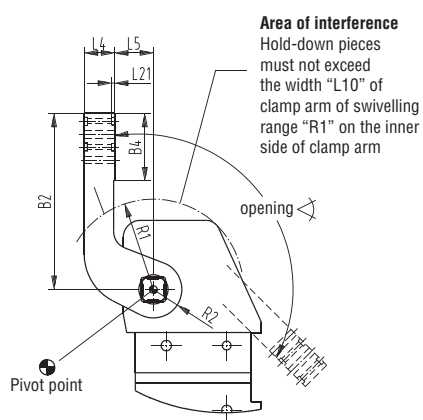
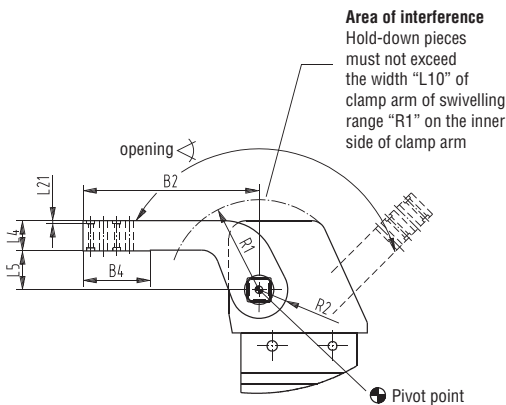
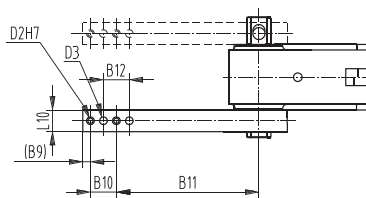
Model	Order No. lateral clamping arm	Opening angle for clamping position		Weight [kg]	B2	B4	B9	B10 ±0,02	B11 +0,1
		horizontal	vertical						
82G80-4..C800B	8S801-45-204 8JG-1179-1-01	135°	105°	2,2	204	78	9	30	165
		135°	105°	2,1	179	78	9	30	140

Model	Order No. lateral clamping arm	B12 ±0,02	D2 H7	D3	L4 ±0,1	L5*** ±0,2	L10	L21	R1	R2

*** Tolerance measured 80 mm from pivot point

Horizontal clamping arm position

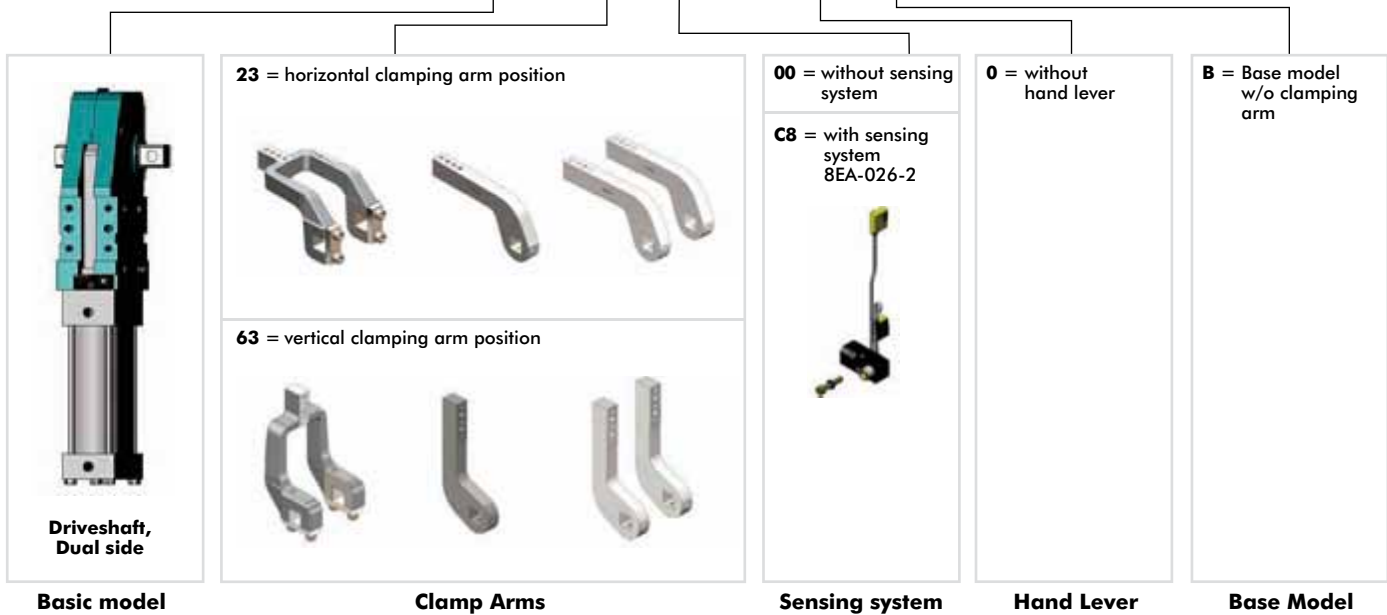
Vertical clamping arm position



Series **82G80-4** Ordering Information

Model numbering code for 82G80-4....

Example Order No.: **82G80-4 23 C8 0 0 B**



Spare parts

Specification	Order no. for structural component 82G80-4..C800B
Cylinder	8PW-1004-1
Seal kit	8PW-1001-1-00
Sensing kit C8	82G80-4C8
Sensing system C8 Connector plug M12x1, fixed	8EA-026-2

Series 82G80-4 Accessories

Clamping Arms				Order No. for set 82G80-4..C800B	Comment
Clamping arm variant	Clamping arm length	Fulcrum distance	Clamping position		
U-central	179	20	horizontal / vertical	8JG-169-2-01	Set consists of clamping arm, screws, and links.
U-central	204	45	horizontal / vertical	8UM 801-45-204	
lateral right/left	179	20	horizontal / vertical	8JG-1179-1-01	Set consists of clamping arm and set screws.
lateral right/left	204	45	horizontal / vertical	8S801-45-204	
lateral both sides					you need 2 sets of clamping arms

Connector cable (1 connector socket & 5 m cable)		Order No.	
connector socket M12x1 straight, 5-pin		8EL-002-1	
connector socket M12x1 angular, 4-pin		8EL-003-1	

Opening angle limitation	Order No.	
120°	8CE-1002-3	Height 9,1 mm
105°	8CE-1000-3	Height 21,1 mm
96°	8CE-220-2	Height 28,6 mm
90°	8CE-1004-3	Height 33,8 mm
75°	8CE-1008-3	Height 46,5 mm
60°	8CE-1012-3	Height 58,2 mm
45°	8CE-1016-3	Height 69,6 mm
30°	8CE-1020-3	Height 81,0 mm

Shim for clamping arm	Order No.	A1	A2	D2	D3	B9	B10	B12	L10
	82ZB-SH5001		0,1						
	82ZB-SH5002		0,2						
	82ZB-SH5005	65	0,5	6,5	9	10	30	30	16
	82ZB-SH5010		1,0						
	82ZB-SH5020		2,0						
	82ZB-SH5050		5,0						

Series **82D40-2/82D63-5** Product Overview

Features:

- Compact, enclosed design
- Narrow design
- Adapts to various holding arm variants
- High accuracy of positioning due to internal holding arm stopper
- 2 lateral and 1 front mounting areas
- Low weight (aluminium body)
- Integrated inductive sensing module with LED display
- Cylinder diameter 40 mm or 64 mm

Application:

- Clamping, holding, gripping and positioning of metal sheets and other parts, mainly in jigs and handling systems.

Key areas of application:

- Automotive manufacturing, sheet processing industry, jig and general mechanical engineering.



- Automation power clamps, enclosed and narrow design for 2 clamping arms

Models: **82D40-2...**
82D63-5...

82D40-223C900

Base model with 2 U-clamping arms

Series **82D40-2/82D63-5** Technical Information

Model		Standard opening angle	Driveshaft	Max. holding torque Nm [lb ft]	Clamping torque at 5 bar Nm [lb ft]	Cylinder Ø mm [in]	Air consumption per double stroke at 5 bar dm ³ [ft ³]	Weight ~ kg [lbs]
		180°	lateral, both sides U-type clamping arms	55 [738]	55 [738]	40 [1.57]	1,2 [0.08]	2,5 [5.50]
82D63-523C900B	vertical	180°	lateral, both sides U-type clamping arms	120 [738]	120 [738]	63 [2.48]	3,8 [0.13]	4,5 [9.90]

Model	B1	B2	B3	L1	SW	G
82D40-223C900B	30	30	60	12,5	11	1/4
82D63-523C900B	47	47	94	21	19	1/4

Order no. code for **82D40/63**

Example Order No.: **82D63-5 23 C9 0 0 B**

82D40-2



Basic model

82D63-5



23 = long drive shaft ends on both sides fit for all clamping arms



Clamping arm

C9 = with sensing system 8EA-024-2 M12x1



Sensing system

without handlever

0 = Standard opening angle limitation 180°

- 1 = 160° opening angle
- 2 = 140° opening angle
- 3 = 120° opening angle
- 4 = 100° opening angle
- 5 = 80° opening angle
- 6 = 60° opening angle
- 7 = 40° opening angle
- 8 = 20° opening angle

Opening angle limitation

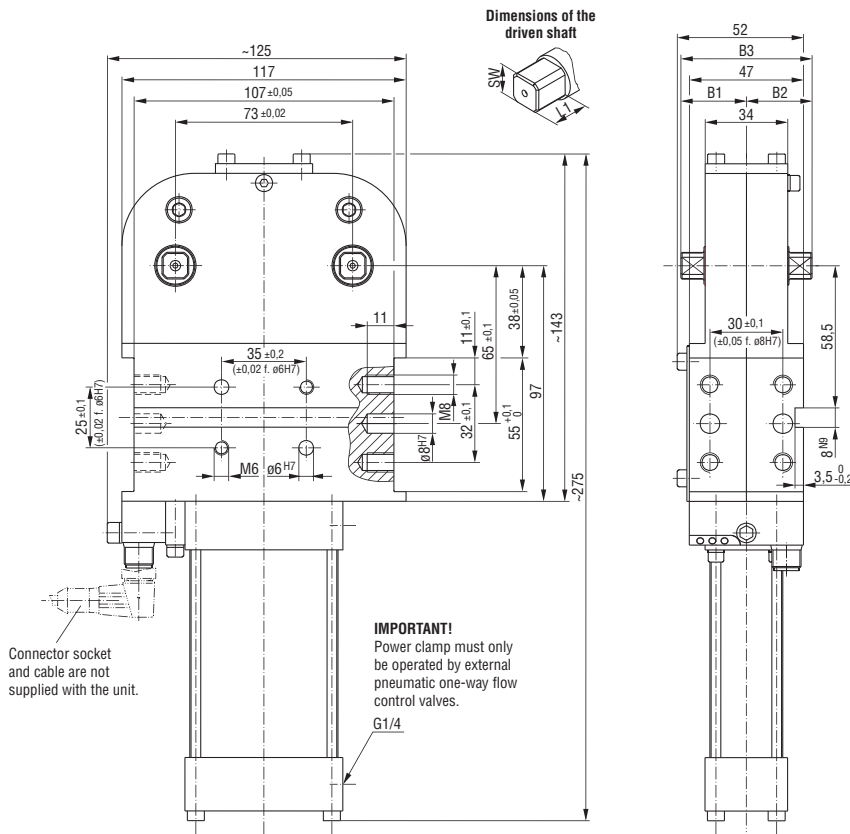
B = Base model Power clamp without clamping arm to be marked with an additional „B“

Clamps with reduced opening angle upon request

Series 82D40-2/82D63-5 Standard Clamp Dimensions

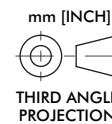
Automation power clamps with 2 clamping arms

82D40-223C900B

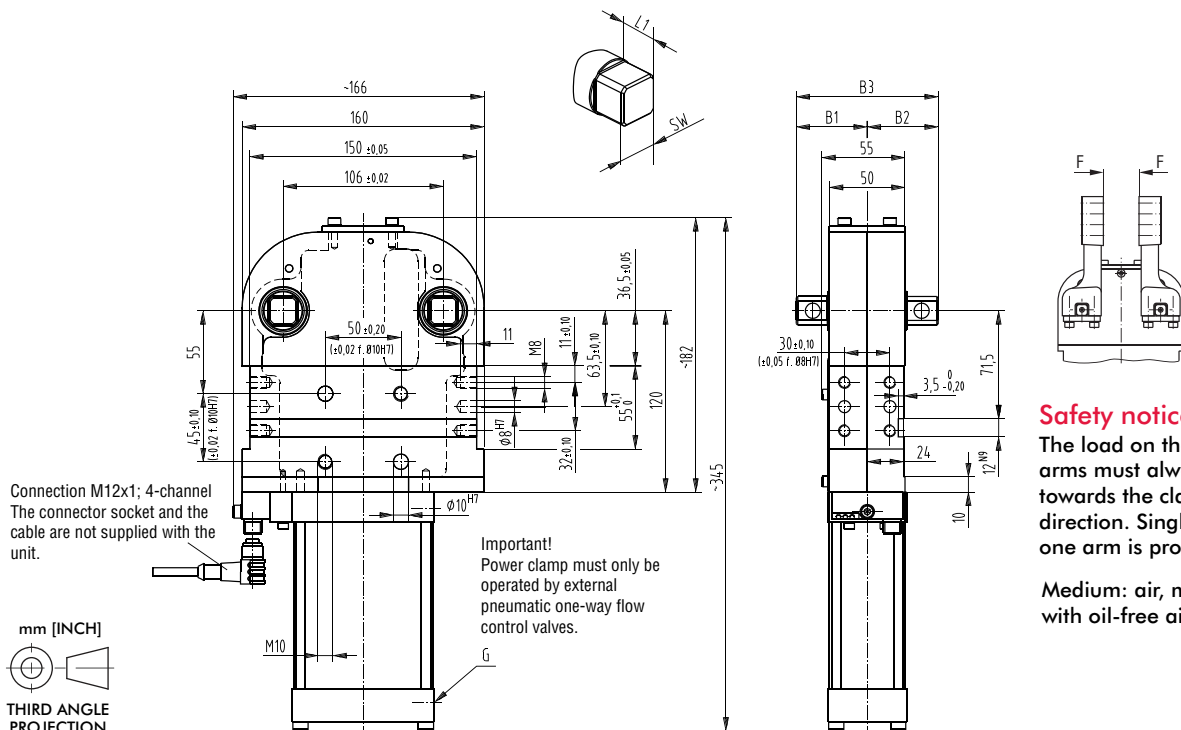


Safety notice:
The load on the clamping arms must always point towards the clamping direction. Single load of one arm is prohibited

Medium: air, max. 6 bar, operation with oil-free air is permissible

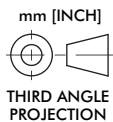


82D63-523C900B



Safety notice:
The load on the clamping arms must always point towards the clamping direction. Single load of one arm is prohibited

Medium: air, max. 6 bar, operation with oil-free air is permissible



Series **82D40-2** Technical Information, Dimensions
Automation power clamps with 2 clamping arms

- Clamping arm variants for **82D40-2**
Clamping arm variant U-type central clamping arm



Base model with 2 U-type clamping arms, small gap between clamping arms

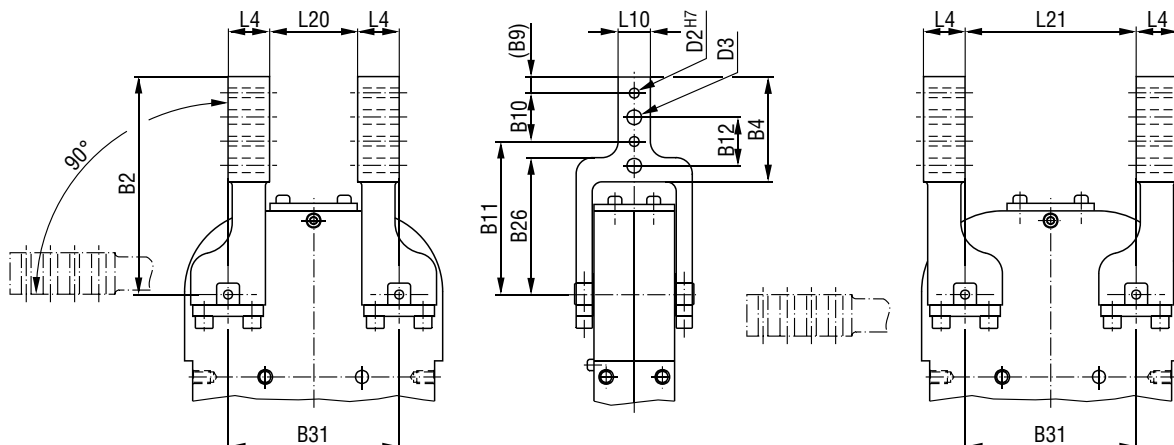
U-type central clamping arm Technical Information

Model	Order no. for U-type clamping arm set (1 clamping arm)	Clamping position	Standard opening angle	B2	B4	B9	B10	B11	B12	B26
82D40-223C900B	8JG-065-2-01	vertical	180°	105	45,3	6	±0,02	+0,1	±0,2	68,2

Model	Order no. for U-type clamping arm set (1 clamping arm)	B31	D2	D3	L4	L10	L20	L21
82D40-223C900B	8JG-065-2-01	±0,02	H7 ∅	∅		-0,1		
82D40-223C900B	8JG-065-2-01	73	6	7	20	12	33	73

Drawing shows standard mounting (L20)

Drawing shows further mounting possibility (L21)



Series **82D63-5** Technical Information, Dimensions

Automation power clamps with 2 clamping arms

- Clamping arm variants for **82D63-5**
Clamping arm variant U-type central clamping arm



Base model with 2 U-type clamping arms, small gap between clamping arms

U-type central clamping arms Technical Information

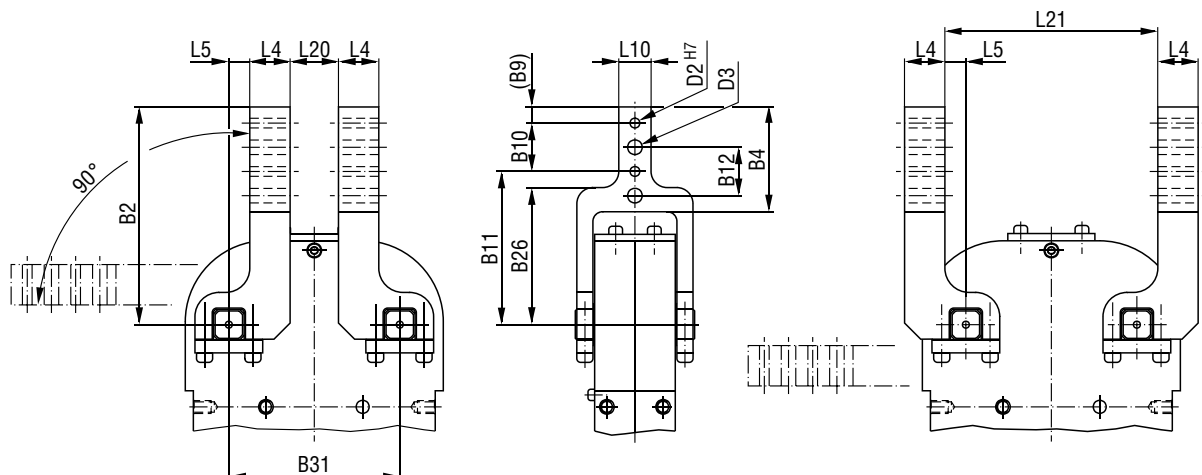
Model	Order no. for U-type clamping arm set (1 clamping arm)	Clamping position	Standard opening angle	B2	B4	B9	B10	B11	B12	B26
82D63-523C900B	8JG-069-1-01	vertical	180°	144	64,3	9	±0,02	+0,1	±0,2	95

Model	Order no. for U-type clamping arm set (1 clamping arm)	B31	D2	D3	L4	L5*	L10	L20	L21
82D63-523C900B	8JG-069-1-01	±0,02	H7 ∅	∅	28	15	-0,1	20	136

* Tolerance applies to 80 mm gap, measured from fulcrum

Drawing shows standard mounting (L20)

Drawing shows further mounting possibility (L21)



Series **82D40-2** Technical Information, Dimensions
Automation power clamps with 2 clamping arms

• **Clamping arm variants for 82D40-2**
Clamping arm variant

- Lateral clamping arm left
- Lateral clamping arm right
- Lateral clamping arm both sides



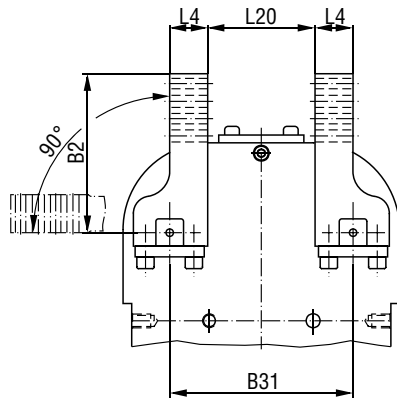
Base model with 4 lateral clamping arms, large gap between clamping arms

Lateral clamping arm Technical Information

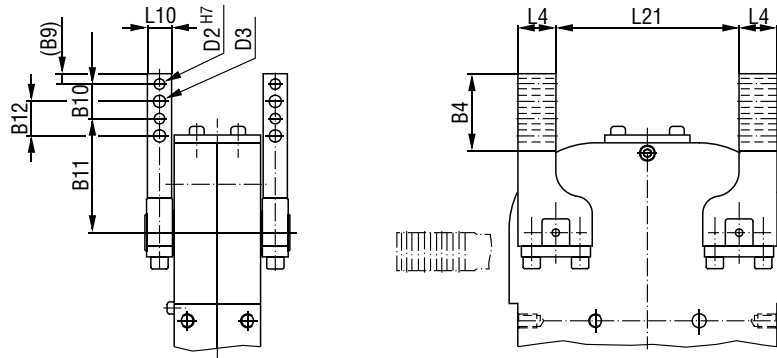
Model	Clamping arm variant	Order no. for 1 set of lateral clamping arms	Clamping position	Standard opening angle	B2	B4	B9	B10	B11	B12
82D40-223C900B	lateral, left lateral, right lateral, both sides	8JG-066-1-01	vertical	180°	105	45	6	±0,02	+0,1	±0,2

Model	Clamping arm variant	Order no. for 1 set of lateral clamping arms	B31	D2	D3	L4	L10	L20	L21
82D40-223C900B	lateral, left lateral, right lateral, both sides	8JG-066-1-01	±0,02	H7 ∅	∅		-0,1		
82D40-223C900B	lateral, left lateral, right lateral, both sides	8JG-066-1-01	73	6	7	20	12	33	73

Drawing shows standard mounting (L20) with four lateral clamp arms



Drawing shows further mounting possibility (L21)



Series **82D63-5** Technical Information, Dimensions

Automation power clamps with 2 clamping arms

• Clamping arm variants for **82D63-5**

Clamping arm variant

- Lateral clamping arm left
- Lateral clamping arm right
- Lateral clamping arm both sides



Base model with 4 lateral clamping arms, large gap between clamping arms

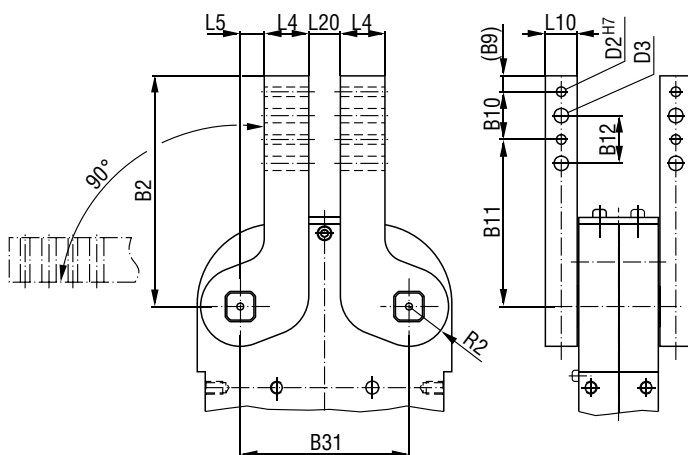
Lateral clamping arms Technical Information

Model	Clamping arm variant	Order no. for 1 set of lateral clamping arms	Clamping position	Standard opening angle	B2	B4	B9	B10	B11	B12	
82D63-523C900B	lateral, left lateral, right lateral, both sides	8JG-070-1-01	vertical	180°	144	74	9	30	±0,02	+0,1	±0,2

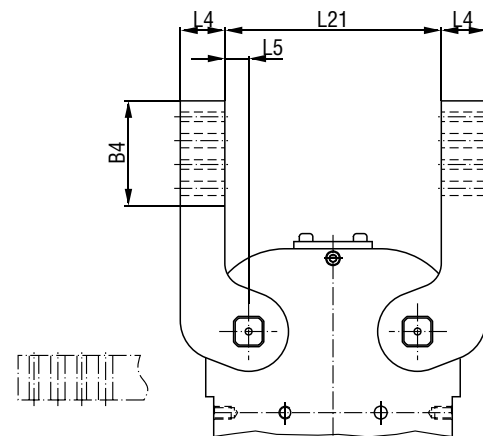
Model	Clamping arm variant	Order no. for 1 set of lateral clamping arms	B31	D2	D3	L4	L5	L10	L20	L21	R2	
82D63-523C900B	lateral, left lateral, right lateral, both sides	8JG-070-1-01	±0,02	H7 Ø	Ø	28	15	20	20	-0,1	136	28

* Tolerance applies to 80 mm gap, measured from fulcrum

Drawing shows standard mounting (L20) with four lateral clamp arms



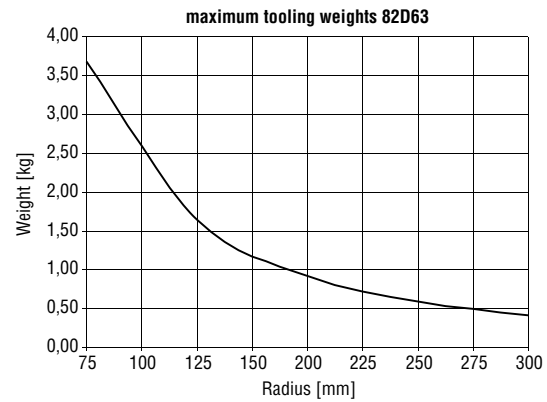
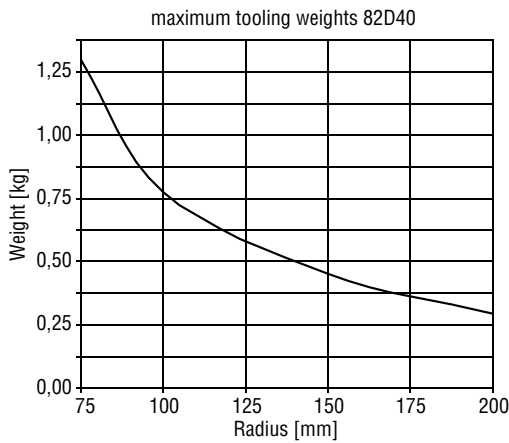
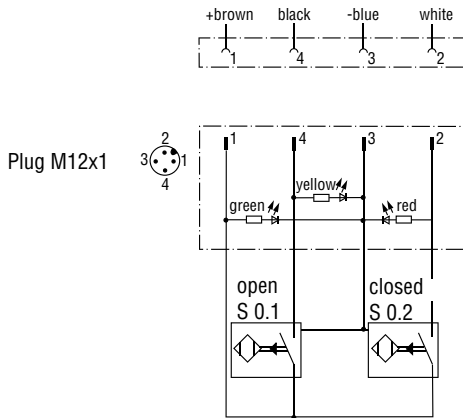
Drawing shows further mounting possibility (L21)



Series **82D40-2/82D63-5** Technical Information

Concept guideline

(with reference to axis of clamping arm rotation)

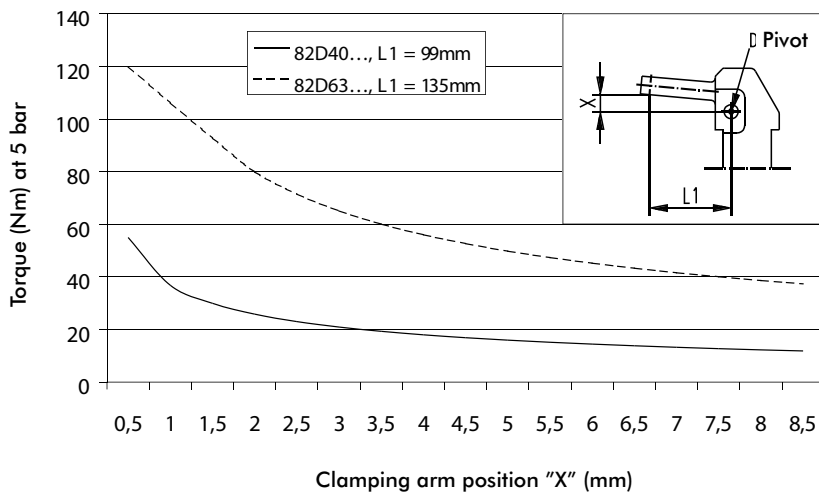


All details apply under an air pressure of 6 bar and opening and closure times of 1 second each

Diagram of clamping force

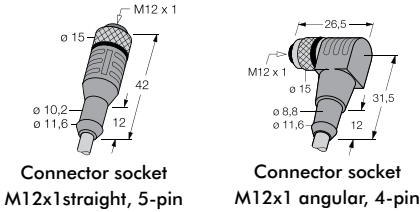
(at 5 bar)

Models 82D40... / 63...

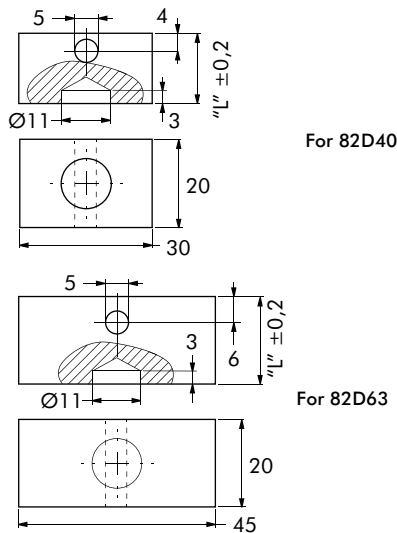


Series 82D40-2 / 82D63-5 Accessories

Clamping Arms		Structural component		Comment
Clamping are variant	Clamping position	82D40-223C900B	82D63-523C900B	
U-central	vertical	8JG-065-1-01	8JG-069-1-01	sets of U-type clamping arms consist of clamping arm, links and screws
lateral right/left	vertical	8JG-066-1-01¹⁾	8JG-070-1-01²⁾	sets of lateral clamping arms consist of 1) clamping arm, links and screws 2) clamping arm and set screws you need 2 sets of clamping arms
lateral both sides	vertical	8JG-066-1-01¹⁾	8JG-070-1-01²⁾	you need 4 sets of clamping arms



Connector Cable (includes 1 connector socket & 5 m cable)	Order no. for Structural component	
	82D40-223C900	82D63-523C900
Connector socket M12x1 straight, 5-pin	8EL-002-1	8EL-002-1
Connector socket M12x1 angular, 4-pin	8EL-003-1	8EL-003-1



Opening Angle Limiter	Order no. for Structural component			
	82D40-223C900		82D63-523C900	
Angle	Length	Order No.	Length	Order No.
180° (Standard)	11,4mm	8CE-342-1	14,4mm	8CE-362-1
160°	15,1mm	8CE-340-1	20,0mm	8CE-360-1
140°	18,5mm	8CE-338-1	24,8mm	8CE-358-1
120°	22,2mm	8CE-336-1	29,6mm	8CE-356-1
100°	28,8mm	8CE-334-1	34,3mm	8CE-354-1
80°	28,0mm	8CE-332-1	39,0mm	8CE-352-1
60°	33,0mm	8CE-330-1	43,8mm	8CE-350-1
40°	37,0mm	8CE-328-1	49,1mm	8CE-348-1
20°	41,8mm	8CE-326-1	56,2mm	8CE-456-1

Shim Plates (for clamping arm)	Fit for model 82D40-2									Fit for model 82D63-5								
	Model	A1	A2	D2	D3	B9	B10	B12	L10	Model	A1	A2	D2	D3	B9	B10	B12	L10
	82ZB-SH4001	0,1								82ZB-SH5001	0,1							
	82ZB-SH4002	0,2								82ZB-SH5002	0,2							
	82ZB-SH4005	0,5								82ZB-SH5005	0,5							
	82ZB-SH4010	1,0	6,5	7	6	20	20	12		82ZB-SH5010	1,0	6,5	9	10	30	30	16	
	82ZB-SH4020	2,0								82ZB-SH5020	2,0							
	82ZB-SH4050	5,0								82ZB-SH5050	5,0							

Spare Parts	Order no. for Structural component	
	82D40-2	82D63-5
Cylinder	8PW-016-2	8PW-024-2
Seal kit	8PW-016-1-00	8PW-024-1-00
Integrated sensing system C9 Connector plug M12x1, fixed (Turck)	8EA-024-2	8EA-024-2

Series **82U50-3** Product Overview

Pallet power clamps, enclosed model

Models: 82U50-3....

Application:

Clamping, holding, gripping and positioning of metal sheets and other parts, mainly in jigs and handling systems, particularly in situations where local accessibility does not allow the use of standard clamps.



82U50-300....
Pallet power clamp

Key areas of application:

Automotive manufacturing, sheet processing industry, jig and general mechanical engineering.

Features:

- compact, enclosed aluminium body
- high holding torques
- long life cycle
- hard alloy rest at the clamping hook
- toggle action mechanism
- inductive sensing module with LED display

Optional:

- adapter plate for lateral connection
- sensing system integrated or attached to the cylinder

Model with inductive sensing			Max. holding force N [lbs]	Clamping force at 5 bar N [lbs]	Max. operating- pressure bar [psi]	Cylinder Ø mm [in]	Weight ~ kg [lbs]
Connector M12x1, fixed	Connector M12x1, with lead	Connector M8x1, fixed					
82U50-300B700	82U50-300B800	82U50-300C800	4000 [899]	4000 [899]	6 [87]	50 [1.97]	3,2 [7.04]

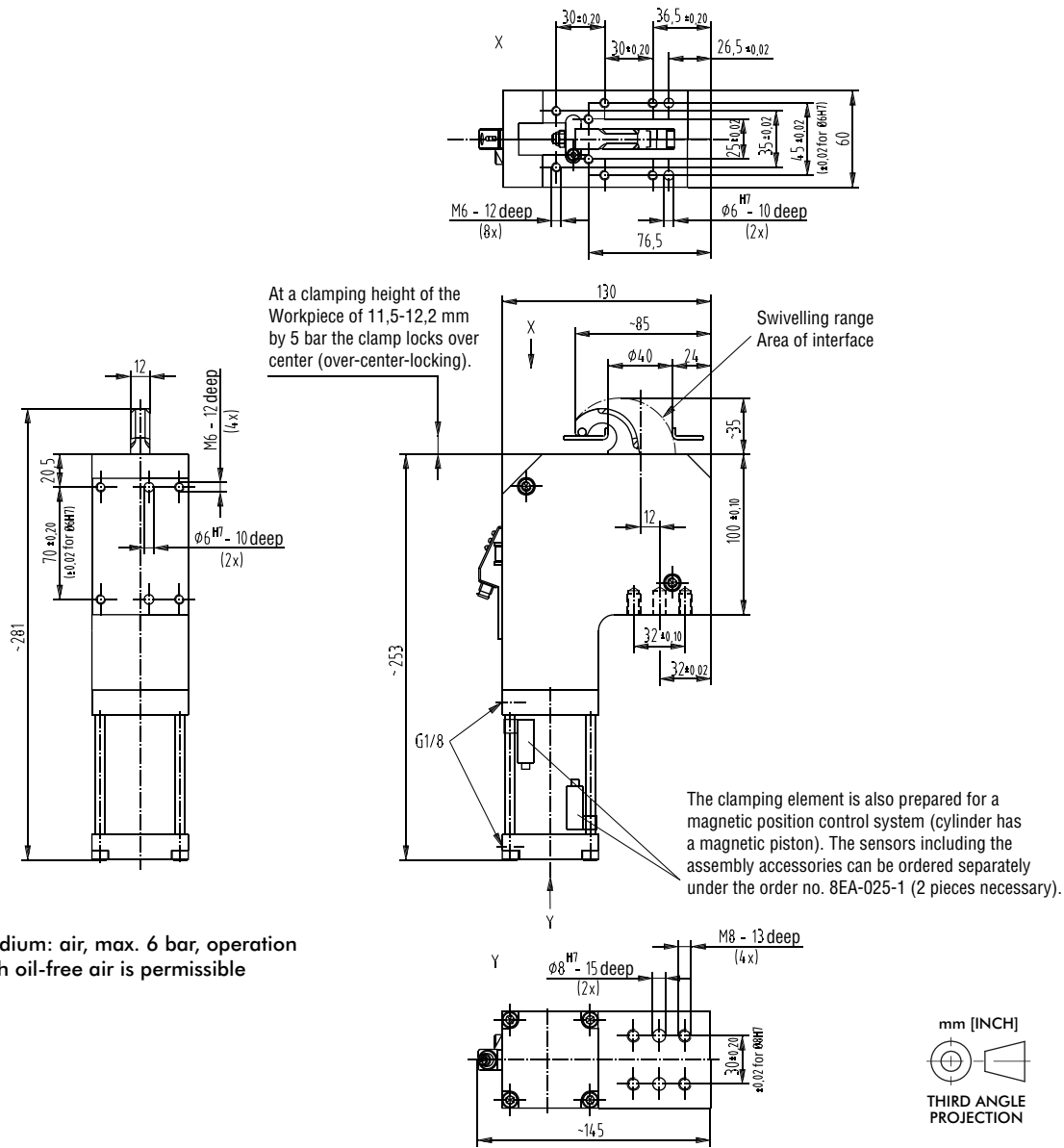
Accessories

Specification		Order no. for structure component 82U50- 300....	Comment
Connecting cable (1 connector socket & 5 m cable) B7 / B8 sensing system			
Connector socket M12x1, straight, 5-pin		8EL-002-1	
Connector socket M12x1, angular, 4-pin		8EL-003-1	
C8 sensing system			
Connector socket M8x1, straight, 4-pin		8EL-009-1	
Connector socket M8x1, angular, 4-pin		8EL-007-1	
Plug adapter M8 to M12		8EL-008-1	
Sensing system attached to cylinder		8EA-025-1	2 pcs required
Magnetic sensors plus installation material			

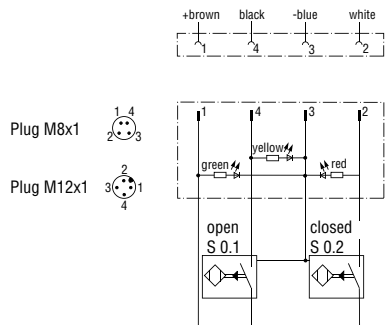
Major spare parts

Specification	Order no. for structural component 82U50-300....
Pneumatic cylinder	8PW-007-1
Seal kit	8PW-007-1-00
Sensor box "B7" , connector plug M12x1, fixed	8EA-060-1
Sensor box "B8" , connector plug M12x1 with lead	8EA-031-1
Sensor box "C8" , connector plug M8x1, fixed	8EA-023-2
Spare part kit: Bushings, Bearings, pins	8KB-047-1

Series 82U50-3 Standard Clamp Dimensions



Power clamp to be operated with external pneumatic one-way flow control valve only



Wiring diagram of electrical sensing systems B7, C8, B8

Sensing system immune to interference from d.c. arc welding and a.c. arc welding

- B7: inductive, sensor box, connector plug M12x1, fixed
- B8: inductive, sensor box, connector plug M12x1 with lead
- C8: inductive, sensor box, connector plug M8x1, fixed

GDP Series Product Overview

Features and Benefits

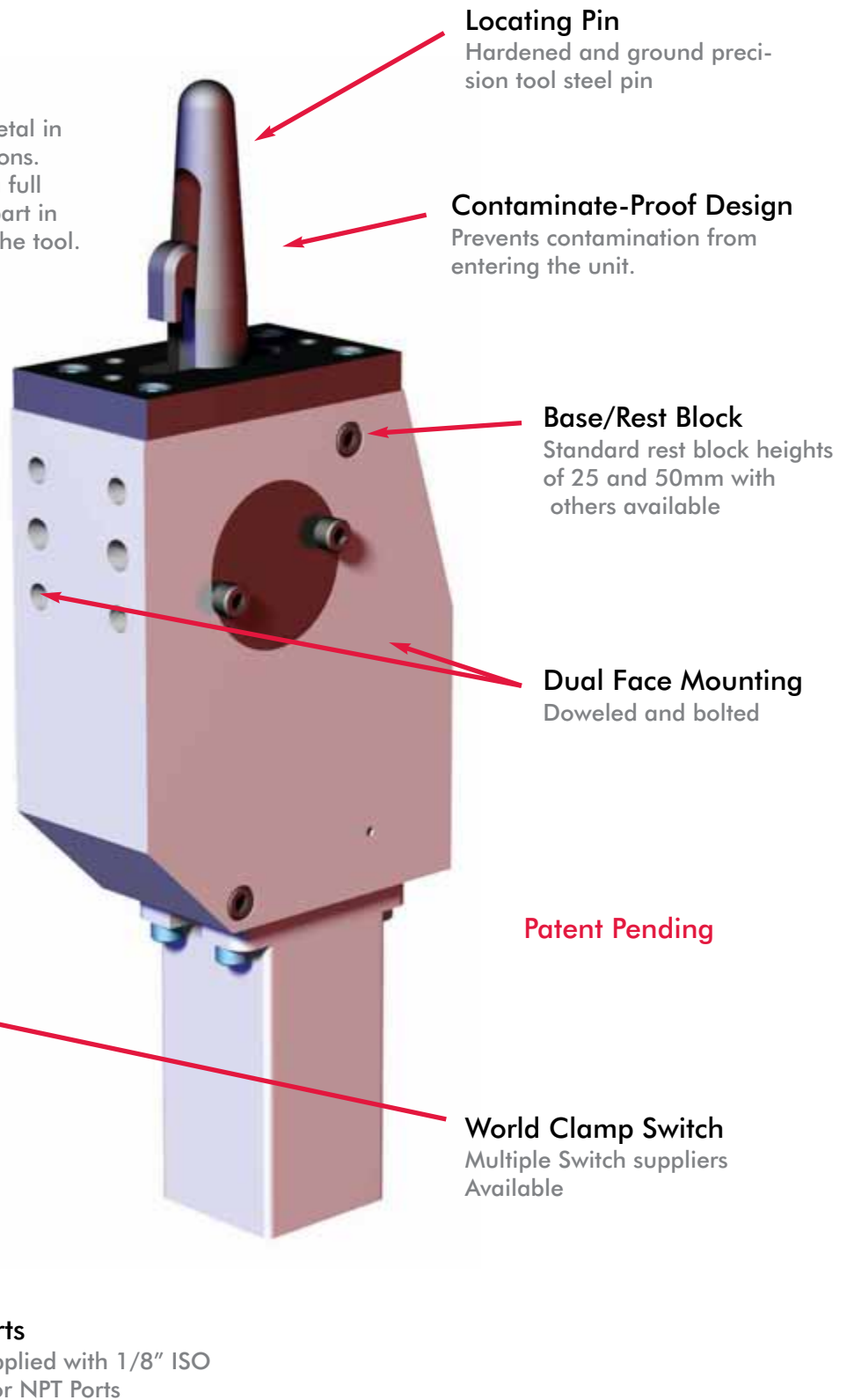
Introduction

DE-STA-CO's Model GDP clamps are designed to locate and clamp sheet metal in welding and material transfer applications. The enclosed aluminum body houses a full toggling mechanism that secures the part in place even when air is removed from the tool.

These units are very powerful as a result of the mechanical advantage of the toggle mechanism so large cylinders are not needed.

GDP Locating Pin Clamps can be used on a stationary tool as well as a moving pallet system and are available with an enclosed LED switch.

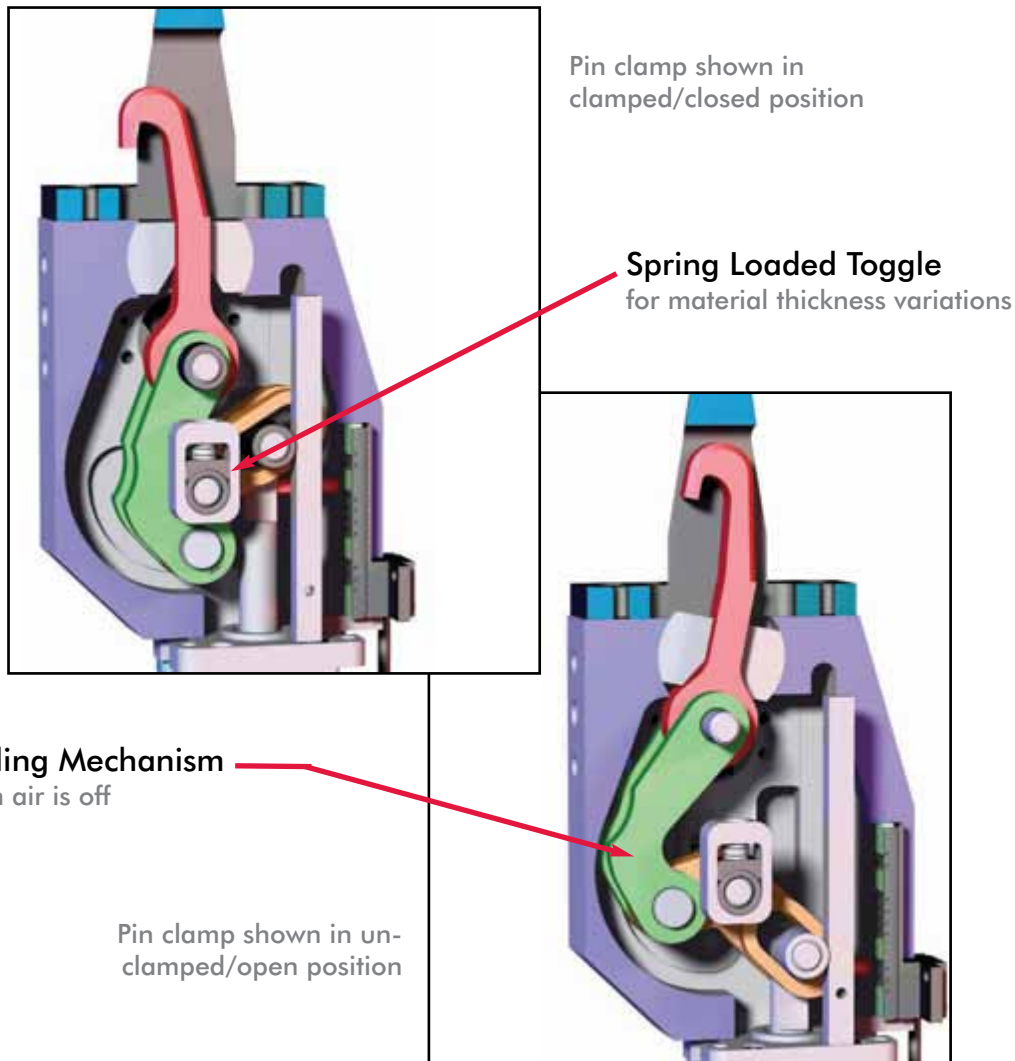
Hardened tool steel pins have full 360° Geometric sheet metal contact.



Operation Principle

Reliable clamping on variable surfaces and thickness with superior contamination protection

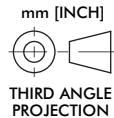
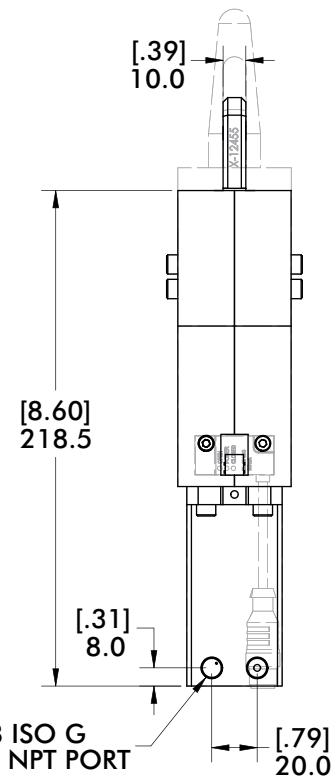
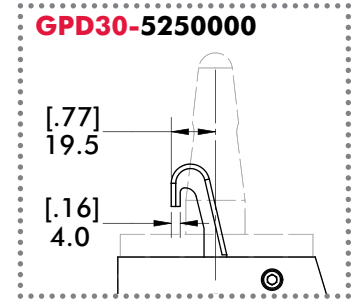
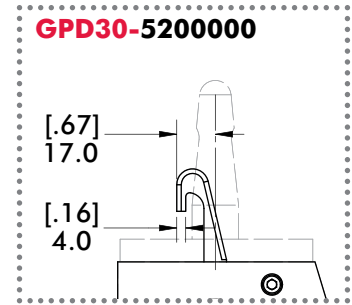
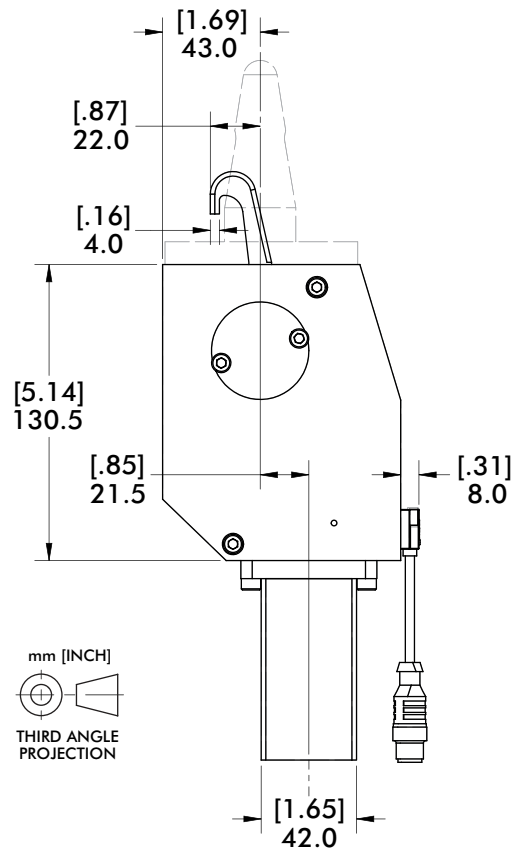
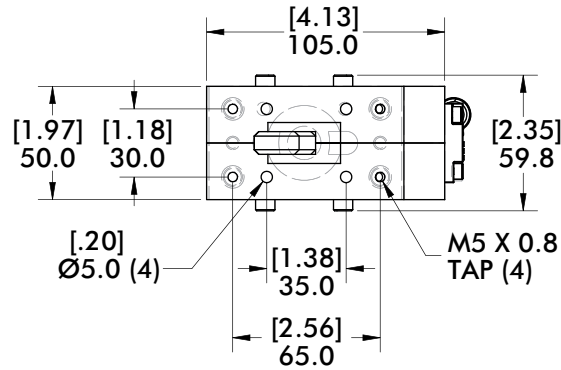
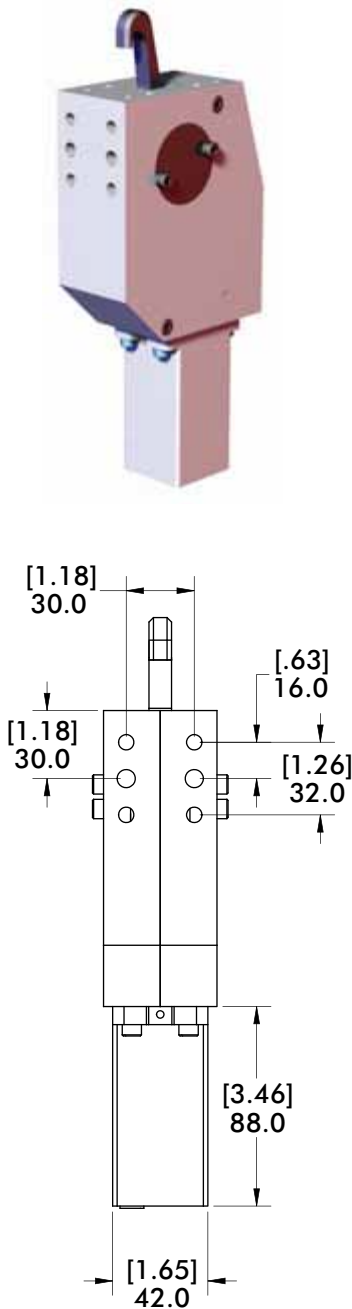
DE-STA-CO's GDP Locating Pin Clamps are made using a fully enclosed body with hardened steel wear surfaces for millions of cycles and long life. Sheet metal is captured with the hook that toggles locked when air actuates the cylinder and remains locked when air is removed.



Technical Information

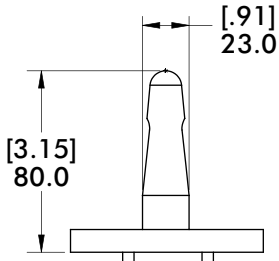
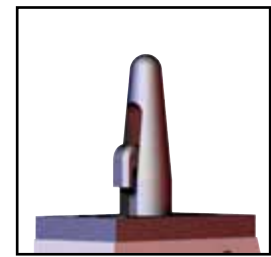
Weight	2.3kg [5 lb]
Holding Force (Over Center)	2001.7 N [450 lbf]
Clamping Force (Over Center)	2001.7 N [450 lbf]
Maximum Material Thickness Variation.....	.2mm [.07 in.]

GDP3(x) Base Pin Clamp Dimensions

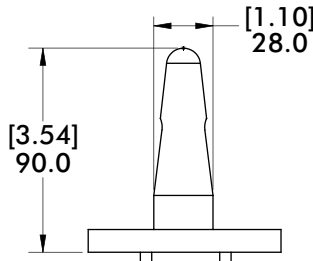
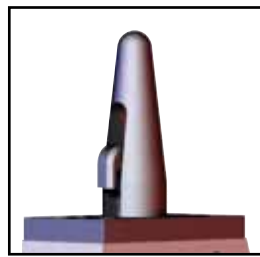


Model	Ports	Version	Centering Pins	Open/Closed Sensing	Clamping Hook
GDP	3G — 5		20	00	00
"GDP" Locating Pin Clamp	"3G" 1/8" ISO G Ports "3N" 1/8" NPT Ports		"20" Ø20.0 - Ø23.0 "25" Ø23.1 - Ø28.0 "30" Ø28.1 - Ø33.0	"00" No Sensing "C8" Internal Sensing	"00" Standard

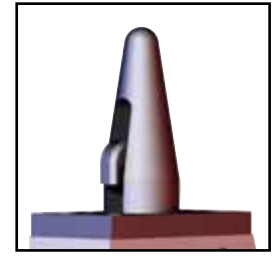
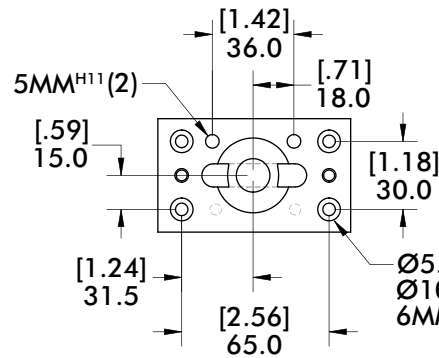
GDP30-5(xx) Standard Centering Pins Dimensions



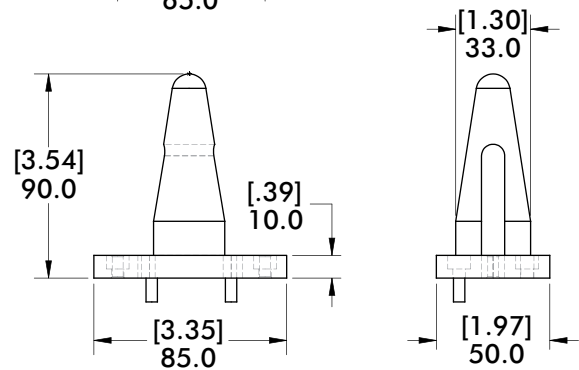
GPD30-520



GPD30-525



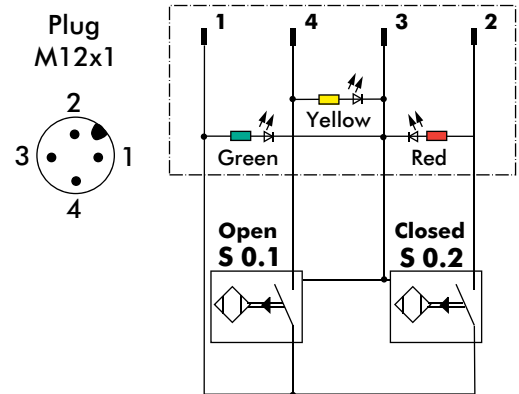
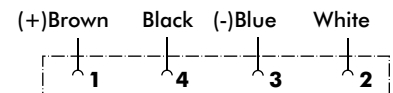
GPD30-530



STANDARD CENTERING PINS		
MODEL	STANDARD (Ø)	MINIMUM (Ø) ^(†)
GPD30-520-x.xx	23.0mm	20.0mm ^(†)
GPD30-525-x.xx	28.0mm	23.1mm ^(†)
GPD30-530-x.xx	33.0mm	28.1mm ^(†)

^(†)Centering pins can be ordered with any pin (Ø) between standard and minimum upon request.

GDP30-5(xx) - Sensing and Cylinder



REPLACEMENT/SPARE PARTS		
GDP Option	MODEL	DESCRIPTION
C8	8EA-096-1	Internal Open/Closed Sensing
3N	8PW-102-2	Cylinder with NPT ports
3G	8PW-096-2	Cylinder with G ports
-	8PW-096-1-00	Seal Kit

"C8" (8EA-096-1)
Internal Open/Closed Sensing
 10...30 VDC 150mA, PNP, 4-Pin, M12, Eurofast

Series **82P30-3/82P35-3** Product Overview

Pneumatic locating clamps, enclosed and narrow design, with single-sided or double-sided clamping hook

Models: 82P30-3..... 82P35-3.....

Application:

Clamping, holding, gripping and accurately positioning of metal sheets and other parts in jigs and handling systems.

Key areas of application:

Automotive manufacturing, sheet processing industry, jig and general mechanical engineering.

Features:

- compact design
- low weight (aluminium body)
- single-sided or double-sided clamping hook
- lateral attachment
- centering pin diameters between 20 mm and 45 mm
- 2 body variants, cylinder diameters 30 mm or 35 mm
- toggle action mechanism
- inductive sensing module with LED display



Locating clamp 82P30-3..C000
Single-sided clamping hook without centering pin



Locating clamp 82P30-3..C0D0
Double-sided clamping hook without centering pin

Locating clamps with single-side clamping hook (Centering pin has to be ordered separately)

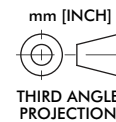
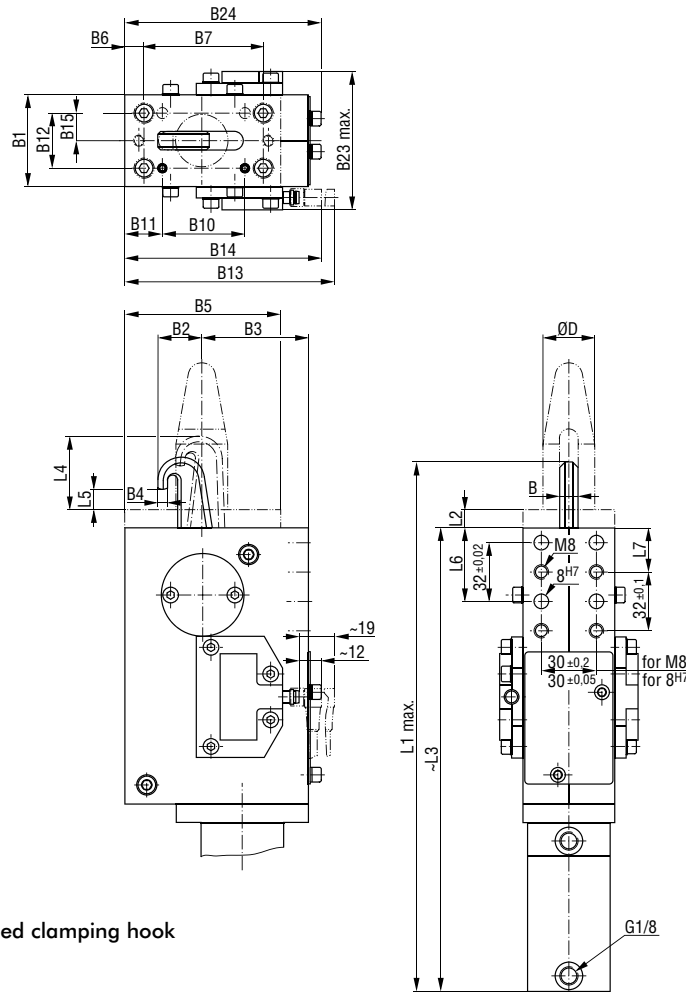
Model		Max. clamping force N [lbs]	Max. operating pressure bar [psi]	Cylinder Ø mm [in]	For centering pin Ø D mm [in]	Weight ~ kg [lbs]	Air consumption per double stroke at 6 bar dm³ [ft³]
with inductive sensing without centering pin	Connector M12x1 | Connector M8x1						
82P30-320B800	82P30-320C000	2000 [449]	6 [87]	30 [1.18]	20,0-23,0 [0.79-0.91]	3 [6.60]	0,8 [0.03]
82P30-325B800	82P30-325C000	2000 [449]	6 [87]	30 [1.18]	23,1-28,0 [0.91-1.10]	3 [6.60]	0,8 [0.03]
82P30-330B800	82P30-330C000	2000 [449]	6 [87]	30 [1.18]	28,1-33,0 [1.10-1.30]	3 [6.60]	0,8 [0.03]
82P35-340B800	82P35-340C000	3500 [787]	6 [87]	35 [1.38]	33,1-45,0 [1.30-1.77]	3,4 [7.48]	1,0 [0.04]

Locating clamps with double-side clamping hook (Centering pin has to be ordered separately)

Model		Max. clamping force N [lbs]	Max. operating pressure bar [psi]	Cylinder Ø mm [in]	For centering pin Ø D mm [in]	Weight ~ kg [lbs]	Air consumption per double stroke at 6 bar dm³ [ft³]
with inductive sensing without centering pin	Connector M12x1 | Connector M8x1						
82P30-320B8D0	82P30-320C0D0	2000 [449]	6 [87]	30 [1.18]	20,0-23,0 [0.79-0.91]	3 [6.60]	0,8 [0.03]
82P30-325B8D0	82P30-325C0D0	2000 [449]	6 [87]	30 [1.18]	23,1-28,0 [0.91-1.10]	3 [6.60]	0,8 [0.03]
82P30-330B8D0	82P30-330C0D0	2000 [449]	6 [87]	30 [1.18]	28,1-33,0 [1.10-1.30]	3 [6.60]	0,8 [0.03]
82P35-340B8D0	82P35-340C0D0	3500 [787]	6 [87]	35 [1.38]	33,1-45,0 [1.30-1.77]	3,4 [7.48]	1,0 [0.04]

Series 82P30-3/82P35-3 Standard Clamp Dimensions

Locating clamp with single-sided clamping hook



82P30/35-3....00 with single-sided clamping hook

Technical data

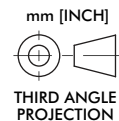
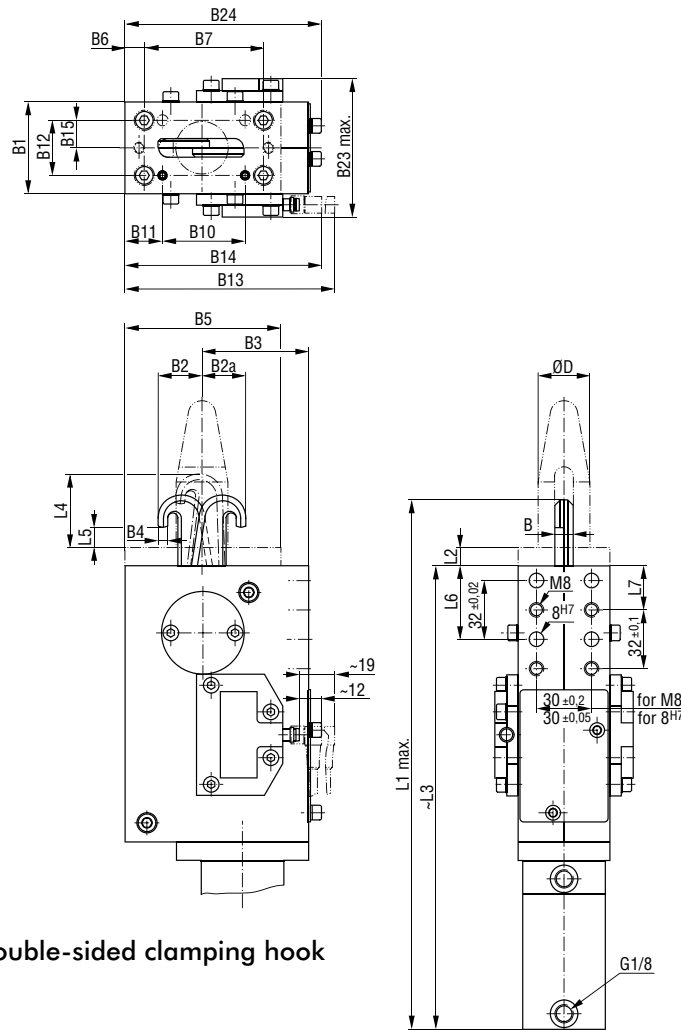
Model		Piston Ø	for Centering Pin Ø D		B	B1	B2	B3	B4	B5	B6 ±0,1	B7 ±0,2	B10 ±0,1	B11 ±0,1	B12* ±0,05	
with inductive sensing																
Connector M12x1	Connector M8x1															
82P30-320B800	82P30-320C000	30	20,0-23,0	-0,05	-0,1	10	50	18,5	58	5	85	10,5	65	35	25,5	30
82P30-325B800	82P30-325C000	30	23,1-28,0			10	50	20,5	58	5,25	85	10,5	65	35	25,5	30
82P30-330B800	82P30-330C000	30	28,1-33,0			10	50	22,5	58	5,25	85	10,5	65	35	25,5	30
82P35-340B800	82P35-340C000	35	33,1-45,0			12	60	34	53	7	90	19	61	37	31	40

Model		B13 max	B14 max	B15* ±0,025	B23 max	B24	L1 max	L2	L3	L4	L5	L6 ±0,05	L7 ±0,1
with inductive sensing													
Connector M12x1	Connector M8x1												
82P30-320B800	82P30-320C000	114	107	15	75,4	107	304	10	265	40	11,5	40	24
82P30-325B800	82P30-325C000	114	107	15	75,4	107	306	10	265	44	11,5	40	24
82P30-330B800	82P30-330C000	114	107	15	75,4	107	306	10	265	45	11,5	40	24
82P35-340B800	82P35-340C000	114	107	20	85,4	107	330	12	265	56	14	38	22

*Tolerances for dowel holes only

Series **82P30-3/82P35-3** Standard Clamp Dimensions

Centering pin (has to be ordered separately)



82P30/35-3....D0 with double-sided clamping hook

Technical data

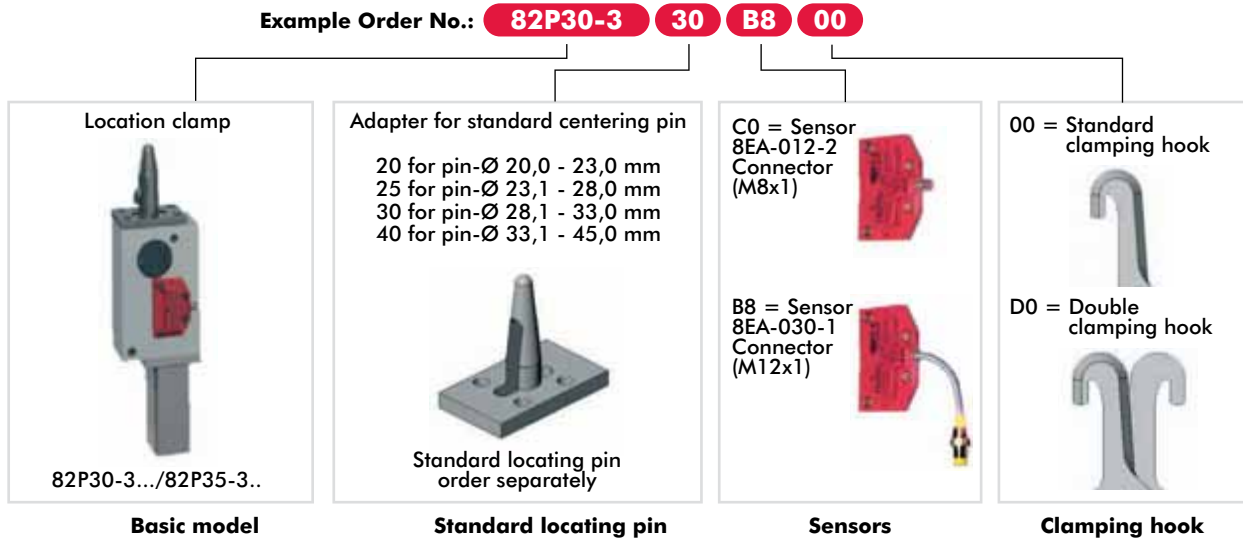
Model with inductive sensing without centering pin		For centering												
		Piston Ø	pin Ø D	B	B1	B2	B2 _a	B3	B4	B5	B6	B7	B10	B11
Connector M12x1	Connector M8x1		-0,05	-0,05							±0,1	±0,2	±0,1	±0,1
82P30-320B8D0	82P30-320C0D0	30	20,0-23,0	5	50	18,5	19,5	58	5	85	10,5	65	35	25,5
82P30-325B8D0	82P30-325C0D0	30	23,1-28,0	5	50	20,5	21,5	58	5,25	85	10,5	65	35	25,5
82P30-330B8D0	82P30-330C0D0	30	28,1-33,0	5	50	22,5	23,5	58	5,25	85	10,5	65	35	25,5
82P35-340B8D0	82P35-340C0D0	35	33,1-45,0	6	60	34	34	53	7	90	19	61	37	31

Model with inductive sensing without centering pin		B12*	B13	B14	B15*	B23	B24	L1	L2	L3	L4	L5	L6	L7
		±0,05	max	max	±0,025	max	max	max	+0,1					±0,05	±0,1
Connector M12x1	Connector M8x1													
82P30-320B8D0	82P30-320C0D0	30	114	107	15	75,4	107	304	10	265	40	11,5	40	24
82P30-325B8D0	82P30-325C0D0	30	114	107	15	75,4	107	306	10	265	44	11,5	40	24
82P30-330B8D0	82P30-330C0D0	30	114	107	15	75,4	107	306	10	265	45	11,5	40	24
82P35-340B8D0	82P35-340C0D0	40	114	107	20	85,4	107	330	12	265	56	14	38	22

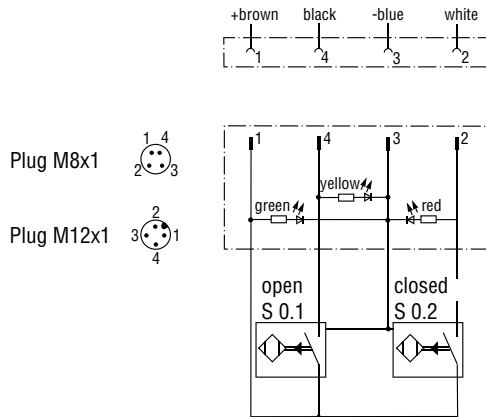
*Tolerances for dowel holes only

Series **82P30-3/82P35-3** Ordering Information

Order no. code for locating clamps 82P30-3... / 82P35-3...



Pin assignment



Wiring diagram of electrical sensing system

Sensing system immune to interference from d.c. arc welding and a.c. arc welding

Inductive models:

- B8 inductive, with LEDs, connector plug M12x1
- C0 inductive, with LEDs, connector plug M8x1

Accessories for 82P30/35-3...

Specification	Order no. for structure component	
	82P30-3...	82P35-3...
Centering pins (put diameter in model number)	82P30-3-__ _1)	82P35-3-__ _1)
Connecting cable (1 connector socket & 5 m cable)		
B7 / B8 sensing system		
Connector socket M12x1, straight, 5-pin	8EL-002-1	8EL-002-1
Connector socket M12x1, angular, 4-pin	8EL-003-1	8EL-003-1
C8 sensing system		
Connector socket M8x1, straight, 4-pin	8EL-009-1	8EL-009-1
Connector socket M8x1, angular, 4-pin	8EL-007-1	8EL-007-1

¹⁾ __ _ = centering pin diameter "D" as illustrated on page 15.50

Ordering example: To order the centering pin for locating clamp 82P30-325C000 with pin diameter "D" = 26.5 mm: "82P30-3-26.5"

Series **82P30-3/82P35-3** Product Overview, Standard Centering Pin Dimensions

Centering pin (has to be ordered separately)

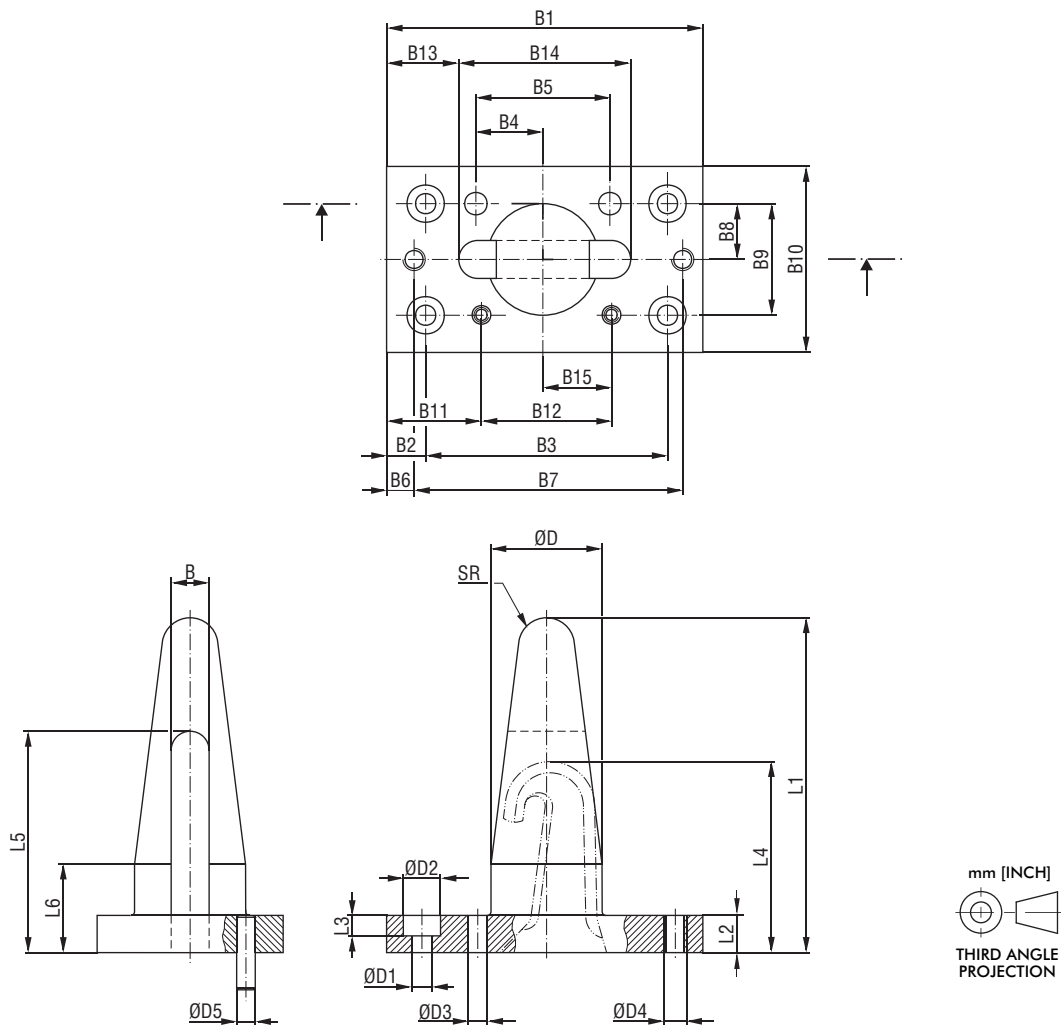


Locating clamp with single-sided clamping hook and centering pin



Centering pin (accessory part)

Centering pin for 82P30-3... and 82P35-3...





Series **82P30-3/82P35-3** Technical Information

Technical data of centering pins

Base locating clamp model	Order no. for centering pin	ØD	ØD1	ØD2	ØD3	ØD4	ØD5	SR	L1	L2	L3	L4	L5	L6	B	B1	B2
		-0,05			H7		H11										±0,1
82P30-320....	82P30-3-___.1)	20,0-23,0	5,5	10	6	M6	5	5	80	10	6	52	59,5	25	10,2	85	10,5
82P30-325....	82P30-3-___.1)	23,1-28,0	5,5	10	6	M6	5	7,5	90	10	6	54	59,5	25	10,2	85	10,5
82P30-330....	82P30-3-___.1)	28,1-33,0	5,5	10	6	M6	5	7,5	90	10	6	55	59,5	25	10,2	85	10,5
82P35-340....	82P35-3-___.1)	33,1-45,0	5,5	10	6	M6	5	8	102	12	6	68	73,5	30	12,2	90	19

Base locating clamp model	Order no. for centering pin	B3	B4	B5	B6	B7	B8*	B9*	B10	B11	B12	B13	B14	B15
		±0,2	±0,02	±0,02		±0,2	±0,025	±0,05		±0,1	±0,1			±0,05
82P30-320....	82P30-3-___.1)	65	18	36	10,5	65	15	30	50	25,5	35	19,4	46,2	18,5
82P30-325....	82P30-3-___.1)	65	18	36	10,5	65	15	30	50	25,5	35	19,4	46,2	18,5
82P30-330....	82P30-3-___.1)	65	18	36	10,5	65	15	30	50	25,5	35	19,4	46,2	18,5
82P35-340....	82P35-3-___.1)	61	18	36	7	76	20	40	60	31	37	16	62	21

* Tolerance for dowel hole

1) ___.1 = centering pin diameter "D"

Ordering example: To order the centering pin for locating clamp 82P30-325C000 with pin diameter "D" = 26.5 mm: "82P30-3-26.5"

Major spare parts for 82P30-3/82P35-3

Specification	Order no. for structural component	
	82P30-3...	82P35-3...
End position sensing		
B8 plug connector M12x1	8EA-030-1	8EA-030-1
C0 plug connector M8x1	8EA-012-2	8EA-012-2
Cylinder	8PW-019-1	8PW-006-1
Seal kit	8PW-019-1-00	8PW-006-1-00

Series **870-2, 871-2** Standard Pneumatic Clamps

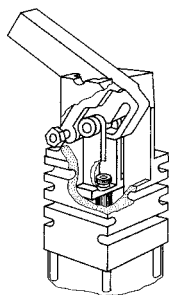
Light duty version for large scale production

Thanks to their design power clamps with the roller and cam principle automatically compensate for workpiece tolerances. When being clamped, the clamp arm of model 870-2 is in the vertical position, whereas the clamp arm of model 871-2 is in the horizontal position. The assembly plate which is included in the scope of delivery allows easy fastening of the clamps.

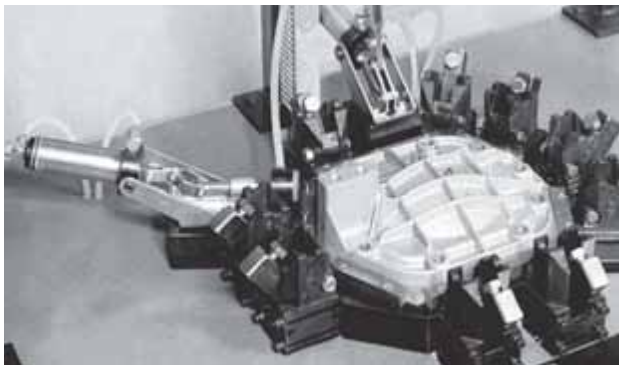
The cylinders are equipped with a magnetic piston for end position sensing. The sensors (BIM-IKE-AP) must be ordered separately, 2 pieces are required.

Standard equipment:

- 1 assembly plate, part no. 870116
- 2 restrictor connections



Roller and cam mechanism of the models 870-2 and 871-2



Power clamp models 871-2 and 803-MF on a pressure test fixture for vehicle gearbox lids



870-2
clamping arm vertical when in clamping position



871-2
clamping arm horizontal when in clamping position

Series **870-2, 871-2** Technical Information

Model	Opening-\	holding torque max. Nm [ft lb]	clamping torque at 5 bar Nm [ft lb]
870-2	112°	260 [192]	60 [44]
871-2	118°	260 [192]	60 [44]

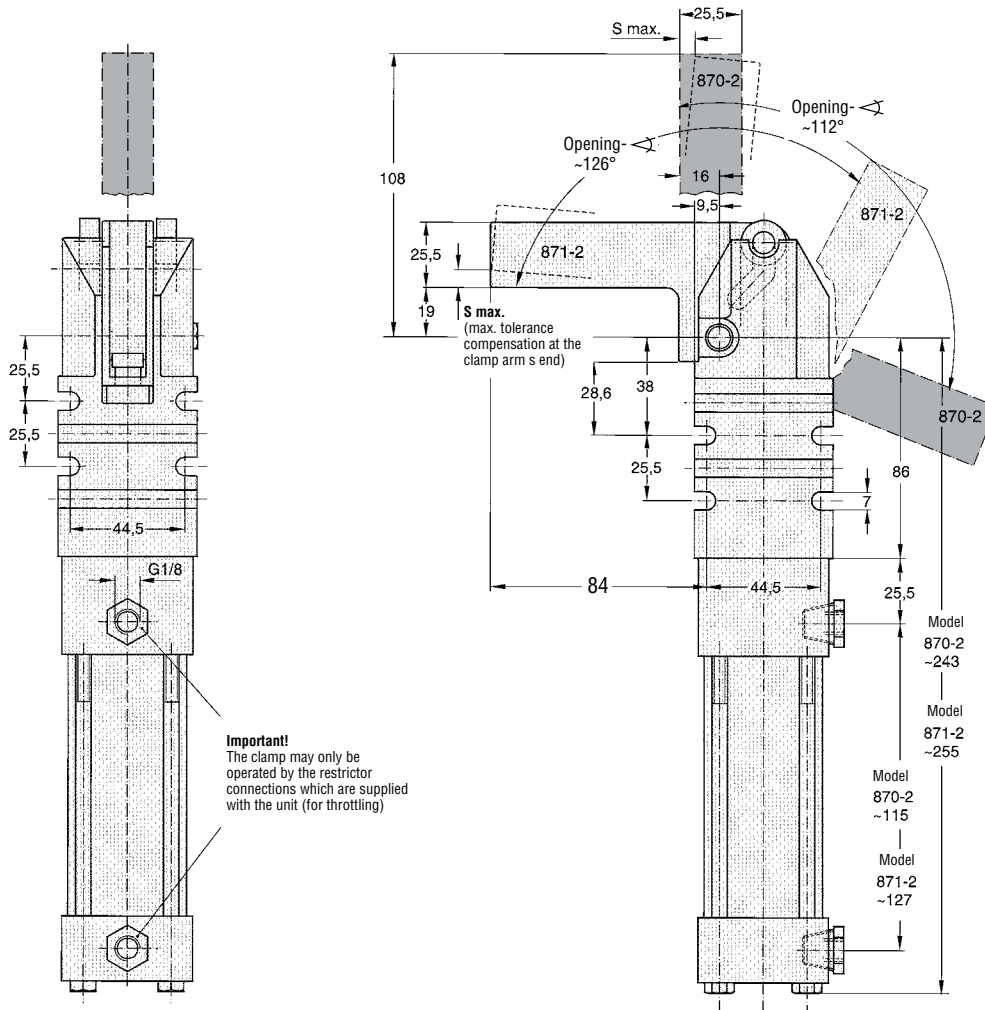


Sensors (order separately)

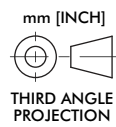
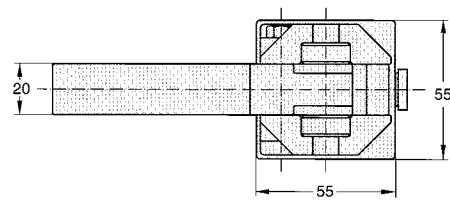
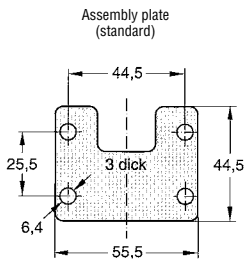
Part no.	Description	Notes
BIM-IKE-AP	Sensor	2 pieces required

Series 870-2, 871-2 Standard Pneumatic Clamps

Power clamps with the roller and cam principle



Important!
The clamp may only be operated by the restrictor connections which are supplied with the unit (for throttling)



Model	S max. max. tolerance compensation at the clamp arm s end Nm [ft lb]	max. operating pressure bar [psi]	air consumption at 5 bar dm ³ [ft ³]	connection	weight ~ kg [lbs]
870-2	4,5 [3]	10 [145]	0,95 [0.03]	G1/8	3 [6.60]
871-2	3,5 [3]	10 [145]	0,95 [0.03]	G1/8	3 [6.60]



	Series	Section Page	Pushing Force (N) at 5 bar				Retracting Force at 5 bar				Piston Diameter			Stroke			Weight				Air Consumption at 5 bar [dm ³]			Application Area								
			0 to 500 [N]	500 to 1000 [N]	1000 to 1500 [N]	1500 to 2000 [N]	0 to 500 [N]	500 to 1000 [N]	1000 to 1500 [N]	1500 to 2000 [N]	32mm	40mm	50mm	63mm	20mm	40mm	60mm	0 to 1 [Kg]	1 to 2 [Kg]	2 to 3 [Kg]	3 to 4 [Kg]	0 to 0.5 [dm ³]	0.50 to 1.00 [dm ³]	1.00 to 2.00 [dm ³]	2.00 to 2.50 [dm ³]	Welding	Assembly	Machining	Duty Cycle	Dual Pin Option	Ceramic Coated Pin Option	Toggle Locking (Extended)
	86P30	16.2	■				■						■	■	■					■					●	●	●	●				
	86P30-1D5	16.6	■				■						■	■	■			■			■				●	●	●	●	✓			
	86P4	16.10	■										■	■	■	■		■			■	■			●	●	●	●		✓		
	86P6	16.10				■							■	■	■	■		■			■	■			●	●	●	●		✓		
	86D60-1	16.16				■							■	■	■	■		■			■	■			●	●	●	●	✓	✓		
	85P5	16.20				■							■		■					■	■	■			●	●	●	●		✓	✓	

● Excellent/High ○ Fair/Medium ● Poor/Low ⊗ Not Recommended

Series **86P30-1** Product Overview

Pneumatic pin packages, enclosed single units with 32mm diameter cylinders

Models: **86P30-105.....**

Application:

Accurate positioning of sheet metal parts in welding equipment and handling systems. At the end of the welding process, the pins are retracted from the pin holes. The component can thus be easily removed from the jig.

Key areas of application:

Automotive manufacturing, sheet processing industry, jig and general mechanical engineering.

Features:

- Compact, low weight design
- High accuracy of positioning
- Lateral and front-face mounting areas
- Mounting base for centring pin incl. precision bore holes and grooves
- Inductive sensing module with LED display
- Long body for 40mm stroke, short body 20mm stroke
- Long & short body are interchangeable in connecting



86P30-105B8004 base model
(w/o sensing, w/o add-ons)



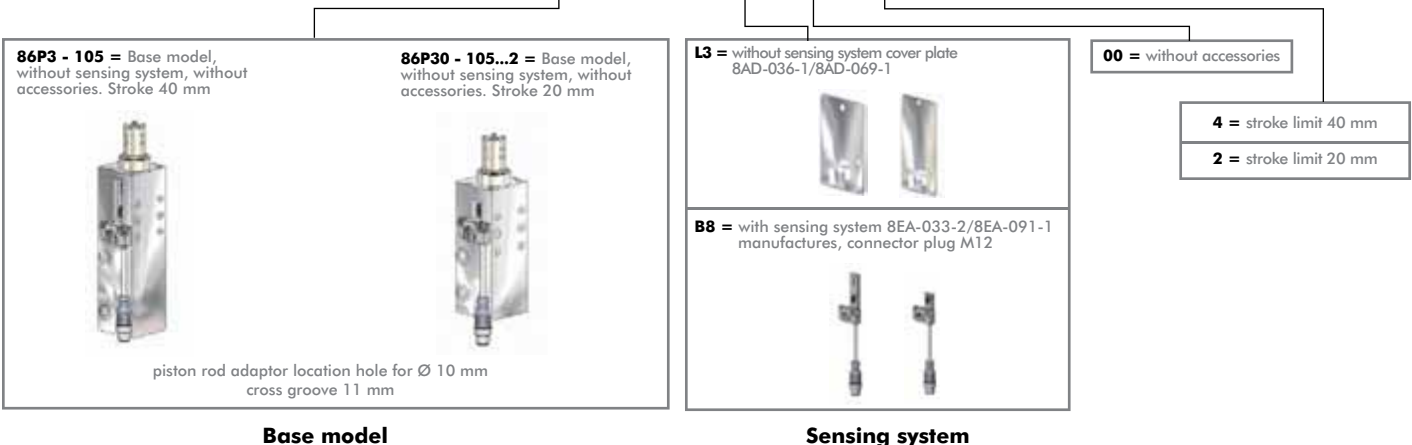
86P30-105B8002 base model
w/ sensing (w/o add-ons)

Series **86P30-1** Technical Information

Model no.		Pushing force at 5 bar N [lbs]	Retraction force at 5 bar N [lbs]	Max. operating pressure bar [psi]	Piston Ø mm [in]	Stroke mm [in]	Weight Kg [lbs]	Air consumption per double stroke at 5 bar dm ³ [ft ³]
w/o sensing	with inductive sensing connector M12x1 w/ lead							
86P30-105L3004	86P30-105B8004	390 [88]	290 [65]	6 [87]	32 [1.26]	40 [1.57]	1,0 [2.20]	0,48 [0.02]
86P30-105L3002	86P30-105B8002	390 [88]	290 [65]	6 [87]	32 [1.26]	20 [0.79]	0,85 [1.87]	0,34 [0.01]

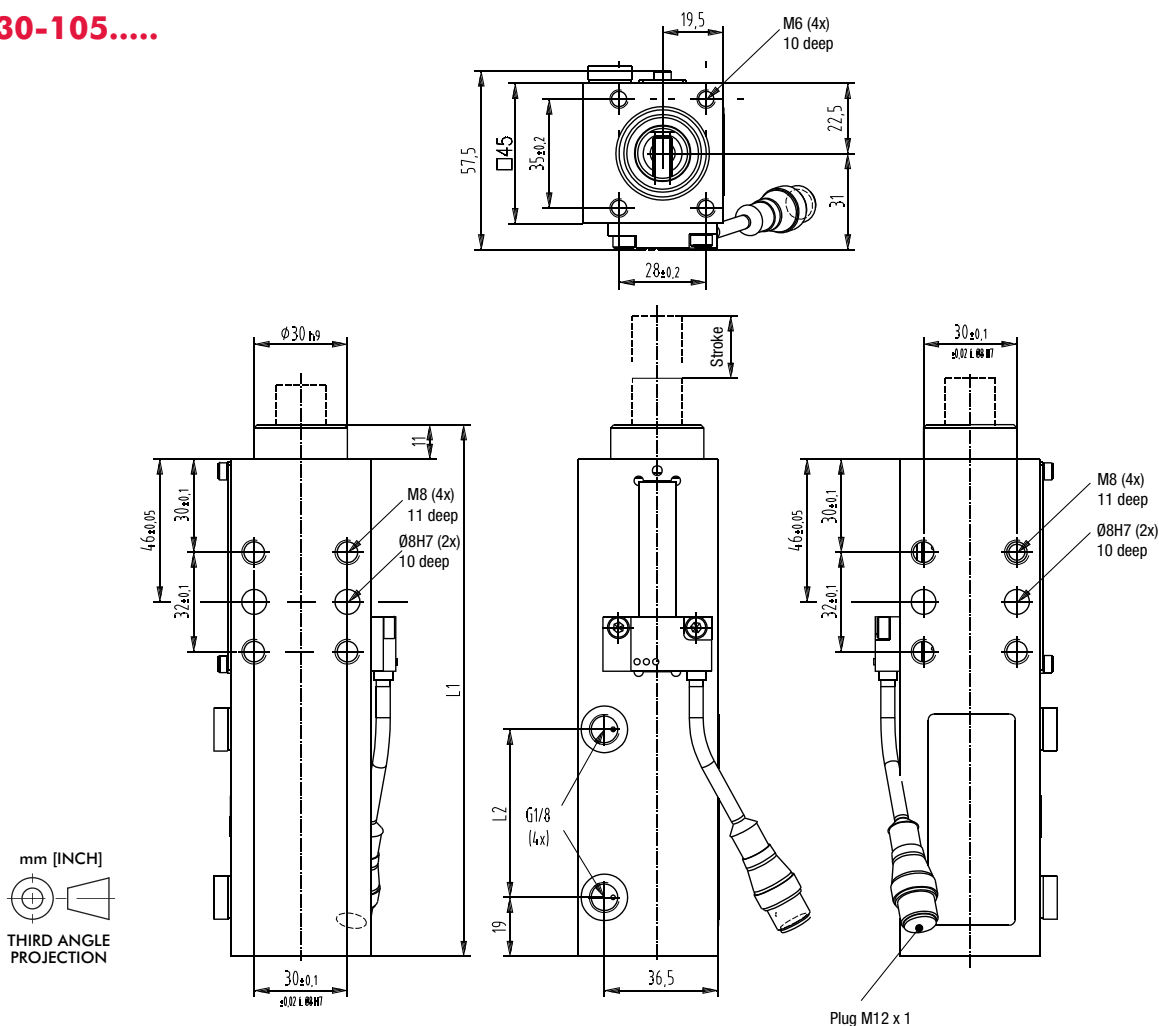
Order no. code for pin packages **86P30-105.....**

Example Order no.: **86P30 - 1 0 5 B8 00 4**



Series **86P30-1** Standard Pin Package Dimensions

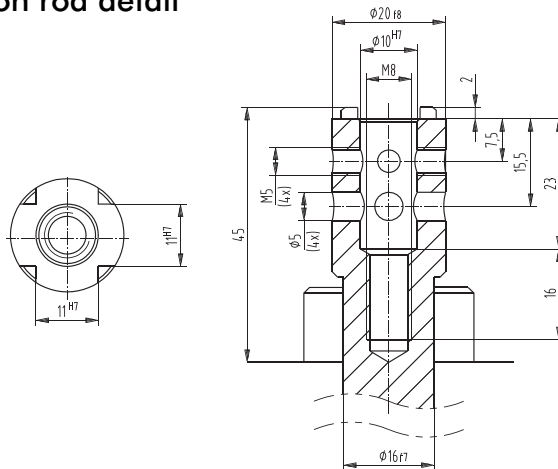
86P30-105.....



mm [INCH]
THIRD ANGLE PROJECTION

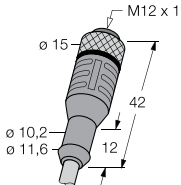
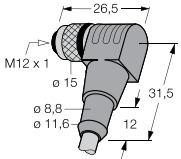
Model no.	L1 [mm]	L1 [mm]	Stroke [mm]
86P30-105..004	171	54	40
86P30-105..002	136	34	20

86P30-105..... Piston rod detail



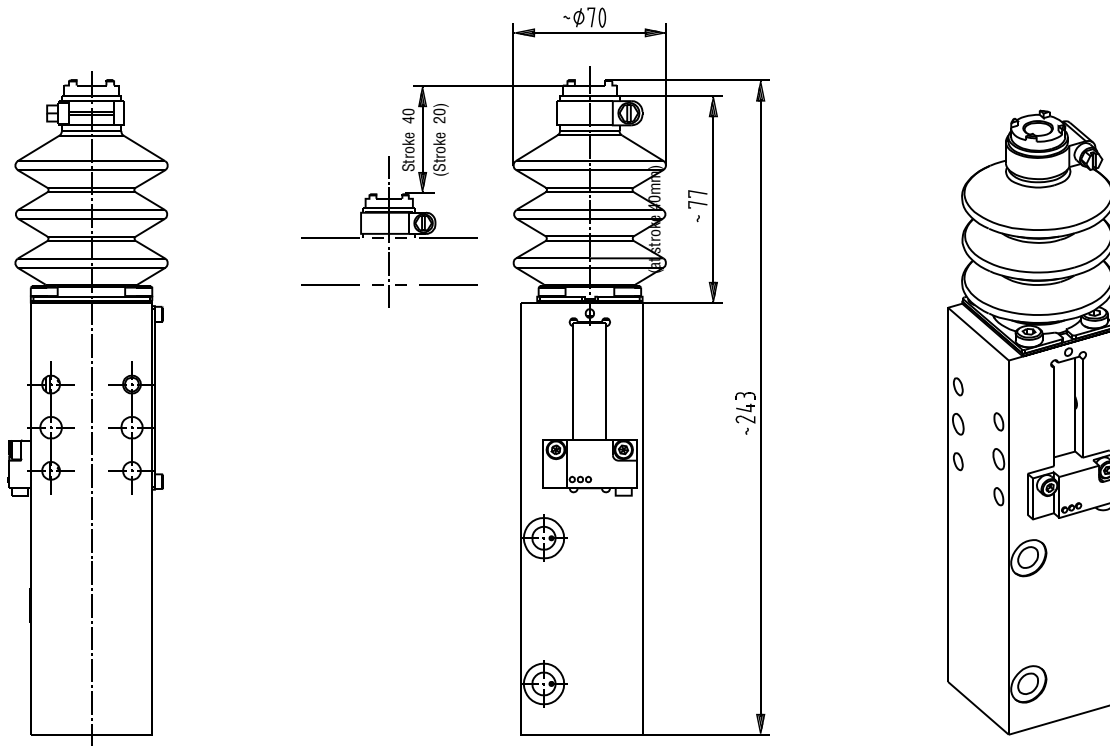
View shows piston rod in retracted position

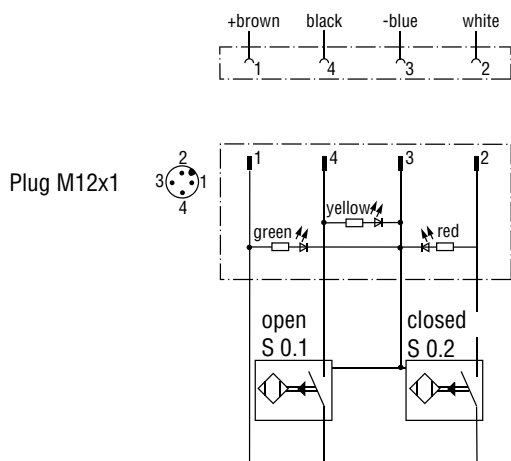
Series **86P30-1** Accessories

Specifications	Order no. for 86P30-105.....
<p>Bellows</p>	<p>82ZB-016-4</p>
<p>Connecting cable (1 connector socket & 5 m cable)</p>	<p>8EL-002-1</p>
<p>Connector socket M12x1 straight, 5-pin</p> 	<p>8EL-003-1</p>
<p>Connector socket M12x1 90 Degree, 4-pin</p> 	

Bellows 82ZB-016-4

Mounted on 86P30-105L3000





Wiring diagram of electrical sensing system

Sensing system immune to interference from d.c. arc welding and a.c. arc welding

Inductive design:

- **B8** Connector plug M12x1 w/ lead

Major spare parts for **86P30-105.....**

Specifications	Order no. for 86P30-105..4	Order no. for 86P30-105..2
End position sensing system B8 inductive connector plug M12x1 w/ lead	8EA-033-2	8EA-091-1
Seal kit	86P3-1-00	

Series **86P30-1D5** Product Overview

Pneumatic pin packages, enclosed twin units with 32mm diameter cylinders

Models: **86P30-1D5.....**

Application:

Accurate positioning, with high precision of rotation, of sheet metal parts in welding equipment and handling systems. At the end of the welding process, the pins are retracted from the pin holes. The component can thus be easily removed from the jig. The pin package can also be used for centring pin positions outside the piston rod axis.

Features:

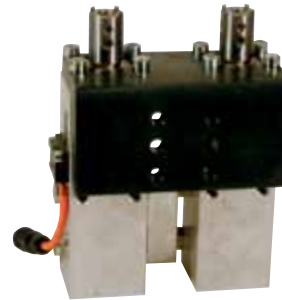
- Compact, low weight design
- High accuracy due to twin piston rod guide
- Lateral mounting areas
- Mounting base for centring pin incl. precision bore holes and grooves
- 1 inductive sensing module with LED display
- Twin guide for off-centre pins
- Long body for 40mm stroke, short body 20mm stroke
- Long & short body are interchangeable in connecting

Key areas of application:

Automotive manufacturing, sheet processing industry, jig and general mechanical engineering.



86P30-1D5B8004
base model w/ sensing
(w/o add-ons)



86P30-1D5B8G12
with central air connection

Series **86P30-1D5** Technical Information

Model no.		Pushing force at 5 bar N [lbs]	Retraction force at 5 bar N [lbs]	Max. operating pressure bar [psi]	Piston Ø mm [in]	Stroke mm [in]	Weight Kg [lbs]	Air consumption per double stroke at 5 bar dm ³ [ft ³]
w/o sensing	with inductive sensing connector M12x1 w/ lead							
86P30-1D5L3004	86P30-1D5B8004	780 [175]	580 [130]	6 [87]	2x32 [1.26]	40 [1.57]	3,0 [6.60]	0,96 [0.03]
86P30-1D5L3002	86P30-1D5B8002	780 [175]	580 [130]	6 [87]	2x32 [1.26]	20 [0.79]	2,7 [5.94]	0,68 [0.02]
86P30-1D5L3G14	86P30-1D5B8G14	780 [175]	580 [130]	6 [87]	2x32 [1.26]	40 [1.57]	3,1 [6.82]	0,96 [0.03]
86P30-1D5L3G12	86P30-1D5B8G12	780 [175]	580 [130]	6 [87]	2x32 [1.26]	20 [0.79]	2,8 [6.16]	0,68 [0.02]

Order no. code for pin packages **86P30-1D5.....**

Example Order no.: **86P30 - 1 D 5 B8 00 4**

86P3-1D5 = Base model without sensing system, without accessories

Base model

B8 = with sensing system
8EA-033-2/ 8EA-091-1
connector plug M12

Sensing system

L3 = without sensing system cover plate 8AD-036-1/8AD-069-1

00 = without accessories

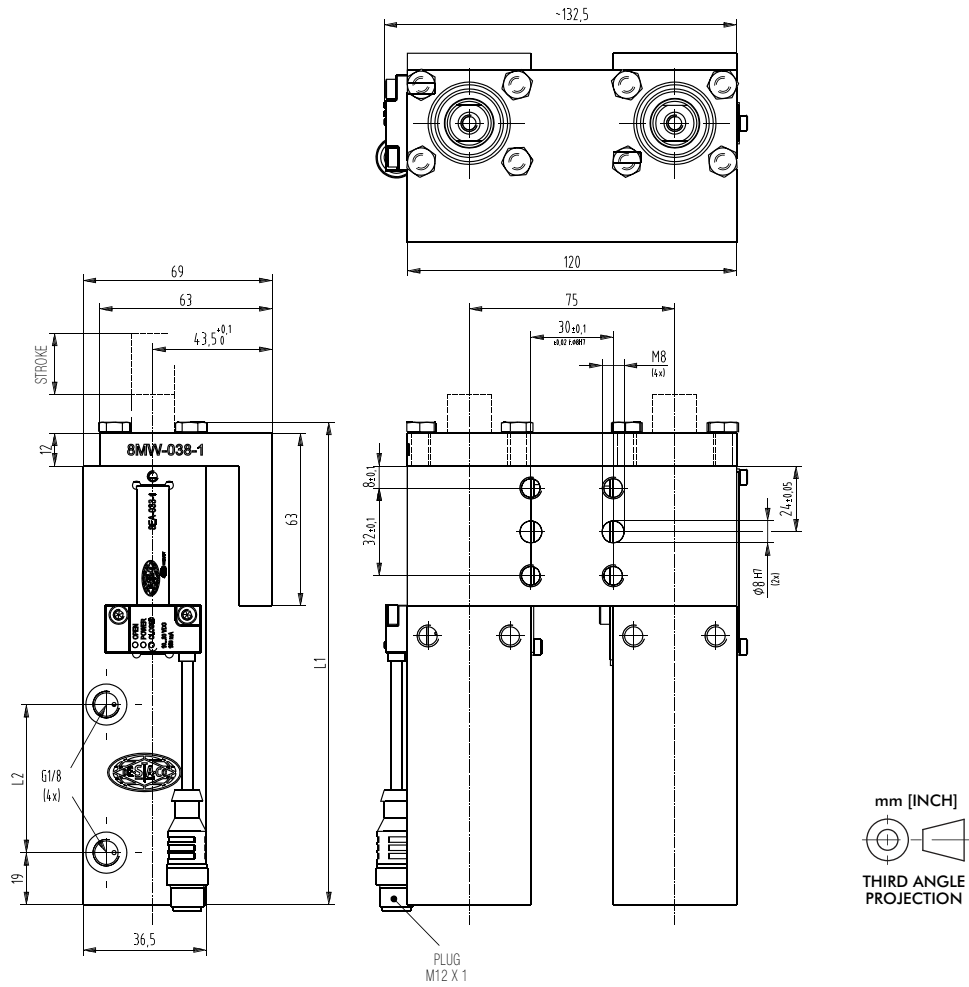
G1 Air Manifold
82ZB-029-1 40mm stroke
82ZB-041-1 20mm stroke

Accessories

4 = stroke 40 mm
2 = stroke 20 mm

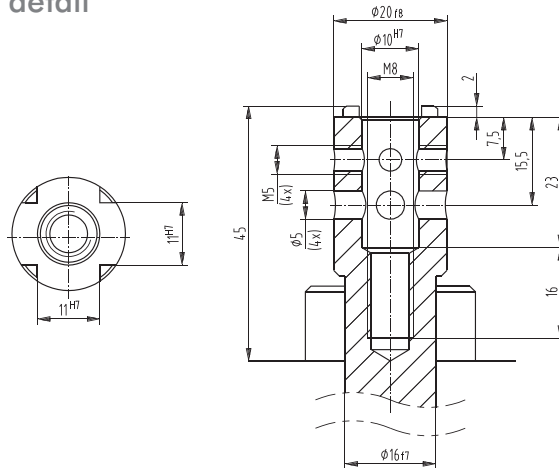
Series **86P30-1D5** Standard Pin Package Dimensions

86P30-1D5.....



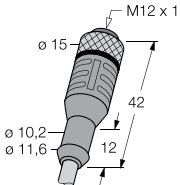
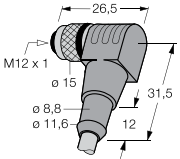
Model no.	L1 [mm]	L1 [mm]	Stroke [mm]
86P30-105..004	176	54	40
86P30-105..002	141	34	20

86P30-1D5 Piston rod detail



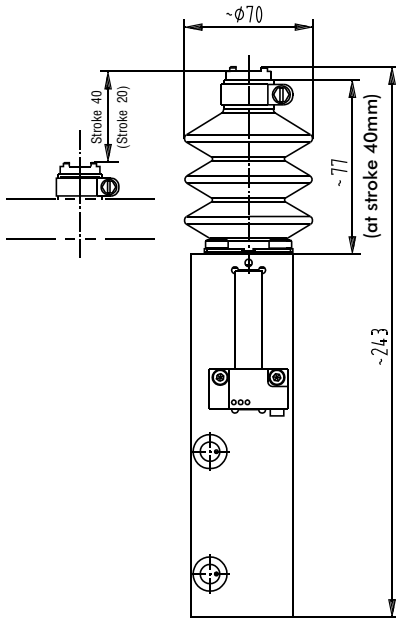
View shows piston rod in retracted position

Series **86P30-1D5** Accessories

Specifications	Order no. for 86P30-1D5.....
Bellows	82ZB-016-4
Connecting cable (1 connector socket & 5 m cable)	8EL-002-1
<p>Connector socket M12x1 straight, 5-pin</p> 	8EL-003-1
<p>Connector socket M12x1 90 Degree 4-pin</p> 	8EL-003-1

Bellows 82ZB-016-4

Mounted on piston rod



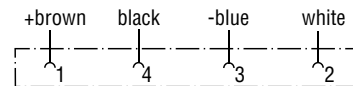
Wiring diagram of electrical sensing system

Sensing system immune to interference from d.c. arc welding and a.c. arc welding

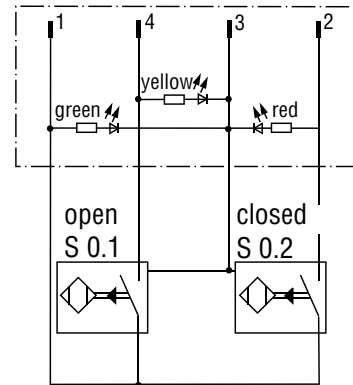
Inductive design:

- **B8** Connector plug M12x1 w/ lead (just 1 sensing system required)

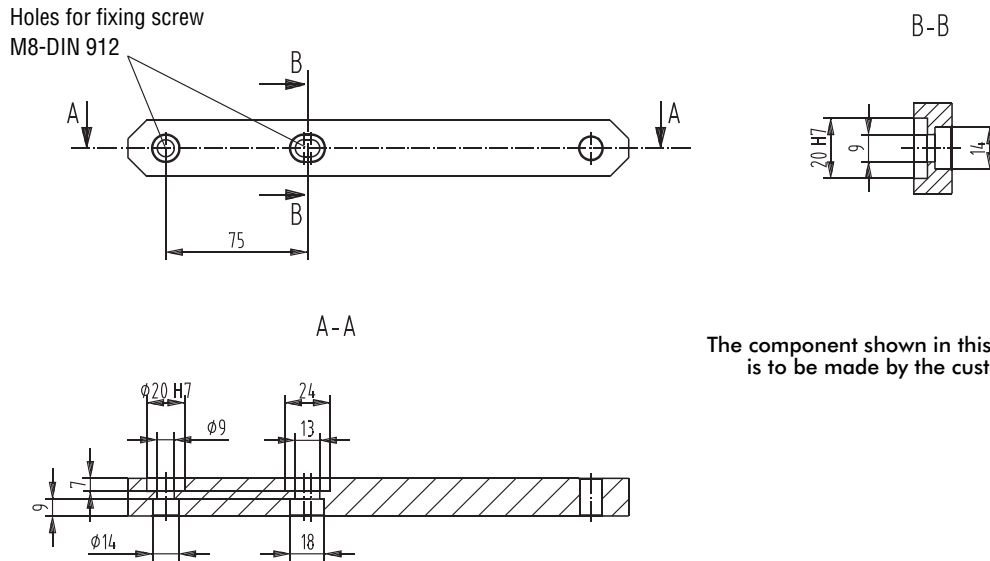
Pin assignment



Plug M12x1

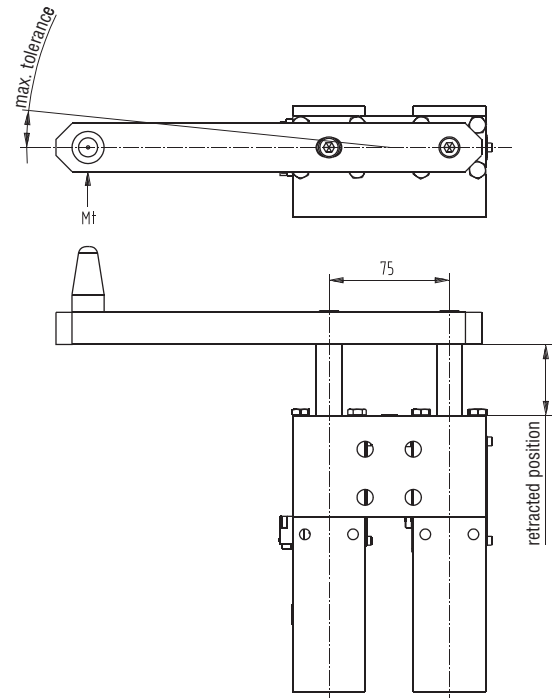
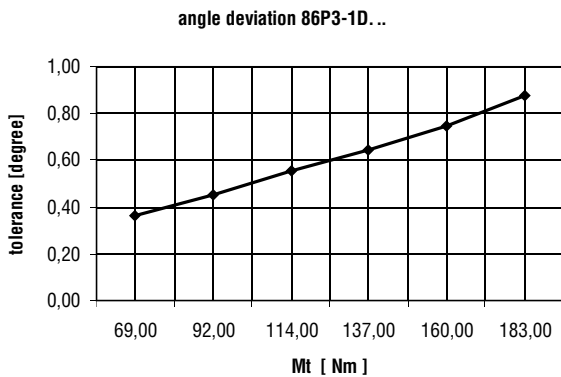


Example application of off-centre centring pin of **86P30-1D5.....**



The component shown in this example is to be made by the customer

Concept guidelines: angle deviation of off-centre centring pins



Major spare parts for **86P30-1D5.....**

Specifications	Order no. for 86P30-1D5..4	Order no. for 86P30-1D5..2
End position sensing system B8 inductive connector plug M12x1 w/ lead	8EA-033-2	8EA-091-1
Seal kit	86P3-1-00	

Series **86P40-2, 86P60-2** Product Overview

Pneumatic pin packages, single units

Models: **86P40-2**
86P60-2

Application:

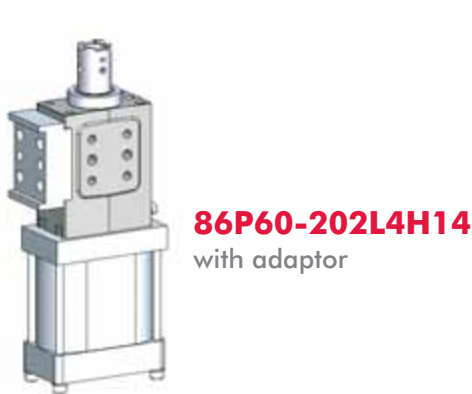
Accurate positioning of sheet metal parts in welding equipment and handling systems. At the end of the welding process, the pins are retracted from the pin holes. The component can thus be easily removed from the jig.

Key areas of application:

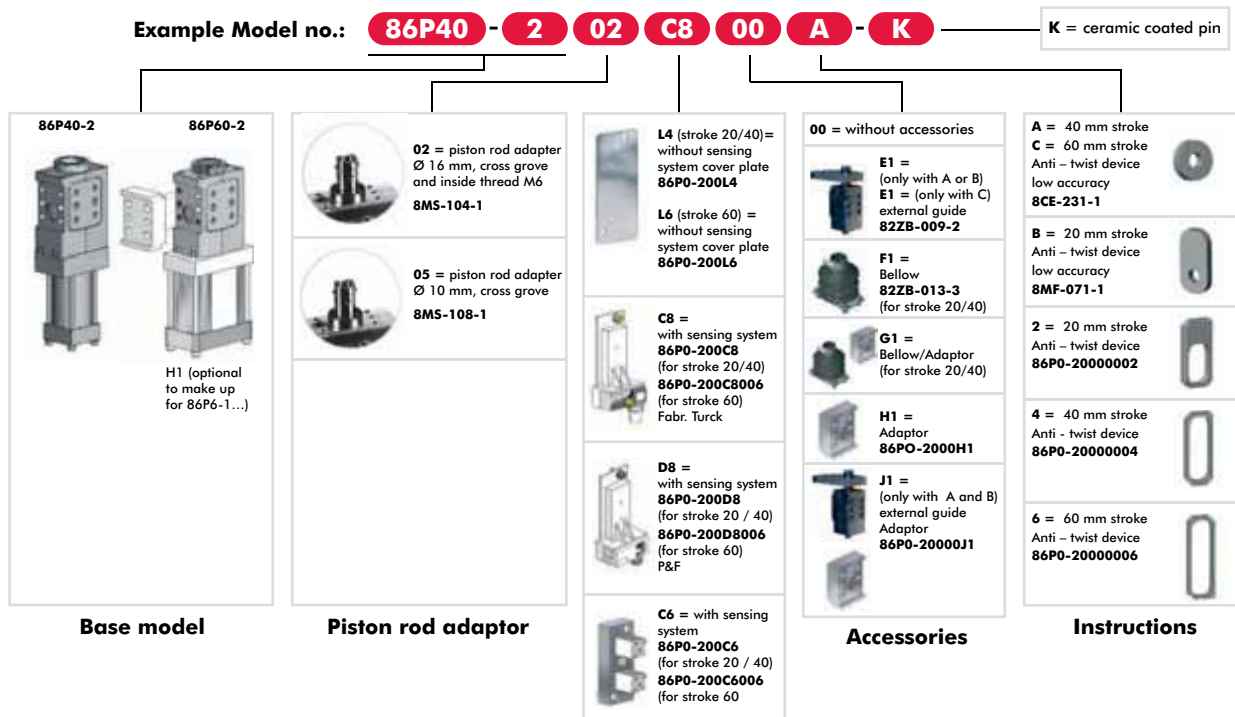
Automotive manufacturing, sheet processing industry, jig and general mechanical engineering.

Features:

- Compact, low weight design
- High accuracy due to twin piston rod guide
- Lateral and front-face mounting areas
- Length of stroke: 20, 40 and 60 mm
- Various mounting bases for centring pin including precision bore holes and grooves or integrated thread
- Inductive sensing module with LED display
- One body for two cylinder sizes



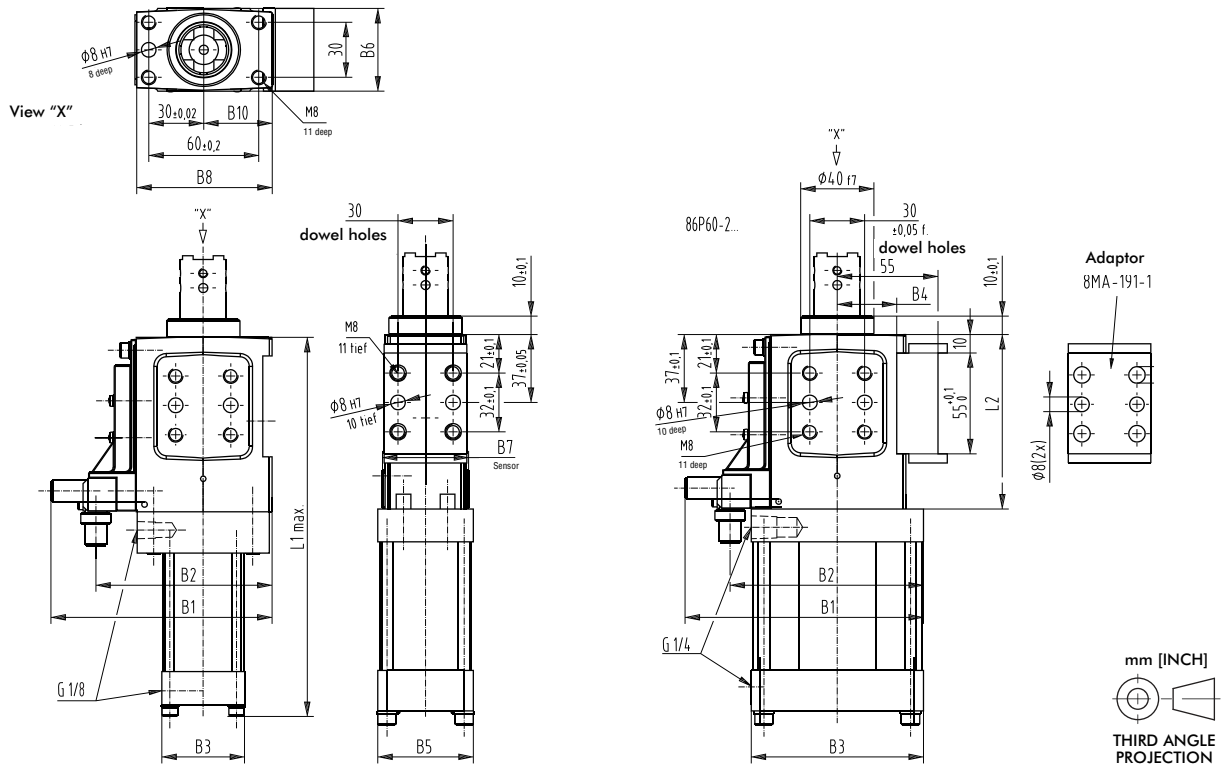
Numbering code for **86P40/60-2** pin packages



Series 86P40/60-2 Technical Information

Model no.		Pushing force at 5 bar N [lbs]	Retraction force at 5 bar N [lbs]	Max. operating pressure bar [psi]	Piston Ø mm [in]	Stroke "H" +2 mm [in]	Weight Kg [lbs]	Air consumption per double stroke at 5 bar dm ³ [ft ³]
w/o sensing	with inductive sensing connector M12x1 w/ lead							
86P40-2...L4...	86P40-2..._8...	620 [139]	520 [117]	6 [87]	40 [1.57]	20 [0.79]	1,6 [3.52]	0,5 [0.02]
86P40-2...L4...	86P40-2..._8...	620 [139]	520 [117]	6 [87]	40 [1.57]	40 [1.57]	1,6 [3.52]	0,7 [0.02]
86P40-2...L6...	86P40-2..._8...	620 [139]	520 [117]	6 [87]	40 [1.57]	60 [2.36]	2,2 [4.84]	1,2 [0.04]
86P60-2...L4...	86P60-2..._8...	1550 [348]	1400 [315]	6 [87]	63 [2.48]	20 [0.79]	2,0 [4.40]	0,8 [0.02]
86P60-2...L4...	86P60-2..._8...	1550 [348]	1400 [315]	6 [87]	63 [2.48]	40 [1.57]	2,0 [4.40]	1,4 [0.05]
86P60-2...L6...	86P60-2..._8...	1550 [348]	1400 [315]	6 [87]	63 [2.48]	60 [2.36]	2,6 [5.72]	2,2 [0.08]

Series 86P40-2, 86P60-2 Standard Pin Package Dimensions

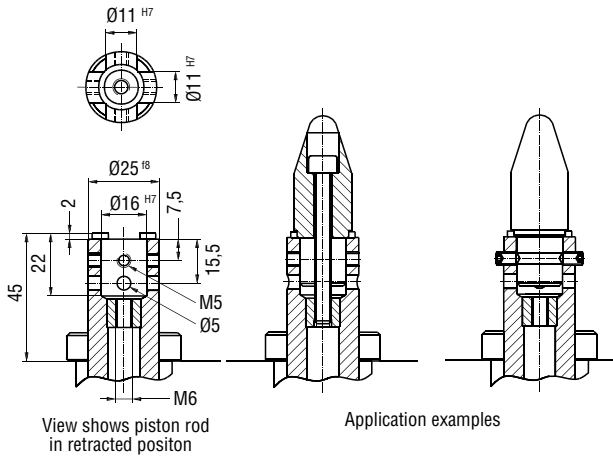


Medium: Operation with oil free air permissible

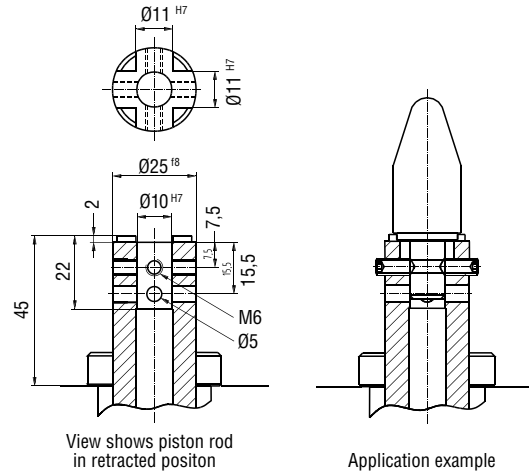
Model no.		B1	B2	B3	B4 + 0,02	B5	B6	B7	B8	B10	L1 max.	L2
w/o sensing	with inductive sensing connector M12x1 w/ lead											
86P40-2...L4...	86P40-2..._8...	121	96	45	32,5	45	45	47	74	37,5	207	95
86P40-2...L4...	86P40-2..._8...	121	96	45	32,5	45	45	47	74	37,5	207	95
86P40-2...L6...	86P40-2..._8...	114	97	45	32,5	45	45	47	74	37,5	247	115
86P60-2...L4...	86P60-2..._8...	130	106	94	32,5	52	45	47	74	37,5	213	95
86P60-2...L4...	86P60-2..._8...	130	106	94	32,5	52	45	47	74	37,5	213	95
86P60-2...L6...	86P60-2..._8...	124	107	94	32,5	52	45	47	74	37,5	253	115

Series **86P40-2, 86P60-2** Accessories

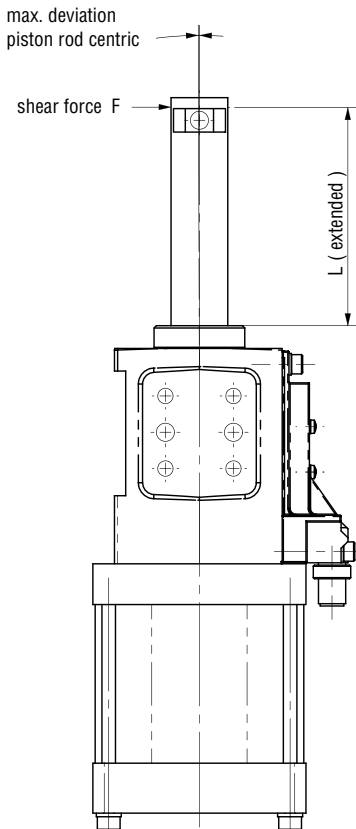
Pison Rod Model **-202** Detail mounting base $\varnothing 16$ mm for **86P40-2, 86P60-2**



Pison Rod Model **-205** Detail mounting base $\varnothing 10$ mm for **86P40-2, 86P60-2**



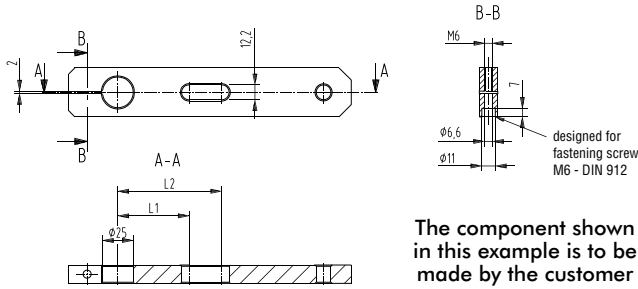
Max deflection for centering pin for **86P40-2, 86P60-2**



Model no.	Sheer force N [lbs]	L mm [in]	Stroke mm [in]	Deviation mm [in]
86P40 / 60-2...B / 2	200 [45]	52 [2.0]	20 [0.08]	0,06 [0.002]
86P40 / 60-2...A / 4	200 [45]	70 [2.8]	40 [1.60]	0,09 [0.004]
86P40 / 60-2...C / 6	200 [45]	90 [3.5]	60 [2.40]	0,12 [0.007]

Caution: Generally we recommend using an external guide when the transverse force is more than 200 N [45 lbs]. Also independently of the stroke, less transverse forces, when the overall height $L_2 > 120$ mm [4.7 in] (L_2 = extended piston rod plus centering pin).

Example application of an off-center centering pin for 86P40-2, 86P60-2



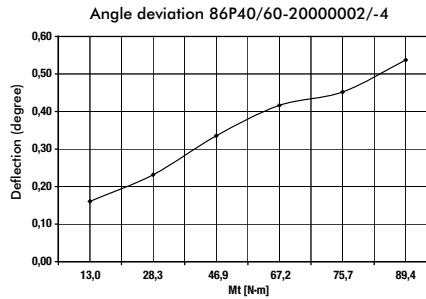
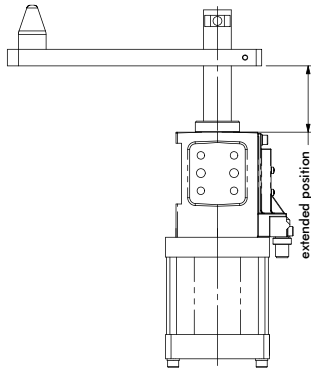
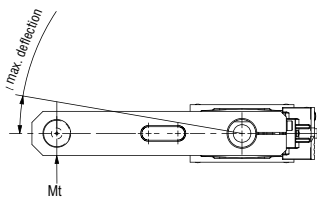
Model no.	L1	L2
86P40/60-2...E1	58	62
86P40/60-2...E2	58	62
86P40/60-2...J1*	80,5	84,5

* J1 is not available with stroke 60 mm.

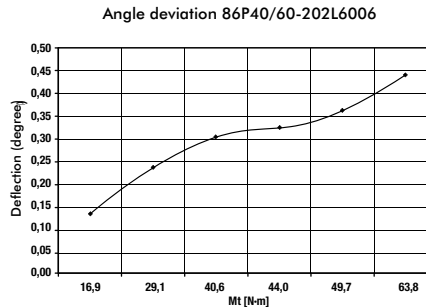


The component shown in this example is to be made by the customer

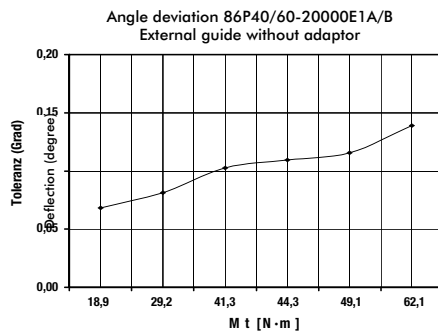
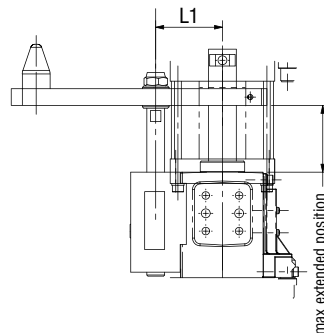
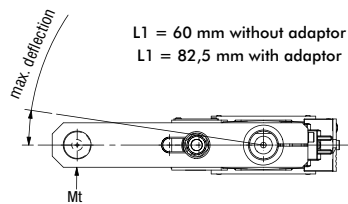
Internal anti-rotation device



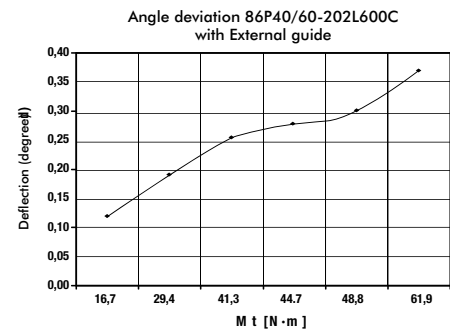
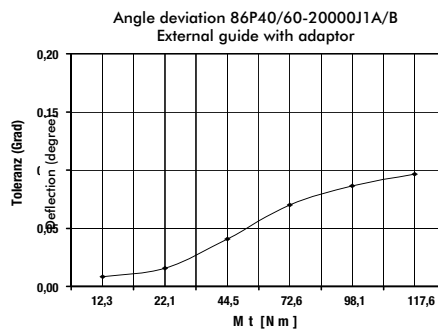
Caution: Generally we recommend using an external guide when the transverse force is more than 200 N [45 lbs]. Also independently of the stroke, less transverse forces, when the overall height L2 > 120 mm [4.7 in] (L2 = extended piston rod plus centering pin).



External guide 82ZB-009-2, 82ZB-010-2, 82ZB-090-1

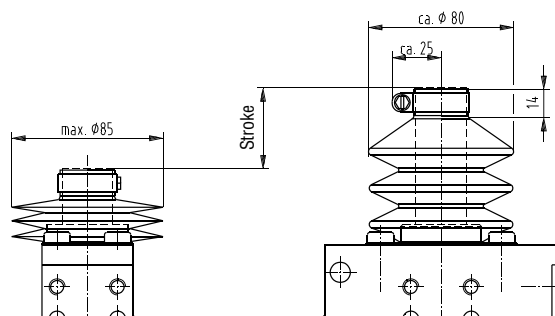




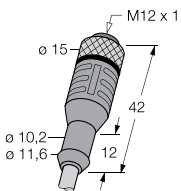
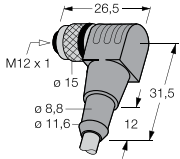
Caution: Generally we recommend using an external guide when the transverse force is more than 200 N [45 lbs]. Also independently of the stroke, less transverse forces, when the overall height L2 > 120 mm [4.7 in] (L2 = extended piston rod plus centering pin).



Series **86P40-2, 86P60-2** Accessories

Piston rod cover (Bellows) **82ZB-013-3**



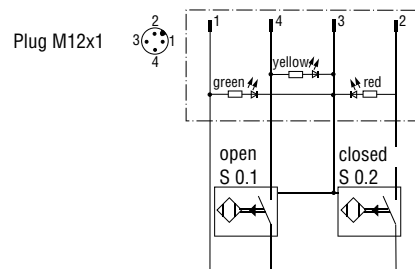
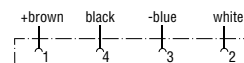
Specifications	Order no.
External guide (use w/o bellows) 	82ZB-009-2 82ZB-010-2 (only with A+B) 82ZB-090-1 (with C)
Bellows (use w/o external guide only) 	82ZB-013-3 (only strokes 20 und 40)
Connecting cable (1 connector socket & 5 m cable)	
Connector socket M12x1 straight, 5-pin 	8EL-002-1
Connector socket M12x1 90 Degree, 4-pin 	8EL-003-1

Wiring diagram of electrical sensing system

Sensing system immune to interference from d.c. arc welding and a.c. arc welding

Inductive design:

- **C8** Connector plug M12x1, fixed (Turck)
- **D8** Connector plug M12x1, fixed (Pepperl & Fuchs)



Major spare parts for **86P40/60-2**

Specifications	Order no. for 86P40-2	Order no. for 86P60-2
End position sensing system B8		
C8 connector plug M12x1, fixed (Turck)	8EA-111-1	8EA-111-1
D8 connector plug M12x1, fixed (Pepperl & Fuchs)	8EA-055-2	8EA-055-2
Seal kit	8PW-079-1-00	8PW-090-1-00

Series 86D Product Overview

Series 86D Double Pin Package

Application:

- Accurate positioning of sheet metal parts in welding environments and handling systems without rotation.
- At the end of the process, the pins are retracted from the holes so the part can be removed.

Application Areas:

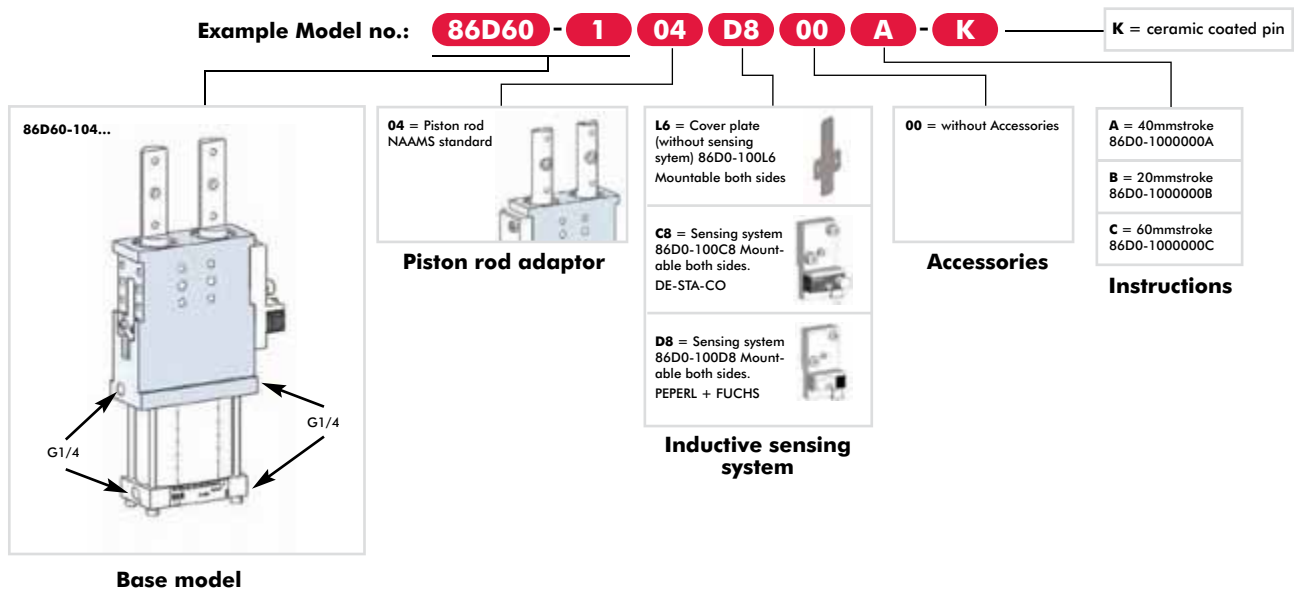
- Assembly
- Checking fixtures
- Handling systems
- Welding systems

86D60-1 Series [With sensing]

Series 86D60-1 Technical Information:

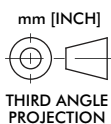
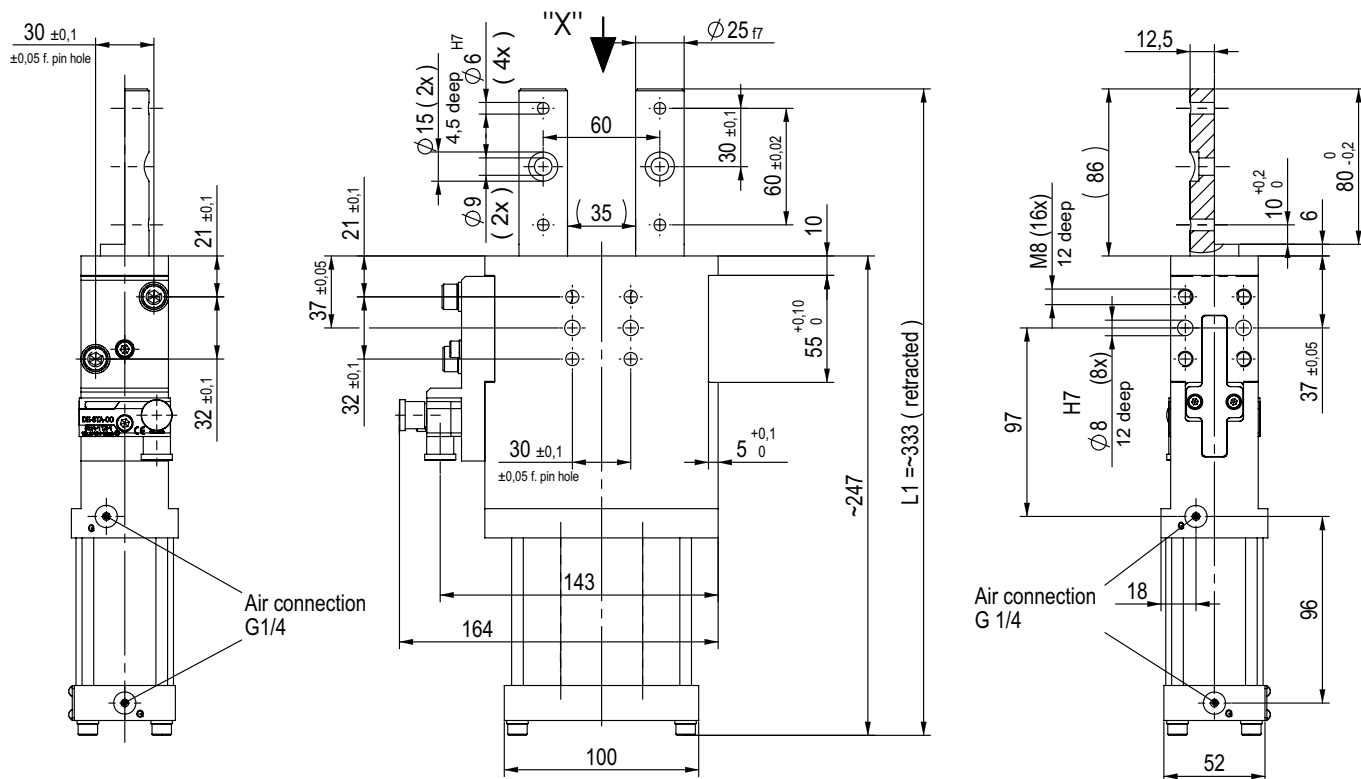
Model	Pushing force at 5 bar N [lbs]	Retraction force at 5 bar N [lbs]	Max. Operating Pressure bar [psi]	Piston Ø mm [in]	Stroke mm [in]	Weight Kg [lbs]	Air consumption per double stroke at 5 bar dm ³ [ft ³]
86D60-104C800A	1500 [377]	1100 [247]	6 [87]	63 [2.48]	40 [1.57]	3,8 [8.36]	1,4 [0.06]
86D60-104C800B					20 [0.79]	4 [8.80]	0,8 [0.03]
86D60-104C800C					60 [2.36]	4,1 [9.02]	2 [0.08]

Numbering code for 86D60...





Series 86D Standard Clamp Dimensions



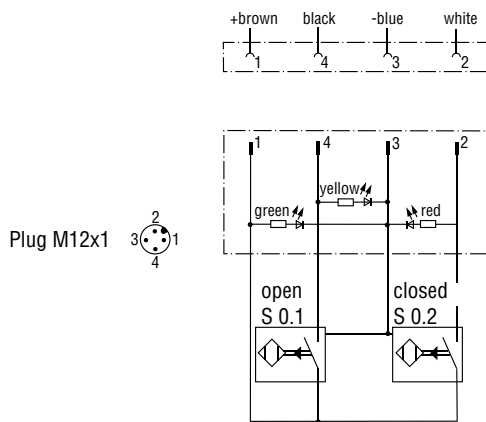
Power Operation with oil-free air is permissible.
 Electrical data for inductive sensing system see "KSED-2" Piston rod separate data sheets.
 To complete the model number see "Model-no. code".

Subject to technical modifications without notice.

Model	L1 Retracted [mm]	L1 Extended [mm]	Stroke [mm]
86D60-104C800A	333	373	40
86D60-104C800B		353	20
86D60-104C800C		393	60

Series 86D60-1... Accessories

Pin Assignment



Wiring diagram of electrical sensing system

Sensing system immune to interference from d.c. arc welding and a.c. arc welding.

Inductive design:

- C / D8 Connector plug M12x1 w/lead

Series 86D60-1... Major Spare Parts

Specifications	Order Number
End position sensing system C8 (Turck) inductive connector plug M12x1 w/ lead	8EA-111-1
End position sensing system D8 (Pepperl & Fuchs) plug M12x1 rotary	8EA-055-2
Connecting Cable (1 connector socket & 5m cable) M12 x 1 Straight, 5 pin	8EL-002-1
Connecting Cable (1 connector socket & 5m cable) M12 x 1 90 degree, 5 pin	8EL-003-1

Series **85P5-1** Product Overview

Straight-Line Action Clamp

Models: **85P5-1**

Application:

Accurate positioning of workpiece in jigs. Piston rod is locked in the extracted position. Here the piston rod can be used for cases of counter supporting for clamps.

Features:

- Compact Design
- High accuracy of positioning
- Lateral and front-face mounting areas
- Stroke 40mm
- Inductive sensing module
- Toggle-locked in extracted position



85P5-104B8000



85P5-104B80H0

Series **85P5-1B8** Technical Information

Model no..	Pushing force at 6 bar N [lbs]	Retracting force at 6 bar N [lbs]	Holding force N [lbs]	Pressure max bar [psi]	Piston Ø mm [in]	Stroke mm [in]	Weight Kg [lbs]	Air consumption at double stroke dm ³ [ft ³]
85P5-10400000	2000 [449]	1000 [225]	5000 [1124]	6 [87]	50 [1.97]	40 [1.57]	3,8 [8.36]	1,1 [0.04]
85P5-104000H0	2000 [449]	1000 [225]	5000 [1124]	6 [87]	50 [1.97]	40 [1.57]	4,0 [8.80]	1,1 [0.04]

Remark: Extracting force and retracting force shown in this chart are only available with the last 2 mm stroke at extracted position. In the other range of the stroke the forces will be approximately 30 % of value in the chart.

Order no. code for **85P5-1.....**

Example order no.: **85P5 - 1 04 B8 00 0 0 - K** K = ceramic coated pin

85P5-1 = base model without sensing system

Base models

04 = plunger adapter NAAMS-Standard

Plunger variations

00 = without sensing system 8AD-036-1

B8 = with sensing system 8EA-033-1 manufactured by Turck connecting plug M12x1

Sensing system

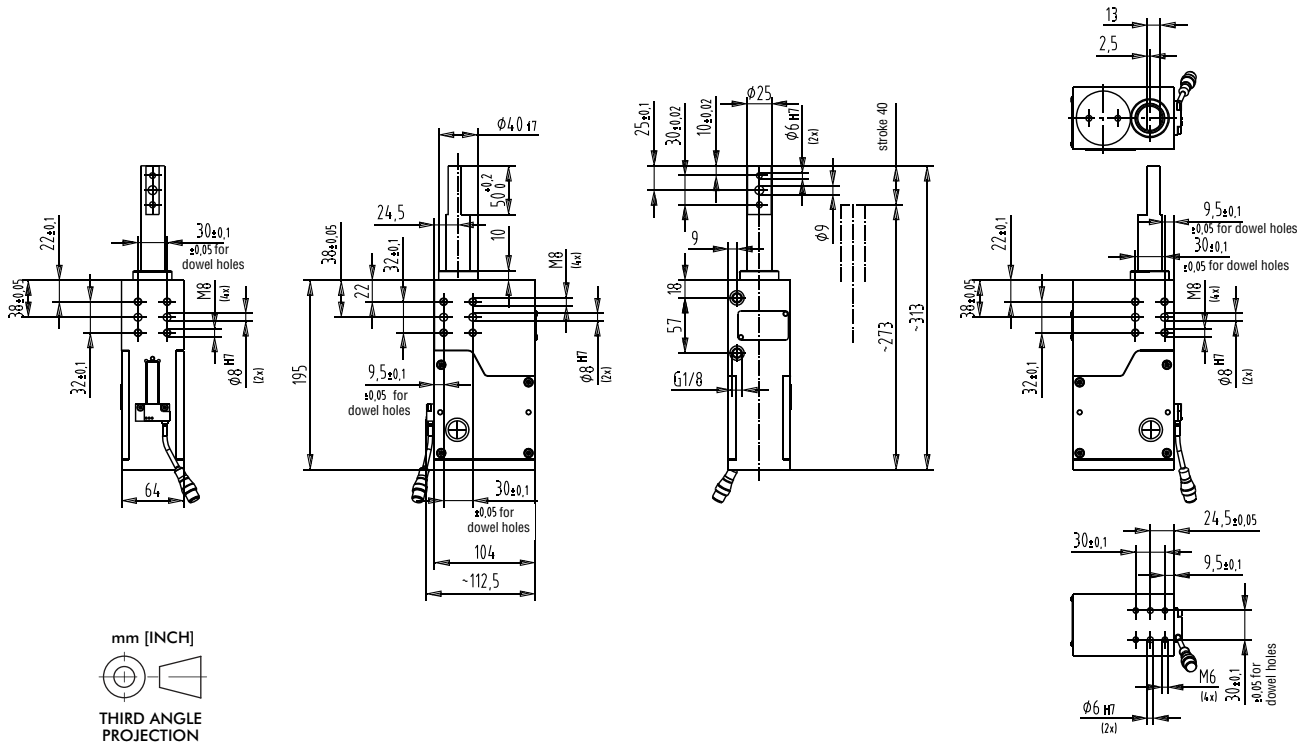
00 = without accessory parts

0 = without handlever
H = with handlever

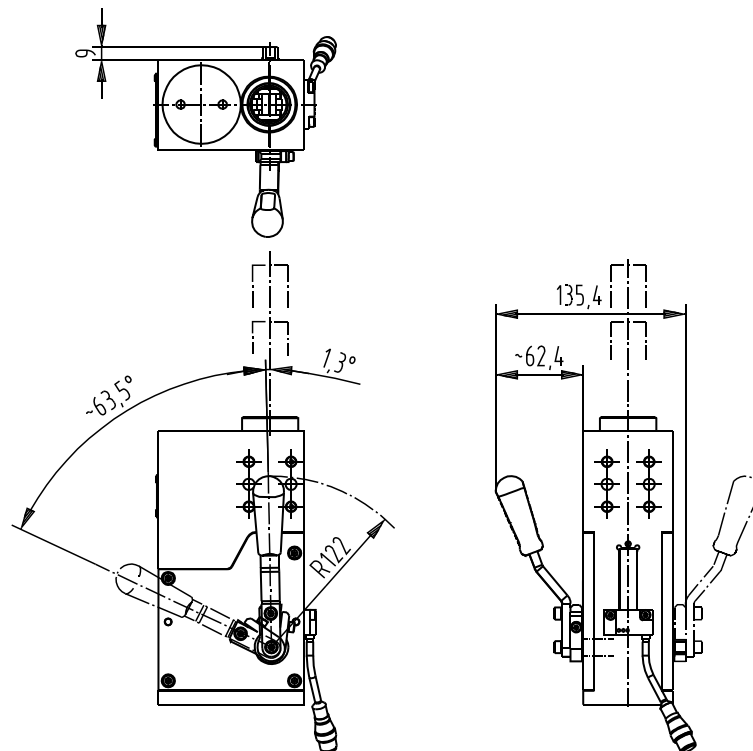
0 = without troke limiter

Series 85P5-1 Standard Clamp Dimensions



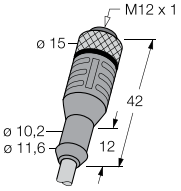
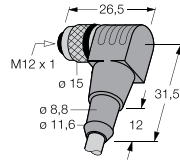
85P5-1 without hand lever



85P5-1 with hand lever (additional dimensioning)



Series **85P5-1** Accessories

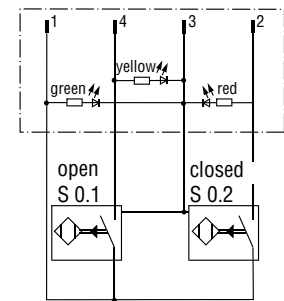
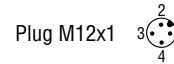
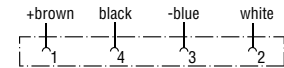
Specifications	Order no.
<p>External guide (use for external centring pins)</p> 	82ZB-010-2
<p>Bellows (use for external pins with locking for preventing from unintended moving)</p> 	82ZB-026-1
<p>Connecting cable (1 connector socket & 5 m cable)</p> <p>Connector socket M12x1 straight, 5-pin</p>  <p>Connector socket M12x1 90 Degree, 4-pin</p> 	8EL-002-1
	8EL-003-1

Wiring diagram of electrical sensing system

Sensing system immune to interference from d.c. arc welding and a.c. arc welding

Inductive design:

- **B8** Connector M12x1 w/lead (Turck)



Major spare parts for **85P5-1**

Specifications	Order no.
Sensing B8	8EA-033-2
Seal-kit cylinder	8PW-050-1-00
Hand lever-kit	8KB-032-1

Series 84A2-1 Product Overview

Features:








- small size, low weight
- fast opening and closing action
- high clamping force
- long life cycle
- roller and cam principle, self-locking at end stop position
- add-on component and end position sensing available
- Cylinder diameter 25
- Air consumption per double stroke: 0,3 dm³
- Air connectors M5

Application:

Gripping, holding, placing, removing and transporting of metal sheets and other parts, mainly in jigs, transfer presses and handling systems.

Key areas of application:

Automotive manufacturing, sheet processing industry, jig and general mechanical engineering.

Picture	Model	Clamping Force at 5 bar N [lbs]	Opening Angle	Weight Kg [lbs]	Opening/closure time min sec.
	84A2-110000000	580 [130]	72° upper	0,6 [1.32]	0,2
	84A2X110000000		30° upper		
	84A2Y110000000		45° upper		
	84A2-120000000	360 [81]	72° upper	0,65 [1.43]	0,2
	84A2X120000000		30° upper		
	84A2Y120000000		45° upper		
	84A2-130000000	270 [61]	72° upper + lower	0,6 [1.32]	0,2
	84A2X130000000		30° upper + lower		
	84A2Y130000000		45° upper + lower		
	84A2R130000000	270 [61]	72° upper, 15° lower	0,6 [1.32]	0,2
	84A2T130000000		45° upper, 15° lower		
	84A2-140000000	580 [130]	72° upper	0,5 [0.11]	0,2
	84A2X140000000		30° upper		
	84A2Y140000000		45° upper		
	84A2-160000000	580 [130]	72° upper	0,5 [0.11]	0,2
	84A2X160000000		30° upper		
	84A2Y160000000		45° upper		
	84A2-170000000	580 [130]	72° upper	0,6 [1.32]	0,2
	84A2X170000000		30° upper		
	84A2Y170000000		45° upper		
	84A2-180000000	340 [76]	72° upper	0,65 [1.43]	0,2
	84A2X180000000		30° upper		
	84A2Y180000000		45° upper		
	84A2-190000000	400 [90]	45° upper	0,65 [1.43]	0,2
	84A2X190000000		30° upper		

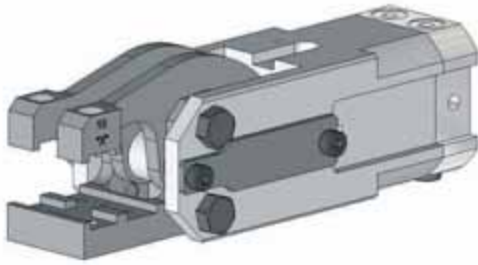
* The values of gripping forces include a safety factor 20%

Major spare parts

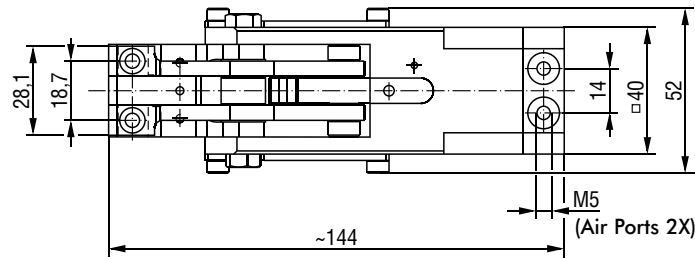
Specification	Order no. for 84A2-1
Cylinder	8PW-059-1
Seal kit	8PW-059-1-00

Accessories 17.11

Series 84A2-1 Product Overview



Model	Opening angle
84A2-110000000	72°
84A2X110000000	30°
84A2Y110000000	45°



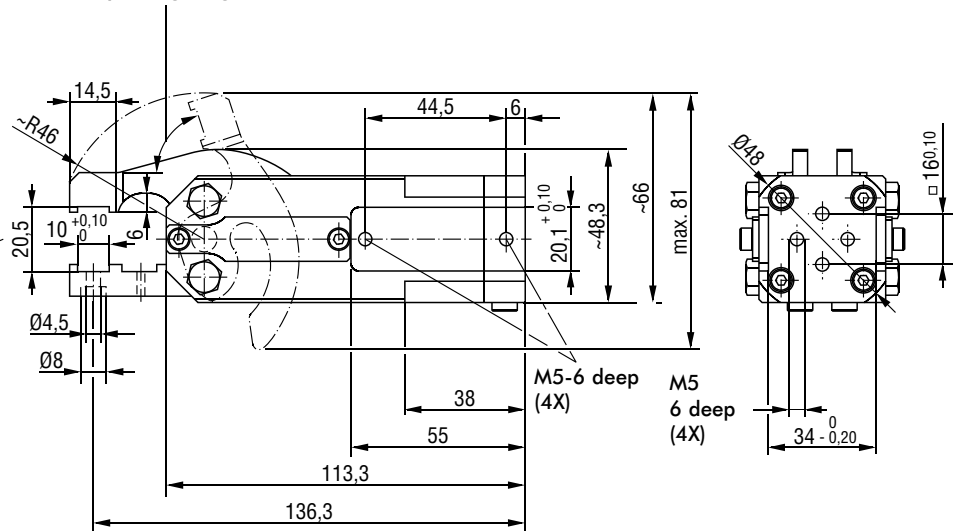
Medium: air, min. 3 bar, max. 6 bar operation with oil-free air is permissible.

Attention!
Concept guidelines to be considered

Note!

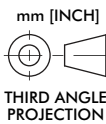
Any extension of the movable or fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.

Opening angle



Note!

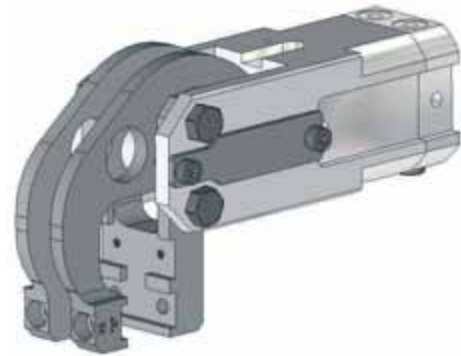
Addition of the gripper teeth height and thickness must be 20,5 mm. It might be necessary to use shim plates or to grind the gripper teeth.



Please order separately accessories such as gripper teeth, sensing and adaptors

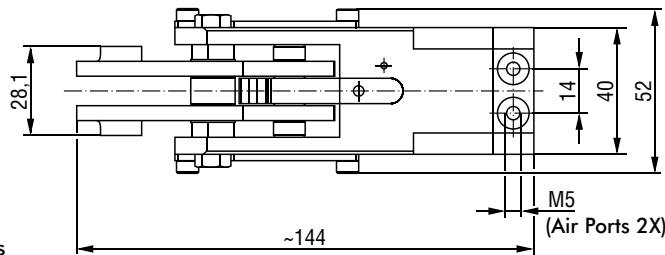
Series 84A2-1 Product Overview

Model	Opening angle
84A2-12000000	72°
84A2X12000000	30°
84A2Y12000000	45°



Note!

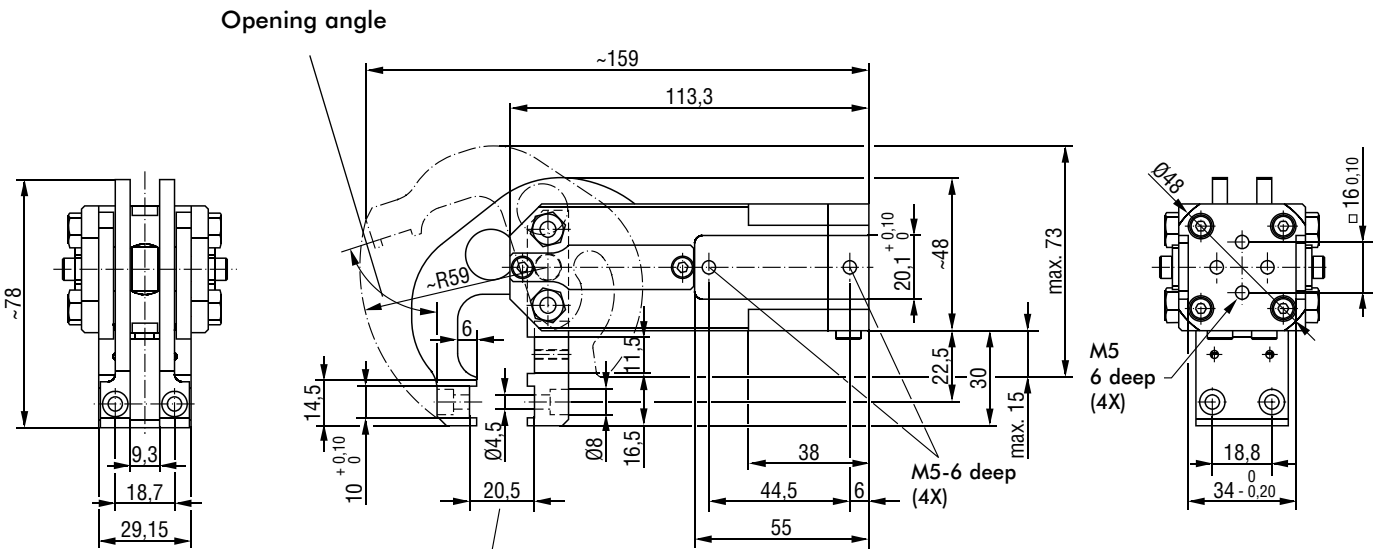
Any extension of the movable or fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.



Medium: air, min. 3 bar, max. 6 bar operation with oil-free air is permissible.

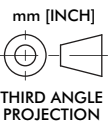
Attention!

Concept guidelines to be considered



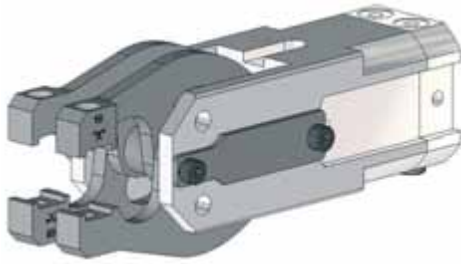
Note!

Addition of the gripper teeth height and thickness must be 20,5 mm. It might be necessary to use shim plates or to grind the gripper teeth.

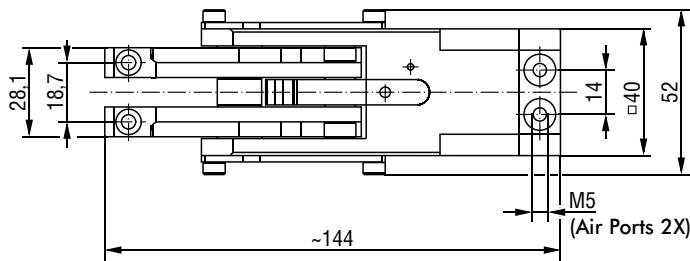


Please order separately accessories such as gripper teeth, sensing and adaptors

Series 84A2-1 Product Overview



Model	Opening angle
84A2-130000000	72°
84A2X130000000	30°
84A2Y130000000	45°

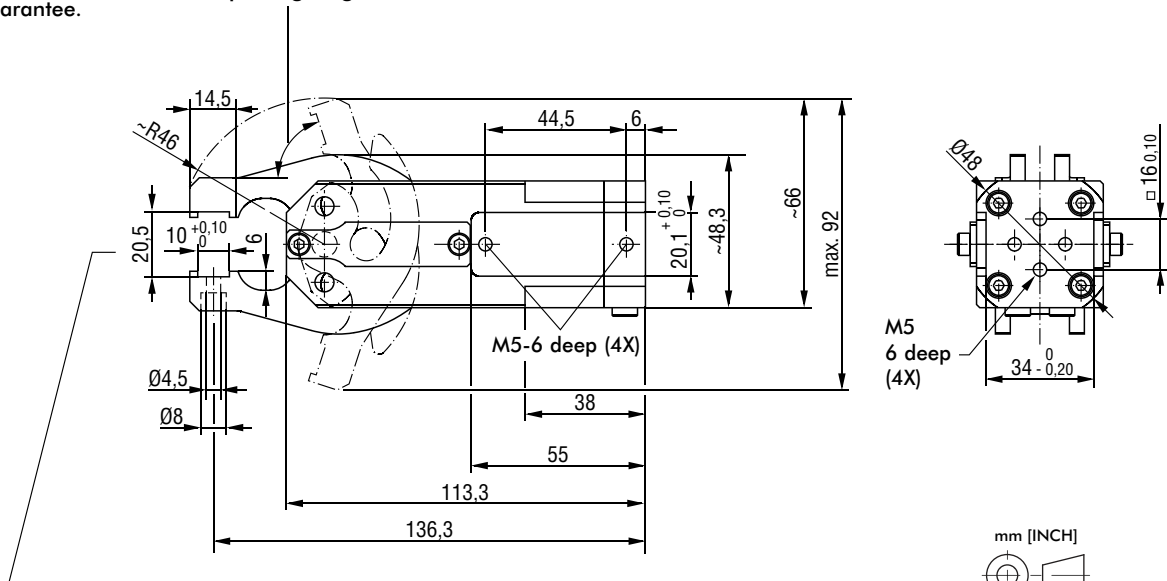


Medium: air, min. 3 bar, max. 6 bar operation with oil-free air is permissible.

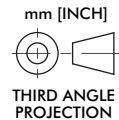
Attention!
Concept guidelines to be considered

Note!
Any extension of the movable or fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.

Opening angle



Note!
Addition of the gripper teeth height and thickness must be 20,5 mm. It might be necessary to use shim plates or to grind the gripper teeth.

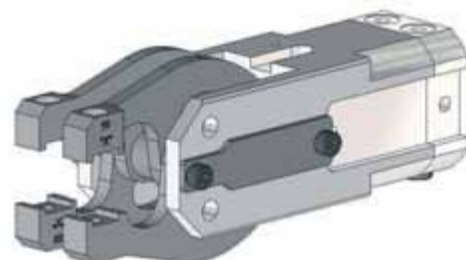


Please order separately accessories such as gripper teeth, sensing and adaptors



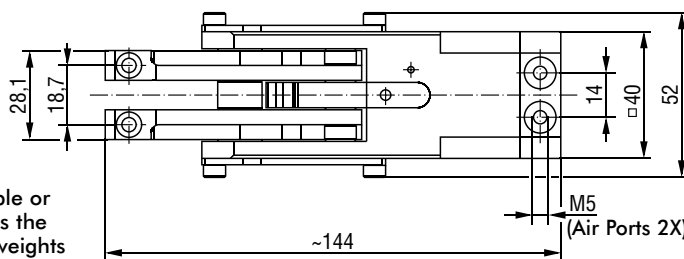
Series 84A2-1 Product Overview

Model	Upper Opening angle	Lower Opening angle
84A2R130000000	72°	15°
84A2T130000000	45°	15°



Note!

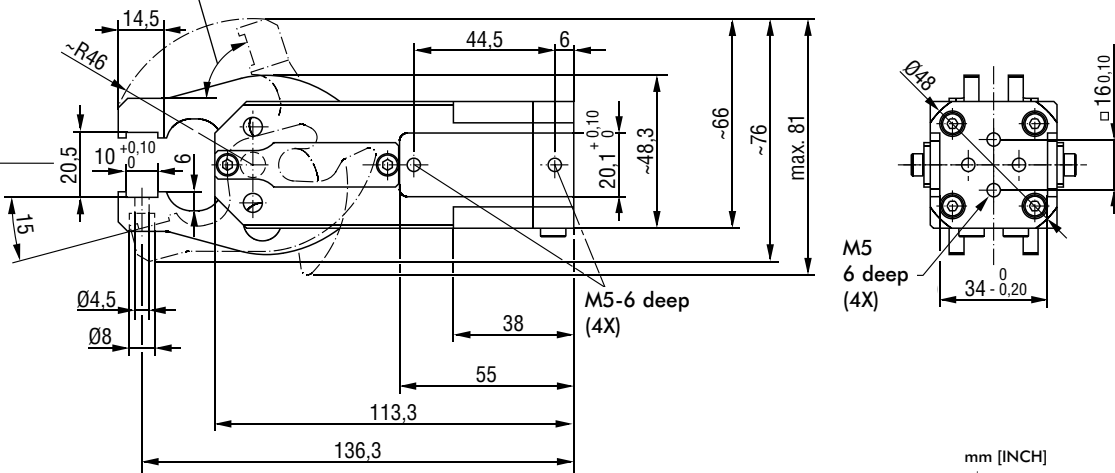
Any extension of the movable or fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.



Medium: air, min. 3 bar, max. 6 bar operation with oil-free air is permissible.

Attention!
Concept guidelines to be considered

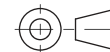
Opening angle



Note!

Addition of the gripper teeth height and thickness must be 20,5 mm. It might be necessary to use shim plates or to grind the gripper teeth.

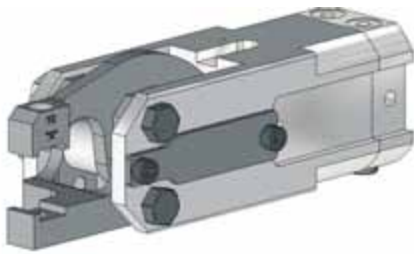
mm [INCH]



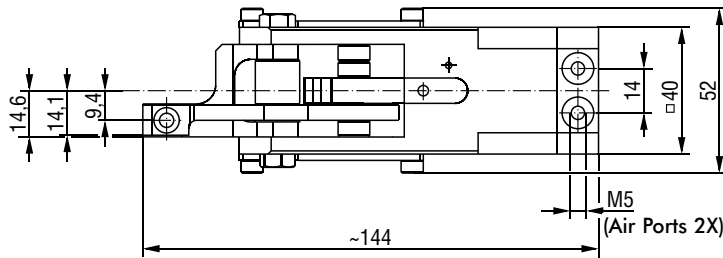
THIRD ANGLE PROJECTION

Please order separately accessories such as gripper teeth, sensing and adaptors

Series 84A2-1 Product Overview



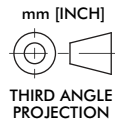
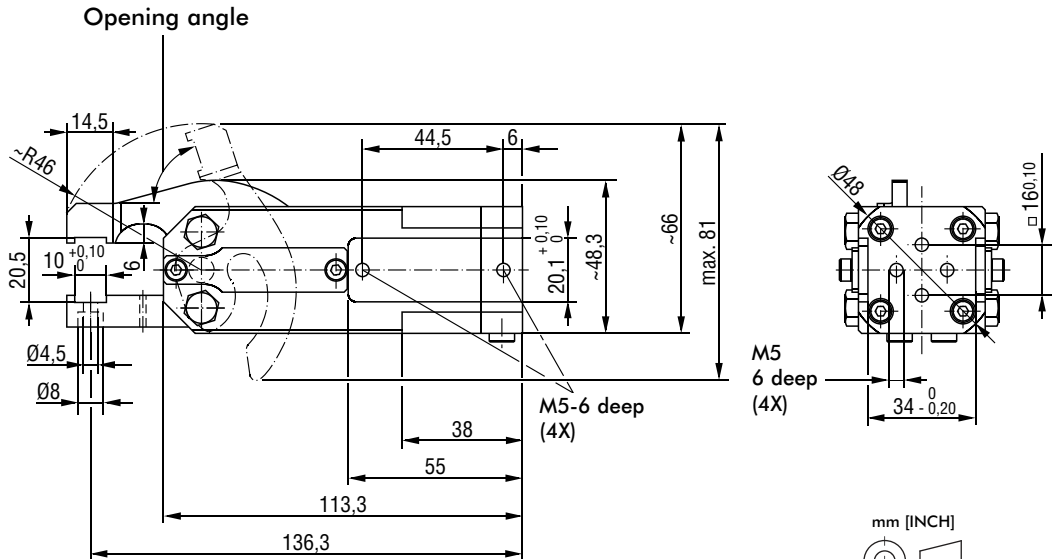
Model	Opening angle
84A2-14000000	72°
84A2X14000000	30°
84A2Y14000000	45°



Medium: air, min. 3 bar, max. 6 bar operation with oil-free air is permissible.

Attention!
Concept guidelines to be considered

Note!
Any extension of the movable or fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.

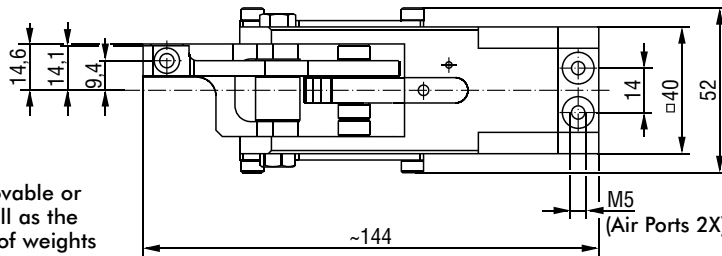
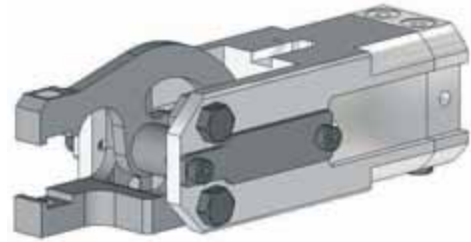


Note!
Addition of the gripper teeth height and thickness must be 20,5 mm. It might be necessary to use shim plates or to grind the gripper teeth.

Please order separately accessories such as gripper teeth, sensing and adaptors

Series 84A2-1 Product Overview

Model	Opening angle
84A2-16000000	72°
84A2X16000000	30°
84A2Y16000000	45°



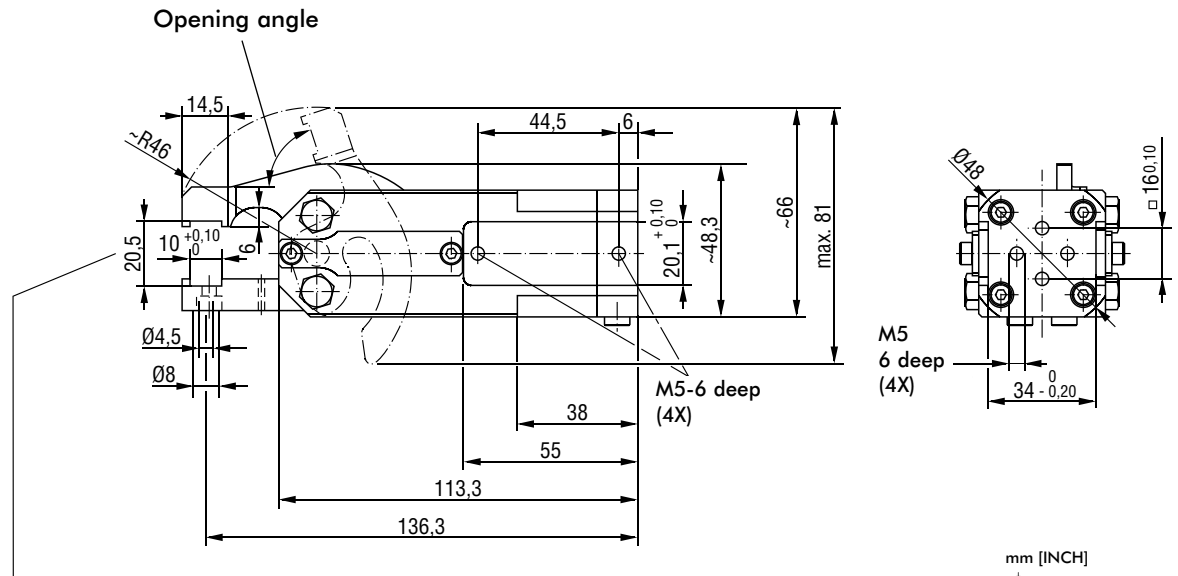
Note!

Any extension of the movable or fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.

Medium: air, min. 3 bar, max. 6 bar operation with oil-free air is permissible.

Attention!

Concept guidelines to be considered



Note!

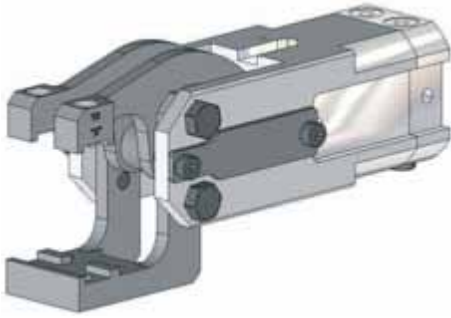
Addition of the gripper teeth height and thickness must be 20,5 mm. It might be necessary to use shim plates or to grind the gripper teeth.

mm [INCH]

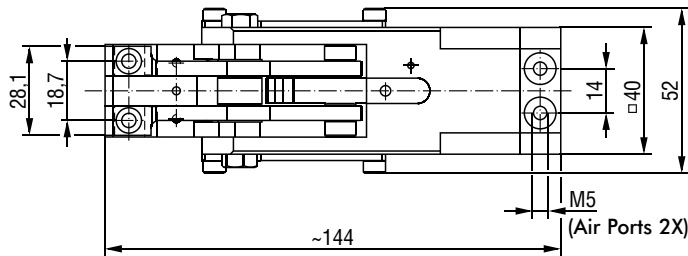


Please order separately accessories such as gripper teeth, sensing and adaptors

Series 84A2-1 Product Overview



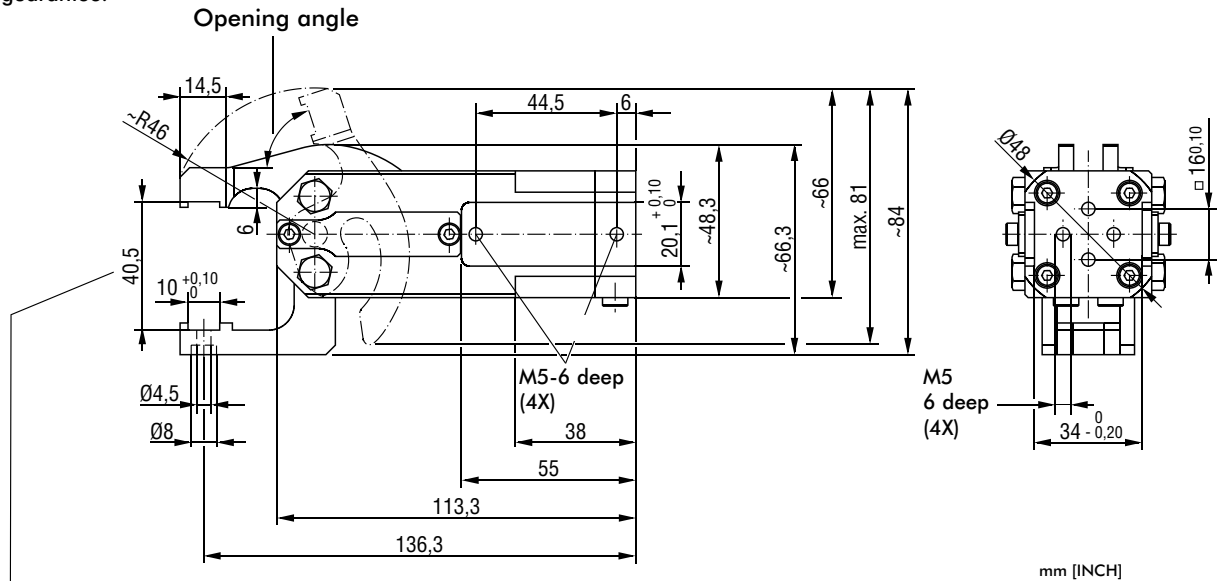
Model	Opening angle
84A2-170000000	72°
84A2X170000000	30°
84A2Y170000000	45°



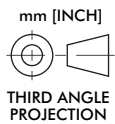
Medium: air, min. 3 bar, max. 6 bar operation with oil-free air is permissible.

Attention!
Concept guidelines to be considered

Note!
Any extension of the movable or fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.



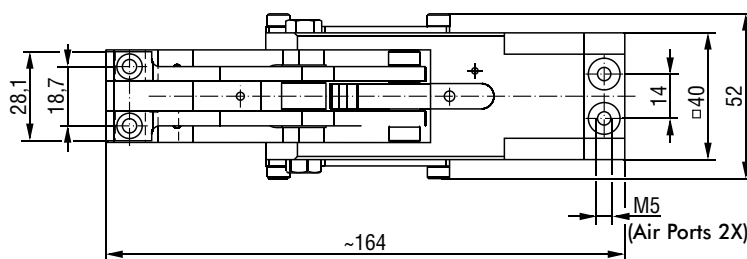
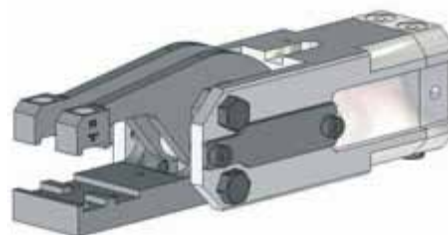
Note!
Addition of the gripper teeth height and thickness must be 20,5 mm. It might be necessary to use shim plates or to grind the gripper teeth.



Please order separately accessories such as gripper teeth, sensing and adaptors

Series 84A2-1 Product Overview

Model	Opening angle
84A2-18000000	72°
84A2X18000000	30°
84A2Y18000000	45°

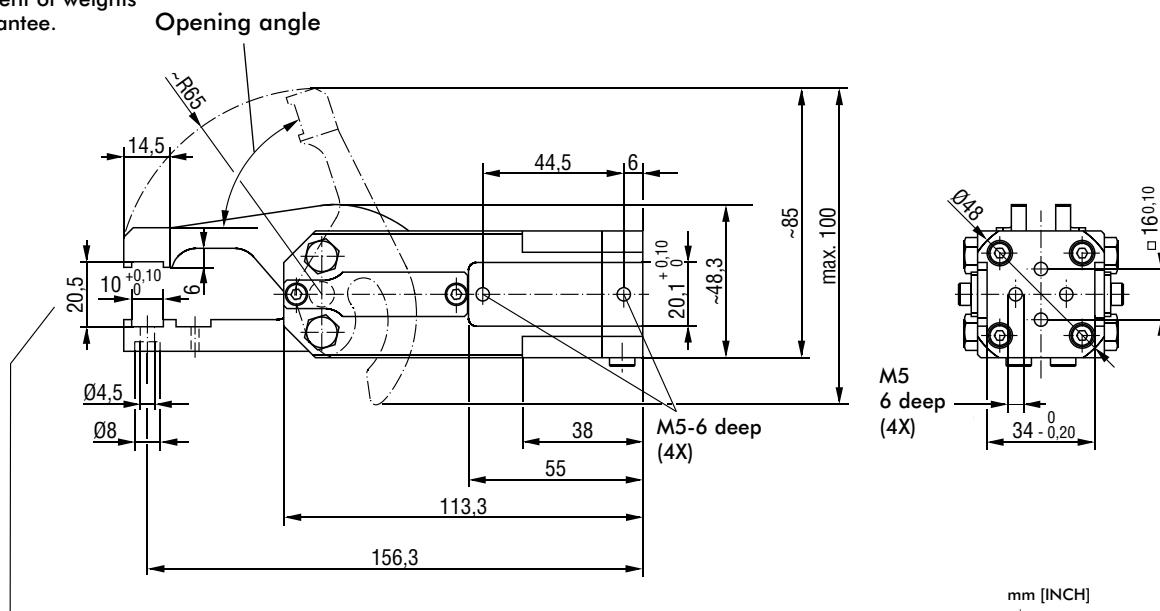


Medium: air, min. 3 bar, max. 6 bar operation with oil-free air is permissible.

Attention!
Concept guidelines to be considered

Note!

Any extension of the movable or fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.



Note!

Addition of the gripper teeth height and thickness must be 20,5 mm. It might be necessary to use shim plates or to grind the gripper teeth.

mm [INCH]



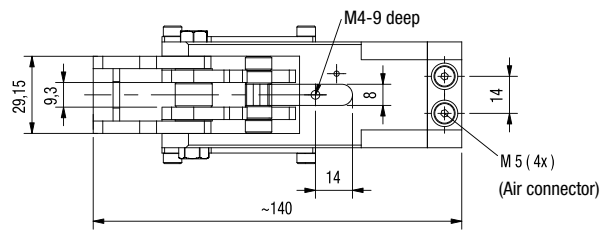
THIRD ANGLE PROJECTION

Please order separately accessories such as gripper teeth, sensing and adaptors

Series **84A2-1** Product Overview

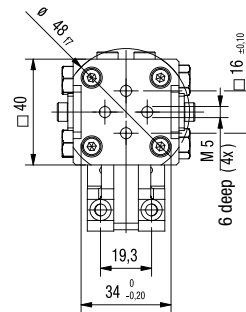
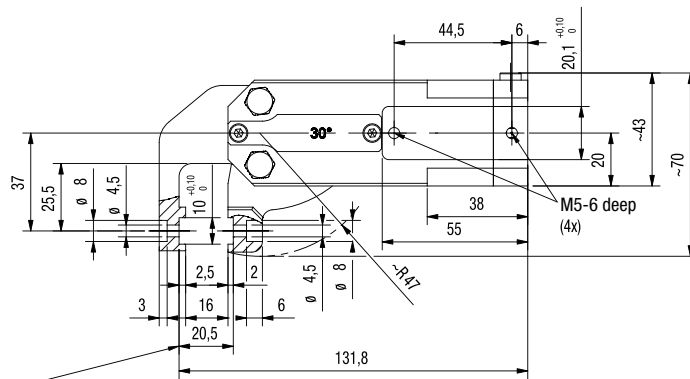
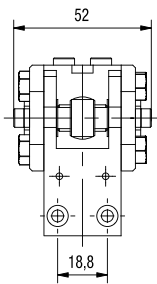


Model	Opening angle
84A2-190000000	45°
84A2X190000000	30°



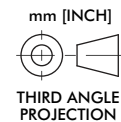
Medium: air, min. 3 bar, max. 6 bar operation with oil-free air is permissible.

Attention!
Concept guidelines to be considered



Note!
Addition of the gripper teeth height and thickness must be 20,5 mm. It might be necessary to use shim plates or to grind the gripper teeth.

Note!
Any extension of the movable or fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.



Please order separately accessories such as gripper teeth, sensing and adaptors

Series 84A2-1/84A2-V Accessories Overview



Gripper teeth: steel hardened



8JZ-027-1

Gripper teeth: steel soft



8JZ-028-1

Gripper points: steel hardened



8JZ-029-1

Crown-teeth: steel hardened



8JZ-037-1 For transfer free of deformation and swarf
8JZ-038-1
8JZ-039-1
8JZ-040-1

Gripper jaw, top: Gripper teeth, Gripper points, Crown teeth – Dimensions see page 17.52

Gripper teeth: steel hardened



8JZ-027-1

Gripper teeth: steel soft



8JZ-028-1

Gripper points: steel hardened



8JZ-029-1

Crown-teeth: steel hardened



8JZ-036-2 For transfer free of deformation and swarf

Gripper jaw, bottom: Gripper teeth, Gripper points, Crown teeth – Dimensions see page 17.52

8MA-165-1
Ø 20 mm



8MA-166-1
Ø 25 mm



8MA-147-1



82ZB-025-2



8MA-168-1
Ø 1"



Adapters / Limit stops – Dimensions see page 17.55

8EA-075-2
switching distance 3 mm



8EA-087-1
workplace control



Sensing systems – Dimensions see page 17.58

Shims for gripper teeth
order no.: 8SB-039-1
(to be ordered separately)

Dimensions:
10 x 10 x 0,1 mm



Accessories

Opening angle limiter

Specification	Order no. for 84A2	Comment
for 45°	8MF-052-1	For change of opening angle (2parts necessary)
for 30°	8MF-051-1	

Series 84A2-V Product Overview

Features:

- small size, low weight
- fast opening and closing action
- high clamping force
- long life cycle
- roller and cam principle, self-locking at end stop position
- add-on component and end position sensing available
- Cylinder diameter 25
- Air consumption per double stroke: 0,3 dm³
- Air connectors G1/8

Application:

Gripping, holding, placing, removing and transporting of metal sheets and other parts, mainly in jigs, transfer presses and handling systems.

Key areas of application:

Automotive manufacturing, sheet processing industry, jig and general mechanical engineering.

Picture	Model	Clamping Force at 5 bar N [lbs]	Opening Angle	Weight Kg [lbs]	Opening/closure time min sec.
	84A2-V10000000	580 [120]	72° upper	0,6 [1.32]	0,2
	84A2XV10000000		30° upper		
	84A2YV10000000		45° upper		
	84A2-V20000000	360 [81]	72° upper	0,65 [1.43]	0,2
	84A2XV20000000		30° upper		
	84A2YV20000000		45° upper		
	84A2-V30000000	270 [61]	72° upper + lower	0,6 [1.32]	0,2
	84A2XV30000000		30° upper + lower		
	84A2YV30000000		45° upper + lower		
	84A2RV30000000	270 [61]	72° upper, 15° lower	0,6 [1.32]	0,2
	84A2TV30000000		45° upper, 15° lower		
	84A2-V40000000	580 [130]	72° upper	0,5 [0.11]	0,2
	84A2XV40000000		30° upper		
	84A2YV40000000		45° upper		
	84A2-V60000000	580 [130]	72° upper	0,5 [0.11]	0,2
	84A2XV60000000		30° upper		
	84A2YV60000000		45° upper		
	84A2-V70000000	580 [130]	72° upper	0,6 [1.32]	0,2
	84A2XV70000000		30° upper		
	84A2YV70000000		45° upper		
	84A2-V80000000	340 [76]	72° upper	0,65 [1.43]	0,2
	84A2XV80000000		30° upper		
	84A2YV80000000		45° upper		
	84A2-V90000000	400 [90]	45° upper	0,65 [1.43]	0,2
	84A2XV90000000		30° upper		

* The values of gripping forces include a safety factor 20%

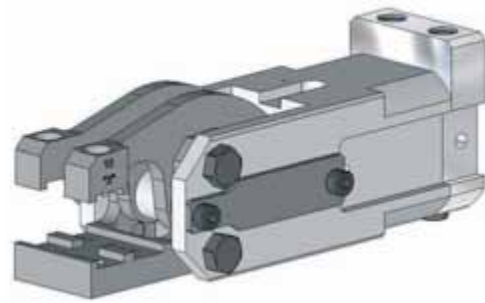
Major spare parts

Specification	Order no. for 84A2-1
Cylinder	8PW-070-1
Seal kit	8PW-059-1-00

Accessories see page 17.11

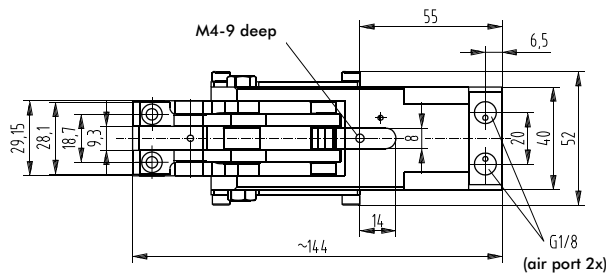
Series 84A2-V Product Overview

Model	Opening angle
84A2-V10000000	72°
84A2XV10000000	30°
84A2YV10000000	45°



Note!

Any extension of the movable or fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.

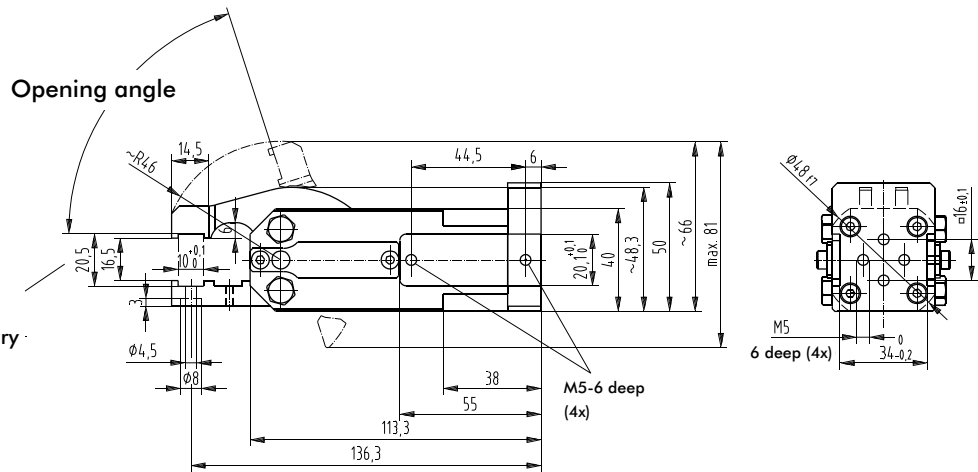


Medium: air, min. 3 bar, max. 6 bar operation with oil-free air is permissible.

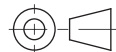
Attention!
Concept guidelines to be considered

Note!

Addition of the gripper teeth height and thickness must be 20,5 mm. It might be necessary to use shim plates or to grind the gripper teeth.

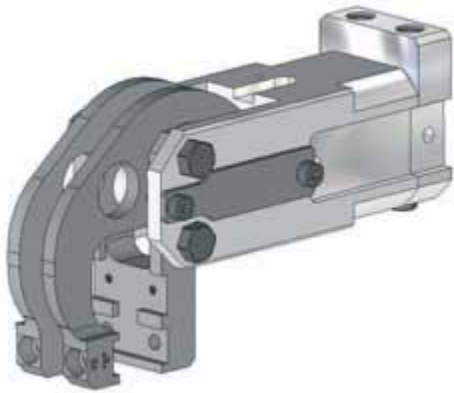


mm [INCH]



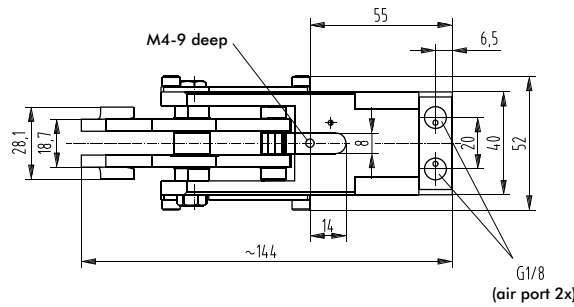
THIRD ANGLE PROJECTION

Please order separately accessories such as gripper teeth, sensing and adaptors

Series 84A2-V Product Overview


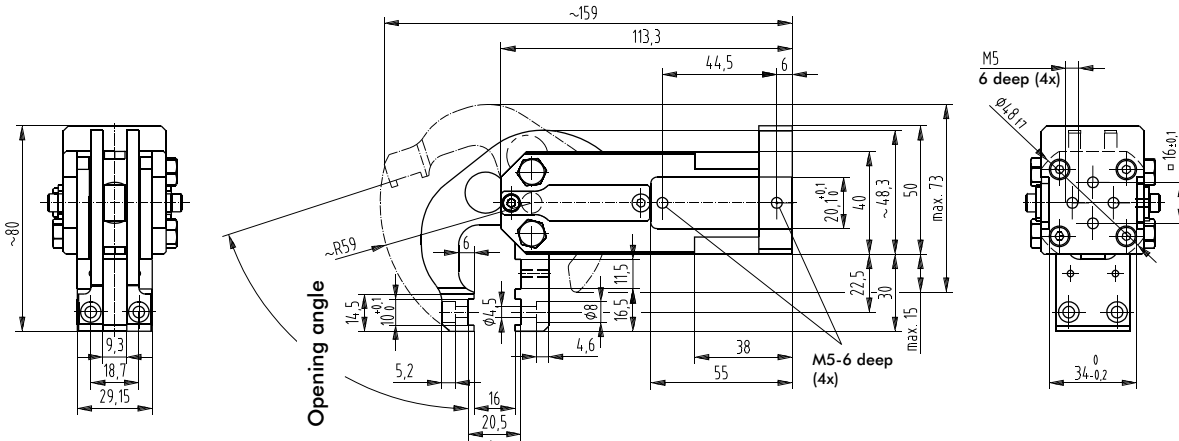
Model	Opening angle
84A2-V20000000	72°
84A2XV20000000	30°
84A2YV20000000	45°

Note!
Any extension of the movable or fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.

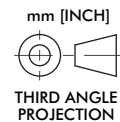


Medium: air, min. 3 bar,
max. 6 bar operation with
oil-free air is permissible.

Attention!
Concept guidelines to be
considered



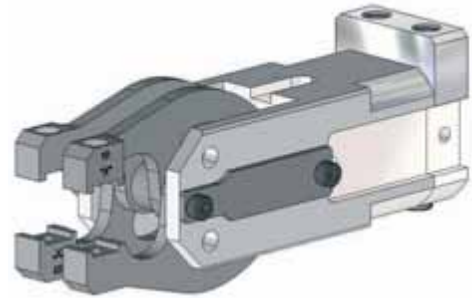
Note!
Addition of the gripper teeth
height and thickness must be
20,5 mm. It might be necessary
to use shim plates or to grind
the gripper teeth.



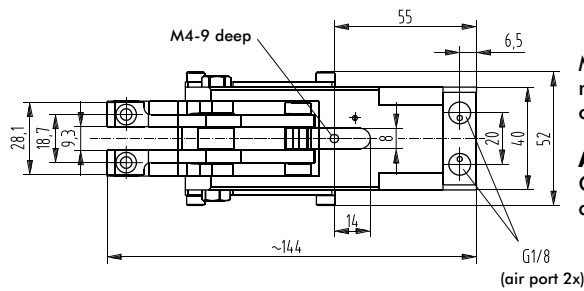
Please order separately accessories such as gripper teeth, sensing and adaptors

Series 84A2-V Product Overview

Model	Opening angle
84A2-V30000000	72°
84A2XV30000000	30°
84A2YV30000000	45°



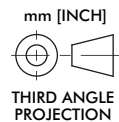
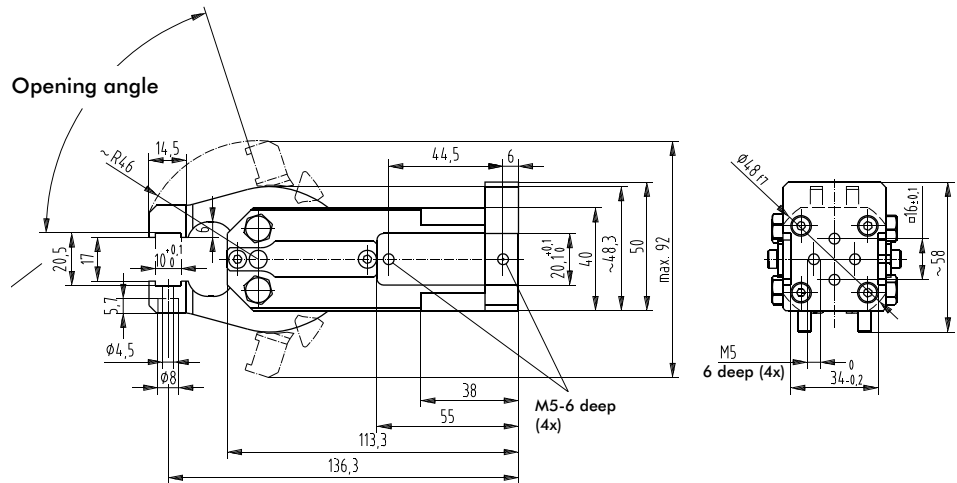
Note!
Any extension of the movable or fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.



Medium: air, min. 3 bar, max. 6 bar operation with oil-free air is permissible.

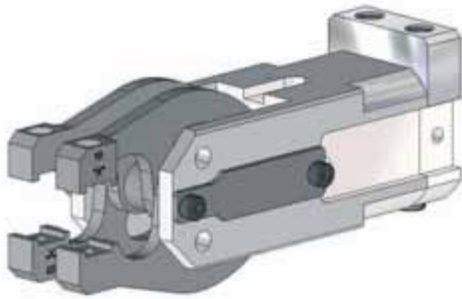
Attention!
Concept guidelines to be considered

Note!
Addition of the gripper teeth height and thickness must be 20,5 mm. It might be necessary to use shim plates or to grind the gripper teeth.



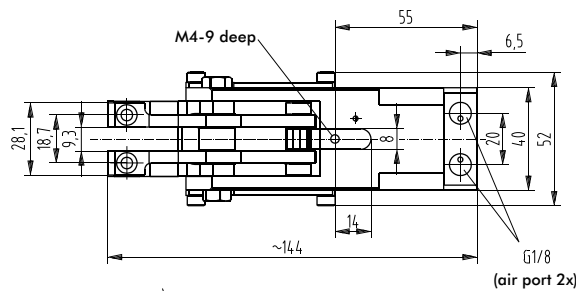
Please order separately accessories such as gripper teeth, sensing and adaptors

Series 84A2-V Product Overview



Model	Opening angle upper	Opening angle lower
84A2RV30000000	72°	15°
84A2TV30000000	45°	15°

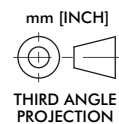
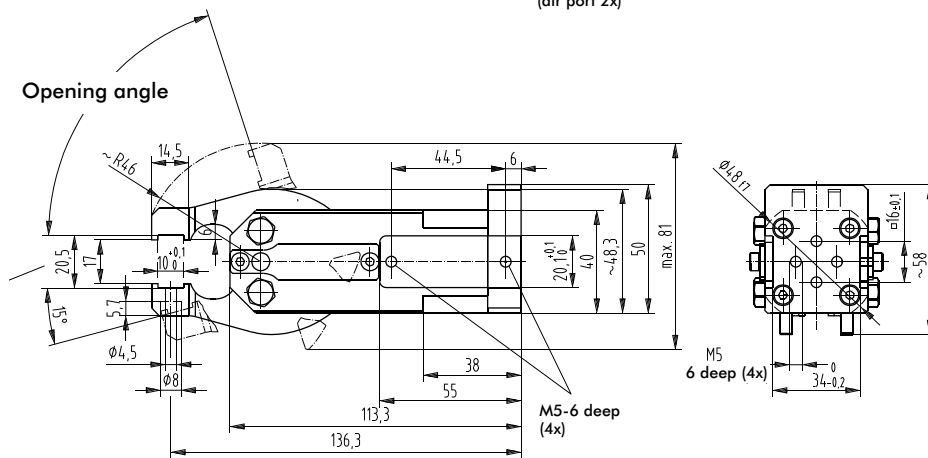
Note!
Any extension of the movable or fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.



Medium: air, min. 3 bar, max. 6 bar operation with oil-free air is permissible.

Attention!
Concept guidelines to be considered

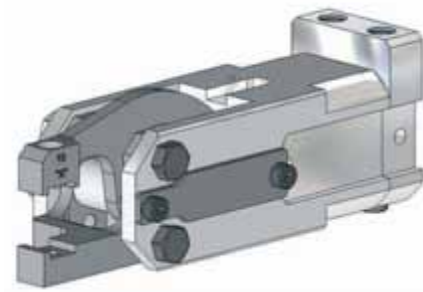
Note!
Addition of the gripper teeth height and thickness must be 20,5 mm. It might be necessary to use shim plates or to grind the gripper teeth.



Please order separately accessories such as gripper teeth, sensing and adaptors

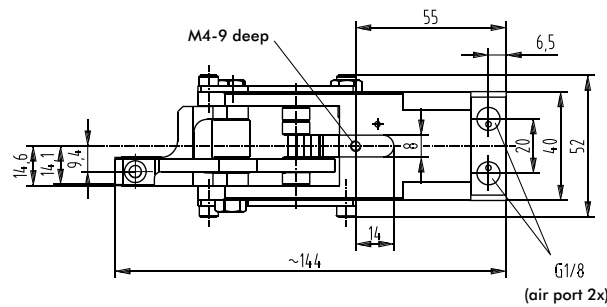
Series 84A2-V Product Overview

Model	Opening angle
84A2-V40000000	72°
84A2XV40000000	30°
84A2YV40000000	45°



Note!

Any extension of the movable or fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.

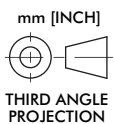
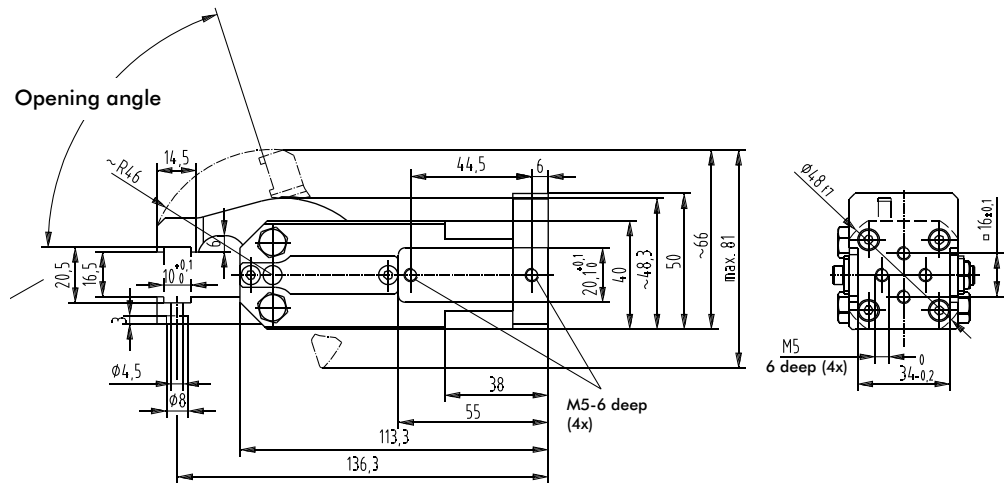


Medium: air, min. 3 bar, max. 6 bar operation with oil-free air is permissible.

Attention!
Concept guidelines to be considered

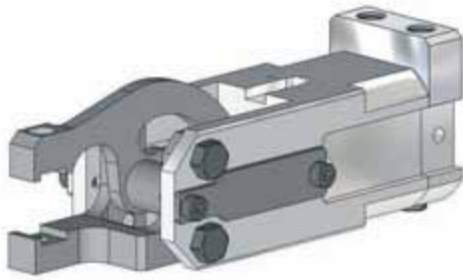
Note!

Addition of the gripper teeth height and thickness must be 20,5 mm. It might be necessary to use shim plates or to grind the gripper teeth.



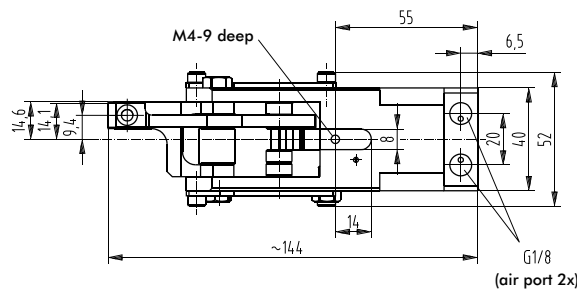
Please order separately accessories such as gripper teeth, sensing and adaptors

Series 84A2-V Product Overview



Model	Opening angle
84A2-V60000000	72°
84A2XV60000000	30°
84A2YV60000000	45°

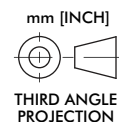
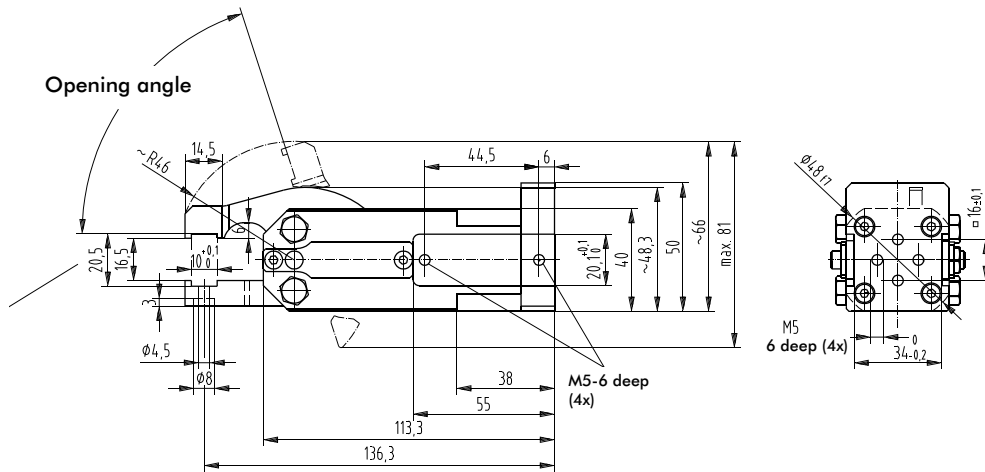
Note!
Any extension of the movable or fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.



Medium: air, min. 3 bar, max. 6 bar operation with oil-free air is permissible.

Attention!
Concept guidelines to be considered

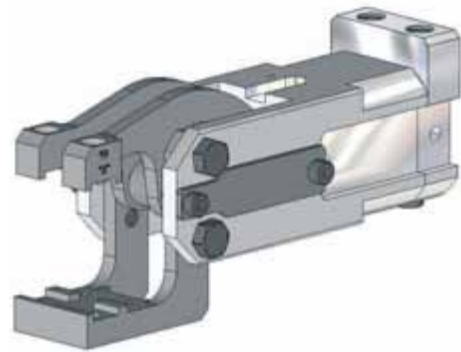
Note!
Addition of the gripper teeth height and thickness must be 20,5 mm. It might be necessary to use shim plates or to grind the gripper teeth.



Please order separately accessories such as gripper teeth, sensing and adaptors

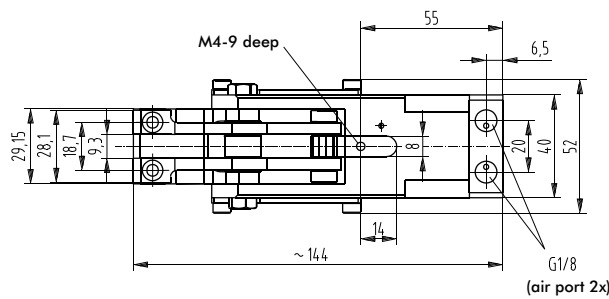
Series 84A2-V Product Overview

Model	Opening angle
84A2-V70000000	72°
84A2XV70000000	30°
84A2YV70000000	45°



Note!

Any extension of the movable or fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.

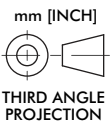
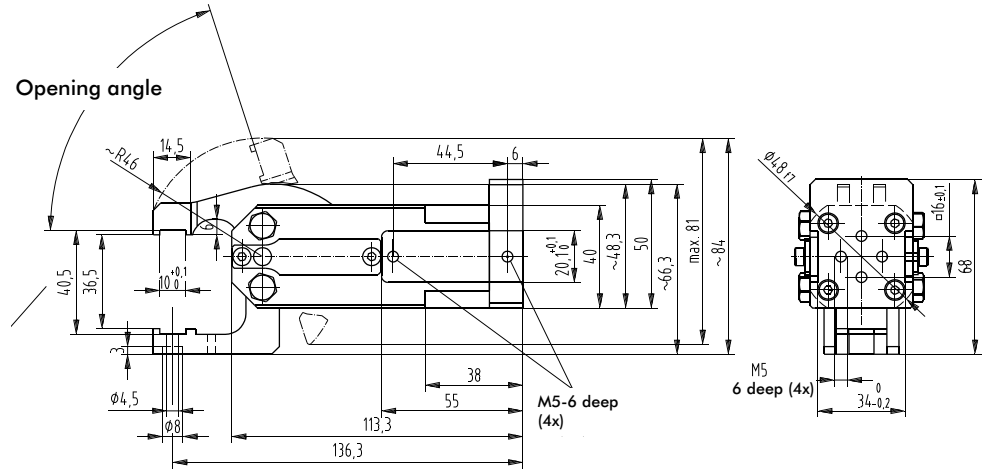


Medium: air, min. 3 bar, max. 6 bar operation with oil-free air is permissible.

Attention!
Concept guidelines to be considered

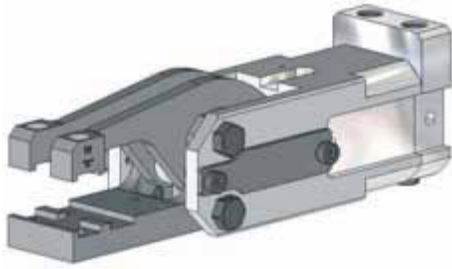
Note!

Addition of the gripper teeth height and thickness must be 20,5 mm. It might be necessary to use shim plates or to grind the gripper teeth.



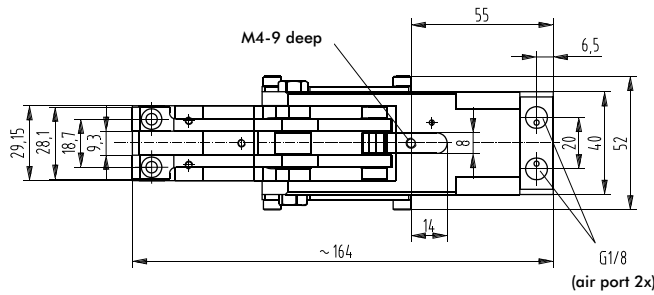
Please order separately accessories such as gripper teeth, sensing and adaptors

Series 84A2-V Product Overview



Model	Opening angle
84A2-V80000000	72°
84A2XV80000000	30°
84A2YV80000000	45°

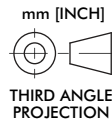
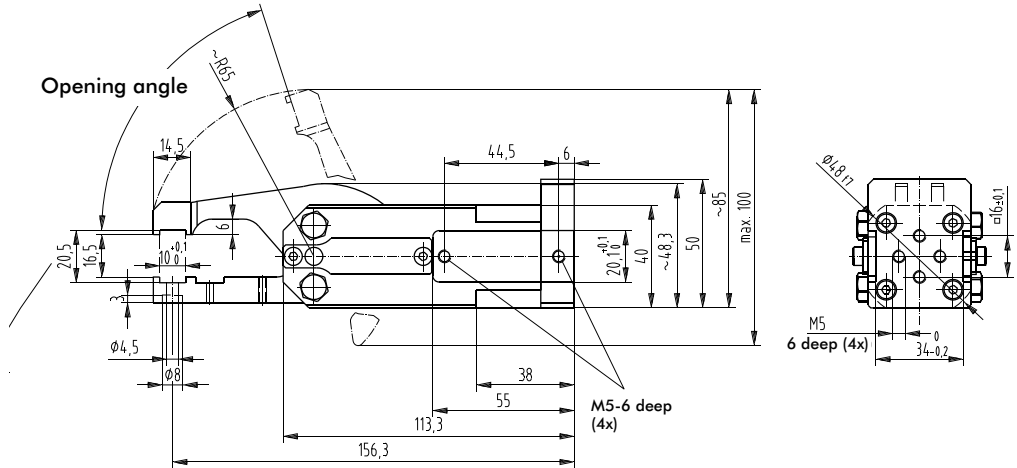
Note!
Any extension of the movable or fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.



Medium: air, min. 3 bar, max. 6 bar operation with oil-free air is permissible.

Attention!
Concept guidelines to be considered

Note!
Addition of the gripper teeth height and thickness must be 20,5 mm. It might be necessary to use shim plates or to grind the gripper teeth.



Please order separately accessories such as gripper teeth, sensing and adaptors

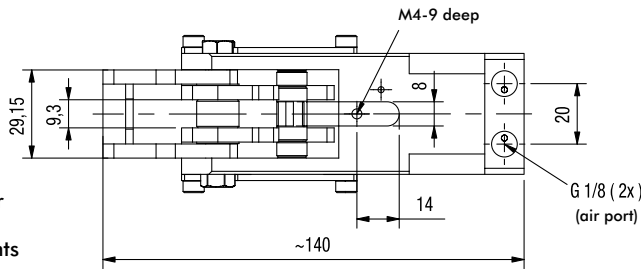
Series 84A2-V Product Overview

Model	Opening angle
84A2-V90000000	45°
84A2XV90000000	30°



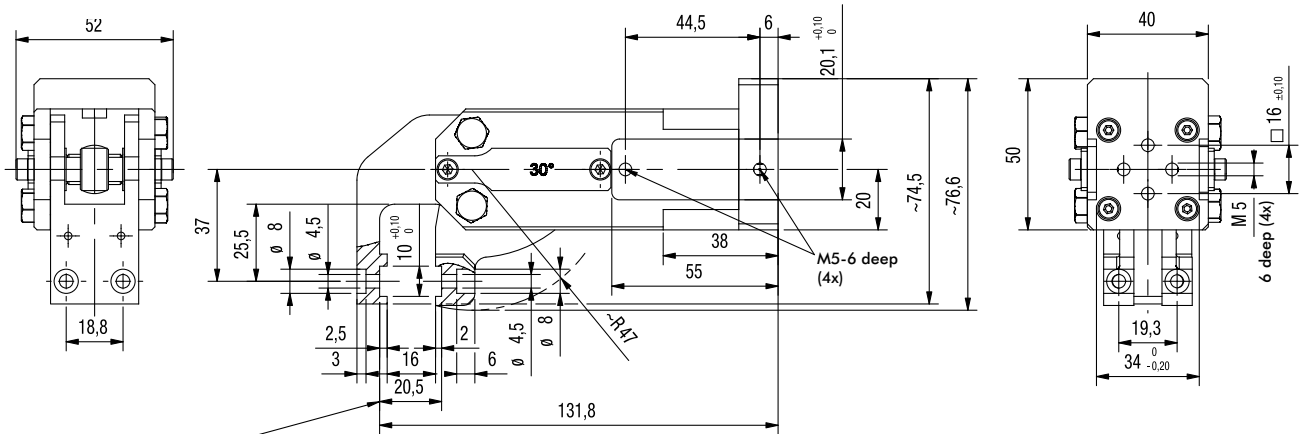
Note!

Any extension of the movable or fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.



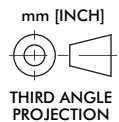
Medium: air, min. 3 bar, max. 6 bar operation with oil-free air is permissible.

Attention!
Concept guidelines to be considered



Note!

Addition of the gripper teeth height and thickness must be 20,5 mm. It might be necessary to use shim plates or to grind the gripper teeth.



Please order separately accessories such as gripper teeth, sensing and adaptors

Series 84A3-3 Product Overview

Picture	Model	Clamping Force at 5 bar N [lbs]	Opening Angle	Weight Kg [lbs]	Opening/closure time min sec.
	84A3-310000000	1500 [337]	76°	1,35 [2.86]	0,2
	84A3X310000000		30°		
	84A3Y310000000		45°		
	84A3Z310000000		60°		
	84A3-320000000	950 [213]	76°	1,6 [3.52]	0,2
	84A3X320000000		30°		
	84A3Y320000000		45°		
	84A3Z320000000		60°		
	84A3-330000000	750 [169]	76°	1,35 [2.97]	0,2
	84A3X330000000		30°		
	84A3Y330000000		45°		
	84A3Z330000000		60°		
	84A3-340000000	1500 [337]	76°	1,3 [2.86]	0,2
	84A3X340000000		30°		
	84A3Y340000000		45°		
	84A3Z340000000		60°		
	84A3-350000000	1500 [337]	76°	1,25 [2.75]	0,2
	84A3X350000000		30°		
	84A3Y350000000		45°		
	84A3Z350000000		60°		
	84A3-360000000	570 [128]	76°	1,55 [3.41]	0,3
	84A3X360000000		30°		
	84A3Y360000000		45°		
	84A3Z360000000		60°		
	84A3-370000000	1800 [404]	76°	1,45 [3.17]	0,2
	84A3X370000000		30°		
	84A3Y370000000		45°		
	84A3Z370000000		60°		
	84A3-380000000	1800 [404]	76°	1,4 [3.08]	0,2
	84A3X380000000		30°		
	84A3Y380000000		45°		
	84A3Z380000000		60°		
	84A3R330000000	750 [169]	76° upper, 15° lower	1,35 [2.97]	0,2
	84A3S330000000		30° upper, 15° lower		
	84A3T330000000		45° upper, 15° lower		
	84A3U330000000		60° upper, 15° lower		
	84A3-390000000	1500 [337]	76°	1,3 [2.86]	0,2
	84A3X390000000		30°		
	84A3Y390000000		45°		
	84A3Z390000000		60°		
	84A3-300000000	1500 [337]	76°	1,4 [3.08]	0,2
	84A3X300000000		30°		
	84A3Y300000000		45°		
	84A3Z300000000		60°		

Accessories see page 17.34

Series 84A3-3 Product Overview

Features:

- small size, low weight
- fast opening and closing action
- high clamping force
- long life cycle
- roller and cam principle, self-locking at end stop position
- add-on component and end position sensing available

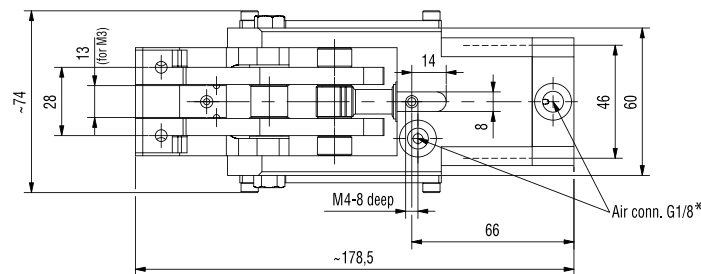
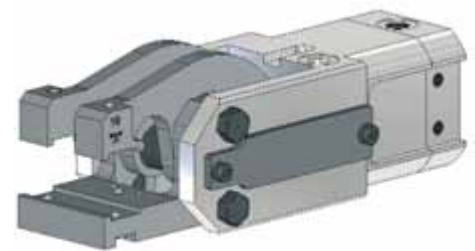
Application:

Gripping, holding, placing, removing and transporting of metal sheets and other parts, mainly in jigs, transfer presses and handling systems.

Key areas of application:

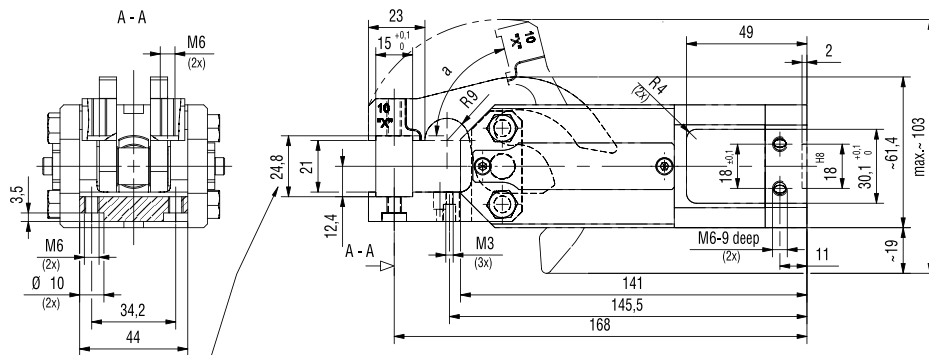
Automotive manufacturing, sheet processing industry, jig and general mechanical engineering.

Model	Opening angle
84A3-310000000	76°
84A3X310000000	30°
84A3Y310000000	45°
84A3Z310000000	60°

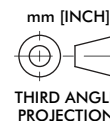
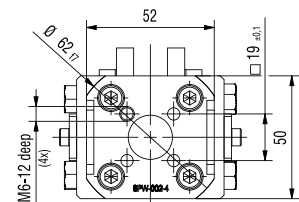


Medium: air, min. 3 bar, max. 6 bar operation with oil-free air is permissible.

Attention!
Concept guidelines to be considered

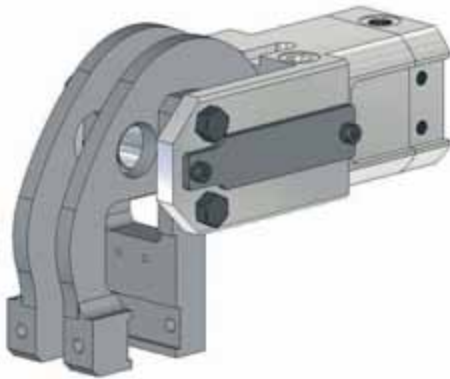


Note!
Addition of the gripper teeth height and thickness of the clamped plate must be 24,8 mm. It might be necessary to use shim plates or to grind the gripper teeth.

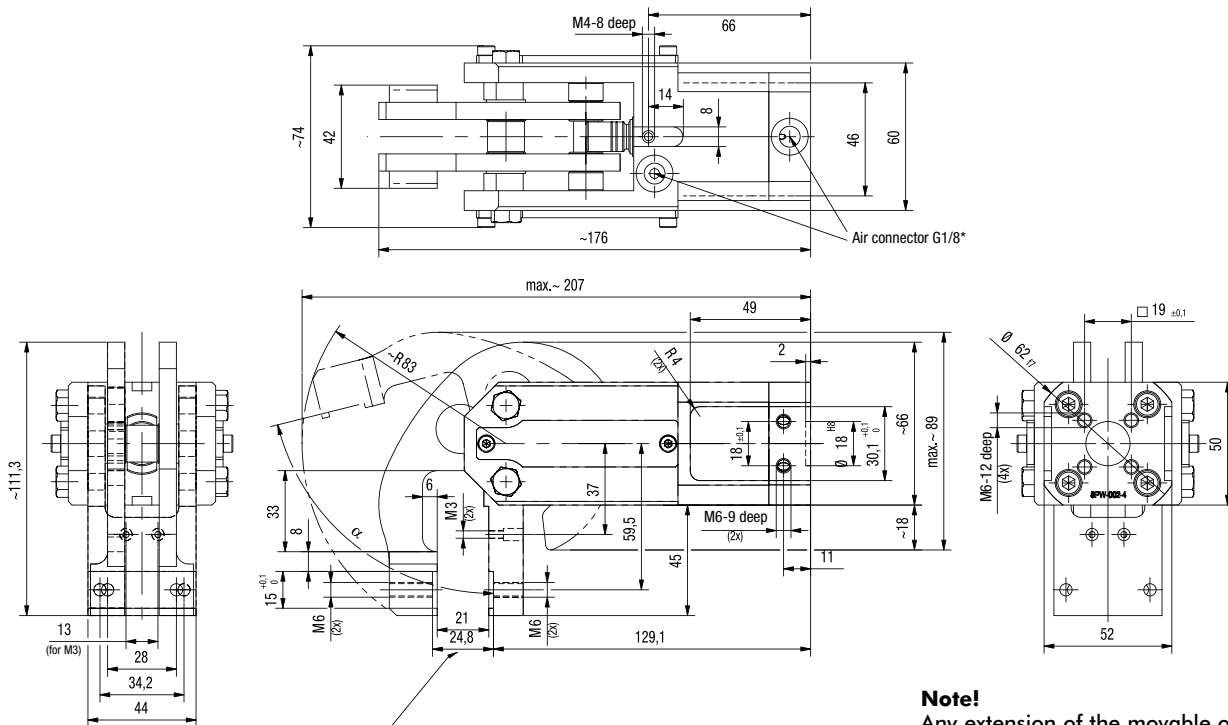


* The values of gripping forces include a safety factor 20%

Series 84A3-3 Product Overview



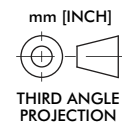
Model	Opening angle
84A3-320000000	76°
84A3X320000000	30°
84A3Y320000000	45°
84A3Z320000000	60°



Note!
 Addition of the gripper teeth height and thickness of the clamped plate must be 24,8 mm. It might be necessary to use shim plates or to grind the gripper teeth.

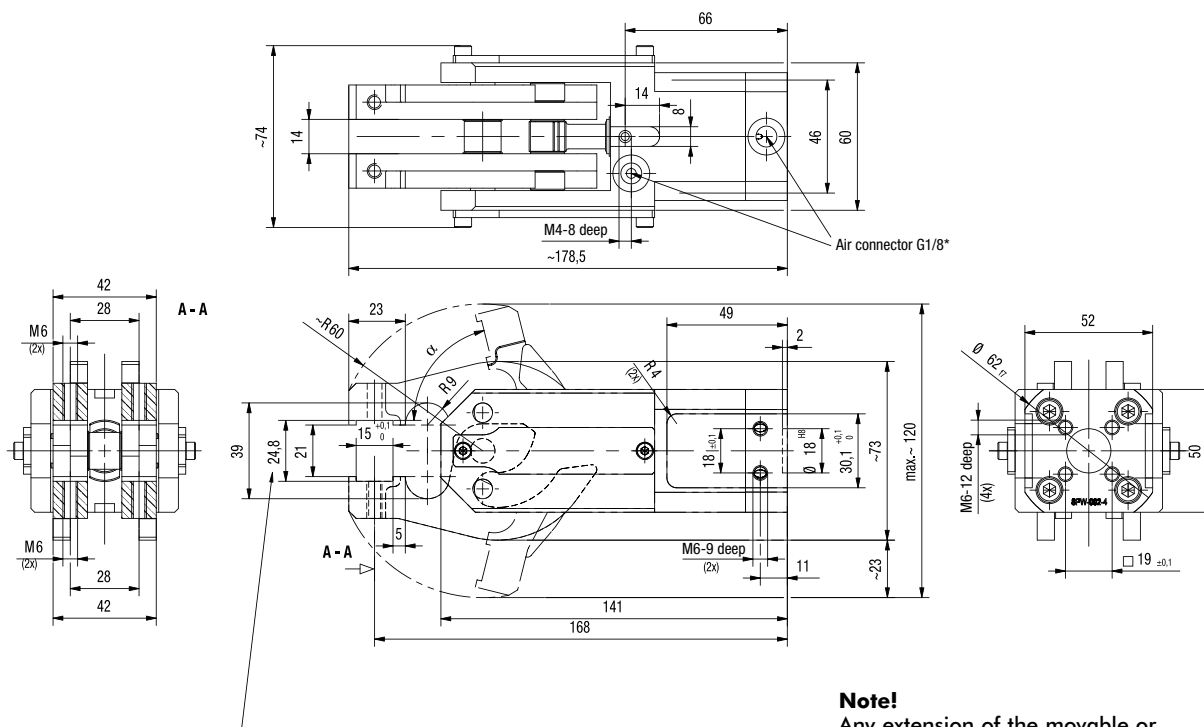
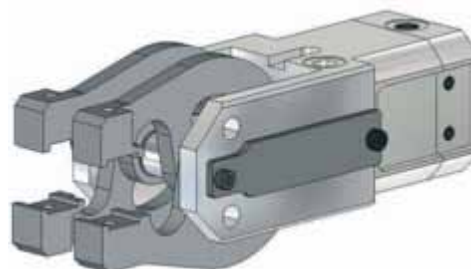
Note!
 Any extension of the movable or fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.

Medium: air, max. 6 bar, operation with oil-free air is permissible.
 Please order separately accessories such as gripper teeth, sensing and adaptors



Series 84A3-3 Product Overview

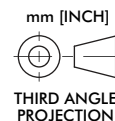
Model	Opening angle
84A3-330000000	76°
84A3X330000000	30°
84A3Y330000000	45°
84A3Z330000000	60°



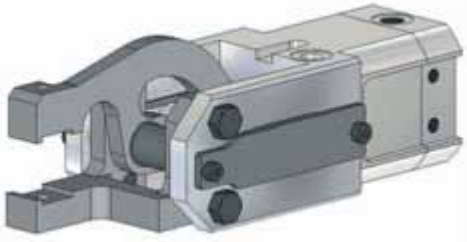
Note!
 Addition of the gripper teeth height and thickness of the clamped plate must be 24,8 mm. It might be necessary to use shim plates or to grind the gripper teeth.

Note!
 Any extension of the movable or fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.

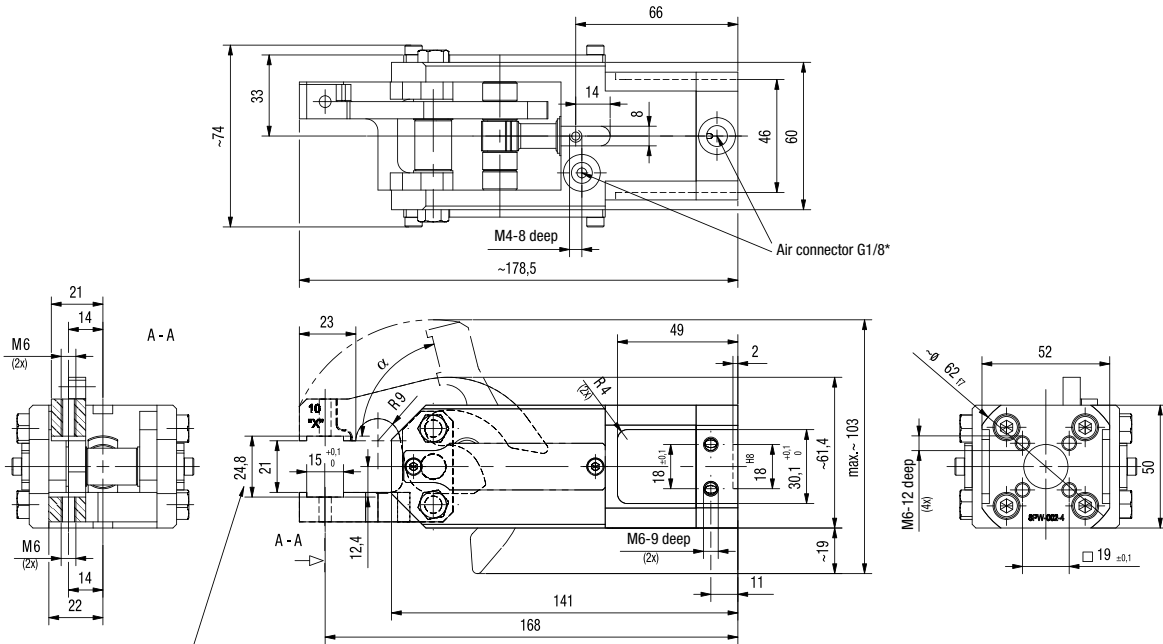
Medium: air, max. 6 bar, operation with oil-free air is permissible.
 Please order separately accessories such as gripper teeth, sensing and adaptors



Series **84A3-3** Product Overview



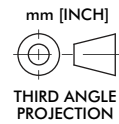
Model	Opening angle
84A3-340000000	76°
84A3X340000000	30°
84A3Y340000000	45°
84A3Z340000000	60°



Note!
 Addition of the gripper teeth height and thickness of the clamped plate must be 24,8 mm. It might be necessary to use shim plates or to grind the gripper teeth.

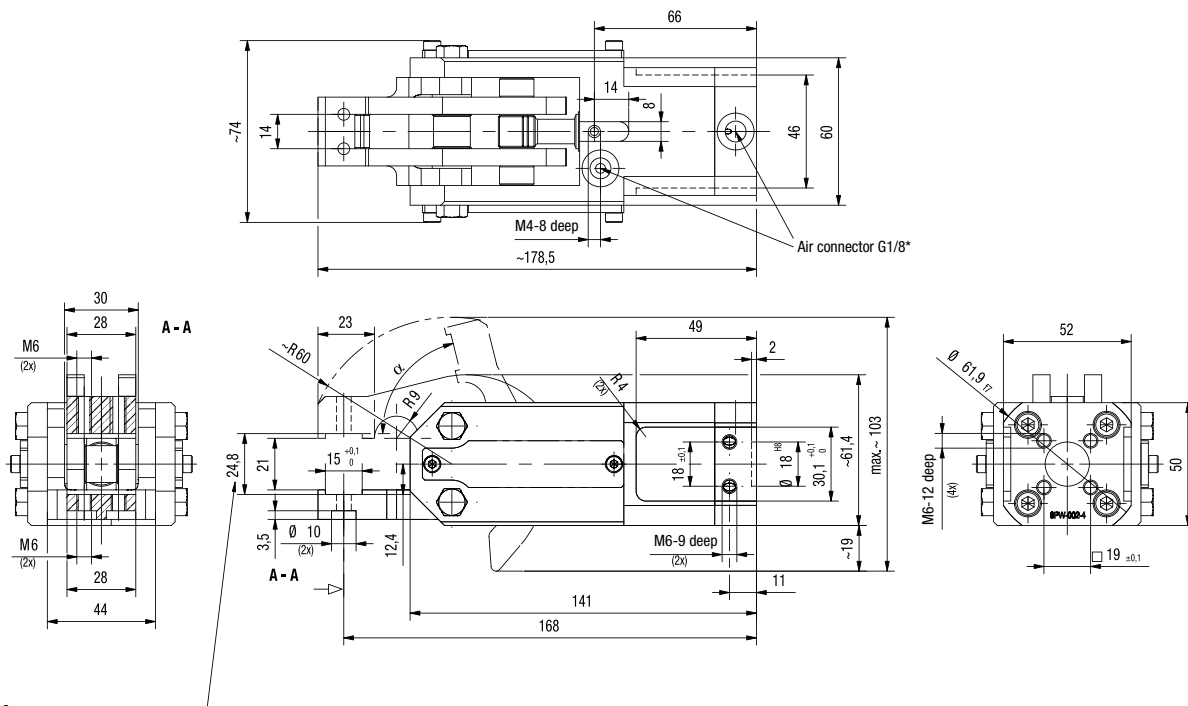
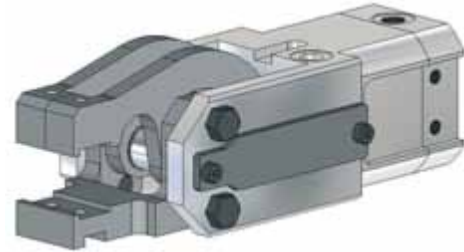
Note!
 Any extension of the movable or fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.

Medium: air, max. 6 bar, operation with oil-free air is permissible.
 Please order separately accessories such as gripper teeth, sensing and adaptors



Series 84A3-3 Product Overview

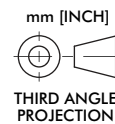
Model	Opening angle
84A3-350000000	76°
84A3X350000000	30°
84A3Y350000000	45°
84A3Z350000000	60°



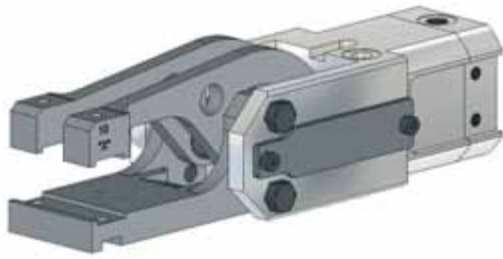
Note!
 Addition of the gripper teeth height and thickness of the clamped plate must be 24,8 mm. It might be necessary to use shim plates or to grind the gripper teeth.

Note!
 Any extension of the movable or fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.

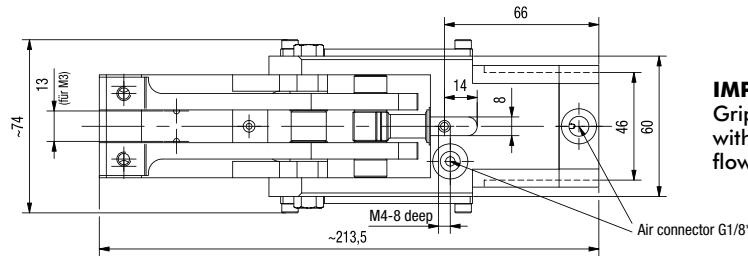
Medium: air, max. 6 bar, operation with oil-free air is permissible.
 Please order separately accessories such as gripper teeth, sensing and adaptors



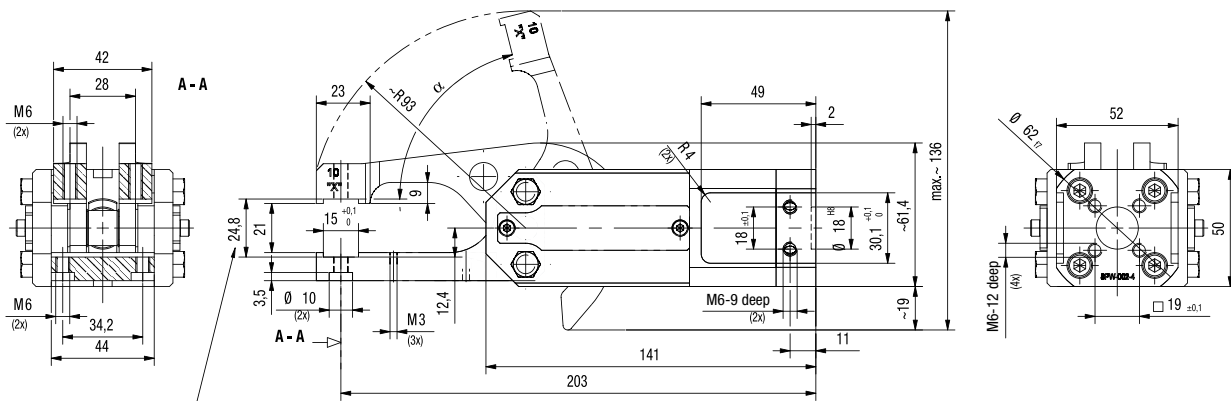
Series 84A3-3 Product Overview



Model	Opening angle
84A3-360000000	76°
84A3X360000000	30°
84A3Y360000000	45°
84A3Z360000000	60°



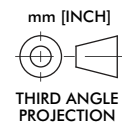
IMPORTANT:
Gripper must only be operated with external pneumatic one way flow control valves



Note!
Addition of the gripper teeth height and thickness of the clamped plate must be 24,8 mm. It might be necessary to use shim plates or to grind the gripper teeth.

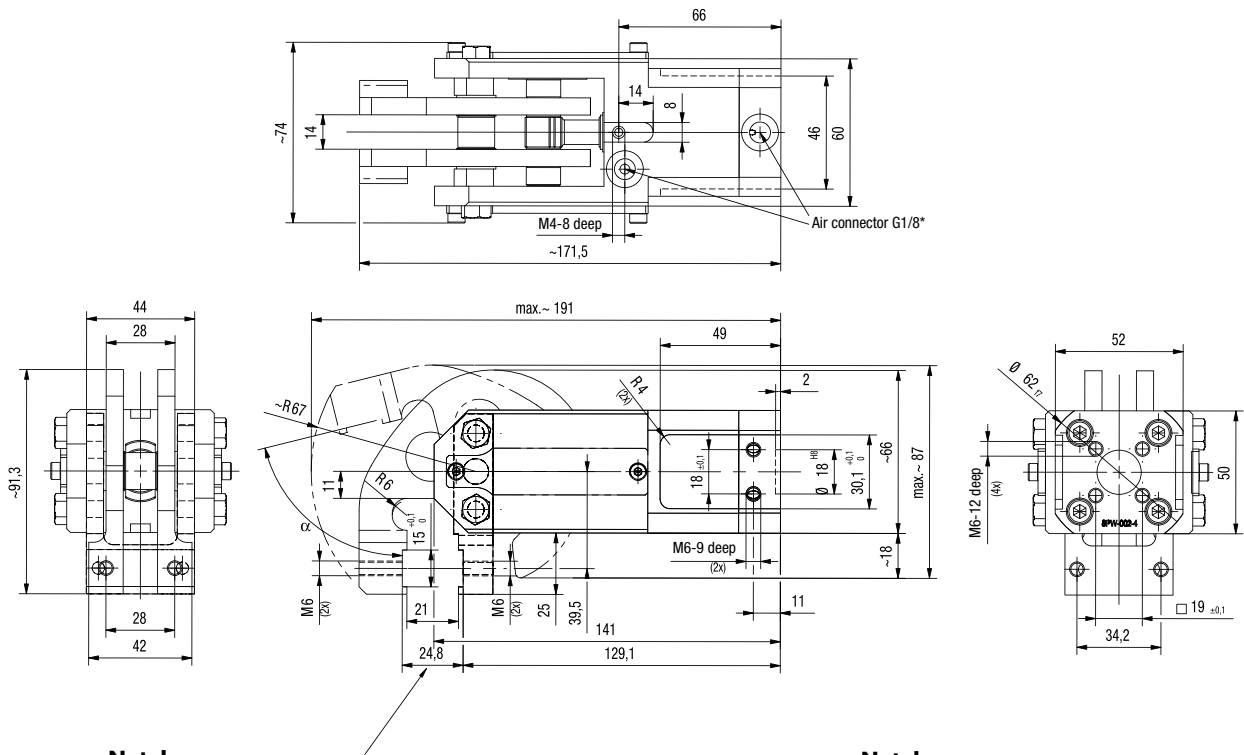
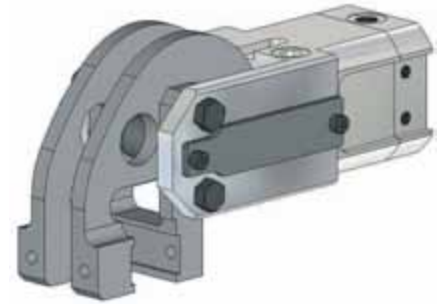
Note!
Any extension of the movable or fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.

Medium: air, max. 6 bar, operation with oil-free air is permissible.
Please order separately accessories such as gripper teeth, sensing and adaptors



Series 84A3-3 Product Overview

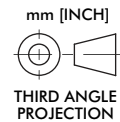
Model	Opening angle
84A3-370000000	76°
84A3X370000000	30°
84A3Y370000000	45°
84A3Z370000000	60°



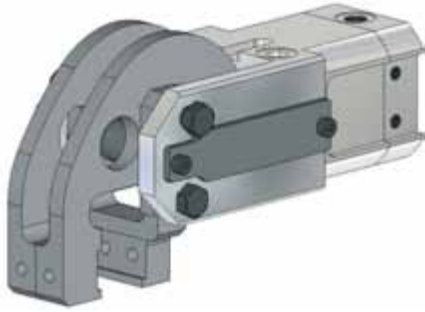
Note!
 Addition of the gripper teeth height and thickness of the clamped plate must be 24,8 mm. It might be necessary to use shim plates or to grind the gripper teeth.

Note!
 Any extension of the movable or fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.

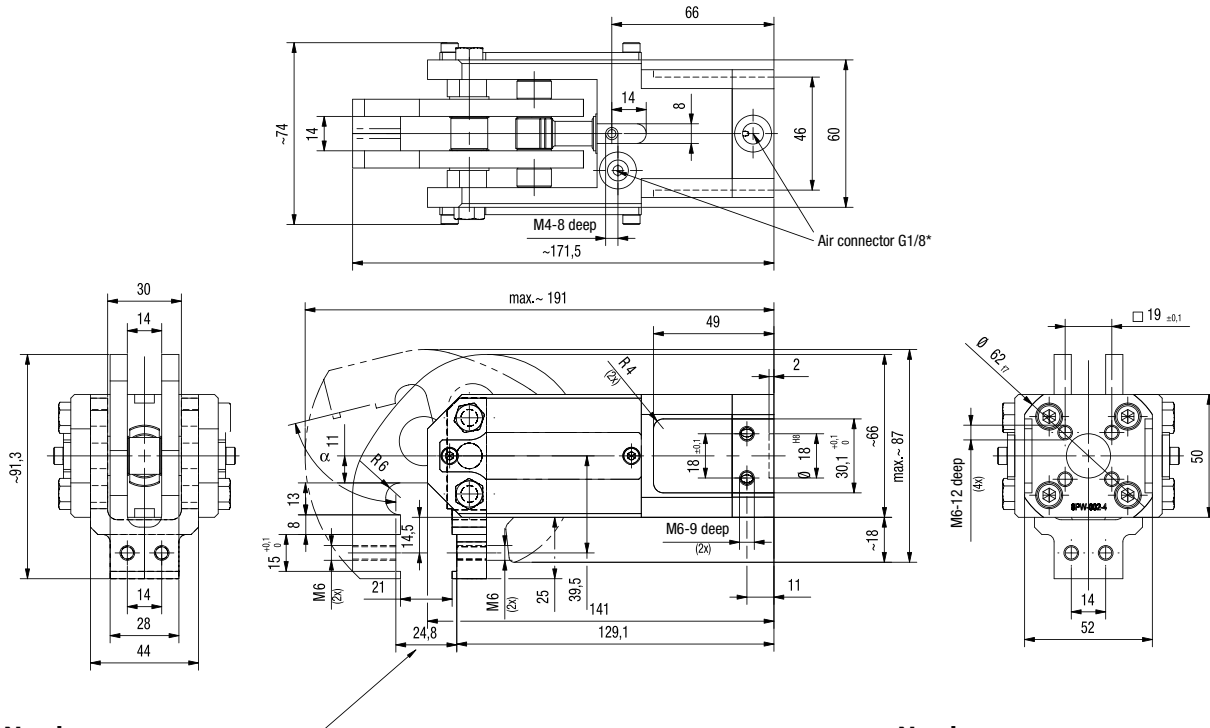
Medium: air, max. 6 bar, operation with oil-free air is permissible.
 Please order separately accessories such as gripper teeth, sensing and adaptors



Series 84A3-3 Product Overview



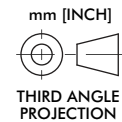
Model	Opening angle
84A3-380000000	76°
84A3X380000000	30°
84A3Y380000000	45°
84A3Z380000000	60°



Note!
 Addition of the gripper teeth height and thickness of the clamped plate must be 24,8 mm. It might be necessary to use shim plates or to grind the gripper teeth.

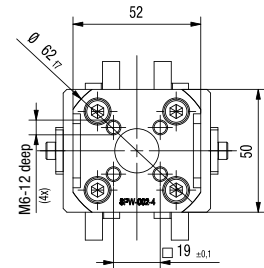
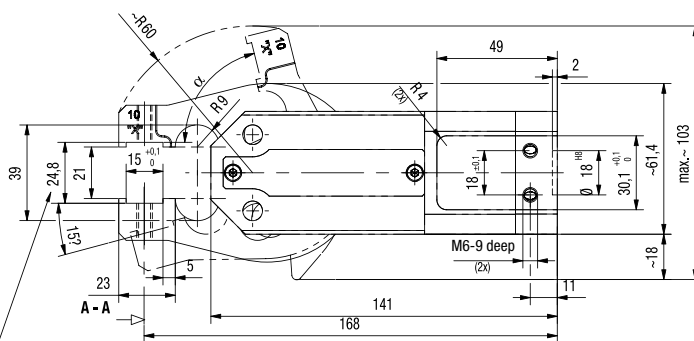
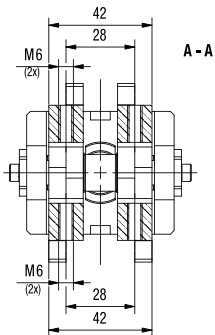
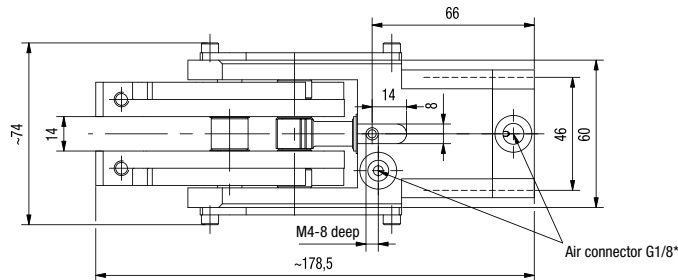
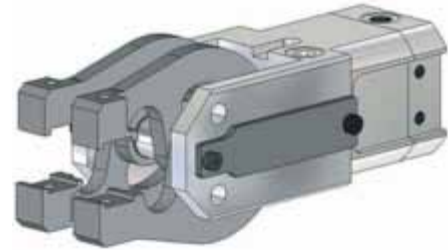
Note!
 Any extension of the movable or fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.

Medium: air, max. 6 bar, operation with oil-free air is permissible.
 Please order separately accessories such as gripper teeth, sensing and adaptors



Series 84A3-3 Product Overview

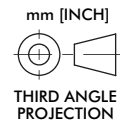
Model	Opening angle	
84A3R330000000	upper 76°	lower 15°
84A3S330000000	upper 30°	lower 15°
84A3T330000000	upper 45°	lower 15°
84A3U330000000	upper 60°	lower 15°



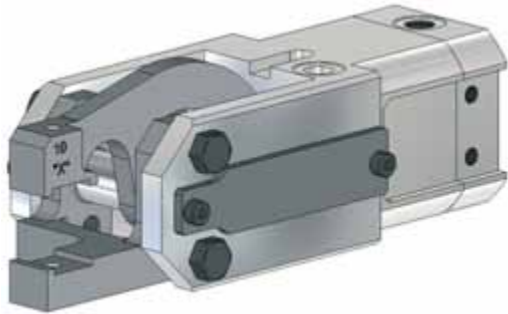
Note!
 Addition of the gripper teeth height and thickness of the clamped plate must be 24,8 mm. It might be necessary to use shim plates or to grind the gripper teeth.

Note!
 Any extension of the movable or fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.

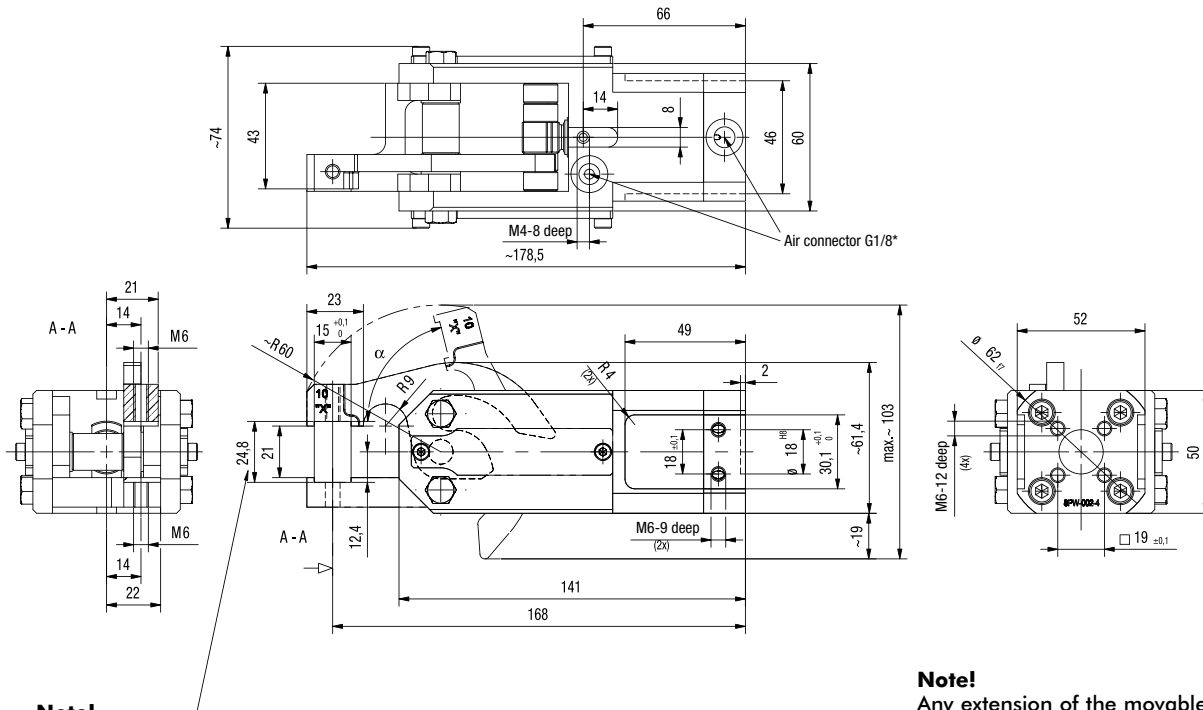
Medium: air, max. 6 bar, operation with oil-free air is permissible.
 Please order separately accessories such as gripper teeth, sensing and adaptors



Series 84A3-3 Product Overview



Model	Opening angle
84A3-390000000	76°
84A3X390000000	30°
84A3Y390000000	45°
84A3Z390000000	60°

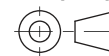


Note!
Addition of the gripper teeth height and thickness of the clamped plate must be 24,8 mm. It might be necessary to use shim plates or to grind the gripper teeth.

Note!
Any extension of the movable or fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.

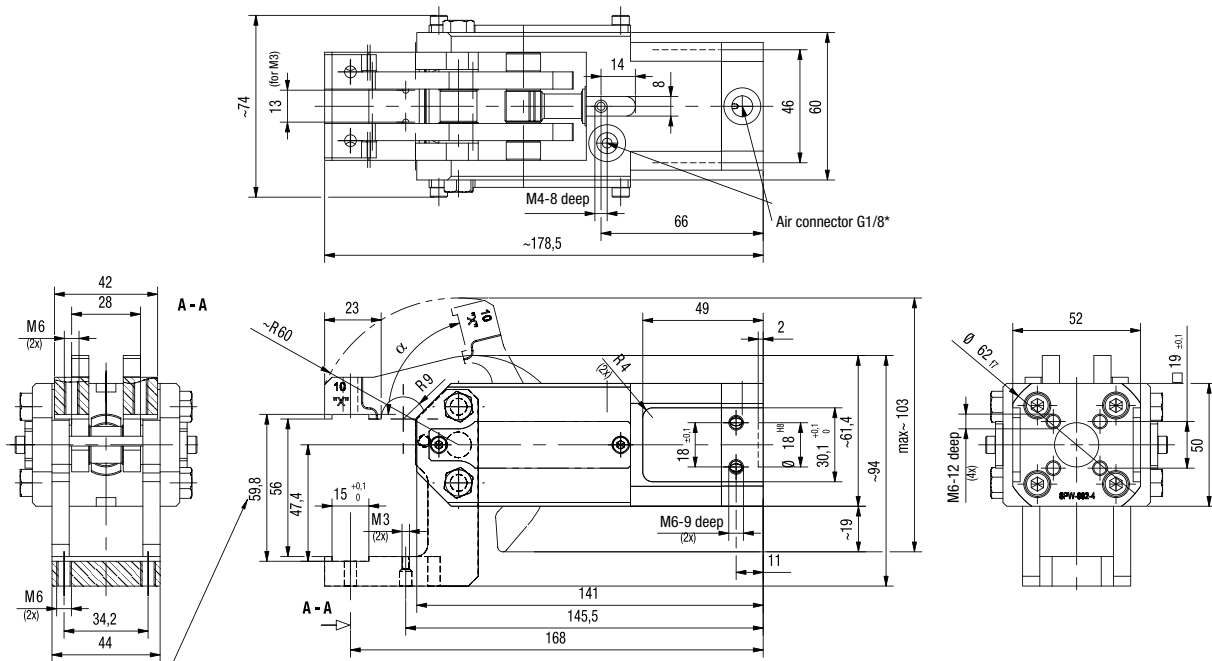
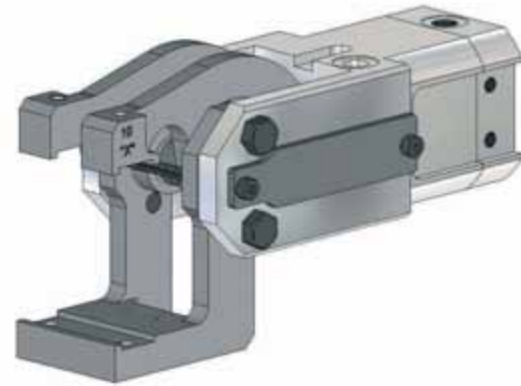
Medium: air, max. 6 bar, operation with oil-free air is permissible.
Please order separately accessories such as gripper teeth, sensing and adaptors

mm [INCH]


 THIRD ANGLE
PROJECTION

Series 84A3-3 Product Overview

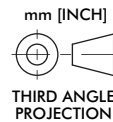
Model	Opening angle
84A3-30000000	76°
84A3X30000000	30°
84A3Y30000000	45°
84A3Z30000000	60°



Note!
 Addition of the gripper teeth height and thickness of the clamped plate must be 59,8 mm. It might be necessary to use shim plates or to grind the gripper teeth.

Note!
 Any extension of the movable or fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.

Medium: air, max. 6 bar, operation with oil-free air is permissible.
 Please order separately accessories such as gripper teeth, sensing and adaptors



Series **84A3-3** Overview of Accessories



Gripper teeth steel

8JZ-014-3
8JZ-001-1
8JZ-003-1



Gripper teeth plastic

8JZ-021-1
8JZ-023-1



Crown teeth

8JZ-016-2
8JZ-018-2

For transfer free of deformation and swarf



Gripper points

8MJ-1001-1
8MJ-1002-1
8MJ-1003-1

Gripper jaw, top: Gripper teeth, Gripper points, Crown teeth – Dimensions see page 17.52



Gripper teeth steel

8JZ-014-3
8JZ-001-1
8JZ-003-1



Gripper teeth plastic

8JZ-021-1



Crown teeth

8JZ-019-1
8JZ-020-3

For transfer free of deformation and swarf

Gripper jaw, bottom: Gripper teeth, Gripper points, Crown teeth – Dimensions see page 17.52



8MA-006-1



8MA-273-1



8MH-046-1



82ZB-007-1



82ZB-033-2

Adapters / Limit stops – Dimensions see page 17.55



8EA-092-1
workplace control
switching distance
7 mm



8EA-087-1
workplace control



8EA-022-4
Position control
set Mounting left or
right side for opening
angle 76°



Shims for workplace
control A5/A7
ordering-no.:
8MB-003-1
(to be ordered
separately)

Sensing systems – Dimensions see page 17.58

Accessories

Specification	Order no. for 84A3
Connector (1 connector socket & 5 m cable)	
Connector socket M12x1, straight, 5-pin	8EL-002-1
Connector socket M12x1, angular, 4-pin	8EL-003-1
Opening angle limitation spacer (2 pcs required)	
60°	8MF-046-1
45°	8MF-039-1
30°	8MF-045-1

Major spare parts

Specification	Order no. for 84A3
Cylinder	8PW-002-4
Seal kit	8PW-002-2-00

Accessories: sensing systems

Gripper	Sensors	Sensing systems			Accessories
		8EA-092-1	8EA-087-1	8EA-022-4*	8MB-003-1
		Switching distance 8 mm	Angle sensor	End position sensing	Shims
84A3_310000000		●	●	●	●
84A3_320000000		●	●	●	●
84A3_330000000			●	●	
84A3_340000000			●	●	
84A3_350000000			●	●	
84A3_360000000		●	●	●	●
84A3_370000000			●	●	
84A3_380000000			●	●	
84A3_390000000			●	●	
84A3_300000000		●	●	●	●

* Only for opening angle 76°

Accessories: gripper teeth

Gripper teeth	Steel		Plastic		Crown teeth (For transfer free of deformation and swarf)				Gripper points			Shims	
	8JZ-014-3	8JZ-001-1	8JZ-003-1	8JZ-021-1	8JZ-023-1	8JZ-016-2	8JZ-018-2	8JZ-019-1	8JZ-020-3	8MJ-1001-1	8MJ-1002-1		8MJ-1003-1
84A3_31..	bottom	●			●			●	●				●
	top	●			●		●	●		●	●	●	●
84A3_32..	bottom	●			●			●	●				●
	top	●			●		●			●	●	●	●
84A3_33..	bottom	●	●		●					●	●	●	●
	top	●	●		●					●	●	●	●
84A3_34..	bottom	●	●							●	●	●	●
	top	●								●	●	●	●
84A3_35..	bottom	●	●							●	●	●	●
	top	●								●	●	●	●
84A3_36..	bottom	●			●			●	●				●
	top	●			●		●			●	●	●	●
84A3_37..	bottom	●			●			●	●				●
	top				●		●			●	●	●	●
84A3_38..	bottom		●										●
	top									●	●	●	●
84A3_39..	bottom		●										●
	top									●	●	●	●
84A3_30..	bottom				●			●	●				●
	top				●		●			●	●	●	●

Steel gripper teeth	Depth of tooth
8JZ-014-3	12,00
8JZ-006-1	11,9
8JZ-001-1	14,00
8JZ-025-1	11,90
8JZ-003-1	9,80
8JZ-005-1	9,80

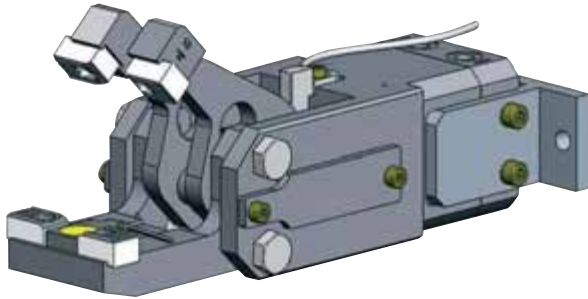
Plastic gripper teeth	Depth of tooth
8JZ-021-1	13,00
8JZ-023-1	13,00

Gripper points	M6 length of thread
8MJ-1001	25,4
8MJ-1002	25,4
8MJ-1003	25,4

Crown teeth	Depth of tooth	for material thickness
8JZ-016-2	9,80	0,8 – 1,0
8JZ-018-2	9,30	1,3 – 1,5
8JZ-019-1	13,20	./.
8JZ-020-3	13,20	

Series **84A5-1** Product Overview

Model: **84A5-11GNAAAAA**














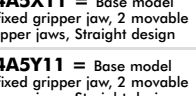


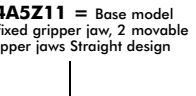




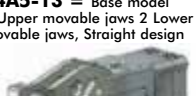
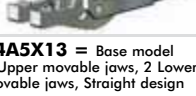
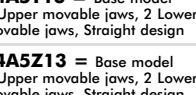
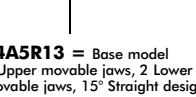

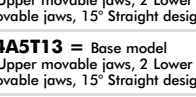
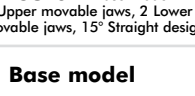

Application:

Gripping, Holding, Placing, Removing and Transporting of metal sheets and other parts, mainly in jigs, press-automation and handling systems.

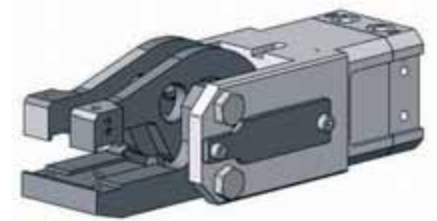
Features:

- Compact modular design
- Mounting areas lateral and rear
- fast opening and closing action
- high clamping force
- sensor available

Order no. Example: **84A5 - 11 A8 A AA AA**

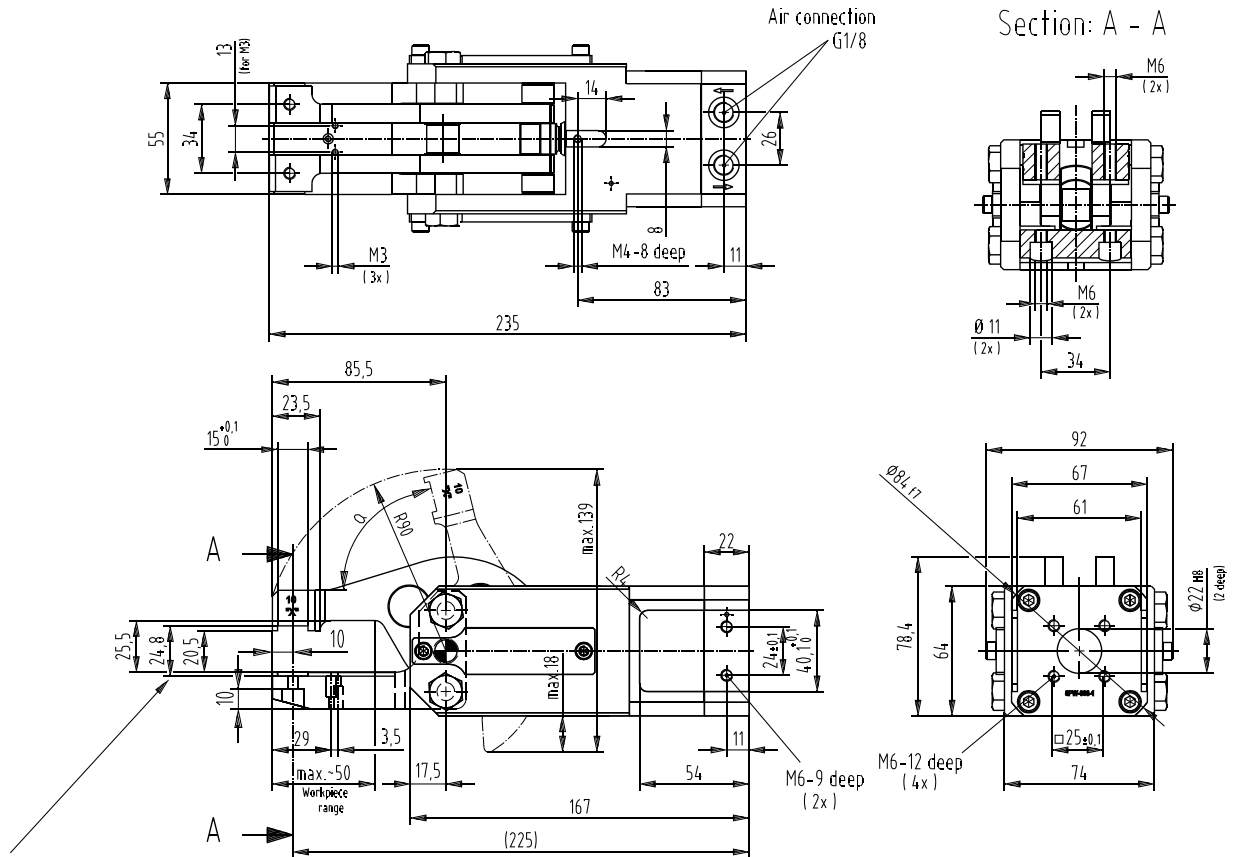
Opening angle Standard -76° 30° 45° 60°	84A5-11 = Base model 1 fixed gripper jaw, 2 movable gripper jaws, Straight design 	00 = without sensing system A8 = 8EA-092-1 workplace control switching distance 7mm for 84A5-11  D5 = 8EA-087-1 double blank detector  GK = combination 2 x D5  GN = combination A8 + D5  Sensing system Shims for workplace control A8 ordering-no.: 8MB-003-1 to be ordered separately 	0 = without accessories A = 8MA-006-1  Accessories	gripper teeth: steel 00 = without  AA = 8JZ-014-3 	gripper teeth: steel 00 = without  AA = 8JZ-014-3 
	84A5X11 = Base model 1 fixed gripper jaw, 2 movable gripper jaws, Straight design 			gripper teeth: plastic KA = 8JZ-021-1 	gripper teeth: plastic KA = 8JZ-021-1 
	84A5Y11 = Base model 1 fixed gripper jaw, 2 movable gripper jaws, Straight design 			Lower gripper teeth Upper gripper teeth/gripper points gripper points: PA = 8MJ-1001-1  PB = 8MJ-1002-1  PC = 8MJ-1003-1 	Shims for gripper teeth ordering-no.: 8SB-003-1 to be ordered separately Dimension: 14,8 x 13 x 0,15 mm 
	84A5Z11 = Base model 1 fixed gripper jaws Straight design 				
	84A5-13 = Base model 2 Upper movable jaws 2 Lower movable jaws, Straight design 				
	84A5X13 = Base model 2 Upper movable jaws, 2 Lower movable jaws, Straight design 				
84A5Y13 = Base model 2 Upper movable jaws, 2 Lower movable jaws, Straight design 					
84A5Z13 = Base model 2 Upper movable jaws, 2 Lower movable jaws, Straight design 					
84A5R13 = Base model 2 Upper movable jaws, 2 Lower movable jaws, 15° Straight design 	Base model				
84A5S13 = Base model 2 Upper movable jaws, 2 Lower movable jaws, 15° Straight design 					
84A5T13 = Base model 2 Upper movable jaws, 2 Lower movable jaws, 15° Straight design 					
84A5U13 = Base model 2 Upper movable jaws, 2 Lower movable jaws, 15° Straight design 					

Series 84A5-1 Technical Information



84A5-11000000

Model	Gripping force at 5 bar N [lbs]	Piston Ø mm [in]	Air consumption per double stroke at 5 bar dm ³ [ft ³]	Weight ~ Kg [lbs]	Min Opening time sec.	Min Closure time sec.
84A5-11...	2000 [449]	50 [1.97]	0,66 [0.02]	2,8 [6.16]	0,6	0,6



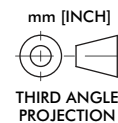
Note!

Addition of gripper teeth height and thickness of the clamped plate must be 24,8 mm. It might be necessary to use shim plates or grind the gripper teeth.

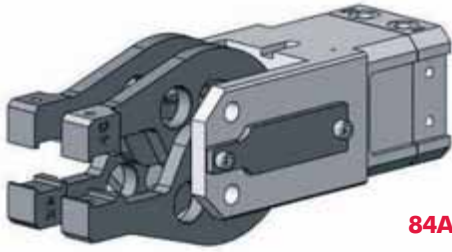
Note!

Any extension of the movable, or the fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.

Medium air, max. 6 bar
Operation with oil-free air is permissible.

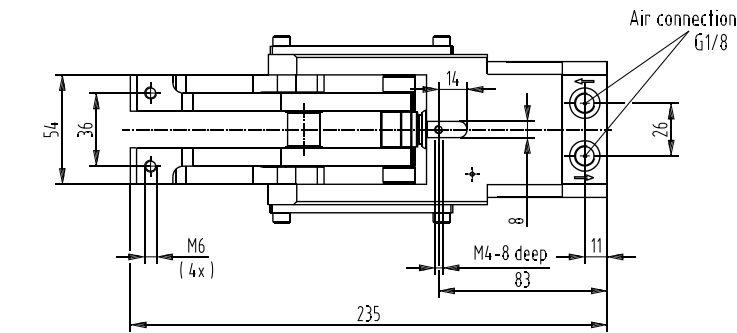


Series **84A5-1** Technical Information

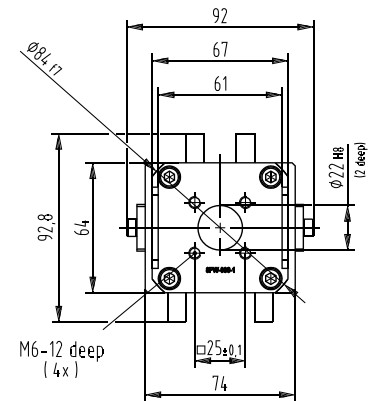
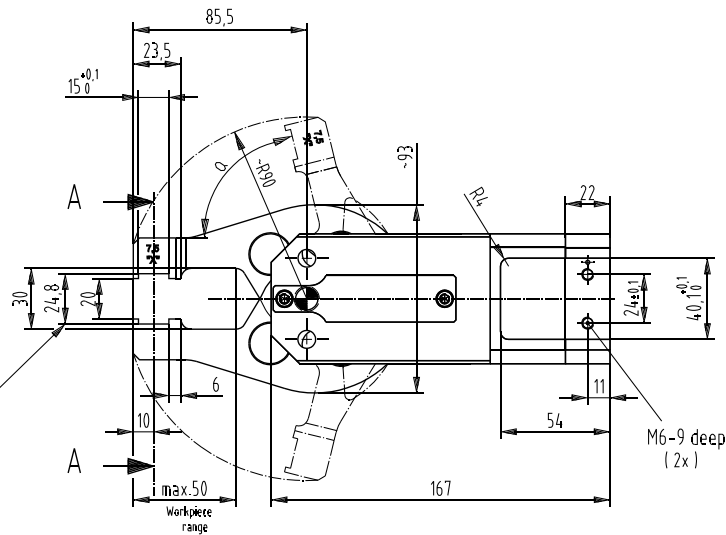
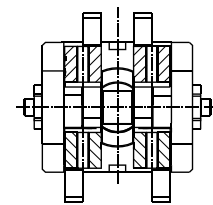


84A5-13000000

Model	Gripping force at 5 bar N [lbs]	Piston Ø mm [in]	Air consumption per double stroke at 5 bar dm ³ [ft ³]	Weight ~ Kg [lbs]	Min Opening time sec.	Min Closure time sec.
84A5-13...	1200 [270]	50 [1.97]	0,66 [0.02]	2,8 [6.16]	0,6	0,6



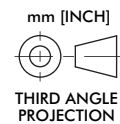
Section: A - A



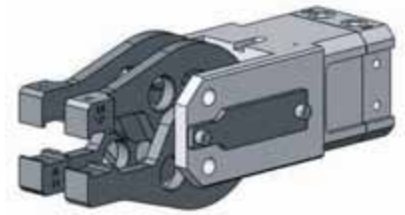
Note!
Addition of gripper teeth height and thickness of the clamped plate must be 24,8 mm. It might be necessary to use shim plates or grind the gripper teeth.

Note!
Any extension of the movable, or the fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.

Medium air, max. 6 bar
Operation with oil-free air is permissible.

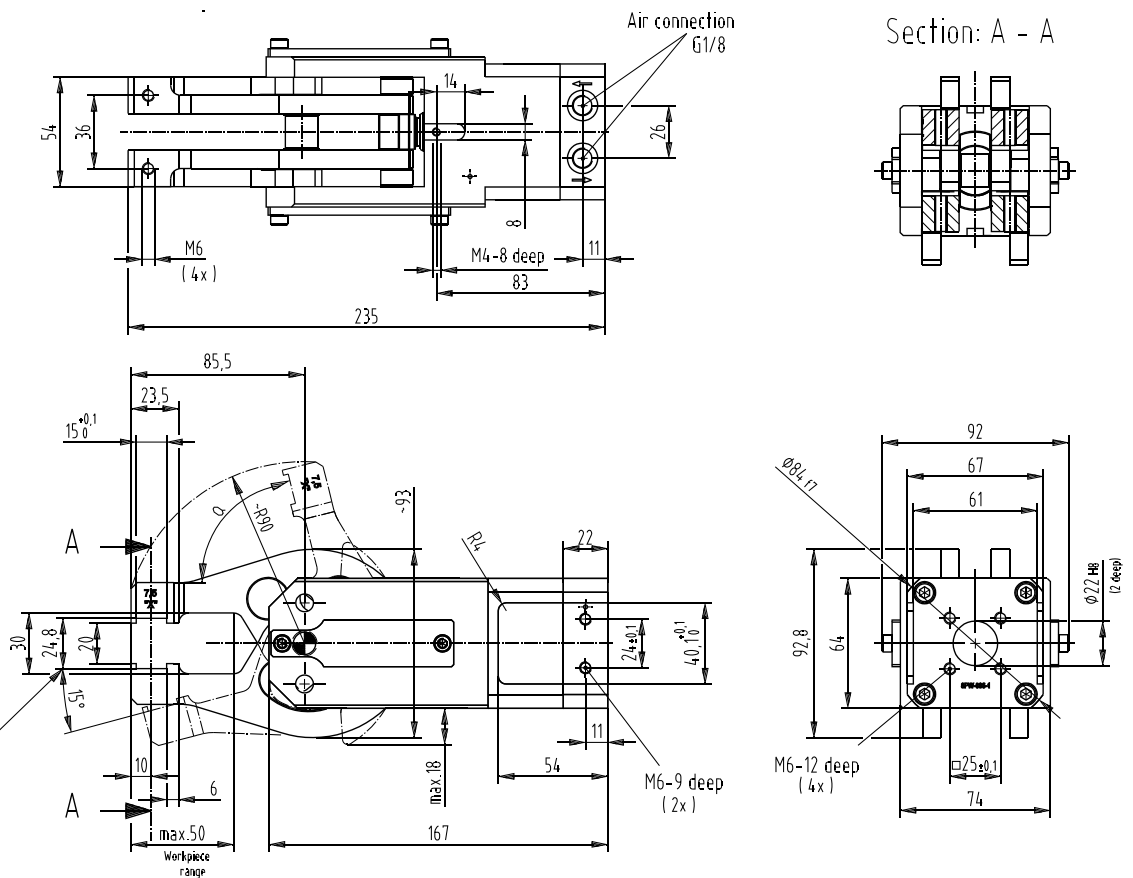


Series 84A5-1 Technical Information



84A5-R13000000

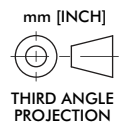
Model	Gripping force at 5 bar N [lbs]	Piston Ø mm [in]	Air consumption per double stroke at 5 bar dm ³ [ft ³]	Weight ~ Kg [lbs]	Min Opening time sec.	Min Closure time sec.
84A5-R13...	1200 [270]	50 [1.97]	0,66 [0.02]	2,8 [6.16]	0,6	0,6



Note!
Addition of gripper teeth height and thickness of the clamped plate must be 24,8 mm. It might be necessary to use shim plates or grind the gripper teeth.

Note!
Any extension of the movable, or the fixed gripper jaws as well as the additional attachment of weights will repeat the guarantee.

Medium air, max. 6 bar
Operation with oil-free air is permissible.

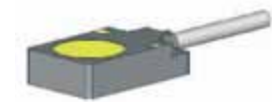


Series **84A5-1** Technical Information

Possible combinations – Gripper teeth/Pins for Cam type gripper **Series 84A5-11**

Gripper teeth / Pins above

		8JZ-014-3	8JZ-021-1	8MJ-1001-1	8MJ-1002-1	8MJ-1003-1
Gripper teeth / Pins below	8JZ-014-3	with sensor without sensor	with sensor without sensor	with sensor without sensor	with sensor without sensor	with sensor without sensor
	8JZ-021-1	without sensor	without sensor	without sensor	without sensor	without sensor
	8MJ-1001-1	without sensor	without sensor	without sensor	without sensor	without sensor
	8MJ-1002-1	without sensor	without sensor	without sensor	without sensor	without sensor
	8MJ-1003-1	without sensor	without sensor	without sensor	without sensor	without sensor



sensor for workplace
8EA-092-1



8JZ-014-3
steel



8JZ-021-1
plastic



8MJ-1001-1
steel



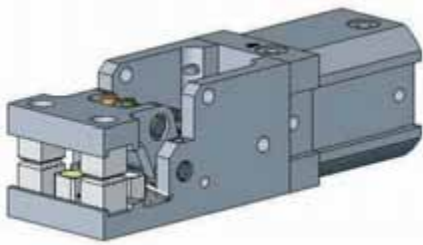
8MJ-1002-1
steel



8MJ-1003-1
steel

mounting "M6"

Series **84L2-1** Product Overview



Application:

Gripping, Holding, Placing, Removing and Transporting of metal sheets and other parts, mainly in jigs, press-automation and handling systems.

Features:

- Compact modular design
- Fast opening and closing action
- Mounting lateral and rear possible
- High clamping force
- Interchangeable in mounting dimensions with 84A2-1
- Add-on component and end position sensing available

Order no. Example: **84L2 - 11 D4 0 BA BA**

84L2-11 = Base model straight design



84L2-14 = Base model small, right version



84L2-16 = Base model small, left version



Base model

00 = without sensing system

D4 = 8EA-075-2 switching distance 3,0 mm with 2m cable



D7 = 8EA-075-3 switching distance 3,0 mm with plug M12 x 1



Sensing system

0 = without adapter/accessories

I = 8MA-165-1 – Ø20 mm
J = 8MA-166-1 – Ø25 mm
Z = 8MA-168-1 – Ø 1"



V = 8MA-147-1



W = 82ZB-025-2



Adapter

00 = without gripper teeth

BA = 8JZ-027-1 10x10x10 Steel



BB = 8JZ-028-1 10x10x10 Steel



KF = 8JZ-045-1 10x10x10 PU-90 Shore plastic




Gripper teeth steel/ plastic, lower

Shims for gripper teeth
ordering-no.: 8SB-003-1
 (to be ordered separately)
 Dimensions: 10 x 10 x 0,1 mm




00 = without Gripper teeth/points


BA = 8JZ-027-1 10x10x10 Steel




BB = 8JZ-028-1 10x10x10 Steel



KF = 8JZ-045-1 10x10x10 PU-90 Shore plastic

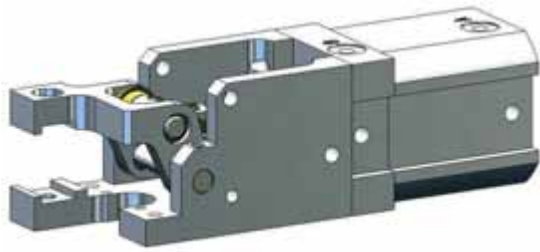


PH = 8JZ-029-1 Steel



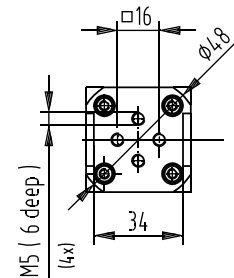
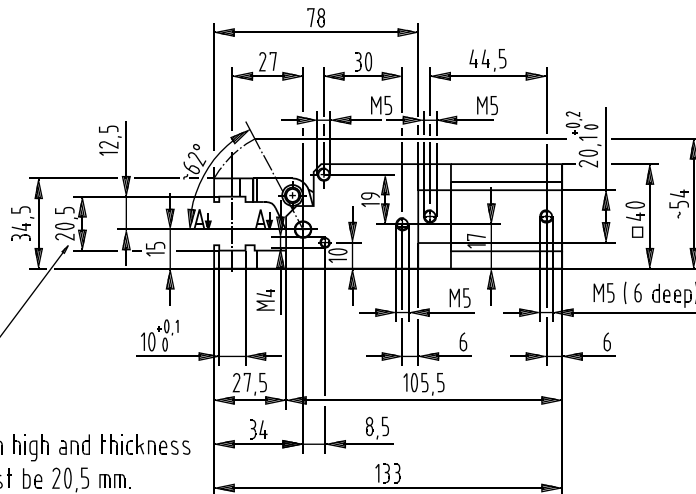
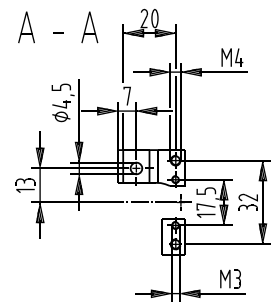
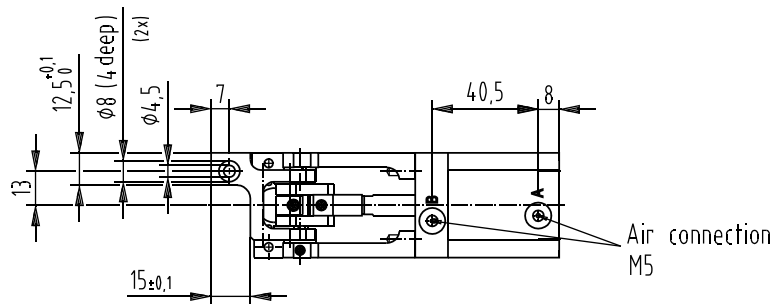
Gripper teeth/points steel/ plastic, upper

Series 84L2-1 Technical Information



84L2-14000000

Model	Gripping force at 5 bar N [lbs]	Piston Ø mm [in]	Air consumption per double stroke at 5 bar dm ³ [ft ³]	Weight ~ Kg [lbs]	Min Opening time sec.	Min Closure time sec.
84L2-14...	74 [17]	25 [0.98]	0,19 [0.01]	0,37 [0.81]	0,2	0,2

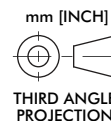


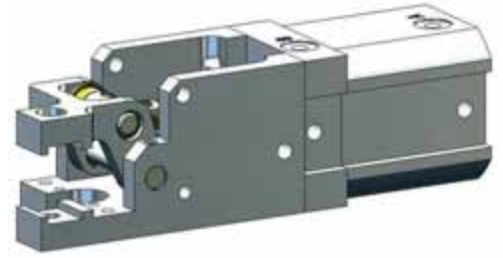
Note!
Addition of gripper teeth high and thickness of the clamped plate must be 20,5 mm.
If might be necessary to use shim plates or of grind the gripper teeth.

Note!
Any extension of the movable, or the fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.

Medium air, max. 6 bar
Operation with oil-free air is permissible.

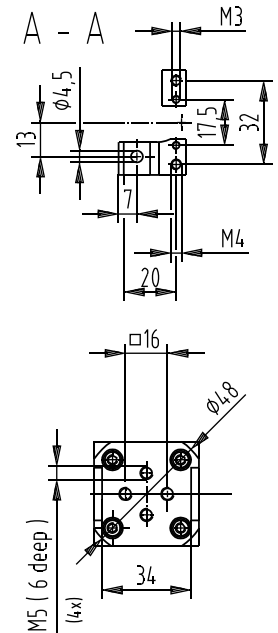
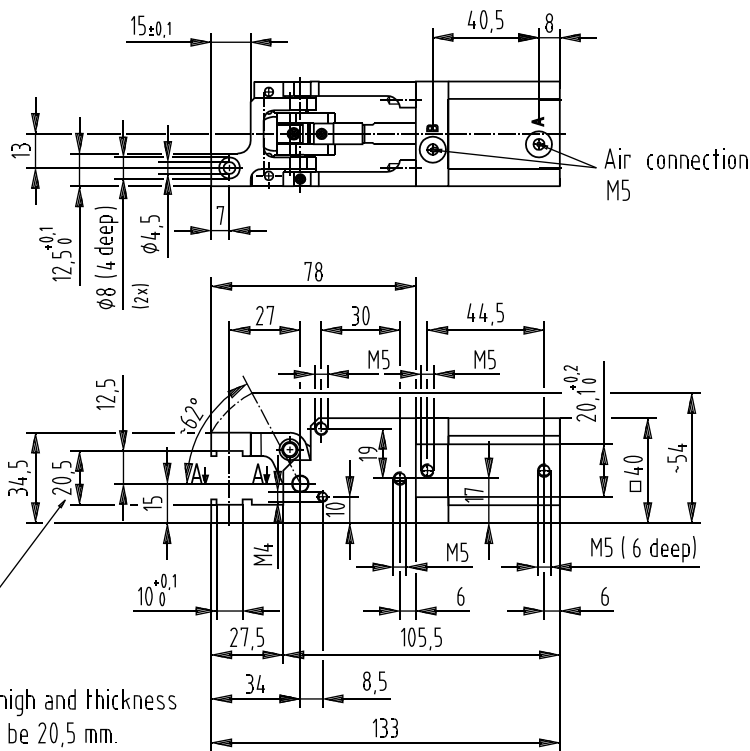
Turning cyl.-air connection possible in 4 x 90° increments.





84L2-16000000

Model	Gripping force at 5 bar N [lbs]	Piston Ø mm [in]	Air consumption per double stroke at 5 bar dm³ [ft³]	Weight ~ Kg [lbs]	Min Opening time sec.	Min Closure time sec.
84L2-16...	74 [17]	25 [0.98]	0,19 [0.01]	0,37 [0.81]	0,2	0,2

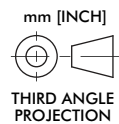


Note!
Addition of gripper teeth high and thickness of the clamped plate must be 20,5 mm.
If might be necessary to use shim plates or of grind the gripper teeth.

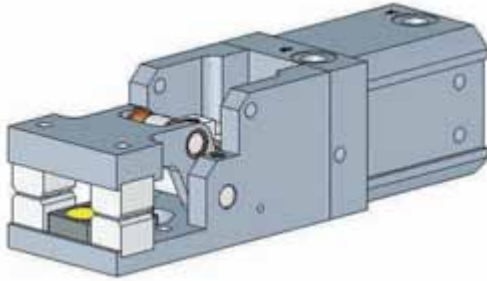
Note!
Any extension of the movable, or the fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.

Medium air, max. 6 bar
Operation with oil-free air is permissible.

Turning cyl.-air connection possible in 4x 90° increments.



Series **84L3-2** Product Overview






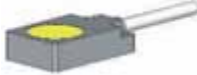















Application:

Gripping, Holding, Placing, Removing and Transporting of metal sheets and other parts, mainly in jigs, press-automation and handling systems.

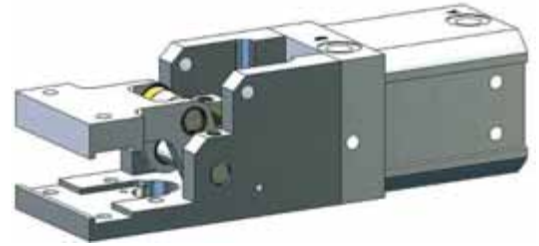
Features:

- Compact modular design
- Fast opening and closing action
- Mounting lateral and rear possible
- High clamping force
- Interchangeable in mounting dimensions with 84A3-3
- Add-on component and end position sensing available

Order no. Example: **84L3 - 21 A8 0 AC AC**

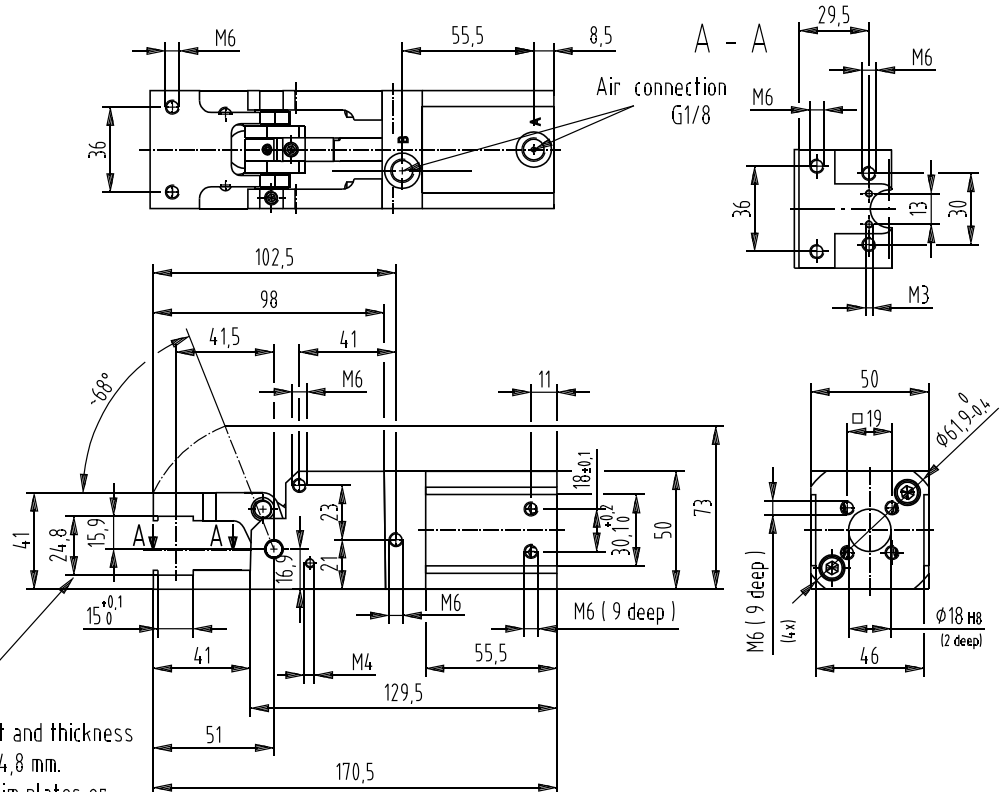
<p>84L3-21 = Base model straight design</p>  <p>84L3-24 = Base model small, right version</p>  <p>84L3-26 = Base model small, left version</p>  <p>Base model</p>	<p>00 = without sensing system</p> <p>A8 = 8EA-092-1 Workpiece control switching distance 7mm 2m cable, open wire</p>  <p>A9 = 8EA-092-2 Workpiece control switching distance 7mm plug M12 x 1, 3 pin</p>  <p>Sensing system</p> <p>Shims for workpiece control A8 + A9 ordering-no.: 8MB-003-1 to be ordered separately</p> 	<p>0 = without adapter / accessories</p> <p>A = 8MA-006-1</p>  <p>S = 82ZB-007-1</p>  <p>X = 82ZB-033-2</p>  <p>Adapter</p>	<p>00 = without gripper teeth</p> <p>AA = 8JZ-014-3 15x21x12</p>  <p>AC = 8JZ-043-1 15x14x12</p>  <p>AG = 8JZ-050-1 15x14x12</p>  <p>Gripper teeth steel, lower</p> <p>Shims for gripper teeth ordering-no.: 8SB-003-1 to be ordered separately Dimension: 14,8 x 13 x 0,15 mm</p> 	<p>00 = without Gripper teeth / points</p> <p>AA = 8JZ-014-3 15x21x12</p>  <p>AC = 8JZ-043-1 15x14x12</p>  <p>AG = 8JZ-050-1 15x14x12</p>  <p>PA = 8MJ-1001-1</p>  <p>PB = 8MJ-1002-1</p>  <p>PC = 8MJ-1003-1</p>  <p>Gripper teeth / points steel, upper</p>
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Series 84L3-2 Technical Information



84L3-21000000

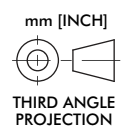
Model	Gripping force at 5 bar N [lbs]	Piston Ø mm [in]	Air consumption per double stroke at 5 bar dm ³ [ft ³]	Weight ~ Kg [lbs]	Min Opening time sec.	Min Closure time sec.
84L3-21...	135 [30]	32 [1.26]	0,3 [4]	0,8 [1.76]	0,2	0,2



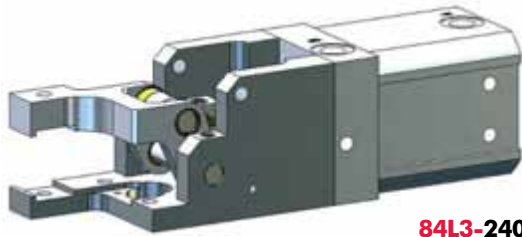
Note!
Addition of gripper teeth height and thickness of the clamped plate must be 24,8 mm. It might be necessary to use shim plates or grind the gripper teeth.

Note!
Any extension of the movable, or the fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.

Medium air, max. 6 bar
Operation with oil-free air is permissible.
Center the cyl.-air connection about 4x 90° possible.

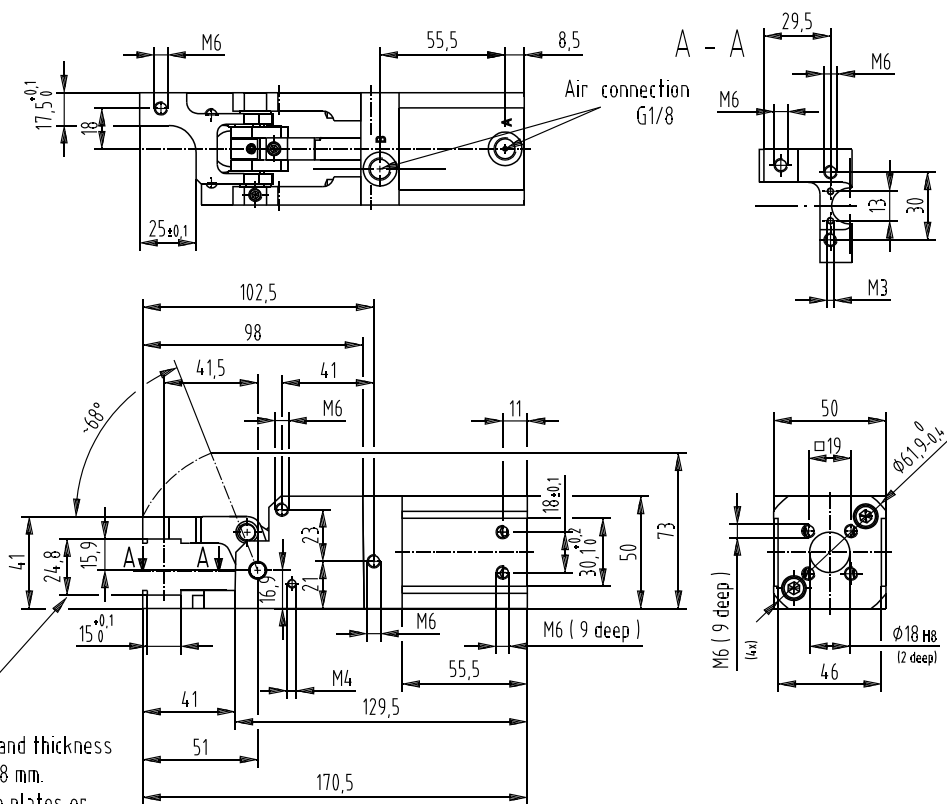


Series **84L3-2** Technical Information



84L3-24000000

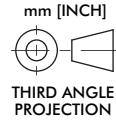
Model	Gripping force at 5 bar N [lbs]	Piston Ø mm [in]	Air consumption per double stroke at 5 bar dm ³ [ft ³]	Weight ~ Kg [lbs]	Min Opening time sec.	Min Closure time sec.
84L3-24...	135 [30]	32 [1.26]	0,3 [4]	0,75 [1.65]	0,2	0,2



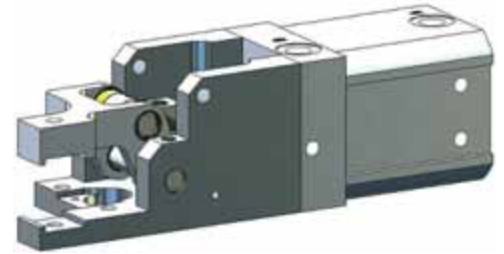
Note!
Addition of gripper teeth height and thickness of the clamped plate must be 24,8 mm.
It might be necessary to use shim plates or grind the gripper teeth.

Note!
Any extension of the movable, or the fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.

Medium air, max. 6 bar
Operation with oil-free air is permissible.
Center the cyl.-air connection about 4x 90° possible.

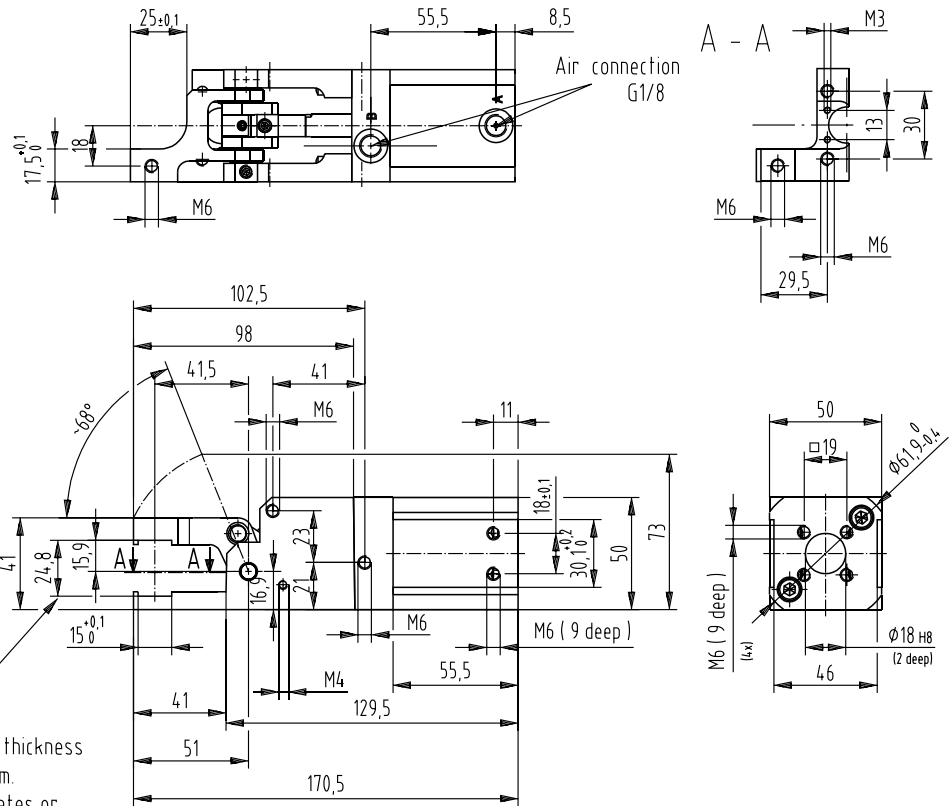


Series 84L3-2 Technical Information



84L3-26000000

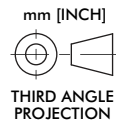
Model	Gripping force at 5 bar N [lbs]	Piston Ø mm [in]	Air consumption per double stroke at 5 bar dm ³ [ft ³]	Weight ~ Kg [lbs]	Min Opening time sec.	Min Closure time sec.
84L3-26...	135 [30]	32 [1.26]	0,3 [4]	0,75 [1.65]	0,2	0,2



Note!
Addition of gripper teeth height and thickness of the clamped plate must be 24,8 mm. It might be necessary to use shim plates or grind the gripper teeth.

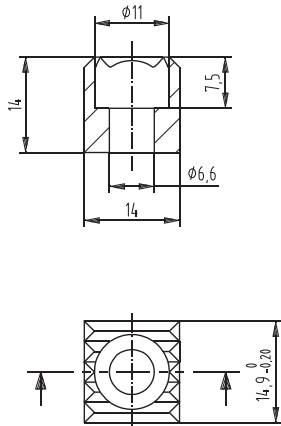
Note!
Any extension of the movable, or the fixed gripper jaws as well as the additional attachment of weights will repeal the guarantee.

Medium air, max. 6 bar
Operation with oil-free air is permissible.
Center the cyl.-air connection about 4x 90° possible.

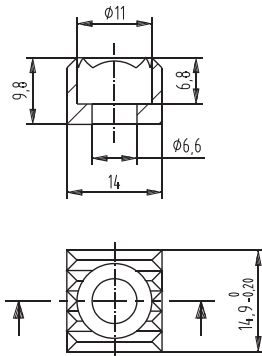


Steel Gripper Teeth

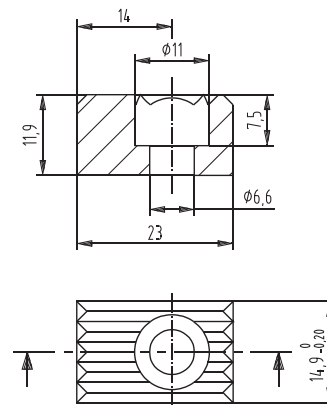
8JZ-001-1



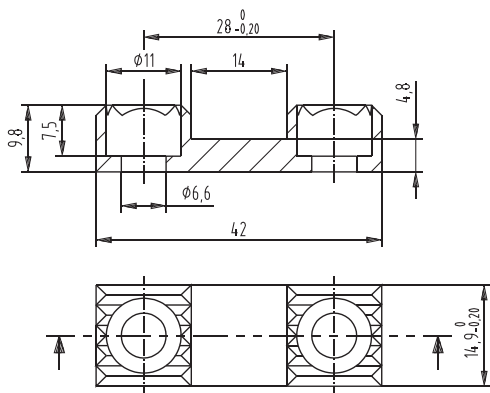
8JZ-003-1



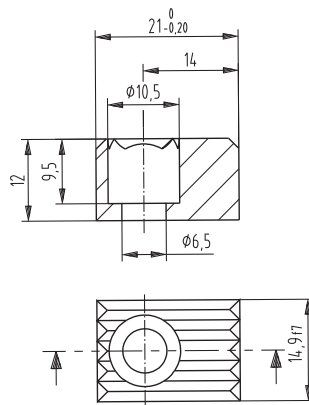
8JZ-004-1



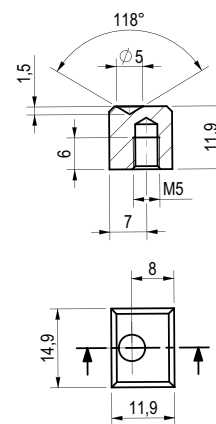
8JZ-005-1



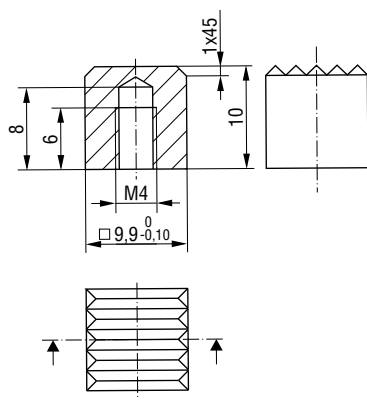
8JZ-014-3



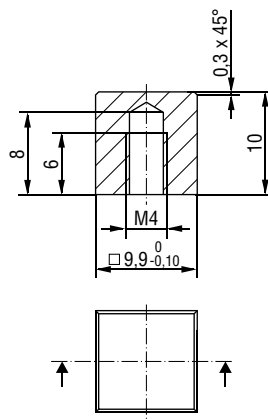
8JZ-025-1



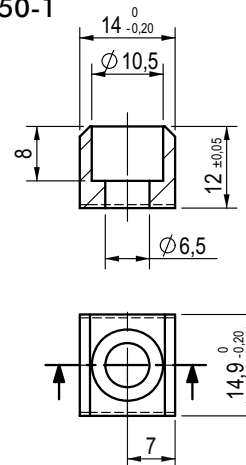
8JZ-027-1



8JZ-028-1



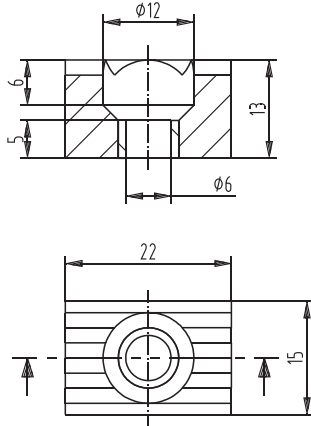
8JZ-050-1



Plastic Gripper Teeth

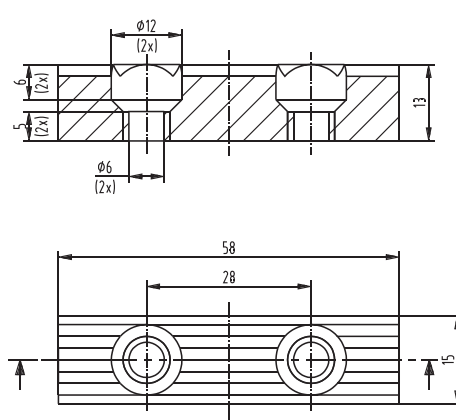
8JZ-021-1

90 Shore



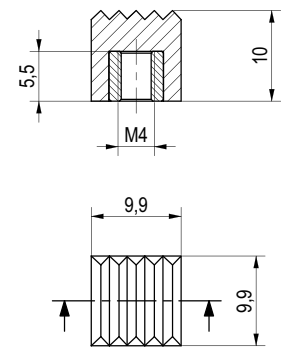
8JZ-023-1

90 Shore



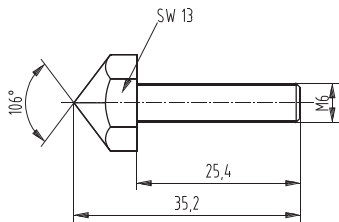
8JZ-045-1

90 Shore

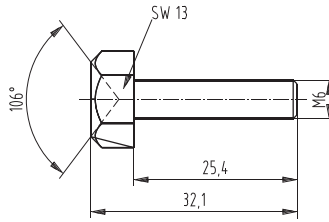


Gripper Points

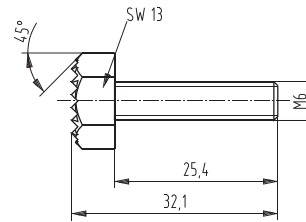
8MJ-1001-1



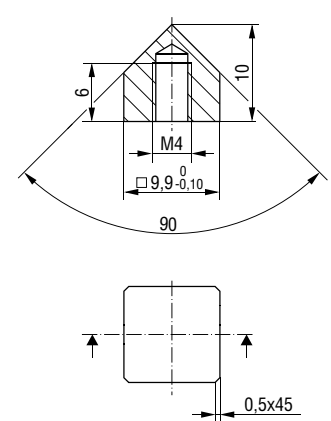
8MJ-1002-1



8MJ-1003-1

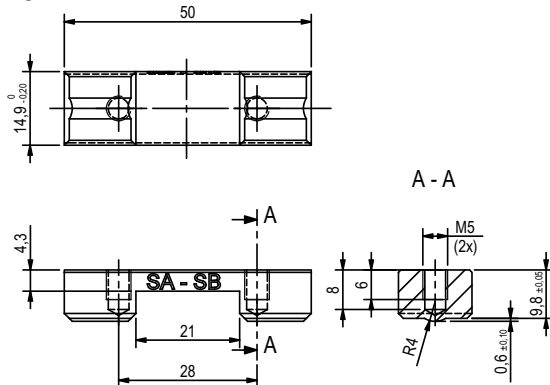


8JZ-029-1



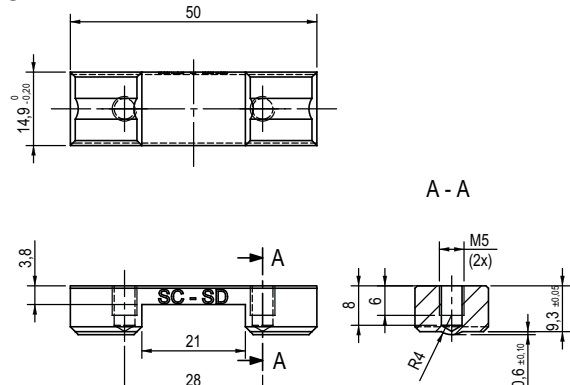
Crown Teeth

8JZ-016-2



For material thickness 0,5 - 1,0 mm

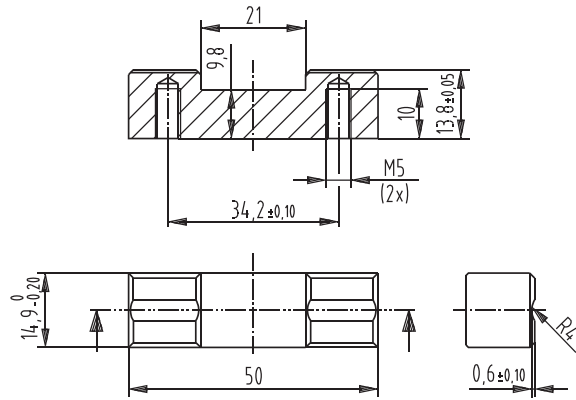
8JZ-018-2



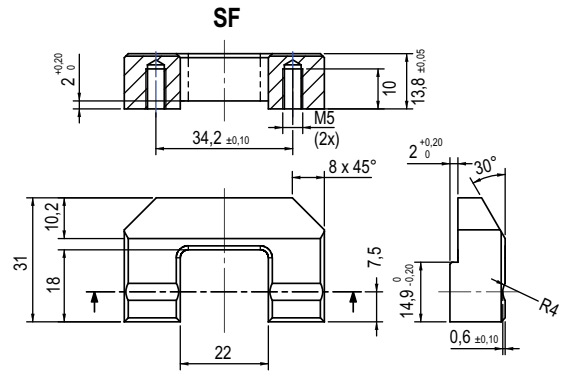
For material thickness 1,0 - 1,5 mm

Crown Teeth

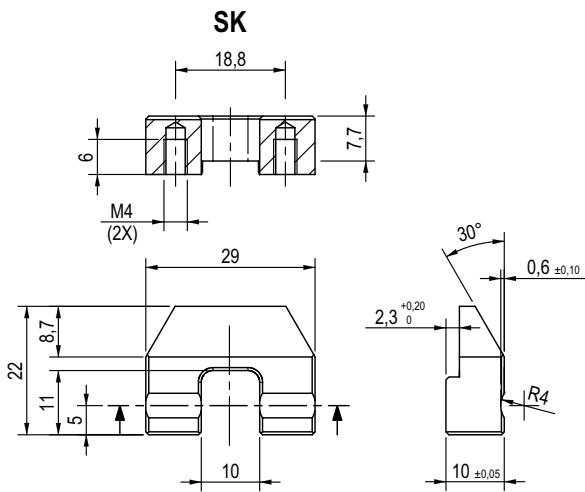
8JZ-019-1



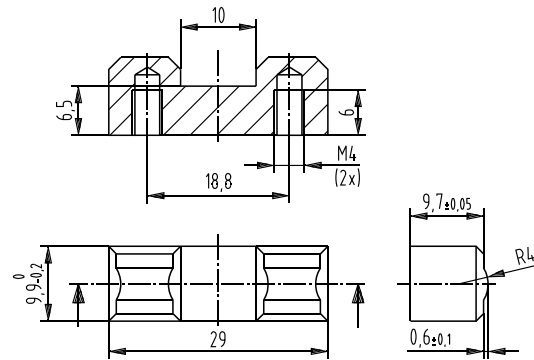
8JZ-020-3



8JZ-036-2

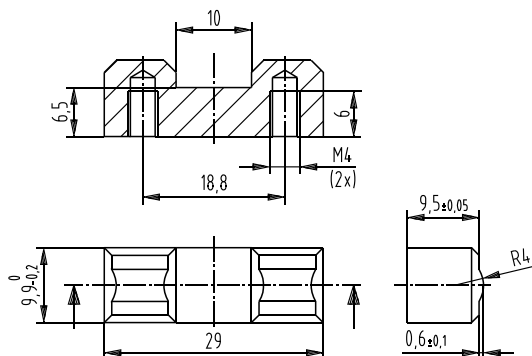


8JZ-037-1



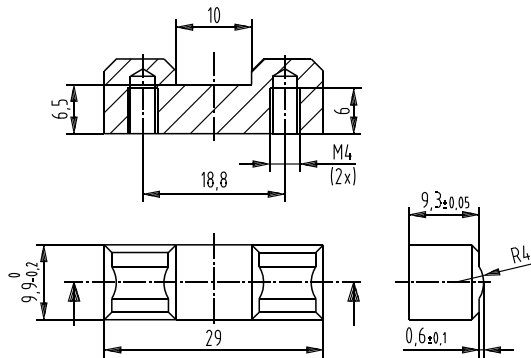
For material thickness 0,5 - 0,8 mm

8JZ-038-1



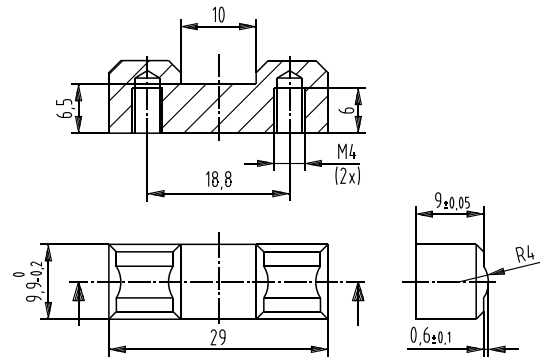
For material thickness 0,9 - 1,2 mm

8JZ-039-1



For material thickness 1,3 - 1,6 mm

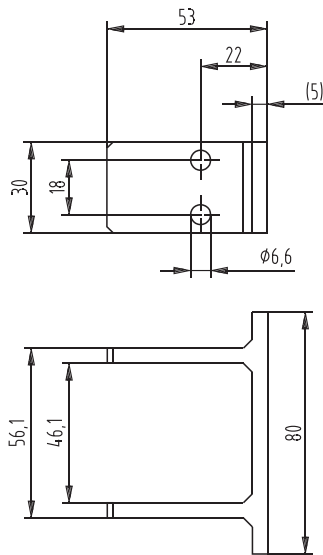
8JZ-040-1



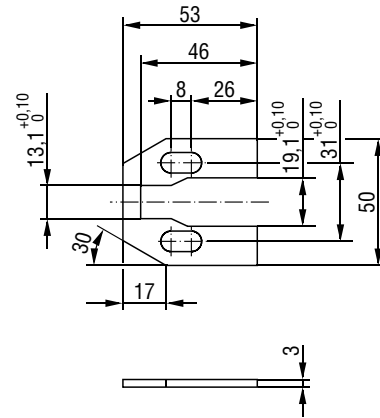
For material thickness 1,7 - 2,1 mm

Adapter/Limit Stops

8MA-006-1

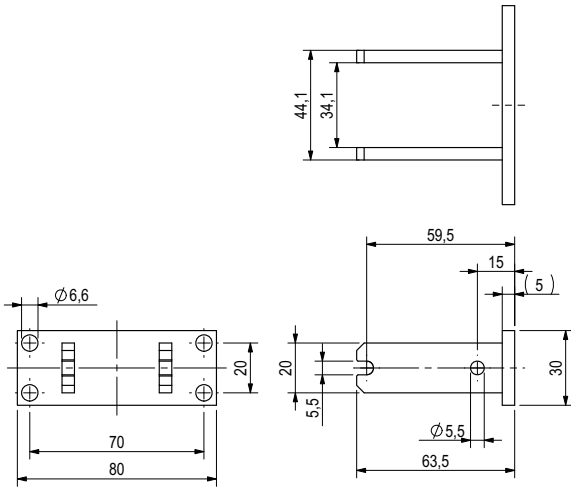


8MH-046-1

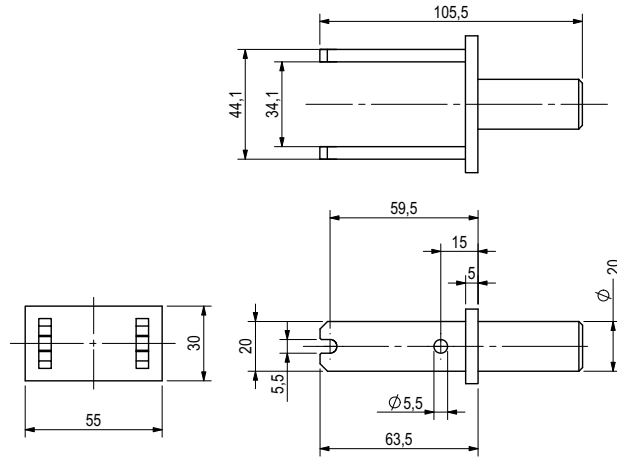


Adapter/Limit Stops

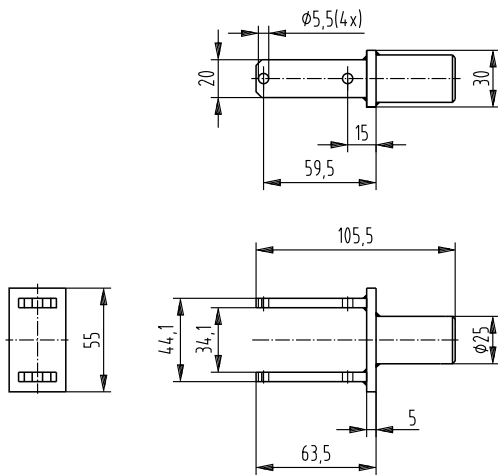
8MA-147-1



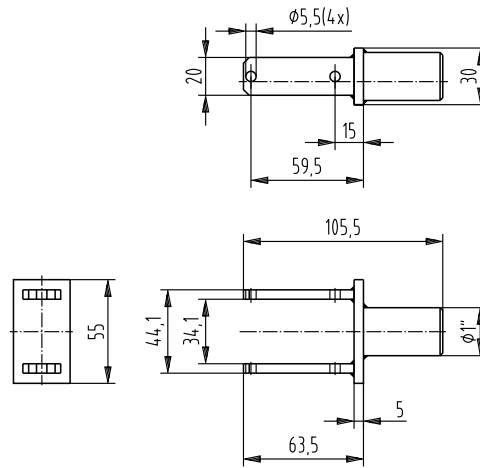
8MA-165-1



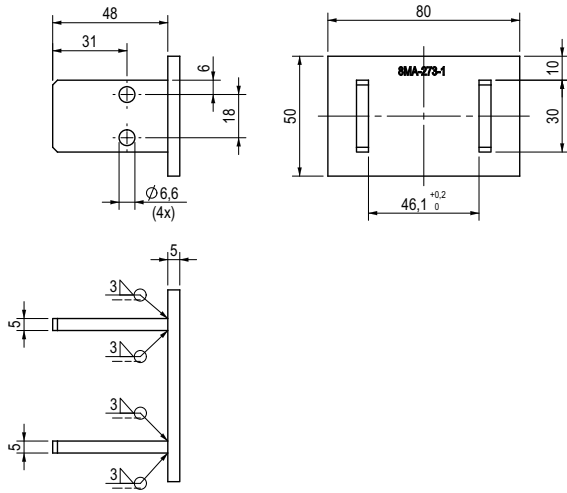
8MA-166-1



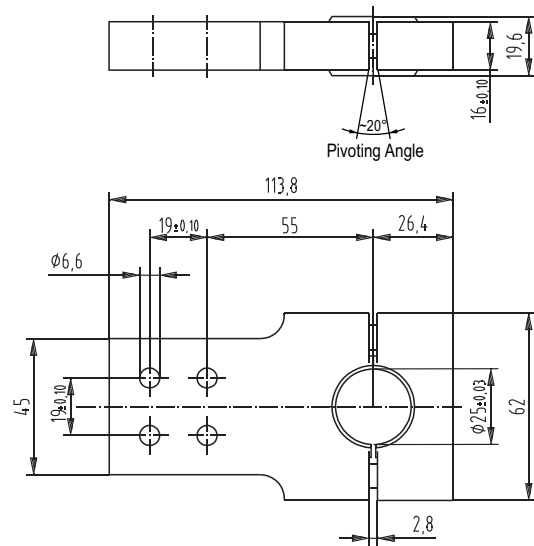
8MA-168-1



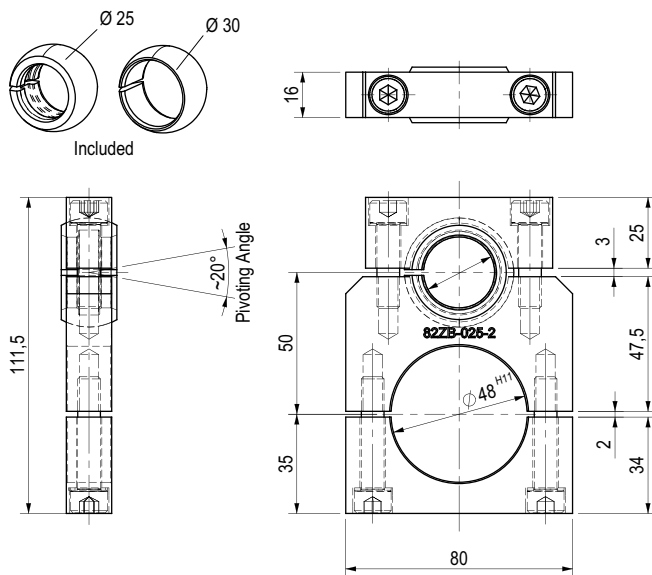
8MA-273-1



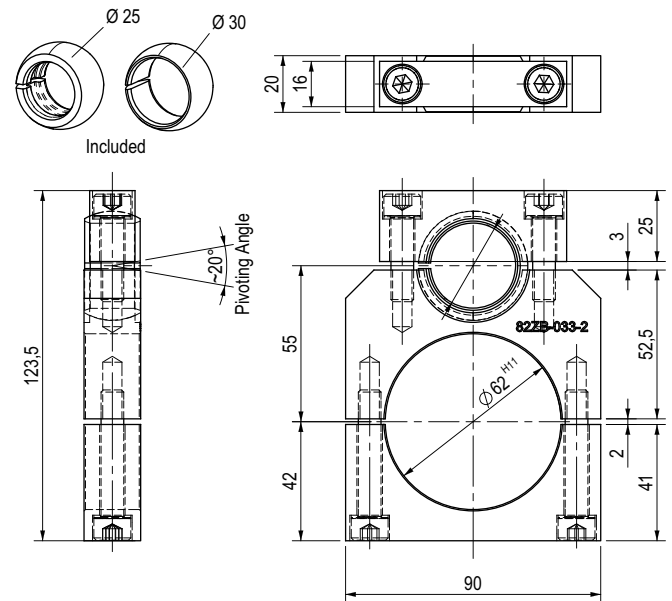
82ZB-007-1



82ZB-025-2

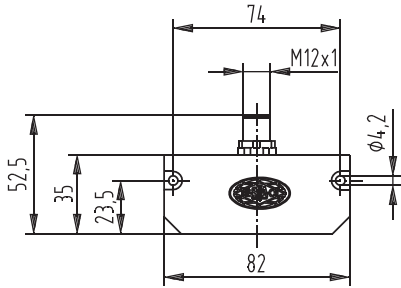


82ZB-033-2

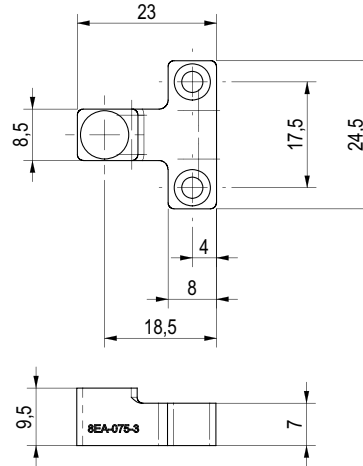


Sensors

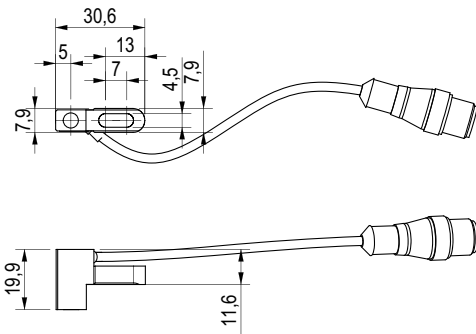
8EA-022-4 (only for opening angle 76°)



8EA-075-2/3

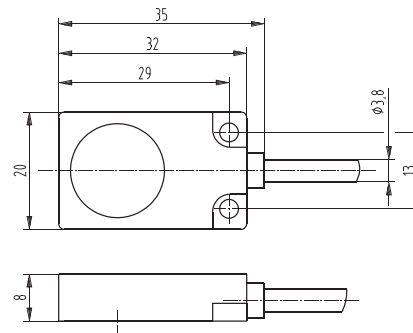


8EA-087-1



8EA-092-1

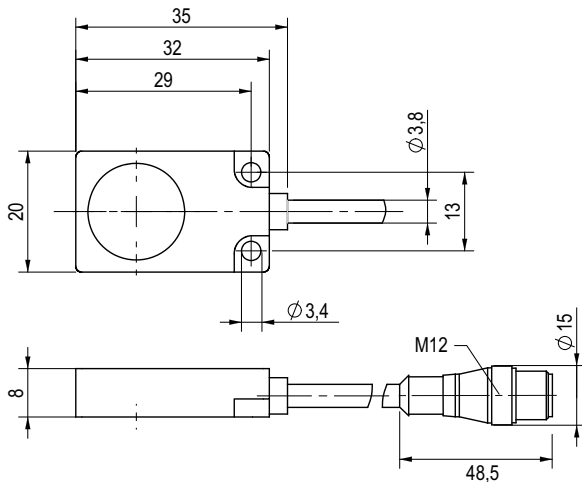
Switching distance 7 mm



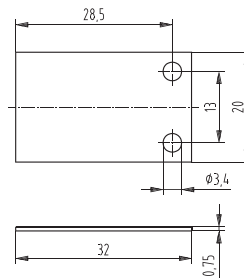
Shims

8EA-092-2

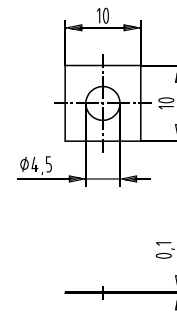
Switching distance 7 mm



8MB-003-1



8SB-039-1

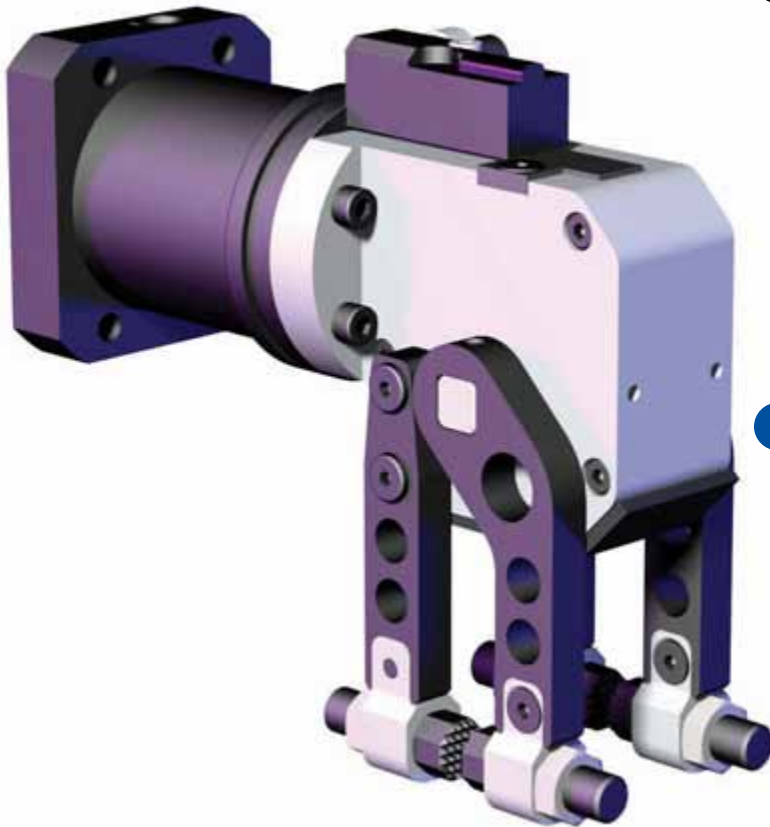




GR84 Modular Mini Clamp Ordering Information

MODEL GR84 — **SERIES** 15 — **CYLINDER** BE — **JAW ARM** DD — **JAW OPTIONS** 9S9 —

PATENT# 6,619,182



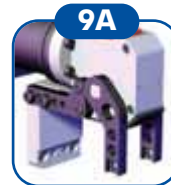
JAW ARM OPTION



DOUBLE ARM

JAW ARRANGEMENT & OPENING

STEP 1 **9S** X **JAW ARRANGEMENT**



90° GRIP ADJ. FLANGE



90° GRIP FLANGE



90° GRIP STANDARD



STRAIGHT ADJ. FLANGE



STRAIGHT FLANGE



STRAIGHT STANDARD

CYLINDER TYPE & PORTING

STEP 1 **B** **E** **CYLINDER TYPE**



FLANGE BASE



ROUND CYLINDER

STEP 2 **B** **E** **CYLINDER PORTS**

E ENGLISH (1/8 NPT)

M METRIC (1/8 G)

STEP 2 **9S** **9** **ACTIVE JAW OPENING**



30° PRESET



60° PRESET



90° PRESET

GR84 Modular Mini Clamp
Ordering Information

INSERTS

QQSS —

SENSOR

A1

SENSING MOUNTS

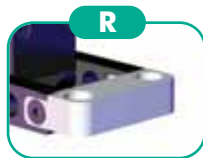
XX

GUARDS

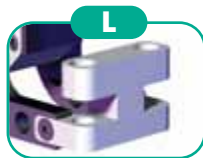
01

JAW BLOCK & INSERT OPTIONS

STEP 1 QQ SS ACTIVE JAW BLOCK OPTION



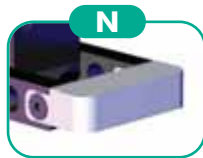
REGULAR BLOCK



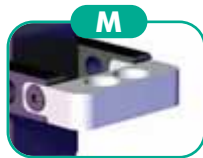
FLANGE BLOCK



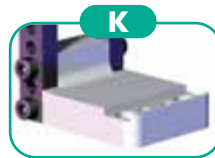
(2) SINGLE BLOCKS



BLANK BLOCK



"B" INSERT JAW
(BLOCK INSERTS ONLY)



ADJUSTABLE JAW
(9A & SA FIXED JAW ONLY)

STEP 2 QQ SS FIXED JAW BLOCK OPTION

STEP 3 QQ SS ACTIVE JAW INSERT OPTION



POINT



CUP



URETHANE



SERRATED



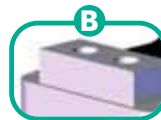
SELF-ADJUSTING
SERRATED



NONE



BLANK



*BLOCK

N = NON-STANDARD

STEP 4 QQ SS FIXED JAW INSERT OPTION

OR MM BS "B" BLOCK INSERT OPTIONS

*(ACTIVE AND FIXED JAWS USE COMMON INSERTS)



SERRATED



URETHANE



ALUMINUM

N = NON-STANDARD

(SENSING MOUNTS CAN NOT BE USED WITH (B) BLOCK OPTION INSERTS)

SENSOR OPTIONS

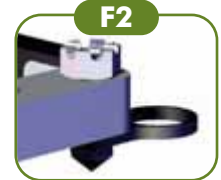
(SEE PAGE 67 FOR SENSOR SPECIFICATIONS)

A1 = (TURCK) VDC

SENSOR MOUNTS



Ø18mm SENSOR



Ø12mm SENSOR

XX = NO SENSOR MOUNTS

GUARD OPTIONS



FACE GUARD

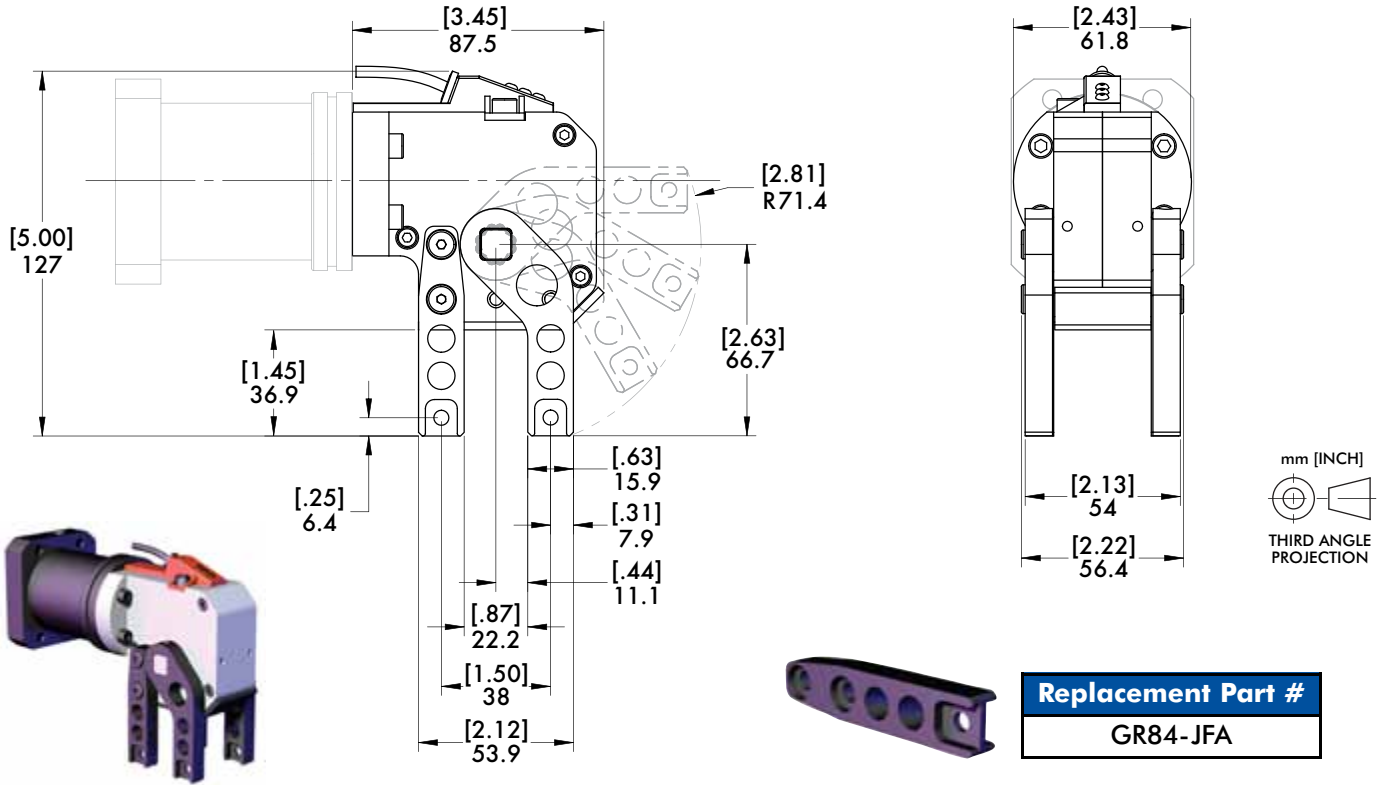


FACE + SKID GUARD

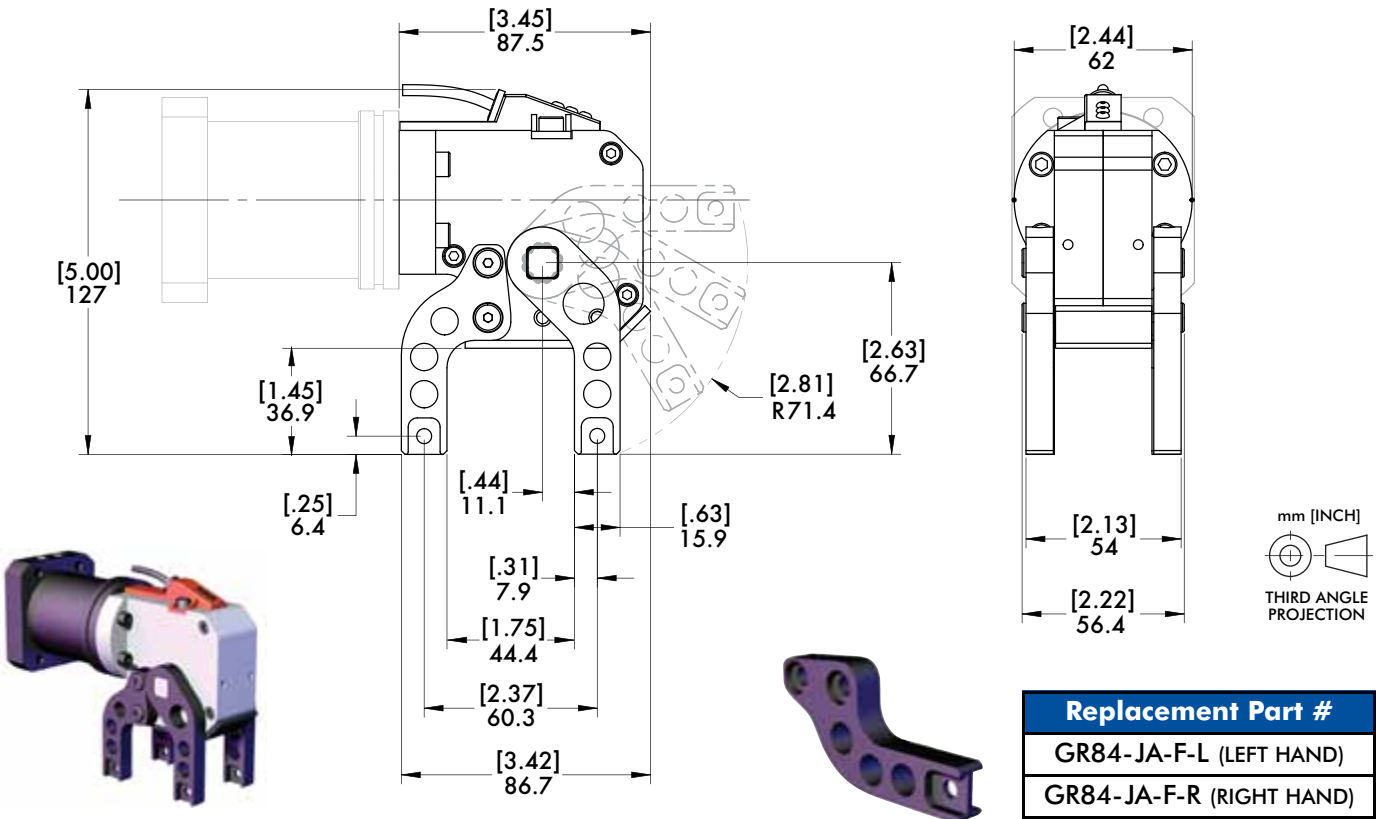
XX = NO FACE GUARD

GR84 Modular Mini Clamp

"9Sx" 90° Jaw Arrangement - Standard Fixed Jaw

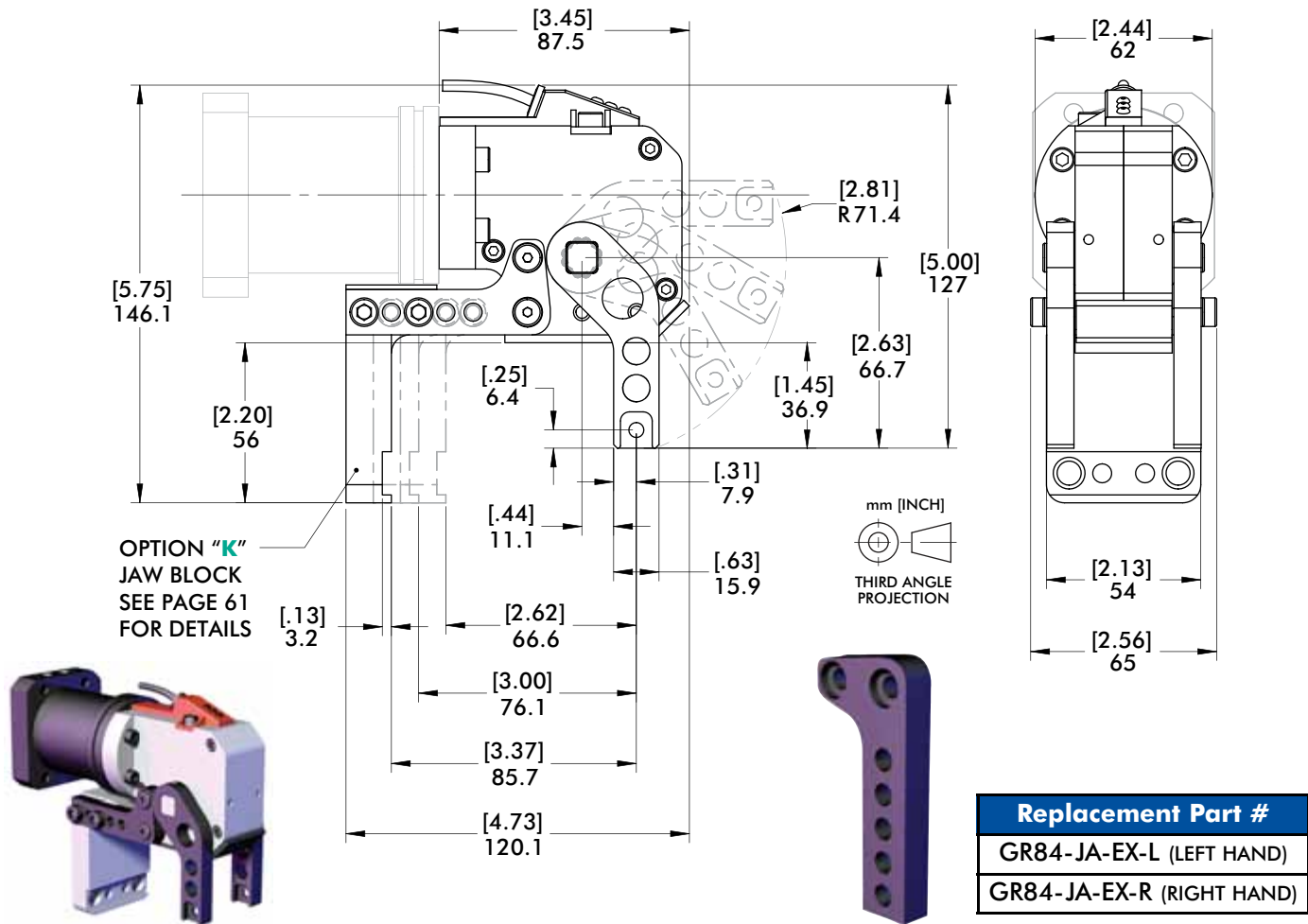


"9Fx" 90° Jaw Arrangement - Flange Fixed Jaw

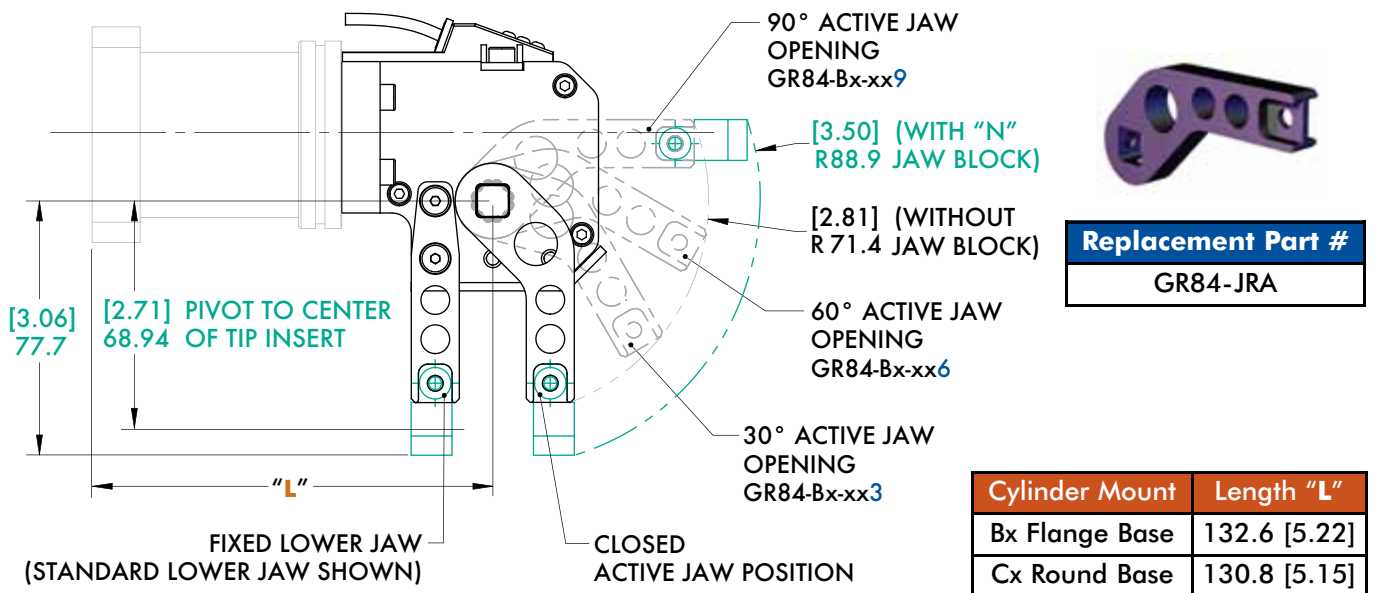


GR84 Modular Mini Clamp

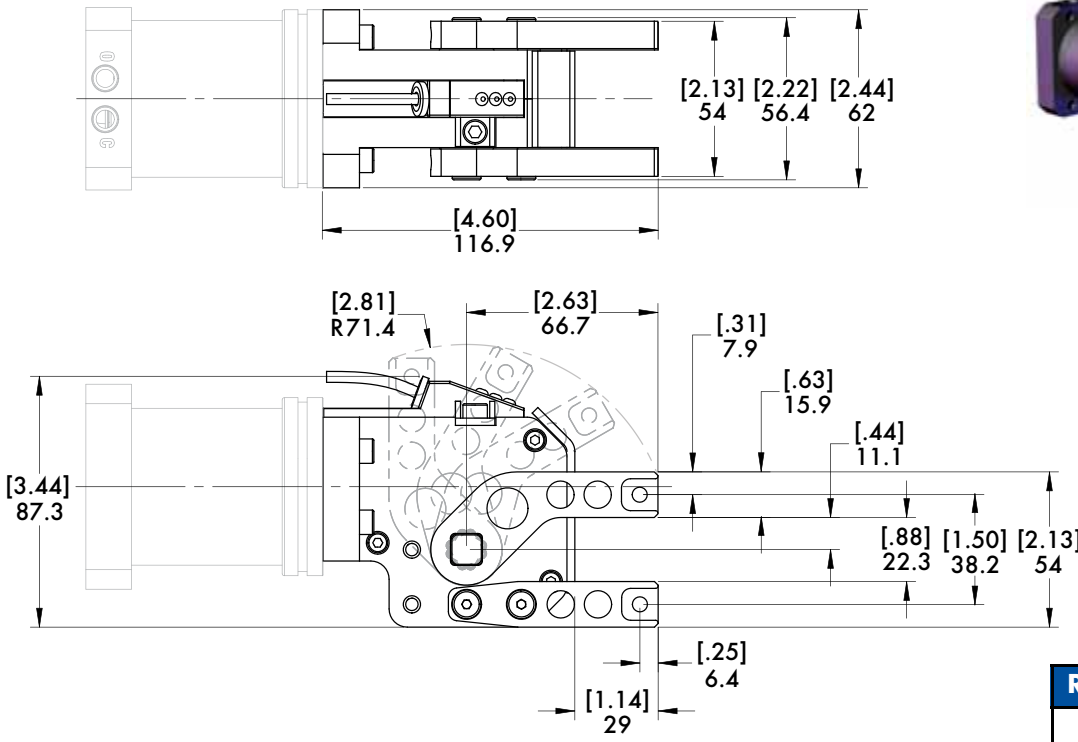
"9Ax" 90° Jaw Arrangement - Adjustable Fixed Jaw



"xx3", "xx6", "xx9" 90° Jaw Arrangement - Preset Active Jaw Opening



GR84 Modular Mini Clamp
"SSx" Straight Jaw Arrangement - Standard Fixed Jaw



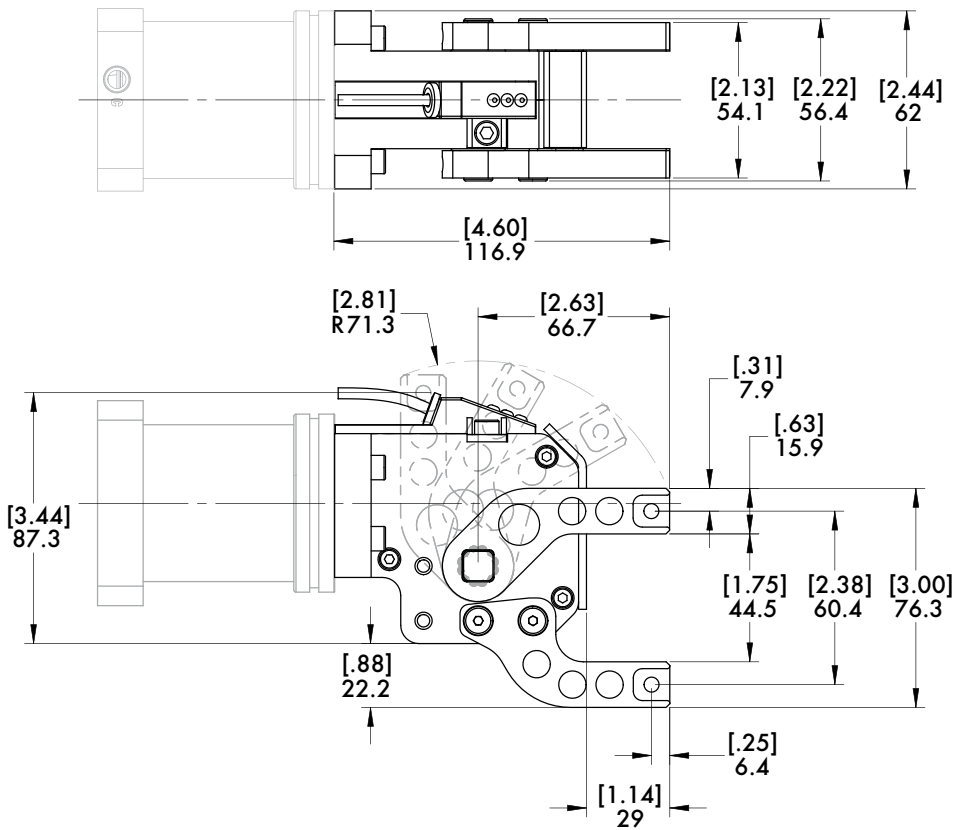
mm [INCH]

 THIRD ANGLE PROJECTION



Replacement Part #
 GR84-JFA

"SFx" Straight Jaw Arrangement - Flange Fixed Jaw



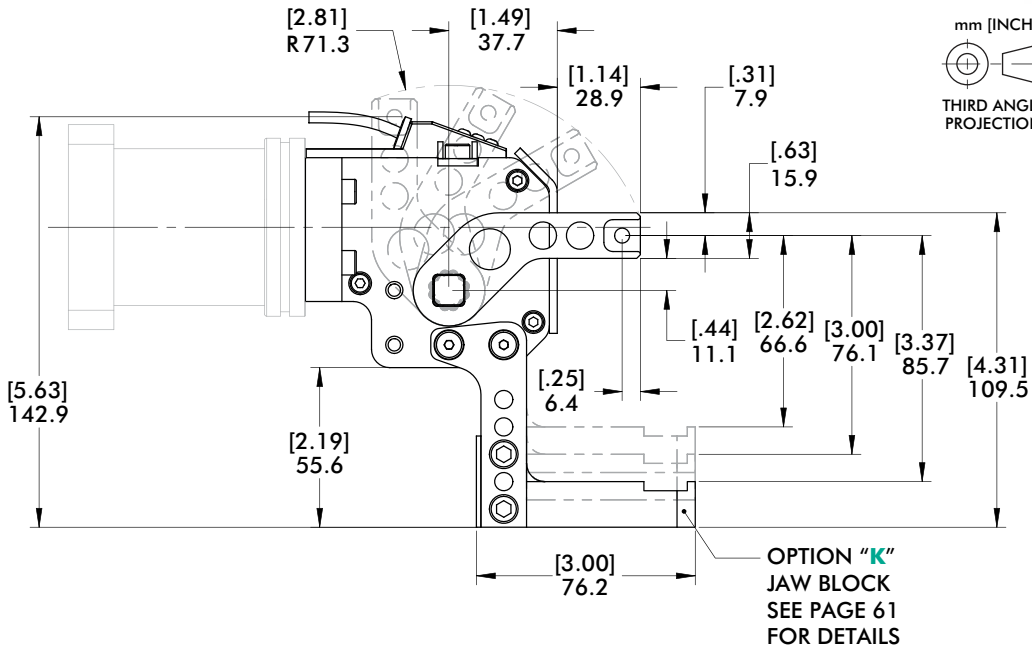
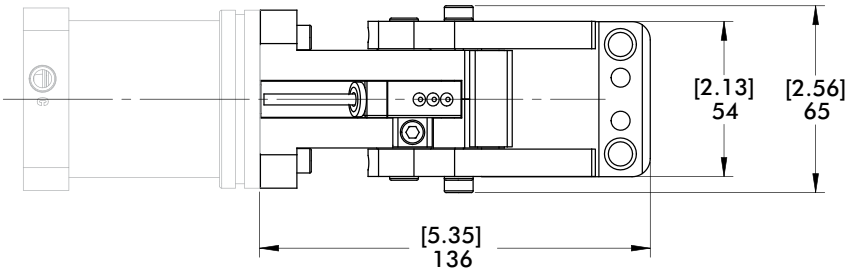
mm [INCH]

 THIRD ANGLE PROJECTION



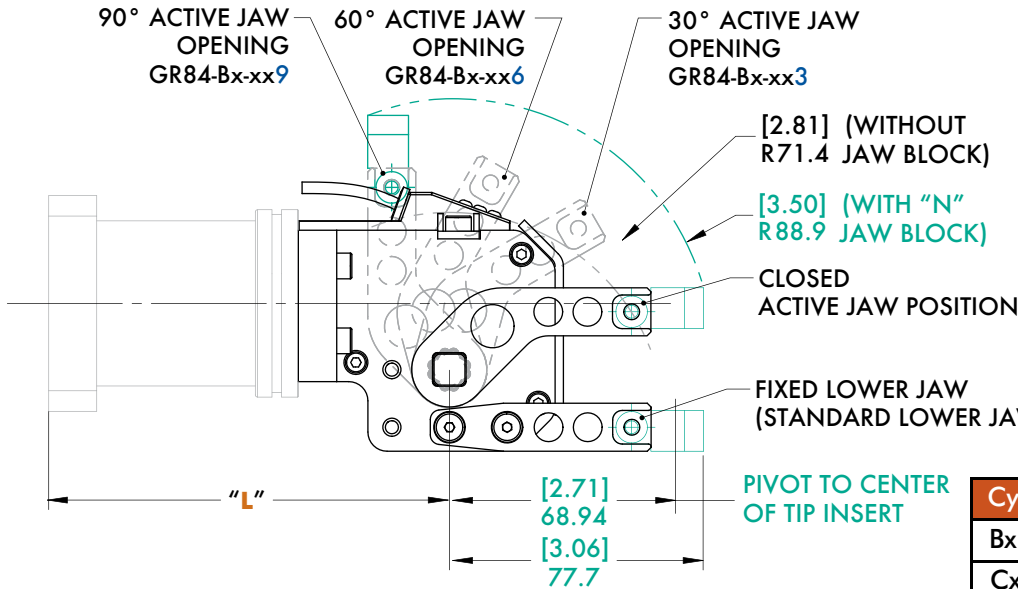
Replacement Part #
 GR84-JA-F-L (LEFT HAND)
 GR84-JA-F-R (RIGHT HAND)

GR84 Modular Mini Clamp
"Sax" Straight Jaw Arrangement - Adjustable Fixed Jaw



Replacement Part #
GR84-JA-EX-L (LEFT HAND)
GR84-JA-EX-R (RIGHT HAND)

"xx3", "xx6", "xx9" Straight Jaw Arrangement - Preset Active Jaw Opening

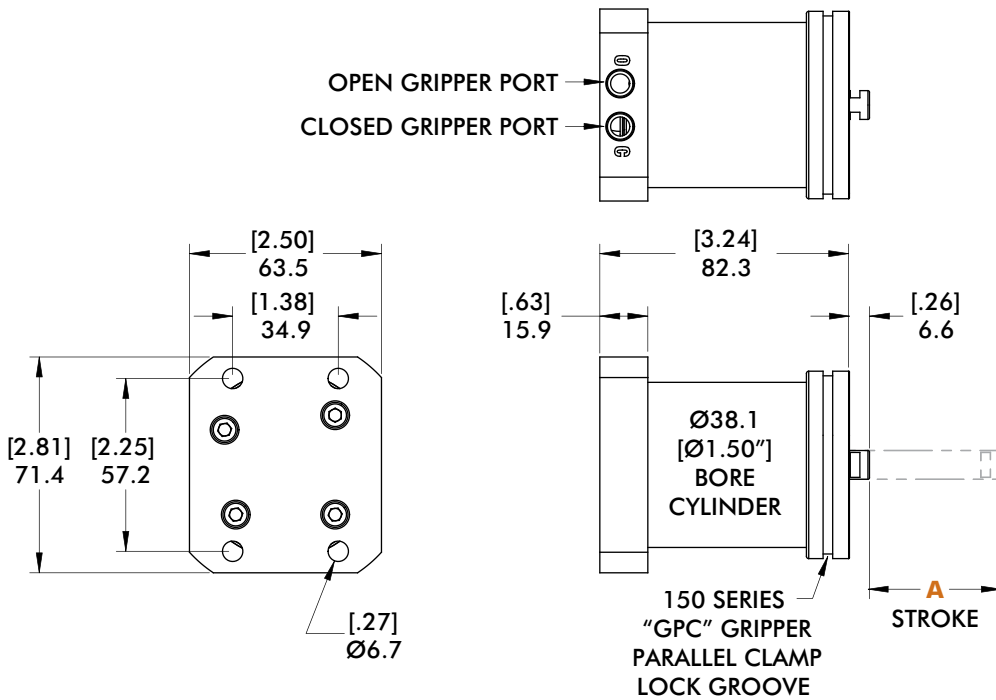


Replacement Part #
GR84-JRA

mm [INCH]
 THIRD ANGLE PROJECTION

Cylinder Mount	Length "L"
Bx Flange Base	132.6 [5.22]
Cx Round Base	130.8 [5.15]

GR84 Modular Mini Clamp "Bx" Flange Base Cylinder



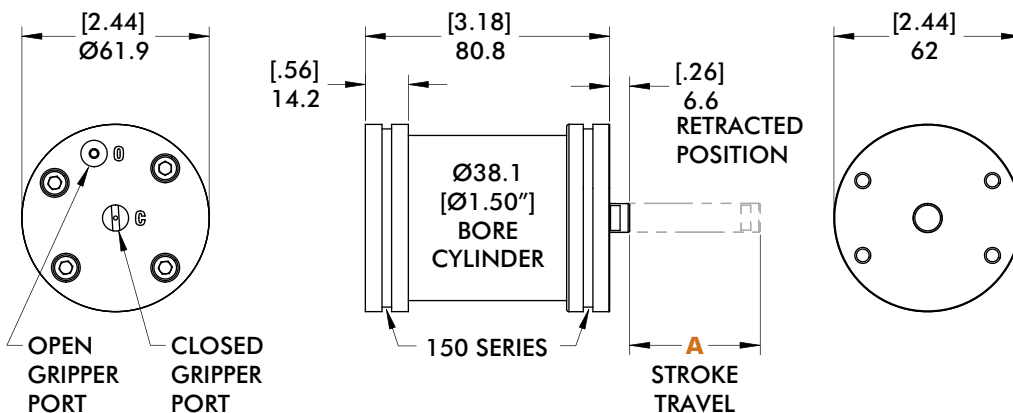
Replacement Part #
GR84-CYL-B

CYLINDER PORTS
E = 1/8" NPT (ENGLISH)
M = 1/8" G (METRIC)

PATENT# 6,619,182

JAW OPENING	30°	60°	90°
STROKE "A"	21.3 [.84]	32.8 [1.29]	42.9 [1.69]

"Cx" Round Base Cylinder



Replacement Part #
GR84-CYL-C

CYLINDER PORTS
E = 1/8" NPT (ENGLISH)
M = 1/8" G (METRIC)

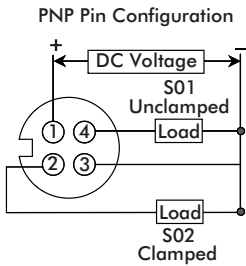
PATENT# 6,619,182

JAW OPENING	30°	60°	90°
STROKE "A"	21.3 [.84]	32.8 [1.29]	42.9 [1.69]



GR84 Modular Mini Clamp
Technical Information

Wiring diagram of electrical sensing system



"A1"

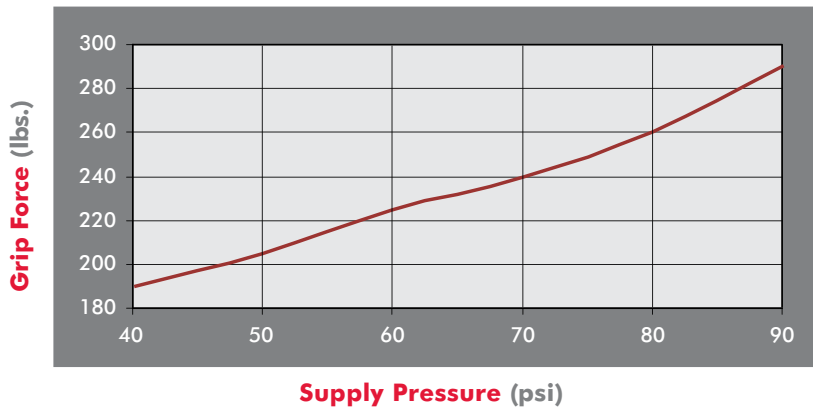


Open/Closed Sensor Options:

"A1" Replacement Part# "8EA-054-1" + "GR84-SB" 10...30 VDC 150mA, PNP, 4-Pin, M12, Eurofast
(Fasteners required for "A1" replacement: (2x) M5x10-912-ZN, (1x) M4x20-7984

Specifications

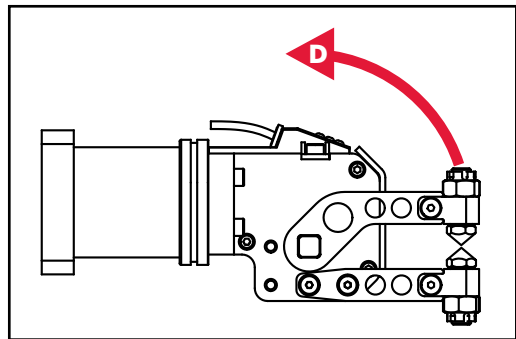
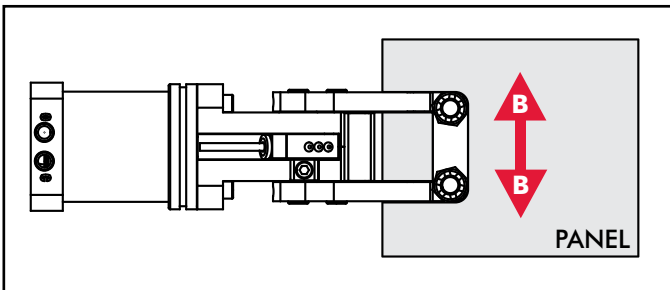
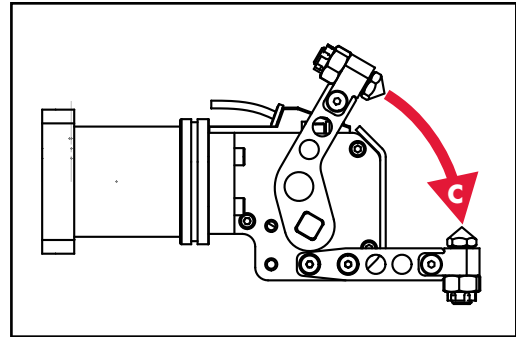
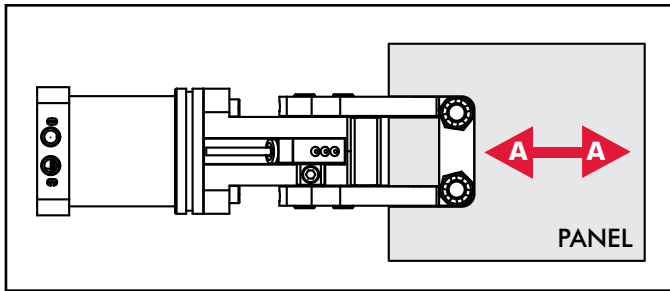
Weight:	.....	1.5 kg [3.2 lb]
Grip Range (Standard and Flange with Jaw Inserts)	.....	.0mm - 8mm [0 to 0.31"]
Arm Position Tolerance:	.....	±0.33°
Arm Lateral Tolerance:	.....	±0.3mm [0.01]
Cycle Speed @ 60 psi:	.....	.0.6 Sec (Open/Closed)



GR84 Modular Mini Clamp

Technical Information

The GR84 Mini-Clamp utilizes a self-locking linkage system. If the air is lost while fully closed, the mini-clamp will continue to hold the part. The amount of air required to achieve the high gripping forces is greater than pressure to release or open the mini-clamp. If there is a slight drop of pressure during the opening cycle, the mini-clamp will still release the part. Other self locking systems can jam and require more air to release the part than it would need to grip it.



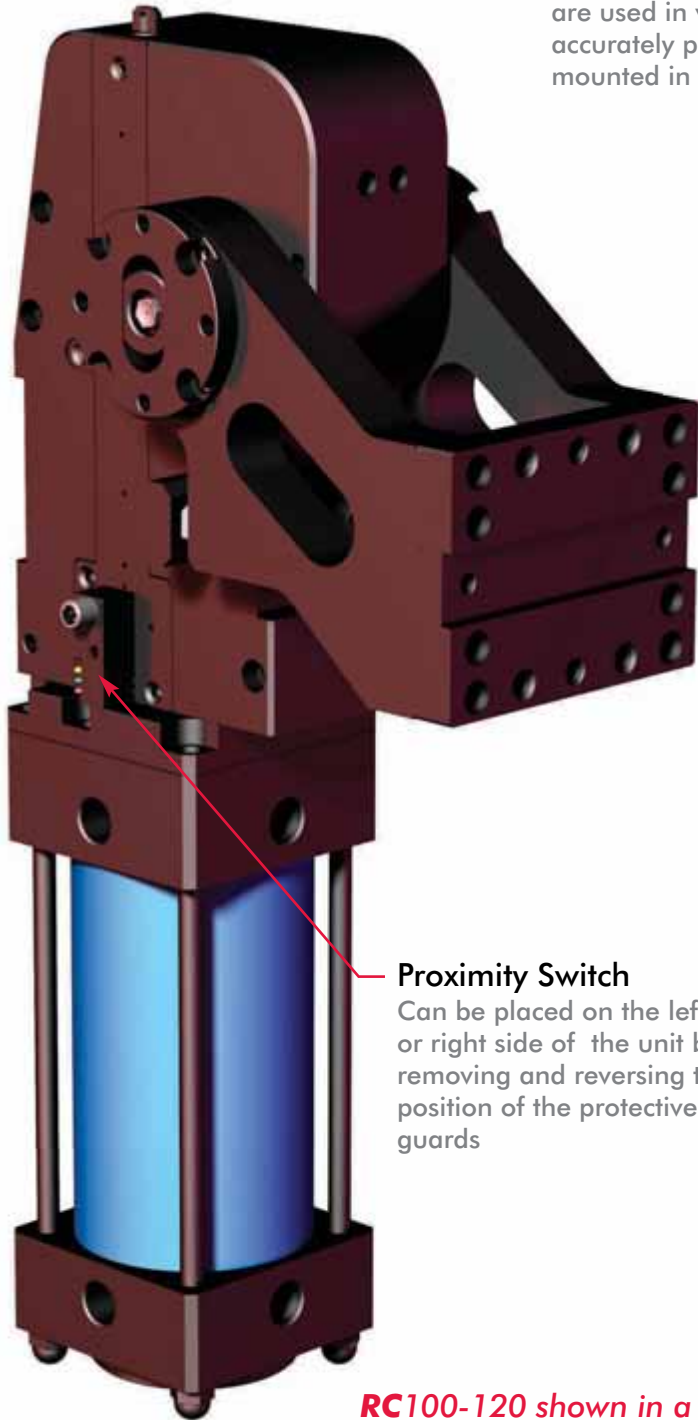
Single Jaw Arm Styles				
Pressure	"A"	"B"	"C"	"D"
2.8 bar [40 psi]	31.8 kg [70 lb]	31.8 kg [70 lb]	86.2 kg [190 lb]	294.8 kg [650 lb]
3.4 bar [50 psi]	34.0 kg [75 lb]	34.0 kg [75 lb]	93.0 kg [205 lb]	294.8 kg [650 lb]
4.1 bar [60 psi]	36.3 kg [80 lb]	36.3 kg [80 lb]	102.1 kg [225 lb]	294.8 kg [650 lb]
4.8 bar [70 psi]	38.6 kg [85 lb]	38.6 kg [85 lb]	108.9 kg [240 lb]	294.8 kg [650 lb]
5.5 bar [80 psi]	40.8 kg [90 lb]	40.8 kg [90 lb]	117.9 kg [260 lb]	294.8 kg [650 lb]
6.2 bar [90 psi]	43.1 kg [95 lb]	43.1 kg [95 lb]	131.5 kg [290 lb]	294.8 kg [650 lb]

Double Jaw Arm Styles				
Pressure	"A"	"B"	"C"	"D"
2.8 bar [40 psi]	34.0 kg [75 lb]	34.0 kg [75 lb]	86.2 kg [190 lb]	589.4 kg [1300 lb]
3.4 bar [50 psi]	36.3 kg [80 lb]	36.3 kg [80 lb]	93.0 kg [205 lb]	589.4 kg [1300 lb]
4.1 bar [60 psi]	38.6 kg [85 lb]	38.6 kg [85 lb]	102.1 kg [225 lb]	589.4 kg [1300 lb]
4.8 bar [70 psi]	40.8 kg [90 lb]	40.8 kg [90 lb]	108.9 kg [240 lb]	589.4 kg [1300 lb]
5.5 bar [80 psi]	43.1 kg [95 lb]	43.1 kg [95 lb]	117.9 kg [260 lb]	589.4 kg [1300 lb]
6.2 bar [90 psi]	45.4 kg [100 lb]	45.4 kg [100 lb]	131.5 kg [290 lb]	589.4 kg [1300 lb]

GR and RC Series Medium Duty Pivot Units

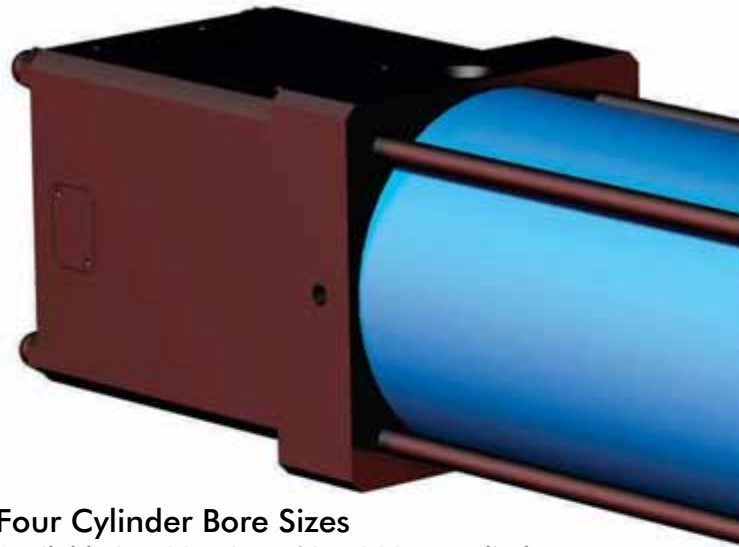
GR and RC Series Pneumatic Pivot Units

are used in welding applications or anywhere it is necessary to accurately position tooling. Both the RC and GR series can be mounted in an upright vertical or horizontal position.



Proximity Switch
Can be placed on the left or right side of the unit by removing and reversing the position of the protective guards

RC100-120 shown in a vertical "V" orientation



Four Cylinder Bore Sizes

Available in 100, 125, 160 & 200mm cylinder bore sizes. Cylinders are offered with NPT or ISO G ports



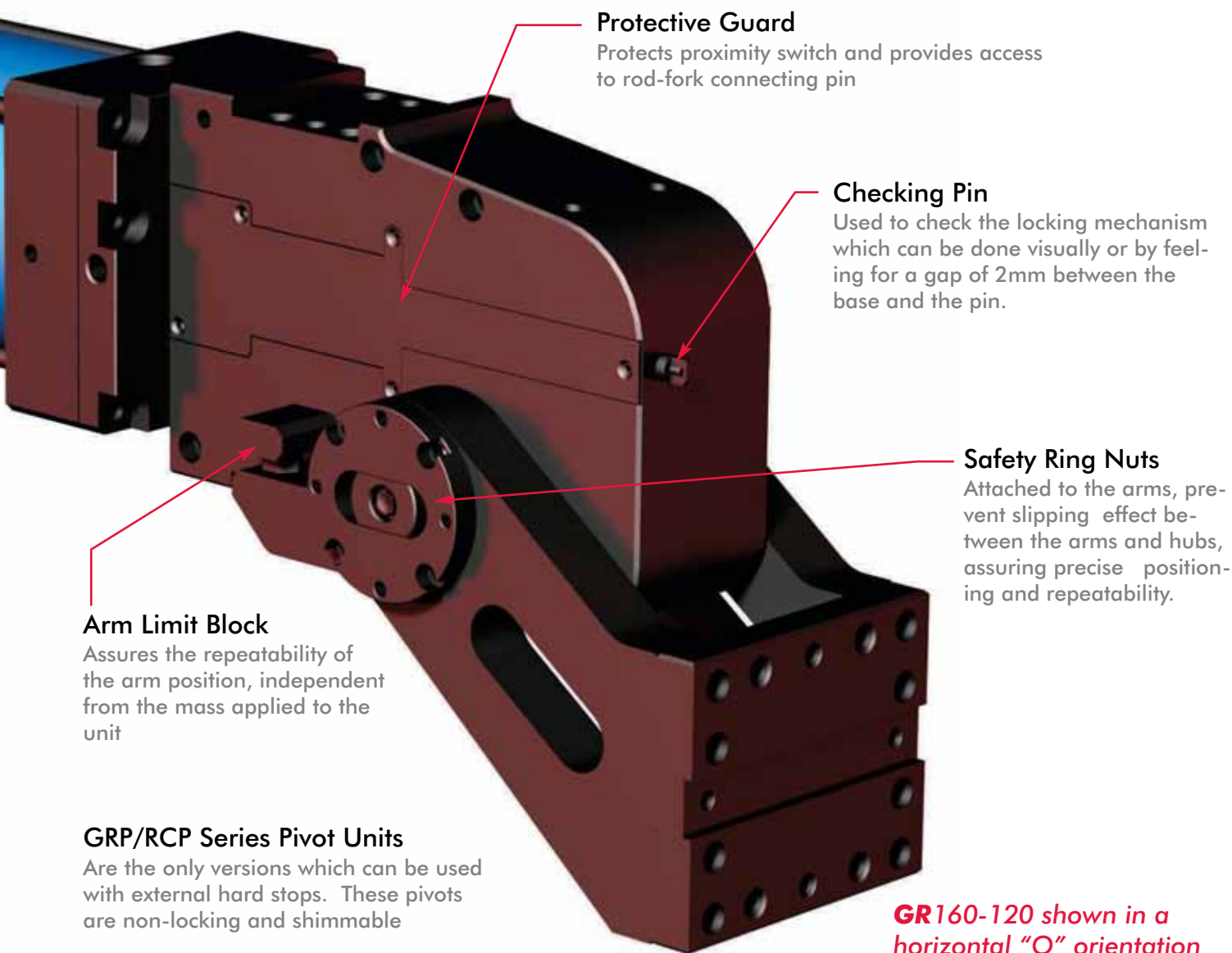
Cut Off Valve (GR Series Only)

Stops movement when air pressure is lost.

GR and RC Series Medium Duty Pivot Units

Available in three different arm opening angles

45°, 90° and 120° arm opening angles are available in both the horizontal and vertical mount orientation. Both mounting orientations can also be ordered with an inverted mounting bracket.



GR and RC Series Medium Duty Pivot Units

Ordering Information

GR

160

120

V

PNEUMATIC PIVOT MODEL

GR = GR SERIES PIVOT UNITS
(HYDRAULIC MOTION CONTROL
WITH BRAKING FEATURE)

***GRP** = GR SERIES PIVOT UNITS
NON LOCKING VERSION
(HYDRAULIC MOTION CONTROL
WITH BRAKING FEATURE)

RC = RC SERIES PIVOT UNITS
(HYDRAULIC MOTION CONTROL
WITHOUT BRAKING FEATURE)

***RCP** = RC SERIES PIVOT UNITS
NON LOCKING VERSION
(HYDRAULIC MOTION CONTROL
WITHOUT BRAKING FEATURE)

CYLINDER OPTIONS

100 = 100MM BORE CYLINDER

125 = 125MM BORE CYLINDER

160 = 160MM BORE CYLINDER

200 = 200MM BORE CYLINDER

OPENING ANGLE

45 = 45°

90 = 90°

120 = 120°

ORIENTATION

O = HORIZONTAL

V = VERTICAL

O/LS = INVERTED HORIZONTAL

V/LS = INVERTED VERTICAL

***ONLY RCP AND GRP PIVOT UNITS
CAN BE USED WITH EXTERNAL HARD
STOPS AND SHIMMING**



GR and RC Series Medium Duty Pivot Units

Ordering Information

PX

0

N

X

CYLINDER POSITION
(SEE BELOW)

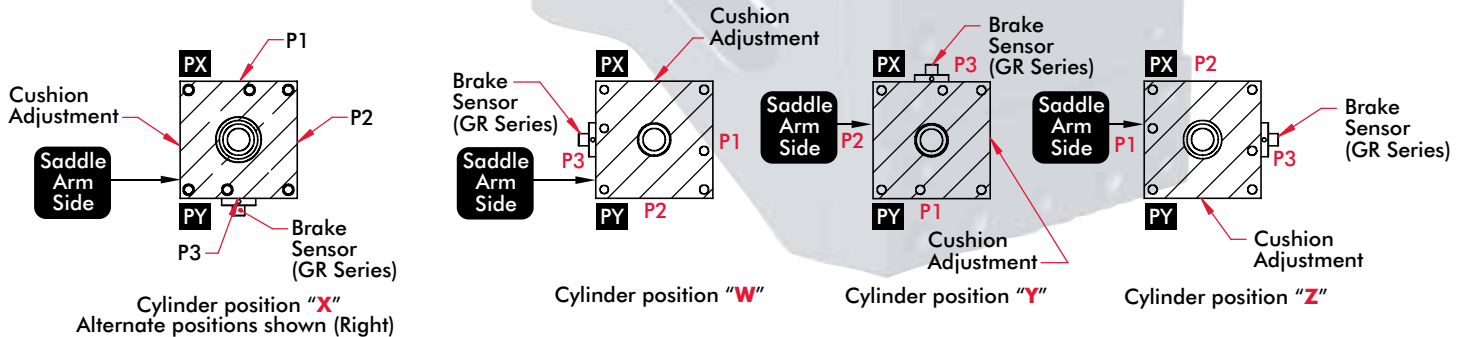
- X** = CYLINDER POSITION X
- Y** = CYLINDER POSITION Y
- W** = CYLINDER POSITION W
- Z** = CYLINDER POSITION Z

PORT TYPE
N = NPT PORTS
G = G PORT

PROXIMITY SWITCH TYPE
0 = NO PROXIMITY SWITCH
T = TURCK PROXIMITY SWITCH
P = PEPPERL+FUCHS PROXIMITY SWITCH
PM = PEPPERL+FUCHS PROXIMITY SWITCH (WHITE LED)

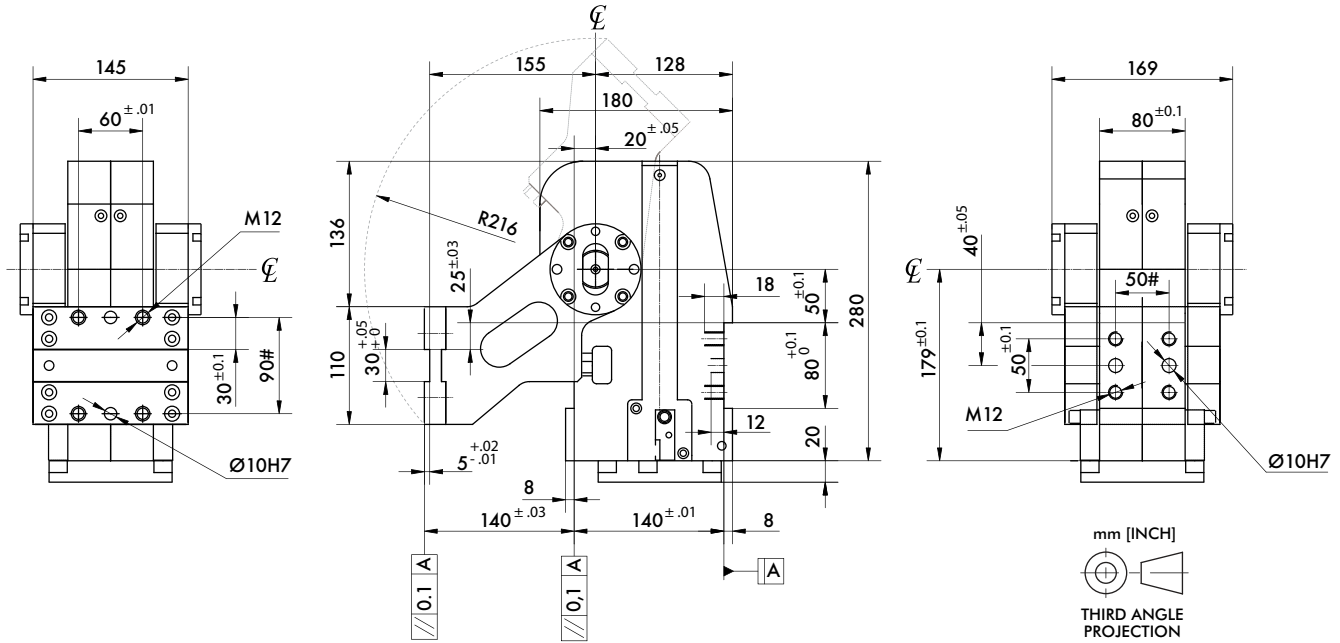
PROXIMITY SWITCH LOCATION (SEE BELOW)
P0 = NO PROXIMITY SWITCH
PX = PROXIMITY SWITCH ON THE X SIDE
PY = PROXIMITY SWITCH ON THE Y SIDE

GR & RC Series Optional Cylinder Position (See page 9 for port sizes and locations)

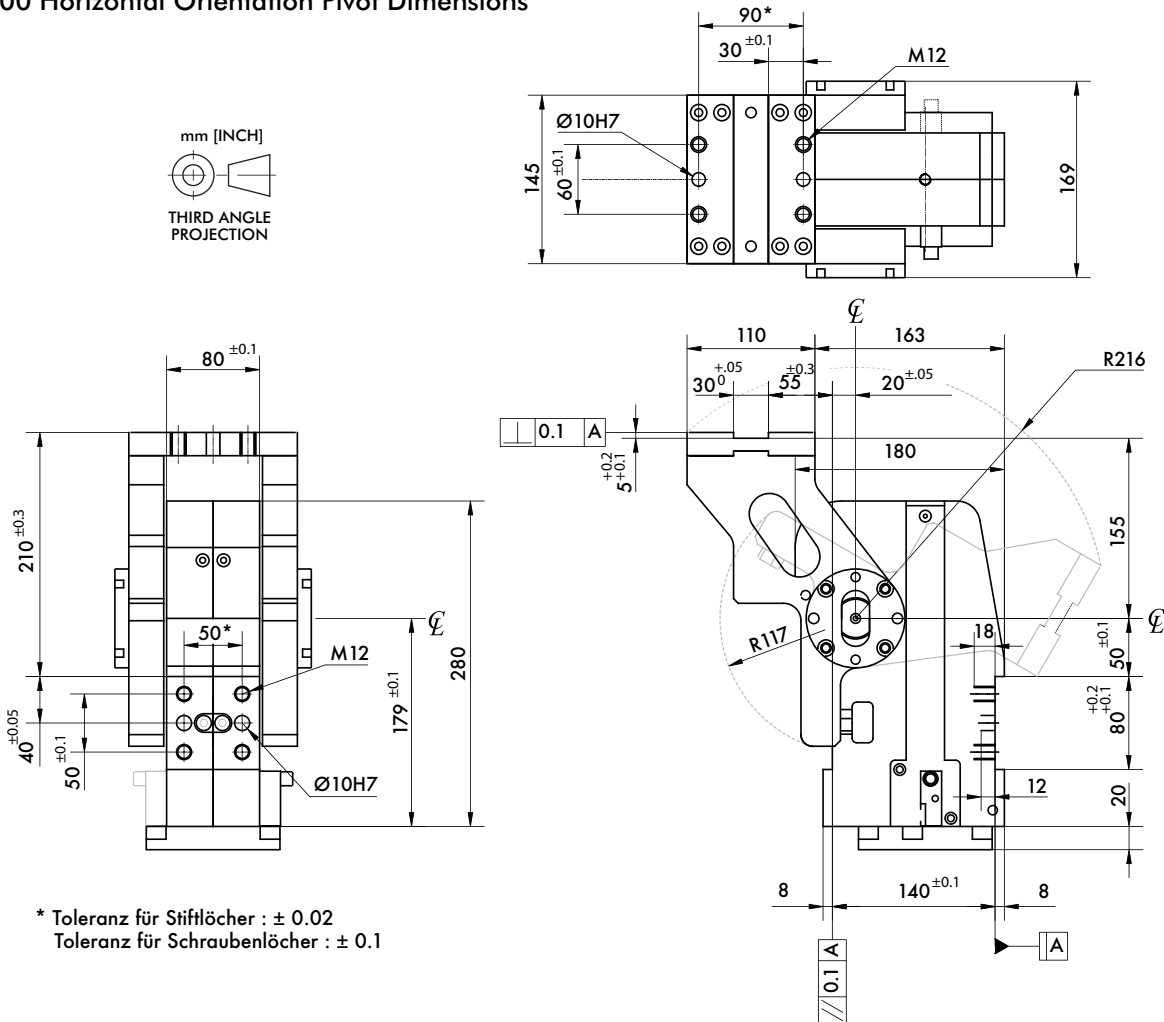


GR and RC Series Medium Duty Pivot Units

GR-RC 100 Vertical Orientation Pivot Dimensions



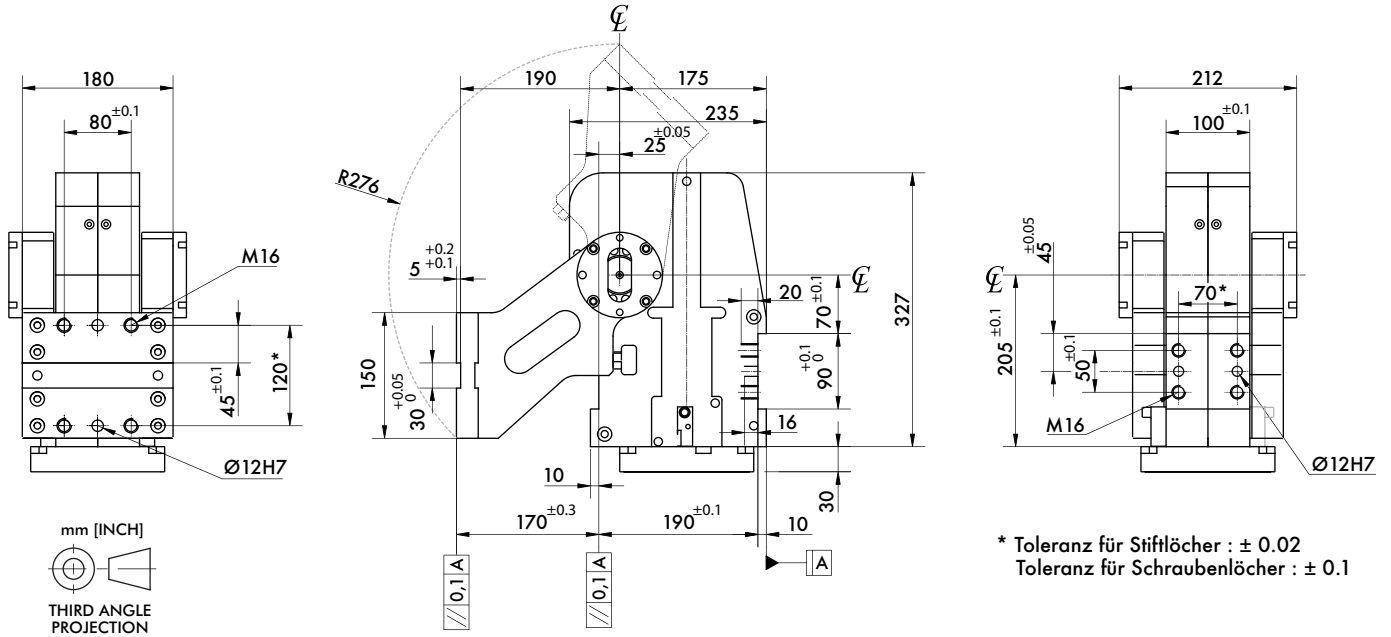
GR-RC 100 Horizontal Orientation Pivot Dimensions



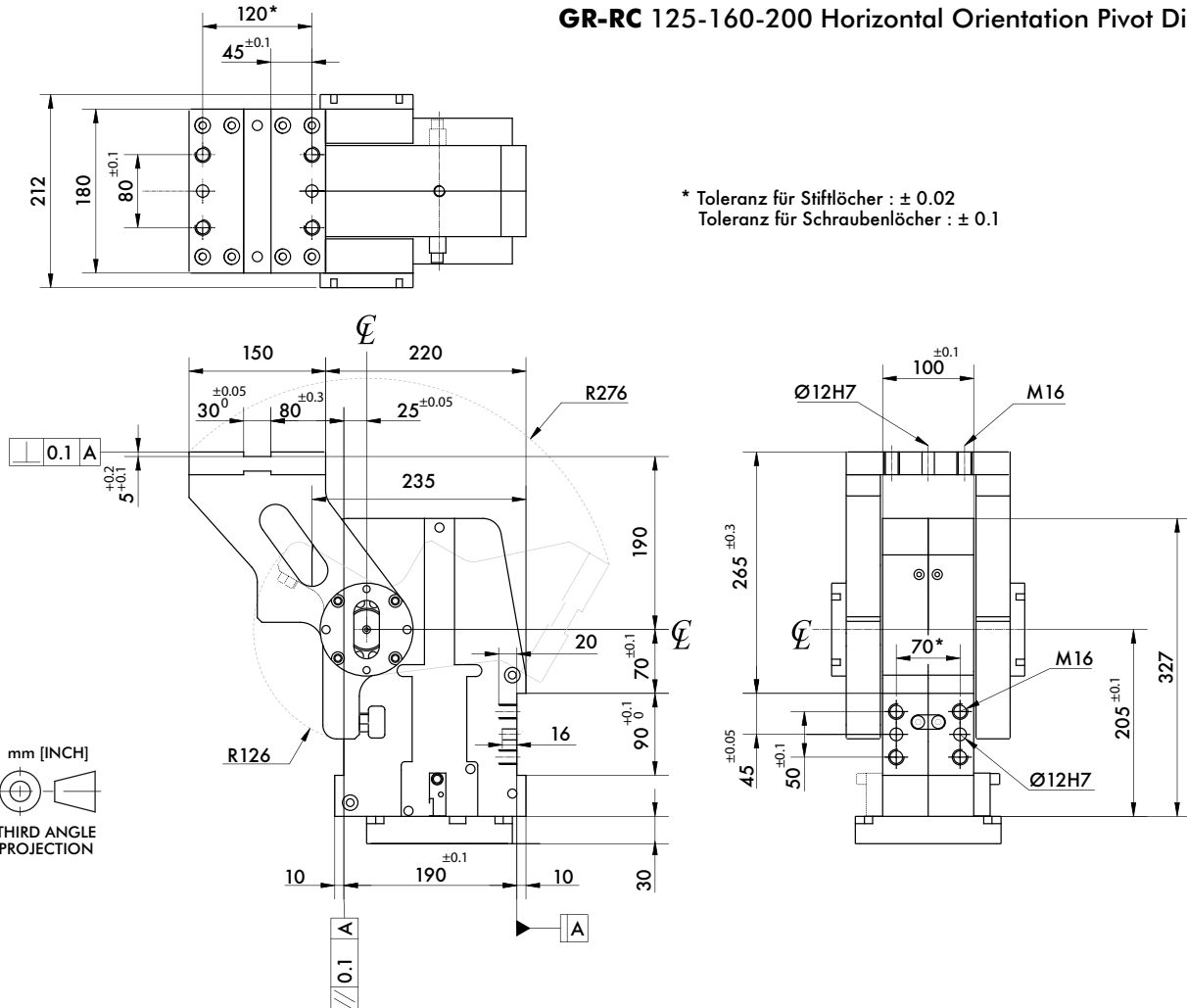
* Toleranz für Stiftlöcher : ± 0.02
Toleranz für Schraubenlöcher : ± 0.1

GR and RC Series Medium Duty Pivot Units

GR-RC 125-160-200 Vertical Orientation Pivot Dimensions

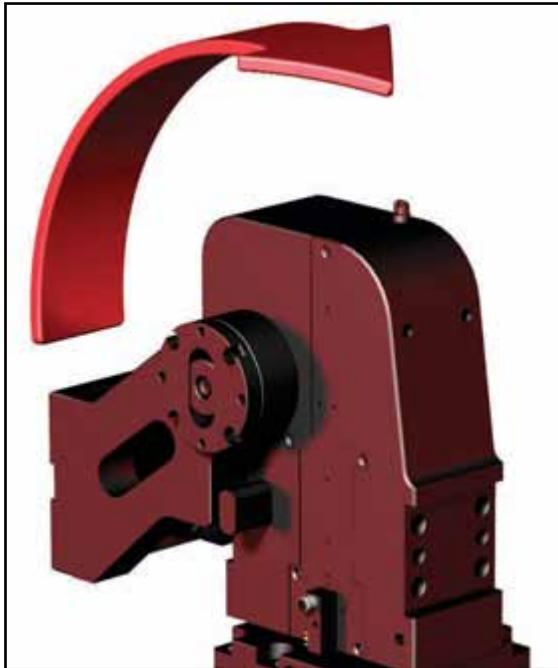


GR-RC 125-160-200 Horizontal Orientation Pivot Dimensions



GR and RC Series Medium Duty Pivot Units-Movement

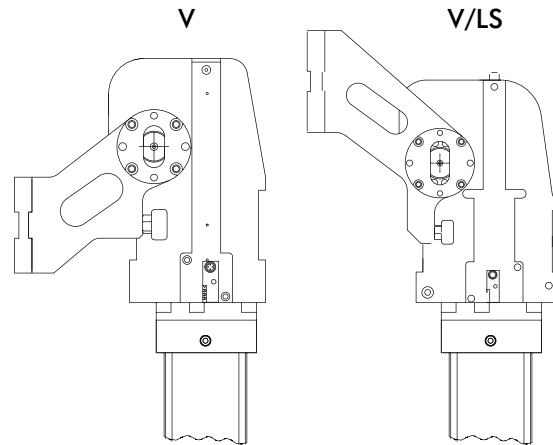
Arm Opening Angle and Saddle Movement



Vertical Saddle Orientation

Arm opening angles offered:
 45° Arm Opening Angle
 90° Arm Opening Angle
 120° Arm Opening Angle

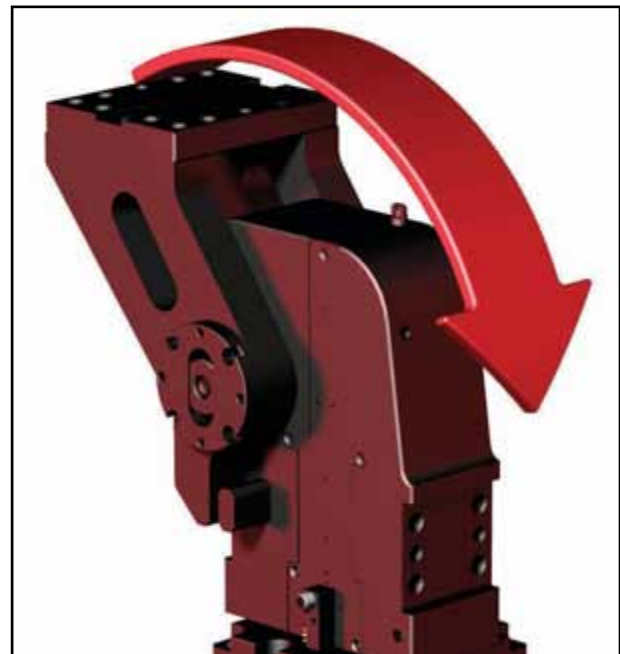
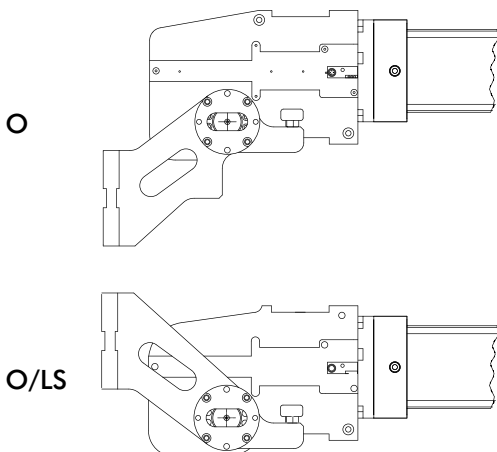
Swivel Arm Position



Horizontal Saddle Orientation

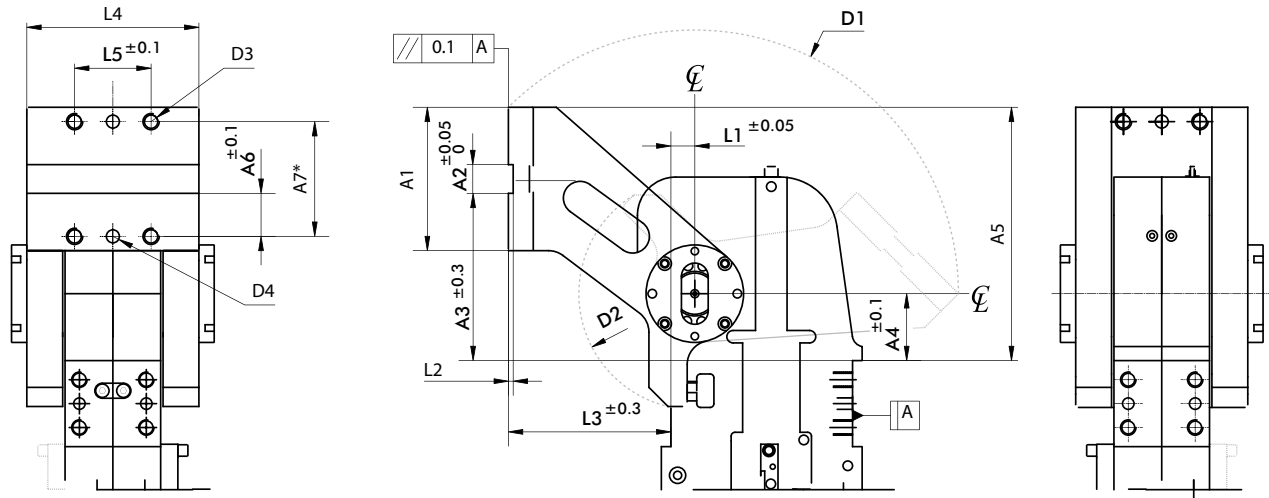
Arm opening angles offered:
 45° Arm Opening Angle
 90° Arm Opening Angle
 120° Arm Opening Angle

Swivel Arm Position



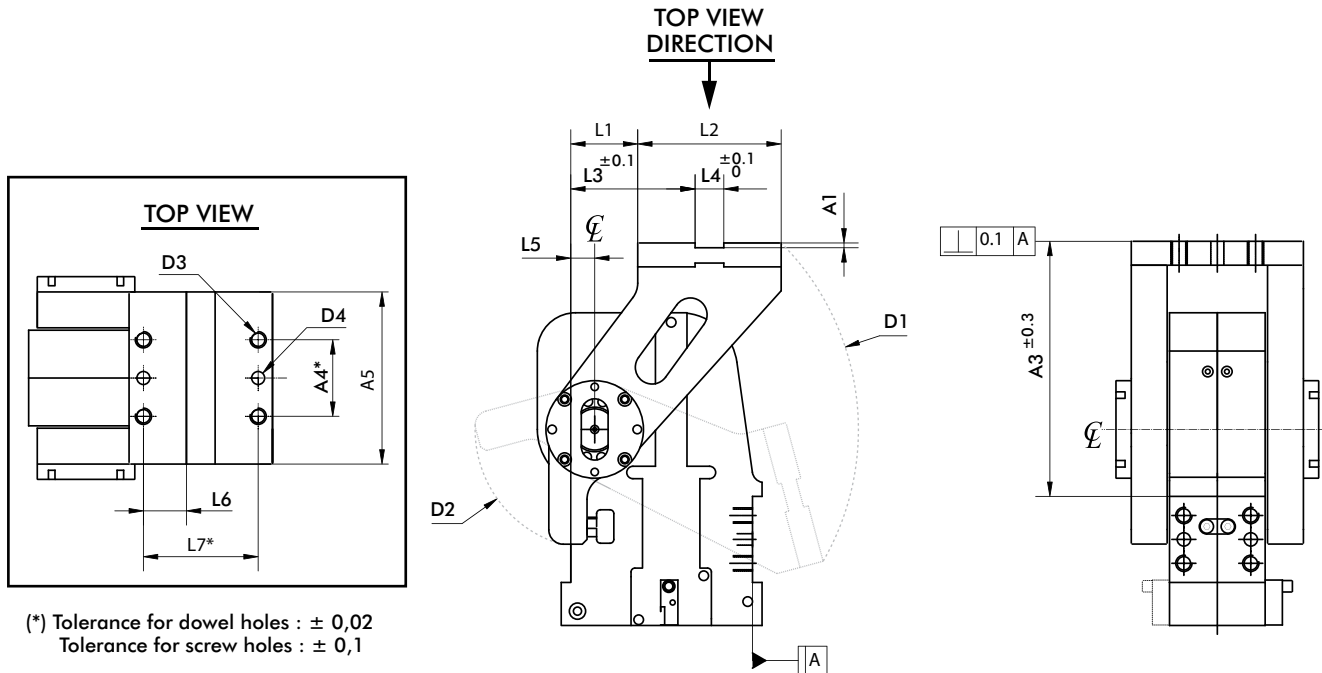
GR and RC Series Medium Duty Pivot Units-Dimensions

Type "LS" Vertical Orientation Dimensions



MODEL	A1	A2	A3	A4	A5	A6	A7	L1	L2	L3	L4	L5	D1	D2	D3	D4	H7	Max. opening angle	
	mm												~	~					
GR/RC100-...V/LS	110	30	125	50	195	30	90	20	5	140	145	60	216	117	M12	Ø10		120°	
GR/RC125-...V/LS																			
GR/RC160-...V/LS	150	30	175	70	265	45	120	25	5	170	180	80	276	126	M16	Ø12			
GR/RC200-...V/LS																			

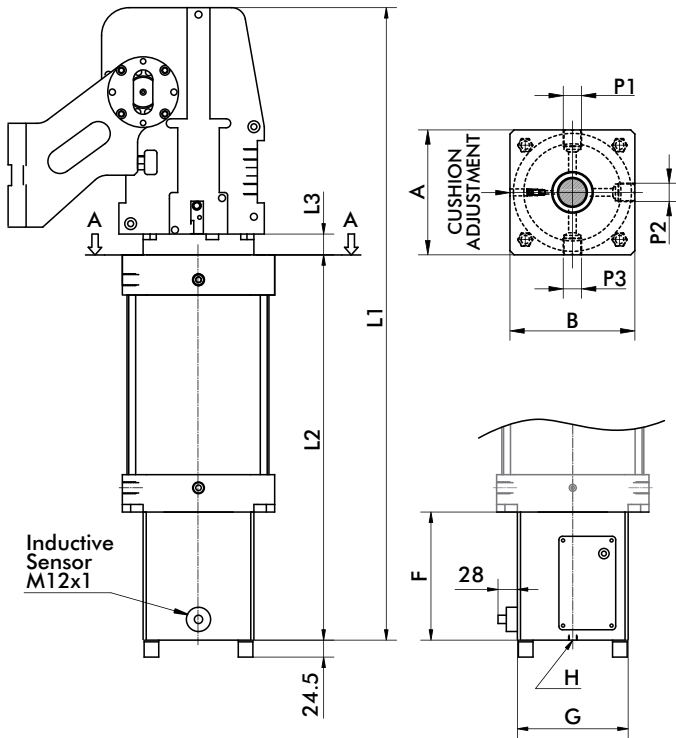
Type "LS" Horizontal Orientation Dimensions



MODEL	A1	A2	A3	A4	A5	L1	L2	L3	L4	L5	L6	L7	D1	D2	D3	D4	H7	Max. opening angle	
	mm												~	~					
GR/RC100-...O/LS	5	50	210	60	145	55	110	95	30	20	30	90	216	117	M12	Ø10		90°	
GR/RC125-...O/LS																			
GR/RC160-...O/LS	5	70	265	80	180	70	150	130	30	25	45	120	276	126	M16	Ø12		80°	
GR/RC200-...O/LS																			

GR and RC Series Medium Duty Pivot Units

GR Series Cylinder Dimensions

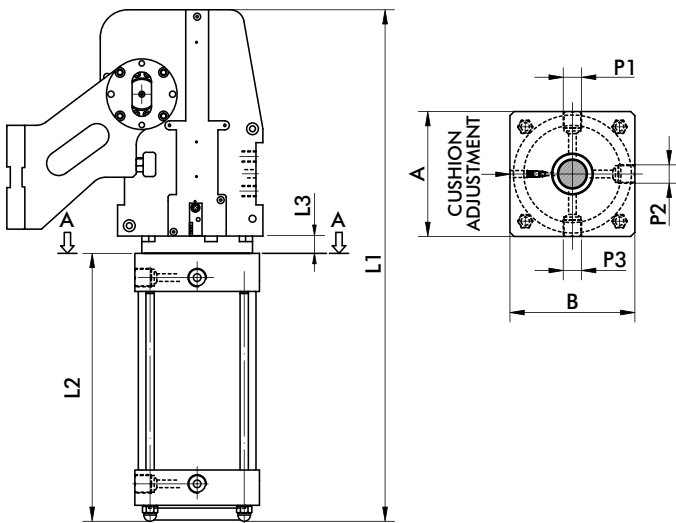


GR MODEL	L1	L2	L3	A-B	P3	P1 - P2	Weight
	mm						
GR100-45°	683.5	383.5					
GR100-90°	728.5	428.5	20	115	1/2" G	1/2" G or 1/2" NPT	36 kg [80 lb]
GR100-120°	758.0	458.0					
GR125-45°	818.0	466.0					
GR125-90°	867.0	515.0	25	160	1/2" G	1/2" G or 1/2" NPT	80 kg [176 lb]
GR125-120°	895.0	543.0					
GR160-45°	827.0	472.0					
GR160-90°	876.0	521.0	28	180	3/4" G	3/4" G or 3/4" NPT	95 kg [209 lb]
GR160-120°	804.0	547.0					
GR200-45°	835.0	478.0					
GR200-90°	884.0	527.0	30	220	3/4" G	3/4" G or 3/4" NPT	103 kg [226 lb]
GR200-120°	912.0	555.0					

NOTE: "P1-P2" DEPENDANT ON ORDERING CODE

GR MODEL	F	G	H
	mm		
GR100	136	115 SQ	1/4"
GR125	185	160 SQ	1/4"
GR160	185	160 SQ	1/4"
GR200	185	160 SQ	1/4"

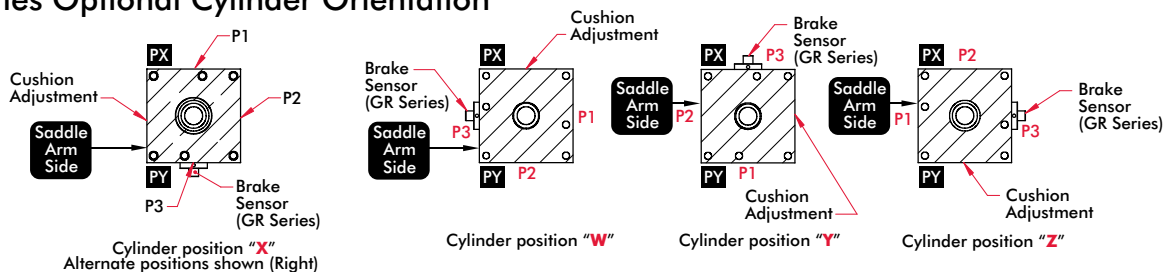
RC Series Cylinder Dimensions



RC MODEL	L1	L2	L3	A-B	P3	P1 - P2	Weight
	mm						
RC100-45°	566.5	266.5					
RC100-90°	611.5	311.5	20	115	1/2" G	1/2" G or 1/2" NPT	29 kg [64 lb]
RC100-120°	641.0	341.0					
RC125-45°	656.0	304.0					
RC125-90°	705.0	353.0	25	160	1/2" G	1/2" G or 1/2" NPT	62 kg [137 lb]
RC125-120°	733.0	381.0					
RC160-45°	665.0	310.0					
RC160-90°	714.0	359.0	28	180	3/4" G	3/4" G or 3/4" NPT	77 kg [170 lb]
RC160-120°	742.0	387.0					
RC200-45°	670.0	313.0					
RC200-90°	719.0	362.0	30	220	3/4" G	3/4" G or 3/4" NPT	85 kg [187 lb]
RC200-120°	746.5	389.5					

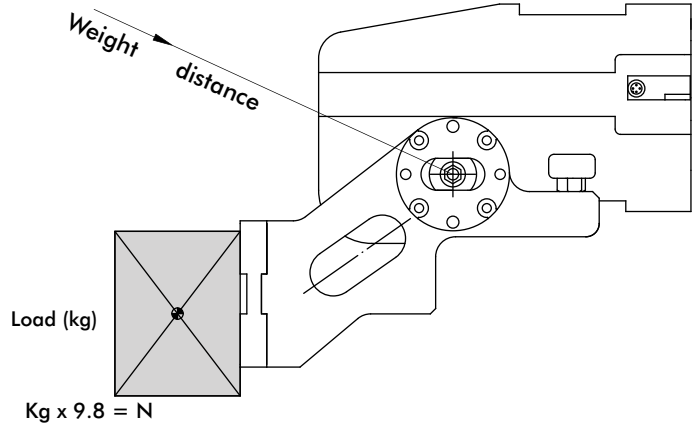
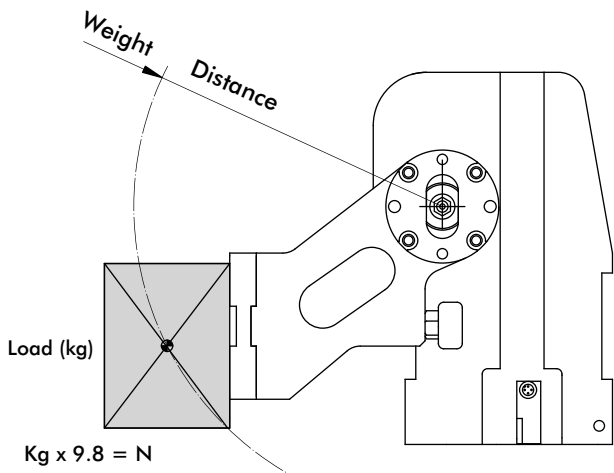
NOTE: "P1-P2" DEPENDANT ON ORDERING CODE

GR & RC Series Optional Cylinder Orientation



GR and RC Series Medium Duty Pivot Units

Maximum Torque for Weight



Model	Maximum Torque for Weight - ≤ 90° opening					
	58psi / 4 Bar		72psi / 5 Bar		87psi / 6 Bar	
	lbf*in	N*m	lbf*in	N*m	lbf*in	N*m
GR/RC100	1062	120	1328	150	1682	190
GR/RC125	1563	180	2124	240	2567	290
GR/RC160	2832	320	3629	410	4425	500
GR/RC200	4514	510	5841	660	7081	800

Model	Maximum Torque for Weight - > 90° opening					
	58psi / 4 Bar		72psi / 5 Bar		87psi / 6 Bar	
	lbf*in	N*m	lbf*in	N*m	lbf*in	N*m
GR/RC100	620	70	797	90	1062	120
GR/RC125	1239	140	1593	180	2036	230
GR/RC160	2124	240	2744	310	3540	400
GR/RC200	3629	410	4602	520	5488	620

Model	Maximum Torque with Side Load for Weight					
	58psi / 4 Bar		72psi / 5 Bar		87psi / 6 Bar	
	lbf*in	N*m	lbf*in	N*m	lbf*in	N*m
GR/RC100	708	80	708	80	708	80
GR/RC125	1770	200	1770	200	1770	200
GR/RC160	1770	200	1770	200	1770	200
GR/RC200	1770	200	1770	200	1770	200

Center of Gravity to Pivot (distance in Meters [Inches]) X Tooling Weight (N [lb]) = Torque for weight (N°m [lbf*in])
 Distance from Center of Gravity to pivot is measured parallel to the floor

Notes

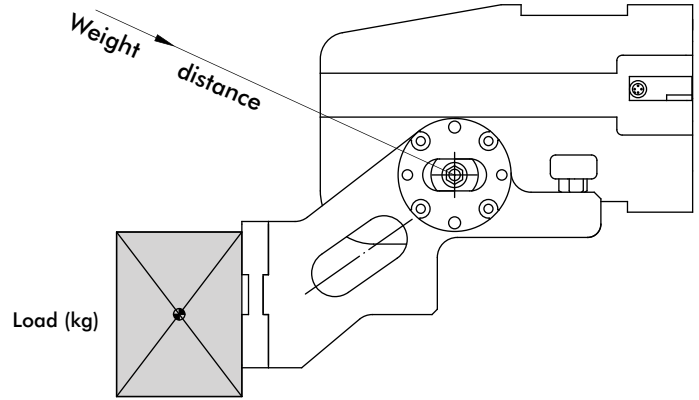
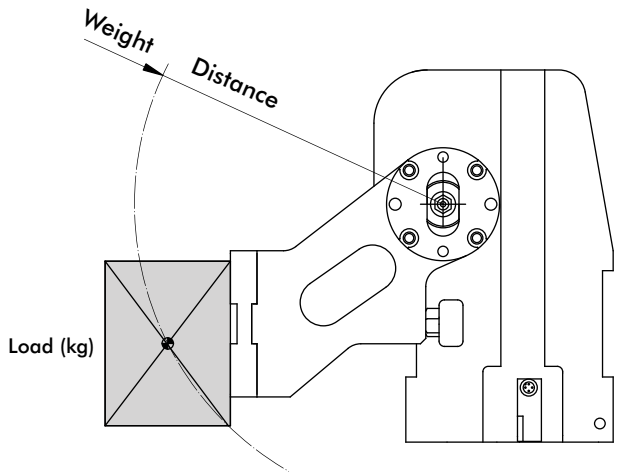
The total torque for the application must be less than the Maximum Torque for a given pressure in the Maximum Torque for Weight charts above. For applications with a total torque greater than the Maximum Torque shown, please see RU Series Pivot Units.

Based on cycle time of 7-8 seconds. Flow controls must be used to provide this cycle time. Cushions must also be adjusted to provide deceleration to the load. Failure to control movement will severely damage unit and cause premature failure.

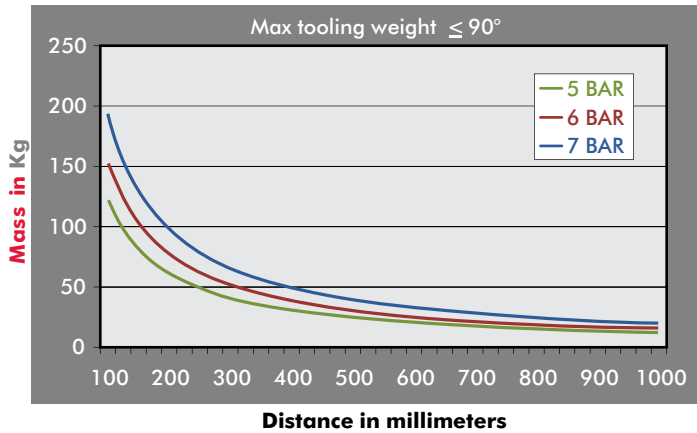
Use the following graphs to determine the maximum amount of tooling weight that is allowed. The tooling load should be placed as close to the center line of the unit as possible.

GR and RC Series Medium Duty Pivot Units

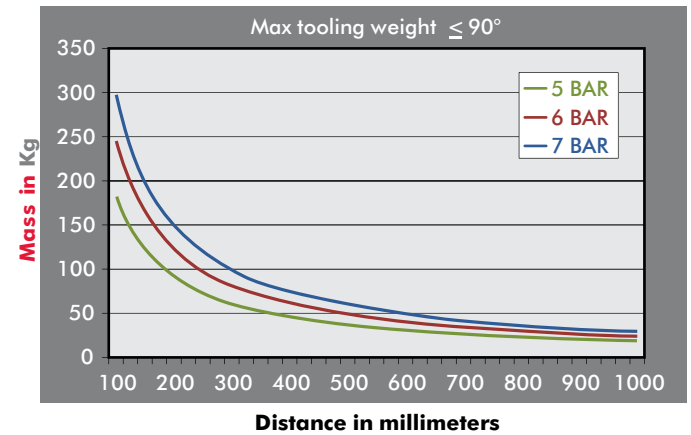
Maximum Added Tooling Weight less than 90°



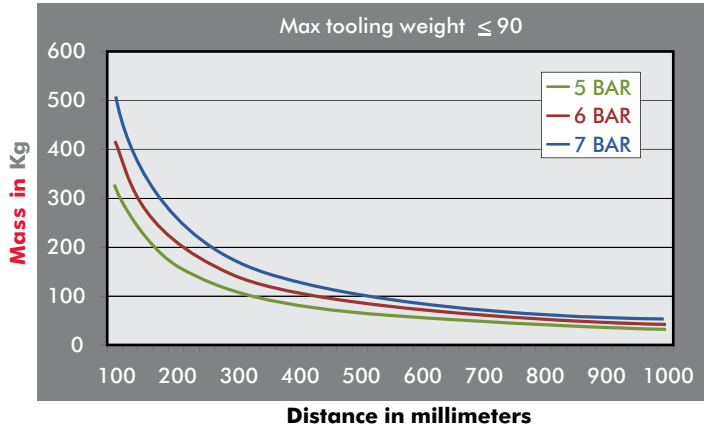
GR/RC 100



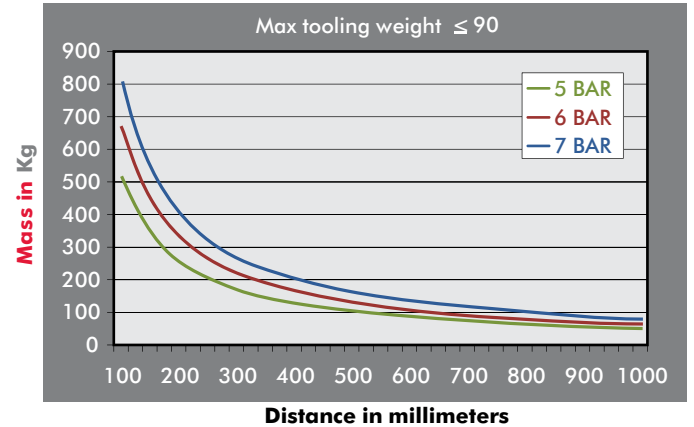
GR/RC 125



GR/RC 160

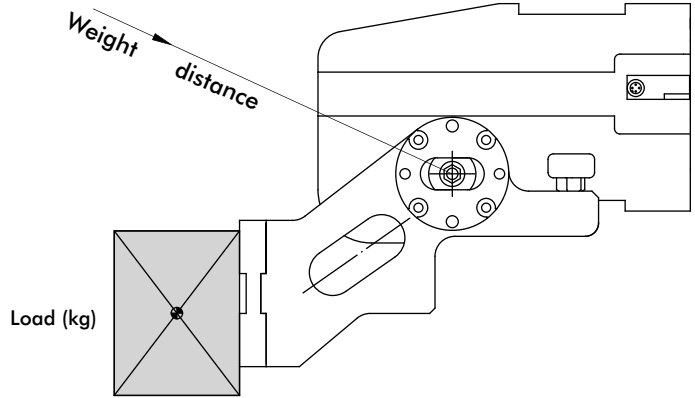
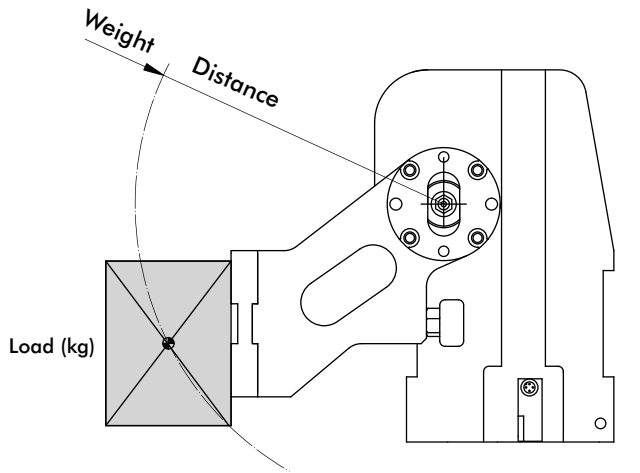


GR/RC 200

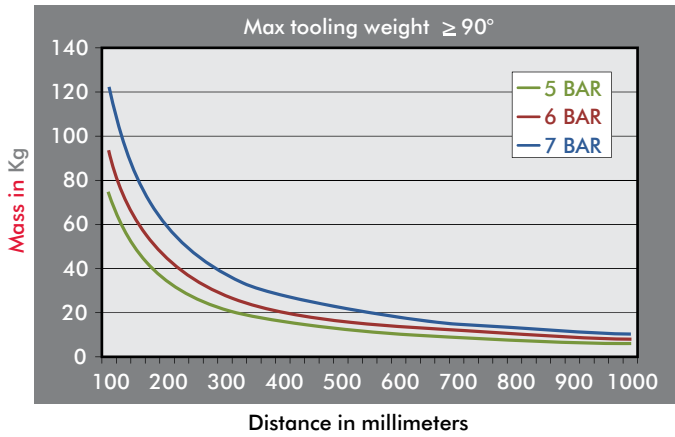


GR and RC Series Medium Duty Pivot Units

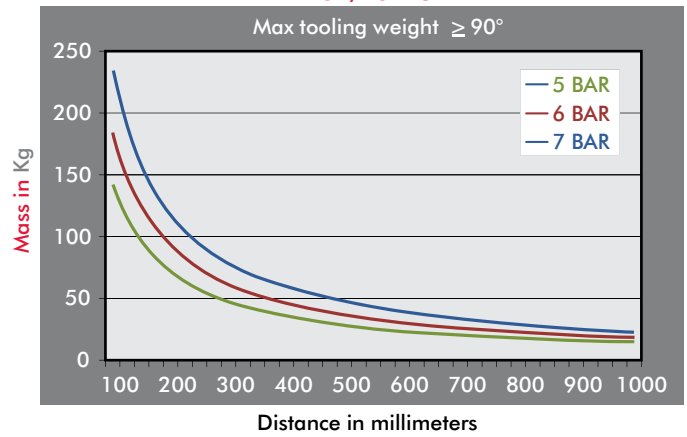
Maximum Added Tooling Weight Greater than 90°



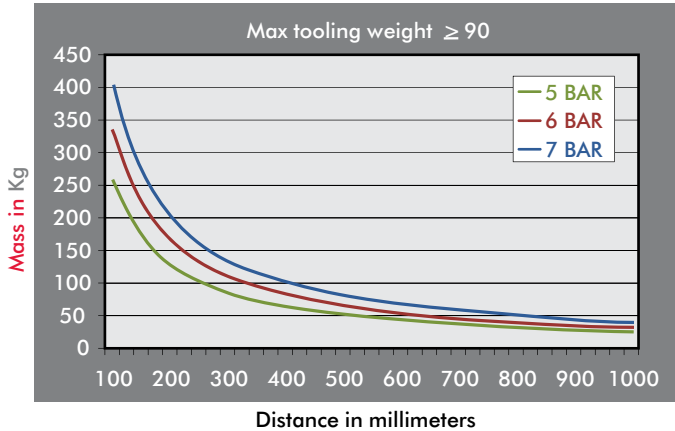
GR/RC 100



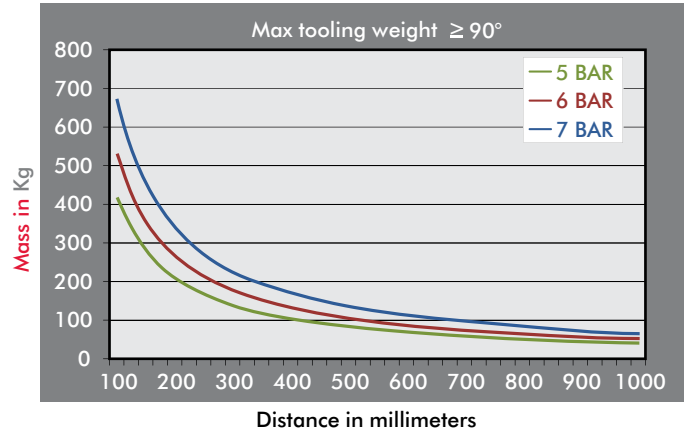
GR/RC 125



GR/RC 160

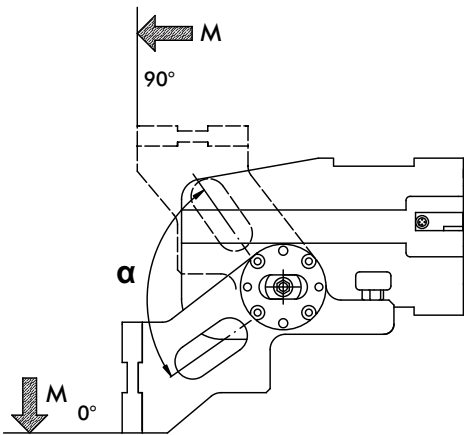


GR/RC 200

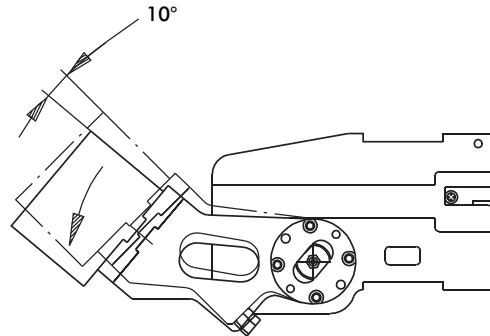


GR and RC Series Medium Duty Pivot Units

Force Charts for Opening Angles



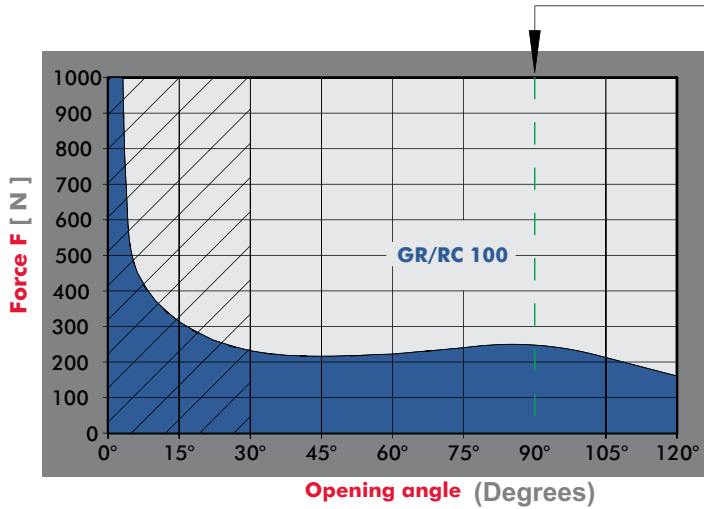
(Values calculated at 1 m from center of rotation)



Play of swing arm while closed emergency stop value

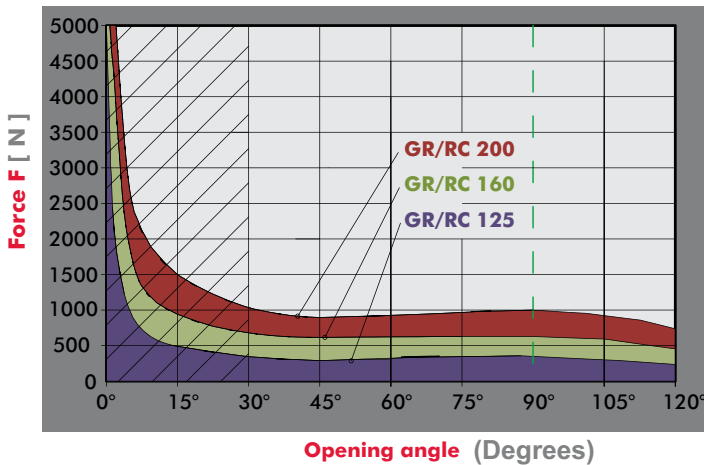
Conditions:

- Emergency stop in operator
 - Cylinder depressurized
 - Max. load
- Max. play 10°



MODEL	TORQUE WITH ARM AT 90°
GR/RC 100	240 Nm
GR/RC 125	370 Nm
GR/RC 160	630 Nm
GR/RC 200	1000 Nm

NOTE: Values at 6 bar



WARNING: Make sure that the tilting device runs a complete working cycle and reaches the angle position at 0°. (Any interference in the highlighted angle area may seriously damage both the tooling and the tilting device, as the result of the very high forces developed, as shown in the chart).

Do not use external stops with GR/RC Series Pivot Units!

RU Series Heavy Duty Pivot Units

Features and Benefits

RU Series Pivot Units are toggle-locking pivot units which can be used in horizontal, vertical, or side mounted applications

Hydraulic-Pneumatic Cylinder System

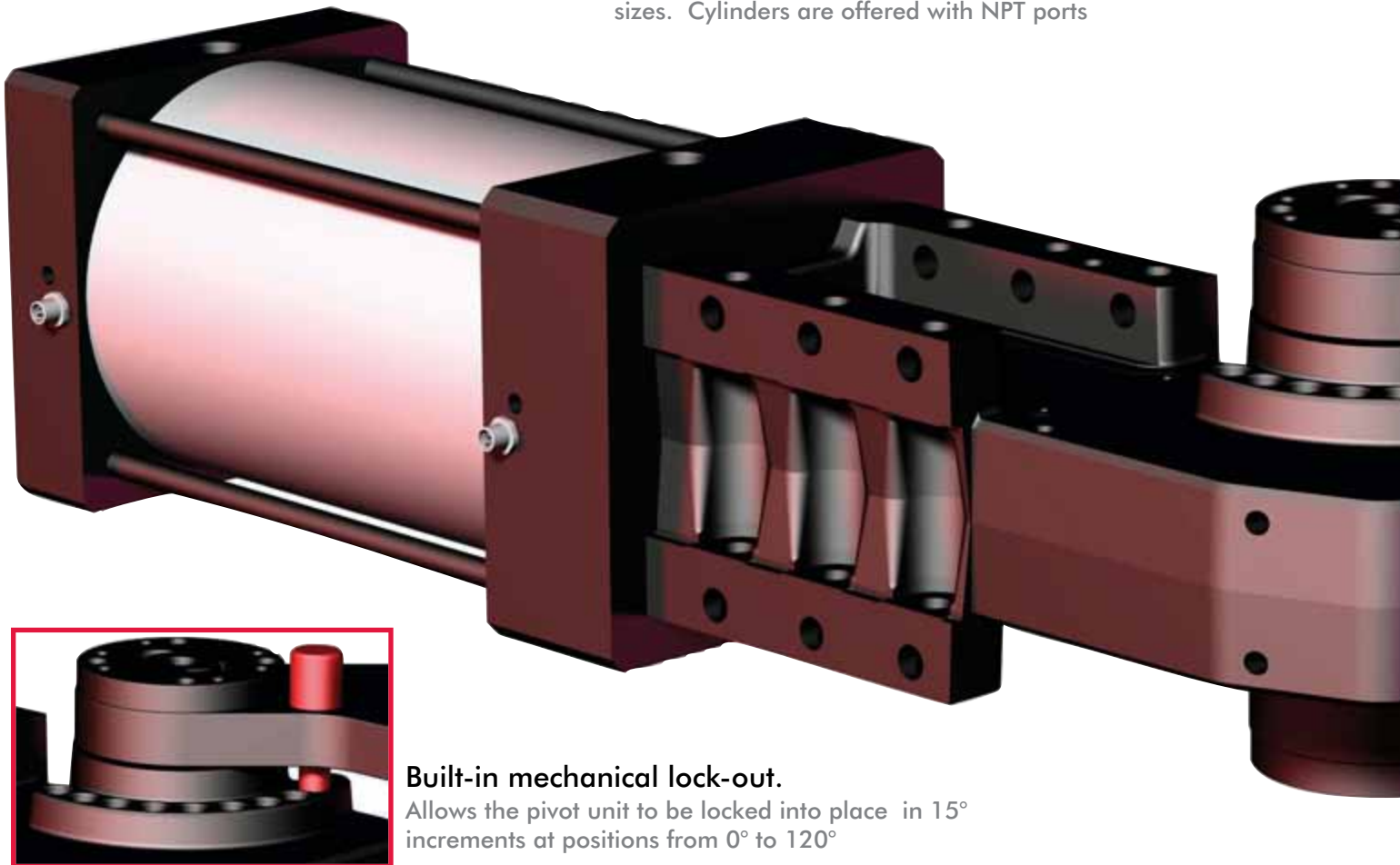
Operates in the same manner as a typical cylinder. The piston rod in the cylinder, however, utilizes a hydraulic rod system which provides smooth operation throughout the stroke of the cylinder.

Front, back, and side mounting surfaces

Offers the option of mounting the RU Pivot in the front or back so that you can use the pivot unit as a tip or dump unit. The RU Series pivot unit can also be mounted on its side as shown and can be used as a rotate unit.

Three different cylinder bore sizes

Available in 125, 160 & 200mm cylinder bore sizes. Cylinders are offered with NPT ports



Built-in mechanical lock-out.

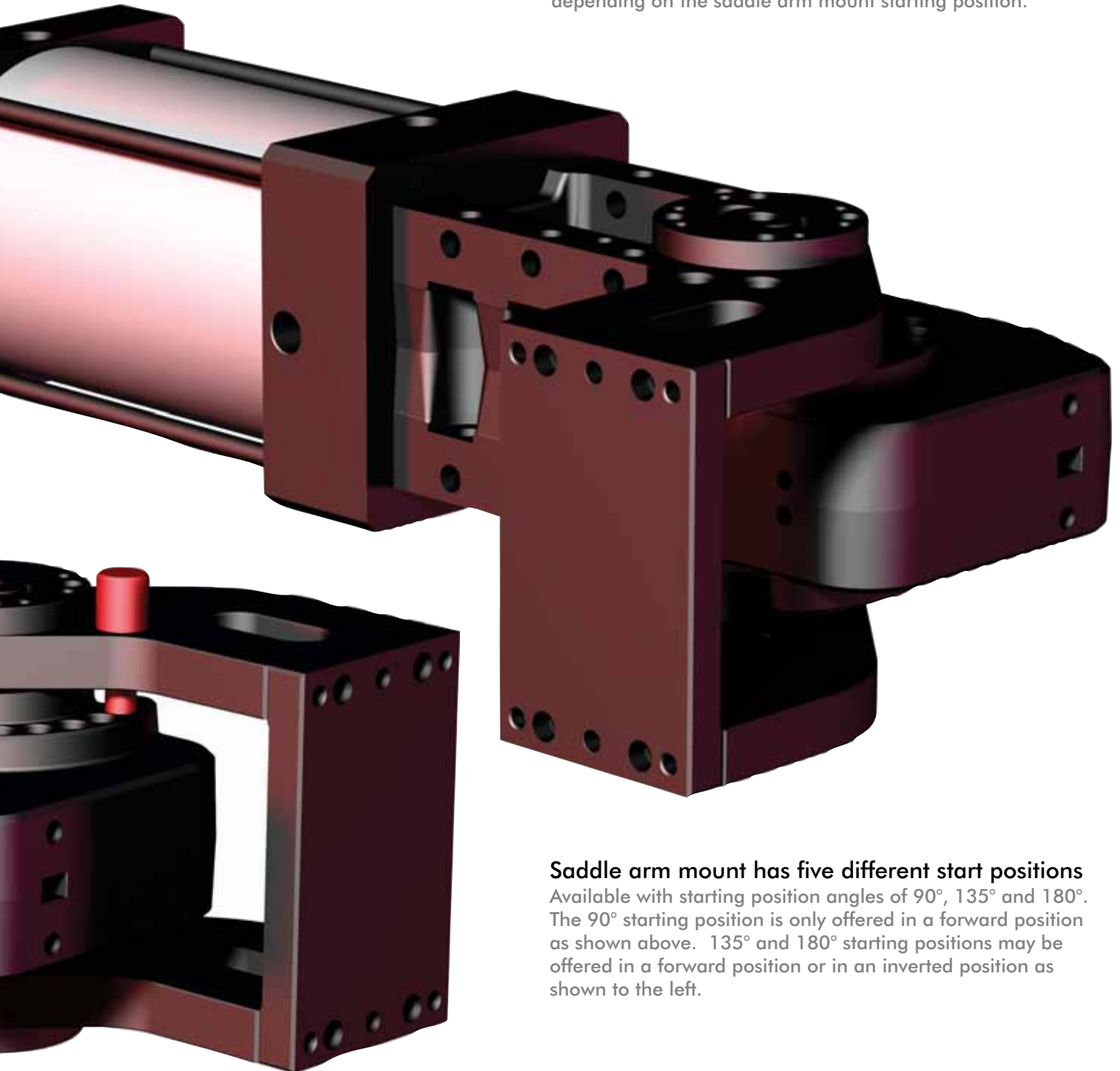
Allows the pivot unit to be locked into place in 15° increments at positions from 0° to 120°

RU Series Medium Duty Pivot Units

Features and Benefits

Eight arm opening angles

Available in 15° increments starting from 15° up to 120°, depending on the saddle arm mount starting position.

**Saddle arm mount has five different start positions**

Available with starting position angles of 90°, 135° and 180°. The 90° starting position is only offered in a forward position as shown above. 135° and 180° starting positions may be offered in a forward position or in an inverted position as shown to the left.

RU Series Heavy Duty Pivot Units

Ordering Information

RU

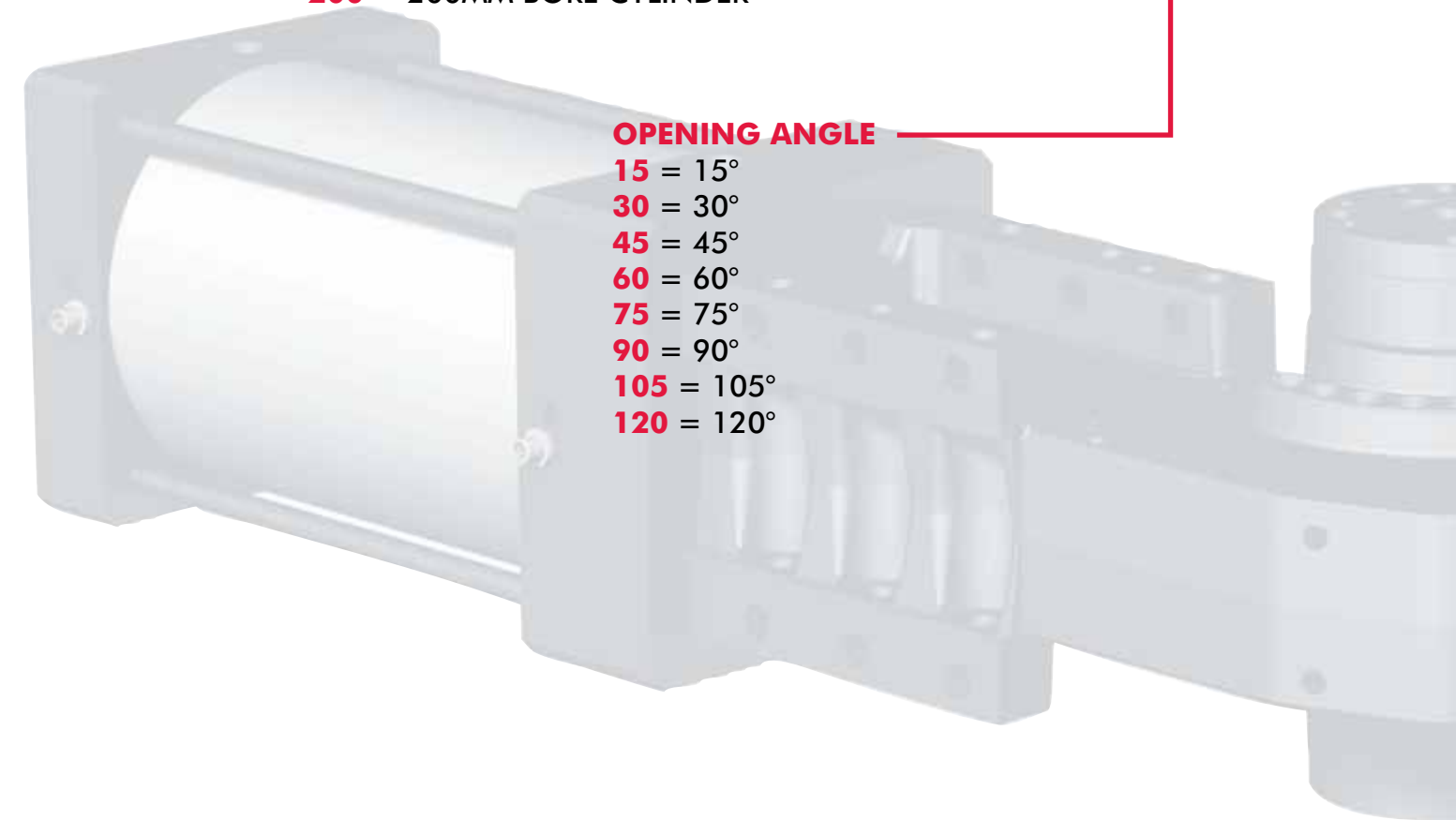
PNEUMATIC PIVOT MODEL
RU = RU SERIES PIVOT UNITS
WITH TOGGLE MECHANISM

200

CYLINDER OPTIONS
125 = 125MM BORE CYLINDER
160 = 160MM BORE CYLINDER
200 = 200MM BORE CYLINDER

90**OPENING ANGLE**

15 = 15°
30 = 30°
45 = 45°
60 = 60°
75 = 75°
90 = 90°
105 = 105°
120 = 120°



Ordering Information

0090

X

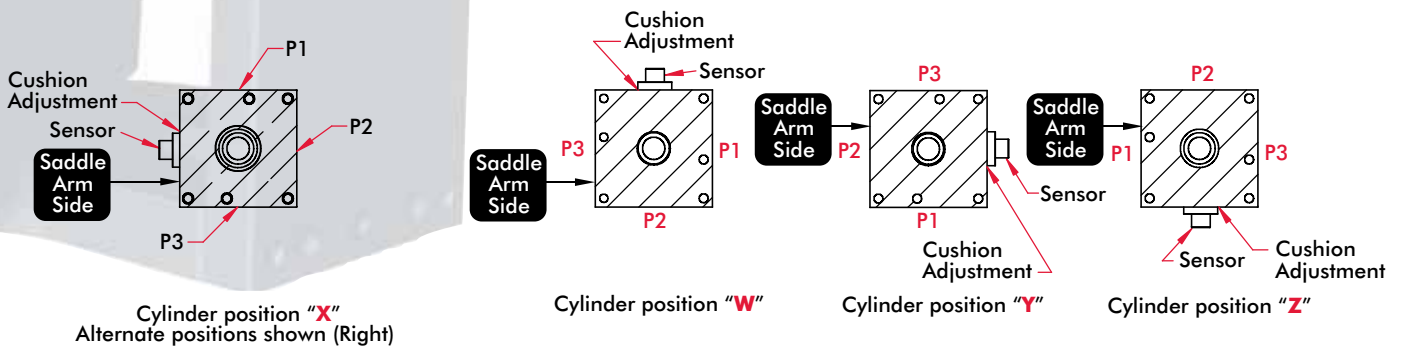
CYLINDER POSITION

- X** = CYLINDER POSITION X
- Y** = CYLINDER POSITION Y
- W** = CYLINDER POSITION W
- Z** = CYLINDER POSITION Z

SADDLE MOUNT BRACKET POSITION

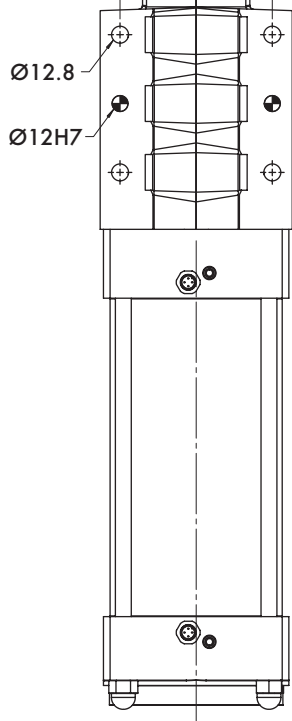
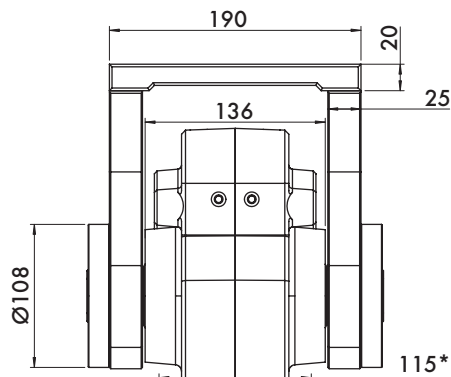
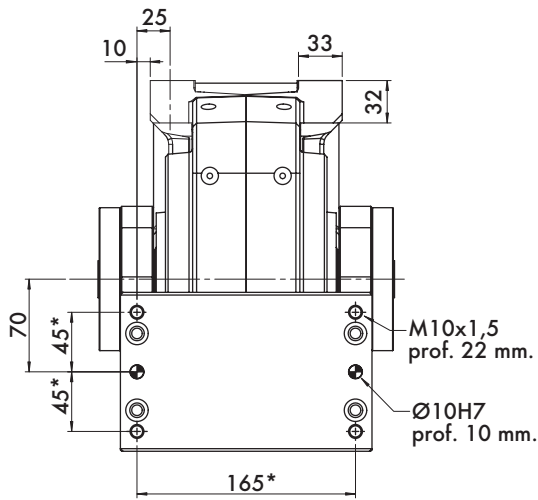
- 0000** = WITHOUT SADDLE MOUNT BRACKET
- 0090** = (120° MAXIMUM ROTATION)
- 135A** = (105° MAXIMUM ROTATION)
- 135B** = (120° MAXIMUM ROTATION)
- 180A** = (60° MAXIMUM ROTATION)
- 180B** = (120° MAXIMUM ROTATION)

RU Series Optional Cylinder Position

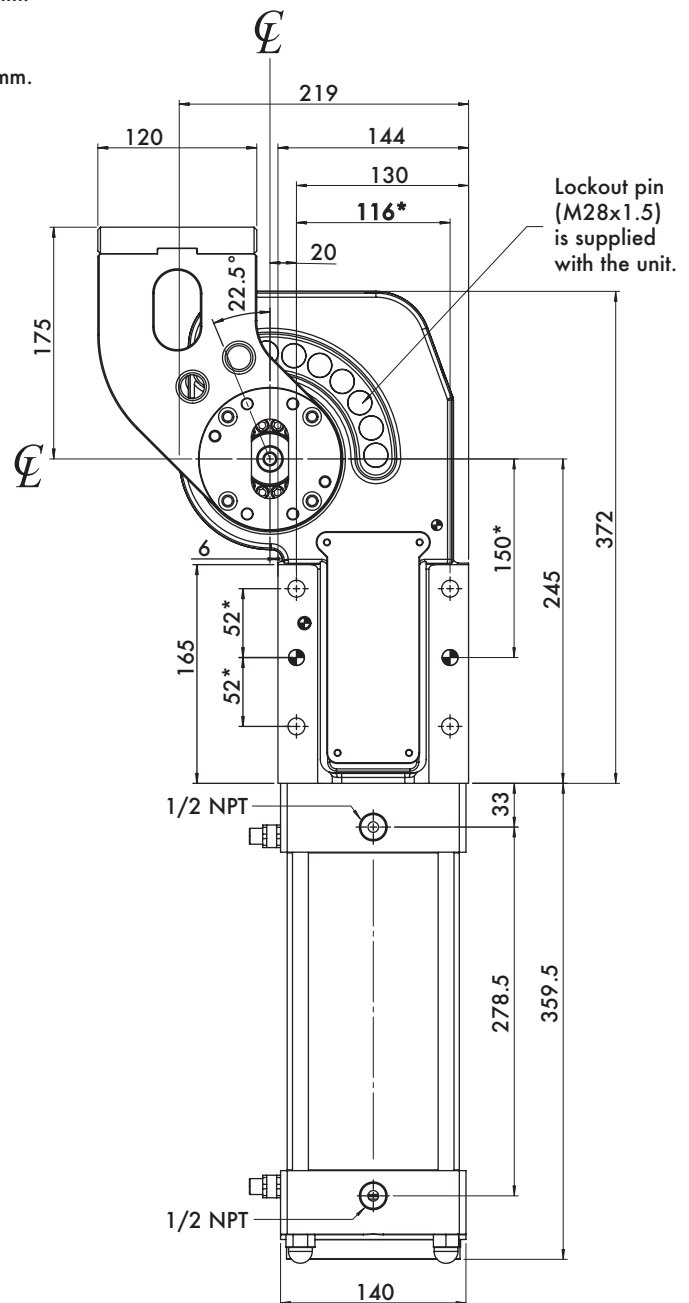


RU Series Heavy Duty Pivot Units

125mm Cylinder Bore Pivot Dimensions



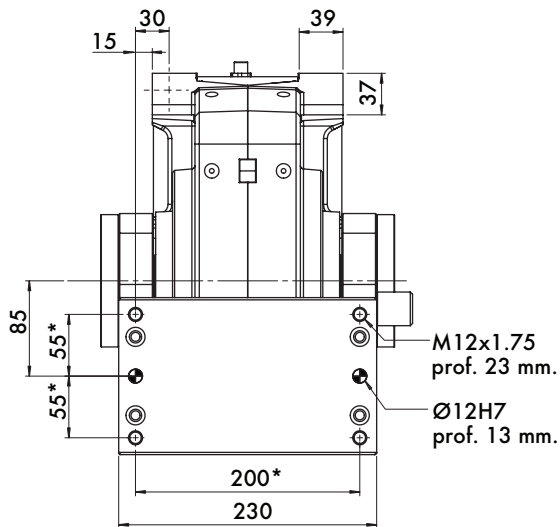
* Tolerance for dowel holes : ± 0.02
 Tolerance for screw holes : ± 0.1



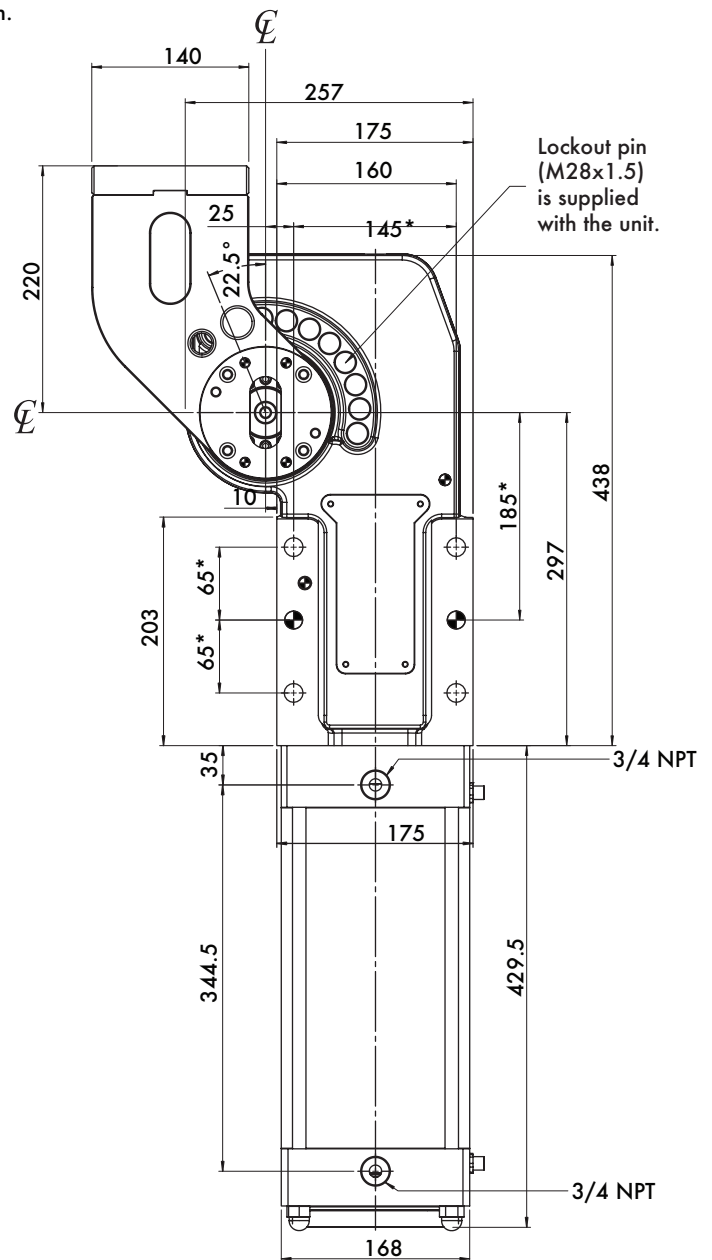
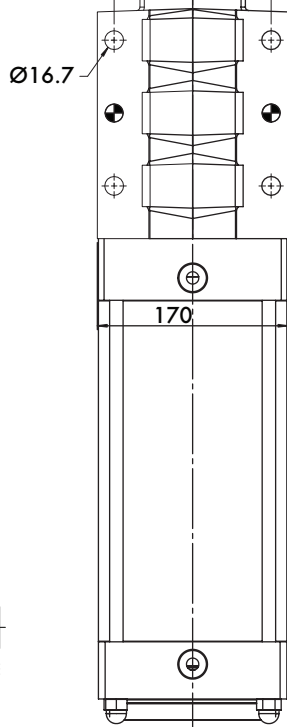
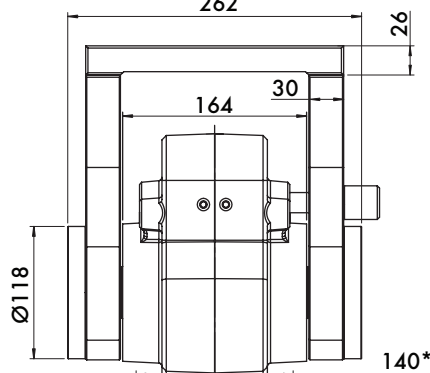
mm [INCH]

 THIRD ANGLE PROJECTION

160mm Cylinder Bore Pivot Dimensions



* Tolerance for dowel holes : ± 0.02
Tolerance for screw holes : ± 0.1

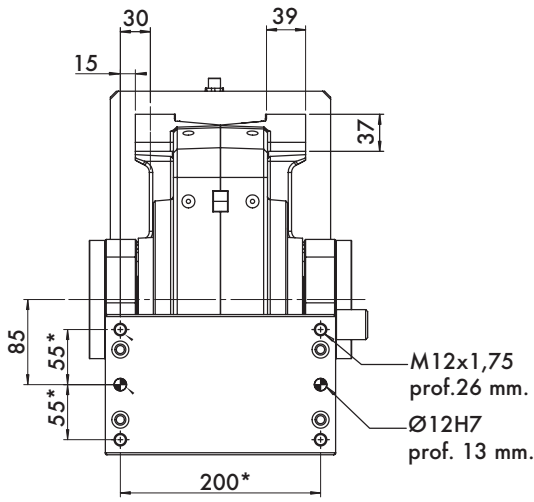


Lockout pin (M28x1.5) is supplied with the unit.

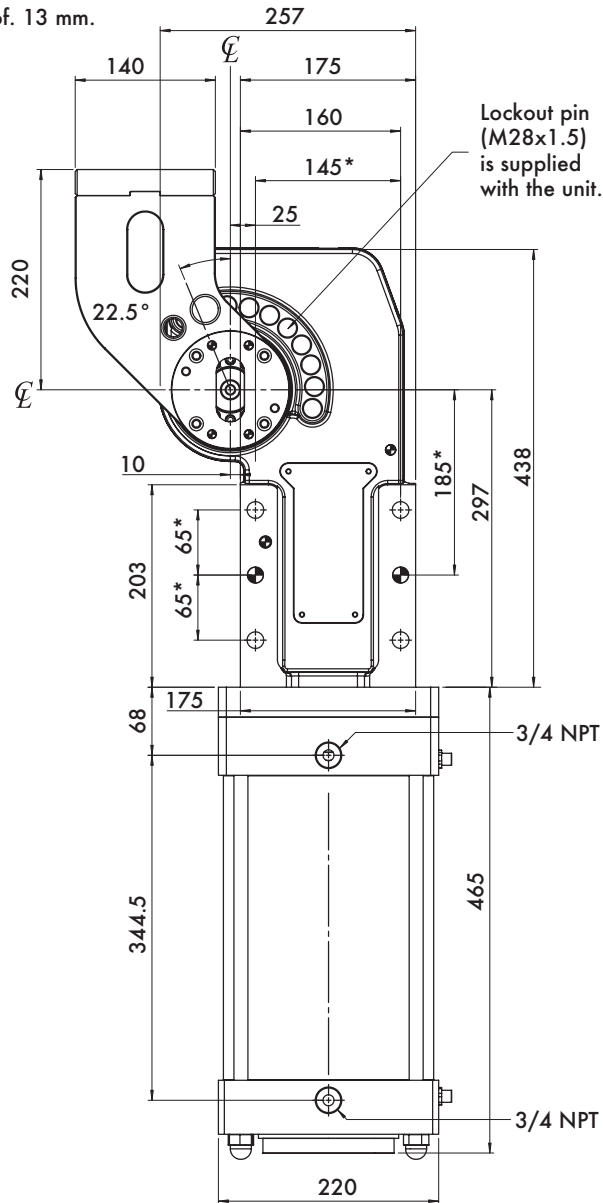
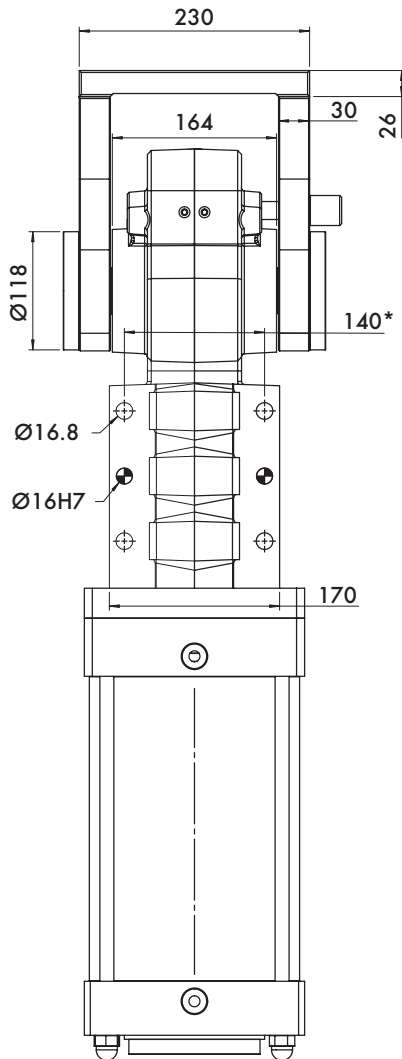
mm [INCH]
THIRD ANGLE PROJECTION

RU Series Heavy Duty Pivot Units

200mm Cylinde Bore Pivot Dimensions



* Tolerance for dowel holes : ± 0.02
Tolerance for screw holes : ± 0.1



mm [INCH]
THIRD ANGLE PROJECTION

RU Series Heavy Duty Pivot Units

Saddle Arm Mount Bracket Positions

Saddle Arm Mount has five different start positions Available with starting position angles of 90°, 135° and 180°. The 90° starting position is only offered in a forward position. 135° and 180° starting positions may be offered in a forward position or in an inverted position.



90 Mount Style

90° Forward Bracket Position
120° Maximum Rotation



135A Mount Style

135° Forward Bracket Position
105° Maximum Rotation



135B Mount Style

135° Inverted Bracket Position
120° Maximum Rotation



180A Mount Style

180° Forward Bracket Position
60° Maximum Rotation



180B Mount Style

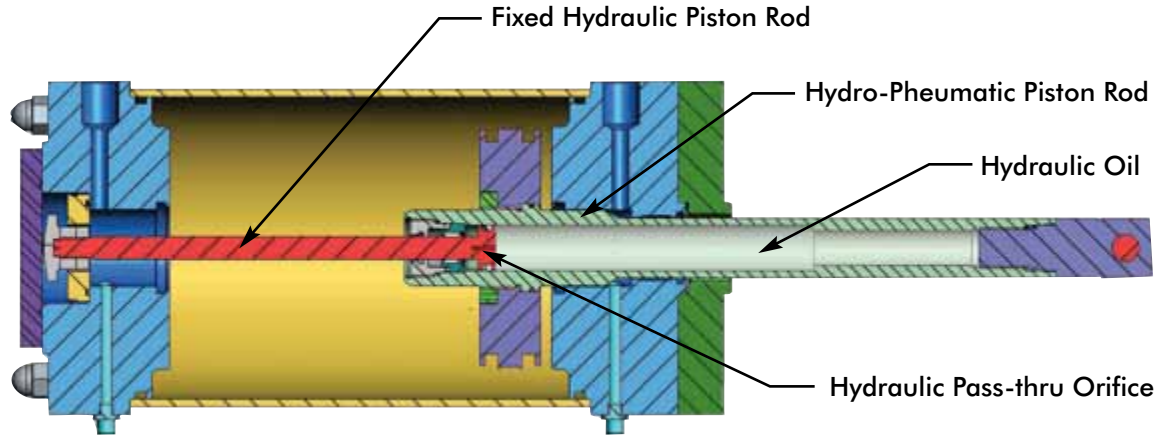
180° Inverted Bracket Position
120° Maximum Rotation

RU Series Heavy Duty Pivot Units

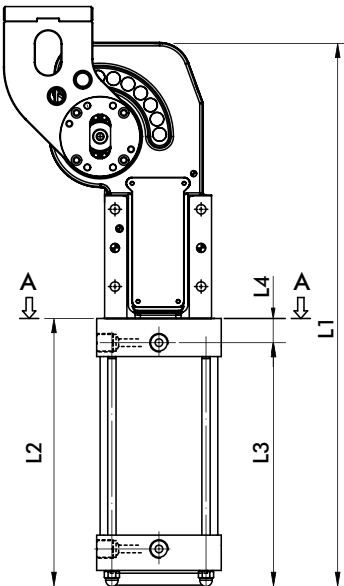
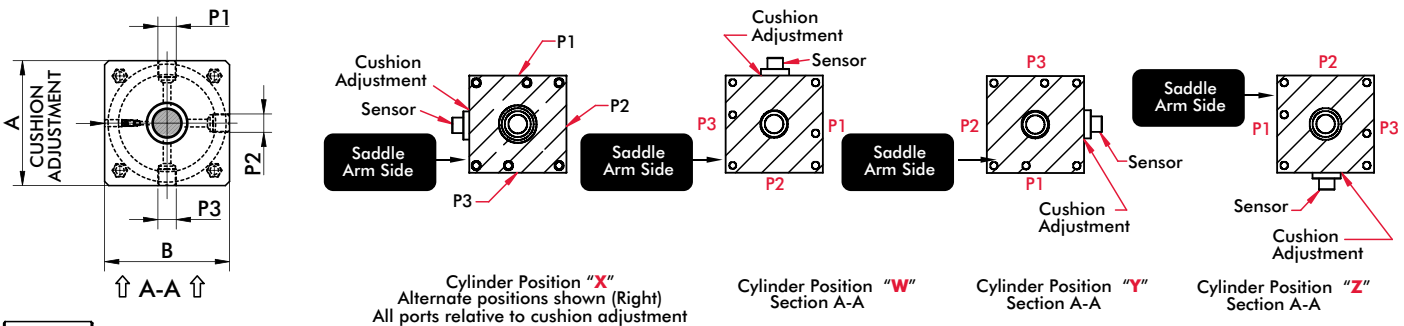
Hydraulic-Pneumatic Cylinder

Operating Principle

The RU Series pivot unit utilizes a hydraulic rod system completely contained within the pneumatic cylinder rod to control the mass moved by the pivot unit. The system works with hydraulic oil passing through an orifice in the fixed hydraulic piston rod between chambers within the hydro-pneumatic piston rod. The system has a fixed orifice and does not need adjustment. This system provides constant speed, eliminating sudden movement and abrupt impact at the end of stroke.



Hydraulic-Pneumatic Cylinder - Dimensions and Cylinder Orientation



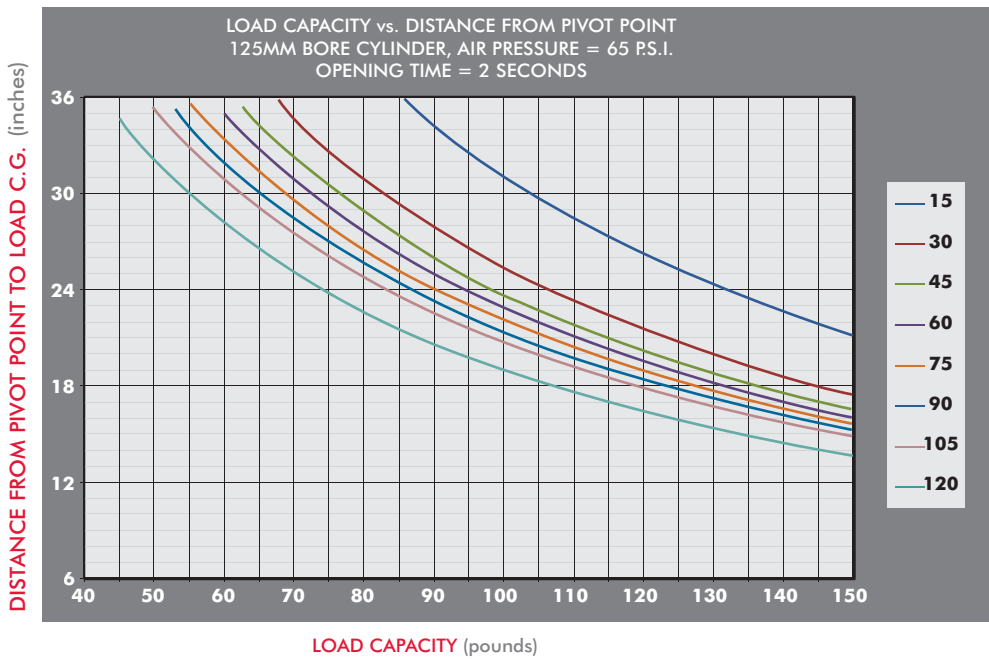
Model	Arm Position	Max. Arm Opening	L1	L2	L3	L4	A - B	P1,P2,P3	Weight
RU125	90	120°	731.5	359.5	278.5				
RU125	135A	105°	713.5	341.5	260.5				
RU125	135B	120°	731.5	359.5	278.5	33	140	1/2" NPT	58 kg [128 lb]
RU125	180A	60°	657.5	285.5	204.5				
RU125	180B	120°	731.5	359.5	278.5				
RU160	90	120°	867.5	705	344.5				
RU160	135A	105°	849.5	733	326.5				
RU160	135B	120°	867.5	741	344.5	35	168	3/4" NPT	100 kg [220 lb]
RU160	180A	60°	793.5	665	270.5				
RU160	180B	120°	867.5	714	344.5				
RU200	90	120°	903	465	344.5				
RU200	135A	105°	885	447	326.5				
RU200	135B	120°	903	465	344.5	68	220	3/4" NPT	122 kg [269 lb]
RU200	180A	60°	829	391	270.5				
RU200	180B	120°	903	465	344.5				



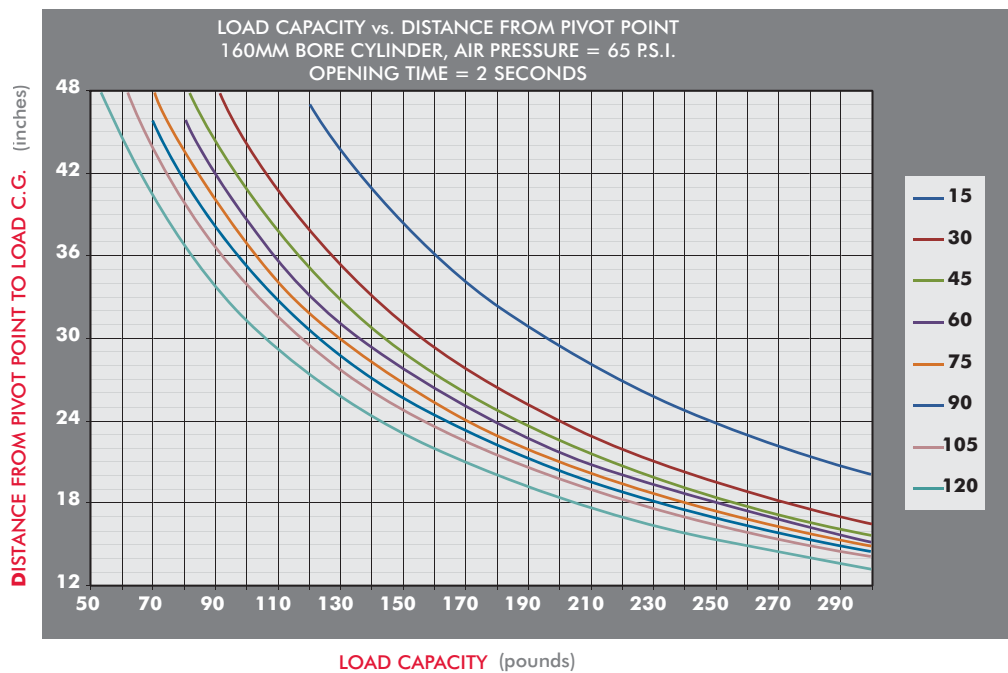
Force Charts for Opening Angles

Lifting Applications

RU SERIES 125MM UNIT (LIFTING APPLICATIONS)



RU SERIES 160MM PIVOT UNIT (LIFTING APPLICATIONS)

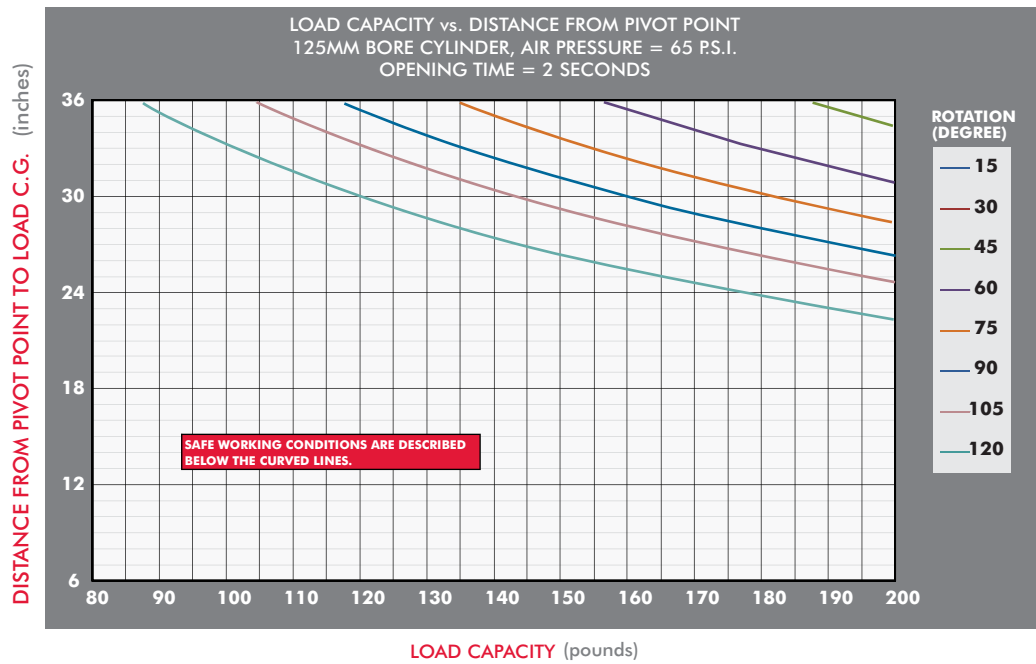


RU Series Heavy Duty Pivot Units

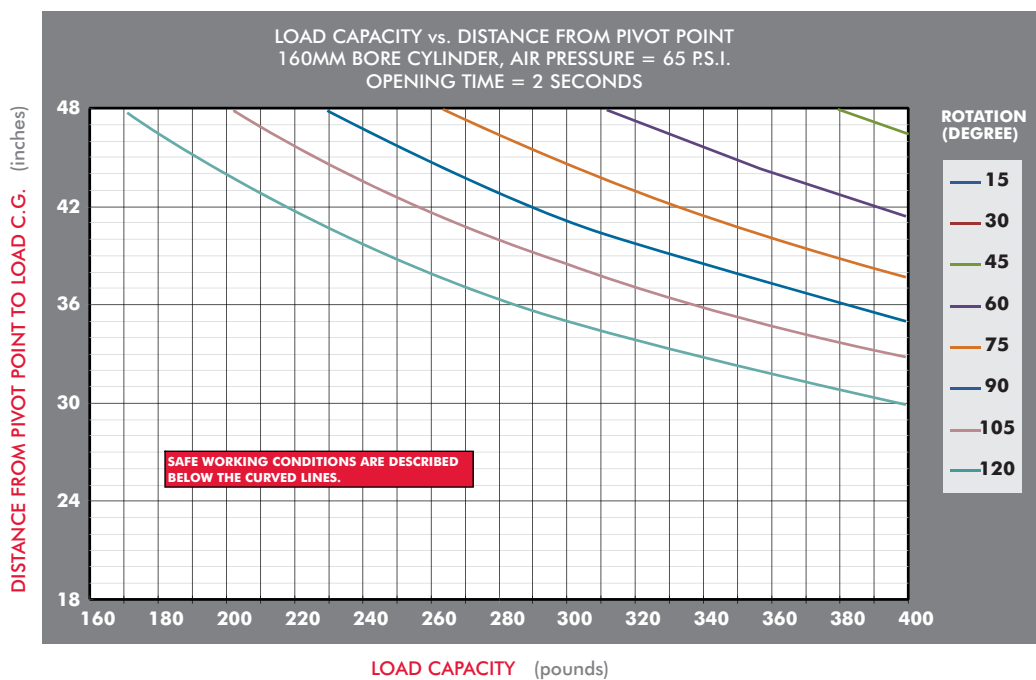
Force Charts for Opening Angles


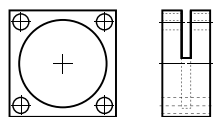
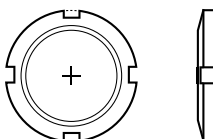

Horizontal/Rotating Applications





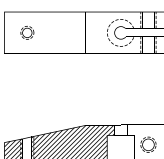

RU SERIES 125MM PIVOT UNIT (HORIZONTAL APPLICATIONS)



RU SERIES 160/200MM PIVOT UNIT (HORIZONTAL APPLICATIONS)



Hydraulic Clamping		Page
	010-210-400	19.2-19.3
	010-210-501	
	010-210-702	
	010-211-002	
	010-211-004	
	010-211-502	
	010-211-504	
	010-212-004	
	052-Series	19.3
	051-Series	19.3
	020-011-011DE	19.4
	020-012-021DE	
	020-013-031DE	

Hydraulic Clamping		Page
	030-1-S-475	19.6
	030-1-D-475	
	030-1-S-1100	19.7
	030-1-D-1100	
	030-1-S-2400	19.8
	030-1-D-2400	
	030-1-S-4000	19.9
	030-1-D-4000	19.9
	031-S-475	19.1-19.11
	031-L-475	
	031-S-1100	
	031-L-1100	
	031-S-2400	
	031-L-2400	
	031-S-4000	
	031-L-4000	
	039-101-000DE	19.12
	039-104-000DE	
	039-108-000DE	
	039-109-000DE	

Series 010 Hydraulic Threaded Body Cylinders Product Overview

The single-action, spring-return hydraulic power cylinders are small pistons that can be used singly or combined. They offer tremendous force in a small, easily mounted package that can be used in any attitude and requires only a single inlet port. They are often used grouped together by a common manifold to provide as much force as needed for the operation. For a relatively small volume of oil, they provide exceptional exerting force, and are generally the best choice if stroke lengths can be kept short.

Features:

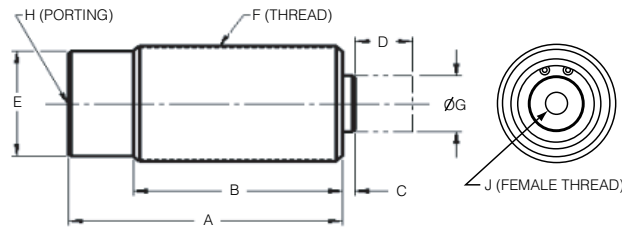
- Threaded body for easy mounting
- Small size permits “low profile” workholding
- Accessories available for easy mounting
- Available in metric or inch sizes (Metric on special request)
- Hardened piston and rod
- Single-acting for simple plumbing
- Wide variety of sizes and strokes
- Pressure capacity up to 5,000 PSIG, provided piston does not bottom out



Technical Information

Model no.	SAE Ports	Threaded Body	Stroke	Force at 3,000 PSIG	Oil Displacement	Effective Area For Clamping	Jamnuts
010-210-400	#2	1/2-20	0.22	279 lbs.	0.024 cu. in.	0.110	Furnished
010-210-501	#4	3/4-16	0.31	588 lbs.	0.061 cu. in.	0.196	Furnished
010-210-702	#4	1-12	0.50	1,326 lbs.	0.221 cu. in.	0.442	Furnished
010-211-002	#4	1 5/16-16	0.50	2,355 lbs.	0.393 cu. in.	0.785	Optional
010-211-004	#4	1 5/16-16	1.00	2,355 lbs.	0.785 cu. in.	0.785	Optional
010-211-502	#4	1 7/8-16	0.50	5,301 lbs.	0.884 cu. in.	1.767	Optional
010-211-504	#4	1 7/8-16	1.00	5,301 lbs.	1.767 cu. in.	1.767	Optional
010-212-004	#4	2 1/2-16	1.00	9,423 lbs.	3.142 cu. in.	3.142	Optional

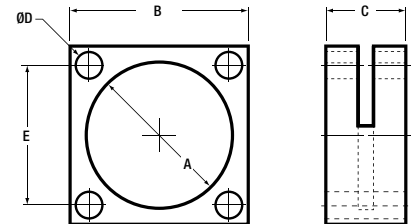
Series 010 Hydraulic Threaded Body Cylinders Standart Dimensions



Model no.	Dimensions (In Inches)								
	A	B	C	D	E	F	G	H	J
010-210-400	1.66	1.41	0.19	0.22	.044 Hex	1/2-20	0.15	SAE #2	-
010-210-501	2.25	1.97	0.22	0.31	.062 Hex	3/4-16	0.22	SAE #4	-
010-210-702	2.56	2.31	0.31	0.50	.075 Hex	1-12	.024	SAE #4	-
010-211-002	2.63	2.25	0.13	0.50	1.00 Hex	1 5/16-16	0.64	SAE #4	1/4-20
010-211-004	3.63	3.25	0.12	1.00	1.00 Hex	1 5/16-16	0.64	SAE #4	1/4-20
010-211-502	2.94	2.57	0.13	0.50	1.50 Hex	1 7/8-16	1.00	SAE #4	5/16-18
010-211-504	4.59	4.22	0.14	1.00	1.50 Hex	1 7/8-16	1.00	SAE #4	5/16-18
010-212-004	4.13	3.76	0.13	1.00	2.00 Hex	2 1/2-16	1.50	SAE #4	5/16-18

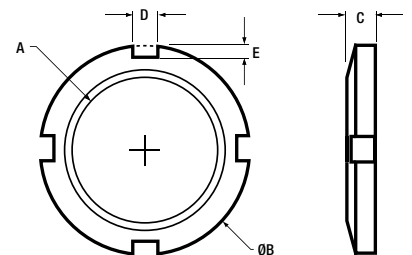
Series 052 Flange Mount

Model no.	Dimensions (In Inches)				
	A	B	C	øD	E
052-112-160	1 1/8-16 UN 2B	1.50	0.50	0.22	1.030
052-131-160	1 5/16-16 UN 2B	1.69	0.50	0.27	1.250
052-137-180	1 3/8-16 UN 2B	1.75	0.50	0.27	1.340
052-187-160	1 7/8-16 UN 2B	2.25	1.00	0.34	1.770
052-250-160	2 1/2-16 UN 2B	3.00	1.00	0.34	2.170



Series 051 Jam Nut

Model no.	Dimensions (In Inches)				
	A	B	C	D	E
051-112-160	1 1/8-16 UN 2B	1.500	0.31	0.250	0.250
051-131-160	1 5/16-16 UN 2B	1.688	0.31	0.250	0.250
051-137-180	1 3/8-16 UN 2B	1.875	0.31	0.250	0.250
051-187-160	1 7/8-16 UN 2B	2.625	0.38	0.312	0.132
051-250-160	2 1/2-16 UN 2B	3.250	0.50	0.312	0.312

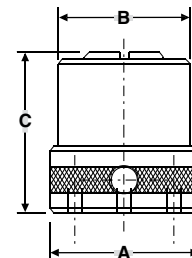
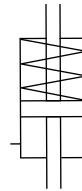


Series 020 Thru-Hole Hydraulic Ram Product Overview

By inserting a rod through the hollow piston, these cylinders can be used to push or pull depending on the orientation of the ram. They will actuate a rod of any length or shape and are extremely effective in translating power to a remote location. Greater forces are generated in these thru-hole rams because of their larger piston area.



Symbol



Features:

- Larger piston diameter for greater clamping forces
- Hardened steel piston and rod
- Single-acting for simple plumbing
- Optional threaded inserts
- Optional mounting plate (permits mounting ram with a single cap screw)

Model no.	RAM I.D.*	Port	Stroke	Force at 3,000 PSIG	Oil Displacement	Dimensions		
						A	B	C
020-011-011DE	0.38	SAE #2	0.38	4,380 lbs.	0.547 cu. in.	2.13	1.88	2.25
020-012-021DE	0.50	SAE #4	0.50	8,100 lbs.	1.35 cu. in.	3.00	2.63	2.88
020-013-031DE	0.63	SAE #4	0.63	12,066 lbs.	2.51 cu. in.	3.25	3.00	3.63

* Clearance for rod or bolt of given dimension.

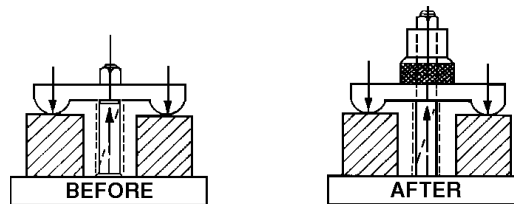
Maximum input pressure 3,500 PSIG.

Accessories

All size thru-hole rams are supplied with a thru-hole insert threaded into the top. Optional threaded inserts, inch or metric, are also available.

RAM no.	Thru-Hole Insert (supplied)
020-011-011DE	705384
020-012-021DE	705512
020-013-031DE	705634

A thru-hole ram easily converts a manual strap clamp into an automatic hydraulic powered clamp. Usually a longer bolt is the only part needed to make this conversion.



Loads Transmitted by Various Diameter Screws		
Bolt Size	Wrench Length	F-lbs. (Average)
1/4 UNF	4.00	2,400 lbs.
1/4 UNF	4.00	1,920 lbs.
3/8 UNF	5.75	3,000 lbs.
3/8 UNF	5.75	2,920 lbs.
1/2 UNF	8.00	4,200 lbs.
1/2 UNF	8.00	3,640 lbs.
5/8 UNF	9.00	5,600 lbs.
5/8 UNF	9.00	5,600 lbs.
3/4 UNF	9.00	4,800 lbs.
3/4 UNF	11.00	4,200 lbs.
7/8 UNF	12.00	50,400 lbs.

To determine how much force is needed to replace a manual clamp, use this chart as a guide.

Series 020 Thru-Hole Hydraulic Rams Technical Information

Calculation of Forces Using Straps and Levers

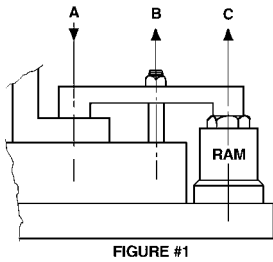


FIGURE #1

Figure #1
When the distance AB is equal to the distance BC the force upward from Model 020-011-011DE Ram "C" is equal to the downward force "A" on the part.

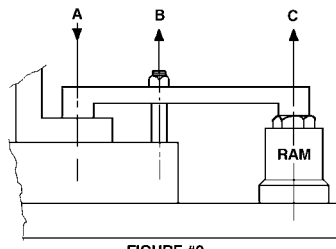


FIGURE #2

Figure #2
The downward force "A" is equal to the upward force "C" times a ratio of the distance BC:AB.
Example:
AB = 2", BC = 4", Force "C" = 1,000 lbs.
Force "A" = Force "C" x $\frac{BC}{AB}$
"A" = 1,000 lbs. x $\frac{4}{2}$
"A" = 2,000 lbs.

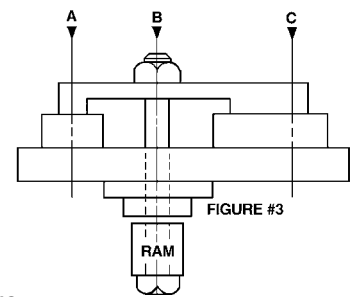


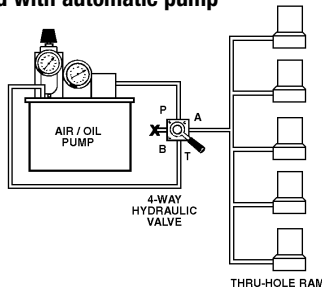
FIGURE #3

Figure #3
When Force "B" from Model 020-011-011DE Hollow Bore is divided between "A" & "C", the forces at "A" & "C" are in inverse ratio to the distance AB & BC respectively.
Force "A" = Force "B" x $\frac{BC}{AB}$
Force "C" = Force "B" x $\frac{AB}{AC}$
Example:
AB = 2", BC = 4", Force "B" = 1,000 lbs.
Force "A" = 1,000 lbs. x $\frac{4}{6}$ = 666.7 lbs.
Force "C" = 1,000 lbs. x $\frac{2}{6}$ = 333.3 lbs.

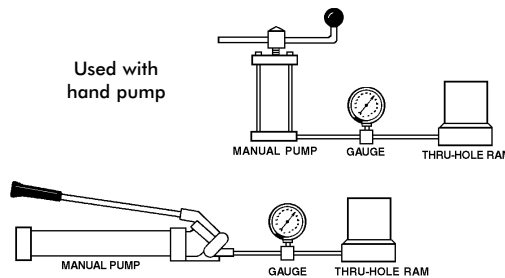
Power Sources

Thru-hole Rams can be powered by automatic pumps, hand pumps, boosters or existing machine hydraulics.

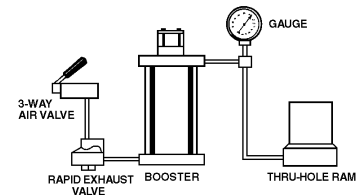
Used with automatic pump



Used with hand pump

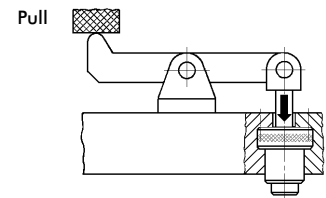
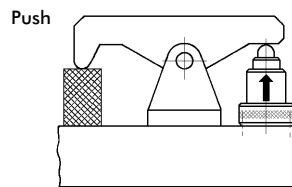
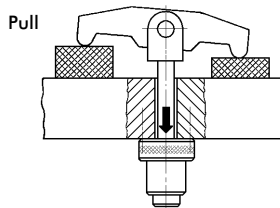
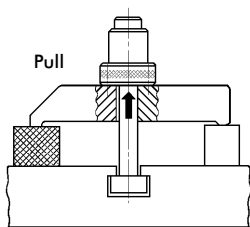


Used with booster



Multiple Uses

Thru-hole Rams can be used to push or pull depending on the position of the ram.



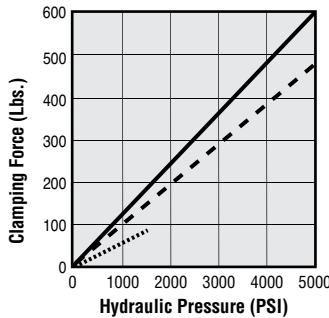
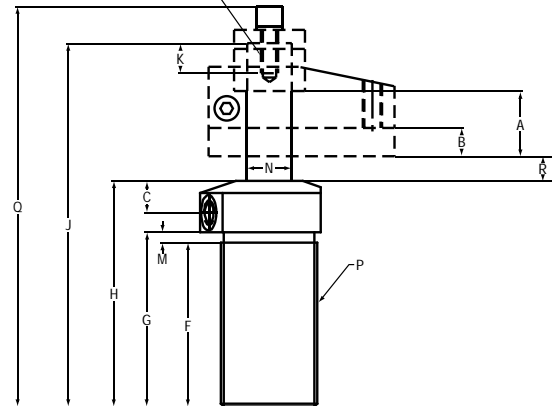
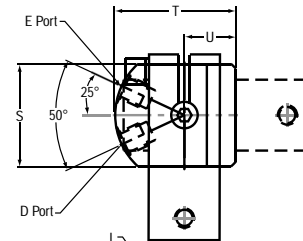
Series 030 Hydraulic Swing/Pull Clamps – 475 lb.

The DE-STA-CO Threaded Body Swing/Pull Clamps are available in both single-acting and double-acting versions. They incorporate the latest hydraulic swing clamp technology. The top port design allows easy access for plumbing connections.

They are available with 90° left or right hand rotation, or with guided straight pull. The breather port on single-acting models may be replaced with tubing for remote venting. The optional arms clamp securely to the piston rod to reduce fatigue and deflection. Arms may be easily modified or custom arms may be substituted.

Features:

- Advanced seals and wipers utilize a special, highly wear-resistant construction for long cycle life and 5,000 PSI operation
- Triple track piston rod design for field adjustable swing direction
- Hardened and hard chrome plated piston rod for increased strength and wear resistance
- Advanced metal treated body for superior wear and corrosion resistance
- MRO interchange design
- Straight pull capacity 600 lbs. at 5,000 PSI max



Performance

- With 031-L-475 Arm (3.25' long)
- - - With 0-31-S-475 Arm (1.22' long)
- Straight Pull

For 475 lb. Swing/Pull Clamp Arms see Page 19.10

Cat. no.	Specifications							Max Oil Flow in ³ /m in
	Oper.	Swing Direction	*Force (lbs.)	Eff. Area (sq. In.) Clamp Unclamp	Oil Cap. (cu. In.) Clamp Unclamp			
030-1-S-475 (-X)	Single-Acting	Left Hand (Counter Clockwise) Right Hand (Clockwise)	475	0.12	-	0.08	-	12
030-1-D-475 (-X) ^①	Double-acting	Straight Pull							0.24	0.15

- Ordering Notes:**
- Left hand swing (ccw) is standard—no suffix
 - Add -R suffix for right hand swing
 - Add -S suffix for straight guided pull

Cat. no.	Specifications																		
	A Total Stroke	B Clamping Stroke	C	D Clamp Port	E Unclamp Port	F	G	H	J	K	L	M	N	P	Q	R	S	T	U
030-1-S-475	0.65	0.210	0.59	SAE-2	SAE-2	1.929	2.086	3.07	4.429	0.8	M6x1	0.157	0.393	1-1/8-16UN	4.96	0.495	1.3	1.55	0.61
030-1-D-475 ^①	0.65	0.32	0.59																

^① This item is available upon request

NOTE: *With 1.22" long arm at 5,000 PSI maximum operating pressure.
^②Do not pressurize – single-acting only
[†] See page 19.10 for arms, accessories and custom arm mounting



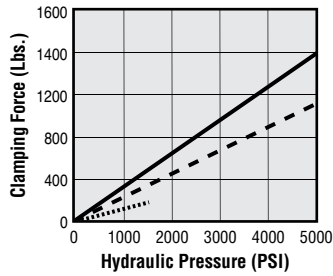
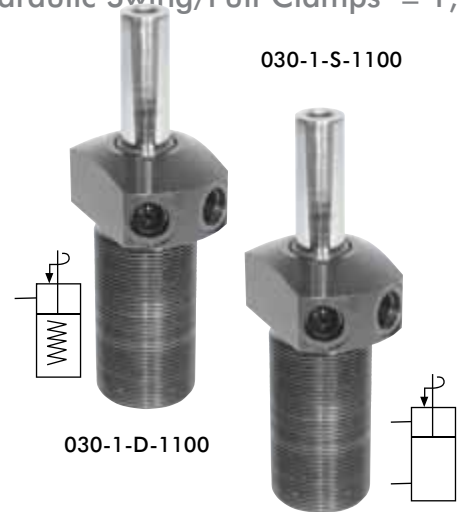
Series 030 Hydraulic Swing/Pull Clamps – 1,100lb.

The DE-STA-CO Threaded Body Swing/Pull Clamps are available in both single-acting and double-acting versions. They incorporate the latest hydraulic swing clamp technology. The top port design allows easy access for plumbing connections.

They are available with 90° left or right hand rotation, or with guided straight pull. The breather port on single-acting models may be replaced with tubing for remote venting. The optional arms clamp securely to the piston rod to reduce fatigue and deflection. Arms may be easily modified or custom arms may be substituted.

Features:

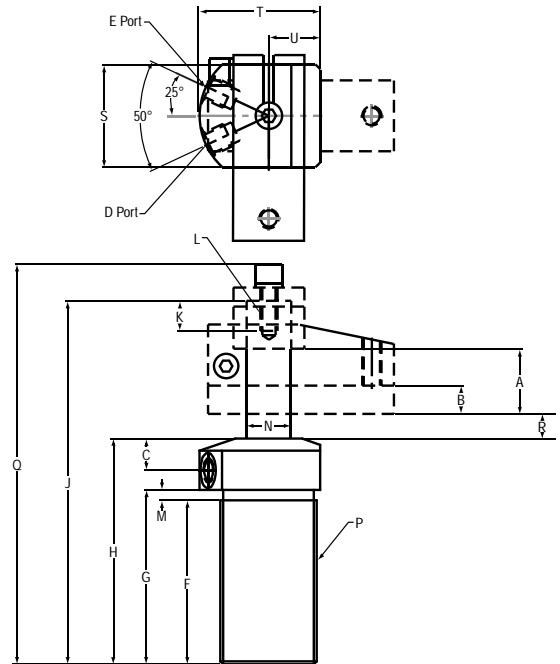
- Advanced seals and wipers utilize a special, highly wear-resistant construction for long cycle life and 5,000 PSI operation
- Triple track piston rod design for field adjustable swing direction
- Hardened and hard chrome plated piston rod for increased strength and wear resistance
- Advanced metal treated body for superior wear and corrosion resistance
- MRO interchange design
- Straight pull capacity 1,400 lbs. at 5,000 PSI max



Performance

- With 031-L-1100 Arm (5.31" long)
- - - With 031-S-1100 Arm (1.89" long)
- Straight Pull

For 1,100 lb. Swing/Pull Clamp Arms see Page 19.10



Cat. no.	Specifications							Max Oil Flow in ³ /m in
	Oper.	Swing Direction	*Force (lbs.)	Eff. Area (sq. In.) Clamp	Unclamp	Oil Cap. (cu. In.) Clamp	Unclamp	
030-1-S-1000 (-X)	Single-Acting	Left Hand (Counter Clockwise)	1100	0.28	-	0.25	-	25
030-1-D-1000 (-X)	Double-acting	Right Hand (Clockwise) Straight Pull			0.59		0.52	

Ordering Notes:

- Left hand swing (ccw) is standard—no suffix
- Add -R suffix for right hand swing
- Add -S suffix for straight guided pull

Cat. no.	Specifications																		
	A Total Stroke	B Clamping Stroke	C	D Clamp Port	E Unclamp Port	F	G	H	J	K	L	M	N	P	Q	R	S	T	U
030-1-S-1100	0.89	0.39	0.6	SAE-4	SAE-4	2.4	2.6	3.58	5.305	0.94	M8 x 1.25	0.196	0.629	1-3/8-18UN	5.965	0.400	1.5	1.87	0.75
030-1-D-1100																			

NOTE: *With 1.89" long arm at 5,000 PSI maximum operating pressure.
^ΔDo not pressurize – single-acting only
[†] See page 19.10 for arms, accessories and custom arm mounting

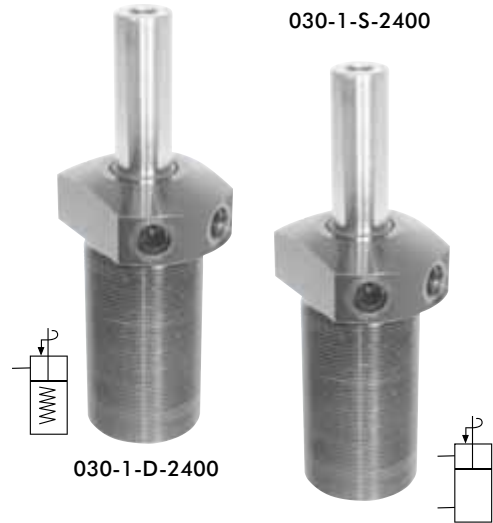
Series 030 Hydraulic Swing/Pull Clamps – 2,400 lb.

The DE-STA-CO Threaded Body Swing/Pull Clamps are available in both single-acting and double-acting versions. They incorporate the latest hydraulic swing clamp technology. The top port design allows easy access for plumbing connections.

They are available with 90° left or right hand rotation, or with guided straight pull. The breather port on single-acting models may be replaced with tubing for remote venting. The optional arms clamp securely to the piston rod to reduce fatigue and deflection. Arms may be easily modified or custom arms may be substituted.

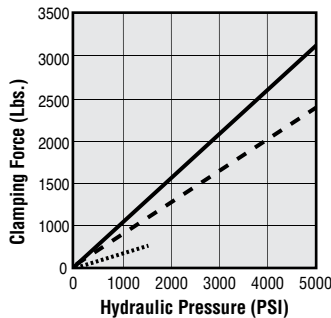
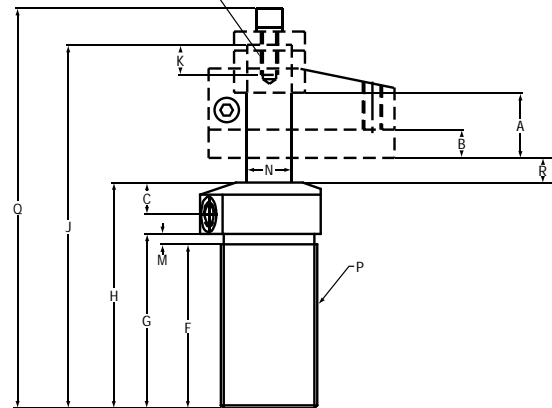
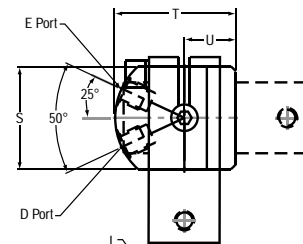
Features:

- Advanced seals and wipers utilize a special, highly wear-resistant construction for long cycle life and 5,000 PSI operation
- Triple track piston rod design for field adjustable swing direction
- Hardened and hard chrome plated piston rod for increased strength and wear resistance
- Advanced metal treated body for superior wear and corrosion resistance
- MRO interchange design
- Straight pull capacity 3,150 lbs. at 5,000 PSI max



030-1-D-2400

030-1-S-2400



For 2,400 lb. Swing/Pull Clamp Arms see Page 19.10

Performance

- With 031-L-2400 Arm (6.36" long)
- - - With 031-S-2400 Arm (2.43" long)
- Straight Pull

Cat. no.	Specifications							Max Oil Flow in ³ /m in
	Oper.	Swing Direction	*Force (lbs.)	Eff. Area (sq. In.) Clamp	Eff. Area (sq. In.) Unclamp	Oil Cap. (cu. In.) Clamp	Oil Cap. (cu. In.) Unclamp	
030-1-S-2400 (-X)	Single-Acting	Left Hand (Counter Clockwise) Right Hand (Clockwise)	2400	0.63	-	0.07	-	100
030-1-D-2400 (-X)	Double-acting	Straight Pull			1.23		0.14	

Ordering Notes:

- Left hand swing (ccw) is standard—no suffix
- Add -R suffix for right hand swing
- Add -S suffix for straight guided pull

Cat. no.	Specifications																		
	A Total Stroke	B Clamping Stroke	C	D Clamp Port	E Unclamp Port	F	G	H	J	K	L	M	N	P	Q	R	S	T	U
030-1-S-2400	1.12	0.5	0.62	SAE-4	SAE-4	t	3.38	4.38	6.8	1.28	M10x1.5	0.196	0.87	1-7/8-16UN	7.543	0.517	2.0	2.38	1.0
030-1-D-2400																			

NOTE: *With 2.43" long arm at 5,000 PSI maximum operating pressure.
^ΔDo not pressurize – single-acting only
[†] See page 19.10 for arms, accessories and custom arm mounting

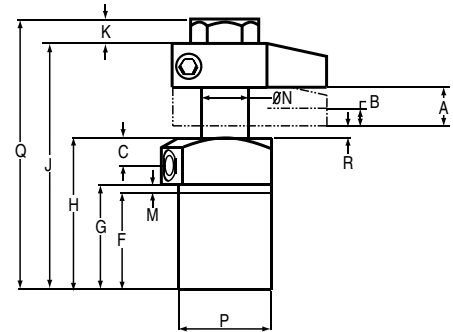
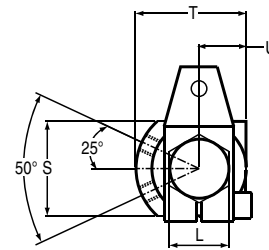
Series 030 Hydraulic Swing/Pull Clamps – 4,000 lb.

The DE-STA-CO Threaded Body Swing/Pull Clamps are available in both single-acting and double-acting versions. They incorporate the latest hydraulic swing clamp technology. The top port design allows easy access for plumbing connections.

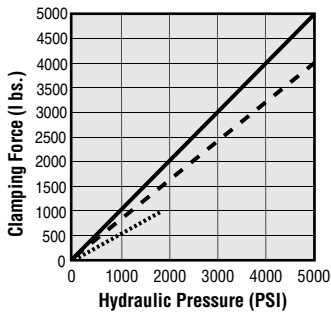
They are available with 90° left or right hand rotation, or with guided straight pull. The breather port on single-acting models may be replaced with tubing for remote venting. The optional arms clamp securely to the piston rod to reduce fatigue and deflection. Arms may be easily modified or custom arms may be substituted.

Features:

- Advanced seals and wipers utilize a special, highly wear-resistant construction for long cycle life and 5,000 PSI operation
- Triple track piston rod design for field adjustable swing direction
- Hardened and hard chrome plated piston rod for increased strength and wear resistance
- Advanced metal treated body for superior wear and corrosion resistance
- MRO interchange design
- Straight pull capacity 5,500 lbs. at 5,000 PSI max



For 4,000 lb. Swing/Pull Clamp Arms see Page 19.11



Performance

- With 031-L-4000 Arm (X.XX" long)
- - - With 031-S-4000 Arm (X(7.01" long)
- Straight Pull (2.75" long)

Cat. no.	Specifications							Max Oil Flow in ³ /m in
	Oper.	Swing Direction	*Force (lbs.)	Eff. Area (sq. In.) Clamp	Eff. Area (sq. In.) Unclamp	Oil Cap. (cu. In.) Clamp	Oil Cap. (cu. In.) Unclamp	
030-1-S-4000 (-X)	Single-Acting	Left Hand (Counter Clockwise)	4000	1.10	2.35	1.22	2.60	140
030-1-D-4000 (-X) ⓘ	Double-acting	Right Hand (Clockwise) Straight Pull						

- Ordering Notes:
- Left hand swing (ccw) is standard—no suffix
 - Add -R suffix for right hand swing
 - Add -S suffix for straight guided pull

ⓘ This item is available upon request

Cat. no.	Specifications																		
	A Total Stroke	B Clamping Stroke	C	D Clamp Port	E Unclamp Port	F	G	H	J	K	L	M	N	P	Q	R	S	T	U
030-1-S-4000	1.07	0.45	0.75	SAE#4	SAE#4	2.70	2.83	4.09	6.67	0.64	1.61	0.14	1.26	2-	7.30	0.33	2.56	2.99	1.28
030-1-D-4000 ⓘ														1/2-16UN					

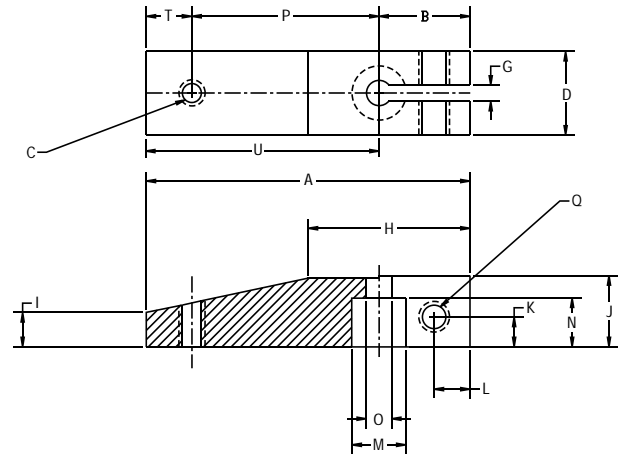
ⓘ This item is available upon request

NOTE: *With 2.75" long arm at 5,000 PSI maximum operating pressure.
 †Do not pressurize – single-acting only
 ‡ See page 19.10 for arms, accessories and custom arm mounting

Series 030 Hydraulic Swing/Pull Clamps 475-2,400 lb. Arms

Custom built arms of any length must clamp to the swing/pull clamp's piston rod in a manner similar to the DE-STA-CO arms or some derating of the clamp will be necessary.

The design feature "K," in the chart and drawing at the bottom of this page, is recommended for all applications of custom, single arms. See the accompanying chart for design details. In applications where there is no bending stress being transferred into the piston rod (like push/pull linkages and equalizing double arms), this design detail may be eliminated. In these applications, the clamp's full capacity (referred to as "straight pull" capacity) is available.



Cat. no.	Specifications															Weight (lbs.)				
	A	B	C	D	G	H	I	J	K	L	M	N	O	P	Q		T	U		
031-S-475	1.929	0.709	M6	0.63	0.126	1.139	0.394	0.630	0.236	0.217	0.394	0.394	0.256	0.984	M6	0.236	1.220	0.159		
031-L-475	3.959	0.709	-	0.63		1.166	0.394	0.630			0.394	0.394	0.256	-	M6	-	-	-	3.250	0.348
031-S-1100	2.598	0.709	M8	0.748		1.294	0.433	0.748			0.630	0.472	0.33	1.575	M6	0.315	1.889	0.286		
031-L-1100	6.019	0.709	-	0.748	1.412	0.433	0.748	0.630	0.472	0.335	-	M6	-	-	-	5.310	0.721			
031-S-2400	3.268	0.866	M10	1.125	1.459	0.633	1.00	0.866	0.709	0.413	1.969	M8	0.433	2.402	0.634					
031-L-2400	7.226	0.866	-	1.125	1.696	0.633	1.00	0.866	0.709	0.413	-	M8	-	-	-	6.360	1.564			

IMPORTANT: Any clamp using a modified or custom arm that is longer or heavier than DE-STA-CO's standard arms must be derated to prevent internal damage.
 Do not exceed the maximum speed and pressure ratings for DE-STA-CO's standard arms.
 For maximum hydraulic pressure and speed ratings, see the accompanying charts
 Do not use meter-out circuitry for controlling double-acting clamp speeds
 Contact DE-STA-CO if further design assistance is required

Custom Arm Mounting Dimensions for Swing/Pull Clamps

Shaft Dia.	Specifications										
	A	B	C	D	E	F	G	H	J	K	M
10 MM	0.394	0.256	0.63	0.63	0.709		0.394	0.236	0.217		M6 x 1.0
16MM	0.630	0.335	0.748	0.748	0.709	1.26	0.472	0.236	0.217	0.30	M6 x 1.0
22 MM	0.866	0.413	1.00	1.00	0.866		0.709	0.236	0.217		M8 x 1.25

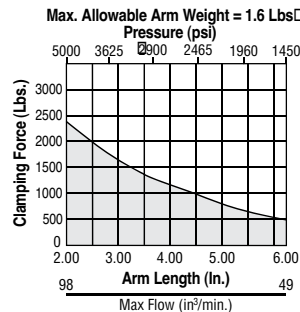
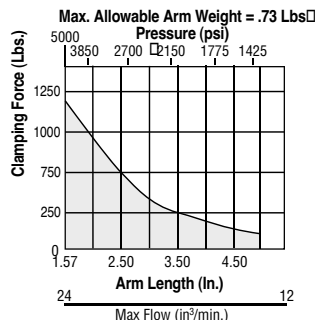
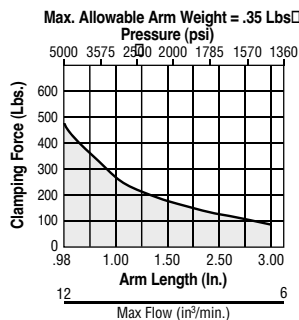
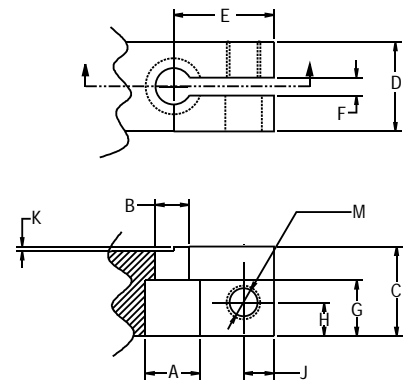


Chart Legend

- Maximum Length / Pressure
- ▭ Operating Range

Clamps must operate at or below maximum/arm length/pressure curve:

To approximate clamping force with any arm at less than maximum pressure:

$$FORCE = P \times A \times [1 - (P/M \times .23)]$$

P = Hyd. system operating pressure (PSI)

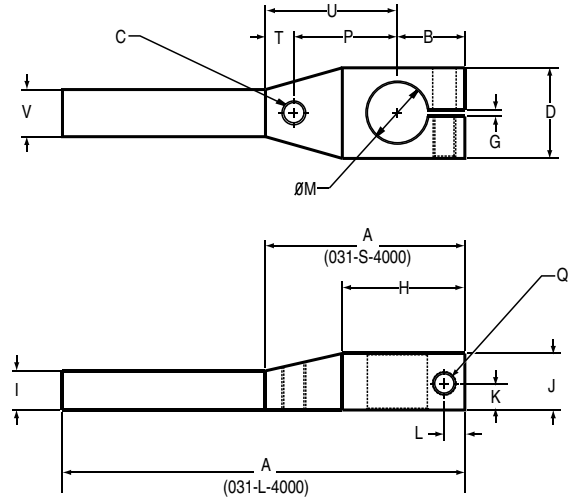
A = Clamp effective area (sq. in.)

M = Max. rated pressure of chosen arm length (PSI)

Series 030 Hydraulic Swing/Pull Clamps – 4,000 lb. Arms

Custom built arms of any length must clamp to the swing/pull clamp's piston rod in a manner similar to the DE-STA-CO arms or some derating of the clamp will be necessary.

The design feature "K," in the chart and drawing at the bottom of this page, is recommended for all applications of custom, single arms. See the accompanying chart for design details. In applications where there is no bending stress being transferred into the piston rod (like push/pull linkages and equalizing double arms), this design detail may be eliminated. In these applications, the clamp's full capacity (referred to as "straight pull" capacity) is available.

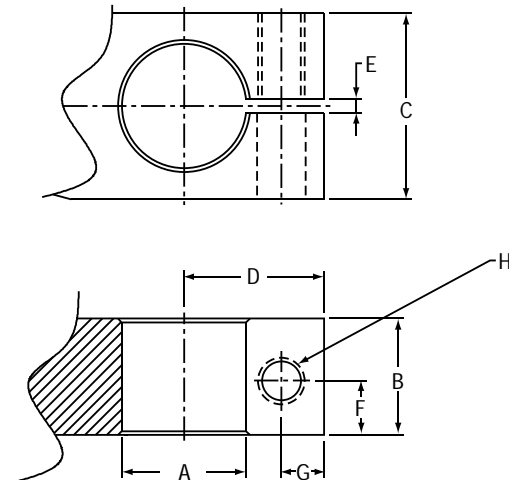


Cat no.	Specifications																Weight (lbs.)
	A	B	C	D	G	H	I	J	K	L	M	P	Q	T	U	V	
031-S-4000	4.17	1.42	1/2-13	1.89	0.138	2.56	0.83	1.18	0.55	0.43	1.26	2.17	M12	0.58	2.75	0.98	1.80
031-L-4000	8.43	1.42	1/2-13	1.89	0.138	2.56	0.83	1.18	0.55	0.43	1.26	-	M12	-	7.01	0.98	2.80

IMPORTANT: Any clamp using a modified or custom arm that is longer or heavier than DE-STA-CO's standard arms must be derated to prevent internal damage.
 Do not exceed the maximum speed and pressure ratings for DE-STA-CO's standard arms.
 For maximum hydraulic pressure and speed ratings, see the accompanying charts
 Do not use meter-out circuitry for controlling double-acting clamp speeds
 Contact DE-STA-CO if further design assistance is required

Custom Arm Mounting Dimensions for 4,000 lb. Swing/Pull Clamps

Cat no.	Specifications							
	A	B	C	D	E	F	G	H
32MM	1.26	1.18	1.89	1.42	0.138	0.55	0.43	M12 x 1.75



031-S-4000 • 031-L-4000

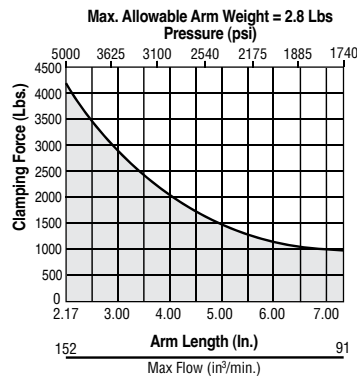


Chart Legend

— Maximum Length / Pressure
 [Shaded Area] Operating Range
 Clamps must operate at or below maximum/arm length/pressure curve:
 To approximate clamping force with any arm at less than maximum pressure:
FORCE = P x A x [1-(P/M x .23)]
 P = Hyd. system operating pressure (PSI)
 A = Clamp effective area (sq. in.)
 M = Max. rated pressure of chosen arm length (PSI)

Series 039 Air/Hydraulic Power Boosters

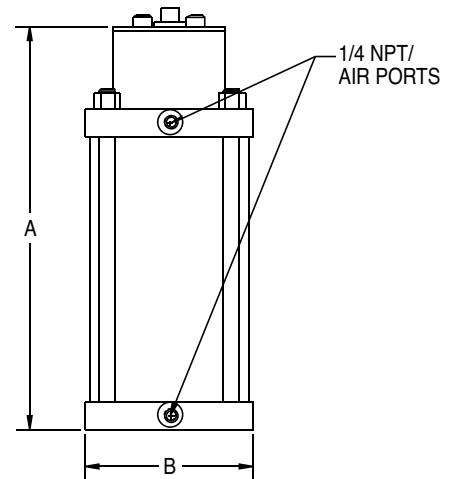
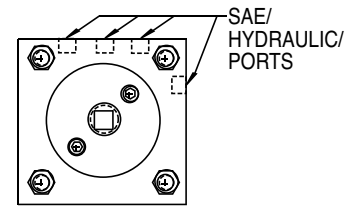
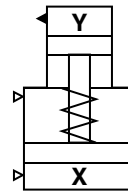
The De-Sta-Co Air/Hydraulic Power Booster converts normal shop-line air pressure to high-pressure hydraulic power. The six models available provide oil displacements ranging from 1 cu. in. to 12 cu. in. per stroke.

With the system filled, the volume of oil required to actuate a cylinder or pressure point is only equal to the cubic content of the piston displacement. The small booster, producing 1 cu. in. of usable oil per stroke, can operate 50 of the tiny 1/2-20 pressure points a full .22 max. stroke, and even more when strokes are kept to a minimum.

Features:

- Built-in manifold
- Complete automatic bleeding with each return stroke
- Automatic relief of system overcharge
- Automatic bleeding feature eliminates pre-filling
- Large volume visible oil reservoir automatically replenishes the system with reserve oil capacity
- Corrosion and wear-resistant materials
- Wear rings on hydraulic piston tube
- Unique self-centering air piston assures long life
- Increases hydraulic pressure to 3,000 PSIG from 100 PSIG air-line pressure
- All models supplied with SAE hydraulic ports
- NPT hydraulic ports available on request

039-104-000DE



Model no.	Press Ratio	Displacement Per Stroke	Nominal Reservoir Capacity	Weight	Dimensions		Ports
					A	B (Square)	
039-101-000DE	33.87:1	1 cu. in.	10.4 cu. in.	9 lbs.	10.88	4.50	SAE #4
039-104-000DE	32.41:1	4 cu. in.	42 cu. in.	23 lbs.	16.38	6.50	SAE #4
039-108-000DE	30.97:1	8 cu. in.	96 cu. in.	43 lbs., 8 oz.	18.00	8.50	SAE #4
039-109-000DE	45.38:1	5 cu. in.	96 cu. in.	43 lbs.	18.00	8.50	SAE #4

(100 PSIG max. input air pressure)

Note: Special High Temperature Seals available for applications where Viton Seals are required. Order as H/T option.

Manual Clamping Technology

Selecting The Proper DE-STA-CO Clamp

The information contained in this catalog is designed to help you select the right damp to accomplish your job. DE-STA-CO distributor personnel, as well as DE-STA-CO's Technical Service department, are qualified and willing to offer assistance in special or unusual applications. For most ordinary applications, however, consideration of the following points will lead to the proper clamp selection

- Size and shape of the parts to be held.
- Uniformity of part size (Should you consider a spring-loaded spindle to compensate for uneven parts?)
- Holding capacity required
- Strength and dexterity of the operator
- Operator's position (Should you use horizontal or vertical handle models?)
- Frequency of operation (Should you plan for a temporary or permanent fixture?)
- Time cycle of operation (Should you consider a turntable or conveyor set-up if curing time is required?)
- Cycling time and sequence (Should you consider air-operated models that can be operated faster and in sequence?)
- Environment (Should you consider stainless steel, aluminum or lightweight composite models?)

Processing Applications

Remember, the same toggle action force multiplying principle can be applied to other tasks besides holding. Certain DE-STA-CO models can be used to position parts, power fixtures or perform mechanical functions such as piercing sheet metal, staking rivets or locating.

OEM Applications

DE-STA-CO damps provide ready-made, compact devices for moving or holding components. A little imagination will often show the product designer a way to obtain motion or locking force 'with no tooling costs and often at less cost than custom designed components. Thousands of DE-STA-CO clamps will be found installed as original equipment for cleanout door latches, wheel locks, positioning devices, etc.

Safety

Our concern is not only the constant high quality of our products, but also their fail-safe and foolproof handling. The knowledge gathered since 1936 guarantees a developed, safe and high-quality clamping unit.

A certain damping force 'will be necessary to safety hold a part.This force is determined by taking the following into account:

- (A) the part material: such as, steel, wood, plastic or glass, etc.
- (B) the surface finish of the part: such as, polished, hard or soft, etc.
- (C) the machining or assembly operation: such as, milling, welding, drilling, bonding, joining or sealing a mold, etc.

In order to ensure clamp strength is not compromised, use all the mounting holes provided.

Red handle grips are provided on each model. Users should only locate their hand in this area when operating the clamp, thus reducing the possibility of injury.

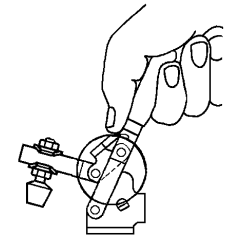
Safety Handle

This ergonomic handle provides greater operator comfort.



Safety Feature

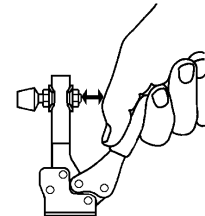
This safety link prevents accidental injury to an operator when opening the damp.



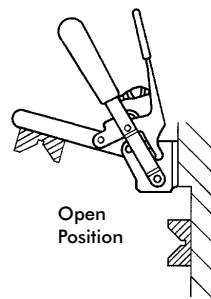
Clamp Series 201, 202, 207, 210,247,267

Safety Distance

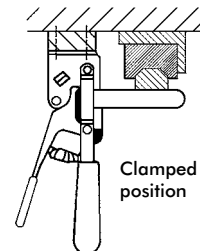
Exdusrve handle design gives more hand clearance between bar and handle when clamp is in fully open position.



Cramp Series 213, 217, 227, 237, 245



Open Position



Clamped position

Safety Catch

Handle or damping ami on our DE-STA-CO* Toggle Lock Plus Clamps lock in the open or closed position.

How to find the most suitable clamp?

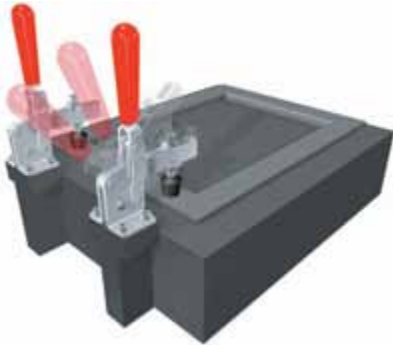
The following criteria will narrow the selection of the clamp type:

- The type of fixture
- The required holding capacities
- The size conditions in and around the fixture
- Action required by clamp to perform required task

The most important models at a glance:

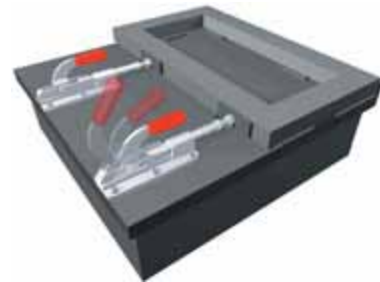
Vertical hold-down clamp

- Handle is vertical in damped position
- Holding capacities up to 22,25kN [5000lbf.]
- Opening angle between 65° and 215°



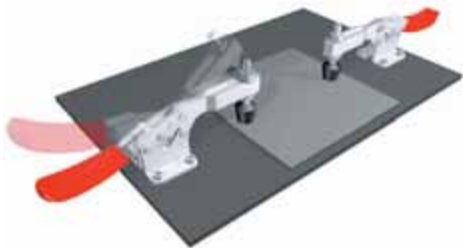
Straight line action clamp

- Forward movement of the handle pushes the plunger into the forward position
- Can be used as a push clamp and pull clamp, locking in two positions
- Holding capacities of 445N-71,2kN [100-6,000lbf.]



Horizontal hold-down clamp

- Very low profile
- Handle is horizontal in the clamped position
- Holding capacities up to 7,5kN [1,680lbf.]
- Opening angle between 90° and 105°



Latch clamp

- Convenient one-hand operation due to the patented thumb control lever
- Compact models
- Holding capacities up to 33,4kN [7,500lbf.]



Plier clamp

- Flexible clamping and fixturing
- Also equipped with quick release lever
- Holding capacities 450N-5340N [100-1200lbf.]



How Toggle Action Works

Toggle action clamps operate through a linkage system of levers and pivots. The fixed-length levers, connected by pivot pins, supply the action and clamping force. Toggle action has an over-center lock point which is a fixed stop and linkage. Once in the over-center position, the damp cannot move or unlock unless the linkage is moved. All types of toggle clamps have this same action, just oriented differently.

Toggle Action Force Factors

The maximum clamping or exerting force developed in any toggle action damp is attained when the three pivot points of the mechanism are in a straight line. While this is theoretically true, it makes no allowance for vibration and intermittent load conditions found in industrial applications. Such conditions would soon unlock an improperly designed clamp. The proper amount of over-center travel to produce maximum holding force and yet ensure positive locking is a carefully calculated and controlled dimension developed by years of experimentation and experience.

Throughout this catalog each clamp is rated with its "holding capacity." This is the maximum load or force the damp will sustain in the closed and locked position without permanent deflection. Exerting forces applied as the damp closes are less than the holding capacity, and are dependent on variables such as the position of the operator's hand on the handle; amount of force applied; and position of the spindle on the bar.

What about the forces?

In the case of damping products, a clear distinction must be made between exerting forces and holding capacities. Here are the essential features:

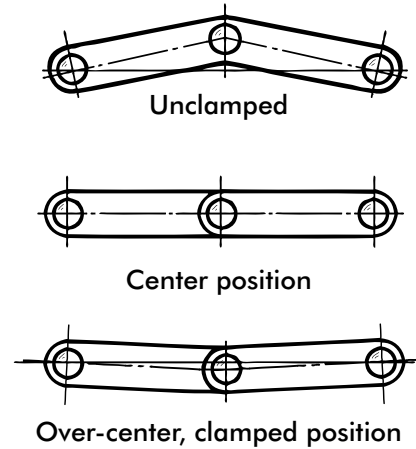
Exerting or Clamping Force

The "exerting force" of our air toggle clamps is well defined and can be found on page 11.22. Manually operated clamps present a series of variables to determine actual exerting force.

These variables are:

- (a) the force exerted on the handle by the operator;
- (b) the point on the handle where this force is applied;
- (c) the mechanical advantage in the linkage; and
- (d) the point on the work holding bar where the force will be measured. As a general rule, the mechanical advantage available throughout the line ranges 2:1 to 10:1

Toggle Action Principle

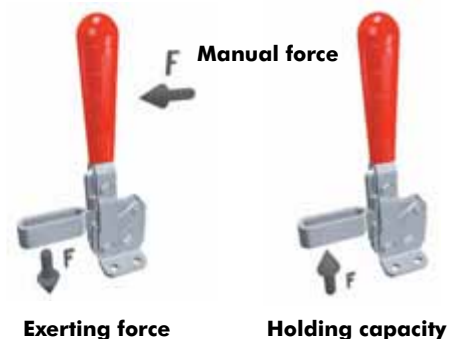


Toggle Action Clamps Compared with Cam Action Clamps

Cam action uses frictional force to effect a locking condition between the cam surface on the bar and the follower on the handle. Toggle action clamps have many advantages over cam action clamps, mainly because cam action damps allow some movement while clamping. Toggle action clamps thus provide a more consistent clamping point, can be manufactured from inexpensive materials, and are available in stainless steel for outdoor or corrosive applications. If the material being clamped has a variable thickness, however, a cam action clamp has the ability to better accommodate this application.

Holding Capacity

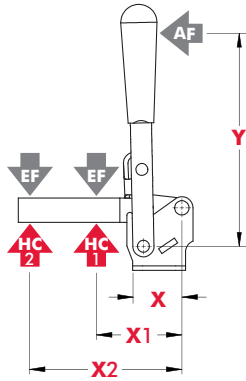
The "holding capacity" of DE-STA-CO toggle clamps has been determined by actual tests. It is defined as the maximum amount of force which may be applied to the work holding bar, in the closed position, without creating permanent deformation of the clamp components. This maximum force is measured at a point closest to the base and diminishes as the spindle approaches the end of the bar. The ratings for holding capacity are maximum and should not be exceeded. These values include a safety factor.





Calculating Exerting or Clamping Force

The table below depicts holding capacity (HC) and clamping force (EF) data for a typical manual clamp. The clamping force (EF) is expressed as a ratio of the force that is applied to the clamp handle (AF). In this example, either 10:1 or 5.3:1 depending upon position of the clamping point on the clamp arm. That is, at position X1, the maximum clamping force (EF) that can be generated is 10 times the force that is applied to the clamp handle.



Model	X	X1	X2	Y	±HC1	±HC2	±EF(X1):AF	±EF(X2):AF
2007-()	[1.59] 40,5	[1.95] 49,5	[3.92] 99,5	[5.16] 131	[1000lbf.] 4450N	[470lbf.] 2090N	10:1	5.3:1

Dimensions shown "mm [inch]" ± HC = Holding Capacity, EF = Exerting Force, AF = Applied Force
Refer to page (xx) for additional information.

Examples:

- Find the force (AF) the operator would have to apply to the clamp to generate a clamping force of 90N [400lbf.] at the end of the clamp arm (X1).

$$AF = 90 \div 10 = 9N [40lbf.]$$

- What is the maximum clamp force that can be generated at X2 if the operator is only able to apply 5N [23lbf.] to the clamp handle?

$$EF = 5 \cdot 5,3 = 26,5N [120lbf.]$$

Calculating Holding Capacity

The holding capacity (HC) ratings shown in the table are in relation to the pivot point of the clamping arm. This is useful in estimating the holding capacity at an intermediate clamping point along the arm, or at a point beyond the length of the standard clamping arm.

Examples:

- Find the maximum holding capacity if the clamping point is 40mm [1.5in.] from the front of the base of the clamp.
 - Step 1 – find the clamping distance from the clamping point to the pivot point

$$X_c = 40mm + X = 40mm + 40,5mm = 80.5mm$$

- Step 2 – express the holding capacity as a moment

$$M = X1 \cdot HC1 = 49,5mm \times 4450N = 220275 \text{ N mm}$$

- Step 3 – calculate the holding capacity at XC

$$HC = M \div X_c = 220275 \div 80,5 = 2736N [615lbf.]$$

- Find the maximum holding capacity if the clamp arm is extended by 25mm [1in.]

$$X_c = 25+X2 = 25 + 99,5 = 124,5mm$$

$$M = X2 \cdot HC2 = 99,5mm \cdot 2090mm = 207955 \text{ N mm}$$

$$HC = M \div X_c = 207955 \div 124,5 = 1670N [375lbf.]$$

General Specifications

Material, finishes, treatments, etc. of DE-STA-CO products are changed from time-to-time to improve performance or reliability. These items are, naturally, subject to change without notice. In the interest of catalog longevity, they are not discussed in detail throughout the catalog. As of the date of going to press, however, the following specifications apply unless noted otherwise:

Materials

In general, light and medium duty clamp components are made from low carbon cold-rolled steel. Materials for other models vary depending upon the clamp model and specific engineering requirements. These materials include low to medium carbon steel castings and forgings, heat treated as necessary to obtain the desired mechanical properties.

Pivot pins for most light and medium duty clamps are cold headed from precision cold drawn type 430, EN 1.4016 stainless steel. Pins for heavy duty models are made from heat treated alloy steel. Bushings used in select models are made from low carbon, case-hardened steel for wear resistance and serrated on the outside diameter to prevent rotation.

Ergonomic grips are made from an oil-resistant plasticized PVC compound, while some handles and locking levers covered with plastisol dipping.

Stainless Steel

Stamped components in our stainless steel clamps are made from type 302/304, EN 1.4319/1.4306 (or comparable) stainless steel, annealed & cold rolled. Machined stainless steel components are type 303, EN1.4305 (or comparable).

Finishes

Most manual toggle clamps are electro-plated zinc per ASTM B633-98, SC1, type2 (or comparable). Most cast or forged components are finished black oxide with light oil to add corrosion protection.

Mounting

To properly secure the clamp to the mounting surface and achieve the clamp's rating, all mounting holes provided must be used.

Modifications

Making changes to the clamp may affect the performance of the product. The life expectancy of a clamp is dependent upon many factors, including alterations to the clamping bar, handle, or the addition of any tooling. Manual clamps are rated using hand power to actuate them. The use of "cheater bars" or hammers to impact the opening or closing of the clamp is expressly prohibited.

Maintenance

Manual clamps are generally maintenance free; however, lubrication of pivot points will extend the life of the clamp dramatically. Clamps are shipped from the factory with a light coating of oil, occasional lubrication with a lightweight machine oil at pivot points is recommended.

Temperature Limits

DE-STA-CO manual clamps are intended to be used at normal ambient temperatures. These limits are intended to be guidelines and you should contact DE-STA-CO if you have a specific application concern. For low-carbon steel clamps: -65°F(-54°C) to 480°F(250°C); for stainless steel (type 304): up to 750°F (400°C). These values are based upon maintaining the tensile strength of the material, due to the many variables associated with operating clamps at elevated temperatures service life may be affected. Bear in mind that for low carbon steel parts that are zinc plated, the plating has a useful service temperature of up to 250°F(120°C), but corrosion inhibiting properties degrade above 140°F(60°C). These temperatures are NOT inclusive of any plastic grip, vinyl dipping, rubber spindle accessory, pneumatic, or hydraulic actuator.

Pneumatic Clamping Technology

End position sensing of tie pneumatic clamps for alternated production

Different options



Model 807-S with 2 integral groove mounted sensors (order separately)

Remote control and end position sensing

A particularly interesting advantage of DE-STA-CO power clamps is the fact that they may be mounted on rather inaccessible places of clamping fixtures and they may be operated simultaneously while being controlled by a control valve. Power clamps with an end position sensing system allow fully automated operation with in controlled manufacturing processes.

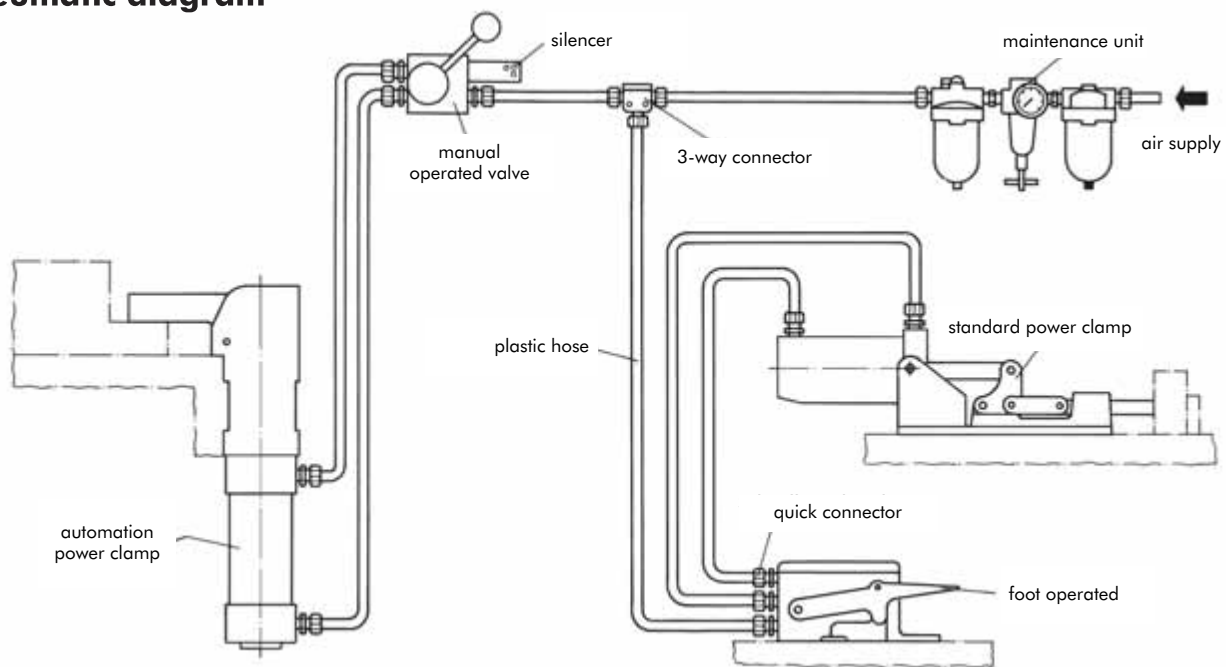
Safety

DE-STA-CO power clamps are based on the toggle action principle (exceptions will be mentioned separately) and offer the same safety advantages as DE-STA-CO manual clamps: no risk of accidental opening of the clamp arm - even in case of a sudden pressure drop.

The toggle action principle with over-center locking guarantees safety during operation and protects the parts from damage. (Provided that tie power clamps are mounted correctly and the air supply is reliable.)

Note: Most pneumatic products are now supplied with a magnetic ring on the piston as a standard feature for sensing the position of the cylinder (open/closed).

Pneumatic diagram



Specifications

Model no.	Cylinder Bore		Rod Diameter		Cylinder Area (Clamping Stroke)		Cylinder Area (Opening Stroke)		Max. Mechanical Advantage (M.A.)		Distance From Pivot				Holding Capacity				Max Inlet Pressure at Max M.A*				Max. Clamping Force at 5 bar [72 psi]			
											A		B		A		B		A		B		A		B	
	(in)	(mm)	(in)	(mm)	(in ²)	(mm ²)	(in ²)	(mm ²)	A	B	(in)	(mm)	(in)	(mm)	(lbf.)	(N)	(lbf.)	(N)	(PSIG)	(bar)	(PSIG)	(bar)	(lbf.)	(N)	(lbf.)	(N)
Hold DownClamps																										
802-U	1.26	32	0.47	12	1.25	804	1.07	691	5.0	2.6	1.25	31.8	2.25	57.2	200	890	110	489	32	2.2	34	2.3	450	2010	234	1045
807-S	1.26	32	0.47	12	1.25	804	1.07	691	6.0	2.0	2.00	50.8	5.00	127.0	500	2220	260	1160	67	4.6	104	7.2	540	2412	180	804
807-U	1.26	32	0.47	12	1.25	804	1.07	691	6.4	3.3	2.00	50.8	3.75	95.3	375	1670	275	1220	47	3.2	67	4.6	576	2573	297	1327
810-S	1.57	40	0.63	16.0	1.95	1257	1.64	1056	5.0	2.9	2.38	60.5	5.31	134.9	750	3340	500	2220	77	5.3	89	6.1	702	3143	407	1823
810-U	1.57	40	0.63	16.0	1.95	1257	1.64	1056	6.1	2.9	2.38	60.3	4.88	123.8	600	2670	290	1290	50	3.5	51	3.5	856	3834	407	1823
812-U	0.75	19	0.25	6.4	0.4	258	0.39	253	4.3	2.9	1.25	31.8	2.25	57.2	100	440	55	245	53	3.6	43	3.0	136	613	92	413
846	1.57	40	0.63	16.0	1.95	1257	1.64	1056	5.6	3.5	2.25	57.2	3.25	82.6	750	3340	520	2310	69	4.7	76	5.3	786	3520	491	2200
847-S	2.05	52	0.63	16.0	3.29	2124	2.98	1923	4.0	1.8	3.25	82.6	6.50	165.1	1000	1118	650	2890	76	5.2	110	7.6	948	4248	426	1912
847-U	2.05	52	0.63	16.0	3.29	2124	2.98	1923	4.0	1.9	3.25	82.6	6.25	158.8	1000	4450	480	2135	76	5.2	77	5.3	948	4248	450	2018
858	2.48	63	0.98	25.0	4.83	3117	4.07	2626	4.4	2.3	3.00	76.2	7.00	177.8	4000	17800	2000	8900	145**	10.0**	145**	10.0**	1530	6857	800	3585
8021	1.26	32	0.47	12.0	1.07	691	1.25	8.4	2.2	1.3	1.70	43.2	2.60	66.0	390	1735	255	1135	145**	10.0**	145**	10.0**	169	760	100	449
8071	1.57	40	0.63	16.0	1.64	1056	1.95	1257	4.2	2.4	2.25	57.2	3.25	82.6	450	2000	310	1380	65	4.5	79	5.4	496	2218	283	1267
8101	2.05	52	0.63	16.0	2.98	1923	3.29	2124	2.3	1.2	2.35	59.7	4.45	113.0	700	3110	370	1645	103	7.1	105	7.3	491	2202	253	1135
817-S	1.26	32	0.47	12.0	1.25	804	1.07	691	4	2.25	2.75	69.9	4.94	125.5	450	2000	200	890	90	6.2	64	4.4	360	1608	225	1005
817-U	1.26	32	0.47	12.0	1.25	804	1.07	691	4.1	2.5	2.75	69.9	5.00	127.0	375	1670	200	890	73	5.1	64	4.4	369	1648	225	1005
827-S	1.57	40	0.63	16.0	1.95	1257	1.64	1056	3.5	2	2.50	63.5	5.30	134.6	700	3110	330	1470	103	7.1	85	5.8	491	2200	281	1257
827-U	1.57	40	0.63	16.0	1.95	1257	1.64	1026	3.5	2.2	2.13	54.1	3.25	82.6	600	2670	390	1735	88	6.1	91	6.3	491	2200	309	1383
868	2.48	63	0.98	25.0	4.83	3117	4.07	2626	4.9	2.3	5.00	127.0	8.25	209.6	4000	17800	2400	10675	145**	10.0**	145**	10.0**	1704	7637	800	3585

Model no.	Cylinder Bore		Rod Diameter		Cylinder Area (Clamping Stroke)		Cylinder Area (Opening Stroke)		Max. Mechanical Advantage (M.A.)	Holding Capacity		Max Inlet Pressure at Max M.A				
	(in)	(mm)	(in)	(mm)	(in ²)	(mm ²)	(in ²)	(mm ²)		(lbf.)	(N)	(PSIG)	(bar)			
Straight Line Action Clamps																
803	1.26	32.0	0.47	12.0	1.25	804	1.07	691.2	7.5		600	2670	64	4.4	675	3015
816	0.75	19.1	0.25	6.4	0.44	285	0.39	253.4	7.7		200	890	59	4.1	244	1097
830	1.57	40.0	0.63	16.0	1.95	1257	1.64	1055.6	5.7		2500	11100	145**	10.0**	800	3582
850	2.05	52.0	0.63	16.0	3.29	2124	2.98	1922.7	5.2		16000	71200	145**	10.0**	1232	5522
8031	1.13	28.6	0.38	9.5	0.99	641	0.88	570.0	10.25		2000	890	145**	10.0**	731	3285

* Maximum cylinder pressure is 145 PSIG (10 bar). Never exceed this value

**Maximum inlet pressure in conjunction with maximum mechanical advantage does not exceed holding capacity. Do not exceed maximum cylinder pressure

Formula for calculating maximum allowable inlet pressure:

$$\text{Maximum Line Pressure} = \text{Holding Capacity} \div (\text{Cylinder Area} \times \text{Mechanical Advantage})$$

Formula for calculating max. exerting force:

$$\text{Exerting Force} = \text{Inlet Pressure} \times \text{Mechanical Advantage} \times \text{Cylinder Area}$$

Example for Model 830

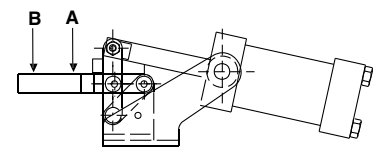
Holding Capacity = 11100N [2500lbf.]

Inlet Pressure 5bar (0,5 N/mm²) [72psig]

Cylinder Area = 1257mm² [1.95in²]

Maximum Line Pressure = 11100 ÷ (1257 X 5.7) = 1,5 N/mm² = 15bar

NOTE: This exceeds the maximum allowable cylinder pressure of 10bar



Spindle position to determine mechanical advantage.



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030-1-S-2400-R	19.8	105203	8.4	2017-UBR	2.7
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030-1-S-4000-R	19.9	110122	8.6	201-U	1.9
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