

Pneumatic Cylinders & Couplers inc.

Aluminum, Steel, Stainless Steel Cylinders and Accessories



NFPA CYLINDERS
(pgs 4-11)

R SERIES CYLINDERS
(pgs 12-13)

NON-ROTATING CYLINDERS
(pgs 14-17)

TECHNICAL & ACCESSORIES
(pgs 18-21)

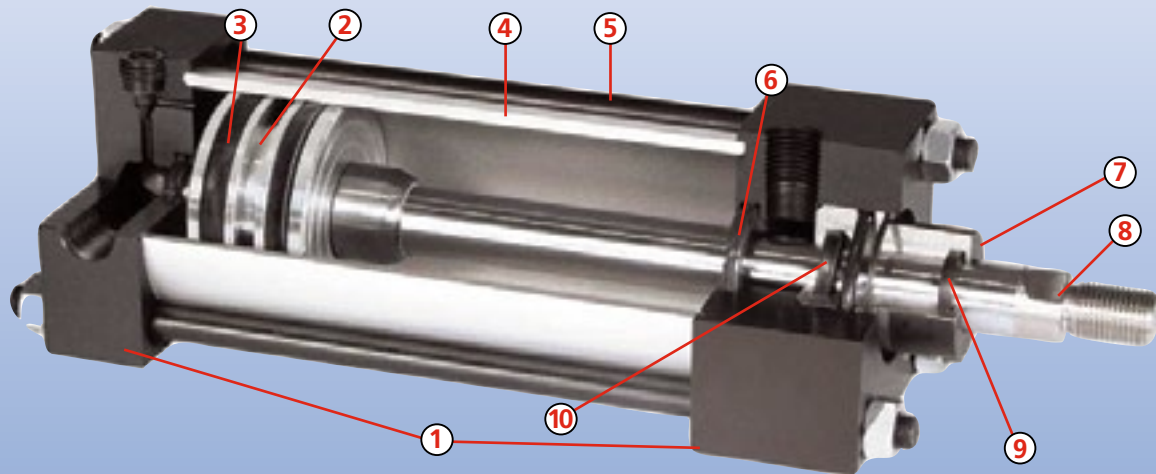
AIR OIL TANKS
(pg 22)



MADE IN THE USA

YOUR TOTAL PNEUMATIC CYLINDER CHOICE

ALUMINUM OR STEEL CONSTRUCTION



1 Head & Cap

Precision machined from solid aluminum blocks and black anodized. An option for steel end caps is available.

2 Piston

Solid aluminum alloy, lightweight yet strong with an available option for magnetic sensors or a wear band with PTFE.

3 Piston Seals

Lip type nitrile are pressure activated and wear compensating for long life.

4 Cylinder Tube

6063 - T6 aluminum with an I.D. that has been hard coat anodized.

5 Tie Rods

High strength steel with black oxide finish to maintain compression on o-ring tube end seals. An option for stainless steel is available.

6 Cushions

Floating cushion seals with captured adjustment needle incorporate extra fine thread metering. A lower cost fixed cushion option is available without adjustment needles.

7 Bearing

Machined from close grained cast iron and Teflon® coated for lower friction. An all stainless bearing is an available option.

8 Piston Rod

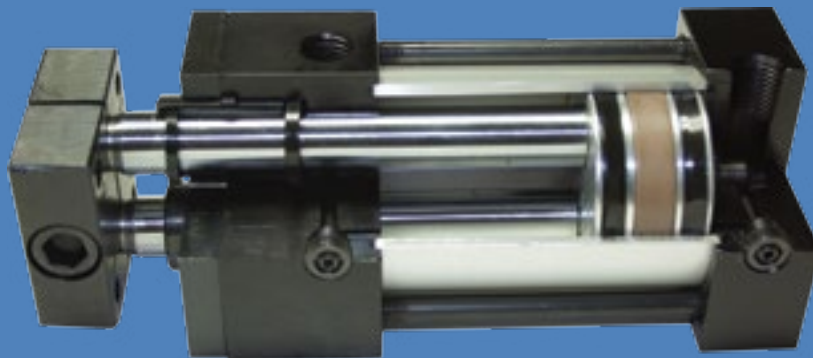
Machined from 100,000 yield hard chrome plated steel with an option for stainless when required.

9 Rod Wiper

The tough urethane material removes foreign materials from the rod which extends the rod seal and bearing life.

10 Rod Seal

The urethane seal material incorporates a rounded dynamic sealing lip for reduced friction and longer seal life.



FOR STAINLESS STEEL CONSTRUCTION PLEASE REFER TO INSIDE BACK COVER

TABLE OF CONTENTS

C & D Aluminum/Steel Series Description.....	2	R Series Mounts	13
General Features	3	D & T Series How To Order	14
C & S Series How To Order	4	MXO Basic Cylinder	15
MXO Basic Cylinder	5	MF1 & MF2 Flange Mount.....	16
ME3 & ME4 (8" Bore) Square Mount.....	6	MS2 Side Lug & MS4 Side Tap Mount.....	16
MF1 & MF2 Flange Mount.....	6	BB Base Bar Mount.....	16
MS4 Side Tap & SN Sleeve Nut Mount	7	MP1 & MP2 Clevis, MP4 Eye Mount	17
MX1, MX2 & MX3 Extended Tie Rod Mount	7	Technical Information.....	18,19
MP1 & MP2 Clevis, MP4 Eye Mount	8	Accessories	20,21
MT1, MT2 & MT4 Trunnion Mount.....	9	Switches.....	21
MS1 End Angle & MS2 Side Lug Mount.....	10	Air / Oil Tanks.....	22
MS7 End Lug & BB Base Bar Mount.....	11	R, S & T Stainless Steel Series Description	23
R Series How To Order.....	12	Specials.....	24

The Choice for Quality and Service

Pneumatic Cylinders & Couplers specialize in aluminum and stainless steel cylinders. We provide the solutions you need to increase your efficiency and profitability. Our products combine proven design features with the finest available materials and superior workmanship. Our mission is to supply products with the features you require quickly.

Pneumatic Cylinders & Couplers' products are designed and manufactured for many applications and industry sectors:

- Packaging
- Food Processing
- Machine Tool
- Animation & Robotics
- Printing
- Material Handling
- Pulp & Paper
- Automotive Manufacturing

DURABLE, LIGHTWEIGHT ALUMINUM

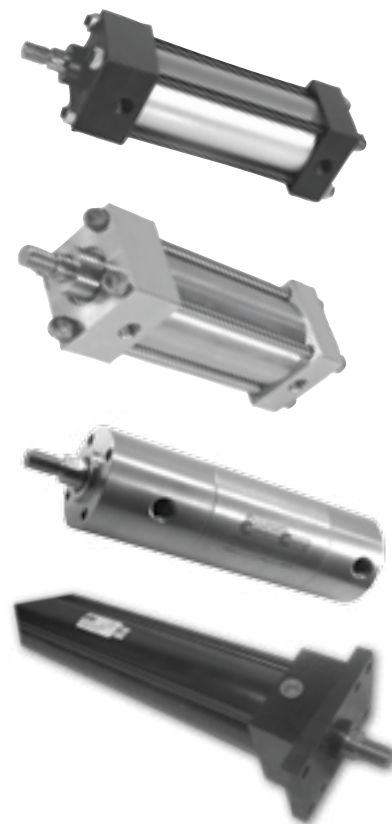
Aluminum cylinders are ideally suited for a variety of industries and applications. They are strong, lightweight and affordable. Aluminum cylinders are available in NFPA standard C Series and the non-rotating dual rod D Series.

CORROSION RESISTANT STAINLESS STEEL

Stainless steel cylinders from Pneumatic Cylinders & Couplers deliver long life and consistent performance regardless of operating conditions. Our stainless cylinders utilize 300 series material. Stainless cylinders are available in NFPA standard S Series, non-rotating dual rod T Series and the repairable round body R Series.

RUGGED STEEL CONSTRUCTION

Steel body cylinders are available for applications that require a more durable, impact resistant construction. Choose available options to the C Series for steel end caps and/or tube.



C & S SERIES

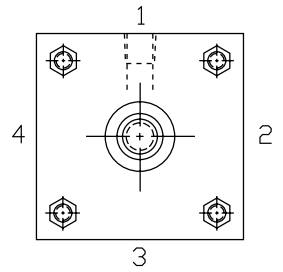
HOW TO ORDER

Cylinder Ordering Table Numbers

Example **C 2 0 D 0 5 . 0 0 2 F 1 C C B 1 DRMP**

Reference Table Number: **1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 Options**

PORT AND CUSHION NEEDLE POSITIONS



Example: Series C - 2" Bore - 5/8" Rod - 5" Stroke - Intermediate Male Rod - Front Flange MF1 - Cushion Head Pos# 2 - Cushion Cap Pos# 2 - 1/4" NPT ports - Ports Pos# 1 - Double Rod End - Magnetic Piston

TABLE 1 Series	
C	Aluminum Construction
S	Stainless Steel Construction

TABLE 2 & 3 Bore			
15	1-1/2"	40	4"
20	2"	50	5"
25	2-1/2"	60	6"
32	3-1/4"	80	8"

TABLE 4 Rod Diameter	
D	5/8"
E	1"
F	1-3/8"
G	1-3/4"

TABLE 5, 6, 7, 8 & 9 Stroke	
Stroke shown in two place decimal ie: 02.00 = 2" Stroke	

TABLE 10 Rod End	
1	Small Male
2	Intermediate Male
3	Female
4	Full Male
5	Blank/Plain
6	Rod Stud

TABLE 11 & 12 Mount			
BB	Base Bar	S4	MS4 Side Tapped
E3	ME3 Head Square (8" only)	S7	MS7 End Lug
E4	ME4 Cap Square (8" only)	SN	Sleeve Nut Construction
F1	MF1 Head Rectangular Flange	T1	MT1 Head Trunnion
F2	MF2 Cap Rectangular Flange	T2	MT2 Cap Trunnion
P1	MP1 Cap Fixed Clevis	T4	MT4 Intermediate Trunnion *
P2	MP2 Cap Detachable Clevis	X0	MX0 Basic Cylinder
P4	MP4 Cap Detachable Eye	X1	MX1 Tie Rods Extended Both Ends
S1	MS1 Side End Angles	X2	MX2 Tie Rods Extended Cap End
S2	MS2 Side Lugs	X3	MX3 Tie Rods Extended Head End

TABLE 13 Head Cushion	
A	No Cushion
B	Adjustable Pos# 1
C	Adjustable Pos# 2
D	Adjustable Pos# 3
E	Adjustable Pos# 4
F	Fixed Cushion

TABLE 14 Cap Cushion	
A	No Cushion
B	Adjustable Pos# 1
C	Adjustable Pos# 2
D	Adjustable Pos# 3
E	Adjustable Pos# 4
F	Fixed Cushion

* Customer must specify length
Customer must specify thread size

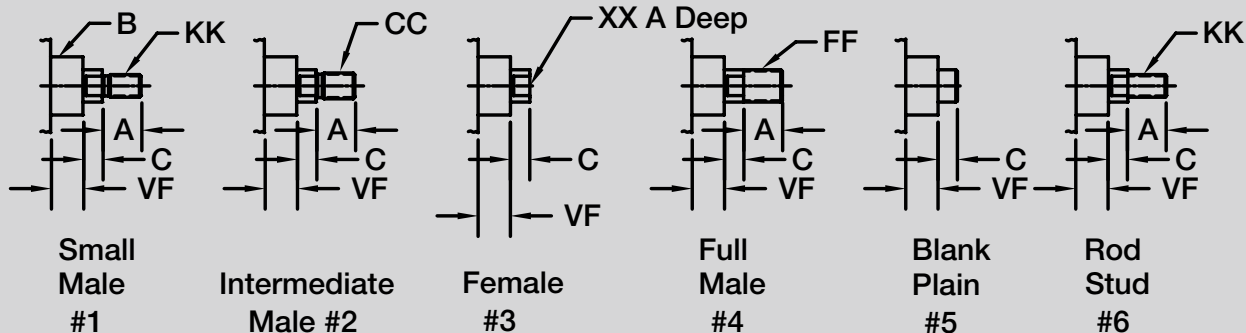
TABLE 15 Port Size	
B	1/4" NPT
C	3/8" NPT
D	1/2" NPT
E	3/4" NPT
F	1" NPT

TABLE 16 Port Location	
1	Side 1
2	Side 2
3	Side 3
4	Side 4

OPTIONS Listed Alphabetically			
AN	Stainless Acorn Nuts	PP	Poly-Pak Piston and Rod Seals
AO	Air/Oil Piston Seals	RX	Piston Rod Extension *
BS	Bumper Piston Seals	SA	Stroke Adjustment *
DR	Double Rod	SB	Stainless Steel Bushing
ER	External Bearing Retainer	SC	Steel Cap
FG	Food Grade Grease	SH	Steel Head
LF	Low Friction Seals	SL	Steel Tube
MP	Magnetic Piston	SP	Stainless Piston
MS	Metallic Rod Scraper	SR	Stainless Steel Piston Rod
SS	Stroke Stop *	ST	Stainless Steel Tie Rods
TH	Special Rod Thread #	TS	Stainless Tube
TX	Piston Rod Thread Extension *	UC	Urethane Bumper Cap End
UH	Urethane Bumper Head End	VS	High Temperature Seals
WB	Wear Band Piston		

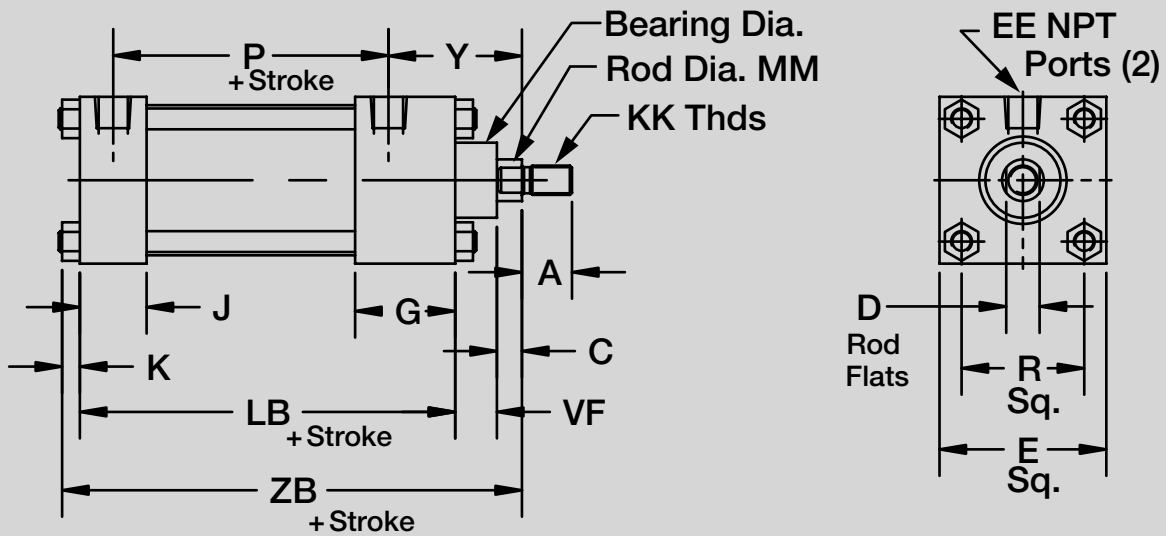
Additional Options Available. Consult Your Factory Representative.

ROD ENDS



Rod Ø	A	B	C	CC	FF	KK	VF	XX
5/8 (D)	.75	1.13	.38	1/2-20	5/8-18	7/16-20	.63	7/16-20
1 (E)	1.13	1.50	.50	7/8-14	1-14	3/4-16	.88	3/4-16
1-3/8 (F)	1.63	2.00	.63	1 1/4-12	1 3/8-12	1-14	1.00	1-14
1-3/4 (G)	2.00	2.38	.75	1 1/2-12	1 3/4-12	1 1/4-12	1.13	1 1/4-12

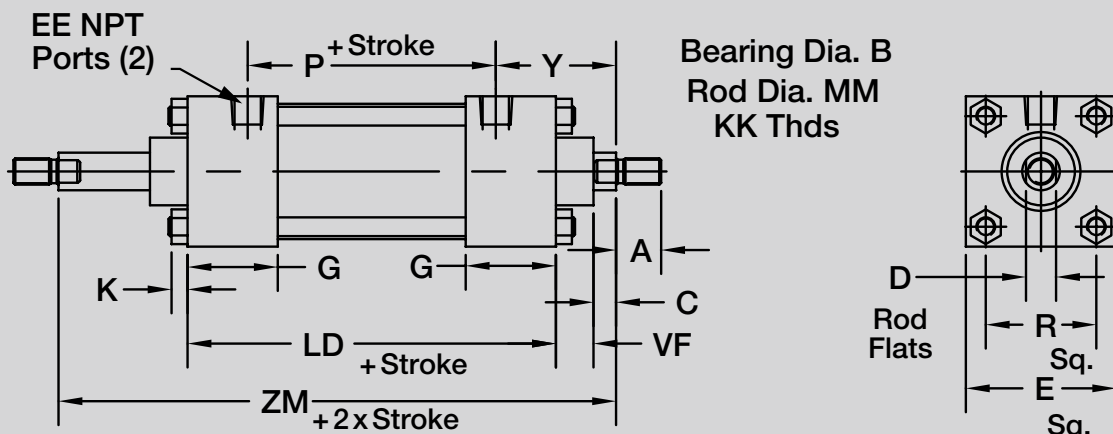
MXO BASIC MOUNT



Bore	Rod Ø	A	B	C	D	E	EE	G	J	K	KK	LB	LD	MM	P	R	VF	Y	ZB	ZM
1-1/2	5/8	.75	1.13	.38	.50	2.00	1/4	1.50	1.00	.25	7/16-20	3.63	4.13	.63	2.13	1.43	.63	2.00	4.88	6.13
	1	1.13	1.50	.50	.81	2.00	1/4	1.50	1.00	.25	3/4-16	3.63	4.13	1.00	2.13	1.43	.88	2.38	5.25	6.88
2	5/8	.75	1.13	.38	.50	2.50	1/4	1.50	1.00	.31	7/16-20	3.63	4.13	.63	2.13	1.84	.63	2.00	4.94	6.13
	1	1.13	1.50	.50	.81	2.50	1/4	1.50	1.00	.31	3/4-16	3.63	4.13	1.00	2.13	1.84	.88	2.38	5.06	6.88
2-1/2	5/8	.75	1.13	.38	.50	3.00	1/4	1.50	1.00	.31	7/16-20	3.75	4.25	.63	2.25	2.19	.63	2.00	5.31	6.25
	1	1.13	1.50	.50	.81	3.00	1/4	1.50	1.00	.31	3/4-16	3.75	4.25	1.00	2.25	2.19	.88	2.38	5.44	7.00
3-1/4	1	1.13	1.50	.50	.81	3.75	3/8	1.75	1.25	.38	3/4-16	4.25	4.75	1.00	2.50	2.76	.88	2.50	6.00	7.50
	1-3/8	1.63	2.00	.63	1.13	3.75	3/8	1.75	1.25	.38	1-14	4.25	4.75	1.38	2.50	2.76	1.00	2.75	6.25	8.00
4	1	1.13	1.50	.50	.81	4.50	3/8	1.75	1.25	.38	3/4-16	4.25	4.75	1.00	2.50	3.32	.88	2.50	6.00	7.50
	1-3/8	1.63	2.00	.63	1.13	4.50	3/8	1.75	1.25	.38	1-14	4.25	4.75	1.38	2.50	3.32	1.00	2.75	6.25	8.00
5	1	1.13	1.50	.50	.81	5.50	3/8	1.75	1.25	.50	3/4-16	4.50	5.00	1.00	2.75	4.10	.88	2.50	6.38	7.75
	1-3/8	1.63	2.00	.63	1.13	5.50	3/8	1.75	1.25	.50	1-14	4.50	5.00	1.38	2.75	4.10	1.00	2.75	6.63	8.25
6	1-3/8	1.63	2.00	.63	1.13	6.50	1/2	2.00	1.50	.50	1-14	5.00	5.50	1.38	3.13	4.88	1.00	2.81	7.13	8.75
	1-3/4	2.00	2.38	.75	1.50	6.50	1/2	2.00	1.50	.50	1 1/4-12	5.00	5.50	1.75	3.13	4.88	1.13	3.06	7.38	9.25
8	1-3/8	1.63	2.00	.63	1.13	8.50	1/2	2.00	1.50	.63	1-14	5.13	5.63	1.38	3.25	6.44	1.00	2.81	7.38	8.88
	1-3/4	2.00	2.38	.75	1.50	8.50	1/2	2.00	1.50	.63	1 1/4-12	5.13	5.63	1.75	3.25	6.44	1.13	3.06	7.63	9.38

Bore sizes up to 16 inches are available. Please consult your factory service representative.

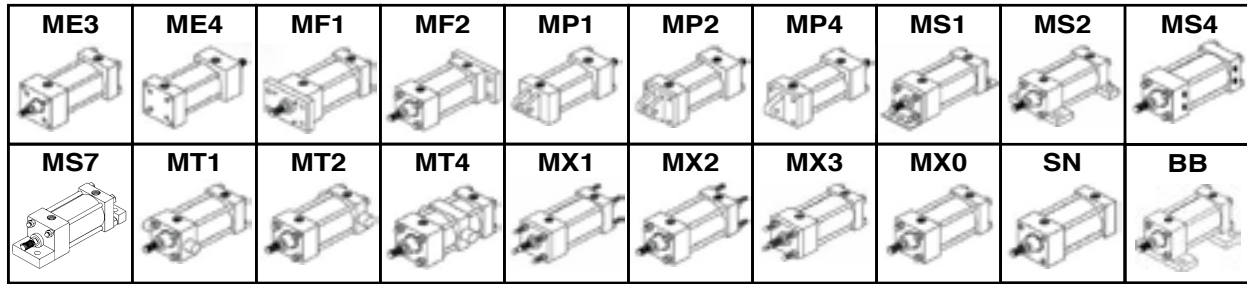
MXO DOUBLE ROD MOUNT



NFPA Interchangeability

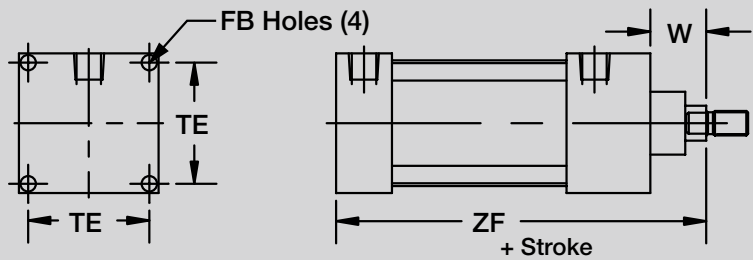
There is no need to modify your machines to fit our standard NFPA tie rod cylinders. Our cylinders are built to directly interchange with any NFPA pneumatic cylinder you have in operation. Standard NFPA cylinder construction allows for a wide variety of options, complementing the broad offering of rod and mounting styles.

NFPA Mounts

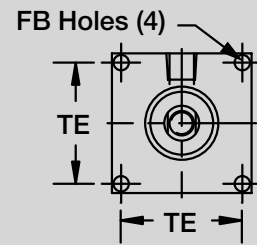


ME3 & ME4 SQUARE MOUNTS

ME4 CAP SQUARE



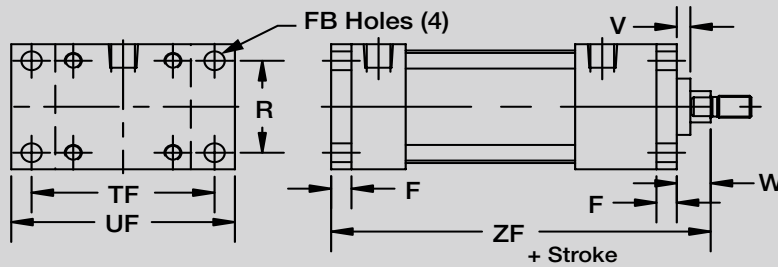
ME3 HEAD SQUARE



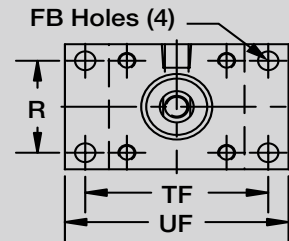
ME3 & ME4 available on 8" bore only.

MF1 & MF2 SQUARE MOUNTS

MF2 CAP FLANGE

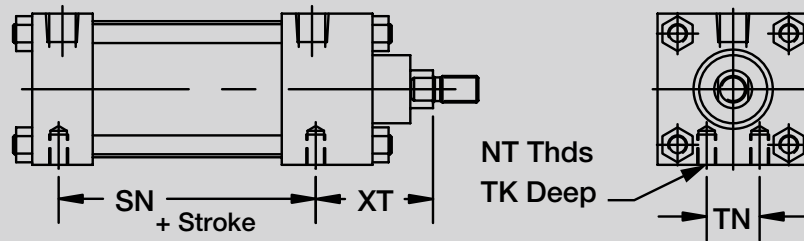


MF1 HEAD FLANGE

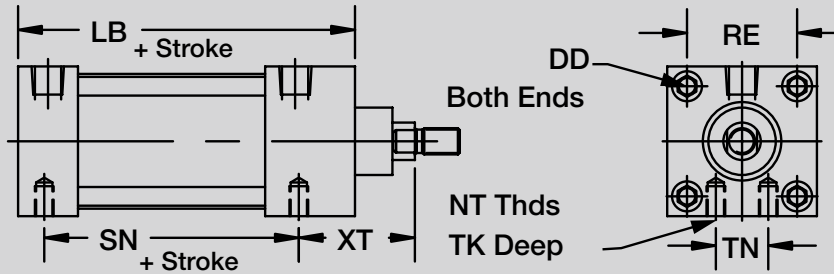


Bore	Rod Ø	F	FB	R	TE	TF	UF	V	W	ZF
1-1/2	5/8	.38	.31	1.43	—	2.75	3.38	.25	.63	5.00
	1	.38	.31	1.43	—	2.75	3.38	.50	1.00	5.38
2	5/8	.38	.38	1.84	—	3.38	4.13	.25	.63	5.00
	1	.38	.38	1.84	—	3.38	4.13	.50	1.00	5.38
2-1/2	5/8	.38	.38	2.19	—	3.88	4.63	.25	.63	5.13
	1	.38	.38	2.19	—	3.88	4.63	.50	1.00	5.50
3-1/4	1	.63	.44	2.76	—	4.69	5.50	.25	.75	6.25
	1-3/8	.63	.44	2.76	—	4.69	5.50	.38	1.00	6.50
	1	.63	.44	3.32	—	5.44	6.25	.25	.75	6.25
4	1-3/8	.63	.44	3.32	—	5.44	6.25	.38	1.00	6.50
	1	.63	.56	4.10	—	6.63	7.63	.25	.75	6.50
5	1-3/8	.63	.56	4.10	—	6.63	7.63	.38	1.00	6.75
	1-3/8	.75	.56	4.88	—	7.63	8.63	.25	.88	7.38
6	1-3/4	.75	.56	4.88	—	7.63	8.63	.38	1.13	7.63
	1-3/8	—	.69	—	7.57	—	—	—	1.63	6.75
8	1-3/4	—	.69	—	7.57	—	—	—	1.88	7.00

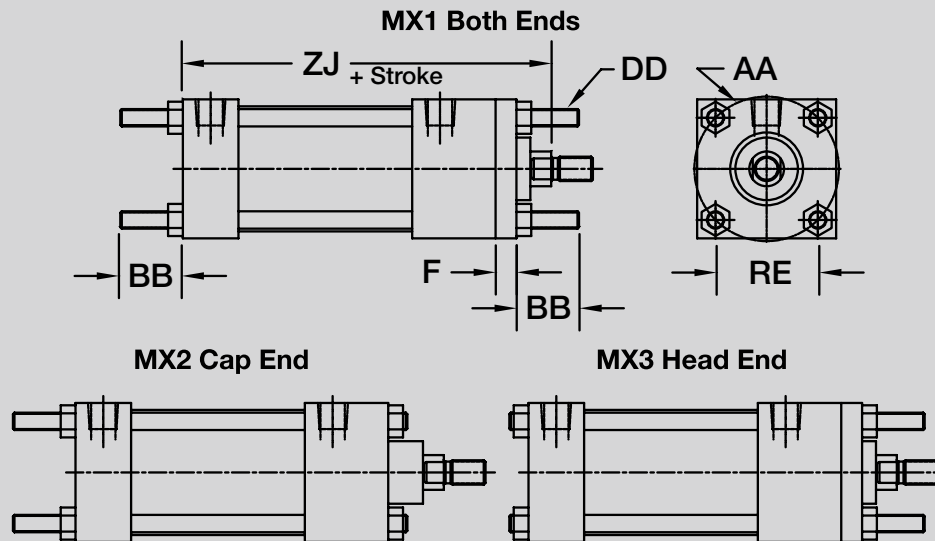
MS4 SIDE TAPPED MOUNT



SN SLEEVE NUT MOUNT

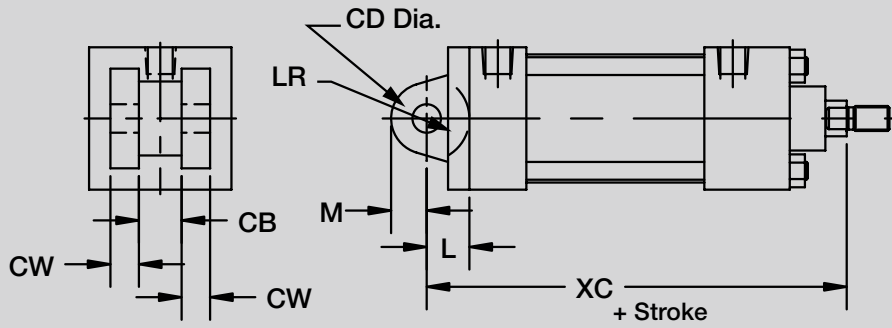


MX1, MX2 & MX3 TIE ROD EXTENDED MOUNTS

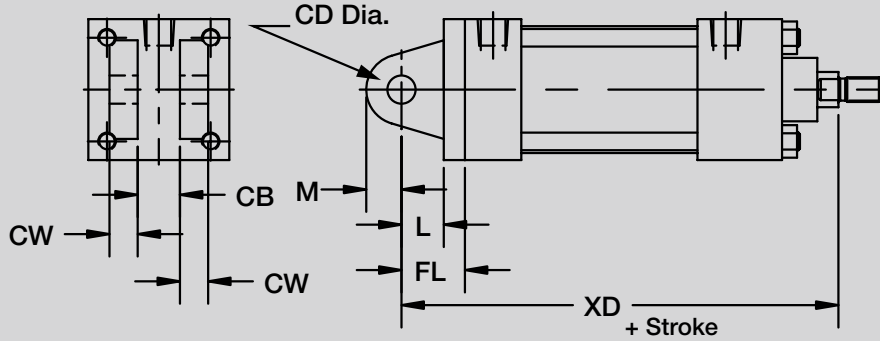


Bore	Rod Ø		AA	BB	DD	F	LB	NT	RE	SN	TK	TN	XT		ZJ	
-	Std	OS	-	-	-	-	-	-	-	-	-	-	Std	OS	Std	OS
1-1/2	5/8	1	2.02	1.00	1/4-28	.38	3.63	1/4-20	1.43	2.25	.38	.63	1.94	2.31	4.63	5.00
2	5/8	1	2.60	1.13	5/16-24	.38	3.63	5/16-18	1.84	2.25	.38	.88	1.94	2.31	4.63	5.00
2-1/2	5/8	1	3.10	1.13	5/16-24	.38	3.75	3/8-16	2.19	2.38	.50	1.25	1.94	2.31	4.75	5.13
3-1/4	1	1-3/8	3.90	1.38	3/8-24	.63	4.25	1/2-13	2.76	2.63	.75	1.50	2.44	2.69	5.63	5.88
4	1	1-3/8	4.70	1.38	3/8-24	.63	4.25	1/2-13	3.32	2.63	.75	2.06	2.44	2.69	5.63	5.88
5	1	1-3/8	5.80	1.81	1/2-20	.63	4.50	5/8-11	4.10	2.88	.94	2.69	2.44	2.69	5.88	6.13
6	1	1-3/4	6.90	1.81	1/2-20	.75	5.00	3/4-10	4.88	3.13	1.13	3.25	2.81	3.06	6.63	6.88
8	1	1-3/4	9.10	2.31	5/8-18	-	5.13	3/4-10	6.44	3.25	1.13	4.50	2.81	3.06	6.75	7.00

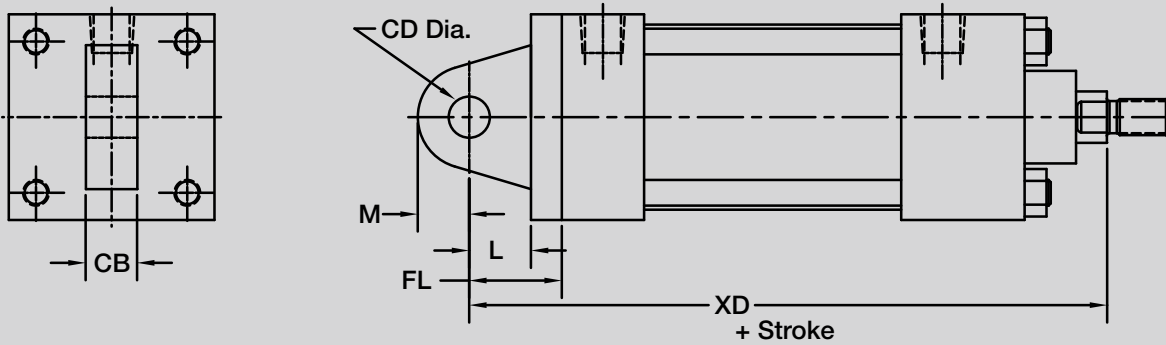
MP1 CAP FIXED CLEVIS MOUNT



MP2 CAP DETACHABLE CLEVIS MOUNT



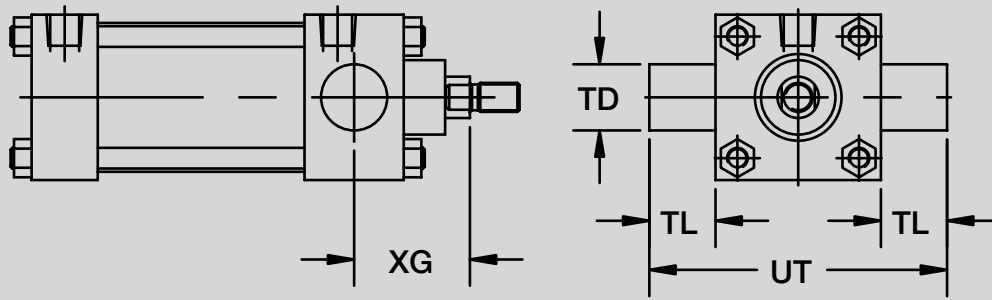
MP4 CAP DETACHABLE EYE MOUNT



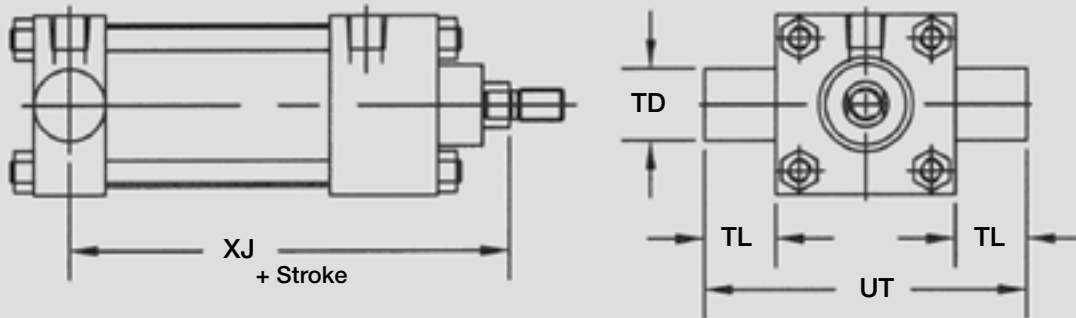
Bore	Rod Ø	CB	CD	CW	FL	L	LR*	M	XC	XD
1-1/2	5/8	.75	.50	.50	1.13	.75	.62	.63	5.38	5.75
	1	.75	.50	.50	1.13	.75	.62	.63	5.75	6.13
2	5/8	.75	.50	.50	1.13	.75	.62	.63	5.38	5.75
	1	.75	.50	.50	1.13	.75	.62	.63	5.75	6.13
2-1/2	5/8	.75	.50	.50	1.13	.75	.62	.63	5.50	5.88
	1	.75	.50	.50	1.13	.75	.62	.63	5.88	6.25
3-1/4	1	1.25	.75	.63	1.88	1.25	.87	.88	6.88	7.50
	1-3/8	1.25	.75	.63	1.88	1.25	.87	.88	7.13	7.75
	1-3/8	1.25	.75	.63	1.88	1.25	.87	.88	6.88	7.50
4	1	1.25	.75	.63	1.88	1.25	.87	.88	6.88	7.50
	1-3/8	1.25	.75	.63	1.88	1.25	.87	.88	7.13	7.75
5	1	1.25	.75	.63	1.88	1.25	.87	.88	7.13	7.75
	1-3/8	1.25	.75	.63	1.88	1.25	.87	.88	7.38	8.00
6	1-3/8	1.50	1.00	.75	2.25	1.50	-	1.00	8.13	8.88
	1-3/4	1.50	1.00	.75	2.25	1.50	-	1.00	8.38	9.13
8	1-3/8	1.50	1.00	.75	2.25	1.50	-	1.00	8.25	9.00
	1-3/4	1.50	1.00	.75	2.25	1.50	-	1.00	8.50	9.25

* MP1 mount 1-1/2" – 5" bore uses a cast iron bracket. All other sizes are fixed ears.
 Note: a headed pivot pin supplied with all pivot mount cylinders.

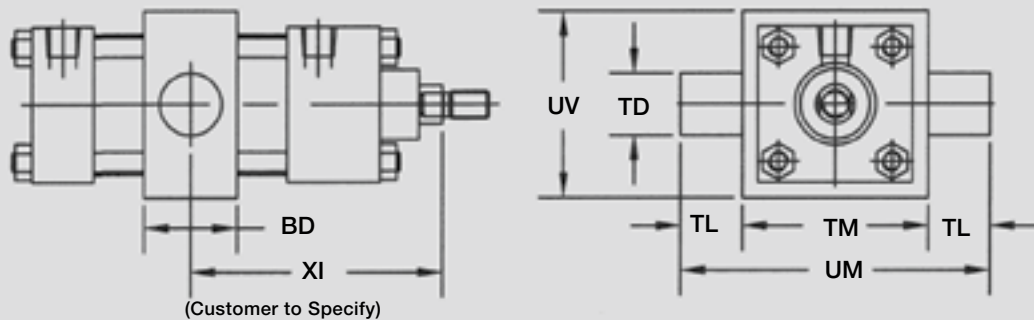
MT1 HEAD TRUNNION MOUNT



MT2 CAP TRUNNION MOUNT



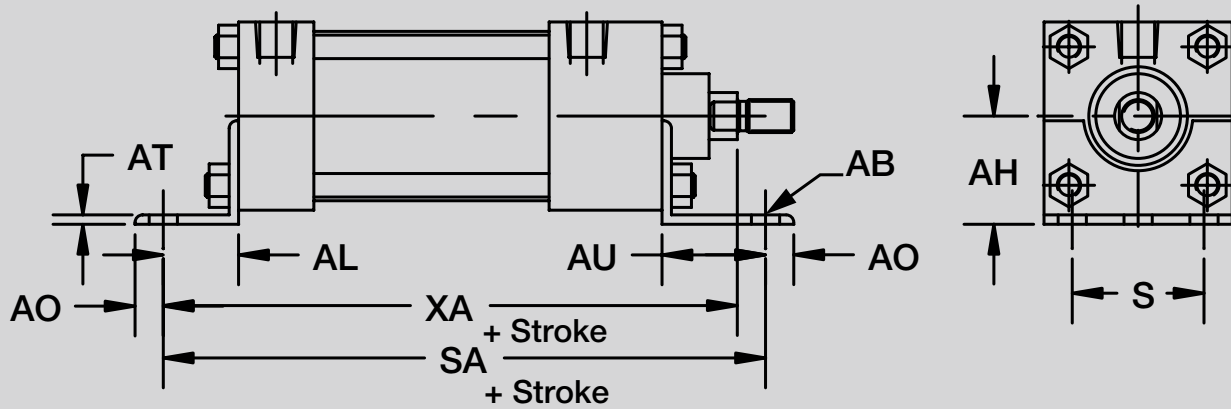
MT4 INTERMEDIATE TRUNNION MOUNT



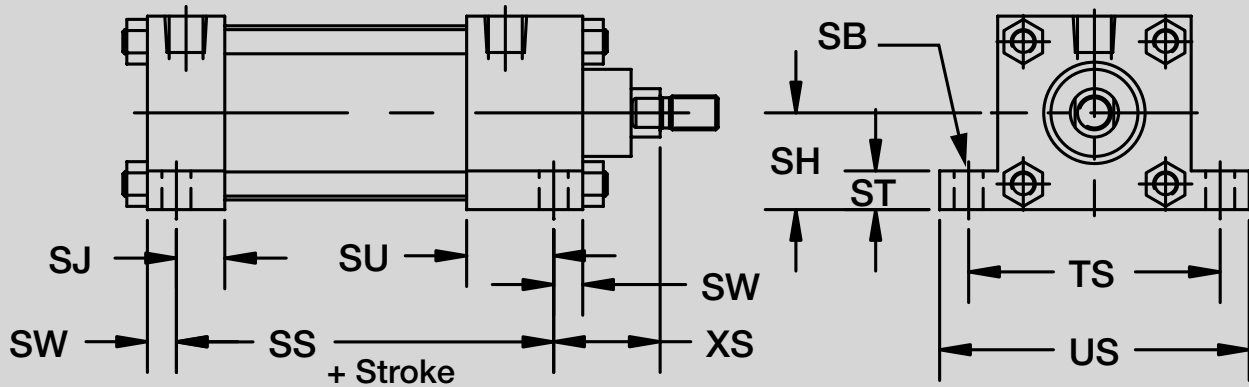
Bore	Rod Ø	BD	TD	TL	TM	UM	UT	UV	XG	XI(min)	XJ
1-1/2	5/8	1.25	1.00	1.00	2.50	4.50	4.00	2.50	1.75 #	3.13	4.13
	1	1.25	1.00	1.00	2.50	4.50	4.00	2.50	2.13 #	3.50	4.50
2	5/8	1.50	1.00	1.00	3.00	5.00	4.50	3.00	1.75	3.25	4.13
	1	1.50	1.00	1.00	3.00	5.00	4.50	3.00	2.13 #	3.63	4.50
2-1/2	5/8	1.50	1.00	1.00	3.50	5.50	5.00	3.50	1.75	3.25	4.25
	1	1.50	1.00	1.00	3.50	5.50	5.00	3.50	2.13	3.63	4.63
3-1/4	1	2.00	1.00	1.00	4.50	6.50	5.75	4.25	2.25	4.13	5.00
	1-3/8	2.00	1.00	1.00	4.50	6.50	5.75	4.25	2.50	4.38	5.25
4	1	2.00	1.00	1.00	5.25	7.25	6.50	5.00	2.25	4.13	5.00
	1-3/8	2.00	1.00	1.00	5.25	7.25	6.50	5.00	2.50	4.38	5.25
5	1	2.00	1.00	1.00	6.25	8.25	7.50	6.00	2.25	4.13	5.25
	1-3/8	2.00	1.00	1.00	6.25	8.25	7.50	6.00	2.50	4.38	5.50
6	1-3/8	2.50	1.38	1.38	7.63	10.38	9.25	7.00	2.63	4.63	5.88
	1-3/4	2.50	1.38	1.38	7.63	10.38	9.25	7.00	2.88	4.88	6.13
8	1-3/8	2.50	1.38	1.38	9.75	12.50	11.25	9.50	2.63	4.88	6.00
	1-3/4	2.50	1.38	1.38	9.75	12.50	11.25	9.50	2.88	5.13	6.25

Not Available on "S" series

MS1 SIDE END ANGLES MOUNT

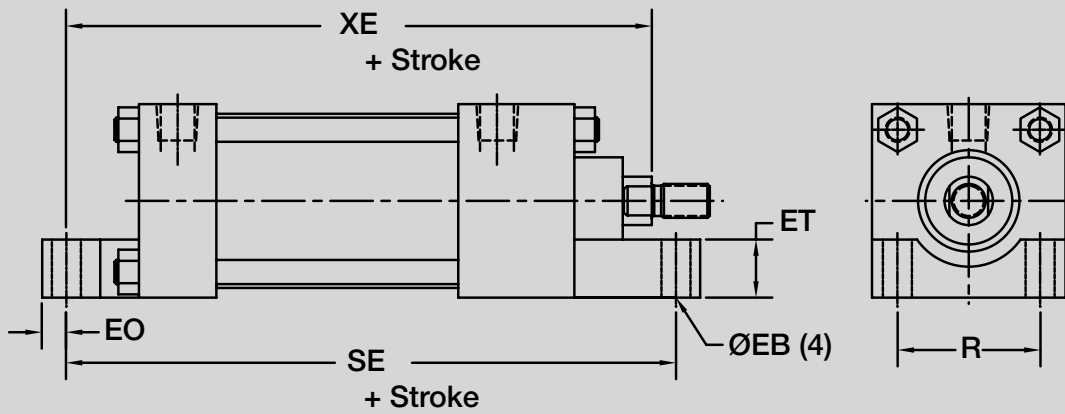


MS2 SIDE LUG MOUNT

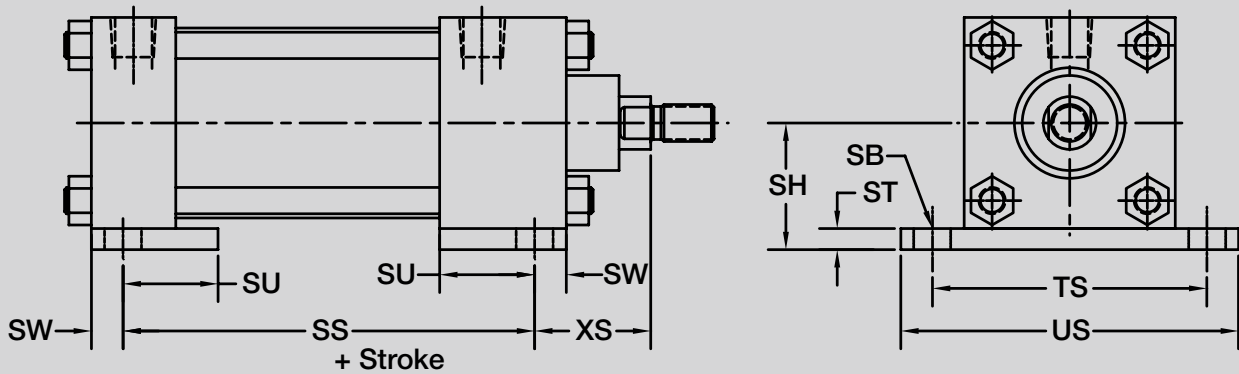


Bore	Rod Ø	AB	AH	AL	AO	AT	AU	S	SA	SB	SH	SJ	SS	ST	SU	SW	TS	US	XA	XS
1-1/2	5/8	.44	1.19	1.00	.50	.13	1.38	1.25	6.00	.48	1.00	.63	2.88	.50	1.13	.38	2.75	3.50	5.63	1.38
	1	.44	1.19	1.00	.50	.13	1.38	1.25	6.00	.48	1.00	.63	2.88	.50	1.13	.38	2.75	3.50	6.00	1.75
2	5/8	.44	1.44	1.00	.50	.13	1.38	1.75	6.00	.48	1.25	.63	2.88	.50	1.13	.38	3.25	4.00	5.63	1.38
	1	.44	1.44	1.00	.50	.13	1.38	1.75	6.00	.48	1.25	.63	2.88	.50	1.13	.38	3.25	4.00	6.00	1.75
2-1/2	5/8	.44	1.63	1.00	.50	.13	1.38	2.25	6.13	.48	1.50	.63	3.00	.50	1.13	.38	3.75	4.50	5.75	1.38
	1	.44	1.63	1.00	.50	.13	1.38	2.25	6.13	.48	1.50	.63	3.00	.50	1.13	.38	3.75	4.50	6.13	1.75
3-1/4	1	.56	1.94	1.25	.50	.13	1.88	2.75	7.38	.56	1.88	.75	3.25	.75	1.25	.50	4.75	5.75	6.88	1.88
	1-3/8	.56	1.94	1.25	.50	.13	1.88	2.75	7.38	.56	1.88	.75	3.25	.75	1.25	.50	4.75	5.75	7.13	2.13
4	1	.56	2.25	1.25	.50	.13	1.88	3.50	7.38	.56	2.25	.75	3.25	.75	1.25	.50	5.50	6.50	6.88	1.88
	1-3/8	.56	2.25	1.25	.50	.13	1.88	3.50	7.38	.56	2.25	.75	3.25	.75	1.25	.50	5.50	6.50	7.13	2.13
5	1	.69	2.75	1.38	.63	.19	2.00	4.25	7.88	.81	2.75	.56	3.13	1.00	1.06	.69	6.88	8.25	7.25	2.06
	1-3/8	.69	2.75	1.38	.63	.19	2.00	4.25	7.88	.81	2.75	.56	3.13	1.00	1.06	.69	6.88	8.25	7.50	2.31
6	1-3/8	.81	3.25	1.38	.63	.19	2.13	5.25	8.50	.81	3.25	.81	3.63	1.00	1.31	.69	7.88	9.25	8.00	2.31
	1-3/4	.81	3.25	1.38	.63	.19	2.13	5.25	8.50	.81	3.25	.81	3.63	1.00	1.31	.69	7.88	9.25	8.25	2.56
8	1-3/8	.81	4.25	1.81	.69	.25	1.81	7.13	8.75	.81	4.25	.81	3.75	1.00	1.31	.69	9.88	11.25	8.56	2.31
	1-3/4	.81	4.25	1.81	.69	.25	1.81	7.13	8.75	.81	4.25	.81	3.75	1.00	1.31	.69	9.88	11.25	8.81	2.56

MS7 END LUG MOUNT



BB BASE BAR MOUNT



Bore	EB	EO	ET	R	SB	SE	SH	SS	ST	SU	SW	TS	US	XE		XS	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	Std	OS	Std	OS
1-1/2	.31	.25	.50	1.43	.44	5.50	1.25	2.88	.25	1.13	.38	2.75	3.50	5.38	5.75	1.38	1.75
2	.38	.31	.75	1.84	.44	5.88	1.50	2.88	.25	1.13	.38	3.25	4.00	5.56	5.94	1.38	1.75
2-1/2	.38	.31	.75	2.19	.44	6.25	1.88	3.00	.38	1.13	.38	3.75	4.50	5.81	6.19	1.38	1.75
3-1/4	.44	.38	1.00	2.76	.56	6.63	2.38	3.25	.50	1.25	.50	4.75	5.75	6.50	6.75	1.88	2.13
4	.44	.38	1.25	3.32	.56	6.88	2.75	3.25	.50	1.25	.50	5.50	6.50	6.63	6.88	1.88	2.13
5	.56	.50	1.50	4.10	.81	7.25	3.50	3.13	.75	1.06	.69	6.88	8.25	6.94	7.19	2.06	2.31
6	.56	.50	1.50	4.88	.81	7.75	4.00	3.63	.75	1.31	.69	7.88	9.25	7.63	7.88	2.31	2.56
8	.69	.63	2.06	6.44	N/A	8.00	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7.88	8.13	N/A	N/A

R SERIES

HOW TO ORDER

Cylinder Ordering Table Numbers

Example **R 2 0 D 0 5 . 0 0 2 F 1 F F B 1 MP**

Reference Table Number: **1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 Options**

TABLE 1	Series
R	Round Body

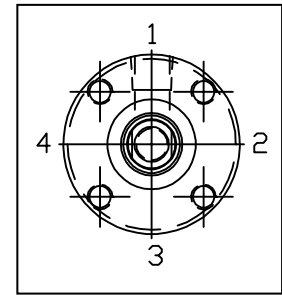
TABLE 2 & 3			
Bore		Bore	
15	1-1/2"	32	3-1/4"
20	2"	40	4"
25	2-1/2"	50	5"

TABLE 4	Rod Diameter
D	5/8"
E	1"

TABLE 5, 6, 7, 8 & 9	Stroke
Stroke shown in two place decimal ie: 02.00 = 2" Stroke	

TABLE 10	Rod End
1	Small Male
2	Intermediate Male
3	Female
4	Full Male
5	Blank/Plain
6	Rod Stud

PORT POSITIONS



Example: Series R – 2" Bore – 5/8" Rod
5" Stroke – Intermediate Male Rod Thread
Front Flange MF1 – Fixed Cushion Head
and Fixed Cushion Cap – 1/4" NPT Ports –
Ports Pos# 1 – Magnetic Piston

R SERIES CYLINDERS

TABLE 11 & 12 Mount			
F1	MF1 Head Rectangular Flange	RC	Tapped Cap
F2	MF2 Cap Rectangular Flange	RH	Tapped Head
P1	MP1 Cap Fixed Clevis	RB	Tapped Both
P3	MP3 Cap Fixed Eye	X0	MX0 Basic Cylinder

TABLE 13	Head Cushion
A	No Cushion
F	Fixed Cushion

TABLE 14	Cap Cushion
A	No Cushion
F	Fixed Cushion

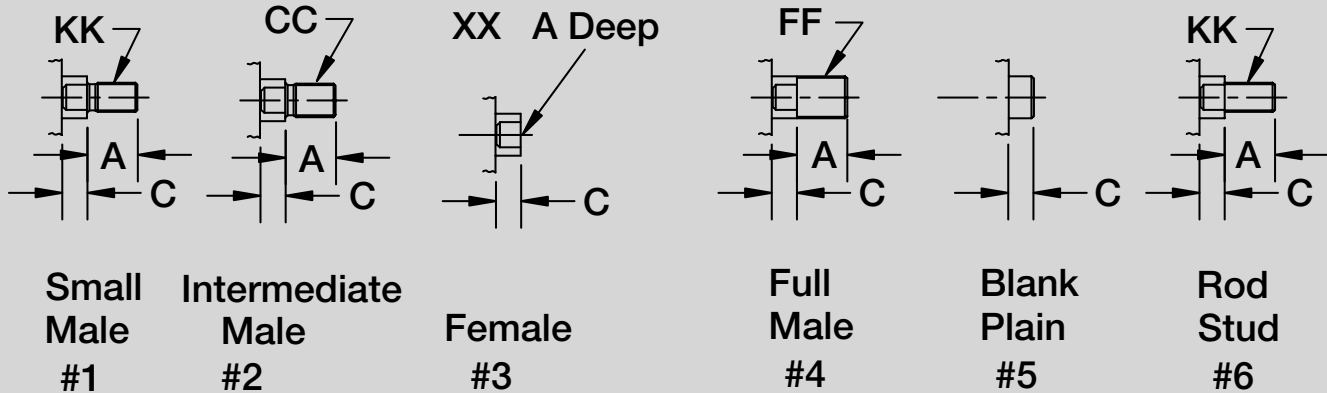
* Customer must specify length

TABLE 15	Port Size
A	1/8" NPT
B	1/4" NPT
C	3/8" NPT

TABLE 16	Port Location
1	Side 1
2	Side 2
3	Side 3
4	Side 4

OPTIONS			
A0	Air/Oil Piston Seal	RX	Piston Rod Extension *
BS	Bumper Piston Seals	SA	Stroke Adjustment *
DR	Double Rod	SP	Stainless Piston
LF	Low Friction Seals	SS	Stroke Stop *
MP	Magnetic Piston	UC	Urethane Bumper Cap End
MS	Metallic Rod Scraper	UH	Urethane Bumper Head End
PP	Poly-Pak Piston and Rod Seals	VS	High Temperature Seals

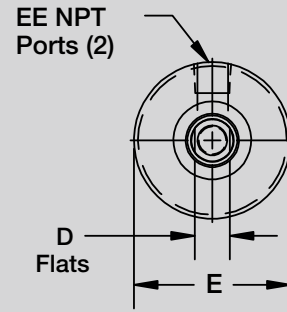
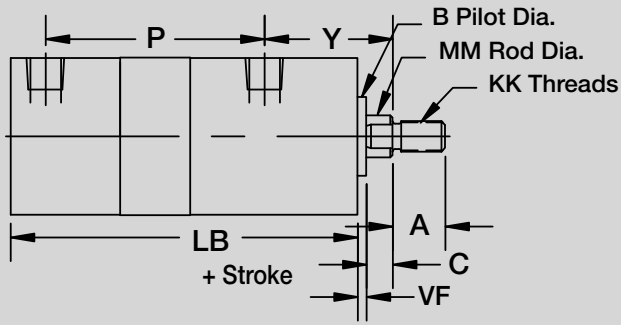
ROD ENDS



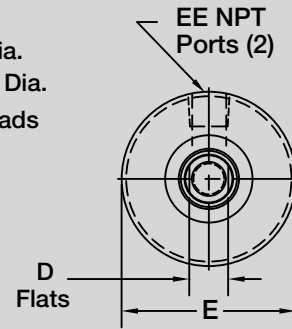
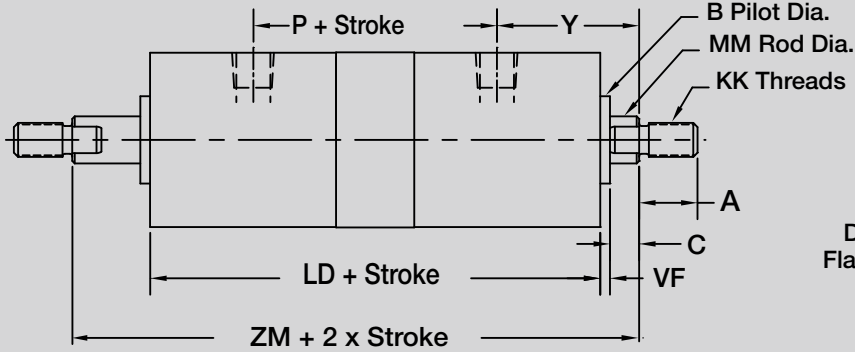
Bore	A	B	BB	C	CB	CC	CD	CW	D	DD	E	EE	EF	F	FB	FF	KK	L
1-1/2	0.75	1.13	0.38	0.38	0.75	1/2"-20	0.50	0.38	0.50	1/4"-28	1.75	1/4"	2.00	0.38	0.31	5/8"-18	7/16"-20	0.75
2	0.75	1.13	0.50	0.38	0.75	1/2"-20	0.50	0.50	0.50	5/16"-24	2.25	1/4"	2.50	0.38	0.38	5/8"-18	7/16"-20	0.75
2-1/2	0.75	1.13	0.50	0.38	0.75	1/2"-20	0.50	0.50	0.50	5/16"-24	2.75	1/4"	3.00	0.38	0.38	5/8"-18	7/16"-20	0.75
3-1/4	1.13	1.50	0.63	0.50	1.25	7/8"-14	0.75	0.63	0.81	3/8"-24	3.75	3/8"	3.75	0.63	0.44	1"-14	3/4"-16	1.25
4	1.13	1.50	0.63	0.50	1.25	7/8"-14	0.75	0.63	0.81	3/8"-24	4.50	3/8"	4.50	0.63	0.44	1"-14	3/4"-16	1.25
5	1.13	1.50	0.63	0.50	1.25	7/8"-14	0.75	0.63	0.81	3/8"-24	5.50	3/8"	4.50	0.63	0.44	1"-14	3/4"-16	1.25

Bore	LB	LD	M	MM	P	R	RE	TF	UF	VF	W	XC	XX	Y	ZB	ZF	ZM
1-1/2	4.13	5.13	0.63	0.63	2.40	1.43	1.03	2.75	3.38	0.13	0.13	5.38	7/16"-20	1.73	4.63	5.00	6.13
2	4.13	5.13	0.63	0.63	2.40	1.84	1.31	3.38	4.13	0.13	0.13	5.38	7/16"-20	1.73	4.63	5.00	6.13
2-1/2	4.25	5.34	0.63	0.63	2.52	2.19	1.52	3.88	4.63	0.13	0.13	5.50	7/16"-20	1.73	4.75	5.13	6.34
3-1/4	5.00	6.25	0.88	1.00	2.69	2.76	1.86	4.69	5.50	0.13	0.00	6.88	3/4"-16	2.41	5.63	6.25	7.50
4	5.00	6.25	0.88	1.00	2.69	3.32	2.30	5.44	6.25	0.13	0.00	6.88	3/4"-16	2.41	5.63	6.25	7.50
5	5.25	6.50	0.88	1.00	2.94	3.32	2.30	5.44	6.25	0.13	0.00	6.88	3/4"-16	2.41	5.63	6.25	7.75

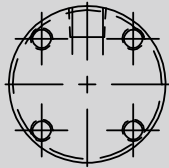
MXO BASIC



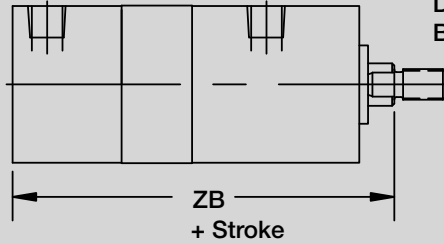
MXO DOUBLE ROD



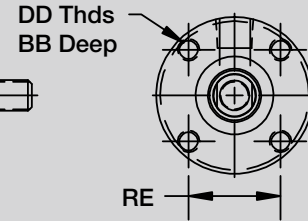
MRC TAPPED CAP



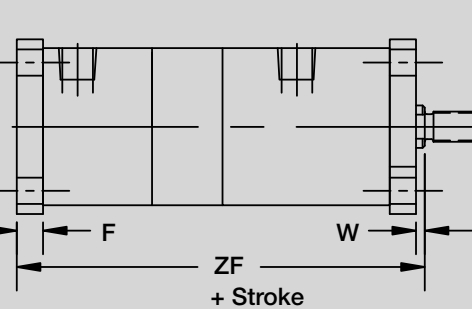
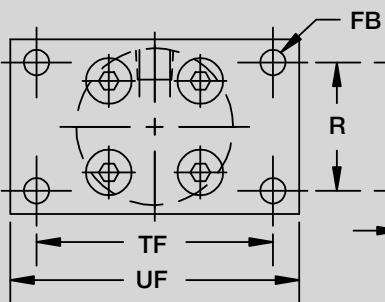
MRB TAPPED BOTH



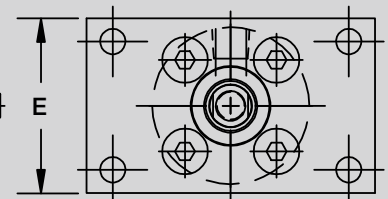
MRH TAPPED HEAD



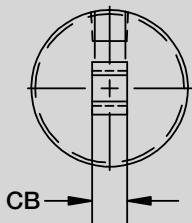
MF2 REAR FLANGE



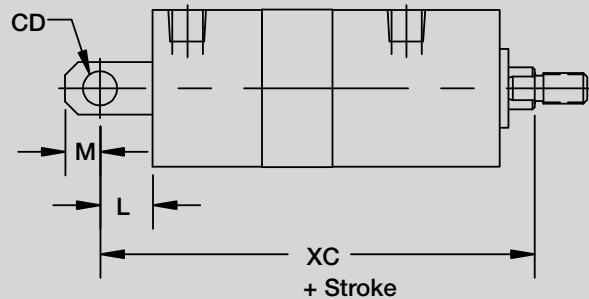
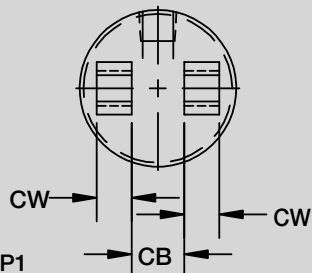
MF1 FRONT FLANGE



MP3 EYE*



MP1 CLEVIS*



* Pin Included with MP3 & MP1

D & T SERIES

HOW TO ORDER

Cylinder Ordering Table Numbers

Example **D 2 0 D 0 5 . 0 0 2 F 1 C C B 1 MPVS**

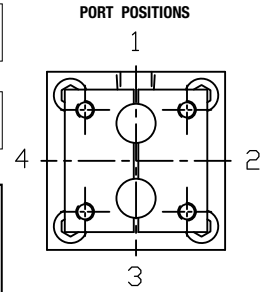
Reference Table Number: **1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 Options**

TABLE 1 Series	
D	Aluminum Construction
T	Stainless Steel Construction

TABLE 2 & 3 Bore			
15	1-1/2"	32	3-1/4"
20	2"	40	4"
25	2-1/2"		

TABLE 4 Rod Diameter	
B	3/8"
D	5/8"
E	1"

TABLE 5, 6, 7, 8 & 9 Stroke	
Stroke shown in two place decimal ie: 02.00 = 2" Stroke	



Example: Series D - 2" Bore - 5/8" Rod - 5" Stroke - Vertical Rod Axis with Tooling Plate
Front Flange MF1 - Cushion Head Pos# 2
Cushion Cap Pos# 2 - 1/4" NPT Ports Pos# 1
Magnetic Piston - Viton Seals

TABLE 10 Rod End	
1	Horizontal Rod Axis
2	Vertical Rod Axis
3	No Tooling Plate-Horz. Axis
4	No Tooling Plate-Vert. Axis

TABLE 11 & 12 Mount			
BB	Base Bar	P4	MP4 Cap Detachable Eye
F1	MF1 Head Rectangular Flange	S2	MS2 Side Lugs
F2	MF2 Cap Rectangular Flange	S4	MS4 Side Tapped
P1	MP1 Cap Fixed Clevis	X0	MX0 Basic Cylinder
P2	MP2 Cap Detachable Clevis		

TABLE 13 Head Cushion	
A	No Cushion
B	Adjustable Pos# 1
C	Adjustable Pos# 2
D	Adjustable Pos# 3
E	Adjustable Pos# 4
F	Fixed Cushion

TABLE 14 Cap Cushion	
A	No Cushion
B	Adjustable Pos# 1
C	Adjustable Pos# 2
D	Adjustable Pos# 3
E	Adjustable Pos# 4
F	Fixed Cushion

* Customer must specify length

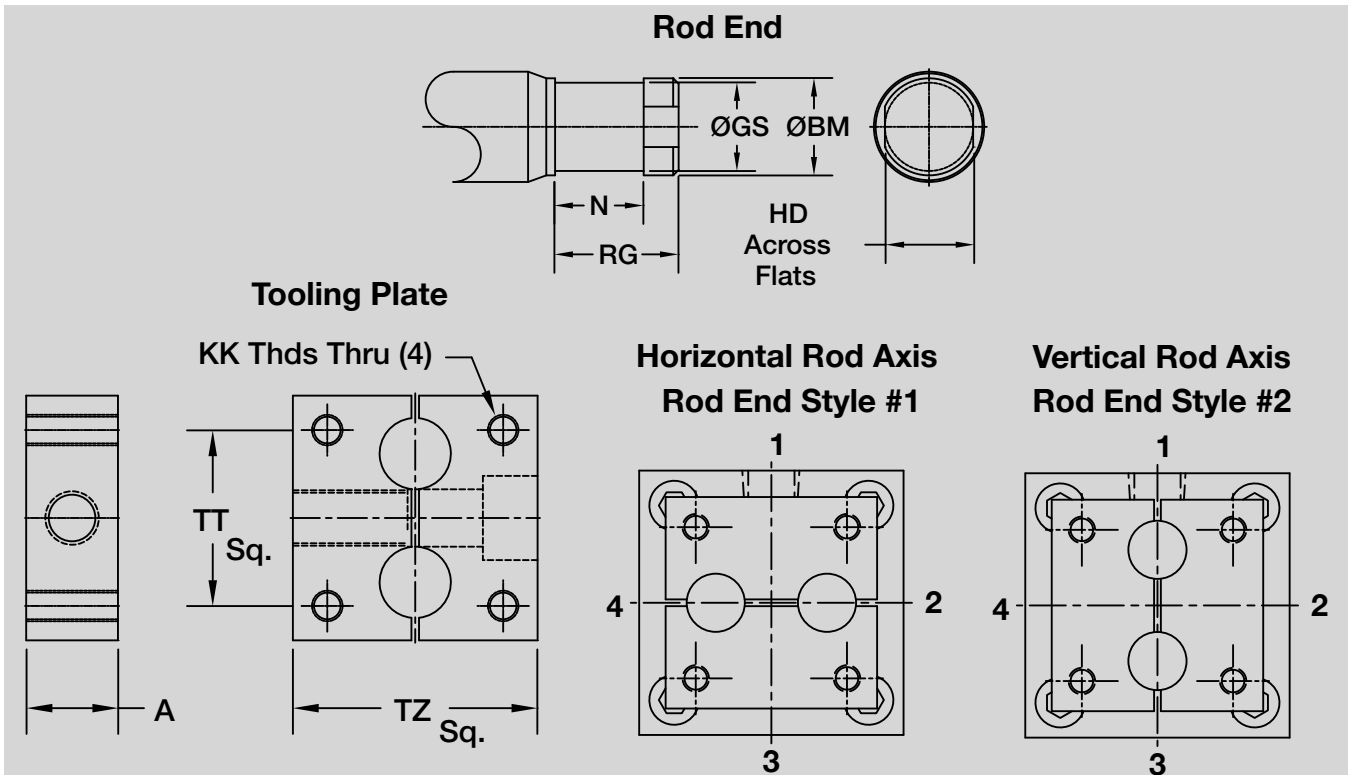
TABLE 15 Port Size	
B	1/4" NPT
C	3/8" NPT

TABLE 16 Port Location	
1	Side 1
2	Side 2
3	Side 3
4	Side 4

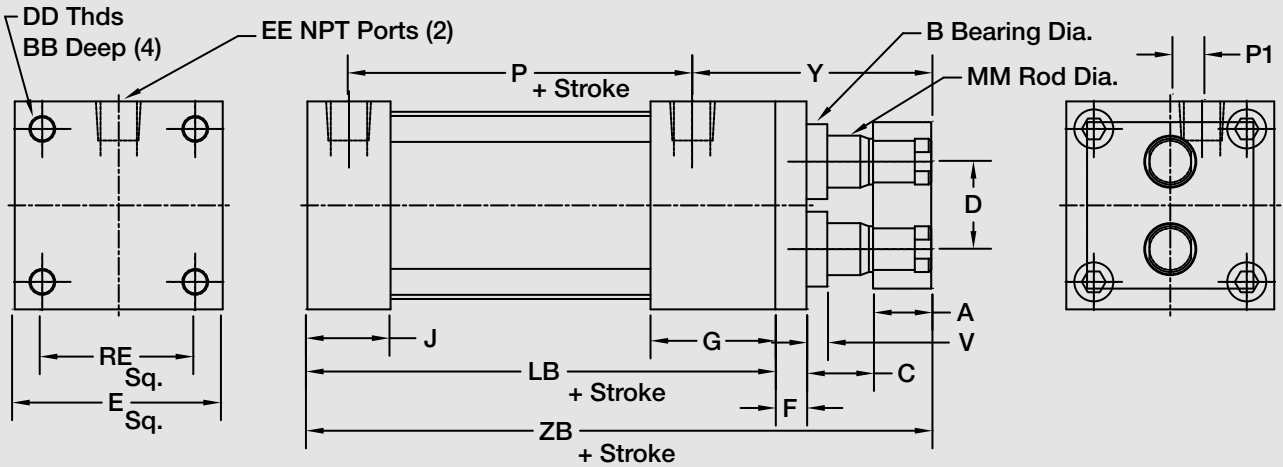
OPTIONS Listed Alphabetically					
AN	Stainless Acorn Nuts	PP	Poly-Pak Piston and Rod Seals	SS	Stroke Stop*
AO	Air/Oil Piston Seals	RX	Piston Rod Extension *	ST	Stainless Steel Tie Rods
DR	Double Rod	SA	Stroke Adjustment *	TS	Stainless Tube
LF	Low Friction Seals	SB	Stainless Steel Bushing	UC	Urethane Bumper Cap End
MP	Magnetic Piston	SP	Stainless Piston	UH	Urethane Bumper Head End
MS	Metallic Rod Scraper	SR	Stainless Steel Piston Rod	VS	High Temperature Seals

Additional Options Available. Consult Your Factory Representative.

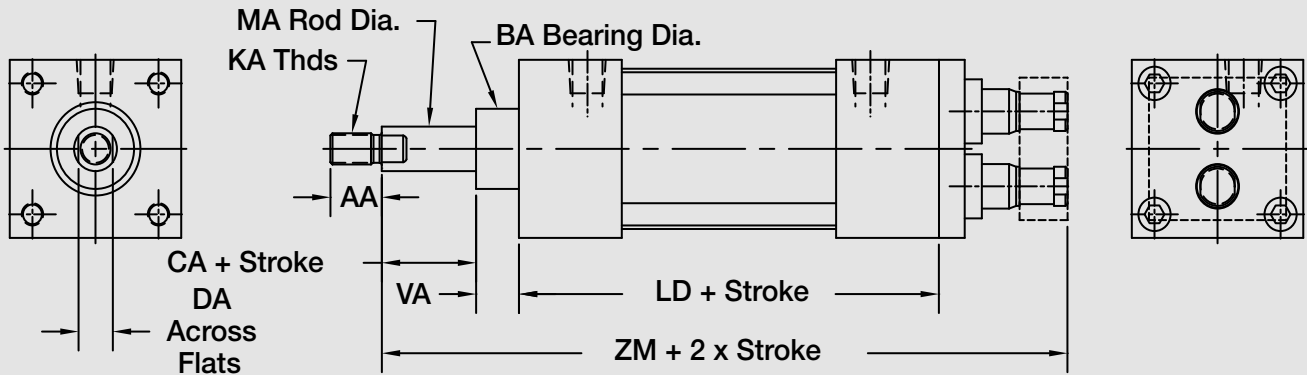
NON-ROTATING CYLINDERS



MXO BASIC MOUNT



MXO DOUBLE ROD MOUNT

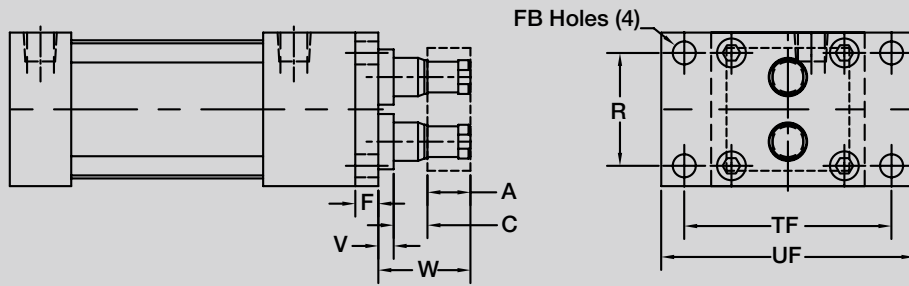


NON-ROTATING CYLINDERS

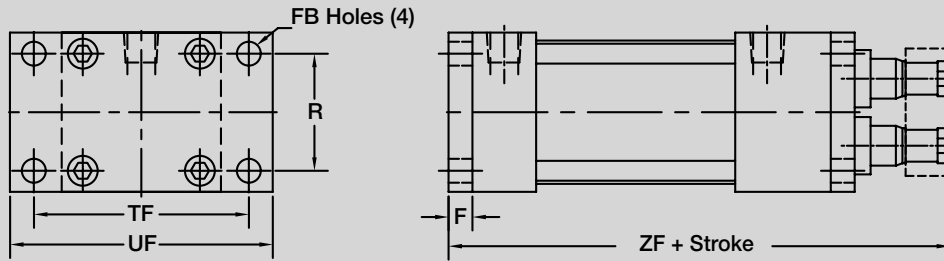
Bore	A	AA	B	BA	BB	BC	BM	C	CA	D	DA	DD	E	EE	F	G	GS	HD
1-1/2	.63	.75	.59	1.13	.31	.38	.33	.88	.38	.75	.50	1/4-28	2.00	1/4	.38	1.50	.25	.31
2	.75	.75	.90	1.13	.31	.50	.55	.75	.38	1.05	.50	5/16-24	2.50	1/4	.38	1.50	.50	.50
2-1/2	.75	.75	.90	1.13	.31	.50	.55	1.00	.38	1.40	.50	5/16-24	3.00	1/4	.38	1.50	.50	.50
3-1/4	1.25	1.13	1.43	1.50	.44	.75	.90	.50	.50	2.00	.81	3/8-24	3.75	3/8	.63	1.75	.75	.81
4	1.25	1.13	1.50	1.50	.44	.75	.90	.50	.50	2.36	.81	3/8-24	4.50	3/8	.63	1.75	.75	.81

Bore	J	KA	KK	LB	LD	MA	MM	N	P	P1	RE	RG	TT	TZ	V	VA	Y	ZB	ZM
1-1/2	1.00	1/2-20	10-32	3.63	4.13	.63	.38	.40	2.13	.30	1.43	.58	1.13	1.50	.25	.63	2.88	5.50	7.00
2	1.00	1/2-20	1/4-28	3.63	4.13	.63	.63	.53	2.13	.48	1.84	.71	1.43	2.00	.25	.63	2.88	5.50	7.00
2-1/2	1.00	1/2-20	5/16-24	3.75	4.25	.63	.63	.53	2.25	.64	2.19	.71	1.84	2.50	.25	.63	3.13	5.88	7.38
3-1/4	1.25	3/4-16	3/8-24	4.25	4.75	1.00	1.00	.78	2.63	.84	2.76	1.21	1.79	3.25	.25	.88	3.44	6.63	8.50
4	1.25	3/4-16	3/8-24	4.25	4.75	1.00	1.00	.78	2.63	.88	3.23	1.21	3.44	4.00	.25	.88	3.44	6.63	8.50

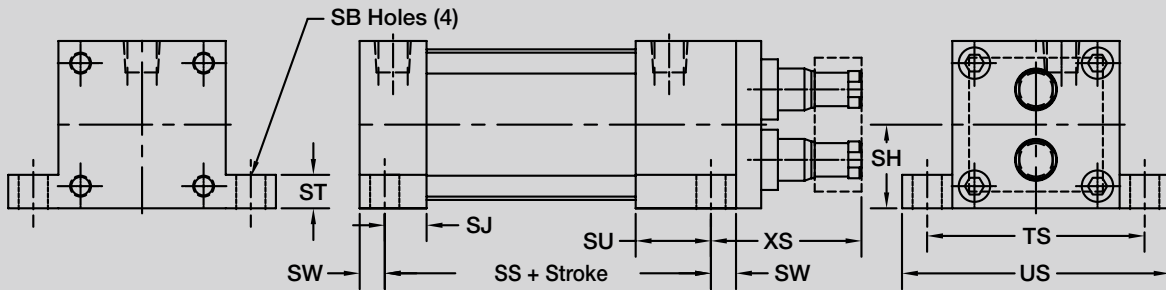
MF1 HEAD FLANGE MOUNT



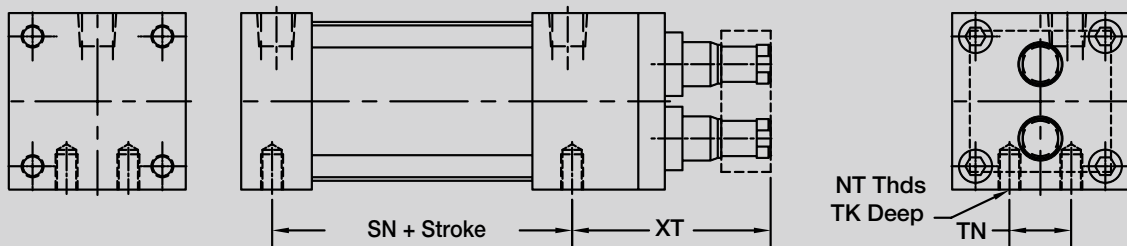
MF2 CAP FLANGE MOUNT



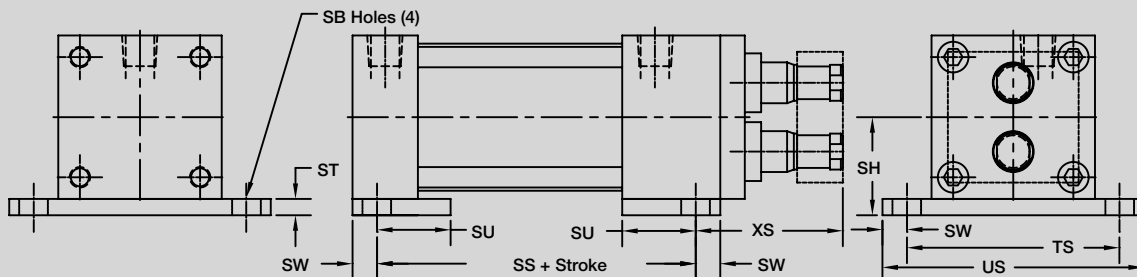
MS2 SIDE LUG MOUNT



MS4 SIDE TAP MOUNT

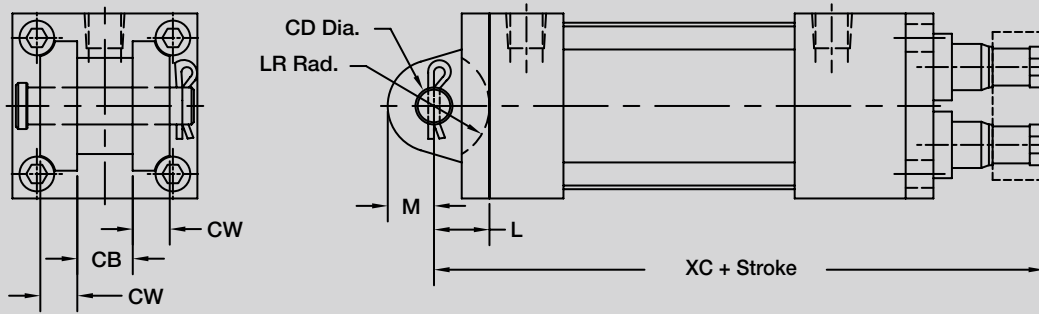


BB BASE BAR MOUNT

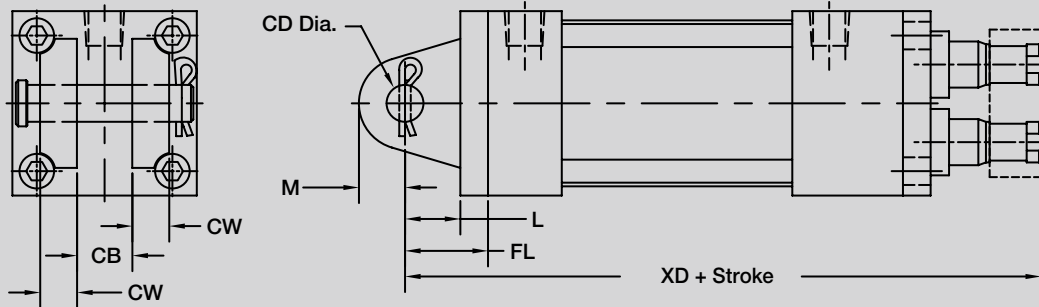


NON-ROTATING CYLINDERS

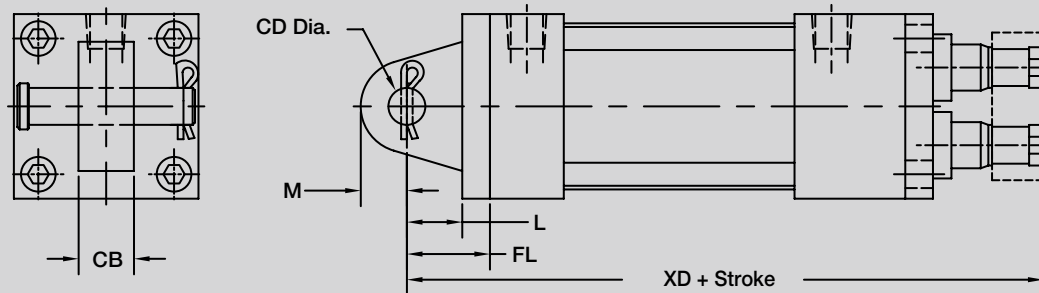
MP1 CAP FIXED CLEVIS MOUNT



MP2 CAP DETACHABLE CLEVIS MOUNT



MP4 CAP DETACHABLE EYE MOUNT



NON-ROTATING CYLINDERS

Bore	A	C	CB	CD	CW	E	F	FB	FH	FL	L	LR	M	NT	R	SB	SH	SI	SJ
1-1/2	.63	.88	.75	.50	.50	2.00	.38	.31	.38	1.13	.75	.62	.63	1/4-20	1.43	.44	1.25	.63	.63
2	.75	.75	.75	.50	.50	2.50	.38	.38	.38	1.13	.75	.62	.63	5/16-18	1.84	.44	1.50	.63	.63
2-1/2	.75	1.00	.75	.50	.50	3.00	.38	.38	.38	1.13	.75	.62	.63	3/8-16	2.19	.44	1.88	.63	.63
3-1/4	1.25	.50	1.25	.75	.63	3.75	.63	.44	.63	1.88	1.25	.87	.88	1/2-13	2.76	.56	2.38	.75	.75
4	1.25	.50	1.25	.75	.63	4.50	.63	.44	.63	1.88	1.25	.87	.88	1/2-13	3.32	.56	2.75	.75	.75

Bore	SN	SS	ST	SU	SW	TF	TK	TN	TS	UF	US	V	W	XC	XS	XD	XT	ZF
1-1/2	2.25	3.38	.25	1.13	.38	2.75	.38	.63	2.75	3.38	3.50	.25	1.50	6.25	2.25	6.63	2.81	5.88
2	2.25	3.38	.25	1.13	.38	3.38	.50	.88	3.25	4.13	4.00	.25	1.50	6.25	2.25	6.63	2.81	5.88
2-1/2	2.38	3.50	.38	1.13	.38	3.88	.63	1.25	3.75	4.63	4.50	.25	1.75	6.63	2.25	7.00	3.06	6.25
3-1/4	2.63	3.75	.50	1.25	.50	4.69	.63	1.50	4.75	5.50	5.75	.25	1.75	7.88	2.88	8.50	3.44	7.25
4	2.63	3.75	.50	1.25	.50	5.44	.75	2.06	5.50	6.25	6.50	.25	1.75	7.88	2.88	8.50	3.44	7.25

TECHNICAL INFORMATION

OPERATING PRESSURE: 250 psi

OPERATING TEMPERATURE: STANDARD SEALS - 40°F to 250°F (-40°C to 482°C)

HIGH TEMPERATURE SEALS -20°F to 400°F (-29°C to 204°C)

TIE ROD TORQUE:

BORE	1-1/2	2	2-1/2	3-1/4	4	5	6	8
FT-LBS	7	11	13	20	24	40	48	100

CYLINDER WEIGHTS

Series "C" - Aluminum																	
Bore		1 1/2"		2"		2 1/2"		3 1/4"		4"		5"		6"		8"	
Piston Rod Ø		5/8"	1"	5/8"	1"	5/8"	1"	1"	1-3/8"	1"	1-3/8"	1"	1-3/8"	1-3/8"	1-3/4"	1-3/8"	1-3/4"
M	X0,X2,S2,S4,SN	1.60	1.76	2.60	3.36	3.50	4.26	7.00	8.40	9.40	10.80	12.90	14.30	21.70	22.50	35.20	37.00
O	F1, F2, E3, E4	2.70	3.46	3.60	4.36	4.90	5.66	10.30	11.70	13.90	15.30	19.60	21.00	32.20	34.00	35.00	36.80
U	P1, P2, P4	2.10	2.31	3.70	4.46	5.00	5.76	10.50	11.90	14.00	15.40	18.40	19.80	31.90	32.80	43.50	44.30
N	T1, T2	2.00	2.20	3.10	3.86	4.00	4.76	7.50	8.90	9.90	11.30	13.40	14.80	22.90	24.70	36.40	38.20
T	X1, X3	2.25	3.01	2.78	3.50	3.68	4.44	7.50	8.90	9.90	11.30	13.40	14.80	22.70	24.50	36.20	38.00
Per Inch of Stroke		.18	.40	.21	.35	.23	.38	.42	.63	.45	.66	.51	.73	.77	1.03	1.06	1.32
Series "S" - Stainless Steel																	
M	X0, X2	3.30	4.10	5.90	6.30	8.00	8.50	15.00	15.50	23.00	23.50	34.50	35.00	60.60	62.00	79.00	82.00
O	F1, F2, E3, E4	4.00	4.80	7.00	7.40	9.50	10.0	18.70	19.20	28.00	28.50	42.00	42.50	71.90	73.90	79.00	82.00
U	P1	3.80	4.60	6.40	6.80	8.70	9.20	16.00	16.50	27.00	27.50	41.00	41.50	69.00	71.00	88.00	91.00
N	T1, T2	3.80	4.60	6.40	6.80	8.50	9.00	15.50	16.00	23.50	24.00	35.00	35.50	61.20	63.20	80.20	83.20
T	X1, X3	4.30	5.20	7.20	7.60	9.24	9.78	15.50	16.00	23.50	24.00	35.00	35.50	61.20	63.20	80.20	83.20
Per Inch of Stroke		.30	.45	.50	.60	.65	.70	.80	1.00	1.00	1.20	1.10	1.30	1.50	1.70	2.00	2.30

Consult Factory for Additional Product Weights.

CYLINDER FORCE /VOLUME - PUSH

Bore	Piston Area	PSI										Cu. Ft. Displacement Per In. of Push Stroke
		40	50	60	80	100	125	150	175	200	250	
1-1/2	1.77	71	88	106	142	177	221	266	310	353	442	.00102
2	3.14	126	157	189	251	314	392	471	549	628	785	.00182
2-1/2	4.91	196	246	295	393	491	614	737	859	982	1227	.00284
3-1/4	8.30	332	415	498	664	830	1037	1245	1452	1659	2075	.00480
4	12.57	503	629	754	1005	1257	1571	1886	2200	2513	3142	.00727
5	19.64	785	982	1178	1571	1964	2455	2946	3437	3928	4910	.01137
6	28.27	1130	1414	1696	2262	2827	3534	4240	4947	5654	7068	.01637
8	50.26	2010	2513	3015	4020	5026	6280	7539	8795	10052	12565	.02227

DEDUCT THESE FORCES FOR RETRACT

Rod Dia.	Rod Area	PSI										Rod Displacement in Cu. Ft. Per Inch of Pull Stroke
		40	50	60	80	100	125	150	175	200	250	
5/8	.307	12	15	18	25	31	38	46	54	61	77	.00018
1	.785	31	39	47	63	79	98	118	137	157	196	.00045
1-3/8	1.485	59	74	89	119	149	185	222	260	297	371	.00086
1-3/4	2.404	96	120	144	192	240	300	360	420	480	600	.00139

Warranty

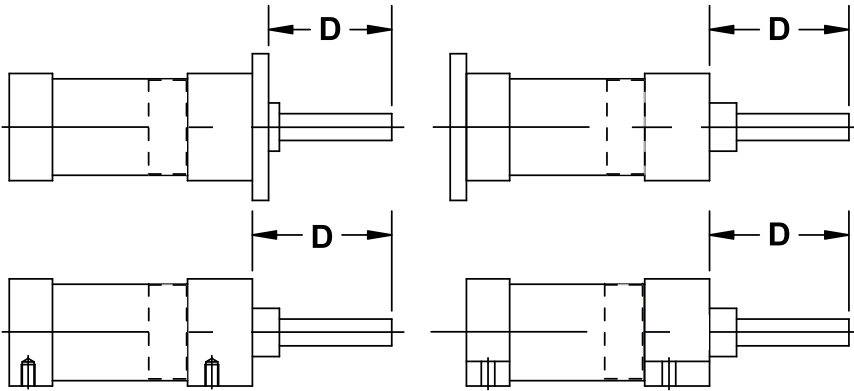
Pneumatic Cylinders & Couplers, Inc. ("Company") warrants the goods sold hereunder to be free from defects in material and workmanship for a period of twenty four months from date of shipment from Company to the original purchaser. This warranty comprises the sole and entire warranty pertaining to goods provided by the Company. Company makes no other warranty, guarantee, or representation of any kind whatsoever. ALL OTHER WARRANTIES, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHETHER EXPRESS, IMPLIED, OR ARISING BY OPERATION OF LAW, TRADE USAGE, OR COURSE OF DEALING ARE HEREBY DISCLAIMED. In no event shall Company be liable for any consequential, incidental, indirect, special or tort damages or for installation costs resulting from a breach of this warranty, delay or failure to deliver goods, or for breach of any contract by Company.

PHONE 815-639-1000 FAX 815-639-1001
www.pneumaticcylinders.net

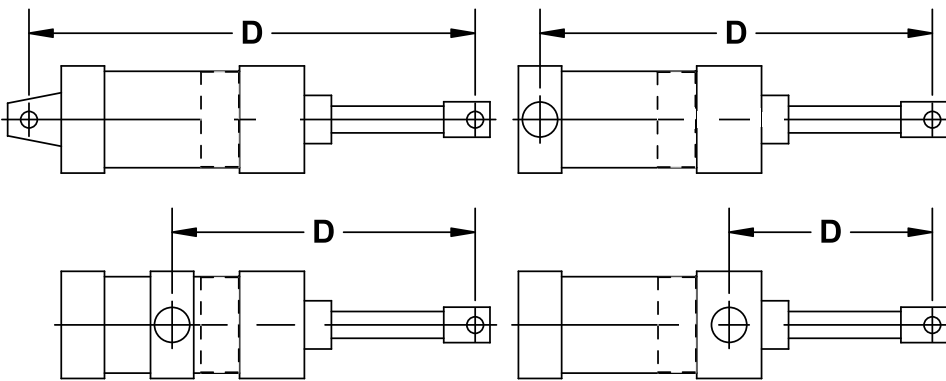
STROKE STOP – STOP TUBE

USE THE FOLLOWING TO DETERMINE STOP REQUIREMENTS:

- Refer to example below to determine which corresponds to your application.
- Use “L” to determine the stop length from chart.
- Use “L” to calculate rod column strength. If stop is required you must add it to “L”.

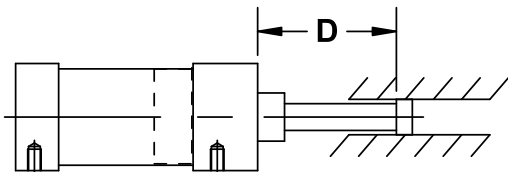


Rigidly mounted cylinders with rod unsupported at free end.
Use $L=4D$ to determine “L”.

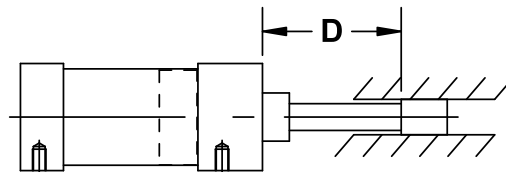


Pivot mounted cylinders. Use $L=D$ to determine “L”.

“L”	STOP LENGTH
0-40	0
41-50	1
51-60	2
61-70	3
71-80	4
81-90	5
91-100	6
101-110	7
111-120	8
121-130	9
131-140	10
141-150	11
151-160	12
161-170	13
171-180	14



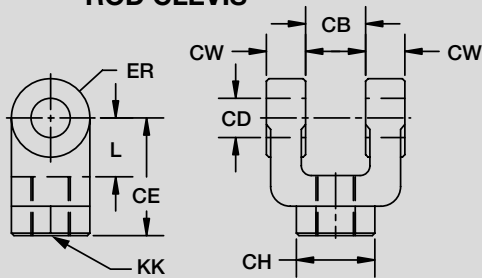
Rigidly mounted cylinders with rod supported with short guide.
Use $L=D$ to determine “L”.



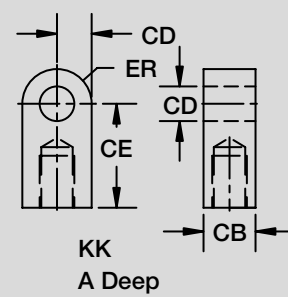
Rigidly mounted cylinders with rod supported with long guide.
Use $L=1/2D$ to determine “L”.

ACCESSORIES

ROD CLEVIS

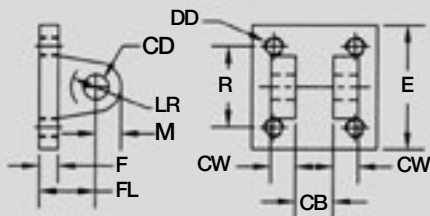


ROD EYE

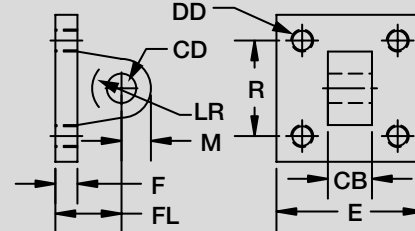


	Part #	A	L	CB	CD	CE	CH	CW	ER	KK
Clevis	CARC0437	-	.75	.75	.50	1.50	1.00	.50	.50	7/16-20
	CARC0500	-	.75	.75	.50	1.50	1.00	.50	.50	1/2-20
	CARC0750	-	1.25	1.25	.75	2.38	1.25	.63	.75	3/4-16
	CARC1000	-	1.50	1.50	1.00	3.13	1.50	.75	1.00	1-14
	CARC1250	-	2.13	2.00	1.38	4.13	2.00	1.00	1.38	1 1/4-12
Eye	CARE0437	.75	.75	.75	.50	1.50	-	-	.56	7/16-20
	CARE0500	.75	.75	.75	.50	1.50	-	-	.56	1/2-20
	CARE0750	1.13	1.25	1.25	.75	2.06	-	-	.94	3/4-16
	CARE1000	1.63	1.50	1.50	1.00	2.81	-	-	1.13	1-14
	CARE1250	2.00	2.13	2.00	1.38	3.48	-	-	1.56	1 1/4-12

CLEVIS BRACKET

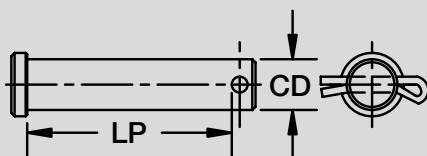


EYE BRACKET

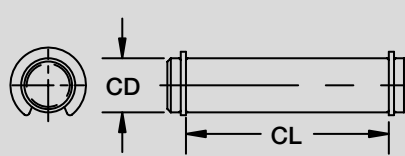


	Part #	CB	CD	CW	DD	E	F	FL	LR	M	R
Clevis	CACB0500	.75	.50	.50	3/8-24	2.50	.38	1.13	.50	.50	1.63
	CACB0750	1.25	.75	.63	1/2-20	3.50	.63	1.88	1.06	.75	2.56
	CACB1000	1.50	1.00	.75	5/8-18	4.50	.75	2.25	1.25	1.00	3.25
Eye	CAEB0500	.75	.50	-	.41	2.50	.38	1.13	.75	.50	1.63
	CAEB0750	1.25	.75	-	.53	3.50	.63	1.88	1.25	.75	2.56
	CAEB1000	1.50	1.00	-	.66	4.50	.75	2.25	1.50	1.00	3.25

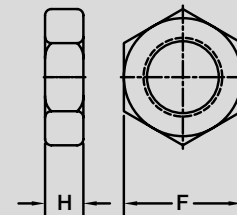
HEADED PIVOT PIN



CHROME PIVOT PIN



JAM NUT



Part #	CD	LP
CAPP0500A	.50	2.02
CAPP0750A	.75	2.77
CAPP1000A	1.00	3.20
CAPP1375A	1.38	4.38

Part #	CD	CL
CAPP0500AC	.50	1.88
CAPP0750AC	.75	2.75
CAPP1000AC	1.00	3.25
CAPP1375AC	1.38	4.25

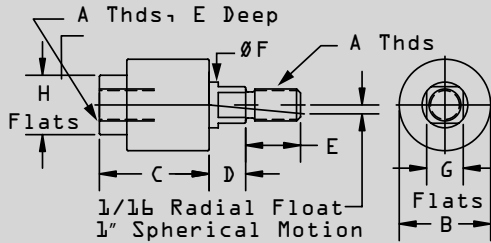
Part #	KK	H	F
CFN7/16-20J	7/16-20	.25	.69
CFN1/2-20J	1/2-20	.31	.75
CFN3/4-16J	3/4-16	.42	1.13
CFN1-14J	1-14	.55	1.50
CFN1-1/4-12J	1-1/4-12	.72	1.88

TECHNICAL & ACCESSORIES

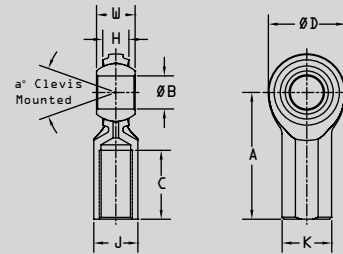
Add an S to the end of any accessory part number for all stainless version except the headed pivot pin which is only available in steel.

ACCESSORIES CONTINUED

ALIGNMENT COUPLER



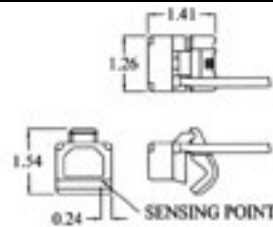
SPHERICAL ROD EYE



Part#	A	B	C	D	E	F	G	H	Max. Pull
CAAC0437	7/16-20	1.25	2.00	.50	.75	.63	.50	.81	10,000
CAAC0500	1/2-20	1.25	2.00	.50	.75	.63	.50	.81	14,000
CAAC0750	3/4-16	1.75	2.31	.50	1.13	.97	.81	1.13	34,000
CAAC1000	1-14	2.50	2.94	.50	1.63	1.34	1.16	1.63	84,000
CAAC1250	1 1/4-12	2.50	2.94	.50	1.63	1.34	1.16	1.63	78,000

Part #	A	CB	CD	CE	CH	D	KK
CARE0500SPF	1.19	.63	.50	2.13	.88	1.31	1/2"-20
CARE0750SPF	1.75	.88	.75	2.88	1.13	1.75	3/4"-16
CARE1000SPF	2.13	1.38	1.00	4.13	1.63	2.75	1"-14
CARE1250SPF	2.13	1.38	1.25	4.13	1.63	2.75	1-1/4"-12

TIE ROD DESIGN SWITCH INFORMATION



Part#	Sensor Type	Switching Logic	Output	Operating Voltage	Switching Current	Power Rating	Voltage Drop	Shock/Vibration
CUCSR1	Reed Switch	Normally Open	--	5-240V DC/AC 50/60Hz	1 Amp Max.	30 Watts	3.5V Max.	30G/9G
CUCSR4	Reed Switch	Normally Open	TRIAC	24-240V AC 50/60Hz	4 Amp Max 25 Amp Inrush	100 Watts	1.0V @ 1.5A	30G/9G
CUCSP	MR* Sensor	Normally Open	PNP Sourcing	5-30V DC	1 Amp Max.	30 Watts	1.5V @ 0.5A Max.	50G/9G
CUCSN	MR* Sensor	Normally Open	NPN Sinking	5-30V DC	1 Amp Max.	30 Watts	1.5V @ 0.5A Max.	50G/9G

ROUND BODY DESIGN SWITCH INFORMATION

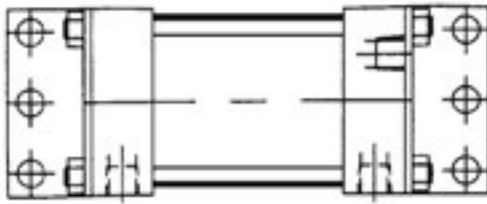
PART #	Sensor Type	Switching Logic	Output	Operating Voltage	Switching Current	Power Rating	Voltage Drop	Shock/Vibration	Protection Circuit
CUCSR1-3-XX	Reed Switch	Normally Open	--	5-240V DC/AC 50/60Hz	1 Amp Max.	30 Watts	3.5V Max.	30G/9G	MOV
CUCSR4-3-XX	Reed Switch	Normally Open	TRIAC	24-240V AC 50/60Hz	4 Amp Max 25 Amp inrush	100 Watts	1.0V @ 1.5A	30G/9G	MOV
CUCSP-3-XX	MR* Sensor	Normally Open	PNP Sourcing	5-30V DC	1 Amp Max.	30 Watts	1.5V @ 0.5A Max.	50G/9G	Reverse Polarity
CUCSN-3-XX	MR* Sensor	Normally Open	NPN Sinking	5-30V DC	1 Amp Max.	30 Watts	1.5V @ 0.5A Max.	50G/9G	Reverse Polarity

KEY:
 XX = 15 = 1-1/2" & 2" Bore, 25 = 2-1/2"
 3-1/4" Bore, 40 = 4" Bore, 50 = 5" Bore

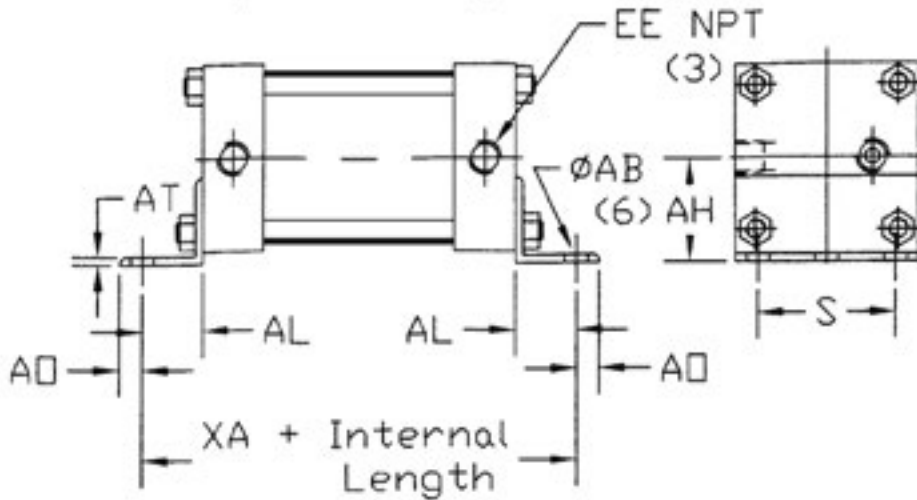
Consult the factory for other switches that are available including those with a quick disconnect end.



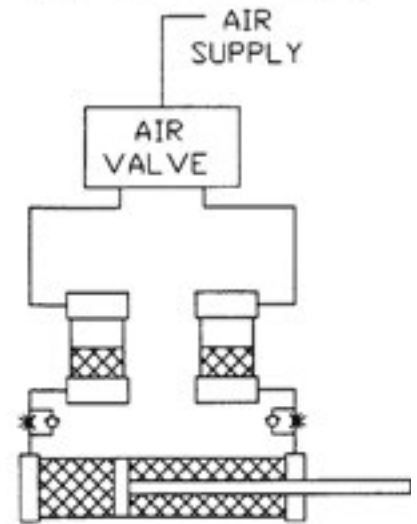
Operating Frequency - 1000 Hz, Temperature Range - 14 to 176° F (-10 to 80° C), Enclosure Circuit - IP 67 (NEMA 6)
 All cables are 118" (3m) long. * MR = Magnetostrictive



Pneumatic Cylinders & Couplers Air/Oil tanks are constructed with translucent fiberglass tubing which permits viewing of oil level. Internal baffles reduce foaming and aeration during operation. Maximum operating pressure of 250 PSI.



TYPICAL AIR/OIL CIRCUIT



TANK DIMENSIONS									
Bore	AREA*	AB	AH	AL	AO	AT	EE	S	XA
2"	3.14	.44	1.44	1.00	.50	.13	3/8	1.75	4.00
3-1/4"	8.30	.56	1.94	1.25	.50	.13	1/2	2.75	5.00
5"	19.64	.69	2.75	1.38	.63	.19	1/2	4.25	5.25
8"	50.26	.81	4.25	1.81	.69	.25	3/4	7.13	6.63

* Area shown in square inches.

HOW TO SIZE AIR/OIL TANKS

Calculate the volume of your cylinder. Size the air/oil tank at a minimum of 40% larger than the cylinder to allow for heat expansion and reduce aeration of oil.

EXAMPLE:

4" Bore x 6" Stroke cylinder has a volume of 75.42 cubic inches.

Increase cylinder volume by 40% - $75.42 \times 1.40 = 105.59$ cubic inches.

AIR/OIL Tank needs a minimum volume of 105.60 cubic inches.

TANK VOLUME CHART													
Internal Length →		4	6	8	10	12	14	16	18	20	25	30	35
Bore ↓	AREA*												
2"	3.14	12	18	25	31	37	43	50	56	62	78	94	109
3-1/4"	8.30	33	49	66	83	99	116	132	149	166	207	249	290
5"	19.64	78	117	157	196	235	274	314	353	392	491	589	687
8"	50.26	201	301	402	502	603	703	804	904	1005	1256	1507	1759

HOW TO ORDER:

All AIR/OIL tank part numbers start with AOT followed by the bore size code then the stroke in two decimal places.

EXAMPLE:

3-1/4" Bore x 6" Internal Length AIR/OIL Tank = AOT3206.00

Bore	2	3-1/4	5	8
Code#	20	32	50	80

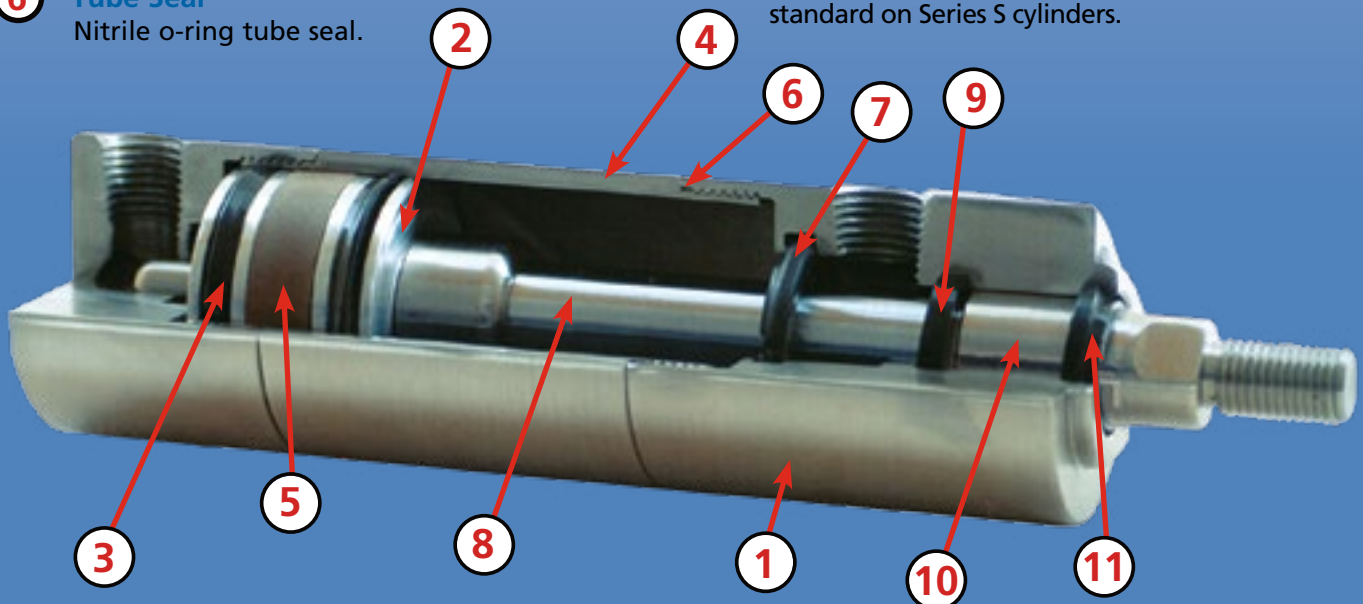
YOUR TOTAL PNEUMATIC CYLINDER CHOICE

STAINLESS STEEL CONSTRUCTION



- 1 Head & Cap**
End caps are precision machined from 303 series stainless steel.
- 2 Piston**
Pistons are machined from aluminum alloy for reduced weight. Magnets are available for use with proximity switches. A stainless steel piston is optional.
- 3 Piston Seals**
Piston seals are lip type nitrile and are pressure activated and wear compensating for long life.
- 4 Cylinder Tube**
Tubing is 300 series stainless steel with a precision honed ID and polished OD.
- 5 Wear Band**
Teflon® and graphite composition for increased wear and side load resistance.
- 6 Tube Seal**
Nitrile o-ring tube seal.

- 7 Cushion Seal**
Floating cushion seals are optional.
- 8 Piston Rod**
Piston rod material is 303 stainless steel. The O.D. is ground and polished and has a .0005" minimum thickness hard chrome plated surface.
- 9 Rod Seal**
Rod seal is urethane incorporating a rounded dynamic sealing lip for reduced friction and longer seal life.
- 10 Rod Bushing**
Series R has a stainless exterior with a self-lubricating wear surface. The Series S includes a wear band.
- 11 Rod Wiper**
Rod wiper is urethane material which aggressively removes foreign material from the piston rod and extends rod seal life.
- 12 Tie Rods**
High strength 300 series tie rod to maintain compression on the tube and seals. Acorn nuts are standard on Series S cylinders.



FOR ALUMINUM AND STEEL CONSTRUCTION PLEASE REFER TO INSIDE FRONT COVER

NFPA CYLINDERS



STROKE ADJUSTMENT



LONG STROKE CYLINDERS



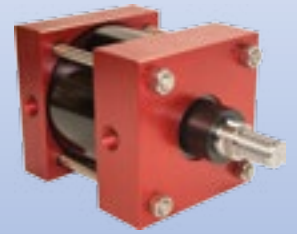
PROXIMITY SENSOR



LARGE BORE SIZES TO 16"



OUR FLEXIBILITY IN DESIGN AND MANUFACTURING PLUS YEARS OF EXPERIENCE ALLOW US TO MEET YOUR SPECIFIC REQUIREMENTS



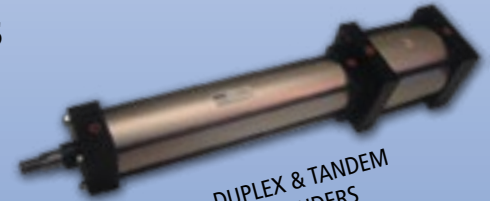
CUSTOM FINISH

R SERIES CYLINDERS



FORCE MULTIPLYING

WE OFFER SPECIAL:



DUPLEX & TANDEM CYLINDERS

NON-ROTATING CYLINDERS



STEEL CYLINDERS

MOUNTS



SPECIAL MOUNTS



SPECIAL ROD BUSHING

ROD ENDS



HOLLOW OR SPECIAL ROD ENDS

TECHNICAL & ACCESSORIES



AIR/OIL TANKS

MATERIALS

ROD LOCKS

CUSTOM FINISHES

POSITION FEEDBACK



COMPOSITE TUBE MATERIAL

AIR OIL TANKS



POSITION FEEDBACK

NON-ROTATIONAL REQUIREMENTS

SEALS



BRASS CONSTRUCTED



MADE IN THE USA



CUSTOM ROD & THREAD