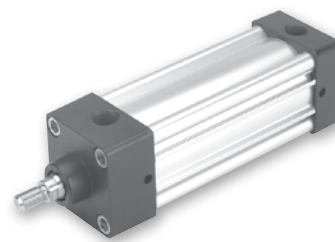


- NFPA interchangeable economy series
- Bore sizes – 1-1/2", 2", 2-1/2", 3-1/4", 4" and 5"
- Available in any practical stroke length
- 18 standard modular mounting styles available
- Extruded-profile aluminum body with integrated switch grooves
- Single rod end or double rod end options available
-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



Operating information

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
 For technical information see CD

Ordering information

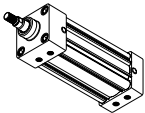
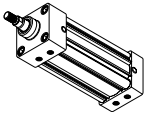
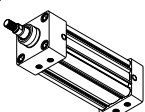
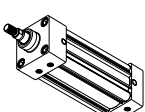
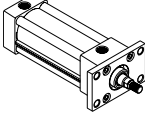
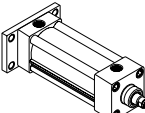
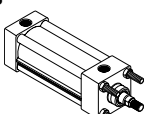
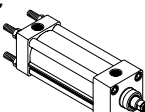
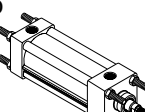
2.00	C	J	3MA	U	1	4	A	C	6.000																																
Bore size 1.50 2.00 2.50 3.25 4.00 5.00	Double rod cylinder ⁵ Specify "K" only if double rod cylinder is required.	Mounting style Specify mounting style code (see table on following page).	Series 3MA	Ports Standard (NPTF)	Seals <table border="1"><tr><td>Blank</td><td>Standard (nitrile seals)</td></tr><tr><td>E</td><td>Fluorocarbon rod wiper and rod seal only²</td></tr></table>	Blank	Standard (nitrile seals)	E	Fluorocarbon rod wiper and rod seal only ²	Piston rod number Standard (rod code number 1) ³	Cushion cap end <table border="1"><tr><td>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	Stroke length Specify stroke length required in inches.	Piston rod thread type <table border="1"><tr><td>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> <small>* Please reference catalog 0900P-E, page B106.</small>	A	Standard (UNF unified thread)	W	BSF British fine	M *	Metric																		
Blank	Standard (nitrile seals)																																								
E	Fluorocarbon rod wiper and rod seal only ²																																								
C	Standard (cushioned cap end)																																								
Blank	Non-cushioned cap end																																								
A	Standard (UNF unified thread)																																								
W	BSF British fine																																								
M *	Metric																																								
Cushion head end <table border="1"><tr><td>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	Cylinder construction <table border="1"><tr><td>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 style <table border="1"><tr><td>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 coupler⁴</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"><tr><td>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
C	Standard (cushioned head end)																																								
Blank	Non-cushioned head end																																								
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																																								
4	Small male																																								
8	Intermediate male																																								
9	Short female																																								
55	For use with split coupler ⁴																																								
3	Special (and specify all dimensions required)																																								
Blank	Standard																																								
Y	17-4 PH stainless steel																																								
J	303 stainless steel																																								
S	316 stainless steel																																								
<small>* Please reference catalog 0900P-E, table on page B10. Only applies to 1-1/2" to 4" bore size.</small>																																									
Piston type <table border="1"><tr><td>Blank</td><td>Standard (lipseals and magnetic ring)⁵</td></tr><tr><td>1</td><td>Lipseals, no magnetic ring⁵</td></tr><tr><td>2</td><td>Lipseals, no magnetic ring (aluminum piston)</td></tr><tr><td>3</td><td>Lipseals and magnetic ring (aluminum piston)</td></tr><tr><td>4</td><td>Bumper seals, no magnetic ring</td></tr><tr><td>6</td><td>Bumper seals and magnetic ring</td></tr><tr><td>B</td><td>Lipseals, 1/4" thick bumpers both ends¹</td></tr><tr><td>H</td><td>Lipseals, 1/4" thick bumper head end¹</td></tr><tr><td>C</td><td>Lipseals, 1/4" thick bumper cap end¹</td></tr><tr><td>D</td><td>Lipseals and magnetic ring, 1/4" thick bumpers both ends¹</td></tr><tr><td>F</td><td>Lipseals and magnetic ring, 1/4" thick bumper head end¹</td></tr><tr><td>R</td><td>Lipseals and magnetic ring, 1/4" thick bumper cap end¹</td></tr></table>										Blank	Standard (lipseals and magnetic ring) ⁵	1	Lipseals, no magnetic ring ⁵	2	Lipseals, no magnetic ring (aluminum piston)	3	Lipseals and magnetic ring (aluminum piston)	4	Bumper seals, no magnetic ring	6	Bumper seals and magnetic ring	B	Lipseals, 1/4" thick bumpers both ends ¹	H	Lipseals, 1/4" thick bumper head end ¹	C	Lipseals, 1/4" thick bumper cap end ¹	D	Lipseals and magnetic ring, 1/4" thick bumpers both ends ¹	F	Lipseals and magnetic ring, 1/4" thick bumper head end ¹	R	Lipseals and magnetic ring, 1/4" thick bumper cap end ¹								
Blank	Standard (lipseals and magnetic ring) ⁵																																								
1	Lipseals, no magnetic ring ⁵																																								
2	Lipseals, no magnetic ring (aluminum piston)																																								
3	Lipseals and magnetic ring (aluminum piston)																																								
4	Bumper seals, no magnetic ring																																								
6	Bumper seals and magnetic ring																																								
B	Lipseals, 1/4" thick bumpers both ends ¹																																								
H	Lipseals, 1/4" thick bumper head end ¹																																								
C	Lipseals, 1/4" thick bumper cap end ¹																																								
D	Lipseals and magnetic ring, 1/4" thick bumpers both ends ¹																																								
F	Lipseals and magnetic ring, 1/4" thick bumper head end ¹																																								
R	Lipseals and magnetic ring, 1/4" thick bumper cap end ¹																																								

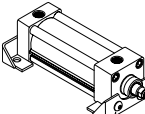
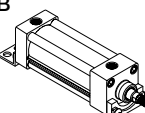
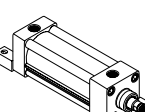
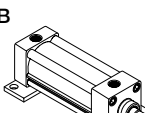
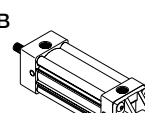
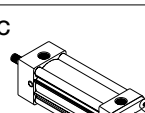
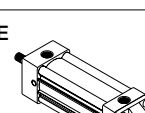
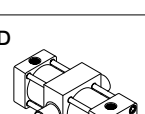
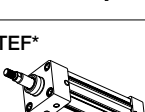
¹ Addition of 1/4" bumper results in a 1/4" stroke loss per bumper, per end. For example, a 6" stroke cylinder with 1/4" bumpers at both ends (option B) has an effective stroke of 5-1/2".
² Used for external chemical compatibility applications, not high temperature.
³ Review Piston Rod Selection Chart, please reference catalog 0900P-E, page A14 to determine proper piston rod diameter. (Note: 3MA has only one rod diameter per bore size, so proper piston rod diameter from chart result may lead to bore size change). For oversize rod within the same bore size, please see 4MA section.
⁴ For additional information regarding this style, please reference catalog 0900P-E, page B105.
 If non-standard Rod Material Code is required with this option, please place an "S" for special in Special Modification field and specify rod material in the item notes.
⁵ Double rod cylinders not available with composite piston type.

B
 Tie Rod Cylinders
 Actuator Products
 3MA Series
 4MA/4ML Series
 3MAJ/4MAJ Series
 4MNR Series
 P1D Series



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.

B

Tie Rod Cylinders
 Actuator Products

3MA
 Series

4MA/4ML
 Series

3MAJ/4MAJ
 Series

4MNR
 Series

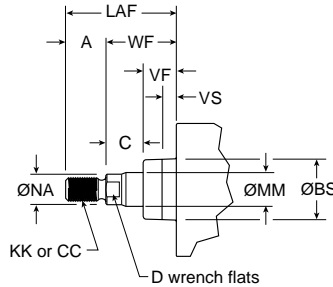
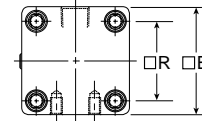
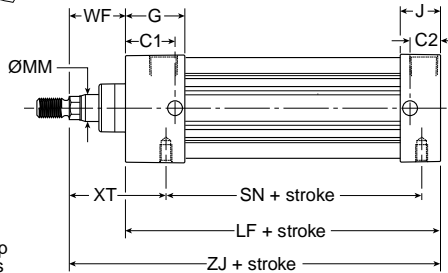
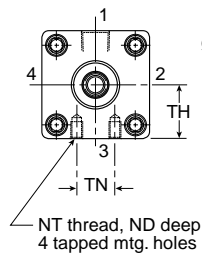
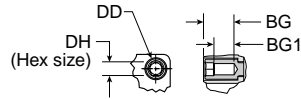
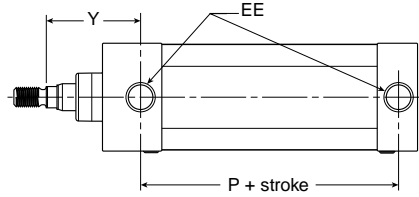
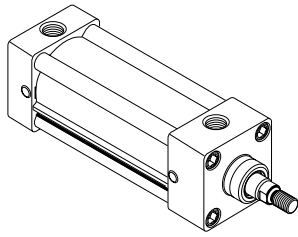
P1D
 Series

Sensors

For sensors see page B294.



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 size no.	Rod dia. MM	Thread		+0.005 -0.004														EE (NPTF)	G
			Style 8 CC	Style 4 & 9 KK	A	AA	BG	BG1	BS	C	C1	C2	D	DD	DH	E				
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 size 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	

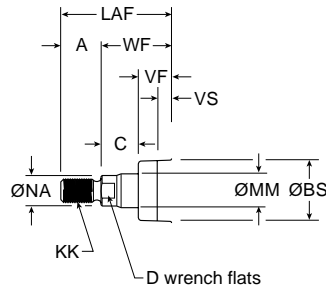
B
 Tie Rod Cylinders
 Actuator Products
 3MA Series
 4MA/4ML Series
 3MAJ/4MAJ Series
 4MNR Series
 P1D Series



3MA Rod End Dimensions

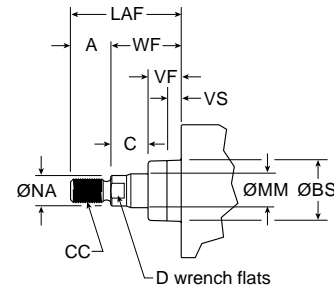
Thread Style 4

(NFPA Style SM)
 Small Male



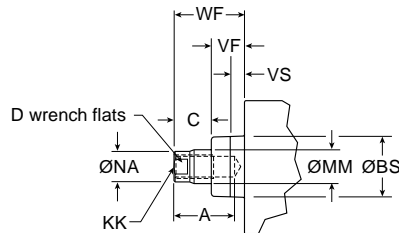
Thread Style 8

(NFPA Style IM)
 Intermediate Male



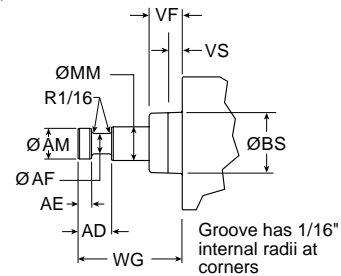
Thread Style 9

(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		+0.000 -0.004														
			Style 8 CC	Style 4 & 9 KK	A	AD	AE	AF	AM	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	

B

Tie Rod Cylinders
Actuator Products

3MA Series

4MA/4ML Series

3MAJ/4MAJ Series

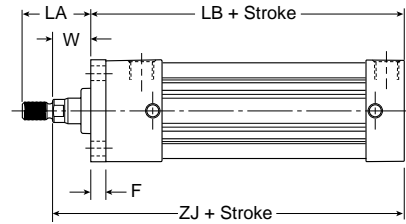
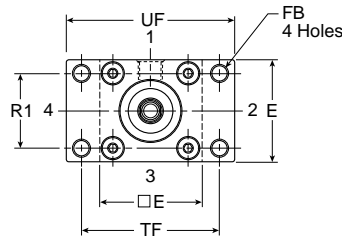
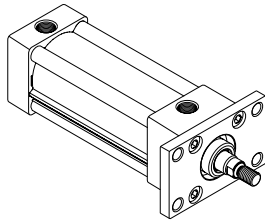
4MNR Series

P1D Series



Head Rectangular Flange

Style J
 (NFPA MF1)

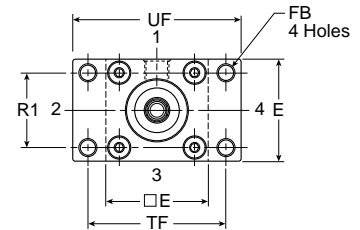
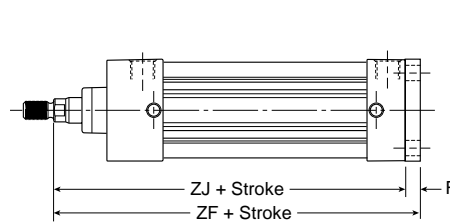
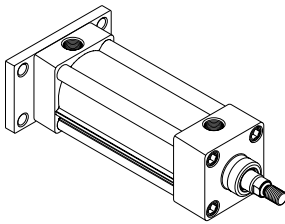


Note: Style J has a W dimension instead of WF and a LA dimension instead of LAF because of the flange installation. Please use dimensions W and LA regarding rod ends only for Style J.

For reference, $WF = W + F$ and $LA = W + A$.

Cap Rectangular Flange

Style H
 (NFPA MF2)



Styles J and H

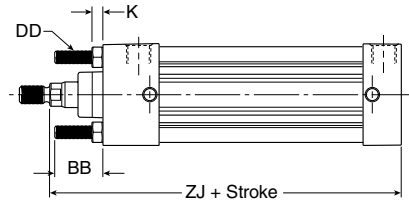
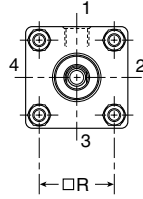
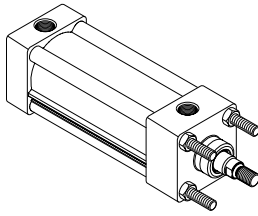
Bore size	Rod no.	Rod dia. MM	A	E	F	FB	LA	R1	TF	UF	W	Add stroke		
												LB	ZF	ZJ
1-1/2	1	5/8	0.750	2.000	0.375	0.313	1.375	1.430	2.750	3.375	0.625	4.000	5.000	4.625
2	1	5/8	0.750	2.500	0.375	0.375	1.375	1.840	3.375	4.125	0.625	4.000	5.000	4.625
2-1/2	1	5/8	0.750	3.000	0.375	0.375	1.375	2.190	3.875	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

B
 Tie Rod Cylinders
 Actuator Products
 Series
 3MA
 4MA/4ML
 3MAJ/4MAJ
 4MNR
 P1D



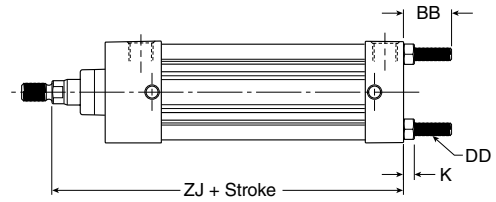
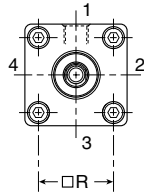
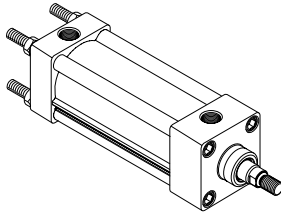
Tie Rods Ext. Head End

Style TB
 (NFPA MX3)



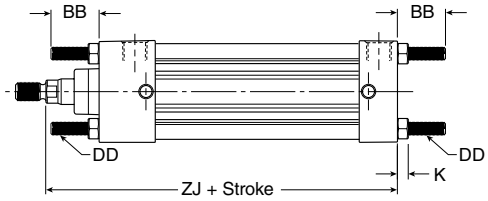
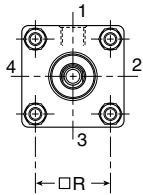
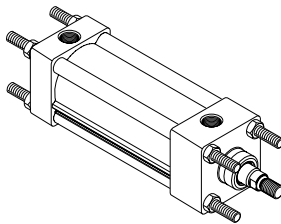
Tie Rods Ext. Cap End

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

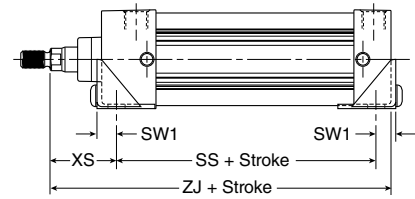
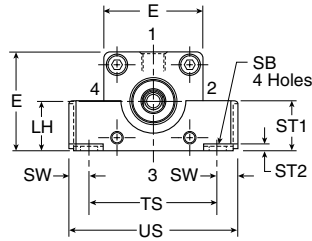
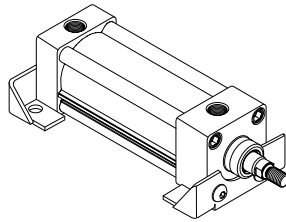
4MA/4ML
 Series

3MAJ/4MAJ
 Series

4MNR
 Series

P1D
 Series

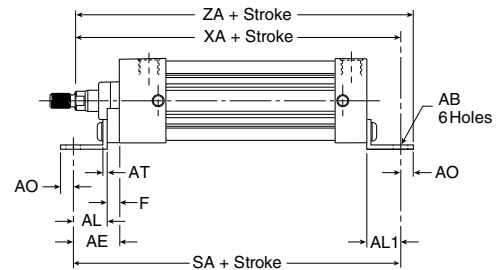
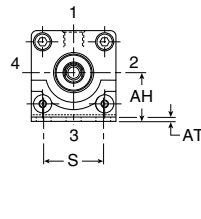
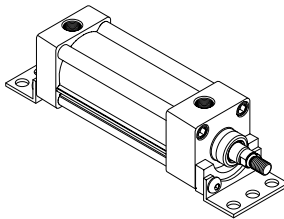
Side Lug
 Style C
 (NFPA MS2)



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)

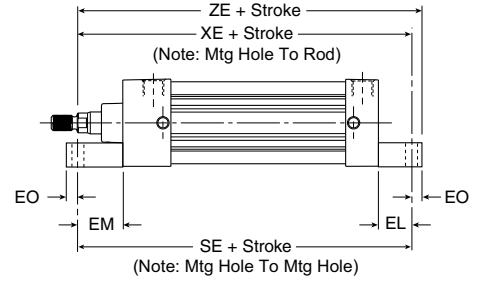
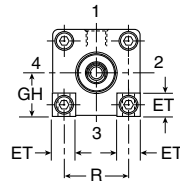
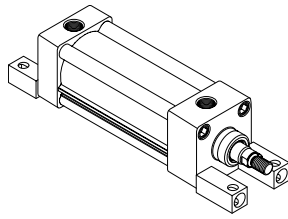
*Maximum recommended pressure for this mount is 150 PSIG

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)

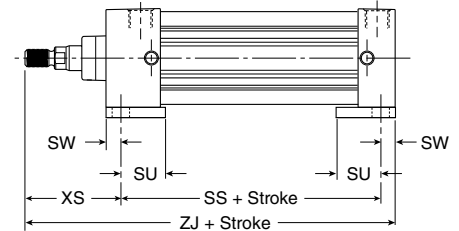
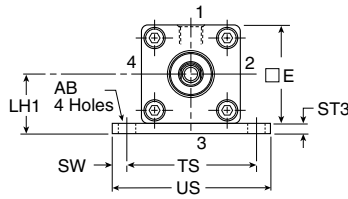
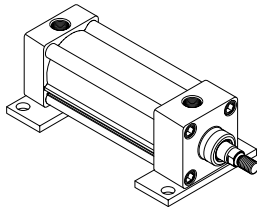


Style G

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

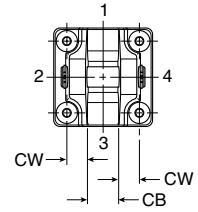
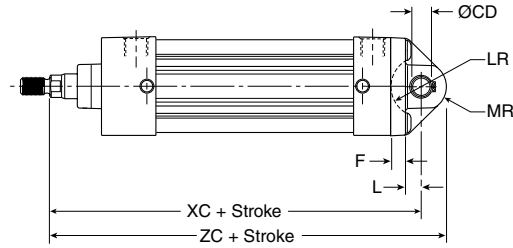
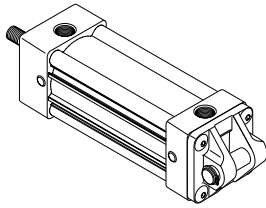
4MNR
 Series

P1D
 Series



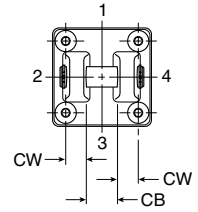
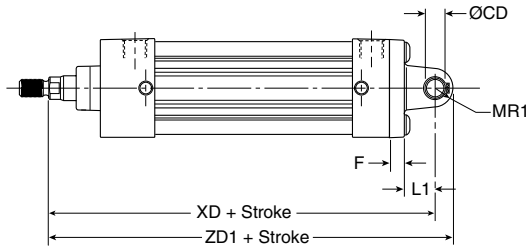
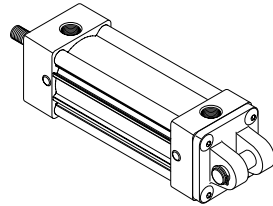
Cap Fixed Clevis

Style BB
 (NFPA MP1)



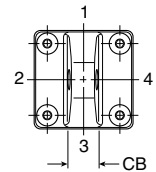
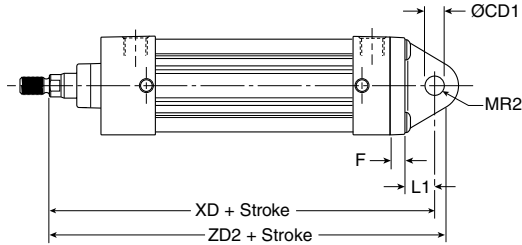
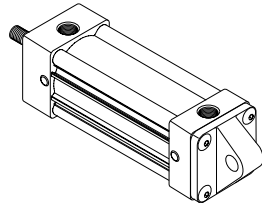
Cap Detachable Clevis

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	+0.00 CD	+0.002 -0.004 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

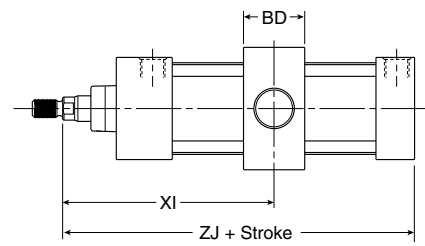
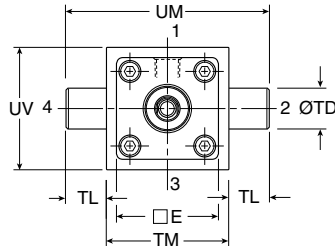
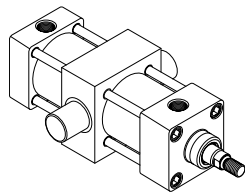
B
 Tie Rod Cylinders
 Actuator Products
 Series
 3MA
 Series
 4MA/4ML
 Series
 3MAJ/4MAJ
 Series
 4MNR
 Series
 P1D



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	+0.000 -0.001 TD	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

B

Tie Rod Cylinders
Actuator Products

3MA
Series

4MA/4ML
Series

3MAJ/4MAJ
Series

4MNR
Series

P1D
Series

