

Product Catalog

Economical Design.
Standard and
Custom Drives,
Pulleys, Gear Reducers,
Thrust Bearings
and More!



ISO 9001-2000 Certification 42586

HISTORY

Torque Transmission, a division of Rampe Manufacturing Company, was founded in 1956. The original company was a tool and die shop, and as plastic injection molding became in demand, Torque Transmission became known as a custom molder. The original custom molding has since been discontinued; however, Torque Transmission continues to grow as a power transmission component manufacturer. For over 40 years, we have built our reputation on the innovative design and quality manufacturing of custom and standard power transmission components for low and fractional horsepower applications.

We work with you in the design and recommendation of components as we strive to find the most cost-effective solution for our customers. Whether it is an off the shelf product or a custom design, **doing it right; the first time; on time; every time** is our commitment to our customers.

Torque Transmission's key advantages include:

- Standard and custom product lines
- Custom products at standard product prices
- Prototyping
- Manufacturing consistency
- Technical and design recommendations
- ISO 9001: 2000 Certified
- Off-the-shelf availability of popular standard products
- All custom projects and designs remain confidential
- Regional technical sales representatives
- Low or no cost samples available
- AutoCad® and SolidWorks® capabilities



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MISSION STATEMENT

At Torque Transmission our company mission is simple: To provide our customers with the highest quality products delivered right the first time, on time, every time.

Torque Transmission can shorten your time to market with time-proven and cost effective solutions.

Ask us about our e-newsletter: **Torque Solutions**

Torque Transmission publishes a general newsletter which is offered to industry related periodicals, customers and design engineers. Our newsletters are a case study detailing statements of the customer's problems, the solution, and how the customer has benefited from the solution.

Affiliations:



MPTA – Mechanical Power Transmission Association



PTRA – Power Motion Technology Representatives Association

ISO 9001-2001 Certification 42586

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***Doing It Right
The First Time,
On Time,
Every Time***

General Information

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PRODUCTS

Torque Transmission designs and manufactures a wide and complete product line of worm gears, speed reducers, right angle drives, thrust bearings, pulleys and roller chain sprockets.

WORM GEARS, SPEED REDUCERS, RIGHT ANGLE DRIVES



Torque Transmission offers application expertise to help customers select the most appropriate gear drive for their application. If the requirement falls outside of Torque's standard product line, a custom or modified unit can be developed.

Typical applications include drives for production machinery, conveyors, exercise equipment, and automated control systems.

ROLLER CHAIN SPROCKETS



Like its pulley products, Torque Transmission's roller chain sprockets are designed and manufactured with a glass reinforced nylon body for lightweight and cost-effective performance.

Typical applications include point of purchase displays, exercise equipment, garage door openers and packaging equipment.

CUSTOM PRODUCTS

While most of our customers design around the standard power transmission products we offer, we understand that sound engineering often requires special components. At Torque Transmission these are the challenges that set us apart from the competition. Our process is to first listen to our customers so we may fully understand their design requirements. Next, we involve our customers in the design process. We use this exchange of information to review all options available based on our experience and that of our customers. The result is usually a well thought-out and surprisingly cost effective solution.

THRUST BEARINGS



Torque Transmission combines the cost saving and performance advantages of nylon with the strength and durability of steel to create a new generation of economical high-performance thrust bearings. All of the company's thrust bearings utilize a unique design that incorporates the optimum combination of molded nylon ball retainer and hardened steel bearing surfaces.

Typical applications include advertising signage, printing equipment, marine hardware, point of purchase, medical instruments, manual valves, and pharmacy automation.

PULLEYS



Available in off the shelf or custom designs, Torque Transmission's pulleys are widely recognized for high performance and low cost. Torque combines glass-reinforced nylon with metal to provide a durable yet cost-effective pulley that won't stress crack when exposed to common chemicals and lubricants.

Torque Transmission's companion pulleys are designed specifically for fractional horsepower drives requiring high strength to weight ratios.

Typical applications include packaging equipment, automatic garage door openers, medical diagnostics, exercise equipment, mobility carts, printing devices, laboratory testing equipment, water pumps and alternative energy drives, home health care and door automation.

HOW TO ORDER

When placing an order, please include the following information:

Gear Drives

Specify model number, gear ratio, hollow or solid output shaft, and quantity.

Pulleys

Specify model number, pulley size and quantity.

Special Requirements

Please request quotations for non-standard modification or special products. Please provide us with a sketch, blueprint or sample of your requirements.

Terms

Net 30 days

F.O.B. F.C.A. Fairport Harbor, Ohio USA

Open Account Order

New accounts may apply for open account status by furnishing three (3) credit references and one (1) bank reference.

Method of Shipping

All shipments via UPS unless otherwise specified by customer.

Minimum Order

\$75.00 Net

Delivery Information

Please specify delivery date requirement.

Larger Quantities and Blanket Orders

Please contact the factory for quotations.

Credit Card Orders:



While we encourage Open Account Orders, for the convenience of our customers, we do accept MasterCard®, American Express®, VISA® and Discover®. Customers will be billed for products and freight upon shipment, subject to credit card approval. Minimum order is \$75.00, plus shipping charges.

Return Policy

Returns of standard products will be subject to a 20% re-stocking charge of prices in effect at time of order entry.

Cancellation of Orders for Standard Products

All orders for standard products that are cancelled will be subject to a 15% cancellation fee.

Terms and Conditions Applying to Non-Standard Products:

All orders for non-standard products must be approved in writing on behalf of the Seller at Fairport Harbor, Ohio. Any changes assessed by Torque Transmission for engineering and/or tooling used to design and manufacture the products will be required such that 50% of the charges are due with acceptance of the order, and the remaining 50% upon delivery of approval samples. Any and all tooling used to manufacture non-standard products will remain the property of Torque Transmission. In the event of a cancellation of an order for non-standard products, the following will apply:

- 1) Prior to completion of engineering and/or tooling components, any charges for work in progress will be computed and assessed on a separate billing.
- 2) All orders for non-standard products will be considered non-cancellable through the completion of delivery of the quantity ordered.
- 3) Blanket orders for non-standard products will be cancellable with 60 days notice. Buyer will take delivery of all products actually produced, plus be assessed charges relating to the purchase of material specific to the non-standard product ordered.
- 4) All orders that are cancelled must be in writing and attached to the original order.

Custom Capabilities

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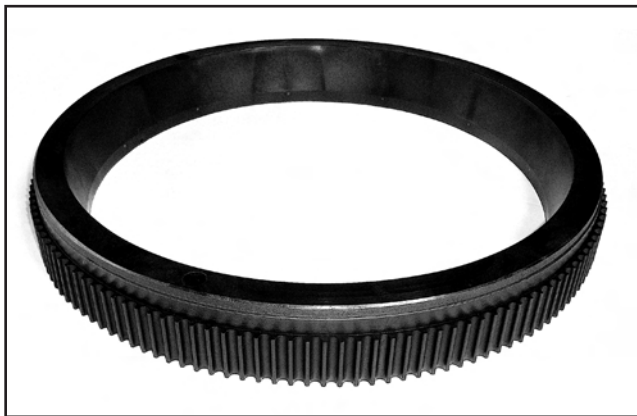
CUSTOM FHP COMPONENTS

Problem-Solving with a Custom Design

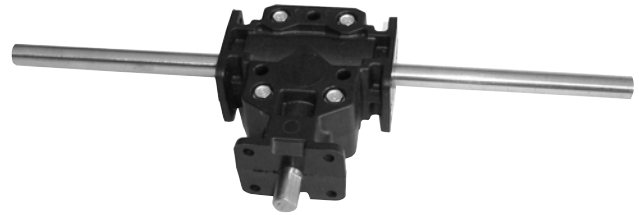
Problem-solving is a key factor that makes Torque Transmission exceptionally different from catalog suppliers of power transmission components.

Advantages

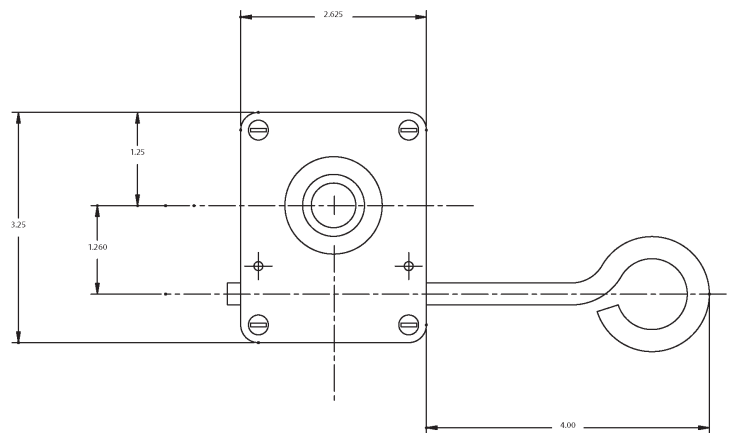
- The unique capacity to modify or customize any of the standard products in our catalog to meet a customer's specific application needs
- A range of custom solutions based on specialized skills honed by more than 40 years of working closely with customers



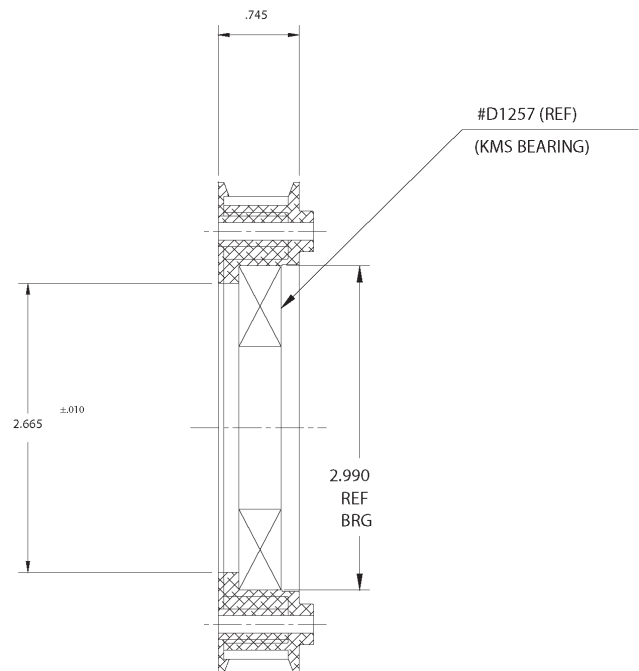
Custom Pulley P144-8M-45 with 11.875 I.D. and 14.383 O.D.



RAB-1 Reducer with Custom Shafts

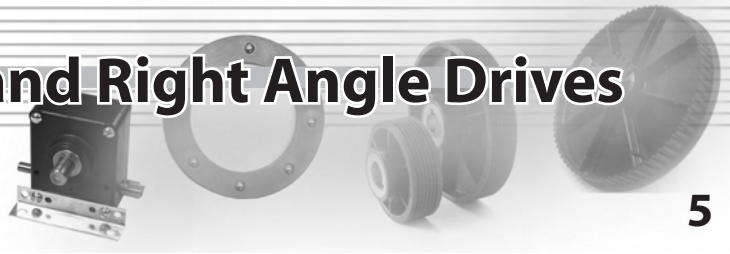


SW-1H Reducer with Custom Input Shafts



Custom Pulley with a Bearing Insert

Worm Gear Reducers and Right Angle Drives



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WORM GEAR SPEED REDUCERS AND RIGHT ANGLE DRIVES

Torque Transmission offers a wide range of standard ratios and shaft options as well as customer driven custom designs.

- Our application support is always available to help size the correct reducer for your product.
- If your specification is different from our standard products, we will work with you toward a creative and economical solution.
- As a customer, we will involve you at all phases of the design process for custom reducers.
- All of our gear reducers are manufactured for high performance in a large spectrum of applications.
- The SW-1, SW-5, and RAB-1 cases are molded, glass-filled material making them extremely rugged and resistant to corrosive environments.
- AutoCAD® and Solid Works®

Selection Features

- Wide range of ratios
- All ratios equipped with right hand worm gears
- Load capacity unaffected by direction and rotation
- Left hand gears available upon request
- Output shaft options – solid or hollow

Applications for Torque Transmission Speed Reducers

- Drives for production machinery, conveyors, and exercise devices, medical and indexing equipment.
- Actuating various components in automated control systems

PLEASE CONTACT US FOR APPLICATION ASSISTANCE

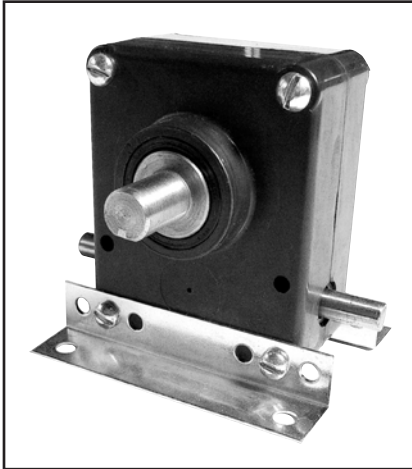
TECHNICAL INFORMATION

$$\begin{aligned}
 \text{Torque (in-lbs.)} &= \text{Force x Radius} \\
 &= \frac{63025 \times \text{Horsepower}}{\text{Rev. per Min.}} \\
 \text{Horsepower} &= \frac{\text{Torque (in-lbs.)} \times \text{Rev. per Min.}}{63025} \\
 &= \frac{\text{Force (lbs.)} \times \text{Belt Speed}}{33,000} \\
 \text{Ratio} &= \frac{\text{High Speed (shaft or pulley) RPM}}{\text{Low Speed (shaft or pulley) RPM}} \\
 \text{Force (in-lbs.)} &= \frac{33,000 \times \text{Shaft Horsepower}}{\text{Velocity (FPM)}} \\
 \text{Velocity or Belt Speed (FPM)} &= .262 \times \text{Pitch Dia.} \times \text{RPM}
 \end{aligned}$$

$$\begin{aligned}
 \text{Rev. per Min.} &= \frac{\text{Velocity (FPM)}}{0.262 \times \text{Pitch Dia.}} \\
 &= \frac{63025 \times \text{Horsepower}}{\text{Torque (in-lbs.)}} \\
 \text{Pitch Diameter} &= \frac{\text{Velocity (FPM)}}{.262 \times \text{RPM}} \\
 \text{Center Distance} &= \frac{K + \sqrt{K^2 - 32(D-d)^2}}{16} \\
 \text{Belt Length} &= \frac{2c + (D-d)^2 + 1.57(D+d)}{4c} \\
 L &= \text{length} \\
 C &= \text{center distance} \\
 D &= \text{large pitch diameter} \\
 d &= \text{small pitch diameter} \\
 R &= \text{speed ratio} \\
 K &= 4L - [6.28(D + d)] \text{ (factor)}
 \end{aligned}$$

Worm Gear Reducers and Right Angle Drives

WORM GEAR SPEED REDUCERS



Model SW-1S

Model SW-1S

- Input shaft is supported by bronze bushing, sealed to retain lubrication and keep out dirt
- Output shaft is supported by bronze bushing
- Bronze worm gear
- Available in ratios from 3.5:1 to 60:1
- Input shaft 5/16" OD
- Output shaft 1/2" OD
- Supplied factory lubricated with grease
- 3-3/8" high, 3-7/8" wide, 3" deep overall
- Net weight 28 ozs. Weight may vary according to ratio



Model SW-1H

Model SW-1H

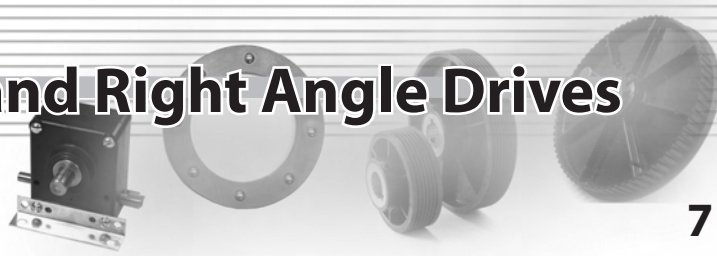
- Same as SW-1S, but supplied with 5/8" ID hollow output shaft
- Standard hollow shaft has cross-hole to secure solid driven shaft
- Optional internal keyways available by quotation

Additional Information

Our precision-hobbed nylon worm gears are low in cost, lightweight, and quiet running. Bronze worm gears, providing three times the torque capacity, are available for rugged applications. Both gears use ground steel worms.

The mounting brackets can be adjusted to allow for several optional mounting positions; for custom applications, both the input and output shafts can be modified. Please contact our offices to discuss your application.

Worm Gear Reducers and Right Angle Drives



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WORM GEAR SPEED REDUCERS

HORSEPOWER RATINGS FOR SW-1 SPEED REDUCERS NYLON GEAR						
RATIO	1800 RPM INPUT					
	INPUT HP	OUTPUT HP	OUTPUT RPM	IN. LBS. TORQUE	Nm TORQUE	CENTER DISTANCE
3.5:1	.28	.27	514	34	3.93	1.25"
10:1	.11	.10	180	34	3.93	1.25"
15:1	.09	.08	120	34	3.93	1.25"
20:1	.075	.06	90	35	4.04	1.25"
30:1	.05	.04	60	40	4.62	1.25"
40:1	.04	.03	45	39	4.50	1.25"
48:1	.03	.02	38	32	3.69	1.25"
60:1	.025	.012	30	25	2.88	1.25"

* Base to center of output shaft depends upon mounting position selected.

BRONZE GEAR						
RATIO	1800 RPM INPUT					
	INPUT HP	OUTPUT HP	OUTPUT RPM	IN. LBS. TORQUE	Nm TORQUE	CENTER DISTANCE
3.5:1	.84	.82	514	102	11.79	1.25"
10:1	.33	.30	180	102	11.79	1.25"
15:1	.27	.24	120	102	11.79	1.25"
20:1	.225	.18	90	105	12.13	1.25"
30:1	.15	.12	60	120	13.87	1.25"
40:1	.10	.08	45	112	12.94	1.25"
48:1	.09	.06	38	96	11.09	1.25"
60:1	.075	.035	30	75	8.66	1.25"

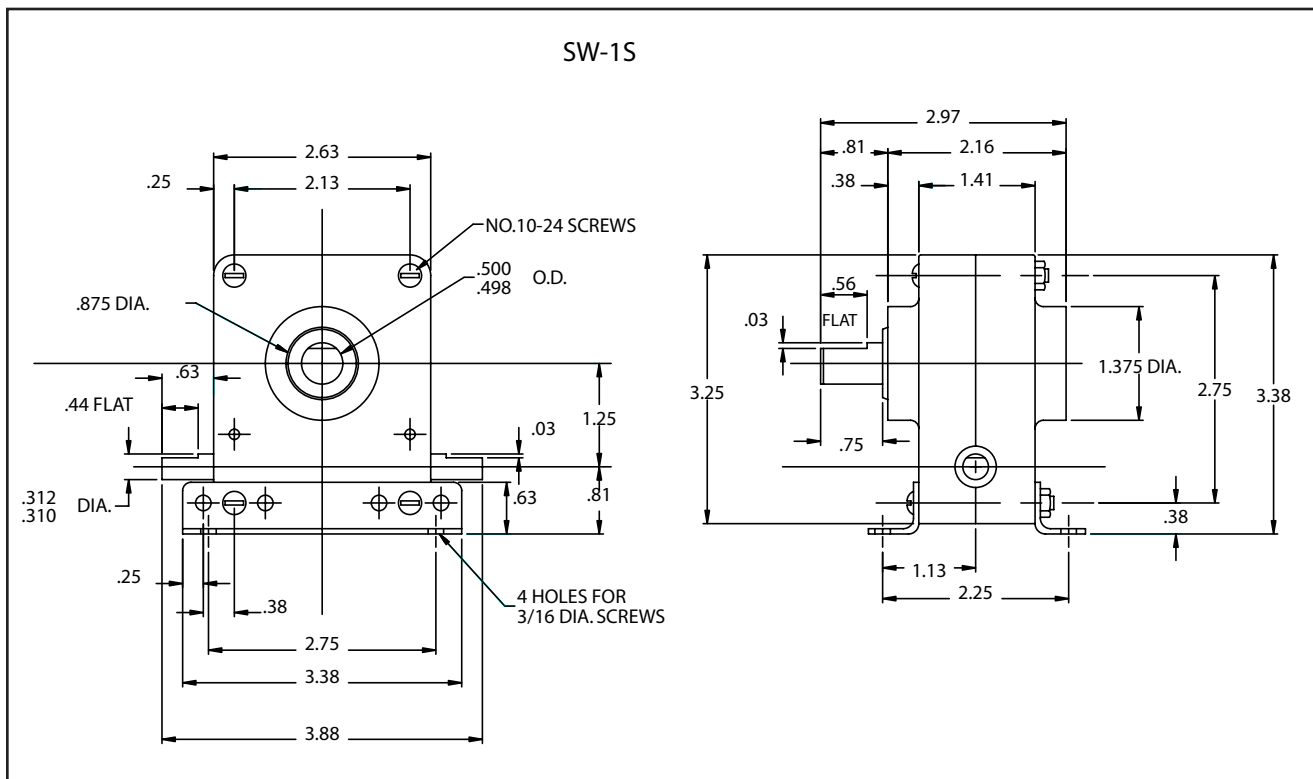
* Base to center of output shaft depends upon mounting position selected.



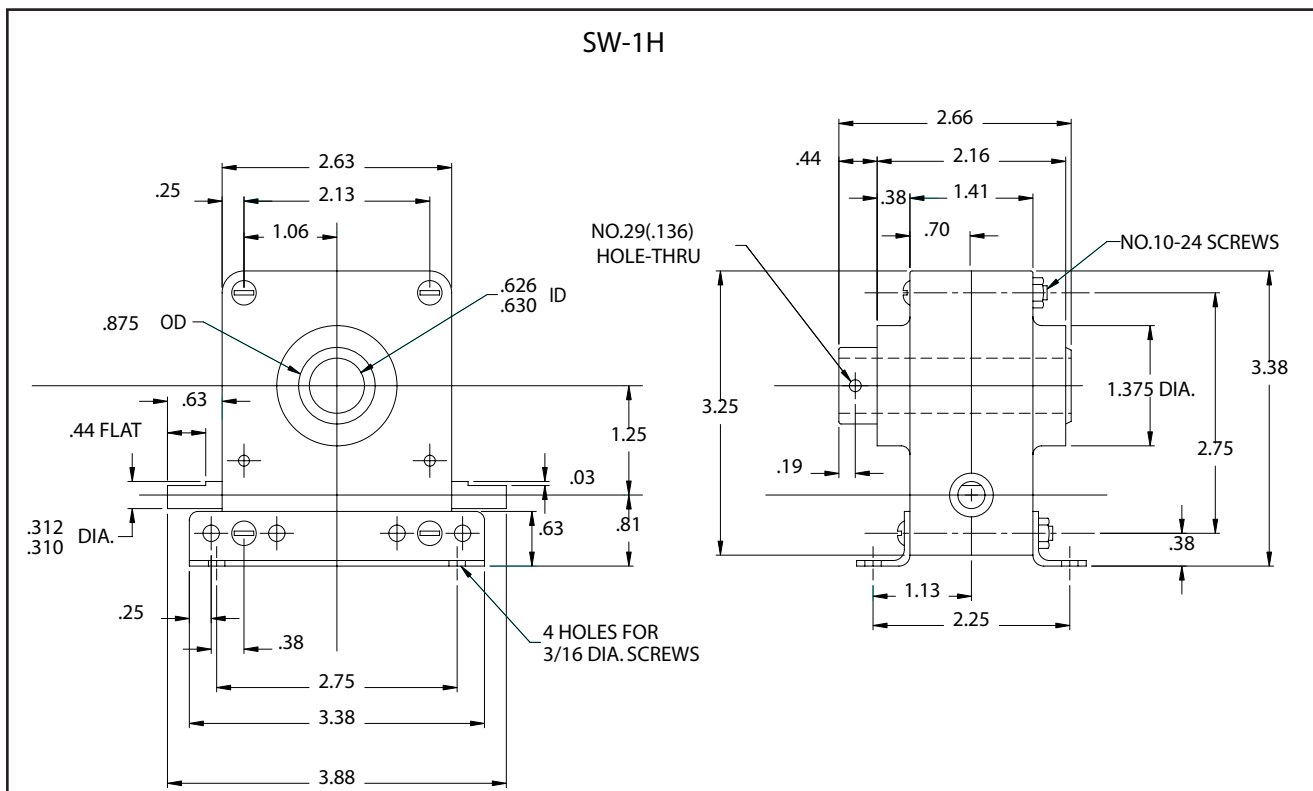
Worm Gear Reducers and Right Angle Drives

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WORM GEAR SPEED REDUCERS



Model SW-1S Detail Drawing – Solid Shaft



Model SW-1H Detail Drawing – Hollow Shaft

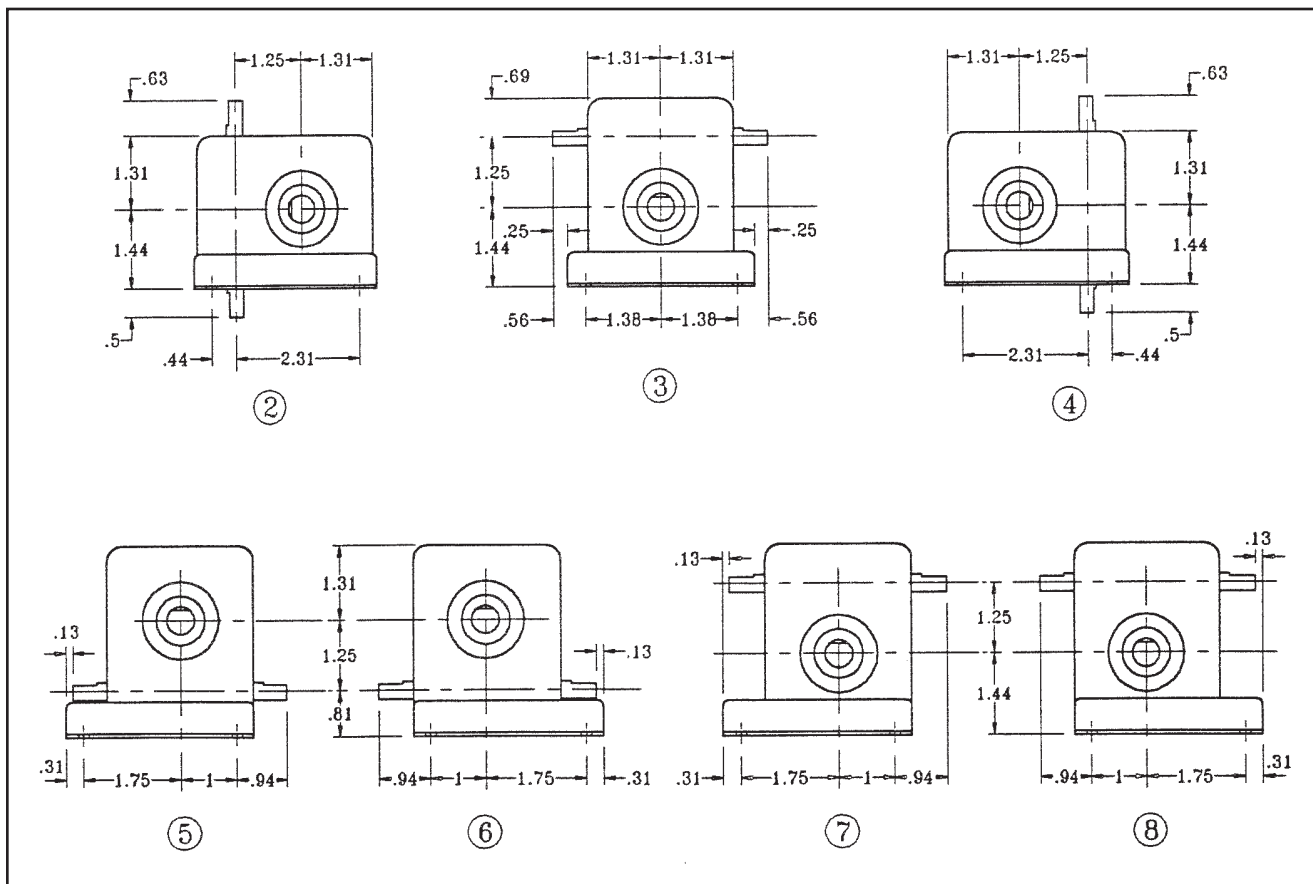
Worm Gear Reducers and Right Angle Drives



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WORM GEAR SPEED REDUCERS

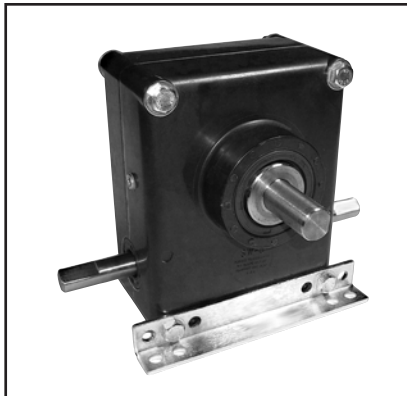
SW-1 ADDITIONAL MOUNTING POSITIONS



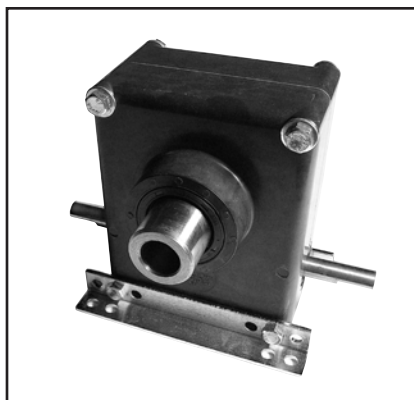
Worm Gear Reducers and Right Angle Drives

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WORM GEAR SPEED REDUCERS



Model SW-5S



Model SW-5H

Model SW-5S

- The input shaft is supported by shielded ball bearings
- The output shaft is supported by a bronze bushing
- Bronze worm gear
- Available in ratios 5:1 to 100:1
- Input shaft 1/2" OD
- Solid output shaft is 5/8" OD
- Both shafts have antifriction thrust bearings
- Supplied factory lubricated with grease
- 5-1/2" high, 7-3/8" wide, and 5-1/2" deep
- Net weight 6 pounds, 10 ounces (2.84Kg). Weight may vary according to ratio

Models SW-5H

- The input shaft is supported by shielded ball bearings
- The output shaft is supported by a bronze bushing
- Bronze worm gear
- Available in ratios 5:1 to 100:1
- Input shaft 1/2" OD
- Hollow output shaft is 3/4" ID by 1.250 OD
- Both shafts have antifriction thrust bearings
- Supplied factory lubricated with grease
- 5-1/2" high, 7-3/8" wide, and 5-1/8" deep
- Net weight 6 pounds, 5 ounces (2.84Kg). Weight may vary according to ratio

MODELS SW-5S AND SW-5H RATIOS, RATING AT 1800 RPM INPUT


RATIO	INPUT H.P.	OUTPUT H.P.	OUTPUT RPM	IN. LBS. TORQUE*	Nm TORQUE
5:1	.94	.8	360	140	16.18
9:1	.68	.55	200	175	20.22
18:1	.4	.3	100	190	21.96
25:1	.3	.22	72	190	21.96
36:1	.23	.15	50	190	21.96
50:1	.15	.10	36	190	21.96
100:1	.12	.06	18	195	22.54

*At lower speeds the torque ratings shown may be increased up to 50%.

NOTE: Center distance is 2.00" on all models

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and Right Angle Drives

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Technical drawing of a mechanical assembly, showing two views: a front view (left) and a side view (right).

Front View (Left):

- Overall width: 7.38
- Overall height: 5.38
- Central circular feature with concentric circles, labeled with diameters 1.250 and 1.247.
- Two top holes with diameters .625 and .624.
- Central hole with diameter 2.25 DIA.
- Dimensions: 4.38, 3.75, 1.50, 2.00, 1.31, 3.75, 4.75, 5.38, 7.38.
- Labels: "2.25 DIA.", ".25 DIA. SCREWS", "BREATHING PLUG", "4 HOLES FOR .25 DIA. SCREWS".

Side View (Right):

- Overall width: 5.13
- Overall height: 5.50
- Dimensions: 4.13, 2.50, .81, 1.38, 1.31, .75, 4.75, 5.50, 1.69, 3.38.
- Labels: ".500 .499", ".44".

[illegible]

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Worm Gear Reducers and Right Angle Drives

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RIGHT ANGLE MITER GEAR DRIVES (RAB-1)



Model RAB-1

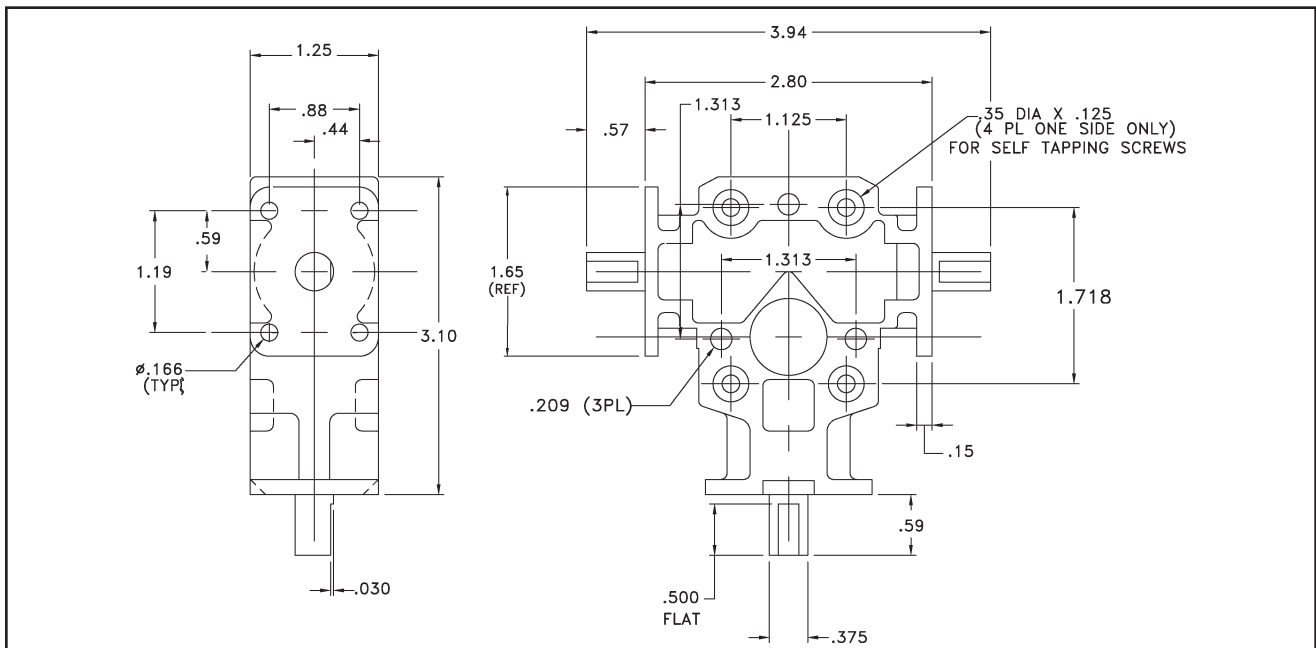
Note: Rated at 1/3 HP at 1800 RPM. Maximum speed is 3000 RPM.

Model RAB-1

- Right angle gear drive, 3-21/32" by 3-15/16" by 1-1/4" deep
- Weighs 10 ounces
- Flange mounting and hardened steel ball bearings
- Bearings with lifetime lubrication
- Ideal when power transfer with right-angle motion is required
- Load carried through ground high-tensile steel shafts. Any shaft may be used as a drive.
- Three shaft mounting positions provide versatility in application
- Unit can be operated CW, CCW or BACK driven
- Available with single output shaft (see torque chart on page 15)

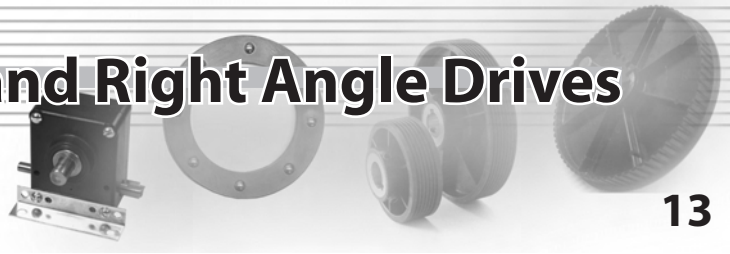
Construction and Cost Saving Features

- Longer service life
- Less wear
- Greater tooth-to-tooth contact
- Quieter operation
- The most efficient power transfer design under rated load conditions

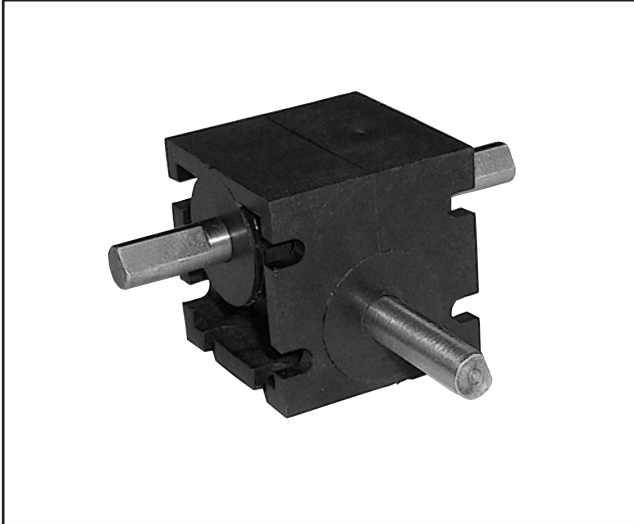


Model RAB-1 Dimension Drawing

*See torque chart on page 15



RA MINIATURE RIGHT ANGLE HELICAL GEAR DRIVES



Model RA-203 Right Angle, Dual Output Shafts

Model RA-202

- Right angle, single output shaft drive

Model RA-203

- Right angle, dual output shaft drive

Features and Benefits:

- Miniature, permanently lubricated gear drives
- Weigh 3 ounces
- Mini right angle drives designed to eliminate sharp bends in flexible shafting, connecting accessory instruments
- Optional panel mounting (shown)
- Housed in fiberglass-reinforced nylon
- Drives have hardened steel helical gears, steel shafts, non-metallic bearings
- Ratios available in 1:1 and 2:1
- Drives rated for 1/8 HP for continuous duty
- Customized options are available subject to design review and approval



Model RA-302-P Right Angle-Dual Output Shaft
Panel Mount

Model RA-302

- Right angle, single output shaft

Model RA-303

- Right angle, dual output shaft

Features and Benefits:

- Miniature, permanently lubricated gear drives
- Weigh 6 ounces
- Mini right angle drives designed to eliminate sharp bends in flexible shafting, connecting accessory instruments
- Optional panel mount (shown)
- Housed in aluminum
- Drives have hardened steel helical gears, steel shafts, non-metallic bearings
- Ratios available in 1:1 and 2:1
- Drives rated for 1/8 HP for continuous duty
- Customized options are available subject to design review and approval

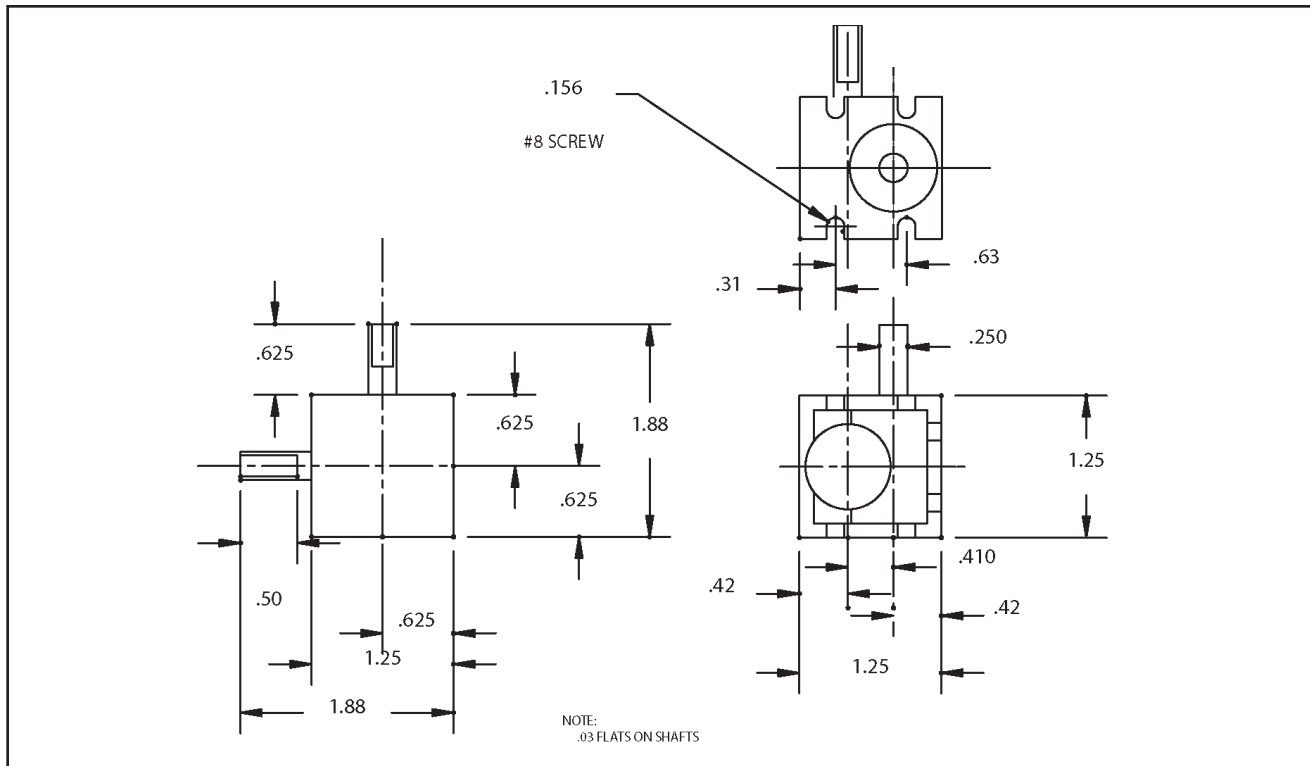
***See torque chart on page 15.**



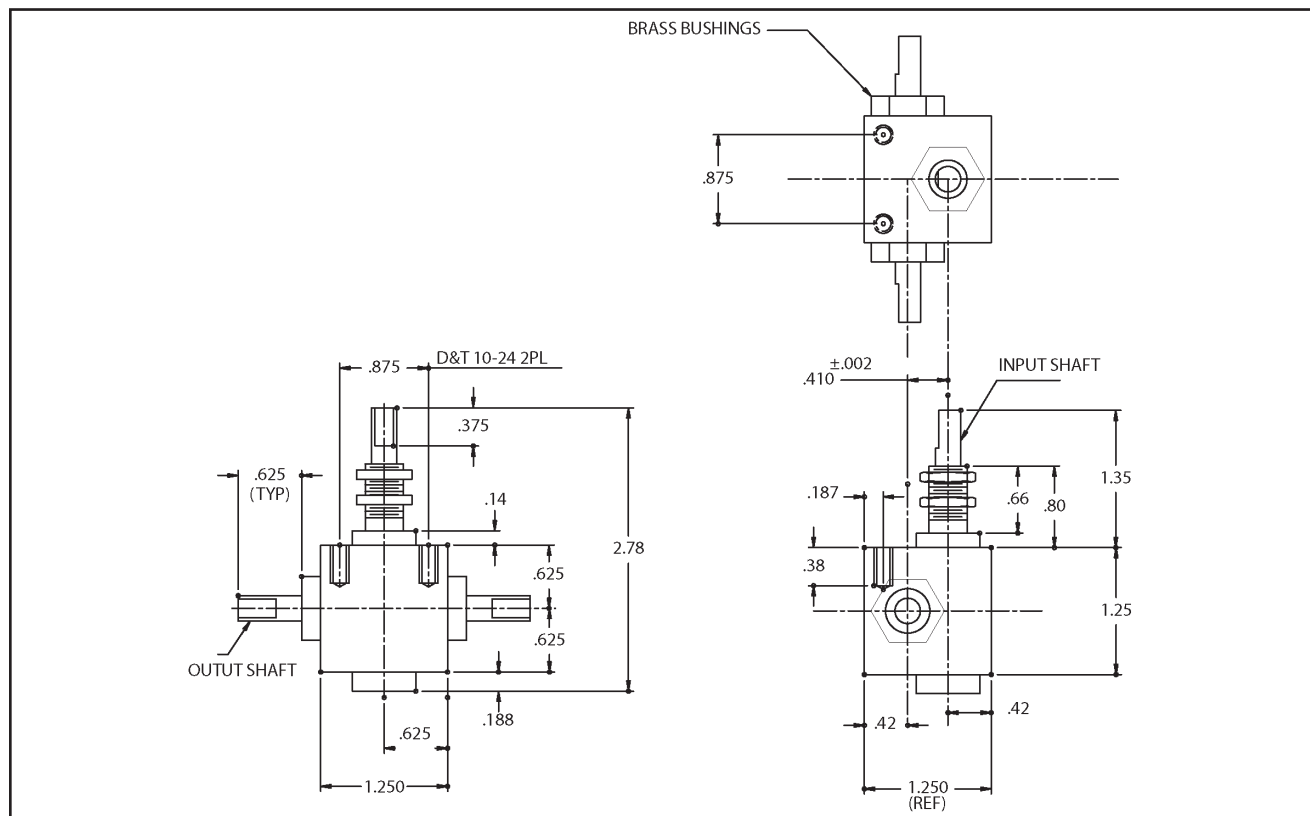
Worm Gear Reducers and Right Angle Drives

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RA AND MINIATURE RIGHT ANGLE HELICAL GEAR DRIVES

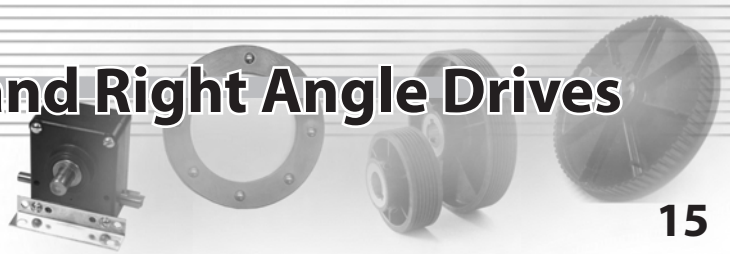


Model RA-202 Dimension Drawing



Model RA-303 Dimension Drawing

Worm Gear Reducers and Right Angle Drives



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RAB-1 AND RA MINIATURE HELICAL GEAR DRIVES

RAB GEAR DRIVE TORQUE RATINGS – 1:1 RATIO

Pinion Rotational Speed - RPM	3450	1725	1125	875
Allowable Transmitted Power - HP	0.956	0.548	0.387	0.314
Pinion Input Torque Inch Pounds / Nm	17.5 / 154	20 / 176	21.7 / 191	22.6 / 199
Gear Output Torque Inch Pounds / Nm	17.5 / 154	20 / 176	21.7 / 191	22.6 / 199

RAB GEAR DRIVE TORQUE RATINGS – 2:1 RATIO

Pinion Rotational Speed - RPM	3450	1725	1125	875
Allowable Transmitted Power - HP	0.956	0.548	0.387	0.314
Pinion Input Torque Inch Pounds / Nm	17.5 / 154	20 / 176	21.7 / 191	22.6 / 199
Gear Output Torque Inch Pounds / Nm	17.5 / 154	20 / 176	21.7 / 191	22.6 / 199

RA MINIATURE GEAR DRIVE TORQUE RATINGS – 1:1 RATIO

Pinion/ Input RPM	Input HP	KW	Input Torque (oz. in.) Nm		Output Torque (oz. in.) Nm	
860	0.006	0.004	7.33	51.76 – 10 ³ Nm	7.33	51.76 – 10 ³ Nm
1725	0.011	0.008	6.84	48.30 – 10 ³ Nm	6.84	48.30 – 10 ³ Nm
3450	0.02	0.015	6.41	45.26 – 10 ³ Nm	6.41	45.26 – 10 ³ Nm

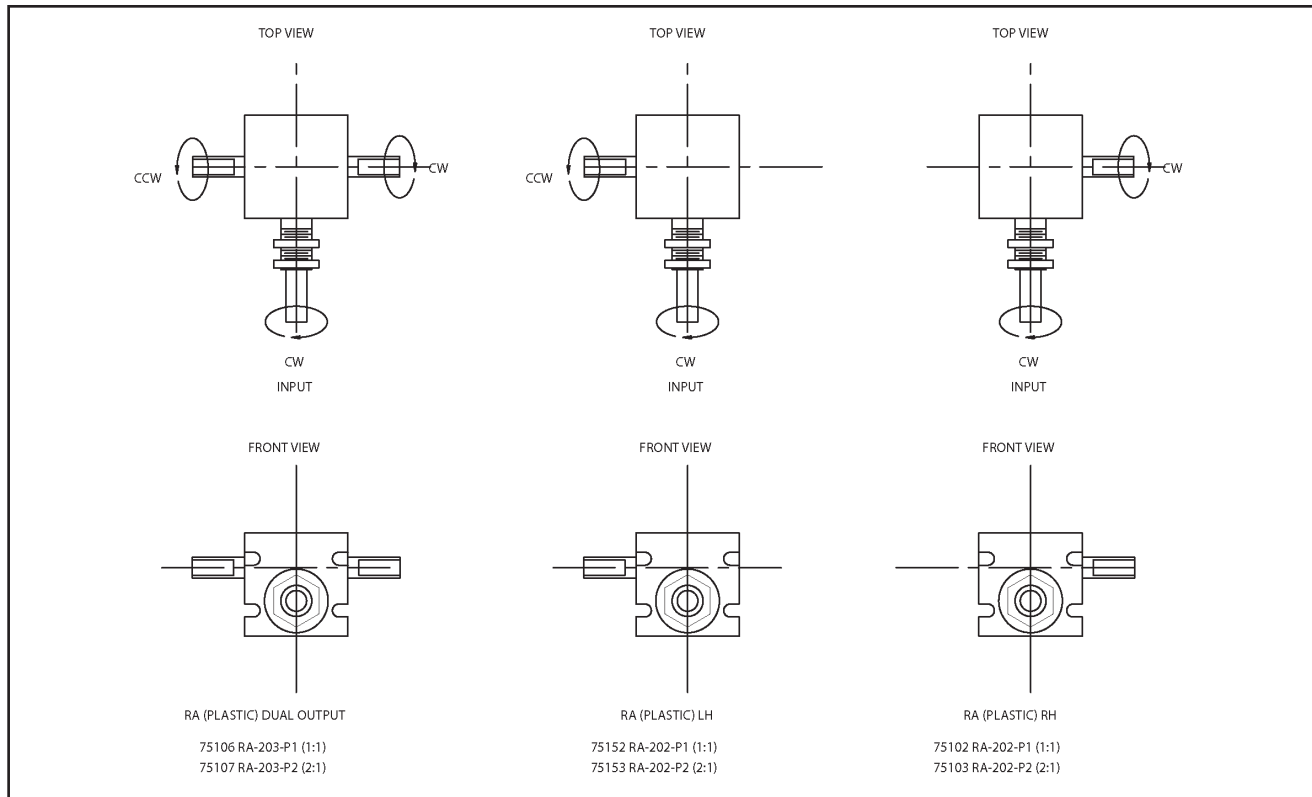
RA MINIATURE GEAR DRIVE TORQUE RATINGS – 2:1 RATIO

Pinion/ Input RPM	Input HP	KW	Input Torque (oz. in.) Nm		Output Torque (oz. in.) Nm	
860	0.006	0.004	6.56	46.32 – 10 ³ Nm	13.12	92.65 – 10 ³ Nm
1725	0.011	0.008	6.16	43.50 – 10 ³ Nm	12.32	87.00 – 10 ³ Nm
3450	0.02	0.015	5.8	40.96 – 10 ³ Nm	11.6	81.91 – 10 ³ Nm

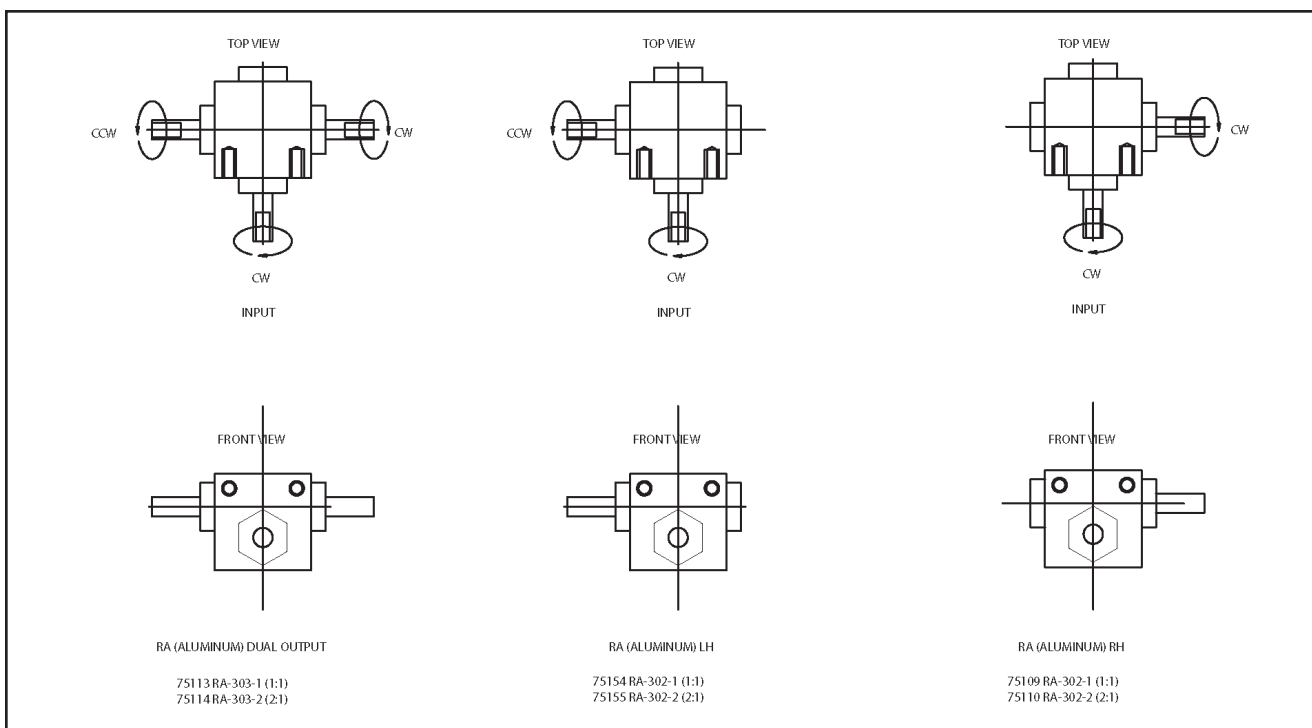
Worm Gear Reducers and Right Angle Drives

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MINI RIGHT ANGLE GEAR BOXES - PLASTIC VARIATIONS



MINI RIGHT ANGLE GEAR BOXES - ALUMINUM VARIATIONS



THRUST BEARINGS



With superior performance and economy characteristics, this time-proven design combines cost-saving advantages of nylon molding with high strength to wear ratio of hardened steel. Thrust bearings are available in:

- Carbon steel
- Stainless steel
- Inch measurements
- Metric measurements

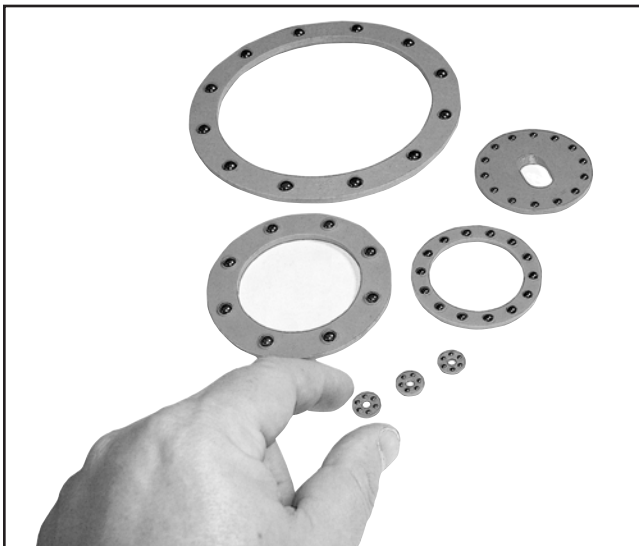
High Quality Construction

- Hardened steel balls are precision grade 100 tolerance
- Hardened thrust washers for long life
- Injection molded, heat stabilized nylon retainers provide consistent quality
- Lightweight for superior performance

Cost Saving Features

- Lightweight nylon retainer
- Natural lubricity
- Corrosion resistant
- Quiet operation

CUSTOM THRUST BEARINGS



Custom thrust bearings

At Torque Transmission we understand that sound engineering practices usually dictate that products be designed using standard readily available components. That's why the majority of the products we sell are catalog items. However, we also understand that custom products are often required to complete a proper design.

Because Torque Transmission can draw upon decades of design and manufacturing experience, we welcome the challenge to do something special for our customers. Our in-house design capabilities, tooling and manufacturing expertise has allowed us to respond quickly in a cost conscious manner many times.

To get started, just give us a call, and together we will review your application and evaluate some of the basic design parameters.

Thrust Bearings

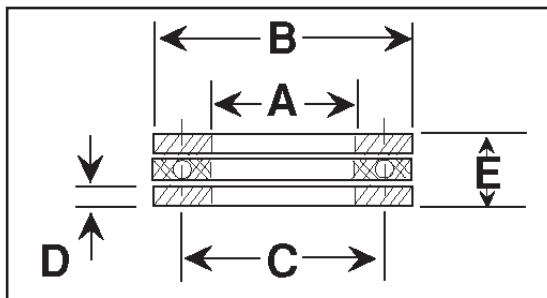
18

ENGINEERING SPECIFICATIONS

Carbon Steel and Stainless Steel – English Dimensions

WASHER							BALL		BEARING	
Bearing No	A I.D. (in)	Tol. (in)	B O.D. (in)	Tol. (in)	D* Thick (in)	Tol. (in)	Qty Per	A Size (in)	C Circle (in)	E Hgt (in)
TB-012	1/8	0.128-0.133	7/16	0.430-0.437	0.050	0.048-0.052	6	0.0938	0.281	0.190-0.196
TB-018	3/16	0.191-0.195	1/2	0.492-0.499			7		0.344	
TB-025	1/4	0.253-0.258	9/16	0.555-0.562			8		0.406	
TB-031	5/16	0.316-0.321	5/8	0.617-0.624			9		0.469	
TB-037	3/8	0.378-0.383	13/16	0.805-0.812	0.062	0.060-0.064	6	0.1250	0.594	0.245-0.253
TB-043	7/16	0.441-0.446	7/8	0.867-0.874			7		0.656	
TB-050	1/2	0.503-0.508	15/16	0.930-0.937			8		0.719	
TB-056	9/16	0.566-0.571	1	0.992-0.999			9		0.781	
TB-062	5/8	0.628-0.635	1 1/8	1.115-1.124	0.093	0.090-0.096	6	0.1563	0.875	0.336-0.348
TB-068	11/16	0.691-0.698	1 3/16	1.178-1.187			7		0.938	
TB-075	3/4	0.753-0.760	1 1/4	1.240-1.249			8		1.000	
TB-081	13/16	0.816-0.823	1 5/16	1.303-1.312			9		1.063	
TB-087	7/8	0.878-0.885	1 3/8	1.365-1.374	0.125	0.120-0.130	10	0.1875	1.125	0.427-0.447
TB-093	15/16	0.941-0.950	1 9/16	1.551-1.562			9		1.250	
TB-100	1	1.003-1.012	1 5/8	1.613-1.624			10		1.313	
TB-112	1 1/8	1.128-1.137	1 3/4	1.738-1.749			12		1.438	
TB-125	1 1/4	1.253-1.262	1 7/8	1.863-1.874			14		1.563	
TB-150	1 1/2	1.503-1.512	2 1/8	2.113-2.124			14		1.813	

*TOLERANCE: ± 0.0001 in. (Grade 100)



Thrust Bearing Dimensions

ORDERING INFORMATION

Please use the following prefixes when placing Thrust Bearing orders:

	CARBON STEEL	STAINLESS STEEL
Bearing Complete	TB	TBS
Retainer Only	R (Blue)	RS (Red)
Washer Only	W	WS

LOAD RATINGS IN POUNDS FOR THRUST BEARINGS

CARBON STEEL – MODEL TB								
Bearing No	RPM 15	RPM 100	RPM 450	RPM 900	RPM 1200	RPM 1800	RPM 3600	RPM 5000
TB-012	120	63	38	30	27	24	19	17
TB-018	126	70	40	32	29	25	20	18
TB-025	131	69	42	34	29	26	21	18
TB-031	136	72	43	34	31	27	22	19
TB-037	175	93	56	44	40	35	28	25
TB-043	190	101	61	48	44	38	30	27
TB-050	201	106	64	51	46	40	32	29
TB-056	213	113	68	54	49	49	34	30
TB-062	251	133	80	64	58	51	40	36
TB-068	273	145	87	69	63	55	44	39
TB-075	293	155	94	74	68	59	47	42
TB-081	314	166	101	80	72	63	50	45
TB-087	328	174	105	83	76	66	52	47
TB-093	384	204	123	98	89	77	61	55
TB-100	459	243	147	117	106	93	73	66
TB-112	504	267	162	128	117	102	81	72
TB-125	545	289	175	139	125	110	87	78
TB-150	522	277	168	133	121	105	84	75

STAINLESS STEEL – MODEL TBS								
Bearing No	RPM 15	RPM 100	RPM 450	RPM 900	RPM 1200	RPM 1800	RPM 3600	RPM 5000
TBS-012	84	44	26	21	19	17	13	12
TBS-018	88	48	28	22	20	18	14	12
TBS-025	92	49	29	24	20	18	15	12
TBS-031	95	40	30	24	21	19	15	13
TBS-037	123	65	39	31	28	24	19	17
TBS-043	133	70	42	33	31	26	21	19
TBS-050	140	74	45	35	32	28	22	20
TBS-056	149	79	47	38	34	34	24	21
TBS-062	175	93	56	45	40	36	28	25
TBS-068	191	101	61	48	44	38	31	27
TBS-075	205	108	66	52	48	41	33	29
TBS-081	220	116	71	56	50	44	35	31
TBS-087	196	122	73	58	53	46	36	33
TBS-093	268	143	86	68	62	54	43	38
TBS-100	321	170	103	82	74	65	51	46
TBS-112	352	187	113	89	82	71	57	50
TBS-125	381	202	122	97	90	77	61	54
TBS-150	365	194	118	93	85	73	59	52

THRUST BEARING TECHNICAL DATA

CARBON STEEL

WASHER: CR 1075 steel heat treated to RC 59-61
BALL: S.A.E. 1018 steel with RC 60 minimum
RETAINER: HS nylon permitting continuous use up to 250° F.

STAINLESS STEEL

WASHER: CR 410 steel heat treated to RC 38-42
BALL: Type 440-C stainless steel with RC 58-65
RETAINER: HS nylon permitting continuous use up to 250° F.



Thrust Bearings

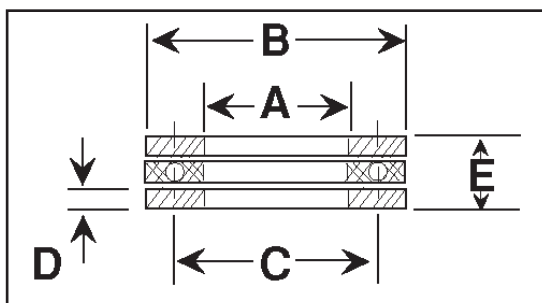
20

ENGINEERING SPECIFICATIONS

Carbon Steel and Stainless Steel – Metric Dimensions

WASHER							BALL			BEARING
Bearing No	A I.D. (mm)	Tol. (mm)	B O.D. (mm)	Tol. (mm)	D* Thick (mm)	Tol. (mm)	Qty Per	A Size (mm)	C Circle (mm)	E Hgt (mm)
MTB-409	4.00	4.01-4.06	9.00	8.94-9.04	1.27	1.22-1.32	6	1.5870	6.50	4.04-4.24
MTB-512	5.00	5.08-5.21	12.00	11.96-11.78			7		8.70	
MTB-614	6.00	6.07-6.20	14.00	13.97-13.79			8		10.30	
MTB-717	7.00	7.06-7.18	17.00	16.97-16.79	1.27	1.22-1.32	9	2.3800	11.90	4.82-5.02
MTB-816	8.00	8.08-8.20	16.00	15.96-15.80			9		11.90	
MTB-1021	10.00	10.06-10.19	21.00	20.96-20.78			6		15.10	
MTB-1224	12.00	12.06-12.19	24.00	23.98-23.80	1.57	1.52-1.63	8	3.1800	18.30	6.22-6.44
MTB-1628	16.00	16.07-16.26	28.00	27.97-27.74			6		22.20	
MTB-1932	19.00	19.08-19.25	32.00	31.98-31.75	2.36	2.28-2.44	8	4.0000	25.40	8.56-8.88
MTB-2541	25.00	25.07-25.30	41.00	40.97-40.69			10		33.30	
MTB-2844	28.00	28.07-28.30	44.00	43.97-43.69	3.18	3.05-3.30	12	4.7600	36.50	10.86-11.36

*TOLERANCE: $\pm .0025$ mm (Grade 100)



Thrust Bearing Dimensions

ORDERING INFORMATION

Please use the following prefixes when placing Thrust Bearing orders:

	CARBON STEEL	STAINLESS STEEL
Bearing Complete	MTB	MTBS
Retainer Only	MR (Blue)	MRS (Red)
Washer Only	MW	MWS

LOAD RATINGS IN POUNDS FOR THRUST BEARINGS

CARBON STEEL – MODEL MTB								
Bearing No	RPM 15	RPM 100	RPM 450	RPM 900	RPM 1200	RPM 1800	RPM 3600	RPM 5000
MTB-409	51	26	15	11	10	9	7	6
MTB-512	126	70	40	32	29	25	20	18
MTB-614	131	69	42	34	29	26	21	18
MTB-717	136	72	43	34	31	27	22	18
MTB-816	136	72	43	34	31	27	22	18
MTB-1021	175	93	56	44	40	35	28	25
MTB-1224	201	106	64	51	46	40	32	29
MTB-1628	251	133	80	64	58	51	40	36
MTB-1932	293	155	94	74	68	59	47	42
MTB-2541	459	243	147	117	106	93	73	66
MTB-2844	504	267	162	128	117	102	81	72

STAINLESS STEEL – METRIC MODEL MTBS								
Bearing No	RPM 15	RPM 100	RPM 450	RPM 900	RPM 1200	RPM 1800	RPM 3600	RPM 5000
MTBS-409	35	18	10	8	7	6	5	4
MTBS-512	88	49	28	22	20	17	14	12
MTBS-614	91	48	29	23	20	18	14	12
MTBS-717	95	40	30	23	21	19	15	13
MTBS-816	95	50	30	23	21	19	15	13
MTBS-1021	122	65	39	30	28	24	19	17
MTBS-1224	140	74	44	35	32	28	22	20
MTBS-1628	175	93	56	44	40	35	28	25
MTBS-1932	205	108	65	51	47	41	33	29
MTBS-2541	321	170	103	82	74	65	51	46
MTBS-2844	352	187	113	89	82	71	56	50

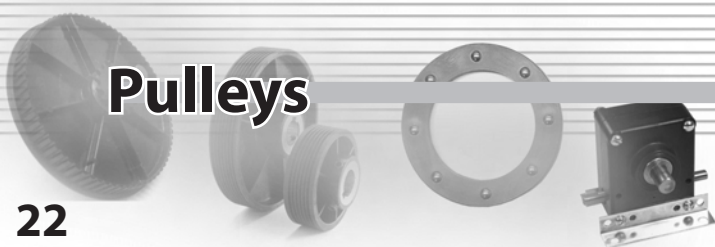
THRUST BEARING TECHNICAL DATA

CARBON STEEL

WASHER: CR 1075 steel heat treated to RC 59-61
BALL: S.A.E. 1018 steel with RC 60 minimum
RETAINER: HS nylon permitting continuous use up to 250° F.

STAINLESS STEEL

WASHER: CR 410 steel heat treated to RC 38-42
BALL: Type 440-C stainless steel with RC 58-65
RETAINER: HS nylon permitting continuous use up to 250° F.



Pulleys

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PULLEYS

Torque Transmission offers pulleys with superior performance and economical designs. Each pulley is detailed on the following pages.

High Quality Construction

Pulleys are constructed of glass reinforced nylon and metal to provide durability at a reasonable cost.

Special Sizes, Samples

Samples of standard pulleys are available for test purposes and prototypes.

Applications include:

- Packaging equipment
- Automated garage door openers
- Medical diagnostic machines
- Exercise equipment
- Printing devices
- Automation
- Water pumps

STANDARD TOLERANCES

STANDARD BORE SIZES FOR TORQUE TRANSMISSION PULLEYS	
Nominal Bore Size	Bore Tolerances
1/4"	.2505/.2515
5/16"	.313/.314
3/8"	.3755/.3765
1/2"	.5005/.5015
5/8"	.6255/.6265
3/4"	.7505/.7515

STANDARD KEYWAYS AND SETSCREWS FOR PULLEYS		
Bore	Keyway*	Setscrew
5/16"	3/32"	10-24
3/8"	1/8"	10-24
1/2"	1/8"	10-24
5/8"	3/16"	10-24
3/4"	3/16"	10-24
All 8mm Pulleys		1/4-20

*Other keyways are available upon request.

Other bore sizes and metric bore sizes available upon request at an additional surcharge.

All setscrews are knurled cup point. Please specify if another size or type of setscrew is required.

Metric setscrews also available.

All setscrews are placed directly over the keyway. If two setscrews are ordered, the second setscrew is 90 degrees clockwise from the first one, unless otherwise specified.

Timing Belt Pulley Tolerances

We maintain a close quality standard by holding +.005 inch on our pulleys and maintaining a concentricity of .005 TIR maximum.

TIMING BELT PULLEYS



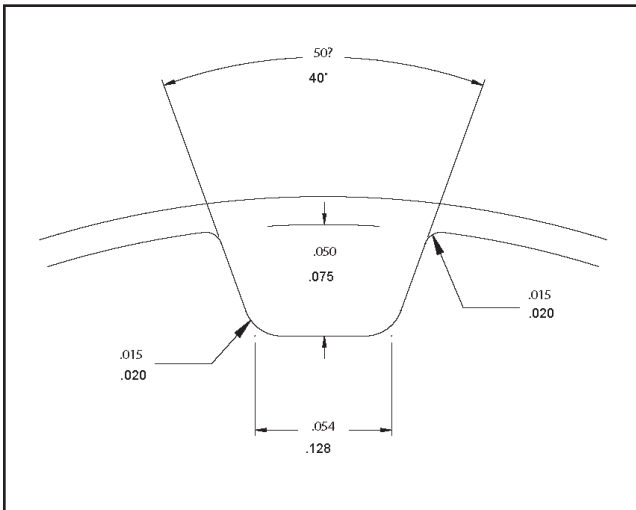
1/5 to 3/8 Pitch Pulleys

XL, and L Pitch

- XL features 1/5" pitch
- L features 3/8" pitch

Features/Options

- Made to rigid standards for true design pitch
- Available in standard, metric and D-bore sizes
- Optional flanges
- Plastic or metal hubs
- Setscrews
- Keyways
- Belts available



Pitch for 1/5" and 3/8"

Torque Transmission Pulley Benefits

- Lightweight
- Low Inertia
- Cost effective
- Noise reduction
- Shock resistant
- Lubricity
- Chemical resistant
- Longer life
- The glass reinforced nylon to metal combination provides many benefits.



XL Pitch Pulleys

1/5" PITCH TIMING BELT PULLEY DIMENSIONS

Part Number		Number Of Teeth	Pitch Dia.	Outside Dia. ±.005	Flange Dia.	Hub Dia.	Standard Bores						Type
Pulley No.	Flange Code*						1/4	5/16	3/8	1/2	5/8	3/4	
10XL037	SF DF	10	.637	.617	.87	.59	•						Figure 1
11XL037	SF DF	11	.700	.680	.94	.59	•	•					
12XL037	SF DF	12	.764	.744	1.00	.75	•	•					
13XL037	SF DF	13	.828	.808	1.05	.88	•	•	•				
14XL037	SF DF	14	.891	.871	1.13	.88	•	•	•				Figure 2
15XL037	SF DF	15	.955	.935	1.18	.88	•	•	•	•			
16XL037	SF DF	16	1.019	.999	1.24	.88	•	•	•	•			
17XL037	SF DF	17	1.082	1.062	1.31	.88	•	•	•	•			
18XL037	SF DF	18	1.146	1.126	1.38	.88	•	•	•	•			
19XL037	SF DF	19	1.210	1.190	1.44	.88	•	•	•	•			
20XL037	SF, DF	20	1.273	1.253	1.50	.88	•	•	•	•			
21XL037	SF DF	21	1.337	1.317	1.57	.88	•	•	•	•			
22XL037	SF DF	22	1.401	1.381	1.63	.88	•	•	•	•			
24XL037	SF DF	24	1.528	1.508	1.76	.88	•	•	•	•			
25XL037	SF DF	25	1.592	1.572	1.80	.88	•	•	•	•			
26XL037	SF DF	26	1.655	1.635	1.87	.88	•	•	•	•			
27XL037	SF DF	27	1.719	1.699	1.94	.88	•	•	•	•			
28XL037	SF DF	28	1.783	1.764	2.02	.88	•	•	•	•			
29XL037	SF DF	29	1.846	1.826	2.07	.88	•	•	•	•			
30XL037	SF DF	30	1.910	1.890	2.14	.88	•	•	•	•			
32XL037	SF DF, NF	32	2.037	2.017	2.26	.88	•	•	•	•			Figures 3 & 4
36XL037	SF DF, NF	36	2.292	2.272	2.51	.88	•	•	•	•			
40XL037	SF DF, NF	40	2.546	2.526	2.78	.88	•	•	•	•			
42XL037	SF DF, NF	42	2.674	2.654	2.90	.88	•	•	•	•			
48XL037	SF DF, NF	48	3.056	3.036	3.28	.88	•	•	•	•			
60XL037	SF DF, NF	60	3.820	3.800	4.01	1.25	•	•	•	•	•		
72XL037	SF — —	72	4.584	4.564	4.82	1.25	•	•	•	•	•	•	Figure 3

* Flange code designates pulley having one flange (SF), two flanges (DF), or no flange (NF).

Optional setscrew(s) supplied is #10-24.

1/5" pitch with plastic hub – stock bore 1/4".

Pulleys drawings on following page.

DRAWINGS, 1/5" PITCH TIMING PULLEYS

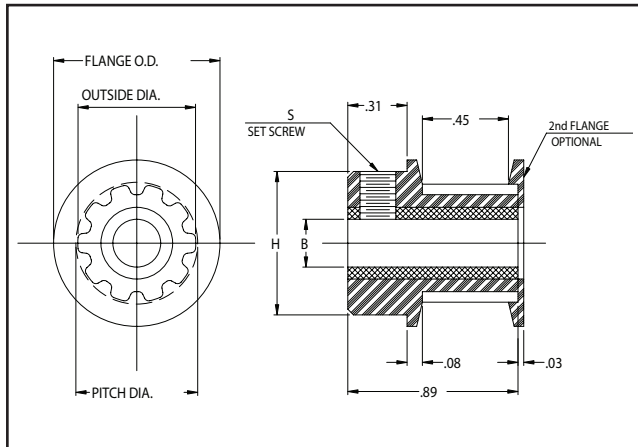


Figure 1

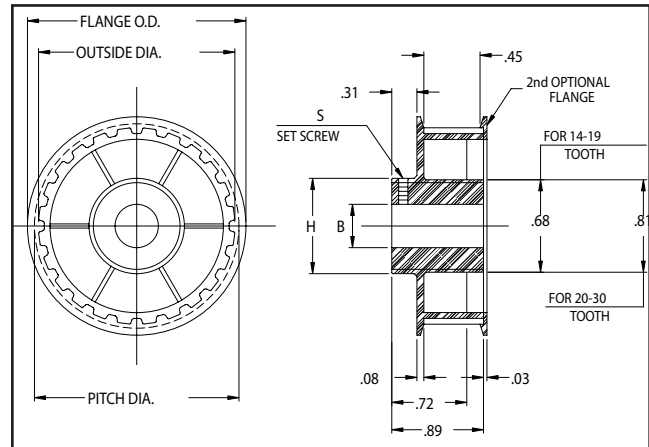


Figure 2

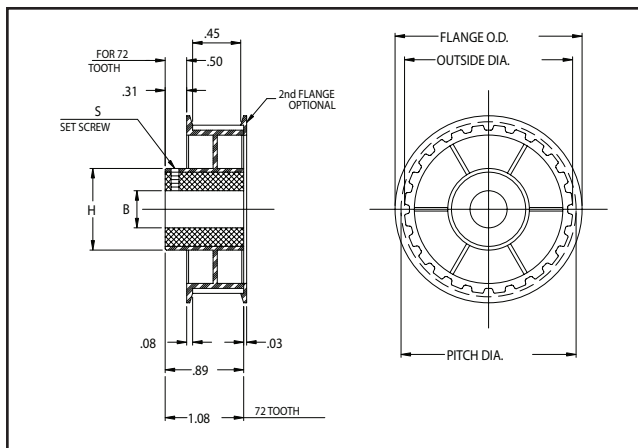


Figure 3

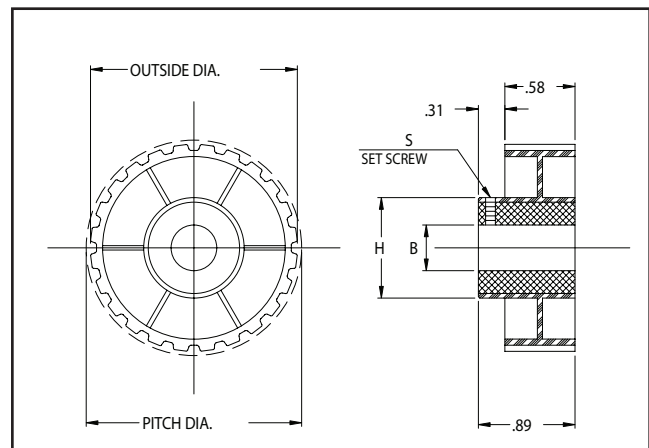


Figure 4

L Pitch Pulleys

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3/8" PITCH TIMING BELT PULLEY DIMENSIONS

Part Number		Number Of Teeth	Pitch Dia.	Outside Dia. ±.005	Flange Dia.	Hub Dia.	Standard Bores						Type
Pulley No.	Flange Code*						1/4	5/16	3/8	1/2	5/8	3/4	
10L050	SF DF	10	1.194	1.164	1.49	.88	•	•	•	•			Figure 1
11L050	SF DF	11	1.313	1.283	1.63	.88	•	•	•	•			
12L050	SF DF	12	1.432	1.402	1.73	.88	•	•	•	•			
13L050	SF DF	13	1.552	1.522	1.79	1.00	•	•	•	•			
14L050	SF DF	14	1.671	1.641	2.00	1.25	•	•	•	•	•	•	
15L050	SF DF	15	1.790	1.760	2.12	1.25	•	•	•	•	•	•	
16L050	SF DF	16	1.910	1.880	2.22	1.25	•	•	•	•	•	•	
17L050	SF DF	17	2.029	1.999	2.34	1.25	•	•	•	•	•	•	
18L050	SF DF	18	2.149	2.119	2.47	1.25	•	•	•	•	•	•	Figure 2
19L050	SF DF	19	2.268	2.238	2.50	1.25	•	•	•	•	•	•	
20L050	SF DF	20	2.387	2.357	2.74	1.25	•	•	•	•	•	•	
21L050	SF DF	21	2.507	2.477	2.85	1.25	•	•	•	•	•	•	
22L050	SF DF	22	2.626	2.596	2.96	1.25	•	•	•	•	•	•	
24L050	SF DF	24	2.865	2.835	3.15	1.25	•	•	•	•	•	•	
28L050	SF DF	28	3.342	3.312	3.55	1.25	•	•	•	•	•	•	
30L050	SF DF	30	3.581	3.551	3.78	1.25	•	•	•	•	•	•	
32L050	SF DF	32	3.820	3.790	4.05	1.25	•	•	•	•	•	•	

* Flange code designates pulley having one flange (SF), two flanges (DF), or no flange (NF).
Optional setscrew(s) provided at #10-24.

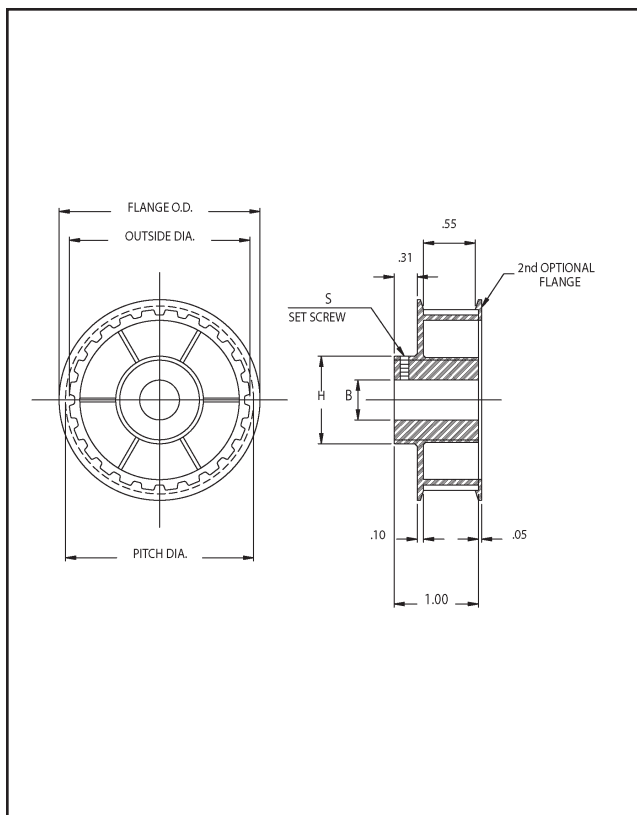


Figure 1

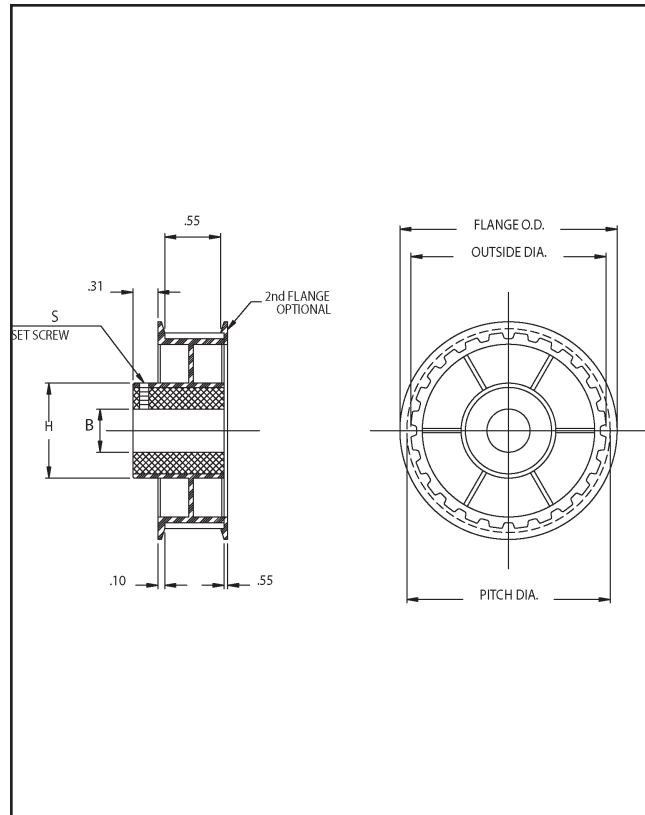
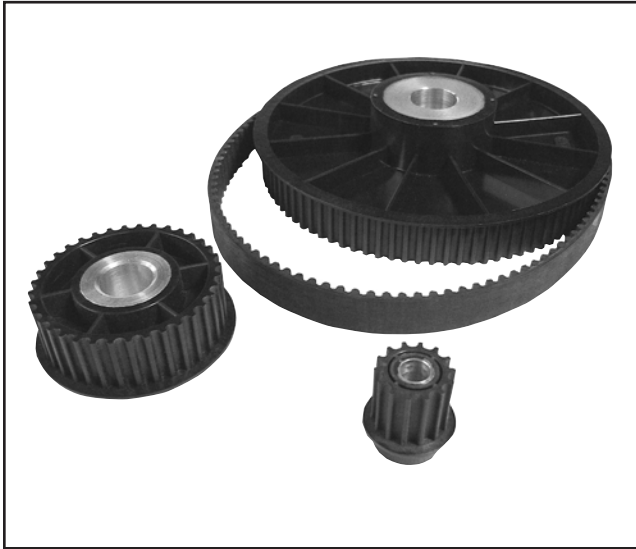


Figure 2

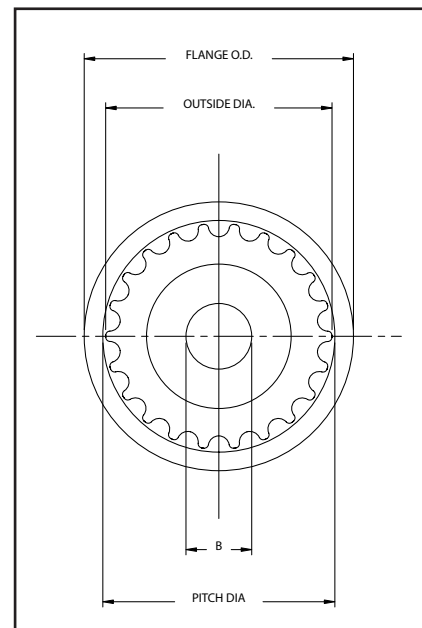
HIGH TORQUE DRIVE (HTD) TIMING PULLEY



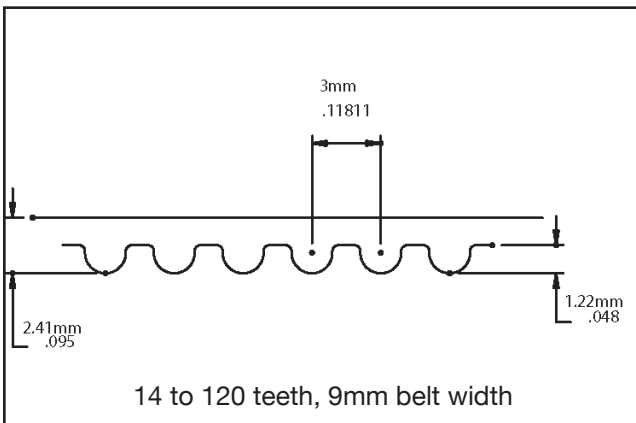
3mm, 5mm, and 8mm Pulleys

Benefits

- Unique tooth shape
- Small, light drives
- Shape
- Less belt tension
- Minimal backlash
- Energy savings

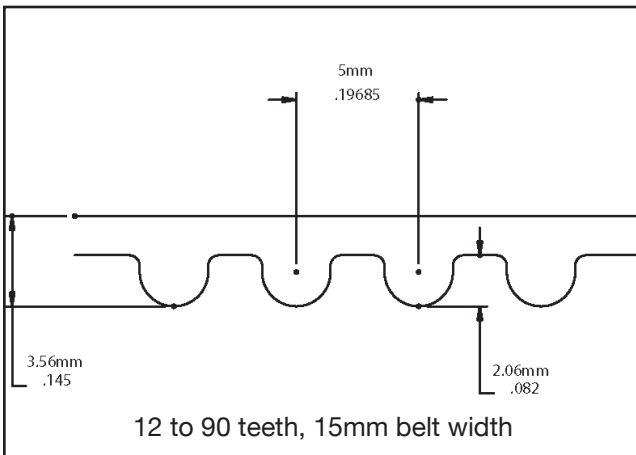


Circular Pitch Drawing



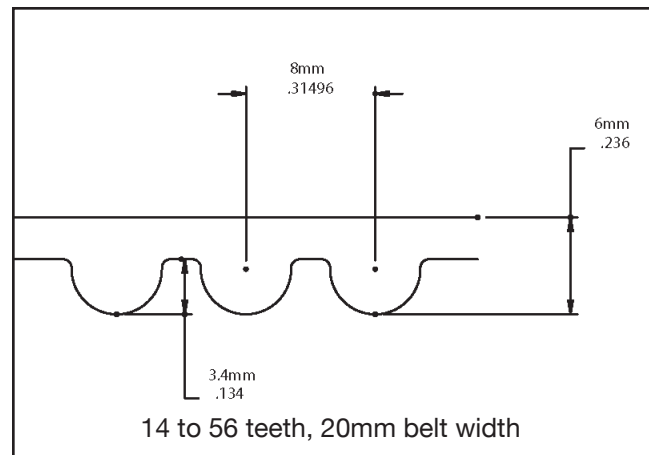
14 to 120 teeth, 9mm belt width

3mm Pitch – Reference Dimensions



12 to 90 teeth, 15mm belt width

5mm Pitch – Reference Dimensions



14 to 56 teeth, 20mm belt width

8mm Pitch – Reference Dimensions

3mm HTD Pitch Pulleys

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3MM PITCH TIMING BELT PULLEY DIMENSIONS												
Part Number		Number Of Teeth	Pitch Dia.	Outside Dia. ±.005	Flange Dia.	Hub Dia.	Standard Bores					Type
Pulley No	Flange Code*						1/4	5/16	3/8	1/2	5/8	
P14-3M-09	SF DF	14	.526	.496	.63	.59	•					Figure 1
P15-3M-09	SF DF	15	.564	.534	.68	.59	•					
P16-3M-09	SF DF	16	.602	.572	.71	.59	•					
P18-3M-09	SF DF	18	.677	.647	.79	.75	•	•				
P20-3M-09	SF DF	20	.752	.722	.89	.75	•	•	•			
P22-3M-09	SF DF	22	.827	.797	.94	.75	•	•	•			
P24-3M-09	SF DF	24	.902	.872	1.02	.88	•	•	•			
P28-3M-09	SF DF	28	1.053	1.023	1.17	.88	•	•	•			Figure 2
P30-3M-09	SF DF	30	1.128	1.098	1.24	.88	•	•	•	•		
P32-3M-09	SF DF	32	1.203	1.173	1.32	.88	•	•	•	•		
P36-3M-09	SF DF	36	1.353	1.323	1.47	.88	•	•	•	•		
P40-3M-09	SF DF	40	1.504	1.474	1.61	1.00	•	•	•	•		Figure 3
P42-3M-09	SF DF	42	1.579	1.549	1.70	1.00	•	•	•	•		
P48-3M-09	SF DF	48	1.805	1.775	1.92	1.00	•	•	•	•		
P50-3M-09	SF DF	50	1.880	1.850	2.00	1.00	•	•	•	•		
P60-3M-09	SF DF	60	2.256	2.226	2.38	1.00	•	•	•	•		
P72-3M-09	SF DF	72	2.707	2.677	2.83	1.25	•	•	•	•	•	
P120-3M-09	SF NF	120	4.511	4.481	4.63	1.25	•	•	•	•	•	3 & 4

* Flange code designates pulley having one flange (SF), two flanges (DF), or no flange (NF).

Optional setscrew(s) supplied is #10-24.

Pulley drawings on following page.

DRAWINGS, 3MM PITCH TIMING PULLEYS

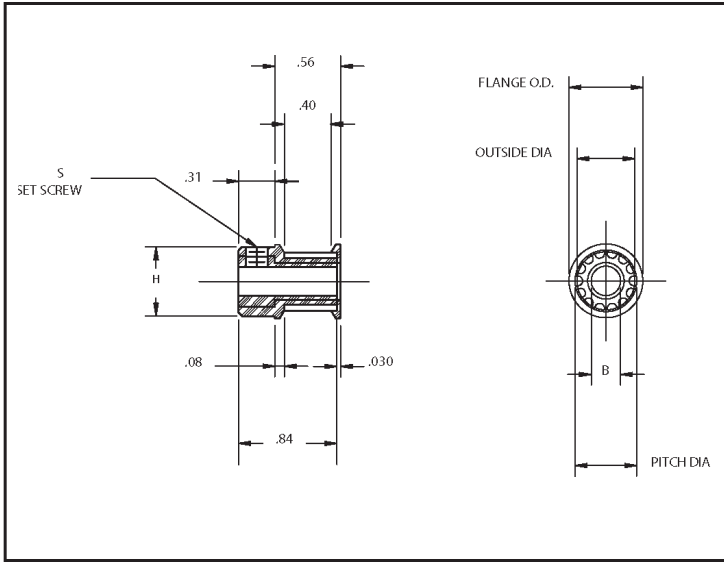


Figure 1

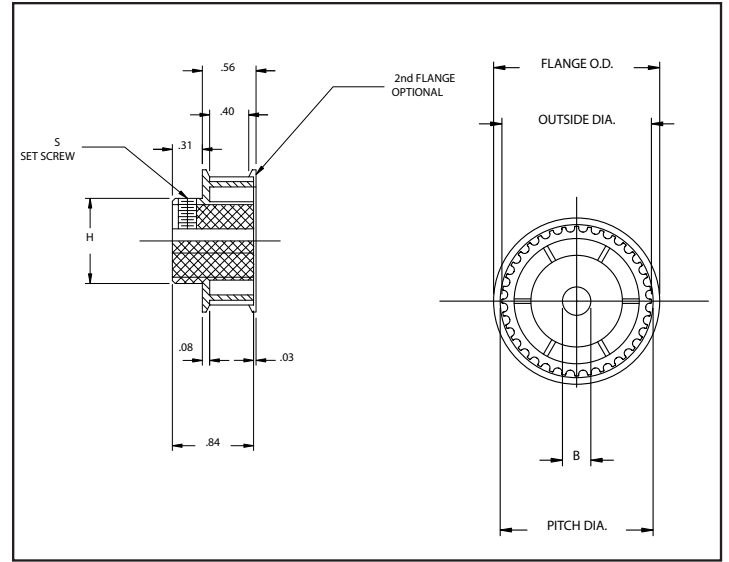


Figure 2

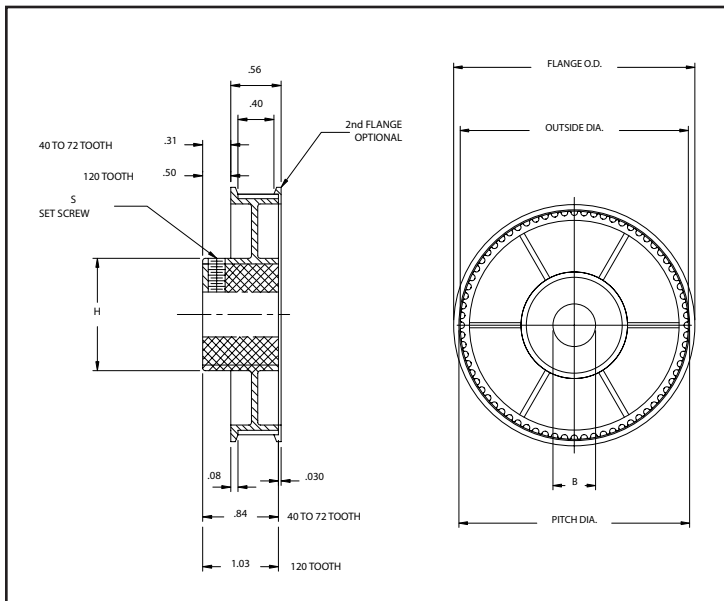


Figure 3

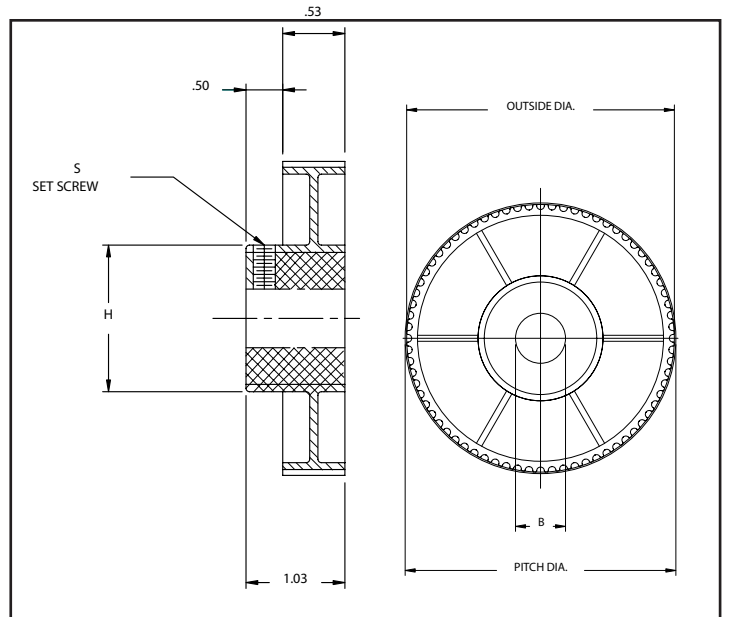


Figure 4



5mm HTD Pitch Pulleys

30

5MM PITCH TIMING BELT PULLEY DIMENSIONS													
Part Number		Number Of Teeth	Pitch Dia.	Outside Dia. ±.005	Flange Dia.	Hub Dia.	Standard Bores						Type
Pulley No	Flange Code*						1/4	5/16	3/8	1/2	5/8		
P12-5M-15	SF DF	12	.752	.707	.87	.75	•						Figure 1
P14-5M-15	SF DF	14	.877	.832	1.00	.75	•	•					
P15-5M-15	SF DF	15	.940	.895	1.06	.87	•	•	•	•			
P16-5M-15	SF DF	16	1.003	.958	1.09	.87	•	•	•	•			
P18-5M-15	SF DF	18	1.128	1.083	1.25	1.25	•	•	•	•			
P19-5M-15	SF DF	19	1.191	1.146	1.32	1.25	•	•	•	•			
P20-5M-15	SF DF	20	1.253	1.208	1.37	1.25	•	•	•	•	•		
P22-5M-15	SF DF	22	1.379	1.334	1.50	1.25	•	•	•	•	•		
P24-5M-15	SF DF	24	1.504	1.459	1.61	1.25	•	•	•	•	•		Figure 2
P28-5M-15	SF DF	28	1.754	1.709	1.87	1.25	•	•	•	•	•		
P30-5M-15	SF DF	30	1.880	1.835	2.00	1.25	•	•	•	•	•	•	
P32-5M-15	SF DF	32	2.005	1.960	2.12	1.25	•	•	•	•	•	•	Figure 3
P36-5M-15	SF DF	36	2.256	2.211	2.41	1.25	•	•	•	•	•	•	
P38-5M-15	SF DF	38	2.381	2.336	2.54	1.25	•	•	•	•	•	•	
P40-5M-15	SF DF	40	2.506	2.461	2.71	1.25	•	•	•	•	•	•	
P42-5M-15	SF DF	42	2.632	2.587	2.79	1.25	•	•	•	•	•	•	
P44-5M-15	SF DF	44	2.757	2.712	2.91	1.25	•	•	•	•	•	•	
P48-5M-15	SF DF	48	3.008	2.963	3.13	1.25	•	•	•	•	•	•	
P50-5M-15	SF DF	50	3.133	3.088	3.26	1.25	•	•	•	•	•	•	
P56-5M-15	SF DF	56	3.509	3.464	3.63	1.25	•	•	•	•	•	•	
P60-5M-15	SF DF	60	3.760	3.715	3.89	1.25	•	•	•	•	•	•	
P62-5M-15	SF DF	62	3.885	3.840	4.10	1.25	•	•	•	•	•	•	
P64-5M-15	SF	64	4.010	3.965	4.13	1.25	•	•	•	•	•	•	
P72-5M-15	SF	72	4.511	4.466	4.67	1.25	•	•	•	•	•	•	
P80-5M-15	SF	80	5.013	4.968	5.19	1.81	•	•	•	•	•	•	
P90-5M-15	SF	90	5.639	5.594	5.81	2.00				•	•	•	

* Flange code designates pulley having one flange (SF), two flanges (DF), or no flange (NF).

Optional setscrew(s) supplied is #10-24.

Optional setscrew(s) supplied for P80-5M, P90-5M is #1/4-20.

Pulley drawings on following page.

DRAWINGS, 5MM PITCH TIMING PULLEYS

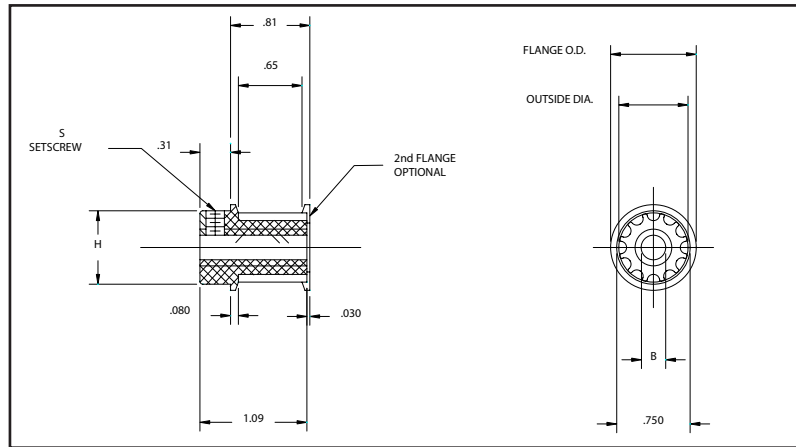


Figure 1

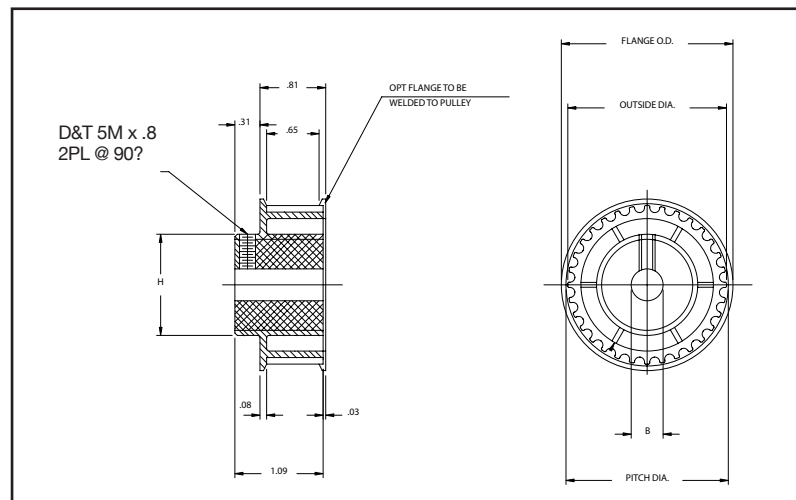


Figure 2

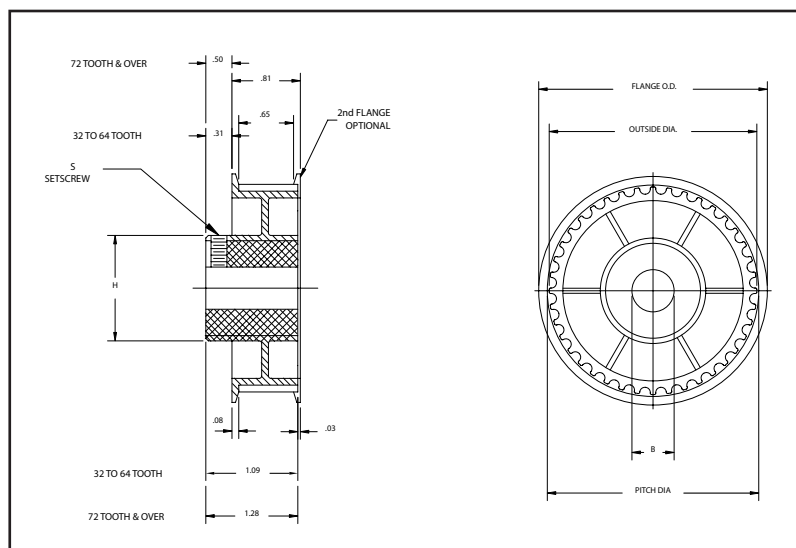


Figure 3

8mm HTD Pitch Pulleys

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8MM PITCH TIMING BELT PULLEY DIMENSIONS											
Part Number		Number Of Teeth	Pitch Dia.	Outside Dia. ±.005	Flange Dia.	Hub Dia.	Standard Bores				Type
Pulley No	Flange Code*						1/2	5/8	3/4	1	
P14-8M-20	SF DF	14	1.404	1.349	1.75	1.12	•	•	•		Figure 1
P18-8M-20	SF DF	18	1.804	1.750	2.15	1.50	•	•	•		
P22-8M-20	SF DF	22	2.206	2.152	2.56	1.50	•	•	•		
P24-8M-20	SF DF	24	2.406	2.352	2.75	1.50	•	•	•		
P26-8M-20	SF DF	26	2.607	2.553	2.95	1.50	•	•	•		
P28-8M-20	SF DF	28	2.807	2.759	3.14	1.50	•	•	•		
P30-8M-20	SF	30	3.008	2.958	3.35	1.50	•	•	•		Figure 2
P32-8M-20	SF	32	3.208	3.156	3.54	1.50	•	•	•		
P34-8M-20	SF	34	3.409	3.355	3.82	2.00	•	•	•	•	
P36-8M-20	SF	36	3.609	3.555	3.93	2.00	•	•	•	•	
P38-8M-20	SF	38	3.810	3.756	4.13	2.00	•	•	•	•	
P40-8M-20	SF	40	4.010	3.956	4.33	2.00	•	•	•	•	
P44-8M-20	SF	44	4.411	4.357	4.77	2.00	•	•	•	•	
P48-8M-20	SF	48	4.812	4.758	5.16	2.00	•	•	•	•	
P56-8M-20	SF —	56	5.614	5.560	5.95	2.00	•	•	•	•	

* Flange code designates pulley having one flange (SF), two flanges (DF), or no flange (NF).

Optional setscrew(s) are supplied is #1/4-20.

DRAWINGS, 8MM PITCH TIMING PULLEYS

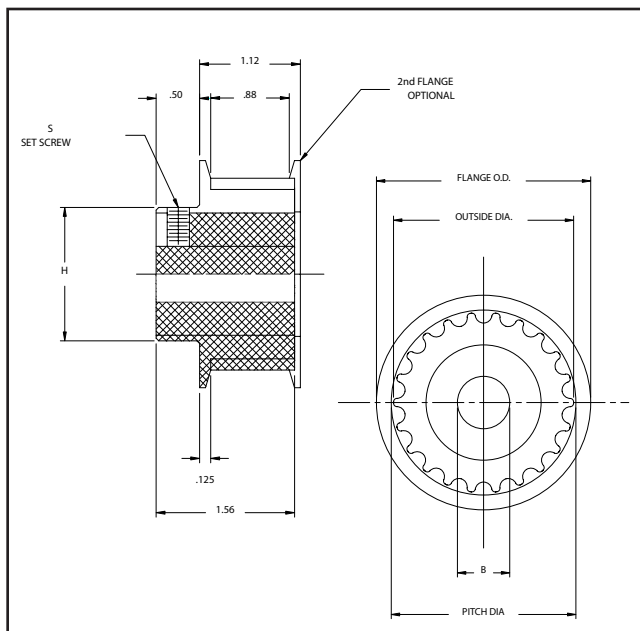


Figure 1

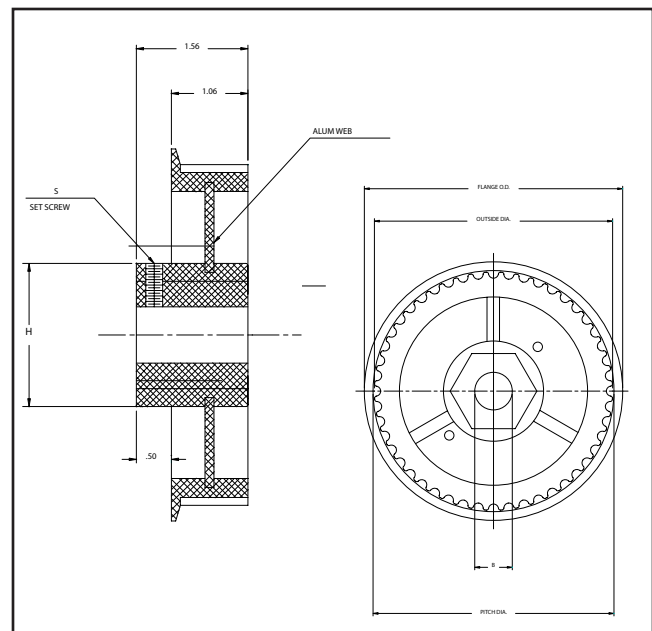


Figure 2



The PowerGrip GT2 belt drive system is well-suited for applications that demand high load-carrying capacity, as well as precision indexing or registration. GT2 belt drive technology has delivered proven results for stringent, custom-designed drives for original equipment manufacturers, as well as in replacement markets.

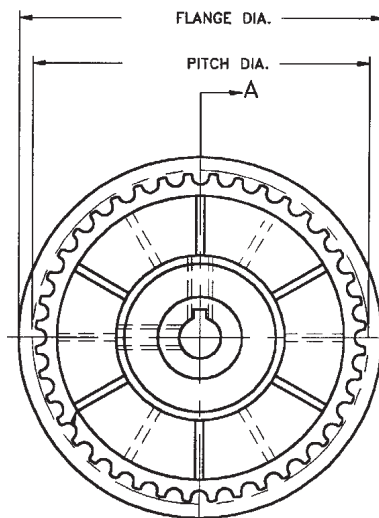
Please contact us for specific details.

Advantages of Torque Transmission Nylon PowerGrip GT® Pulleys

- Lightweight
- Low Inertia
- Cost effective
- Noise reduction
- Shock resistant
- Lubricity
- Chemical resistant
- Longer life
- The glass reinforced nylon to metal combination provides many benefits.

TOOTH PROFILE AVAILABILITY GATES POWER GRIP GT®

	TEETH				GATES POWER GRIP GT®																
	12	14	15	16	18	20	21	22	24	28	30	32	36	40	48	56	60	72	80	90	120
2MR	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
3MR				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
5MR					X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X



Power Grip GT® Pulley Profiles for
2mm, 3mm and 5mm

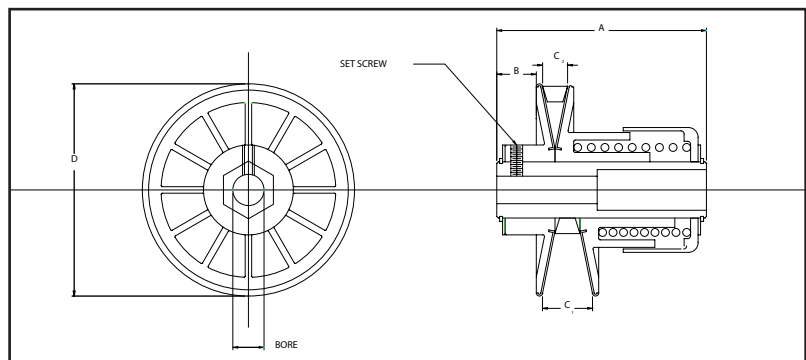
PowerGrip GT® is a registered trademark of Gates Rubber Company



Variable Speed Pulleys

Model VPS

- Economical, combining cost-saving features of glass reinforced nylon with steel shafts and steel-clad flanges for greater wear resistance
- Speed range infinitely variable within standard ratio limits
- VPS pulleys supplied with setscrews



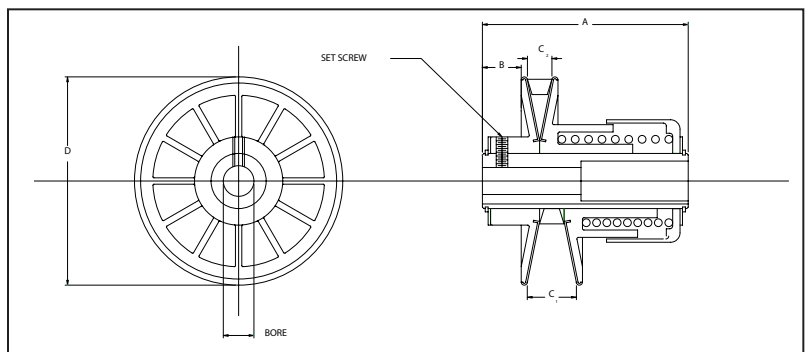
Dimension Drawing – VPS



VPSR Pulley

Model VPSR – Round Shaft Series

- Closer tolerance on round shaft
- Molded keyway
- Precisely ground and polished shafts
- Speed range infinitely variable within standard ratio limit
- All pulleys spring-loaded, color-coded to indicate spring pressure



Dimension Drawing – VPSR

PULLEY DIMENSIONS MODEL VPS AND VPSR PULLEYS											
Model	A	B	C ₁ Open	C ₂ Closed	D Dia.	Standard Bores					
						1/4	5/16	3/8	1/2	5/8	3/4
VPS(R)-10	2-1/8	1/2	1/2	1/4	1-7/8	•	•			•	
VPS(R)-15	2-5/8	9/16	3/4	7/16	2-7/8			•	•		
VPS(R)-20	3	5/8	7/8	1/2	3-9/16				•	•	
VPS(R)-43	4-1/4	25/32	1	1/2	4-1/4					•	•

SPRING PRESSURES MODEL VPS AND VPSR PULLEYS				
Model	Spring Strength	Color Code	LBS. COMPRESSION IN SPRING	
			As Pulley Starts to Open	Pulley Fully Open
VPS(R)-10	Medium	White	6	9
	Heavy	Blue	8	11
VPS(R)-15	Medium	White	14	18-1/2
	Heavy	Blue	17-1/2	22
VPS(R)-20	Medium	White	18	23
	Heavy	Blue	22	27-1/2
VPS(R)-43	Medium	White	33	40
			50	64

VPS Pulleys are shipped with the blue, heavy strength spring unless another strength spring is requested. On the Model VPS-10 Pulley, we recommend that only the heaviest blue spring be used if the pulley is to be run with a 3/8-inch width V-belt. All springs are carried in stock.

ENGINEERING SPECIFICATIONS MODEL VPS AND MODEL VPSR PULLEYS											
Model	Belt Ratio	Speed	HP Rating @1800 RPM	Approx. Pitch Dia.	Standard Bores						Weight
					1/4	5/16	3/8	1/2	5/8	3/4	
VPS(R)-10	1/4" V	Up to 2.25:1	1/12	23/32" Min 1-3/4" Max	•	•	•				Under 3 oz.
VPS(R)-15	3/8" V	Up to 2.45:1	1/4	23/32" Min 2-3/4" Max			•	•			5 oz.
VPS(R)-20	1/2" V	Up to 2.8:1	1/2	1-7/16" Min 3-1/2" Max				•	•		8 oz.
VPS(R)-43	1/2" V	Up to 2.8:1	3/4	1-21/32" Min 4.0" Max					•	•	1 lb. 11 oz.

Companion Pulleys

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COMPANION PULLEYS



Companion Pulley

Model PO Pulley

- Designed for fractional horsepower drives requiring high strength-to-weight ratios
- Unique cost-saving combination of glass reinforced nylon with an aluminum hub
- Choose from a wide range of shaft bores, and pulley diameters to meet any desired speed range

COMPANION PULLEY DIMENSIONS									
Part No.	Outside Dia.	Pitch Dia.	A° Angle	Standard Bores				-W- Width	
				1/4	5/16	3/8	1/2		
PO-1	1.0	.9	32°	•	•			.240	Fig. 1
PO-1.5	1.5	1.4	34°	•	•	•	•	.243	Fig. 2
PO-2	2.0	1.9	36°	•	•	•	•	.246	
PO-2.5	2.5	2.4	36°	•	•	•	•	.246	
PO-3	3.0	2.9	38°	•	•	•	•	.250	
PO-3.5	3.5	3.4	38°	•	•	•	•	.250	
PO-4	4.0	3.9	38°	•	•	•	•	.250	
PO-4.5	4.5	4.4	38°	•	•	•	•	.250	
PO-5	5.0	4.9	38°	•	•	•	•	.250	
PO-6	6.0	5.9	38°	•	•	•	•	.250	

Compound pulleys are available upon request.
Pulley drawings on following page.

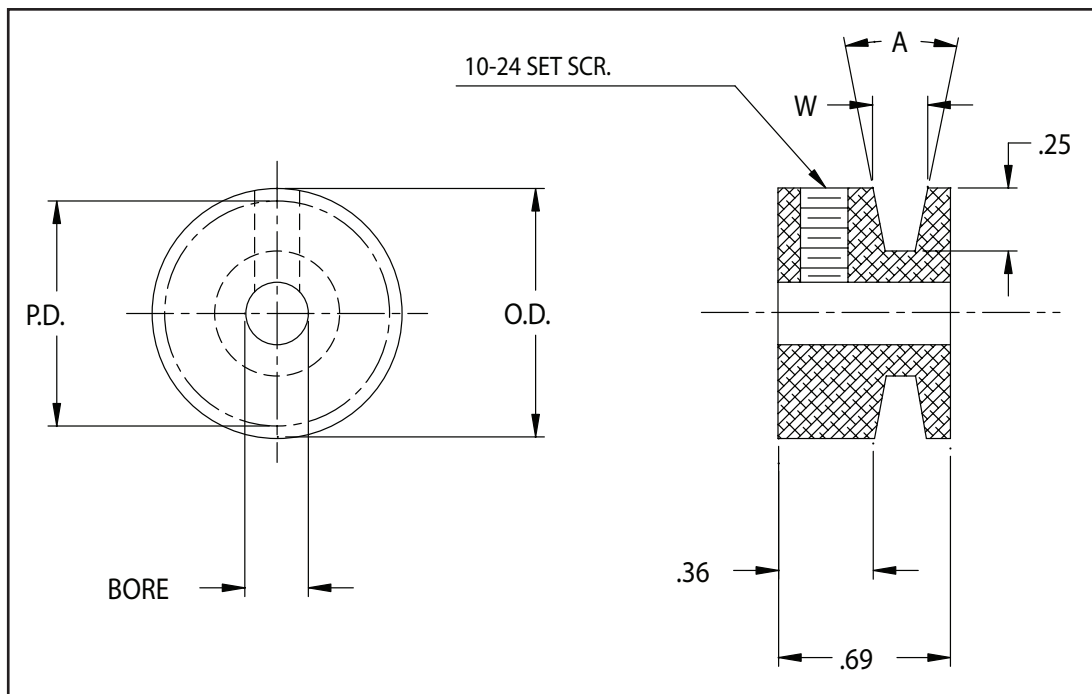


Figure 1

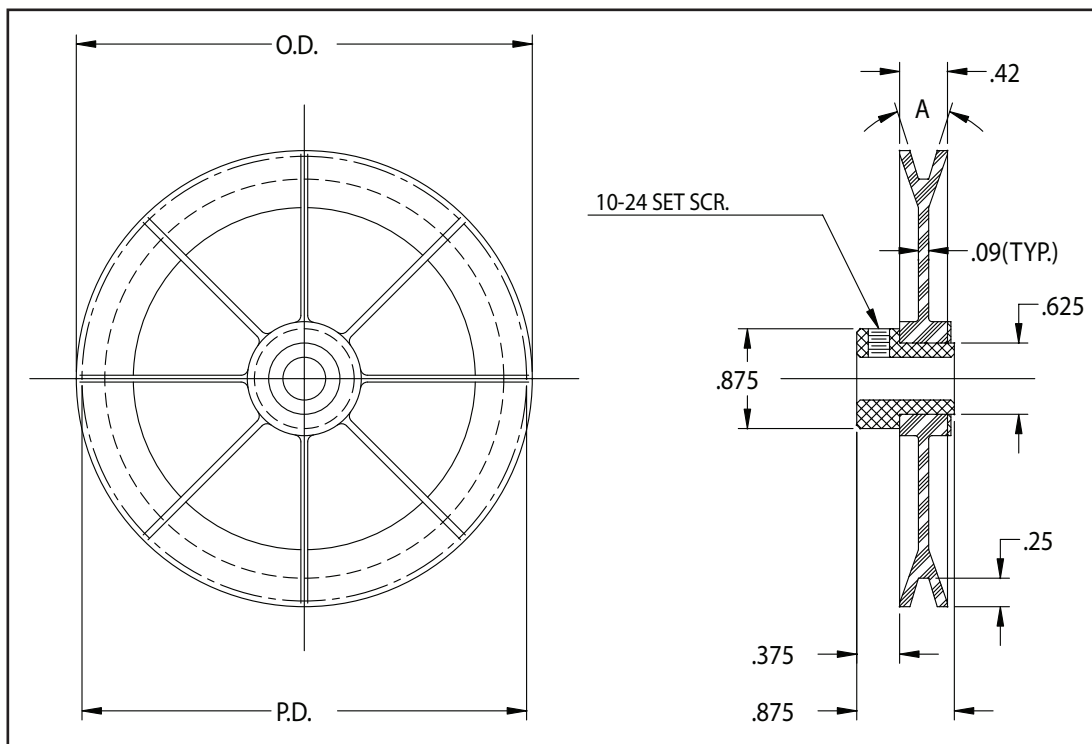


Figure 2

ROLLER CHAIN SPROCKETS



Roller Chain Sprockets

Single Strand Roller Chain No. 25 (1/4 Pitch)

- Available in teeth sizes from 9 to 48, all 1/4" pitch single sprockets
- Hubs drilled, tapped with a 10-24 setscrew
- Hubs can be drilled with cross-holes for dowel pins
- Keyways and D-bores can be molded in the hubs
- Aluminum hubs for sprockets S-2516 and larger available for greater strength

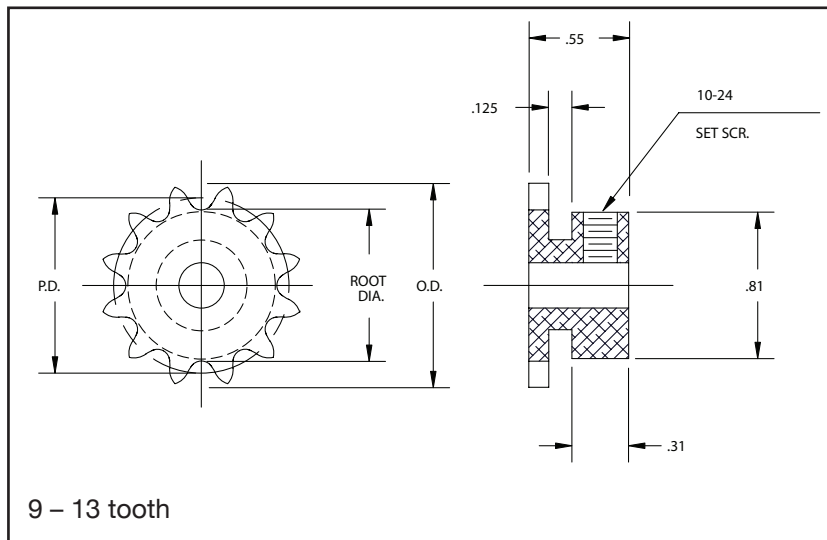


Figure 1

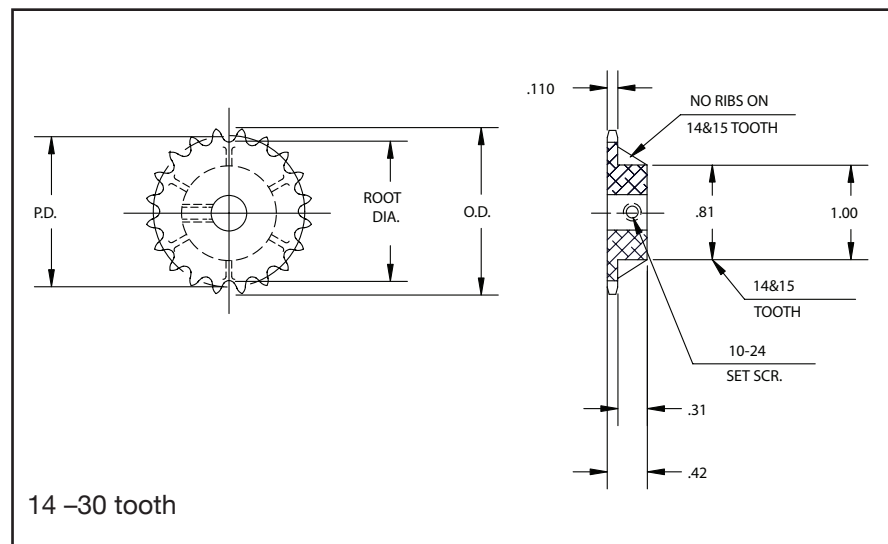


Figure 2

ROLLER CHAIN SPROCKET DIMENSIONS AND BORES

Sprocket Number	Number of Teeth	Outside Dia.	Pitch Dia.	Root Dia.	Standard Bores			Type
					1/4	3/8	1/2	
S 2509	09	.850	.731	.601	.	.		Figure 1
S 2510	10	.931	.809	.769	.	.		
S 2511	11	1.010	.887	.757	.	.		
S 2512	12	1.092	.996	.836	.	.		
S 2513	13	1.170	1.044	.914	.	.		
S 2514	14	1.250	1.123	.993	.	.	.	Figure 2
S 2515	15	1.332	1.202	1.072	.	.	.	
S 2516	16	1.412	1.281	1.151	.	.	.	
S 2517	17	1.493	1.360	1.230	.	.	.	
S 2518	18	1.573	1.439	1.309	.	.	.	
S 2519	19	1.654	1.519	1.389	.	.	.	
S 2520	20	1.731	1.598	1.468	.	.	.	
S 2521	21	1.813	1.677	1.547	.	.	.	
S 2522	22	1.892	1.757	1.626	.	.	.	
S 2523	23	1.972	1.836	1.706	.	.	.	
S 2524	24	2.052	1.915	1.785	.	.	.	
S 2526	26	2.214	2.074	1.944	.	.	.	
S 2528	28	2.368	2.233	2.103	.	.	.	
S 2530	30	2.529	2.392	2.262	.	.	.	
S 2532	32	2.686	2.550	2.420	.	.	.	Figure 3
S 2536	36	3.003	2.868	2.738	.	.	.	
S 2540	40	3.319	3.186	3.056	.	.	.	
S 2542	42	3.484	3.345	3.215	.	.	.	
S 2545	45	3.716	3.583	3.454	.	.	.	
S 2548	48	3.955	3.822	3.692	.	.	.	

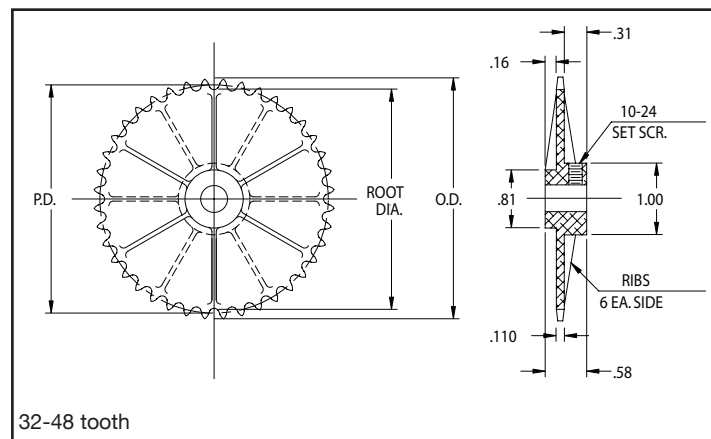


Figure 3

Multi-Ribbed Pulleys

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MULTI-RIBBED PULLEYS

The combination of high-power capacity and low-profile design means the Multi-Ribbed drive can improve the drive design while lowering drive costs. Multi-Ribbed pulleys and belts allow narrower mounting clearances, need less center distance adjustment, and require less take-up for tensioning. Additionally, they allow the use of sheaves that are narrower in width and smaller in diameter without sacrificing power capacity. Smaller, narrower sheaves mean a reduction in weight so more of the drive gets to the load for increased efficiency.

Micro V® and Poly V®


Advantages

- Precise power per rib
- Low inertia
- More ribs, more power
- Pulley size puts precision in the power
- Drives with 4, 6, and 10 ribs
- Several belts can ride on a single custom-sized pulley
- New belt designs improve performance on partial turns

Applications

- Exercise equipment
- High-speed machine tools
- Polishers
- Fans
- Dryers
- Mixers
- Dispensers
- Atomizers
- Compressors
- Microwave ovens
- Office machines

Nylon Pulley Profile for "J" Belts

<p>J Belt</p>  <p>Nylon Pulley Face</p>	<p>Power: Customer will define the belt width (number of ribs) and pulley diameter.</p>
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V-Ribbed Belt Pulleys
For Poly V and Other Multi-Ribbed Belts



Micro V® – registered trademark of Gates Rubber Company
Poly V® – registered trademark of Goodyear Tire & Rubber Company

Warranty

Each Torque Transmission product warranty assures customers that products are free from defects in materials and workmanship for one year from the date of shipment. Items found to have defects will be repaired or replaced at no charge to the customer. This warranty does not cover normal wear of Torque Transmission products. This warranty shall not apply to any item that has been subject to accident, alteration, abuse, misuse, misapplication, or improper maintenance. All products to be considered under this warranty must be returned prepaid to the factory for inspection.

This document constitutes Torque Transmission's only warranty and is in lieu of all other warranties expressed, implied, written, or oral. There is no implied warranty of merchantability. Torque Transmission will not be responsible for damages of any sort, including incidental or consequential damages. No person, firm, or corporation is authorized on behalf of Torque Transmission, a division of Rampe Manufacturing Company, to modify, change, or expand upon its obligation in connection with the sale of its products.



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