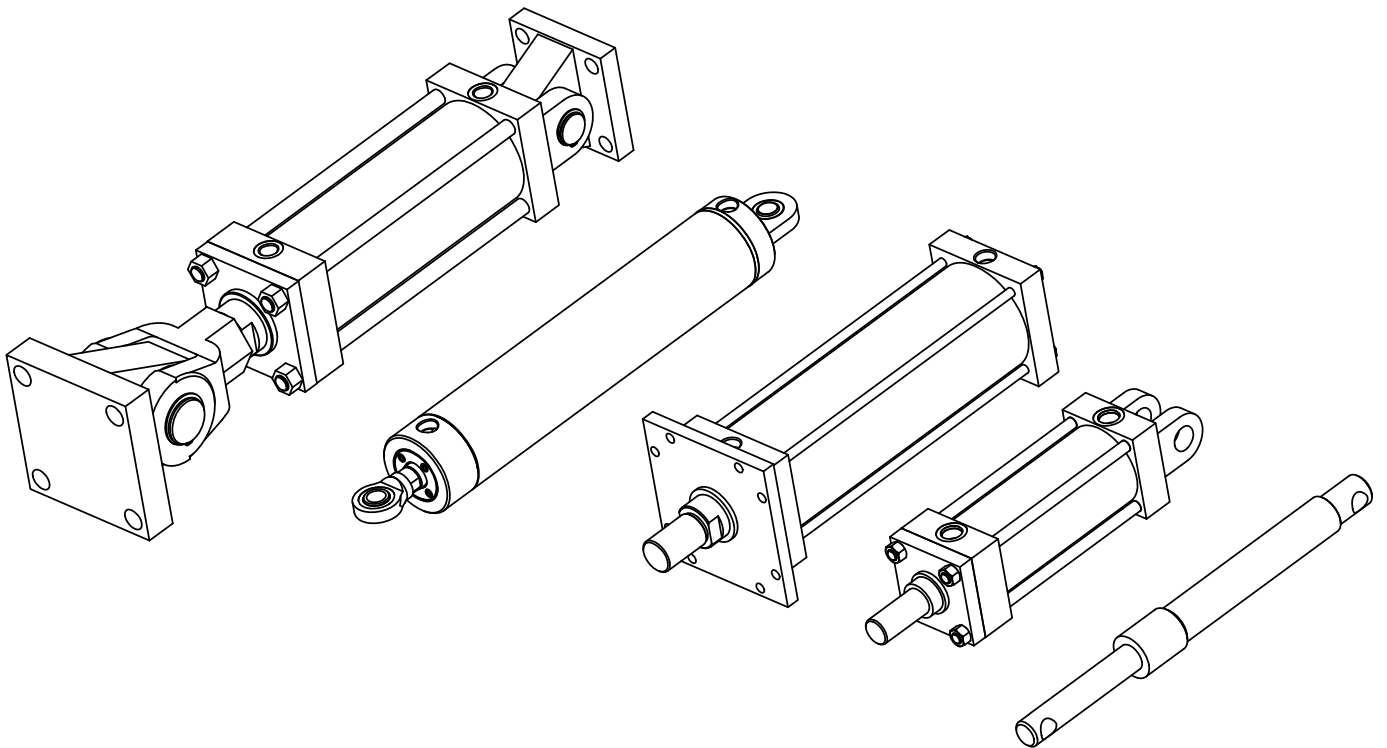


HPI *Cylinders*

Manufacturers of Hydraulic & Air Cylinders
Since 1946



Cylinder Catalog 2023

Main Plant
13766 Milroy Place
Santa Fe Springs, CA 90670
Phone (800) 660-2957 (562) 926-1122 FAX (562) 926-1155



HPI Cylinders has been providing NFPA Interchangeable and custom designed cylinders and cylinder repair to the marketplace for **over 60 years**.

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- **3 to 5 day delivery** on most NFPA standard models
- **Same day shipment** in emergency situations when possible
- **Custom design** and reverse engineering – from your sketches, photos, or samples
- **Repair of any brand** of cylinder, with no cost for evaluation
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- **3 Year Warranty** on new cylinders, **1 year** on repair work

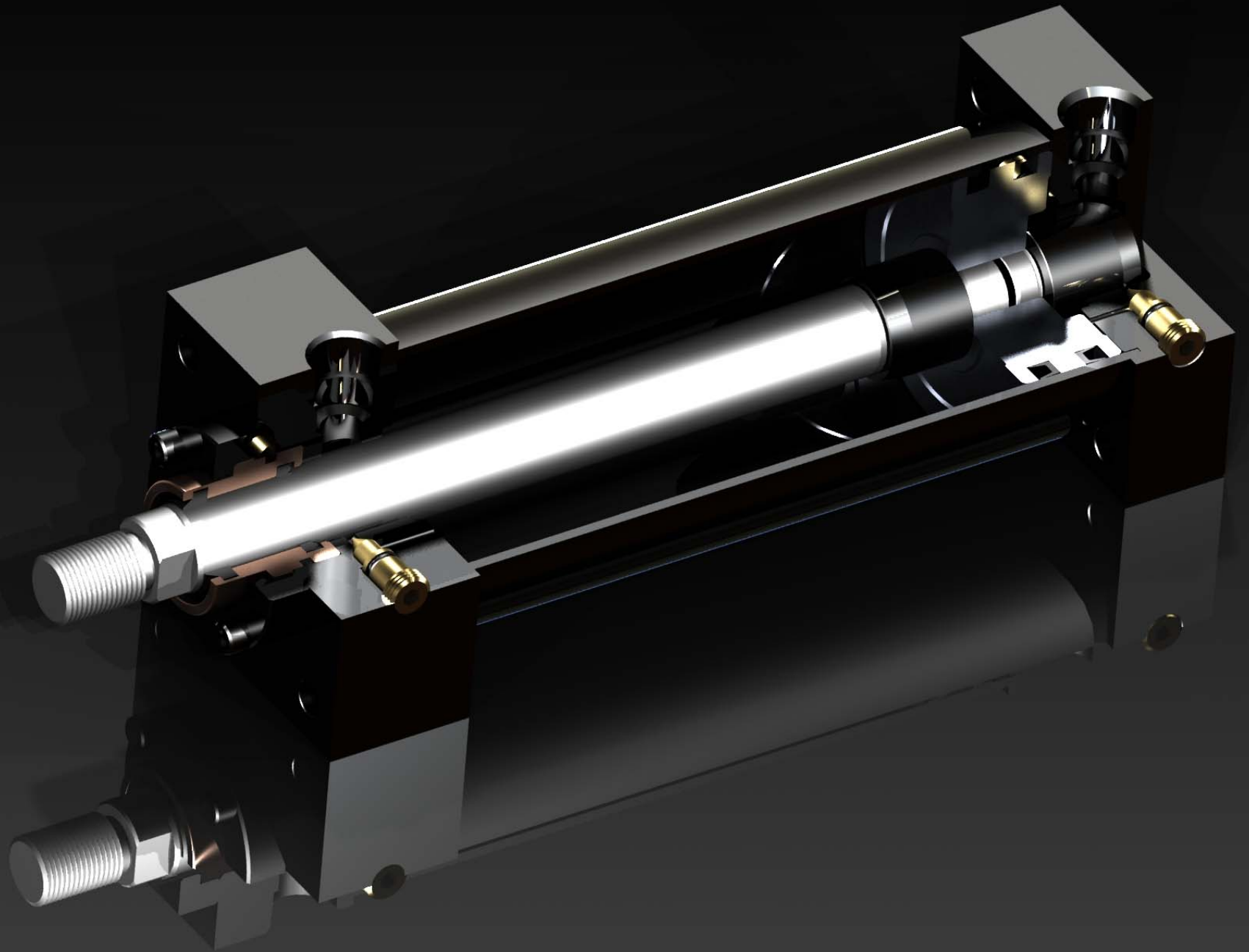
Our complete NFPA catalog can be viewed or downloaded in PDF format from our website.

www.HPICYLINDERS.com

Thank you for your time in considering HPI Cylinders for your cylinder requirements.

Jim Whitney
President

HPI Cylinders



MOUNTING OPTIONS

<p>MX1 EXT. TIE RODS BOTH ENDS</p> 	<p>MX2 EXT. TIE RODS CAP END</p> 	<p>MX3 EXT. TIE RODS HEAD END</p> 	<p>MS5 TAPPED HEAD FACE</p> 	<p>MS6 TAPPED CAP FACE</p> 
<p>MF1 RECTANGULAR FLANGE HEAD END</p> 	<p>MF2 RECTANGULAR FLANGE CAP END</p> 	<p>MF5 SQUARE FLANGE HEAD END</p> 	<p>MF6 SQUARE FLANGE CAP END</p> 	
<p>ME3 HEAD FLANGE</p> 	<p>ME4 CAP FLANGE</p> 	<p>ME5 RECTANGULAR HEAD</p> 	<p>ME6 RECTANGULAR CAP</p> 	
<p>MS1 END ANGLES</p> 	<p>MS2 SIDE LUGS</p> 	<p>MS3 CENTERLINE LUGS</p> 	<p>MS4 BOTTOM TAPPED</p> 	<p>MS7 END LUGS</p> 
<p>MP1 CAP FIXED CLEVIS</p> 	<p>MP2 DETACHABLE CAP CLEVIS</p> 	<p>MP3 CAP FIXED PIVOT</p> 	<p>MP4 DETACHABLE CAP PIVOT</p> 	<p>MPU SPHERICAL BEARING</p> 
<p>MT1 HEAD TRUNNION</p> 	<p>MT2 CAP TRUNNION</p> 	<p>MT4 INTERMEDIATE TRUNNION</p> 	<p>CERTAIN MOUNTS MAY REQUIRE LOWER OPERATING PRESSURE WHEN USED IN HYDRAULIC APPLICATIONS.</p> <p>CERTAIN MOUNTS CAN BE COMBINED WITH OTHERS IN A DUAL MOUNT CONFIGURATION.</p> <p>DOUBLE ENDED CYLINDERS ARE AVAILABLE FOR SELECT MOUNTS.</p> <p>PLEASE CONSULT THE FACTORY FOR DETAILS.</p>	

SERIES AK and JK CYLINDERS



SERIES AK

Heavy Duty Air Cylinder
Rated to **250** PSI

SERIES JK

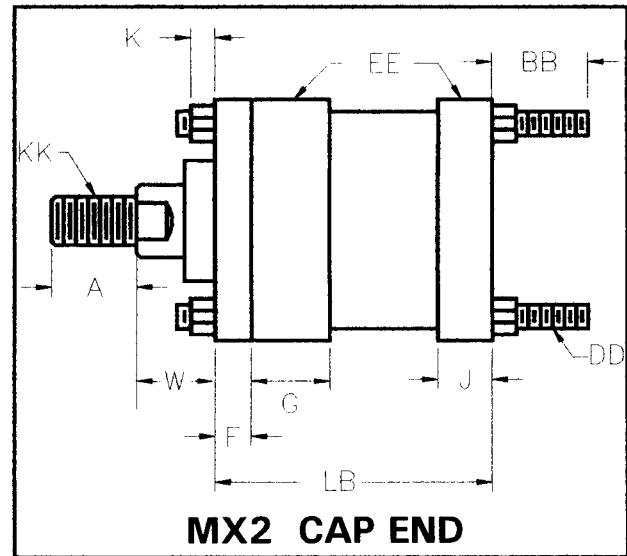
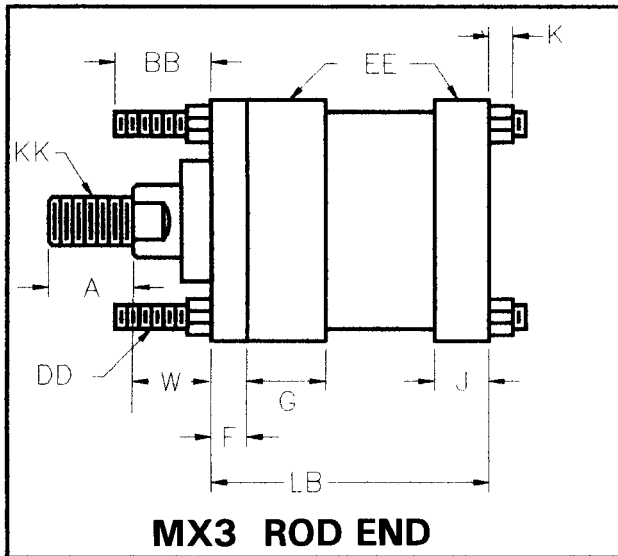
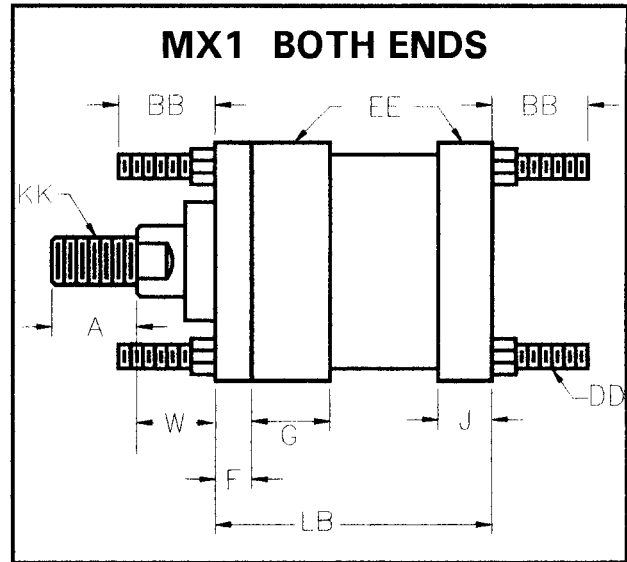
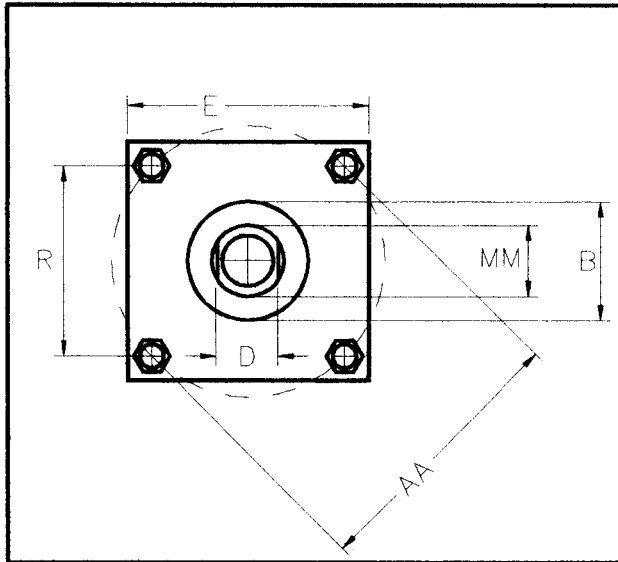
Light Duty Hydraulic Cylinder
Ratings Up to **2500** PSI

FEATURES:

- NFPA interchangeable
- Induction hardened chrome plated rod
- Chrome plated cylinder tube
- Bronze rod gland
- “Off the shelf” seals

**EXTENDED TIE ROD MOUNT
MX1, MX2 and MX3**

A & J SERIES



ENVELOPE AND MOUNTING DIMENSIONS

BORE	AA	BB	DD	R	E	EE	NPT	F	G	J	K	ADD TO
												STROKE
												LB
1 1/2	2.02	1	1/4-28	1.43	2	3/8	3/8	3/8	1 1/2	1	1/4	4
2	2.6	1 1/8	5/16-24	1.84	2 1/2	3/8	3/8	3/8	1 1/2	1	5/16	4
2 1/2	3.1	1 1/8	5/16-24	2.19	3	3/8	3/8	3/8	1 1/2	1	5/16	4 1/8
3 1/4	3.9	1 3/8	3/8-24	2.76	3 3/4	1/2	5/8	1 3/4	1 3/4	1 1/4	3/8	4 7/8
4	4.7	1 3/8	3/8-24	3.32	4 1/2	1/2	5/8	1 3/4	1 3/4	1 1/4	3/8	4 7/8
5	5.8	1 13/16	1/2-20	4.10	5 1/2	1/2	5/8	1 3/4	1 3/4	1 1/4	7/16	5 1/8
6	6.9	1 13/16	1/2-20	4.88	6 1/2	3/4	3/4	2	2	1 1/2	7/16	5 3/4
8	9.1	2 5/16	5/8-18	6.44	8 1/2	1	1	2	2	1 1/2	9/16	6.125

**EXTENDED TIE RODS
MX1, MX2 and MX3**

A & J SERIES

ROD DIMENSIONS

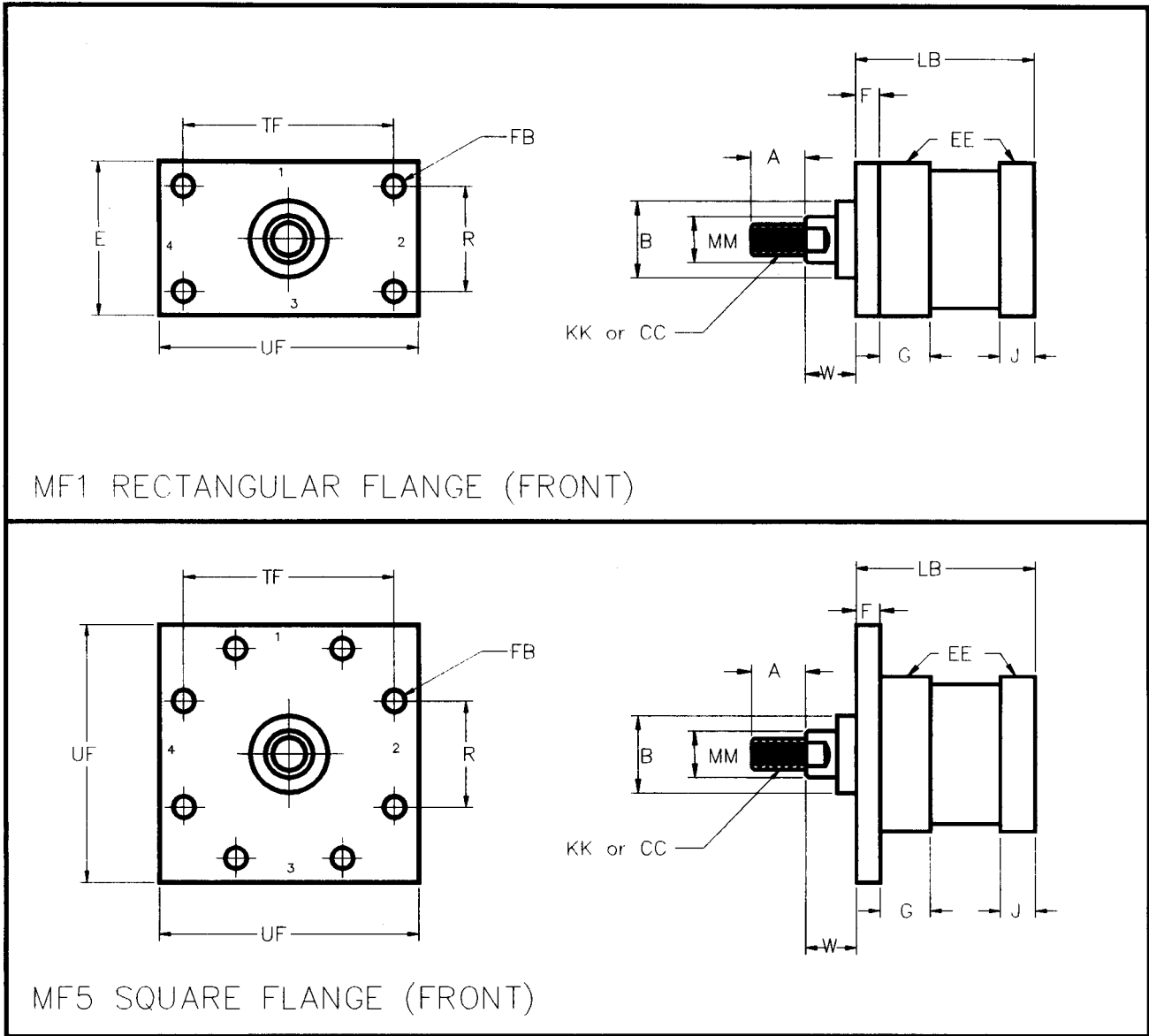
BORE	ROD DIA.	A	KK	OPTION	D	B	W
	MM			CC			
1 1/2	5/8	3/4	7/16-20	1/2-20	1/2	1.125	5/8
	1	1 1/8	3/4-16	7/8-14	7/8	1.500	1
2	5/8	3/4	7/16-20	1/2-20	1/2	1.125	5/8
	1	1 1/8	3/4-16	7/8-14	7/8	1.500	1
	1 3/8	1 5/8	1-14	1 1/4-12	1 1/8	2.000	1 1/4
2 1/2	5/8	3/4	7/16-20	1/2-20	1/2	1.125	5/8
	1	1 1/8	3/4-16	7/8-14	7/8	1.500	1
	1 3/8	1 5/8	1-14	1 1/4-12	1 1/8	2.000	1 1/4
3 1/4	1	1 1/8	3/4-16	7/8-14	7/8	1.500	3/4
	1 3/8	1 5/8	1-14	1 1/4-12	1 1/8	2.000	1
	1 3/4	2	1 1/4-12	1/2-12	1 1/2	2.375	1 1/4
4	1	1 1/8	3/4-16	7/8-14	7/8	1.500	3/4
	1 3/8	1 5/8	1-14	1 1/4-12	1 1/8	2.000	1
	1 3/4	2	1 1/4-12	1 1/2-12	1 1/2	2.375	1 1/4
	2	2 1/4	1 1/2-12	1 3/4-12	1 11/16	2.625	1 3/8
5	1	1 1/8	3/4-16	7/8-14	7/8	1.500	3/4
	1 3/8	1 5/8	1-14	1 1/4-12	1 1/8	2.000	1
	1 3/4	2	1 1/4-12	1 1/2-12	1 1/2	2.375	1 1/4
	2	2 1/4	1 1/2-12	1 3/4-12	1 11/16	2.625	1 3/8
6	1 3/8	1 5/8	1-14	1 1/4-12	1 1/8	2.000	7/8
	1 3/4	2	1 1/4-12	1 1/2-12	1 1/2	2.375	1 1/8
	2	2 1/4	1 1/2-12	1 3/4-12	1 11/16	2.625	1 1/4
	2 1/2	3	1 7/8-12	2 1/4-12	2 1/16	3.125	1 1/2
8	1 3/8	1 5/8	1-14	1 1/4-12	1 1/8	2.000	7/8
	1 3/4	2	1 1/4-12	1 1/2-12	1 1/2	2.375	1 1/8
	2	2 1/4	1 1/2-12	1 3/4-12	4 5/8	2.625	1 1/4
	2 1/2	3	1 7/8-12	2 1/4-12	2 1/16	3.125	1 1/2
	3	3 1/2	2 1/4-12	2 3/4-12	2 5/8	3.750	1 1/2

NONSHADED AREAS ARE STANDARD SIZE SHAFT

Rev. 5/95

FLANGE MOUNT MF1 and MF5

A & J SERIES



MF1 RECTANGULAR FLANGE (FRONT)

MF5 SQUARE FLANGE (FRONT)

ENVELOPE AND MOUNTING DIMENSIONS

BORE	UF	TF	F	R	E	NPT	G	J	FB	ADD TO STROKE
										LB
1 1/2	3 3/8	2 3/4	3/8	1.43	2	3/8	1 1/2	1	5/16	4
2	4 1/8	3 3/8	3/8	1.84	2 1/2	3/8	1 1/2	1	3/8	4
2 1/2	4 5/8	3 7/8	3/8	2.19	3	3/8	1 1/2	1	3/8	4 1/8
3 1/4	5 1/2	4 11/16	5/8	2.76	3 3/4	1/2	1 3/4	1 1/4	7/16	4 7/8
4	6 1/4	5 7/16	5/8	3.32	4 1/2	1/2	1 3/4	1 1/4	7/16	4 7/8
5	7 5/8	6 5/8	5/8	4.10	5 1/2	1/2	1 3/4	1 1/4	9/16	5 1/8
6	8 5/8	7 5/8	3/4	4.88	6 1/2	3/4	2	1 1/2	9/16	5 3/4
8	11 1/4	10	1	6.44	8 1/2	1	2	1 1/2	9/16	6.125

**FLANGE MOUNT
MF1 and MF5**

A & J SERIES

ROD DIMENSIONS

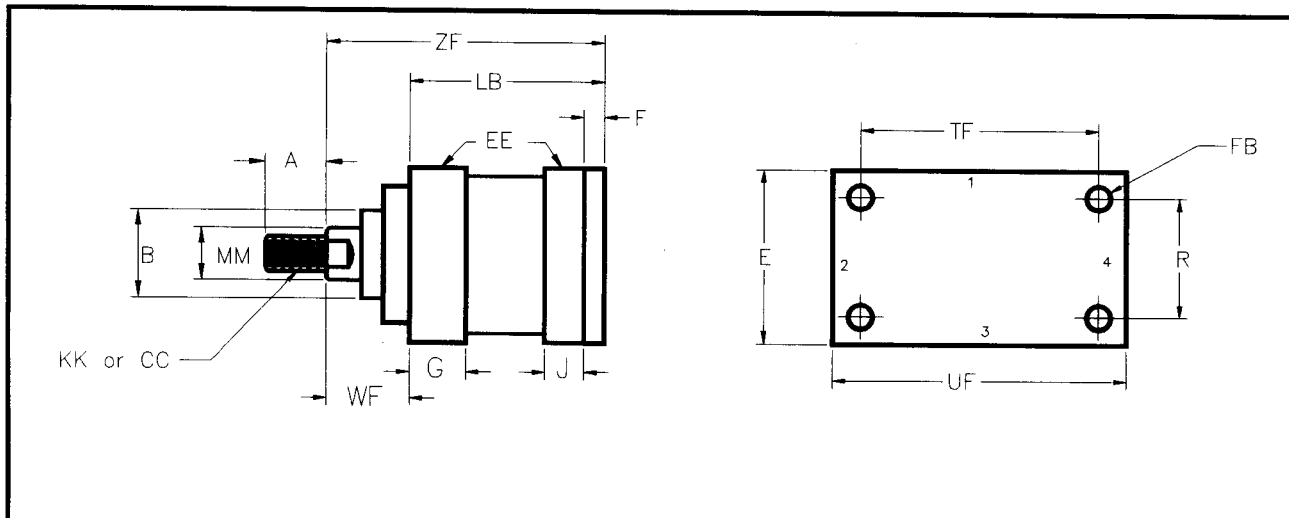
BORE	ROD DIA.	A	STANDARD THREAD	OPTIONAL THREAD	B	W
	MM		KK	CC		
1 1/2	5/8	3/4	7/16-20	1/2-20	1.125	5/8
	1	1 1/8	3/4-16	7/8-14	1.500	1
2	5/8	3/4	7/16-20	1/2-20	1.125	5/8
	1	1 1/8	3/4-16	7/8-14	1.500	1
	1 3/8	1 5/8	1-14	1 1/4-12	2.000	1 1/4
2 1/2	5/8	3/4	7/16-20	1/2-20	1.125	5/8
	1	1 1/8	3/4-16	7/8-14	1.500	1
	1 3/8	1 5/8	1-14	1 1/4-12	2.000	1 1/4
3 1/4	1	1 1/8	3/4-16	7/8-14	1.500	3/4
	1 3/8	1 5/8	1-14	1 1/4-12	2.000	1
	1 3/4	2	1 1/4-12	1/2-12	2.375	1 1/4
4	1	1 1/8	3/4-16	7/8-14	1.500	3/4
	1 3/8	1 5/8	1-14	1 1/4-12	2.000	1
	1 3/4	2	1 1/4-12	1 1/2-12	2.375	1 1/4
	2	2 1/4	1 1/2-12	1 3/4-12	2.625	1 3/8
5	1	1 1/8	3/4-16	7/8-14	1.500	3/4
	1 3/8	1 5/8	1-14	1 1/4-12	2.000	1
	1 3/4	2	1 1/4-12	1 1/2-12	2.375	1 1/4
	2	2 1/4	1 1/2-12	1 3/4-12	2.625	1 3/8
6	1 3/8	1 5/8	1-14	1 1/4-12	2.000	7/8
	1 3/4	2	1 1/4-12	1 1/2-12	2.375	1 1/8
	2	2 1/4	1 1/2-12	1 3/4-12	2.625	1 1/4
	2 1/2	3	1 7/8-12	2 1/4-12	3.125	1 1/2
8	1 3/8	1 5/8	1-14	1 1/4-12	2.000	7/8
	1 3/4	2	1 1/4-12	1 1/2-12	2.375	1 1/8
	2	2 1/4	1 1/2-12	1 3/4-12	2.625	1 1/4
	2 1/2	3	1 7/8-12	2 1/4-12	3.125	1 1/2
	3	3 1/2	2 1/4-12	2 3/4-12	3.750	1 1/2

REV. 9/95

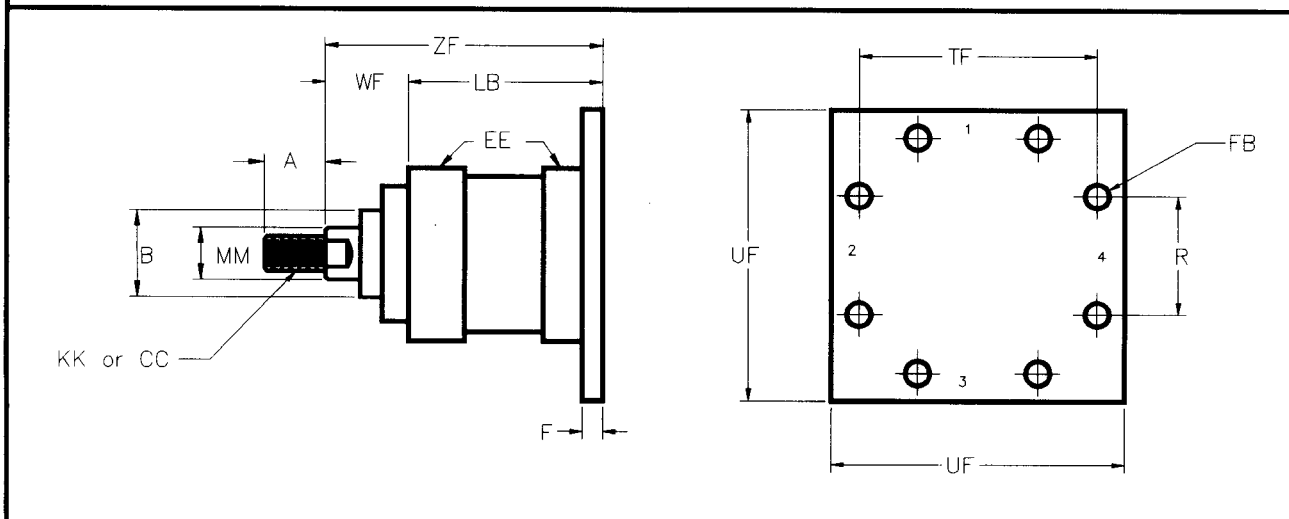
NONSHADED AREAS ARE STANDARD SIZE RODS

FLANGE MOUNT MF2 and MF6

A & J SERIES



MF2 RECTANGULAR FLANGE (REAR)



MF6 SQUARE FLANGE (REAR)

ENVELOPE AND MOUNTING DIMENSIONS

BORE	UF	TF	F	R	E	EE NPT	G	J	FB	ADD TO STROKE
										LB
1 1/2	3 3/8	2 3/4	3/8	1.43	2	3/8	1 1/2	1	5/16	4
2	4 1/8	3 3/8	3/8	1.84	2 1/2	3/8	1 1/2	1	3/8	4
2 1/2	4 5/8	3 7/8	3/8	2.19	3	3/8	1 1/2	1	3/8	4 1/8
3 1/4	5 1/2	4 11/16	5/8	2.76	3 3/4	1/2	1 3/4	1 1/4	7/16	4 7/8
4	6 1/4	5 7/16	5/8	3.32	4 1/2	1/2	1 3/4	1 1/4	7/16	4 7/8
5	7 5/8	6 5/8	5/8	4.10	5 1/2	1/2	1 3/4	1 1/4	9/16	5 1/8
6	8 5/8	7 5/8	3/4	4.88	6 1/2	3/4	2	1 1/2	9/16	5 3/4
8	11 1/4	10	1	6.44	8 1/2	1	2	1 1/2	11/16	6 1/8

**FLANGE MOUNT
MF2 and MF6**

A & J SERIES

ROD DIMENSIONS

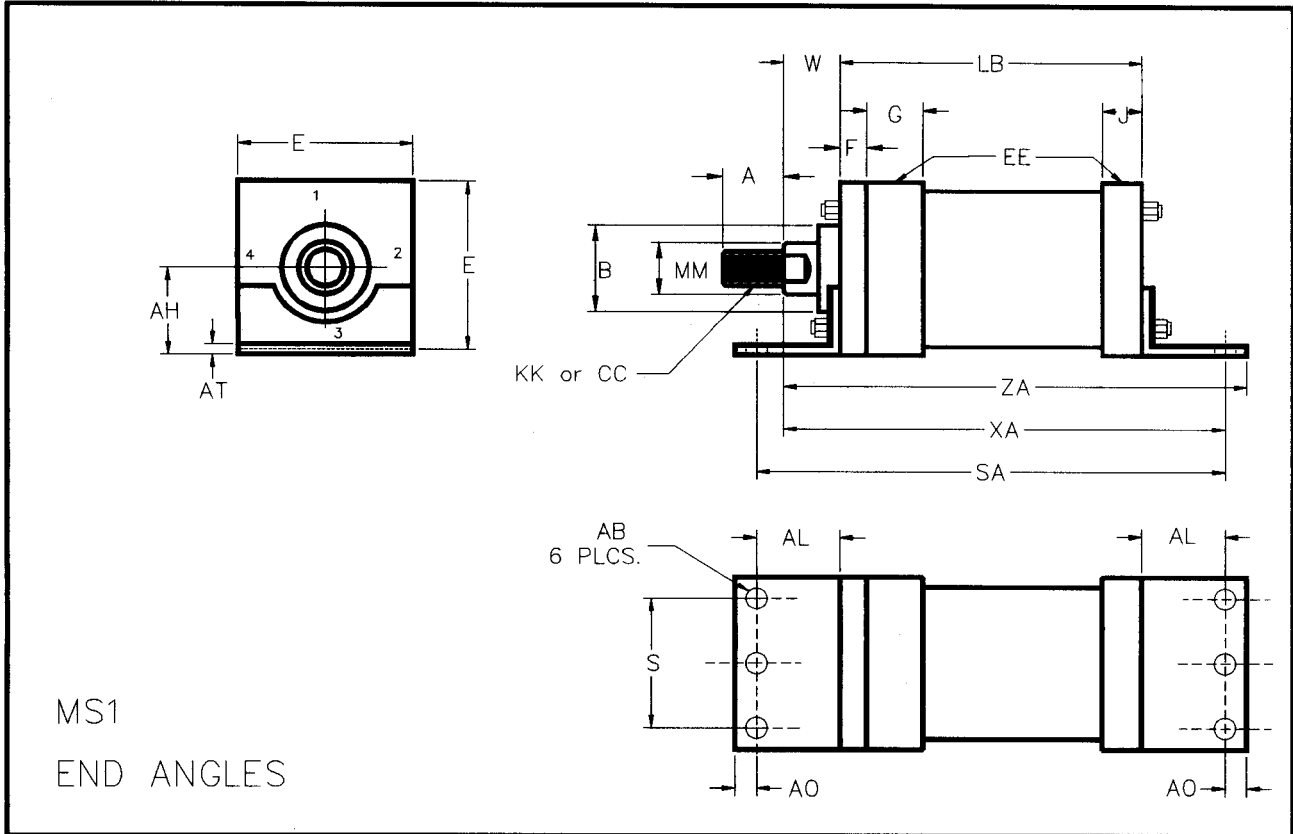
BORE	ROD DIA.	A	STANDARD THREAD	OPTION THREAD	B	WF	ADD TO STROKE
	MM		KK	CC			ZF
1 1/2	5/8	3/4	7/16-20	1/2-20	1.125	1	5
	1	1 1/8	3/4-16	7/8-14	1.500	1 3/8	5 3/8
2	5/8	3/4	7/16-20	1/2-20	1.125	1	5
	1	1 1/8	3/4-16	7/8-14	1.500	1 3/8	5 3/8
	1 3/8	1 5/8	1-14	1 1/4-12	2.000	1 5/8	5 5/8
2 1/2	5/8	3/4	7/16-20	1/2-20	1.125	1	5 1/8
	1	1 1/8	3/4-16	7/8-14	1.500	1 3/8	5 1/2
	1 3/8	1 5/8	1-14	1 1/4-12	2.000	1 5/8	5 3/4
3 1/4	1	1 1/8	3/4-16	7/8-14	1.500	1 3/8	6 1/4
	1 3/8	1 5/8	1-14	1 1/4-12	2.000	1 5/8	6 1/2
	1 3/4	2	1 1/4-12	1/2-12	2.375	1 7/8	6 3/4
4	1	1 1/8	3/4-16	7/8-14	1.500	1 3/8	6 1/4
	1 3/8	1 5/8	1-14	1 1/4-12	2.000	1 5/8	6 1/2
	1 3/4	2	1 1/4-12	1 1/2-12	2.375	1 7/8	6 3/4
	2	2 1/4	1 1/2-12	1 3/4-12	2.625	2	6 7/8
5	1	1 1/8	3/4-16	7/8-14	1.500	1 3/8	6 1/2
	1 3/8	1 5/8	1-14	1 1/4-12	2.000	1 5/8	6 3/4
	1 3/4	2	1 1/4-12	1 1/2-12	2.375	1 7/8	7
	2	2 1/4	1 1/2-12	1 3/4-12	2.625	2	7 1/8
6	1 3/8	1 5/8	1-14	1 1/4-12	2.000	1 5/8	7 3/8
	1 3/4	2	1 1/4-12	1 1/2-12	2.375	2 1/2	7 5/8
	2	2 1/4	1 1/2-12	1 3/4-12	2.625	2	7 3/4
	2 1/2	3	1 7/8-12	2 1/4-12	3.125	2 1/4	8
8	1 3/8	1 5/8	1-14	1 1/4-12	2.000	1 5/8	7 3/8
	1 3/4	2	1 1/4-12	1 1/2-12	2.375	1 7/8	7 1/2
	2	2 1/4	1 1/2-12	1 3/4-12	2.625	2	7 3/4
	2 1/2	3	1 7/8-12	2 1/4-12	3.125	2 1/4	8
	3	3 1/2	2 1/4-12	2 3/4-12	3.750	2 1/4	8

NONSHADED AREAS ARE STANDARD SIZE RODS

REV.10/86

END ANGLES MOUNT MS1

A & J SERIES



MS1
END ANGLES

ENVELOPE AND MOUNTING DIMENSIONS

BORE	AB	AH	AL	AO	AT	E	EE NPT	F	S	ADD TO STROKE	
										LB	SA
1 1/2	7/16	1 3/16	1	3/8	1/8	2	3/8	3/8	1 1/4	4	6
2	7/16	1 7/16	1	3/8	1/8	2 1/2	3/8	3/8	1 3/4	4	6
2 1/2	7/16	1 5/8	1	3/8	1/8	3	3/8	3/8	2 1/4	4 1/8	6 1/8
3 1/4	9/16	1 15/16	1 1/4	1/2	1/8	3 3/4	1/2	5/8	2 3/4	4 7/8	7 3/8
4	9/16	2 1/4	1 1/4	1/2	1/8	4 1/2	1/2	5/8	3 1/2	4 7/8	7 3/8
5	11/16	2 3/4	1 3/8	5/8	3/16	5 1/2	1/2	5/8	4 1/4	5 1/8	7 7/8
6	13/16	3 1/4	1 3/8	5/8	3/16	6 1/2	3/4	3/4	5 1/4	5 3/4	8 1/2
8	13/16	4 1/4	1 13/16	11/16	1/4	8 1/2	1	3/4	7 1/8	6 1/8	8 3/4

**END ANGLES MOUNT
MS1**

A & J SERIES

ROD DIMENSIONS

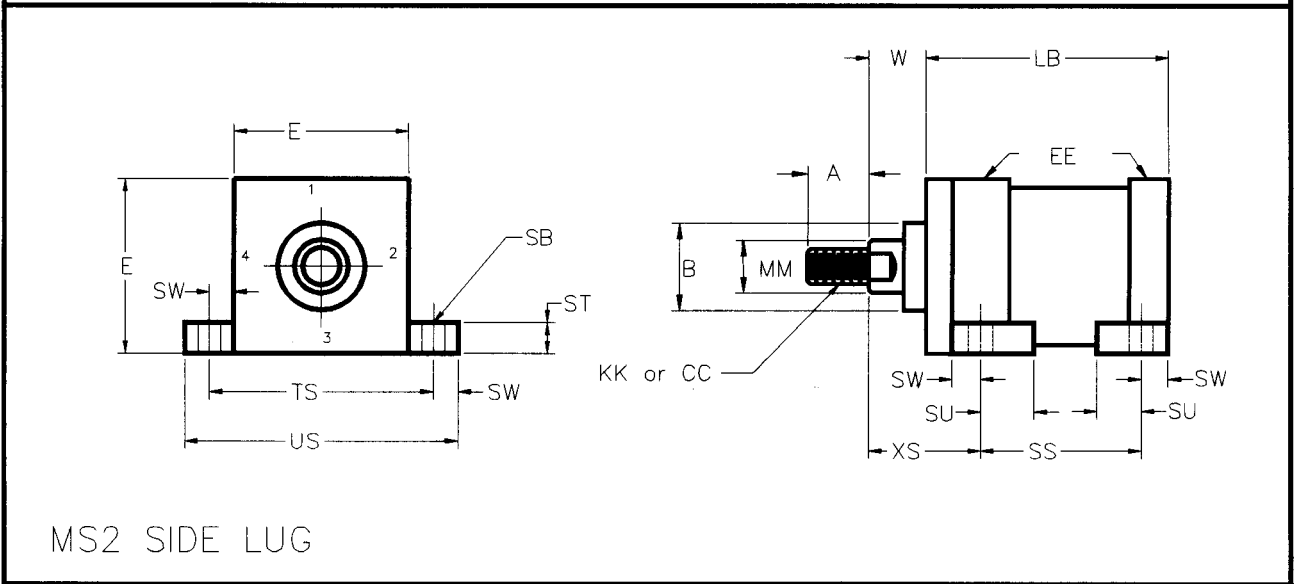
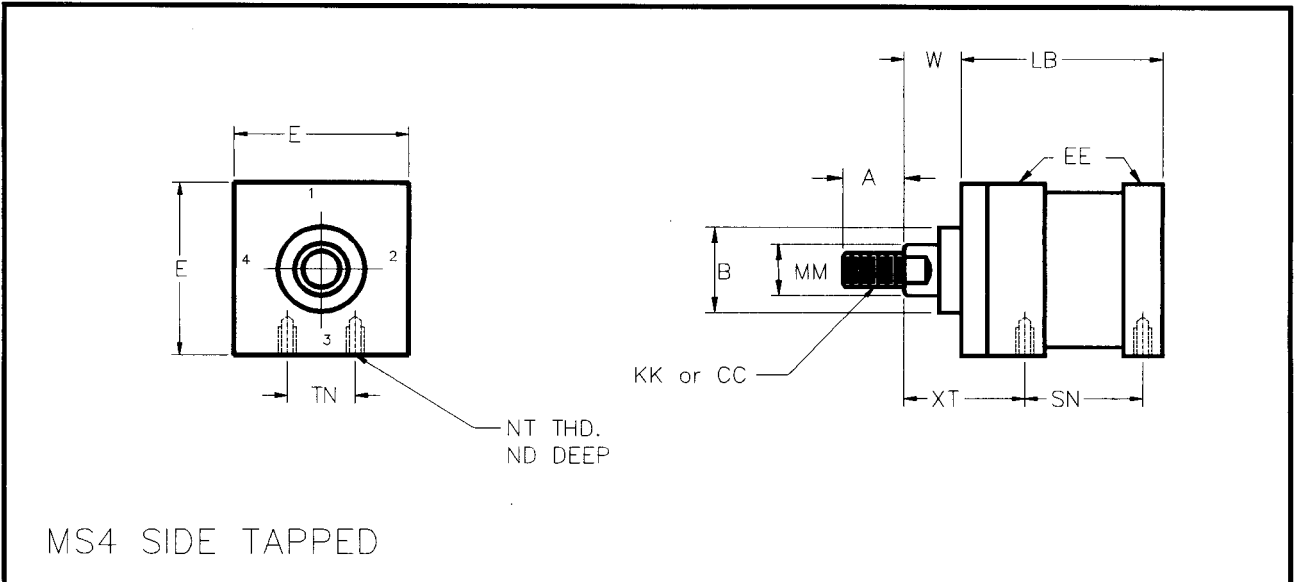
BORE	ROD DIA. MM	A	STANDARD THREAD KK	OPTIONAL THREAD CC	W	ADD TO STROKE	
						XA	ZA
1 1/2	5/8	3/4	7/16-20	1/2-20	5/8	5 5/8	6
	1	1 1/8	3/4-16	7/8-14	1	6	6 3/8
2	5/8	3/4	7/16-20	1/2-20	5/8	5 5/8	6
	1	1 1/8	3/4-16	7/8-14	1	6	6 3/8
	1 3/8	1 5/8	1-14	1 1/4-12	1 1/4	6 1/4	6 5/8
2 1/2	5/8	3/4	7/16-20	1/2-20	5/8	5 3/4	6 1/8
	1	1 1/8	3/4-16	7/8-14	1	6 1/8	6 1/2
	1 3/8	1 5/8	1-14	1 1/4-12	1 1/4	6 3/8	6 3/4
3 1/4	1	1 1/8	3/4-16	7/8-14	3/4	6 7/8	7 3/8
	1 3/8	1 5/8	1-14	1 1/4-12	1	7 1/8	7 5/8
	1 3/4	2	1 1/4-12	1 1/2-12	1 1/4	7 3/8	7 7/8
4	1	1 1/8	3/4-16	7/8-14	3/4	6 7/8	7 3/8
	1 3/8	1 5/8	1-14	1 1/4-12	1	7 1/8	7 5/8
	1 3/4	2	1 1/4-12	1 1/2-12	1 1/4	7 3/8	7 7/8
	2	2 1/4	1 1/2-12	1 3/4-12	1 3/8	7 1/2	8
5	1	1 1/8	3/4-16	7/8-14	3/4	7 1/4	7 7/8
	1 3/8	1 5/8	1-14	1 1/4-12	1	7 1/2	7 1/8
	1 3/4	2	1 1/4-12	1 1/2-12	1 1/4	7 3/4	8 3/8
	2	2 1/4	1 1/2-12	1 3/4-12	1 3/8	7 7/8	8 1/2
6	1 3/8	1 5/8	1-14	1 1/4-12	7/8	8	8 5/8
	1 3/4	2	1 1/4-12	1 1/2-12	1 1/8	8 1/4	8 7/8
	2	2 1/4	1 1/2-12	1 3/4-12	1 1/4	8 3/8	9
	2 1/2	3	1 7/8-12	2 1/4-12	1 1/2	8 5/8	9 1/4
8	1 3/8	1 5/8	1-14	1 1/4-12	7/8	8 9/16	9 1/4
	1 3/4	2	1 1/4-12	1 1/2-12	1 1/8	8 13/16	9 1/2
	2	2 1/4	1 1/2-12	1 3/4-12	1 1/4	8 15/16	9 5/8
	2 1/2	3	1 7/8-12	2 1/4-12	1 1/2	9 3/16	9 7/8
	3	3 1/2	2 1/4-12	2 3/4-12	1 1/2	9 3/16	9 7/8

REV. 9/96

NONSHADED AREAS SHOW STANDARD ROD DIMENSIONS

SIDE TAPPED AND SIDE LUG MOUNTS MS2 AND MS4

A & J SERIES



ENVELOPE AND MOUNTING DIMENSIONS

BORE	E	NPT	SB	ST	SU	SW	TN	TS	US	ADD TO STROKE		
										LB	SN	SS
1 1/2	2	3/8	7/16	1/2	15/16	3/8	5/8	2 3/4	3 1/2	4	2 1/4	2 7/8
2	2 1/2	3/8	7/16	1/2	15/16	3/8	7/8	3 1/4	4	4	2 1/4	2 7/8
2 1/2	3	3/8	7/16	1/2	15/16	3/8	1 1/4	3 3/4	4 1/2	4 1/8	2 3/8	3
3 1/4	3 3/4	1/2	9/16	3/4	1 1/4	1/2	1 1/2	4 3/4	5 3/4	4 7/8	2 5/8	3 1/4
4	4 1/2	1/2	9/16	3/4	1 1/4	1/2	2 1/16	5 1/2	6 1/2	4 7/8	2 5/8	3 1/4
5	5 1/2	1/2	13/16	1	1 9/16	11/16	2 11/16	6 7/8	8 1/4	5 1/8	2 7/8	3 1/8
6	6 1/2	3/4	13/16	1	1 9/16	11/16	3 1/4	7 7/8	9 1/4	5 3/4	3 1/8	3 5/8
8	8 1/2	1	13/16	1	1 9/16	11/16	4 1/2	9 7/8	11 1/4	6 1/8	3 1/4	3 3/4

**SIDE TAPPED AND SIDE LUG MOUNTS
MS2 AND MS4**

A & J SERIES

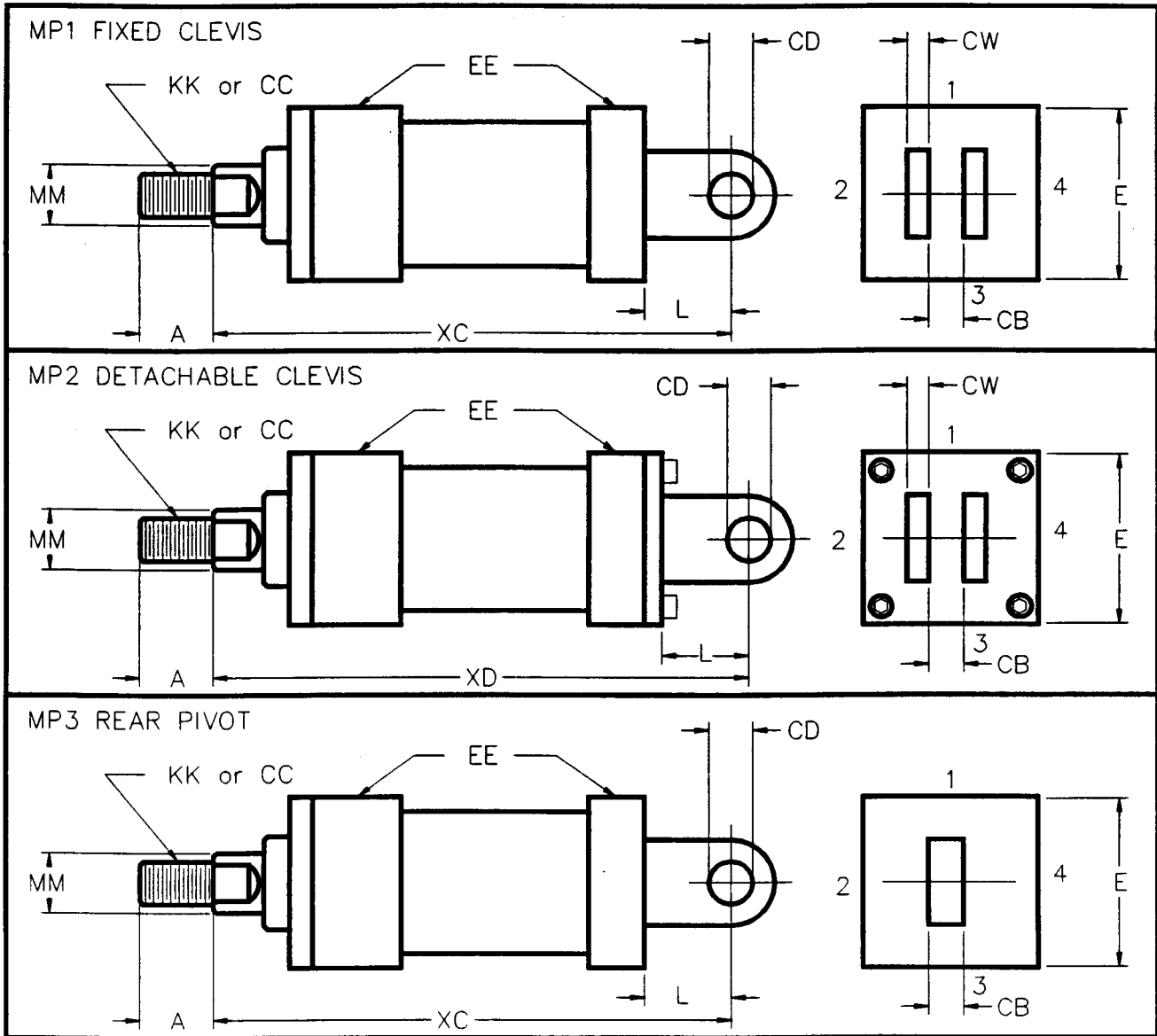
ROD DIMENSIONS

BORE	ROD DIA.	STD.	OPTIONAL							
	MM	KK	CC	A	B	W	NT	ND	XS	XT
1 1/2	5/8	7/16-20	1/2-20	3/4	1.125	5/8	1/4-20	3/16	1 3/8	1 15/16
	1	3/4-16	7/8-14	1 1/8	1.500	1	1/4-20	3/16	1 3/4	2 5/16
2	5/8	7/16-20	1/2-20	3/4	1.125	5/8	5/16/18	11/32	1 3/8	1 15/16
	1	3/4-16	7/8-14	1 1/8	1.500	1	5/16/18	11/32	1 3/4	2 5/16
	1 3/8	1-14	1 1/4-12	1 5/8	2.000	1 1/4	5/16-18	11/32	2	2 9/16
2 1/2	5/8	7/16-20	1/2-20	3/4	1.125	5/8	3/8-16	7/16	1 3/8	1 15/16
	1	3/4-16	7/8-14	1 1/8	1.500	1	3/8-16	7/16	1 3/4	2 5/16
	1 3/8	1-14	1 1/4-12	1 5/8	1.200	1 1/4	3/8-16	7/16	2	2 9/16
3 1/4	1	3/4-16	7/8-14	1 1/8	1.500	3/4	1/2-13	1/2	1 7/8	2 7/16
	1 3/8	1-14	1 1/4-12	1 5/8	2.000	1	1/2-13	1/2	2 1/8	2 11/16
	1 3/4	1 1/4-12	1 1/2-12	2	2.375	1 1/4	1/2-13	1/2	2 3/8	2 15/16
4	1	3/4-16	7/8-14	1 1/8	1.500	3/4	1/2-13	5/8	1 7/8	2 7/16
	1 3/8	1-14	1 1/4-12	1 5/8	2.000	1	1/2-13	5/8	2 1/8	2 11/16
	1 3/4	1 1/4-12	1 1/2-12	2	2.375	1 1/4	1/2-13	5/8	2 3/8	2 15/16
	2	1 1/2-12	2 3/4-12	2 1/4	2.625	1 3/8	1/2-13	5/8	2 1/2	3 1/16
5	1	3/4-16	7/8-14	1 1/8	1.500	3/4	5/8-11	3/4	2 1/16	2 7/16
	1 3/8	1-14	1 1/4-12	1 5/8	2.000	1	5/8-11	3/4	2 5/16	2 11/16
	1 3/4	1 1/4-12	1 1/2-12	2	2.375	1 1/4	5/8-11	3/4	2 9/16	2 15/16
	2	1 1/2-12	1 3/4-12	2 1/4	2.625	1 3/8	5/8-11	3/4	2 11/16	3 1/16
6	1 3/8	1-14	1 1/4-12	1 5/8	2.000	7/8	3/4-10	7/8	2 5/16	2 13/16
	1 3/4	1 1/4-12	1 1/2-12	2	2.375	1 1/8	3/4-10	7/8	2 9/16	3 1/16
	2	1 1/2-12	1 3/4-12	2 1/4	2.625	1 1/4	3/4-10	7/8	2 11/16	3 3/16
	2 1/2	1 7/8-12	2 1/4-12	3	3.125	1 1/2	3/4-10	7/8	2 15/16	3 7/16
8	1 3/8	1-14	1 1/4-12	1 5/8	2.000	7/8	3/4-10	1 1/8	2 5/16	2 13/16
	1 3/4	1 1/4-12	1 1/2-12	2	2.375	1 1/8	3/4-10	1 1/8	2 9/16	3 1/16
	2	1 1/2-12	1 3/4-12	4 1/4	2.625	1 1/4	3/4-10	1 1/8	2 11/16	3 3/16
	2 1/2	1 7/8-12	2 1/4-12	3	3.125	1 1/2	3/4-10	1 1/8	2 15/16	3 7/16
	3	2 1/4-12	2 3/4-12	3 1/2	3.750	1 1/2	3/4-10	1 1/8	2 15/16	3 7/16

NONSHADED AREAS SHOW STANDARD ROD DIMENSIONS

CLEVIS AND PIVOT MOUNT MP1, MP2, and MP3

A & J SERIES



ENVELOPE AND MOUNTING DIMENSIONS

BORE	CD	CB	CW	L	E	EE NPT
1 1/2	1/2	3/4	1/2	3/4	2	3/8
2	1/2	3/4	1/2	3/4	2 1/2	3/8
2 1/2	1/2	3/4	1/2	3/4	3	3/8
3 1/4	3/4	1 1/4	5/8	1 1/4	3 3/4	1/2
4	3/4	1 1/4	5/8	1 1/4	4 1/2	1/2
5	3/4	1 1/4	5/8	1 1/4	5 1/2	1/2
6	1	1 1/2	3/4	1 1/2	6 1/2	3/4
8	1	1 1/2	3/4	1 1/2	8 1/2	3/4

**CLEVIS AND PIVOT MOUNT
MP1, MP2, and MP3**

A & J SERIES

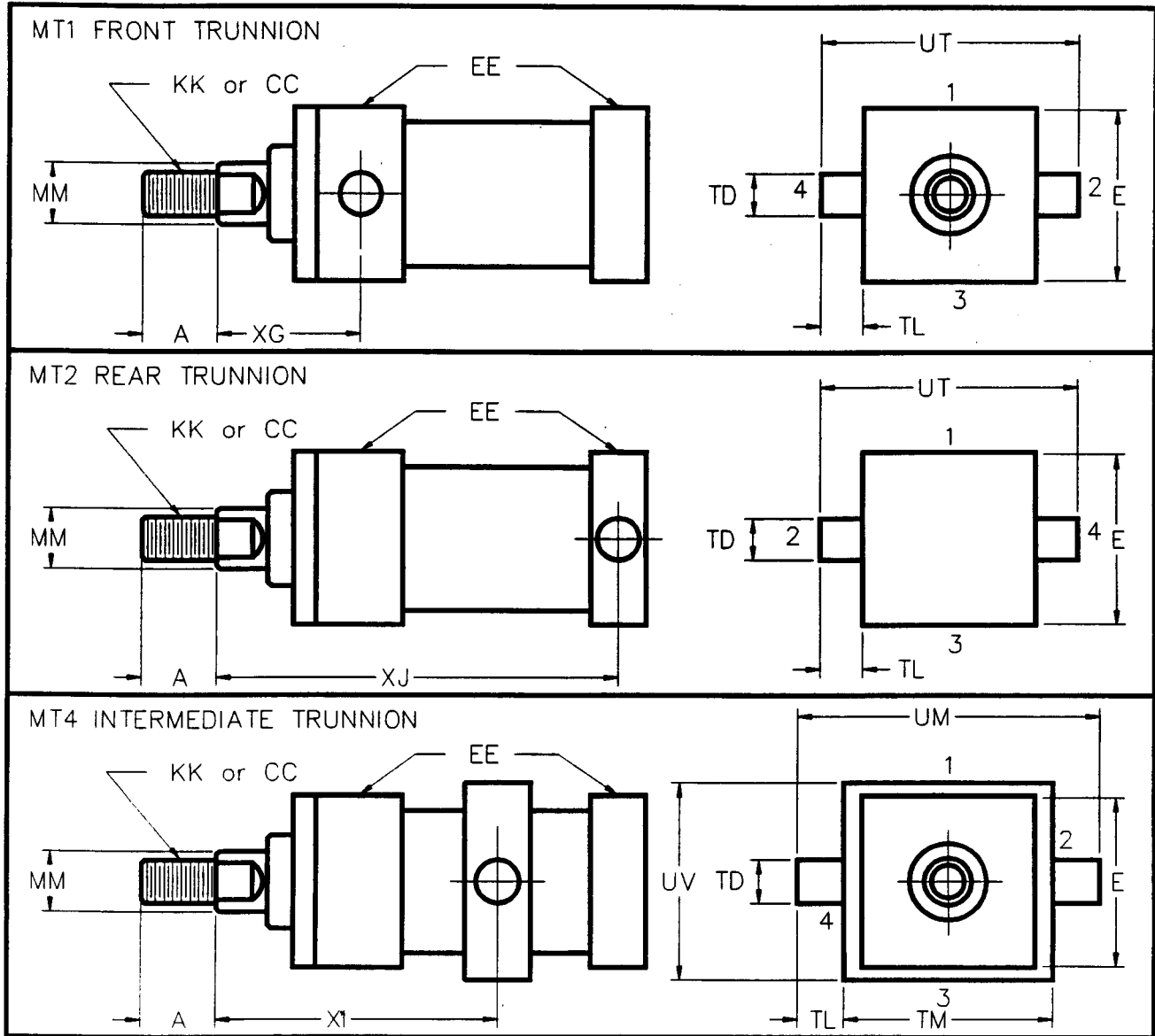
ROD DIMENSIONS

BORE	ROD DIA. MM	A	STANDARD THREAD KK	OPTIONAL THREAD CC	ADD TO STROKE	
					XC	XD
1 1/2	5/8	3/4	7/16-20	1/2-20	5 3/8	5 3/4
	1	1 1/8	3/4-16	7/8-14	5 3/4	6 1/8
2	5/8	3/4	7/16-20	1/2-20	5 3/8	5 3/4
	1	1 1/8	3/4-16	7/8-14	5 3/4	6 1/8
	1 3/8	1 5/8	1-14	1 1/4-12	6	6 3/8
2 1/2	5/8	3/4	7/16-20	1/2-20	5 1/2	5 7/8
	1	1 1/8	3/4-16	7/8-14	5 7/8	6 1/4
	1 3/8	1 5/8	1-14	1 1/4-12	6 1/8	6 1/2
3 1/4	1	1 1/8	3/4-16	7/8-14	6 7/8	7 1/2
	1 3/8	1 5/8	1-14	1 1/4-12	7 1/8	7 3/4
	1 3/4	2	1 1/4-12	1/2-12	7 3/8	8
4	1	1 1/8	3/4-16	7/8-14	6 7/8	7 1/2
	1 3/8	1 5/8	1-14	1 1/4-12	7 1/8	7 3/4
	1 3/4	2	1 1/4-12	1 1/2-12	7 3/8	8
	2	2 1/4	1 1/2-12	1 3/4-12	6 1/4	6 5/8
5	1	1 1/8	3/4-16	7/8-14	7 1/8	7 3/4
	1 3/8	1 5/8	1-14	1 1/4-12	7 3/8	8
	1 3/4	2	1 1/4-12	1 1/2-12	7 5/8	8 1/4
	2	2 1/4	1 1/2-12	1 3/4-12	7 3/4	8 3/8
6	1 3/8	1 5/8	1-14	1 1/4-12	8 1/8	8 7/8
	1 3/4	2	1 1/4-12	1 1/2-12	8 3/8	9 1/8
	2	2 1/4	1 1/2-12	1 3/4-12	8 1/2	9 1/4
	2 1/2	3	1 7/8-12	2 1/4-12	8 3/4	9 1/2
8	1 3/8	1 5/8	1-14	1 1/4-12	8 1/4	*
	1 3/4	2	1 1/4-12	1 1/2-12	8 1/2	*
	2	2 1/4	1 1/2-12	1 3/4-12	8 5/8	*
	2 1/2	3	1 7/8-12	2 1/4-12	8 7/8	*
	3	3 1/2	2 1/4-12	2 3/4-12	8 7/8	*

NONSHADED AREAS ARE STANDARD SIZE ROD *MP2 MOUNTING STYLE NOT AVAILABLE IN THIS BORE SIZE

TRUNNION MOUNT MT1, MT2 and MT4

A & J SERIES



ENVELOPE AND MOUNTING DIMENSIONS

BORE	TD	TL	UT	TM	UM	UV	E	EE NPT
1 1/2	1.000	1	4	2 1/2	4 1/2	2 1/2	2	3/8
2	1.000	1	4 1/2	3	5	3	2 1/2	3/8
2 1/2	1.000	1	5	3 1/2	5 1/2	3 1/2	3	3/8
3 1/4	1.000	1	5 3/4	4 1/2	6 1/2	4 1/2	3 3/4	1/2
4	1.000	1	6 1/2	5 1/4	7 1/4	5	4 1/2	1/2
5	1.000	1	7 1/2	6 1/4	8 1/4	6	5 1/2	1/2
6	1.375	1 3/8	9 1/4	7 5/8	10 3/8	7	6 1/2	3/4
8	1.375	1 3/8	11 1/4	9 3/4	12 1/2	9 1/2	8 1/2	1

**TRUNNION MOUNT
MT1, MT2 and MT4**

A & J SERIES

ROD DIMENSIONS

BORE	ROD DIA.	A	STANDARD THREAD	OPTIONAL THREAD	XG	(MIN)*	ADD TO STROKE
	MM		KK	CC		XI	XJ
1 1/2	5/8	3/4	7/16-20	1/2-20	1 3/4	3 3/16	4 1/8
	1	1 1/8	3/4-16	7/8-14	2 1/8	3 9/16	4 1/2
2	5/8	3/4	7/16-20	1/2-20	1 3/4	3 5/16	4 1/8
	1	1 1/8	3/4-16	7/8-14	2 1/8	3 11/16	4 1/2
	1 3/8	1 5/8	1-14	1 1/4-12	2 3/8	3 15/16	4 3/4
2 1/2	5/8	3/4	7/16-20	1/2-20	1 3/4	3 5/16	4 1/4
	1	1 1/8	3/4-16	7/8-14	2 1/8	3 11/16	4 5/8
	1 3/8	1 5/8	1-14	1 1/4-12	2 3/8	3 15/16	4 7/8
3 1/4	1	1 1/8	3/4-16	7/8-14	2 1/4	4 3/16	5
	1 3/8	1 5/8	1-14	1 1/4-12	2 1/2	4 7/16	5 1/4
	1 3/4	2	1 1/4-12	1/2-12	2 3/4	4 11/16	5 1/2
4	1	1 1/8	3/4-16	7/8-14	2 1/4	4 3/16	5
	1 3/8	1 5/8	1-14	1 1/4-12	2 1/2	4 7/16	5 1/4
	1 3/4	2	1 1/4-12	1 1/2-12	2 3/4	4 11/16	5 1/2
	2	2 1/4	1 1/2-12	1 3/4-12	2 7/8	4 13/16	5 5/8
5	1	1 1/8	3/4-16	7/8-14	2 1/4	4 5/16	5 1/4
	1 3/8	1 5/8	1-14	1 1/4-12	2 1/2	4 7/16	5 1/2
	1 3/4	2	1 1/4-12	1 1/2-12	2 3/4	4 11/16	5 3/4
	2	2 1/4	1 1/2-12	1 3/4-12	2 7/8	4 13/16	5 7/8
6	1 3/8	1 5/8	1-14	1 1/4-12	2 5/8	4 15/16	5 7/8
	1 3/4	2	1 1/4-12	1 1/2-12	2 7/8	5 3/16	6 1/8
	2	2 1/4	1 1/2-12	1 3/4-12	3	5 5/16	6 1/4
	2 1/2	3	1 7/8-12	2 1/4-12	3 1/4	5 9/16	6 1/2
8	1 3/8	1 5/8	1-14	1 1/4-12	2 5/8	2 5/8	6
	1 3/4	2	1 1/4-12	1 1/2-12	2 7/8	2 7/8	6 1/4
	2	2 1/4	1 1/2-12	1 3/4-12	3	3	6 3/8
	2 1/2	3	1 7/8-12	2 1/4-12	3 1/4	3 1/4	6 5/8
	3	3 1/2	2 1/4-12	2 3/4-12	3 1/4	3 1/4	6 5/8

REV. 9/95

NONSHADED AREAS ARE STANDARD SIZE RODS * XI TO BE SPECIFIED BY CUSTOMER

SERIES HK CYLINDERS



SERIES HK

Heavy Duty Hydraulic

Rated to **3000** PSI (5000 Non-Shock)

FEATURES:

NFPA interchangeable

Induction hardened chrome plated rod

Chrome plated cylinder tube

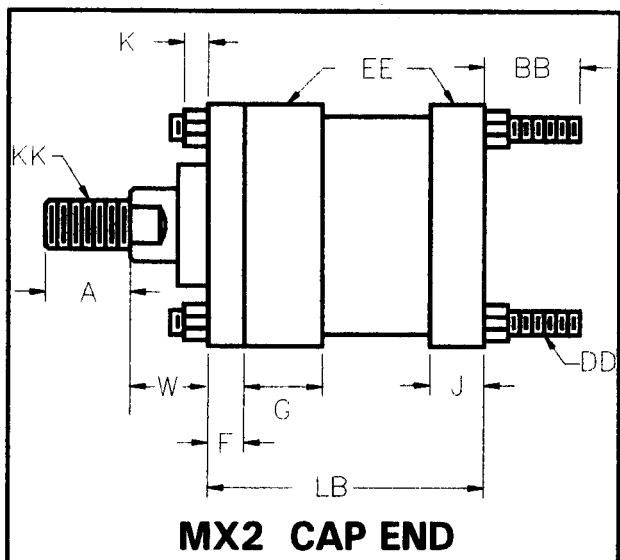
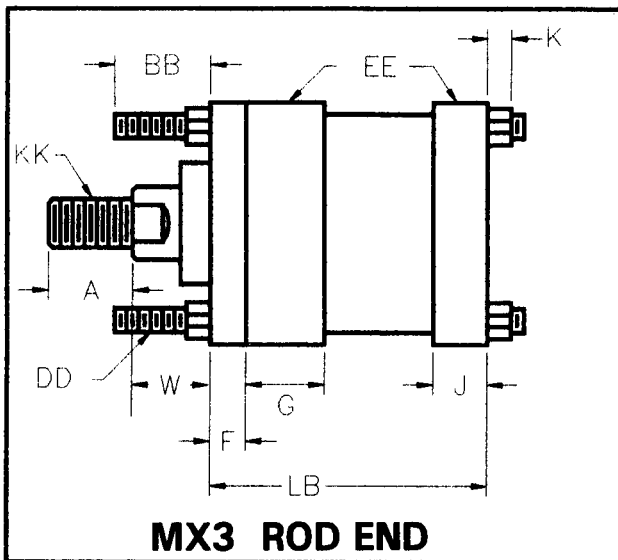
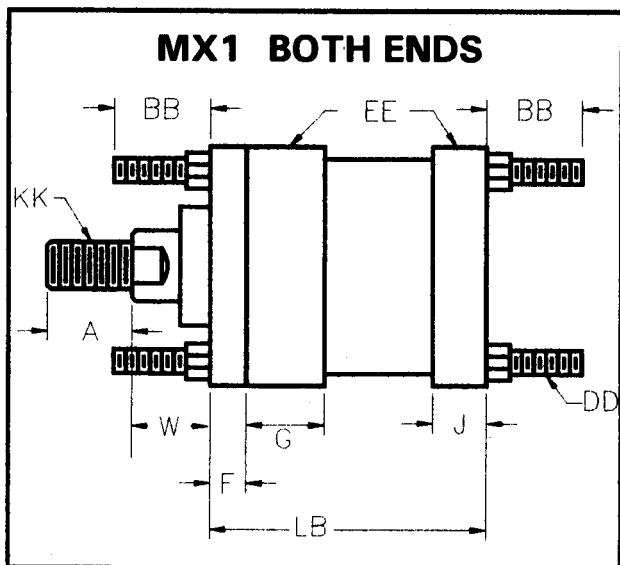
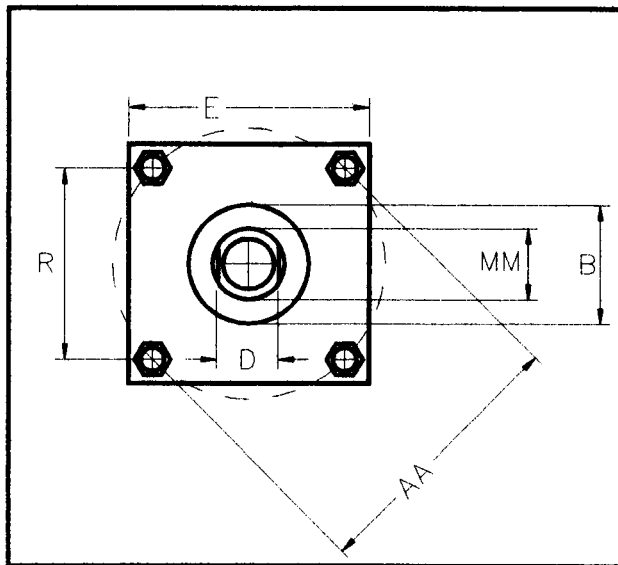
Bronze rod gland

“Off the shelf” seals

EXTENDED TIE ROD MOUNT MX1, MX2 and MX3

H SERIES

BASIC DIMENSIONS



ENVELOPE AND MOUNTING DIMENSIONS

BORE	AA	BB	DD	R	E	EE PORT		G	J	F	K	ADD TO STROKE LB
						STD. SAE	OPT. NPT					
1 1/2	2.3	1 3/8	3/8-24	1.63	2 1/2	10	1/2	1 3/4	1 1/2	3/8	3/8	5
2	2.9	1 13/16	1/2-20	2.05	3	10	1/2	1 3/4	1 1/2	5/8	7/16	5 1/4
2 1/2	3.6	1 13/16	1/2-20	2.55	3 1/2	10	1/2	1 3/4	1 1/2	5/8	7/16	5 3/8
3 1/4	4.6	2 5/16	5/8-18	3.25	4 1/2	12	3/4	2	1 3/4	3/4	9/16	6 1/4
4	5.4	2 5/16	5/8-18	3.82	5	12	3/4	2	1 3/4	7/8	9/16	6 5/8
5	7.0	3 3/16	7/8-14	4.95	6 1/2	12	3/4	2	1 3/4	7/8	13/16	7 1/8
6	8.1	3 5/8	1-14	5.73	7 1/2	16	1	2 1/4	2 1/4	1	7/8	8 3/8
8	10.6	4 1/2	1 1/4-12	7.50	9 1/2	24	1 1/2	3	3	1	1 1/16	10 1/2

**TIE ROD MOUNT
MX1, MX2, and MX3**

H SERIES

ROD DIMENSIONS

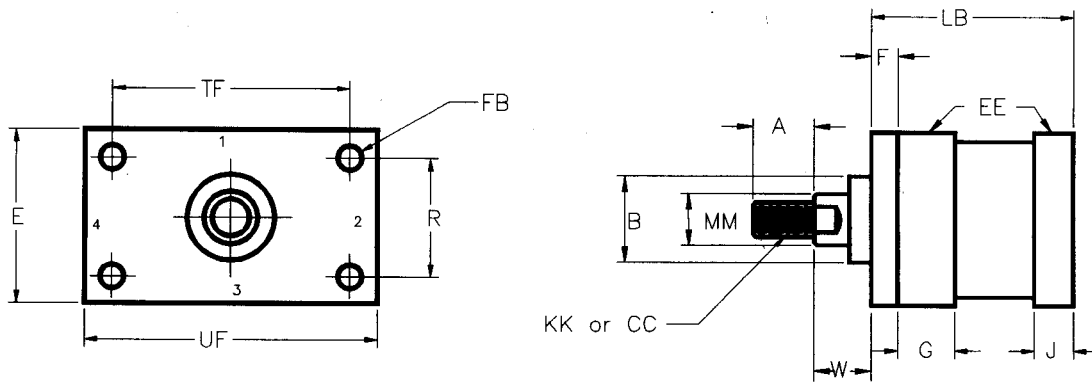
BORE	ROD DIA.	A	STANDARD	OPTION	D	W	B
	MM		KK	CC			
1 1/2	5/8	3/4	7/16-20	1/2-20	1/2	5/8	1.125
	1	1 1/8	3/4-16	7/8-14	7/8	1	1.499
2	1	1 1/8	3/4-16	7/8-14	7/8	3/4	1.499
	1 3/8	1 5/8	1-14	1 1/4-12	1 1/8	1	1.999
2 1/2	1	1 1/8	3/4-16	7/8-14	7/8	3/4	1.499
	1 3/8	1 5/8	1-14	1 1/4-12	1 1/8	1	1.999
	1 3/4	2	1 1/4-12	1 1/2-12	1 1/2	1 1/4	2.374
3 1/4	1 3/8	1 5/8	1-14	1 1/4-12	1 1/8	7/8	1.999
	1 3/4	2	1 1/4-12	1 1/2-12	1 1/2	1 1/8	2.374
	2	2 1/4	1 1/2-12	1 3/4-12	1 11/16	1 1/4	2.624
4	1 3/4	2	1 1/4-12	1 1/2-12	1 1/2	1	2.374
	2	2 1/4	1 1/2-12	1 3/4-12	1 11/16	1 1/8	2.624
	2 1/2	3	1 7/8-12	2 1/4-12	2 1/16	1 3/8	3.124
5	2	2 1/4	1 1/2-12	1 3/4-12	1 11/16	1 1/8	2.624
	2 1/2	3	1 7/8-12	2 1/4-12	2 1/16	1 3/8	3.124
	3	3 1/2	2 1/4-12	2 3/4-12	2 5/8	1 3/8	3.749
	3 1/2	3 1/2	2 1/2-12	3 1/4-12	3	1 3/8	4.249
6	2 1/2	3	1 7/8-12	2 1/4-12	2 1/16	1 1/4	3.124
	3	3 1/2	2 1/4-12	2 3/4-12	2 5/8	1 1/4	3.749
	3 1/2	3 1/2	2 1/2-12	3 1/4-12	3	1 1/4	4.249
	4	4	3-12	3 3/4-12	3 3/8	1 1/4	4.749
8	3 1/2	3 1/2	2 1/2-12	3 1/4-12	3	1 1/4	4.249
	4	4	3-12	3 3/4-12	3 3/8	1 1/4	4.749
	4 1/2	4 1/2	3 1/4-12	4 1/4-12	3 7/8	1 1/4	5.249
	5	5	3 1/2-12	4 3/4-12	4 1/4	1 1/4	5.749
	5 1/2	5 1/2	4-12	5 1/4-12	4 5/8	1 1/4	6.249

NONSHADED AREAS SHOW STANDARD ROD DIMENSIONS

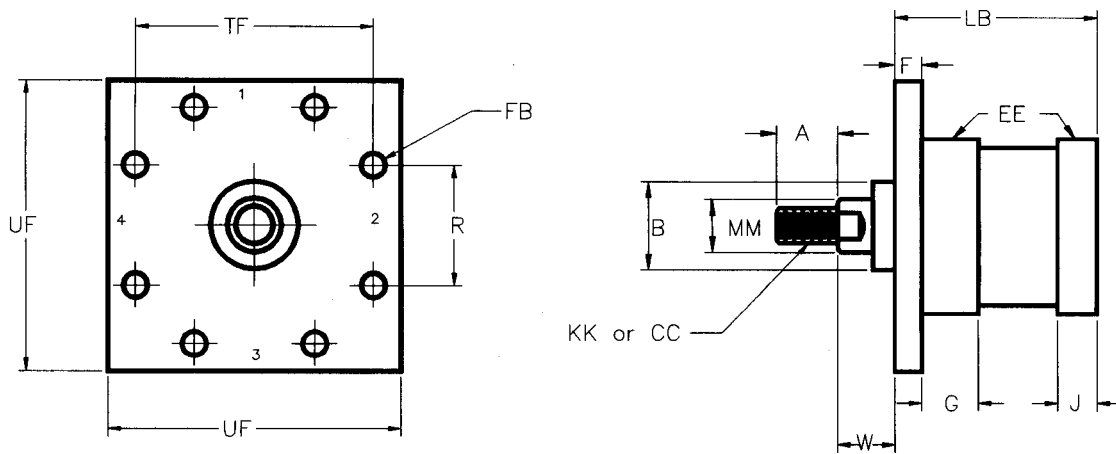
REV.10/96

FLANGE MOUNT MF1 and MF5

H SERIES



MF1 RECTANGULAR FLANGE (FRONT)



MF5 SQUARE FLANGE (FRONT)

ENVELOPE AND MOUNTING DIMENSIONS

BORE	UF	TF	F	R	E	EE PORT		FB	ADD TO STROKE
						STD. SAE	OPT. NPT		LB
1 1/2	4 1/4	3 7/16	3/8	1.63	2 1/2	10	1/2	7/16	5
2	5 1/8	4 1/8	5/8	2.05	3	10	1/2	9/16	5 1/4
2 1/2	5 5/8	4 5/8	5/8	2.55	3 1/2	10	1/2	9/16	5 3/8
3 1/4	7 1/8	5 7/8	3/4	3.25	4 1/2	12	3/4	11/16	6 1/4
4	7 5/8	6 3/8	7/8	3.82	5	12	3/4	11/16	6 5/8
5	9 3/4	8 3/16	7/8	4.95	6 1/2	12	3/4	15/16	7 1/8
6	11 1/4	9 7/16	1	5.73	7 1/2	16	1	1 1/16	8 3/8
8	14	11 13/16	1	7.50	9 1/2	24	1 1/2	1 5/16	10 1/2

**FLANGE MOUNT
MF1 and MF5**

H SERIES

ROD DIMENSIONS

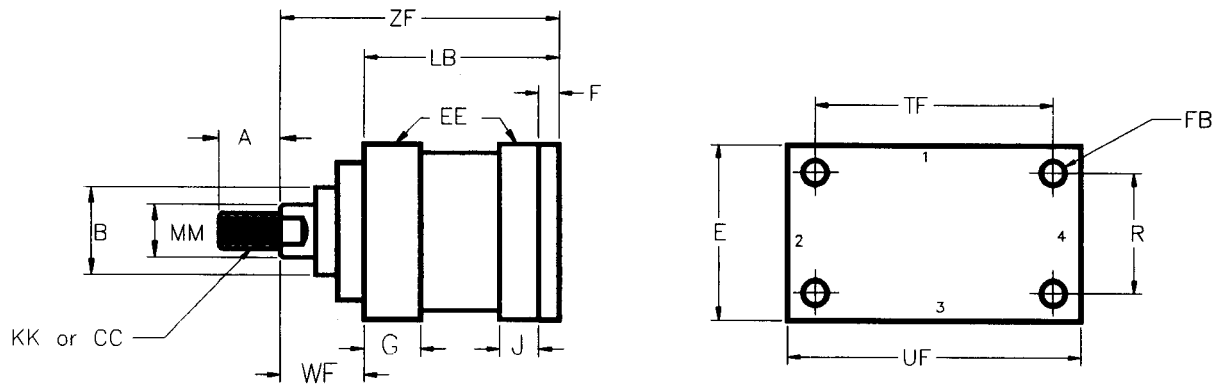
BORE	ROD DIA.	A	STANDARD THREAD	OPTIONAL THREAD	B	W
	MM		KK	CC		
1 1/2	5/8	3/4	7/16-20	1/2-20	1.125	5/8
	1	1 1/8	3/4-16	7/8-14	1.500	1
2	1	1 1/8	3/4-16	7/8-14	1.500	3/4
	1 3/8	1 5/8	1-14	1 1/4-12	2.000	1
2 1/2	1	1 1/8	3/4-16	7/8-14	1.500	3/4
	1 3/8	1 5/8	1-14	1 1/4-12	2.000	1
	1 3/4	2	1 1/4-12	1 1/2-12	2.375	1 1/4
3 1/4	1 3/8	1 5/8	1-14	1 1/4-12	2.000	7/8
	1 3/4	2	1 1/4-12	1 1/2-12	2.375	1 1/8
	2	2 1/4	1 1/2-12	1 3/4-12	2.625	1 1/4
4	1 3/4	2	1 1/4-12	1 1/2-12	2.375	1
	2	2 1/4	1 1/2-12	1 3/4-12	2.625	1 1/8
	2 1/2	3	1 7/8-12	2 1/4-12	3.125	1 3/8
5	2	2 1/4	1 1/2-12	1 3/4-12	2.625	1 1/8
	2 1/2	3	1 7/8-12	2 1/4-12	3.125	1 3/8
	3	3-1/2	2 1/4-12	2 3/4-12	3.750	1 3/8
	3 1/2	3 1/2	2 1/2-12	3 1/4-12	4.250	1 3/8
6	2 1/2	3	1 7/8-12	2 1/4-12	3.125	1 1/4
	3	3-1/2	2 1/4-12	2 3/4-12	3.750	1 1/4
	3 1/2	3 1/2	2 1/2-12	3 1/4-12	4.250	1 1/4
	4	4	3-12	3 3/4-12	4.750	1 1/4
8	3 1/2	3 1/2	2 1/2-12	3 1/4-12	4.250	1 1/4
	4	4	3-12	3 3/4-12	4.750	1 1/4
	4 1/2	4 1/2	3 1/4-12	4 1/4-12	5.250	1 1/4
	5	5	3 1/2-12	4 3/4-12	5.750	1 1/4
	5 1/2	5 1/2	4-12	5 1/4-12	6.250	1 1/4

NONSHADED AREAS ARE STANDARD SIZE RODS

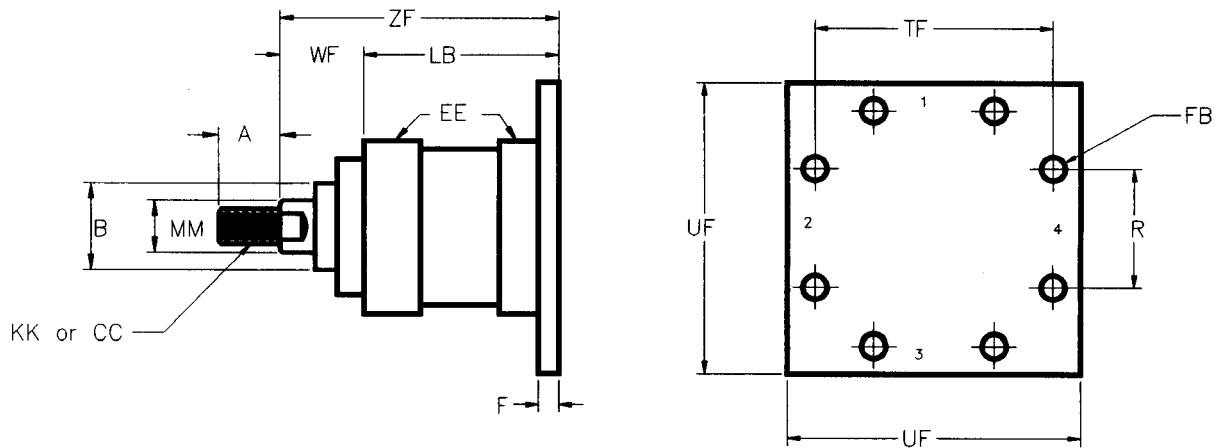
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FLANGE MOUNT MF2 and MF6

H SERIES



MF2 RECTANGULAR FLANGE (REAR)



MF6 SQUARE FLANGE (REAR)

ENVELOPE AND MOUNTING DIMENSIONS

BORE	UF	TF	F	R	E	EE PORT		FB	ADD TO STROKE
						STD.	OPT.		LB
						SAE	NPT		
1 1/2	4 1/4	3 7/16	3/8	1.63	2 1/2	10	1/2	7/16	5
2	5 1/8	4 1/8	5/8	2.05	3	10	1/2	9/16	5 1/4
2 1/2	5 5/8	4 5/8	5/8	2.55	3 1/2	10	1/2	9/16	5 3/8
3 1/4	7 1/8	5 7/8	3/4	3.25	4 1/2	12	3/4	11/16	6 1/4
4	7 5/8	6 3/8	7/8	3.82	5	12	3/4	11/16	6 5/8
5	9 3/4	8 3/16	7/8	4.95	6 1/2	12	3/4	15/16	7 1/8
6	11 1/4	9 7/16	1	5.73	7 1/2	16	1	1 1/16	8 3/8
8	14	11 13/16	1	7.50	9 1/2	24	1 1/2	1 5/16	10 1/2

**FLANGE MOUNT
MF2 and MF6**

H SERIES

ROD DIMENSIONS

BORE	ROD DIA.	A	STANDARD THREAD	OPTIONAL THREAD	B	WF	ADD TO STROKE
	MM		KK	CC			ZF
1 1/2	5/8	3/4	7/16-20	1/2-20	1.125	1	6
	1	1 1/8	3/4-16	7/8-14	1.500	1 3/8	6 3/8
2	1	1 1/8	3/4-16	7/8-14	1.500	1 3/8	6 5/8
	1 3/8	1 5/8	1-14	1 1/4-12	2.000	1 5/8	6 7/8
2 1/2	1	1 1/8	3/4-16	7/8-14	1.500	1 3/8	6 3/4
	1 3/8	1 5/8	1-14	1 1/4-12	2.000	1 5/8	7
	1 3/4	2	1 1/4-12	1 1/2-12	2.375	1 7/8	7 1/4
3 1/4	1 3/8	1 5/8	1-14	1 1/4-12	2.000	1 5/8	7 7/8
	1 3/4	2	1 1/4-12	1 1/2-12	2.375	1 7/8	8 1/8
	2	2 1/4	1 1/2-12	1 3/4-12	2.625	2	8 1/4
4	1 3/4	2	1 1/4-12	1 1/2-12	2.375	1 7/8	8 1/2
	2	2 1/4	1 1/2-12	1 3/4-12	2.625	2	8 5/8
	2 1/2	3	1 7/8-12	2 1/4-12	3.125	2 1/4	8 7/8
5	2	2 1/4	1 1/2-12	1 3/4-12	2.625	2	9 1/8
	2 1/2	3	1 7/8-12	2 1/4-12	3.125	2 1/4	9 3/8
	3	3-1/2	2 1/4-12	2 3/4-12	3.750	2 1/4	9 3/8
	3 1/2	3 1/2	2 1/2-12	3 1/4-12	4.250	2 1/4	9 3/8
6	2 1/2	3	1 7/8-12	2 1/4-12	3.125	2 1/4	10 5/8
	3	3-1/2	2 1/4-12	2 3/4-12	3.750	2 1/4	10 5/8
	3 1/2	3 1/2	2 1/2-12	3 1/4-12	4.250	2 1/4	10 5/8
	4	4	3-12	3 3/4-12	4.750	2 1/4	10 5/8
8	3 1/2	3 1/2	2 1/2-12	3 1/4-12	4.250	2 1/4	12 3/4
	4	4	3-12	3 3/4-12	4.750	2 1/4	12 3/4
	4 1/2	4 1/2	3 1/4-12	4 1/4-12	5.250	2 1/4	12 3/4
	5	5	3 1/2-12	4 3/4-12	5.750	2 1/4	12 3/4
	5 1/2	5 1/2	4-12	5 1/4-12	6.250	2 1/4	12 3/4

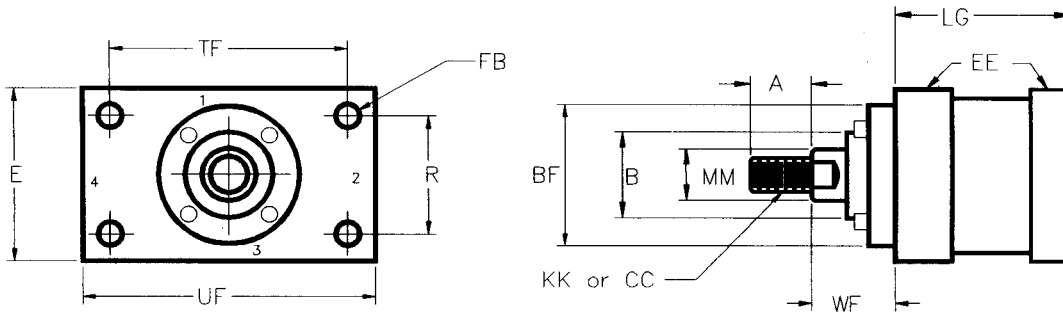
NONSHADED AREAS ARE STANDARD SIZE RODS

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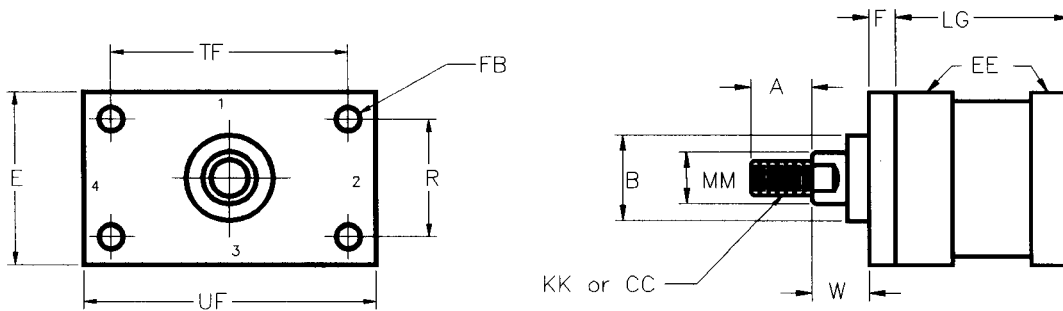
RECTANGULAR HEAD MOUNT ME5 AND ME6

H SERIES

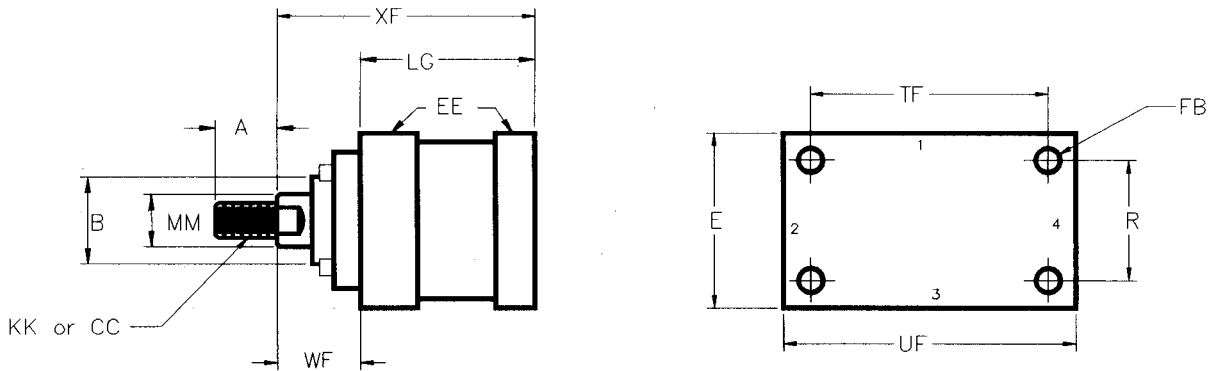
ME5 RECTANGULAR HEAD (RETAINING RING)



ME5-S RECTANGULAR HEAD (MF1 RETAINING PLATE)



ME6 RECTANGULAR CAP



ENVELOPE AND MOUNTING DIMENSIONS

BORE	UF	TF	F	R	E	EE		FB	ADD TO STROKE
						SAE	NPT		LG
1 1/2	4 1/4	3 7/16	3/8	1.63	2 1/2	10	1/2	7/16	4 5/8
2	5 1/8	4 1/8	5/8	2.05	3	10	1/2	9/16	4 5/8
2 1/2	5 5/8	4 5/8	5/8	2.55	3 1/2	10	1/2	9/16	4 3/4
3 1/4	7 1/8	5 7/8	3/4	3.25	4 1/2	12	3/4	11/16	5 1/2
4	7 5/8	6 3/8	7/8	3.82	5	12	3/4	11/16	5 3/4
5	9 3/4	8 3/16	7/8	4.95	6 1/2	12	3/4	15/16	6 1/4
6	11 1/4	9 7/16	1	5.73	7 1/2	16	1	1 1/16	7 3/8
8	14	11 13/16	1	7.50	9 1/2	24	1 1/2	1 5/16	9 1/2

**FLANGE MOUNT
ME5 AND ME6**

H SERIES

ROD DIMENSIONS

BORE	ROD DIA.	A	STANDARD THREAD	OPTIONAL THREAD	B	BF	WF	W	ADD TO STROKE
	MM		KK	CC					XF
1 1/2	5/8	3/4	7/16-20	1/2-20	1.125	1 7/8	1	5/8	5 5/8
	1	1 1/8	3/4-16	7/8-14	1.500	2 1/2	1 3/8	1	6
2	1	1 1/8	3/4-16	7/8-14	1.500	2 1/2	1 3/8	3/4	6
	1 3/8	1 5/8	1-14	1 1/4-12	2.000	3 1/4	1 5/8	1	6 1/4
2 1/2	1	1 1/8	3/4-16	7/8-14	1.500	2 1/2	1 3/8	3/4	6 1/8
	1 3/8	1 5/8	1-14	1 1/4-12	2.000	3 1/4	1 5/8	1	6 3/8
	1 3/4	2	1 1/4-12	1 1/2-12	2.375	3 3/4	1 7/8	1 1/4	6 5/8
3 1/4	1 3/8	1 5/8	1-14	1 1/4-12	2.000	3 1/4	1 5/8	7/8	7 1/8
	1 3/4	2	1 1/4-12	1 1/2-12	2.375	3 3/4	1 7/8	1 1/8	7 3/8
	2	2 1/4	1 1/2-12	1 3/4-12	2.625	4	2	1 1/4	7 1/2
4	1 3/4	2	1 1/4-12	1 1/2-12	2.375	3 3/4	1 7/8	1	7 5/8
	2	2 1/4	1 1/2-12	1 3/4-12	2.625	4	2	1 1/8	7 3/4
	2 1/2	3	1 7/8-12	2 1/4-12	3.125	4 1/2	2 1/4	1 3/8	8
5	2	2 1/4	1 1/2-12	1 3/4-12	2.625	4	2	1 1/8	8 1/4
	2 1/2	3	1 7/8-12	2 1/4-12	3.125	4 1/2	2 1/4	1 3/8	8 1/2
	3	3 1/2	2 1/4-12	3 3/4-12	3.750	5	2 1/4	1 3/8	8 1/2
	3 1/2	3 1/2	2 1/2-12	3 1/4-12	4.250	5 3/4	2 1/4	1 3/8	8 1/2
6	2 1/2	3	1 7/8-12	2 1/4-12	3.125	4 1/2	2 1/4	1 1/4	9 5/8
	3	3 1/2	2 1/4-12	2 3/4-12	3.750	5	2 1/4	1 1/4	9 5/8
	3 1/2	3 1/2	2 1/2-12	3 1/4-12	4.250	5 3/4	2 1/4	1 1/4	9 5/8
	4	4	3-12	3 3/4-12	4.750	7	2 1/4	1 1/4	9 5/8
8	3 1/2	3 1/2	2 1/2-12	3 1/4-12	4.250	5 3/4	2 1/4	1 1/4	11 3/4
	4	4	3-12	3 3/4-12	4.750	7	2 1/4	1 1/4	11 3/4
	4 1/2	4 1/2	3 1/3-12	4 1/4-12	5.250	7 1/2	2 1/4	1 1/4	11 3/4
	5	5	3 1/2-12	4 3/4-12	5.750	8	2 1/4	1 1/4	11 3/4

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NONSHADED AREAS ARE STANDARD SIZE RODS

**END ANGLES MOUNT
MS1**

H SERIES

ROD DIMENSIONS

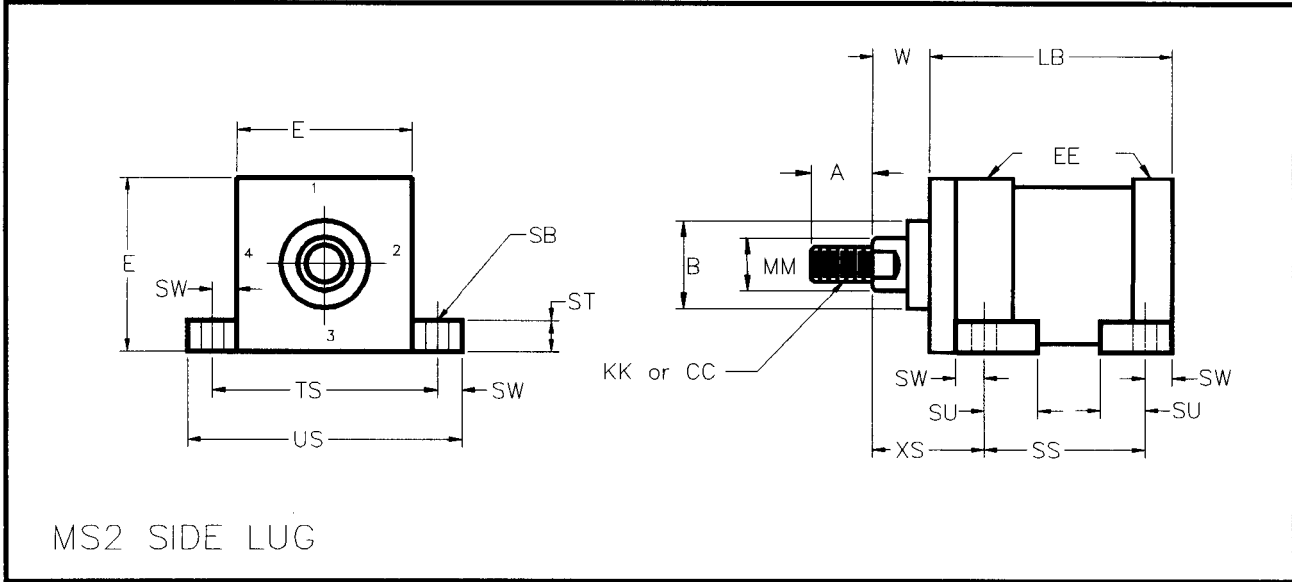
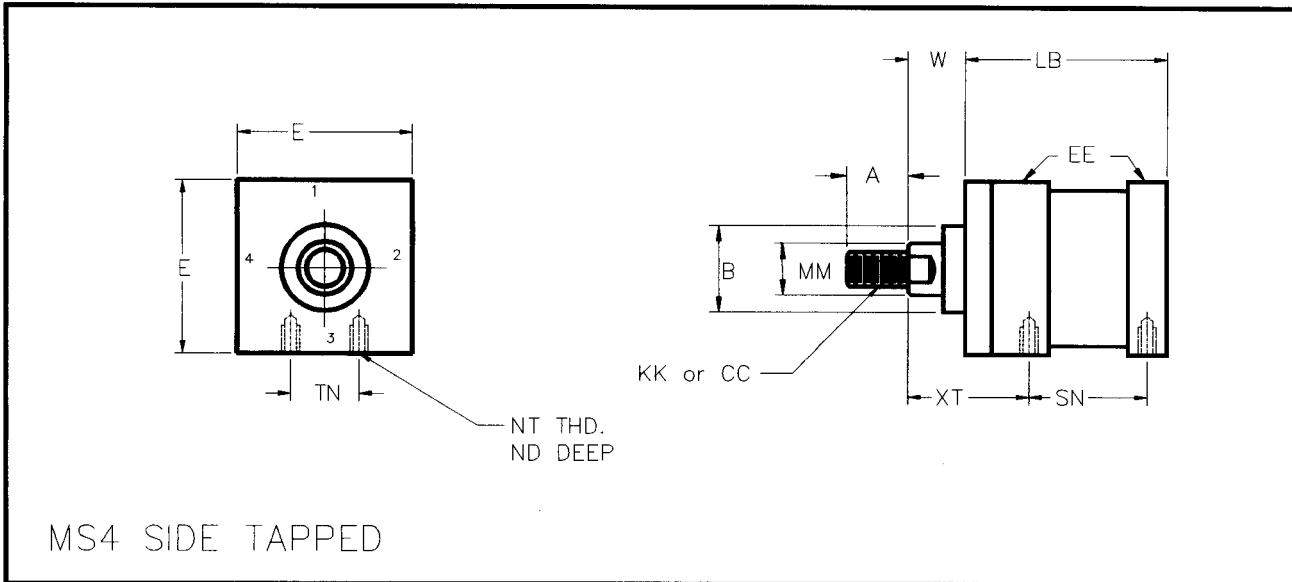
BORE	ROD DIA. MM	A	STANDARD THREAD KK	OPTIONAL THREAD CC	W	ADD TO STROKE	
						XA	ZA
1 1/2	5/8	3/4	7/16-20	1/2-20	5/8	6 5/8	7
	1	1 1/8	3/4-16	7/8-14	1	7	7 3/8
2	1	1 1/8	3/4-16	7/8-14	3/4	7 1/4	7 3/4
	1 3/8	1 5/8	1 1/4-12	1 1/4-12	1	7 1/2	8
2 1/2	1	1 1/8	3/4-16	7/8-14	3/4	7 5/16	7 7/8
	1 3/8	1 5/8	1-14	1 1/4-12	1	7 9/16	8 1/8
	1 3/4	2	1 1/4-12	1 1/2-12	1 1/4	7 13/16	8 3/8
3 1/4	1 3/8	1 5/8	1-14	1 1/4-12	7/8	8 15/16	9 5/8
	1 3/4	2	1 1/4-12	1 1/2-12	1 1/8	9 3/16	9 7/8
	2	2 1/4	1 1/2-12	1 3/4-12	1 1/4	9 5/16	10
4	1 3/4	2	1 1/4-12	1 1/2-12	1	9 3/4	10 5/8
	2	2 1/4	1 1/2-12	1 3/4-12	1 1/8	9 7/8	10 3/4
	2 1/2	3	1 7/8-12	2 1/4-12	1 3/8	10 1/8	11
5	2	2 1/4	1 1/2-12	1 3/4-12	1 1/8	10 3/8	11 1/4
	2 1/2	3	1 7/8-12	2 1/4-12	1 3/8	10 5/8	11 1/2
	3	3 1/2	2 1/4-12	2 3/4-12	1 3/8	10 5/8	11 1/2
	3 1/2	3 1/2	2 1/2-12	3 1/4-12	1 3/8	10 5/8	11 1/2
6	2 1/2	3	1 7/8-12	2 1/4-12	1/1/4	12 1/16	13 1/8
	3	3 1/2	2 1/4-12	2 3/4-12	1 1/4	12 1/16	13 1/8
	3 1/2	3 1/2	2 1/2-12	3 1/4-12	1 1/4	12 1/16	13 1/8
	4	4	3-12	3 3/4-12	1 1/4	12 1/16	13 1/8
8	3 1/2	3 1/2	2 1/2-12	3 1/4-12	1 1/4	14 15/16	16 1/4
	4	4	3-12	3 3/4-12	1 1/4	14 15/16	16 1/4
	4 1/2	4 1/2	3 1/4-12	4 1/4-12	1 1/4	14 15/16	16 1/4
	5	5	3 1/2-12	4 3/4-12	1 1/4	14 15/16	16 1/4

NONSHADED AREAS SHOW STANDARD ROD DIMENSIONS

REV. 9/95

SIDE TAPPED AND SIDE LUG MOUNTS MS2 AND MS4

H SERIES



ENVELOPE AND MOUNTING DIMENSIONS

BORE	E	EE		SB	ST	SU	SW	TN	TS	US	ADD TO STROKE		
		SAE	NPT								LB	SN	SS
1 1/2	2 1/2	10	1/2	7/16	1/2	15/16	3/8	3/4	3 1/4	4	5	2 7/8	3 7/8
2	3	10	1/2	9/16	3/4	1 1/4	1/2	15/16	4	5	5 1/4	2 7/8	3 5/8
2 1/2	3 1/2	10	1/2	13/16	1	1 9/16	11/16	1 5/16	4 7/8	4 7/8	5 3/8	3	3 3/8
3 1/4	4 1/2	12	3/4	13/16	1	1 9/16	11/16	1 1/2	5 7/8	7 1/4	6 1/4	3 1/2	4 1/8
4	5	12	3/4	1 1/16	1 1/4	2	7/8	2 1/16	6 3/4	8 1/2	6 5/8	3 3/4	4
5	6 1/2	12	3/4	1 1/16	1 1/4	2	7/8	2 15/16	8 1/4	10	7 1/8	4 1/4	4 1/2
6	7 1/2	16	1	1 5/16	1 1/2	2 1/2	1 1/8	3 5/16	9 3/4	12	8 3/8	5 1/8	5 1/8
8	9 1/2	24	1 1/2	1 9/16	1 3/4	2 7/8	1 3/8	4 1/4	12 1/4	15	10.5	6 5/8	6 3/4

**SIDE TAPPED AND SIDE LUG MOUNTS
MS2 AND MS4**

H SERIES

ROD DIMENSIONS

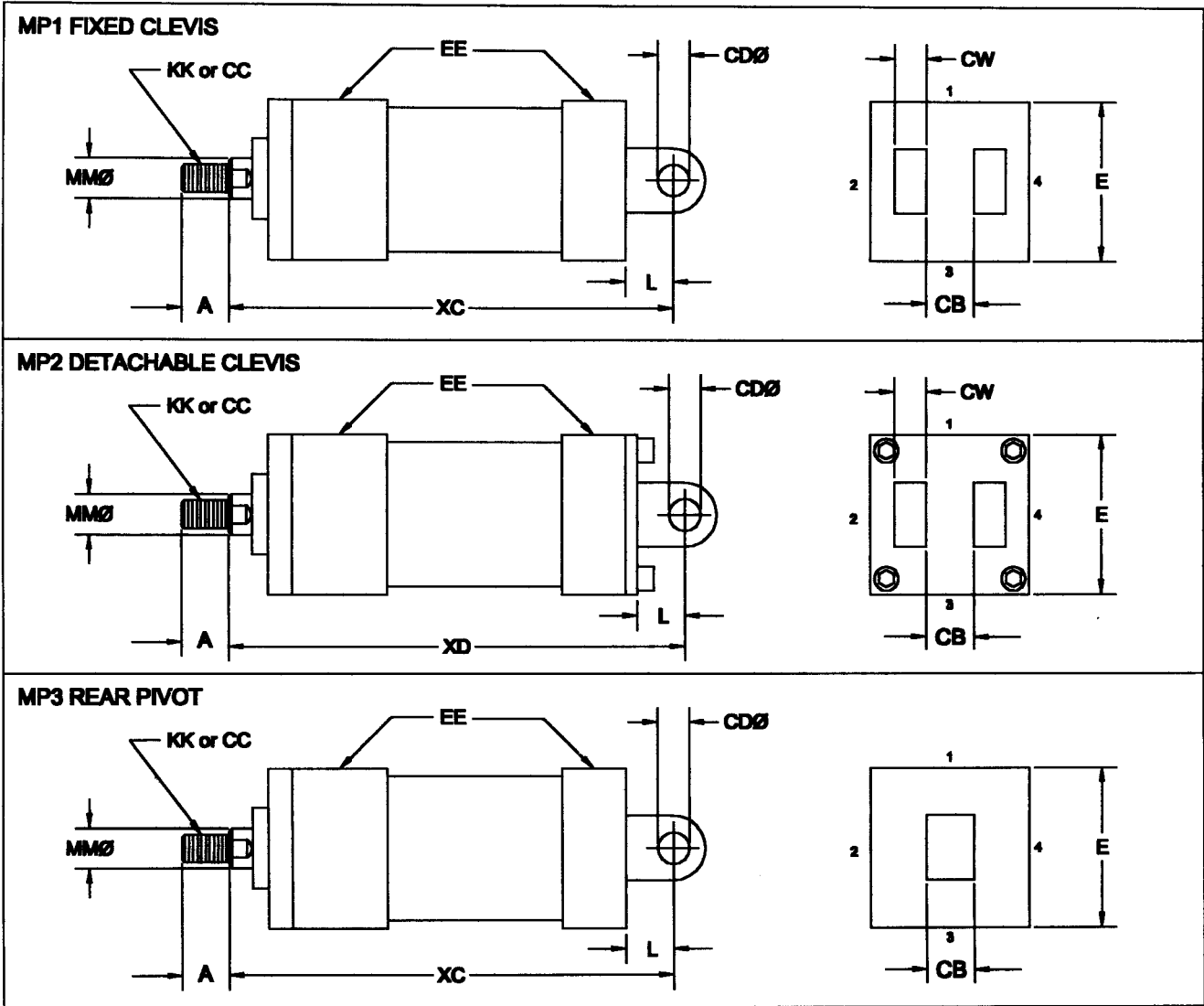
BORE	ROD DIA. MM	STD. THREAD KK	OPTIONAL THREAD CC	A	B	W	NT	ND	XS	XT
1 1/2	5/8	7/16-20	1/2-20	3/4	1.125	5/8	3/8-16	3/8	1 3/8	2
	1	3/4-16	7/8-14	1 1/8	1.500	1	3/8-16	3/8	1 3/4	2 3/8
2	1	3/4-16	7/8-14	1 1/8	1.500	3/4	1/2-13	7/16	1 7/8	2 3/8
	1 3/8	1-14	1 1/4-12	1 5/8	2.000	1	1/2-13	7/16	2 1/8	2 5/8
2 1/2	1	3/4-16	7/8-14	1 1/8	1.500	3/4	5/8-11	1/2	2 1/16	2 3/8
	1 3/8	1-14	1 1/4-12	1 5/8	2.000	1	5/8-11	1/2	2 5/16	2 5/8
	1 3/4	1 1/4-12	1 1/2-12	2	2.375	1 1/4	5/8-11	1/2	2 9/16	2 7/8
3 1/4	1 3/8	1-14	1 1/4-12	1 5/8	2.000	7/8	3/4-10	11/16	2 5/16	2 3/4
	1 3/4	1 1/4-12	1 1/2-12	2	2.375	1 1/8	3/4-10	11/16	2 9/16	3
	2	1 1/2-12	1 3/4-12	2 1/4	2.625	1 1/4	3/4-10	11/16	2 11/16	3 1/8
4	1 3/4	1 1/4-12	1 1/2-12	2	2.375	1	1-8	11/16	2 3/4	3
	2	1 1/2-12	1 3/4-12	2 1/4	2.625	1 1/8	1-8	11/16	2 7/8	3 1/8
	2 1/2	1 7/8-12	2 1/4-12	3	3.125	1 3/8	1-8	11/16	3 1/8	3 3/8
5	2	1 1/2-12	1 3/4-12	2 1/4	2.625	1 1/8	1-8	1	2 7/8	3 1/8
	2 1/2	1 7/8-12	2 1/4-12	3	3.125	1 3/8	1-8	1	3 1/8	3 3/8
	3	2 1/4-12	2 3/4-12	3 1/2	3.750	1 3/8	1-8	1	3 1/8	3 3/8
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4.250	1 3/8	1-8	1	3 1/8	3 3/8
6	2 1/2	1 7/8-12	2 1/4-12	3	3.125	1 1/4	1 1/4-7	1 1/4	3 3/8	3 1/2
	3	2 1/4-12	2 3/4-12	3 1/2	3.750	1 1/4	1 1/4-7	1 1/4	3 3/8	3 1/2
	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4.250	1 1/4	1 1/4-7	1 1/4	3 3/8	3 1/2
	4	3-12	3 3/4-12	4	4.750	1 1/4	1 1/4-7	1 1/4	3 3/8	3 1/2
8	3 1/2	2 1/2-12	3 1/4-12	3 1/2	4.250	1 1/4	1 1/2-6	1 1/2	3 5/8	3 15/16
	4	3-12	3 3/4-12	4	4.750	1 1/4	1 1/2-6	1 1/2	3 5/8	3 15/16
	4 1/2	3 1/4-12	4 1/4-12	4 1/2	5.250	1 1/4	1 1/2-6	1 1/2	3 5/8	3 15/16
	5	3 1/2-12	4 3/4-12	5	5.750	1 1/4	1 1/2-6	1 1/2	3 5/8	3 15/16

NONSHADED AREAS SHOW STANDARD ROD DIMENSIONS

REV. 9/95

**CLEVIS and PIVOT MOUNT
MP1, MP2, and MP3**

HK SERIES



ENVELOPE and MOUNTING DIMENSIONS

BORE	E	G	J	CD	CB	CW	L	EE PORT	
								NPT	SAE*
1 1/2	2 1/2	1 3/4	1 1/2	1/2	3/4	1/2	3/4	1/2	10
2	3	1 3/4	1 1/2	3/4	1 1/4	5/8	1 1/4	1/2	10
2 1/2	3 1/2	1 3/4	1 1/2	3/4	1 1/4	5/8	1 1/4	1/2	10
3 1/4	4 1/2	2	1 3/4	1	1 1/2	3/4	1 1/2	3/4	12
4	5	2	1 3/4	1 3/8	2	1	2 1/8	3/4	12
5	6 1/2	2	1 3/4	1 3/4	2 1/2	1 1/4	2 1/4	3/4	12
6	7 1/2	2 1/4	2 1/4	2	2 1/2	1 1/4	2 1/2	1	16
8	9 1/2	3	3	3	3	1 1/2	3 1/4	1 1/2	24

*SAE PORTS ARE STANDARD. NPT PORTS ARE OPTIONAL AT NO EXTRA CHARGE.

CLEVIS AND PIVOT MOUNT MP1, MP2, and, MP3

H SERIES

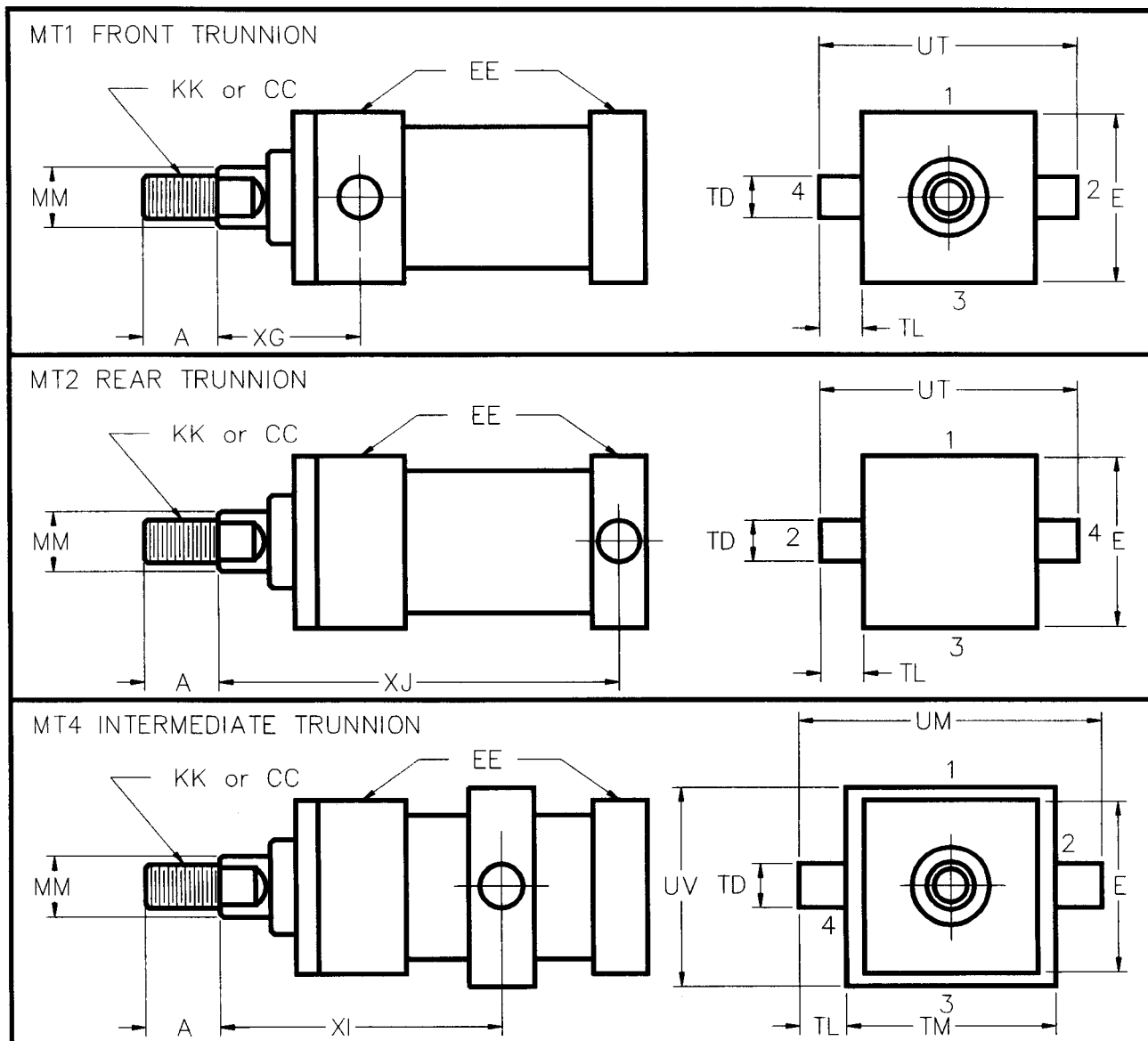
ROD DIMENSIONS

BORE	ROD DIA.	A	STANDARD THREAD	OPTIONAL THREAD	ADD TO STROKE	
	MM		KK	CC	XC	XD
1 1/2	5/8	3/4	7/16-20	1/2-20	6 3/8	6 3/4
	1	1 1/8	3/4-16	7/8-14	6 3/4	
2	1	1 1/8	3/4-16	7/8-14	7 1/4	7 7/8
	1 3/8	1 5/8	1-14	1 1/4-12	7 1/2	
2 1/2	1	1 1/8	3/4-16	7/8-14	7 3/8	8
	1 3/8	1 5/8	1-14	1 1/4-12	7 5/8	8 1/4
	1 3/4	2	1 1/4-12	1 1/2-12	7 7/8	8 1/2
3 1/4	1 3/8	1 5/8	1-14	1 1/4-12	8 5/8	9 3/8
	1 3/4	2	1 1/4-12	1 1/2-12	8 7/8	9 5/8
	2	2 1/4	1 1/2-12	1 3/4-12	9	9 3/4
4	1 3/4	2	1 1/4-12	1 1/2-12	9 3/4	10 5/8
	2	2 1/4	1 1/2-12	1 3/4-12	9 7/8	10 3/4
	2 1/2	3	1 7/8-12	2 1/4-12	10 1/8	11
5	2	2 1/4	1 1/2-12	1 3/4-12	10 1/2	11 3/8
	2 1/2	3	1 7/8-12	2 1/4-12	10 3/4	11 5/8
	3	3 1/2	2 1/4-12	2 3/4-12	10 3/4	11 5/8
	3 1/2	3 1/2	2 1/2-12	3 1/4-12	10 3/4	11 5/8
6	2 1/2	3	1 7/8-12	2 1/4-12	12 1/8	*
	3	3 1/2	2 1/4-12	2 3/4-12	12 1/8	*
	3 1/2	3 1/2	2 1/2-12	3 1/4-12	12 1/8	*
	4	4	3-12	3 3/4-12	12 1/8	*
8	3 1/2	3 1/2	2 1/2-12	3 1/4-12	15	*
	4	4	3-12	3 3/4-12	15	*
	4 1/2	4 1/2	3 1/4-12	4 1/4-12	15	*
	5	5	3 1/2-12	4 3/4-12	15	*
	5 1/2	5 1/2	4-12	5 1/4-12	15	*

NONSHADED AREAS ARE STANDARD SIZE ROD * MP2 NOT AVAILABLE IN THIS BORE

TRUNNION MOUNT MT1, MT2, and MT4

H SERIES



ENVELOPE AND MOUNTING DIMENSIONS

BORE	TD	TL	UT	TM	UM	UW	E	EE	
								SAE*	NPT
1 1/2	1.000	1	4 1/2	3	5	3 3/8	2 1/2	10	1/2
2	1.375	1 3/8	5 3/4	3 1/2	6 1/4	4 1/8	3	10	1/2
2 1/2	1.375	1 3/8	6 1/4	4	6 3/4	4 5/8	3 1/2	10	1/2
3 1/4	1.750	1 3/4	8	5	8 1/2	5 13/16	4 1/2	12	3/4
4	1.750	1 3/4	8 1/2	5 1/2	9	6 3/8	5	12	3/4
5	1.750	1 3/4	10	7	10 1/2	7 3/4	6 1/2	12	3/4
6	2.000	2	11 1/2	8 1/2	12 1/2	9 1/2	7 1/2	16	1
8	3.000	3	15 1/2	11	17	13 1/4	9 1/2	24	1 1/2

*SAE Straight thread ports are standard and are indicated by number

**TRUNNION MOUNT
MT1, MT2, and, MT4**

H SERIES

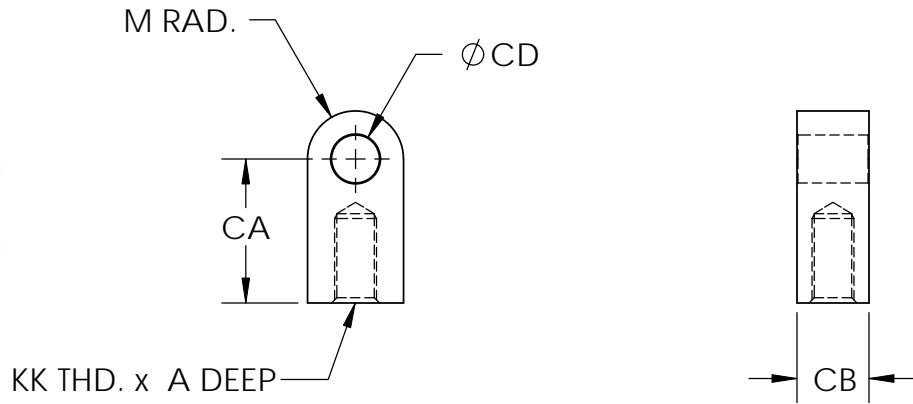
ROD DIMENSIONS

BORE	ROD DIA.	A	STANDARD THREAD	OPTIONAL THREAD	XG	(MIN)*	ADD TO STROKE
	MM		KK	CC		XI	XJ
1 1/2	5/8	3/4	7/16-20	1/2-20	1 7/8	3 3/8	4 7/8
	1	1 1/8	3/4-16	7/8-14	2 1/4	3 3/4	5 1/4
2	1	1 1/8	3/4-16	7/8-14	2 1/4	3 7/8	5 1/4
	1 3/8	1 5/8	1-14	1 1/4-12	2 1/2	4 1/8	5 1/2
2 1/2	1	1 1/8	3/4-16	7/8-14	2 1/4	3 7/8	5 3/8
	1 3/8	1 5/8	1-14	1 1/4-12	2 1/2	4 1/8	5 5/8
	1 3/4	2	1 1/4-12	1 1/2-12	2 3/4	4 3/8	5 7/8
3 1/4	1 3/8	1 5/8	1-14	1 1/4-12	2 5/8	4 5/8	6 1/4
	1 3/4	2	1 1/4-12	1 1/2-12	2 7/8	4 7/8	6 1/2
	2	2 1/4	1 1/2-12	1 3/4-12	3	5	5 5/8
4	1 3/4	2	1 1/4-12	1 1/2-12	2 7/8	4 7/8	6 3/4
	2	2 1/4	1 1/2-12	1 3/4-12	3	5	6 7/8
	2 1/2	3	1 7/8-12	2 1/4-12	3 1/4	5 1/4	7 1/8
5	2	2 1/4	1 1/2-12	1 3/4-12	3	5	7 3/8
	2 1/2	3	1 7/8-12	2 1/4-12	3 1/4	5 1/4	7 5/8
	3	3 1/2	2 1/4-12	2 3/4-12	3 1/4	5 1/4	7 5/8
	3 1/2	3 1/2	2 1/2-12	3 1/4-12	3 1/4	5 1/4	7 5/8
6	2 1/2	3	1 7/8-12	2 1/4-12	3 3/8	6	8 3/8
	3	3 1/2	2 1/4-12	2 3/4-12	3 3/8	6	8 3/8
	3 1/2	3 1/2	2 1/2-12	3 1/4-12	3 3/8	6	8 3/8
	4	4	3-12	3 3/4-12	3 3/8	6	8 3/8
8	3 1/2	3 1/2	2 1/2-12	3 1/4-12	3 3/4	7	10 1/4
	4	4	3-12	3 3/4-12	3 3/4	7	10 1/4
	4 1/2	4 1/2	3 1/4-12	4 1/4-12	3 3/4	7	10 1/4
	5	5	3 1/2-12	4 3/4-12	3 3/4	7	10 1/4
	5 1/2	5 1/2	4-12	5 1/4-12	3 3/4	7	10 1/4

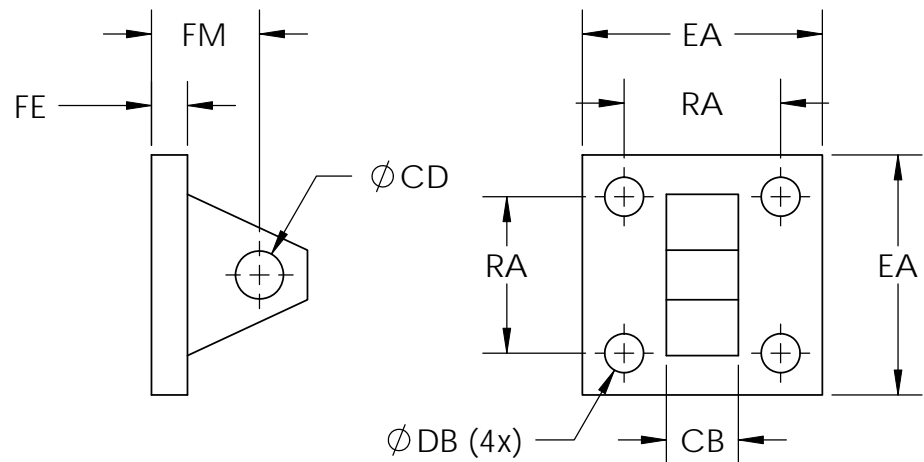
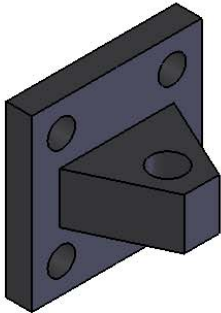
NONSHADED AREAS ARE STANDARD SIZE ROD * XI TO BE SPECIFIED BY CUSTOMER

Rod End and Pivot Mounting Accessories

Rod Eye

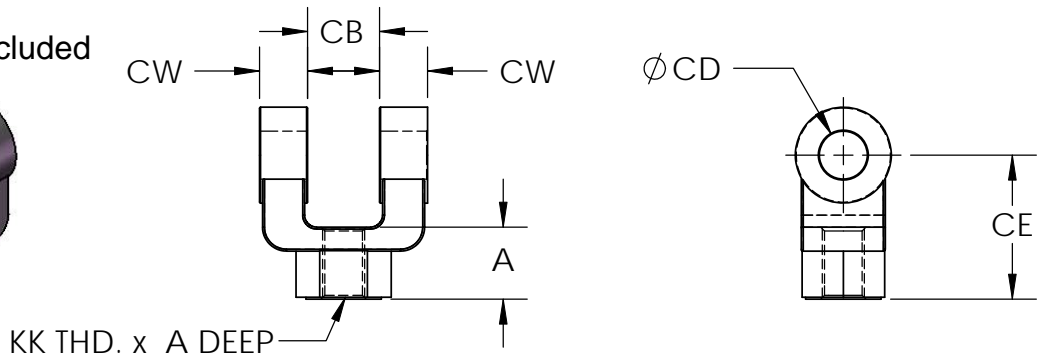


Eye Bracket



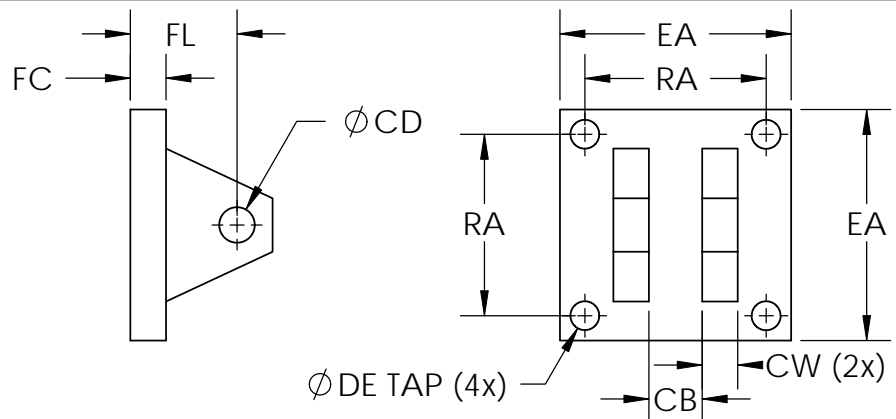
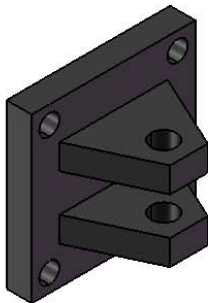
Rod Clevis

PP Pivot Pin is Included



Clevis Bracket

PP Pivot Pin is Included



Dimensions

R O D E Y E	PART #	CD	KK	A	CA	CB	M
	RE0500	1/2	7/16-20	3/4	1-1/2	3/4	1/2
	RE0750	3/4	3/4-16	1-1/8	2-1/16	1-1/4	3/4
	RE1000	1	1-14	1-5/8	2-13/16	1-1/2	1
	RE1375	1-3/8	1-1/4-12	2	3-7/16	2	1-3/8
	RE1750	1-3/4	1-1/2-12	2-1/4	4	2-1/2	1-3/4
	RE2000	2	1-7/8-12	3	5	2-1/2	2
	RE2500	2-1/2	2-1/4-12	3-1/2	5-13/16	3	2-1/2
	RE3000	3	2-1/2-12	3-1/2	6-1/8	3	3
	RE3500	3-1/2	3-1/4-12	4-1/2	7-5/8	4	3-1/2
RE4000	4	4-12	5-1/2	9-1/8	4-1/2	4	

E Y E B R A C K E T	PART #	CD	FM	CB	FE	EA	RA	DB
	EB0500	1/2	1-1/8	3/4	3/8	2-1/2	1.63	3/8
	EB0750	3/4	1-7/8	1-1/4	5/8	3-1/2	2.55	1/2
	EB1000	1	2-1/4	1-1/2	3/4	4-1/2	3.25	5/8
	EB1375	1-3/8	3	2	7/8	5	3.82	5/8
	EB1750	1-3/4	3-1/4	2-1/2	1	6-1/2	4.95	7/8
	EB2000	2	4	2-1/2	1-1/2	7-1/2	5.73	1
	EB2500	2-1/2	4-1/2	3	1-1/2	8-1/2	6.58	1-1/8
	EB3000	3	5-1/4	3	2	9-1/2	7.50	1-1/4
	EB3500	3-1/2	6-7/8	4	2-7/8	12-5/8	9.62	1-3/4
EB4000	4	7-7/8	4-1/2	3-3/8	15-1/8	11.45	2	

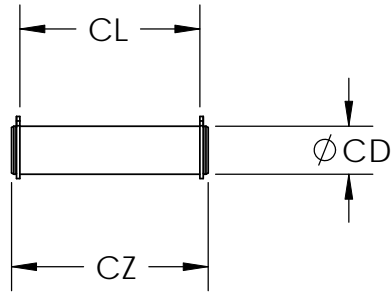
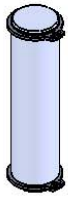
R O D C L E V E L S	PART #	CD	KK	A	CE	CB	CW	M
	RC0500	1/2	7/16-20	3/4	1-1/2	3/4	1/2	1/2
	RC0750	3/4	3/4-16	1-1/8	2-3/8	1-1/4	5/8	3/4
	RC1000	1	1-14	1-5/8	3-1/8	1-1/2	3/4	1
	RC1375	1-3/8	1-1/4-12	2	4-1/8	2	1	1-3/8
	RC1750	1-3/4	1-1/2-12	2-1/4	4-1/2	2-1/2	1-1/4	1-3/4
	RC2000	2	1-7/8-12	3	5-1/2	2-1/2	1-1/4	2
	RC2500	2-1/2	2-1/4-12	3-1/2	6-1/2	3	1-1/2	2-1/2
	RC3000	3	2-1/2-12	3-1/2	6-3/4	3	1-1/2	2-3/4
	RC3500	3-1/2	3-1/4-12	4-1/2	8-1/2	4	2	3-1/2
RC4000	4	4-12	5-1/2	10	4-1/2	2-1/4	4	

C B R A C K E T	PART #	CD	FL	CB	FC	EA	RA	DE	CW
	CB0500	1/2	1-1/8	3/4	3/8	2-1/2	1.63	3/8-24	1/2
	CB0750	3/4	1-7/8	1-1/4	5/8	3-1/2	2.55	1/2-20	5/8
	CB1000	1	2-1/4	1-1/2	3/4	4-1/2	3.25	5/8-18	3/4
	CB1375	1-3/8	3	2	7/8	5	3.82	5/8-18	1
	CB1750	1-3/4	3-1/8	2-1/2	7/8	6-1/2	4.95	7/8-14	1-1/4
	CB2000	2	3-1/2	2-1/2	1	7-1/2	5.73	1-14	1-1/4
	CB2500	2-1/2	4	3	1	8-1/2	6.58	1-1/8-12	1-1/2
	CB3000	3	4-1/4	3	1	9-1/2	7.50	1-1/4-12	1-1/2
	CB3500	3-1/2	5-11/16	4	1-11/16	12-5/8	9.62	1-3/4-12	2
CB4000	4	6-7/16	4-1/2	1-15/16	15-1/8	11.45	2-12	2-1/4	

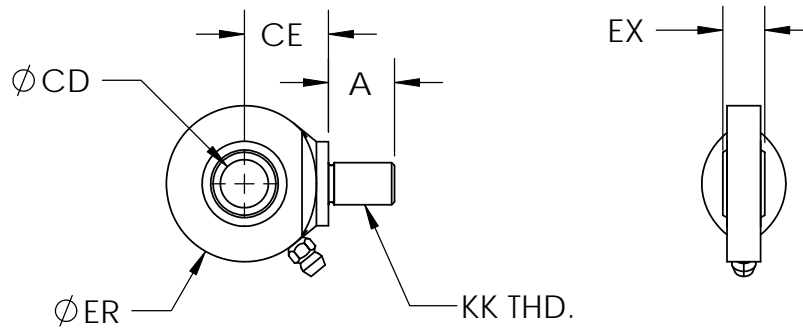
Rod End and Pivot Mounting Accessories

Pivot Pin

PP for Non-spherical Accessories and SPP for Spherical Rod Eye and Mating Bracket.

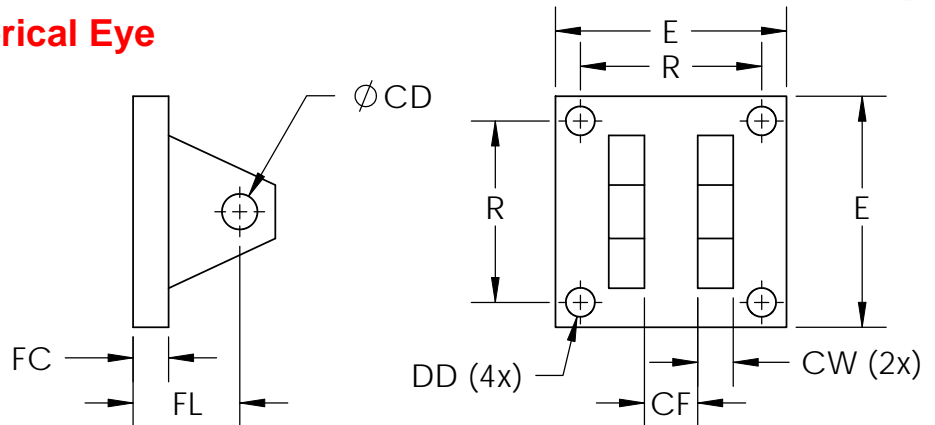
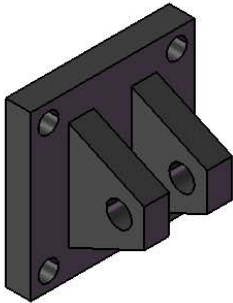


Spherical Rod Eye

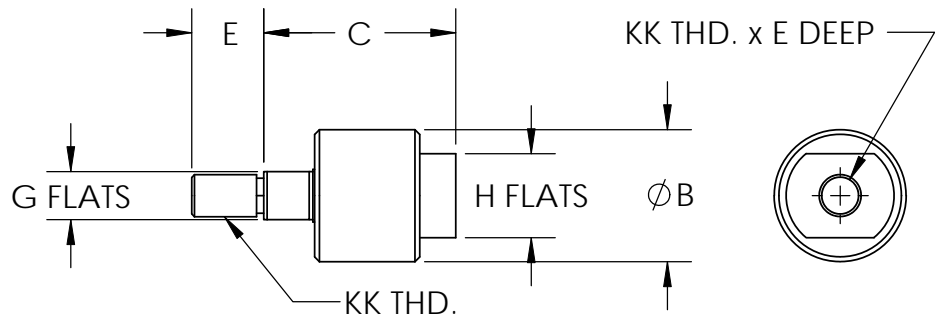


Clevis Bracket for Spherical Eye

SPP Pivot Pin is Included



Alignment Coupler



Dimensions

P
I
V
O
T
P
I
N

PART #	CD	CL	CZ	PART #	CD	CL	CZ
PP0500	1/2	1.94	2.28	SPP0500	1/2	1.56	1.90
PP0750	3/4	2.72	3.09	SPP0750	3/4	2.03	2.40
PP1000	1	3.22	3.59	SPP1000	1	2.5	2.87
PP1375	1-3/8	4.25	4.66	SPP1375	1-3/8	3.31	3.72
PP1750	1-3/4	5.25	5.66	SPP1750	1-3/4	4.22	4.63
PP2000	2	5.28	5.72	SPP2000	2	4.31	4.75
PP2500	2-1/2	6.31	6.78				
PP3000	3	6.34	6.84				
PP3500	3-1/2	8.41	8.97				
PP4000	4	9.41	9.97				

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H
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C
Y
A
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L

PART #	CD	KK	A	CE	EX	ER
SRE0500	1/2	7/16 -20	11/16	7/8	7/16	7/8
SRE0750	3/4	3/4 -16	1	1-1/4	21/32	1-1/4
SRE1000	1	1 -14	1-1/2	1-7/8	7/8	1-3/8
SRE1375	1-3/8	1-1/4 -12	2	2-1/8	1-3/16	1-13/16
SRE1750	1-3/4	1-1/2 -12	2-1/8	2-1/2	1-17/32	2-3/16
SRE2000	2	1-7/8 -12	2-7/8	2-3/4	1-3/4	2-5/8

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PART #	CD	FL	CF	FC	E	R	DD	CW
SCB0500	1/2	1-1/2	7/16	1/2	3	2.05	13/32	1/2
SCB0750	3/4	2	21/32	5/8	3-3/4	2.76	17/32	5/8
SCB1000	1	2-1/2	7/8	3/4	5-1/2	4.10	17/32	3/4
SCB1375	1-3/8	3-1/2	1-13/16	7/8	6-1/2	4.95	21/32	1
SCB1750	1-3/4	4-1/2	1-17/32	1-1/4	8-1/2	6.58	29/32	1-1/4
SCB2000	2	5	1-3/4	1-1/2	10-5/8	7.92	29/32	1-1/2

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PART #	KK	E	C	B	H	G
AC0437	7-16-20	3/4	2	1-3/8	7/8	1/2
AC0500	1/2-20	3/4	2	1-3/8	7/8	1/2
AC0625	5/8-18	3/4	2	1-3/8	7/8	1/2
AC0750	3/4-16	1-1/8	2-5/16	2	1-5/16	3/4
AC0875	7/8-14	1-1/8	2-5/16	2	1-5/16	3/4
AC1000	1-14	1-5/8	3	3-1/8	1-7/8	1-1/4
AC1250	1-1/4-12	1-5/8*	3	3-1/8	1-7/8	1-1/4
AC1500	1-1/2-12	2-1/4	4-3/8	4	1-15/16	1-1/2
AC1875	1-7/8-12	3	5-5/8	5	2-5/8	1-15/16
AC2000	2-12	3	5-5/8	5	2-5/8	1-15/16

*Female Thread Depth will not Accept Standard "A" Thread Length

Mating Thread Must be "E" Long or Shorter to Provide Proper Torque Against Shoulder

How to Create a Model Number

Example: **HKB - MX1 - 3.25 x 12 x 1.375 - K**

(1) **AK** - Air **JK** - Light Duty Hydraulic **HK** - Heavy Duty Hydraulic

(2) **N**on-Cushioned **B**oth Ends Cushioned **R**od End Only Cushioned **C**ap End Only Cushioned

(3) **MX1** Mounting Style (select desired mount from below)

(4) **3.25** (bore size - in decimal)

(5) **12** (stroke - in inches)

(6) **1.375** (rod diameter - in decimal)

(7) **-K** (rod end thread - see chart at right)

(8) (blank = std seals, **-V** = Viton high temp)

(9) (blank or **-S** for special give description)

Rod Ø	Rod End Threads				Length
	Male Threads			Female Thread	
	-K	-C	-M	-F	
5/8	7/16-20	1/2-20	5/8-18	7/16-20	3/4
1	3/4-16	7/8-14	1-14	3/4-16	1-1/8
1-3/8	1-14	1-1/4-12	1-3/8-12	1-14	1-5/8
1-3/4	1-1/4-12	1-1/2-12	1-3/4-12	1-1/4-12	2
2	1-1/2-12	1-3/4-12	2-12	1-1/2-12	2-1/4
2-1/2	1-7/8-12	2-1/4-12	2-1/2-12	1-7/8-12	3
3	2-1/4-12	2-3/4-12	3-12	2-1/4-12	3-1/2
3-1/2	2-1/2-12	3-1/4-12	3-1/2-12	2-1/2-12	3-1/2
4	3-12	3-3/4-12	4-12	3-12	4
4-1/2	3-1/4-12	4-1/4-12	4-1/2-12	3-1/4-12	4-1/2
5	3-1/2-12	4-3/4-12	5-12	3-1/2-12	5
5-1/2	4-12	5-1/4-12	5-1/2-12	4-12	5-1/2

MOUNTING OPTIONS

MX1 EXT. TIE RODS BOTH ENDS 	MX2 EXT. TIE RODS CAP END 	MX3 EXT. TIE RODS HEAD END 	MS5 TAPPED HEAD FACE 	MS6 TAPPED CAP FACE 
MF1 RECTANGULAR FLANGE HEAD END 	MF2 RECTANGULAR FLANGE CAP END 	MF5 SQUARE FLANGE HEAD END 	MF6 SQUARE FLANGE CAP END 	
ME3 HEAD FLANGE 	ME4 CAP FLANGE 	ME5 RECTANGULAR HEAD 	ME6 RECTANGULAR CAP 	
MS1 END ANGLES 	MS2 SIDE LUGS 	MS3 CENTERLINE LUGS 	MS4 BOTTOM TAPPED 	MS7 END LUGS 
MP1 CAP FIXED CLEVIS 	MP2 DETACHABLE CAP CLEVIS 	MP3 CAP FIXED PIVOT 	MP4 DETACHABLE CAP PIVOT 	MPU SPHERICAL BEARING 
MT1 HEAD TRUNNION 	MT2 CAP TRUNNION 	MT4 INTERMEDIATE TRUNNION 	CERTAIN MOUNTS MAY REQUIRE LOWER OPERATING PRESSURE WHEN USED IN HYDRAULIC APPLICATIONS. CERTAIN MOUNTS CAN BE COMBINED WITH OTHERS IN A DUAL MOUNT CONFIGURATION. DOUBLE ENDED CYLINDERS ARE AVAILABLE FOR SELECT MOUNTS. PLEASE CONSULT THE FACTORY FOR DETAILS.	

HOW TO CALCULATE PUSH & PULL FORCES

	PA
CYLINDER BORE Ø (INCHES)	PISTON AREA (SQ. IN.)
1-1/2	1.77
2	3.14
2-1/2	4.91
3-1/4	8.30
4	12.57
5	19.64
6	28.27
7	38.49
8	50.27
10	78.54
12	113.10
14	153.94

PUSH FORCE = PA x PSI

(Example: 2" Bore @ 1,000 PSI)

3.14 x 1,000 PSI = 3,140 lbs of Push Force

PULL FORCE = PA – PRA x PSI

(Example: 2" bore, 1" rod @ 1,000 PSI)

3.14 - .79 = 2.35

2.35 x 1,000 PSI = 2,350 lbs of Pull Force

	PRA
PISTON ROD Ø (INCHES)	PISTON ROD AREA (SQ. IN.)
5/8	.31
1	.79
1-3/8	1.49
1-3/4	2.41
2	3.14
2-1/2	4.91
3	7.07
3-1/2	9.62
4	12.57
4-1/2	15.90
5	19.64
5-1/2	23.76
6	28.27

JK SERIES

RECOMMENDED PRESSURE LIMITATION

PRESSURE LIMITATIONS FOR JK SERIES HYDRAULIC CYLINDERS

MAXIMUM RECOMMENDED OPERATION P.S.I.

BORE SIZE	1-1/2	2	2-1/2	3-1/4	4	5	6	7	8	10	12
MODERATE SERVICE	2500	2500	1500	2500	1500	1200	1200	800	800	800	800
SEVERE SERVICE	1500	1500	1000	1500	1000	800	800	500	500	500	500

MS2 (SIDE LUG)

BORE SIZE	1-1/2	2	2-1/2	3-1/4	4	5	6	7	8
MODERATE SERVICE	1500	1500	1090	1380	920	880	770	620	520
SEVERE SERVICE	1500	1050	650	820	550	520	460	370	310

MS4 AND MS7 (SIDE TAPPED & END LUG)

BORE SIZE	1-1/2	2	2-1/2	3-1/4	4	5	6	7	8
MODERATE SERVICE	1500	1500	1150	1750	900	800	800	500	500
SEVERE SERVICE	1260	1230	690	1050	540	480	480	300	300

MT1 AND MT2 (TRUNNION HEAD & CAP)

BORE SIZE	1-1/2	2	2-1/2	3-1/4	4	5	6	7	8
MODERATE SERVICE	1500	1500	1500	1500	1170	750	1030	750	580
SEVERE SERVICE	1500	1500	1000	1060	700	450	610	450	350

MT4 (INTERMEDIATE TRUNNION)

BORE SIZE	1-1/2	2	2-1/2	3-1/4	4	5	6	7	8
MODERATE SERVICE	1500	1500	1500	1500	1030	660	800	660	500
SEVERE SERVICE	1500	1500	1000	930	610	390	500	390	300

MF1 AND MF2 (FLANGE MOUNTS)

ROD DIAMETER

BORE SIZE	5/8"		1"		1-3/8"		1-3/4"		2"		2-1/2"		3"		3-1/2"		4"		
	MOD	SEV	MOD	SEV	MOD	SEV	MOD	SEV	MOD	SEV	MOD	SEV	MOD	SEV	MOD	SEV	MOD	SEV	
1-1/2"	1500	1500	1470	880															
2"	770	460	1430	850	770	460													
2-1/2"	950	570	470	280	950	570	660	400											
3-1/4"			1500	1000	1100	660	1500	1170	1500	1000									
4"			1500	1000	1340	800	990	590	910	500	1340	800							
5"			1200	800	1110	670	930	560	880	530	680	410	490	290	690	410			
6"					1200	800	1200	800	1200	800	1070	640	900	540	730	440	920	550	

HK SERIES

RECOMMENDED PRESSURE LIMITATION

PRESSURE LIMITATIONS FOR HK SERIES HYDRAULIC CYLINDERS

MS2 (SIDE LUG)

BORE SIZE	1-1/2	2	2-1/2	3-1/4	4	5	6	7	8
MODERATE SERVICE	3000	3000	3000	3000	2520	2400	2340	2420	2370
SEVERE SERVICE	3000	3000	2640	2280	1510	1440	1400	1480	1420

MS4 AND MS7 (SIDE TAPPED & END LUG)

BORE SIZE	1-1/2	2	2-1/2	3-1/4	4	5	6	7	8
MODERATE SERVICE	3000	3000	3000	3000	3000	3000	3000	3000	3000
SEVERE SERVICE	2820	2760	2580	2520	2400	2400	1800	1800	1800

MT1 AND MT2 (TRUNNION HEAD & CAP)

BORE SIZE	1-1/2	2	2-1/2	3-1/4	4	5	6	7	8
MODERATE SERVICE	3000	3000	3000	3000	3000	2410	2190	2150	2770
SEVERE SERVICE	3000	3000	3000	2500	2250	1440	1310	1260	1660

MT4 (INTERMEDIATE TRUNNION)

BORE SIZE	1-1/2	2	2-1/2	3-1/4	4	5	6	7	8
MODERATE SERVICE	3000	3000	3000	3000	2780	1780	1830	2150	1380
SEVERE SERVICE	3000	3000	3000	2530	1660	1060	1090	1260	820

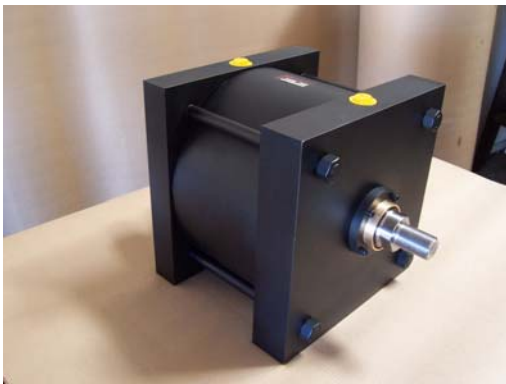
MF1 AND MF2 (FLANGE MOUNTS)

ROD DIAMETER																			
		5/8"		1"		1-3/8"		1-3/4"		2"		2-1/2"		3"		3-1/2"		4"	
BORE SIZE		MOD	SEV	MOD	SEV	MOD	SEV	MOD	SEV	MOD	SEV	MOD	SEV	MOD	SEV	MOD	SEV	MOD	SEV
1-1/2"		2480	1490	1740	1040														
2"				3610	2170	2220	1330												
2-1/2"				1560	940	2670	1600	2000	1200										
3-1/4"						1720	1030	1110	670	2320	1390								
4"								1850	1110	1710	1030	1080	650						
5"										1700	1020	1380	830	1100	660	810	490		
6"												1580	950	1350	810	1130	680	820	490
7"														1240	740	1090	650	750	450
8"																1030	620	760	470

MF5 AND MF6 (SQ FLANGE MOUNTS)

ROD DIAMETER																			
		5/8"		1"		1-3/8"		1-3/4"		2"		2-1/2"		3"		3-1/2"		4"	
BORE SIZE		MOD	SEV	MOD	SEV	MOD	SEV	MOD	SEV	MOD	SEV	MOD	SEV	MOD	SEV	MOD	SEV	MOD	SEV
4								3000	2400	3000	2400	3000	2400						
5										3000	2400	3000	2400	3000	2270	3000	1940		
6												3000	1800	3000	1800	3000	1800	3000	1800
7														3000	1800	3000	1800	2580	1550
8																2890	1730	2400	1440

Examples of HPI Cylinders

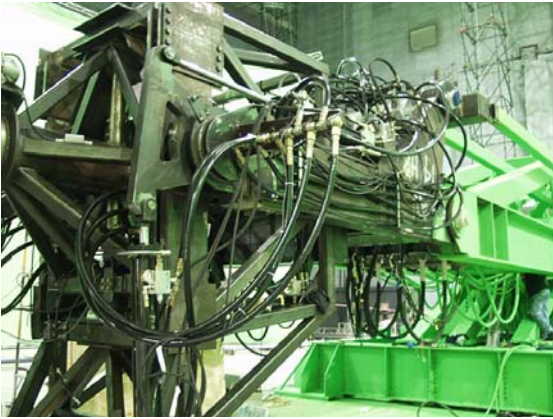




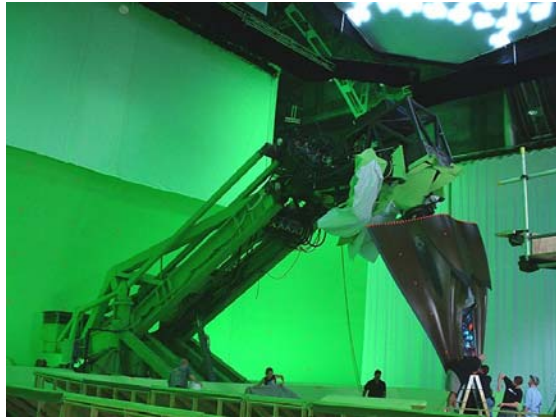
Motion Base Used for "Flight of the Phoenix"



Motion Base Used for "Spiderman"



Fighter Motion Base for "Stealth"



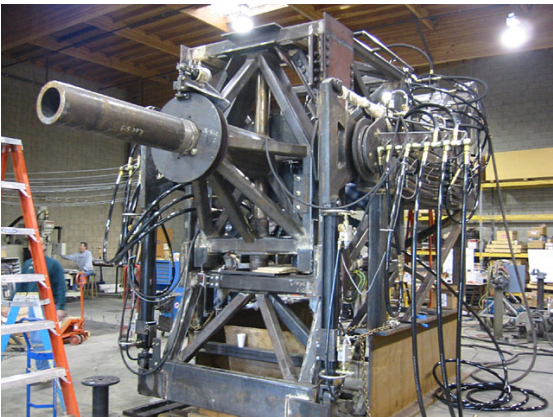
Fighter Motion Base for "Stealth"



Motion Base for "Pearl Harbor"



Motion Base for "Pearl Harbor"



Attack Vehicle used in "The Island"



Flying Vehicle used in "The Island"

HPI CYLINDERS WARRANTY

Subject to the conditions below, HYDRAULIC PNEUMATIC INCORPORATED (“HPI”) warrants to the first end user (the “Buyer”) that HPI’s products are free from defects in material and workmanship.

HPI will either repair or replace a defective product, including lowest transportation costs but not including installation or any other similar charges, provided that (1) the Buyer notifies HPI in writing of the claimed defect within three years from shipment from HPI’s factory (one year for repair work), (2) provides a complete explanation of the defect, the application of the product, and such information concerning use of the product as HPI may request, and (3) returns the product to HPI in accordance with HPI’s specific instructions and authorization obtained from HPI prior to return of the product, and HPI’s inspection confirms that the product was defective.

This warranty applies only if the product was used and applied correctly under normal operating conditions and good engineering practice; was installed, operated and maintained in accordance with all instructions issued or published by HPI; was used within stated pressure, media and operating limitations published by HPI and in effect on the date of shipment; and was not subject to abuse, misuse or unauthorized modification.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, notwithstanding any disclosure to HPI of the use to which the product is to be put. The Buyer’s SOLE AND EXCLUSIVE REMEDY on any claim of any kind for any loss or damage arising out of the manufacture, sale, delivery, or use of HPI’s products shall be for the repair or replacement of any defective products as provided herein.

IN NO EVENT SHALL HPI BE LIABLE FOR ANY SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES. There are no warranties, expressed or implied, made by HPI other than the warranty against defects in material and workmanship set forth above, and HPI neither assumes nor authorizes any other person or firm to assume for it any other obligations or liability.

HPI Cylinders *Since 1946*

NFPA Interchangeable - Air, Light Duty or Heavy Duty Hydraulic - 1" to 14" Bore

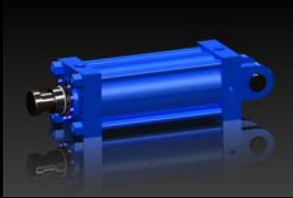
Custom Designs & Modifications - From Samples, Sketches, or Photos

Custom Welded - One Piece to OEM Quantities

Complete Cylinder Repair Facility

Cylinder Parts & Seal Kits

Accessories



Main Plant: 13766 Milroy Place Santa Fe Springs, CA 90670 - Ph: (800) 660-2957 - Ph: (562) 926-1122 - Fax (562) 926-1155

Sales & Engineering: Winston, Oregon - Ph: 1(541) 679-2924 - Fax: 1(541) 679-2926 - Email: Jim@HPIcylinders.com

HPI Cylinders - Offer of Sale

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8. Special Tooling: A tooling charge may be imposed for any special tooling, including without limitation, dies, fixtures, molds and patterns, acquired to manufacture items sold pursuant to this contract. Such special tooling shall be and remain Seller's property notwithstanding payment of any charges by Buyer. In no event will Buyer acquire any interest in apparatus belonging to Seller which is utilized in the manufacture of the items sold hereunder, even if such apparatus has been specially converted or adapted for such manufacture and notwithstanding any charges paid by Buyer. Unless

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13. Entire Agreement/Governing Law: The terms and conditions set forth herein, together with any amendments, modifications and any different terms or conditions expressly accepted by Seller in writing, shall constitute the entire Agreement concerning the items sold, and there are no oral or other representations or agreements which pertain thereto. This Agreement shall be governed in all respects by the law of the State of California. No actions arising out of the sale of the items sold hereunder or this Agreement may be brought by either party more than two (2) years after the cause of action accrues.

14. Waiver: Failure of either party to enforce at any time a provision of these Conditions of Sale will not waive that provision nor will any such failure prejudice that party's right to enforce that provision in the future.