ALWAYS OFFERING QUICK DELIVERY OF QUALITY BUILT PRODUCTS

Pneumatic Cylinders & Couplers inc.

Aluminum and Stainless Steel Cylinders and Accessories

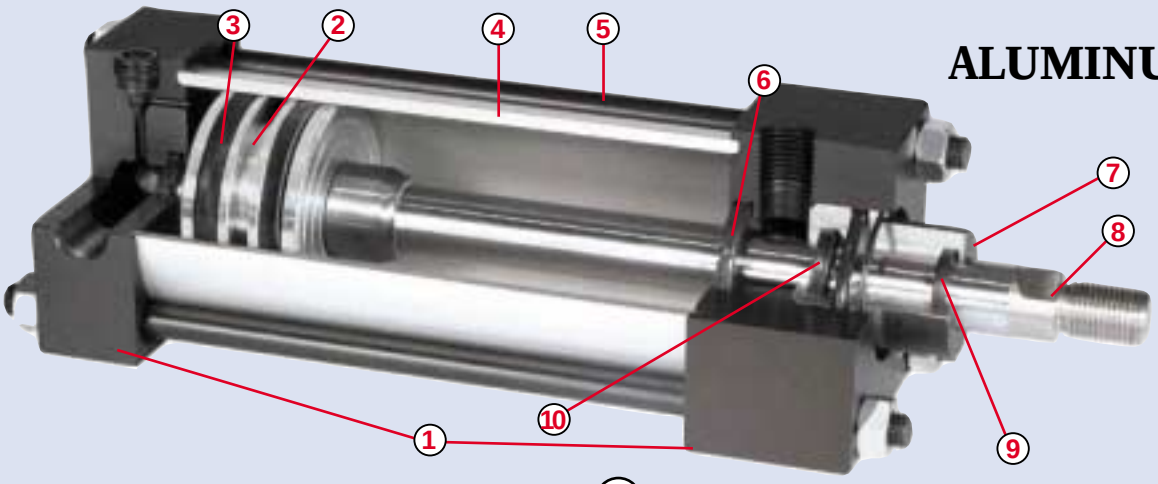
- NFPA Interchangeable
- 250 P.S.I. Pneumatic
- 400 P.S.I. Hydraulic (non-shock)
- 1½" Thru 8" Bores
- Non-Lube Service

"Finally ~ Some Fresh Air"

Made In The U.S.A.

YOUR TOTAL PNEUMATIC CYLINDER CHOICE

ALUMINUM



1 Head & Cap
Precision machined from solid aluminum blocks and black anodized on the Series C and 300 series stainless steel on the Series S.

2 Piston
Precision machined from high strength aluminum alloy. Series S incorporates a wear band. Both series are available with an optional magnet for sensors.

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

4 Cylinder Tube
Precision machined from high tensile, anodized and hard coat I.D. aluminum on the Series C and 300 series polished stainless steel on the Series S.

5 Tie Rods
High strength steel on a series C and 300 series stainless steel on Series S to maintain compression on o-ring tube end seals.

6 Cushions
Floating cushion seals with captured adjustment needle incorporate extra fine thread metering.

7 Bearing
Precision machined from close grained cast iron and Teflon® coated for lower friction on the Series C and 300 series stainless steel incorporating a wear band for the Series S.

8 Piston Rod
Precision machined hard chrome over steel on Series C and stainless steel on Series S.

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

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

STAINLESS STEEL

TABLE OF CONTENTS

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 when you need them.

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

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

Durable, Reliable Aluminum

Aluminum cylinders are ideally suited for a variety of industries and applications. They provide lasting, cost-effective solutions. Aluminum is strong and yet affordable.

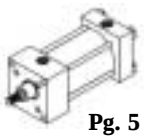
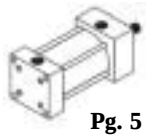
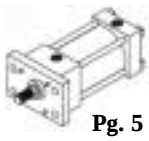
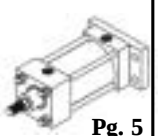
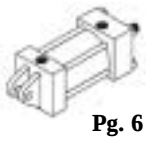
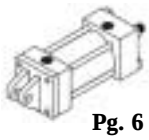
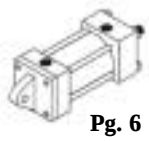
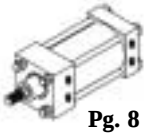
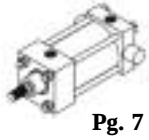
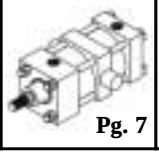
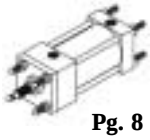
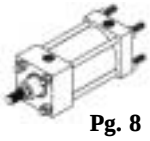
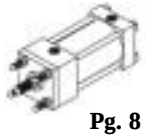
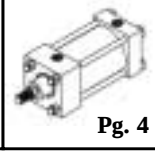
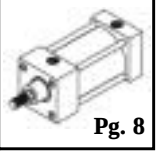
The Benefits of Stainless Steel

Stainless steel cylinders from Pneumatic Cylinders & Couplers deliver long life and consistent performance regardless of the operating conditions. Our stainless cylinders utilize 300 series stainless steel end caps and honed tubing. Chrome-plated stainless steel rod material improves resistance to scratches and dents.

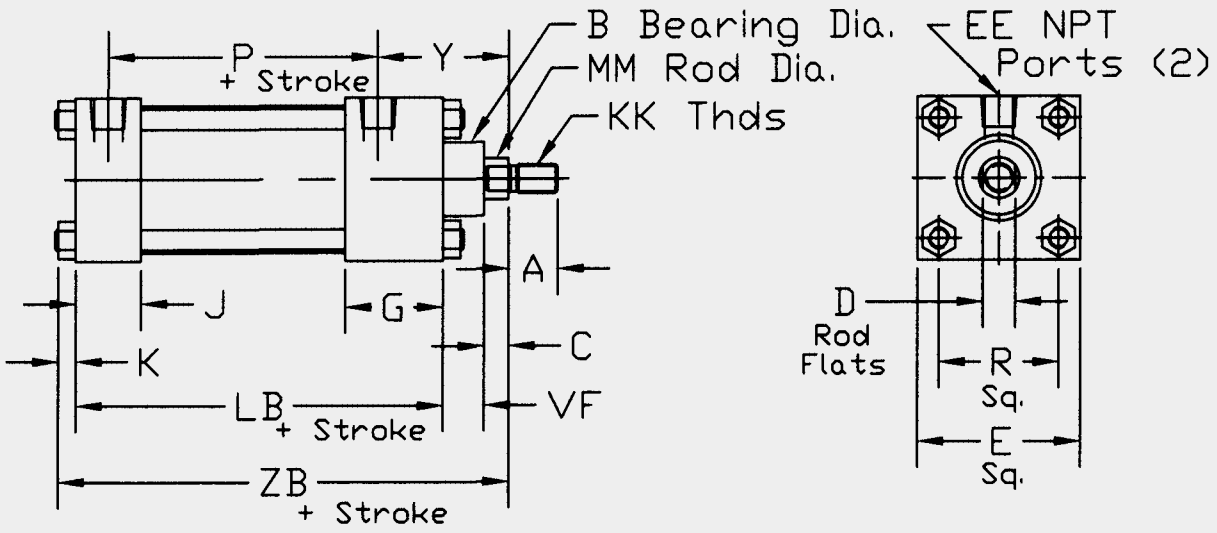
NFPA Interchangeability

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

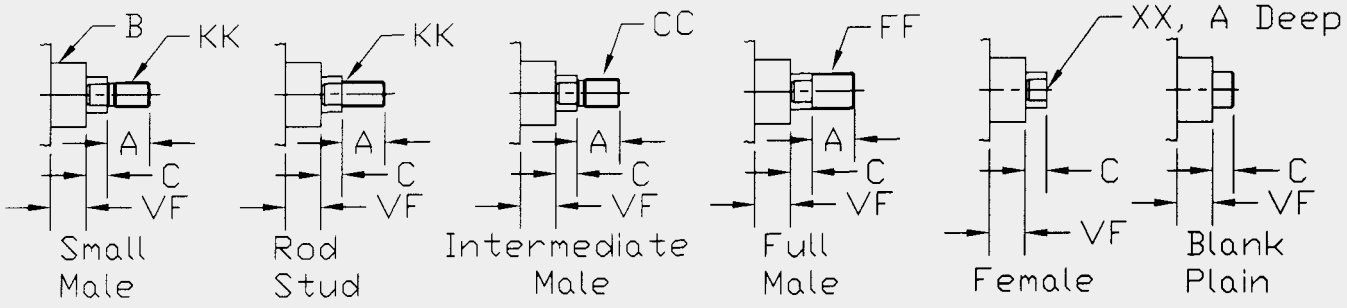
ME3  Pg. 5	**ME4**  Pg. 5	**MF1**  Pg. 5	**MF2**  Pg. 5	**MP1**  Pg. 6	**MP2**  Pg. 6	**MP4**  Pg. 6	**MS1**  Pg. 9	**MS2**  Pg. 9
MS4  Pg. 8	**MT1**  Pg. 7	**MT2**  Pg. 7	**MT4**  Pg. 7	**MX1**  Pg. 8	**MX2**  Pg. 8	**MX3**  Pg. 8	**MX0**  Pg. 4	**SN**  Pg. 8

MXO BASIC CYLINDERS



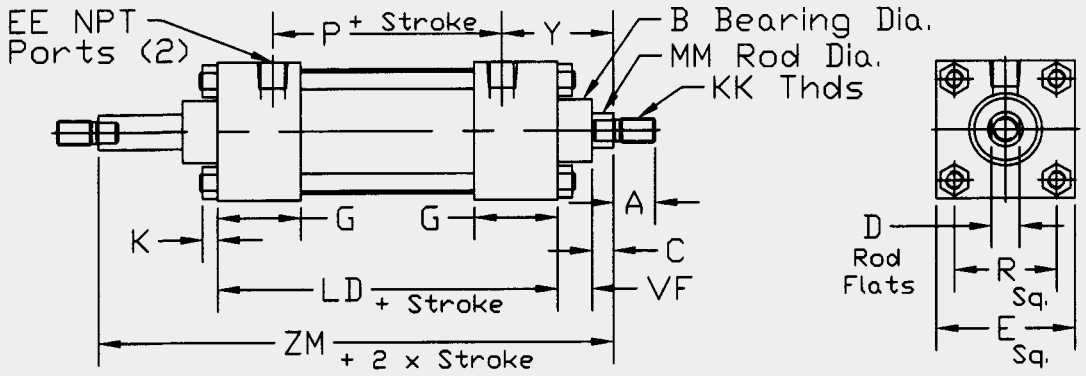
Bore	Rod Ø	A	B	C	D	E	EE	G	J	K	KK	LB	LD	MM	P	R	VF	Y	ZB	ZM
1 1/2	5/8"	.75	1.13	.38	.50	2.00	1/4	1.50	1.00	.25	7/16-20	3.63	4.13	.63	2.13	1.43	.63	2.00	4.88	6.13
	1"	1.13	1.50	.50	.81	2.00	1/4	1.50	1.00	.25	3/4-16	3.63	4.13	1.00	2.13	1.43	.88	2.38	5.25	6.88
2	5/8"	.75	1.13	.38	.50	2.50	1/4	1.50	1.00	.31	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

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

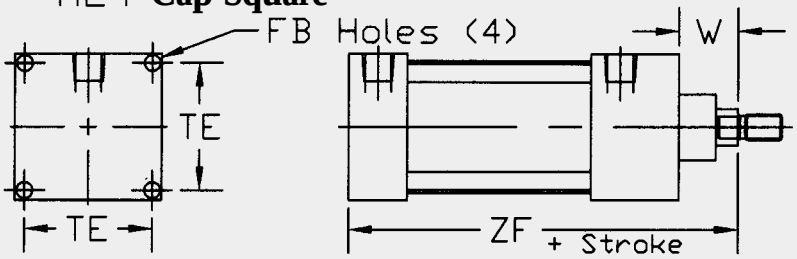
MXO DOUBLE ROD



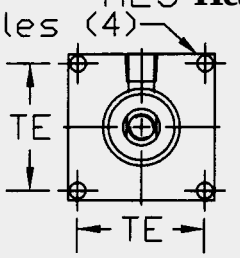
See page 4 for dimensions

SQUARE MOUNTS

ME4 **Cap Square**



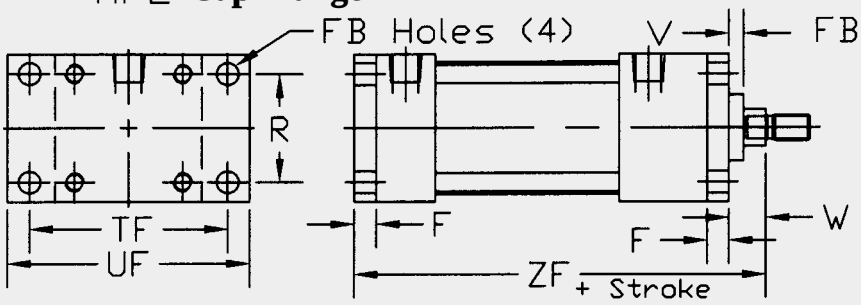
ME3 **Head Square**



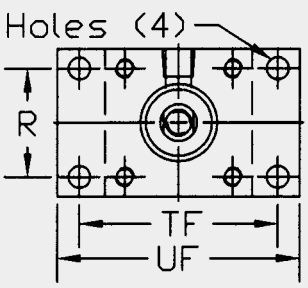
ME3 &ME4 available on 8' bore only

FLANGE MOUNTS

MF2 **Cap Flange**

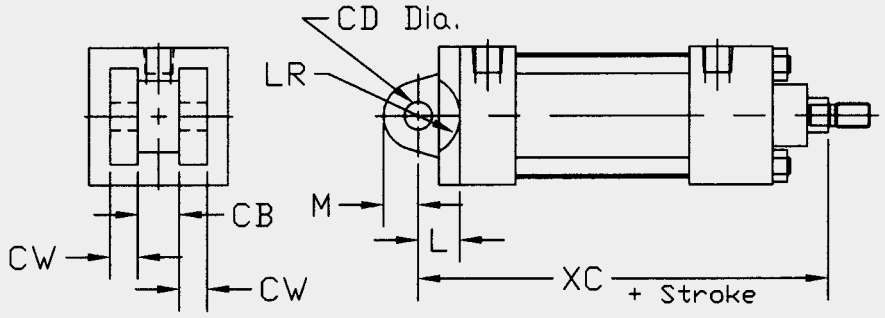


MF1 **Head Flange**

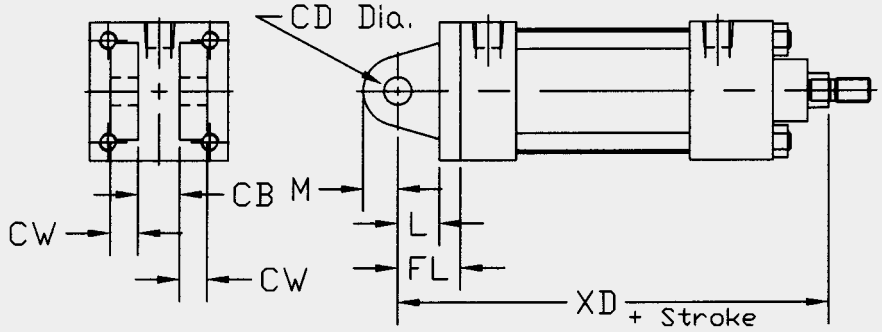


Bore	Rod Ø	F	FB	R	TE	TF	UF	V	W	ZF
	5/8"	.38	.31	1.43	–	2.75	3.38	.25	.63	5.00
1 1/2	1"	.38	.31	1.43	–	2.75	3.38	.50	1.00	5.38
	5/8"	.38	.38	1.84	–	3.38	4.13	.25	.63	5.00
2	1"	.38	.38	1.84	–	3.38	4.13	.50	1.00	5.38
	5/8"	.38	.38	2.19	–	3.88	4.63	.25	.63	5.13
2 1/2	1"	.38	.38	2.19	–	3.88	4.63	.50	1.00	5.50
	1"	.63	.44	2.76	–	4.69	5.50	.25	.75	6.25
3 1/4	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

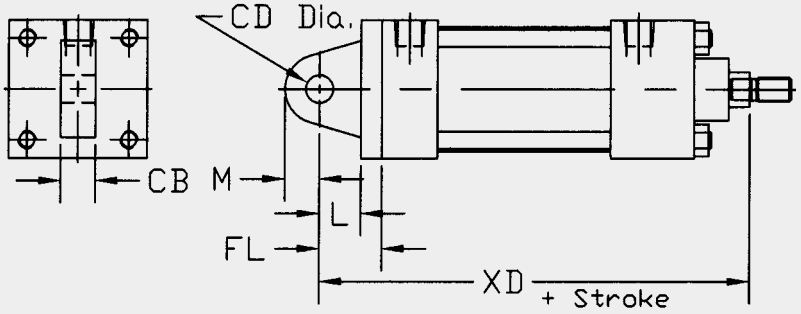
MP1 CAP FIXED CLEVIS



MP2 CAP DETACHABLE CLEVIS



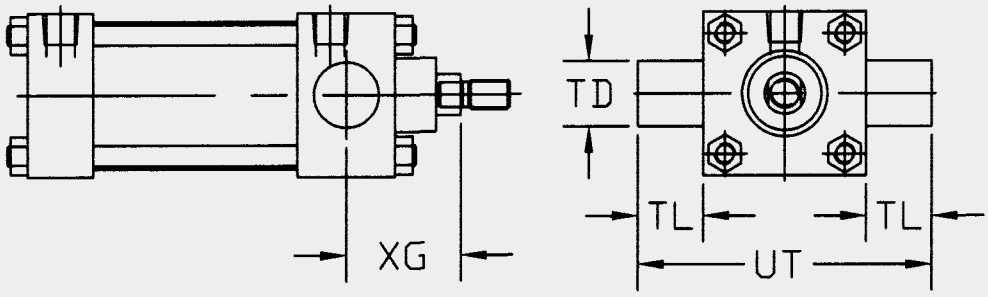
MP4 CAP DETACHABLE EYE



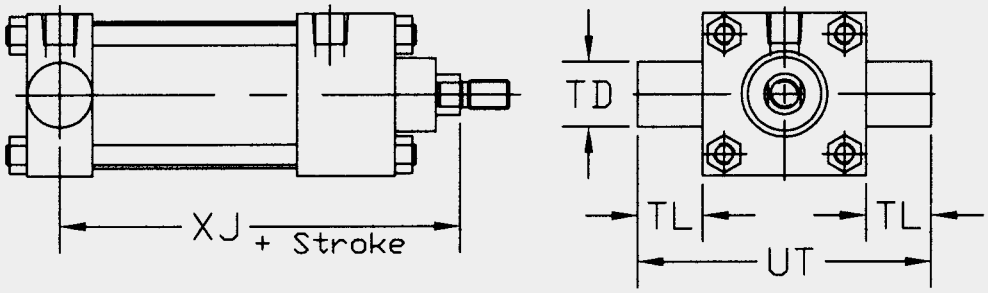
Bore	Rod Ø	CB	CD	CW	FL	L	LR*	M	XC	XD
1 1/2	5/8"	.75	.50	.50	1.13	.75	.62	.63	5.38	5.75
	1"	.75	.50	.50	1.13	.75	.62	.63	5.75	6.13
2	5/8"	.75	.50	.50	1.13	.75	.62	.63	5.38	5.75
	1"	.75	.50	.50	1.13	.75	.62	.63	5.75	6.13
2 1/2	5/8"	.75	.50	.50	1.13	.75	.62	.63	5.50	5.88
	1"	.75	.50	.50	1.13	.75	.62	.63	5.88	6.25
3 1/4	1"	1.25	.75	.63	1.88	1.25	–	.88	6.88	7.50
	1 3/8	1.25	.75	.63	1.88	1.25	–	.88	7.13	7.63
4	1"	1.25	.75	.63	1.88	1.25	–	.88	6.88	7.50
	1 3/8	1.25	.75	.63	1.88	1.25	–	.88	7.13	7.63
5	1"	1.25	.75	.63	1.88	1.25	–	.88	7.13	7.75
	1 3/8	1.25	.75	.63	1.88	1.25	–	.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" -2 1/2" Bore uses a cast iron bracket. All other sizes are fixed ears.
Note: a headed pivot pin supplied with all pivot mount cylinders.

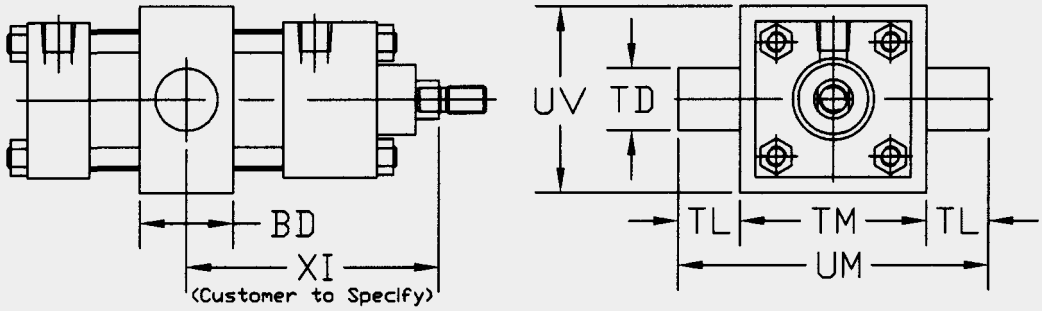
MT1 HEAD TRUNNION



MT2 CAP TRUNNION



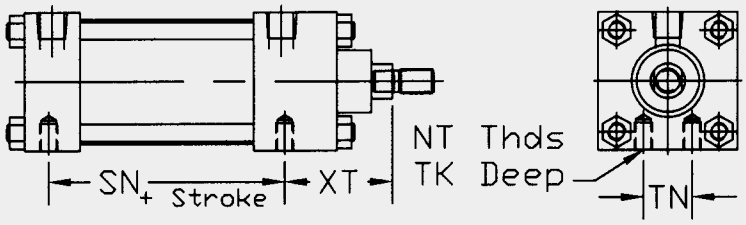
MT4 INTERMEDIATE TRUNNION



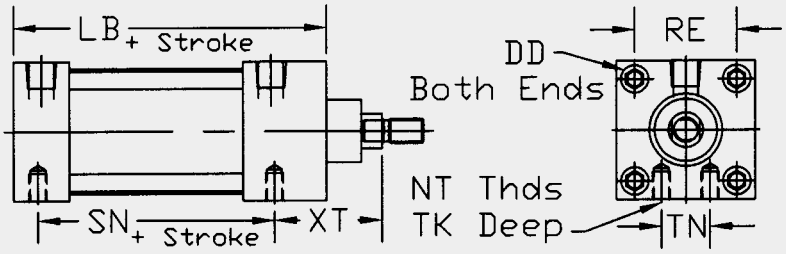
Bore	Rod Ø	BD	TD	TL	TM	UM	UT	UV	XG	XI(min)	XJ
	5/8"	1.25	1.00	1.00	2.50	4.50	4.00	2.50	1.75 #	3.13	4.13
1 1/2	1"	1.25	1.00	1.00	2.50	4.50	4.00	2.50	2.13 #	3.50	4.50
	5/8"	1.50	1.00	1.00	3.00	5.00	4.50	3.00	1.75	3.25	4.13
2	1"	1.50	1.00	1.00	3.00	5.00	4.50	3.00	2.13 #	3.63	4.50
	5/8"	1.50	1.00	1.00	3.50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

MS4 SIDE TAPPED

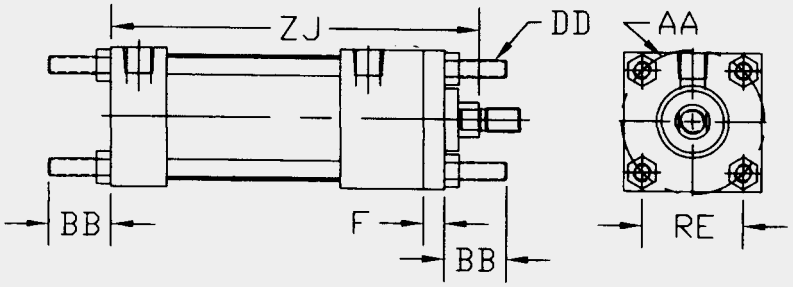


SN SLEEVE NUT

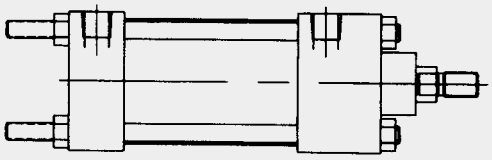


TIE ROD EXTENDED MOUNTS

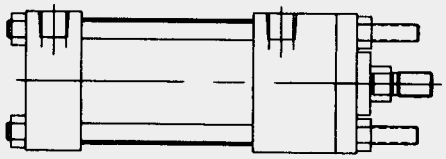
MX1 Both Ends



MX2 Cap End



MX3 Head End



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

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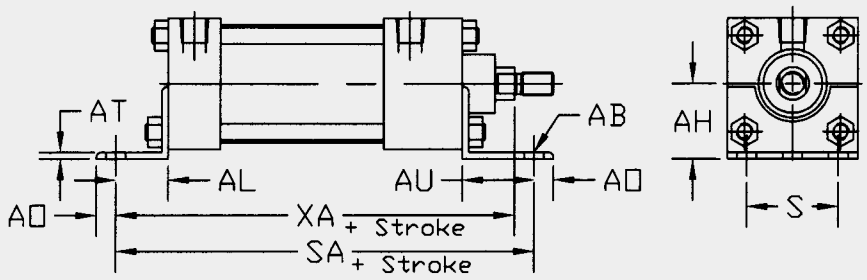
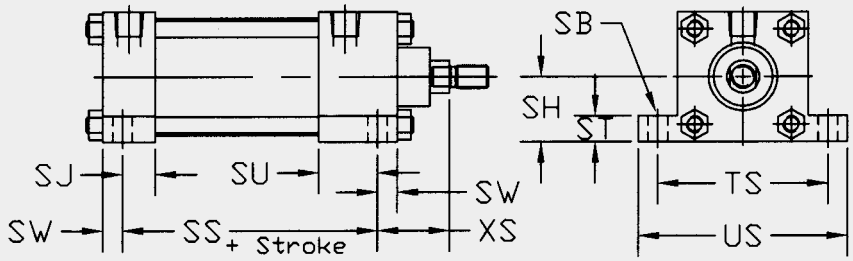
MS1 SIDE END ANGLES

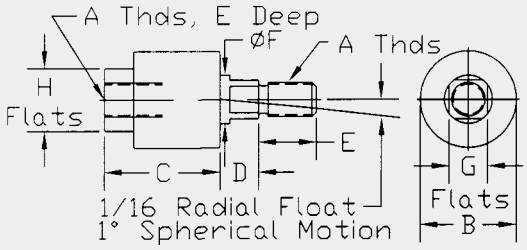


MS2 SIDE LUGS



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	.38	.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	.38	.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	.38	.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	.38	.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	.38	.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	.38	.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	1.56	.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	1.56	.69	9.88	11.25	8.81	2.56

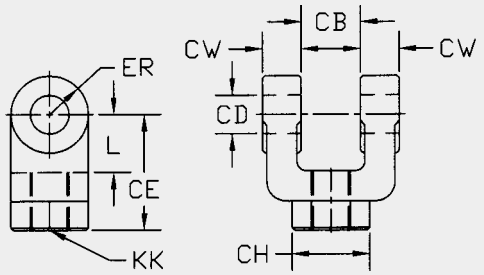
ALIGNMENT COUPLER



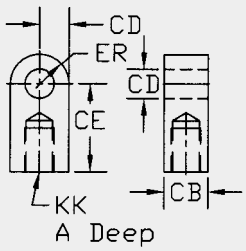
Part #	A	B	C	D	E	F	G	H	Max. Pull
CAAC0437	7/16-20	1.25	2.00	.50	.75	.63	.50	.81	10,000
CAAC0500	1/2-20	1.25	2.00	.50	.75	.63	.50	.81	14,000
CAAC0750	3/4-16	1.75	2.31	.50	1.13	.97	.81	1.13	34,000
CAAC1000	1-14	2.50	2.94	.50	1.63	1.34	1.16	1.63	64,000
CAAC1250	1 1/4-12	2.50	2.94	.50	1.63	1.34	1.16	1.63	64,000

ACCESSORIES

Rod Clevis

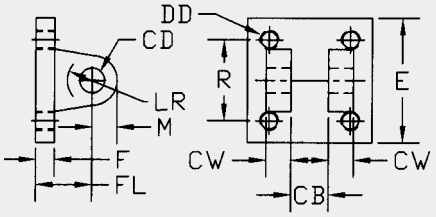


Rod Eye

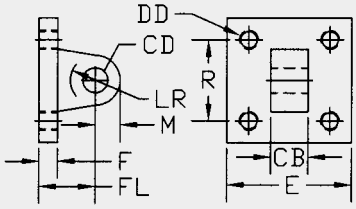


	Part #	A	L	CB	CD	CE	CH	CW	ER	KK
Clevis	CARC0437	-	3/4	.75	.50	1.50	1.00	.50	.50	7/16-20
	CARC0500	-	3/4	.75	.50	1.50	1.00	.50	.50	1/2-20
	CARC0750	-	1 1/4	1.25	.75	2.38	1.25	.63	.75	3/4-16
	CARC1000	-	1 1/2	1.50	1.00	3.13	1.50	.75	1.00	1-14
	CARC1250	-	2 1/8	2.00	1.38	4.13	2.00	1.00	1.38	1 1/4-12
Eye	CARE0437	.75	3/4	.75	.50	1.50	-	-	.56	7/16-20
	CARE0500	.75	3/4	.75	.50	1.50	-	-	.56	1/2-20
	CARE0750	1.13	1 1/4	1.25	.75	2.06	-	-	.94	3/4-16
	CARE1000	1.63	1 1/2	1.50	1.00	2.81	-	-	1.13	1-14
	CARE1250	2.00	2 1/8	2.00	1.38	3.48	-	-	1.56	1 1/4-12

Clevis Bracket

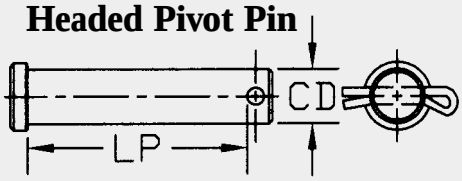


Eye Bracket

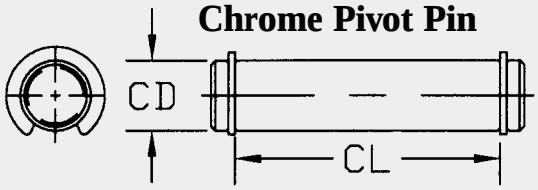


	Part #	CB	CD	CW	DD	E	F	FL	LR	M	R
Clevis	CACB0500	.75	.50	.50	3/8-24	2.50	.38	1.13	.50	.50	1.63
	CACB0750	1.25	.75	.63	1/2-20	3.50	.63	1.88	1.06	.75	2.56
	CACB1000	1.50	1.00	.75	5/8-18	4.50	.75	2.25	1.25	1.00	3.25
Eye	CAEB0500	.75	.50	-	.41	2.50	.38	1.13	.75	.50	1.63
	CAEB0750	1.25	.75	-	.53	3.50	.63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



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

TECHNICAL INFORMATION

OPERATING PRESSURE: 250 psi

OPERATING TEMPERATURE: **STANDARD SEALS** - 20°F to 200°F (-29°C to 107°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"
MOUNT	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
	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
	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
	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
	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																	
MOUNT	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
	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
	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
	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
	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

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.

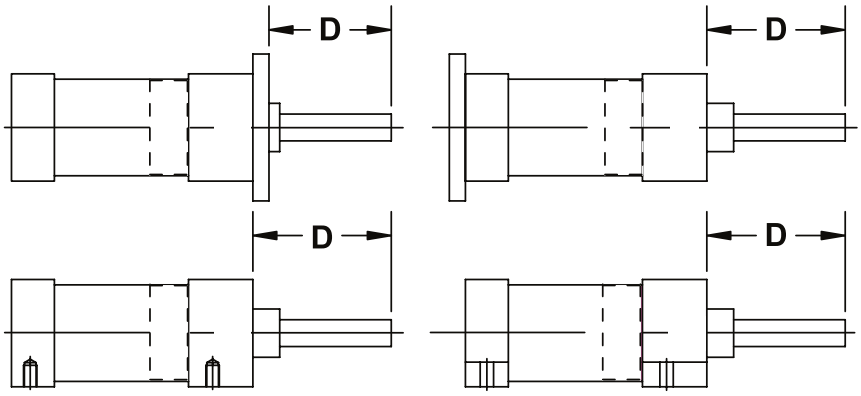
STROKE STOP – STOP TUBE

USE THE FOLLOWING TO DETERMINE STOP REQUIREMENTS:

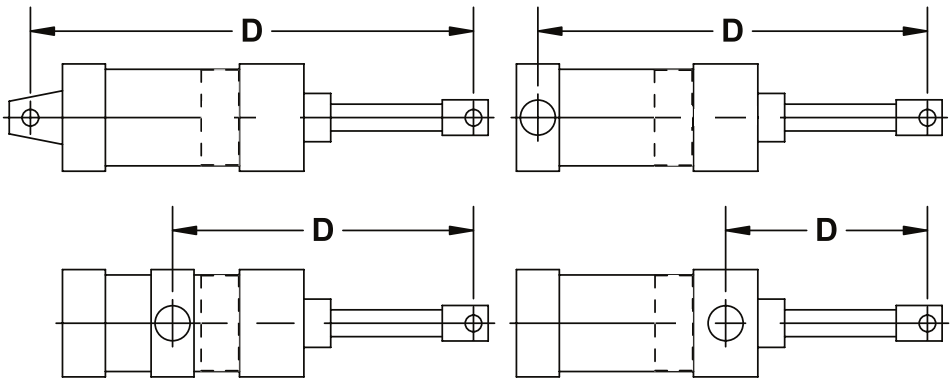
– Refer to example below to determine which corresponds to your application.

– 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”.

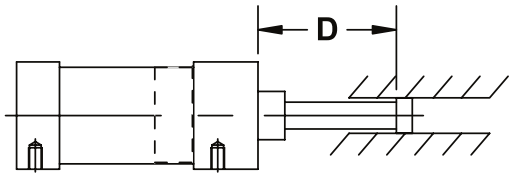


Rigidly mounted cylinders with rod unsupported at free end.
Use L=4D to determine "L".

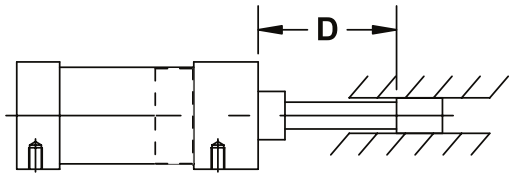


Pivot mounted cylinders. Use L=D to determine "L".

"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".

ROD SIZE

USE STANDARD ROD DIAMETER FOR PULL STROKE APPLICATIONS. USE THE FOLLOWING TO SELECT ROD SIZE FOR PUSH APPLICATIONS:

– Refer to stop calculation page for “L” value. If stop is required use adjusted “L” in your selection.

– Calculate your force using the force chart.

– Find your force on the left hand column. Follow that line right to your “L” value or the next higher value. Follow that column to the top for the rod diameter.

Based on 100,000 psi tensile strength rod material.

Pounds of Force at Rod End	ROD DIAMETER							
	5/8	1	1-3/8	1-3/4	2	2-1/2	3	3-1/2
50	67							
100	58	110						
150	53	103						
250	43	94	146					
400	37	83	134	186				
700	30	68	118	168	202	275		
1,000	27	60	105	155	190	257	330	
1,400	24	53	92	142	174	244	308	385
1,800	22	48	82	127	160	230	296	366
2,400	19	45	75	114	145	213	281	347
3,200	16	41	67	103	130	194	261	329
4,000	13	38	63	94	119	175	240	310
5,000	9	34	60	87	110	163	225	289
6,000		30	56	82	102	152	208	274
8,000		26	50	76	93	137	188	245
10,000		21	45	70	89	125	172	222
12,000		17	41	65	84	118	152	210
16,000			34	57	75	110	142	188
20,000			28	52	68	103	136	172

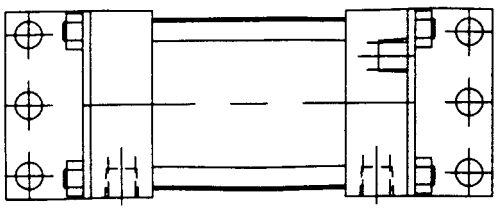
Achieving Individual Demands

We have the speed and flexibility to meet your exact needs. We provide rapid delivery, supported by in-depth local application knowledge and experience. You are guaranteed product availability and support.

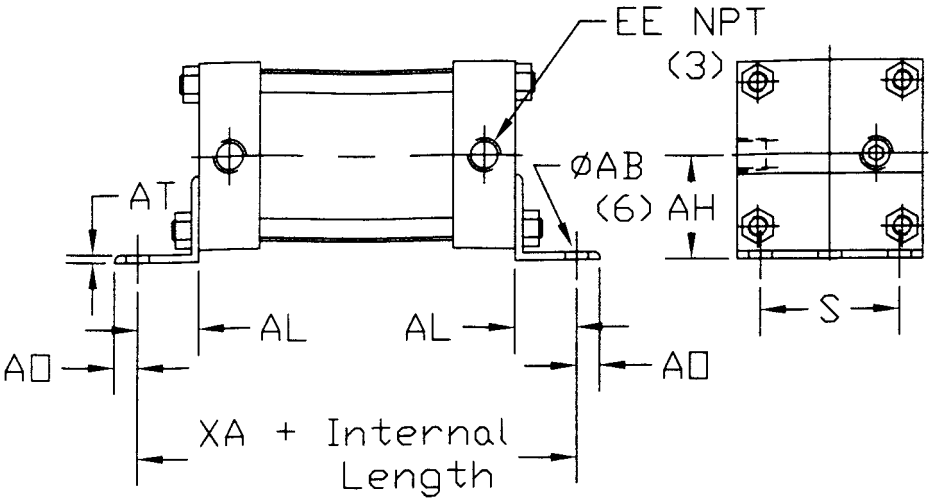
Customized solutions, even those calling for special modifications, are part of our everyday work. Standard items can be modified extensively to meet your specific requirements, including materials and coatings, electric limit switches, tandem, multi-position and non-rotational rods. We build cylinders with many special configurations:

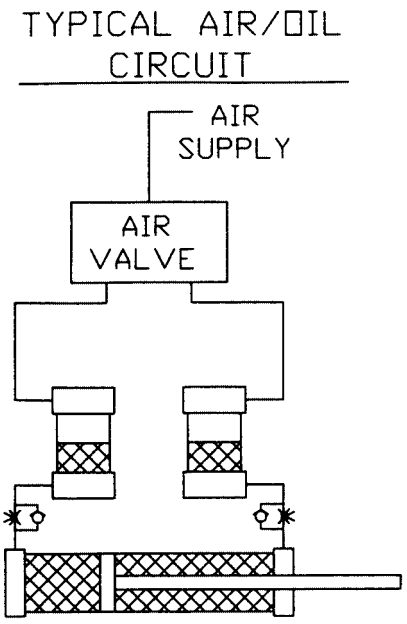
- Low Friction Seals
- High-Temperature Seals
- Back-to-Back Cylinders
- Multi-Position Cylinders
- Force Multiplication Tandem
- Air-to-Air Boosters
- Non-Rotating Rod
- Spring Extend or Retract
- Customer Supplied Designs
- Many others not listed

AIR/OIL TANK



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. Operating pressure of 250 PSI.





TANK DIMENSIONS									
Bore	AREA*	AB	AH	AL	AO	AT	EE	S	XA
2"	3.14	.44	1.44	1.00	.38	.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 x 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

AIR/OIL Tank Part Numbers:

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

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

EXAMPLE:

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

How To Order

Cylinder Ordering Table Numbers

	C	2	0	D	0	5	.	0	0	2	F	1	C	C	B	1	DREN
Reference Table Number:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Options

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 & Electroless Nickel Plated.

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

PORT AND CUSHION NEEDLE POSITIONS

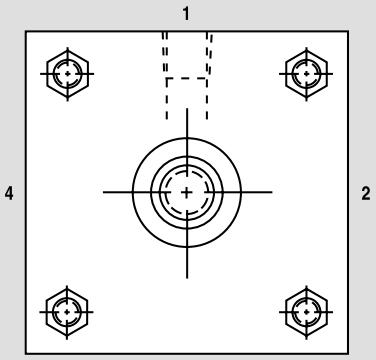


TABLE 10 Rod End

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

TABLE 11 & 12 Mount

E3	ME3 Head Square (8" only)	S4	MS4 Side Tapped
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

External Bearing Retainer required for pressures exceeding 250psi.

TABLE 15 Port Size

B	1/4" NPT
C	3/8" NPT
D	1/2" NPT
E	3/4" NPT

TABLE 16 Port Location

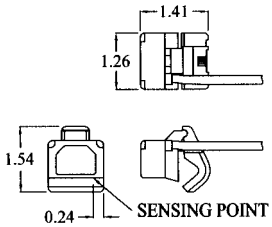
1	Side 1
2	Side 2
3	Side 3
4	Side 4

OPTIONS Listed Alphabetically

AO	Air/Oil Piston Seal	PP	Poly-Pak Piston and Rod Seals
BS	Bumper Piston Seals	SB	Stainless Steel Bushing
DR	Double Rod	SR	Stainless Steel Piston Rod
EN	Electroless Nickel	ST	Stainless Steel Tie Rods
ER	External Bearing Retainer	UC	Urethane Bumper Cap End
LF	Low Friction Seals	UH	Urethane Bumper Head End
MP	Magnetic Piston	VS	High Temperature Seals
MS	Metallic Rod Scraper	WB	Wear Band Piston

Additional Options Available

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

Operating Frequency - 1000 Hz, Temperature Range - 14 to 176° F(-10 to 80° C), Enclosure Circuit - IP 67 (NE

All cables are 118" (3m) long. * MR = Magnetoresstive

Made In The U.S.A.

Pneumatic Cylinders & Couplers inc.
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815-639-1000 • Fax: 815-639-1001
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- **POSITION FEEDBACK**
- **NON-ROTATIONAL REQUIREMENTS**