

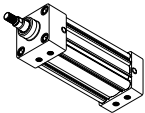
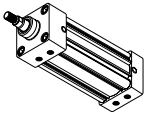
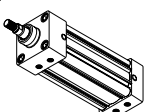
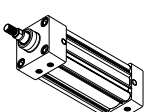
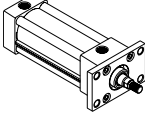
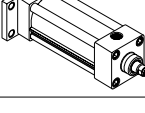
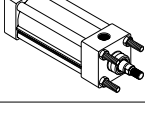
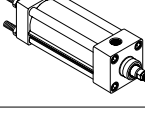
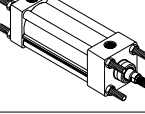
- NFPA interchangeable economy series
- Bore sizes – 1-1/2", 2", 2-1/2", 3-1/4", 4" and 5"
- Available in any practical stroke length
- 18 standard modular mounting styles available
- Extruded-profile aluminum body with integrated switch grooves
- Single rod end or double rod end options available
- Cushions – standard and adjustable at both ends, optional non-cushioned
- NPT porting standard
- RoHS compliant

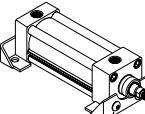
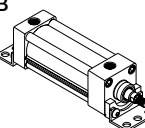
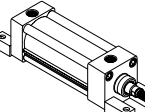
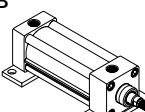
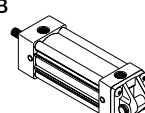
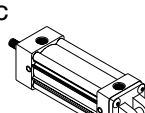
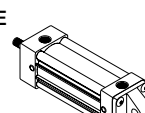
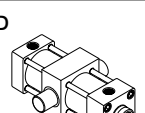
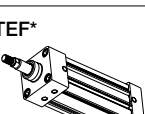
Operating pressure:	250 PSIG (17 bar)
Temperature range:	-10°F to 165°F (-23°C to 74°C)
Filtration requirements:	40 micron, dry filtered air

2.00	C	J	3MA	U	1	4	A	C	6.000																					
Bore size 1.50 2.00 2.50 3.25 4.00 5.00	Double rod cylinder ⁵ Specify "K" only if double rod cylinder is required.		Series 3MA	Ports Standard (NPTF)	Piston rod number Standard (rod code number 1) ³				Stroke length Specify stroke length required in inches.																					
Cushion head end <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">C</td> <td>Standard (cushioned head end)</td> </tr> <tr> <td>Blank</td> <td>Non-cushioned head end</td> </tr> </table>		C	Standard (cushioned head end)	Blank	Non-cushioned head end	Mounting style Specify mounting style code (see table on following page).	Seals <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">Blank</td> <td>Standard (nitrile seals)</td> </tr> <tr> <td>E</td> <td>Fluorocarbon rod wiper and rod seal only ²</td> </tr> </table>		Blank	Standard (nitrile seals)	E	Fluorocarbon rod wiper and rod seal only ²			Cushion cap end <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">C</td> <td>Standard (cushioned cap end)</td> </tr> <tr> <td>Blank</td> <td>Non-cushioned cap end</td> </tr> </table>		C	Standard (cushioned cap end)	Blank	Non-cushioned cap end										
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Blank	Non-cushioned cap end																													
Cylinder construction <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">Blank*</td> <td>Standard (extruded body, standard round lobe orientation)</td> </tr> <tr> <td>A*</td> <td>Extruded body, round lobe orientation rotated 90 degrees from standard</td> </tr> <tr> <td>N*</td> <td>Extruded body, round lobe orientation rotated 180 degrees from standard</td> </tr> <tr> <td>Z*</td> <td>Extruded body, round lobe orientation rotated 270 degrees from standard</td> </tr> <tr> <td>T</td> <td>Aluminum round tube and carbon steel tie rods and nuts</td> </tr> </table>			Blank*	Standard (extruded body, standard round lobe orientation)	A*	Extruded body, round lobe orientation rotated 90 degrees from standard	N*	Extruded body, round lobe orientation rotated 180 degrees from standard	Z*	Extruded body, round lobe orientation rotated 270 degrees from standard	T	Aluminum round tube and carbon steel tie rods and nuts	Special modification Specify "S" only for special modification other than rod end, and then describe modification in item notes.		Piston rod thread type <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">A</td> <td>Standard (UNF unified thread)</td> </tr> <tr> <td>W</td> <td>BSF British fine</td> </tr> <tr> <td>M *</td> <td>Metric</td> </tr> </table>				A	Standard (UNF unified thread)	W	BSF British fine	M *	Metric						
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			Piston rod thread style <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">4</td> <td>Small male</td> </tr> <tr> <td>8</td> <td>Intermediate male</td> </tr> <tr> <td>9</td> <td>Short female</td> </tr> <tr> <td>55</td> <td>For use with split coupler ⁴</td> </tr> <tr> <td>3</td> <td>Special (and specify all dimensions required)</td> </tr> </table>		4	Small male	8	Intermediate male	9	Short female	55	For use with split coupler ⁴	3	Special (and specify all dimensions required)	Rod material code <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%;">Blank</td> <td>Standard</td> </tr> <tr> <td>Y</td> <td>17-4 PH stainless steel</td> </tr> <tr> <td>J</td> <td>303 stainless steel</td> </tr> <tr> <td>S</td> <td>316 stainless steel</td> </tr> </table>				Blank	Standard	Y	17-4 PH stainless steel	J	303 stainless steel	S	316 stainless steel				
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Blank	Standard (lipseals and magnetic ring) ⁵																													
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3	Lipseals and magnetic ring (aluminum piston)																													
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F	Lipseals and magnetic ring, 1/4" thick bumper head end ¹																													
R	Lipseals and magnetic ring, 1/4" thick bumper cap end ¹																													



3MA Mounting Styles for 1-1/2" to 5" Bore

Mounting style	NFPA mounting	Description	Bore size
TEF 	MX5/MS4	Sleeve Nut with Side Tap (standard mount)	1-1/2 - 5
T 	MX0	No Mount (same construction as TEF)	1-1/2 - 5
TE 	MX5	Sleeve Nut (same construction as TEF)	1-1/2 - 5
F 	MS4	Side Tap (same construction as TEF)	1-1/2 - 5
J 	MF1	Head Rectangular Flange	1-1/2 - 5
H 	MF2	Cap Rectangular Flange	1-1/2 - 5
TB 	MX3	Tie Rods Extended Head End	1-1/2 - 5
TC 	MX2	Tie Rods Extended Cap End	1-1/2 - 5
TD 	MX1	Tie Rods Extended Both Ends	1-1/2 - 5

Mounting style	NFPA mounting	Description	Bore size
C 	MS2	Side Lug	1-1/2 - 5
CB 	MS1	Side End Angle	1-1/2 - 5
G 	MS7	Side End Lug	1-1/2 - 4
NB 	N/A	Base Bar	1-1/2 - 4
BB 	MP1	Cap Fixed Clevis	1-1/2 - 5
BC 	MP2	Cap Detachable Clevis	1-1/2 - 5
BE 	MP4	Cap Detachable Eye	1-1/2 - 4
DD 	MT4	Intermediate Trunnion	1-1/2 - 5
KTEF* 	MDX5/ MDS4	Double Rod End, TEF Mount	1-1/2 - 5

* Double rod end cylinders can be ordered with head mountings, i.e. KJ.

Sensors

For sensors see page B339.



B

Tie Rod Cylinders
Actuator Products

3MA
Series

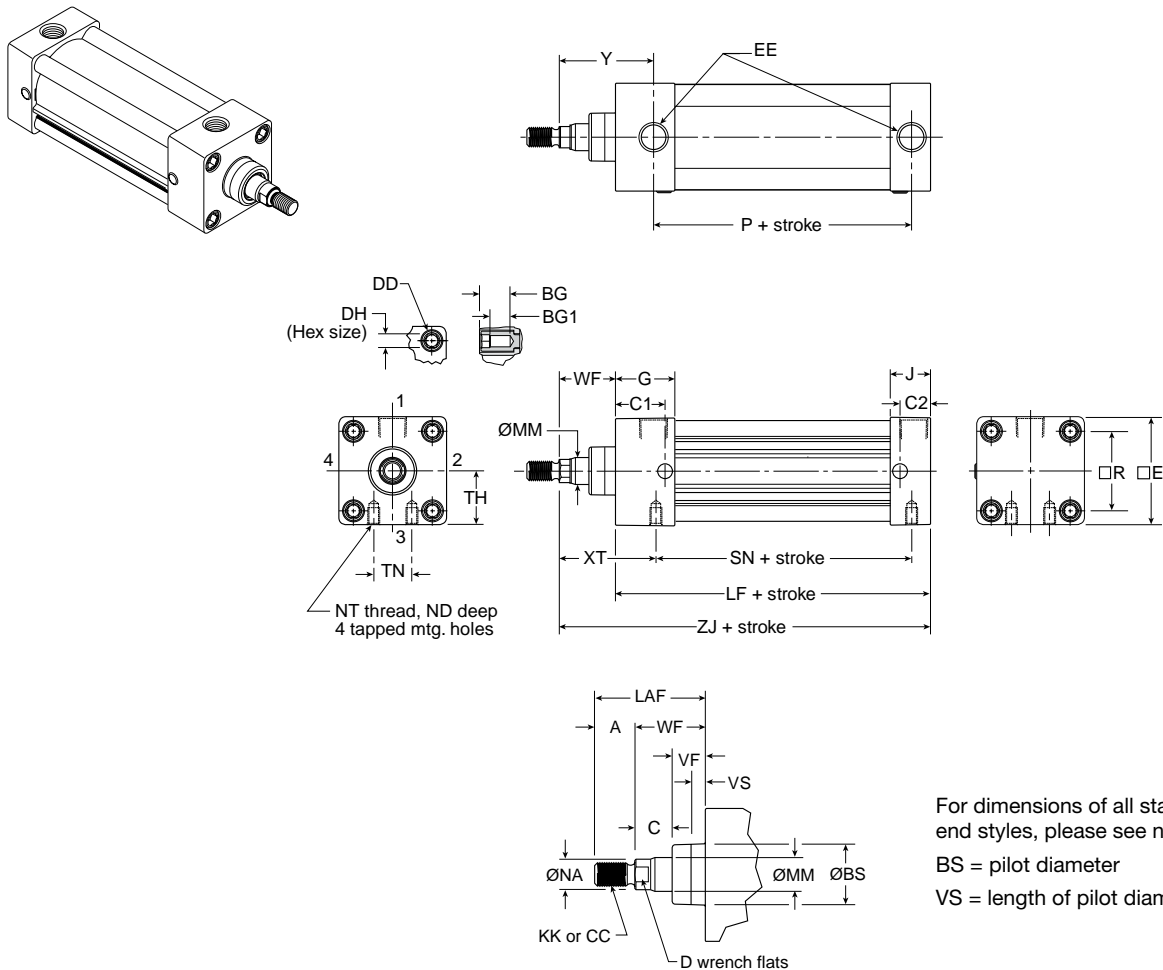
4MA/4ML
Series

3MAJ/4MAJ
Series

4MNR
Series

P1D
Series

3MA Single Rod Dimensioned Drawings (Styles TEF, T, TE and F)



For dimensions of all standard rod end styles, please see next page.
BS = pilot diameter
VS = length of pilot diameter

Styles TEF, T, TE and F

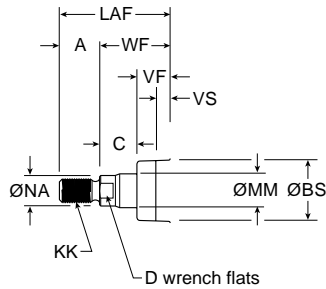
Bore size	Rod no.	Rod dia. MM	Thread		A	AA	BG	BG1	BS	C	C1	C2	D	DD	DH	E	EE (NPTF)	G
			Style 8 CC	Style 4 & 9 KK														
1-1/2	1	5/8	1/2-20	7/16-20	0.750	2.020	0.562	0.374	1.124	0.385	1.000	0.500	1/2	1/4-28	1/4	2.000	3/8	1.438
2	1	5/8	1/2-20	7/16-20	0.750	2.600	0.562	0.362	1.124	0.385	1.148	0.711	1/2	5/16-24	5/16	2.500	3/8	1.375
2-1/2	1	5/8	1/2-20	7/16-20	0.750	3.100	0.562	0.362	1.124	0.385	1.117	0.711	1/2	5/16-24	5/16	3.000	3/8	1.344
3-1/4	1	1	7/8-14	3/4-16	1.125	3.900	0.700	0.500	1.499	0.510	1.350	0.881	7/8	3/8-24	3/8	3.750	1/2	1.594
4	1	1	7/8-14	3/4-16	1.125	4.700	0.700	0.500	1.499	0.510	1.350	0.881	7/8	3/8-24	3/8	4.500	1/2	1.594
5	1	1	7/8-14	3/4-16	1.125	5.800	0.781	0.531	1.499	0.510	1.350	0.975	7/8	1/2-20	1/2	5.500	1/2	1.594

Bore size	Rod no.	Rod dia. MM	+0.005 -0.005																Add stroke			
			J	LAF	NA	ND	NT	R	TH	TN	VF	VS	WF	XT	Y	LF	P	SN	ZJ			
1-1/2	1	5/8	0.938	1.750	0.563	0.375	1/4-20	1.430	0.993	0.625	0.615	-	1.000	1.938	1.875	3.625	2.313	2.250	4.625			
2	1	5/8	0.938	1.750	0.563	0.438	5/16-18	1.840	1.243	0.875	0.615	0.250	1.000	1.938	1.875	3.625	2.313	2.250	4.625			
2-1/2	1	5/8	0.938	1.750	0.563	0.625	3/8-16	2.190	1.493	1.250	0.615	0.250	1.000	1.938	1.938	3.750	2.375	2.375	4.750			
3-1/4	1	1	1.125	2.500	0.938	0.750	1/2-13	2.760	1.868	1.500	0.865	0.250	1.375	2.438	2.438	4.250	2.625	2.625	5.625			
4	1	1	1.125	2.500	0.938	0.750	1/2-13	3.320	2.243	2.063	0.865	0.250	1.375	2.438	2.438	4.250	2.625	2.625	5.625			
5	1	1	1.219	2.500	0.938	0.938	5/8-11	4.100	2.743	2.688	0.865	0.250	1.375	2.438	2.438	4.500	2.875	2.875	5.875			

3MA Rod End Dimensions

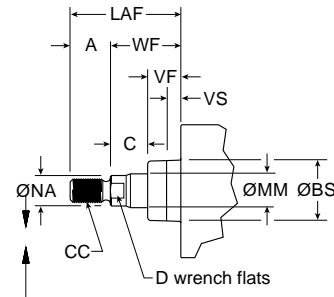
Thread Style 4

(NFPA Style SM)
 Small Male



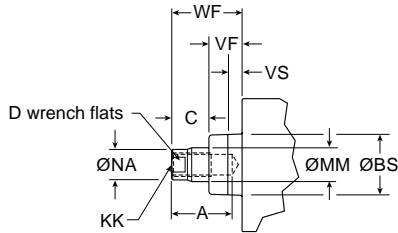
Thread Style 8

(NFPA Style IM)
 Intermediate Male



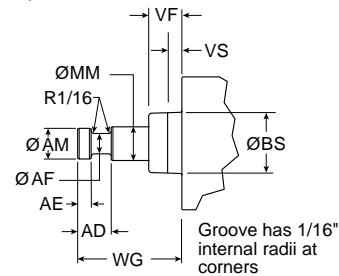
Thread Style 9

(NFPA Style SF)
 Short Female



Thread Style 55

For use with Split Coupler
 (please reference catalog 0900P-E, page B105 for more information)



Thread Style 3 - “Special Thread”

Special threads, rod extensions, rod eyes, blanks, etc. are also available.
 To order, specify “Style 3” and give desired dimensions for KK or CC, A and W or WF.
 If otherwise special, please supply dimensioned sketch.

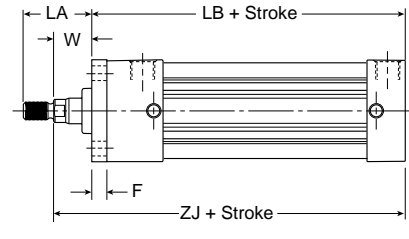
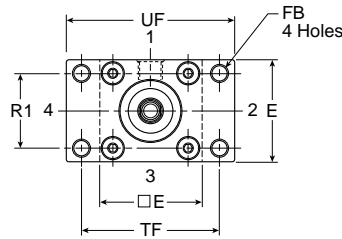
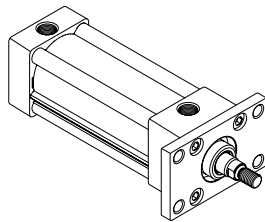
Applies to all rod ends:
 BS = pilot diameter
 VS = length of pilot diameter

Rod End Dimensions

Bore size	Rod no.	Rod dia. MM	Thread															
			Style 8 CC	Style 4 & 9 KK	A	AD	AE	AF	AM	+0.000 -0.004 BS	C	D	LAF	NA	VF	VS	WF	WG
1-1/2	1	5/8	1/2-20	7/16-20	0.750	0.625	0.250	0.375	0.570	1.124	0.385	1/2	1.750	0.563	0.615	-	1.000	1.750
2	1	5/8	1/2-20	7/16-20	0.750	0.625	0.250	0.375	0.570	1.124	0.385	1/2	1.750	0.563	0.615	0.250	1.000	1.750
2-1/2	1	5/8	1/2-20	7/16-20	0.750	0.625	0.250	0.375	0.570	1.124	0.385	1/2	1.750	0.563	0.615	0.250	1.000	1.750
3-1/4	1	1	7/8-14	3/4-16	1.125	0.938	0.375	0.688	0.950	1.499	0.510	7/8	2.500	0.938	0.865	0.250	1.375	2.375
4	1	1	7/8-14	3/4-16	1.125	0.938	0.375	0.688	0.950	1.499	0.510	7/8	2.500	0.938	0.865	0.250	1.375	2.375
5	1	1	7/8-14	3/4-16	1.125	0.938	0.375	0.688	0.950	1.499	0.510	7/8	2.500	0.938	0.865	0.250	1.375	2.375

Head Rectangular Flange

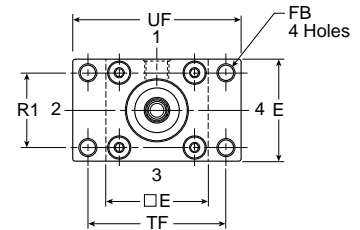
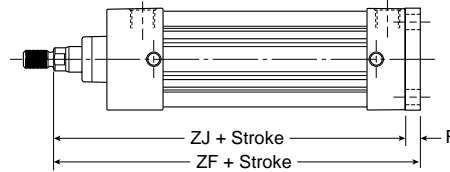
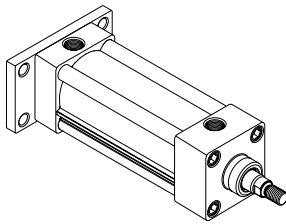
Style J
(NFPA MF1)



Note: Style J has a W dimension instead of WF and a LA dimension instead of LAF because of the flange installation. Please use dimensions W and LA regarding rod ends only for Style J.
For reference, WF = W + F and LA = W + A.

Cap Rectangular Flange

Style H
(NFPA MF2)

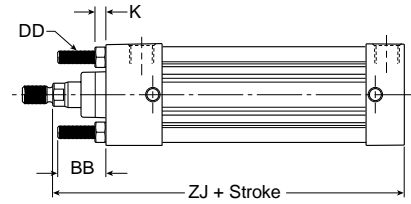
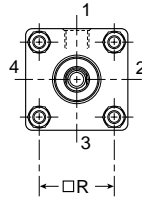
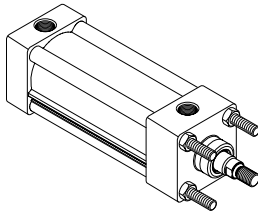


Styles J and H

Bore size	Rod no.	Rod dia. MM	A	E	F	FB	LA	R1	TF	UF	W	Add stroke		
												LB	ZF	ZJ
1-1/2	1	5/8	0.750	2.000	0.375	0.313	1.375	1.430	2.750	3.375	0.625	4.000	5.000	4.625
2	1	5/8	0.750	2.500	0.375	0.375	1.375	1.840	3.375	4.125	0.625	4.000	5.000	4.625
2-1/2	1	5/8	0.750	3.000	0.375	0.375	1.375	2.190	3.875	4.625	0.625	4.125	5.125	4.750
3-1/4	1	1	1.125	3.750	0.625	0.438	1.875	2.760	4.688	5.500	0.750	4.875	6.250	5.625
4	1	1	1.125	4.500	0.625	0.438	1.875	3.320	5.438	6.250	0.750	4.875	6.250	5.625
5	1	1	1.125	5.500	0.625	0.563	1.875	4.100	6.625	7.625	0.750	5.125	6.500	5.875

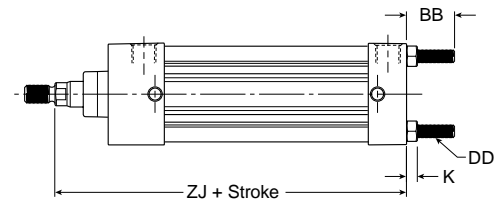
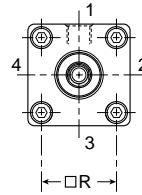
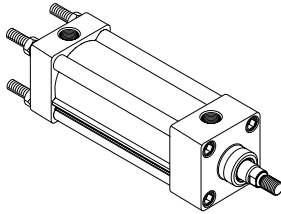
Tie Rods Ext. Head End

Style TB
(NFPA MX3)



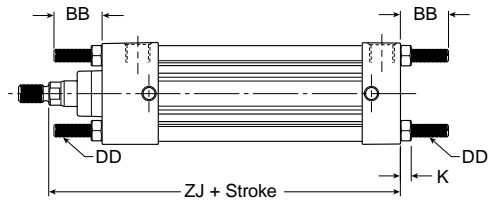
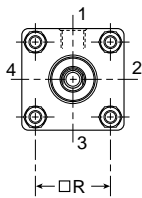
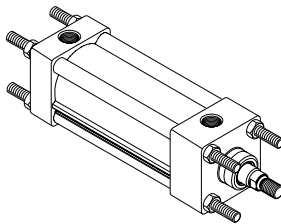
Tie Rods Ext. Cap End

Style TC
(NFPA MX2)



Tie Rods Ext. Both Ends

Style TD
(NFPA MX1)



Styles TB, TC and TD

Bore size	Rod no.	Rod dia. MM	BB	DD	E	K	R	Add stroke
								ZJ
1-1/2	1	5/8	1.000	1/4-28	2.000	0.250	1.430	4.625
2	1	5/8	1.125	5/16-24	2.500	0.313	1.840	4.625
2-1/2	1	5/8	1.125	5/16-24	3.000	0.313	2.190	4.750
3-1/4	1	1	1.375	3/8-24	3.750	0.375	2.760	5.625
4	1	1	1.375	3/8-24	4.500	0.375	3.320	5.625
5	1	1	1.813	1/2-20	5.500	0.438	4.100	5.875

B

Tie Rod Cylinders
Actuator Products

3MA
Series

4MA/4ML
Series

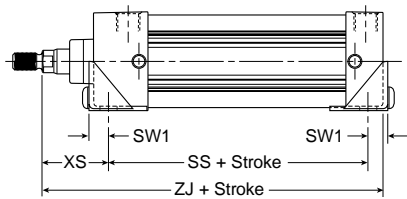
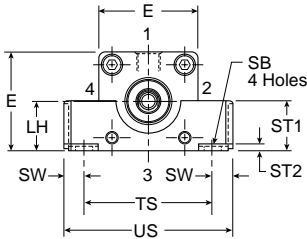
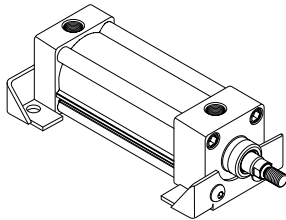
3MAJ/4MAJ
Series

4MNR
Series

P1D
Series

Side Lug

Style C
(NFPA MS2)

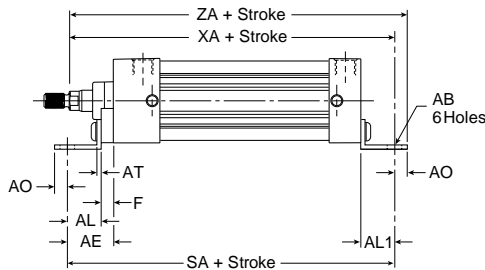
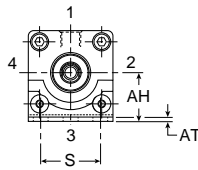
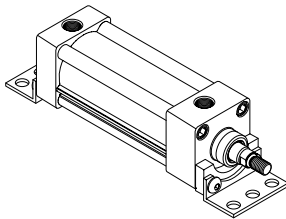


Style C

Bore size	Rod no.	Rod dia. MM	E	LH	SB	ST	ST1	ST2	SW	SW1	TS	US	XS	Add stroke	
														SS	ZJ
1-1/2	1	5/8	2.000	0.993	0.438	0.500	1.000	0.120	0.375	0.495	2.750	3.500	1.375	2.875	4.625
2	1	5/8	2.500	1.243	0.438	0.500	1.250	0.120	0.375	0.495	3.250	4.000	1.375	2.875	4.625
2-1/2	1	5/8	3.000	1.493	0.438	0.500	1.343	0.120	0.375	0.495	3.750	4.500	1.375	3.000	4.750
3-1/4	1	1	3.750	1.868	0.563	0.750	1.500	0.188	0.500	0.688	4.750	5.750	1.875	3.250	5.625
4	1	1	4.500	2.243	0.563	0.750	1.500	0.188	0.500	0.688	5.500	6.500	1.875	3.250	5.625
5	1	1	5.500	2.743	0.813	1.000	1.500	0.250	0.688	0.938	6.875	8.250	2.063	3.125	5.875

Side End Angle*

Style CB
(NFPA MS1)



Note: Dimension "S" is for the holes in the mount
(not the screw to screw dimension)

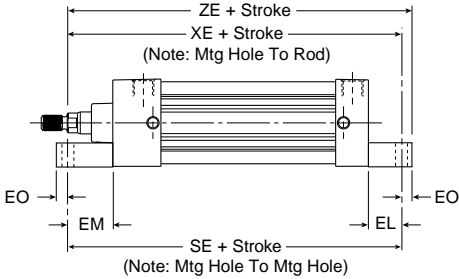
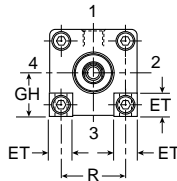
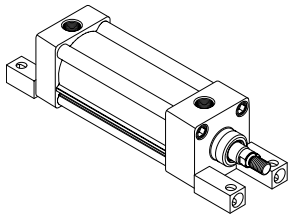
*Maximum recommended pressure for this mount is 150 PSIG

Style CB

Bore size	Rod no.	Rod dia. MM	AB	AE	AH	AL	AL1	AO	AT	E	F	S	Add stroke		
													SA	XA	ZA
1-1/2	1	5/8	0.438	1.375	1.188	1.000	1.000	0.375	0.125	2.000	0.375	1.250	6.000	5.625	6.000
2	1	5/8	0.438	1.375	1.438	1.000	1.000	0.375	0.125	2.500	0.375	1.750	6.000	5.625	6.000
2-1/2	1	5/8	0.438	1.375	1.625	1.000	1.000	0.375	0.125	3.000	0.375	2.250	6.125	5.750	6.125
3-1/4	1	1	0.563	1.875	1.938	1.250	1.250	0.500	0.125	3.750	0.625	2.750	7.375	6.875	7.375
4	1	1	0.563	—	2.250	1.875	1.250	0.500	0.125	4.500	—	3.500	7.375	6.875	7.375
5	1	1	0.688	2.000	2.750	1.375	1.375	0.625	0.188	5.500	0.625	4.250	7.875	7.250	7.875

Side End Lug

Style G
(NFPA MS7)

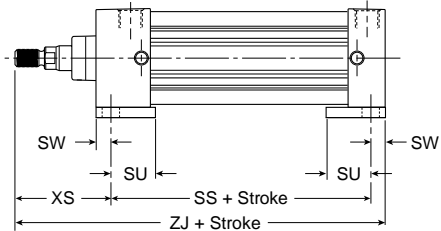
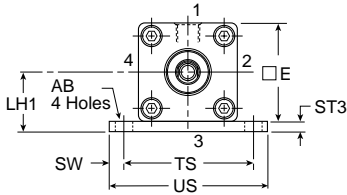
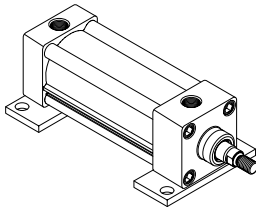


Style G

Bore Size	Rod no.	Rod Dia. MM	E	EB	EL	EM	EO	ET	GH	R	Add stroke		
											SE	XE	ZE
1-1/2	1	5/8	2.000	0.281	0.750	1.125	0.250	0.563	0.993	1.430	5.500	5.375	5.625
2	1	5/8	2.500	0.344	0.938	1.313	0.313	0.688	1.243	1.840	5.875	5.563	5.875
2-1/2	1	5/8	3.000	0.344	1.063	1.438	0.313	0.813	1.493	2.190	6.250	5.813	6.125
3-1/4	1	1	3.750	0.406	0.875	1.500	0.375	1.000	1.868	2.760	6.625	6.500	6.875
4	1	1	4.500	0.406	1.000	1.625	0.375	1.188	2.243	3.320	6.875	6.625	7.000

Base Bar Mount

Style NB



Note: Fasteners for NB base bar mount have been applied with removable threadlocking compound and torqued to bottom of endcaps.

Style NB

Bore size	Rod no.	Rod dia. MM	AB	E	LH1	ST3	SU	SW	TS	US	XS	Add stroke	
												SS	ZJ
1-1/2	1	5/8	0.438	2.000	1.243	0.250	1.125	0.375	2.750	3.500	1.375	2.875	4.625
2	1	5/8	0.438	2.500	1.493	0.250	1.125	0.375	3.250	4.000	1.375	2.875	4.625
2-1/2	1	5/8	0.438	3.000	1.868	0.375	1.125	0.375	3.750	4.500	1.375	3.000	4.750
3-1/4	1	1	0.563	3.750	2.368	0.500	1.250	0.500	4.750	5.750	1.875	3.250	5.625
4	1	1	0.563	4.500	2.743	0.500	1.250	0.500	5.500	6.500	1.875	3.250	5.625

B

Tie Rod Cylinders
Actuator Products

3MA
Series

4MA/4ML
Series

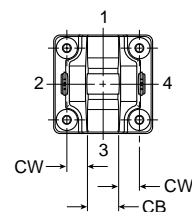
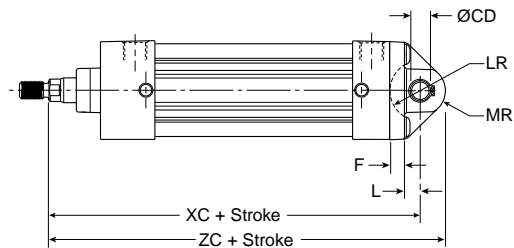
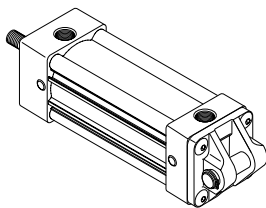
3MAJ/4MAJ
Series

4MNR
Series

P1D
Series

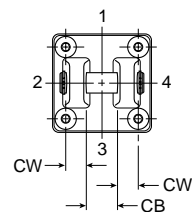
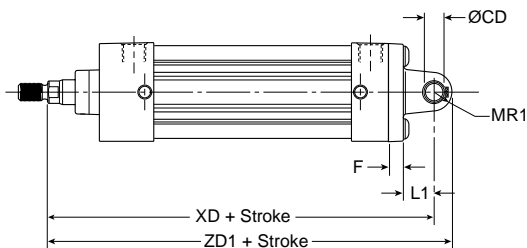
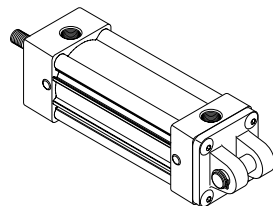
Cap Fixed Clevis

Style BB
(NFPA MP1)



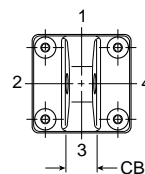
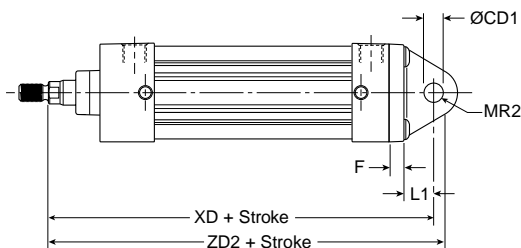
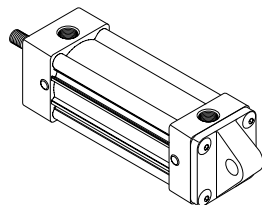
Cap Detachable Clevis

Style BC
(NFPA MP2)



Cap Detachable Eye*

Style BE
(NFPA MP4)



Note: 5 inch bore not available on BE mount, see 4MA series.

Note: For maximum swivel angle of BB mount with rear mounting plate, please reference Catalog 0900P-E, cylinder accessories on page B108.

Styles BB, BC and BE

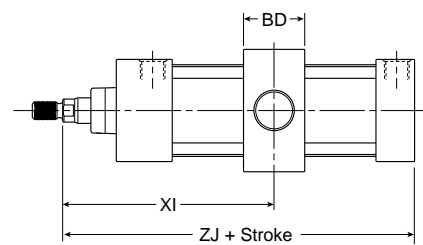
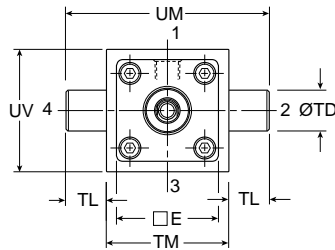
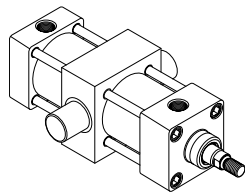
Bore size	Rod no.	Rod dia. MM	CB	+.000 -.002 CD	+.002 +.004 CD1	CW	E	F	L	LR	L1	MR	MR1	MR2	Add stroke				
															XC	XD	ZC	ZD1	ZD2
1-1/2	1	5/8	0.750	0.501	0.500	0.500	2.000	0.375	0.375	0.750	0.750	0.625	0.500	0.625	5.375	5.750	6.000	6.250	6.375
2	1	5/8	0.750	0.501	0.500	0.500	2.500	0.375	0.375	0.750	0.750	0.625	0.500	0.625	5.375	5.750	6.000	6.250	6.375
2-1/2	1	5/8	0.750	0.501	0.500	0.500	3.000	0.375	0.375	0.750	0.750	0.625	0.500	0.688	5.500	5.875	6.125	6.375	6.563
3-1/4	1	1	1.250	0.751	0.750	0.625	3.750	0.625	0.625	1.000	1.250	0.938	0.750	0.875	6.875	7.500	7.813	8.250	8.375
4	1	1	1.250	0.751	0.750	0.625	4.500	0.625	0.625	1.000	1.250	0.938	0.750	0.875	6.875	7.500	7.813	8.250	8.375
5 *	1	1	1.250	0.751	0.750	0.625	5.500	0.625	0.625	1.000	1.250	0.938	0.750	0.875	7.125	7.750	8.063	8.500	8.625

* 5 inch bore not available on BE mount, see 4MA series

Intermediate Trunnion

Style DD
(NFPA MT4)

Note: Tie rod nuts for Style DD have a slot instead of internal hex.



Style DD

Bore size	Rod no.	Rod dia. MM	E	BD	TD +.000 -.001	TL	TM	UM	UT	UV	XG	Min. XI	Add stroke	
													XJ	ZJ
1-1/2	1	5/8	2.000	1.250	1.000	1.000	2.500	4.500	4.000	2.500	1.750	3.036	4.125	4.625
2	1	5/8	2.500	1.500	1.000	1.000	3.000	5.000	4.500	3.000	1.750	3.125	4.125	4.625
2-1/2	1	5/8	3.000	1.500	1.000	1.000	3.500	5.500	5.000	3.500	1.750	3.094	4.250	4.750
3-1/4	1	1	3.750	2.000	1.000	1.000	4.500	6.500	5.750	4.250	2.250	3.969	5.000	5.625
4	1	1	4.500	2.000	1.000	1.000	5.250	7.250	6.500	5.000	2.250	3.969	5.000	5.625
5	1	1	5.500	2.000	1.000	1.000	6.250	8.250	7.500	6.000	2.250	3.969	5.250	5.875

Mounting Kits and Accessories

Refer to page B37 for 3MA mounting kits and cylinder accessories.

1-1/2" - 5" Bore 3MA Piston Seal Kits & Complete Cylinder Kits

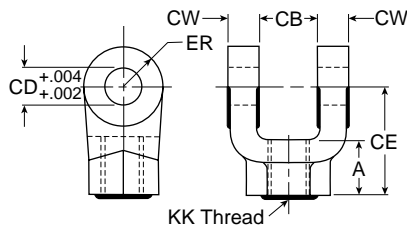
Bore size	Rod no.	Rod dia. MM	PK - Piston Seal Kit, Standard Lipseals Includes piston & end seals	SK - Complete Cylinder Kit. Includes wiper, rod seal, rod bearing, cylinder seals, and needle valve inserts	Torque units endcap fastener or tie rod	
			Nitrile seal kit number	Nitrile seal kit number	USA inch-lbs	Metric N-m
1-1/2	1	5/8	PK1503MA01	SK15003MA1	32 - 36	3.6 - 4.1
2	1	5/8	PK2003MA01	SK20003MA1	72 - 82	8 - 9
2-1/2	1	5/8	PK2503MA01	SK25003MA1	72 - 82	8 - 9
3-1/4	1	1	PK3253MA01	SK32003MA1	216 - 228	24 - 25.3
4	1	1	PK4003MA01	SK40003MA1	216 - 228	24 - 25.3
5	1	1	PK5003MA01	SK50003MA1	360 - 372	41 - 42

Mounting Kits and Accessories

	J (MF1)	H (MF2)	BB (MP1)	BC (MP2)	BE (MP4)	CB (MS1)	C (MS2)	G (MS7)		
	Head rectangular flange	Cap rectangular flange	Cap fixed clevis	Cap detachable clevis	Cap detachable eye	Side end angles	Side lug (3MA only)	Side end lug	Kit fastener torque units	
Bore size	Kit number	Kit number	Kit number	Kit number	Kit number	Kit number	Kit number	Kit number	inch-lbs	N-m
1-1/2	L079700150	L079700150	L079710150	L079730150	L079720150	L079740150	L079830150	L079750150	32-36	3.6-4.1
2	L079700200	L079700200	L079710200	L079730200	L079720200	L079740200	L079830200	L079750200	72-82	8-9
2-1/2	L079700250	L079700250	L079710250	L079730250	L079720250	L079740250	L079830250	L079750250	72-82	8-9
3-1/4	L079700325	L079700325	L079710325	L079730325	L079720325	L079740325	L079830325	L079750325	216-228	24-25.3
4	L079700400	L079700400	L079710400	L079730400	L079720400	L079740400	L079830400	L079750400	216-228	24-25.3
5	L079700500	L079700500	L079710500	L079730500	N/A	L079740500	L079830500	N/A	360-372	41-42

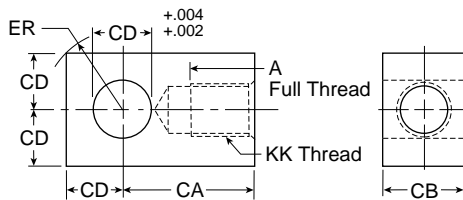
** Spacer plate not used for 4" bore or double rod cylinders

Female Rod Clevis



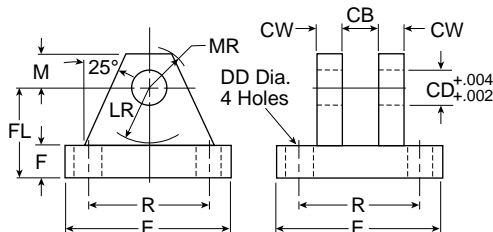
Symbol	1458030044	1458030050	1458030075	1458030088	1458030100	1458030125	1458030150
A	3/4	3/4	1-1/8	1-5/8	1-5/8	2	2-1/4
CB	3/4	3/4	1-1/4	1-1/2	1-1/2	2	2-1/2
CD	1/2	1/2	3/4	1	1	1-3/8	1-3/4
C E	1-1/2	1-1/2	2-1/8	2-15/16	2-15/16	3-3/4	4-1/2
CW	1/2	1/2	5/8	3/4	3/4	1	1-1/4
ER	1/2	1/2	3/4	1	1	1-3/8	1-3/4
KK	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)	4250	4900	11200	18800	19500	33500	45600

Rod Eye Knuckle



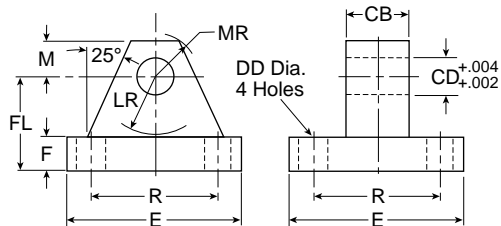
Symbol	1458040044	1458040050	1458040075	1458040088	1458040100	1458040125	1458040150
A	3/4	3/4	1-1/8	1-1/8	1-5/8	2	2-1/4
CA	1-1/2	1-1/2	2-1/16	2-3/8	2-13/16	3-7/16	4
CB	3/4	3/4	1-1/4	1-1/2	1-1/2	2	2-1/2
CD	1/2	1/2	3/4	1	1	1-3/8	1-3/4
ER	23/32	23/32	1-1/16	1-7/16	1-7/16	1-31/32	2-1/2
KK	7/16-20	1/2-20	3/4-16	7/8-14	1-14	1-1/4-12	1-1/2-12
Load capacity (lbs)	5000	5700	12100	13000	21700	33500	45000

Clevis Bracket



Symbol	1458050044	1458050050	1458050075	1458050100	1458050138	1458050175
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	21/32	21/32	29/32
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	29/32	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



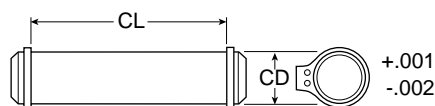
Symbol	1458060031	1458060050	1458060075	1458060100	1458060138	1458060175
CB	15/16	3/4	1-1/4	1-1/2	2	2-1/2
CD	15/16	1/2	3/4	1	1-3/8	1-3/4
DD	17/64	13/32	17/32	21/32	21/32	29/32
E	2-1/4	2-1/2	3-1/2	4-1/2	5	6-1/2
F	3/8	3/8	5/8	7/8	7/8	1-1/8
FL	1	1-1/8	17/8	2-3/8	3	3-3/8
LR	5/8	3/4	1-1/4	1-1/2	2-1/8	2-1/4
M	3/8	1/2	3/4	1	1-3/8	1-3/4
MR	1/2	9/16	7/8	1-1/4	1-5/8	2-1/8
R	1.75	1.63	2.55	3.25	3.82	4.95
Load Capacity (lbs)	1700	4100	10500	20400	21200	49480

1-1/2" to 8" Bore 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 selected. Mounting plates for style MP1 & MP4 cylinder mounts are selected by bore size from Table C.

Table A				Table B			Table C		
Rod end thread size	Mating parts			Mating parts			Mounting plates		
	Female rod clevis	Eye bracket	Pivot pin	Knuckle	Clevis bracket	Pivot pin	Bore size	For mtg. style MP1 cylinder	For mtg. style MP4 cylinder
7/16-20	1458030044	1458060050	0856640050	1458040044	1458050050	0856640050	1-1/2	1458060050	1458050050
1/2-20	1458030050	1458060050	0856640050	1458040050	1458050050	0856640050	2	1458060050	1458050050
3/4-16	1458030075	1458060075	0856640075	1458040075	1458050075	0856640075	2-1/2	1458060050	1458050050
7/8-14	1458030088	1458060100	0856640100	1458040088	1458050100	0856640100	3-1/4	1458060075	1458050075
1-14	1458030100	1458060100	0856640100	1458040100	1458050100	0856640100	4	1458060075	1458050075
1-1/4-12	1458030125	1458060138	0856640138	1458040125	1458050138	0856640138	5	1458060075	—
1-1/2-12	1458030150	1458060175	0856640175	1458040150	1458050175	0856640175	6	1458060100	—
							8	1458060100	—

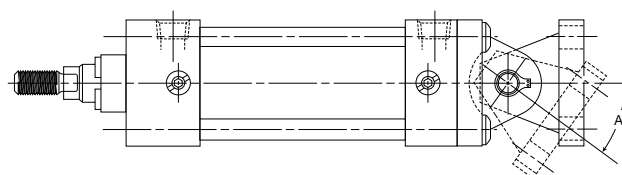
Pivot Pin



Symbol	0856640044	0856640050	0856640075	0856640100	0856640138	0856640175
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.

Maximum pivot angle for rear clevis mounts (BB mounts) and accessories



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