



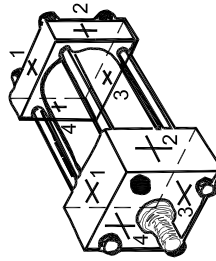
Hydraulic Cylinder SERIES H

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Cylinder Ordering Guide

H	-	MF5	-	3.25	X	1.38	X	25.25	-	N	-	1	-	S	-	11	-	S
SERIES		MOUNT		BORE		ROD		STROKE		CUSHIONS		ROD END		PORTS		PORT LOCATION		OPTIONS
H		MX1		1.50		0.63				N (None)		1 (KK Male)		S (SAE)		CAP		S (STD)
		MX2		2.00		1.00				H (Head End)		2 (KK Female)		N (NPTF)		END		X (MODIFIED) *
		MX3		2.50		1.38				C (Cap End)		3 (CC Intermediate Male)				1		
		ME5		3.25		1.75				B (Both Ends)						2		
		ME6		4.00		2.00										3		
		MF1		5.00		2.50										4		
		MF2		6.00		3.00												
		MF5		7.00		3.50												
		MF6		8.00		4.00												
		MS2		10.00		4.50												
		MS3		12.00		5.00												
		MS4		14.00		5.50												
		MS7		16.00		7.00												
		MT1		18.00		8.00												
		MT2		20.00		9.00												
		MT4				10.00												
		MP1																



Note: * All modification must be with either complete notes or drawings.

Standard Specifications

Nominal Pressure - 3000 PSI*

Bore Sizes - 1 1/2" through 8"

Rod Sizes - 5/8" through 5 1/2"

Mounting Styles - 17 Standard styles***

Strokes - Available in any practical stroke length

Cushions - Optional at either end or both ends

Standard - Externally removable bolted gland assembly

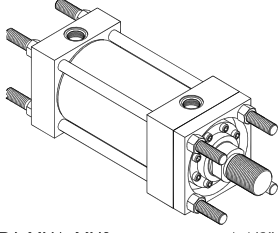
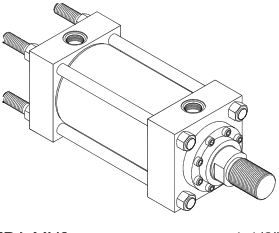
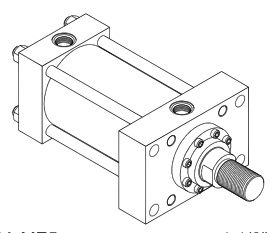
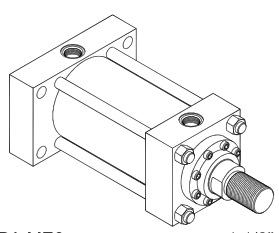
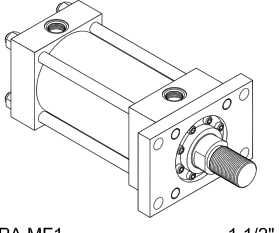
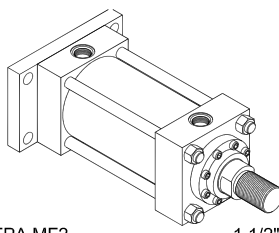
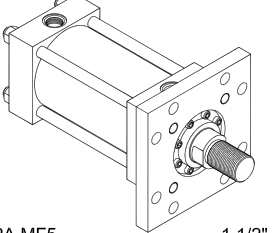
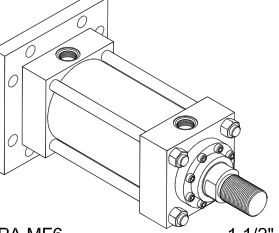
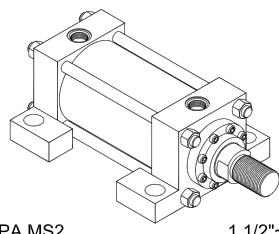
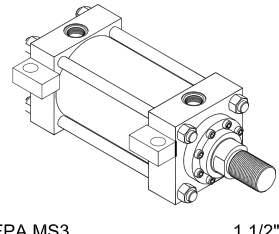
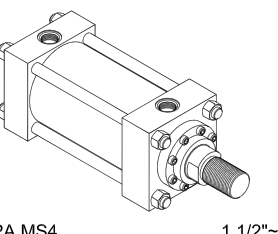
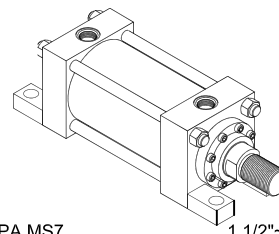
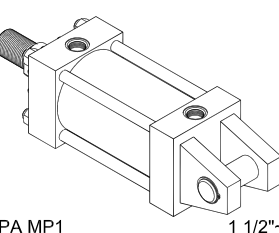
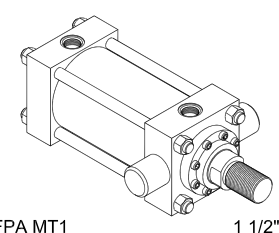
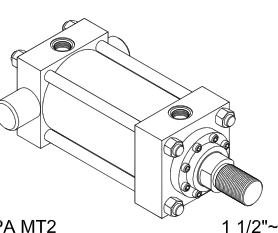
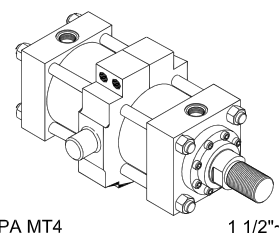
Standard Temperature - -10°F to +200°F**

* If pressure is from 3000 ~ 4000 PSI or higher, specify it during order

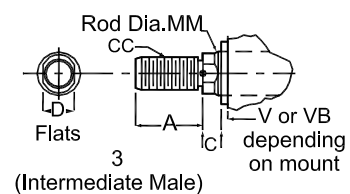
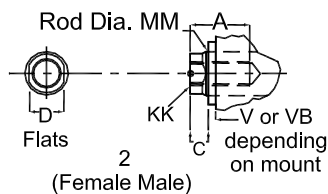
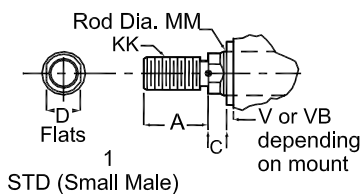
** If temperature is from 200 ~ 400°F or higher, specify it during order

*** Supplied drawings with all other mounting styles and specials

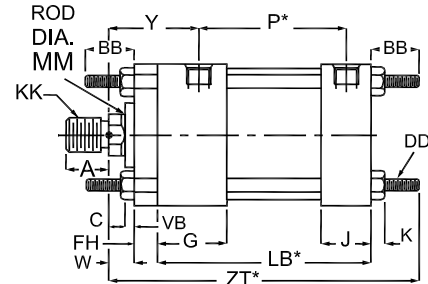
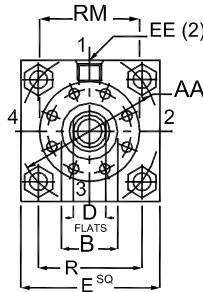
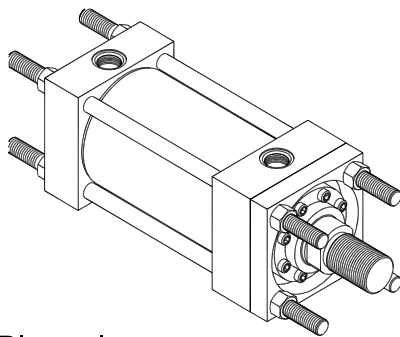
Mounting Styles

<p>Tie Rod Extended Both/Head End</p>  <p>NFPA MX1, MX3 1 1/2"-8"</p>	<p>Tie Rod Extended Cap End</p>  <p>NFPA MX2 1 1/2"-8"</p>	<p>Head Rectangular</p>  <p>NFPA ME5 1 1/2"-8"</p>	<p>Cap Rectangular</p>  <p>NFPA ME6 1 1/2"-8"</p>
<p>Head Rectangular Flange</p>  <p>NFPA MF1 1 1/2"-8"</p>	<p>Cap Rectangular Flange</p>  <p>NFPA MF2 1 1/2"-8"</p>	<p>Head Square Flange</p>  <p>NFPA MF5 1 1/2"-8"</p>	<p>Cap Square Flange</p>  <p>NFPA MF6 1 1/2"-8"</p>
<p>Side Lugs</p>  <p>NFPA MS2 1 1/2"-8"</p>	<p>Center-Line Lugs</p>  <p>NFPA MS3 1 1/2"-8"</p>	<p>Side Tapped</p>  <p>NFPA MS4 1 1/2"-8"</p>	<p>End Lugs</p>  <p>NFPA MS7 1 1/2"-8"</p>
<p>Cap Fixed Clevis</p>  <p>NFPA MP1 1 1/2"-8"</p>	<p>Head Trunnion</p>  <p>NFPA MT1 1 1/2"-8"</p>	<p>Cap Trunnion</p>  <p>NFPA MT2 1 1/2"-8"</p>	<p>Intermediate Trunnion</p>  <p>NFPA MT4 1 1/2"-8"</p>

Rod End Styles



NFPA MX1 - Tie Rods Extended Both End
 NFPA MX3 - Tie Rods Extended Head End



* Add stroke to starred dimension

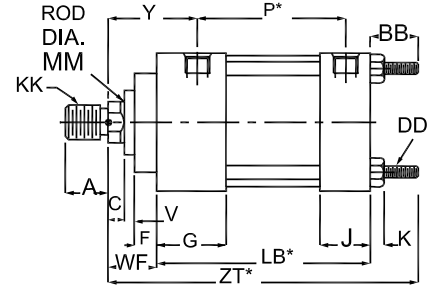
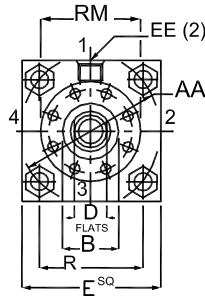
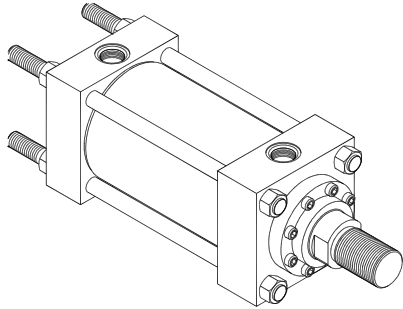
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	AA	BB	DD	FH	R
1 1/2	2 1/2	10	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	2.3	1 3/8	3/8-24	3/8	1.63
2	3	10	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	2.9	11 3/16	1/2-20	5/8	2.05
2 1/2	3 1/2	10	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	3.6	11 3/16	1/2-20	5/8	2.55
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	4.6	2 5/16	5/8-18	3/4	3.25
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	5.4	2 5/16	5/8-18	7/8	3.82
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	7.0	3 3/16	7/8-14	7/8	4.95
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	8.1	3 5/8	1-14	1	5.73
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	9.3	4 1/8	1 1/8-12	1	6.58
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	10.6	4 1/2	1 1/4-12	1	7.5

Rod End Dimensions

BORE	MM	KK	CC	A	B -.001/ -.003	C	D	RM	VB	W	Y	ZT*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	1 15/16	1/4	5/8	2 15/32	7
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	1/2	1	2 15/32	7 3/8
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	1/4	3/4	2 15/32	7 13/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	1	2 23/32	8 1/16
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	1/4	3/4	2 15/32	7 15/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	1	2 23/32	8 3/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	1/2	1 1/4	2 31/32	8 7/16
3 1/4	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	1/4	7/8	2 23/32	9 7/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	3/8	1 1/8	2 31/32	9 11/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	3/8	1 1/4	3 3/32	9 13/16
4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	1/4	1	2 31/32	9 15/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	1/4	1 1/8	3 3/32	10 1/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	3/8	1 3/8	3 11/32	10 5/16
5	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	1/4	1 1/8	3 3/32	11 7/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	3/8	1 3/8	3 11/32	11 11/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	3/8	1 3/8	3 11/32	11 11/16
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	3/8	1 3/8	3 11/32	11 11/16
6	2 1/2	7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	1/4	1 1/4	3 19/32	13 1/4
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	1/4	1 1/4	3 19/32	13 1/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	1/4	1 1/4	3 19/32	13 1/4
7	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	1/4	1 1/4	3 15/16	14 7/8
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	1/4	1 1/4	3 15/16	14 7/8
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	1/4	1 1/4	3 15/16	14 7/8
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	1/4	1 1/4	3 15/16	14 7/8
8	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	1/4	1 1/4	3 15/16	14 7/8
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	1/4	1 1/4	4 1/16	16 1/4
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	1/4	1 1/4	4 1/16	16 1/4
8	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	1/4	1 1/4	4 1/16	16 1/4
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	1/4	1 1/4	4 1/16	16 1/4
	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	7 15/16	1/4	1 1/4	4 1/16	16 1/4

NFPA MX2 - Tie Rods Extended Cap End



* Add stroke to starred dimension

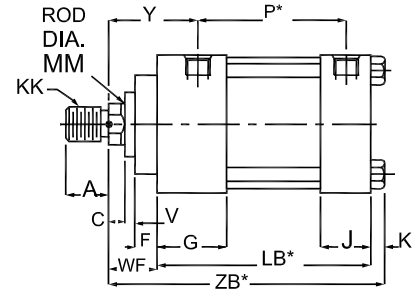
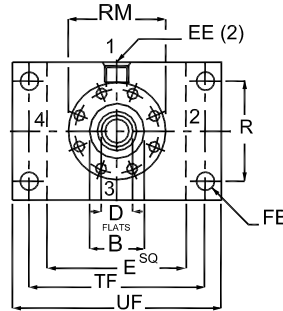
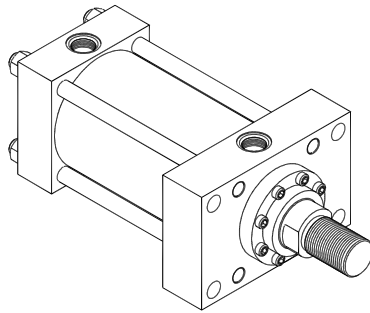
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	AA	BB	DD	R
1 1/2	2 1/2	10	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	2.3	1 3/8	3/8-24	1.63
2	3	10	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	2.9	11 3/16	1/2-20	2.05
2 1/2	3 1/2	10	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	3.6	11 3/16	1/2-20	2.55
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	4.6	2 5/16	5/8-18	3.25
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	5.4	2 5/16	5/8-18	3.82
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	7.0	3 3/16	7/8-14	4.95
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	8.1	3 5/8	1-14	5.73
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	9.3	4 1/8	1 1/8-12	6.58
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	10.6	4 1/2	1 1/4-12	7.5

Rod End Dimensions

BORE	MM	KK	CC	A	B -.001/ -.003	C	D	RM	F	V	WF	Y	ZT*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	1 15/16	3/8	1/4	1	2 15/32	7
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3/8	1/2	1 3/8	2 15/32	7 3/8
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3/8	1/4	1 3/8	2 15/32	7 13/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	3/8	1 5/8	2 23/32	8 1/16
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3/8	3/8	1 3/8	2 15/32	7 15/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	3/8	1 5/8	2 23/32	8 3/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	5/8	1/2	1 7/8	2 31/32	8 7/16
3 1/4	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	13/32	1 5/8	2 23/32	9 7/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	5/8	3/8	1 7/8	2 31/32	9 11/16
4	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	5/8	3/8	2	3 3/32	9 13/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	5/8	17/32	1 7/8	2 31/32	9 15/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	5/8	17/32	2	3 3/32	10 1/16
5	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	5/8	21/32	2 1/4	3 11/32	10 5/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	5/8	17/32	2	3 3/32	11 7/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	5/8	21/32	2 1/4	3 11/32	11 11/16
6	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	7/8	17/32	2 1/4	3 11/32	11 11/16
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	17/32	2 1/4	3 11/32	11 11/16
	2 1/2	7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	5/8	21/32	2 1/4	3 19/32	13 1/4
7	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	7/8	17/32	2 1/4	3 15/16	14 7/8
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	17/32	2 1/4	3 15/16	14 7/8
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	15/16	3/8	2 1/4	3 15/16	14 7/8
8	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	15/16	3/8	2 1/4	3 15/16	14 7/8
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	15/16	3/8	2 1/4	3 15/16	14 7/8
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	17/32	2 1/4	4 1/16	16 1/4
8	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	15/16	3/8	2 1/4	4 1/16	16 1/4
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	15/16	3/8	2 1/4	4 1/16	16 1/4
	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	7 15/16	15/16	3/8	2 1/4	4 1/16	16 1/4

NFPA ME5 - Head Rectangular



* Add stroke to starred dimension

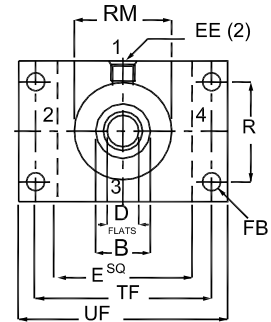
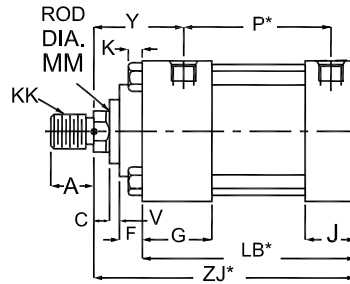
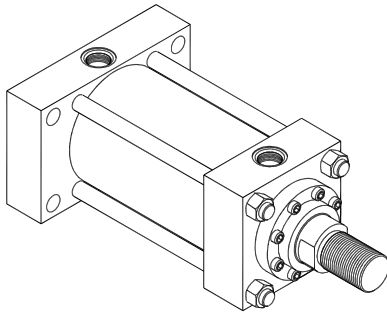
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	FB	R	TF	UF
1 1/2	2 1/2	10	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	7/16	1.63	3 7/16	4 1/4
2	3	10	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	9/16	2.05	4 1/8	5 1/8
2 1/2	3 1/2	10	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	9/16	2.55	4 5/8	5 5/8
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	11/16	3.25	5 7/8	7 1/8
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	11/16	3.82	6 3/8	7 5/8
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	15/16	4.95	8 3/16	9 3/4
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	1 1/16	5.73	9 7/16	11 1/4
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	1 3/16	6.58	10 5/8	12 5/8
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	1 5/16	7.5	11 13/16	14

Rod End Dimensions

BORE	MM	KK	CC	A	B -.001/ -.003	C	D	RM	F	V	WF	Y	ZB*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	1 15/16	3/8	1/4	1	2 15/32	6
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3/8	1/2	1 3/8	2 15/32	6 3/8
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3/8	1/4	1 3/8	2 15/32	6 7/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	3/8	1 5/8	2 23/32	6 11/16
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3/8	3/8	1 3/8	2 15/32	6 9/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	3/8	1 5/8	2 23/32	6 13/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	5/8	1/2	1 7/8	2 31/32	7 1/16
3 1/4	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	13/32	1 5/8	2 23/32	7 11/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	5/8	3/8	1 7/8	2 31/32	7 15/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	5/8	3/8	2	3 3/32	8 1/16
4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	5/8	17/32	1 7/8	2 31/32	8 3/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	5/8	17/32	2	3 3/32	8 5/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	5/8	21/32	2 1/4	3 11/32	8 9/16
5	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	5/8	17/32	2	3 3/32	9 1/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	5/8	21/32	2 1/4	3 11/32	9 5/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	7/8	17/32	2 1/4	3 11/32	9 5/16
6	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	17/32	2 1/4	3 11/32	9 5/16
	2 1/2	7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	5/8	21/32	2 1/4	3 19/32	10 9/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	7/8	17/32	2 1/4	3 19/32	10 9/16
7	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	17/32	2 1/4	3 19/32	10 9/16
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	15/16	3/8	2 1/4	3 19/32	10 9/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	7/8	17/32	2 1/4	3 15/16	11 3/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	17/32	2 1/4	3 15/16	11 3/4
8	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	15/16	3/8	2 1/4	3 15/16	11 3/4
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	15/16	3/8	2 1/4	3 15/16	11 3/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	17/32	2 1/4	4 1/16	12 7/8
8	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	15/16	3/8	2 1/4	4 1/16	12 7/8
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	15/16	3/8	2 1/4	4 1/16	12 7/8
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	15/16	3/8	2 1/4	4 1/16	12 7/8
8	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	7 15/16	15/16	3/8	2 1/4	4 1/16	12 7/8

NFPA ME6 - Cap Rectangular



* Add stroke to starred dimension

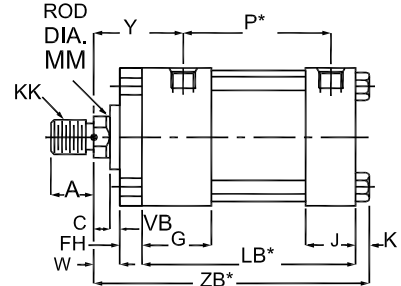
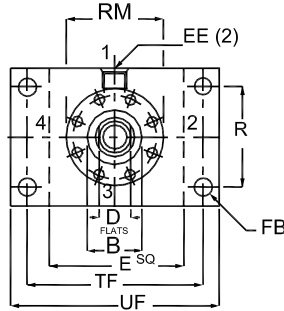
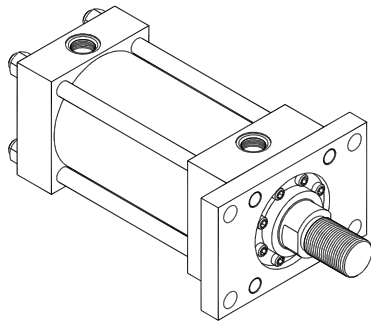
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	FB	R	TF	UF
1 1/2	2 1/2	10	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	7/16	1.63	3 7/16	4 1/4
2	3	10	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	9/16	2.05	4 1/8	5 1/8
2 1/2	3 1/2	10	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	9/16	2.55	4 5/8	5 5/8
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	11/16	3.25	5 7/8	7 1/8
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	11/16	3.82	6 3/8	7 5/8
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	15/16	4.95	8 3/16	9 3/4
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	1 1/16	5.73	9 7/16	11 1/4
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	1 3/16	6.58	10 5/8	12 5/8
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	1 5/16	7.5	11 13/16	14

Rod End Dimensions

BORE	MM	KK	CC	A	B -.001/ -.003	C	D	RM	F	V	Y	ZJ *
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	1 15/16	3/8	1/4	2 15/32	5 5/8
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3/8	1/2	2 15/32	6
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3/8	1/4	2 15/32	6
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	3/8	2 23/32	6 1/4
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3/8	3/8	2 15/32	6 1/8
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	3/8	2 23/32	6 3/8
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	5/8	1/2	2 31/32	6 5/8
3 1/4	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	13/32	2 23/32	7 1/8
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	5/8	3/8	2 31/32	7 3/8
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	5/8	3/8	3 3/32	7 1/2
4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	5/8	17/32	2 31/32	7 5/8
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	5/8	17/32	3 3/32	7 3/4
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	5/8	21/32	3 11/32	8
5	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	5/8	17/32	3 3/32	8 1/4
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	5/8	21/32	3 11/32	8 1/2
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	7/8	17/32	3 11/32	8 1/2
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	17/32	3 11/32	8 1/2
6	2 1/2	7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	5/8	21/32	3 19/32	9 5/8
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	7/8	17/32	3 19/32	9 5/8
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	17/32	3 19/32	9 5/8
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	15/16	3/8	3 19/32	9 5/8
7	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	7/8	17/32	3 15/16	10 3/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	17/32	3 15/16	10 3/4
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	15/16	3/8	3 15/16	10 3/4
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	15/16	3/8	3 15/16	10 3/4
8	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	15/16	3/8	3 15/16	10 3/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	17/32	4 1/16	11 3/4
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	15/16	3/8	4 1/16	11 3/4
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	15/16	3/8	4 1/16	11 3/4
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	15/16	3/8	4 1/16	11 3/4
5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	7 15/16	15/16	3/8	4 1/16	11 3/4	

NFPA MF1 - Head Rectangular Flange



* Add stroke to starred dimension

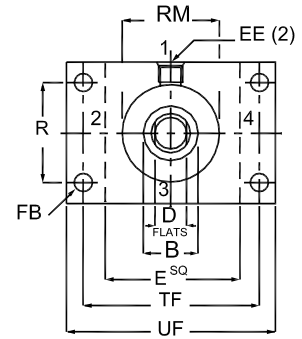
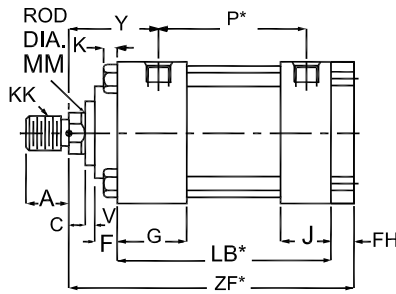
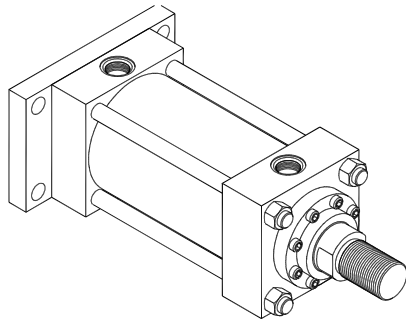
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	FB	FH	R	TF	UF
1 1/2	2 1/2	10	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	7/16	3/8	1.63	3 7/16	4 1/4
2	3	10	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	9/16	5/8	2.05	4 1/8	5 1/8
2 1/2	3 1/2	10	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	9/16	5/8	2.55	4 5/8	5 5/8
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	11/16	3/4	3.25	5 7/8	7 1/8
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	11/16	7/8	3.82	6 3/8	7 5/8
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	15/16	7/8	4.95	8 3/16	9 3/4
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	1 1/16	1	5.73	9 7/16	11 1/4
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	1 3/16	1	6.58	10 5/8	12 5/8
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	1 5/16	1	7.5	11 13/16	14

Rod End Dimensions

BORE	MM	KK	CC	A	B -.001/ -.003	C	D	RM	MAX PRESSURE PSI	VB	W	Y	ZB*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	1 15/16	2500	1/4	5/8	2 15/32	6
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	1500	1/2	1	2 15/32	6 3/8
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	2500	1/4	3/4	2 15/32	6 7/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	1500	3/8	1	2 23/32	6 11/16
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	2500	1/4	3/4	2 15/32	6 9/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	1900	3/8	1	2 23/32	6 13/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	1500	1/2	1 1/4	2 31/32	7 1/16
3 1/4	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	2500	1/4	7/8	2 23/32	7 11/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	2100	3/8	1 1/8	2 31/32	7 15/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	1500	3/8	1 1/4	3 3/32	8 1/16
4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	2500	1/4	1	2 31/32	8 3/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	1800	1/4	1 1/8	3 3/32	8 5/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	1500	3/8	1 3/8	3 11/32	8 9/16
5	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	2200	1/4	1 1/8	3 3/32	9 1/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	1650	3/8	1 3/8	3 11/32	9 5/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	1200	3/8	1 3/8	3 11/32	9 5/16
6	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	750	3/8	1 3/8	3 11/32	9 5/16
	2 1/2	7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	1800	1/4	1 1/4	3 19/32	10 9/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	1450	1/4	1 1/4	3 19/32	10 9/16
7	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	1100	1/4	1 1/4	3 19/32	10 9/16
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	750	1/4	1 1/4	3 19/32	10 9/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	1500	1/4	1 1/4	3 15/16	11 3/4
8	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	1250	1/4	1 1/4	3 15/16	11 3/4
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	1000	1/4	1 1/4	3 15/16	11 3/4
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	750	1/4	1 1/4	3 15/16	11 3/4
8	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	750	1/4	1 1/4	3 15/16	11 3/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	900	1/4	1 1/4	4 1/16	12 7/8
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	800	1/4	1 1/4	4 1/16	12 7/8
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	700	1/4	1 1/4	4 1/16	12 7/8
8	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	600	1/4	1 1/4	4 1/16	12 7/8
	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	7 15/16	600	1/4	1 1/4	4 1/16	12 7/8

NFPA MF2 - Cap Rectangular Flange



* Add stroke to starred dimension

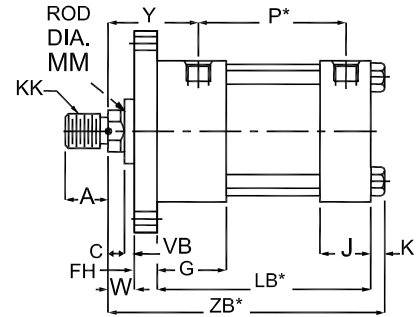
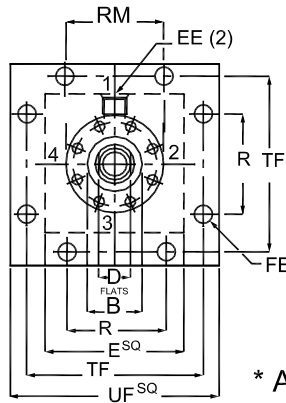
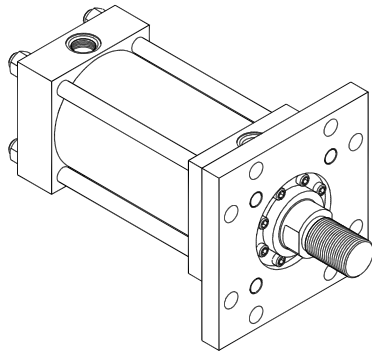
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	FB	FH	R	TF	UF
1 1/2	2 1/2	10	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	7/16	3/8	1.63	3 7/16	4 1/4
2	3	10	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	9/16	5/8	2.05	4 1/8	5 1/8
2 1/2	3 1/2	10	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	9/16	5/8	2.55	4 5/8	5 5/8
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	11/16	3/4	3.25	5 7/8	7 1/8
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	11/16	7/8	3.82	6 3/8	7 5/8
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	15/16	7/8	4.95	8 3/16	9 3/4
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	1 1/16	1	5.73	9 7/16	11 1/4
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	1 3/16	1	6.58	10 5/8	12 5/8
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	1 5/16	1	7.5	11 13/16	14

Rod End Dimensions

BORE	MM	KK	CC	A	B -.001/ -.003	C	D	RM	MAX PRESSURE PSI	F	VB	W	Y	ZF*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	1 15/16	2500	3/8	1/4	5/8	2 15/32	6
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	2500	3/8	1/2	1	2 15/32	6 3/8
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	2500	3/8	1/4	3/4	2 15/32	6 5/8
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	2200	3/8	3/8	1	2 23/32	6 7/8
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	2500	3/8	1/4	3/4	2 15/32	6 3/4
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	2500	3/8	3/8	1	2 23/32	7
3 1/4	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	2500	3/8	1/4	7/8	2 23/32	7 7/8
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	2200	5/8	3/8	1 1/8	2 31/32	8 1/8
4	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	2000	5/8	3/8	1 1/4	3 3/32	8 1/4
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	2000	5/8	1/4	1	2 31/32	8 1/2
5	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	1800	5/8	3/8	1 3/8	3 11/32	8 7/8
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	2200	5/8	1/4	1 1/8	3 3/32	9 1/8
6	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	2000	5/8	3/8	1 3/8	3 11/32	9 3/8
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	2000	7/8	3/8	1 3/8	3 11/32	9 3/8
7	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	1800	15/16	3/8	1 3/8	3 11/32	9 3/8
	2 1/2	7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	2200	5/8	1/4	1 1/4	3 19/32	10 5/8
8	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	2000	7/8	1/4	1 1/4	3 19/32	10 5/8
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	2000	15/16	1/4	1 1/4	3 19/32	10 5/8
9	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	2000	15/16	1/4	1 1/4	3 19/32	10 5/8
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	1500	7/8	1/4	1 1/4	3 15/16	11 3/4
10	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	1250	15/16	1/4	1 1/4	3 15/16	11 3/4
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	1000	15/16	1/4	1 1/4	3 15/16	11 3/4
11	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	750	15/16	1/4	1 1/4	3 15/16	11 3/4
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	750	15/16	1/4	1 1/4	3 15/16	11 3/4
12	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	900	15/16	1/4	1 1/4	4 1/16	12 3/4
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	800	15/16	1/4	1 1/4	4 1/16	12 3/4
13	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	700	15/16	1/4	1 1/4	4 1/16	12 3/4
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	600	15/16	1/4	1 1/4	4 1/16	12 3/4
14	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	7 15/16	600	15/16	1/4	1 1/4	4 1/16	12 3/4

NFPA MF5 - Head Square Flange



* Add stroke to starred dimension

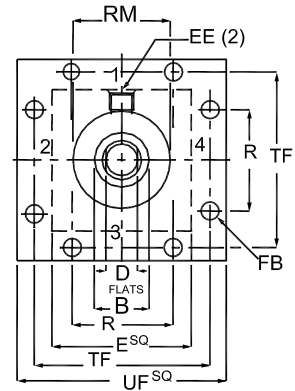
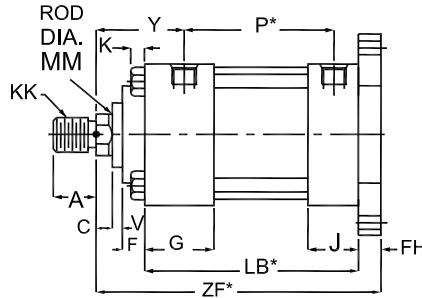
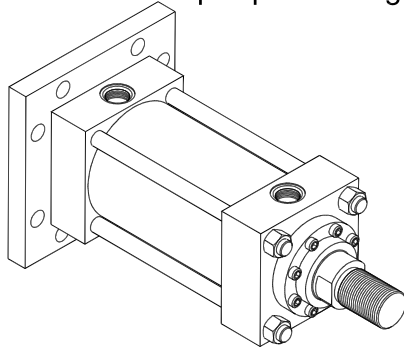
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	FB	FH	R	TF	UF
1 1/2	2 1/2	10	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	7/16	3/8	2	3 7/16	4 1/4
2	3	10	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	9/16	5/8	2	4 1/8	5 1/8
2 1/2	3 1/2	10	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	9/16	5/8	3	4 5/8	5 5/8
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	11/16	3/4	3	5 7/8	7 1/8
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	11/16	7/8	4	6 3/8	7 5/8
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	15/16	7/8	5	8 3/16	9 3/4
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	1 1/16	1	6	9 7/16	11 1/4
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	1 3/16	1	7	10 5/8	12 5/8
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	1 5/16	1	8	11 13/16	14

Rod End Dimensions

BORE	MM	KK	CC	A	B -.001/ -.003	C	D	RM	VB	W	Y	ZB*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	1 15/16	1/4	5/8	2 15/32	6
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	1/2	1	2 15/32	6 3/8
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	1/4	3/4	2 15/32	6 7/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	1	2 23/32	6 11/16
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	1/4	3/4	2 15/32	6 9/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	1	2 23/32	6 13/16
3 1/4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	1/2	1 1/4	2 31/32	7 1/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	1/4	7/8	2 23/32	7 11/16
4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	3/8	1 1/8	2 31/32	7 15/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	3/8	1 1/4	3 3/32	8 1/16
5	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	1/4	1	2 31/32	8 3/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	1/4	1 1/8	3 3/32	8 5/16
6	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	3/8	1 3/8	3 11/32	8 9/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	1/4	1 1/8	3 3/32	9 1/16
7	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	3/8	1 3/8	3 11/32	9 5/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	3/8	1 3/8	3 11/32	9 5/16
8	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	3/8	1 3/8	3 11/32	9 5/16
	2 1/2	7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	1/4	1 1/4	3 19/32	10 9/16
9	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	1/4	1 1/4	3 19/32	10 9/16
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	1/4	1 1/4	3 19/32	10 9/16
10	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	1/4	1 1/4	3 19/32	10 9/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	1/4	1 1/4	3 15/16	11 3/4
11	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	1/4	1 1/4	3 15/16	11 3/4
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	1/4	1 1/4	3 15/16	11 3/4
12	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	1/4	1 1/4	3 15/16	11 3/4
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	1/4	1 1/4	3 15/16	11 3/4
13	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	1/4	1 1/4	4 1/16	12 7/8
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	1/4	1 1/4	4 1/16	12 7/8
14	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	1/4	1 1/4	4 1/16	12 7/8
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	1/4	1 1/4	4 1/16	12 7/8
15	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	7 15/16	1/4	1 1/4	4 1/16	12 7/8

NFPA MF6 - Cap Square Flange



* Add stroke to starred dimension

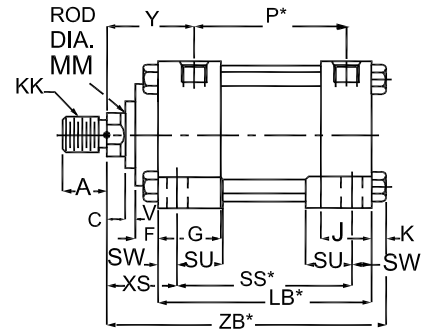
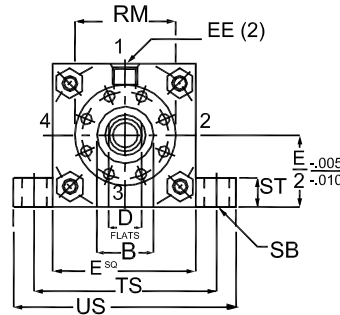
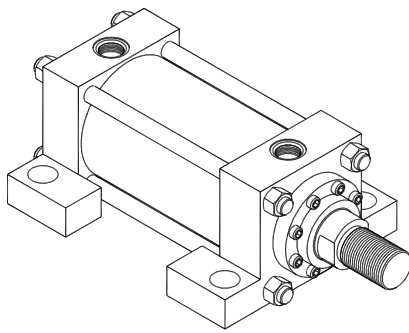
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	FB	FH	R	TF	UF
1 1/2	2 1/2	10	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	7/16	3/8	2	3 7/16	4 1/4
2	3	10	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	9/16	5/8	2	4 1/8	5 1/8
2 1/2	3 1/2	10	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	9/16	5/8	3	4 5/8	5 5/8
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	11/16	3/4	3	5 7/8	7 1/8
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	11/16	7/8	4	6 3/8	7 5/8
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	15/16	7/8	5	8 3/16	9 3/4
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	1 1/16	1	6	9 7/16	11 1/4
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	1 3/16	1	7	10 5/8	12 5/8
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	1 5/16	1	8	11 13/16	14

Rod End Dimensions

BORE	MM	KK	CC	A	B -.001/ -.003	C	D	RM	F	VB	W	Y	ZF*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	1 15/16	3/8	1/4	5/8	2 15/32	6
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3/8	1/2	1	2 15/32	6 3/8
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3/8	1/4	3/4	2 15/32	6 5/8
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	3/8	1	2 23/32	6 7/8
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	2 3/8	3/8	1/4	3/4	2 15/32	6 3/4
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	3/8	1	2 23/32	7
3 1/4	1 3/4	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	2 7/8	3/8	1/4	7/8	2 23/32	7 7/8
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	5/8	3/8	1 1/8	2 31/32	8 1/8
4	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	5/8	3/8	1 1/4	3 3/32	8 1/4
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	3 15/32	5/8	1/4	1	2 31/32	8 1/2
5	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	5/8	1/4	1 1/8	3 3/32	8 5/8
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	5/8	3/8	1 3/8	3 11/32	8 7/8
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	3 23/32	5/8	1/4	1 1/8	3 3/32	9 1/8
6	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	5/8	3/8	1 3/8	3 11/32	9 3/8
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	7/8	1/4	1 1/4	3 19/32	9 3/8
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	4 1/4	5/8	1/4	1 1/4	3 19/32	10 5/8
7	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	1/4	1 1/4	3 19/32	10 5/8
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	15/16	1/4	1 1/4	3 19/32	10 5/8
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	5 7/16	7/8	1/4	1 1/4	3 15/16	11 3/4
8	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	1/4	1 1/4	3 15/16	11 3/4
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	15/16	1/4	1 1/4	3 15/16	11 3/4
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	15/16	1/4	1 1/4	3 15/16	11 3/4
8	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	15/16	1/4	1 1/4	3 15/16	11 3/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	5 15/16	15/16	1/4	1 1/4	4 1/16	12 3/4
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	6 5/16	15/16	1/4	1 1/4	4 1/16	12 3/4
8	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	6 15/16	15/16	1/4	1 1/4	4 1/16	12 3/4
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	7 7/16	15/16	1/4	1 1/4	4 1/16	12 3/4
8	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	7 15/16	15/16	1/4	1 1/4	4 1/16	12 3/4

NFPA MS2 - Side Lugs



* Add stroke to starred dimension

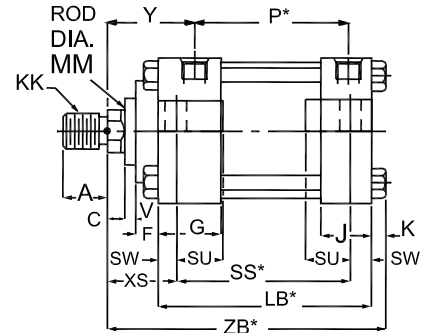
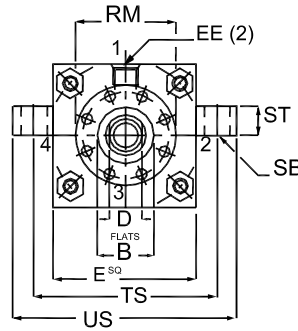
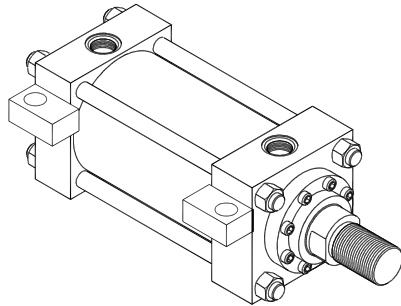
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	SB	SS*	ST	SU	SW	TS	US
1 1/2	2 1/2	10	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	7/16	3 7/8	1/2	15/16	3/8	3 1/4	4
2	3	10	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	9/16	3 5/8	3/4	1 1/4	1/2	4	5
2 1/2	3 1/2	10	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	13/16	3 3/8	1	1 9/16	11/16	4 7/8	6 1/4
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	13/16	4 1/8	1	1 9/16	11/16	5 7/8	7 1/4
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	1 1/16	4	1 1/4	2	7/8	6 3/4	8 1/2
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	1 1/16	4 1/2	1 1/4	2	7/8	8 1/4	10
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	1 5/16	5 1/8	1 1/2	2 1/2	1 1/8	9 3/4	12
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	1 9/16	5 3/4	1 3/4	2 7/8	1 3/8	11 1/4	14
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	1 9/16	6 3/4	1 3/4	2 7/8	1 3/8	12 1/4	15

Rod End Dimensions

BORE	M M	KK	CC	A	B -.001/ -.003	C	D	F	RM	V	XT	Y	ZB*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	3/8	1 15/16	1/4	2	2 15/32	6
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/2	2 3/8	2 15/32	6 3/8
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/4	2 3/8	2 15/32	6 7/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	2 5/8	2 23/32	6 11/16
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	3/8	2 3/8	2 15/32	6 9/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	2 5/8	2 23/32	6 13/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	1/2	2 7/8	2 31/32	7 1/16
3 1/4	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	13/32	2 3/4	2 23/32	7 11/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	3/8	3	2 31/32	7 15/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	3/8	3 1/8	3 3/32	8 1/16
4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	17/32	3	2 31/32	8 3/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	17/32	3 1/8	3 3/32	8 5/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 3/8	3 11/32	8 9/16
5	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	17/32	3 1/8	3 3/32	9 1/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 3/8	3 11/32	9 5/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 3/8	3 11/32	9 5/16
6	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 3/8	3 11/32	9 5/16
	2 1/2	7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 1/2	3 19/32	10 9/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 1/2	3 19/32	10 9/16
7	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 1/2	3 19/32	10 9/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 13/16	3 15/16	11 3/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 13/16	3 15/16	11 3/4
8	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	3 13/16	3 15/16	11 3/4
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	3/8	3 13/16	3 15/16	11 3/4
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	3/8	3 13/16	3 15/16	11 3/4
8	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 15/16	4 1/16	12 7/8
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	3 15/16	4 1/16	12 7/8
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	3/8	3 15/16	4 1/16	12 7/8
5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	15/16	7 15/16	3/8	3 15/16	4 1/16	12 7/8	

NFPA MS3 - Center-Line Lugs



* Add stroke to starred dimension

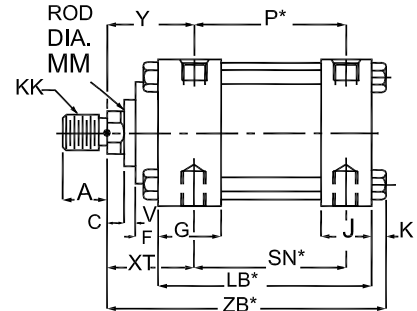
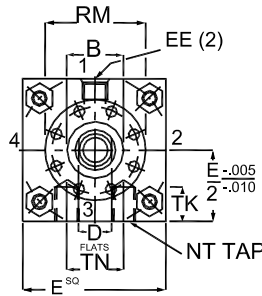
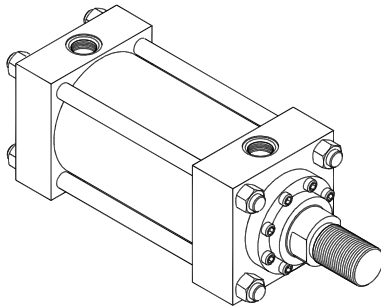
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	SB	SS*	ST	SU	SW	TS	US
1 1/2	2 1/2	10	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	7/16	3 7/8	1/2	15/16	3/8	3 1/4	4
2	3	10	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	9/16	3 5/8	3/4	1 1/4	1/2	4	5
2 1/2	3 1/2	10	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	13/16	3 3/8	1	1 9/16	11/16	4 7/8	6 1/4
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	13/16	4 1/8	1	1 9/16	11/16	5 7/8	7 1/4
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	1 1/16	4	1 1/4	2	7/8	6 3/4	8 1/2
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	1 1/16	4 1/2	1 1/4	2	7/8	8 1/4	10
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	1 5/16	5 1/8	1 1/2	2 1/2	1 1/8	9 3/4	12
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	1 9/16	5 3/4	1 3/4	2 7/8	1 3/8	11 1/4	14
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	1 9/16	6 3/4	1 3/4	2 7/8	1 3/8	12 1/4	15

Rod End Dimensions

BORE	M M	KK	CC	A	B -.001/ -.003	C	D	F	RM	V	XT	Y	ZB*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	3/8	1 15/16	1/4	2	2 15/32	6
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/2	2 3/8	2 15/32	6 3/8
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/4	2 3/8	2 15/32	6 7/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	2 5/8	2 23/32	6 11/16
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	3/8	2 3/8	2 15/32	6 9/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	2 5/8	2 23/32	6 13/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	1/2	2 7/8	2 31/32	7 1/16
3 1/4	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	13/32	2 3/4	2 23/32	7 11/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	3/8	3	2 31/32	7 15/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	3/8	3 1/8	3 3/32	8 1/16
4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	17/32	3	2 31/32	8 3/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	17/32	3 1/8	3 3/32	8 5/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 3/8	3 11/32	8 9/16
5	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	17/32	3 1/8	3 3/32	9 1/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 3/8	3 11/32	9 5/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 3/8	3 11/32	9 5/16
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 3/8	3 11/32	9 5/16
6	2 1/2	7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 1/2	3 19/32	10 9/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 1/2	3 19/32	10 9/16
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 1/2	3 19/32	10 9/16
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	3 1/2	3 19/32	10 9/16
7	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 13/16	3 15/16	11 3/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 13/16	3 15/16	11 3/4
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	3 13/16	3 15/16	11 3/4
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	3/8	3 13/16	3 15/16	11 3/4
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	3/8	3 13/16	3 15/16	11 3/4
8	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 15/16	4 1/16	12 7/8
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	3 15/16	4 1/16	12 7/8
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	3/8	3 15/16	4 1/16	12 7/8
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	3/8	3 15/16	4 1/16	12 7/8
	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	15/16	7 15/16	3/8	3 15/16	4 1/16	12 7/8

NFPA MS4 - Side Tapped



* Add stroke to starred dimension

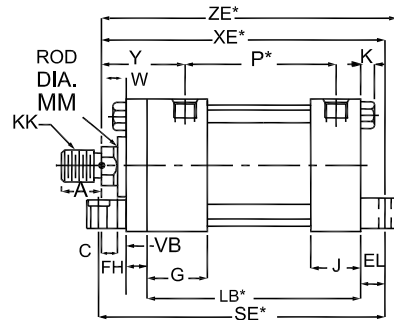
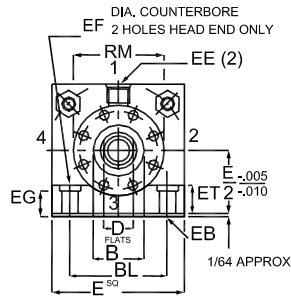
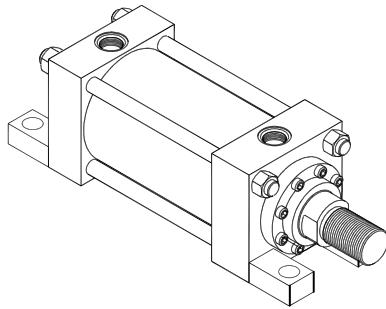
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	NT	P*	SN*	TK	TN
1 1/2	2 1/2	10	1/2	1 3/4	1 1/2	3/8	4 5/8	3/8-16	2 11/16	2 7/8	9/16	3/4
2	3	10	1/2	1 3/4	1 1/2	7/16	4 5/8	1/2-13	2 11/16	2 7/8	1/2	15/16
2 1/2	3 1/2	10	1/2	1 3/4	1 1/2	7/16	4 3/4	5/8-11	2 13/16	3	13/16	1 5/16
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3/4-10	3 9/16	3 1/2	3/4	1 1/2
4	5	12	3/4	2	1 3/4	9/16	5 3/4	1-8	3 13/16	3 3/4	1	2 1/16
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	1-8	4 5/16	4 1/4	1 1/8	2 15/16
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	1 1/4-7	4 11/16	5 1/8	1 5/16	3 5/16
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	1 1/2-6	5 1/8	5 7/8	2 1/8	3 3/4
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	1 1/2-6	5 7/8	6 5/8	1 9/16	4 1/4

Rod End Dimensions

BORE	M M	KK	CC	A	B -.001/ -.003	C	D	F	RM	V	XT	Y	ZB*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	3/8	1 15/16	1/4	2	2 15/32	6
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/2	2 3/8	2 15/32	6 3/8
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/4	2 3/8	2 15/32	6 7/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	2 5/8	2 23/32	6 11/16
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	3/8	2 3/8	2 15/32	6 9/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	2 5/8	2 23/32	6 13/16
3 1/4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	1/2	2 7/8	2 31/32	7 1/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	13/32	2 3/4	2 23/32	7 11/16
4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	3/8	3	2 31/32	7 15/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	3/8	3 1/8	3 3/32	8 1/16
5	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	17/32	3	2 31/32	8 3/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	17/32	3 1/8	3 3/32	8 5/16
6	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 3/8	3 11/32	8 9/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	17/32	3 1/8	3 3/32	9 1/16
7	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 3/8	3 11/32	9 5/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 3/8	3 11/32	9 5/16
8	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 3/8	3 11/32	9 5/16
	2 1/2	7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 1/2	3 19/32	10 9/16
9	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 1/2	3 19/32	10 9/16
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 1/2	3 19/32	10 9/16
10	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	3 1/2	3 19/32	10 9/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 13/16	3 15/16	11 3/4
11	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 13/16	3 15/16	11 3/4
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	3/8	3 13/16	3 15/16	11 3/4
12	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	3/8	3 13/16	3 15/16	11 3/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 15/16	4 1/16	12 7/8
13	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	3 15/16	4 1/16	12 7/8
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	3/8	3 15/16	4 1/16	12 7/8
14	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	3/8	3 15/16	4 1/16	12 7/8
	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	15/16	7 15/16	3/8	3 15/16	4 1/16	12 7/8

NFPA MS7 - End Lugs



* Add stroke to starred dimension

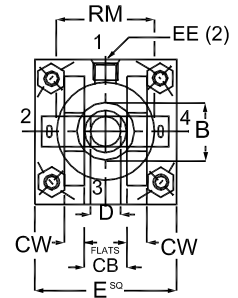
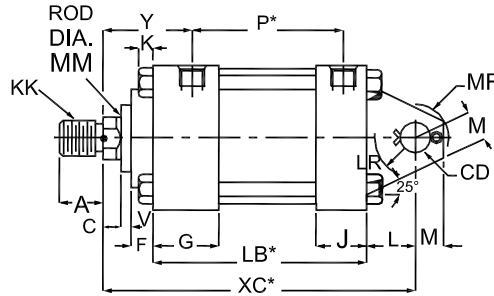
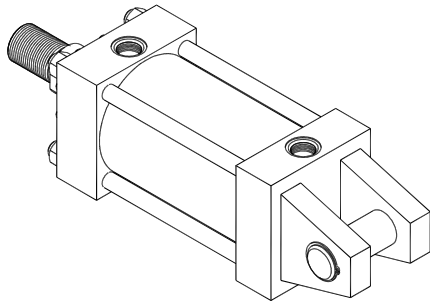
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	BL	EB	EF	EG	EL	ET	FH	SE*
1 1/2	2 1/2	10	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	1.63	7/16	5/8	11/16	7/8	7/8	3/8	6 3/4
2	3	10	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	2.07	9/16	13/16	3/4	15/16	1	5/8	7 1/8
2 1/2	3 1/2	10	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	2.56	9/16	13/16	3/4	15/16	1	5/8	7 1/4
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	3.27	11/16	1	11/16	1 1/8	1 1/4	3/4	8 1/2
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	3.84	11/16	1	7/8	1 1/8	1 1/4	7/8	8 7/8
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	4.95	15/16	1 3/8	1 1/4	1 1/2	1 1/2	7/8	10 1/8
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	5.74	1 1/16	1 5/8	1 1/2	1 11/16	1 3/4	1	11 3/4
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	6.58	1 3/16	1 5/8	1 1/2	1 13/16	2	1	13 1/8
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	7.51	1 5/16	2 3/32	1 3/4	2	2	1	14 1/2

Rod End Dimensions

BORE	M M	KK	CC	A	B -.001/ -.003	C	D	F	RM	VB	W	XE*	Y	ZB*	ZE*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	3/8	1 15/16	1/4	5/8	6 1/2	2 15/32	6	6 7/8
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/2	1	6 7/8	2 15/32	6 3/8	7 1/4
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/4	3/4	6 15/16	2 15/32	6 7/16	7 7/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	1	7 3/16	2 23/32	6 11/16	7 11/16
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/4	3/4	7 1/16	2 15/32	6 9/16	7 9/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	1	7 5/16	2 23/32	6 13/16	7 13/16
3 1/4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	1/2	1 1/4	7 9/16	2 31/32	7 1/16	8 1/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	1/4	7/8	8 1/4	2 23/32	7 11/16	8 7/8
4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	3/8	1 1/8	8 1/2	2 31/32	7 15/16	9 1/8
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	3/8	1 1/4	8 5/8	3 3/32	8 1/16	9 1/4
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	1/4	1	8 3/4	2 31/32	8 3/16	9 3/8
5	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	3/8	1 3/8	9 1/8	3 11/32	8 9/16	9 3/4
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	1/4	1 1/8	9 3/4	3 3/32	9 1/16	10 1/2
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	3/8	1 3/8	10	3 11/32	9 5/16	10 3/4
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	3/8	1 3/8	10	3 11/32	9 5/16	10 3/4
6	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	3/8	1 3/8	10	3 11/32	9 5/16	10 3/4
	2 1/2	7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	1/4	1 1/4	11 5/16	3 19/32	10 9/16	12 3/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	1/4	1 1/4	11 5/16	3 19/32	10 9/16	12 3/16
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	1/4	1 1/4	11 5/16	3 19/32	10 9/16	12 3/16
7	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	1/4	1 1/4	11 5/16	3 19/32	10 9/16	12 3/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	1/4	1 1/4	12 9/16	3 15/16	11 3/4	13 9/16
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	1/4	1 1/4	12 9/16	3 15/16	11 3/4	13 9/16
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	1/4	1 1/4	12 9/16	3 15/16	11 3/4	13 9/16
8	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	1/4	1 1/4	12 9/16	3 15/16	11 3/4	13 9/16
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	1/4	1 1/4	13 3/4	4 1/16	12 7/8	14 7/8
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	1/4	1 1/4	13 3/4	4 1/16	12 7/8	14 7/8
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	1/4	1 1/4	13 3/4	4 1/16	12 7/8	14 7/8
8	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	1/4	1 1/4	13 3/4	4 1/16	12 7/8	14 7/8
	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	15/16	7 15/16	1/4	1 1/4	13 3/4	4 1/16	12 7/8	14 7/8

NFPA MP1 - Cap Fixed Clevis



* Add stroke to starred dimension

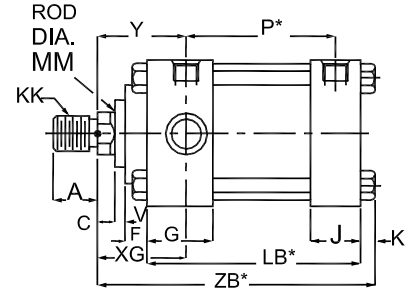
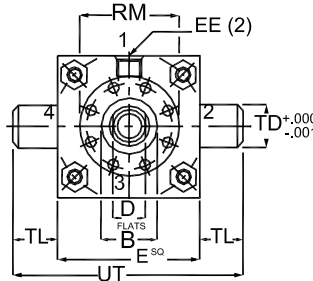
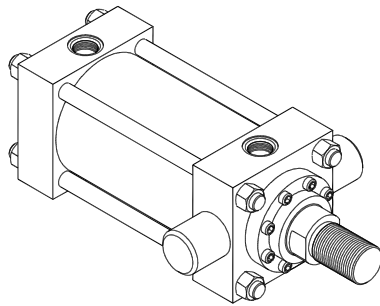
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	CB	CD	CW	L	LR	M	MR
1 1/2	2 1/2	10	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	3/4	1/2	1/2	3/4	9/16	1 1/2	9/16
2	3	10	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	1 1/4	3/4	5/8	1 1/4	1 1/16	3/4	1 1/16
2 1/2	3 1/2	10	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	1 1/4	3/4	5/8	1 1/4	1 1/16	3/4	1 1/16
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	1 1/2	1	3/4	1 1/2	1 1/4	1	1 1/8
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	2	1 3/8	1	2 1/8	1 7/8	1 3/8	1 3/4
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	2 1/2	1 3/4	1 1/4	2 1/4	1 15/16	1 3/4	1 7/8
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	2 1/2	2	1 1/4	2 1/2	2 1/16	2	2 1/8
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	3	2 1/2	1 1/2	3	2 9/16	2 1/2	2 1/2
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	3	3	1 1/2	3 1/4	2 11/16	2 3/4	2 3/4

Rod End Dimensions

BORE	M M	KK	CC	A	B -.001/ -.003	C	D	F	RM	V	Y	XC*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	3/8	1 15/16	1 1/4	2 15/32	6 3/8
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/2	2 15/32	6 3/4
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1 1/4	2 15/32	7 1/4
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	2 23/32	7 1/2
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	3/8	2 15/32	7 3/8
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	2 23/32	7 5/8
3 1/4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	1/2	2 31/32	7 7/8
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	13/32	2 23/32	8 5/8
4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	3/8	2 31/32	8 7/8
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	17/32	3 3/32	9 3/4
5	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 11/32	10 1/8
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	17/32	3 3/32	10 1/2
6	2 1/2	7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 19/32	12 1/8
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 11/32	10 3/4
7	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 11/32	10 3/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 11/32	10 3/4
8	2 1/2	7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 19/32	12 1/8
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 19/32	12 1/8
9	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 15/16	13 3/4
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	3 15/16	13 3/4
10	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	3/8	3 15/16	13 3/4
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	3/8	3 15/16	13 3/4
11	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	4 1/16	15
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	4 1/16	15
12	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	3/8	4 1/16	15
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	3/8	4 1/16	15
13	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	15/16	7 15/16	3/8	4 1/16	15

NFPA MT1 - Head Trunnion



* Add stroke to starred dimension

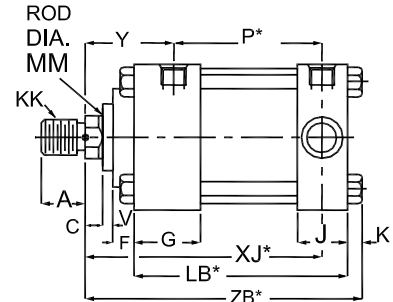
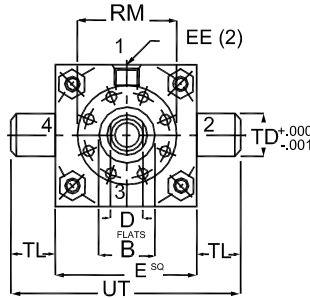
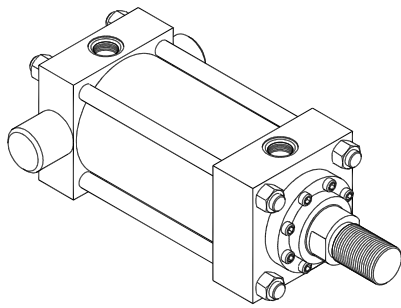
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	TD	TL	UT
1 1/2	2 1/2	10	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	1	1	4 1/2
2	3	10	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	1 3/8	1 3/8	5 3/4
2 1/2	3 1/2	10	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	1 3/8	1 3/8	6 1/4
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	1 3/4	1 3/4	8
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	1 3/4	1 3/4	8 1/2
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	1 3/4	1 3/4	10
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	2	2	11 1/2
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	2 1/2	2 1/2	13 1/2
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	3	3	15 1/2

Rod End Dimensions

BORE	M M	KK	CC	A	B -.001/ -.003	C	D	F	RM	V	XG	Y	ZB*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	3/8	1 15/16	1/4	1 7/8	2 15/32	6
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/2	2 1/4	2 15/32	6 3/8
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/4	2 1/4	2 15/32	6 7/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	2 1/2	2 23/32	6 11/16
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	3/8	2 1/4	2 15/32	6 9/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	2 1/2	2 23/32	6 13/16
3 1/4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	1/2	2 3/4	2 31/32	7 1/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	13/32	2 5/8	2 23/32	7 11/16
4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	3/8	2 7/8	2 31/32	7 15/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	17/32	3	3 3/32	8 1/16
5	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 1/4	3 11/32	8 9/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	17/32	3	3 3/32	9 1/16
6	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 1/4	3 11/32	9 5/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 1/4	3 11/32	9 5/16
7	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 1/4	3 11/32	9 5/16
	2 1/2	7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 3/8	3 19/32	10 9/16
8	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 3/8	3 19/32	10 9/16
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 3/8	3 19/32	10 9/16
9	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	3 3/8	3 19/32	10 9/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 5/8	3 15/32	11 3/4
10	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 5/8	3 15/16	11 3/4
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	3 5/8	3 15/16	11 3/4
11	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	3/8	3 5/8	3 15/16	11 3/4
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	3/8	3 5/8	3 15/16	11 3/4
12	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 3/4	4 1/16	12 7/8
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	3 3/4	4 1/16	12 7/8
13	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	3/8	3 3/4	4 1/16	12 7/8
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	3/8	3 3/4	4 1/16	12 7/8
14	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	15/16	7 15/16	3/8	3 3/4	4 1/16	12 7/8

NFPA MT2 - Cap Trunnion



* Add stroke to starred dimension

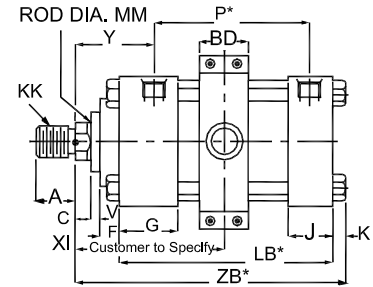
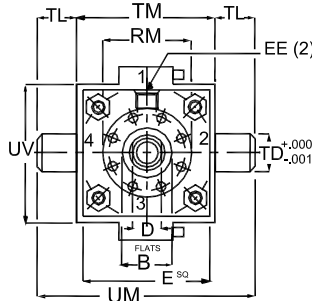
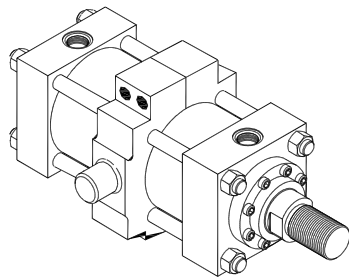
Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	TD	TL	UT
1 1/2	2 1/2	10	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	1	1	4 1/2
2	3	10	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	1 3/8	1 3/8	5 3/4
2 1/2	3 1/2	10	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	1 3/8	1 3/8	6 1/4
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	1 3/4	1 3/4	8
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	1 3/4	1 3/4	8 1/2
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	1 3/4	1 3/4	10
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	2	2	11 1/2
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	2 1/2	2 1/2	13 1/2
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	3	3	15 1/2

Rod End Dimensions

BORE	M M	KK	CC	A	B -.001/ -.003	C	D	F	RM	V	XJ*	Y	ZB*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	3/8	1 15/16	1/4	4 7/8	2 15/32	6
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/2	5 1/4	2 15/32	6 3/8
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/4	5 1/4	2 15/32	6 7/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	5 1/2	2 23/32	6 11/16
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	3/8	5 3/8	2 15/32	6 9/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	5 5/8	2 23/32	6 13/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	1/2	5 7/8	2 31/32	7 1/16
3 1/4	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	13/32	6 1/4	2 23/32	7 11/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	3/8	6 1/2	2 31/32	7 15/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	3/8	6 5/8	3 3/32	8 1/16
4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	17/32	6 3/4	2 31/32	8 3/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	17/32	6 7/8	3 3/32	8 5/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	7 1/8	3 11/32	8 9/16
5	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	17/32	7 3/8	3 3/32	9 1/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	7 5/8	3 11/32	9 5/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	7 5/8	3 11/32	9 5/16
6	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	7 5/8	3 11/32	9 5/16
	2 1/2	7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	8 3/8	3 19/32	10 9/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	8 3/8	3 19/32	10 9/16
7	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	8 3/8	3 19/32	10 9/16
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	8 3/8	3 19/32	10 9/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	9 3/8	3 15/32	11 3/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	9 3/8	3 15/16	11 3/4
8	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	8 3/8	3 19/32	10 9/16
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	3/8	9 3/8	3 15/16	11 3/4
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	3/8	9 3/8	3 15/16	11 3/4
8	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	10 1/4	4 1/16	12 7/8
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	10 1/4	4 1/16	12 7/8
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	3/8	10 1/4	4 1/16	12 7/8
8	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	3/8	10 1/4	4 1/16	12 7/8
	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	15/16	7 15/16	3/8	10 1/4	4 1/16	12 7/8

NFPA MT4 - Intermediate Trunnion



* Add stroke to starred dimension

Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	BD	TD	TM
1 1/2	2 1/2	10	1/2	1 3/4	1 1/2	3/8	4 5/8	2 11/16	1 1/2	1	3
2	3	10	1/2	1 3/4	1 1/2	7/16	4 5/8	2 11/16	1 1/2	1 3/8	3 1/2
2 1/2	3 1/2	10	1/2	1 3/4	1 1/2	7/16	4 3/4	2 13/16	1 1/2	1 3/8	4
3 1/4	4 1/2	12	3/4	2	1 3/4	9/16	5 1/2	3 9/16	2	1 3/4	5
4	5	12	3/4	2	1 3/4	9/16	5 3/4	3 13/16	2	1 3/4	5 1/2
5	6 1/2	12	3/4	2	1 3/4	13/16	6 1/4	4 5/16	2 1/2	1 3/4	7
6	7 1/2	16	1	2 1/4	2 1/4	15/16	7 3/8	4 11/16	3	2	8 1/2
7	8 1/2	20	1 1/4	2 3/4	2 3/4	1	8 1/2	5 1/8	3	2 1/2	9 3/4
8	9 1/2	24	1 1/2	3	3	1 1/8	9 1/2	5 7/8	3 1/2	3	11

Rod End Dimensions

BORE	M M	KK	CC	A	B -001/ -003	C	D	F	RM	V	Y	ZB*
1 1/2	5/8	7/16-20	1/2-20	3/4	1 1/8	3/8	1/2	3/8	1 15/16	1/4	2 15/32	6
	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/2	2 15/32	6 3/8
2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	1/4	2 15/32	6 7/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	2 23/32	6 11/16
2 1/2	1	3/4-16	7/8-14	1 1/8	1 1/2	1/2	7/8	3/8	2 3/8	3/8	2 15/32	6 9/16
	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	3/8	2 23/32	6 13/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	1/2	2 31/32	7 1/16
3 1/4	1 3/8	1-14	1 1/4-12	1 5/8	2	5/8	1 1/8	3/8	2 7/8	13/32	2 23/32	7 11/16
	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	3/8	2 31/32	7 15/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	3/8	3 3/32	8 1/16
4	1 3/4	1 1/4-12	1 1/2-12	2	2 3/8	3/4	1 1/2	5/8	3 15/32	17/32	2 31/32	8 3/16
	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	17/32	3 3/32	8 5/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 11/32	8 9/16
5	2	1 1/2-12	1 3/4-12	2 1/4	2 5/8	7/8	1 11/16	5/8	3 23/32	17/32	3 3/32	9 1/16
	2 1/2	1 7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 11/32	9 5/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 11/32	9 5/16
6	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 11/32	9 5/16
	2 1/2	7/8-12	2 1/4-12	3	3 1/8	1	2 1/16	5/8	4 1/4	21/32	3 19/32	10 9/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 19/32	10 9/16
7	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 19/32	10 9/16
	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	3 19/32	10 9/16
	3	2 1/4-12	2 3/4-12	3 1/2	3 3/4	1	2 5/8	7/8	5 7/16	17/32	3 15/32	11 3/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	3 15/16	11 3/4
8	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	3/8	3 15/16	11 3/4
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	3/8	3 15/16	11 3/4
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4 1/4	1	3	15/16	5 15/16	17/32	4 1/16	12 7/8
8	4	3-12	3 3/4-12	4	4 3/4	1	3 3/8	15/16	6 5/16	3/8	4 1/16	12 7/8
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5 1/4	1	3 7/8	15/16	6 15/16	3/8	4 1/16	12 7/8
	5	3 1/2-12	4 3/4-12	5	5 3/4	1	4 1/4	15/16	7 7/16	3/8	4 1/16	12 7/8
8	5 1/2	4-12	5 1/4-12	5 1/2	6 1/4	1	4 5/8	15/16	7 15/16	3/8	4 1/16	12 7/8

Standard Specifications

Nominal Pressure - 3000 PSI*

Bore Sizes - 10" through 20"

Rod Sizes - 4 1/2" through 10"

Mounting Styles - 9 Standard styles***

Strokes - Available in any practical stroke length

Cushions - Optional at either end or both ends

Standard - Externally removable bolted gland assembly

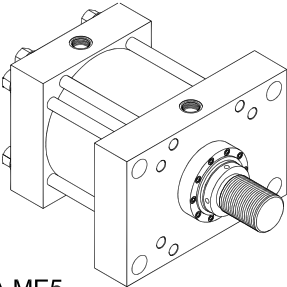
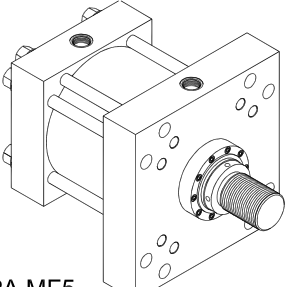
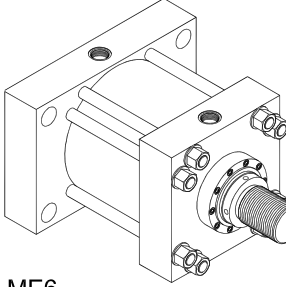
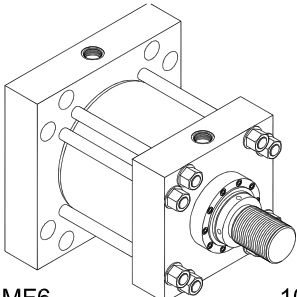
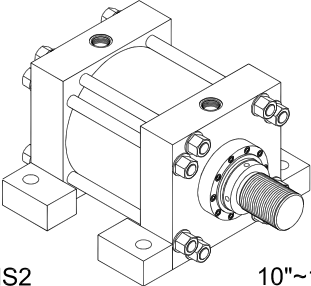
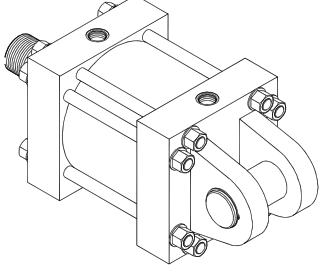
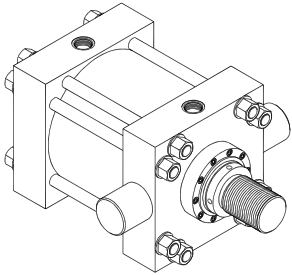
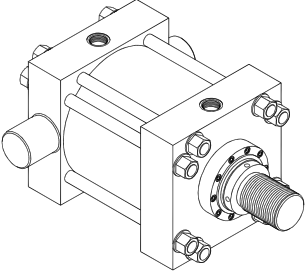
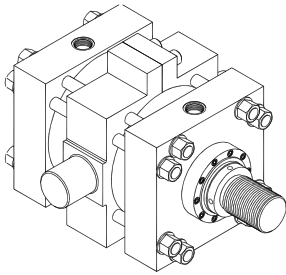
Standard Temperature - -10°F to +200°F**

* If pressure is from 3000 ~ 4000 PSI or higher, specify it during order

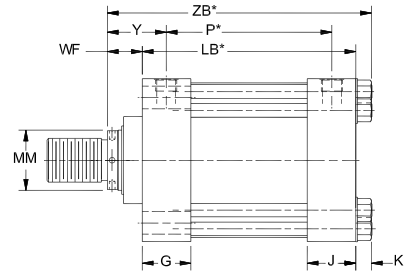
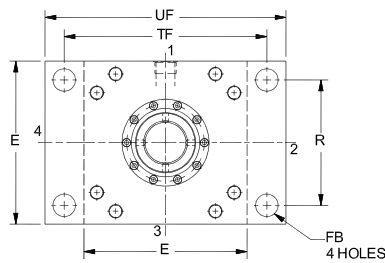
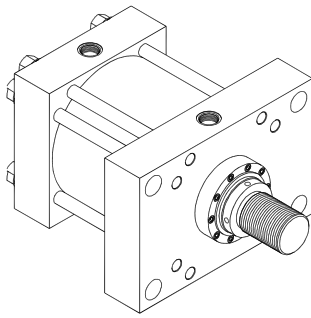
** If temperature is from 200 ~ 400°F or higher, specify it during order

*** Supplied drawings with all other mounting styles and specials

Mounting Styles

<p>Head Rectangular</p>  <p>NFPA ME5 10"~14"</p>	<p>Head Square Flange</p>  <p>NFPA MF5 10"~20"</p>	<p>Cap Rectangular</p>  <p>NFPA ME6 10"~14"</p>
<p>Cap Square Flange</p>  <p>NFPA MF6 10"~20"</p>	<p>Side Lugs</p>  <p>NFPA MS2 10"~14"</p>	<p>Cap Fixed Clevis</p>  <p>NFPA MP1 10"~20"</p>
<p>Head Trunnion</p>  <p>NFPA MT1 10"~14"</p>	<p>Cap Trunnion</p>  <p>NFPA MT2 10"~14"</p>	<p>Intermediate Fixed Trunnion</p>  <p>NFPA MT4 10"~14"</p>

NFPA ME5 - Head Rectangular



* Add stroke to starred dimension

Body Dimensions

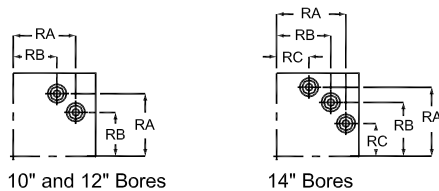
BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	FB	R	TF	UF
10	12 5/8	24	2	3 11/16	3 11/16	1 9/32	12 1/8	8 1/2	1 13/16	9.62	15 7/8	19
12	14 7/8	24	2 1/2	4 7/16	4 7/16	1 13/32	14 1/2	10 1/8	2 1/16	11.45	18 1/2	22
14	17 1/8	24	2 1/2	4 7/8	4 7/8	1 13/32	15 5/8	10 7/8	2 5/16	13.26	21	25

Rod End Dimensions

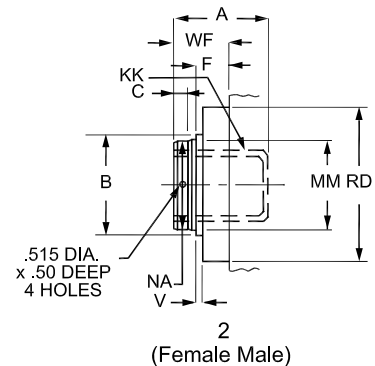
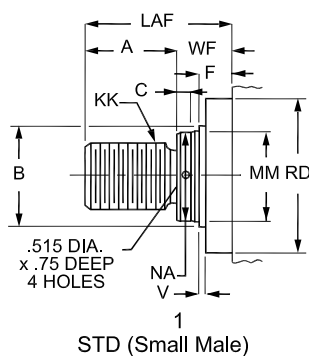
BORE	MM	KK	A	B -.001/ -.005	C	F	LAF	NA	RD	V	WF	Y	ZB*
10	4 1/2	3 1/4-12	4 1/2	5.249	1	1 15/16	7 7/16	4 3/8	8 1/4	1/4	2 15/16	4 3/4	16 11/32
	5	3 1/2-12	5	5.749	1	1 15/16	8 3/16	4 7/8	8 7/8	1/4	3 3/16	5	16 19/32
	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5	16 19/32
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 5/16	16 29/32
12	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5 3/8	19 3/32
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 11/16	19 13/32
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/16	19 29/32
14	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 7/8	20 17/32
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/8	21 1/32
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	6 7/8	21 17/32

Tie Rod Dimensions

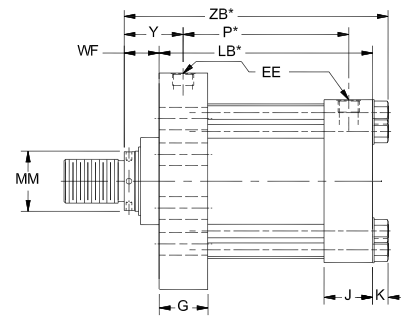
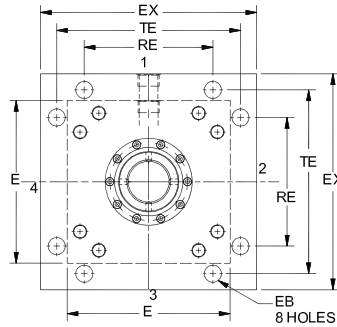
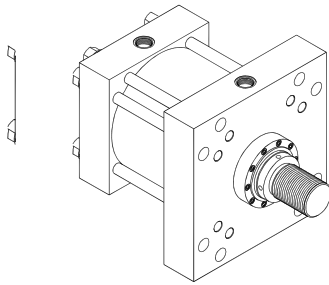
BORE	RA	RB	RC	TIE ROD THREAD
10	5.291	3.775	—	1 1/8-12
12	6.270	4.555	—	1 1/4-12
14	7.485	6.143	4.409	1 1/4-12



Rod End Styles



NFPA MF5 - Head Square Flange



Body Dimensions

* Add stroke to starred dimension

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	EB	EX	RE	TE
10	12 5/8	24	2	3 11/16	3 11/16	1 9/32	12 1/8	8 1/2	1 5/16	16 5/8	9.89	14.13
12	14 7/8	24	2 1/2	4 7/16	4 7/16	1 13/32	14 1/2	10 1/8	1 9/16	19 3/4	11.75	16.79
14	17 1/8	24	2 1/2	4 7/8	4 7/8	1 13/32	15 5/8	10 7/8	1 13/16	21 3/4	12.90	18.43
16	19	24	-	5 7/8	5 7/8	1 29/32	18 1/8	12 1/8	1 13/16	24 1/2	15.28	21.03
18	22	24	-	6 7/8	6 7/8	1 29/32	21 1/8	15 1/8	2 1/16	26 1/2	16.45	22.65
20	24	24	-	7 7/8	7 7/8	1 29/32	23 5/8	17 5/8	2 1/16	29	18.07	24.87

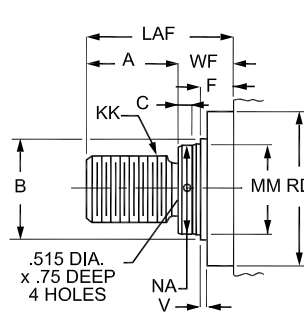
Rod End Dimensions

BORE	MM	KK	A	B -.001/ -.005	C	F	LAF	NA	RD	V	WF	Y	ZB*
10	4 1/2	3 1/4-12	4 1/2	5.249	1	1 15/16	7 7/16	4 3/8	8 1/4	1/4	2 15/16	4 3/4	16 11/32
	5	3 1/2-12	5	5.749	1	1 15/16	8 3/16	4 7/8	8 7/8	1/4	3 3/16	5	16 19/32
	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5	16 19/32
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 5/16	16 29/32
12	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5 3/8	19 3/32
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 11/16	19 13/32
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/16	19 29/32
14	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 7/8	20 17/32
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/8	21 1/32
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	6 7/8	21 17/32
16	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	7	24 1/32
	9	6 1/2-12	9	9.999	1	1 15/16	13 1/4	8 7/8	13 1/2	3/8	4 1/4	7 1/4	24 9/32
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	7 1/2	24 17/32
18	9	6 1/2-12	9	9.999	1	1 15/16	13 1/4	8 7/8	13 1/2	3/8	4 1/4	7 1/4	27 9/32
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	7 1/2	27 17/32
20	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	7 1/2	30 1/32

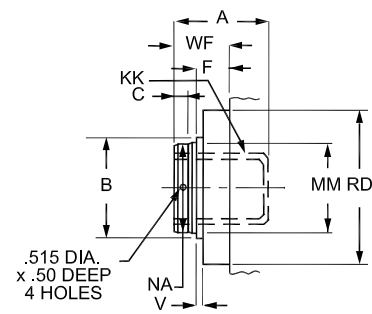
Tie Rod Dimensions

BORE	RA	RB	RC	TIE ROD THREAD
10	5.291	3.775	—	1 1/8-12
12	6.270	4.555	—	1 1/4-12
14	7.485	6.143	4.409	1 1/4-12
16	8.086	6.093	-	1 1/2-12
18	9.589	7.910	5.761	1 1/2-12
20	10.437	8.750	6.649	1 1/2-12

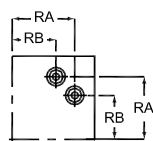
Rod End Styles



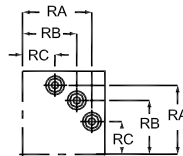
STD (Small Male)



(Female Male)

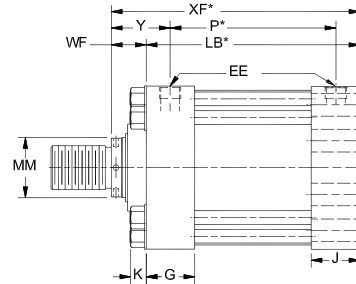
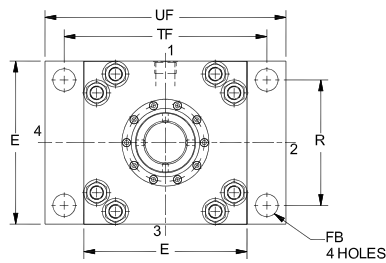
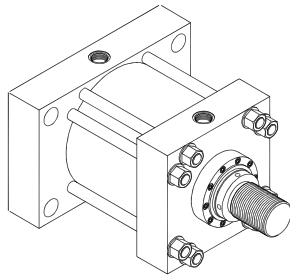


10", 12" and 16" Bores



14", 18" and 20" Bores

NFPA ME6 - Cap Rectangular



* Add stroke to starred dimension

Body Dimensions

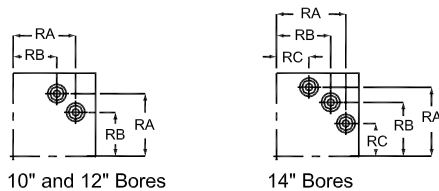
BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	FB	R	TF	UF
10	12 5/8	24	2	3 11/16	3 11/16	1 9/32	12 1/8	8 1/2	1 13/16	9.62	15 7/8	19
12	14 7/8	24	2 1/2	4 7/16	4 7/16	1 13/32	14 1/2	10 1/8	2 1/16	11.45	18 1/2	22
14	17 1/8	24	2 1/2	4 7/8	4 7/8	1 13/32	15 5/8	10 7/8	2 5/16	13.26	21	25

Rod End Dimensions

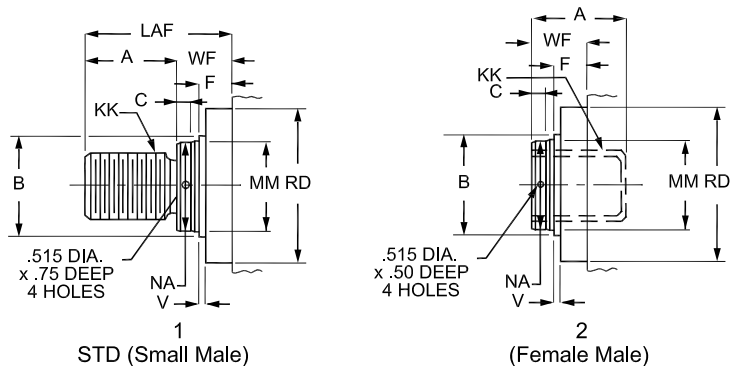
BORE	MM	KK	A	B -.001/ -.005	C	F	LAF	NA	RD	V	WF	Y	XF*
10	4 1/2	3 1/4-12	4 1/2	5.249	1	1 15/16	7 7/16	4 3/8	8 1/4	1/4	2 15/16	4 3/4	15 1/16
	5	3 1/2-12	5	5.749	1	1 15/16	8 3/16	4 7/8	8 7/8	1/4	3 3/16	5	15 5/16
	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5	15 5/16
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 5/16	15 5/8
12	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5 3/8	17 11/16
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 11/16	18
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/16	18 1/2
14	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 7/8	19 1/8
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/8	19 5/8
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	6 7/8	20 1/8

Tie Rod Dimensions

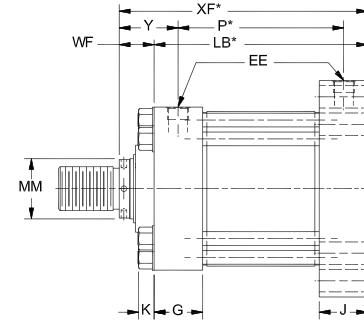
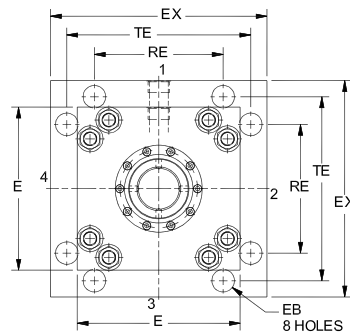
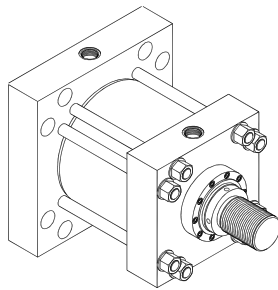
BORE	RA	RB	RC	TIE ROD THREAD
10	5.291	3.775	—	1 1/8-12
12	6.270	4.555	—	1 1/4-12
14	7.485	6.143	4.409	1 1/4-12



Rod End Styles



NFPA MF6 - Cap Square Flange



* Add stroke to starred dimension

Body Dimensions

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	EB	EX	RE	TE
10	12 5/8	24	2	3 11/16	3 11/16	1 9/32	12 1/8	8 1/2	1 5/16	16 5/8	9.89	14.13
12	14 7/8	24	2 1/2	4 7/16	4 7/16	1 13/32	14 1/2	10 1/8	1 9/16	19 3/4	11.75	16.79
14	17 1/8	24	2 1/2	4 7/8	4 7/8	1 13/32	15 5/8	10 7/8	1 13/16	21 3/4	12.90	18.43
16	19	24	-	5 7/8	5 7/8	1 29/32	18 1/8	12 1/8	1 13/16	24 1/2	15.28	21.03
18	22	24	-	6 7/8	6 7/8	1 29/32	21 1/8	15 1/8	2 1/16	26 1/2	16.45	22.65
20	24	24	-	7 7/8	7 7/8	1 29/32	23 5/8	17 5/8	2 1/16	29	18.07	24.87

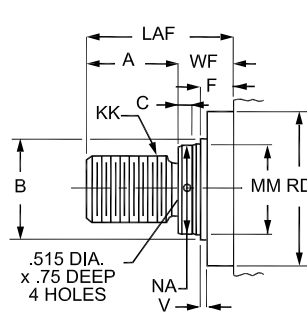
Rod End Dimensions

BORE	MM	KK	A	B -.001/ -.005	C	F	LAF	NA	RD	V	WF	Y	XF*
10	4 1/2	3 1/4-12	4 1/2	5.249	1	1 15/16	7 7/16	4 3/8	8 1/4	1/4	2 15/16	4 3/4	15 1/16
	5	3 1/2-12	5	5.749	1	1 15/16	8 3/16	4 7/8	8 7/8	1/4	3 3/16	5	15 5/16
	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5	15 5/16
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 5/16	15 5/8
12	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5 3/8	17 11/16
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 11/16	18
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/16	18 1/2
14	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 7/8	19 1/8
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/8	19 5/8
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	6 7/8	20 1/8
16	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	7	22 1/8
	9	6 1/2-12	9	9.999	1	1 15/16	13 1/4	8 7/8	13 1/2	3/8	4 1/4	7 1/4	22 3/8
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	7 1/2	22 5/8
18	9	6 1/2-12	9	9.999	1	1 15/16	13 1/4	8 7/8	13 1/2	3/8	4 1/4	7 1/4	25 3/8
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	7 1/2	25 5/8
20	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	7 1/2	28 1/8

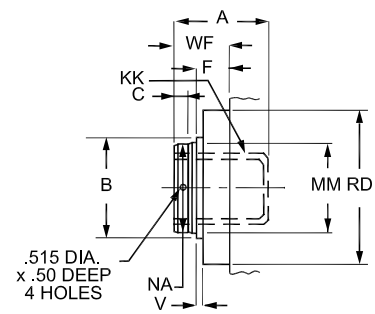
Tie Rod Dimensions

BORE	RA	RB	RC	TIE ROD THREAD
10	5.291	3.775	—	1 1/8-12
12	6.270	4.555	—	1 1/4-12
14	7.485	6.143	4.409	1 1/4-12
16	8.086	6.093	-	1 1/2-12
18	9.589	7.910	5.761	1 1/2-12
20	10.437	8.750	6.649	1 1/2-12

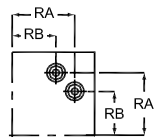
Rod End Styles



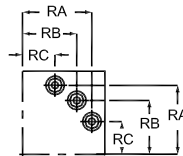
STD (Small Male)



(Female Male)

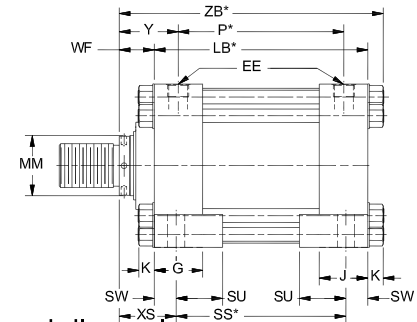
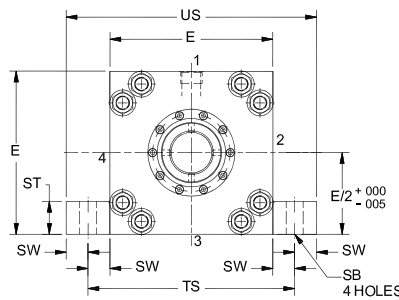
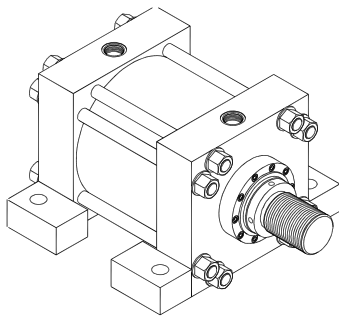


10", 12" and 16" Bores



14", 18" and 20" Bores

NFPA MS2 - Side Lugs



* Add stroke to starred dimension

Body Dimensions

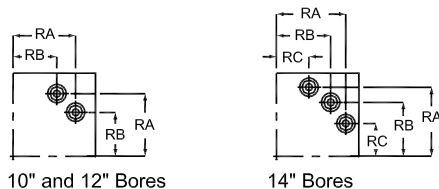
BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	SB	SS*	ST	SU	SW	TS	US
10	12 5/8	24	2	3 11/16	3 11/16	1 9/32	12 1/8	8 1/2	1 9/16	8 7/8	2 1/4	3 1/2	1 5/8	15 7/8	19 1/8
12	14 7/8	24	2 1/2	4 7/16	4 7/16	1 13/32	14 1/2	10 1/8	1 9/16	10 1/2	3	4 1/4	2	18 7/8	22 7/8
14	17 1/8	24	2 1/2	4 7/8	4 7/8	1 13/32	15 5/8	10 7/8	2 5/16	11 1/8	4	4 3/4	2 1/4	21 5/8	26 1/8

Rod End Dimensions

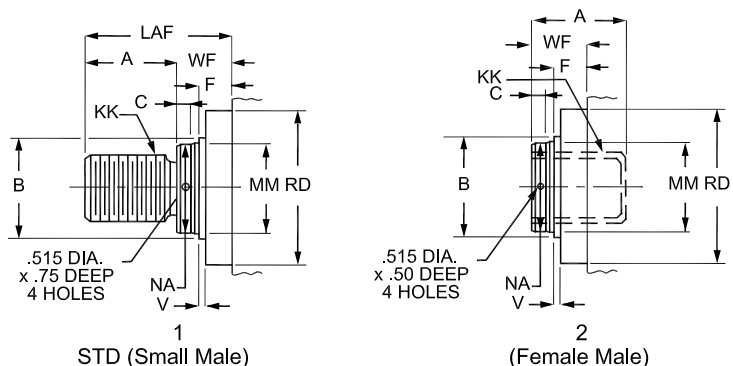
BORE	MM	KK	A	B -.001/ -.005	C	F	LAF	NA	RD	V	WF	Y	XS	ZB*
10	4 1/2	3 1/4-12	4 1/2	5.249	1	1 15/16	7 7/16	4 3/8	8 1/4	1/4	2 15/16	4 3/4	4 9/16	16 11/32
	5	3 1/2-12	5	5.749	1	1 15/16	8 3/16	4 7/8	8 7/8	1/4	3 3/16	5	4 13/16	16 19/32
	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5	4 13/16	16 19/32
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 5/16	5 1/8	16 29/32
12	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5 3/8	5 3/16	19 3/32
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 11/16	5 1/2	19 13/32
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/16	6	19 29/32
14	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 7/8	5 3/4	20 17/32
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/8	6 1/4	21 1/32
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	6 7/8	6 3/4	21 17/32

Tie Rod Dimensions

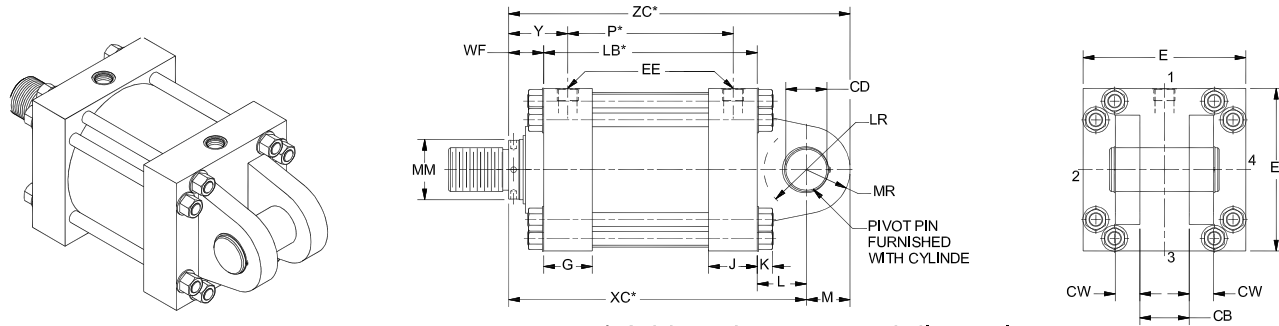
BORE	RA	RB	RC	TIE ROD THREAD
10	5.291	3.775	—	1 1/8-12
12	6.270	4.555	—	1 1/4-12
14	7.485	6.143	4.409	1 1/4-12



Rod End Styles



NFPA MP1 - Cap Fixed Clevis



Body Dimensions

* Add stroke to starred dimension

BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	CB	CD +.001/- .003	CW	L	LR	M	MR
10	12 5/8	24	2	3 11/16	3 11/16	1 9/32	12 1/8	8 1/2	4	3.500	2	4	3 3/8	3 1/2	3 1/2
12	14 7/8	24	2 1/2	4 7/16	4 7/16	1 13/32	14 1/2	10 1/8	4 1/2	4.000	2 1/4	4 1/2	3 7/8	4	4
14	17 1/8	24	2 1/2	4 7/8	4 7/8	1 13/32	15 5/8	10 7/8	6	5.000	3	5 3/4	4 3/16	5	5
16	19	24	-	5 7/8	5 7/8	1 29/32	18 1/8	12 1/8	7	6.000	3 1/2	7	6 1/4	6	6
18	22	24	-	6 7/8	6 7/8	1 29/32	21 1/8	15 1/8	8	6.500	4	7 5/8	6 3/4	6 1/2	6 1/2
20	24	24	-	7 7/8	7 7/8	1 29/32	23 5/8	17 5/8	9	7.500	4 1/2	8 3/4	7 3/4	7 1/2	7 1/2

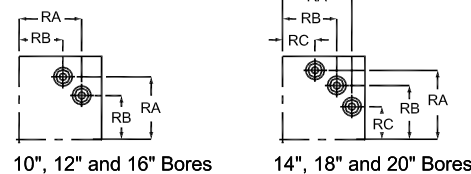
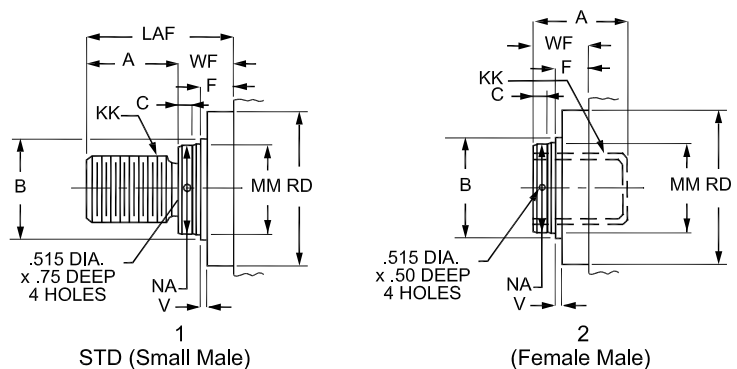
Rod End Dimensions

BORE	MM	KK	A	B -.001/- .005	C	F	LAF	NA	RD	V	WF	Y	XC*	ZC*
10	4 1/2	3 1/4-12	4 1/2	5.249	1	1 15/16	7 7/16	4 3/8	8 1/4	1/4	2 15/16	4 3/4	19 1/16	22 9/16
	5	3 1/2-12	5	5.749	1	1 15/16	8 3/16	4 7/8	8 7/8	1/4	3 3/16	5	19 5/16	22 13/16
	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5	19 5/16	22 13/16
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 5/16	19 5/8	23 1/8
12	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5 3/8	22 3/16	26 3/16
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 11/16	22 1/2	26 1/2
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/16	23	27
14	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 7/8	24 7/8	29 7/8
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/8	25 3/8	30 3/8
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	6 7/8	25 7/8	30 7/8
16	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	7	29 1/8	35 1/8
	9	6 1/2-12	9	9.999	1	1 15/16	13 1/4	8 7/8	13 1/2	3/8	4 1/4	7 1/4	29 3/8	35 3/8
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	7 1/2	29 5/8	35 5/8
18	9	6 1/2-12	9	9.999	1	1 15/16	13 1/4	8 7/8	13 1/2	3/8	4 1/4	7 1/4	33	39 1/2
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	7 1/2	33 1/4	39 3/4
20	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	7 1/2	36 7/8	44 3/8

Tie Rod Dimensions

BORE	RA	RB	RC	TIE ROD THREAD
10	5.291	3.775	—	1 1/8-12
12	6.270	4.555	—	1 1/4-12
14	7.485	6.143	4.409	1 1/4-12
16	8.086	6.093	-	1 1/2-12
18	9.589	7.910	5.761	1 1/2-12
20	10.437	8.750	6.649	1 1/2-12

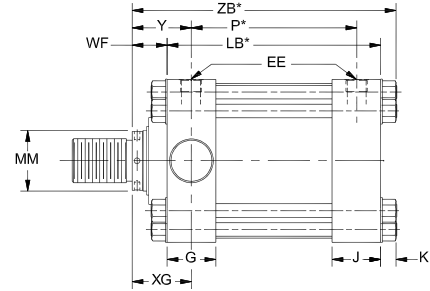
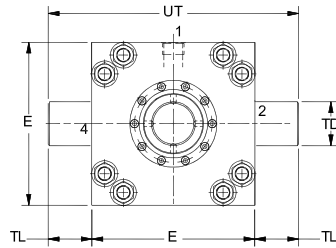
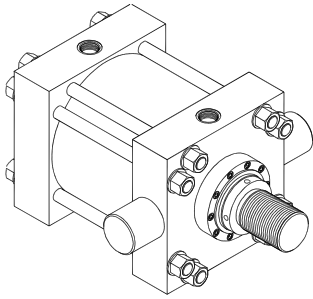
Rod End Styles



10", 12" and 16" Bores

14", 18" and 20" Bores

NFPA MT1 - Head Trunnion



* Add stroke to starred dimension

Body Dimensions

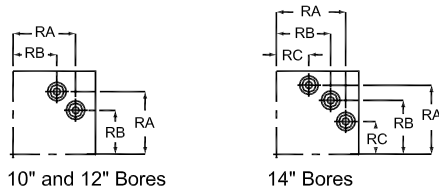
BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	MAX PRESSURE PSI	TD -.000/-.001	TL	UT
10	12 5/8	24	2	3 11/16	3 11/16	1 9/32	12 1/8	8 1/2	1600	3.500	3 1/2	19 5/8
12	14 7/8	24	2 1/2	4 7/16	4 7/16	1 13/32	14 1/2	10 1/8	1500	4.000	4	22 7/8
14	17 1/8	24	2 1/2	4 7/8	4 7/8	1 13/32	15 5/8	10 7/8	1400	4.500	4 1/2	26 1/8

Rod End Dimensions

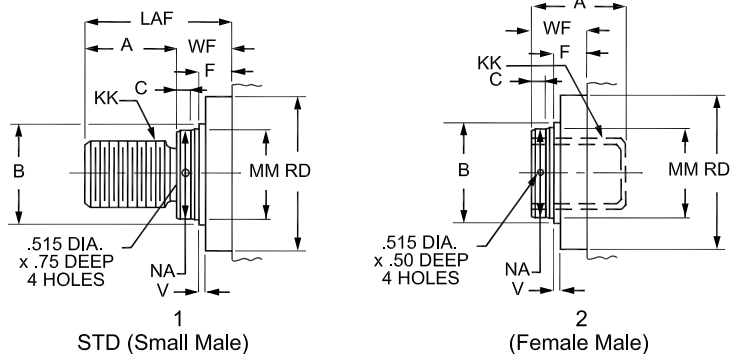
BORE	MM	KK	A	B -.001/-.005	C	F	LAF	NA	RD	V	WF	Y	XG	ZB*
10	4 1/2	3 1/4-12	4 1/2	5.249	1	1 15/16	7 7/16	4 3/8	8 1/4	1/4	2 15/16	4 3/4	4 3/4	16 11/32
	5	3 1/2-12	5	5.749	1	1 15/16	8 3/16	4 7/8	8 7/8	1/4	3 3/16	5	5	16 19/32
	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5	5	16 19/32
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 5/16	5 5/16	16 29/32
12	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5 3/8	5 3/8	19 3/32
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 11/16	5 11/16	19 13/32
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/16	6 3/16	19 29/32
14	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 7/8	5 15/16	20 17/32
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/8	6 7/16	21 1/32
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	6 7/8	6 15/16	21 17/32

Tie Rod Dimensions

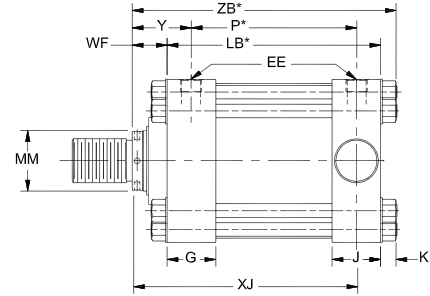
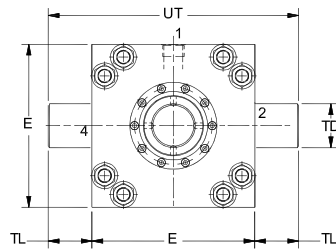
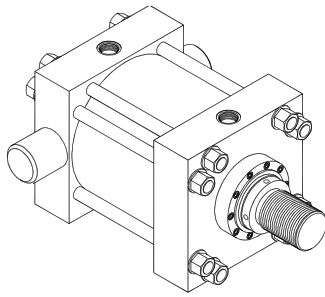
BORE	RA	RB	RC	TIE ROD THREAD
10	5.291	3.775	—	1 1/8-12
12	6.270	4.555	—	1 1/4-12
14	7.485	6.143	4.409	1 1/4-12



Rod End Styles



NFPA MT2 - Cap Trunnion



* Add stroke to starred dimension

Body Dimensions

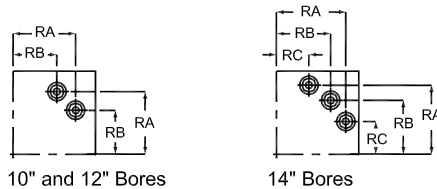
BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	MAX PRESSURE PSI	TD -.000/-.001	TL	UT
10	12 5/8	24	2	3 11/16	3 11/16	1 9/32	12 1/8	8 1/2	1600	3.500	3 1/2	19 5/8
12	14 7/8	24	2 1/2	4 7/16	4 7/16	1 13/32	14 1/2	10 1/8	1500	4.000	4	22 7/8
14	17 1/8	24	2 1/2	4 7/8	4 7/8	1 13/32	15 5/8	10 7/8	1400	4.500	4 1/2	26 1/8

Rod End Dimensions

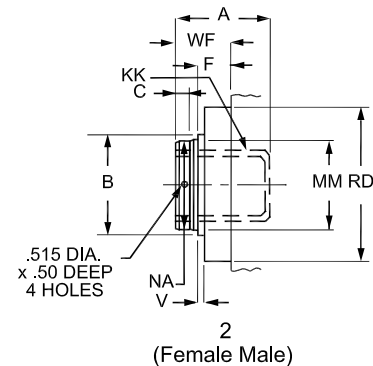
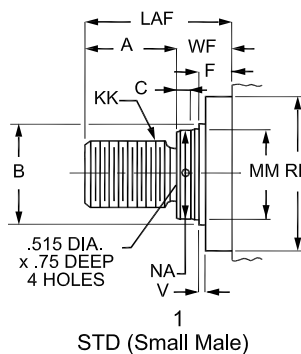
BORE	MM	KK	A	B -.001/-.005	C	F	LAF	NA	RD	V	WF	Y	XJ	ZB*
10	4 1/2	3 1/4-12	4 1/2	5.249	1	1 15/16	7 7/16	4 3/8	8 1/4	1/4	2 15/16	4 3/4	13 3/8	16 11/32
	5	3 1/2-12	5	5.749	1	1 15/16	8 3/16	4 7/8	8 7/8	1/4	3 3/16	5	13 15/16	16 19/32
	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5	13 5/8	16 19/32
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 5/16	13 5/8	16 29/32
12	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5 3/8	15 1/2	19 3/32
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 11/16	16 5/16	19 13/32
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/16	15 13/16	19 29/32
14	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 7/8	16 11/16	20 17/32
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/8	17 11/16	21 1/32
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	6 7/8	17 3/16	21 17/32

Tie Rod Dimensions

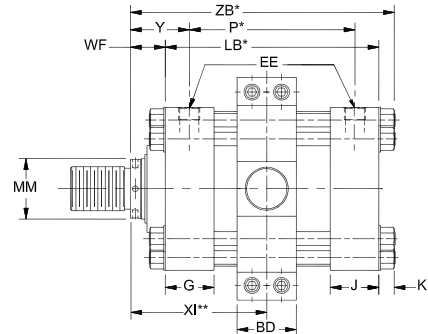
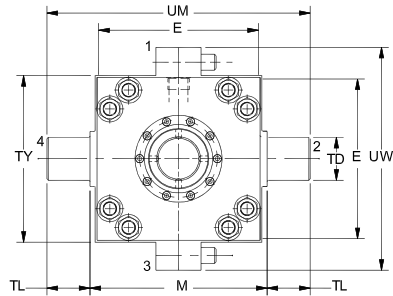
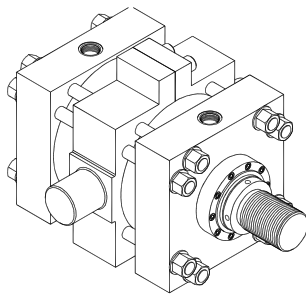
BORE	RA	RB	RC	TIE ROD THREAD
10	5.291	3.775	—	1 1/8-12
12	6.270	4.555	—	1 1/4-12
14	7.485	6.143	4.409	1 1/4-12



Rod End Styles



NFPA MT4 - Intermediate Fixed Trunnion



* Add stroke to starred dimension

** Dimension XI to be specified by customer

Body Dimensions

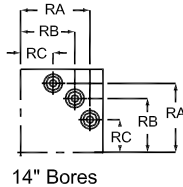
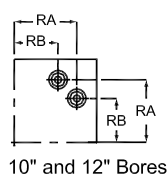
BORE	E	EE (SAE)	EE (NPTF)	G	J	K	LB*	P*	MAX PRESSURE PSI	TD -.000/-.001	TL	TM	TY	UM	UW
10	12 5/8	24	2	3 11/16	3 11/16	1 9/32	12 1/8	8 1/2	1600	3.500	3 1/2	14	13	21	17 1/2
12	14 7/8	24	2 1/2	4 7/16	4 7/16	1 13/32	14 1/2	10 1/8	1500	4.000	4	16 1/2	15 1/2	24 1/2	20 3/4
14	17 1/8	24	2 1/2	4 7/8	4 7/8	1 13/32	15 5/8	10 7/8	1400	4.500	4 1/2	19 1/2	19 1/4	28 1/2	24 3/4

Rod End Dimensions

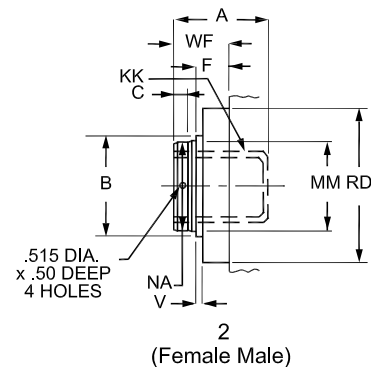
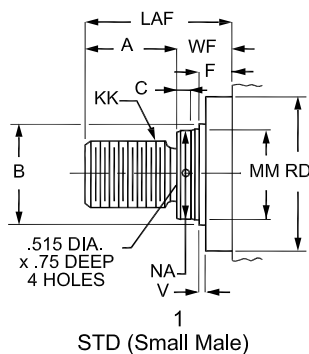
BORE	MM	KK	A	B -.001/-.005	C	F	LAF	NA	RD	V	WF	Y	ZB*
10	4 1/2	3 1/4-12	4 1/2	5.249	1	1 15/16	7 7/16	4 3/8	8 1/4	1/4	2 15/16	4 3/4	16 11/32
	5	3 1/2-12	5	5.749	1	1 15/16	8 3/16	4 7/8	8 7/8	1/4	3 3/16	5	16 19/32
	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5	16 19/32
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 5/16	16 29/32
12	5 1/2	4-12	5 1/2	6.249	1	1 15/16	8 11/16	5 3/8	9 3/8	1/4	3 3/16	5 3/8	19 3/32
	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 11/16	19 13/32
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/16	19 29/32
14	7	5-12	7	7.999	1	1 15/16	10 1/2	6 7/8	10 1/2	3/8	3 1/2	5 7/8	20 17/32
	8	5 3/4-12	8	8.999	1	1 15/16	12	7 7/8	12 1/2	3/8	4	6 3/8	21 1/32
	10	7 1/4-12	10	10.999	1	1 15/16	14 1/2	9 7/8	14 1/2	3/8	4 1/2	6 7/8	21 17/32

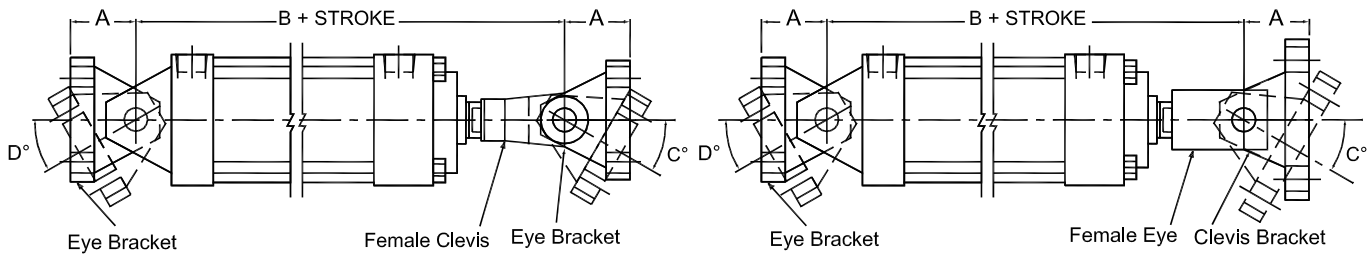
Tie Rod Dimensions

BORE	RA	RB	RC	TIE ROD THREAD
10	5.291	3.775	—	1 1/8-12
12	6.270	4.555	—	1 1/4-12
14	7.485	6.143	4.409	1 1/4-12



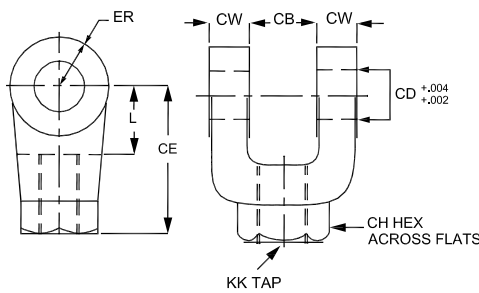
Rod End Styles





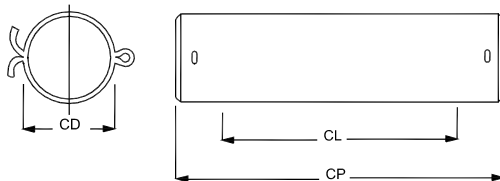
BORE	A	B	Eye Bracket	Female Clevis	Clevis Bracket	Female Eye	Pivot Pin	C°	D°
1 1/2	1 1/8	7 7/8	EB -1003	FC -1005	CB -1003	FE -1003	PP -1003	90°	60°
2	1 7/8	9 5/8	EB -1004	FC -1008	CB -1004	FE -1004	PP -1004	90°	65°
2 1/2	1 7/8	9 3/4	EB -1004	FC -1008	CB -1005	FE -1004	PP -1004	90°	65°
3 1/4	2 3/8	11 3/4	EB -1006	FC -1011	CB -1006	FE -1006	PP -1065	80°	65°
4	3	13 7/8	EB -1008	FC -1014	CB -1008	FE -1008	PP -1008	90°	70°
5	3 3/8	15	EB -1010	FC -1016	CB -1010	FE -1010	PP -1010	75°	65°
6	4	17 5/8	EB -1012	FC -1020	CB -1012	FE -1012	PP -1012	75°	65°
7	4	20 1/4	EB -1014	FC -1024	CB -1014	FE -1014	PP -1014	70°	65°
8	4 1/4	21 3/4	EB -1016	FC -1028	CB -1016	FE -1016	PP -1016	70°	65°
10	5 11/16	27 9/16	EB -1020	FC -1036	CB -1020	FE -1020	PP -1020	70°	60°
12	6 7/16	32 3/16	EB -1024	FC -1044	CB -1024	FE -1024	PP -1024	65°	60°

Female Clevis (FC)



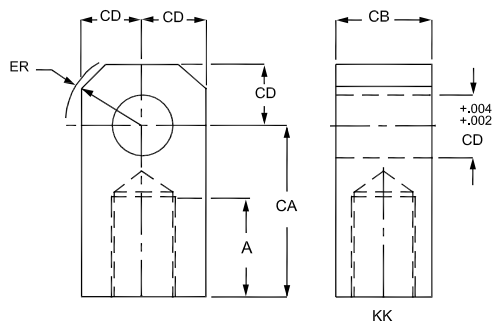
Part No.	CB	CD	CE	CH	CW	ER	KK	L
FC -1005	3/4	1/2	1 1/2	7/8	1/2	1/2	7/16-20	3/4
FC -1008	1 1/4	3/4	2 3/8	1 3/8	5/8	3/4	3/4-16	1 1/4
FC -1011	1 1/2	1	3 1/8	1 5/8	3/4	1	1-14	1 1/2
FC -1014	2	1 3/8	4 1/8	2	1	1 3/8	1 1/4-12	2 1/8
FC -1016	2 1/2	1 3/4	4 1/2	2 3/8	1 1/4	1 3/4	1 1/2-12	2 1/4
FC -1020	2 1/2	2	5 1/2	2 15/16	1 1/4	2	1 7/8-12	2 1/2
FC -1024	3	2 1/2	6 1/2	3 1/2	1 1/2	2 1/2	2 1/4-12	3
FC -1028	3	3	6 3/4	3 7/8	1 1/2	2 3/4	2 1/2-12	3 1/4
FC -1036	4	3 1/2	8 1/2	5	2	3 1/2	3 1/4-12	4
FC -1044	4 1/2	4	10	6 1/8	2 1/4	4	4-12	4 1/2

Pivot Pin (PP)



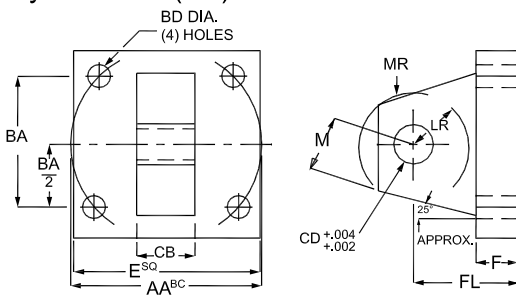
Part No.	CD	CL	CP
PP -1003	1/2	1 3/4	2 3/8
PP -1004	3/4	2 1/2	3 1/8
PP -1006	1	3	3 3/4
PP -1008	1 3/8	4	4 3/4
PP -1010	1 3/4	5	6 1/32
PP -1012	2	5	6 1/32
PP -1014	2 1/2	6	7 1/32
PP -1016	3	6	7 1/8
PP -1020	3 1/2	8	9 5/8
PP -1024	4	9	10 5/8

Female Eye (FE)

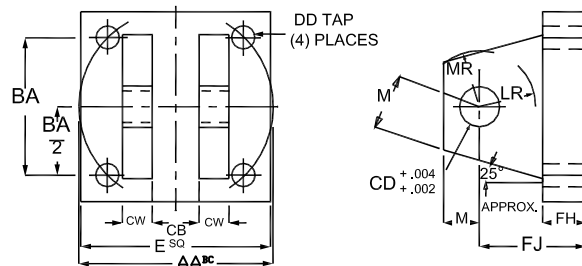


Part No.	A	CA	CB	CD	ER	KK
FE-1002	3/4	1 1/2	7/16	7/16	19/32	5/16-24
FE-1003	3/4	1 1/2	3/4	1/2	5/8	7/16-20
FE-1004	1 1/8	2 1/16	1 1/4	3/4	7/8	3/4-16
FE-1006	1 5/8	2 13/16	1 1/2	1	1 3/16	1-14
FE-1008	2	3 7/16	2	1 3/8	1 9/16	1 1/4-12
FE-1010	2 1/4	4	2 1/2	1 3/4	2	1 1/2-12
FE-1012	3	5	2 1/2	2	2 1/4	1 7/8-12
FE-1014	3 1/2	5 13/16	3	2 1/2	2 13/16	2 1/4-12
FE-1016	3 1/2	6 1/8	3	3	3 1/4	2 1/2-12
FE-1020	4 1/2	7 5/8	4	3 1/2	3 7/8	3 1/4-12
FE-1024	5 1/2	9 1/8	4 1/2	4	4 7/16	4-12

Eye Bracket (EB)

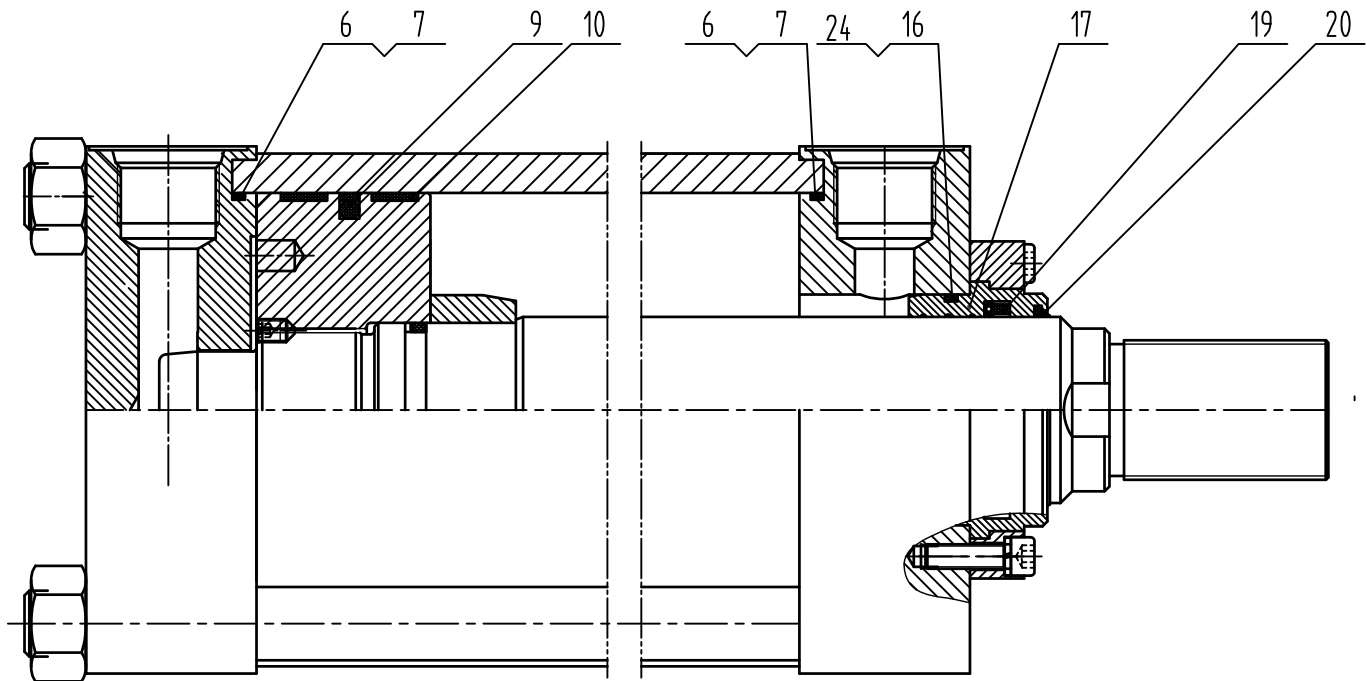


Clevis Bracket (CB)



Part No.	AA	BA	BD	CB	CD	E	F	FL	LR	M	MR
EB -1003	2.3	1 5/8	13/32	3/4	1/2	2 1/2	3/8	1 1/8	1/2	1/2	9/16
EB -1004	3.6	2 9/16	17/32	1 1/4	3/4	3 1/2	5/8	1 7/8	1	3/4	1 1/16
EB -1006	4.6	3 1/4	21/32	1 1/2	1	4 1/2	7/8	2 3/8	1	1	1 1/8
EB -1008	5.4	3 13/16	21/32	2	1 3/8	5	7/8	3	1 1/8	1 3/8	1 3/4
EB -1010	7.0	4 15/16	29/32	2 1/2	1 3/4	6 1/2	1 1/8	3 3/8	1 3/4	1 3/4	1 7/8
EB -1012	8.1	5 3/4	1 1/32	2 1/2	2	7 1/2	1 1/2	4	2	2	2 1/8
EB -1014	9.3	6 19/32	1 5/32	3	2 1/2	8 1/2	13/4	4 3/4	2 1/2	2 1/2	2 1/2
EB -1016	10.6	7 1/2	1 9/32	3	3	9 1/2	2	5 1/4	2 3/4	2 3/4	2 3/4
EB -1020	13.6	9 5/8	1 25/32	4	3 1/2	12 5/8	1 11/16	5 11/16	3 1/2	3 1/2	3 1/2
EB -1024	16.2	11 1/2	2 1/32	4 1/2	4	14 7/8	1 15/16	6 7/16	3 7/8	4	4

Part No.	AA	BA	CB	CD	CW	DD	E	FH	FJ	LR	M	MR
CB -1003	2.3	1 5/8	25/32	1/2	1/2	3/8-24	2 1/2	3/8	1 1/8	1/2	1/2	9/16
CB -1004	2.9	2 1/16	1 9/32	3/4	5/8	1/2-20	3	5/8	1 7/8	1	3/4	1 1/16
CB -1005	3.6	2 9/16	1 9/32	3/4	5/8	1/2-20	3 1/2	5/8	1 7/8	1 1/16	3/4	1 1/16
CB -1006	4.6	3 1/4	1 17/32	1	3/4	5/8-18	4 1/2	3/4	2 1/4	1 1/4	1	1 1/8
CB -1008	5.4	3 13/16	2 1/32	1 3/8	1	5/8-18	5	7/8	3	1 7/8	1 3/8	1 3/4
CB -1010	7.0	4 15/16	2 17/32	1 3/4	1 1/4	7/8-14	6 1/2	7/8	3 1/8	2	1 3/4	1 7/8
CB -1012	8.1	5 3/4	2 17/32	2	1 1/4	1-14	7 1/2	1	3 1/2	2 1/8	2	2 1/8
CB -1014	9.3	6 19/32	3 1/32	2 1/2	1 1/2	1 1/8-12	8 1/2	1	4	2 5/8	2 1/2	2 1/2
CB -1016	10.6	7 1/2	3 1/32	3	1 1/2	1 1/4-12	9 1/2	1	4 1/4	2 7/8	2 3/4	2 3/4
CB -1020	13.6	9 5/8	4 1/16	3 1/2	2	1 3/4-12	12 5/8	1 11/16	5 11/16	3 5/8	3 1/2	3 1/2
CB -1024	16.2	11 1/2	4 9/16	4	2 1/4	2-12	14 7/8	1 15/16	6 7/16	4	4	4



Seal Parts Identification

Part No.	Description	Parker Seal Type
17	Rod Bronze Bushing	-
20	Rod Wiper	4615SHD
19	Rod Seal	4615 BPP - B PolyPak
7	End Seal Back Up Ring (2)*	N1444 Parbak 8-Series
16	Rod Bushing O-Ring	4300 568 2-XXX
6	End Seal O-Ring (2)	4300 568 2-XXX
9	Piston Seal	0401OE
10	Wear Ring**	0401 PDT
24	Rod Bushing Back Up Ring*	N1444 Parbak 8-Series

* For large bore sizes only

** Part #10 QTY is depend on Bore Dia

Bore Dia	QTY
1 1/2	1
2 - 10	2
12 - 20	4

Rod Seal Kits

Rod Dia	Rod Seal Kit Part #19, 20, 16, 24
5/8	BRA-000625
1	BRA-001000
1 3/8	BRA-001375
1 3/4	BRA-001750
2	BRA-002000
2 1/2	BRA-002500
3	BRA-003000
3 1/2	BRA-003500
4	BRA-004000
4 1/2	BRA-004500
5	BRA-005000
5 1/2	BRA-005500
7	BRA-007000
8	BRA-008000
9	BRA-009000
10	BRA-010000

Bore Seal Kits

Bore Dia	Bore Seal Kit Part #9, 10, 6, 7
1 1/2	BBA-001500
2	BBA-002000
2 1/2	BBA-002500
3 1/4	BBA-003250
4	BBA-004000
5	BBA-005000
6	BBA-006000
7	BBA-007000
8	BBA-008000
9	BBA-009000
10	BBA-010000
12	BBA-012000
14	BBA-014000
16	BBA-016000
18	BBA-018000
20	BBA-020000



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