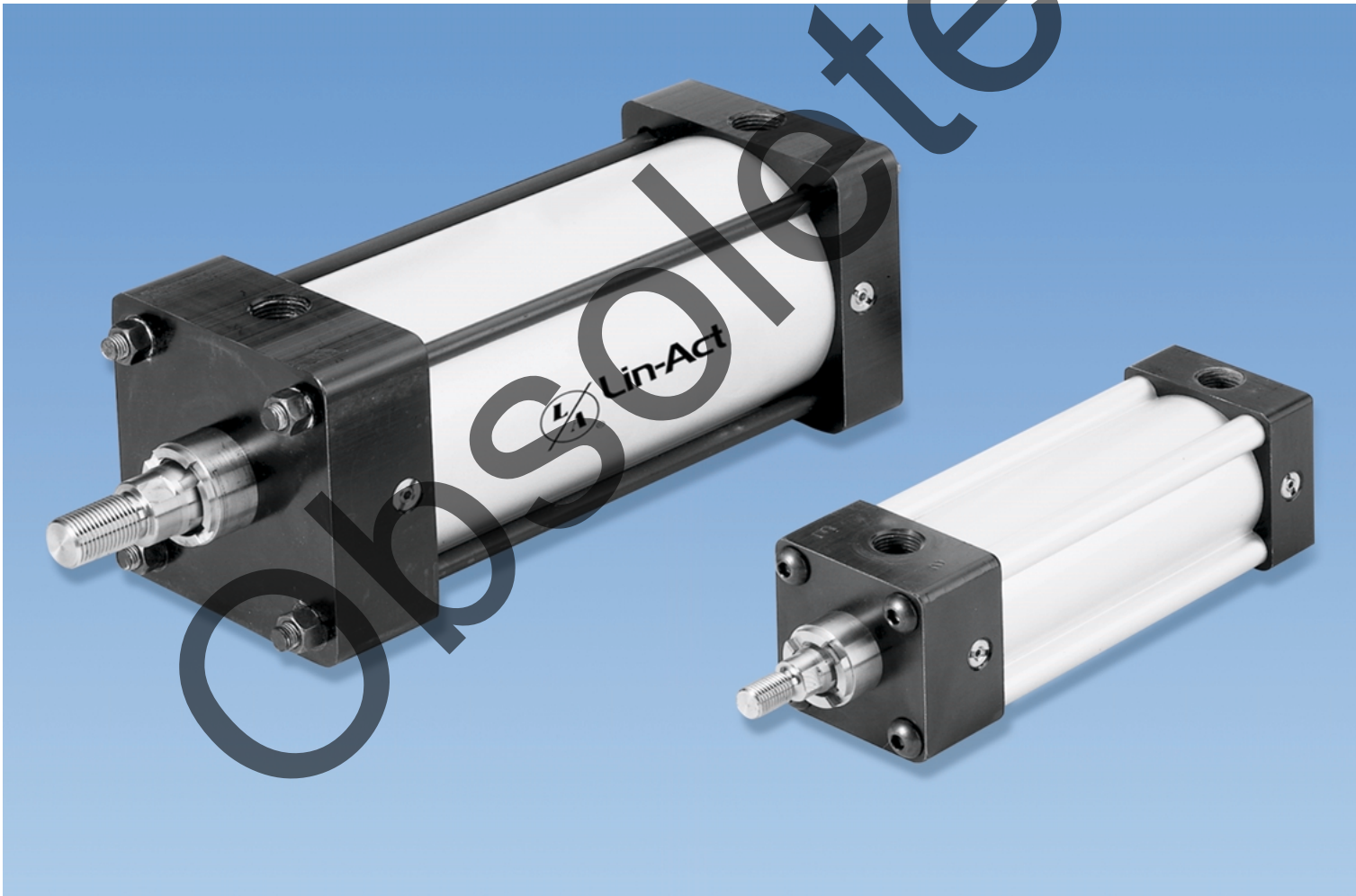


Lin-Act

Series A4 Non-Lube Air Cylinder

Catalog LA0917-2
(01/00)



Cylinders
Accessories
Limit Switches
Alignment Couplers

www.comoso.com

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Series A4 Non-Lube Air Cylinder...

Premium Quality at the Lowest Cost—
Series A4 Non-Lube air cylinders combine lightweight aluminum construction with proven reliability. They are specifically designed to meet today's demand for more efficient, low cost linear force and motion actuators to meet your cylinder requirements.

Series A4 premium quality air cylinders are rated Non-Lube. To ensure that every cylinder is premium quality, we subject each and every one — not just batch samples — to tough inspection and performance tests. Plus, as the world's largest and lowest cost cylinder producer we offer you the Series A4 Non-Lube air cylinder at the lowest cost that helps you stretch those tight design budgets without sacrificing quality. And, to back up that quality statement, we now offer a five year warranty.

Series A4 Non-Lube low cost, premium quality air cylinders are available from strategically located regional warehouses and distributor locations for quick delivery — all to save you downtime, delivery time and freight costs. For your low cost Non-Lube cylinder requirements specify the Series A4 available worldwide!



Standard Specifications

- N.F.P.A. Interchangeable
- Bore sizes – 1-1/4", 1-1/2", 2", 2-1/2", 3-1/4" and 4"
- Rod Diameters – 1/2", 5/8", 1", and 1-3/8"
- Rod Ends – three standard, specials to order.
- Cushions – optional at either end or both ends of stroke
- Strokes – available in any practical stroke length.
- 250 P.S.I. Air Service/Optional 250 P.S.I., Hydraulic Service (non-cushioned only)
- Standard Fluid – Filtered Air
- Standard Temperature – -10°F to +165°F
- Fluorocarbon Seals for high temperature service – -10°F to +250°F (optional)
- Single end or double end
- Mounting styles – 19 standard
- Optional urethane noise damping bumpers
NOTE: Use of bumpers results in loss of effective stroke of 1/4" per bumper (see How to Order).

Series A4 - 1¹/₄" through 4" Bore Lightweight, Non-Lube Pneumatic Cylinder.

Premium Quality and Economy in one.

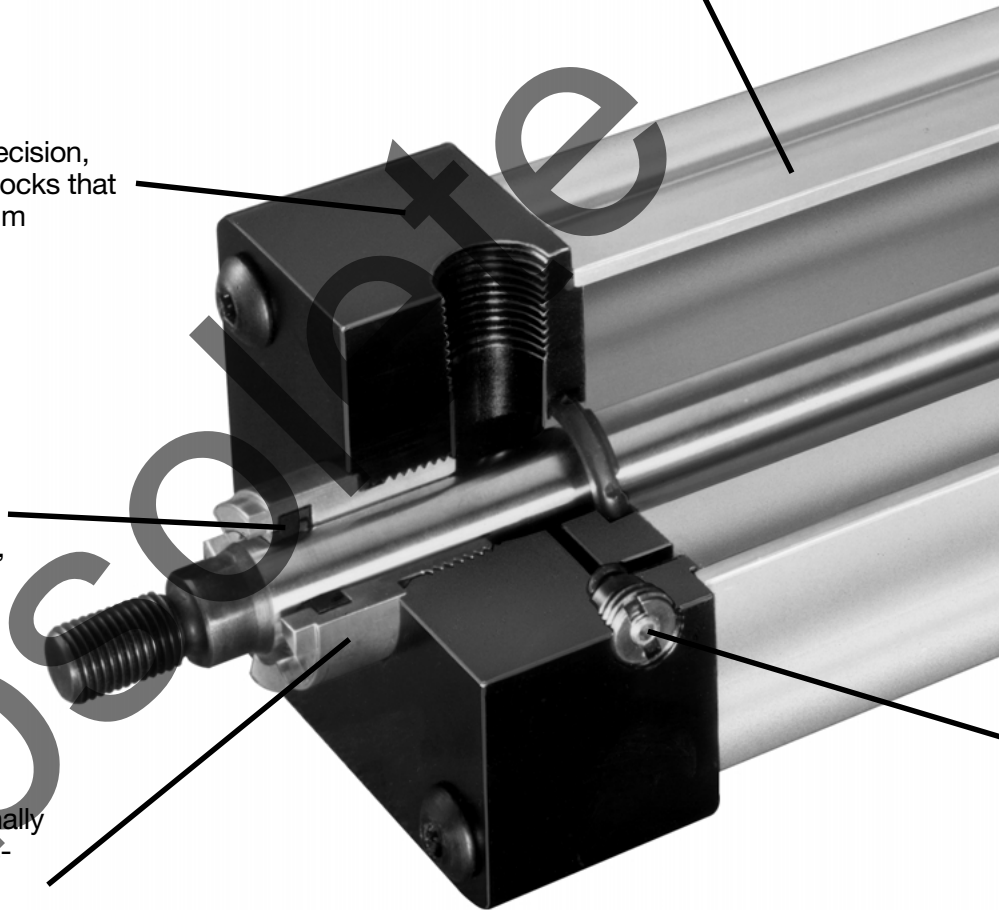
Lightweight construction and solid Non-Lube design with proven reliability make the Series A4 Cylinder the high performance, long lasting, economical choice for your air cylinder applications.

Hard Anodized Aluminum
Lightweight cylinder body: unique design provides strength and eliminates areas of contamination. 5" through 8" bore have aluminum tube with steel tie rods. See page 17 for construction.

Heads and Caps are Precision, Lightweight Aluminum blocks that are anodized for maximum corrosion resistance.

Piston rod lipseal/wiper combination is completely self compensating for zero leakage at all pressures. Keeps pressure in, contamination out. Pneumatic service.

Rod Gland
Threaded, bronze gland is externally removable without cylinder disassembly for easy maintenance.



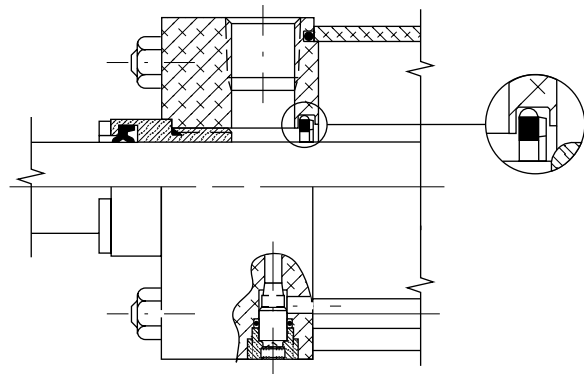
Check Seal Cushions* For Increased Productivity and Maximum Performance

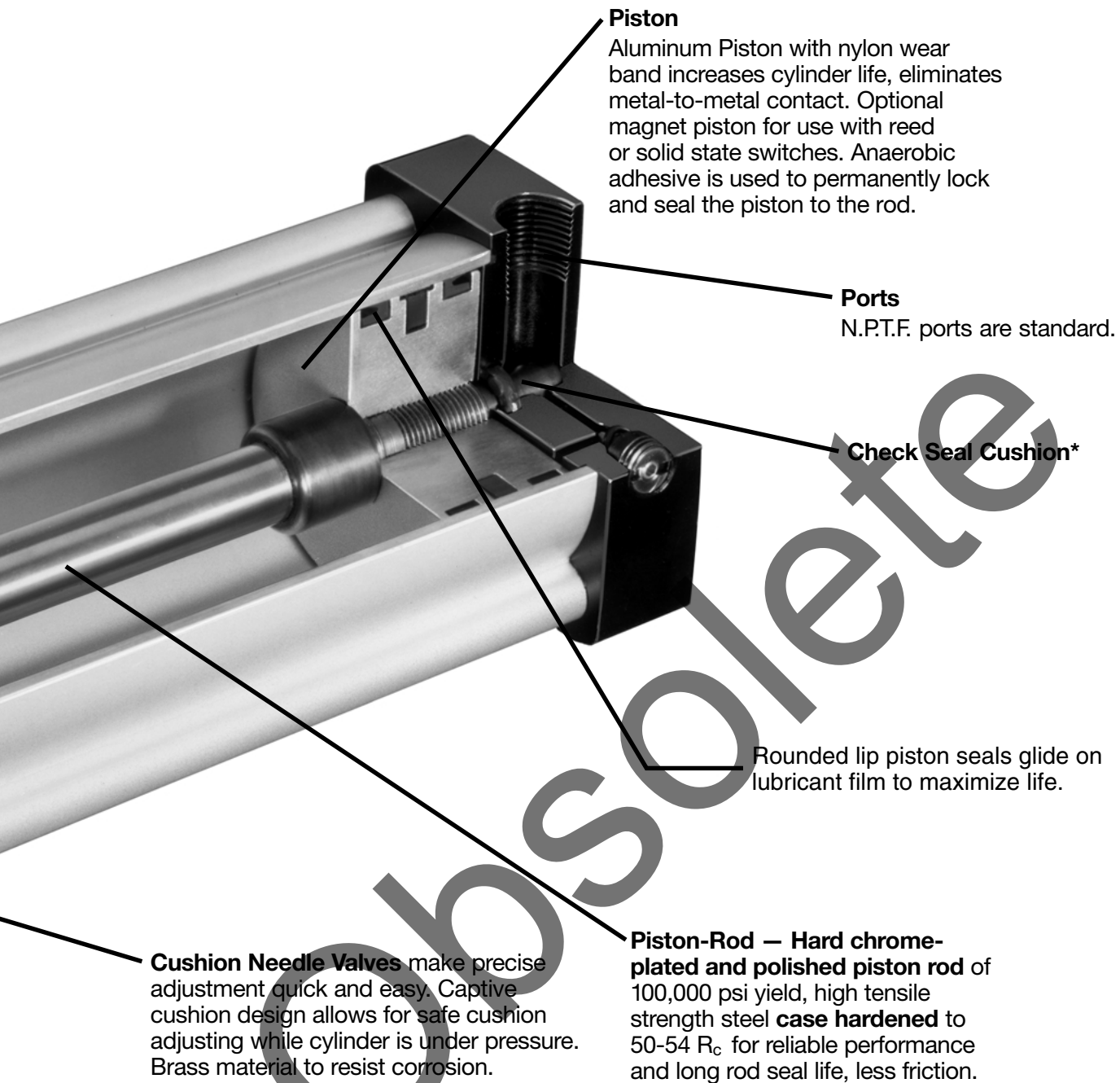
The check seal cushion is new and different from ordinary cushion designs. It combines the sealing capabilities of a lipseal for efficient capture of air for effective cushioning with check valve action for quick stroke reversal.

The design also provides "floating cushions" to assure cushion repeatability and long life. At the start of the stroke in each direction, the check valve design allows full flow to piston face with a minimum pressure drop for maximum power stroke.

Additional benefits of the new check seal cushions are increased productivity and top performance for faster cycle time, minimum wear, easy adjustment and low pressure drop.

The basic cushion design is optional and available on either the head end, cap end or both ends without change in envelope or mounting dimensions. A captive cushion adjusting needle is supplied for easy, precise adjustment on all bore sizes.





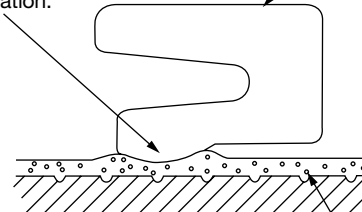
The Series A4 piston rod and cylinder barrel surfaces act as highly efficient lubricant reservoirs, maintaining their own lubricant film. Other manufacturers pack grease into grooves and pockets and call them reservoirs. The fact of the matter is that as those grooves empty out over time, grease is being transported out of the cylinder and into the control system components and the atmosphere. The Series A4 concept eliminates that problem by maintaining the lubricant film where it belongs: on the seals, bearing surfaces, piston rod and cylinder bore.

The result is a long lasting cylinder with Series A4 quality.

Anatomy of Series A4 Sealing and Lubricant Retention Systems

Rounded sealing lip glides over lubricant film instead of scraping it off. Reduces friction, increases life and eliminates the need for added lubrication.

Increased heel thickness and outer lip extension improve stability, resist rolling.



Drawing not to scale

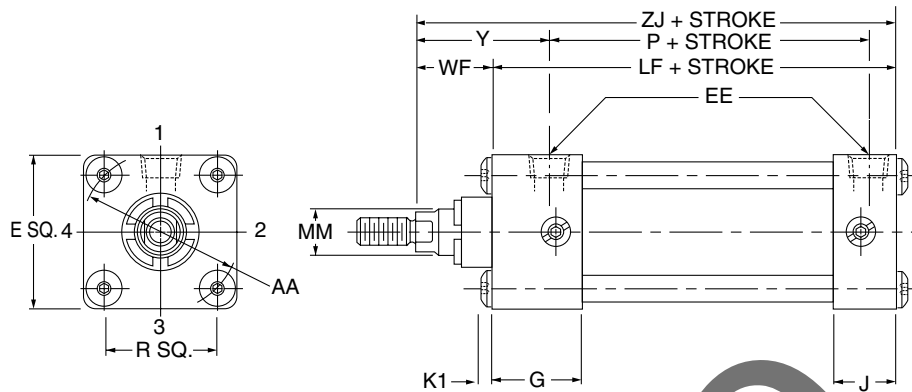
High integrity lubricant film with suspended PTFE particles

Series A4 cylinders — standard rod diameters

A4 series
1 1/4" - 4" bores
 Pressure rating:
 250 psi air
 optional oil service

Stroke lengths to suit are available in all bore sizes.

Model A4 basic cylinder



BORE	AA	E	EE (NPT)	G	J	K1	LF	MM	P	R	WF	Y	ZJ
1 1/4	1.81	1 53/64	1/4	1 5/16	1 3/16	1/8	3 5/16	1/2	2 3/16	1.28	1	1 3/4	4 5/16
1 1/2	2.02	2 3/4	3/8	1 7/16	1 5/16	1/8	3 5/8	5/8	2 7/16	1.43	1	1 7/8	4 5/8
2	2.6	2	3/8	1 7/16	1 5/16	5/32	3 5/8	5/8	2 3/16	1.84	1	1 7/8	4 5/8
2 1/2	3.1	3	3/8	1 7/16	1 5/16	5/32	3 3/4	5/8	2 3/16	2.19	1	1 15/16	4 3/4
3 1/4	3.9	3 3/4	1/2	1 11/16	1 3/16	3/16	4 1/4	1	2 5/8	2.76	1 3/8	2 1/16	5 5/8
4	4.7	4 1/2	1/2	1 11/16	1 3/16	3/16	4 1/4	1	2 5/8	3.32	1 3/8	2 1/16	5 5/8

Rod end dimensions basic cylinder

BORE SIZE	Rod		Thread		+0.000 -0.002	A	B	C	D	F	IA	LAF	NA	VF	W
	Dia	CC	Style 1	Style 2 & 4											
1 1/4	1/2	7/16-20	5/16-24	5/8	.999	3/8	3/8	25/64	1 15/64	1 5/8	7/16	5/8	39/64	5/8	5/8
1 1/2	5/8	1/2-20	7/16-20	3/4	1.124	3/8	1/2	3/8	1 3/8	1 3/4	9/16	5/8	5/8	5/8	5/8
2	3/4	1/2-20	7/16-20	3/4	1.124	3/8	1/2	3/8	1 3/8	1 3/4	9/16	5/8	5/8	5/8	5/8
2 1/2	3/4	1/2-20	7/16-20	3/4	1.124	3/8	1/2	3/8	1 3/8	1 3/4	9/16	5/8	5/8	5/8	5/8
3 1/4	1	7/8-14	3/4-16	1 1/8	1.499	5/8	7/8	5/8	1 7/8	2 1/2	15/16	3/4	3/4	3/4	3/4
4	1	7/8-14	3/4-16	1 1/8	1.499	5/8	7/8	5/8	1 7/8	2 1/2	15/16	3/4	3/4	3/4	3/4

Thread Style 2 (NFPA Style SM) Small Male

Thread Style 1 (NFPA Style IM) Intermediate Male

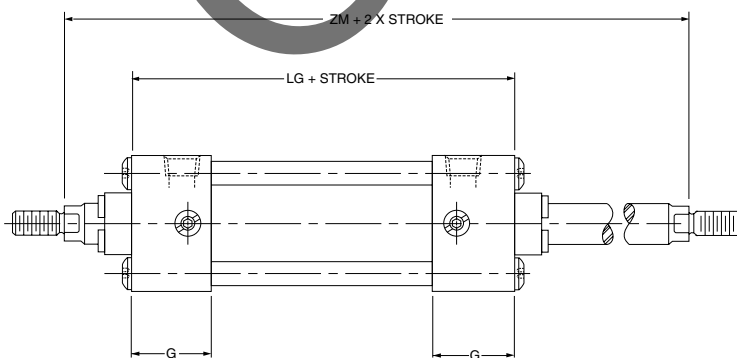
Thread Style 2 (NFPA Style SM) Small Male

Thread Style 1 (NFPA Style IM) Intermediate Male

Thread Style 4 (NFPA Style SF) Short Female

Thread Style 4 (NFPA Style SF) Short Female

"Special Thread" Style 3
 Special thread, extension, rod eye, blank, etc., are also available. To order specify "Style 3" and give desired dimensions for CC or KK, A and W or VF. If otherwise special, furnish dimensioned sketch.



BORE	G	Act 2x Stroke LG	ZM
1 1/4	1 5/16	3 13/16	5 13/16
1 1/2	1 7/16	4 1/8	6 1/8
2	1 7/16	4 1/8	6 1/8
2 1/2	1 7/16	4 1/4	6 1/4
3 1/4	1 11/16	4 3/4	7 1/2
4	1 11/16	4 3/4	7 1/2
REPLACES DIMENSION	LF	—	—
ONSINGLE ROD MOUNTING STYLES	ALL MTG STYLES	—	—

How to Use Double Rod Cylinder Dimensioned Drawings

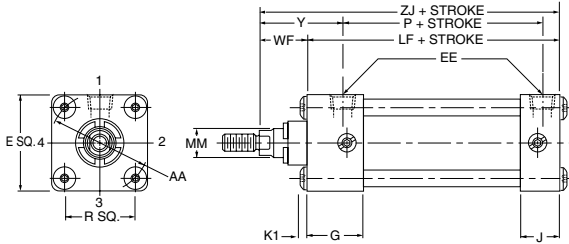
To determine dimensions for a double rod cylinder, first refer to the desired single rod mounting style cylinder shown on preceding pages of this catalog. (See table above). After selecting necessary dimensions from that drawing, return to this page supplement the single rod dimensions with those shown on drawings above and dimensions table above. Note that double rod cylinders have a head (Dim. G) at both ends and that dimension LG replaces LF.

The double rod dimensions differ from, or are in addition to those for single rod cylinders shown on preceding pages and provide the information needed to completely dimension a double rod cylinder.

On a double rod cylinder where the two rod ends are different, be sure to clearly state which rod end is to be assembled at which end.

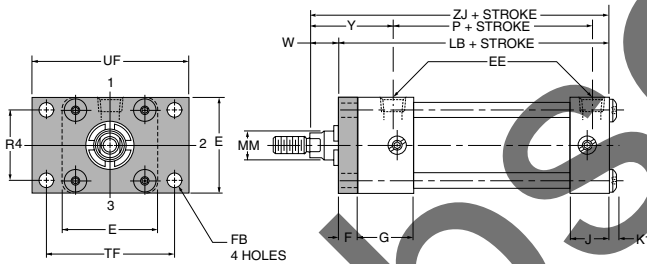
Series A4 cylinders — standard rod diameters

No Mount Basic NFPA Style MX0 (Model "A4")



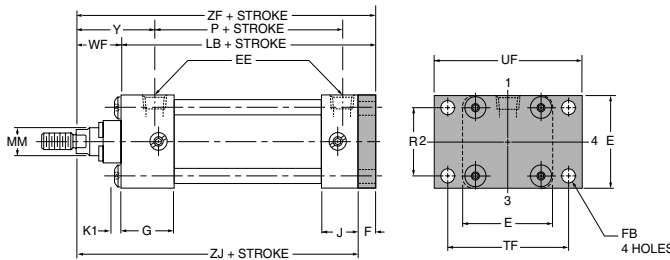
BORE	AA	E	EE (NPTF)	G	J	KI	LF	P	R	WF	Y	ZJ
1 1/4	1.81	1 59/64	1/4	1 5/16	1 3/16	1/8	3 5/16	2 3/16	1.28	1	1 3/4	4 5/16
1 1/2	2.02	2	3/8	1 7/16	1 5/16	1/8	3 5/8	2 5/16	1.43	1	1 7/8	4 5/8
2	2.6	2 1/2	3/8	1 7/16	1 5/16	5/32	3 5/8	2 5/16	1.84	1	1 7/8	4 5/8
2 1/2	3.1	3	3/8	1 7/16	1 5/16	5/32	3 3/4	2 5/16	2.19	1	1 15/16	4 3/4
3 1/4	3.9	3 3/4	1/2	1 11/16	1 3/16	3/16	4 1/4	2 5/8	2.76	1 3/8	2 7/16	5 5/8
4	4.7	4 1/2	1/2	1 11/16	1 3/16	3/16	4 1/4	2 5/8	3.32	1 3/8	2 7/16	5 5/8

Head Rectangular Flange NFPA Style MF1 (Model "A4F")



BORE	E	EE (NPTF)	F	FB	G	J	KI	LB	P	R	TF	UF	Y	ZJ
1 1/4	1 59/64	1/4	25/64	1/4	1 5/16	1 3/16	1/8	3 45/64	2 3/16	1.28	2 23/64	3 5/32	1 3/4	4 5/16
1 1/2	2	3/8	3/8	5/16	1 7/16	1 5/16	1/8	4	2 5/16	1.43	2 3/4	3 3/8	1 7/8	4 5/8
2	2 1/2	3/8	3/8	3/8	1 7/16	1 5/16	5/32	4	2 5/16	1.84	3 3/8	4 1/8	1 7/8	4 5/8
2 1/2	3	3/8	3/8	3/8	1 7/16	1 5/16	5/32	4 1/8	2 5/8	2.19	3 7/8	4 5/8	1 15/16	4 3/4
3 1/4	3 3/4	1/2	5/8	7/16	1 11/16	1 3/16	3/16	4 7/8	2 5/8	2.76	4 11/16	5 1/2	2 7/16	5 5/8
4	4 1/2	1/2	5/8	7/16	1 11/16	1 3/16	3/16	4 7/8	2 5/8	3.32	5 7/16	6 1/4	2 7/16	5 5/8

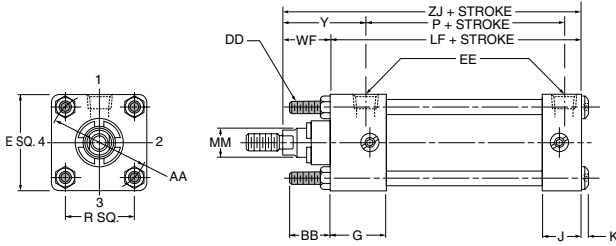
Cap Rectangular Flange NFPA Style MF2 (Model "A4R")



BORE	E	EE (NPTF)	F	FB	G	J	KI	LB	P	R	TF	UF	Y	WF	ZF	ZJ
1 1/4	1 59/64	1/4	25/64	1/4	1 5/16	1 3/16	1/8	3 45/64	2 3/16	1.28	2 23/64	3 5/32	1 3/4	1	4 45/64	4 5/16
1 1/2	2	3/8	3/8	5/16	1 7/16	1 5/16	1/8	4	2 5/16	1.43	2 3/4	3 3/8	1 7/8	1	5	4 5/8
2	2 1/2	3/8	3/8	3/8	1 7/16	1 5/16	5/32	4	2 5/16	1.84	3 3/8	4 1/8	1 7/8	1	5	4 5/8
2 1/2	3	3/8	3/8	3/8	1 7/16	1 5/16	5/32	4 1/8	2 5/8	2.19	3 7/8	4 5/8	1 15/16	1	5 5/8	4 3/4
3 1/4	3 3/4	1/2	5/8	7/16	1 11/16	1 3/16	3/16	4 7/8	2 5/8	2.76	4 11/16	5 1/2	2 7/16	1 3/8	6 1/4	5 5/8
4	4 1/2	1/2	5/8	7/16	1 11/16	1 3/16	3/16	4 7/8	2 5/8	3.32	5 7/16	6 1/4	2 7/16	1 3/8	6 1/4	5 5/8

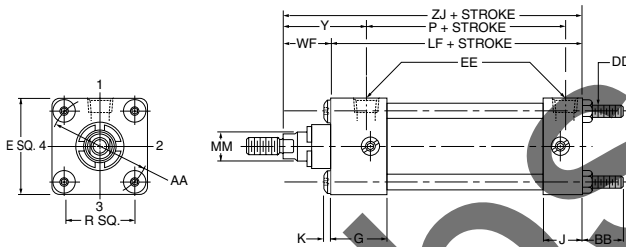
Series A4 cylinders — standard rod diameters

Tie Rods Extended Head End Mount NFFA Style MX3 (Model "A4M")



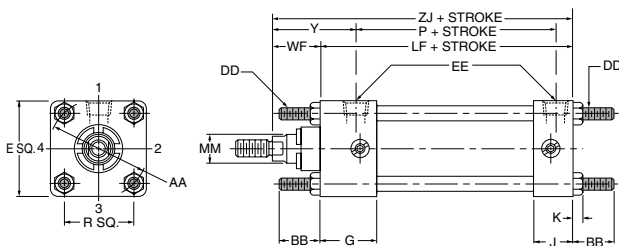
BORE	AA	BB	DD	E	EE (NPTF)	G	J	K	LF	P	R	WF	Y	ZJ
1 1/4	1.81	1	1/4-28	1 ^{53/64}	1/4	1 ^{5/16}	1 ^{3/16}	1/4	3 ^{5/8}	2 ^{3/16}	1.28	1	1 ^{3/4}	4 ^{5/16}
1 1/2	2.02	1	1/4-28	2	3/8	1 ^{7/16}	1 ^{5/16}	1/4	3 ^{5/8}	2 ^{5/16}	1.43	1	1 ^{7/8}	4 ^{5/8}
2	2.6	1 1/8	5/16-24	2 1/2	3/8	1 ^{7/16}	1 ^{5/16}	5/16	3 ^{5/8}	2 ^{5/16}	1.84	1	1 ^{7/8}	4 ^{5/8}
2 1/2	3.1	1 1/8	5/16-24	3	3/8	1 ^{7/16}	1 ^{5/16}	5/16	3 ^{3/4}	2 ^{3/8}	2.19	1	1 ^{15/16}	4 ^{3/4}
3 1/4	3.9	1 3/8	3/8-24	3 3/4	1/2	1 ^{11/16}	1 ^{3/16}	3/8	4 1/4	2 ^{3/8}	2.76	1 3/8	2 ^{7/16}	5 ^{5/8}
4	4.7	1 3/8	3/8-24	4 1/2	1/2	1 ^{11/16}	1 ^{3/16}	3/8	4 1/4	2 ^{5/8}	3.32	1 3/8	2 ^{7/16}	5 ^{5/8}

Tie Rods Extended Cap End Mount NFFA Style MX2 (Model "A4N")



BORE	AA	BB	DD	E	EE (NPTF)	G	J	K	LF	P	R	WF	Y	ZJ
1 1/4	1.81	1	1/4-28	1 ^{53/64}	1/4	1 ^{5/16}	1 ^{3/16}	1/4	3 ^{5/8}	2 ^{3/16}	1.28	1	1 ^{3/4}	4 ^{5/16}
1 1/2	2.02	1	1/4-28	2	3/8	1 ^{7/16}	1 ^{5/16}	1/4	3 ^{5/8}	2 ^{5/16}	1.43	1	1 ^{7/8}	4 ^{5/8}
2	2.6	1 1/8	5/16-24	2 1/2	3/8	1 ^{7/16}	1 ^{5/16}	5/16	3 ^{5/8}	2 ^{5/16}	1.84	1	1 ^{7/8}	4 ^{5/8}
2 1/2	3.1	1 1/8	5/16-24	3	3/8	1 ^{7/16}	1 ^{5/16}	5/16	3 ^{3/4}	2 ^{3/8}	2.19	1	1 ^{15/16}	4 ^{3/4}
3 1/4	3.9	1 3/8	3/8-24	3 3/4	1/2	1 ^{11/16}	1 ^{3/16}	3/8	4 1/4	2 ^{3/8}	2.76	1 3/8	2 ^{7/16}	5 ^{5/8}
4	4.7	1 3/8	3/8-24	4 1/2	1/2	1 ^{11/16}	1 ^{3/16}	3/8	4 1/4	2 ^{5/8}	3.32	1 3/8	2 ^{7/16}	5 ^{5/8}

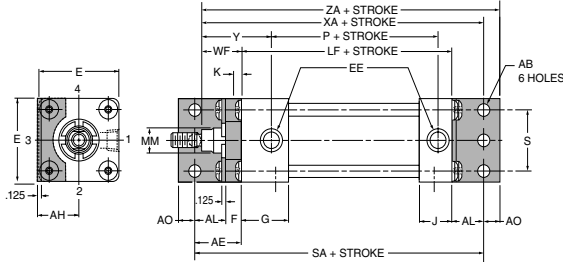
Tie Rods Extended Both Ends Mount NFFA Style MX1 (Model "A4P")



BORE	AA	BB	DD	E	EE (NPTF)	G	J	K	LF	P	R	WF	Y	ZJ
1 1/4	1.81	1	1/4-28	1 ^{53/64}	1/4	1 ^{5/16}	1 ^{3/16}	1/4	3 ^{5/8}	2 ^{3/16}	1.28	1	1 ^{3/4}	4 ^{5/16}
1 1/2	2.02	1	1/4-28	2	3/8	1 ^{7/16}	1 ^{5/16}	1/4	3 ^{5/8}	2 ^{5/16}	1.43	1	1 ^{7/8}	4 ^{5/8}
2	2.6	1 1/8	5/16-24	2 1/2	3/8	1 ^{7/16}	1 ^{5/16}	5/16	3 ^{5/8}	2 ^{5/16}	1.84	1	1 ^{7/8}	4 ^{5/8}
2 1/2	3.1	1 1/8	5/16-24	3	3/8	1 ^{7/16}	1 ^{5/16}	5/16	3 ^{3/4}	2 ^{3/8}	2.19	1	1 ^{15/16}	4 ^{3/4}
3 1/4	3.9	1 3/8	3/8-24	3 3/4	1/2	1 ^{11/16}	1 ^{3/16}	3/8	4 1/4	2 ^{3/8}	2.76	1 3/8	2 ^{7/16}	5 ^{5/8}
4	4.7	1 3/8	3/8-24	4 1/2	1/2	1 ^{11/16}	1 ^{3/16}	3/8	4 1/4	2 ^{5/8}	3.32	1 3/8	2 ^{7/16}	5 ^{5/8}

Series A4 cylinders — standard rod diameters

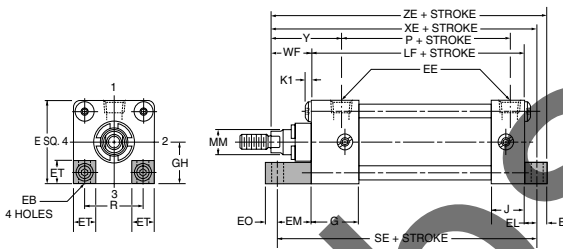
Side End Angle Mount NFFA Style MS1 (Model "A4A")



BORE	AB	AE	AH	AL	AO	E	EE (NPTF)	F	G	J	K	LF	P	S	SA	WF	YA	Y	ZA
1 1/4	276*	—	1 17/64	15/16	9/32	1 53/64	1/4	25/64	15/16	13/16	1/8	3 5/16	2 3/16	1 17/64	5 3/16	1	5 1/4	1 3/4	5 17/32
1 1/2	7/16	1 3/8	1 9/16	1	3/8	2	3/8	3/8	17/16	15/16	1/4	3 5/8	2 5/16	1 1/4	6	1	5 5/8	1 7/8	6
2	7/16	1 3/8	1 7/8	1	3/8	2 1/2	3/8	3/8	17/16	15/16	5/16	3 5/8	2 5/16	1 3/4	6	1	5 5/8	1 7/8	6
2 1/2	7/16	1 3/8	1 5/8	1	3/8	3	3/8	3/8	17/16	15/16	5/16	3 3/4	2 3/8	2 1/4	6 1/8	1	5 3/4	1 15/16	6 1/8
3 1/4	9/16	1 7/8	1 15/16	1 1/4	1/2	3 3/4	1/2	5/8	1 11/16	1 3/16	3/8	4 1/4	2 5/8	2 3/4	7 3/8	1 3/8	6 3/4	2 1/16	7 7/8
4	9/16	—	2 1/4	1 7/8	1/2	4 1/2	1/2	—	1 11/16	1 3/16	3/8	4 1/4	2 5/8	3 1/2	7 3/8	1 3/8	6 3/8	2 1/16	7 7/8

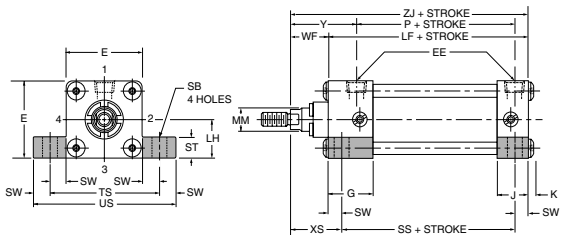
* Mounting Style A for 1-1/4" Bore only is furnished with four mounting holes (2 each end). Center holes omitted.

Side End Lug Mount NFFA Style MS7 (Model "A4G")



BORE	E	EB	EE (NPTF)	EL	EM	EO	ET	G	GH ±.003	J	K1	LF	P	R	SE	WF	YE	Y	ZE
1 1/4	1 53/64	9/32	1/4	3/4	1 1/8	1/4	9/16	15/16	.908	13/16	1/8	3 5/16	2 3/16	1.28	5 3/16	1	5 1/16	1 1/4	5 5/16
1 1/2	2	9/32	3/8	3/4	1 1/8	1/4	9/16	17/16	.993	15/16	1/8	3 5/8	2 5/16	1.43	5 1/2	1	5 3/8	1 7/8	5 5/8
2	2 1/2	11/32	3/8	1 1/16	1 5/16	5/16	1 1/16	17/16	1.243	15/16	5/32	3 5/8	2 5/16	1.84	5 7/8	1	5 9/16	1 7/8	5 7/8
2 1/2	3	11/32	3/8	1 1/16	1 7/16	5/16	1 3/16	17/16	1.493	15/16	5/32	3 3/4	2 5/8	2.19	6 1/4	1	5 13/16	1 15/16	6 1/8
3 1/4	3 3/4	13/32	1/2	7/8	1 1/2	3/8	1	1 11/16	1.868	1 9/16	3/16	4 1/4	2 5/8	2.76	6 5/8	1 3/8	6 1/2	2 1/16	6 7/8
4	4 1/2	13/32	1/2	1	1 5/8	3/8	1 1/16	1 11/16	2.243	1 9/16	3/16	4 1/4	2 5/8	3.32	6 7/8	1 3/8	6 5/8	2 1/16	7

Side Lug Mount NFFA Style MS2 (Model "A4WL") ▲

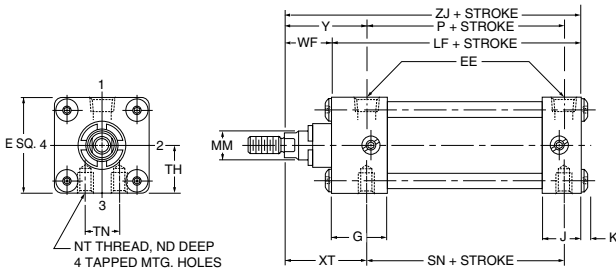


BORE	E	EE (NPTF)	G	J	K	LF	LH ±.003	P	SB	SS	ST	SW	TS	US	WF	XS	Y	ZJ
1 1/2	2	3/8	17/16	15/16	1/4	3 5/8	.993	2 5/16	7/16	2 7/8	1/2	3/8	2 3/4	3 1/2	1	1 3/8	1 7/8	4 5/8
2	2 1/2	3/8	17/16	15/16	5/16	3 5/8	1.243	2 5/16	7/16	2 7/8	1/2	3/8	3 1/4	4	1	1 3/8	1 7/8	4 5/8
2 1/2	3	3/8	17/16	15/16	5/16	3 3/4	1.493	2 5/8	7/16	3	1/2	3/8	3 3/4	4 1/2	1	1 3/8	1 15/16	4 3/4
3 1/4	3 3/4	1/2	1 11/16	1 3/16	3/8	4 1/4	1.868	2 5/8	9/16	3 3/4	3/4	1/2	4 3/4	5 3/4	1 3/8	1 7/8	2 1/16	5 5/8
4	4 1/2	1/2	1 11/16	1 3/16	3/8	4 1/4	2.243	2 5/8	9/16	3 3/4	3/4	1/2	5 1/2	6 1/2	1 3/8	1 7/8	2 1/16	5 5/8

▲ Not Available 1-1/4" Bore.

Series A4 cylinders — standard rod diameters

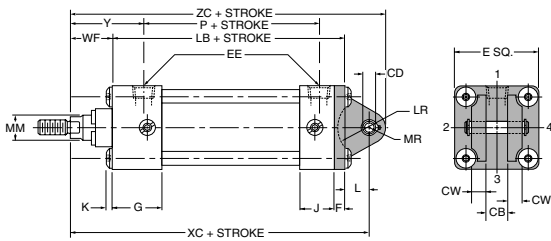
Side Tap Mount NFFA Style MS4 (Model "A4B")



BORE	E	EE (NPTF)	J	K	N†	P	SN	TN	TH ±.003	WF	XT	Y	ZJ	LF
1 1/4	1 53/64	1/4	13/16	1/8	1/4-20†	2 3/16	1 15/16	—	.908	1	1 15/16	1 3/4	4 5/16	3 5/16
1 1/2	2	3/8	15/16	1/4	1/4-20	2 5/16	2 1/4	5/8	.993	1	1 15/16	1 7/8	4 5/8	3 5/8
2	2 1/2	3/8	15/16	5/16	5/16-18	2 5/16	2 1/4	7/8	1.243	1	1 15/16	1 7/8	4 5/8	3 5/8
2 1/2	3	3/8	15/16	5/16	3/8-16	2 3/8	2 3/8	1 1/4	1.493	1	1 15/16	1 15/16	4 3/4	3 3/4
3 1/4	3 3/4	1/2	1 1/16	3/8	1/2-13	2 5/8	2 5/8	1 1/2	1.868	1 3/8	2 7/16	2 7/16	5 5/8	4 1/4
4	4 1/2	1/2	1 1/16	3/8	1/2-13	2 5/8	2 5/8	2 1/16	2.243	1 3/8	2 7/16	2 7/16	5 5/8	4 1/4

† Mounting style MS4 for 1-1/4" bore only is furnished with two mounting holes (one each end).

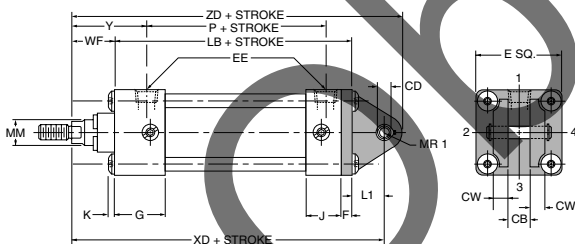
Cap Fixed Clevis Mount NFFA Style MP1* (Model "A4C")



BORE	CB	+000 CD -002	OW	E	EE (NPTF)	F	G	J	K	L	LB	LR	MR	P	WF	XC	Y	ZC
1 1/2	3/4	.501	1/2	2	3/8	3/8	1 1/16	1 5/16	1/4	3/8	4	3/4	5/8	2 5/16	1	5 3/8	1 7/8	6
2	3/4	.501	1/2	2 1/2	3/8	3/8	1 1/16	1 5/16	5/16	3/8	4	3/4	5/8	2 5/16	1	5 3/8	1 7/8	6
2 1/2	3/4	.501	1/2	3	3/8	3/8	1 1/16	1 5/16	5/16	3/8	4 1/8	3/4	5/8	2 3/8	1	5 1/2	1 15/16	6 1/8
3 1/4	1 1/4	.751	5/8	3 3/4	1/2	5/8	1 11/16	1 3/16	3/8	5/8	4 7/8	1	1 5/16	2 5/8	1 3/8	6 7/8	2 7/16	7 13/16
4	1 1/4	.751	5/8	4 1/2	1/2	5/8	1 11/16	1 3/16	3/8	5/8	4 7/8	1	1 5/16	2 5/8	1 3/8	6 7/8	2 7/16	7 13/16

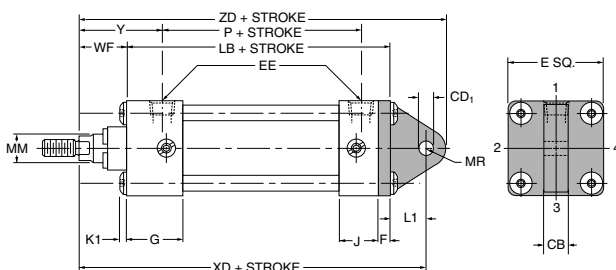
* Not available in 1-1/4" Bore.

Cap Detachable Clevis Mount NFFA Style MP2 (Model "A4CD")



BORE	CB	+000 CD -002	OW	E	EE (NPTF)	F	G	J	K	L1	LB	MR1	P	WF	XD	Y	ZD
1 1/4	1 1/64	.393	3/8	1 53/64	1/4	25/64	1 5/16	1 3/16	1/8	15/32	3 45/64	25/64	2 5/16	1	5 3/16	1 3/4	5 37/64
1 1/2	3/4	.501	1/2	2	3/8	3/8	1 7/16	1 5/16	1/4	3/4	4	1/2	2 5/16	1	5 3/4	1 7/8	6
2	3/4	.501	1/2	2 1/2	3/8	3/8	1 7/16	1 5/16	5/16	3/4	4	1/2	2 5/16	1	5 3/4	1 7/8	6
2 1/2	3/4	.501	1/2	3	3/8	3/8	1 7/16	1 5/16	5/16	3/4	4 1/8	1/2	2 3/8	1	5 7/8	1 15/16	6 1/8
3 1/4	1 1/4	.751	5/8	3 3/4	1/2	5/8	1 11/16	1 3/16	3/8	1 1/4	4 7/8	3/4	2 5/8	1 3/8	7 1/2	2 7/16	7 13/16
4	1 1/4	.751	5/8	4 1/2	1/2	5/8	1 11/16	1 3/16	3/8	1 1/4	4 7/8	3/4	2 5/8	1 3/8	7 1/2	2 7/16	7 13/16

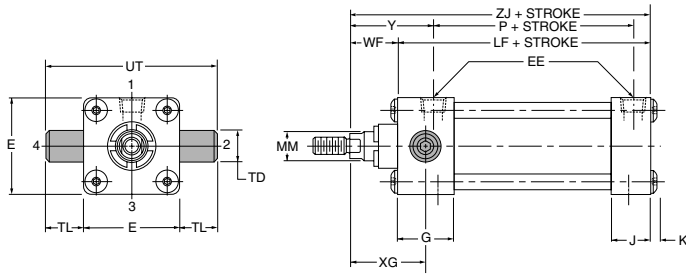
Cap Detachable Eye Mount NFFA Style MP4 (Model "A4ED")



BORE	CB	+002 CD1 +004	E	EE (NPTF)	F	G	J	K1	L1	LB	MR	P	WF	XD	Y	ZD
1 1/4	1 1/64	.392	1 53/64	1/4	25/64	1 5/16	1 3/16	1/8	15/32	3 45/64	25/64	2 5/16	1	5 3/16	1 3/4	5 37/64
1 1/2	3/4	.500	2	3/8	3/8	1 7/16	1 5/16	1/8	3/4	4	5/8	2 5/16	1	5 3/4	1 7/8	6 1/4
2	3/4	.500	2 1/2	3/8	3/8	1 7/16	1 5/16	5/32	3/4	4	5/8	2 5/16	1	5 3/4	1 7/8	6 1/4
2 1/2	3/4	.500	3	3/8	3/8	1 7/16	1 5/16	5/32	3/4	4 1/8	5/8	2 3/8	1	5 7/8	1 15/16	6 3/8
3 1/4	1 1/4	.750	3 3/4	1/2	5/8	1 11/16	1 3/16	3/16	1 1/4	4 7/8	15/16	2 5/8	1 3/8	7 1/2	2 7/16	8 1/4
4	1 1/4	.750	4 1/2	1/2	5/8	1 11/16	1 3/16	3/16	1 1/4	4 7/8	15/16	2 5/8	1 3/8	7 1/2	2 7/16	8 1/4

Series A4 cylinders — standard rod diameters

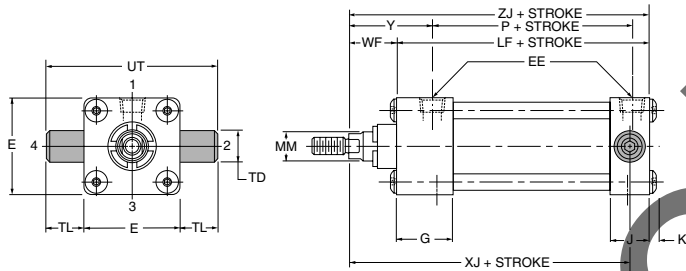
Head Trunnion Mount* NFFA Style MT1 (Model "A4TH")



BORE	E	EE (NPTF)	G	J	K	LF	P	+0.000 ID -0.001	TL	UF	WF	XG	Y	ZJ
1 1/2	2	3/8	1 7/16	1 5/16	1/4	3 5/8	2 5/16	1.000	1	4	1	1 3/4	1 7/8	4 5/8
2	2 1/2	3/8	1 7/16	1 5/16	5/16	3 5/8	2 5/16	1.000	1	4 1/2	1	1 3/4	1 7/8	4 5/8
2 1/2	3	3/8	1 7/16	1 5/16	5/16	3 3/4	2 5/8	1.000	1	5	1	1 3/4	1 15/16	4 3/4
3 1/4	3 3/4	1/2	1 11/16	1 3/16	3/8	4 1/4	2 5/8	1.000	1	5 3/4	1 3/8	2 1/4	2 7/16	5 5/8
4	4 1/2	1/2	1 11/16	1 3/16	3/8	4 1/4	2 5/8	1.000	1	6 1/2	1 3/8	2 1/4	2 7/16	5 5/8

* Not Available 1-1/4" Bore.

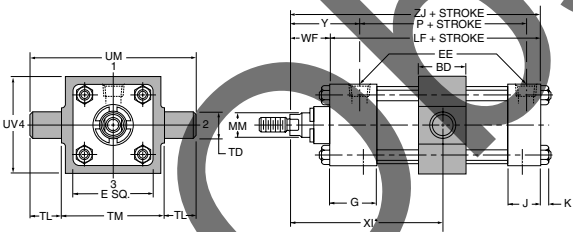
Cap Trunnion Mount* NFFA Style MT2 (Model "A4TC")



BORE	E	EE (NPTF)	G	J	K	LF	P	+0.000 ID -0.001	TL	UF	WF	XJ	Y	ZJ
1 1/2	2	3/8	1 7/16	1 5/16	1/4	3 5/8	2 5/16	1.000	1	4	1	4 1/8	1 7/8	4 5/8
2	2 1/2	3/8	1 7/16	1 5/16	5/16	3 5/8	2 5/16	1.000	1	4 1/2	1	4 1/8	1 7/8	4 5/8
2 1/2	3	3/8	1 7/16	1 5/16	5/16	3 3/4	2 5/8	1.000	1	5	1	4 1/4	1 15/16	4 3/4
3 1/4	3 3/4	1/2	1 11/16	1 3/16	3/8	4 1/4	2 5/8	1.000	1	5 3/4	1 3/8	5	2 7/16	5 5/8
4	4 1/2	1/2	1 11/16	1 3/16	3/8	4 1/4	2 5/8	1.000	1	6 1/2	1 3/8	5	2 7/16	5 5/8

* Not Available 1-1/4" Bore.

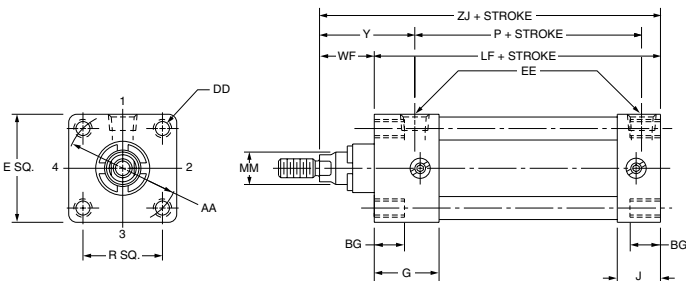
Intermediate Trunnion Mount NFFA Style MT4 (Model "A4TT")



BORE	ED	E	EE (NPTF)	G	J	K	LF	P	+0.000 ID -0.001	TL	TM	UM	UV	WF	XI Min.	Y	ZJ
1 1/4	.98	1.83	1/4	1 5/16	1 3/16	-	3 5/8	2 3/16	.471	15/32	1 31/32	2 29/32	2 9/16	1	2 11/16	1 3/4	4 5/16
1 1/2	1 1/4	2	3/8	1 7/16	1 5/16	1/4	3 5/8	2 5/16	1.000	1	2 1/2	4 1/2	2 1/2	1	3 5/16	1 7/8	4 3/8
2	1 1/2	2 1/2	3/8	1 7/16	1 5/16	5/16	3 5/8	2 5/8	1.000	1	3	5	3	1	3 5/16	1 7/8	4 3/8
2 1/2	1 1/2	3	3/8	1 7/16	1 5/16	5/16	3 3/4	2 3/8	1.000	1	3 1/2	5 1/2	3 1/2	1	3 5/16	1 15/16	4 3/4
3 1/4	2	3 3/4	1/2	1 11/16	1 3/16	3/8	4 1/4	2 5/8	1.000	1	4 1/2	6 1/2	4 1/4	1 3/8	4 3/16	2 7/16	5 5/8
4	2	4 1/2	1/2	1 11/16	1 3/16	3/8	4 1/4	2 5/8	1.000	1	5 1/4	7 1/4	5	1 3/8	4 3/16	2 7/16	5 5/8

▲Dimension "XI" to be specified by customer.

Sleeve Nut Mount Style MX5 (Model "A4E")



BORE	AA	BG	DD	E	EE (NPTF)	G	J	LF	P	R	WF	Y	ZJ	
1 1/4	1.81	.45	1/4-28	1 5/16	1 59/64	1/4	1 5/16	1 3/16	3 5/16	2 5/16	1.28	1	1 3/4	4 5/16
1 1/2	2.02	.45	1/4-28	2	3/8	1 7/16	1 5/16	3 5/8	2 5/16	1.43	1	1 7/8	4 5/8	
2	2.6	.48	5/16-24	2 1/2	3/8	1 7/16	1 5/16	3 5/8	2 5/16	1.84	1	1 7/8	4 5/8	
2 1/2	3.1	.48	5/16-24	3	3/8	1 7/16	1 5/16	3 3/4	2 3/8	2.19	1	1 15/16	4 3/4	
3 1/4	3.9	.50	3/8-24	3 3/4	1/2	1 11/16	1 3/16	4 1/4	2 5/8	2.76	1 3/8	1 7/16	5 5/8	
4	4.7	.50	3/8-24	4 1/2	1/2	1 11/16	1 3/16	4 1/4	2 5/8	3.32	1 3/8	2 7/16	5 5/8	

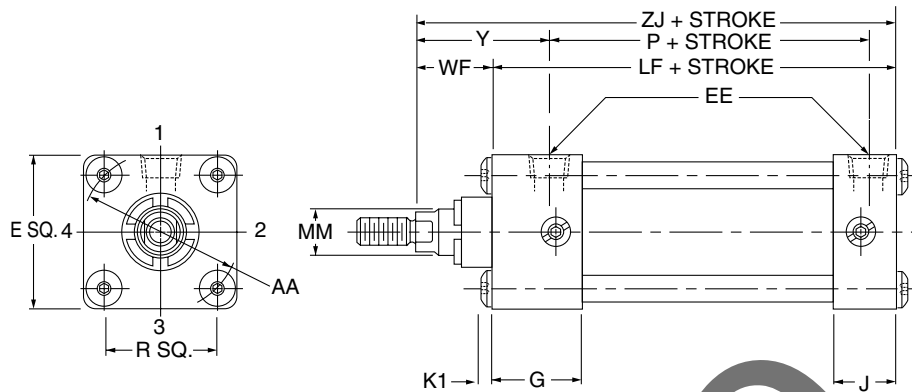
Series A40 cylinders — oversized rod diameters

A40 series
1½" - 4" bores
 Pressure rating:
 250 psi air
 optional oil service

Stroke lengths to suit are available in all bore sizes.

A40 series not available in 1 1/4" bore.

Model A40 basic cylinder



Cushion Not Available Head End on 1½" Bore.

BORE	AA	E	EE (NPTF)	G	J	K1	LF	MM	P	R	WF	Y	ZJ
1½	2.02	2	3/8	1 7/16	1 5/16	1/8	3 5/8	5/8	2 2/16	1.43	1 3/8	2 1/4	5
2	2.6	2 1/2	3/8	1 7/16	1 5/16	5/32	3 5/8	1	2 5/16	1.84	1 3/8	2 1/4	5
2½	3.1	3	3/8	1 7/16	1 5/16	5/32	3 3/4	1	2 3/8	2.19	1 3/8	2 5/8	5 1/8
3¼	3.9	3 3/4	1/2	1 11/16	1 3/16	3/16	4 1/4	1 3/8	2 5/8	2.76	1 5/8	2 11/16	5 7/8
4	4.7	4 1/2	1/2	1 11/16	1 3/16	3/16	4 1/4	1 3/8	2 5/8	3.32	1 5/8	2 11/16	5 7/8

Rod end dimensions basic cylinder

BORE SIZE	Rod		Thread		A	+0.000 -0.002 B	C	D	F	IA	LAF	NA	VF	W
	Dia	CC	Style 1	Style 2 & 4										
1½	1	7/8-14	3/4-16	1 1/8	1.499	5/8	7/8	3/8	2 1/8	2 1/2	1 5/16	3/4	1	
2	1	7/8-14	3/4-16	1 1/8	1.499	5/8	7/8	3/8	2 1/8	2 1/2	1 5/16	3/4	1	
2½	1	7/8-14	3/4-16	1 1/8	1.499	5/8	7/8	3/8	2 1/8	2 1/2	1 5/16	3/4	1	
3¼	1 3/8	1 1/4-12	1-14	1 5/8	1.999	7/8	1 1/8	5/8	2 5/8	3 1/4	1 5/16	3/4	1	
4	1 3/8	1 1/4-12	1-14	1 5/8	1.999	7/8	1 1/8	5/8	2 5/8	3 1/4	1 5/16	3/4	1	

Thread Style 2 (NFPA Style SM) Small Male

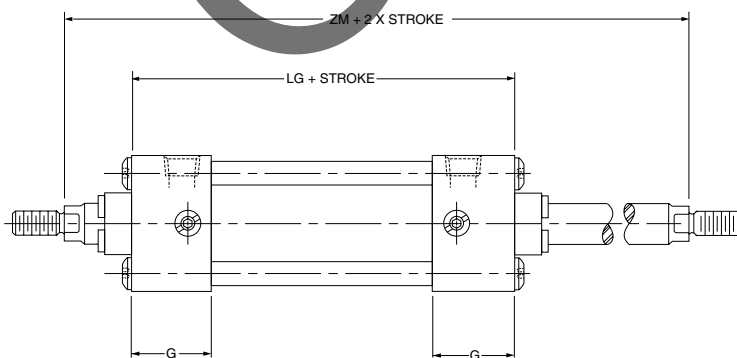
Thread Style 1 (NFPA Style SM) Intermediate Male

Thread Style 2 (NFPA Style SM) Small Male

Thread Style 1 (NFPA Style IM) Intermediate Male

Thread Style 4 (NFPA Style SF) Short Female

"Special Thread" Style 3
 Special thread, extension, rod eye, blank, etc., are also available. To order specify "Style 3" and give desired dimensions for CC or KK, A and W or VF. If otherwise special, furnish dimensioned sketch.



BORE	Add 2x Stroke	
	G	ZM
1½	1 7/16	4 1/8
2	1 7/16	4 1/8
2½	1 7/16	4 1/4
3¼	1 11/16	4 3/4
4	1 11/16	4 3/4
REPLACES DIMENSION		LF
ONSINGLE ROD MOUNTING STYLES		ALL MTG STYLES

How to Use Double Rod Cylinder Dimensioned Drawings

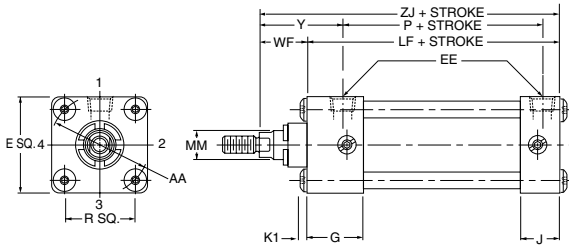
To determine dimensions for a double rod cylinder, first refer to the desired single rod mounting style cylinder shown on preceding pages of this catalog. (See table above). After selecting necessary dimensions from that drawing, return to this page supplement the single rod dimensions with those shown on drawings above and dimensions table above. Note that double rod cylinders have a head (Dim. G) at both ends and that dimension LG replaces LF.

The double rod dimensions differ from, or are in addition to those for single rod cylinders shown on preceding pages and provide the information needed to completely dimension a double rod cylinder.

On a double rod cylinder where the two rod ends are different, be sure to clearly state which rod end is to be assembled at which end.

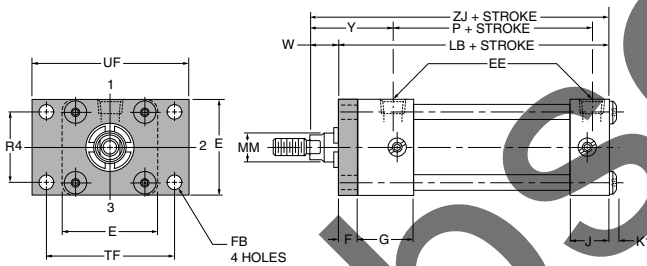
Series A40 cylinders — oversized rod diameters

No Mount Basic NFFA Style MX0 (Model "A40")



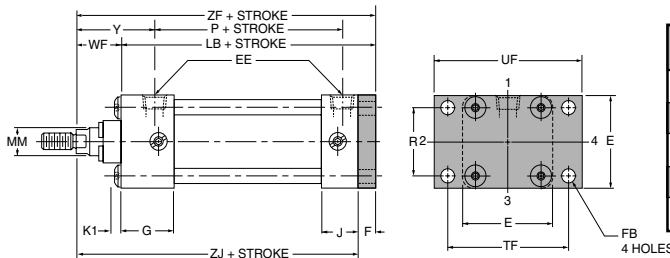
BORE	AA	E	EE (NPTF)	G	J	KI	LF	P	R	WF	Y	ZJ
1 1/2	2.02	2	3/8	1 7/16	1 5/16	1/8	3 5/8	2 5/16	1.43	1 3/8	2 1/4	5
2	2.6	2 1/2	3/8	1 7/16	1 5/16	5/32	3 5/8	2 5/16	1.84	1 3/8	2 1/4	5
2 1/2	3.1	3	3/8	1 7/16	1 5/16	5/32	3 3/4	2 3/8	2.19	1 3/8	2 5/16	5 1/8
3 1/4	3.9	3 3/4	1/2	1 11/16	1 3/16	3/16	4 1/4	2 5/8	2.76	1 5/8	2 11/16	5 7/8
4	4.7	4 1/2	1/2	1 11/16	1 3/16	3/16	4 1/4	2 5/8	3.32	1 5/8	2 11/16	5 7/8

Head Rectangular Flange NFFA Style MF1 (Model "A40F")



BORE	E	EE (NPTF)	F	FB	G	J	KI	LB	P	R	TF	UF	Y	ZJ
1 1/2	2	3/8	3/8	5/16	1 7/16	1 5/16	1/8	4	2 5/16	1.43	2 3/4	3 3/8	2 1/4	5
2	2 1/2	3/8	3/8	3/8	1 7/16	1 5/16	5/32	4	2 5/16	1.84	3 3/8	4 1/8	2 1/4	5
2 1/2	3	3/8	3/8	3/8	1 7/16	1 5/16	5/32	4 1/8	2 5/8	2.19	3 7/8	4 5/8	2 5/16	5 1/8
3 1/4	3 3/4	1/2	5/8	7/16	1 11/16	1 3/16	3/16	4 7/8	2 5/8	2.76	4 11/16	5 1/2	2 11/16	5 7/8
4	4 1/2	1/2	5/8	7/16	1 11/16	1 3/16	3/16	4 7/8	2 5/8	3.32	5 7/16	6 1/4	2 11/16	5 7/8

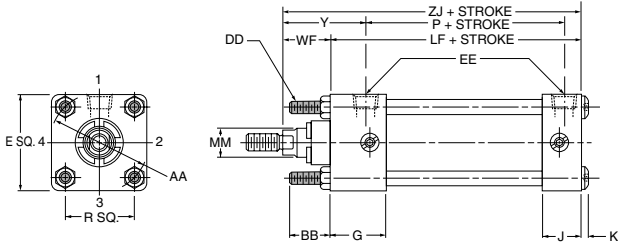
Cap Rectangular Flange NFFA Style MF2 (Model "A40R")



BORE	E	EE (NPTF)	F	FB	G	J	KI	LB	P	R	TF	UF	Y	WF	ZF	ZJ
1 1/2	2	3/8	3/8	5/16	1 7/16	1 5/16	1/8	4	2 5/16	1.43	2 3/4	3 3/8	2 1/4	1 3/8	5 3/8	5
2	2 1/2	3/8	3/8	3/8	1 7/16	1 5/16	5/32	4	2 5/16	1.84	3 3/8	4 1/8	2 1/4	1 3/8	5 3/8	5
2 1/2	3	3/8	3/8	3/8	1 7/16	1 5/16	5/32	4 1/8	2 5/8	2.19	3 7/8	4 5/8	2 5/16	1 3/8	5 1/2	5 1/8
3 1/4	3 3/4	1/2	5/8	7/16	1 11/16	1 3/16	3/16	4 7/8	2 5/8	2.76	4 11/16	5 1/2	2 11/16	1 5/8	6 1/2	5 7/8
4	4 1/2	1/2	5/8	7/16	1 11/16	1 3/16	3/16	4 7/8	2 5/8	3.32	5 7/16	6 1/4	2 11/16	1 5/8	6 1/2	5 7/8

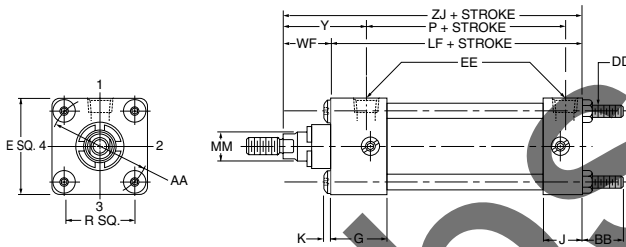
Series A40 cylinders — oversized rod diameters

Tie Rods Extended Head End Mount NFFA Style MX3 (Model "A4OM")



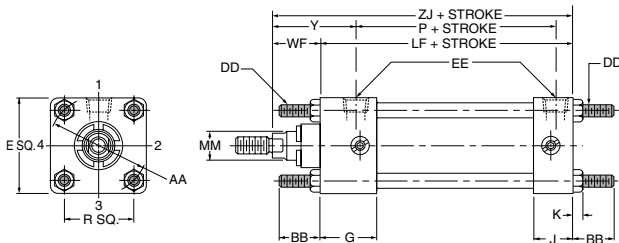
BORE	AA	BB	DD	E	EE (NPTF)	G	J	K	LF	P	R	WF	Y	ZJ
1½	2.02	1	¼-28	2	¾	1 ⁷ / ₁₆	1 ⁵ / ₁₆	¼	3 ⁵ / ₈	2 ⁵ / ₁₆	1.43	1 ³ / ₈	2 ¹ / ₄	5
2	2.6	1 ¹ / ₈	5 ¹⁶ / ₁₆ -24	2 ¹ / ₂	¾	1 ⁷ / ₁₆	1 ⁵ / ₁₆	5 ¹⁶ / ₁₆	3 ⁵ / ₈	2 ⁵ / ₁₆	1.84	1 ³ / ₈	2 ¹ / ₄	5
2½	3.1	1 ¹ / ₈	5 ¹⁶ / ₁₆ -24	3	¾	1 ⁷ / ₁₆	1 ⁵ / ₁₆	5 ¹⁶ / ₁₆	3 ³ / ₄	2 ³ / ₈	2.19	1 ³ / ₈	2 ⁵ / ₁₆	5 ¹ / ₈
3¼	3.9	1 ³ / ₈	¾-24	3 ³ / ₄	½	1 ¹¹ / ₁₆	1 ³ / ₁₆	¾	4 ¹ / ₄	2 ⁵ / ₈	2.76	1 ⁵ / ₈	2 ¹¹ / ₁₆	5 ⁷ / ₈
4	4.7	1 ³ / ₈	¾-24	4½	½	1 ¹¹ / ₁₆	1 ³ / ₁₆	¾	4 ¹ / ₄	2 ⁵ / ₈	3.32	1 ⁵ / ₈	2 ¹¹ / ₁₆	5 ⁷ / ₈

Tie Rods Extended Cap End Mount NFFA Style MX2 (Model "A4ON")



BORE	AA	BB	DD	E	EE (NPTF)	G	J	K	LF	P	R	WF	Y	ZJ
1½	2.02	1	¼-28	2	¾	1 ⁷ / ₁₆	1 ⁵ / ₁₆	¼	3 ⁵ / ₈	2 ⁵ / ₁₆	1.43	1 ³ / ₈	2 ¹ / ₄	5
2	2.6	1 ¹ / ₈	5 ¹⁶ / ₁₆ -24	2 ¹ / ₂	¾	1 ⁷ / ₁₆	1 ⁵ / ₁₆	5 ¹⁶ / ₁₆	3 ⁵ / ₈	2 ⁵ / ₁₆	1.84	1 ³ / ₈	2 ¹ / ₄	5
2½	3.1	1 ¹ / ₈	5 ¹⁶ / ₁₆ -24	3	¾	1 ⁷ / ₁₆	1 ⁵ / ₁₆	5 ¹⁶ / ₁₆	3 ³ / ₄	2 ³ / ₈	2.19	1 ³ / ₈	2 ⁵ / ₁₆	5 ¹ / ₈
3¼	3.9	1 ³ / ₈	¾-24	3 ³ / ₄	½	1 ¹¹ / ₁₆	1 ³ / ₁₆	¾	4 ¹ / ₄	2 ⁵ / ₈	2.76	1 ⁵ / ₈	2 ¹¹ / ₁₆	5 ⁷ / ₈
4	4.7	1 ³ / ₈	¾-24	4½	½	1 ¹¹ / ₁₆	1 ³ / ₁₆	¾	4 ¹ / ₄	2 ⁵ / ₈	3.32	1 ⁵ / ₈	2 ¹¹ / ₁₆	5 ⁷ / ₈

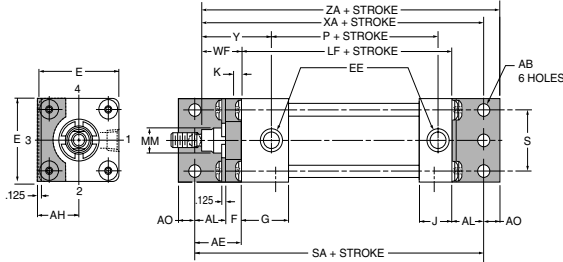
Tie Rods Extended Both Ends Mount NFFA Style MX1 (Model "A4OP")



BORE	AA	BB	DD	E	EE (NPTF)	G	J	K	LF	P	R	WF	Y	ZJ
1½	2.02	1	¼-28	2	¾	1 ⁷ / ₁₆	1 ⁵ / ₁₆	¼	3 ⁵ / ₈	2 ⁵ / ₁₆	1.43	1 ³ / ₈	2 ¹ / ₄	5
2	2.6	1 ¹ / ₈	5 ¹⁶ / ₁₆ -24	2 ¹ / ₂	¾	1 ⁷ / ₁₆	1 ⁵ / ₁₆	5 ¹⁶ / ₁₆	3 ⁵ / ₈	2 ⁵ / ₁₆	1.84	1 ³ / ₈	2 ¹ / ₄	5
2½	3.1	1 ¹ / ₈	5 ¹⁶ / ₁₆ -24	3	¾	1 ⁷ / ₁₆	1 ⁵ / ₁₆	5 ¹⁶ / ₁₆	3 ³ / ₄	2 ³ / ₈	2.19	1 ³ / ₈	2 ⁵ / ₁₆	5 ¹ / ₈
3¼	3.9	1 ³ / ₈	¾-24	3 ³ / ₄	½	1 ¹¹ / ₁₆	1 ³ / ₁₆	¾	4 ¹ / ₄	2 ⁵ / ₈	2.76	1 ⁵ / ₈	2 ¹¹ / ₁₆	5 ⁷ / ₈
4	4.7	1 ³ / ₈	¾-24	4½	½	1 ¹¹ / ₁₆	1 ³ / ₁₆	¾	4 ¹ / ₄	2 ⁵ / ₈	3.32	1 ⁵ / ₈	2 ¹¹ / ₁₆	5 ⁷ / ₈

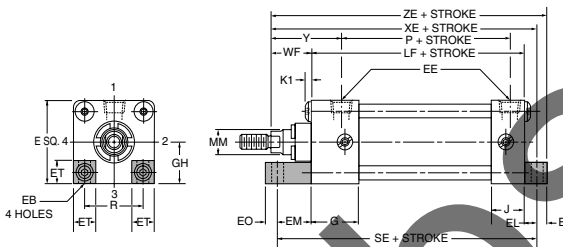
Series A40 cylinders — oversized rod diameters

Side End Angle Mount NFFA Style MS1 (Model "A40A")



BORE	AB	AE	AH	AL	AD	E	EE (NPTF)	F	G	J	K	LF	P	S	SA	WF	XA	Y	ZA
1 1/2	7/16	1 3/8	1 3/16	1	3/8	2	3/8	3/8	1 7/16	1 5/16	1/4	3 5/8	2 5/16	1 1/4	6	1 3/8	6	2 1/4	6 3/8
2	7/16	1 3/8	1 7/16	1	3/8	2 1/2	3/8	3/8	1 7/16	1 5/16	5/16	3 5/8	2 5/16	1 3/4	6	1 3/8	6	2 1/4	6 3/8
2 1/2	7/16	1 3/8	1 5/8	1	3/8	3	3/8	3/8	1 7/16	1 5/16	5/16	3 3/4	2 5/8	2 1/4	6 1/8	1 3/8	6 1/8	2 5/16	6 3/8
3 1/4	9/16	1 7/8	1 15/16	1 1/4	1/2	3 3/4	1/2	5/8	1 11/16	1 3/16	3/8	4 1/4	2 5/8	2 3/4	7 7/8	1 5/8	7 1/8	2 11/16	7 1/8
4	9/16	—	2 1/4	1 7/8	1/2	4 1/2	1/2	—	1 11/16	1 3/16	3/8	4 1/4	2 5/8	3 1/2	7 7/8	1 5/8	7 1/8	2 11/16	7 1/4

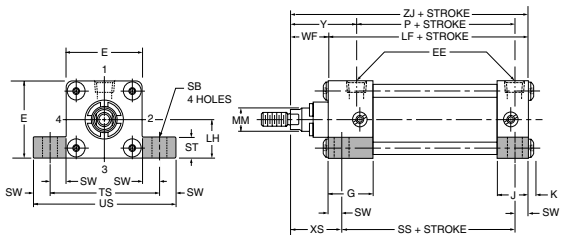
Side End Lug Mount* NFFA Style MS7 (Model "A40G")



BORE	E	EB	EE (NPTF)	EL	EM	EO	ET	G	GH ±.003	J	K	LF	P	R	SE	WF	XE	Y	ZE
2	2 1/2	1 1/32	3/8	1 5/16	1 5/16	5/16	1 1/16	1 7/16	1.243	1 5/16	5/32	3 5/8	2 5/16	1.84	5 7/8	1 3/8	5 15/16	2 1/4	6 1/4
2 1/2	3	1 1/32	3/8	1 1/16	1 7/16	5/16	1 3/16	1 7/16	1.493	1 5/16	5/32	3 3/4	2 5/8	2.19	6 1/4	1 3/8	6 3/16	2 5/16	6 1/2
3 1/4	3 3/4	1 3/32	1/2	7/8	1 1/2	3/8	1	1 11/16	1.868	1 3/16	3/16	4 1/4	2 5/8	2.76	6 5/8	1 5/8	6 3/4	2 11/16	7 1/8
4	4 1/2	1 3/32	1/2	1	1 5/8	3/8	1 3/16	1 11/16	2.243	1 3/16	3/16	4 1/4	2 5/8	3.32	6 7/8	1 5/8	6 7/8	2 11/16	7 1/4

*Note: Not Available in 1 1/2" Bore

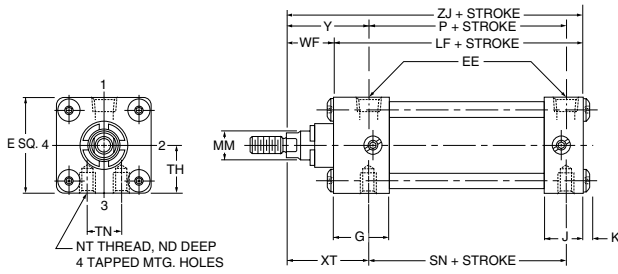
Side Lug Mount NFFA Style MS2 (Model "A40WL")



BORE	E	EE (NPTF)	G	J	K	LF	LH ±.003	P	SB	SS	ST	SW	TS	US	WF	XS	Y	ZJ
1 1/2	2	3/8	1 7/16	1 5/16	1/4	3 5/8	.993	2 5/16	7/16	2 7/8	1/2	3/8	2 3/4	3 1/2	1 3/8	1 3/4	2 1/4	5
2	2 1/2	3/8	1 7/16	1 5/16	5/16	3 5/8	1.243	2 5/16	7/16	2 7/8	1/2	3/8	3 1/4	4	1 3/8	1 3/4	2 1/4	5
2 1/2	3	3/8	1 7/16	1 5/16	5/16	3 3/4	1.493	2 5/8	7/16	3	1/2	3/8	3 3/4	4 1/2	1 3/8	1 3/4	2 5/16	5 1/8
3 1/4	3 3/4	1/2	1 11/16	1 3/16	3/8	4 1/4	1.868	2 5/8	9/16	3 1/4	3/4	1/2	4 3/4	5 3/4	1 5/8	2 1/8	2 11/16	5 7/8
4	4 1/2	1/2	1 11/16	1 3/16	3/8	4 1/4	2.243	2 5/8	9/16	3 1/4	3/4	1/2	5 1/2	6 1/2	1 5/8	2 1/8	2 11/16	5 7/8

Series A40 cylinders — oversized rod diameters

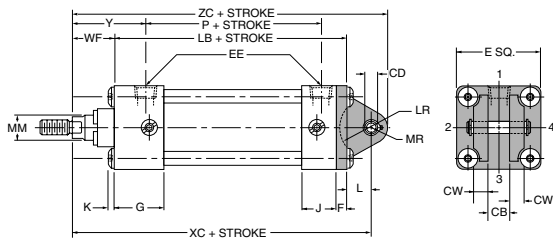
Side Top Mount* NFFA Style MS4 (Model "A4OB")



BORE	E	EE (NPT)	J	K	N ¹	P	SN	TN	TH ±.003	WF	XT	Y	ZJ
2	2 1/2	3/8	15/16	5/16	5/16-18	2 5/16	2 1/4	7/8	1.243	1 3/8	2 5/16	2 1/4	5
2 1/2	3	3/8	15/16	5/16	3/8-16	2 3/8	2 3/8	1 1/4	1.493	1 3/8	2 5/16	2 5/16	5 1/8
3 1/4	3 3/4	1/2	1 3/16	3/8	1/2-13	2 5/8	2 5/8	1 1/2	1.868	1 5/8	2 11/16	2 11/16	5 7/8
4	4 1/2	1/2	1 3/16	3/8	1/2-13	2 5/8	2 5/8	2 1/16	2.243	1 5/8	2 11/16	2 11/16	5 7/8

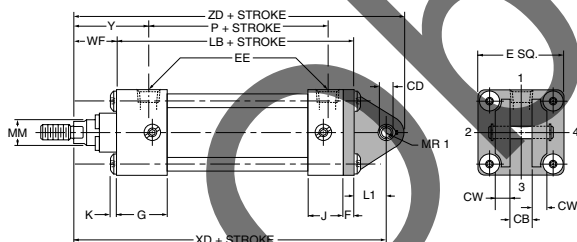
*Note: Not Available in 1 1/2" Bore

Cap Fixed Clevis Mount NFFA Style MP1 (Model "A4OC")



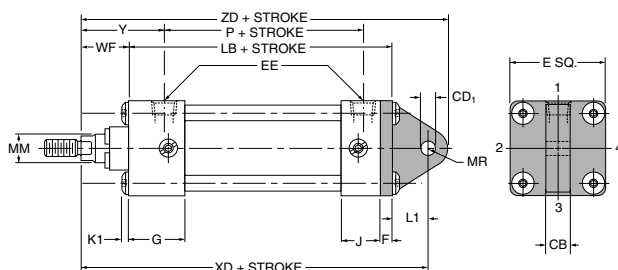
BORE	CB	+0.00 CD -0.02	OW	E	EE (NPT)	F	G	J	K	L	LB	LR	MR	P	WF	XC	Y	ZC
1 1/2	3/4	.501	1/2	2	3/8	3/8	1 7/16	15/16	1/4	3/8	4	3/4	5/8	2 5/16	1 3/8	5 3/4	2 1/4	6 3/8
2	3/4	.501	1/2	2 1/2	3/8	3/8	1 7/16	15/16	5/16	3/8	4	3/4	5/8	2 5/16	1 3/8	5 3/4	2 1/4	6 3/8
2 1/2	3/4	.501	1/2	3	3/8	3/8	1 7/16	15/16	5/16	3/8	4 1/8	3/4	5/8	2 3/8	1 3/8	5 7/8	2 5/16	6 1/2
3 1/4	1 1/4	.751	5/8	3 3/4	1/2	5/8	1 11/16	1 3/16	3/8	5/8	4 7/8	1	15/16	2 5/8	1 5/8	7 1/8	2 11/16	8 1/16
4	1 1/4	.751	5/8	4 1/2	1/2	5/8	1 11/16	1 3/16	3/8	5/8	4 7/8	1	15/16	2 5/8	1 5/8	7 1/8	2 11/16	8 1/16

Cap Detachable Clevis Mount NFFA Style MP2 (Model "A4OCD")



BORE	CB	+0.00 CD -0.02	OW	E	EE (NPT)	F	G	J	K	L1	LB	MR1	P	WF	XD	Y	ZD
1 1/2	3/4	.501	1/2	2	3/8	3/8	1 7/16	15/16	1/4	3/4	4	1/2	2 5/16	1 3/8	6 1/8	2 1/4	6 3/8
2	3/4	.501	1/2	2 1/2	3/8	3/8	1 7/16	15/16	5/16	3/4	4	1/2	2 5/16	1 3/8	6 1/8	2 1/4	6 3/8
2 1/2	3/4	.501	1/2	3	3/8	3/8	1 7/16	15/16	5/16	3/4	4 1/8	1/2	2 3/8	1 3/8	6 1/4	2 5/16	6 3/4
3 1/4	1 1/4	.751	5/8	3 3/4	1/2	5/8	1 11/16	1 3/16	3/8	1 1/4	4 7/8	3/4	2 5/8	1 5/8	7 3/4	2 11/16	8 1/2
4	1 1/4	.751	5/8	4 1/2	1/2	5/8	1 11/16	1 3/16	3/8	1 1/4	4 7/8	3/4	2 5/8	1 5/8	7 3/4	2 11/16	8 1/2

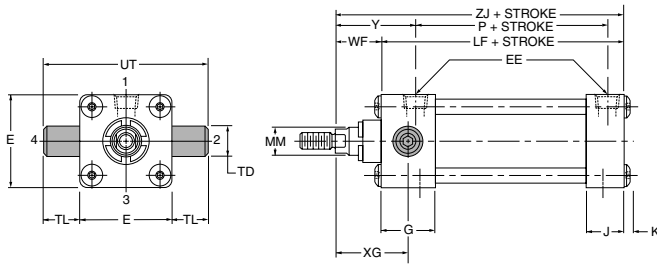
Cap Detachable Eye Mount NFFA Style MP4 (Model "A4OED")



BORE	CB	+0.02 CD1 +0.004	E	EE (NPT)	F	G	J	K1	L1	LB	MR	P	WF	XD	Y	ZD
1 1/2	3/4	.500	2	3/8	3/8	1 7/16	15/16	1/8	3/4	4	5/8	2 5/16	1 3/8	6 1/8	2 1/4	6 3/8
2	3/4	.500	2 1/2	3/8	3/8	1 7/16	15/16	5/32	3/4	4	5/8	2 5/16	1 3/8	6 1/8	2 1/4	6 3/8
2 1/2	3/4	.500	3	3/8	3/8	1 7/16	15/16	5/32	3/4	4 1/8	5/8	2 3/8	1 3/8	6 1/4	2 5/16	6 3/4
3 1/4	1 1/4	.750	3 3/4	1/2	5/8	1 11/16	1 3/16	3/16	1 1/4	4 7/8	15/16	2 5/8	1 5/8	7 3/4	2 11/16	8 1/2
4	1 1/4	.750	4 1/2	1/2	5/8	1 11/16	1 3/16	3/16	1 1/4	4 7/8	15/16	2 5/8	1 5/8	7 3/4	2 11/16	8 1/2

Series A40 cylinders — oversized rod diameters

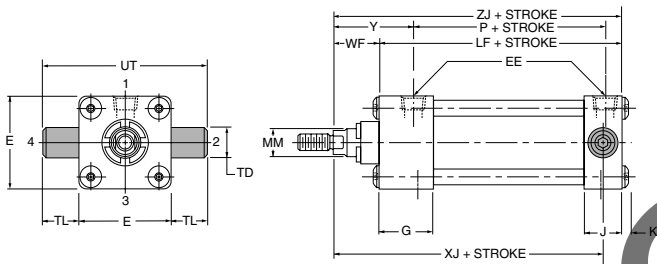
Head Trunnion Mount* NFFA Style MT1 (Model "A40TH")



BORE	E	EE (NPTF)	G	J	K	LF	P	+0.000 TD -0.001	TL	UT	WF	XG	Y	ZJ
2	2 1/2	3/8	1 7/16	1 5/16	5/16	3 3/8	2 5/16	1.000	1	4 1/2	1 3/8	2 1/8	2 1/4	5
2 1/2	3	3/8	1 7/16	1 5/16	5/16	3 3/4	2 3/8	1.000	1	5	1 3/8	2 1/8	2 5/16	5 1/8
3 1/4	3 3/4	1/2	1 11/16	1 3/16	3/8	4 1/4	2 5/8	1.000	1	5 3/4	1 5/8	2 1/2	2 11/16	5 7/8
4	4 1/2	1/2	1 11/16	1 3/16	3/8	4 1/4	2 5/8	1.000	1	6 1/2	1 5/8	2 1/2	2 11/16	5 7/8

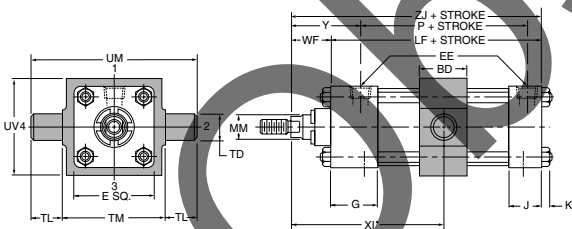
*Note: Not Available in 1 1/2" Bore

Cap Trunnion Mount NFFA Style MT2 (Model "A40TC")



BORE	E	EE (NPTF)	G	J	K	LF	P	+0.000 TD -0.001	TL	UT	WF	XJ	Y	ZJ
1 1/2	2	3/8	1 7/16	1 5/16	1/4	3 5/8	2 5/16	1.000	1	4	1 3/8	4 1/2	2 1/4	5
2	2 1/2	3/8	1 7/16	1 5/16	5/16	3 5/8	2 5/16	1.000	1	4 1/2	1 3/8	4 1/2	2 1/4	5
2 1/2	3	3/8	1 7/16	1 5/16	5/16	3 3/4	2 3/8	1.000	1	5	1 3/8	4 5/8	2 5/16	5 1/8
3 1/4	3 3/4	1/2	1 11/16	1 3/16	3/8	4 1/4	2 5/8	1.000	1	5 3/4	1 5/8	5 1/4	2 11/16	5 7/8
4	4 1/2	1/2	1 11/16	1 3/16	3/8	4 1/4	2 5/8	1.000	1	6 1/2	1 5/8	5 1/4	2 11/16	5 7/8

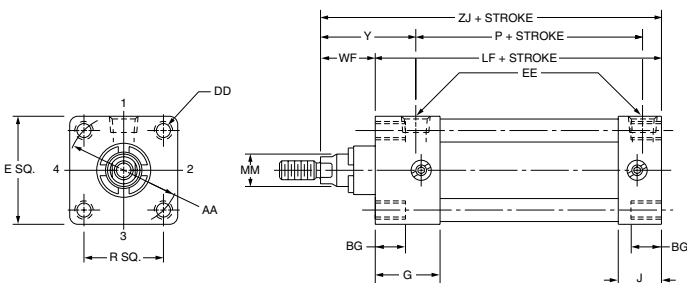
Intermediate Trunnion Mount NFFA Style MT4 (Model "A40TT")



BORE	ED	E	EE (NPTF)	G	J	K	LF	P	+0.000 TD -0.001	TL	TM	UM	UV	WF	XI Min.	Y	ZJ
1 1/2	1 1/4	2	3/8	1 7/16	1 5/16	1/4	3 5/8	2 5/16	1.000	1	2 1/2	4 1/2	2 1/2	1 3/8	3 3/16	2 1/4	5
2	1 1/2	2 1/2	3/8	1 7/16	1 5/16	5/16	3 5/8	2 5/16	1.000	1	3	5	3	1 3/8	3 11/16	2 1/4	5
2 1/2	1 1/2	3	3/8	1 7/16	1 5/16	5/16	3 3/4	2 3/8	1.000	1	3 1/2	5 1/2	3 1/2	1 3/8	3 11/16	2 5/16	5 1/8
3 1/4	2	3 3/4	1/2	1 11/16	1 3/16	3/8	4 1/4	2 5/8	1.000	1	4 1/2	6 1/2	4 1/4	1 5/8	4 7/16	2 11/16	5 7/8
4	2	4 1/2	1/2	1 11/16	1 3/16	3/8	4 1/4	2 5/8	1.000	1	5 1/4	7 1/4	5	1 5/8	4 7/16	2 11/16	5 7/8

▲Dimension "XI" to be specified by customer.

Sleeve Nut Mount Style MX5 (Model "A40E")



BORE	AA	BG	DD	E	EE (NPTF)	G	J	LF	P	R	WF	Y	ZJ
1 1/2	2.02	.45	1/4-28	2	3/8	1 7/16	1 5/16	3 5/8	2 5/16	1.43	1 3/8	2 1/4	5
2	2.6	.48	5/16-24	2 1/2	3/8	1 7/16	1 5/16	3 5/8	2 5/16	1.84	1 3/8	2 1/4	5
2 1/2	3.1	.48	5/16-24	3	3/8	1 7/16	1 5/16	3 3/4	2 3/8	2.19	1 3/8	2 5/16	5 1/8
3 1/4	3.9	.50	3/8-24	3 3/4	1/2	1 11/16	1 3/16	4 1/4	2 5/8	2.76	1 5/8	2 11/16	5 7/8
4	4.7	.50	3/8-24	4 1/2	1/2	1 11/16	1 3/16	4 1/4	2 5/8	3.32	1 5/8	2 11/16	5 7/8

Series A4 Non-Lube Air Cylinder 5" through 8" Bore



Standard Specifications

- N.F.P.A. Interchangeable
- Bore size – 5", 6" and 8"
- Rod Diameters – 1" 1-3/8", and 1-3/4"
- Rod Ends – three standard, specials to order.
- Cushions – optional at either end or both ends of stroke
- Strokes – available in any practical stroke length.
- 250 P.S.I. Air Service
- 250 P.S.I. Hydraulic Service (non-cushioned only)
- Standard Fluid – Filtered Air
- Standard Temperature – -10°F to +165°F
- Fluorocarbon Seals for high temperature service – -10°F to +250°F (optional)
- Single end or double end
- Mounting styles – 14 standard
- Optional urethane noise dampening bumpers
NOTE: Use of bumpers results in loss of effective stroke of 1/4" per bumper (see How to Order).

Series A4 - 5" through 8" Bore, Lightweight, Non-Lube Pneumatic Cylinder.

Premium Quality and Economy in one.

Lightweight construction and solid Non-Lube design with proven reliability make the Series A4 Cylinder the high performance, long lasting, economical choice for your air cylinder applications.

Piston

Aluminum Piston with nylon wear band increases cylinder life, eliminates metal-to-metal contact. Optional magnet piston for use with reed or solid state switches. Anaerobic adhesive is used to permanently lock and seal the piston to the rod.

Hard Anodized Aluminum

Lightweight cylinder body: aluminum tube with steel tie rods.

Ports

N.P.T.F. ports are standard.

Heads and Caps are Precision, Lightweight Aluminum blocks that are anodized for maximum corrosion resistance.

Check Seal Cushion*

Piston rod lipseal/wiper

combination is completely self compensating for zero leakage at all pressures. Keeps pressure in, contamination out. Pneumatic service.

Rounded lip piston seals glide on lubricant film to maximize life.

Rod Gland

Threaded, bronze gland is externally removable without cylinder disassembly for easy maintenance.

Piston-Rod — Hard chrome-plated and polished piston rod of 100,000 psi yield, high tensile strength steel case hardened to 50-54 Rc for reliable performance and long rod seal life, less friction.

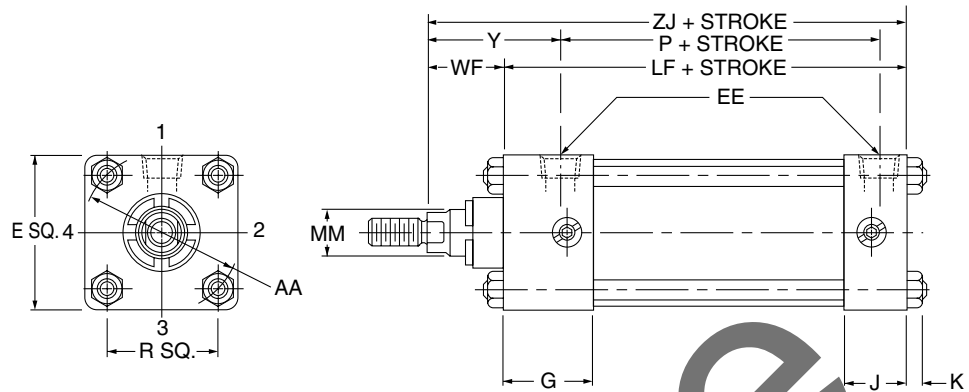
Cushion Needle Valves make precise adjustment quick and easy. Captive cushion design allows for safe cushion adjusting while cylinder is under pressure. Brass material to resist corrosion.

Series A4 cylinders — standard rod diameters

A4 series
5" - 8" bores
 Pressure rating:
 250 psi air
 optional oil service

Stroke lengths to suit are available in all bore sizes.

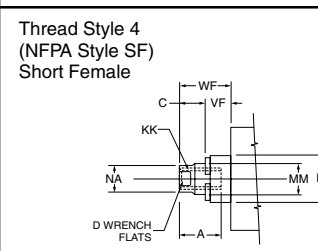
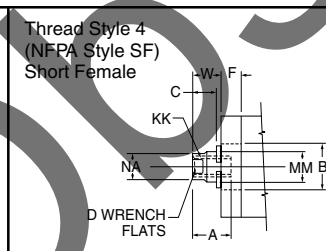
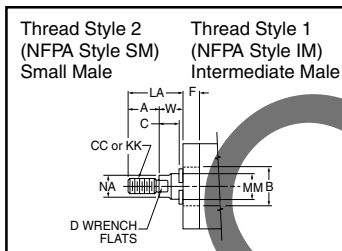
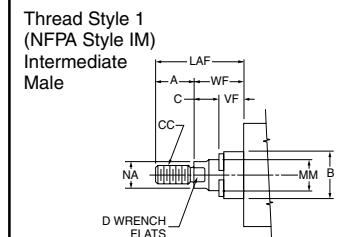
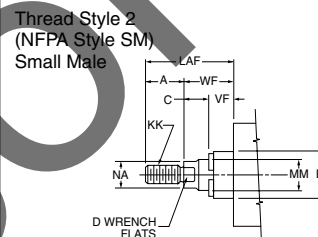
Model A4 basic cylinder



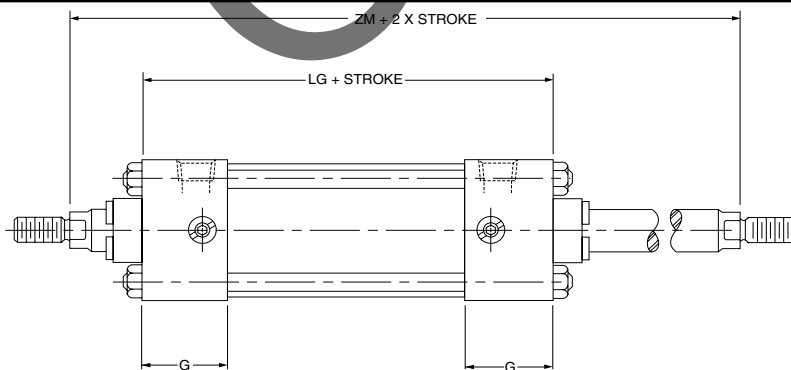
BORE	AA	E	EE (NPTF)	G	J	K	LF	MM	P	R	WF	Y	ZJ
5	5.8	5 1/2	1/2	1.66	1.22	7/16	4 1/2	1	2 7/8	4.10	1 3/8	2 1/16	5 7/8
6	6.9	6 1/2	3/4	1.91	1.41	7/16	5	1 3/8	3 3/8	4.88	1 5/8	2 13/16	6 5/8
8	9.1	8 1/2	3/4	1.81	1.44	9/16	5 1/8	1 3/8	3 1/4	—	1 5/8	2 3/4	6 3/4

Rod end dimensions basic cylinder

BORE SIZE	Rod		Thread		A	+0.000 -0.002 B	C	D	F	IA	LAF	NA	VF	W	WF
	Dia MM	Style 1 GC	Style 2 & 4 KK	Style 1											
5	1	7/8-14	3/4-16	1 1/8	1.499	5/8	7/8	5/8	1 7/8	—	1 5/16	3/4	3/4	3/4	3/4
6	1 1/8	1 1/4-12	1-14	1 5/8	1.999	7/8	1 1/8	3/4	2 1/2	—	1 5/16	3/4	7/8	7/8	7/8
8	1 1/2	1 1/4-12	1-14	1 5/8	1.999	7/8	1 1/8	3/4	2 1/2	3 7/8	1 5/16	3/4	7/8	7/8	7/8



"Special Thread" Style 3
 Special thread, extension, rod eye, blank, etc., are also available. To order specify "Style 3" and give desired dimensions for CC or KK, A and W or WF. If otherwise special, furnish dimensioned sketch.



BORE	Add 2x Stroke		
	G	LG	ZM
5	1.66	4 15/16	7 11/16
6	1.91	5 1/2	8 3/4
8	1.81	5 1/2	8 3/4
REPLACES DIMENSION		LF	—
ON SINGLE ROD MOUNTING STYLES		ALL MTG STYLES	

How to Use Double Rod Cylinder Dimensioned Drawings

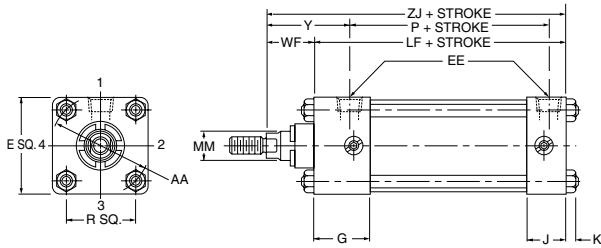
To determine dimensions for a double rod cylinder, first refer to the desired single rod mounting style cylinder shown on preceding pages of this catalog. (See table above). After selecting necessary dimensions from that drawing, return to this page supplement the single rod dimensions with those shown on drawings above and dimensions table above. Note that double rod cylinders have a head (Dim. G) at both ends and that dimension LG replaces LF.

The double rod dimensions differ from, or are in addition to those for single rod cylinders shown on preceding pages and provide the information needed to completely dimension a double rod cylinder.

On a double rod cylinder where the two rod ends are different, be sure to clearly state which rod end is to be assembled at which end.

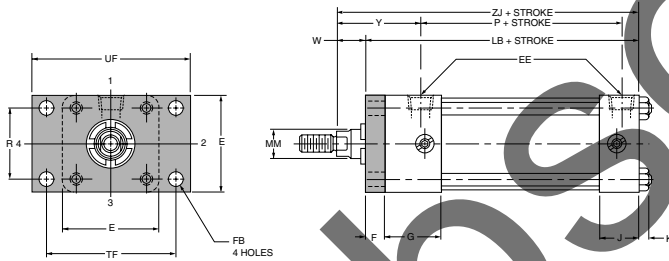
Series A4 cylinders — standard rod diameters

No Mount Basic NFFA Style MX0 (Model "A4")



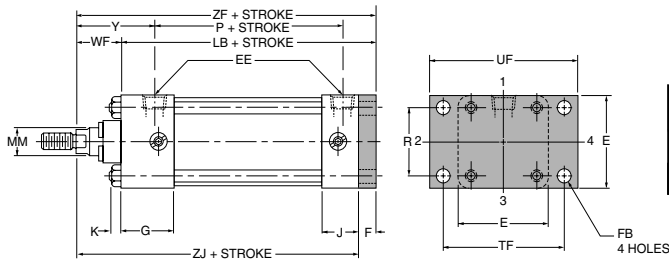
BORE	AA	E	EE (NPTF)	G	J	K	LF	P	R	WF	Y	ZJ
5	5.8	5 1/2	1/2	1.66	1.22	7/16	4 1/2	2 7/8	4.10	1 5/8	2 7/16	5 7/8
6	6.9	6 1/2	3/4	1.91	1.41	7/16	5	3 1/8	4.88	1 5/8	2 13/16	6 5/8
8	9.1	8 1/2	3/4	1.81	1.44	9/16	5 1/8	3 1/4	—	1 5/8	2 3/4	6 3/4

Head Rectangular Flange NFFA Style MF1 (Model "A4F")



BORE	E	EE (NPTF)	F	FB	G	J	K	LB	P	R	TF	UF	W	Y	ZJ
5	5 1/2	1/2	5/8	9/16	1.66	1.22	7/16	5 1/8	2 7/8	4.10	6 5/8	7 7/8	3/4	2 7/16	5 7/8
6	6 1/2	3/4	3/4	9/16	1.91	1.41	7/16	5 3/4	3 1/8	4.88	7 5/8	8 5/8	7/8	2 13/16	6 5/8

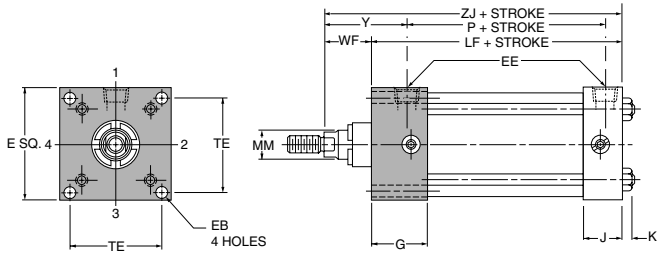
Cap Rectangular Flange NFFA Style MF2 (Model "A4R")



BORE	E	EE (NPTF)	F	FB	G	J	K	LB	P	R	TF	UF	WF	Y	ZF	ZJ
5	5 1/2	1/2	5/8	9/16	1.66	1.22	7/16	5 1/8	2 7/8	4.10	6 5/8	7 7/8	1 3/8	2 7/16	6 1/2	5 7/8
6	6 1/2	3/4	3/4	9/16	1.91	1.41	7/16	5 3/4	3 1/8	4.88	7 5/8	8 5/8	1 5/8	2 13/16	7 7/8	6 5/8

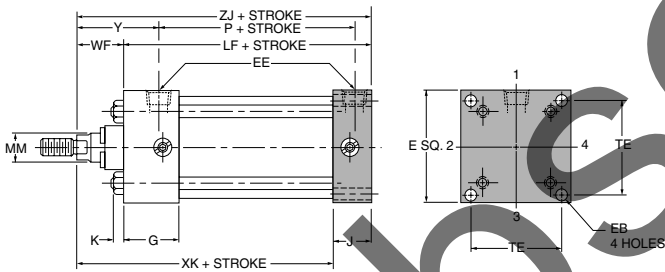
Series A4 cylinders — standard rod diameters

Head Square Mount NFA Style ME3 (Model "A4FH")



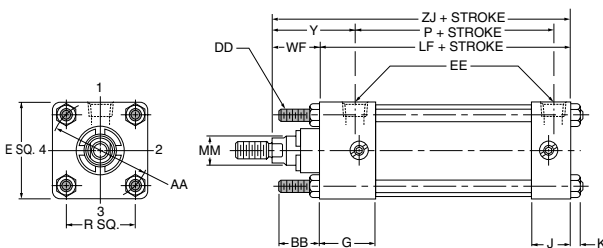
BORE	E	EB	EE (NPT)	G	J	K	LF	P	TE	WF	Y	ZJ
8	8½	11/16	¾	1.81	1.44	9/16	5⅛	3¼	7.57	1⅝	2¾	6¾

Cap Square Mount NFA Style ME4 (Model "A4RC")



BORE	E	EB	EE (NPT)	G	J	K	LF	P	TE	WF	XK	Y	ZJ
8	8½	11/16	¾	1.81	1.44	9/16	5⅛	3¼	7.57	1⅝	5⅞	2¾	6¾

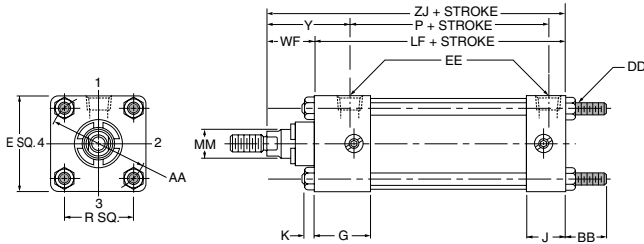
Tie Rods Extended Head End Mount NFA Style MX3 (Model "A4M")



BORE	AA	EB	DD	E	EE (NPT)	G	J	K	LF	P	R	WF	Y	ZJ
5	5.8	113/16	½-20	5½	½	1.66	1.22	7/16	4½	27/8	4.10	1⅝	27/16	5⅞
6	6.9	113/16	½-20	6½	¾	1.91	1.41	7/16	5	3⅞	4.88	1⅝	213/16	6⅞
8	9.1	25/16	5/8-18	8½	¾	1.81	1.44	9/16	5⅞	3¼	6.44	1⅝	2¾	6¾

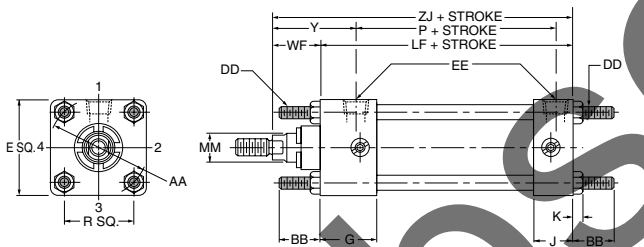
Series A4 cylinders — standard rod diameters

Tie Rods Extended Cap Mount NFFA Style MX2 (Model "A4N")



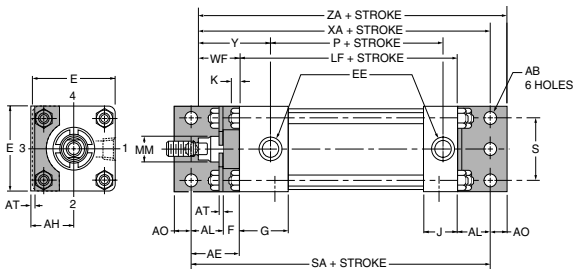
BORE	AA	BB	DD	E	EE (NPTF)	G	J	K	LF	P	R	WF	Y	ZJ
5	5.8	1 ¹³ / ₁₆	1/2-20	5 ¹ / ₂	1/2	1.66	1.22	7/16	4 ¹ / ₂	2 ⁷ / ₈	4.10	1 ⁵ / ₈	2 ⁷ / ₁₆	5 ⁷ / ₈
6	6.9	1 ¹³ / ₁₆	1/2-20	6 ¹ / ₂	3/4	1.91	1.41	7/16	5	3 ¹ / ₈	4.88	1 ⁵ / ₈	2 ¹³ / ₁₆	6 ⁵ / ₈
8	9.1	2 ⁵ / ₁₆	5/8-18	8 ¹ / ₂	3/4	1.81	1.44	9/16	5 ¹ / ₈	3 ¹ / ₄	6.44	1 ⁵ / ₈	2 ³ / ₄	6 ³ / ₄

Tie Rods Extended Both Ends NFFA Style MX1 (Model "A4P")



BORE	AA	BB	DD	E	EE (NPTF)	G	J	K	LF	P	R	WF	Y	ZJ
5	5.8	1 ¹³ / ₁₆	1/2-20	5 ¹ / ₂	1/2	1.66	1.22	7/16	4 ¹ / ₂	2 ⁷ / ₈	4.10	1 ⁵ / ₈	2 ⁷ / ₁₆	5 ⁷ / ₈
6	6.9	1 ¹³ / ₁₆	1/2-20	6 ¹ / ₂	3/4	1.91	1.41	7/16	5	3 ¹ / ₈	4.88	1 ⁵ / ₈	2 ¹³ / ₁₆	6 ⁵ / ₈
8	9.1	2 ⁵ / ₁₆	5/8-18	8 ¹ / ₂	3/4	1.81	1.44	9/16	5 ¹ / ₈	3 ¹ / ₄	6.44	1 ⁵ / ₈	2 ³ / ₄	6 ³ / ₄

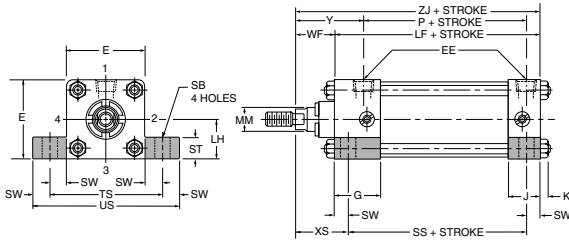
Side End Angle Mount NFFA Style MS1 (Model "A4A")



BORE	AB	AE	AH	AL	AO	AT	E	EE (NPTF)	F	G	J	K	LF	P	SA	WF	XA	Y	ZA
5	1 ¹¹ / ₁₆	2	2 ³ / ₄	1 ⁵ / ₈	5/8	3/16	5 ¹ / ₂	1/2	5/8	1.66	1.22	7/16	4 ¹ / ₂	2 ⁷ / ₈	7 ⁷ / ₈	1 ⁵ / ₈	7 ¹ / ₄	2 ⁷ / ₁₆	7 ⁷ / ₈
6	1 ¹³ / ₁₆	2 ¹ / ₈	3 ¹ / ₄	1 ⁵ / ₈	5/8	3/16	6 ¹ / ₂	3/4	3/4	1.91	1.41	7/16	5	3 ¹ / ₈	8 ¹ / ₂	1 ⁵ / ₈	8	2 ¹³ / ₁₆	8 ⁵ / ₈
8	1 ¹³ / ₁₆	1 ¹³ / ₁₆	4 ¹ / ₄	1 ¹³ / ₁₆	11/16	1/4	8 ¹ / ₂	3/4	—	1.81	1.44	9/16	5 ¹ / ₈	3 ¹ / ₄	8 ³ / ₄	1 ⁵ / ₈	8 ⁹ / ₁₆	2 ³ / ₄	9 ¹ / ₄

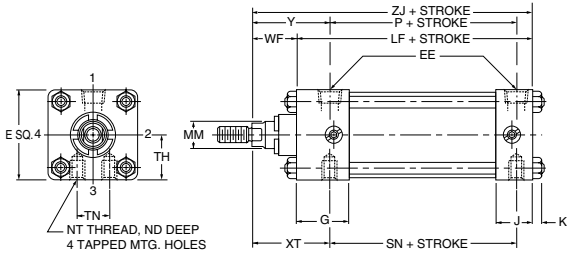
Series A4 cylinders — standard rod diameters

Side Lug Mount NFFA Style MS2 (Model "A4WL")



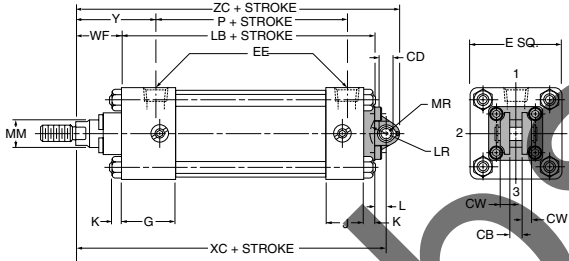
BORE	E	EE (NPTF)	G	J	K	LF	LH ±.003	P	SB	SS	ST	SW	TS	US	WF	XS	Y	ZJ
5	5 1/2	1/2	1.66	1.22	7/16	4 1/2	2.743	2 7/8	1 3/16	3 1/8	1	1 1/16	6 7/8	8 1/4	1 3/8	2 1/16	2 7/16	5 7/8
6	6 1/2	3/4	1.91	1.41	7/16	5	3.243	3 1/8	1 3/16	3 5/8	1	1 1/16	7 7/8	9 1/4	1 5/8	2 5/16	2 13/16	6 5/8
8	8 1/2	3/4	1.81	1.44	9/16	5 1/8	4.243	3 1/4	1 3/16	3 3/4	1	1 1/16	9 7/8	11 1/4	1 5/8	2 5/16	2 3/4	6 3/4

Side Tap Mount NFFA Style MS4 (Model "A4B")



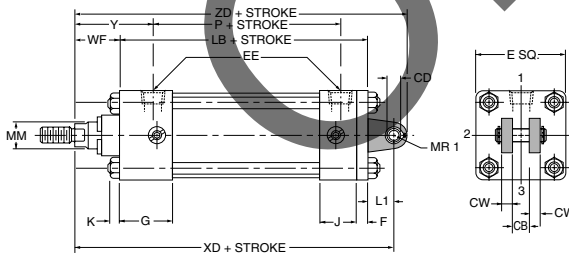
BORE	E	EE (NPTF)	G	J	K	LF	ND	N'	P	SN	TH ±.003	TN	WF	XT	Y	ZJ
5	5 1/2	1/2	1.66	1.22	7/16	4 1/2	15/16	5/8-11	2 7/8	2 7/8	2.743	2 11/16	1 3/8	2 7/16	2 7/16	5 7/8
6	6 1/2	3/4	1.91	1.41	7/16	5	1 1/8	3/4-10	3 1/8	3 1/8	3.243	3 3/4	1 5/8	2 13/16	2 13/16	6 5/8
8	8 1/2	3/4	1.81	1.44	9/16	5 1/8	1 1/8	3/4-10	3 3/4	3 3/4	4.243	4 1/2	1 5/8	2 13/16	2 3/4	6 3/4

Cap Detachable Clevis Mount NFFA Style MP1 (Model "A4C")



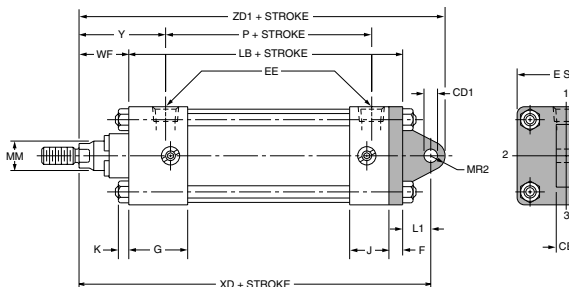
BORE	CB	+0.001 CDL -0.002	OW	E	EE (NPTF)	G	J	K	L	LB	LR	MR	P	WF	XC	Y	ZC
5	1 1/4	.751	5/8	5 1/2	1/2	1.66	1.22	7/16	5/8	5 1/8	1	1 5/16	2 7/8	1 3/8	7 7/8	2 7/16	8 1/16
6	1 1/2	1.001	3/4	6 1/2	3/4	1.91	1.41	7/16	3/4	5 3/4	1 1/4	1 1/8	3 1/8	1 5/8	8 1/8	2 13/16	9 1/4
8	1 1/2	1.001	3/4	8 1/2	3/4	1.81	1.44	9/16	3/4	5 7/8	1 1/4	1 1/8	3 1/4	1 5/8	8 1/4	2 3/4	9 3/8

Cap Detachable Clevis Mount NFFA Style MP2 (Model "A4CD")



BORE	CB	+0.001 CDL -0.002	OW	E	EE (NPTF)	F	G	J	K	LB	L1	MR1	P	WF	XD	Y	ZD
5	1 1/4	.751	5/8	5 1/2	1/2	5/8	1.66	1.22	7/16	5 1/8	1 1/4	3/4	2 7/8	1 3/8	7 3/4	2 7/16	8 1/2
6	1 1/2	1.001	3/4	6 1/2	3/4	3/4	1.91	1.41	7/16	5 3/4	1 1/2	1	3 1/8	1 5/8	8 7/8	2 13/16	9 7/8
8	1 1/2	1.001	3/4	8 1/2	3/4	3/4	1.81	1.44	9/16	5 7/8	1 1/2	1	3 1/4	1 5/8	9	2 3/4	10

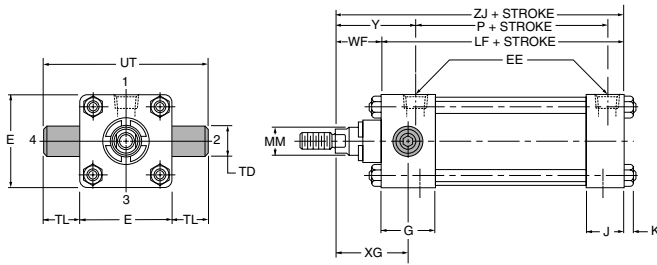
Cap Detachable Eye Mount NFFA Style MP4 (Model "A4ED")



BORE	CB	+0.002 CDL +0.004	E	EE (NPTF)	F	G	J	K	L1	LB	MR2	P	WF	XD	Y	ZD1
5	1 1/4	.750	5 1/2	1/2	5/8	1.66	1.22	7/16	1 1/4	5 1/8	7/8	2 7/8	1 3/8	7 3/4	2 7/16	8 5/8
6	1 1/2	1.000	6 1/2	3/4	3/4	1.91	1.41	7/16	1 1/2	5 3/4	1 1/8	3 1/8	1 5/8	8 7/8	2 13/16	10

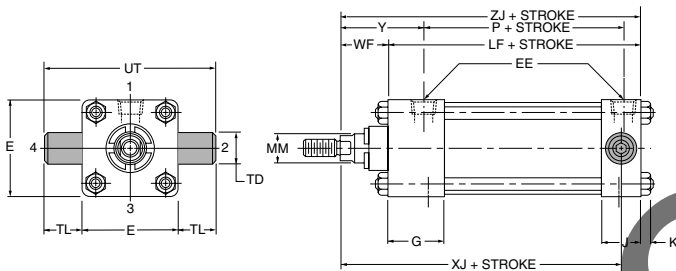
Series A4 cylinders — standard rod diameters

Head Trunnion Mount NFPA Style MT1 (Model "A4TH")



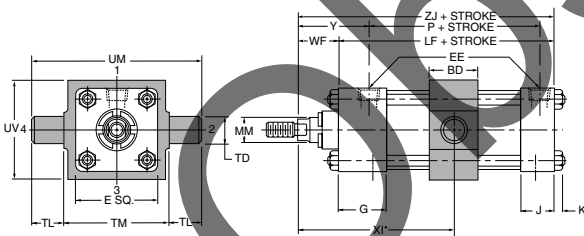
BOFE	E	EE (NPTF)	G	J	K	LF	P	+000 TD -.001	TL	UF	WF	XG	Y	ZJ
5	5 1/2	1/2	1.66	1.22	7/16	4 1/2	2 7/8	1.000	1	7 1/2	1 3/8	2 1/4	2 7/16	5 7/8
6	6 1/2	3/4	1.91	1.41	7/16	5	3 1/8	1.375	1 3/8	9 1/4	1 5/8	2 5/8	2 13/16	6 5/8
8	8 1/2	3/4	1.81	1.44	9/16	5 1/8	3 1/4	1.375	1 3/8	11 1/4	1 5/8	2 5/8	2 3/4	6 3/4

Cap Trunnion Mount NFPA Style MT2 (Model "A4TC")



BOFE	E	EE (NPTF)	G	J	K	LF	P	+000 TD -.001	TL	UF	WF	XJ	Y	ZJ
5	5 1/2	1/2	1.66	1.22	7/16	4 1/2	2 7/8	1.000	1	7 1/2	1 3/8	2 1/4	2 7/16	5 7/8
6	6 1/2	3/4	1.91	1.41	7/16	5	3 1/8	1.375	1 3/8	9 1/4	1 5/8	2 5/8	2 13/16	6 5/8
8	8 1/2	3/4	1.81	1.44	9/16	5 1/8	3 1/4	1.375	1 3/8	11 1/4	1 5/8	2 5/8	2 3/4	6 3/4

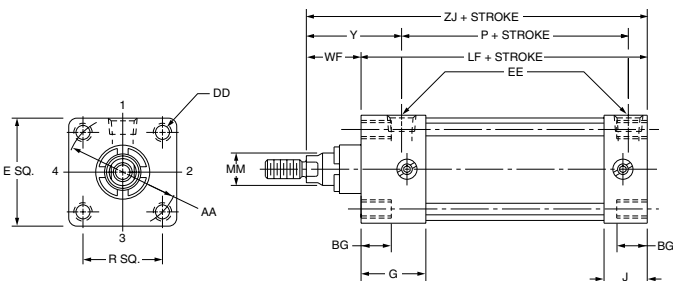
Intermediate Trunnion Mount NFPA Style MT4 (Model "A4TT")



BOFE	ED	E	EE (NPTF)	G	J	K	LF	P	+000 TD -.001	TL	TM	UM	UV	WF	XI Min.	Y	ZJ
5	2	5 1/2	1/2	1.66	1.22	7/16	4 1/2	2 7/8	1.000	1	6 1/4	8 1/4	6	1 3/8	4 3/16	2 7/16	5 7/8
6	2 1/2	6 1/2	3/4	1.91	1.41	7/16	5	3 1/8	1.375	1 3/8	7 5/8	10 3/8	7	1 3/8	4 15/16	2 13/16	6 5/8
8	2 1/2	8 1/2	3/4	1.81	1.44	9/16	5 1/8	3 1/4	1.375	1 3/8	9 3/4	12 1/2	9 1/2	1 3/8	3 15/16	2 3/4	6 3/4

▲Dimension "XI" to be specified by customer.

Sleeve Nut Mount Style MX5 (Model "A4E")



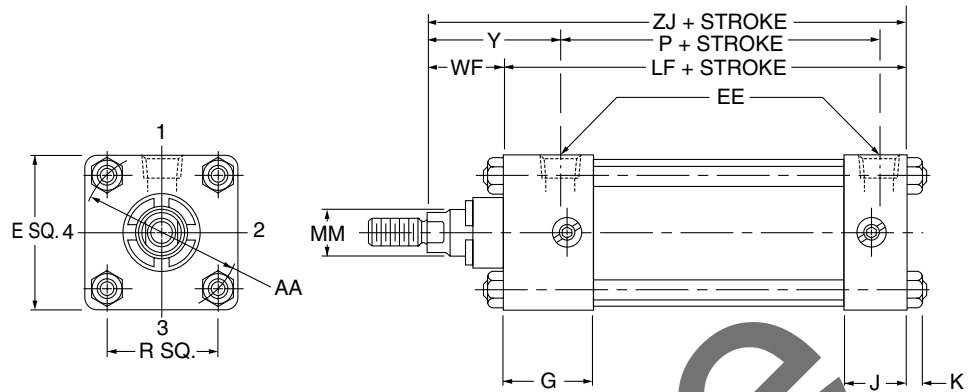
BOFE	AA	BG	DD	E	EE (NPTF)	G	J	LF	P	R	WF	Y	ZJ
5	5.8	.50	1/2-20	5 1/2	1/2	1.66	1.22	4 1/2	2 7/8	4.10	1 3/8	2 7/16	5 7/8
6	6.9	.50	1/2-20	6 1/2	3/4	1.91	1.41	5	3 1/8	4.88	1 5/8	2 13/16	6 5/8
8	9.1	.62	5/8-18	8 1/2	3/4	1.81	1.44	5 1/8	3 1/4	6.44	1 5/8	2 3/4	6 3/4

Series A40 cylinders — oversized rod diameters

A40 series
5" - 8" bores
 Pressure rating:
 250 psi air
 optional oil service

Stroke lengths to suit are available in all bore sizes.

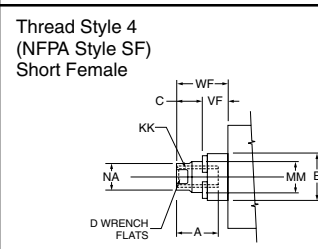
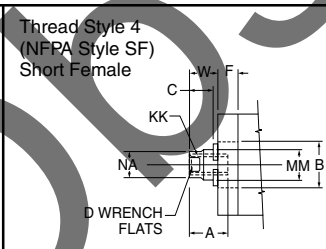
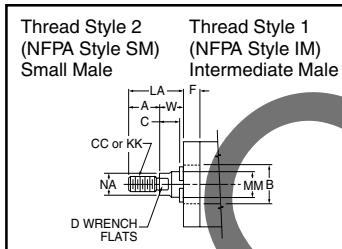
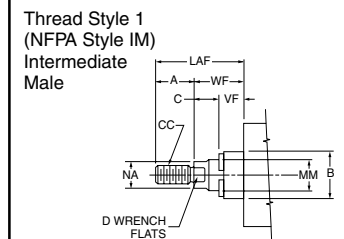
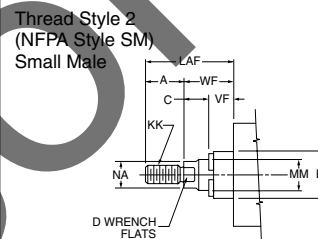
Model A40 basic cylinder



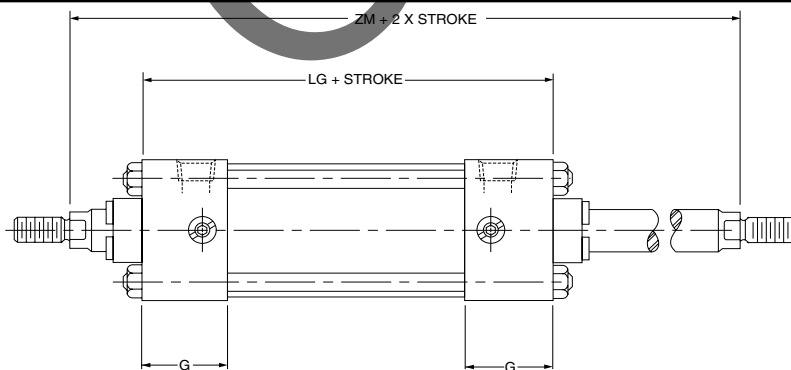
BORE	AA	E	EE (NPTF)	G	J	K	LF	MM	P	R	WF	Y	ZJ
5	5.8	5 1/2	1/2	1.66	1.22	7/16	4 1/2	1 3/8	2 1/8	4.10	1 5/8	2 1/16	6 1/8
6	6.9	6 1/2	3/4	1.91	1.41	7/16	5	1 3/4	3 1/8	4.88	1 7/8	3 1/16	6 7/8
8	9.1	8 1/2	3/4	1.81	1.44	9/16	5 1/8	1 3/4	3 1/4	—	1 7/8	3	7

Rod end dimensions basic cylinder

BORE SIZE	Rod		Thread		A	+0.000 -0.002 B	C	D	F	LA	LAF	NA	VF	W	WF
	Dia MM	Style 1 GC	Style 2 & 4 KK	Style 1											
5	1 1/8	1 1/4-12	1-16	15/8	1.999	7/8	1 1/8	5/8	2 5/8	—	1 5/16	3/4	1	1 5/8	
6	1 1/4	1 1/2-12	1-14	2	2.374	13/16	1 1/2	3/4	3 1/8	—	1 11/16	1 1/16	1 1/8	1 7/8	
8	1 3/4	1 1/2-12	1-14	2	2.374	13/16	1 1/2	3/4	3 3/8	3/8	1 11/16	1 1/16	1 1/8	1 7/8	



"Special Thread" Style 3
 Special thread, extension, rod eye, blank, etc., are also available. To order specify "Style 3" and give desired dimensions for CC or KK, A and W or WF. If otherwise special, furnish dimensioned sketch.



BORE	Add 2x Stroke		
	G	LG	ZM
5	1.66	4 15/16	8 9/16
6	1.91	5 1/2	9 1/4
8	1.81	5 1/2	9 1/4
REPLACES DIMENSION		LF	—
ON SINGLE ROD MOUNTING STYLES		ALL MTG STYLES	

How to Use Double Rod Cylinder Dimensioned Drawings

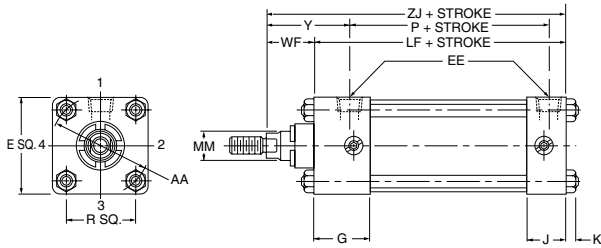
To determine dimensions for a double rod cylinder, first refer to the desired single rod mounting style cylinder shown on preceding pages of this catalog. (See table above). After selecting necessary dimensions from that drawing, return to this page supplement the single rod dimensions with those shown on drawings above and dimensions table above. Note that double rod cylinders have a head (Dim. G) at both ends and that dimension LG replaces LF.

The double rod dimensions differ from, or are in addition to those for single rod cylinders shown on preceding pages and provide the information needed to completely dimension a double rod cylinder.

On a double rod cylinder where the two rod ends are different, be sure to clearly state which rod end is to be assembled at which end.

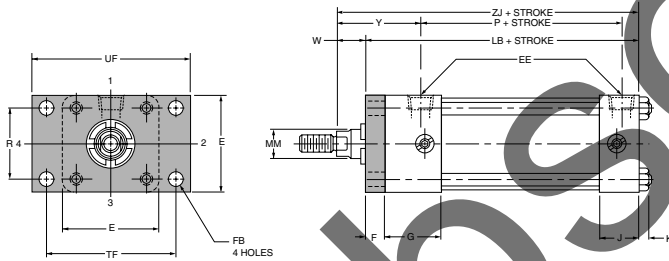
Series A40 cylinders — oversized rod diameters

No Mount Basic NFPA Style MX0 (Model "A40")



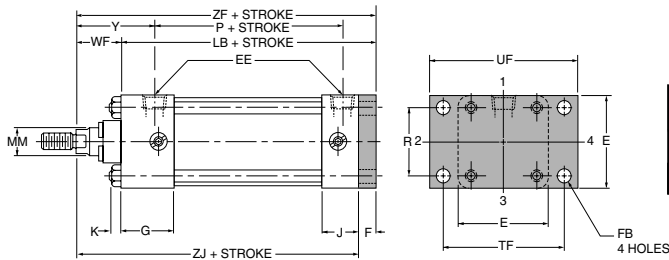
BORE	AA	E	EE (NPTF)	G	J	K	LF	P	R	WF	Y	ZJ
5	5.8	5 1/2	1/2	1.66	1.22	7/16	4 1/2	2 7/8	4.10	1 5/8	2 11/16	6 1/8
6	6.9	6 1/2	3/4	1.91	1.41	7/16	5	3 1/8	4.88	1 7/8	3 1/16	6 7/8
8	9.1	8 1/2	3/4	1.81	1.44	9/16	5 1/8	3 1/4	—	1 7/8	3	7

Head Rectangular Flange NFPA Style MF1 (Model "A40F")



BORE	E	EE (NPTF)	F	FB	G	J	K	LB	P	R	TF	UF	W	Y	ZJ
5	5 1/2	1/2	5/8	9/16	1.66	1.22	7/16	5 1/8	2 7/8	4.10	6 5/8	7 5/8	1	2 11/16	6 1/8
6	6 1/2	3/4	3/4	9/16	1.91	1.41	7/16	5 3/4	3 1/8	4.88	7 5/8	8 5/8	1 1/8	3 1/16	6 7/8

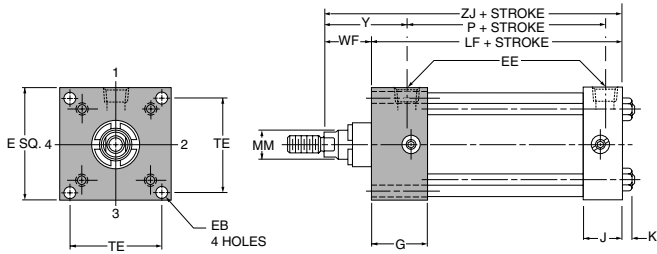
Cap Rectangular Flange NFPA Style MF2 (Model "A40R")



BORE	E	EE (NPTF)	F	FB	G	J	K	LB	P	R	TF	UF	WF	Y	ZF	ZJ
5	5 1/2	1/2	5/8	9/16	1.66	1.22	7/16	5 1/8	2 7/8	4.10	6 5/8	7 5/8	1 5/8	2 11/16	6 3/4	6 1/8
6	6 1/2	3/4	3/4	9/16	1.91	1.41	7/16	5 3/4	3 1/8	4.88	7 5/8	8 5/8	1 7/8	3 1/16	7 5/8	6 7/8

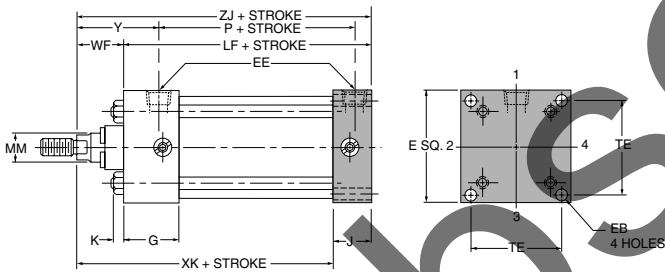
Series A40 cylinders — oversized rod diameters

Head Square Mount NFPA Style ME3 (Model "A4OFH")



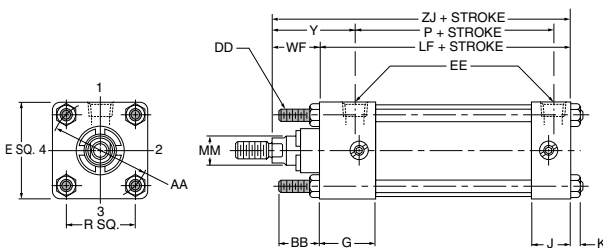
BORE	E	EB	EE (NPT)	G	J	K	LF	P	TE	WF	Y	ZJ
8	8 1/2	1 1/16	3/4	1.81	1.44	9/16	5 1/8	3 1/4	7.57	1 7/8	3	7

Cap Square Mount NFPA Style ME4 (Model "A4ORC")



BORE	E	EB	EE (NPT)	G	J	K	LF	P	TE	WF	XK	Y	ZJ
8	8 1/2	1 1/16	3/4	1.81	1.44	9/16	5 1/8	3 1/4	7.57	1 7/8	5 1/16	3	7

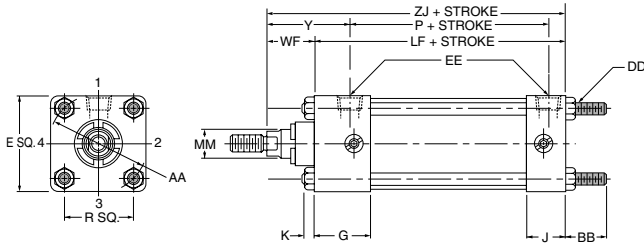
Tie Rods Extended Head End Mount NFPA Style MX3 (Model "A4OM")



BORE	AA	EB	DD	E	EE (NPT)	G	J	K	LF	P	R	WF	Y	ZJ
5	5.8	1 13/16	1/2-20	5 1/2	1/2	1.66	1.22	7/16	4 1/2	2 7/8	4.10	1 5/8	2 11/16	6 1/8
6	6.9	1 13/16	1/2-20	6 1/2	3/4	1.91	1.41	7/16	5	3 1/8	4.88	1 7/8	3 1/16	6 1/8
8	9.1	2 5/16	5/8-18	8 1/2	3/4	1.81	1.44	9/16	5 1/8	3 1/4	6.44	1 7/8	3	7

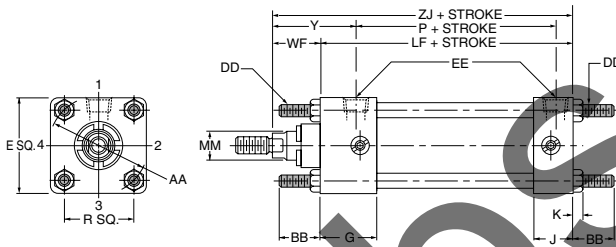
Series A40 cylinders — oversized rod diameters

Tie Rods Extended Cap Mount NFFA Style MX2 (Model "A4ON")



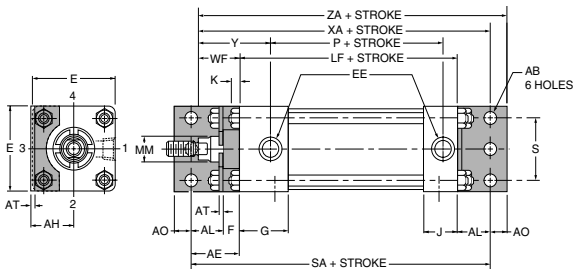
BORE	AA	BB	DD	E	EE (NPTF)	G	J	K	LF	P	R	WF	Y	ZJ
5	5.8	1 ¹³ / ₁₆	1/2-20	5 ¹ / ₂	1/2	1.66	1.22	7/16	4 ¹ / ₂	2 ⁷ / ₈	4.10	1 ⁵ / ₈	2 ¹¹ / ₁₆	6 ¹ / ₈
6	6.9	1 ¹³ / ₁₆	1/2-20	6 ¹ / ₂	3/4	1.91	1.41	7/16	5	3 ¹ / ₈	4.88	1 ⁷ / ₈	3 ¹ / ₁₆	6 ⁷ / ₈
8	9.1	2 ⁵ / ₁₆	5/8-18	8 ¹ / ₂	3/4	1.81	1.44	9/16	5 ¹ / ₈	3 ¹ / ₄	6.44	1 ⁷ / ₈	3	7

Tie Rods Extended Both Ends NFFA Style MX1 (Model "A4OP")



BORE	AA	BB	DD	E	EE (NPTF)	G	J	K	LF	P	R	WF	Y	ZJ
5	5.8	1 ¹³ / ₁₆	1/2-20	5 ¹ / ₂	1/2	1.66	1.22	7/16	4 ¹ / ₂	2 ⁷ / ₈	4.10	1 ⁵ / ₈	2 ¹¹ / ₁₆	6 ¹ / ₈
6	6.9	1 ¹³ / ₁₆	1/2-20	6 ¹ / ₂	3/4	1.91	1.41	7/16	5	3 ¹ / ₈	4.88	1 ⁷ / ₈	3 ¹ / ₁₆	6 ⁷ / ₈
8	9.1	2 ⁵ / ₁₆	5/8-18	8 ¹ / ₂	3/4	1.81	1.44	9/16	5 ¹ / ₈	3 ¹ / ₄	6.44	1 ⁷ / ₈	3	7

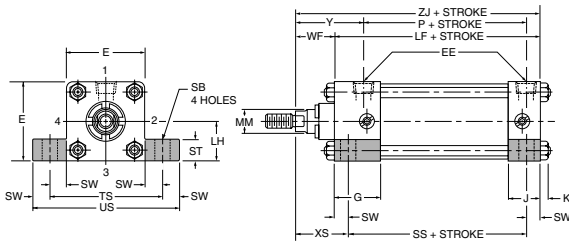
Side End Angle Mount NFFA Style MS1 (Model "A4OA")



BORE	AB	AE	AH	AL	AO	A'	E	EE (NPTF)	F	G	J	K	LF	P	SA	WF	XA	Y	ZA
5	1 ¹¹ / ₁₆	2	2 ³ / ₄	1 ¹ / ₈	5/8	3/16	5 ¹ / ₂	1/2	5/8	1.66	1.22	7/16	4 ¹ / ₂	2 ⁷ / ₈	7 ⁷ / ₈	1 ⁵ / ₈	7 ¹ / ₂	2 ¹¹ / ₁₆	8 ¹ / ₈
6	1 ¹³ / ₁₆	2 ¹ / ₈	3 ¹ / ₄	1 ¹ / ₈	5/8	3/16	6 ¹ / ₂	3/4	3/4	1.91	1.41	7/16	5	3 ¹ / ₈	8 ¹ / ₂	1 ⁷ / ₈	8 ¹ / ₄	3 ¹ / ₁₆	8 ⁷ / ₈
8	1 ¹³ / ₁₆	1 ¹³ / ₁₆	4 ¹ / ₄	1 ¹³ / ₁₆	11/16	1/4	8 ¹ / ₂	3/4	—	1.81	1.44	9/16	5 ¹ / ₈	3 ¹ / ₄	8 ³ / ₄	1 ⁷ / ₈	8 ¹³ / ₁₆	3	9 ¹ / ₂

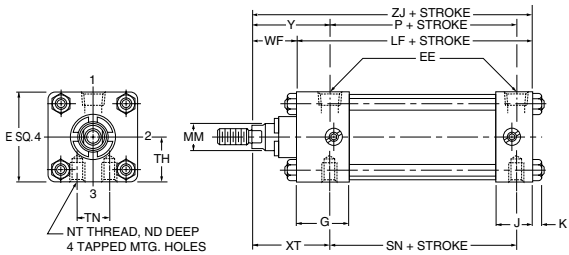
Series A40 cylinders — oversized rod diameters

Side Lug Mount NFFA Style MS2 (Model "A4OWL")



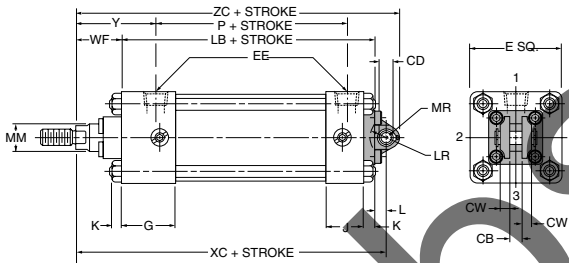
BORE	E	IE (NPTF)	G	J	K	LF	LH ±.003	P	SB	SS	ST	SW	TS	US	WF	XS	Y	ZJ
5	5 1/2	1/2	1.66	1.22	7/16	4 1/2	2.743	2 7/8	1 3/16	3 1/8	1	1 1/16	6 7/8	8 1/4	1 5/8	2 5/16	2 11/16	6 1/8
6	6 1/2	3/4	1.91	1.41	7/16	5	3.243	3 1/8	1 3/16	3 5/8	1	1 1/16	7 7/8	9 1/4	1 7/8	2 9/16	3 1/16	6 7/8
8	8 1/2	3/4	1.81	1.44	9/16	5 1/8	4.243	3 1/4	1 3/16	3 3/4	1	1 1/16	9 7/8	11 1/4	1 7/8	2 9/16	3	7

Side Tap Mount NFFA Style MS4 (Model "A4OB")



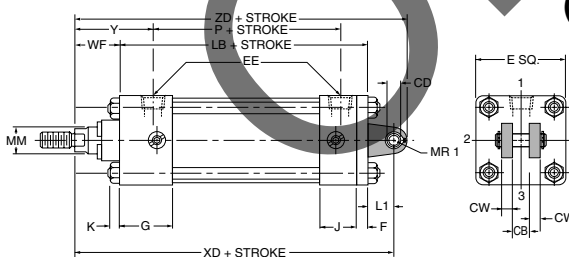
BORE	E	IE (NPTF)	G	J	K	LF	ND	N'	P	SN	TH ±.003	TN	WF	XT	Y	ZJ
5	5 1/2	1/2	1.66	1.22	7/16	4 1/2	1 5/16	5/8-11	2 7/8	2 7/8	2.743	2 11/16	1 5/8	2 11/16	2 11/16	6 1/8
6	6 1/2	3/4	1.91	1.41	7/16	5	1 1/2	3/4-10	3 1/8	3 1/8	3.243	3 3/4	1 7/8	3 1/16	3 1/16	6 7/8
8	8 1/2	3/4	1.81	1.44	9/16	5 1/8	1 1/2	3/4-10	3 3/4	3 3/4	4.243	4 1/2	1 7/8	3 1/16	3	7

Cap Detachable Clevis Mount NFFA Style MP1 (Model "A4OC")



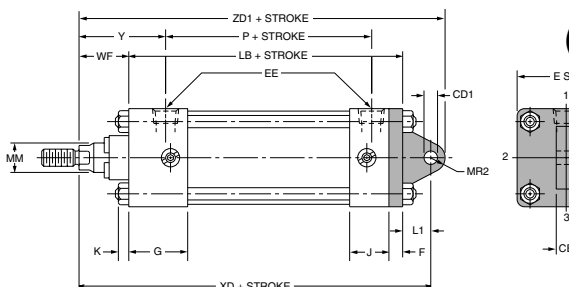
BORE	CB	+0.001 CD, -0.002	OW	E	IE (NPTF)	G	J	K	L	LB	LR	MR	P	WF	XC	Y	ZC
5	1 1/4	.751	5/8	5 1/2	1/2	1.66	1.22	7/16	5/8	5 1/2	1	1 5/16	2 7/8	1 5/8	7 3/8	2 11/16	8 5/16
6	1 1/2	1.001	3/4	6 1/2	3/4	1.91	1.41	7/16	3/4	5 3/4	1 1/4	1 1/8	3 1/8	1 7/8	8 3/8	3 1/16	9 1/2
8	1 1/2	1.001	3/4	8 1/2	3/4	1.81	1.44	9/16	3/4	5 7/8	1 1/4	1 1/8	3 1/4	1 7/8	8 1/2	3	9 5/8

Cap Detachable Clevis Mount NFFA Style MP2 (Model "A4OCD")



BORE	CB	+0.001 CD, -0.002	OW	E	IE (NPTF)	F	G	J	K	LB	L1	MR1	P	WF	XD	Y	ZD
5	1 1/4	.751	5/8	5 1/2	1/2	5/8	1.66	1.22	7/16	5 1/8	1 1/4	3/4	2 7/8	1 5/8	8	2 11/16	8 3/4
6	1 1/2	1.001	3/4	6 1/2	3/4	3/4	1.91	1.41	7/16	5 3/4	1 1/2	1	3 1/8	1 7/8	9 1/8	3 1/16	10 1/8
8	1 1/2	1.001	3/4	8 1/2	3/4	3/4	1.81	1.44	9/16	5 7/8	1 1/2	1	3 1/4	1 7/8	9 1/4	3	10 1/4

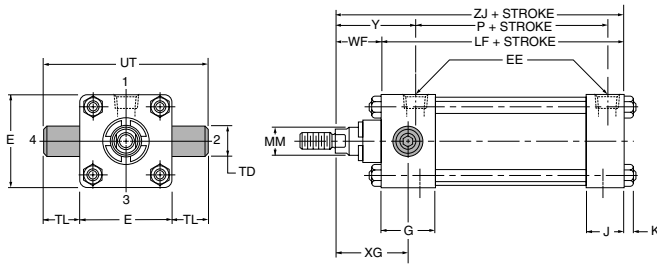
Cap Detachable Eye Mount NFFA Style MP4 (Model "A4OED")



BORE	CB	+0.002 CD, +0.004	E	IE (NPTF)	F	G	J	K	L1	LB	MR2	P	WF	XD	Y	ZD1
5	1 1/4	.750	5 1/2	1/2	5/8	1.66	1.22	7/16	1 1/4	5 1/8	7/8	2 7/8	1 5/8	8	2 11/16	8 7/8
6	1 1/2	1.000	6 1/2	3/4	3/4	1.91	1.41	7/16	1 1/2	5 3/4	1 1/8	3 1/8	1 7/8	9 1/8	3 1/16	10 1/4

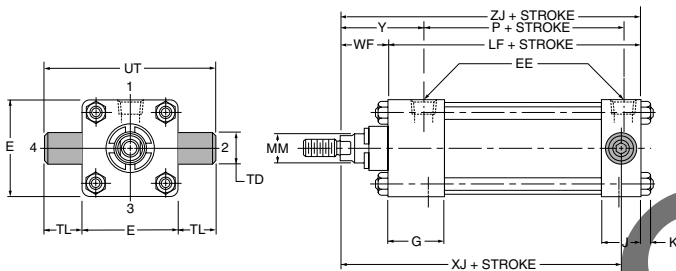
Series A40 cylinders — oversized rod diameters

Head Trunnion Mount NFPA Style MT1 (Model "A40TH")



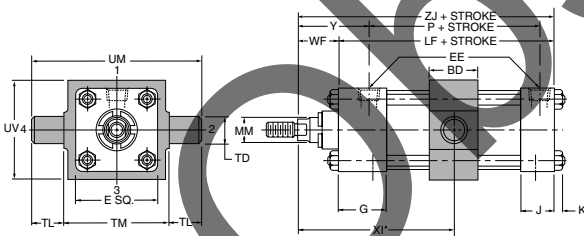
BOFE	E	EE (NPTF)	G	J	K	LF	P	+0.000 TD -0.001	TL	UT	WF	XG	Y	ZJ
5	5 1/2	1/2	1.66	1.22	7/16	4 1/2	2 7/8	1.000	1	7 1/2	1 5/8	2 1/2	2 1/16	6 1/8
6	6 1/2	3/4	1.91	1.41	7/16	5	3 1/8	1.375	1 3/8	9 1/4	1 7/8	2 7/8	3 1/16	6 7/8
8	8 1/2	3/4	1.81	1.44	9/16	5 1/8	3 1/4	1.375	1 3/8	11 1/4	1 7/8	2 7/8	3	7

Cap Trunnion Mount NFPA Style MT2 (Model "A40TC")



BOFE	E	EE (NPTF)	G	J	K	LF	P	+0.000 TD -0.001	TL	UT	WF	XJ	Y	ZJ
5	5 1/2	1/2	1.66	1.22	7/16	4 1/2	2 7/8	1.000	1	7 1/2	1 5/8	5 1/2	2 1/16	6 1/8
6	6 1/2	3/4	1.91	1.41	7/16	5	3 1/8	1.375	1 3/8	9 1/4	1 7/8	6 1/8	3 1/16	6 7/8
8	8 1/2	3/4	1.81	1.44	9/16	5 1/8	3 1/4	1.375	1 3/8	11 1/4	1 7/8	6 1/4	3	7

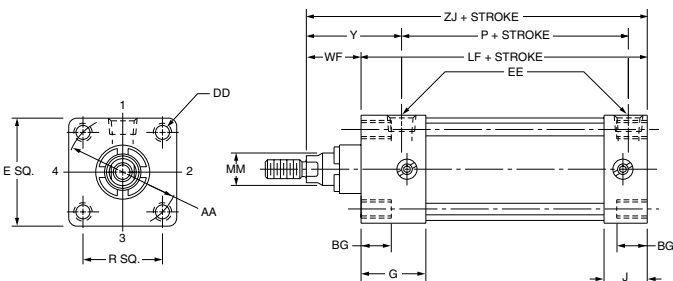
Intermediate Trunnion Mount NFPA Style MT4 (Model "A40TT")



BOFE	ED	E	EE (NPTF)	G	J	K	LF	P	+0.000 TD -0.001	TL	TM	UM	UV	WF	XI Min.	Y	ZJ
5	2	5 1/2	1/2	1.66	1.22	7/16	4 1/2	2 7/8	1.000	1	6 1/4	8 1/4	6	1 5/8	4 7/16	2 1/16	6 1/8
6	2 1/2	6 1/2	3/4	1.91	1.41	7/16	5	3 1/8	1.375	1 3/8	7 5/8	10 3/8	7	1 7/8	5 3/16	3 1/16	6 7/8
8	2 1/2	8 1/2	3/4	1.81	1.44	9/16	5 1/8	3 1/4	1.375	1 3/8	9 3/4	12 1/2	9 1/2	1 7/8	5 3/16	3	7

▲Dimension "XI" to be specified by customer.

Sleeve Nut Mount Style MX5 (Model "A40E")



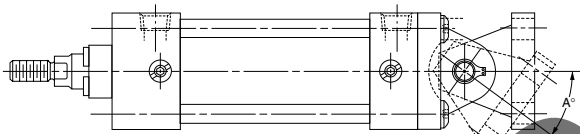
BOFE	AA	BG	DD	E	EE (NPTF)	G	J	LF	P	R	WF	Y	ZJ
5	5.8	.50	1/2-20	5 1/2	1/2	1.66	1.22	4 1/2	2 7/8	4.10	1 5/8	2 1/16	6 1/8
6	6.9	.50	1/2-20	6 1/2	3/4	1.91	1.41	5	3 1/8	4.88	1 7/8	3 1/16	6 7/8
8	9.1	.62	5/8-18	8 1/2	3/4	1.81	1.44	5 1/8	3 1/4	6.44	1 7/8	3	7

Series A4 air cylinders — cylinder accessories

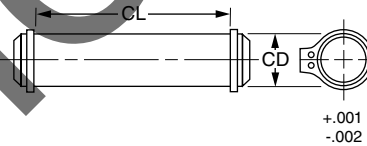
Cylinder Accessories

Rod end accessories can be selected by cylinder rod end thread size from Table A & B below. Mating parts for rod end accessories are listed just to the right of the knuckle or clevis bracket selected. Mounting plates for style C, CD & ED cylinder mounts are selected by bore size from Table C.

Rod End Thread Size	TABLE A			TABLE B			TABLE C		
	Female Rod Clevis	Mating Parts		Knuckle	Mating Parts		Bore Size	Mounting Plate	
		Eye Bracket	Pivot Pin		Clevis Bracket	Pivot Pin		For Mtg. Style C & CD Cylinder	For Mtg. Style ED Cylinder
5/16-24	A4-92-02A	A4-94-0302	A4-96-02	A4-97-02	A4-95-0302	A4-96-02	1 1/4	32-27021	A4-95-0302
7/16-20	A4-92-03	A4-94-0304	A4-96-03	A4-97-03	A4-95-0304	A4-96-03	1 1/2	A4-94-0304	A4-95-0304
1/2-20	A4-92-03A	A4-94-0304	A4-96-03	A4-97-03A	A4-95-0304	A4-96-03	2	A4-94-0304	A4-95-0304
3/4-16	A4-92-065	A4-94-05	A4-96-065	A4-97-065	A4-95-05	A4-96-065	2 1/2	A4-94-0304	A4-95-0304
7/8-14	A4-92-12	A4-94-06508	A4-96-12	A4-97-12	A4-95-06508	A4-96-12	3 1/4	A4-94-05	A4-95-05
1-14	A4-92-12A	A4-94-06508	A4-96-12	A4-97-12A	A4-95-06508	A4-96-12	4	A4-94-05	A4-95-05
1 1/4-12	A4-92-16	A4-94-10	A4-96-16	A4-97-16	A4-95-10	A4-96-16	5	A4-94-05	—
1 1/2-12	A4-92-20	A4-94-12	A4-96-20	A4-97-20	A4-95-12	A4-96-20	6	A4-94-06508	—
							8	A4-94-06508	



Bore	1 1/4	1 1/2	2	2 1/2	3 1/4	4	5	6	8
Angle A	55	52	43	29	50	49	45	42	42

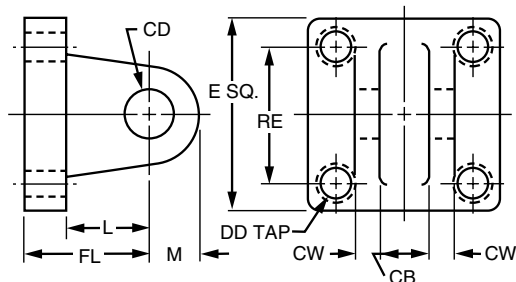


Pivot Pin

Symbol	A4-96-02	A4-96-03	A4-96-065	A4-96-12	A4-96-16	A4-96-20
CD	7/16	1/2	3/4	1	1 3/8	1 3/4
CL	1 5/16	1 7/8	2 5/8	3 1/8	4 1/8	5 3/16
Shear Cap. Lbs.	6600	8600	19300	34300	65000	105200

Note: Pivot Pin must be ordered separately for single lug pivot mounting.

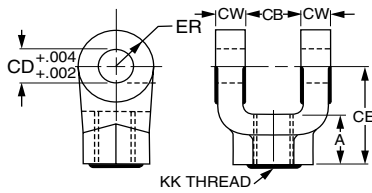
NFPA clevis bracket



PART#	GB	GD	GV	DD	E	FL	L	M	FE	USED ON BORES
A4-91-03	3/4	1/2	1/2	3/8-24	2 1/2	1 1/8	3/4	1/2	1.62	1 1/2 - 2 - 2 1/2"
A4-91-065	1 1/4	3/4	5/8	1/2-20	3 3/4	1 7/8	1 1/4	3/4	2.56	3 1/4 - 4 - 5"
A4-91-12	1 1/2	1	3/4	5/8-18	4 1/2	2 1/4	1 1/2	1	3.25	6 - 8"
A4-91-16	2	1 1/8	1	5/8-18	5	3	2 1/8	1 3/8	3.81	8

Series A4 air cylinders — cylinder accessories

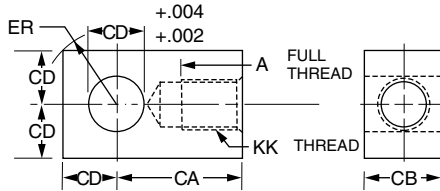
Female Rod Clevis



Symbol	A4-92-02 A*	A4-92-03	A4-92-03A	A4-92-065	A4-92-12	A4-92-12A	A4-92-16	A4-92-20
A	1 ³ / ₁₆	3/4	3/4	1 ¹ / ₈	1 ⁵ / ₈	1 ⁵ / ₈	2	2 ¹ / ₄
CB	1 ¹ / ₃₂	3/4	3/4	1 ¹ / ₄	1 ¹ / ₂	1 ¹ / ₂	2	2 ¹ / ₂
CD	5/16	1/2	1/2	3/4	1	1	1 ³ / ₈	1 ³ / ₄
CE	2 ¹ / ₄	1 ¹ / ₂	1 ¹ / ₂	2 ¹ / ₈	2 ¹⁵ / ₁₆	2 ¹⁵ / ₁₆	3 ³ / ₄	4 ¹ / ₂
CW	1 ³ / ₆₄	1/2	1/2	5/8	3/4	3/4	1	1 ¹ / ₄
ER	1 ⁹ / ₆₄	1/2	1/2	3/4	1	1	1 ³ / ₈	1 ³ / ₄
KK	5/16-24	7/16-20	1/2-20	3/4-16	7/8-14	1-14	1 ¹ / ₄ -12	1 ¹ / ₂ -12
Load Capacity Lbs.	2600	4250	4900	11200	18800	19500	33500	45600

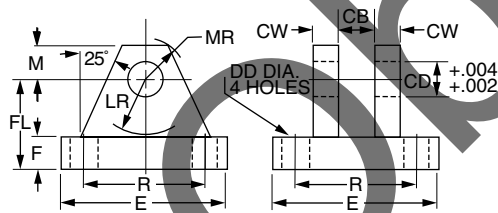
*Includes Pivot Pin

Rod Eye Knuckle



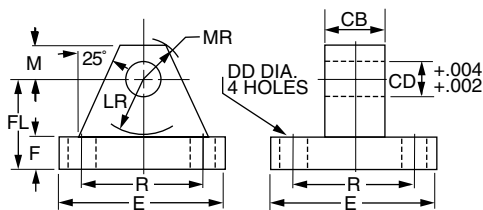
Symbol	A4-97-02	A4-97-03	A4-97-03A	A4-97-065	A4-97-12	A4-97-12A	A4-97-16	A4-97-20
A	3/4	3/4	3/4	1 ¹ / ₈	1 ¹ / ₂	1 ⁵ / ₈	2	2 ¹ / ₄
CA	1 ¹ / ₂	1 ¹ / ₂	1 ¹ / ₂	2 ¹ / ₁₆	2 ³ / ₈	2 ¹³ / ₁₆	3 ¹ / ₁₆	4
CB	7/16	3/4	3/4	1 ¹ / ₄	1 ¹ / ₂	1 ¹ / ₂	2	2 ¹ / ₂
CD	7/16	1/2	1/2	3/4	1	1	1 ³ / ₈	1 ³ / ₄
ER	1 ⁹ / ₃₂	2 ³ / ₃₂	2 ³ / ₃₂	1 ¹ / ₁₆	1 ⁷ / ₁₆	1 ⁷ / ₁₆	1 ³¹ / ₃₂	2 ¹ / ₂
KK	5/16-24	7/16-20	1/2-20	3/4-16	7/8-14	1-14	1 ¹ / ₄ -12	1 ¹ / ₂ -12
Load Capacity Lbs.	3300	5000	5700	12100	13000	21700	33500	45000

Clevis Bracket



Symbol	A4-95-0302	A4-95-0304	A4-95-05	A4-95-06508	A4-95-10	A4-95-12A
CB	15/32	3/4	1 ¹ / ₄	1 ¹ / ₂	2	2 ¹ / ₂
CD	7/16	1/2	3/4	1	1 ³ / ₈	1 ³ / ₄
CW	3/8	1/2	5/8	3/4	1	1 ¹ / ₄
DD	17/64	13/32	17/32	2 ¹ / ₃₂	2 ¹ / ₃₂	2 ⁹ / ₃₂
E	2 ¹ / ₄	3 ¹ / ₂	5	6 ¹ / ₂	7 ¹ / ₂	9 ¹ / ₂
F	3/8	1/2	5/8	3/4	7/8	7/8
FL	1	1 ¹ / ₂	1 ⁷ / ₈	2 ¹ / ₄	3	3 ⁵ / ₈
LR	5/8	3/4	1 ³ / ₁₆	1 ¹ / ₂	2	2 ³ / ₄
M	3/8	1/2	3/4	1	1 ³ / ₈	1 ³ / ₄
MR	1/2	5/8	2 ⁹ / ₃₂	1 ¹ / ₄	1 ²¹ / ₃₂	2 ⁷ / ₃₂
R	1.75	2.55	3.82	4.95	5.73	7.50
Load Capacity Lbs.	3600	7300	14000	19200	36900	34000

Mounting Plate & Eye Bracket



Symbol	32-27021	A4-94-0304	A4-94-05	A4-94-06508	A4-94-10	A4-94-12
CB	1 ¹ / ₆₄	3/4	1 ¹ / ₄	1 ¹ / ₂	2	2 ¹ / ₂
CD	25/64	1/2	3/4	1	1 ³ / ₈	1 ³ / ₄
DD	1/4	13/32	17/32	2 ¹ / ₃₂	2 ¹ / ₃₂	2 ⁹ / ₃₂
E	1 ⁵³ / ₆₄	2 ¹ / ₂	3 ¹ / ₂	4 ¹ / ₂	5	6 ¹ / ₂
F	23/64	3/8	5/8	7/8	7/8	1 ¹ / ₈
FL	55/64	1 ¹ / ₈	1 ⁷ / ₈	2 ³ / ₈	3	3 ³ / ₈
LR	31/64	3/4	1 ¹ / ₄	1 ¹ / ₂	2 ¹ / ₈	2 ¹ / ₄
M	7/16	1/2	3/4	1	1 ³ / ₈	1 ³ / ₄
MR	7/16	9/16	7/8	1 ¹ / ₄	1 ⁵ / ₈	2 ¹ / ₈
R	1 ⁹ / ₃₂	1.63	2.55	3.25	3.82	4.95
Load Capacity Lbs.	1000	4100	10500	20400	21200	49480

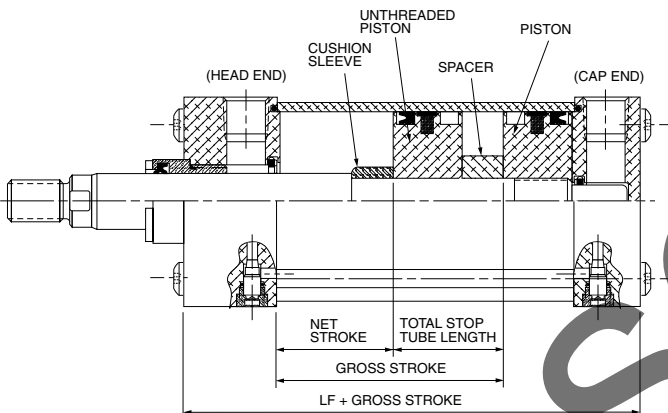
Series A4 air cylinders — stop tubing mounting classes

Stop Tubing

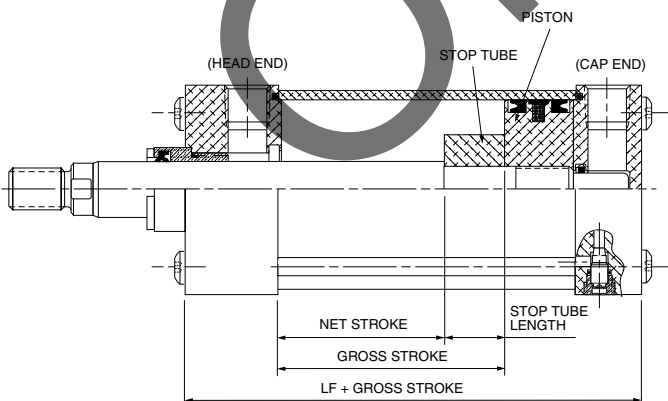
Long stroke cylinders, fixed or pivot mounted, tend to jackknife or buckle on push load applications, resulting in high bearing loading at the rod gland or piston. Use of a stop tube to lengthen the distance between the gland and piston when cylinder rod is fully extended is recommended to reduce these bearing loads. The drawing below shows stop tube construction for fluid power cylinders. Refer to next page to determine stop tube length.

When specifying cylinders with long stroke and stop tube, be sure to call out the net stroke and the length of the stop tube. Machine design can be continued without delay by laying in a cylinder equivalent in length to the **NET STROKE PLUS STOP TUBE LENGTH**, which is referred to as **GROSS STROKE**.

Refer to next page to determine stop tube length.



Double piston design is supplied on air cylinders with cushion head end or both ends.



This design is supplied on cushioned cap or non-cushioned cylinders.

Cushion Selection

Cushions are required when cylinder piston rod speed exceeds 4" per second.

Mounting Classes

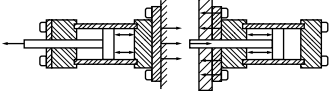
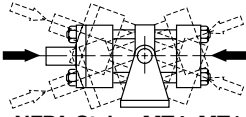
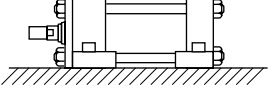
Standard mountings for fluid power cylinders fall into three basic groups. The groups can be summarized as follows:

Group 1 – Straight Line Force Transfer with fixed mounts which absorb force on cylinder centerline.

Group 2 – Pivot Force Transfer. Pivot mountings permit a cylinder to change its alignment in one plane.

Group 3 – Straight Line Force Transfer with fixed mounts which do not absorb force on cylinder centerline.

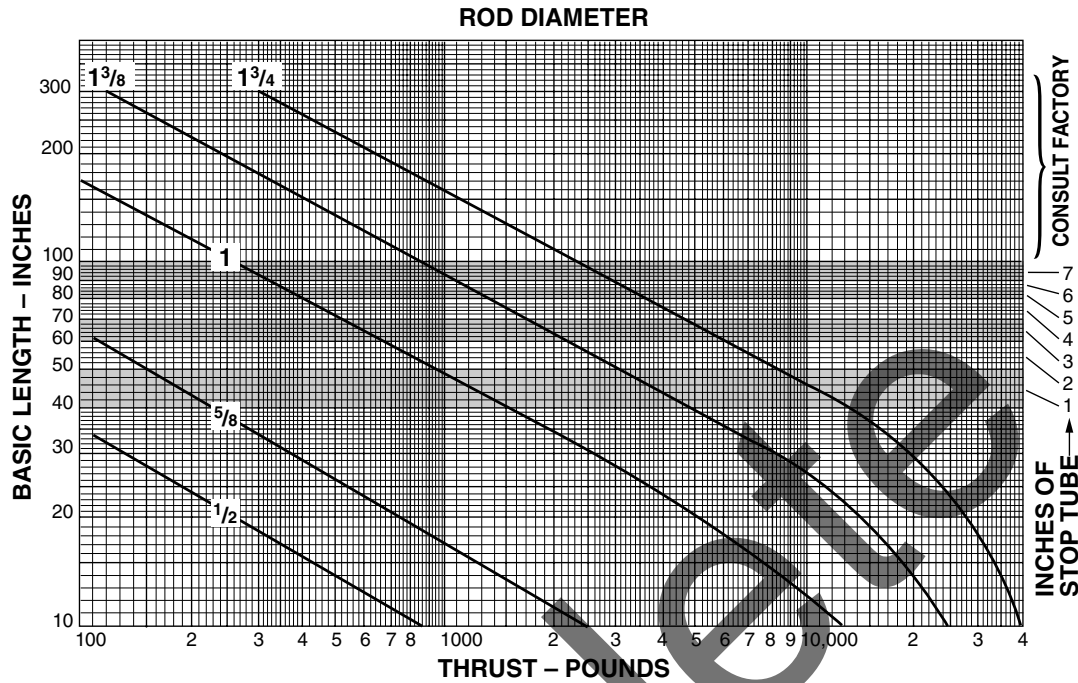
Because a cylinder's mounting directly affects the maximum pressure at which the cylinder can be used, the charts below should be helpful in the selection of the proper mounting combination for your application. Stroke length, piston rod connection to load, extra piston rod length over standard, etc. should be considered for thrust loads. Alloy steel mounting bolts are recommended for all mounting styles, and thrust keys are recommended for Group 3.

GROUP 1	
FIXED MOUNTS which absorb force on cylinder centerline.	
	
NFFA Styles MX2 NFFA Styles MX3	
HEAVY-DUTY SERVICE	For Thrust Loads _____ For Tension Loads _____
MEDIUM-DUTY SERVICE	For Thrust Loads _____ For Tension Loads _____
LIGHT-DUTY SERVICE	For Thrust Loads _____ For Tension Loads _____
GROUP 2	
PIVOT MOUNTS which absorb force on cylinder centerline.	
	
NFFA Styles MT4, MT1 NFFA Styles MP1, MP2, MT4, MT1, MT2	
HEAVY-DUTY SERVICE	For Thrust Loads _____ For Tension Loads _____
MEDIUM-DUTY SERVICE	For Thrust Loads _____ For Tension Loads _____
GROUP 3	
FIXED MOUNTS which do not absorb force on the centerline.	
	
HEAVY-DUTY SERVICE	For Thrust Loads _____ For Tension Loads _____
NFFA Styles MS2 NFFA Styles MS2	
MEDIUM-DUTY SERVICE	For Thrust Loads _____ For Tension Loads _____
NFFA Styles MS4 NFFA Styles MS4	
LIGHT-DUTY SERVICE	For Thrust Loads _____ For Tension Loads _____
NFFA Styles MS1* NFFA Styles MS1*	

*Mounting style MS1 recommended for maximum pressure of 150 p.s.i.

Series A4 air cylinders — stroke selection chart and data

Piston Rod – Stroke Selection Chart



How To Use The Chart

The selection of a piston rod for thrust (push) conditions requires the following steps:

- Determine the type of cylinder mounting style and rod end connection to be used. Then consult the chart below and find the "stroke factor" that corresponds to the conditions used.
- Using this stroke factor, determine the "basic length" from the equation:

$$\text{Basic Length} = \frac{\text{Actual Stroke}}{\text{Stroke Factor}}$$

The graph is prepared for standard rod extensions beyond the face of the gland retainer. For rod extensions greater than standard, add the increase to the stroke in arriving at the "basic length."
- Find the load imposed for the thrust application by multiplying the full bore area of the cylinder by the system pressure.
- Enter the graph along the values of "basic length" and "thrust" as found above and note the point of intersection:

- The correct piston rod size is read from the diagonally curved line labeled "Rod Diameter" next *above* the point of intersection.
- The required length of stop tube is read from the right of the graph by following the shaded band in which the point of intersection lies.
- If required length of stop tube is in the region labeled "consult factory," submit the following information for an individual analysis.
 - Cylinder mounting style.
 - Rod end connection and method of guiding load.
 - Bore, required stroke, length of rod extension (Dim. "LA") if greater than standard, and series of cylinder used.
 - Mounting position of cylinder. (Note: if at an angle or vertical, specify direction of piston rod.)
 - Operating pressure of cylinder if limited to less than standard pressure for cylinder selected.

Recommended Mounting Styles for Maximum Stroke and Thrust Loads	Rod End Connection	Case	Stroke Factor
Groups 1 or 3 Long stroke cylinders for thrust loads should be mounted using a heavy-duty mounting style at one end, firmly fixed and aligned to take the principal force. Additional mounting should be specified at the opposite end, which should be used for alignment and support. An intermediate support may also be desirable for long stroke cylinders mounted horizontally.	FIXED AND RIGIDLY GUIDED	I	.50
	PIVOTED AND RIGIDLY GUIDED	II	.70
	SUPPORTED BUT NOT RIGIDLY GUIDED	III	2.00
Group 2 Style MT1-Trunnion on Head	PIVOTED AND RIGIDLY GUIDED	IV	1.00
Style MT4-Intermediate Trunnion	PIVOTED AND RIGIDLY GUIDED	V	1.50
Style MT2-Trunnion on Cap or Style MP1-Clevis on Cap	PIVOTED AND RIGIDLY GUIDED	VI	2.00

Series A4 air cylinders —

dis-assembly of cylinder, mounting kits, mounting kit assembly, re-assembly mounting kits (1 1/2"- 4" bores)

Perform the following steps when Dis-assembling, installing mounting kits and reassembling Series A4 cylinders (1 1/2"- 4" Bores).

Dis-assembly of Cylinder to add Mounting Kit*

Un-Torque cylinder mounting fasteners using corner to corner sequence until finger tight then remove all four fasteners. Clean mating parts to remove oil, grease and dirt. Mounting fasteners should be clean, dry, and burr-free. Brush mounting fastener threads thoroughly with anti-seize lubricant. Follow the appropriate procedure for the desired mounting.

Choose the appropriate mounting kit instructions

Rear Pivot Mount Kits — Style MP1, MP2 and MP4 Mount —

Place pivot mount kit over end cap, lining up the four fastener holes in the end cap with the pivot mount plate. Note that the pivot mount can be rotated to the cylinder allowing for different port locations. Secure mounting to cap (finger tight) using the four fasteners. Torque the bolts to specifications below.

End Angle Mount Kits — Style MS1 — The end angles bolt to the front and rear of the end caps of the cylinder. The spacer plate[▲] provided is to be assembled at rod end under the angle plate. Line up the two holes of the spacer and angle plate with the two fastener holes of the head. Secure (finger tight) using the fasteners. Repeat this assembly at the end opposite the rod (less spacer). Place the assembly with the end angles down on a flat surface and torque the four fasteners to specification below.

▲ Note: Spacer plate not used for 4" bore or double rod assemblies

* Note: Mounting Kits on cylinders with strokes shorter than those listed on minimum stroke chart must be added by factory to ensure proper fastener thread engagement.

Mounting Kit Assembly — Use for Single and Double Rod End Styles

Flange Mount Kits — Style MF1 & MF2 — Place rectangular flange plate over appropriate end cap. Line up the four holes in the plate with the four fastener holes in the end cap. Note that the rectangular plate can be rotated to allow for different port locations. Secure the rectangular plate to the end cap (finger tight) using the four fasteners. Then torque the four fasteners to specification.

Re-Assembly and Torquing of Cylinder Mounting Kits After Maintenance

The following procedure is recommended to ensure the correct re-assembly of the mounting kits. Tighten mounting fasteners in opposite corner sequence to approximately 3/4 of final tightening torque. Using a calibrated torque wrench, tighten mounting fasteners to the final torque listed repeating the opposite corner sequence procedure.

Bore Size	Fastener Torque	Fastener Torque
1 1/4"	32 + 4 inch lbs.	3 1/2 + 1/2 nm
1 1/2"	32 + 4 inch lbs.	3 1/2 + 4 nm
2"	72 + 10 inch lbs.	8 + 1 nm
2 1/2"	72 + 10 inch lbs.	8 + 1 nm
3 1/4"	216 + 12 inch lbs.	24 + 1 1/4 nm
4"	216 + 12 inch lbs.	24 + 1 1/4 nm

Series A4 Mounting Kits									Minimum Stroke
Bore Size	Rod Dia.	(MF1)	(MF2)	(MP1)	(MP4)	(MS1)	(MP2)	(MS7)	For customer assembled mounting kits only!
		Head Rectangular Flange Part No.	Cap Rectangular Flange Part No.	Cap Clevis Part No.	Cap Pivot Part No.	Side End Angles Part No.	Cap Detachable Clevis Part No.	Side End Lug Part No.	
1 1/4"	1 1/8"	A4-80-02K	A4-80-02K	—	A4-89-02K	A4-94-02K	A4-91-02K	A4-98-02K	5/8"
1 1/2"	5/8"	A4-80-03K	A4-80-03K	A4-90-03K	A4-89-03K	A4-94-03K	A4-91-03K	A4-98-03K	1"
	1"	A4-80-03K	A4-80-03K	A4-90-03K	A4-89-03K	A4-94-03K	A4-91-03K	A4-98-03K	
2"	5/8"	A4-80-04K	A4-80-04K	A4-90-04K	A4-89-04K	A4-94-04K	A4-91-04K	A4-98-04K	1"
	1"	A4-80-04K	A4-80-04K	A4-90-04K	A4-89-04K	A4-94-04K	A4-91-04K	A4-98-04K	
2 1/2"	5/8"	A4-80-05K	A4-80-05K	A4-90-05K	A4-89-05K	A4-94-05K	A4-91-05K	A4-98-05K	7/8"
	1"	A4-80-05K	A4-80-05K	A4-90-05K	A4-89-05K	A4-94-05K	A4-91-05K	A4-98-05K	
3 1/4"	1"	A4-80-065K	A4-80-065K	A4-90-065K	A4-89-065K	A4-94-065K	A4-91-065K	A4-98-065K	1 3/8"
	1 3/8"	A4-80-065K	A4-80-065K	A4-90-065K	A4-89-065K	A4-94-065K	A4-91-065K	A4-98-065K	
4"	1"	A4-80-08K	A4-80-08K	A4-90-08K	A4-89-08K	A4-94-08K	A4-91-08K	A4-98-08K	1 3/8"
	1 3/8"	A4-80-08K	A4-80-08K	A4-90-08K	A4-89-08K	A4-94-08K	A4-91-08K	A4-98-08K	

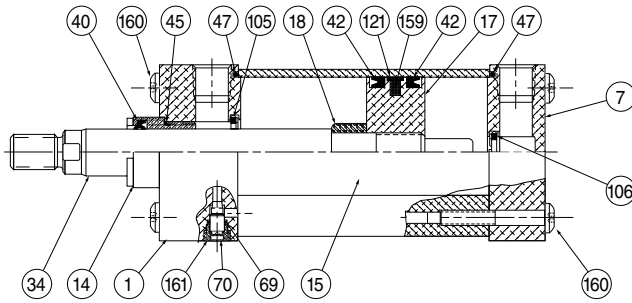
Service Policy

On cylinders returned to the factory for repairs, it is standard policy for the Cylinder Division to make such part replacements as will put the cylinder in as good as new condition. Should the condition of the returned cylinder be such that expenses for repair would exceed the cost of a new one, you will be notified. Make all requests for authorization and for the locations to return goods to be repaired to — "Service Department" at your local regional plant.

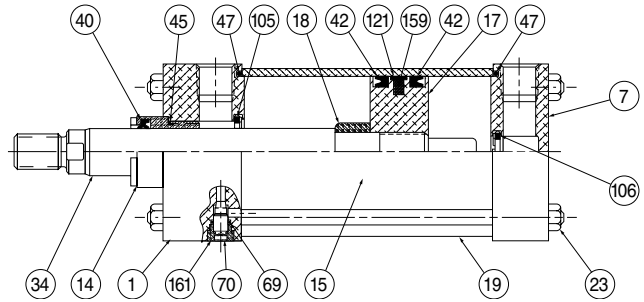
Certified Dimensions

Cylinder Division guarantees that all cylinders ordered from this catalog will be built to dimensions shown. All dimensions are certified to be correct, and thus it is not necessary to request certified drawings.

Series A4 air cylinders — parts identification & seal kits



1 1/4" to 4" Bore Sizes



5" to 8" Bore Sizes

Symbol Number	Description
1	Head
7	Cap
14	Gland
15	Cylinder Body
17	Piston
18	Cushion Sleeve
19	Tie Rod
23	Tie Rod Nut
34	Piston Rod
40	Rod Wiper-Seal
42	Lip Seal-Piston

Symbol Number	Description
45	O-Ring-Head to Gland
47	O-Ring-End Seal
69	O-Ring-Needle Valve
70	Needle Valve
105	Cushion Check Seal-Head
106	Cushion Check Seal-Cap
121	Wear Strip
159	Magnetic Ring
160	Fastener-Tie Bolt
161	Needle Valve-Retainer

Bore Size	Rod Dia.	Rod Gland Kit		Rod Seal Kit		Gland Wrench	Spanner Wrench	Gland to Head Torque
		Consisting of: 1 ea. symbol #14, 40, & 45		Consisting of: 1 ea. symbol # 40, & 45				
		NITRILE Seals	Fluorocarbon Seals	NITRILE Seals	Fluorocarbon Seals			
Part No.	Part No.	Part No.	Part No.	Part No.	Part No.	Ft. Lbs.		
1 1/4"	1/2"	RGA461125A	RGA460125A	RKA461125A	RKA460125A	0695900000	0116760000	35 - 40
1 1/2"	5/8"	RGA461102A	RGA461106A	RKA461102A	RKA461106A	0695900000	0116760000	40 - 45
	1"	RGA461162A	RGA461166A	RKA463162A	RKA461166A	0695910000	0116760000	45 - 50
2"	5/8"	RGA461102A	RGA461106A	RKA461102A	RKA461106A	0695900000	0116760000	40 - 45
	1"	RGA461162A	RGA461166A	RKA463162A	RKA461166A	0695910000	0116760000	45 - 50
2 1/2"	5/8"	RGA461102A	RGA461106A	RKA461102A	RKA461106A	0695900000	0116760000	40 - 45
	1"	RGA461162A	RGA461166A	RKA461162A	RKA461166A	0695910000	0116760000	45 - 50
3 1/4"	1"	RGA461162A	RGA461166A	RKA461162A	RKA461166A	0695910000	0116760000	45 - 50
	1 3/8"	RGA461222A	RGA461226A	RKA461222A	RKA461226A	0695920000	0117030000	75 - 80
4"	1"	RGA461162A	RGA461166A	RKA461162A	RKA461166A	0695910000	0116760000	45 - 50
	1 3/8"	RGA461222A	RGA461226A	RKA461222A	RKA461226A	0695920000	0117030000	75 - 80
5"	1"	RGA461162A	RGA461166A	RKA461162A	RKA461166A	0695910000	0116760000	45 - 50
	1 3/8"	RGA461222A	RGA461226A	RKA461222A	RKA461226A	0695920000	0117030000	75 - 80
6"	1 3/8"	RGA461222A	RGA461226A	RKA461222A	RKA461226A	0695920000	0117030000	75 - 80
	1 3/4"	RGA461282A	RGA461286A	RKA461282A	RKA461286A	0695930000	0116770000	90 - 95
8"	1 3/8"	RGA461222A	RGA461226A	RKA461222A	RKA461226A	0695920000	0117030000	75 - 80
	1 3/4"	RGA461282A	RGA461286A	RKA461282A	RKA461286A	0695930000	0116770000	90 - 95

Bore Size	Piston Seal Kit		SYMBOL #159	Cylinder Body End Seal Kit		Fastener Bolt/ Tie Rod Torque Units	
	Consisting of: 2 each symbol # 42 & 47 plus 1 each symbol # 121. NOTE: (Order - Magnetic Ring symbol # 159 - separately if required)		Magnetic Ring (if Required)	Consisting of: 2 each symbol #47			
	NITRILE Seals	Fluorocarbon Seals	(NITRILE ONLY)	NITRILE Seals	Fluorocarbon Seals	U.S.A.	Metric
	Part No.	Part No.	Part No.	Part No.	Part No.		
1 1/4"	PKA455022A	PKA455026A	1475790032	CBA439022A	CBA439026A	32 + 4 inch lbs.	3.6 + 0.5nm
1 1/2"	PKA455032A	PKA455036A	0865130151	CBA439032A	CBA439036A	32 + 4 inch lbs.	3.6 + 0.5 nm
2"	PKA455042A	PKA455046A	0865130200	CBA439042A	CBA439046A	72 + 10 inch lbs.	8 + 1 nm
2 1/2"	PKA455052A	PKA455056A	0865130250	CBA439052A	CBA439056A	72 + 10 inch lbs.	8 + 1 nm
3 1/4"	PKA4550652A	PKA4550656A	0865130325	CBA4390652A	CBA4390656A	216 + 12 inch lbs.	24 + 1.3 nm
4"	PKA455082A	PKA455086A	0865130400	CBA439082A	CBA439086A	216 + 12 inch lbs.	24 + 1.3 nm
5"	PKA455102A	PKA455106A	0865130500	CBA439102A	CBA439106A	30 + 1 ft. lbs.	41 + 1 nm
6"	PKA455122A	PKA455126A	0865130600	CBA439122A	CBA439126A	35 + 1 ft. lbs.	48 + 1 nm
8"	PKA455162A	PKA455166A	0865130800	CBA439162A	CBA439166A	80 + 1 ft. lbs.	109 + 6 nm

Series A4 air cylinders — switches

Series A4 Switch Specifications

Reed Switch Assembly		Solid State Switch Assembly		Reed Switch Assembly		Solid State Switch Assembly	
Switching Logic	Normally open, SPST (Form A)	NPN or PNP		Operating Temperature	14° to 140°F (-10° to 60°C)	14° to 140°F (-10° to 60°C)	
Supply Voltage Range	85 to 125 VAC or 5-30 VDC ¹	10-30 VDC		Storage Temperature	-4° to 140°F (-20° to 60°C)	-4° to 158°F (-20° to 70°C)	
On-State Voltage Drop	1.7 V Maximum	See Circuits Below		Enclosure Protection	Nema 6, IEC IP67	Nema 6, IEC IP67	
Current Output Range	—	Up to 100 mA at 12 VDC Up to 200 mA at 24 VDC		Lead Wire	2 conductor, 24 Gauge	3 conductor, 24 Gauge	
Burden Current	—	7 mA at 12 VDC 16 mA at 24 VDC		Lead Wire Length	39 Inches, 1 Meter	39 Inches, 1 Meter	
Power Rating	10 Watts (Resistive) 5 Watts (Capacitive)			Color of Cable	Black	See Below	
Switching Current Range	30 mA to 200 mA (Resistive) 30 mA to 100 mA (Capacitive)			Switching Response	300 Hz Maximum	1000 Hz Maximum	
Leakage Current	0	10µA		Shock Resistance	30g	not applicable	
LED Function	Red, Target Present	Red, Target Present		Vibration Resistance	10-55 Hz, 1.5 mm Double Amplitude	not applicable	
Minimum Current to Light LED	18 mA	1 mA					

¹ Polarity is restricted to DC operation: (+) to Brown (White*) (-) to Blue (Black*)
If these connections are reversed the contacts will close, but the LED will not light.

*Note: For MT4 mounts, Tandem and Duplex cylinders, see Bulletin 0830-M2 for applicable switch part number.

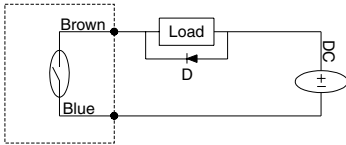
*Wire colors in parentheses pertain to switches manufactured before 10/15/93.

<p>Reed Switch L075250000 Part No. L074870000 L074860000</p> <p>NOTE: Polarity must be observed for DC operation only.</p>	<p>NPN Sinking Output L075280000 Part No. L074880000 L074900000</p> <p>Color of Cable Black</p> <p>"On" State Voltage Drop 0.7V Maximum</p>	<p>PNP Sourcing Output L074920000 Part No. L074920000</p> <p>Color of Cable Gray</p> <p>"On" State Voltage Drop 0.2V Maximum</p>
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Circuit for Switching Contact Protection (Inductive Loads)

(Required for proper operation 24V DC)

Put Diode parallel to loads following polarity as shown below.



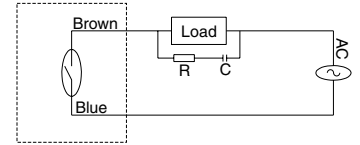
D: Diode: select a Diode with the breakdown voltage and current rating according to the load.

Typical Example—100 Volt, 1 Amp Diode

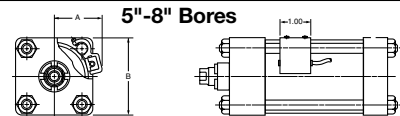
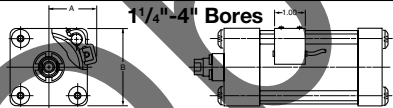
CR: Relay coil (under 0.5W coil rating)
(Recommended for longer life 125 VAC)

Put a resistor and capacitor in parallel with the load. Select the resistor and capacitor according to the load.

Typical Example:
CR: Relay coil (under 2W coil rating)
R: Resistor 1 KΩ - 5 KΩ, 1/4 W
C: Capacitor 0.1 µF, 600 V



Switch Mounting Data



Note: For switches with connectors and cordsets, see Engineering Section C.

Bore Size	Reed Switch Assembly	Solid State Switch Assembly		A	B	Piston Travel at Midstroke (Inches) (Switch On) (±.01)	Minimum Activation Distance from End of Stroke (Inches)	
		NPN Sinking	PNP Sourcing				Head	Cap
1 1/4	L075250000	L075280000	L075310000	1.30	1.93	.40	.06	.06
1 1/2	L074860000	L074880000	L074910000	1.46	2.12	.37	.06	.06
2	L074860000	L074880000	L074910000	1.68	2.57	.40	.12	.12
2 1/2	L074860000	L074880000	L074910000	1.90	2.99	.41	.07	.07
3 1/4	L074870000	L074900000	L074920000	2.24	3.73	.43	.13	.13
4	L074870000	L074900000	L074920000	2.55	4.37	.44	.11	.11
5	L074860000	L074880000	L074910000	2.88	5.25	.44	.06	.06
6	L074860000	L074880000	L074910000	3.25	6.12	.50	.06	.06
8	L074870000	L074900000	L074920000	4.06	8.00	.50	.06	.06

⚠ Caution

- Use an ammeter to test reed switch current. Testing devices such as incandescent light bulbs may subject the reed switch to high in-rush loads.
- NOTE:** When checking an unpowered reed switch for continuity with a digital ohmmeter the resistance reading will change from infinity to a very large resistance (2 M ohm) when the switch is activated. This is due to the presence of a diode in the reed switch.
- Anti-magnetic shielding is recommended for reed switches exposed to high external RF or magnetic fields.
- The magnetic field strength of the piston magnet is designed to operate with our switches. Other manufacturers' switches or sensors may not operate correctly in conjunction with these magnets.
- Current capabilities are relative to operational temperatures.
- Use relay coils for reed switch contact protection.
- The operation of some 120 VAC PLC's (especially some older Allen-Bradley PLC's) can overload the reed switch. The switch may fail to release after the piston magnet has passed. This problem may be corrected by the placement of a 700 to 1K OHM resistor between the switch and the PLC input terminal. Consult the manufacturer of the PLC for appropriate circuit.
- Switches with long wire leads (greater than 15 feet) can cause capacitance build-up and sticking will result. Attach a resistor in series with the reed switch (the resistor should be installed as close as possible to the switch). The resistor should be selected such that R (ohms) > E/0.3.
- NOTE:** On 5"-8" bores switch will not lay flush with cylinder body.

Limit switches — up to 3 amp capability

Lin-Act magnetically operated limit switches consist of a single pole, single throw, normally open switch hermetically sealed in a glass tube. All electrical components are fully epoxy encapsulated.

The switch is designed to close in the presence of a magnetic field, produced by a permanent magnet built into the piston of the cylinder. Properly applied, this superior limit switch offers substantial advantages and overall system cost savings over conventional mechanical limit switch installations.

These new limit switches may be applied to any Lin-Act Series A4 and A4O cylinders equipped with an LS magnetic piston. Refer to ordering information on page 41 for further details.

Since the switches are adjustable on the tie rods, signals anywhere within the cylinder stroke are possible. Select

a mid-stroke or end-of-stroke* position, or use multiple switches for sequencing. To make installation and troubleshooting simpler, all switches come complete with an LED light that indicates when the switch in closed.

The switches are available in two different power levels. Model L10 low-level 10 watt, 0.5 amp maximum for signaling electronic circuits with resistive loads only; Model H360 high-level 360VA 3.0 amp with built-in triac and transient protection for use with electro-mechanical components or relays (inductive loads). In most instances, use of the H360 switch eliminates the need for a relay.

*Note: End-of-stroke signals will occur approximately 3/8" from full stroke.

Application recommendations and precautions.

These switches have been carefully engineered and tested, but since they may be installed in virtually an unlimited number of applications under a great variety of plant conditions, they should be installed as outlined below to provide maximum reliability.

1. Always stay within the specifications and power rating limitations of the unit installed.
2. Primary and control circuit wiring should not be mixed in the same conduit. Motors will produce high impulses that will be introduced into the control wiring if the wiring is carried in the same conduit.
3. Never connect the switch without a load present. The switch will be destroyed.
4. Some electrical loads may be capacitive. Capacitive loading may also occur due to distributed capacity in cable runs over 25 feet. Use switch Model H360 whenever capacitive loading may occur. In order to obtain optimum performance and long life, magnetically operated limit

switches should not be subjected to (1) strong magnetic fields, (2) extreme temperature ranges, and (3) excessive ferrous filing or chip buildup.

Improper wiring may damage or destroy the switch. Therefore, the wiring diagram, along with the listed power ratings, should be carefully observed before connecting power to the switch.

The LED light will operate on AC and DC but is polarity sensitive on DC.

Additional switch selection information.

Lower power L10 switches are designed for signaling electronic circuits. Do not use on relay loads or with incandescent bulbs. Resistive loads only.

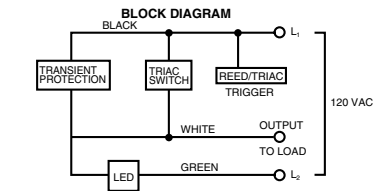
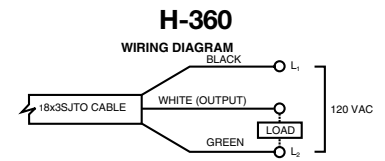
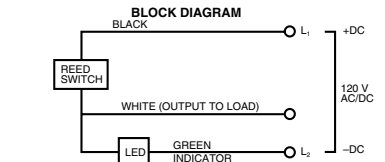
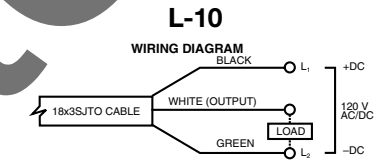
High power H360 switches are designed for higher resistive or inductive loads, electro-mechanical components, relays, etc.

Specifications

Switch Rating Model L10 (Low-Level - Reed only)		
Circuit	S.P.S.T., N.O.	
Operating Voltage	(DC Polarity Sensitive)	0-120 Volts AC-DC
Maximum Load (Power Rating)	10 Watts, Resistive Only	
Maximum Current	0.5 Amps., Maximum	
Response Time - On	0.75 Milliseconds	
Response Time - Off	0.05 Milliseconds	
Temperature Range	-20 to +50°F	
Caution: Switches voltage x switched current in amperes must not exceed power rating - do not use on relay loads.		
Switch Rating Model H360 (High-Level - With Triac)		
Circuit	S.P.S.T., N.O.	
Operating Voltage	24-120 VAC, 50/60 H	
Maximum Load (Power Rating)	360 VA — break (inductive or resistive)	
Maximum Current	3.0 Amps.	
Response Time - On	1.0 Millisecond	
Response Time - Off	0.8 Milliseconds	
Temperature Range	-20 to +150°F	
Leakage	(P.C. Compatible)	1.7 MA Maximum
Caution: Switched voltage x switch current in amperes must not exceed power rating.		
Both Models		
Leads	(6' or 10' leads optional)	#18-3 SJTO Cable 4' long Std.
LED Light	Standard	
Case Material	Aluminum	
Shock	50 G's at 10 milliseconds	
Vibration	20 G's from 10 to 2000 Hz	
Repeatability	±.005" at constant piston speed	
NEMA Rating	NEMA Specifications 1, 4, 13	

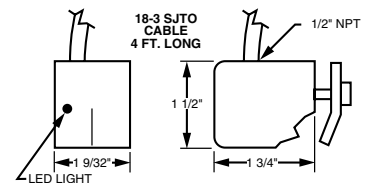
The electrical components are fully epoxy encapsulated in the switch case.

Switch Wiring and Block Diagram

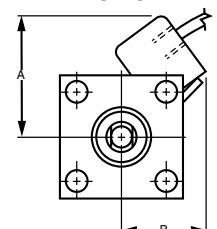


P/N	DESCRIPTION
H-360X4	Switch w/4' lead
H-360x6	Switch w/6' lead
H-360x10	Switch w/10' lead
H-360x12	Switch w/12' lead
H-360x20	Switch w/20' lead
H-360x25	Switch w/25' lead
L-10x4	Switch w/4' lead
L-10x6	Switch w/6' lead
L-10x10	Switch w/10' lead
L-10x12	Switch w/12' lead
L-10x20	Switch w/20' lead

Switch Dimensions



Mounted Switch Dimensional Profile



BORE	A	B
1 1/2	2.56	1.86
2	2.78	2.00
2 1/2	3.00	2.19
3 1/4	3.38	2.34
4	3.65	2.59
5	4.00	2.94
6	4.39	3.28
8	5.22	4.00

Linear alignment couplers

Lin-Act's linear alignment couplers can virtually pay for themselves by extending the bearing and seal life of your cylinders. Our couplers prevent binding and erratic movement that misalignment causes, which eventually wears down your cylinders.

Not only do Lin-Act couplers work equally well in "push" and "pull" applications, but they allow a greater tolerance between the cylinder centerline and the mating member. When you "couple" these facts with Lin-Act's big selection of 13 standard thread sizes, you've got a linear alignment coupler that's well worth checking into!

Alignment Coupler

See Table 1 for Part Numbers and Dimensions

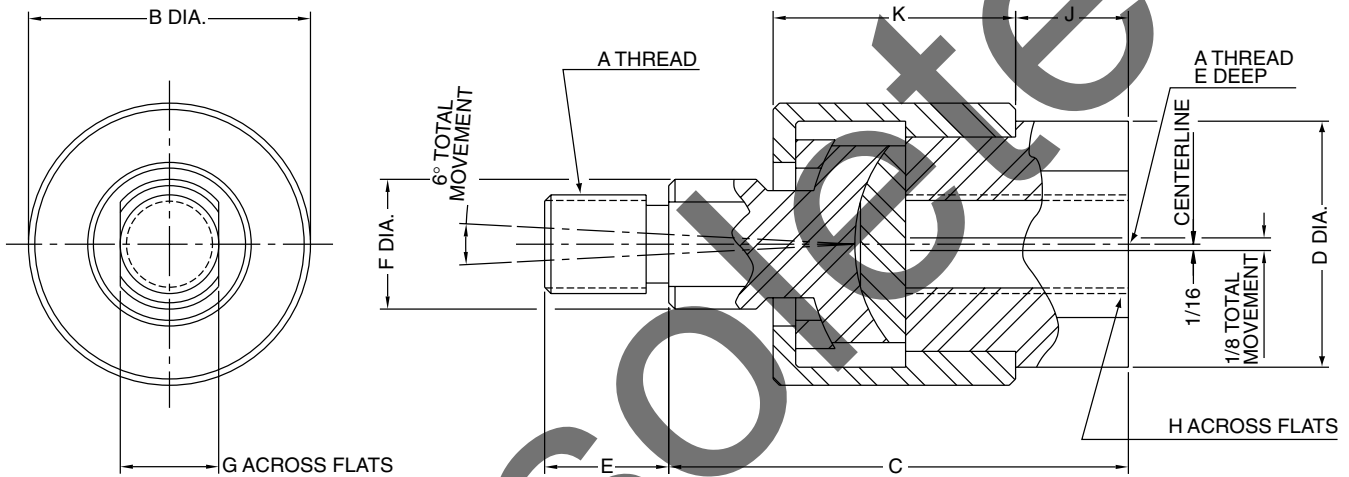


Table 1 – Part Numbers and Dimensions

Part No.	A	B	C*	D	E	F	G	H	J	K	Max. Pull Load (lbs.)	Approx. Weight (lbs.)
1347570031	$5/16$ -24	$1/8$	$1 3/4$	$15/16$	$1/2$	$1/2$	$3/8$	$3/4$	$3/8$	$15/16$	1200	.35
1347570038	$3/8$ -24	$1/8$	$1 3/4$	$15/16$	$1/2$	$1/2$	$3/8$	$3/4$	$3/8$	$15/16$	2425	.35
1347570044	$7/16$ -20	$1 3/8$	2	$1 1/8$	$3/4$	$5/8$	$1/2$	$7/8$	$3/8$	$1 3/32$	3250	.55
1347570050	$1/2$ -20	$1 3/8$	2	$1 1/8$	$3/4$	$5/8$	$1/2$	$7/8$	$3/8$	$1 3/32$	4450	.55
1347570063	$5/8$ -18	$1 3/8$	2	$1 1/8$	$3/4$	$5/8$	$1/2$	$7/8$	$3/8$	$1 3/32$	6800	.55
1347570075	$3/4$ -16	2	$2 5/16$	$1 5/8$	$1 1/8$	$15/16$	$3/4$	$1 5/16$	$7/16$	$1 9/32$	9050	1.4
1347570088	$7/8$ -14	2	$2 5/16$	$1 5/8$	$1 1/8$	$15/16$	$3/4$	$1 5/16$	$7/16$	$1 9/32$	14450	1.4
1347570100	1-14	$3 1/8$	3	$2 3/8$	$1 5/8$	$1 7/16$	$1 1/4$	$1 7/8$	$3/4$	$1 25/32$	19425	4.8
1347570125	$1 1/4$ -12	$3 1/8$	3	$2 3/8$	$1 5/8$	$1 7/16$	$1 1/4$	$1 7/8$	$3/4$	$1 25/32$	30500	4.8
1337390125	$1 1/4$ -12	$3 1/2$	4	2	2	$1 1/2$	$1 1/4$	$1 11/16$	$3/4$	$2 1/2$	30500	6.9
1337390150	$1 1/2$ -12	4	$4 3/8$	$2 1/4$	$2 1/4$	$1 3/4$	$1 1/2$	$1 15/16$	$7/8$	$2 3/4$	45750	9.8
1337390175	$1 3/4$ -12	4	$4 3/8$	$2 1/4$	$2 1/4$	$1 3/4$	$1 1/2$	$1 15/16$	$7/8$	$2 3/4$	58350	9.8
1337390188	$1 7/8$ -12	5	$5 5/8$	3	3	$2 1/4$	$1 15/16$	$2 5/8$	$1 3/8$	$3 3/8$	67550	19.8

■ – Shaded Dimensions are different from previous design couplers.
 * – The 'C' dimension – overall length – is the same as existing couplers except where noted. In these cases it is shorter than previous design.

How to Order Linear Alignment Couplers – When ordering a cylinder with a threaded male rod end, specify the coupler of equal thread size by part number as listed in Table 1, i.e.; Piston Rod "KK" or "LL" dimension is $3/4$ " - 16", specify coupler part number 1347570075.

Manufacturing Locations

REGIONAL PLANTS

California

221 Helicopter Circle
Corona, CA 92880
Tel.: (909) 280-3800
Fax: (909) 280-3808
FAX: (800) 869-9886

Connecticut

80 Shaker Road
Enfield, CT 06082
Tel.: (860) 749-2215
Fax: (800) 323-0105

Georgia

1300 Six Flags Road
Lithia Springs, GA 30122
Tel.: (770) 819-3400
Fax: (800) 437-3498

Indiana

Goodland Plant
811 South Iroquois Street
P.O. Box 475
Goodland, IN 47948
Tel.: (219) 297-3182
Fax: (800) 328-8120

Michigan

900 Plymouth Road
Plymouth, MI 48170
Tel.: (734) 455-1700
Fax: (734) 455-1007

North Carolina

323 Elizabeth Brady Road
Hillsborough, NC 27278
Tel.: (919) 732-9371
Fax: (919) 732-9377

Ohio

1000 Home Avenue
Akron, OH 44310
Tel.: (330) 253-4375
Fax: (330) 253-4883

Oregon

13908 N. Lombard
Portland, OR 97203
Tel.: (503) 285-0884
Fax: (800) 323-0195

Canada

1000 6th St. East at 9th
Owen Sound, Ontario
Canada N4K 5P1
Tel.: (519) 376-2691
Fax: (519) 376-8018

556 Lepine Street
Dorval, Quebec
Canada H9P 2V6
Tel.: (514) 631-3995
Fax: (514) 631-4191

530 Kipling Avenue
Toronto, Ontario
Canada M8Z 5E6
Tel.: (416) 255-4567
Fax: (416) 251-6890

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1. Terms and Conditions of Sale: All descriptions, quotations, proposals, offers, acknowledgments, acceptances and sales of Seller's products are subject to and shall be governed exclusively by the terms and conditions stated herein. Buyer's acceptance of any offer to sell is limited to these terms and conditions. Any terms or conditions in addition to, or inconsistent with those stated herein, proposed by Buyer in any acceptance of an offer by Seller, are hereby objected to. No such additional, different or inconsistent terms and conditions shall become part of the contract between Buyer and Seller unless expressly accepted in writing by Seller. Seller's acceptance of any offer to purchase by Buyer is expressly conditional upon Buyer's assent to all the terms and conditions stated herein, including any terms in addition to, or inconsistent with those contained in Buyer's offer. Acceptance of Seller's products shall in all events constitute such assent.

2. Payment: Payment shall be made by Buyer net 30 days from the date of delivery of the items purchased hereunder. Amounts not timely paid shall bear interest at the maximum rate permitted by law for each month or portion thereof that Buyer is late in making payment. Any claims by Buyer for omissions or shortages in a shipment shall be waived unless Seller receives notice thereof within 30 days after Buyer's receipt of the shipment.

3. Delivery: Unless otherwise provided on the face hereof, delivery shall be made F.O.B. Seller's plant. Regardless of the method of delivery, however, risk of loss shall pass to Buyer upon Seller's delivery to a carrier. Any delivery dates shown are approximate only and Seller shall have no liability for any delays in delivery.

4. Warranty: Seller warrants that the items sold hereunder shall be free from defects in material or workmanship for a period of 18 months from date of shipment from the Company. **THIS WARRANTY COMPRISES THE SOLE AND ENTIRE WARRANTY PERTAINING TO ITEMS PROVIDED HEREUNDER. SELLER MAKES NO OTHER WARRANTY, GUARANTEE, OR REPRESENTATION OF ANY KIND WHATSOEVER. ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO, MERCHANTABILITY AND FITNESS FOR PURPOSE, WHETHER EXPRESS, IMPLIED, OR ARISING BY OPERATION OF LAW, TRADE USAGE, OR COURSE OF DEALING ARE HEREBY DISCLAIMED.**

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5. Limitation of Remedy: SELLER'S LIABILITY ARISING FROM OR IN ANY WAY CONNECTED WITH THE ITEMS SOLD OR THIS CONTRACT SHALL BE LIMITED EXCLUSIVELY TO REPAIR OR REPLACEMENT OF THE ITEMS SOLD OR REFUND OF THE PURCHASE PRICE PAID BY BUYER, AT SELLER'S SOLE OPTION. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY KIND OR NATURE WHATSOEVER, INCLUDING BUT NOT LIMITED TO LOST PROFITS ARISING FROM OR IN ANY WAY CONNECTED WITH THIS AGREEMENT OR ITEMS SOLD HEREUNDER, WHETHER ALLEGED TO ARISE FROM BREACH OF CONTRACT, EXPRESS OR IMPLIED WARRANTY, OR IN TORT, INCLUDING WITHOUT LIMITATION, NEGLIGENCE, FAILURE TO WARN OR STRICT LIABILITY.

6. Changes, Reschedules and Cancellations: Buyer may request to modify the designs or specifications for the items sold hereunder as well as the quantities and delivery dates thereof, or may request to cancel all or part of this order, however, no such requested modification or cancellation shall become part of the contract between Buyer and Seller unless accepted by Seller in a written amendment to this Agreement. Acceptance of any such requested modification or cancellation shall be at Seller's discretion, and shall be upon such terms and conditions as Seller may require.

7. Special Tooling: A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture items sold pursuant to this contract. Such special tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is utilized in the manufacture of the items sold hereunder, even if such apparatus has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer. Unless otherwise agreed, Seller shall have the right to alter, discard or otherwise dispose of any special tooling or other property in its sole discretion at any time.

8. Buyer's Property: Any designs, tools, patterns, materials, drawings, confidential information or equipment furnished by Buyer, or any other items which become Buyer's property, may be considered obsolete and may be destroyed by Seller after two (2) consecutive years have elapsed without Buyer placing an order for the items which are manufactured using such property. Seller shall not be responsible for any loss or damage to such property while it is in Seller's possession or control.

9. Taxes: Unless otherwise indicated on the face hereof, all prices and charges are exclusive of excise, sales, use, property, occupational or like taxes which may be imposed by any taxing authority upon the manufacture, sale or delivery of the items sold hereunder. If any such taxes must be paid by Seller or if Seller is liable for the collection of such tax, the amount thereof shall be in addition to the amounts for the items sold. Buyer agrees to pay all such taxes or to reimburse Seller therefore upon receipt of its invoice. If Buyer claims exemption from any sales, use or other tax imposed by any taxing authority, Buyer shall save Seller harmless from and against any such tax, together with any interest or penalties thereon which may be assessed if the items are held to be taxable.

10. Indemnity for Infringement of Intellectual Property Rights: Seller shall have no liability for infringement of any patents, trademarks, copyrights, trade dress, trade secrets or similar rights except as provided in this Part 10. Seller will defend and indemnify Buyer against allegations of infringement of U.S. patents, U.S. trademarks, copyrights, trade dress and trade secrets (hereinafter "Intellectual Property Rights"). Seller will defend at its expense and will pay the cost of any settlement or damages awarded in an action brought against Buyer based on an allegation that an item sold pursuant to this contract infringes the Intellectual Property Rights of a third party. Seller's obligation to defend and indemnify Buyer is contingent on Buyer notifying Seller within ten (10) days after Buyer becomes aware of such allegations of infringement, and Seller having sole control over the defense of any allegations or actions including all negotiations for settlement or compromise. If an item sold hereunder is subject to a claim that it infringes the Intellectual Property Rights of a third party, Seller may, at its sole expense and option, procure for Buyer the right to continue using said item, replace or modify said item so as to make it noninfringing, or offer to accept return of said item and return the purchase price less a reasonable allowance for depreciation. Notwithstanding the foregoing, Seller shall have no liability for claims of infringement based on information provided by Buyer, or directed to items delivered hereunder for which the designs are specified in whole or part by Buyer, or infringements resulting from the modification, combination or use in a system of any item sold hereunder. The foregoing provisions of this Part 10 shall constitute Seller's sole and exclusive liability and Buyer's sole and exclusive remedy for infringement of Intellectual Property Rights.

If a claim is based on information provided by Buyer or if the design for an item delivered hereunder is specified in whole or in part by Buyer, Buyer shall defend and indemnify Seller for all costs, expenses or judgments resulting from any claim that such item infringes any patent, trademark, copyright, trade dress, trade secret or any similar right.

11. Force Majeure: Seller does not assume the risk of and shall not be liable for delay or failure to perform any of Seller's obligations by reason of circumstances beyond the reasonable control of Seller (hereinafter "Events of Force Majeure"). Events of Force Majeure shall include without limitation, accidents, acts of God, strikes or labor disputes, acts, laws, rules or regulations of any government or government agency, fires, floods, delays or failures in delivery of carriers or suppliers, shortages of materials and any other cause beyond Seller's control.

12. Entire Agreement/Governing Law: The terms and conditions set forth herein, together with any amendments, modifications and any different terms or conditions expressly accepted by Seller in writing, shall constitute the entire Agreement concerning the items sold, and there are no oral or other representations or agreements which pertain thereto. This Agreement shall be governed in all respects by the law of the State of Ohio. No actions arising out of the sale of the items sold hereunder or this Agreement may be brought by either party more than two (2) years after the cause of action accrues.

How to order — ordering information, weights

Ordering information

For easy ordering, follow the list and example shown. Be sure to specify all of the items. If your requirement is more complex, please provide a written explanation to avoid possible error.

- Quantity
- Model (Refer to catalog for model and part numbers.)
- Bore and stroke (Specify diameter and length in inches.)
- Cushions (if required)
- Rod thread style (Refer to style numbers, pages 10 or 18.)
- Options (Refer to options suffixes below.)
- Accessories (Specify separately.)

Limit switch cylinder. To specify limit switch cylinders add the prefix LS to the model number. The switches must be ordered separately. An LS cylinder will be furnished with a magnetic piston for use with the switches. Example: LS-A4C-2.0x6.002-U-H-C.

* Not Available in 1 1/4" Bore.

Example	LS	-	D	A4	C	-	1.5	x	2.50	-	1	-	U	-	B	-	H	-	V	-	SP	
Limit switch (if required)	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
Double rod end (if required)	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
Series	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
A4 (STD)	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
A4O (oversized rod)	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
H4 (STD)	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
H4O (oversized rod)	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
Mount	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
Blank (no mount)	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
B (MS4)	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
A (MS1)	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
WL (MS2)*	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
F (MF1)	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
FH (ME3) 8" Bore Only	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
ED (MP4)	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
RC (ME4) 8" Bore Only	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
N - Extended Tie Rods Cap End (MX2)	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
M - Extended Tie Rods Head End (MX3)	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
P - Extended Tie Rods Both Ends (MX1)	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
Bore	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
1.25	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
1.5	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
2.0	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
2.5	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
3.25	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
4.0	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
5.0	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
6.0	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
8.0	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
Stroke	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
Rod thread style	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
2 small male	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
1 intermediate male	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
4 short female	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
3 special (explain)	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
Port	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
U=NPTF	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
J=NPTF one size under NFPA Standard (Direct interchange w/A3)	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
Bumpers	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
BB=Both	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
BC=Bumper Cap	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
BH=Bumper Head	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
Cushions	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
H=head cushion	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
C=cap cushion	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
HC=cushion both ends	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
N=non cushioned	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
Seals	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
Blank=standard nitrile	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
V=Fluorocarbon	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
Special	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	
Mark SP and explain	_____		_____	_____	_____		_____		_____		_____		_____		_____		_____		_____		_____	

Obsolete

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