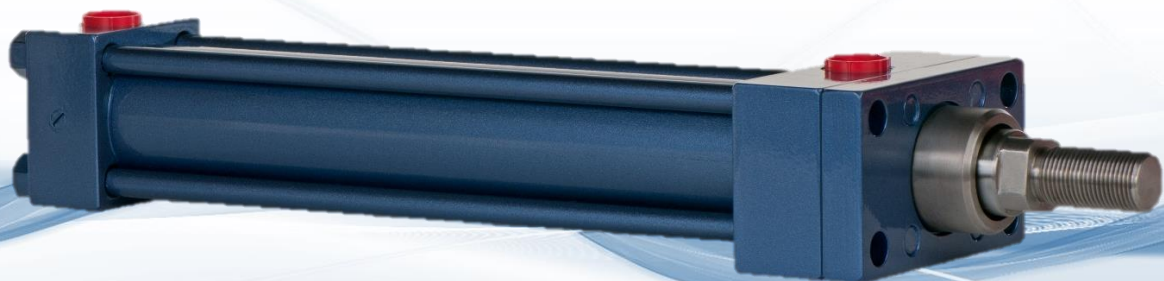


**HELPEBS
CONTROLS**

CIRCLE 7 SELECTION

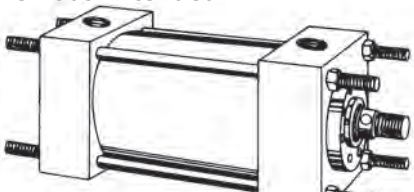
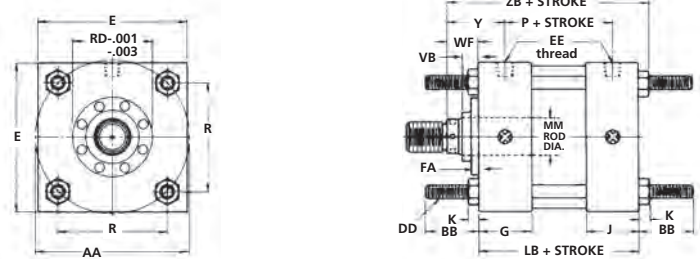
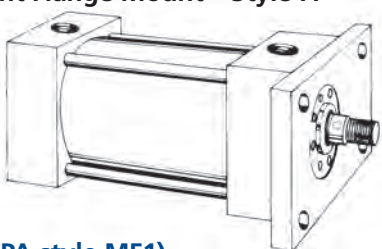
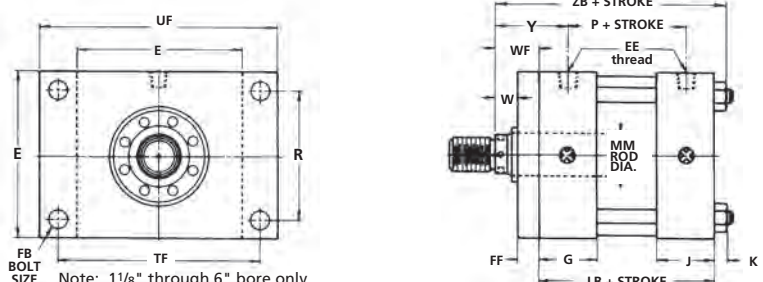
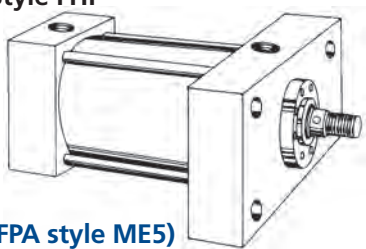
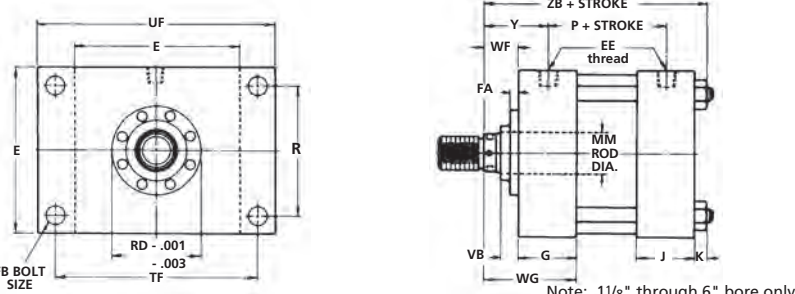
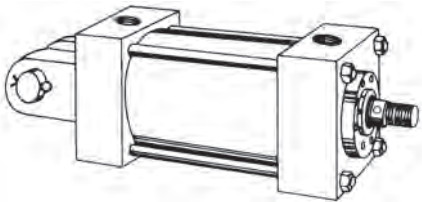
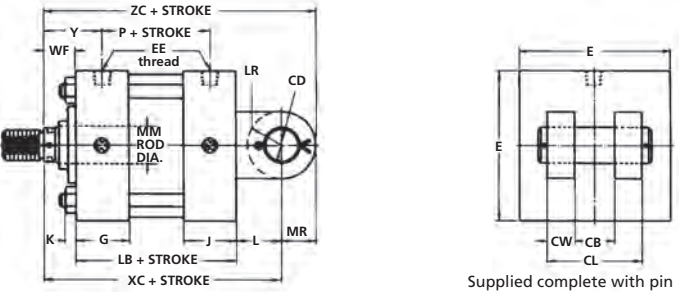
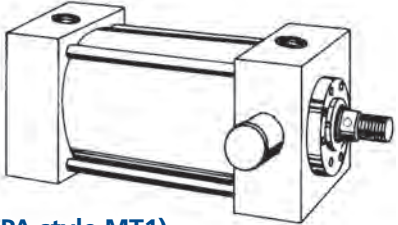
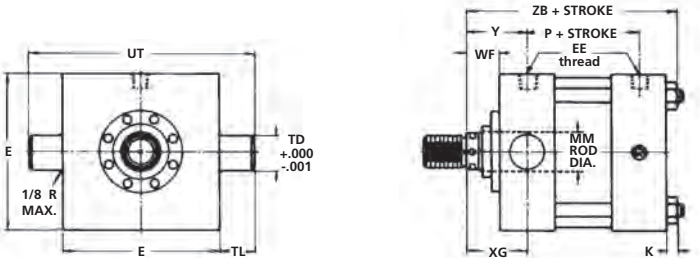
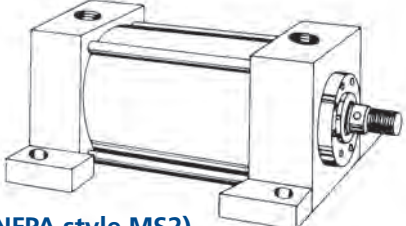
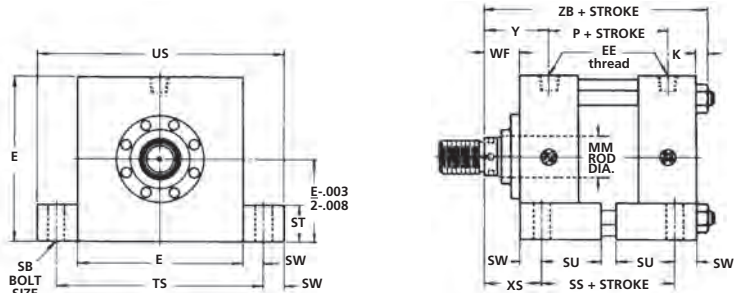
Series EH (210 bar) to ISO6020/2:1991 and DIN 24554

Series HH (3,000 psi) to NFPA / JIC mounting specifications



PERFORMANCE UNDER PRESSURE

AGAIN. AND AGAIN. AND AGAIN.

<p>Tie Rods Extended</p>  <p>NX - Neither (MXO) BX - Both (MX1)</p> <p>RX - Rear (MX2) FX - Front (MX3)</p>	
<p>Front Flange Mount – Style FF</p>  <p>(NFA style MF1)</p>	
<p>Front Head Flange Mount – Style FHF</p>  <p>(NFA style ME5)</p>	
<p>Clevis Mount – Style C</p>  <p>(NFA style MP1)</p>	
<p>Trunnion Front Mount – Style TF</p>  <p>(NFA style MT1)</p>	
<p>Side Lug Mount – Style SL</p>  <p>(NFA style MS2)</p>	

MOUNTING DIMENSIONS SERIES HH

Dimensions 1 1/8" through 6" bores

Be Sure To Add Stroke To This Dimension

Bore	MM Rod Dia.	FA	VB	B	V	RD	WF	WG	XC	XG	XS	Y	ZB	ZC	ZT
1 1/8	5/8 std.	—	—	1 1/8	1/4	—	1 1/8	2 1/4	5 5/16	1 23/32	1 3/8	1 23/32	4 5/8	5 3/4	5 3/8
1 1/2	5/8 std.	—	—	1 1/8	1/4	—	1 1/4	2 3/4	6 3/8	2	1 3/8	2	5 15/16	6 7/8	7
	1 2:1	—	—	1 1/2	3/8	—	1 5/8	3 1/8	6 3/4	2 3/8	1 3/4	2 3/8	6 5/16	7 1/4	7 3/8
2	1 std.	—	—	1 1/2	1/4	—	1 1/2	3 1/8	7 1/4	2 3/8	1 7/8	2 3/8	6 7/16	8	7 13/16
	1 3/8 2:1	—	—	2	3/8	—	1 3/4	3 3/8	7 1/2	2 5/8	2 1/8	2 5/8	6 11/16	8 1/4	8 1/16
2 1/2	1 std.	—	—	1 1/2	1/4	—	1 1/2	3 1/8	7 3/8	2 3/8	2 1/16	2 3/8	6 9/16	8 1/8	7 15/16
	1 3/4 2:1	—	—	2 3/8	1/2	—	2	3 5/8	7 7/8	2 7/8	2 9/16	2 7/8	7 1/16	8 5/8	8 7/16
3 1/4	1 3/8 std.	1 1/16	1	2	1/4 §	3.187	1 5/8	3 5/8	8 5/8	2 3/4	2 5/16	2 3/4	7 11/16	9 5/8	9 7/16
	2 2:1	—	—	2 5/8	3/8	—	2	4	9	3 1/8	2 11/16	3 1/8	8 1/16	10	9 13/16
4	1 3/4 std.	1 1/16	1 1/8	2 3/8	7/16	3.50	1 7/8	3 7/8	9 3/4	3	2 3/4	3	8 3/16	1 11/8	9 15/16
	2 1/2 2:1	1 3/16	1 1/4	3 1/8	7/16	4.312	2 1/4	4 1/4	10 1/8	3 3/8	3 1/8	3 3/8	8 9/16	1 11/2	10 5/16
5	2 std.	1 3/16	1 1/8	2 5/8	5/16	4.00	2	4	10 1/2	3 1/8	2 7/8	3 1/8	9	1 12 1/4	1 17/16
	3 1/2 2:1	1 3/16	1 1/4	4 1/4	7/16	5.625	2 1/4	4 1/4	10 3/4	3 3/8	3 1/8	3 3/8	9 1/4	1 12 1/2	1 11 1/16
6	2 1/2 std.	1 3/16	1 1/4	3 1/8	7/16	4.312	2 1/4	4 5/8	1 21/8	3 1/2	3 3/8	3 1/2	10 1/2	1 14 1/8	1 13 1/4
	4 2:1	1 5/16	1 1/4	4 3/4	5/16	6.25	2 1/4	4 5/8	1 21/8	3 1/2	3 3/8	3 1/2	10 1/2	1 14 1/8	1 13 1/4

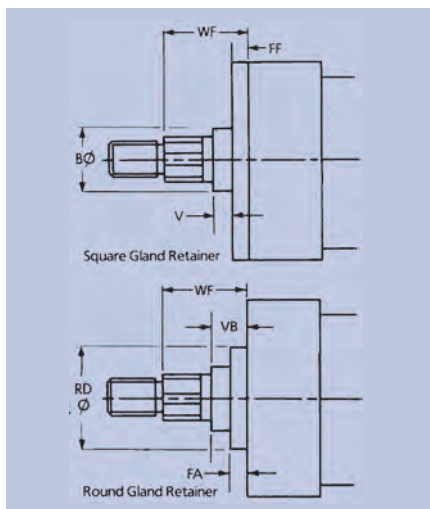
§ This dimension for style FF only. For other mounts V=1 1/16"

Be Sure To Add Stroke To This Dimension

Bore	AA	BB	CB	CD	CL	CW	DD	E	EE BSP	FB	FF	G	J	K	L	LB
1 1/8	1.68	1	5/8	3/8	1 1/4	5/16	1/4-28	1 3/4	1/4	1/4	1/2	1 1/8	1	1/4	15/16	3 1/4
1 1/2	2.3	1 3/8	3/4	1/2	1 3/4	1/2	3/8-24	2 1/2	1/2	3/8	5/8	1 1/2	1 1/2	5/16	3/4	4 3/8
2	2.9	1 13/16	1 1/4	3/4	2 1/2	5/8	1/2-20	3	1/2	1/2	3/4	1 5/8	1 1/2	7/16	1 1/4	4 1/2
2 1/2	3.6	1 13/16	1 1/4	3/4	2 1/2	5/8	1/2-20	3 1/2	1/2	1/2	3/4	1 5/8	1 1/2	7/16	1 1/4	4 5/8
3 1/4	4.6	2 5/16	1 1/2	1	3	3/4	5/8-18	4 1/2	3/4	5/8	3/4	2	1 3/4	9/16	1 1/2	5 1/2
4	5.4	2 5/16	2	1 3/8	4	1	5/8-18	5	3/4	5/8	—	2	1 3/4	9/16	2 1/8	5 3/4
5	7.0	3 3/16	2 1/2	1 3/4	5	1 1/4	7/8-14	6 1/2	3/4	7/8	—	2	1 3/4	3/4	2 1/4	6 1/4
6	8.1	3 5/8	2 1/2	2	5	1 1/4	1-14	7 1/2	1	1	—	2 3/8	2 3/8	7/8	2 1/2	7 3/8

Be Sure To Add Stroke To This Dimension

Bore	LR	MR	P	R	SB	SS	ST	SU	SW	TD	TF	TL	TS	UF	US	UT
1 1/8	9/16	3/8	2 3/16	1.19	5/16	2 5/8	1/2	1 5/16	3/8	3/4	2 3/8	3/4	2 1/2	3	3 1/4	3 1/4
1 1/2	1/2	1/2	2 7/8	1.63	3/8	3 7/8	1/2	1 5/16	3/8	1	3 7/16	1	3 1/4	4 1/4	4	4 1/2
2	3/4	3/4	2 7/8	2.05	1/2	3 5/8	3/4	1 1/4	1/2	1 3/8	4 1/8	1 3/8	4	5 1/8	5	5 3/4
2 1/2	3/4	3/4	3	2.55	3/4	3 3/8	1	1 9/16	1 1/16	1 3/8	4 5/8	1 3/8	4 7/8	5 5/8	6 1/4	6 1/4
3 1/4	1	1	3 1/2	3.25	3/4	4 1/8	1	1 9/16	1 1/16	1 3/4	5 7/8	1 3/4	5 7/8	7 1/8	7 1/4	8
4	1 3/8	1 3/8	3 3/4	3.82	1	4	1 1/4	2	7/8	1 3/4	6 3/8	1 3/4	6 3/4	7 5/8	8 1/2	8 1/2
5	1 3/4	1 3/4	4 1/4	4.95	1	4 1/2	1 1/4	2	7/8	1 3/4	8 3/16	1 3/4	8 1/4	9 3/4	10	10
6	2	2	4 7/8	5.73	1 1/4	5 1/8	1 1/2	2 1/2	1 1/8	2	9 7/16	2	9 3/4	1 11 1/4	12	1 11 1/2



Important Notice

There is a construction variance in the 1 1/8", 1 1/2", 2" and 2 1/2" bore sizes and in the 3 1/4", bore with a 2" diameter piston rod.

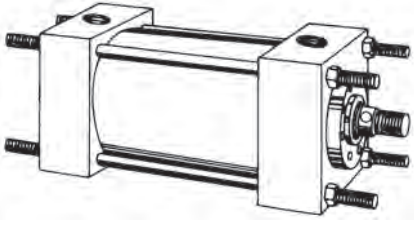
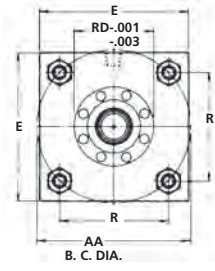
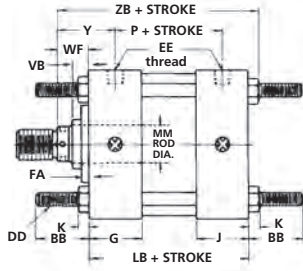
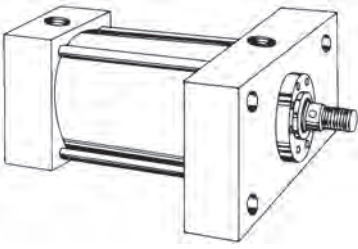
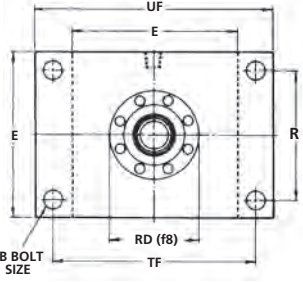
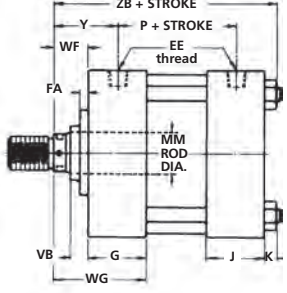
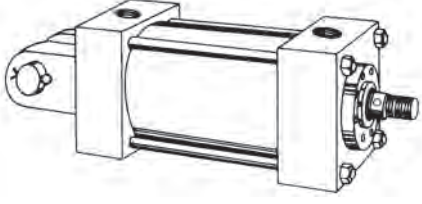
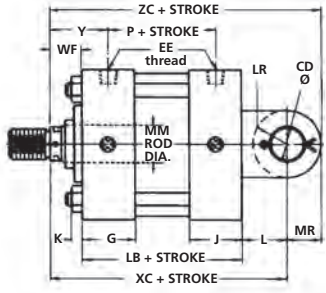
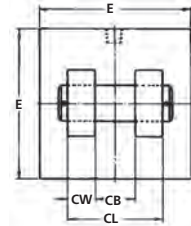
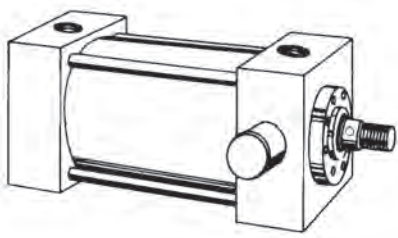
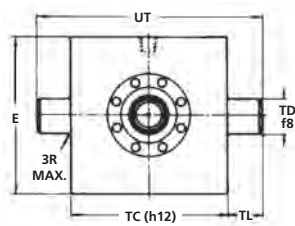
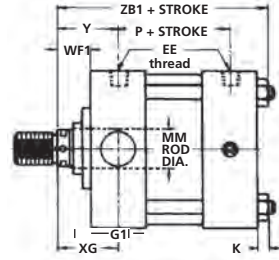
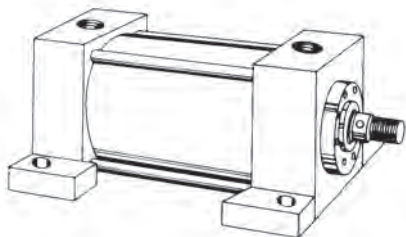
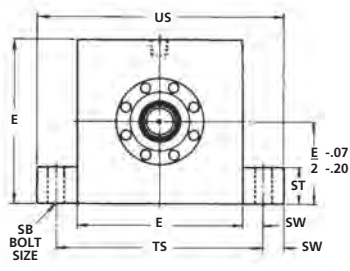
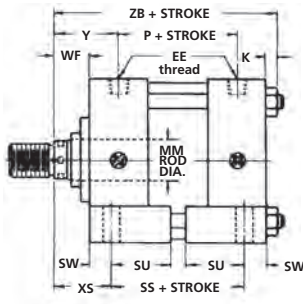
The round rod gland retainer shown is not used in these sizes. A square retainer the same square size as the head, is employed.

In the clevis mount, the retainer is held in place with the tie rod nuts and the rod gland cannot be removed without loosening the tie rods.

On the front head flange mount (FHF) in these sizes, the retainer is the same rectangular size as the head. Tie rods thread into the retainer and the

retainer holds in the packing gland. Hence in these sizes the gland cannot be removed without loosening the tie rods. Dimensions for these sizes of the FHF mount cylinder can be obtained from the front flange mount (FF) charting. Mounting bolts will clear through both the flange (FF dimension) and the head (G dimension).

In the TF and SL mounts, the retainer is held in place by the retainer screws that thread into the head. The rod gland can be removed without loosening the Tie rods in all bore sizes. Please consult full catalogue for additional information.

<p>Tie Rods Extended</p>  <p>NX - Neither (MXO) RX - Rear (MX2) BX - Both (MX1) FX - Front (MX3)</p>		
<p>Front Head Flange Mount – Style FHF</p>  <p>(ISO style ME5)</p>		
<p>Clevis Mount – Style C</p>  <p>(ISO style MP1)</p>		 <p>Supplied complete with pin</p>
<p>Trunnion Front Mount – Style TF</p>  <p>(ISO style MT1)</p>		
<p>Side Lug Mount – Style SL</p>  <p>(ISO style MS2)</p>		

MOUNTING DIMENSIONS SERIES EH

Dimensions 25mm to 125mm

Be Sure To Add Stroke To This Dimension

Bore	MM Rod Dia.	E	G	G1	J	K	L	P	R	Y	AA	BB	CB
25	12	38§	30	30	25	4	13	62	27	41	40	19	12
32	14	45§	30	30	25	5	19	66	33	51	47	24	16
40	18	63	42	42	38	6.5	19	78	41	57	59	35	20
50	22	76	42	42	38	10	32	78	52	63	74	46	30
63	28	89	42	42	38	10	32	80	65	70	91	46	30
80	36	115	50	50	45	13	39	88	83	79	117	59	40
100	45	127	50	58	45	13	54	95	97	85*	137	59	50
125	56	165	50	72	45	18	57	108	126	85*	178	81	60

§ – See figure A. * – For TF mounting 100 bore = 78, 125 bore = 89

§ 25 mm and 32 mm bore

Extra height 6.5 mm applies to port face at head end only.

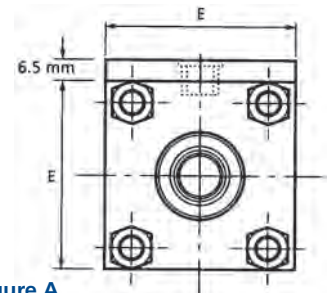


Figure A

Be Sure To Add Stroke To This Dimension

Bore	CD	CL Max.	CW Ref.	DD	EE BSP	FA	FB	FF	LB	LR	MR	RD(f8)	SB	SS	ST	SU	SW	TC
25	10	26	7	M5x0.8	1/4	–	5.5	10	89	12	12	–	6.6	73	9	22	8	38
32	12	34	9	M6x1	1/4	–	6.6	10	93	16	16	–	9	73	12	20	10	44
40	14	42	11	M8x1	3/8	–	11	10	118	16	16	–	11	98	12	32	10	63
50	20	62	16	M12x1.25	1/2	16 [◇]	14	16	118	25	25	74 [◇]	14	92	18.5	29	13	76
63	20	62	16	M12x1.25	1/2	16 [◇]	14	16	120	25	25	75 [◇]	18	86	25	25	17	89
80	28	83	21	M16x1.5	3/4	20	18	–	139	33	33	82	18	105	25	33	17	114
100	36	103	26	M16x1.5	3/4	22	18	–	146	45	45	92	26	102	31	28	22	127
125	45	123	31	M22x1.5	3/4*	22	22	–	159	51	51	105	26	115	31	28	22	165

◇ – Style FHF only

* – not in accordance with standard

Be Sure To Add Stroke To This Dimension

Bore	TD(f8)	TF	TG	TL	TS	US	UT	VB	WF	WF1	WG	XC	XG	XS	ZB	ZB1	ZC
25	12	51	28.3	10	54	70	58	16	25	25	55	127	44	33	118	118	139
32	16	58	33.2	12	63	84	68	22	35	35	65	147	54	45	133	133	163
40	20	87	41.7	16	83	103	95	16	35	35	77	172	57	45	160	160	188
50	25	105	52.3	20	102	127	116	22	41	41	83	191	64	54	169	169	216
63	32	117	64.3	25	124	159	139	22	48	48	90	200	70	65	178	178	225
80	40	149	82.7	32	149	185	178	25	51	51	101	229	76	68	203	203	262
100	50	162	96.9	40	172	216	201	29	57	42	107	257	71	79	216	209	302
125	63	208	125.9	50	210	254	265	29	57	39	107	289	75	79	243	238	340

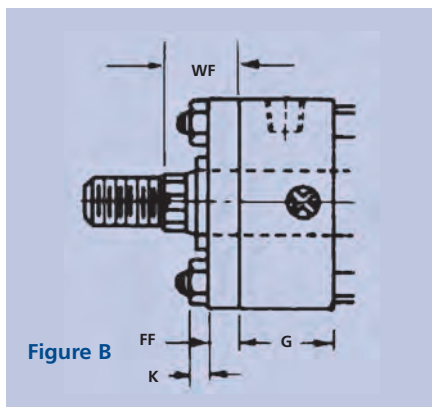


Figure B

Important Notice

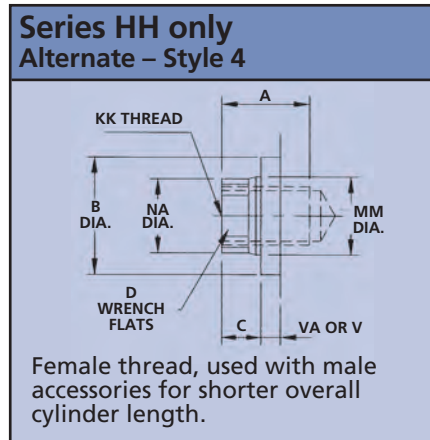
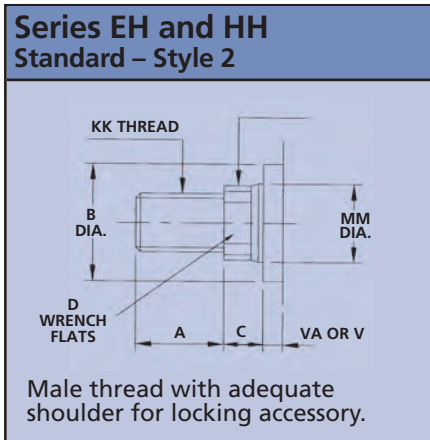
There is a construction variance in 25, 32, 40, 50 & 63 bore sizes and in the 80 bore with 45 and 56 dia. rods and 100 bore with 56 and 70 dia. rods in both RHF & SL mounts. In addition, the same applies to the FHF mount with 25, 32 and 40 bore size. The round retainer shown above is not used on these sizes. Instead, a retainer the same size as the head is used. See drawing B. FHF Mount – The tie rods thread into the retainer.

SL Mount – The retainer is held in place with screws that thread into the head. Dimensions are shown on the adjacent drawing.

On all other sizes, a round rod gland retainer is used. It is held in place by retainer screws – independent of the tie rods, hence, the rod gland can be removed without loosening the tie rods.

Please consult full catalogue for additional information.

Series EH – ISO 6020/2								
MM Rod Dia.	A	B Dia.(f8)	C	D	KK	NA Dia.+0 -0.1	V	KF
12	14	24	9	10	M10X1.25	11	6	M8X1
14	16	26	13	12	M12X1.25	13	12	M10X1.25
18	18	30	19	15	M14X1.5	17	6	M12X1.25
22	22	34	19	18	M16X1.5	21	6	M16X1.5
28	28	42	26	22	M20X1.5	27	6	M20X1.5
36	36	50	26	30	M27X2	34	5	M27X2
45	45	60	28	39	M33X2	43	7	M33X2
56	56	72	28	48	M42X2	54	7	M42X2



- Series HH only Important**
- Specify on order**
1. Type of thread
 2. Length of thread
 3. Rod extension if non-standard
 4. Any non standard thread please supply full details
 5. Other threads are sometimes available on Circle 7 service. Please contact factory for details.

Series HH – NFPA								
MM Rod Dia.	A	B Dia. - .001 - .003	C	D	KK	NA Dia. ± .002	V	VA *
5/8	3/4	1 1/8	3/8	1/2	7/16-20	.594	1/4	–
1	1 1/8	1 1/2	1/2	13/16	3/4-16	.968	1/4	–
1 3/8	1 5/8	2	5/8	1 1/8	1-14 [‡]	1.343	1/4	5/16
1 3/4	2	2 3/8	3/4	1 1/2	1 1/4-12	1.703	1/4	7/16
2	2 1/4	2 5/8	7/8	1 5/8	1 1/2-12	1.953	1/4	5/16
2 1/2	3	3 1/8	1	2 1/16	1 7/8-12	2.453	1/4	7/16
3	3 1/2	3 3/4	1	2 9/16	2 1/4-12	2.937	1/4	7/16
3 1/2	3 1/2	4 1/4	1	3	2 1/2-12	3.437	1/4	7/16
4	4	4 3/4	1	3 7/16	3-12	3.937	1/4	5/16

‡Note extra fine thread

*On FF mounts use V dimensions

Composition

2 1/2	HH	FHF	25	CC	W
Bore	Cylinder Series	Mounting	Stroke	Cushion	Modification
As Required In mm or inches	HH – NFPA EH – ISO	Listed Below	As Required Shown as Gross Stroke Clearly show in mm or inches	CF – Cushion Front CR – Cushion Rear CC – Cushion both ends	A – BSP (only) K – 2.1 rod series HH only V – Viton seals

Mounting Styles

- BX** – Basic Cylinder – tie rods extended – both ends
- C** – Clevis
- FF** – Front Flange (series HH only)
- FHF** – Front Head Flange
- FX** – Basic cylinder – tie rods extended – front end
- NX** – Basic cylinder – no tie rod extension
- RX** – Basic cylinder – tie rods extended – rear end
- SL** – Side Lug
- TF** – Trunnion front

Order Information

To insure prompt delivery, please be sure in include this information when ordering:

1. Quantity
2. Series
3. Bore
4. Stroke – Gross Stroke always show in Model Number
5. Mounting Style
6. Cushion (front, rear, both or none)
7. Rod End Style (if other than Style 2 standard)
8. Rod Size (standard, oversize or 2:1)
9. Medium (air, oil, water or other)
10. Type of fluid
11. Operating Pressure and Maximum Shock Pressure
12. Temperature

Complete and correct ordering information will eliminate untimely delays. When in doubt always contact our factory.

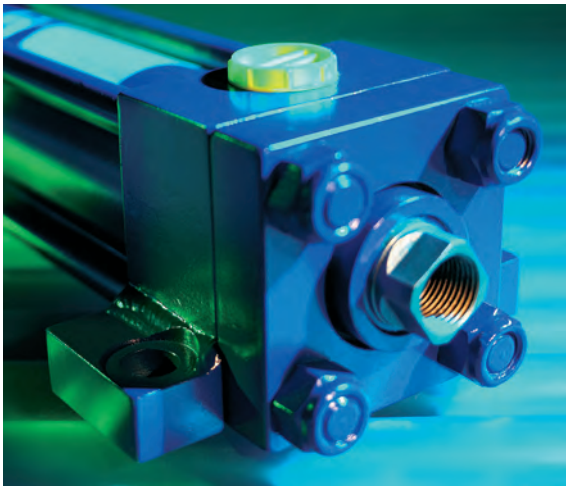
POLICY The policy is one of continual improvement in design and manufacture to assure still finer products, hence, specifications are subject to change without notice.

WARRANTIES AND LIABILITIES Goods alleged by the Buyer to be defective or not to conform to the Contract and accepted by the Company as such during the period of 12 months after delivery will be replaced by the Company or if the Company shall so decide the total price in respect of the Goods shall be refunded to the Buyer. The total liability of the Company for any loss or damages or expenses of any description direct or indirect suffered by the Buyer and attributable to the Goods shall not exceed in total One million pounds Sterling. No claim in respect of allegedly defective Goods shall be valid unless the claim is made in writing immediately after the Buyer shall become aware of the alleged defect. Nor will such claim entitle the Buyer to cancel any outstanding part of the Order.

The Company reserves the right to alter the scope and content of circle 7 selection at its discretion, without prior notification

Please refer to full catalogues for mounting information, cylinder calculations, rod selection and specification.

CIRCLE 7



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