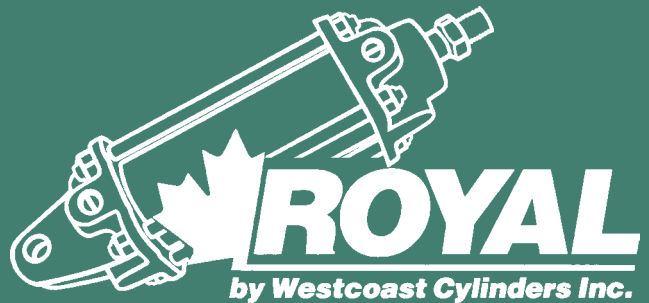
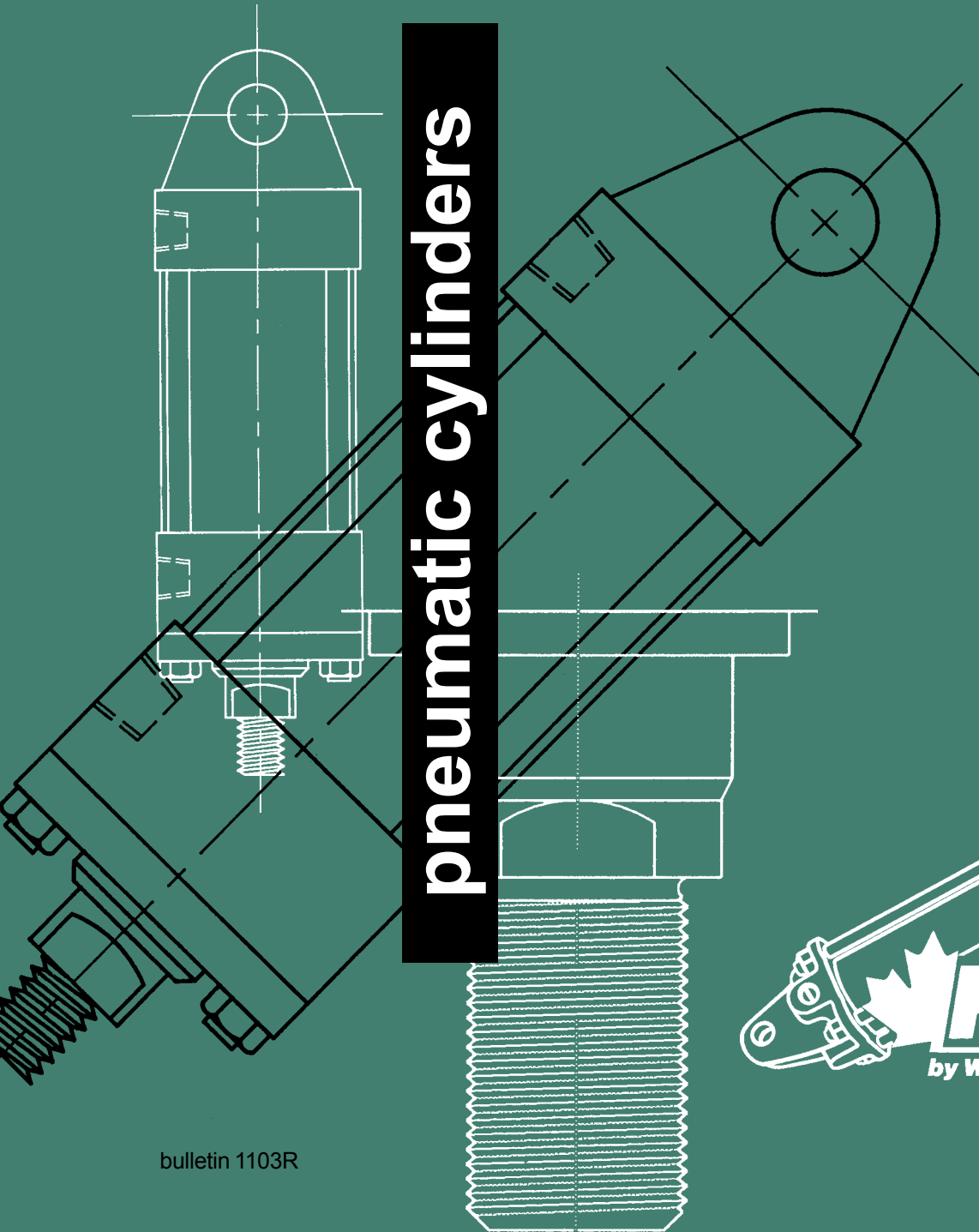


250
psi rating

series **R**

pneumatic cylinders



Page Description

- 1 *M-Series Cross-Over Data*
 2 *Features Description*
 3 *Features Drawing*

Mounting Styles

- 4 **F** *Foot Mount*
 5 **D** *Double Rod*
 6 **C** *Blind End Clevis*
 7 **HC** *Heavy Blind Clevis*
 8 **T** *Mid Trunnion*
 9 **HT** *Heavy Duty Mid Trunnion*
 10 **TR** *Rod End Trunnion*
 11 **TB** *Blind End Trunnion*
 12 **B** *Blind End Flange*
 13 **R** *Rod End Flange*
 14 **CH** *Common Head*
 14 **CR** *Common Rod*
 15 **CHR** *Common Head
Common Rod*

Accessories

- 16 *Rod End Accessories*
 17 *Blind End Accessories*

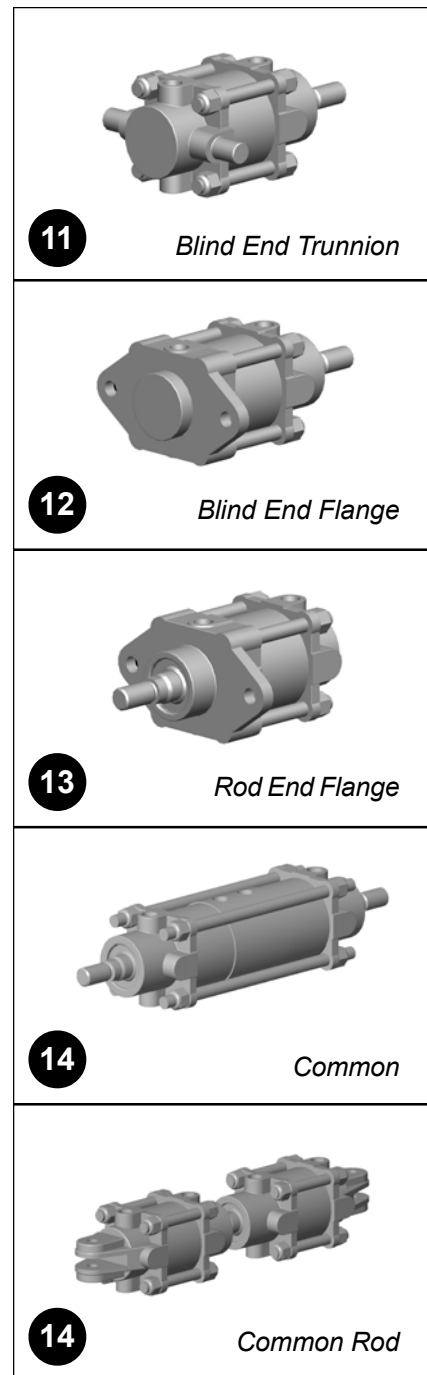
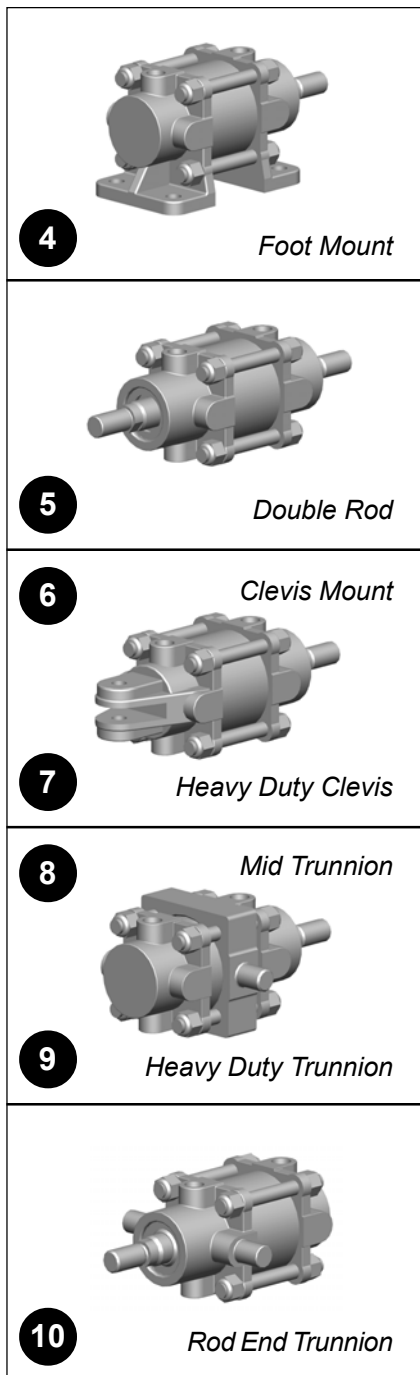
Data

- 18,19 *Cylinder Technical Data*

Parts

- 20 *Parts List*
 21 *Parts Drawing*

Cover Cylinder Nomenclature

**Westcoast Cylinders Inc.**

225 Edworthy Way
 New Westminster BC
 Canada V3L 5G4

Telephone: 604 527 1120
 Facsimile: 604 527 1170
 Phone Toll Free: 1 877 637 6925
 Fax: Toll Free: 1 866-527-1170
 email: sales@royalcylinders.com
 website: www.royalcylinders.com

Westcoast Cylinders Inc.: The Company has been manufacturing high quality, reliable ROYAL cylinders for over 40 Years. Production started with a single cylinder design and expanded to a full range of multi-use, hydraulic, pneumatic cylinders and accessories.

Quality: WCI is a leader in the design and manufacture of custom heavy duty cylinders. The materials, machinery and tools used to produce our products are continuously being updated. Our cylinders are built to the highest standards utilizing the latest technology and processes.

Delivery: WCI maintains a large range of stock parts which gives us the flexibility to respond to your needs in emergency situations. Please contact the factory to expedite your special requirements.

M-SERIES TO R-SERIES CROSS-OVER INFORMATION

All M-series cylinder mounting styles are available in the R-Series with some changes to the cylinder nomenclature (model code) as follows:

1. In the Rod Size field of the Cylinder Nomenclature specify Rod size #2.
2. All R-Series piston rods must have a Rod Extension to match the M-Series rods. To do this, specify "W" in the Options field of the Cylinder Nomenclature. Then specify what the "W" length should be; see conversion table below.
Note: Not Required for MT Mid Trunnion Style.

Conversion to R-Series from M-Series, H1F1 piston rod thread:

R-Series H1F1 Conversion Table

| BORE | 3 | 4 | 5 | 6 | 8 | 10 | 12 |
|------|-----|-----|-------|--------|--------|-------|-------|
| W | 7/8 | 7/8 | 13/16 | 1 1/16 | 1 1/16 | 1 1/8 | 1 3/8 |

3. The M-Series offered two different standard rod thread sizes: H1F1 and H2F2.

H1F1: This is equivalent to the standard R-Series thread on the Rod size #2.

H2F2: This is a full thread option with a longer thread length. If your existing cylinder features this thread you must specify the following:

- a. Specify "C" in the Rod Thread field of the Cylinder Nomenclature for full thread.
- b. Specify "A" along with "W" in the Options field of the Cylinder Nomenclature. Then specify what the thread length should be. See the Thread Length Table below for R-Series thread length specifications.

Conversion to R-Series from M-Series, H2F2 piston rod thread:

R-Series H2F2 Conversion Table

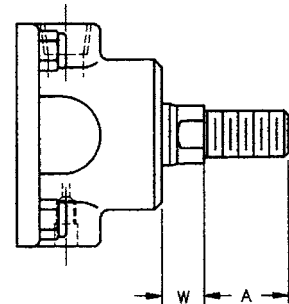
| BORE | 3 | 4 | 5 | 6 | 8 | 10 | 12 |
|------|-------|-------|-------|--------|--------|-------|-------|
| A | 2 1/8 | 2 1/2 | 2 1/2 | 3 1/2 | 4 | 4 1/2 | 4 1/2 |
| W | 7/8 | 7/8 | 13/16 | 1 1/16 | 1 1/16 | 1 1/8 | 1 3/8 |

Example

H2F2 option

R4HC12A2C1A1AAW W=.875 A=2.5

Important R-Series Dimensions for M-Series cross-over.



Please contact the factory if you require assistance.

NITROTEC TREATED MATERIALS

Nitrotec is a patented furnace treatment process, which converts the steel surface into an extremely hard black iron nitride layer. It is superior to chrome plating in that the nitriding is diffused into the steel surface rendering the surface nonporous. **Nitrotec** delivers a superior case hardness of up to 71 Rc, improves corrosion resistance and minimizes friction loss for long seal and gland bushing life.

The **Nitrotec** process gives an extremely hard dent resistant finish to materials. The hardness varies from maximum at the surface to the material condition at a depth of 0.015", a vast improvement compared with a typical 0.0005" to 0.001" thick chrome plate. There is no flaking or lifting as with overlying chrome on a softer material.

Nitrotec Piston Rod

The piston rod is **Nitrotec** treated C1045 carbon steel. Other rod materials are available including chrome plated 316 stainless steel and chrome plated carbon steel. The piston shoulder diameter has been increased to obtain a higher service factor for this area.

Nitrotec Barrel

Nitrotec treated steel is the standard barrel material. Other materials include Amalgon and Brass.

IMPROVED CUSHIONS

- Floating Check Seals
- Adjustable Cushions are standard at both ends. The cushions have been redesigned with a new floating check seal that provides quick and reliable breakaway performance while improving cushion effect. Seals are made from long wearing **Hythane**® material.
- Longer Effective Cushion
- Our cushion sleeves have been lengthened with a new profile to provide a more effective cushion. A steel sleeve pushes the seal against the head and traps escaping air between the piston and head. Adjusting the needle valve sets the cushion speed. On the return stroke, the cushion seal is forced away from the head by air pressure, allowing the air to flow back into the cylinder at full pressure for a fast break away.
- Normal position for needle valves are at position number 3 (opposite the port in position number 1) except for Foot Mount which is at position 2.

PISTON STOPS

Standard external or optional internal piston stops are available to reduce side load stress on the piston rod for all cylinder sizes.

ONE PIECE ALUMINUM PISTON

Piston is a one piece design, aluminum construction, incorporating a wear ring centered on the piston to avoid metal to metal contact, and increase the life of the cylinder. A piston is also available with a magnet for sensing piston position using a Reed Switch. Proximity switches can also be fitted to the R-Series. Contact our factory for more information.

HYTHANE PISTON SEAL

Hythane® K-Seals are the standard in the 3" bores and above. This design prevents rolling or extrusion, also providing less friction and longer life.

Optional seals are available upon request, including **Viton**® **Flouromite**, etc. Contact our factory for application information.

ROTO-CAST GLAND BUSHING

Gland bushing is manufactured from Roto-Cast Bronze. The **Hythane**® rod seal is a high performance, high temperature seal compound having ultra low friction and long seal life. It's documented temperature range is from -40° to 230°F. The **Hythane**® rod wiper, with internal ribs for extra stability and prevention of pressure trapping, cleans the rod on the return stroke. The static external seal is Buna-N material. Spiral Snap Ring retainer allows for easy removal of gland bushing for maintenance without dismantling the cylinder.

Optional gland bushings are also available with a wear ring, avoiding metal to metal contact and contributing to longer life for both the gland bushing and the piston rod. Vee-packing glands are also available. See Nomenclature for other options.

CAST DUCTILE IRON HEADS

Heads are cast of ductile iron and are accurately machined for perfect alignment of barrel and moving parts. Heads are now common for the different rod sizes, thus allowing the end user to stock a single head for both rod sizes. The common head design also enables customers to increase or decrease rod sizes with little effort or expense.

NPTF PORTS

NPTF Ports are standard at position 1. Specify if other port positions are required. SAE ports are available for an additional cost. There may be port restrictions on some models. Contact our factory for details.

Note: For faster delivery when specifying a non-standard port, try to choose an alternate port location for the port (port position #2 preferred). Contact our factory for confirmation on bore size constraints.

REDUCED PRESSURE REQUIREMENTS

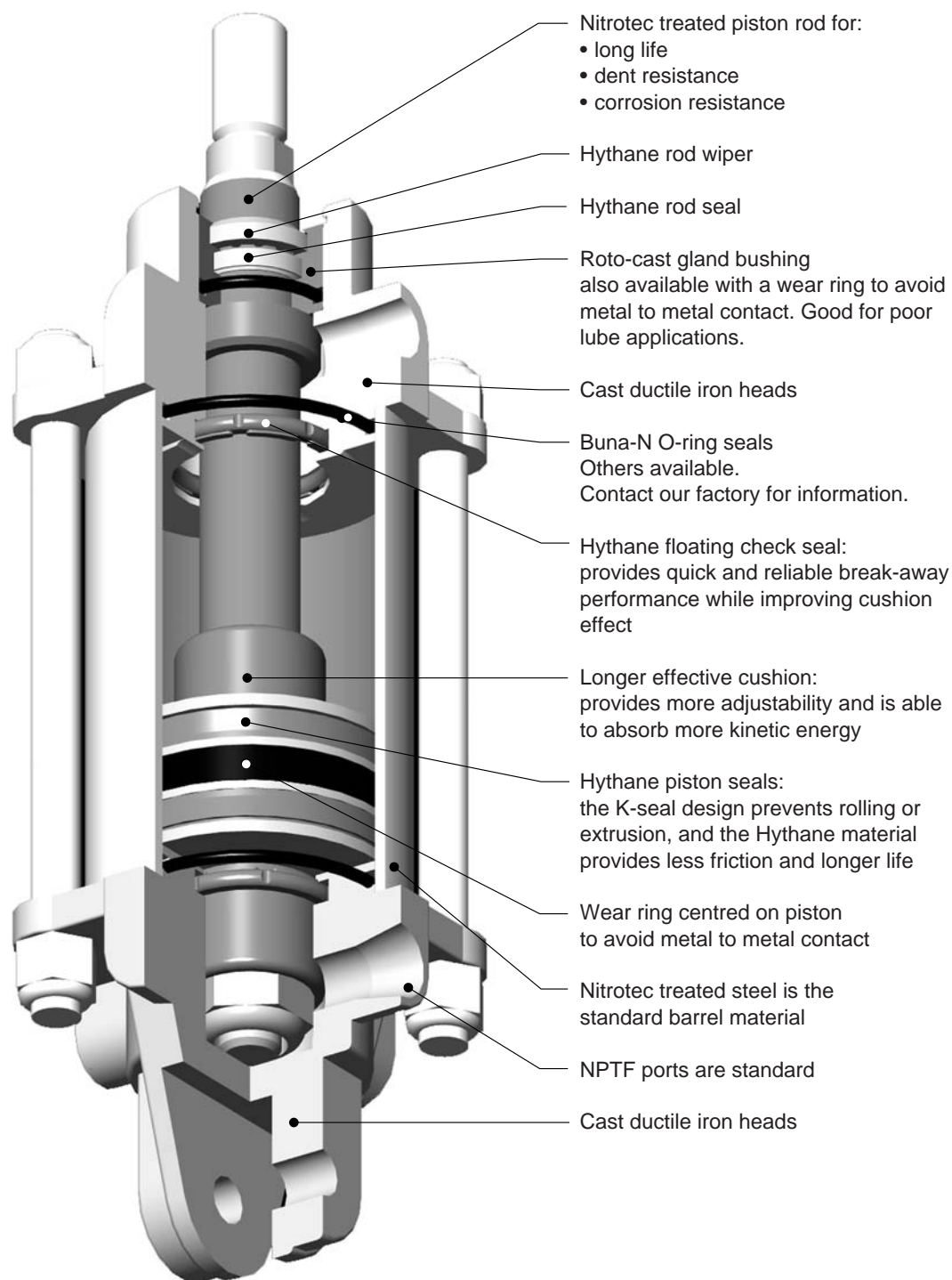
The combination of seals and materials used within Royal air cylinders reduces internal friction and thus has the ability to reduce air pressure requirements. Reducing air pressure reduces consumption costs. Testimonials from customers have reported a reduction in pressure from 10 to 30%.

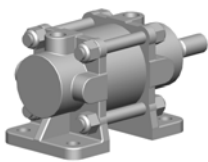
CUSTOM CYLINDERS

If our standard product does not meet your requirements, WCI will manufacture custom cylinders to suit your application or design request. Please contact our factory with your requests.

SPARE PARTS

Genuine Royal seal kits include all seal components, wear rings and needle valves. **Please be sure to specify genuine Royal replacement parts to ensure you will receive all feature benefits.**



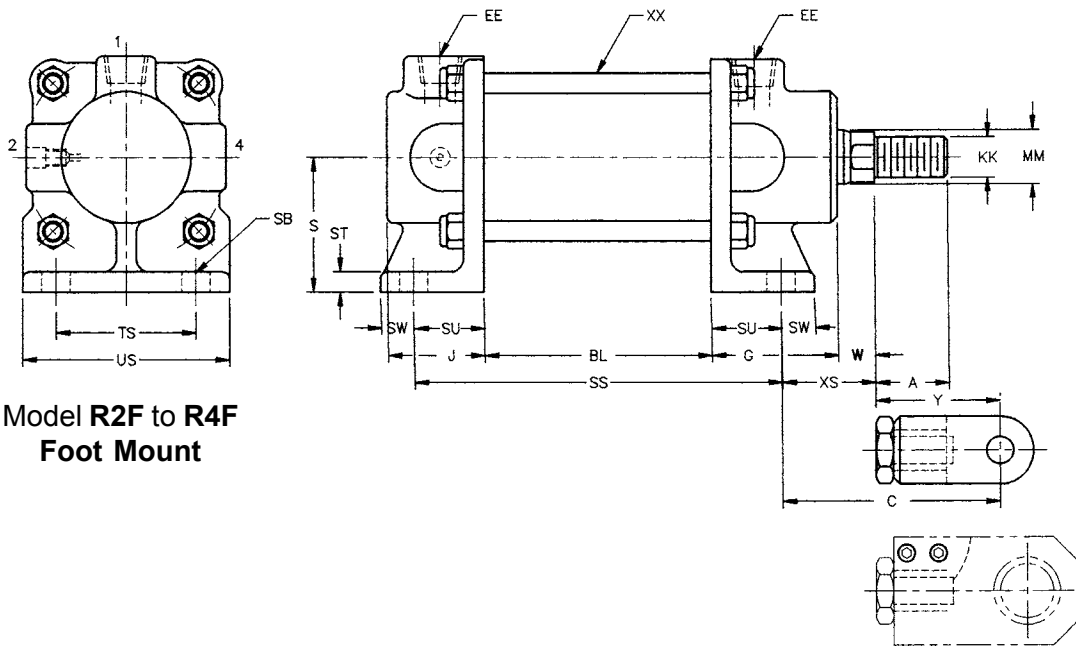


model RF Foot Mount

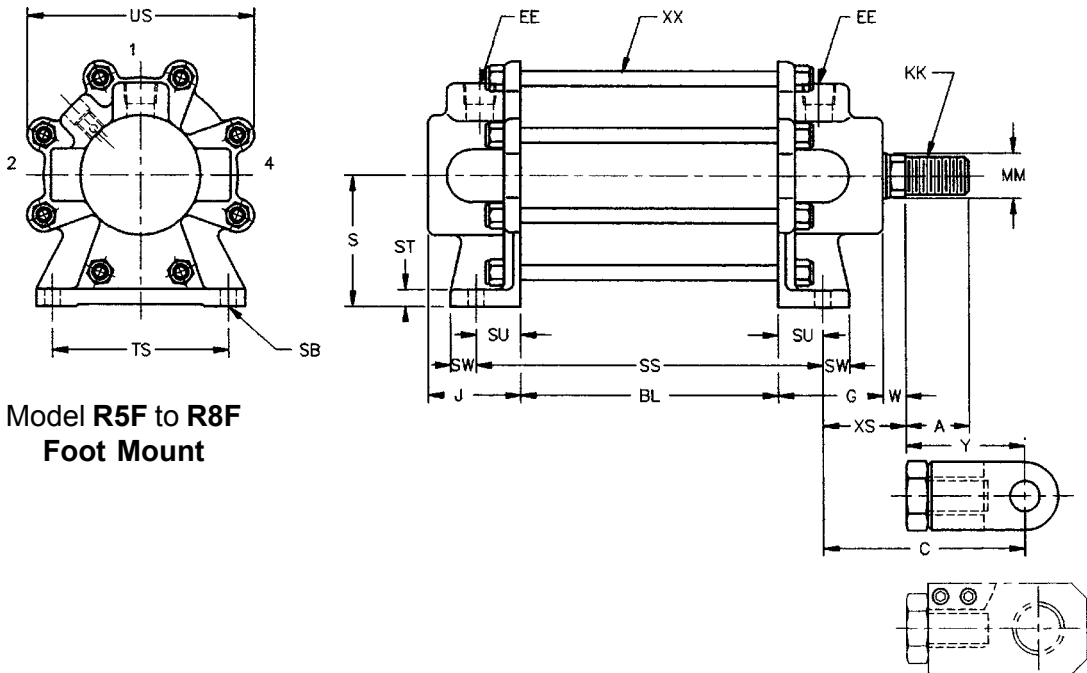
| BORE | ROD | ROD DIA | | KK | CC | A | C | W | ADD STROKE | | S | SB | ST | SU | SW | TS | US | XS | EE | G | J | XX | Y | | | | | | | | | | | | | |
|------|-----|---------|----------|----------|----|-----|---|-------|------------|----|-----|-----|------|----|-------|-----|-------|------|------|-------|-----|-----|-----|-------|------|-------|-----|-----|-------|-------|------|------|------|------|---|-----|
| | | MM | INCH | | | | | | BL | SS | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | 1 | 3/4 | *5/8-18 | N/A | *1 | 1/8 | 3 | 1/2 | 3/8 | 2 | 1/8 | 3/8 | 5/16 | 1 | 3/16 | 1/2 | 2 | 2 | 7/8 | 1 | 1/8 | 3/8 | 1 | 15/16 | 1 | 3/8 | 3/8 | 2 | 3/8 | | | | | | | |
| | 2 | 1 | 3/4-16 | 7/8-14 | 1 | 3/8 | 3 | 11/16 | 1/2 | | | | | | | | | | | | | | | | | | | | | | 2 | 7/16 | | | | |
| 3 | 1 | 1 | 3/4-16 | 7/8-14 | 1 | 3/8 | 4 | | 1/2 | 2 | 1/4 | 4 | 7/8 | 2 | 1/2 | 3/8 | 1 | 5/16 | 5/8 | 2 | 5/8 | 3 | 5/8 | 1 | 9/16 | 3/8 | 2 | 3/8 | 1 | 13/16 | 3/8 | 2 | 7/16 | | | |
| | 2 | 1 1/4 | 1-14 | N/A | 1 | 3/4 | 4 | 11/16 | 7/16 | | | | | | | | | | | | | | | | | | | | | | | | 3 | 3/16 | | |
| 4 | 1 | 1 1/4 | 1-14 | N/A | 1 | 3/4 | 4 | 15/16 | 7/16 | 2 | 3/8 | 5 | 3/8 | 3 | | 1/2 | 1/2 | 1 | 1/2 | 5/8 | 3 | 7/8 | 4 | 5/8 | 1 | 3/4 | 1/2 | 2 | 13/16 | 2 | 1/16 | 1/2 | 3 | 3/16 | | |
| | 2 | 1 1/2 | 1 1/4-12 | N/A | 2 | 1/8 | 5 | 9/16 | 3/8 | | | | | | | | | | | | | | | | | | | | | | | | | | 3 | 7/8 |
| 5 | 1 | 1 1/4 | 1-14 | N/A | 1 | 3/4 | 4 | 7/8 | 3/8 | 2 | 3/8 | 5 | 1/2 | 3 | 11/16 | 1/2 | 1/2 | 1 | 9/16 | 5/8 | 4 | 3/8 | 6 | 3/8 | 1 | 11/16 | 1/2 | 2 | 7/8 | 2 | 5/16 | 3/8 | 3 | 3/16 | | |
| | 2 | 1 1/2 | 1 1/4-12 | N/A | 2 | 1/8 | 5 | 1/2 | 5/16 | | | | | | | | | | | | | | | | | | | | | | | | | | | 3 |
| 6 | 1 | 1 1/2 | 1 1/4-12 | N/A | 2 | 1/8 | 6 | 5/16 | 7/16 | 2 | 5/8 | 5 | 5/8 | 4 | 3/8 | 1/2 | 9/16 | 1 | 1/2 | 7/8 | 5 | 7/8 | 7 | 3/4 | 2 | 7/16 | 3/4 | 3 | 1/2 | 3 | 1/8 | 1/2 | 3 | 7/8 | | |
| | 2 | 2 | 1 1/2-12 | 1 3/4-12 | 2 | 1/2 | 7 | 1/16 | 1/2 | | | | | | | | | | | | | | | | | | | | | | | | | | | 4 |
| 8 | 1 | 2 | 1 1/2-12 | 1 3/4-12 | 2 | 1/2 | 7 | 5/32 | 1/2 | 2 | 3/4 | 7 | 5/16 | 5 | 3/4 | 5/8 | 11/16 | 2 | 9/32 | 27/32 | 8 | 1/4 | 9 | 3/4 | 2 | 19/32 | 1 | 4 | 3/8 | 3 | 3/8 | 1/2 | 4 | 9/16 | | |
| | 2 | 2 1/2 | 2-12 | 2 1/4-12 | 3 | 1/2 | 8 | 21/32 | 11/16 | | | | | | | | | | | | | | | | | | | | | | | | | | | 5 |

Notes:

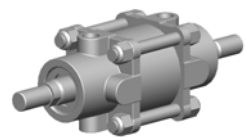
1. All dimensions in inches.
 2. EE dimension specifies NPTF port.
 3. See Cylinder Nomenclature for thread options.
 4. For Optional Rod Ends and dimensions see page 16.
- * For Female Thread, KK = 7/16-20, A = 3/4"



**Model R2F to R4F
Foot Mount**



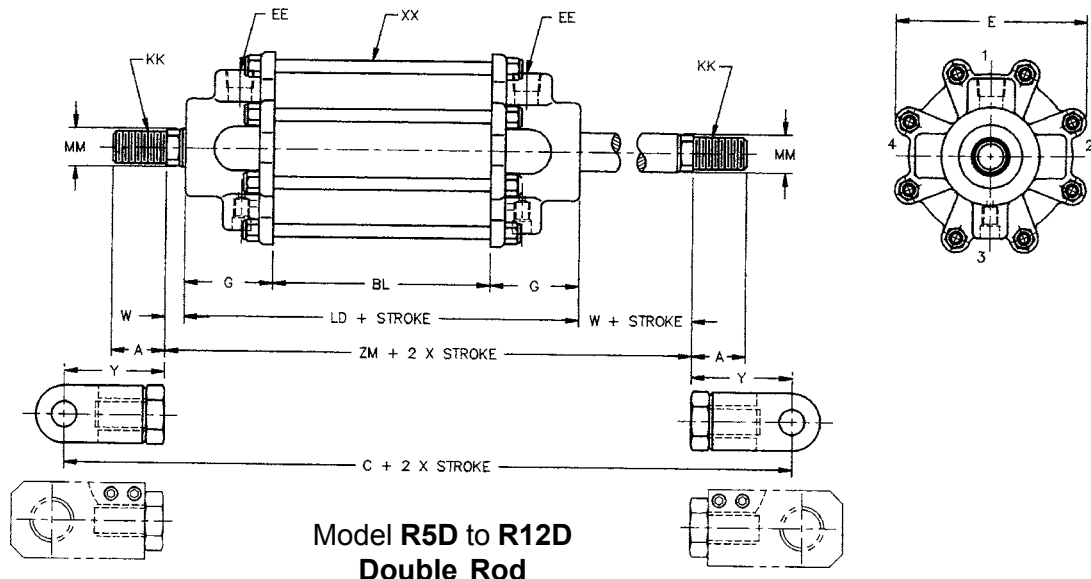
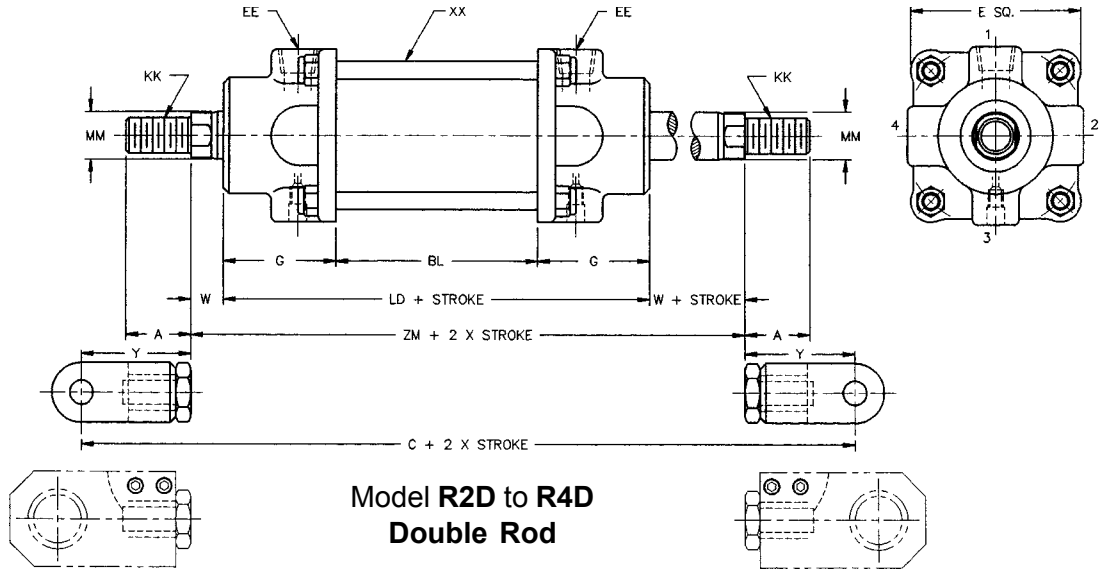
**Model R5F to R8F
Foot Mount**

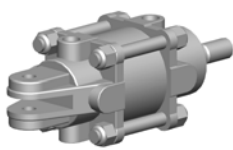


| BORE | ROD | ROD DIA | | KK | CC | A | W | ADD STROKE | | STROKE x 2 | | E | EE | G | XX | Y |
|------|-----|---------|--|----------|----------|--------|-------|------------|--------|------------|--------|--------|-------|---------|-----|--------|
| | | MM | | | | | | BL | LD | C | ZM | | | | | |
| 2 | 1 | 3/4 | | *5/8-18 | N/A | *1 1/8 | 3/8 | 2 | 5 7/8 | 11 3/8 | 6 5/8 | 2 7/8 | 3/8 | 1 15/16 | 3/8 | 2 3/8 |
| | 2 | 1 | | 3/4-16 | 7/8-14 | 1 3/8 | 1/2 | | | 11 3/4 | 6 7/8 | | | | | 2 7/16 |
| 3 | 1 | 1 | | 3/4-16 | 7/8-14 | 1 3/8 | 1/2 | 2 1/4 | 7 | 12 7/8 | 8 | 3 5/8 | 3/8 | 2 3/8 | 3/8 | 2 7/16 |
| | 2 | 1 1/4 | | 1-14 | N/A | 1 3/4 | 7/16 | | | 14 1/4 | 7 7/8 | | | | | 3 3/16 |
| 4 | 1 | 1 1/4 | | 1-14 | N/A | 1 3/4 | 7/16 | 2 3/8 | 8 | 15 1/4 | 8 7/8 | 4 5/8 | 1/2 | 2 13/16 | 1/2 | 3 3/16 |
| | 2 | 1 1/2 | | 1 1/4-12 | N/A | 2 1/8 | 3/8 | | | 16 1/2 | 8 3/4 | | | | | 3 7/8 |
| 5 | 1 | 1 1/4 | | 1-14 | N/A | 1 3/4 | 3/8 | 2 3/8 | 8 1/8 | 15 1/4 | 8 7/8 | 6 3/8 | 1/2 | 2 7/8 | 3/8 | 3 3/16 |
| | 2 | 1 1/2 | | 1 1/4-12 | N/A | 2 1/8 | 5/16 | | | 16 1/2 | 8 3/4 | | | | | 3 7/8 |
| 6 | 1 | 1 1/2 | | 1 1/4-12 | N/A | 2 1/8 | 7/16 | 2 5/8 | 9 5/8 | 18 1/4 | 10 1/2 | 7 3/4 | 3/4 | 3 1/2 | 1/2 | 3 7/8 |
| | 2 | 2 | | 1 1/2-12 | 1 3/4-12 | 2 1/2 | 1/2 | | | 19 3/4 | 10 5/8 | | | | | 4 9/16 |
| 8 | 1 | 2 | | 1 1/2-12 | 1 3/4-12 | 2 1/2 | 1/2 | 2 3/4 | 11 1/2 | 21 5/8 | 12 1/2 | 9 3/4 | 1 | 4 3/8 | 1/2 | 4 9/16 |
| | 2 | 2 1/2 | | 2-12 | 2 1/4-12 | 3 1/2 | 11/16 | | | 24 5/8 | 12 7/8 | | | | | 5 7/8 |
| 10 | 1 | 2 1/2 | | 2-12 | 2 1/4-12 | 3 1/2 | 3/4 | 3 1/2 | 13 3/4 | 27 | 15 1/4 | 11 3/4 | 1 1/4 | 5 1/8 | 5/8 | 5 7/8 |
| | 2 | 3 | | 2 1/2-12 | 2 3/4-12 | 4 1/2 | 1 | | | 30 1/2 | 15 3/4 | | | | | 7 3/8 |
| 12 | 1 | 3 | | 2 1/2-12 | 2 3/4-12 | 4 1/2 | 1 | 4 1/4 | 17 1/2 | 34 1/4 | 19 1/2 | 14 1/4 | 1 1/2 | 6 5/8 | 3/4 | 7 3/8 |
| | 2 | 3 1/2 | | 2 1/2-12 | 3 1/4-12 | 4 1/2 | 1 | | | 34 1/4 | 19 1/2 | | | | | 7 3/8 |

Notes:

1. All dimensions in inches.
 2. EE dimension specifies NPTF port.
 3. See Cylinder Nomenclature for thread options.
 4. For Optional Rod Ends and dimensions see page 16.
- * For Female Thread, KK = 7/16-20, A = 3/4"



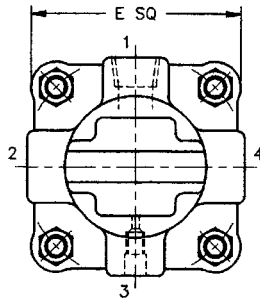


model RC Blind End Clevis

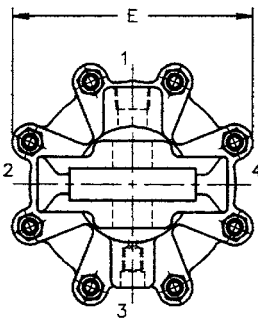
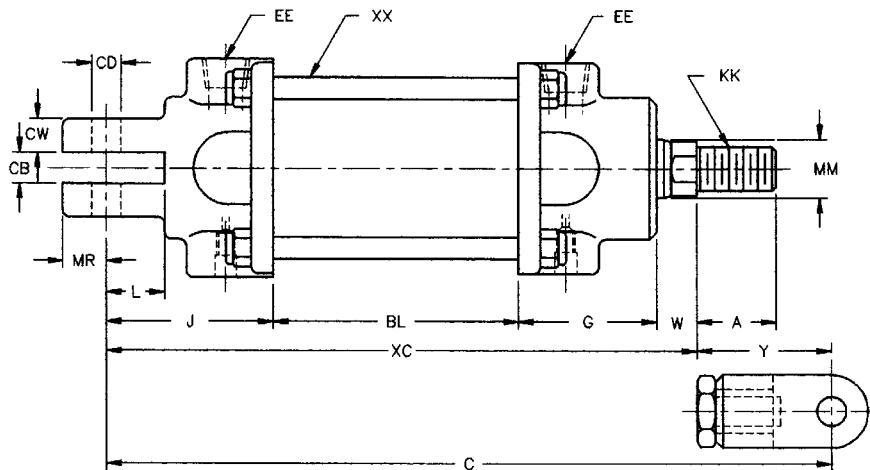
| BORE | ROD | ROD DIA | | ADD STROKE | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|-----|---------|----------|------------|----------|-----|-----|-------|-----|------|------|-------|-------|-------|-----|------|-----|-------|-------|------|-------|-----|-----|-----|------|-----|------|------|------|-----|---|-----|-----|---|------|
| | | MM | KK | CC | A | W | BL | C | XC | CB | CD | CW | E | EE | G | J | L | MR | XX | Y | | | | | | | | | | | | | | | |
| 2 | 1 | 3/4 | *5/8-18 | N/A | *1 | 1/8 | 3/8 | 2 | 9 | 6 | 5/8 | 17/32 | 1/2 | 1/2 | 2 | 7/8 | 3/8 | 1 | 15/16 | 2 | 5/16 | 7/8 | 5/8 | 3/8 | 2 | 3/8 | | | | | | | | | |
| | 2 | 1 | 3/4-16 | 7/8-14 | 1 | 3/8 | 1/2 | | 9 | 3/16 | 6 | 3/4 | | | | | | | | | | | | | | 2 | 7/16 | | | | | | | | |
| 3 | 1 | 1 | 3/4-16 | 7/8-14 | 1 | 3/8 | 1/2 | 2 | 1/4 | 10 | 7/16 | 8 | 17/32 | 1/2 | 5/8 | 3 | 5/8 | 3/8 | 2 | 3/8 | 2 | 7/8 | 1 | | 3/4 | 3/8 | 2 | 7/16 | | | | | | | |
| | 2 | 1 | 1/4 | 1-14 | N/A | 1 | 3/4 | 7/16 | | 11 | 1/8 | 7 | 15/16 | | | | | | | | | | | | | | 3 | 3/16 | | | | | | | |
| 4 | 1 | 1 | 1/4 | 1-14 | N/A | 1 | 3/4 | 7/16 | 2 | 3/8 | 12 | 3/16 | 9 | 25/32 | 3/4 | 3/4 | 4 | 5/8 | 1/2 | 2 | 13/16 | 3 | 3/8 | 1 | 3/16 | 1 | 1/2 | 3 | 3/16 | | | | | | |
| | 2 | 1 | 1/2 | 1 1/4-12 | N/A | 2 | 1/8 | 3/8 | | | 12 | 13/16 | 8 | 15/16 | | | | | | | | | | | | | 3 | 7/8 | | | | | | | |
| 5 | 1 | 1 | 1/4 | 1-14 | N/A | 1 | 3/4 | 3/8 | 2 | 3/8 | 12 | 5/16 | 9 | 25/32 | 3/4 | 7/8 | 6 | 3/8 | 1/2 | 2 | 7/8 | 3 | 1/2 | 1 | 3/16 | 1 | 3/8 | 3 | 3/16 | | | | | | |
| | 2 | 1 | 1/2 | 1 1/4-12 | N/A | 2 | 1/8 | 5/16 | | | 12 | 15/16 | 9 | 1/16 | | | | | | | | | | | | | 3 | 7/8 | | | | | | | |
| 6 | 1 | 1 | 1/2 | 1 1/4-12 | N/A | 2 | 1/8 | 7/16 | 2 | 5/8 | 14 | 13/16 | 10 | 15/16 | 1 | 1/32 | 1 | 15/16 | 7 | 3/4 | 3/4 | 3 | 1/2 | 4 | 3/8 | 1 | 1/4 | 1 | 1/4 | 1/2 | 3 | 7/8 | | | |
| | 2 | 2 | 1 1/2-12 | 1 3/4-12 | 2 | 1/2 | 1/2 | | | | 15 | 9/16 | 11 | | | | | | | | | | | | | | | 4 | 9/16 | | | | | | |
| 8 | 1 | 2 | 1 1/2-12 | 1 3/4-12 | 2 | 1/2 | 1/2 | | 2 | 3/4 | 17 | 5/16 | 12 | 3/4 | 1 | 5/16 | 1 | 1/4 | 1 | 1/4 | 9 | 3/4 | 1 | | 4 | 3/8 | 5 | 1/8 | 1 | 3/4 | 1 | 1/2 | 1/2 | 4 | 9/16 |
| | 2 | 2 | 1/2 | 2-12 | 2 1/4-12 | 3 | 1/2 | 11/16 | | | 18 | 13/16 | 12 | 15/16 | | | | | | | | | | | | | | | 5 | 7/8 | | | | | |
| 10 | 1 | 2 | 1/2 | 2-12 | 2 1/4-12 | 3 | 1/2 | 3/4 | 3 | 1/2 | 21 | 1/8 | 15 | 1/4 | 1 | 9/16 | 1 | 1/2 | 1 | 7/16 | 11 | 3/4 | 1 | 1/4 | 5 | 1/8 | 5 | 7/8 | 2 | | 1 | 3/4 | 5/8 | 5 | 7/8 |
| | 2 | 3 | 2 1/2-12 | 2 3/4-12 | 4 | 1/2 | 1 | | | | 22 | 7/8 | 15 | 1/2 | | | | | | | | | | | | | | | 7 | 3/8 | | | | | |
| 12 | 1 | 3 | 2 1/2-12 | 2 3/4-12 | 4 | 1/2 | 1 | | 4 | 1/4 | 26 | 1/8 | 18 | 3/4 | 2 | 1/16 | 1 | 3/4 | 1 | 5/8 | 14 | 1/4 | 1 | 1/2 | 6 | 5/8 | 6 | 7/8 | 2 | 3/8 | 2 | 1/8 | 3/4 | 7 | 3/8 |
| | 2 | 3 | 1/2 | 2 1/2-12 | 3 1/4-12 | 4 | 1/2 | 1 | | | 26 | 1/8 | 18 | 3/4 | | | | | | | | | | | | | | | 7 | 3/8 | | | | | |

Notes:

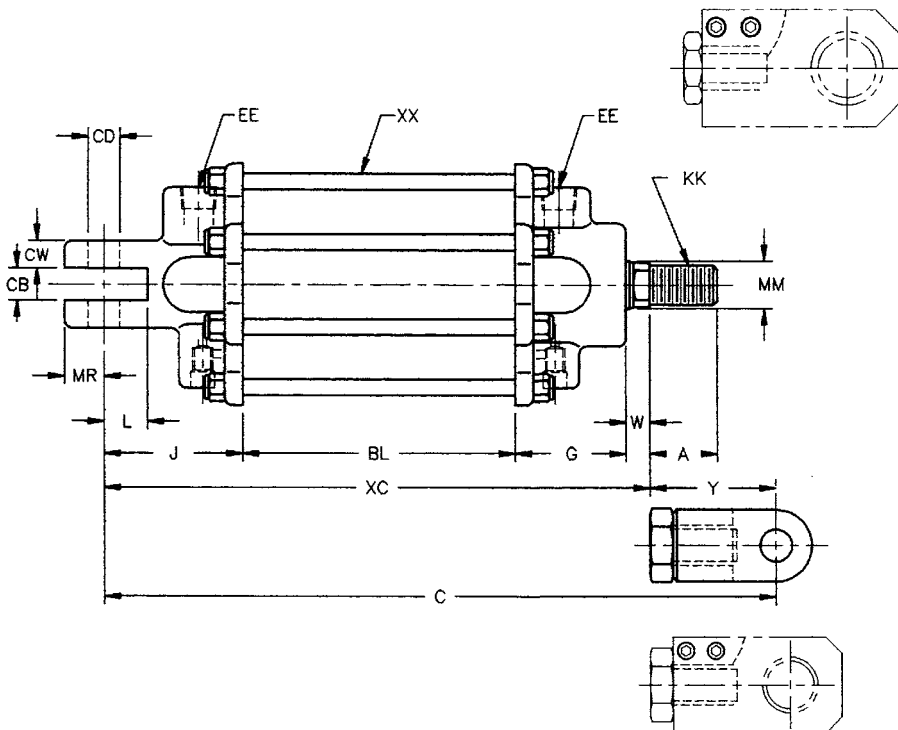
1. All dimensions in inches.
 2. EE dimension specifies NPTF port. Contact Factory if SAE or Alternate port size is required.
 3. See Cylinder Nomenclature for thread options.
 4. For Optional Rod Ends and dimensions see page 16.
- * For Female Thread, KK = 7/16-20, A = 3/4"

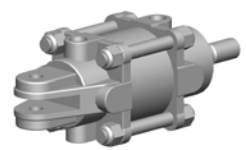


**Model R2C to R4C
Blind End Clevis**



**Model R5C to R12C
Blind End Clevis**

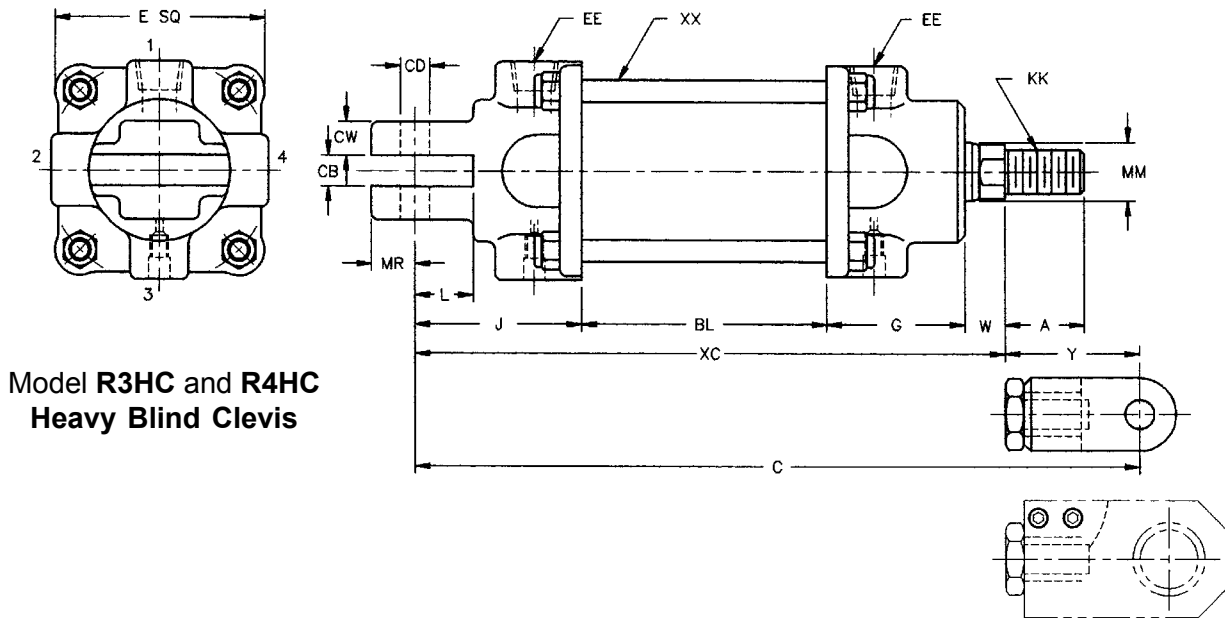




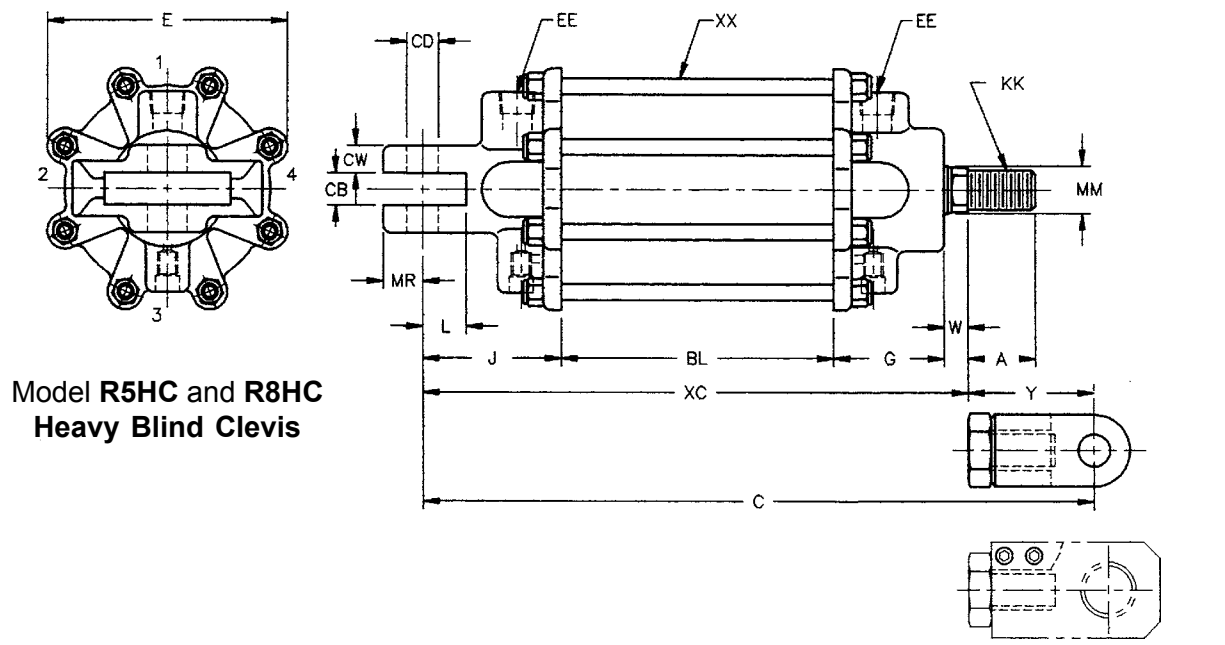
| BORE | ROD | ROD DIA | | ADD STROKE | | | | | | | | | | | | | | | | | | | |
|----------|-----|---------|----------|------------|-------|-------|-------|----------|---------|--------|-----|--------|-------|-----|---------|---|------|-------|-------|-----|--------|--|--|
| | | MM | KK | CC | A | W | BL | C | XC | CB | CD | CW | E | EE | G | J | L | MR | XX | Y | | | |
| 3 | 1 | 1 | 3/4-16 | 7/8-14 | 1 3/8 | 1/2 | 2 1/4 | 10 11/16 | 8 1/4 | 25/32 | 3/4 | 13/16 | 3 5/8 | 3/8 | 2 3/8 | 3 | 1/8 | 1 1/4 | 1 | 3/8 | 2 7/16 | | |
| | 2 | 1 1/4 | 1-14 | N/A | 1 3/4 | 7/16 | | 11 3/8 | 8 3/16 | | | | | | | | | | | | 3 3/16 | | |
| 4 | 1 | 1 1/4 | 1-14 | N/A | 1 3/4 | 7/16 | 2 3/8 | 12 7/8 | 9 11/16 | 1 1/32 | 1 | 15/16 | 4 5/8 | 1/2 | 2 13/16 | 4 | 1/16 | 1 7/8 | 1 1/8 | 1/2 | 3 3/16 | | |
| | 2 | 1 1/2 | 1 1/4-12 | N/A | 2 1/8 | 3/8 | | 13 1/2 | 9 5/8 | | | | | | | | | | | | 3 7/8 | | |
| 5 | 1 | 1 1/4 | 1-14 | N/A | 1 3/4 | 3/8 | 2 3/8 | 12 7/8 | 9 11/16 | 1 1/32 | 1 | 15/16 | 6 3/8 | 1/2 | 2 7/8 | 4 | 1/16 | 1 7/8 | 1 1/8 | 3/8 | 3 3/16 | | |
| | 2 | 1 1/2 | 1 1/4-12 | N/A | 2 1/8 | 5/16 | | 13 1/2 | 9 5/8 | | | | | | | | | | | | 3 7/8 | | |
| 6 | 1 | 1 1/2 | 1 1/4-12 | N/A | 2 1/8 | 7/16 | 2 5/8 | 15 5/16 | 11 7/16 | 1 5/16 | 1/4 | 1 7/32 | 7 3/4 | 3/4 | 3 1/2 | 4 | 7/8 | 1 3/4 | 1 1/2 | 1/2 | 3 7/8 | | |
| | 2 | 2 | 1 1/2-12 | 1 3/4-12 | 2 1/2 | 1/2 | | 16 1/16 | 11 1/2 | | | | | | | | | | | | 4 9/16 | | |
| 8 | 1 | 2 | 1 1/2-12 | 1 3/4-12 | 2 1/2 | 1/2 | 2 3/4 | 17 13/16 | 13 1/4 | 1 9/16 | 1/2 | 1 7/16 | 9 3/4 | 1 | 4 3/8 | 5 | 5/8 | 2 1/4 | 1 7/8 | 1/2 | 4 9/16 | | |
| | 2 | 2 1/2 | 2-12 | 2 1/4-12 | 3 1/2 | 11/16 | | 19 5/16 | 13 7/16 | | | | | | | | | | | | 5 7/8 | | |

Notes:

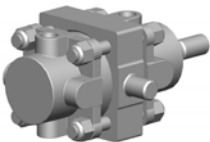
1. All dimensions in inches.
2. EE dimension specifies NPTF port. Contact Factory if SAE or Alternate port size is required.
3. See Cylinder Nomenclature for thread options.
4. M-Series M2C Equivalent.
5. For Optional Rod Ends and dimensions see page 16.



Model R3HC and R4HC Heavy Blind Clevis



Model R5HC and R8HC Heavy Blind Clevis



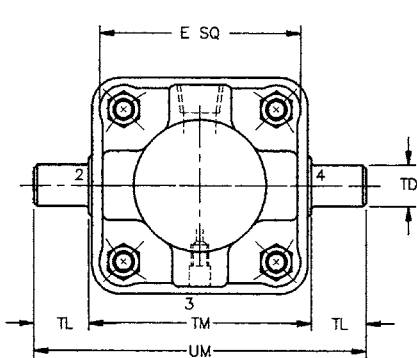
model RT Mid Trunnion

| BORE | ROD | ROD DIA | | Model T Dimensions | | | | | | | | | | | | | | | | |
|------|-----|---------|----------|--------------------|--------|-------|------------|---------|-------|-------|-------|-------|--------|--------|--------|-------|---------|---------|-----|--------|
| | | MM | KK | CC | A | W | ADD STROKE | | | BD | TD | TL | TM | UM | E | EE | G | J | XX | Y |
| 2 | 1 | 3/4 | *5/8-18 | N/A | *1 1/8 | 3/8 | 2 7/8 | 3 3/4 | 2 | 1 | 3/4 | 1 | 3 | 5 | 2 7/8 | 3/8 | 1 15/16 | 1 3/8 | 3/8 | 2 3/8 |
| | 2 | 1 | 3/4-16 | 7/8-14 | 1 3/8 | 1/2 | 3 | 3 7/8 | | | | | | | | | | | | 2 7/16 |
| 3 | 1 | 1 | 3/4-16 | 7/8-14 | 1 3/8 | 1/2 | 3 9/16 | 4 7/16 | 2 1/4 | 1 1/4 | 3/4 | 1 | 4 | 6 | 3 5/8 | 3/8 | 2 3/8 | 1 13/16 | 3/8 | 2 7/16 |
| | 2 | 1 1/4 | 1-14 | N/A | 1 3/4 | 7/16 | 3 1/2 | 4 3/8 | | | | | | | | | | | | 3 3/16 |
| 4 | 1 | 1 1/4 | 1-14 | N/A | 1 3/4 | 7/16 | 4 1/16 | 4 13/16 | 2 3/8 | 1 1/2 | 1 | 1 1/4 | 5 1/4 | 7 3/4 | 4 5/8 | 1/2 | 2 13/16 | 2 1/16 | 1/2 | 3 3/16 |
| | 2 | 1 1/2 | 1 1/4-12 | N/A | 2 1/8 | 3/8 | 4 | 4 3/4 | | | | | | | | | | | | 3 7/8 |
| 5 | 1 | 1 1/4 | 1-14 | N/A | 1 3/4 | 3/8 | 4 1/16 | 4 13/16 | 2 3/8 | 1 1/2 | 1 | 1 1/4 | 6 1/2 | 9 | 6 3/8 | 1/2 | 2 7/8 | 2 5/16 | 3/8 | 3 3/16 |
| | 2 | 1 1/2 | 1 1/4-12 | N/A | 2 1/8 | 5/16 | 4 | 4 3/4 | | | | | | | | | | | | 3 7/8 |
| 6 | 1 | 1 1/2 | 1 1/4-12 | N/A | 2 1/8 | 7/16 | 4 7/8 | 5 5/8 | 2 5/8 | 1 3/4 | 1 1/4 | 1 1/2 | 8 | 11 | 7 3/4 | 3/4 | 3 1/2 | 3 1/8 | 1/2 | 3 7/8 |
| | 2 | 2 | 1 1/2-12 | 1 3/4-12 | 2 1/2 | 1/2 | 4 15/16 | 5 11/16 | | | | | | | | | | | | 4 9/16 |
| 8 | 1 | 2 | 1 1/2-12 | 1 3/4-12 | 2 1/2 | 1/2 | 6 3/16 | 6 5/16 | 2 3/4 | 2 1/2 | 1 3/4 | 2 | 10 | 14 | 9 3/4 | 1 | 4 3/8 | 3 3/8 | 1/2 | 4 9/16 |
| | 2 | 2 1/2 | 2-12 | 2 1/4-12 | 3 1/2 | 11/16 | 6 3/8 | 6 1/2 | | | | | | | | | | | | 5 7/8 |
| 10 | 1 | 2 1/2 | 2-12 | 2 1/4-12 | 3 1/2 | 3/4 | 7 9/16 | 7 11/16 | 3 1/2 | 3 1/4 | 2 | 2 3/8 | 13 | 17 3/4 | 11 3/4 | 1 1/4 | 5 1/8 | 3 7/8 | 5/8 | 5 7/8 |
| | 2 | 3 | 2 1/2-12 | 2 3/4-12 | 4 1/2 | 1 | 7 13/16 | 7 15/16 | | | | | | | | | | | | 7 3/8 |
| 12 | 1 | 3 | 2 1/2-12 | 2 3/4-12 | 4 1/2 | 1 | 9 11/16 | 9 13/16 | 4 1/4 | 4 | 2 1/2 | 2 3/4 | 15 1/2 | 21 | 14 1/4 | 1 1/2 | 6 5/8 | 4 1/2 | 3/4 | 7 3/8 |
| | 2 | 3 1/2 | 2 1/2-12 | 3 1/4-12 | 4 1/2 | 1 | 9 11/16 | 9 13/16 | | | | | | | | | | | | 7 3/8 |

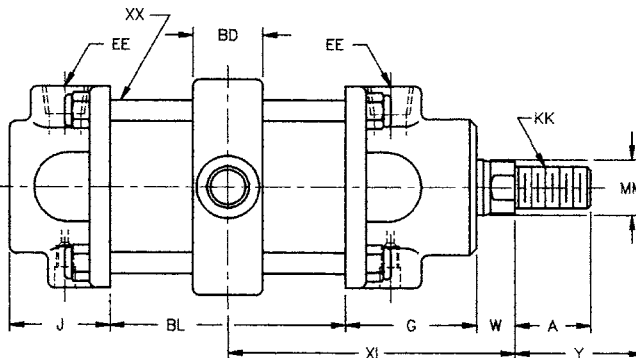
Notes:

1. All dimensions in inches.
2. EE dimension specifies NPTF port. Contact Factory if SAE or Alternate port size is required.
3. See Cylinder Nomenclature for thread options.
4. For Optional Rod Ends and dimensions see page 16.

* For Female Thread, KK = 7/16-20, A=3/4"

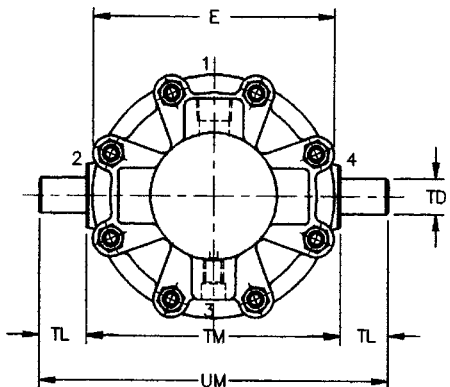
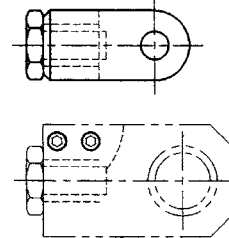


**Model R2T to R4T
Mid Trunnion**

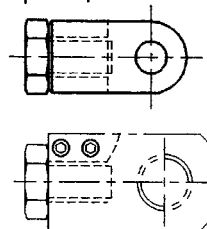
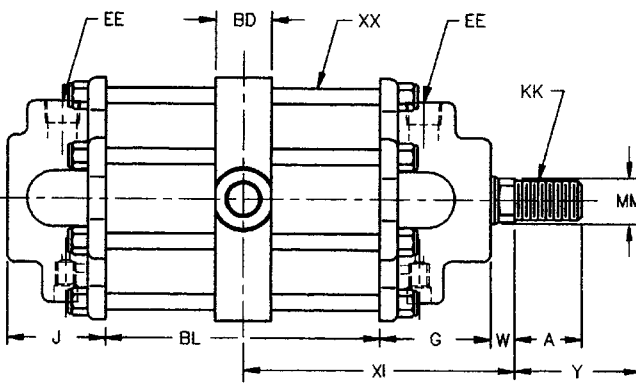


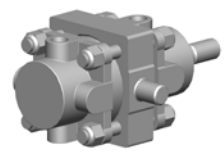
Warning

Trunnion Mounted Cylinders swivel in one direction only and are designed to carry shear loads. Pins must be held rigidly and in accurate alignment. Improper mounting may result in premature failure.
 Note: Specify XI value when ordering Mid Trunnion Mounted Cylinders.



**Model R5T to R12T
Mid Trunnion**

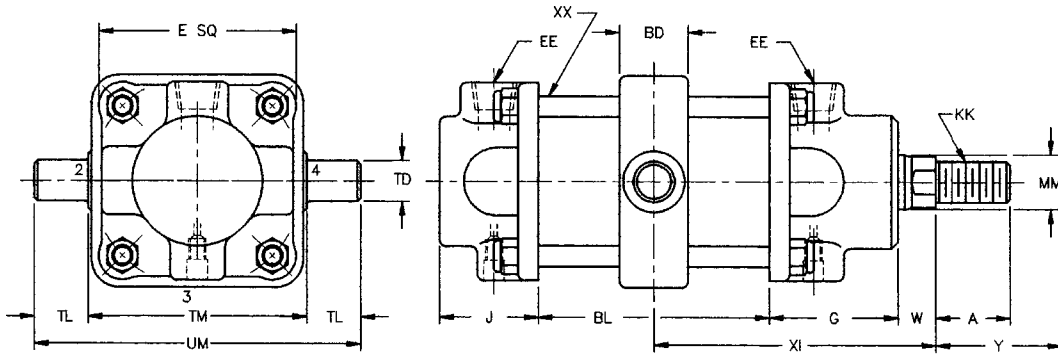




| BORE | ROD DIA | | Model HT Dimensions | | | | | | | | | | | | | | | | | |
|------|---------|-------|---------------------|----------|-------|-------|---------|---------|-------|------------|-------|-------|--------|-------|--------|-------|---------|---------|-----|--------|
| | ROD | MM | KK | CC | A | W | Xi min | Xi max | BL | ADD STROKE | | | | E | EE | G | J | XX | Y | |
| | | | | | | | | | | BD | TD | TL | TM | UM | | | | | | |
| 3 | 1 | 1 | 3/4-16 | 7/8-14 | 1 3/8 | 1/2 | 3 9/16 | 4 7/16 | 2 1/4 | 1 1/4 | 1 | 1 | 4 | 6 | 3 5/8 | 3/8 | 2 3/8 | 1 13/16 | 3/8 | 2 7/16 |
| | 2 | 1 1/4 | 1-14 | N/A | 1 3/4 | 7/16 | 3 1/2 | 4 3/8 | | | | | | | | | | | | 3 3/16 |
| 4 | 1 | 1 1/4 | 1-14 | N/A | 1 3/4 | 7/16 | 4 1/16 | 4 13/16 | 2 3/8 | 1 1/2 | 1 1/4 | 1 1/4 | 5 1/4 | 7 3/4 | 4 5/8 | 1/2 | 2 13/16 | 2 1/16 | 1/2 | 3 3/16 |
| | 2 | 1 1/2 | 1 1/4-12 | N/A | 2 1/8 | 3/8 | 4 | 4 3/4 | | | | | | | | | | | | 3 7/8 |
| 5 | 1 | 1 1/4 | 1-14 | N/A | 1 3/4 | 3/8 | 4 1/16 | 4 13/16 | 2 3/8 | 1 1/2 | 1 3/8 | 1 3/8 | 6 1/2 | 9 1/4 | 6 3/8 | 1/2 | 2 7/8 | 2 5/16 | 3/8 | 3 3/16 |
| | 2 | 1 1/2 | 1 1/4-12 | N/A | 2 1/8 | 5/16 | 4 | 4 3/4 | | | | | | | | | | | | 3 7/8 |
| 6 | 1 | 1 1/2 | 1 1/4-12 | N/A | 2 1/8 | 7/16 | 4 7/8 | 5 5/8 | 2 5/8 | 1 3/4 | 1 1/2 | 1 1/2 | 8 | 11 | 7 3/4 | 3/4 | 3 1/2 | 3 1/8 | 1/2 | 3 7/8 |
| | 2 | 2 | 1 1/2-12 | 1 3/4-12 | 2 1/2 | 1/2 | 4 15/16 | 5 11/16 | | | | | | | | | | | | 4 9/16 |
| 8 | 1 | 2 | 1 1/2-12 | 1 3/4-12 | 2 1/2 | 1/2 | 6 3/16 | 6 5/16 | 2 3/4 | 2 1/2 | 2 | 2 | 10 | 14 | 9 3/4 | 1 | 4 3/8 | 3 3/8 | 1/2 | 4 9/16 |
| | 2 | 2 1/2 | 2-12 | 2 1/4-12 | 3 1/2 | 11/16 | 6 3/8 | 6 1/2 | | | | | | | | | | | | 5 7/8 |
| 10 | 1 | 2 1/2 | 2-12 | 2 1/4-12 | 3 1/2 | 3/4 | 7 9/16 | 7 11/16 | 3 1/2 | 3 1/4 | 2 1/2 | 2 1/2 | 13 | 18 | 11 3/4 | 1 1/4 | 5 1/8 | 3 7/8 | 5/8 | 5 7/8 |
| | 2 | 3 | 2 1/2-12 | 2 3/4-12 | 4 1/2 | 1 | 7 13/16 | 7 15/16 | | | | | | | | | | | | 7 3/8 |
| 12 | 1 | 3 | 2 1/2-12 | 2 3/4-12 | 4 1/2 | 1 | 9 11/16 | 9 13/16 | 4 1/4 | 4 | 3 1/4 | 3 1/4 | 15 1/2 | 22 | 14 1/4 | 1 1/2 | 6 5/8 | 4 1/2 | 3/4 | 7 3/8 |
| | 2 | 3 1/2 | 2 1/2-12 | 3 1/4-12 | 4 1/2 | 1 | 9 11/16 | 9 13/16 | | | | | | | | | | | | 7 3/8 |

Notes:

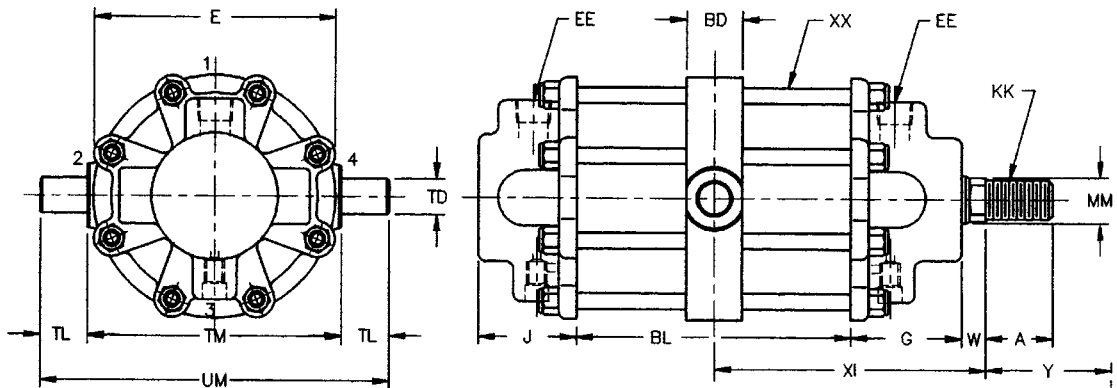
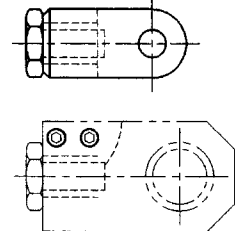
1. All dimensions in inches.
2. EE dimension specifies NPTF port. Contact Factory if SAE or Alternate port size is required.
3. See Cylinder Nomenclature for thread options.
4. M-Series MT Equivalent.
5. For Optional Rod Ends and dimensions see page 16.



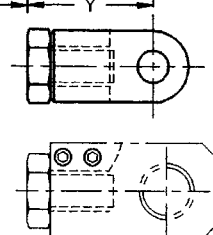
**Model R3HT and R4HT
Heavy Duty Mid Trunnion**

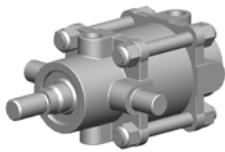
Warning

Trunnion Mounted Cylinders swivel in one direction only and are designed to carry shear loads. Pins must be held rigidly and in accurate alignment. Improper mounting may result in premature failure.
 Note: Specify XI value when ordering Mid Trunnion Mounted Cylinders.



**Model R5HT to R12HT
Heavy Duty Mid Trunnion**



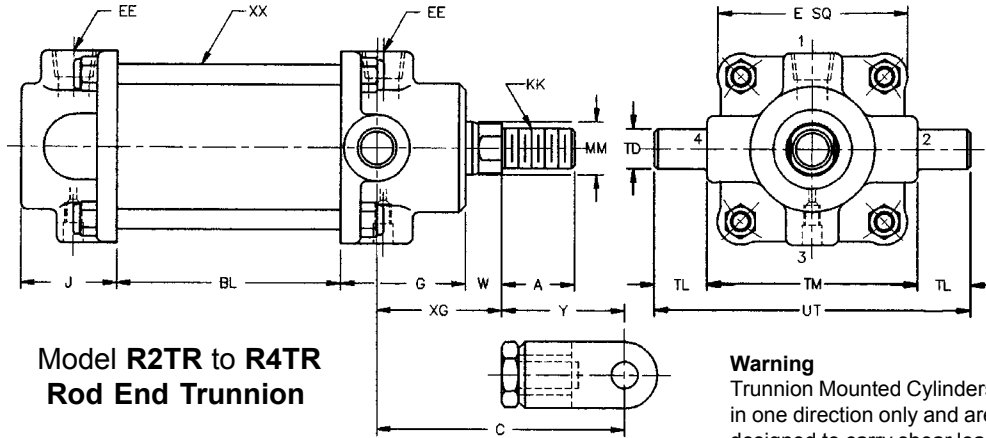


model RTR Rod End Trunnion

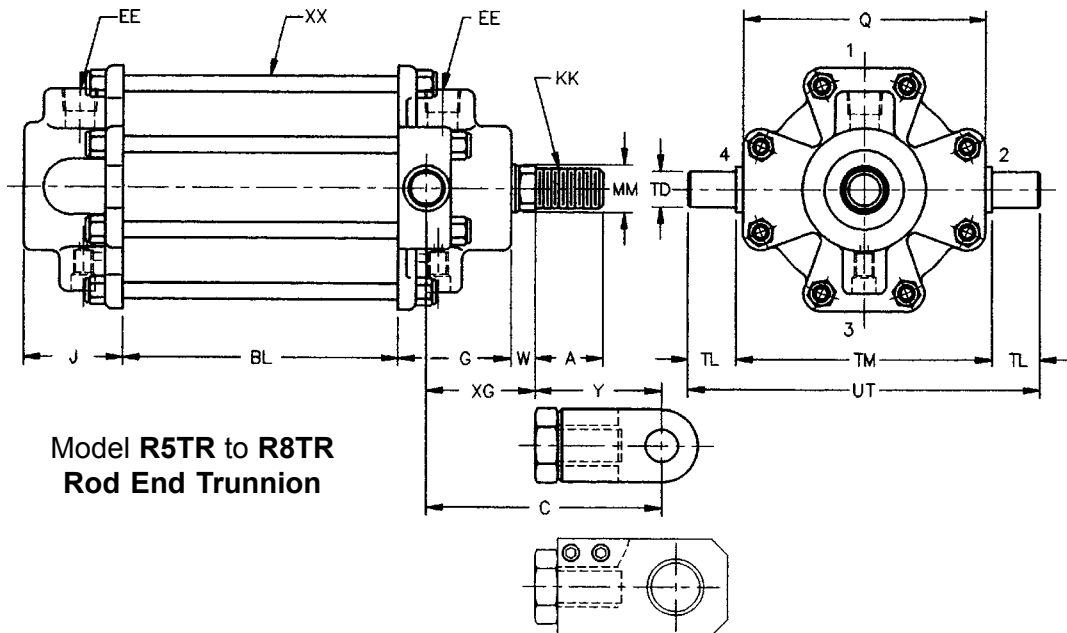
| BORE | ROD | ROD DIA | | Model TR Dimensions | | | | | | | | | | | | | | | | |
|------|-----|---------|----------|---------------------|--------|---------|-------|---------|------------|-------|-------|-------|-------|-------|-------|-----|---------|---------|-----|--------|
| | | MM | KK | CC | A | C | W | XG | ADD STROKE | BL | TD | TL | TM | UT | E | EE | G | J | XX | Y |
| 2 | 1 | 3/4 | *5/8-18 | N/A | *1 1/8 | 4 3/16 | 3/8 | 1 13/16 | | 2 | 3/4 | 1 | 3 | 5 | 2 7/8 | 3/8 | 1 15/16 | 1 3/8 | 3/8 | 2 3/8 |
| | 2 | 1 | 3/4-16 | 7/8-14 | 1 3/8 | 4 3/8 | 1/2 | 1 15/16 | | | | | | | | | | | | 2 7/16 |
| 3 | 1 | 1 | 3/4-16 | 7/8-14 | 1 3/8 | 4 5/8 | 1/2 | 2 3/16 | | 2 1/4 | 3/4 | 1 | 4 | 6 | 3 5/8 | 3/8 | 2 3/8 | 1 13/16 | 3/8 | 2 7/16 |
| | 2 | 1 1/4 | 1-14 | N/A | 1 3/4 | 5 5/16 | 7/16 | 2 1/8 | | | | | | | | | | | | 3 3/16 |
| 4 | 1 | 1 1/4 | 1-14 | N/A | 1 3/4 | 5 11/16 | 7/16 | 2 1/2 | | 2 3/8 | 1 | 1 1/4 | 5 1/4 | 7 3/4 | 4 5/8 | 1/2 | 2 13/16 | 2 1/16 | 1/2 | 3 3/16 |
| | 2 | 1 1/2 | 1 1/4-12 | N/A | 2 1/8 | 6 5/16 | 3/8 | 2 7/16 | | | | | | | | | | | | 3 7/8 |
| 5 | 1 | 1 1/4 | 1-14 | N/A | 1 3/4 | 5 3/4 | 3/8 | 2 9/16 | | 2 3/8 | 1 | 1 1/4 | 6 1/2 | 9 | 6 3/8 | 1/2 | 2 7/8 | 2 5/16 | 3/8 | 3 3/16 |
| | 2 | 1 1/2 | 1 1/4-12 | N/A | 2 1/8 | 6 3/8 | 5/16 | 2 1/2 | | | | | | | | | | | | 3 7/8 |
| 6 | 1 | 1 1/2 | 1 1/4-12 | N/A | 2 1/8 | 6 15/16 | 7/16 | 3 1/16 | | 2 5/8 | 1 1/8 | 1 1/2 | 8 | 11 | 7 3/4 | 3/4 | 3 1/2 | 3 1/8 | 1/2 | 3 7/8 |
| | 2 | 2 | 1 1/2-12 | 1 3/4-12 | 2 1/2 | 7 11/16 | 1/2 | 3 1/8 | | | | | | | | | | | | 4 9/16 |
| 8 | 1 | 2 | 1 1/2-12 | 1 3/4-12 | 2 1/2 | 8 7/16 | 1/2 | 3 7/8 | | 2 3/4 | 1 3/4 | 2 | 10 | 14 | 9 3/4 | 1 | 4 3/8 | 3 3/8 | 1/2 | 4 9/16 |
| | 2 | 2 1/2 | 2-12 | 2 1/4-12 | 3 1/2 | 9 15/16 | 11/16 | 4 1/16 | | | | | | | | | | | | 5 7/8 |

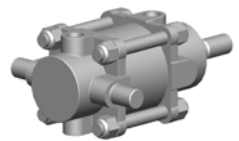
Notes:

1. All dimensions in inches.
 2. EE dimension specifies NPTF port. Contact Factory if SAE or Alternate port size is required.
 3. See Cylinder Nomenclature for thread options.
 4. For Optional Rod Ends and dimensions see page 16.
- * For Female Thread, KK = 7/16-20, A=3/4"



Warning
Trunnion Mounted Cylinders swivel in one direction only and are designed to carry shear loads. Pins must be held rigidly and in accurate alignment. Improper mounting may result in premature failure.





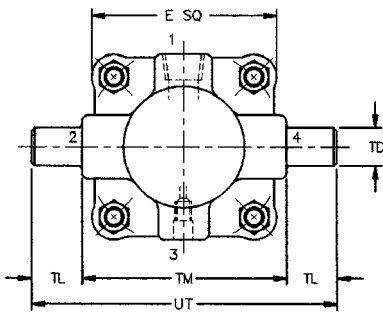
| BORE | ROD | ROD DIA MM | KK | CC | A | W | Model TB Dimensions | | | | | | | | E | EE | G | J | XX | Y |
|----------|-----|---------------|----------|----------|--------|-------|---------------------|-------|---------|-------|-------|-------|-------|-------|-----|---------|---------|-----|--------|---|
| | | | | | | | ADD STROKE | | | TD | TL | TM | UT | XJ | | | | | | |
| 2 | 1 | 3/4 | *5/8-18 | N/A | *1 1/8 | 3/8 | 4 13/16 | 2 | 7 3/16 | 3/4 | 1 | 3 | 5 | 2 7/8 | 3/8 | 1 15/16 | 1 3/8 | 3/8 | 2 3/8 | |
| | 2 | 1 | 3/4-16 | 7/8-14 | 1 3/8 | 1/2 | 4 15/16 | | 7 3/8 | | | | | | | | | | 2 7/16 | |
| 3 | 1 | 1 | 3/4-16 | 7/8-14 | 1 3/8 | 1/2 | 5 3/4 | 2 1/4 | 8 3/16 | 3/4 | 1 | 4 | 6 | 3 5/8 | 3/8 | 2 3/8 | 1 13/16 | 3/8 | 2 7/16 | |
| | 2 | 1 1/4 | 1-14 | N/A | 1 3/4 | 7/16 | 5 11/16 | | 8 7/8 | | | | | | | | | | 3 3/16 | |
| 4 | 1 | 1 1/4 | 1-14 | N/A | 1 3/4 | 7/16 | 6 3/8 | 2 3/8 | 9 9/16 | 1 | 1 1/4 | 5 1/4 | 7 3/4 | 4 5/8 | 1/2 | 2 13/16 | 2 1/16 | 1/2 | 3 3/16 | |
| | 2 | 1 1/2 | 1 1/4-12 | N/A | 2 1/8 | 3/8 | 6 5/16 | | 10 3/16 | | | | | | | | | | 3 7/8 | |
| 5 | 1 | 1 1/4 | 1-14 | N/A | 1 3/4 | 3/8 | 6 7/16 | 2 3/8 | 9 5/8 | 1 | 1 1/4 | 6 1/2 | 9 | 6 3/8 | 1/2 | 2 7/8 | 2 5/16 | 3/8 | 3 3/16 | |
| | 2 | 1 1/2 | 1 1/4-12 | N/A | 2 1/8 | 5/16 | 6 3/8 | | 10 1/4 | | | | | | | | | | 3 7/8 | |
| 6 | 1 | 1 1/2 | 1 1/4-12 | N/A | 2 1/8 | 7/16 | 7 3/8 | 2 5/8 | 11 1/4 | 1 1/8 | 1 1/2 | 8 | 11 | 7 3/4 | 3/4 | 3 1/2 | 3 1/8 | 1/2 | 3 7/8 | |
| | 2 | 2 | 1 1/2-12 | 1 3/4-12 | 2 1/2 | 1/2 | 7 1/2 | | 12 1/16 | | | | | | | | | | 4 9/16 | |
| 8 | 1 | 2 | 1 1/2-12 | 1 3/4-12 | 2 1/2 | 1/2 | 8 3/4 | 2 3/4 | 13 5/16 | 1 3/4 | 2 | 10 | 14 | 9 3/4 | 1 | 4 3/8 | 3 3/8 | 1/2 | 4 9/16 | |
| | 2 | 2 1/2 | 2-12 | 2 1/4-12 | 3 1/2 | 11/16 | 9 | | 14 7/8 | | | | | | | | | | 5 7/8 | |

Notes:

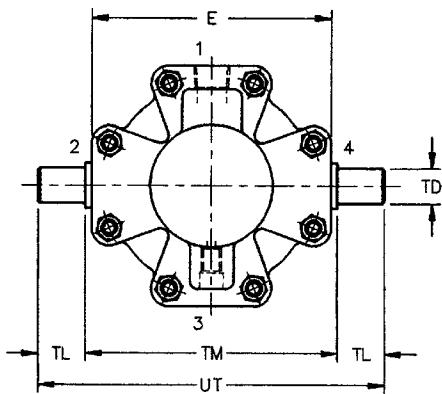
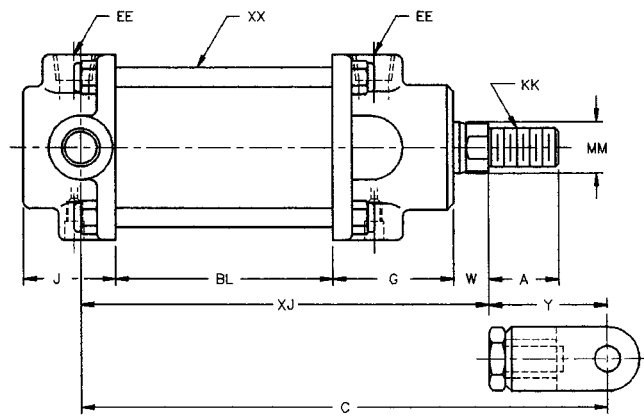
1. All dimensions in inches.
 2. EE dimension specifies NPTF port. Contact Factory if SAE or Alternate port size is required.
 3. See Cylinder Nomenclature for thread options.
 4. For Optional Rod Ends and dimensions see page 16.
- * For Female Thread, KK = 7/16-20, A = 3/4"

Warning

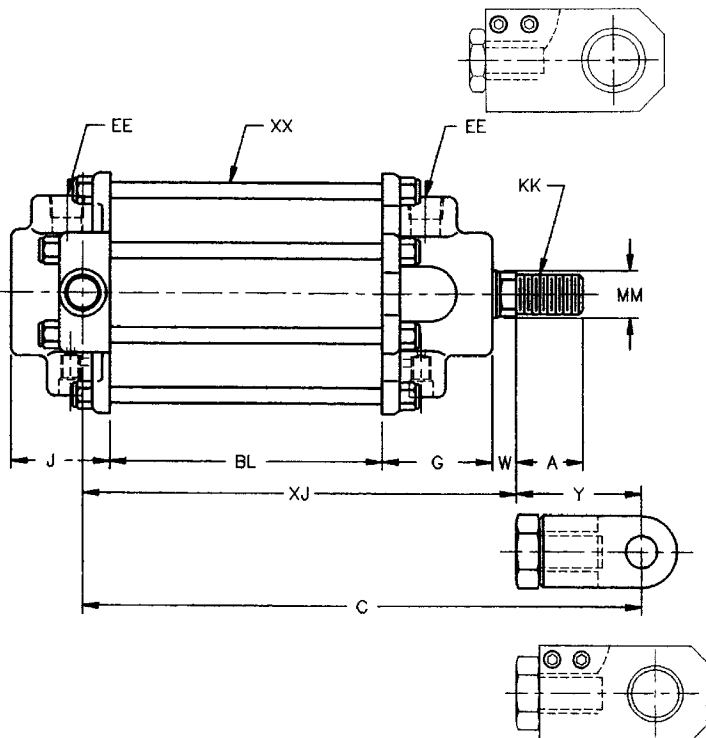
Trunnion Mounted Cylinders swivel in one direction only and are designed to carry shear loads. Pins must be held rigidly and in accurate alignment. Improper mounting may result in premature failure.

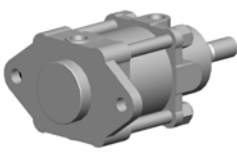


**Model R2TB to R4TB
Blind End Trunnion**



**Model R5TB to R8TB
Blind End Trunnion**



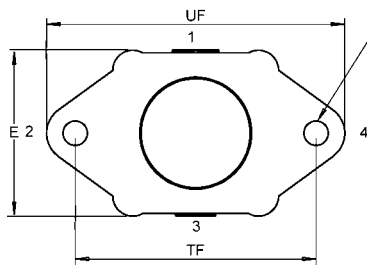


model RB Blind End Flange

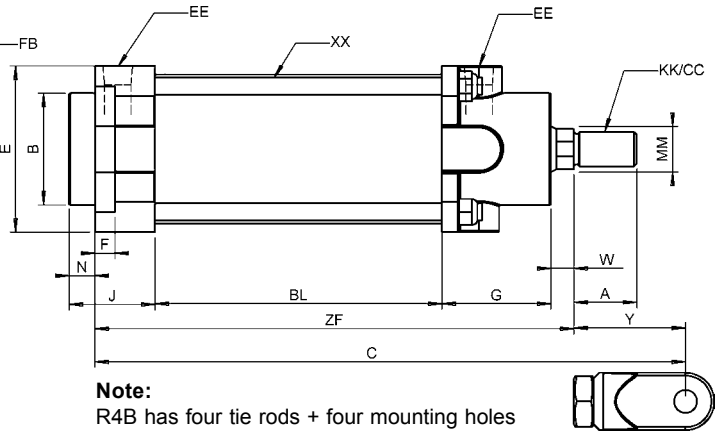
| BORE | ROD | ROD DIA | | ADD STROKE | | | | | | | | | | | | | | | | | | |
|------|-----|---------|----------|------------|--------|-------|------|-------|----------|----------|---------|---------|-----|-------|--------|-------|---------|---------|-------|-----|----|--------|
| | | MM | | KK | CC | A | W | N | BL | C | ZF | UF | TF | FB | F | E | EE | G | J | B | XX | Y |
| 2 | 1 | 3/4 | *5/8-18 | N/A | *1 1/8 | 3/8 | 1/4 | 2 | 7 13/16 | 5 7/16 | 4 3/4 | 3 3/4 | 1/2 | 3/8 | 2 7/8 | 3/8 | 1 15/16 | 1 3/8 | 2 | 3/8 | 2 | 3/8 |
| | 2 | 1 | 3/4-16 | 7/8-14 | 1 3/8 | 1/2 | | | 8 | 5 9/16 | | | | | | | | | | | | 2 7/16 |
| 3 | 1 | 1 | 3/4-16 | 7/8-14 | 1 3/8 | 1/2 | 1/2 | 2 1/4 | 8 7/8 | 6 7/16 | 6 1/2 | 5 1/4 | 1/2 | 1/2 | 3 5/8 | 3/8 | 2 3/8 | 1 13/16 | 2 1/4 | 3/8 | 2 | 7/16 |
| | 2 | 1 1/4 | 1-14 | N/A | 1 3/4 | 7/16 | | | 9 9/16 | 6 3/8 | | | | | | | | | | | | 3 3/16 |
| 4 | 1 | 1 1/4 | 1-14 | N/A | 1 3/4 | 7/16 | 9/16 | 2 3/8 | 10 5/16 | 7 1/8 | 6 5/8 | 5 5/16 | 1/2 | 9/16 | 4 5/8 | 1/2 | 2 13/16 | 2 1/16 | 2 3/4 | 1/2 | 3 | 3/16 |
| | 2 | 1 1/2 | 1 1/4-12 | N/A | 2 1/8 | 3/8 | | | 10 15/16 | 7 1/16 | | | | | | | | | | | | 3 7/8 |
| 5 | 1 | 1 1/4 | 1-14 | N/A | 1 3/4 | 3/8 | 3/4 | 2 3/8 | 10 3/8 | 7 3/16 | 6 3/4 | 5 3/4 | 1/2 | 9/16 | 6 3/8 | 1/2 | 2 7/8 | 2 5/16 | 3 | 3/8 | 3 | 3/16 |
| | 2 | 1 1/2 | 1 1/4-12 | N/A | 2 1/8 | 5/16 | | | 11 | 7 1/8 | | | | | | | | | | | | 3 7/8 |
| 6 | 1 | 1 1/2 | 1 1/4-12 | N/A | 2 1/8 | 7/16 | 7/8 | 2 5/8 | 12 11/16 | 8 13/16 | 7 13/16 | 6 3/8 | 1/2 | 5/8 | 7 3/4 | 3/4 | 3 1/2 | 3 1/8 | 3 7/8 | 1/2 | 3 | 7/8 |
| | 2 | 2 | 1 1/2-12 | 1 3/4-12 | 2 1/2 | 1/2 | | | 13 7/16 | 8 7/8 | | | | | | | | | | | | 4 9/16 |
| 8 | 1 | 2 | 1 1/2-12 | 1 3/4-12 | 2 1/2 | 1/2 | 1/2 | 2 3/4 | 15 1/16 | 10 1/2 | 9 7/16 | 7 19/32 | 3/4 | 11/16 | 9 3/4 | 1 | 4 3/8 | 3 3/8 | 4 1/2 | 1/2 | 4 | 9/16 |
| | 2 | 2 1/2 | 2-12 | 2 1/4-12 | 3 1/2 | 11/16 | | | 16 9/16 | 10 11/16 | | | | | | | | | | | | 5 7/8 |
| 10 | 1 | 2 1/2 | 2-12 | 2 1/4-12 | 3 1/2 | 3/4 | 1 | 3 1/2 | 18 1/8 | 12 1/4 | 11 3/4 | 9 1/4 | 7/8 | 1 | 11 3/4 | 1 1/4 | 5 1/8 | 3 7/8 | 5 | 5/8 | 5 | 7/8 |
| | 2 | 3 | 2 1/2-12 | 2 3/4-12 | 4 1/2 | 1 | | | 19 7/8 | 12 1/2 | | | | | | | | | | | | 7 3/8 |
| 12 | 1 | 3 | 2 1/2-12 | 2 3/4-12 | 4 1/2 | 1 | 3/4 | 4 1/4 | 23 | 15 5/8 | 14 1/4 | 11 1/4 | 1 | 1 1/4 | 14 1/4 | 1 1/2 | 6 5/8 | 4 1/2 | 6 | 3/4 | 7 | 3/8 |
| | 2 | 3 1/2 | 2 1/2-12 | 3 1/4-12 | 4 1/2 | 1 | | | 23 | 15 5/8 | | | | | | | | | | | | 7 3/8 |

Notes:

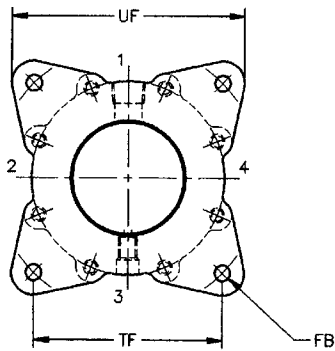
1. All dimensions in inches.
 2. EE dimension specifies NPTF port. Contact Factory if SAE or Alternate port size is required.
 3. See Cylinder Nomenclature for thread options.
 4. For Optional Rod Ends and dimensions see page 16.
- * For Female Thread, KK = 7/16-20, A = 3/4"



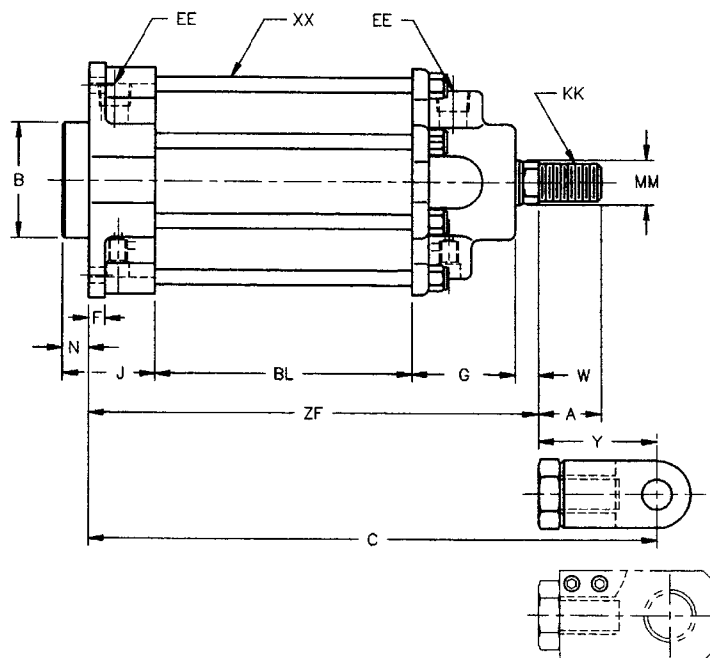
**Model R2B and R3B
Blind End Flange**

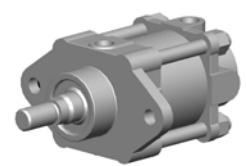


Note:
R4B has four tie rods + four mounting holes



**Model R5B to R12B
Blind End Flange**

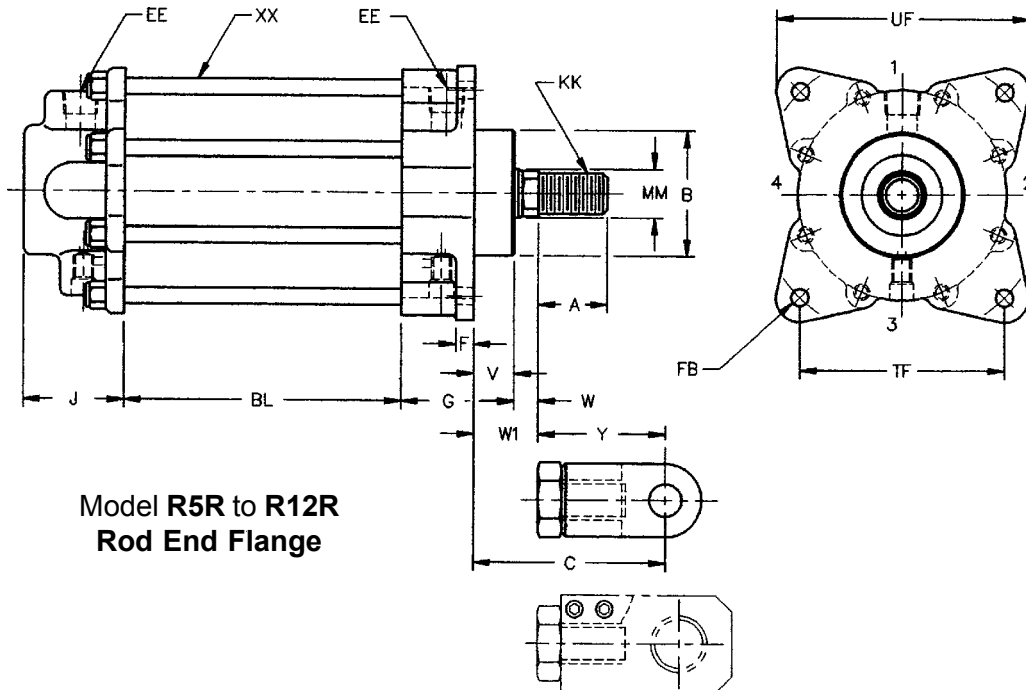
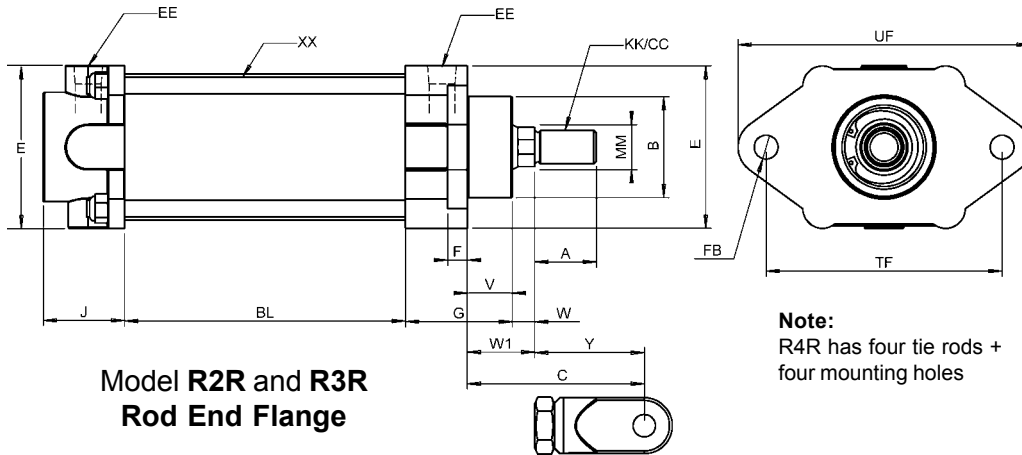


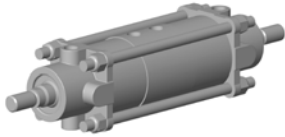


| BORE | ROD | ROD DIA | | KK | CC | A | C | W | W1 | V | ADD STROKE | | | | | | | | | | | | |
|------|-----|---------|----------|----------|----|-----|---------|-------|---------|--------|------------|---------|---------|-----|-------|--------|-------|---------|---------|-------|-----|--------|--|
| | | MM | | | | | | | | | BL | UF | TF | FB | F | E | EE | G | J | B | XX | Y | |
| 2 | 1 | 3/4 | *5/8-18 | N/A | *1 | 1/8 | 3/16 | 3/8 | 7/8 | 1/2 | 2 | 4 3/4 | 3 3/4 | 1/2 | 3/8 | 2 7/8 | 3/8 | 1 15/16 | 1 3/8 | 2 | 3/8 | 2 3/8 | |
| | 2 | 1 | 3/4-16 | 7/8-14 | 1 | 3/8 | 3 7/16 | 1/2 | 1 | | | | | | | | | | | | | 2 7/16 | |
| 3 | 1 | 1 | 3/4-16 | 7/8-14 | 1 | 3/8 | 3 15/16 | 1/2 | 1 1/2 | 1 | 2 1/4 | 6 1/2 | 5 1/4 | 1/2 | 1/2 | 3 5/8 | 3/8 | 2 3/8 | 1 13/16 | 2 1/4 | 3/8 | 2 7/16 | |
| | 2 | 1 1/4 | 1-14 | N/A | 1 | 3/4 | 4 5/8 | 7/16 | 1 7/16 | | | | | | | | | | | | | 3 3/16 | |
| 4 | 1 | 1 1/4 | 1-14 | N/A | 1 | 3/4 | 4 11/16 | 7/16 | 1 1/2 | 1 1/16 | 2 3/8 | 6 5/8 | 5 5/16 | 1/2 | 9/16 | 4 5/8 | 1/2 | 2 13/16 | 2 1/16 | 2 3/4 | 1/2 | 3 3/16 | |
| | 2 | 1 1/2 | 1 1/4-12 | N/A | 2 | 1/8 | 5 5/16 | 3/8 | 1 7/16 | | | | | | | | | | | | | 3 7/8 | |
| 5 | 1 | 1 1/4 | 1-14 | N/A | 1 | 3/4 | 4 5/8 | 3/8 | 1 7/16 | 1 1/16 | 2 3/8 | 6 3/4 | 5 3/4 | 1/2 | 11/16 | 6 3/8 | 1/2 | 2 7/8 | 2 5/16 | 3 | 3/8 | 3 3/16 | |
| | 2 | 1 1/2 | 1 1/4-12 | N/A | 2 | 1/8 | 5 1/4 | 5/16 | 1 3/8 | | | | | | | | | | | | | 3 7/8 | |
| 6 | 1 | 1 1/2 | 1 1/4-12 | N/A | 2 | 1/8 | 5 9/16 | 7/16 | 1 11/16 | 1 1/4 | 2 5/8 | 7 13/16 | 6 3/8 | 1/2 | 5/8 | 7 3/4 | 3/4 | 3 1/2 | 3 1/8 | 3 7/8 | 1/2 | 3 7/8 | |
| | 2 | 2 | 1 1/2-12 | 1 3/4-12 | 2 | 1/2 | 6 5/16 | 1/2 | 1 3/4 | | | | | | | | | | | | | 4 9/16 | |
| 8 | 1 | 2 | 1 1/2-12 | 1 3/4-12 | 2 | 1/2 | 6 9/16 | 1/2 | 2 | 1 1/2 | 2 3/4 | 9 7/16 | 7 19/32 | 3/4 | 11/16 | 9 3/4 | 1 | 4 3/8 | 3 3/8 | 4 1/2 | 1/2 | 4 9/16 | |
| | 2 | 2 1/2 | 2-12 | 2 1/4-12 | 3 | 1/2 | 8 1/16 | 11/16 | 2 3/16 | | | | | | | | | | | | | 5 7/8 | |
| 10 | 1 | 2 1/2 | 2-12 | 2 1/4-12 | 3 | 1/2 | 8 7/8 | 3/4 | 3 | 2 1/4 | 3 1/2 | 11 3/4 | 9 1/4 | 7/8 | 1 | 11 3/4 | 1 1/4 | 5 1/8 | 3 7/8 | 5 | 5/8 | 5 7/8 | |
| | 2 | 3 | 2 1/2-12 | 2 3/4-12 | 4 | 1/2 | 10 5/8 | 1 | 3 1/4 | | | | | | | | | | | | | 7 3/8 | |
| 12 | 1 | 3 | 2 1/2-12 | 2 3/4-12 | 4 | 1/2 | 11 | 1 | 3 5/8 | 2 5/8 | 4 1/4 | 14 1/4 | 11 1/4 | 1 | 1 1/4 | 14 1/4 | 1 1/2 | 6 5/8 | 4 1/2 | 6 | 3/4 | 7 3/8 | |
| | 2 | 3 1/2 | 2 1/2-12 | 3 1/4-12 | 4 | 1/2 | 11 | 1 | 3 5/8 | | | | | | | | | | | | | 7 3/8 | |

Notes:

1. All dimensions in inches.
 2. EE dimension specifies NPTF port. Contact Factory if SAE or Alternate port size is required.
 3. See Cylinder Nomenclature for thread options.
 4. For Optional Rod Ends and dimensions see page 16.
- * For Female Thread, KK = 7/16-20, A = 3/4"



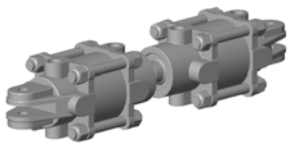
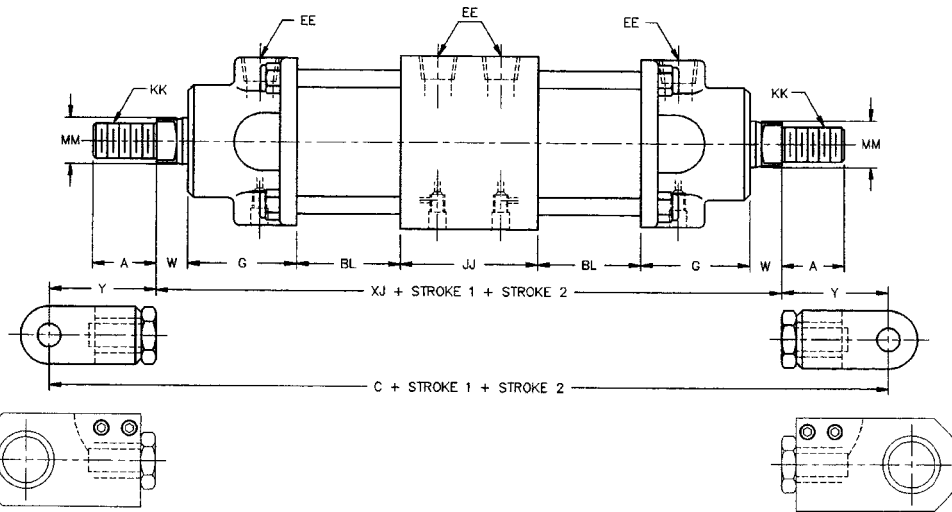


Model RCH
Common Head

| BORE | ROD | ROD DIA | | ADD STROKES | | | | | | | | | | | | |
|------|-----|---------|----------|-------------|--------|-------|--------|--------|-------|--------|-------|---------|-------|-----|--------|--|
| | | MM | KK | CC | A | W | C | XJ | BL | E | EE | G | JJ | XX | Y | |
| 2 | 1 | 3/4 | *5/8-18 | N/A | *1 1/8 | 3/8 | 15 7/8 | 11 1/8 | 2 | 2 7/8 | 3/8 | 1 15/16 | 2 1/2 | 3/8 | 2 3/8 | |
| | 2 | 1 | 3/4-16 | 7/8-14 | 1 3/8 | 1/2 | 16 1/4 | 11 3/8 | | | | | | | 2 7/16 | |
| 3 | 1 | 1 | 3/4-16 | 7/8-14 | 1 3/8 | 1/2 | 18 1/8 | 13 1/4 | 2 1/4 | 3 5/8 | 3/8 | 2 3/8 | 3 | 3/8 | 2 7/16 | |
| | 2 | 1 1/4 | 1-14 | N/A | 1 3/4 | 7/16 | 19 1/2 | 13 1/8 | | | | | | | 3 3/16 | |
| 4 | 1 | 1 1/4 | 1-14 | N/A | 1 3/4 | 7/16 | 21 3/8 | 15 | 2 3/8 | 4 5/8 | 1/2 | 2 13/16 | 3 3/4 | 1/2 | 3 3/16 | |
| | 2 | 1 1/2 | 1 1/4-12 | N/A | 2 1/8 | 3/8 | 22 5/8 | 14 7/8 | | | | | | | 3 7/8 | |
| 5 | 1 | 1 1/4 | 1-14 | N/A | 1 3/4 | 3/8 | 21 3/8 | 15 | 2 3/8 | 6 3/8 | 1/2 | 2 7/8 | 3 3/4 | 3/8 | 3 3/16 | |
| | 2 | 1 1/2 | 1 1/4-12 | N/A | 2 1/8 | 5/16 | 22 5/8 | 14 7/8 | | | | | | | 3 7/8 | |
| 6 | 1 | 1 1/2 | 1 1/4-12 | N/A | 2 1/8 | 7/16 | 26 1/8 | 18 3/8 | 2 5/8 | 7 3/4 | 3/4 | 3 1/2 | 5 1/4 | 1/2 | 3 7/8 | |
| | 2 | 2 | 1 1/2-12 | 1 3/4-12 | 2 1/2 | 1/2 | 27 5/8 | 18 1/2 | | | | | | | 4 9/16 | |
| 8 | 1 | 2 | 1 1/2-12 | 1 3/4-12 | 2 1/2 | 1/2 | 30 5/8 | 21 1/2 | 2 3/4 | 9 3/4 | 1 | 4 3/8 | 6 1/4 | 1/2 | 4 9/16 | |
| | 2 | 2 1/2 | 2-12 | 2 1/4-12 | 3 1/2 | 11/16 | 33 5/8 | 21 7/8 | | | | | | | 5 7/8 | |
| 10 | 1 | 2 1/2 | 2-12 | 2 1/4-12 | 3 1/2 | 3/4 | 38 1/4 | 26 1/2 | 3 1/2 | 11 3/4 | 1 1/4 | 5 1/8 | 7 3/4 | 5/8 | 5 7/8 | |
| | 2 | 3 | 2 1/2-12 | 2 3/4-12 | 4 1/2 | 1 | 41 3/4 | 27 | | | | | | | 7 3/8 | |
| 12 | 1 | 3 | 2 1/2-12 | 2 3/4-12 | 4 1/2 | 1 | 47 1/2 | 32 3/4 | 4 1/4 | 14 1/4 | 1 1/2 | 6 5/8 | 9 | 3/4 | 7 3/8 | |
| | 2 | 3 1/2 | 2 1/2-12 | 3 1/4-12 | 4 1/2 | 1 | 47 1/2 | 32 3/4 | | | | | | | 7 3/8 | |

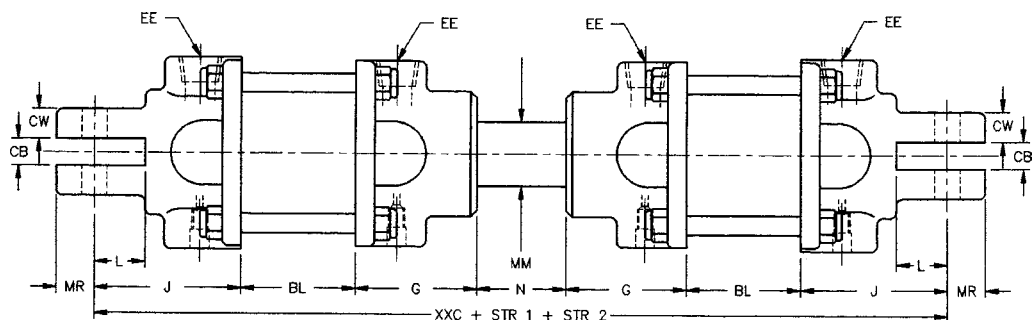
Note:

- For common head cylinders with mounting styles other than No Mount add the mount style letter after the last "H" in the model code. example: Foot Mount "RCHF"
- * For Female Thread, KK = 7/16-20, A = 3/4"



Model RCR
Common Rod

| BORE | ROD | ROD DIA | | ADD STROKE | | | | | | | | | | | | | |
|------|-----|---------|-------|------------|--------|--------|-------|--------|--------|-------|---------|--------|--------|-------|-----|--|--|
| | | MM | N | BL | XXC | CB | CD | CW | E | EE | G | J | L | MR | XX | | |
| 2 | 1 | 3/4 | 1 | 2 | 13 1/2 | 17/32 | 1/2 | 1/2 | 2 7/8 | 3/8 | 1 15/16 | 2 5/16 | 7/8 | 5/8 | 3/8 | | |
| | 2 | 1 | | 2 1/4 | 16 | 17/32 | 1/2 | 5/8 | 3 5/8 | 3/8 | 2 3/8 | 2 7/8 | 1 | 3/4 | 3/8 | | |
| 3 | 1 | 1 | 1 | 2 3/8 | 18 1/8 | 25/32 | 3/4 | 3/4 | 4 5/8 | 1/2 | 2 13/16 | 3 3/8 | 1 3/16 | 1 | 1/2 | | |
| | 2 | 1 1/4 | | 2 3/8 | 18 3/8 | 25/32 | 3/4 | 7/8 | 6 3/8 | 1/2 | 2 7/8 | 3 1/2 | 1 3/16 | 1 | 3/8 | | |
| 4 | 1 | 1 1/4 | 7/8 | 2 5/8 | 22 1/8 | 1 1/32 | 1 | 15/16 | 7 3/4 | 3/4 | 3 1/2 | 4 3/8 | 1 1/4 | 1 1/4 | 1/2 | | |
| | 2 | 1 1/2 | | 2 3/4 | 25 3/4 | 1 5/16 | 1 1/4 | 1 1/4 | 9 3/4 | 1 | 4 3/8 | 5 1/8 | 1 3/4 | 1 1/2 | 1/2 | | |
| 5 | 1 | 1 1/2 | 1 1/8 | 3 1/2 | 30 1/2 | 1 9/16 | 1 1/2 | 1 7/16 | 11 3/4 | 1 1/4 | 5 1/8 | 5 7/8 | 2 | 1 3/4 | 5/8 | | |
| | 2 | 2 | | 4 1/4 | 37 1/2 | 2 1/16 | 1 3/4 | 1 5/8 | 14 1/4 | 1 1/2 | 6 5/8 | 6 7/8 | 2 3/8 | 2 1/8 | 3/4 | | |



| BORE | ROD | ROD DIA | | | | | | ADD STROKE | | | CB | CD | CW | E | EE | G | J | L | MR | JJ | XX | Y | |
|------|-----|---------|----------|----------|--------|-------|-------|------------|-----|----------|----------|--------|-------|--------|--------|-------|---------|--------|--------|-------|-------|--------|--------|
| | | MM | KK | CC | A | W | N | BL | C | XJXXC | | | | | | | | | | | | | |
| 2 | 1 | 3/4 | *5/8-18 | N/A | *1 1/8 | 3/8 | 1 | 2 | 20 | 3/8 | 18 | 17/32 | 1/2 | 1/2 | 2 7/8 | 3/8 | 1 15/16 | 2 5/16 | 7/8 | 5/8 | 2 1/2 | 3/8 | 2 3/8 |
| | 2 | 1 | 3/4-16 | 7/8-14 | 1 3/8 | 1/2 | | 2 | 20 | 9/16 | 18 1/8 | | | | | | | | | | | | 2 7/16 |
| 3 | 1 | 1 | 3/4-16 | 7/8-14 | 1 3/8 | 1/2 | 1 | 2 | 1/4 | 23 11/16 | 21 1/4 | 17/32 | 1/2 | 5/8 | 3 5/8 | 3/8 | 2 3/8 | 2 7/8 | 1 | 3/4 | 3 | 3/8 | 2 7/16 |
| | 2 | 1 1/4 | 1-14 | N/A | 1 3/4 | 7/16 | | 2 | 24 | 3/8 | 21 3/16 | | | | | | | | | | | 3 3/16 | |
| 4 | 1 | 1 1/4 | 1-14 | N/A | 1 3/4 | 7/16 | 1 | 2 | 3/8 | 27 5/16 | 24 1/8 | 25/32 | 3/4 | 3/4 | 4 5/8 | 1/2 | 2 13/16 | 3 3/8 | 1 3/16 | 1 | 3 3/4 | 1/2 | 3 3/16 |
| | 2 | 1 1/2 | 1 1/4-12 | N/A | 2 1/8 | 3/8 | | 2 | 27 | 15/16 | 24 1/16 | | | | | | | | | | | 3 7/8 | |
| 5 | 1 | 1 1/4 | 1-14 | N/A | 1 3/4 | 3/8 | 7/8 | 2 | 3/8 | 27 7/16 | 24 1/4 | 25/32 | 3/4 | 7/8 | 6 3/8 | 1/2 | 2 7/8 | 3 1/2 | 1 3/16 | 1 | 3 3/4 | 3/8 | 3 3/16 |
| | 2 | 1 1/2 | 1 1/4-12 | N/A | 2 1/8 | 5/16 | | 2 | 28 | 1/16 | 24 3/16 | | | | | | | | | | | 3 7/8 | |
| 6 | 1 | 1 1/2 | 1 1/4-12 | N/A | 2 1/8 | 7/16 | 1 1/8 | 2 | 5/8 | 33 7/16 | 29 9/16 | 1 1/32 | 1 | 15/16 | 7 3/4 | 3/4 | 3 1/2 | 4 3/8 | 1 1/4 | 1 1/4 | 5 1/4 | 1/2 | 3 7/8 |
| | 2 | 2 | 1 1/2-12 | 1 3/4-12 | 2 1/2 | 1/2 | | 2 | 34 | 3/16 | 29 5/8 | | | | | | | | | | | 4 9/16 | |
| 8 | 1 | 2 | 1 1/2-12 | 1 3/4-12 | 2 1/2 | 1/2 | 1 1/4 | 2 | 3/4 | 39 1/16 | 34 1/2 | 1 5/16 | 1 1/4 | 1 1/4 | 9 3/4 | 1 | 4 3/8 | 5 1/8 | 1 3/4 | 1 1/2 | 6 1/4 | 1/2 | 4 9/16 |
| | 2 | 2 1/2 | 2-12 | 2 1/4-12 | 3 1/2 | 11/16 | | 2 | 40 | 9/16 | 34 11/16 | | | | | | | | | | | 5 7/8 | |
| 10 | 1 | 2 1/2 | 2-12 | 2 1/4-12 | 3 1/2 | 3/4 | 1 1/2 | 3 | 1/2 | 47 5/8 | 41 3/4 | 1 9/16 | 1 1/2 | 1 7/16 | 11 3/4 | 1 1/4 | 5 1/8 | 5 7/8 | 2 | 1 3/4 | 7 3/4 | 5/8 | 5 7/8 |
| | 2 | 3 | 2 1/2-12 | 2 3/4-12 | 4 1/2 | 1 | | 3 | 49 | 3/8 | 42 | | | | | | | | | | | 7 3/8 | |
| 12 | 1 | 3 | 2 1/2-12 | 2 3/4-12 | 4 1/2 | 1 | 2 | 4 | 1/4 | 58 7/8 | 51 1/2 | 2 1/16 | 1 3/4 | 1 5/8 | 14 1/4 | 1 1/2 | 6 5/8 | 6 7/8 | 2 3/8 | 2 1/8 | 9 | 3/4 | 7 3/8 |
| | 2 | 3 1/2 | 2 1/2-12 | 3 1/4-12 | 4 1/2 | 1 | | 4 | 58 | 7/8 | 51 1/2 | | | | | | | | | | | 7 3/8 | |

Notes:

* For Female Thread, KK = 7/16-20, A = 3/4"

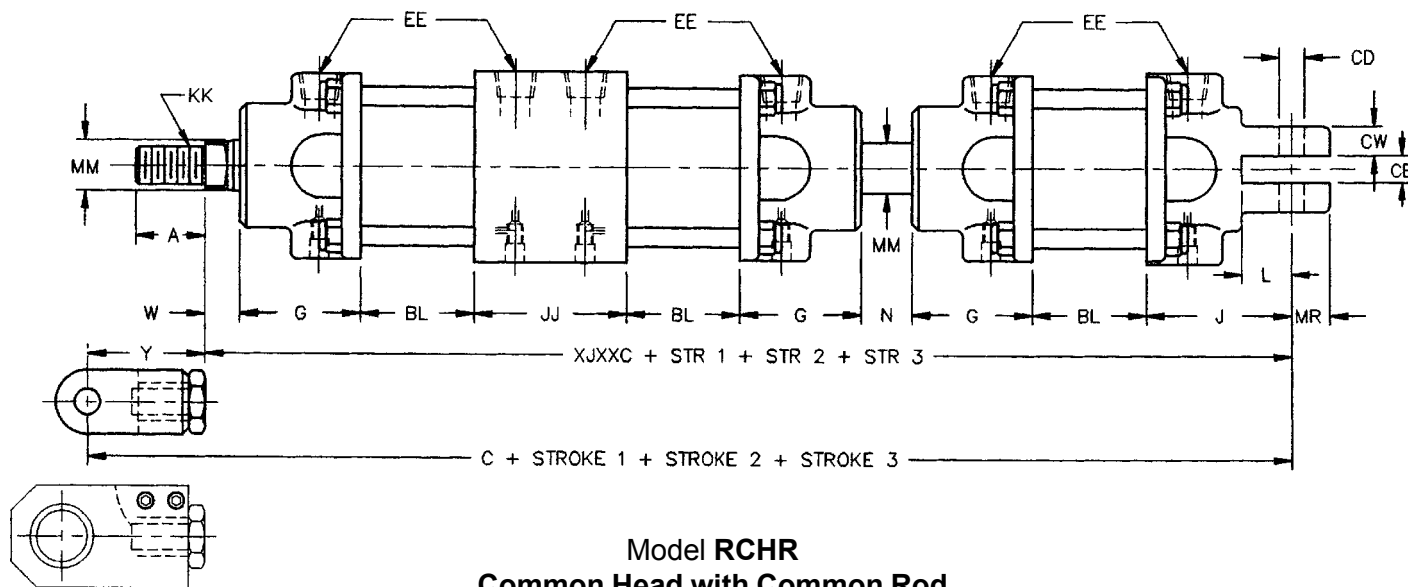
1. EE dimension specifies NPTF port. Contact Factory if SAE or Alternate port size is required.
2. See Cylinder Nomenclature for thread options.
3. For Optional Rod Ends and dimensions see page 16.
4. For Common Head Cylinders with Common Rod, in mounting styles other than Blind End Clevis add the mounting style after the last "R" in the the model code.

examples:

Mid Trunnion "RCHRT"

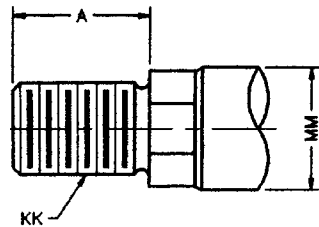
Rod End Flange "RCHRR"

Blind End Flange "RCHRB"

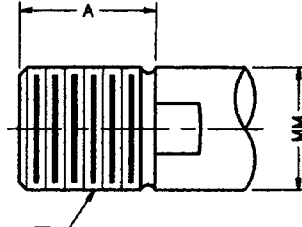


Available Rod End Styles

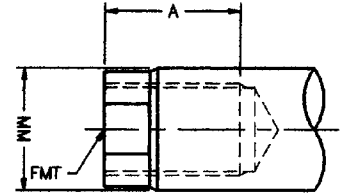
See Model Dimension Tables for Dimensions



KK Rod End Style "A"



Full Thread Style "C"

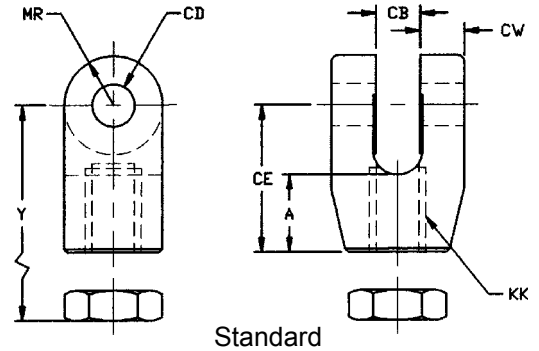


Female Thread Style "D"

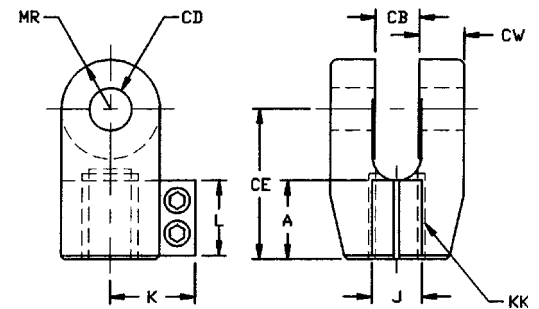
Mill Duty Clevis

Note - "C" denotes Clamping Style

| PART | C2 | C3 | C4 | C6 | C8 | C10 | C12 | C8-C | C10-C | C12-C |
|------|--------|--------|--------|----------|----------|--------|----------|----------|--------|----------|
| A | 1 | 1 | 1 3/8 | 1 3/4 | 2 | 2 1/2 | 3 | 2 | 2 1/2 | 3 |
| CB | 1/2 | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 | 1 1/4 | 1 1/2 | 2 |
| CD | 1/2 | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 1 3/4 | 1 1/4 | 1 1/2 | 1 3/4 |
| CE | 2 | 2 | 2 5/8 | 3 1/4 | 3 3/4 | 4 3/4 | 5 7/8 | 3 3/4 | 4 3/4 | 5 7/8 |
| CW | 9/16 | 9/16 | 13/16 | 15/16 | 1 1/4 | 1 7/16 | 1 5/8 | 1 1/4 | 1 7/16 | 1 5/8 |
| J | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 1 1/4 | 1 1/2 | 1 3/4 |
| K | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2 3/8 | 2 3/4 | 3 3/16 |
| KK | 5/8-18 | 3/4-16 | 1-14 | 1 1/4-12 | 1 1/2-12 | 2-12 | 2 1/2-12 | 1 1/2-12 | 2-12 | 2 1/2-12 |
| L | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 2 | 2 1/2 | 3 |
| MR | 5/8 | 5/8 | 7/8 | 1 1/8 | 1 3/8 | 1 3/4 | 2 | 1 3/8 | 1 3/4 | 2 |
| Y | 2 3/8 | 2 7/16 | 3 3/16 | 3 7/8 | 4 9/16 | 5 7/8 | 7 3/8 | 4 9/16 | 5 7/8 | 7 3/8 |



Standard



Clamping

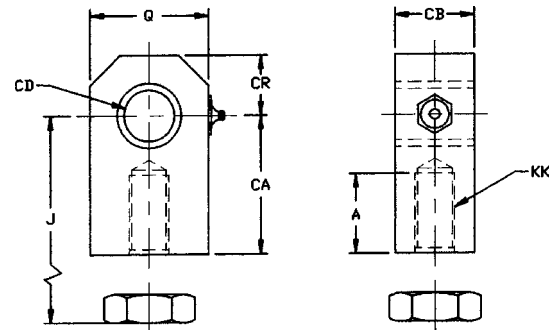
Clamping Style Accessories

If using a clamping Style Rod Eye or Clamping Style Clevis, a jam nut is not required. In this case it is recommended to order a piston rod thread length that matches that of the accessory.

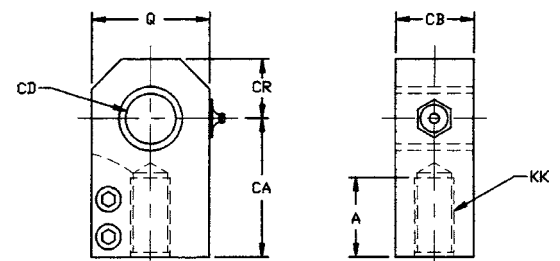
Urethane-bushed Mill Duty Rod Eye

Note - "C" denotes Clamping Style

| PART | RE3 | E3 | RE4-C | E4 | RE6-C | E6 | RE8-C | E8 | E10-C | E12-C | E14-C |
|------|---------|--------|-------|--------|----------|----------|----------|----------|-------|----------|-------|
| A | 1 1/2 | 1 3/4 | 1 1/2 | 2 | 2 | 2 3/8 | 2 1/4 | 2 3/4 | 3 | 3 | 3 |
| CA | 2 1/2 | 3 1/8 | 2 7/8 | 3 1/2 | 3 11/16 | 4 | 4 1/4 | 5 | 5 1/4 | 5 1/4 | 5 3/4 |
| CB | 1 3/4 | 2 | 1 3/4 | 2 | 2 | 2 1/4 | 2 1/4 | 3 1/2 | 3 1/2 | 3 1/2 | 4 |
| CD | 1 | 1 | 1 1/4 | 1 1/4 | 1 1/2 | 1 1/2 | 2 | 2 | 2 | 2 1/2 | 2 1/2 |
| CR | 1 | 1 3/8 | 1 1/8 | 1 1/2 | 1 5/8 | 1 3/4 | 1 3/4 | 2 1/4 | 2 1/4 | 2 3/4 | 2 3/4 |
| J | 2 15/16 | 3 9/16 | | 4 1/16 | | 4 5/8 | | 5 13/16 | | | |
| KK | 3/4-16 | 3/4-16 | 1-14 | 1-14 | 1 1/4-12 | 1 1/4-12 | 1 1/2-12 | 1 1/2-12 | 2-12 | 2 1/2-12 | 3-12 |
| Q | 2 | 2 3/4 | 2 1/4 | 3 | 3 | 3 1/2 | 3 1/2 | 4 1/2 | 4 1/2 | 5 1/2 | 5 1/2 |



Standard

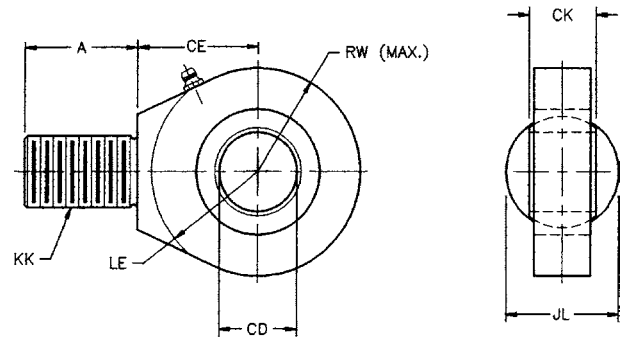


Clamping

Self-Aligning Rod Eye - Male

Adapts to female thread on piston rod

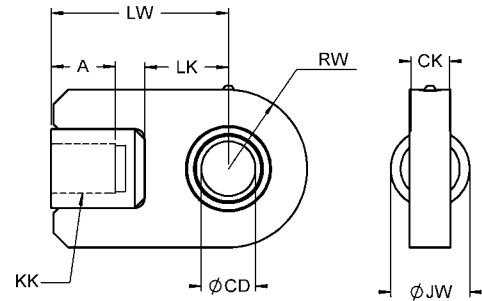
| PART | HRES-1 | HRES-2 | HRES-3 | HRES-4 | HRES-5 | HRES-6 |
|------|---------|--------|--------|----------|----------|----------|
| A | 11/16 | 1 | 1 1/2 | 2 | 2 1/8 | 2 7/8 |
| CD | 1/2 | 3/4 | 1 | 1 3/8 | 1 3/4 | 2 |
| CE | 7/8 | 1 1/4 | 1 7/8 | 2 1/8 | 2 1/2 | 2 3/4 |
| CK | 7/16 | 21/32 | 7/8 | 1 3/16 | 1 17/32 | 1 3/4 |
| JL | 7/8 | 1 5/16 | 1 1/2 | 2 | 2 1/4 | 2 3/4 |
| KK | 7/16-20 | 3/4-16 | 1-14 | 1 1/4-12 | 1 1/2-12 | 1 7/8-12 |
| LE | 3/4 | 1 1/16 | 1 7/16 | 1 7/8 | 2 1/8 | 2 1/2 |
| RW | 7/8 | 1 1/4 | 1 3/8 | 1 13/16 | 2 3/16 | 2 5/8 |



Self-Aligning Rod Eye - Female

Adapts to male thread on piston rod

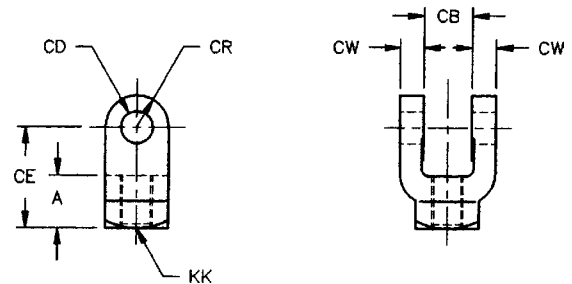
| PART | HWE15 | HWE2 | HWE32 | HWE4 | HWE5 | HWE6 | HWE7 | HWE8 |
|------|---------|--------|-------|----------|----------|----------|----------|----------|
| A | 3/4 | 1 1/8 | 1 5/8 | 2 | 2 1/4 | 3 | 3 1/2 | 3 1/2 |
| CD | 1/2 | 3/4 | 1 | 1 3/8 | 1 3/4 | 2 | 2 1/2 | 3 |
| CK | 7/16 | 21/32 | 7/8 | 1 3/16 | 1 17/32 | 1 3/4 | 2 3/16 | 2 5/8 |
| JW | 3/4 | 1 3/8 | 1 3/4 | 2 | 2 1/2 | 3 | 3 1/2 | 4 |
| KK | 7/16-20 | 3/4-16 | 1-14 | 1 1/4-12 | 1 1/2-12 | 1 7/8-12 | 2 1/4-12 | 2 1/2-12 |
| LW | 1 3/4 | 2 3/4 | 3 5/8 | 4 1/2 | 5 5/8 | 6 3/4 | 7 | 7 1/8 |
| RW | 7/8 | 1 1/4 | 1 1/2 | 2 | 2 3/4 | 3 | 3 1/8 | 4 |
| LK | 5/8 | 1 1/4 | 1 5/8 | 2 1/8 | 2 5/8 | 3 1/2 | 3 1/8 | 3 1/4 |



Rod Clevis

Adapts to male thread on piston rod

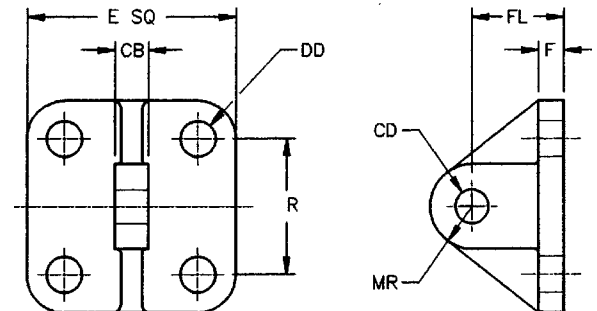
| PART | HC15 | HC15C | HC2 | HC2C | HC32 | HC4 | HC5 | HC5C |
|------|---------|--------|--------|--------|-------|----------|----------|----------|
| A | 3/4 | 3/4 | 1 1/8 | 1 5/8 | 1 5/8 | 2 | 2 1/4 | 3 |
| CB | 0.765 | 0.765 | 1.265 | 1.515 | 1.515 | 2.032 | 2.531 | 2.531 |
| CD | 1/2 | 1/2 | 3/4 | 1 | 1 | 1 3/8 | 1 3/4 | 2 |
| CE | 1 1/2 | 1 1/2 | 2 3/8 | 3 1/8 | 3 1/8 | 4 1/8 | 4 1/2 | 5 1/2 |
| CW | 1/2 | 1/2 | 5/8 | 3/4 | 3/4 | 1 | 1 1/4 | 1 1/4 |
| CR | 1/2 | 1/2 | 3/4 | 1 | 1 | 1 3/8 | 1 3/4 | 2 |
| KK | 7/16-20 | 1/2-20 | 3/4-16 | 7/8-14 | 1-14 | 1 1/4-12 | 1 1/2-12 | 1 3/4-12 |



Eye Type Mounting Bracket

Adapts to clevis mount cylinder or Rod clevis

| PART | M15 | M3 | M4 | M6 | M8 | M10 | M12 |
|------|-------|-------|-------|--------|-------|-------|-------|
| CB | 3/8 | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 2 |
| CD | 3/8 | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 1 3/4 |
| DD | 5/16 | 1/2 | 1/2 | 5/8 | 5/8 | 7/8 | 1 |
| E | 2 3/4 | 3 1/8 | 4 3/8 | 5 1/2 | 6 1/2 | 7 3/4 | 9 |
| F | 3/8 | 7/16 | 9/16 | 5/8 | 3/4 | 1 1/4 | 1 3/8 |
| FL | 1 1/8 | 1 3/8 | 1 3/4 | 2 | 2 1/2 | 3 1/4 | 3 3/4 |
| MR | 1/2 | 5/8 | 7/8 | 1 1/16 | 1 1/4 | 1 5/8 | 2 1/8 |
| R | 1 3/4 | 2 | 3 1/4 | 4 1/4 | 5 | 6 | 6 3/4 |

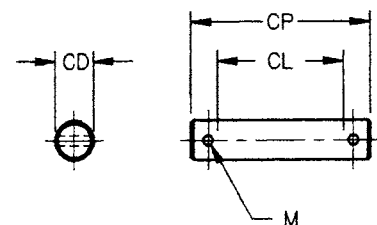


Pivot Pin

Comes complete with cotter pins

Adapts to clevis mount cylinder or Rod clevis

| PART | P3 | P4 | P6 | P8 | P10 | P12 | P14 | HP4 | HP6 | HP7 |
|------|--------|-------|-------|-------|-------|-------|-------|---------|-------|-------|
| CD | 1/2 | 3/4 | 1 | 1 1/4 | 1 1/2 | 1 3/4 | 1 3/4 | 1 3/8 | 2 | 2 1/2 |
| CL | 1 3/4 | 2 1/2 | 3 | 4 | 4 5/8 | 5 3/8 | 6 1/4 | 4 | 5 1/8 | 6 1/4 |
| CP | 2 5/16 | 3 1/8 | 3 3/4 | 4 7/8 | 5 1/2 | 6 1/8 | 7 | 4 13/16 | 6 | 7 1/8 |





Published Design Data

Westcoast Cylinders Inc reserves the right to change specifications and other information included in this catalogue without notice. All information, data and dimension tables in this catalogue have been carefully compiled and thoroughly checked. However, no responsibility for possible errors or omissions can be assumed.

Westcoast Cylinders Inc. warranties the material and workmanship of our cylinders for one full year when used under normal conditions, subject to factory inspection. WCI will repair or replace, at no cost for defective parts or cylinders. WCI will not incur expenses incurred in the field, pertaining to such repairs or replacements except upon written authority. For a complete statement of terms and warranty contact Westcoast Cylinders Inc.

Warning

These products are intended for industrial use only. Do not use these products in applications where the pressure and temperature exceeds the values listed below.

Through misuse, age or malfunction, components used in fluid power systems can fail. A designer utilizing these products must consider all modes of failure when designing machines and provide safeguards or warn the end user of possible modes of failure.

Cylinder Pressure and Temperature Ratings

R-Series cylinders are rated to 250 psig pneumatic pressure.

Temperature ratings for cylinders are limited to the maximum published temperature range of the least resistant seal component. In most cases that would be the standard Buna-N O-ring seals. For higher temperatures specify a "V" in the Options box of the Cylinder Nomenclature.

Buna-N temperature ratings: -30°F to 200°F (-34°C to 93°C).

Cylinder Developed Force

| BORE in | ROD DIA in | Work Major Area (in ²) | Work Minor Area (in ²) | Developed Force (lb) @ Differential Pressure | | | | | | | | | | | |
|------------|---------------|--|--|---|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | | | 60 | | 80 | | 100 | | 150 | | 200 | | 250 | |
| | | | | push | pull | push | pull | push | pull | push | pull | push | pull | push | pull |
| 2 | 3/4 | 3.14 | 2.70 | 188 | 162 | 251 | 216 | 314 | 270 | 471 | 405 | 628 | 540 | 785 | 675 |
| | 1 | 3.14 | 2.36 | 188 | 141 | 251 | 188 | 314 | 236 | 471 | 353 | 628 | 471 | 785 | 589 |
| 3 | 1 | 7.07 | 6.28 | 424 | 377 | 565 | 503 | 707 | 628 | 1060 | 942 | 1414 | 1257 | 1767 | 1571 |
| | 1 1/4 | 7.07 | 5.84 | 424 | 350 | 565 | 467 | 707 | 584 | 1060 | 876 | 1414 | 1168 | 1767 | 1460 |
| 4 | 1 1/4 | 12.57 | 11.34 | 754 | 680 | 1005 | 907 | 1257 | 1134 | 1885 | 1701 | 2513 | 2268 | 3142 | 2835 |
| | 1 1/2 | 12.57 | 10.80 | 754 | 648 | 1005 | 864 | 1257 | 1080 | 1885 | 1620 | 2513 | 2160 | 3142 | 2700 |
| 5 | 1 1/4 | 19.63 | 18.41 | 1178 | 1104 | 1571 | 1473 | 1963 | 1841 | 2945 | 2761 | 3927 | 3682 | 4909 | 4602 |
| | 1 1/2 | 19.63 | 17.87 | 1178 | 1072 | 1571 | 1429 | 1963 | 1787 | 2945 | 2680 | 3927 | 3574 | 4909 | 4467 |
| 6 | 1 1/2 | 28.27 | 26.51 | 1696 | 1590 | 2262 | 2121 | 2827 | 2651 | 4241 | 3976 | 5655 | 5301 | 7069 | 6627 |
| | 2 | 28.27 | 25.13 | 1696 | 1508 | 2262 | 2011 | 2827 | 2513 | 4241 | 3770 | 5655 | 5027 | 7069 | 6283 |
| 8 | 2 | 50.27 | 47.12 | 3016 | 2827 | 4021 | 3770 | 5027 | 4712 | 7540 | 7069 | 10053 | 9425 | 12566 | 11781 |
| | 2 1/2 | 50.27 | 45.36 | 3016 | 2721 | 4021 | 3629 | 5027 | 4536 | 7540 | 6804 | 10053 | 9071 | 12566 | 11339 |
| 10 | 2 1/2 | 78.54 | 73.63 | 4712 | 4418 | 6283 | 5890 | 7854 | 7363 | 11781 | 11045 | 15708 | 14726 | 19635 | 18408 |
| | 3 | 78.54 | 71.47 | 4712 | 4288 | 6283 | 5718 | 7854 | 7147 | 11781 | 10721 | 15708 | 14294 | 19635 | 17868 |
| 12 | 3 | 113.10 | 106.03 | 6786 | 6362 | 9048 | 8482 | 11310 | 10603 | 16965 | 15904 | 22619 | 21206 | 28274 | 26507 |
| | 3 1/2 | 113.10 | 103.48 | 6786 | 6209 | 9048 | 8278 | 11310 | 10348 | 16965 | 15521 | 22619 | 20695 | 28274 | 25869 |

Cylinder Sizing

An air cylinder must generate sufficient force to move a load and overcome friction losses. System pressure losses must also be considered. The cylinder developed force table does not take into account friction or pressure losses. In addition, an air cylinder must be overpowered due to the compressibility of air. Therefore, the following general guideline applies for sizing an air cylinder when using theoretical cylinder developed force values:

| | |
|--|--------------------------------|
| Application | Minimum force available |
| | Total load factor |
| Normal Speed | 1.25 |
| Intermediate Speed | 1.5 |
| High Speed | 2 |
| Multiply your total load by one of the load factors above. | |
| Load * Factor = Minimum load for cylinder at system pressure. | |

Typical pneumatic cylinder applications require flow controls to limit cylinder speeds. Flow control installation is typically done as metered out controlling the flow of air as it exits the cylinder. This is done to ensure accurate cylinder speeds under all loads. The flow controls however do affect cylinder performance by maintaining back pressure on the piston. As a general rule, allow 20 psi pressure loss through flow control for good speed regulation.

Please note the above issues if cylinder performance are critical and increase your load factor accordingly.

Cylinder Side Load

Mounting style and mounting position are very important considerations as well.

Side loads on the gland bushing should be avoided where possible to obtain maximum life from a cylinder. Cylinders can not support side load, they are designed for push-pull applications where the load is guided to ensure proper alignment.

Break-away Pressures

Cylinder break-away pressure varies between 5 and 10 psi depending on the bore size and mounting attitude. The following values were compiled using a new non-loaded cylinder mounted horizontally.

| | |
|---------|-----------------------------------|
| 3" bore | Retract = 5.5 psi Extend = 3 psi. |
| 4" bore | Retract = 8 psi Extend = 6 psi. |

If low pressure break-away is required please contact the factory for more detailed information.

R-Series Generic Parts List

| Description | Bore | 2 | | 3 | | 4 | | 5 | | 6 | | 8 | | 10 | | 12 |
|-----------------------------------|----------|------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| | | 3/4 | 1 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/2 | 1 1/2 | 1 1/4 | 1 1/2 | 1 1/2 | 2 | 2 1/2 | 2 1/2 | 3 | |
| 1 Piston | 1 | 1R202 | 1M203W | 1M204W | 1M205W | 1A206W | 1A208W | 1A2010W | 1A2012W | 1A2015W | 1A2018W | 1A2020W | 1A2025W | 1A2030W | 1A2035W | 1A2040W |
| 3 Cushion Sleeve | 2 | 3R620 | 3R630 | 3R640 | 3R640 | 3R660 | 3R680 | 3R6100 | 3R6120 | 3R6150 | 3R6180 | 3R6210 | 3R6240 | 3R6270 | 3R6300 | 3R6330 |
| 4 Piston Rod - Male | 1 | 4R2007-4R2010- | 4R3012- | 4R4012- | 4R4015- | 4R6015- | 4R8025- | 4R1030- | 4R1230- | 4R1430- | 4R1630- | 4R1830- | 4R2030- | 4R2230- | 4R2430- | 4R2630- |
| Piston Rod - Female | 1 | 26R2007-26R2010- | 26R3012- | 26R4012- | 26R4015- | 26R6015- | 26R8025- | 26R1030- | 26R1230- | 26R1430- | 26R1630- | 26R1830- | 26R2030- | 26R2230- | 26R2430- | 26R2630- |
| Piston Rod-Common | 1 | 44R2007-44R2010- | 44R3012- | 44R4012- | 44R4015- | 44R6015- | 44R8025- | 44R1030- | 44R1230- | 44R1430- | 44R1630- | 44R1830- | 44R2030- | 44R2230- | 44R2430- | 44R2630- |
| 5 Barrel (Steel Nitro-Tech) | 1 | 5SB020- | 5SB030- | 5SB040- | 5SB050- | 5SB060- | 5SB080- | 5SB100- | 5SB120- | 5SB150- | 5SB180- | 5SB210- | 5SB240- | 5SB270- | 5SB300- | 5SB330- |
| Barrel (Brass) | 1 | 5A020- | 5A030- | 5A040- | 5A050- | 5A060- | 5A080- | 5A100- | 5A120- | 5A150- | 5A180- | 5A210- | 5A240- | 5A270- | 5A300- | 5A330- |
| 6 Gland Bushing | 1 | 6R207 | 6A210H-2 | 6A412H-2 | 6A415H-2 | 6R615 | 6R820 | 6A620H-2 | 6R1025 | 6A620H-2 | 6R1230 | 6A620H-2 | 6R1430 | 6A620H-2 | 6R1630 | 6A620H-2 |
| Gland Bushing Wearstrip | 1 | 6R207W | 6A210HW | 6A412HW | 6A415HW | 6R615W | 6R820W | 6A620HW | 6R1025W | 6A620HW | 6R1230W | 6A620HW | 6R1430W | 6A620HW | 6R1630W | 6A620HW |
| 7 Needle Valve | 2 | 7A907 | 7A907 | 7A907 | 7A907 | 7A912 | 7A912 | 7A912 | 7A916 | 7A916 | 7A916 | 7A916 | 7A916 | 7A916 | 7A916 | 7A916 |
| 8 Tie Rods (EA) (See Note 1) | 4 or 8 | 8A206- | 8A306- | 8A408- | 8A506- | 8A608- | 8A808- | 8A910- | 8A1010- | 8A1110- | 8A1210- | 8A1310- | 8A1410- | 8A1510- | 8A1610- | 8A1710- |
| 9 Piston Seal (Internal) | 1 | 9A112 | 9A115 | 9A212 | 9A212 | 9A214 | 9A216 | 9A222 | 9A222 | 9A222 | 9A222 | 9A222 | 9A222 | 9A222 | 9A222 | 9A222 |
| 10 Piston Cup (See Note 2) | 1 or 2 | 10A755-2 | 10A930H | 10A940H | 10A950H | 10A960H | 10A980H | 10A990H | 10A1000H | 10A1100H | 10A1200H | 10A1300H | 10A1400H | 10A1500H | 10A1600H | 10A1700H |
| 11 Cushion Seal | 2 | 11J128 | 11J138 | 11J150 | 11J150 | 11J160 | 11J180 | 11J180 | 11J180 | 11J180 | 11J180 | 11J180 | 11J180 | 11J180 | 11J180 | 11J180 |
| 12 Gland Bushing Seal | 1 | 9A216 | 9A222 | 9A225 | 9A225 | 9A230 | 9A236 | 9A240 | 9A240 | 9A240 | 9A240 | 9A240 | 9A240 | 9A240 | 9A240 | 9A240 |
| 13 Rod Seal | 1 | 13A07H | 13A10H | 13A12H | 13A15H | 13A15H | 13A15H | 13A20H | 13A25H | 13A25H | 13A25H | 13A25H | 13A25H | 13A25H | 13A25H | 13A25H |
| Rod Seal (Vee Packing) | 1 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 14 Rod Wiper | 1 | N/A | N/A | 14H12 | 14H15 | 14H15 | 14H15 | 14H20 | 14H25 | 14H25 | 14H30 | 14H30 | 14H30 | 14H30 | 14H30 | 14H30 |
| 15 Gland Retainer | 1 | 15A137 | 15A175 | 15A212 | 15A212 | 15A212 | 15A212 | 15A275 | 15A350 | 15A350 | 15A400 | 15A400 | 15A400 | 15A400 | 15A400 | 15A400 |
| 16 Needle Valve Seal | 2 | 9A011 | 9A011 | 9A011 | 9A011 | 9A113 | 9A113 | 9A113 | 9A113 | 9A113 | 9A113 | 9A113 | 9A113 | 9A113 | 9A113 | 9A113 |
| 17 Lock Nut Tie-Rod | 4, 8, 16 | 19A006 | 19A006 | 19A008 | 19A006 | 19A008 | 19A008 | 19A008 | 19A008 | 19A008 | 19A008 | 19A008 | 19A008 | 19A008 | 19A008 | 19A008 |
| 19 Lock Nut Piston | 1 | 19A007 | 19A010 | 19A014 | 19A014 | 19A016 | 19A016 | 19A016 | 19A016 | 19A016 | 19A016 | 19A016 | 19A016 | 19A016 | 19A016 | 19A016 |
| 20 Jam Nut (STD Thread) | 1 | 20R010 | 20R012 | 20R016 | 20R016 | 20R020 | 20R020 | 20R020 | 20R020 | 20R020 | 20R020 | 20R020 | 20R020 | 20R020 | 20R020 | 20R020 |
| 21 Barrel Seal | 2 | 9A033 | 9A232 | 9A240 | 9A248 | 9A256 | 9A265 | 9A273 | 9A273 | 9A273 | 9A273 | 9A273 | 9A273 | 9A273 | 9A273 | 9A273 |
| 22 Head Blind End (See Note 3) | 1 | R_2B | R_3B | R_4B | R_5B | R_6B | R_8B | R_10B | R_12B | R_12B | R_12B | R_12B | R_12B | R_12B | R_12B | R_12B |
| 23 Head Gland End (See Note 3) | 1 | R_2G | R_3G | R_4G | R_5G | R_6G | R_8G | R_10G | R_12G | R_12G | R_12G | R_12G | R_12G | R_12G | R_12G | R_12G |
| 24 Head Common | 1 | RCC2 | RCC3 | RCC4 | RCC5 | RCC6 | RCC8 | RCC10 | RCC12 | RCC12 | RCC12 | RCC12 | RCC12 | RCC12 | RCC12 | RCC12 |
| 25 Trunnion | 1 | T2 | T3 | T4 | T5 | RT6 | T8 | T10 | T12 | T12 | T12 | T12 | T12 | T12 | T12 | T12 |
| 32 Piston Stop | 1 | 32R20 | 32R30 | 32R40 | 32R50 | 32R60 | 32R80 | 32R10 | 32R10 | 32R10 | 32R10 | 32R10 | 32R10 | 32R10 | 32R10 | 32R10 |
| 40 Piston Wear Strip (See Note 2) | 1 or 2 | 40H2025 | 40H3037 | 40H4037 | 40H5037 | 40H6037 | 40H805 | 40H101 | 40H101 | 40H101 | 40H101 | 40H101 | 40H101 | 40H101 | 40H101 | 40H101 |
| 41 Seal Kit | -- | KR2007 | KR2010 | KR2012 | KR4015 | KR6015 | KR8020 | KR1030 | KR1030 | KR1030 | KR1030 | KR1030 | KR1030 | KR1030 | KR1030 | KR1030 |
| 42 Universal Seal Kit R-A SERIES | -- | KR2007U | KR2010U | KR2012U | KR4015U | KR6015U | KR8025U | KR1030U | KR1030U | KR1030U | KR1030U | KR1030U | KR1030U | KR1030U | KR1030U | KR1030U |
| 43 Universal Seal Kit M-R-A SERIE | -- | KR2007MU | KR2010MU | KR2012MU | KR4015MU | KR6015MU | KR8025MU | KR1030MU | KR1030MU | KR1030MU | KR1030MU | KR1030MU | KR1030MU | KR1030MU | KR1030MU | KR1030MU |

Parts List Notes:

Note 1

2" bore cylinders use (1) Double Acting Seal and (2) Wearstrips.

Quantities stated are for all bores except 2".

Note 2

Universal seal kit contains seals for A-Series and R-Series cylinders (part 42) and A-Series, R-Series and M-Series cylinders (part 43).

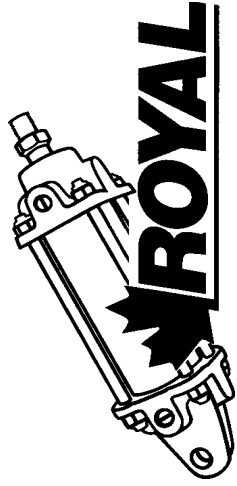
Note 3

Head codes are constructed using:

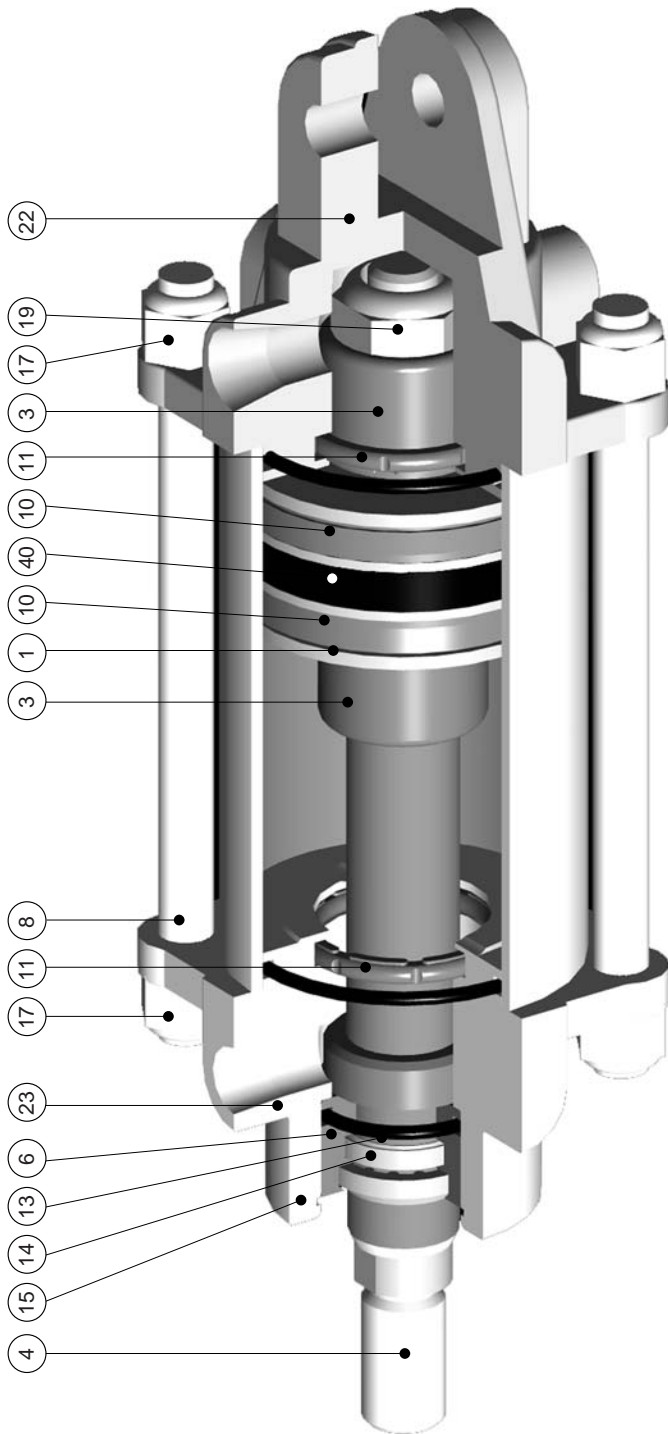
- 1) The series letter "R"
 - 2) The appropriate model letter from Table 1
 - 3) The cylinder bore 3" bore = "3"
 - 4) The head location:
 - "B" = Blind end head,
 - "G" = Gland End
- Example
3" bore, Blind end head, clevis mount = RC3B

Table 1

| Cyl. Model Letter | Gland | | Blind | |
|-------------------|-------|------|-------|------|
| | Head | Head | Head | Head |
| F | F | C | F | F |
| C | C | C | C | C |
| D | C | C | - | - |
| R | R | R | R | R |
| B | C | C | B | B |
| TB | C | C | T | T |
| TR | T | T | R | R |
| T | C | C | R | R |



R-Series Parts Drawing



TieRod Part Numbers:
 Note: For models not listed use Model "C"

| Bore\Style | C | T | ROD #1 | T | ROD #2 | HT | ROD #1 | HT | ROD #2 | B | R | CH |
|------------|-----------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-----------------|-----------------|--------------------------|
| 2 | 8A C206-Stroke | 8A TA206-Stroke-XI= | 8A TB206-Stroke-XI= | 8A TA206-Stroke-XI= | 8A TB206-Stroke-XI= | 8A TB206-Stroke-XI= | 8A TA206-Stroke-XI= | 8A TB206-Stroke-XI= | 8A TB206-Stroke-XI= | 8A R206-Stroke | 8A R206-Stroke | 8ACH206-Stroke1+Stroke2 |
| 3 | 8A C306-Stroke | 8A TA306-Stroke-XI= | 8A TB306-Stroke-XI= | 8A TA306-Stroke-XI= | 8A TB306-Stroke-XI= | 8A TB306-Stroke-XI= | 8A TA306-Stroke-XI= | 8A TB306-Stroke-XI= | 8A TB306-Stroke-XI= | 8A R306-Stroke | 8A R306-Stroke | 8ACH306-Stroke1+Stroke2 |
| 4 | 8A C408-Stroke | 8A TA408-Stroke-XI= | 8A TB408-Stroke-XI= | 8A TA408-Stroke-XI= | 8A TB408-Stroke-XI= | 8A TB408-Stroke-XI= | 8A TA408-Stroke-XI= | 8A TB408-Stroke-XI= | 8A TB408-Stroke-XI= | 8A R408-Stroke | 8A R408-Stroke | 8ACH408-Stroke1+Stroke2 |
| 5 | 8A C506-Stroke | 8A TA506-Stroke-XI= | 8A TB506-Stroke-XI= | 8A TA506-Stroke-XI= | 8A TB506-Stroke-XI= | 8A TB506-Stroke-XI= | 8A TA506-Stroke-XI= | 8A TB506-Stroke-XI= | 8A TB506-Stroke-XI= | 8A R506-Stroke | 8A R506-Stroke | 8ACH506-Stroke1+Stroke2 |
| 6 | 8A C608-Stroke | 8A TA608-Stroke-XI= | 8A TB608-Stroke-XI= | 8A TA608-Stroke-XI= | 8A TB608-Stroke-XI= | 8A TB608-Stroke-XI= | 8A TA608-Stroke-XI= | 8A TB608-Stroke-XI= | 8A TB608-Stroke-XI= | 8A R608-Stroke | 8A R608-Stroke | 8ACH608-Stroke1+Stroke2 |
| 8 | 8A C808-Stroke | 8A TA808-Stroke-XI= | 8A TB808-Stroke-XI= | 8A TA808-Stroke-XI= | 8A TB808-Stroke-XI= | 8A TB808-Stroke-XI= | 8A TA808-Stroke-XI= | 8A TB808-Stroke-XI= | 8A TB808-Stroke-XI= | 8A R808-Stroke | 8A R808-Stroke | 8ACH808-Stroke1+Stroke2 |
| 10 | 8A C1010-Stroke | 8A TA1010-Stroke-XI= | 8A TB1010-Stroke-XI= | 8A TA1010-Stroke-XI= | 8A TB1010-Stroke-XI= | 8A TB1010-Stroke-XI= | 8A TA1010-Stroke-XI= | 8A TB1010-Stroke-XI= | 8A TB1010-Stroke-XI= | 8A R1010-Stroke | 8A R1010-Stroke | 8ACH1010-Stroke1+Stroke2 |
| 12 | 8A C1212-Stroke | 8A TA1212-Stroke-XI= | 8A TB1212-Stroke-XI= | 8A TA1212-Stroke-XI= | 8A TB1212-Stroke-XI= | 8A TB1212-Stroke-XI= | 8A TA1212-Stroke-XI= | 8A TB1212-Stroke-XI= | 8A TB1212-Stroke-XI= | 8A R1212-Stroke | 8A R1212-Stroke | 8ACH1212-Stroke1+Stroke2 |

SPECIFYING AN "X" IN ANY FIELD REQUIRES AN EXPLANATION IN THE SPECIAL NOTES FIELD.

| R | | | | | | | | | | | | | |
|----------|----------|----------|---------------|--------------|----------|----------|----------|----------|------------|-----------|---------|--------|--|
| SERIES | BORE | STYLE | STROKE | ROD MATERIAL | ROD SIZE | THREAD | CUSHIONS | BARREL | PORT LOC'N | PORT SIZE | OPTIONS | CUSTOM | |
| R | 3 | C | 12.188 | A | 1 | A | 1 | A | 1 | A | | | |

SPECIFICATION NOTES:

SPECIFY OPTIONS
REQUIRED BUT NOT
LISTED IN
NOMENCLATURE

- BLIND END FLANGE
- BLIND END CLEVIS
- COMMON HEAD
- COMMON HEAD/COMMON ROD
- COMMON ROD
- DOUBLE ROD
- FOOT MOUNT
- HEAVY BLIND CLEVIS
- HEAVY DUTY MID TRUNNION
- SINGLE LUG MOUNT
- NO MOUNT
- ROD END FLANGE
- MID-TRUNNION
- BLIND END TRUNNION
- ROD END TRUNNION

- STYLE
- B
- C
- CH
- CHR
- CR
- D
- F
- HC
- HT
- L
- NM
- R
- T
- TB
- TR

- ROD MATERIAL
- A
- C
- E
- ROD #1
- ROD #2

- ROD SIZE
- 1
- 2

- THREAD
- A
- B
- C
- D
- E
- X
- Y
- S

- CUSHIONS
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- X

- BARREL
- A
- C
- D
- E
- F
- X

- PORT LOC'N
- 1
- 2
- 3
- 4
- X

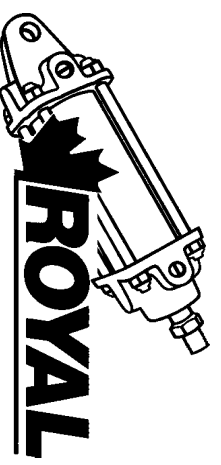
- PORT SIZE
- A
- B
- X

- PORT #1 (STANDARD)
- POS #2
- POS #3
- POS #4
- POS #1
- POS #2
- POS #3
- POS #4
- POS #1
- POS #2
- POS #3
- POS #4
- POS #1
- POS #2
- POS #3
- POS #4

- OPTIONS
- A
- B
- B1
- B2
- D
- G
- K
- M
- N1
- N2
- N4
- PS
- S
- V
- W
- X

- CUSTOM
- X

- ASSIGNED BY WESTCOAST CYLINDERS:
- THREAD LENGTH
- BUMPERS BOTH ENDS *
- BUMPER ROD END *
- BUMPER BLIND END *
- ROD SCRAPER (BRASS)
- WEAR-RING IN GLAND BUSHING
- V-PACKING ROD SEAL
- MAGNET IN PISTON
- NON STANDARD NEEDLE VALVE POSITION (POS #1)
- NON STANDARD NEEDLE VALVE POSITION (POS #2)
- NON STANDARD NEEDLE VALVE POSITION (POS #4)
- PISTON STOP
- STAINLESS STEEL TIE RODS.
- HIGH TEMPERATURE SEALS
- ROD EXTENSION "W" DIMENSION
- SPECIFY OPTIONS NOT LISTED



- NITRO-TEC TREATED
- CHROME PLATED STEEL
- CHROME PLATED STAINLESS STEEL

- STROKE
- INCHES

- STANDARD THREAD
- CC THREAD
- FULL THREAD
- FEMALE THREAD
- NO THREAD
- NON STANDARD MALE THREAD
- NON STANDARD FEMALE THREAD
- SPECIFY

- BOTH ENDS (STANDARD)
- NON CUSH.
- BLIND END ONLY
- ROD END ONLY
- EXTENDED CUSHION BOTH ENDS
- EXTENDED CUSHION BLIND END
- EXTENDED CUSHION GLAND END
- SPECIFY

- PORT SIZE
- STANDARD PORT
- OVERSIZE PORT
- SPECIFY

- NITRO-TEC TREATED
- CHROME PLATED STEEL
- BRASS
- STAINLESS
- AMALGON
- SPECIFY

* ALL BUMPER OPTIONS REDUCE EFFECTIVE STROKE. B AND B1 OPTIONS ALSO AFFECT ROD EXTENSION.

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