RE/RF Series Medium Duty NFPA Tie Rod Cylinders Catalog

Powering Business Worldwide

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Features

1. Rod Cartridge Assembly:

Machined to maximum bearing support and wear resistance. Unitized, threadless assembly is pilot-fitted into the head on a precision bored diameter to assure true concentricity.

2. Sealing System:

Sealing system offers two simple choices (Normal and High temperature) to meet most of the application requirements. Non-Lube air sealing system are defined by seal model codes. Custom sealing systems are also available on request.

3. Square Head Tie-Rod Design:

Suitable for nominal working pressure up to 1500 psi.

4. Piston Rod:

Non-case hardened, hard chrome-plated piston rods are standard. Case-hardened and stainless steel rods are available options.

5. Captive Screws:

Inadvertent removal of cushion screws is prevented, while still allowing a full range of adjustment.

6. Fully Adjustable Cushioning System:

This design has been engineered to provide the ability to tune the cushion performance for an optimized deceleration profile. Our patented floating ring cushion seal or an alternate ball check design allows maximum acceleration. This excellent acceleration profile translates into faster cycle times and increased machine production.

7. Global Design:

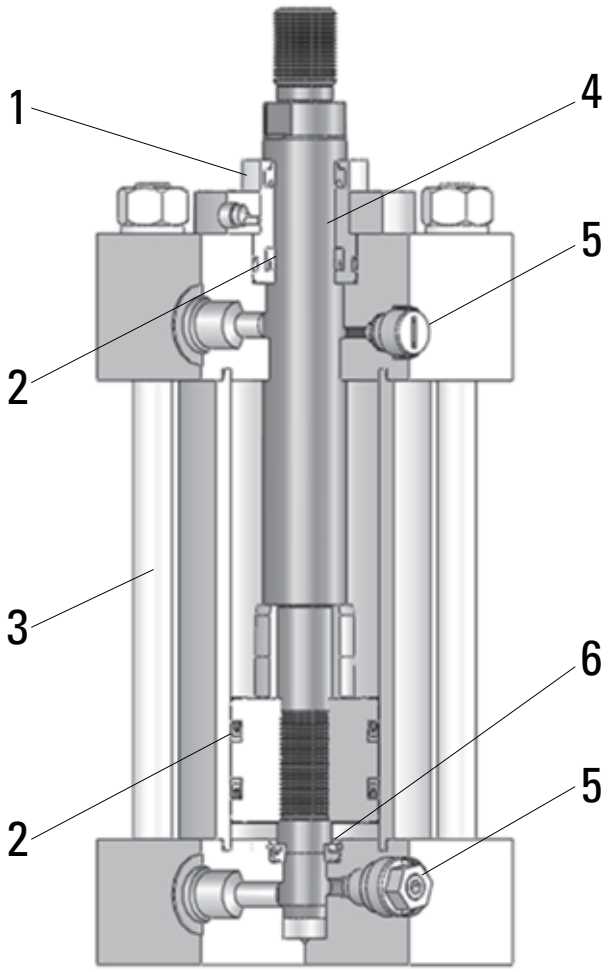
Engineered for ANSI B93.15/ NFPA interchangeability with the durability required for heavy-duty applications.

8. Teflon Tube Seals:

Superior design to prevent leakage Compatible with virtually all fluids Operating temperatures to 500°F

9. Bore Size Range:

Cylinder bores available between 1-1/2 and 14 inches.



How to order

Standard Cylinders

Eaton has created an easy system for ordering RE/RF Series cylinders, developed to improve our service to you. The Standard model code consists of sixteen alpha-numeric digits which fully describe the most common standard options offered on RE/RF Series cylinders.

To specify your RE/RF Series cylinder, review the following pages for a full description of each option available and select the desired code.

This model code system will:

Simplify the Re-order Process.

Each RE/RF Series cylinder is assigned a sixteen digit model code. That code is unique to a particular cylinder description. That way, when you re-order your RE/RF Series cylinder, you're assured of exactly the same top quality cylinder design.

Improve Identification.

Every RE/RF Series cylinder has its sixteen digit model code clearly marked on the product, impression stamped in the metal head or cap. Each 16 digit code completely describes a specific cylinder. This allows seals and replacement components to be easily identified in the field.

Facilitate Communications.

This fully descriptive model code system allows you to work directly with your local Eaton sales engineer to identify and service your RE/RF Series cylinder.

Note: See pages 6 and 7 for a summary of model code options.

Custom Cylinders

New Cylinders

Although the model code has been arranged to cover the vast majority of available options, there will be occasions when you require an option which cannot be coded.

When specifying such an option, enter an "X" for the appropriate item in the sixteen digit model code, then describe your requirements. For example, if you have an application which requires a custom thread on the end of the piston rod, enter an "X" for item 7. Then add a full description at the end of the model code, such as "With 3.25 inch total rod projection and M22 x 1,5 thread 1.375 inches long." The cylinder will then be given a unique six digit design number on receipt of order (as explained below).

If more than one of the available options represented in items 15 and 16 are required, add the appropriate codes as a suffix. The cylinder will then be given a unique six digit design number on receipt of order (as explained below).

Replacement Cylinders

Every custom Eaton cylinder is assigned a unique design number. A Custom cylinder will have 22 digits vs. 16 for the standard cylinder. The design number is contained in the last six digits of the model code, and position 17 is always an alpha character. In other words, the design number begins after position 16. When ordering a replacement cylinder, simply give the model code or the six digit design number to your local Eaton Cylinder sales representative.

Replacement Parts

Each design number is stored in a quick retrieval computerized storage system. This gives our field sales representatives rapid access to assist you in identifying and specifying genuine Eaton replacement parts.

WARNING
It is the user's responsibility to select the correct system, product or components.

RE/RF Model code

RE	01	GH	2	N	1	K	A	080	00
1,2	3,4	5,6	7	8	9	10	11	12,13,14	15,16

1,2 Series

Series Description	Code
250 Psi Pneumatic Cylinders	RE
1500 Psi Medium duty Hydraulic	RF

3,4 Mount Codes

Mount Description	Code
Side Lug	01
Side Tapped	02
Keyed side lug	04
Keyed side tapped	05
Head Rectangular Flange	07
Head Square Flange	08
Head Rectangular	09
Cap Fixed Clevis	10
Spherical bearing mount	11
Cap Rectangular flange	12
Cap Square Flange	13
Intermediate Trunnion	15
Cap Trunnion	16
Head Trunnion	17
Cap End Extended Tie Rod	21
Head End Extended Tie Rod	22
Both Ends Extended Tie Rod	23
No Mount	24
Double rod Side lug	25
Double rod tapped	26
Double rod rectangular flange	31
Double rod Square flange	32
Double rod intermediate Trunnion	34
Double rod Head Trunnion	35
Double rod Head end extended tie rods	39
Double rod both ends tie rods	40
Double rod No mount	41

5,6 Bore & Rod

Bore	Rod	Code
1.50	.625	CC
	1.00	CE
2.00	.625	DC
	1.00	DE
	1.375	DH
2.50	.625	EC
	1.00	EE
	1.375	EH
	1.75	EL
3.25	1.00	GE
	1.375	GH
	1.75	GL
	2.00	GM
4.00	1.00	HE
	1.375	HH
	1.75	HL
	2.00	HM
	2.50	HP
5.00	1.00	KE
	1.375	KH
	1.75	KL
	2.00	KM
	2.50	KP
	3.00	KU
	3.50	KV
6.00	1.375	LH
	1.75	LL
	2.50	LP
	4.00	LW
8.00	1.375	NH
	1.75	NL
	3.50	NV
	5.50	N1
10.00	1.75	RL
	2.00	RM
	3.50	RV
	5.50	R1
12.00	2.00	SM
	2.50	SP
	4.00	SW
	5.50	S1
14.00	2.50	TP
	3.00	TU
	4.00	TW
	5.50	T1

7 Rod end styles

Rod End Style	Code
Short Female UN Thread	2
Small male UN Thread	5
Plain Rod End	6
Grooved Rod End	G

8 Seal Options

Seal Options	Code
Normal	N
High Temp	T
Normal Pre-lubricated	P
High Temp-Pre lubricated	S

9 Port Options

Port Option	Code
NPTF	1
SAE/UN O-ring	3

10 Port Location

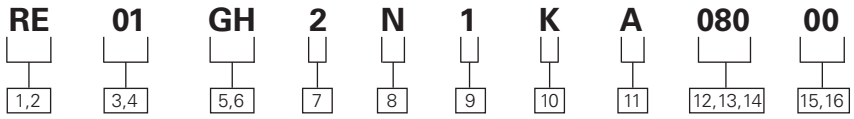
Head	Cap	Code
1	1	K
1	2	L
1	3	M
1	4	N
2	1	P
2	2	R
2	3	S
2	4	T
3	1	U
3	2	V
3	3	W
3	4	Y
4	1	1
4	2	2
4	3	3
4	4	4

11 Cushion Location

Head	Cap	Code
-	-	A
-	1	B
-	2	C
-	3	D
-	4	E
1	-	F
2	-	G
3	-	H
4	-	J
1	1	K
1	2	L
1	3	M
1	4	N
2	1	P
2	2	R
2	3	S
2	4	T
3	1	U
3	2	V
3	3	W
3	4	Y
4	1	1
4	2	2
4	3	3
4	4	4

Double Rod Cylinders:
"Head" = "Mounting End"
"Cap" = Non-mounting Ends

RE/RF Model code



12,13,14 Stroke

12 and 13 indicate stroke length from 0 - 99 inches. 14 indicates fraction of an inch per the following:

Fraction Value	Code
0	0
1/16	1
1/8	2
3/16	3
1/4	4
5/16	5
3/8	6
7/16	7
1/2	8
9/16	9
5/8	A
11/16	B
3/4	C
13/16	D
7/8	E
15/16	F

Special Features

15,16 ERP

- Extra rod projection (Addition to "C" dimension)
- The first digit indicate inches length from 0 to 9 inches
- Second number indicates fractions of an inch per the codes shown for digit 14

  or
- Proximity Switch/Gland Drain/Air Bleeder/Rod flats/Rod material/Stop tube/keyed piston/Bronze bushing

Proximity Switches / Positions

Head End	Cap End	Code
-	1	PB
-	2	PC
-	3	PD
-	4	PE
1	-	PF
2	-	PG
3	-	PH
4	1	PJ
1	1	PK
1	2	PL
1	3	PM
1	4	PN
2	1	PP
2	2	PR
2	3	PS
2	4	PT
3	1	PU
3	2	PV
3	3	PW
3	4	PY
4	1	P1
4	2	P2
4	3	P3
4	4	P4
1	5	P5
2	5	P6
3	5	P7
4	5	P8

Gland Drain / Drainbacks

Head End	Non Mount Head End	Code
-	1	GB
-	2	GC
-	3	GD
-	4	GE
1	-	GF
2	-	GG
3	-	GH
4	-	GJ
1	1	GK

Head End	Non Mount Head End	Code
1	2	GG
1	3	GM
1	4	GN
2	1	GP
2	2	GR
2	3	GS
2	4	GT
3	1	GU
3	2	GV
3	3	GW
3	4	GY
4	1	G1
4	2	G2
4	3	G3
4	4	G4

Non Mounts Head is applicable for double rods only.

Air Bleed / Position

Head End	Cap End	Code
-	1	HB
-	2	HC
-	3	HD
-	4	HE
1	-	HF
2	-	HG
3	-	HH
4	-	HJ
1	1	HK
1	2	HL
1	3	HM
1	4	HN
2	1	HP
2	2	HR
2	3	HS
2	4	HT
3	1	HU
3	2	HV
3	3	HW
3	4	HY
4	1	H1
4	2	H2
4	3	H3
4	4	H4

No of Rod End Flats

No of flats	Code
4	F4

Rod Material

Type	Code
Case Hardened	RH
Stainless Steel 17-4	RS
Stainless Steel 316, Consult Eaton for pressure ratings	RT

Keyed Piston to Rod

Type	Code
Grub Screw	KG
Weld Piston to rod	KS

Bronze Bushing

Type	Code
Bronze Bushing	BX

Stop Tube

Length	Code
1	S1
2	S2
3	S3
4	S4
5	S5
6	S6
7	S7
8	S8
9	S9
10	SA
11	SB
12	SC
13	SD
14	SE
15	SF
16	SG
17	SH
18	SJ
19	SK
20	SL

Mounting styles

Available Mountings

The variety of standard ANSI/ NFPA mountings available in the Series RE/RF gives you a broad selection to match the proper mount to your application. Eaton offers rigid mounts (including side lug mounts, flange mounts, and extended tie rod mounts) and swivel mounts (including clevis mounts and trunnion mounts). For custom mounts, enter "XX" for model code item 2, and give a detailed description with drawings. Series RE/RF cylinders are available in all mounting styles listed.

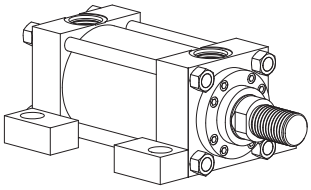
Selecting the Proper Mounting

Just as the cylinder bore must be sized to provide the proper force for an application, a cylinder mounting that can absorb these application forces must also be specified.

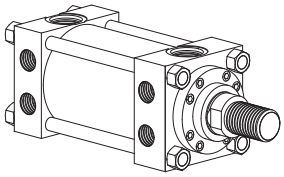
CAUTION

In the mounting information, some mounts have been downrated to minimize deflection. For applications where the motion is linear and parallel to the cylinder rod motion, a rigid mount is recommended. For curvilinear motion, a swivel mount should be chosen. The specifics of each application dictate the correct mounting style it is the user's responsibility to make the correct determination.

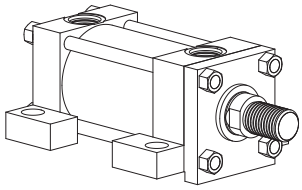
RE/RF01
Side lug
ANSI MS2



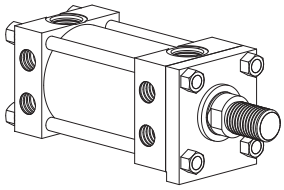
RE/RF02
Side Tapped
ANSI MS4



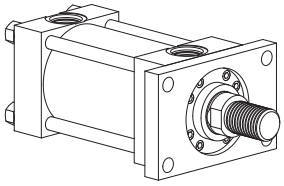
RE/RF04
Keyed Side Lug



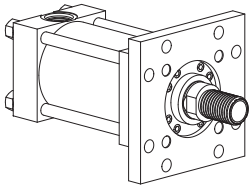
RE/RF05
Keyed Side Tapped



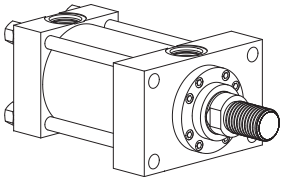
RE/RF07
Head Rectangular flange
ANSI MF1



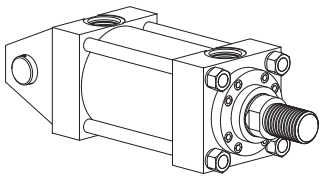
RE/RF08
Head Square flange
ANSI MF5



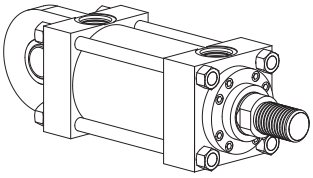
RE/RF09
Head Rectangular
ANSI ME5



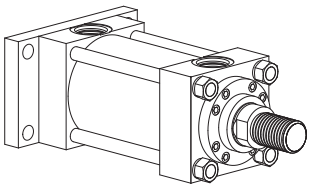
RE/RF10
Cap Clevis
ANSI MP1



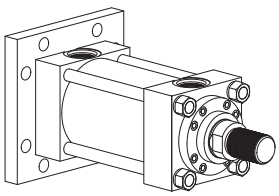
RE/RF11
Cap Spherical bearing



RE/RF12
Cap Rectangular flange
ANSI MF2

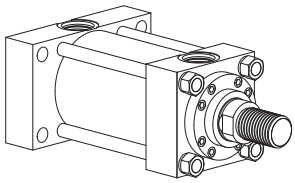


RE/RF13
Cap Square flange
ANSI MF6

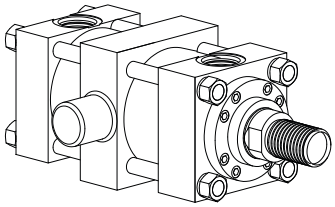


Mounting styles

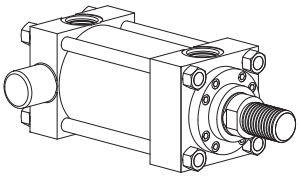
RE/RF14
Cap Rectangular
ANSI ME6



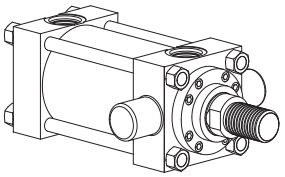
RE/RF15
Intermediate Trunnion
ANSI MT4



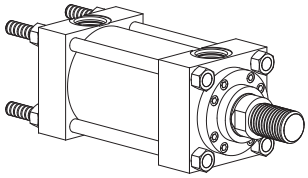
RE/RF16
Cap Trunnion
ANSI MT2



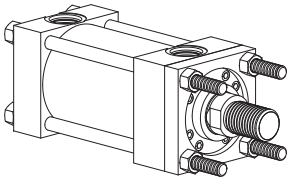
RE/RF17
Head Trunnion
ANSI MT1



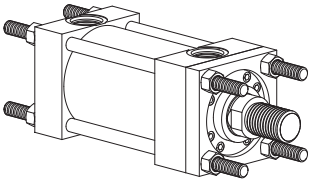
RE/RF21
Cap Extended Tie rod
ANSI MX2



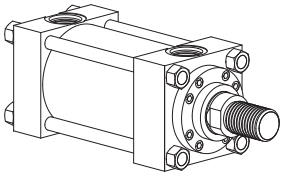
RE/RF22
Head Extended Tie rod
ANSI MX3



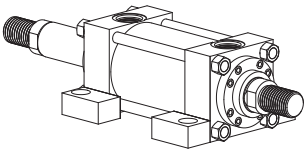
RE/RF23
Both Ends Extended Tie rod
ANSI MX1



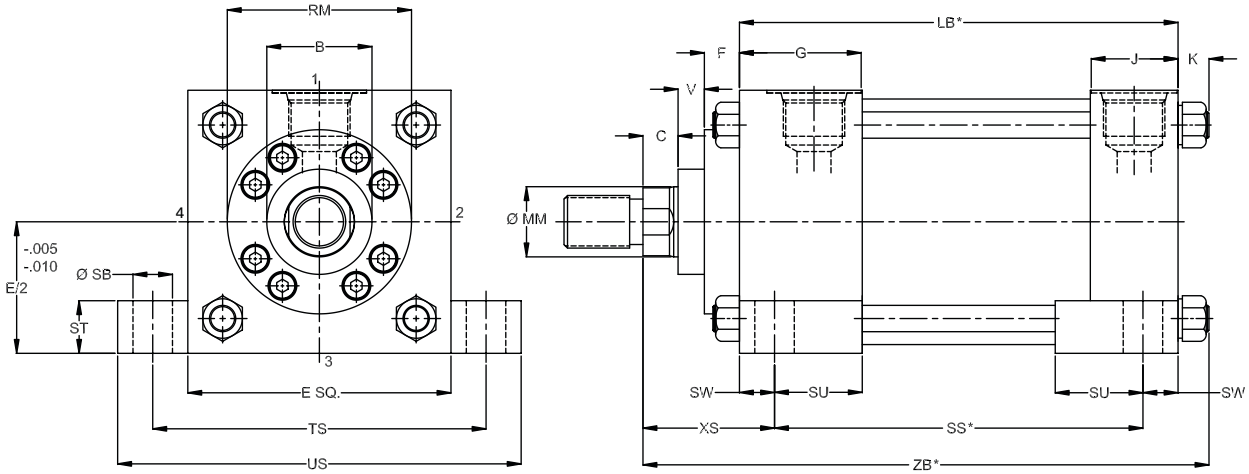
RE/RF24
No Mount



RE/RF25
Double rod, Side Lug



Mounting style and installation dimensions – RE/RF01 side lug mount



Bore	ØMM Rods	B +.000 /-.002	C	E	G	J	F	V	RM	SB	SS*	ST	SU	SW	TS	US	XS	ZB*	LB*	K MAX.
1.50	0.63	1.125	0.38	2.00	1.50	1.00	0.375	0.250	-	0.44	2.88	0.50	0.94	0.38	2.75	3.50	1.38	4.88	3.63	0.25
	1.00	1.500	0.50	2.00	1.50	1.00	0.375	0.500	-	0.44	2.88	0.50	0.94	0.38	2.75	3.50	1.75	5.25	3.63	0.25
2.00	0.63	1.125	0.38	2.50	1.50	1.00	0.375	0.250	-	0.44	2.88	0.50	0.94	0.38	3.25	4.00	1.38	4.94	3.63	0.31
	1.00	1.500	0.50	2.50	1.50	1.00	0.375	0.500	-	0.44	2.88	0.50	0.94	0.38	3.25	4.00	1.75	5.31	3.63	0.31
	1.38	2.000	0.63	2.50	1.50	1.00	0.375	0.625	-	0.44	2.88	0.50	0.94	0.38	3.25	4.00	2.00	5.56	3.63	0.31
2.50	0.63	1.125	0.38	3.00	1.50	1.00	0.343	0.281	2.375	0.44	3.00	0.50	0.94	0.38	3.75	4.50	1.38	5.06	3.75	0.31
	1.00	1.500	0.50	3.00	1.50	1.00	0.343	0.531	2.484	0.44	3.00	0.50	0.94	0.38	3.75	4.50	1.75	5.44	3.75	0.31
	1.38	2.000	0.63	3.00	1.50	1.00	0.375	0.625	-	0.44	3.00	0.50	0.94	0.38	3.75	4.50	2.00	5.69	3.75	0.31
	1.75	2.375	0.75	3.00	1.50	1.00	0.375	0.750	-	0.44	3.00	0.50	0.94	0.38	3.75	4.50	2.25	5.94	3.75	0.31
3.25	1.00	1.500	0.50	3.75	1.75	1.25	0.500	0.375	2.625	0.56	3.25	0.75	1.25	0.50	4.75	5.75	1.88	6.00	4.25	0.38
	1.38	2.000	0.63	3.75	1.75	1.25	0.594	0.406	3.250	0.56	3.25	0.75	1.25	0.50	4.75	5.75	2.13	6.25	4.25	0.38
	1.75	2.375	0.75	3.75	1.75	1.25	0.625	0.500	-	0.56	3.25	0.75	1.25	0.50	4.75	5.75	2.38	6.50	4.25	0.38
	2.00	2.625	0.88	3.75	1.75	1.25	0.625	0.500	-	0.56	3.25	0.75	1.25	0.50	4.75	5.75	2.50	6.63	4.25	0.38
4.00	1.00	1.500	0.50	4.50	1.75	1.25	0.500	0.375	2.625	0.56	3.25	0.75	1.25	0.50	5.50	6.50	1.88	6.00	4.25	0.38
	1.38	2.000	0.63	4.50	1.75	1.25	0.594	0.406	3.250	0.56	3.25	0.75	1.25	0.50	5.50	6.50	2.13	6.25	4.25	0.38
	1.75	2.375	0.75	4.50	1.75	1.25	0.594	0.531	3.875	0.56	3.25	0.75	1.25	0.50	5.50	6.50	2.38	6.50	4.25	0.38
	2.00	2.625	0.88	4.50	1.75	1.25	0.594	0.531	4.000	0.56	3.25	0.75	1.25	0.50	5.50	6.50	2.50	6.63	4.25	0.38
	2.50	3.125	1.00	4.50	1.75	1.25	0.625	0.625	-	0.56	3.25	0.75	1.25	0.50	5.50	6.50	2.75	6.88	4.25	0.38
5.00	1.00	1.500	0.50	5.50	1.75	1.25	0.500	0.375	2.625	0.81	3.13	1.00	1.56	0.69	6.88	8.25	2.06	6.31	4.50	0.44
	1.38	2.000	0.63	5.50	1.75	1.25	0.594	0.406	3.250	0.81	3.13	1.00	1.56	0.69	6.88	8.25	2.31	6.56	4.50	0.44
	1.75	2.375	0.75	5.50	1.75	1.25	0.594	0.531	3.875	0.81	3.13	1.00	1.56	0.69	6.88	8.25	2.56	6.81	4.50	0.44
	2.00	2.625	0.88	5.50	1.75	1.25	0.594	0.531	4.000	0.81	3.13	1.00	1.56	0.69	6.88	8.25	2.69	6.94	4.50	0.44
	2.50	3.125	1.00	5.50	1.75	1.25	0.594	0.656	4.438	0.81	3.13	1.00	1.56	0.69	6.88	8.25	2.94	7.19	4.50	0.44
	3.00	3.750	1.00	5.50	1.75	1.25	0.625	0.625	-	0.81	3.13	1.00	1.56	0.69	6.88	8.25	2.94	7.19	4.50	0.44
	3.50	4.250	1.00	5.50	1.75	1.25	0.625	0.625	-	0.81	3.13	1.00	1.56	0.69	6.88	8.25	2.94	7.19	4.50	0.44
6.00	1.38	2.000	0.63	6.50	2.00	1.50	0.594	0.406	3.250	0.81	3.63	1.00	1.56	0.69	7.88	9.25	2.31	7.06	5.00	0.44
	1.75	2.375	0.75	6.50	2.00	1.50	0.594	0.531	3.875	0.81	3.63	1.00	1.56	0.69	7.88	9.25	2.56	7.31	5.00	0.44
	2.50	3.125	1.00	6.50	2.00	1.50	0.594	0.656	4.438	0.81	3.63	1.00	1.56	0.69	7.88	9.25	2.94	7.69	5.00	0.44
	4.00	4.750	1.00	6.50	2.00	1.50	0.719	0.531	6.000	0.81	3.63	1.00	1.56	0.69	7.88	9.25	2.94	7.69	5.00	0.44

Mounting style and installation dimensions – RE/RF01 side lug mount

Side lug mounts are for moving loads along a flat guided surface as in a carriage along rails. The mounting surface should be flat and parallel to the centerline of the piston rod. The load should be guided to traverse along the centerline of the piston rod.

The frame on which the cylinder is mounted *must* be sufficiently rigid to resist bending moments.

NOTE
For strokes in excess of 30 inches, see "Stop tube selection" on page 59.

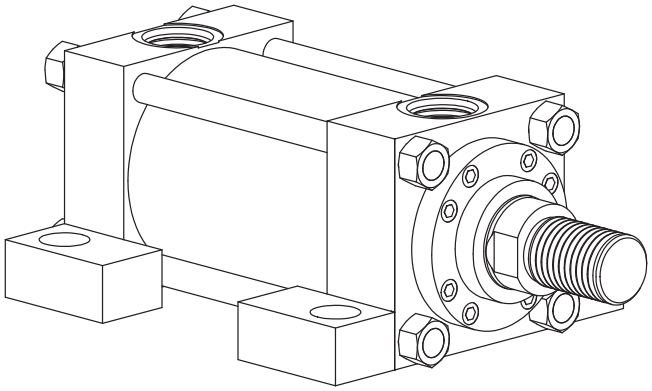
WARNING
With unsupported loads, the bearing must absorb more force. For these applications, the larger available rod is recommended, and stop tubes should be considered.

Use high tensile socket head cap screws or hex head bolts tightened to the manufacturer's recommended torque.

For high shock applications, dowel pins or shear keys should be incorporated in the mounting design. For these applications, consider a keyed side lug mount, RE04.

For severe side load applications, consult your local Eaton sales engineer.

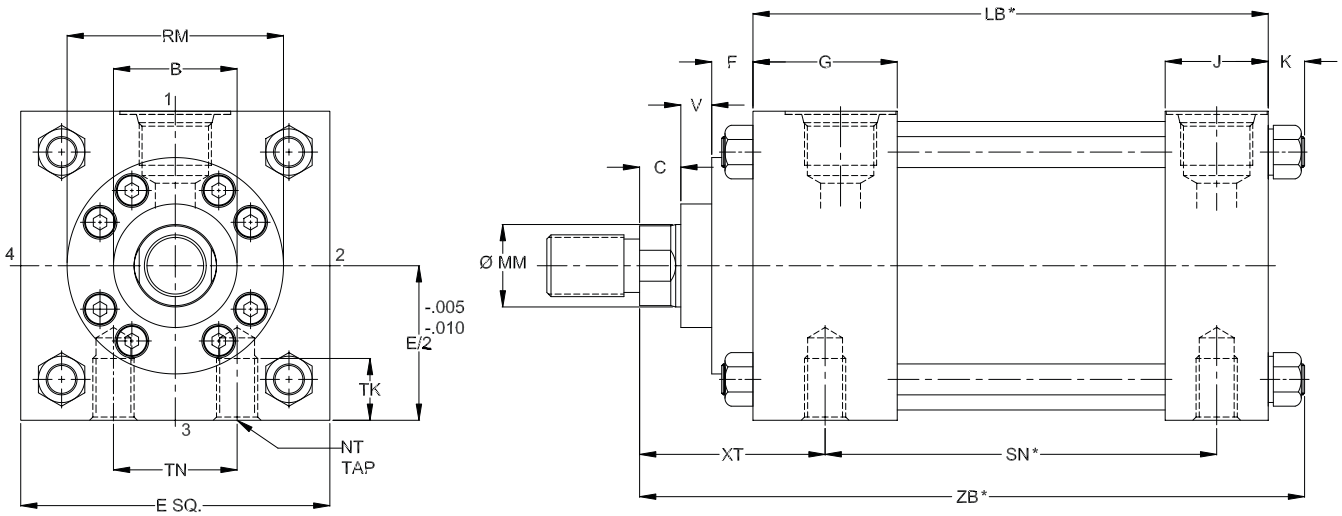
WARNING
Failure to mount the cylinder correctly on the frame may result in death, bodily injury and/or property damage.



Bore	ØMM Rods	B +.000 /-.002	C	E	G	J	F	V	RM	SB	SS*	ST	SU	SW	TS	US	XS	ZB*	LB*	K MAX.
8.00	1.38	2.000	0.63	8.50	2.00	1.50	0.594	0.406	3.250	0.81	3.75	1.00	1.56	0.69	9.88	11.25	2.31	7.31	5.13	0.56
	1.75	2.375	0.75	8.50	2.00	1.50	0.594	0.531	3.875	0.81	3.75	1.00	1.56	0.69	9.88	11.25	2.56	7.56	5.13	0.56
	3.50	4.250	1.00	8.50	2.00	1.50	0.719	0.531	5.625	0.81	3.75	1.00	1.56	0.69	9.88	11.25	2.94	7.94	5.13	0.56
	5.50	6.250	1.00	8.50	2.00	1.50	0.750	0.500	7 SQ	0.81	3.75	1.00	1.56	0.69	9.88	11.25	2.94	7.94	5.13	0.56
10.00	1.75	2.000	0.75	10.63	2.25	2.00	0.594	0.531	3.875	1.06	4.63	1.25	2.00	0.88	12.38	14.13	2.75	8.94	6.38	0.69
	2.00	2.625	0.88	10.63	2.25	2.00	0.594	0.531	4.000	1.06	4.63	1.25	2.00	0.88	12.38	14.13	2.88	9.06	6.38	0.69
	3.50	4.250	1.00	10.63	2.25	2.00	0.719	0.531	5.625	1.06	4.63	1.25	2.00	0.88	12.38	14.13	3.13	9.31	6.38	0.69
	5.50	6.250	1.00	10.63	2.25	2.00	0.875	0.375	8.375	1.06	4.63	1.25	2.00	0.88	12.38	14.13	3.13	9.31	6.38	0.69
12.00	2.00	2.625	0.88	12.75	2.25	2.00	0.594	0.531	4.000	1.06	5.13	1.25	2.00	0.88	14.50	16.25	2.88	9.56	6.88	0.69
	2.50	3.125	1.00	12.75	2.25	2.00	0.594	0.656	4.438	1.06	5.13	1.25	2.00	0.88	14.50	16.25	3.13	9.81	6.88	0.69
	4.00	4.750	1.00	12.75	2.25	2.00	0.875	0.375	6.438	1.06	5.13	1.25	2.00	0.88	14.50	16.25	3.13	9.81	6.88	0.69
	5.50	6.250	1.00	12.75	2.25	2.00	0.875	0.375	8.375	1.06	5.13	1.25	2.00	0.88	14.50	16.25	3.13	9.81	6.88	0.69
14.00	2.50	3.125	1.00	14.75	2.75	2.25	0.594	0.656	4.438	1.31	5.88	1.50	2.50	1.13	17.00	19.25	3.38	11.19	8.13	0.81
	3.00	3.750	1.00	14.75	2.75	2.25	0.719	0.531	5.250	1.31	5.88	1.50	2.50	1.13	17.00	19.25	3.38	11.19	8.13	0.81
	4.00	4.750	1.00	14.75	2.75	2.25	0.875	0.375	6.438	1.31	5.88	1.50	2.50	1.13	17.00	19.25	3.38	11.19	8.13	0.81
	5.50	6.250	1.00	14.75	2.75	2.25	0.875	0.375	8.375	1.31	5.88	1.50	2.50	1.13	17.00	19.25	3.38	11.19	8.13	0.81

* Add stroke

Mounting style and installation dimensions – RE/RF02 side tapped mount



Bore	ØMM Rods	B +.000/ -.002	C	E	G	J	F	V	RM	XT	SN*	NT	TK	TN	ZB*	LB*	K MAX.
1.50	0.63	1.125	0.38	2.00	1.50	1.00	0.375	0.250	-	1.94	2.25	1/4-20	0.38	0.63	4.88	3.63	0.25
	1.00	1.500	0.50	2.00	1.50	1.00	0.375	0.500	-	2.31	2.25	1/4-20	0.38	0.63	5.25	3.63	0.25
2.00	0.63	1.125	0.38	2.50	1.50	1.00	0.375	0.250	-	1.94	2.25	5/16-18	0.50	0.88	4.94	3.63	0.31
	1.00	1.500	0.50	2.50	1.50	1.00	0.375	0.500	-	2.31	2.25	5/16-18	0.50	0.88	5.31	3.63	0.31
	1.38	2.000	0.63	2.50	1.50	1.00	0.375	0.625	-	2.56	2.25	5/16-18	0.50	0.88	5.56	3.63	0.31
2.50	0.63	1.125	0.38	3.00	1.50	1.00	0.343	0.281	2.375	1.94	2.38	3/8-16	0.63	1.25	5.06	3.75	0.31
	1.00	1.500	0.50	3.00	1.50	1.00	0.343	0.531	2.484	2.31	2.38	3/8-16	0.63	1.25	5.44	3.75	0.31
	1.38	2.000	0.63	3.00	1.50	1.00	0.375	0.625	-	2.56	2.38	3/8-16	0.63	1.25	5.69	3.75	0.31
	1.75	2.375	0.75	3.00	1.50	1.00	0.375	0.750	-	2.81	2.38	3/8-16	0.63	1.25	5.94	3.75	0.31
3.25	1.00	1.500	0.50	3.75	1.75	1.25	0.500	0.375	2.625	2.44	2.63	1/2-13	0.75	1.50	6.00	4.25	0.38
	1.38	2.000	0.63	3.75	1.75	1.25	0.594	0.406	3.250	2.69	2.63	1/2-13	0.75	1.50	6.25	4.25	0.38
	1.75	2.375	0.75	3.75	1.75	1.25	0.625	0.500	-	2.94	2.63	1/2-13	0.75	1.50	6.50	4.25	0.38
	2.00	2.625	0.88	3.75	1.75	1.25	0.625	0.500	-	3.06	2.63	1/2-13	0.75	1.50	6.63	4.25	0.38
4.00	1.00	1.500	0.50	4.50	1.75	1.25	0.500	0.375	2.625	2.44	2.63	1/2-13	0.75	2.06	6.00	4.25	0.38
	1.38	2.000	0.63	4.50	1.75	1.25	0.594	0.406	3.250	2.69	2.63	1/2-13	0.75	2.06	6.25	4.25	0.38
	1.75	2.375	0.75	4.50	1.75	1.25	0.594	0.531	3.875	2.94	2.63	1/2-13	0.75	2.06	6.50	4.25	0.38
	2.00	2.625	0.88	4.50	1.75	1.25	0.594	0.531	4.000	3.06	2.63	1/2-13	0.75	2.06	6.63	4.25	0.38
	2.50	3.125	1.00	4.50	1.75	1.25	0.625	0.625	-	3.31	2.63	1/2-13	0.75	2.06	6.88	4.25	0.38
5.00	1.00	1.500	0.50	5.50	1.75	1.25	0.500	0.375	2.625	2.44	2.88	5/8-11	1.00	2.69	6.31	4.50	0.44
	1.38	2.000	0.63	5.50	1.75	1.25	0.594	0.406	3.250	2.69	2.88	5/8-11	1.00	2.69	6.56	4.50	0.44
	1.75	2.375	0.75	5.50	1.75	1.25	0.594	0.531	3.875	2.94	2.88	5/8-11	1.00	2.69	6.81	4.50	0.44
	2.00	2.625	0.88	5.50	1.75	1.25	0.594	0.531	4.000	3.06	2.88	5/8-11	1.00	2.69	6.94	4.50	0.44
	2.50	3.125	1.00	5.50	1.75	1.25	0.594	0.656	4.438	3.31	2.88	5/8-11	1.00	2.69	7.19	4.50	0.44
	3.00	3.750	1.00	5.50	1.75	1.25	0.625	0.625	-	3.31	2.88	5/8-11	1.00	2.69	7.19	4.50	0.44
	3.50	4.250	1.00	5.50	1.75	1.25	0.625	0.625	-	3.31	2.88	5/8-11	1.00	2.69	7.19	4.50	0.44
6.00	1.38	2.000	0.63	6.50	2.00	1.50	0.594	0.406	3.250	2.81	3.13	3/4-10	1.13	3.25	7.06	5.00	0.44
	1.75	2.375	0.75	6.50	2.00	1.50	0.594	0.531	3.875	3.06	3.13	3/4-10	1.13	3.25	7.31	5.00	0.44
	2.50	3.125	1.00	6.50	2.00	1.50	0.594	0.656	4.438	3.44	3.13	3/4-10	1.13	3.25	7.69	5.00	0.44
	4.00	4.750	1.00	6.50	2.00	1.50	0.719	0.531	6.000	3.44	3.13	3/4-10	1.13	3.25	7.69	5.00	0.44

Mounting style and installation dimensions – RE/RF02 side tapped mount

Tapped mounts are for moving loads along a flat guided surface as in a carriage along rails.

The mounting surface should be flat and parallel to the centerline of the piston rod.

The load should be guided to traverse along the centerline of the piston rod.

The frame on which the cylinder is mounted must be sufficiently rigid to resist bending moments.

NOTE
For strokes in excess of 30 inches, see "Stop tube selection" on page 59.

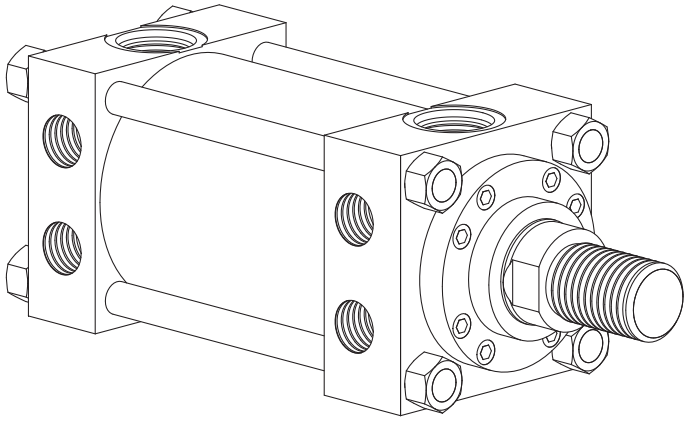
WARNING
With unsupported loads, the bearing must absorb more force. For these applications, the larger available rod is recommended, and stop tubes should be considered.

Use high tensile socket head cap screws or hex head bolts tightened to the manufacturer's recommended torque.

For high shock applications, dowel pins or shear keys should be incorporated in the mounting design. For these applications, consider a keyed side lug mount, RE04.

For severe side load applications, consult your local Eaton sales engineer.

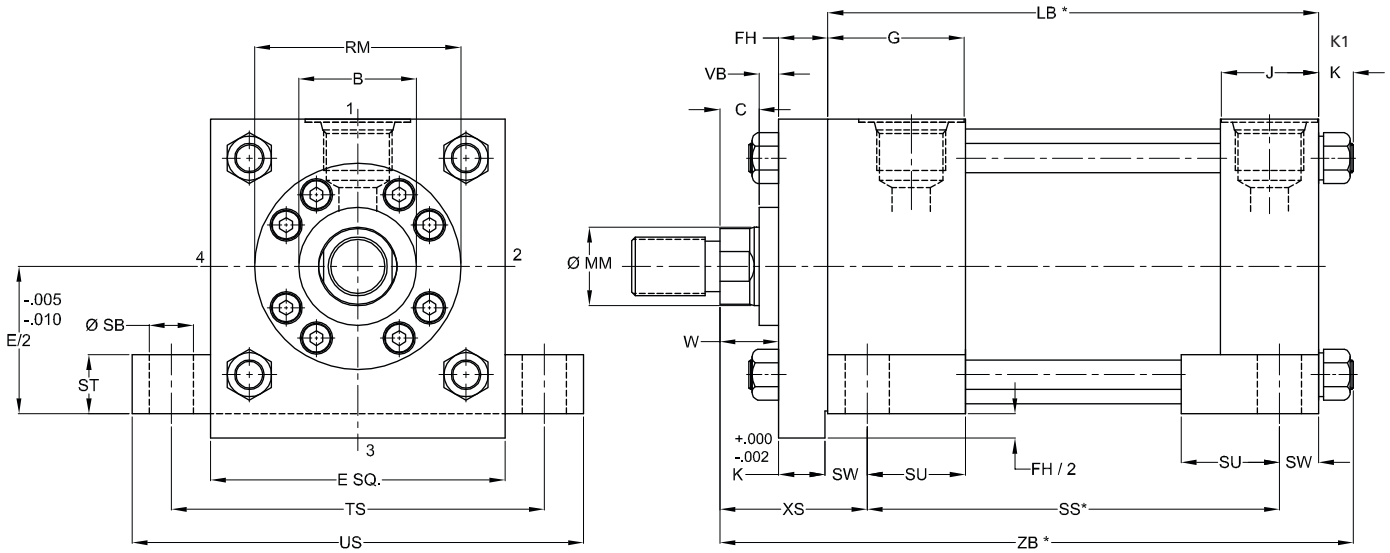
WARNING
Failure to mount the cylinder correctly on the frame may result in death, bodily injury and/or property damage.



Bore	ØMM Rods	B +.000/ -.002	C	E	G	J	F	V	RM	XT	SN*	NT	TK	TN	ZB*	LB*	K MAX.
8.00	1.38	2.000	0.63	8.50	2.00	1.50	0.594	0.406	3.250	2.81	3.25	3/4-10	1.13	4.50	7.31	5.13	0.56
	1.75	2.375	0.75	8.50	2.00	1.50	0.594	0.531	3.875	3.06	3.25	3/4-10	1.13	4.50	7.56	5.13	0.56
	3.50	4.250	1.00	8.50	2.00	1.50	0.719	0.531	5.625	3.44	3.25	3/4-10	1.13	4.50	7.94	5.13	0.56
	5.50	6.250	1.00	8.50	2.00	1.50	0.750	0.500	7 SQ	3.44	3.25	3/4-10	1.13	4.50	7.94	5.13	0.56
10.00	1.75	2.000	0.75	10.63	2.25	2.00	0.594	0.531	3.875	3.13	4.13	1.00-8	1.50	5.50	8.94	6.38	0.69
	2.00	2.625	0.88	10.63	2.25	2.00	0.594	0.531	4.000	3.25	4.13	1.00-8	1.50	5.50	9.06	6.38	0.69
	3.50	4.250	1.00	10.63	2.25	2.00	0.719	0.531	5.625	3.50	4.13	1.00-8	1.50	5.50	9.31	6.38	0.69
	5.50	6.250	1.00	10.63	2.25	2.00	0.875	0.375	8.375	3.50	4.63	1.00-8	1.50	5.50	9.31	6.38	0.69
12.00	2.00	2.625	0.88	12.75	2.25	2.00	0.594	0.531	4.000	3.25	4.63	1.00-8	1.50	7.25	9.56	6.88	0.69
	2.50	3.125	1.00	12.75	2.25	2.00	0.594	0.656	4.438	3.50	4.63	1.00-8	1.50	7.25	9.81	6.88	0.69
	4.00	4.750	1.00	12.75	2.25	2.00	0.875	0.375	6.438	3.50	4.63	1.00-8	1.50	7.25	9.81	6.88	0.69
	5.50	6.250	1.00	12.75	2.25	2.00	0.875	0.375	8.375	3.50	5.50	1.00-8	1.50	7.25	9.81	6.88	0.69
14.00	2.50	3.125	1.00	14.75	2.75	2.25	0.594	0.656	4.438	3.81	5.50	1 1/4-7	1.88	8.38	11.19	8.13	0.81
	3.00	3.750	1.00	14.75	2.75	2.25	0.719	0.531	5.250	3.81	5.50	1 1/4-7	1.88	8.38	11.19	8.13	0.81
	4.00	4.750	1.00	14.75	2.75	2.25	0.875	0.375	6.438	3.81	5.50	1 1/4-7	1.88	8.38	11.19	8.13	0.81
	5.50	6.250	1.00	14.75	2.75	2.25	0.875	0.375	8.375	3.81	5.50	1 1/4-7	1.88	8.38	11.19	8.13	0.81

* Add stroke

Mounting style and installation dimensions – RE/RF04 keyed side lug mount



Bore	ØMM Rods	B +.000/ -.002	C	E	G	J	FH +.013/ .015	VB	RM	SB	SS*	ST	SU	SW	TS	US	XS	W	ZB*	LB*	K1 MAX.	K
1.50	0.63	1.125	0.38	2.00	1.50	1.00	0.375	0.250	-	0.44	2.88	0.50	0.94	0.38	2.75	3.50	1.38	0.63	4.88	3.63	0.25	.362
	1.00	1.500	0.50	2.00	1.50	1.00	0.375	0.500	-	0.44	2.88	0.50	0.94	0.38	2.75	3.50	1.75	1.00	5.25	3.63	0.25	.362
2.00	0.63	1.125	0.38	2.50	1.50	1.00	0.375	0.250	-	0.44	2.88	0.50	0.94	0.38	3.25	4.00	1.38	0.63	4.94	3.63	0.31	.362
	1.00	1.500	0.50	2.50	1.50	1.00	0.375	0.500	-	0.44	2.88	0.50	0.94	0.38	3.25	4.00	1.75	1.00	5.31	3.63	0.31	.362
	1.38	2.000	0.63	2.50	1.50	1.00	0.375	0.625	-	0.44	2.88	0.50	0.94	0.38	3.25	4.00	2.00	1.25	5.56	3.63	0.31	.362
2.50	0.63	1.125	0.38	3.00	1.50	1.00	0.375	0.281	2.375	0.44	3.00	0.50	0.94	0.38	3.75	4.50	1.38	0.63	5.06	3.75	0.31	.362
	1.00	1.500	0.50	3.00	1.50	1.00	0.375	0.531	2.484	0.44	3.00	0.50	0.94	0.38	3.75	4.50	1.75	1.00	5.44	3.75	0.31	.362
	1.38	2.000	0.63	3.00	1.50	1.00	0.375	0.625	-	0.44	3.00	0.50	0.94	0.38	3.75	4.50	2.00	1.25	5.69	3.75	0.31	.362
	1.75	2.375	0.75	3.00	1.50	1.00	0.375	0.750	-	0.44	3.00	0.50	0.94	0.38	3.75	4.50	2.25	1.50	5.94	3.75	0.31	.612
3.25	1.00	1.500	0.50	3.75	1.75	1.25	0.625	0.375	2.625	0.56	3.25	0.75	1.25	0.50	4.75	5.75	1.88	0.75	6.00	4.25	0.38	.612
	1.38	2.000	0.63	3.75	1.75	1.25	0.625	0.406	3.250	0.56	3.25	0.75	1.25	0.50	4.75	5.75	2.13	1.00	6.25	4.25	0.38	.612
	1.75	2.375	0.75	3.75	1.75	1.25	0.625	0.500	-	0.56	3.25	0.75	1.25	0.50	4.75	5.75	2.38	1.25	6.50	4.25	0.38	.612
	2.00	2.625	0.88	3.75	1.75	1.25	0.625	0.500	-	0.56	3.25	0.75	1.25	0.50	4.75	5.75	2.50	1.38	6.63	4.25	0.38	.612
4.00	1.00	1.500	0.50	4.50	1.75	1.25	0.625	0.375	2.625	0.56	3.25	0.75	1.25	0.50	5.50	6.50	1.88	0.75	6.00	4.25	0.38	.612
	1.38	2.000	0.63	4.50	1.75	1.25	0.625	0.406	3.250	0.56	3.25	0.75	1.25	0.50	5.50	6.50	2.13	1.00	6.25	4.25	0.38	.612
	1.75	2.375	0.75	4.50	1.75	1.25	0.625	0.531	3.875	0.56	3.25	0.75	1.25	0.50	5.50	6.50	2.38	1.25	6.50	4.25	0.38	.612
	2.00	2.625	0.88	4.50	1.75	1.25	0.625	0.531	4.000	0.56	3.25	0.75	1.25	0.50	5.50	6.50	2.50	1.38	6.63	4.25	0.38	.612
	2.50	3.125	1.00	4.50	1.75	1.25	0.625	0.625	-	0.56	3.25	0.75	1.25	0.50	5.50	6.50	2.75	1.63	6.88	4.25	0.38	.612
5.00	1.00	1.500	0.50	5.50	1.75	1.25	0.625	0.375	2.625	0.81	3.13	1.00	1.56	0.69	6.88	8.25	2.06	0.75	6.31	4.50	0.44	.612
	1.38	2.000	0.63	5.50	1.75	1.25	0.625	0.406	3.250	0.81	3.13	1.00	1.56	0.69	6.88	8.25	2.31	1.00	6.56	4.50	0.44	.612
	1.75	2.375	0.75	5.50	1.75	1.25	0.625	0.531	3.875	0.81	3.13	1.00	1.56	0.69	6.88	8.25	2.56	1.25	6.81	4.50	0.44	.612
	2.00	2.625	0.88	5.50	1.75	1.25	0.625	0.531	4.000	0.81	3.13	1.00	1.56	0.69	6.88	8.25	2.69	1.38	6.94	4.50	0.44	.612
	2.50	3.125	1.00	5.50	1.75	1.25	0.625	0.656	4.438	0.81	3.13	1.00	1.56	0.69	6.88	8.25	2.94	1.63	7.19	4.50	0.44	.612
	3.00	3.750	1.00	5.50	1.75	1.25	0.625	0.625	-	0.81	3.13	1.00	1.56	0.69	6.88	8.25	2.94	1.63	7.19	4.50	0.44	.612
	3.50	4.250	1.00	5.50	1.75	1.25	0.625	0.625	-	0.81	3.13	1.00	1.56	0.69	6.88	8.25	2.94	0.88	7.19	4.50	0.44	.612
6.00	1.38	2.000	0.63	6.50	2.00	1.50	0.750	0.406	3.250	0.81	3.63	1.00	1.56	0.69	7.88	9.25	2.31	1.00	7.06	5.00	0.44	.737
	1.75	2.375	0.75	6.50	2.00	1.50	0.750	0.531	3.875	0.81	3.63	1.00	1.56	0.69	7.88	9.25	2.56	1.13	7.31	5.00	0.44	.737
	2.50	3.125	1.00	6.50	2.00	1.50	0.750	0.656	4.438	0.81	3.63	1.00	1.56	0.69	7.88	9.25	2.94	1.50	7.69	5.00	0.44	.737
	4.00	4.750	1.00	6.50	2.00	1.50	0.750	0.531	6.000	0.81	3.63	1.00	1.56	0.69	7.88	9.25	2.94	1.50	7.69	5.00	0.44	.737

Mounting style and installation dimensions – RE/RF04 keyed side lug mount

Keyed side lug mounts are for moving loads along a flat guided surface as in a carriage along rails.

The mounting surface should be flat and parallel to the centerline of the piston rod.

The load should be guided to traverse along the centerline of the piston rod.

The frame on which the cylinder is mounted *must* be sufficiently rigid to resist bending moments.

NOTE
For strokes in excess of 30 inches, see "Stop tube selection" on page 59.

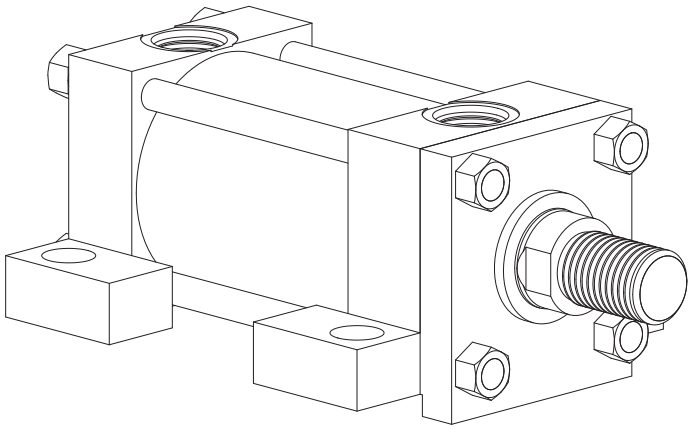
WARNING
With unsupported loads, the bearing must absorb more force.

For these applications, the larger available rod is recommended, and stop tubes should be considered.

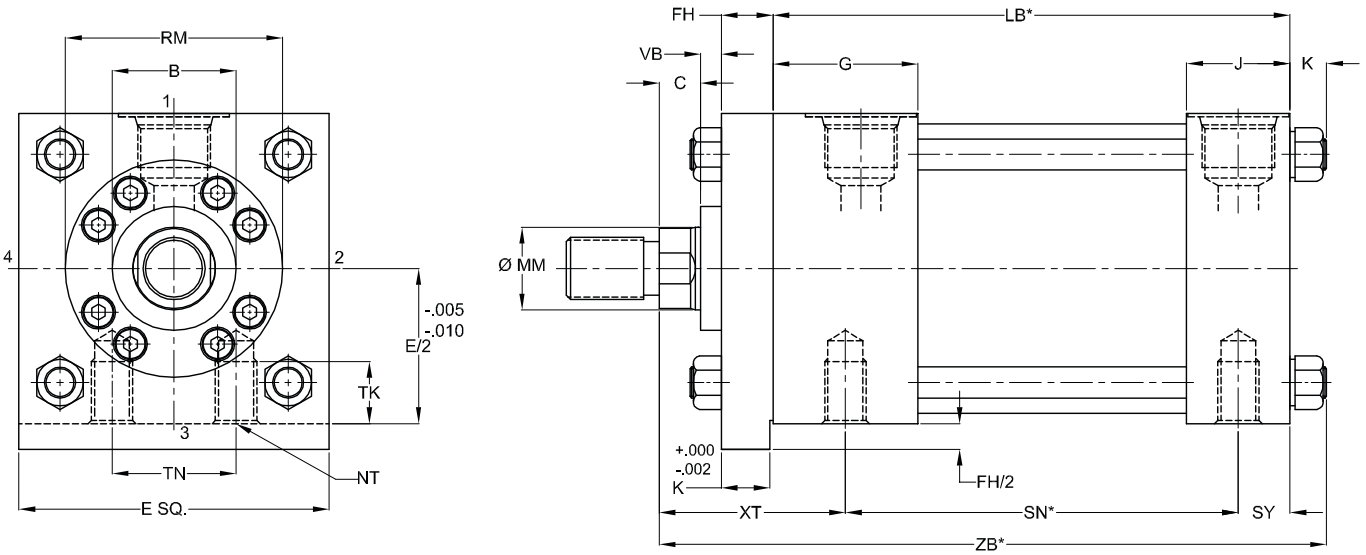
Use high tensile socket head cap screws or hex head bolts tightened to the manufacturer's recommended torque.

For severe side load applications, consult your local Eaton sales engineer.

WARNING
Failure to mount the cylinder correctly on the frame may result in death, bodily injury and/or property damage.



Mounting style and installation dimensions – RE/RF05 keyed side tapped mount



Bore	ØMM Rods	B +.000/ -.002	C	E	G	J	FH +.013/ .015	VB	RM	XT	SN*	NT	TK	TN	ZB*	LB*	MAX. K1	K
1.50	0.63	1.125	0.38	2.00	1.50	1.00	0.375	0.250	-	1.94	2.25	1/4-20	0.38	0.63	4.88	3.63	0.25	.362
	1.00	1.500	0.50	2.00	1.50	1.00	0.375	0.500	-	2.31	2.25	1/4-20	0.38	0.63	5.25	3.63	0.25	.362
2.00	0.63	1.125	0.38	2.50	1.50	1.00	0.375	0.250	-	1.94	2.25	5/16-18	0.50	0.88	4.94	3.63	0.31	.362
	1.00	1.500	0.50	2.50	1.50	1.00	0.375	0.500	-	2.31	2.25	5/16-18	0.50	0.88	5.31	3.63	0.31	.362
	1.38	2.000	0.63	2.50	1.50	1.00	0.375	0.625	-	2.56	2.25	5/16-18	0.50	0.88	5.56	3.63	0.31	.362
2.50	0.63	1.125	0.38	3.00	1.50	1.00	0.375	0.281	2.375	1.94	2.38	3/8-16	0.63	1.25	5.06	3.75	0.31	.362
	1.00	1.500	0.50	3.00	1.50	1.00	0.375	0.531	2.484	2.31	2.38	3/8-16	0.63	1.25	5.44	3.75	0.31	.362
	1.38	2.000	0.63	3.00	1.50	1.00	0.375	0.625	-	2.56	2.38	3/8-16	0.63	1.25	5.69	3.75	0.31	.362
	1.75	2.375	0.75	3.00	1.50	1.00	0.375	0.750	-	2.81	2.38	3/8-16	0.63	1.25	5.94	3.75	0.31	.362
3.25	1.00	1.500	0.50	3.75	1.75	1.00	0.625	0.375	2.625	2.44	2.63	1/2-13	0.75	1.50	6.00	4.25	0.38	.362
	1.38	2.000	0.63	3.75	1.75	1.00	0.625	0.406	3.250	2.69	2.63	1/2-13	0.75	1.50	6.25	4.25	0.38	.612
	1.75	2.375	0.75	3.75	1.75	1.00	0.625	0.500	-	2.94	2.63	1/2-13	0.75	1.50	6.50	4.25	0.38	.612
	2.00	2.625	0.88	3.75	1.75	1.00	0.625	0.500	-	3.06	2.63	1/2-13	0.75	1.50	6.63	4.25	0.38	.612
4.00	1.00	1.500	0.50	4.50	1.75	1.25	0.625	0.375	2.625	2.44	2.63	1/2-13	0.75	2.06	6.00	4.25	0.38	.612
	1.38	2.000	0.63	4.50	1.75	1.25	0.625	0.406	3.250	2.69	2.63	1/2-13	0.75	2.06	6.25	4.25	0.38	.612
	1.75	2.375	0.75	4.50	1.75	1.25	0.625	0.531	3.875	2.94	2.63	1/2-13	0.75	2.06	6.50	4.25	0.38	.612
	2.00	2.625	0.88	4.50	1.75	1.25	0.625	0.531	4.000	3.06	2.63	1/2-13	0.75	2.06	6.63	4.25	0.38	.612
	2.50	3.125	1.00	4.50	1.75	1.25	0.625	0.625	-	3.31	2.63	1/2-13	0.75	2.06	6.88	4.25	0.38	.612
5.00	1.00	1.500	0.50	5.50	1.75	1.25	0.625	0.375	2.625	2.44	2.88	5/8-11	1.00	2.69	6.31	4.50	0.44	.612
	1.38	2.000	0.63	5.50	1.75	1.25	0.625	0.406	3.250	2.69	2.88	5/8-11	1.00	2.69	6.56	4.50	0.44	.612
	1.75	2.375	0.75	5.50	1.75	1.25	0.625	0.531	3.875	2.94	2.88	5/8-11	1.00	2.69	6.81	4.50	0.44	.612
	2.00	2.625	0.88	5.50	1.75	1.25	0.625	0.531	4.000	3.06	2.88	5/8-11	1.00	2.69	6.94	4.50	0.44	.612
	2.50	3.125	1.00	5.50	1.75	1.25	0.625	0.656	4.438	3.31	2.88	5/8-11	1.00	2.69	7.19	4.50	0.44	.612
	3.00	3.750	1.00	5.50	1.75	1.25	0.625	0.625	-	3.31	2.88	5/8-11	1.00	2.69	7.19	4.50	0.44	.612
	3.50	4.250	1.00	5.50	1.75	1.25	0.625	0.625	-	3.31	2.88	5/8-11	1.00	2.69	7.19	4.50	0.44	.612
6.00	1.38	2.000	0.63	6.50	2.00	1.50	0.750	0.406	3.250	2.81	3.13	3/4-10	1.13	3.25	7.06	5.00	0.44	.737
	1.75	2.375	0.75	6.50	2.00	1.50	0.750	0.531	3.875	3.06	3.13	3/4-10	1.13	3.25	7.31	5.00	0.44	.737
	2.50	3.125	1.00	6.50	2.00	1.50	0.750	0.656	4.438	3.44	3.13	3/4-10	1.13	3.25	7.69	5.00	0.44	.737
	4.00	4.750	1.00	6.50	2.00	1.50	0.750	0.531	6.000	3.44	3.13	3/4-10	1.13	3.25	7.69	5.00	0.44	.737

Mounting style and installation dimensions – RE/RF05 keyed side tapped mount

Tapped mounts are for moving loads along a flat guided surface as in a carriage along rails.

The mounting surface should be flat and parallel to the centerline of the piston rod.

The load should be guided to traverse along the centerline of the piston rod.

The frame on which the cylinder is mounted *must* be sufficiently rigid to resist bending moments.

NOTE
For strokes in excess of 30 inches, see "Stop tube selection" on page 59.

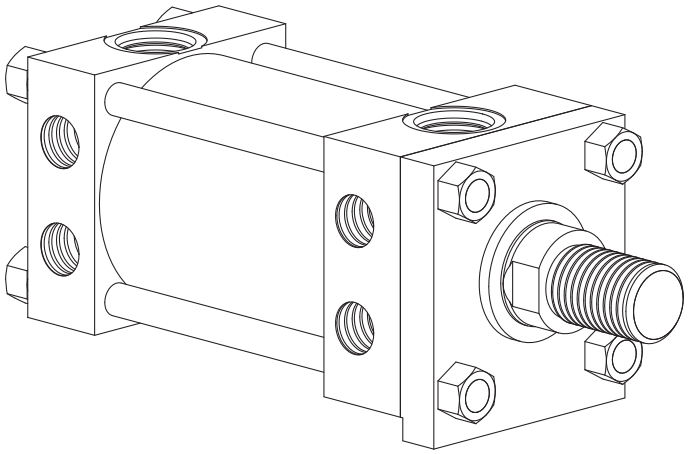
WARNING
With unsupported loads, the bearing must absorb more force.

For these applications, the larger available rod is recommended, and stop tubes should be considered.

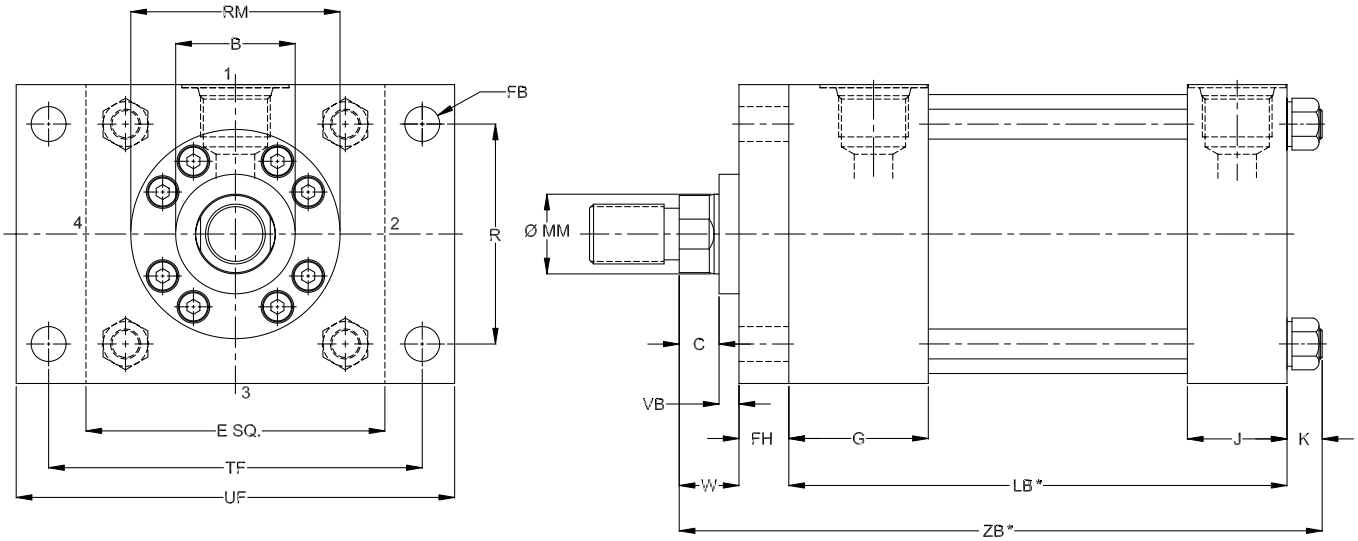
Use high tensile socket head cap screws or hex head bolts tightened to the manufacturer's recommended torque. For high shock applications, dowel pins or shear keys should be incorporated in the mounting design. For these applications, consider a keyed side lug mount, RE04.

For severe side load applications, consult your local Eaton sales engineer.

WARNING
Failure to mount the cylinder correctly on the frame may result in death, bodily injury and/or property damage.



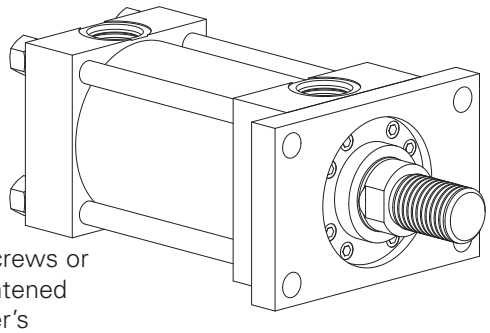
Mounting style and installation dimensions – RE/RF07 head rectangular flange mount



Bore	ØMM Rods	B +.000/ -.002	C	E	G	J	FH	VB	RM	W	FB	R	TF	UF	ZB+	LB+	K MAX.
1.50	0.63	1.125	0.38	2.00	1.50	1.00	0.375	0.250	-	0.63	0.31	1.43	2.75	3.38	4.88	3.63	0.25
	1.00	1.500	0.50	2.00	1.50	1.00	0.375	0.500	-	1.00	0.31	1.43	2.75	3.38	5.25	3.63	0.25
2.00	0.63	1.125	0.38	2.50	1.50	1.00	0.375	0.250	-	0.63	0.38	1.84	3.38	4.13	4.94	3.63	0.31
	1.00	1.500	0.50	2.50	1.50	1.00	0.375	0.500	-	1.00	0.38	1.84	3.38	4.13	5.31	3.63	0.31
	1.38	2.000	0.63	2.50	1.50	1.00	0.375	0.625	-	1.25	0.38	1.84	3.38	4.13	5.56	3.63	0.31
2.50	0.63	1.125	0.38	3.00	1.50	1.00	0.375	0.281	2.375	0.63	0.38	2.19	3.88	4.63	5.06	3.75	0.31
	1.00	1.500	0.50	3.00	1.50	1.00	0.375	0.531	2.484	1.00	0.38	2.19	3.88	4.63	5.44	3.75	0.31
	1.38	2.000	0.63	3.00	1.50	1.00	0.375	0.625	-	1.25	0.38	2.19	3.88	4.63	5.69	3.75	0.31
	1.75	2.375	0.75	3.00	1.50	1.00	0.375	0.750	-	1.50	0.38	2.19	3.88	4.63	5.94	3.75	0.31
3.25	1.00	1.500	0.50	3.75	1.75	1.25	0.625	0.375	2.625	0.75	0.44	2.76	4.69	5.50	6.00	4.25	0.38
	1.38	2.000	0.63	3.75	1.75	1.25	0.625	0.406	3.250	1.00	0.44	2.76	4.69	5.50	6.25	4.25	0.38
	1.75	2.375	0.75	3.75	1.75	1.25	0.625	0.500	-	1.25	0.44	2.76	4.69	5.50	6.50	4.25	0.38
	2.00	2.625	0.88	3.75	1.75	1.25	0.625	0.500	-	1.38	0.44	2.76	4.69	5.50	6.63	4.25	0.38
4.00	1.00	1.500	0.50	4.50	1.75	1.25	0.625	0.375	2.625	0.75	0.44	3.32	5.44	6.25	6.00	4.25	0.38
	1.38	2.000	0.63	4.50	1.75	1.25	0.625	0.406	3.250	1.00	0.44	3.32	5.44	6.25	6.25	4.25	0.38
	1.75	2.375	0.75	4.50	1.75	1.25	0.625	0.531	3.875	1.25	0.44	3.32	5.44	6.25	6.50	4.25	0.38
	2.00	2.625	0.88	4.50	1.75	1.25	0.625	0.531	4.000	1.38	0.44	3.32	5.44	6.25	6.63	4.25	0.38
	2.50	3.125	1.00	4.50	1.75	1.25	0.625	0.625	-	1.63	0.44	3.32	5.44	6.25	6.88	4.25	0.38
5.00	1.00	1.500	0.50	5.50	1.75	1.25	0.625	0.375	2.625	0.75	0.56	4.10	6.63	7.63	6.31	4.50	0.44
	1.38	2.000	0.63	5.50	1.75	1.25	0.625	0.406	3.250	1.00	0.56	4.10	6.63	7.63	6.56	4.50	0.44
	1.75	2.375	0.75	5.50	1.75	1.25	0.625	0.531	3.875	1.25	0.56	4.10	6.63	7.63	6.81	4.50	0.44
	2.00	2.625	0.88	5.50	1.75	1.25	0.625	0.531	4.000	1.38	0.56	4.10	6.63	7.63	6.94	4.50	0.44
	2.50	3.125	1.00	5.50	1.75	1.25	0.625	0.656	4.438	1.63	0.56	4.10	6.63	7.63	7.19	4.50	0.44
	3.00	3.750	1.00	5.50	1.75	1.25	0.625	0.625	-	1.63	0.56	4.10	6.63	7.63	7.19	4.50	0.44
	3.50	4.250	1.00	5.50	1.75	1.25	0.625	0.625	-	1.63	0.56	4.10	6.63	7.63	7.19	4.50	0.44
6.00	1.38	2.000	0.63	6.50	2.00	1.50	0.750	0.406	3.250	0.88	0.56	4.88	7.63	8.63	7.06	5.00	0.44
	1.75	2.375	0.75	6.50	2.00	1.50	0.750	0.531	3.875	1.13	0.56	4.88	7.63	8.63	7.31	5.00	0.44
	2.50	3.125	1.00	6.50	2.00	1.50	0.750	0.656	4.438	1.50	0.56	4.88	7.63	8.63	7.69	5.00	0.44
	4.00	4.750	1.00	6.50	2.00	1.50	0.750	0.531	6.000	1.50	0.56	4.88	7.63	8.63	7.69	5.00	0.44

+ Plus Stroke

Mounting style and installation dimensions – RE/RF07 head rectangular flange mount



These mounts are ideal for straight line force transfer applications in which the cylinder is used in tension (pulling). The mounting surface should be flat, and the rod end cartridge should be piloted into it.

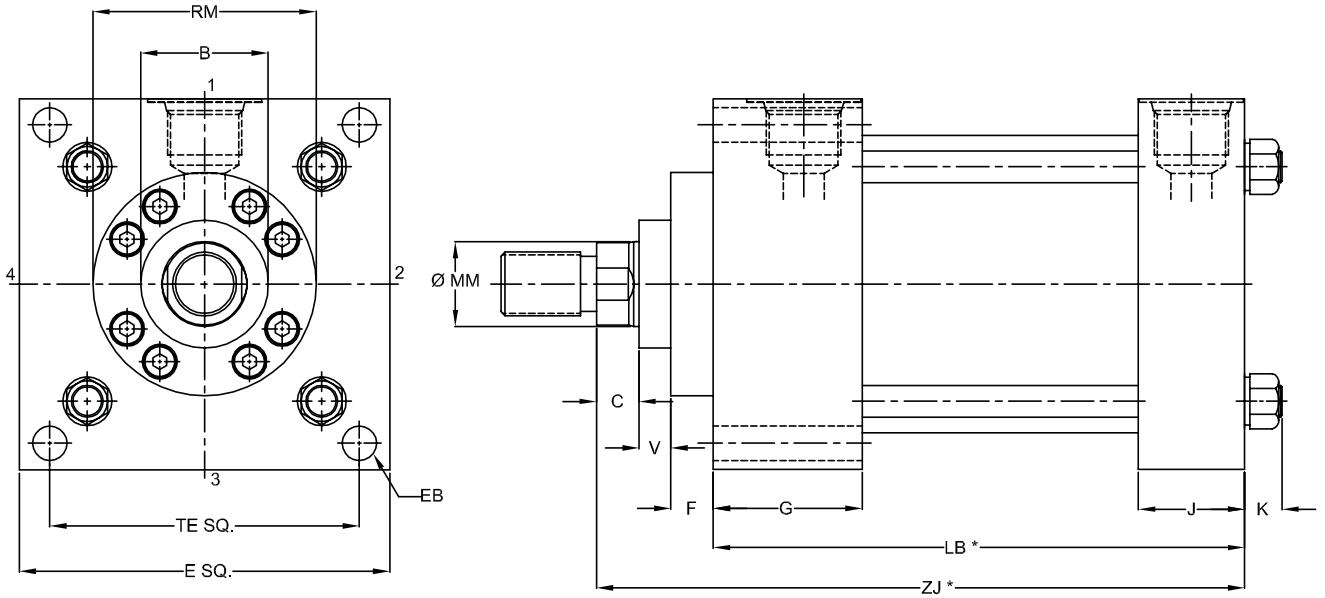
The frame on which the cylinder is mounted *must* be sufficiently rigid to resist bending moments.

NOTE
For strokes in excess of 30 inches, see "Stop tube selection" on page 59.

The force of the load should be perpendicular to the mounting surface and parallel to the centerline of the piston rod. For eccentric loads, the larger of the two available rods in each bore size is recommended. Stop tubes should also be considered.

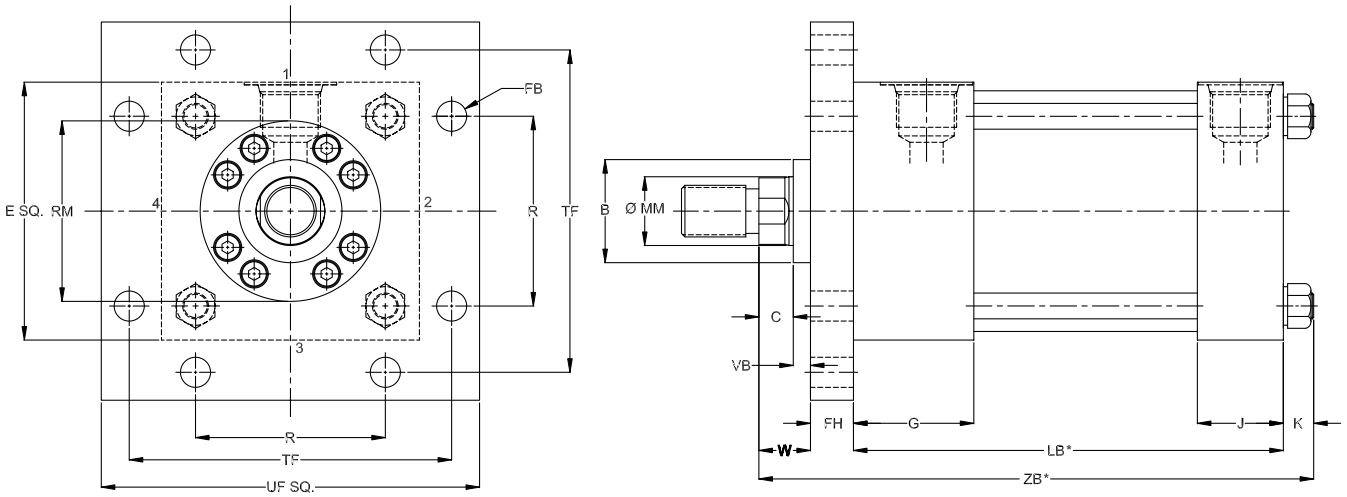
The head square mount offered for bore sizes 8.00 and above in place of a head rectangular flange mount. Refer the table for recommended pressure ratings in push stroke. Use high tensile socket head cap screws or hex head bolts tightened to the manufacturer's recommended torque.

Bore Size	Recommended Pressure Rating in Push Stroke
1.50"- 2.00"	1500 psi
2.50"	1000 psi
3.25"	1500 psi
4.00	1000 psi
5.00 - 6.00	750 psi



Bore	ØMM Rod	B +.000/-.002	C	E	G	J	F	V	RM	FB	TE	LB*	ZJ*	K
8.00	1.38	2.000	0.63	8.50	2.00	1.50	0.593	0.406	3.25	0.69	7.57	5.13	6.38	0.56
	1.75	2.375	0.75	8.50	2.00	1.50	0.593	0.531	3.88	0.69	7.57	5.13	7.00	0.56
	3.50	4.250	1.00	8.50	2.00	1.50	0.719	0.531	5.63	0.69	7.57	5.13	7.38	0.56
	5.50	6.250	1.00	8.50	2.00	1.50	0.750	0.500	7 SQ	0.69	7.57	5.13	7.38	0.56
10.00	1.75	2.000	0.75	10.63	2.25	2.00	0.593	0.375	3.88	0.81	9.40	6.38	8.25	0.69
	2.00	2.625	0.88	10.63	2.25	2.00	0.593	0.531	4.00	0.81	9.40	6.38	8.38	0.69
	3.50	4.250	1.00	10.63	2.25	2.00	0.719	0.531	5.63	0.81	9.40	6.38	8.63	0.69
	5.50	6.250	1.00	10.63	2.25	2.00	0.875	0.375	8.38	0.81	9.40	6.38	8.63	0.69
12.00	2.00	2.625	0.88	12.75	2.25	2.00	0.593	0.531	4.00	0.81	11.10	6.88	8.88	0.69
	2.50	3.125	1.00	12.75	2.25	2.00	0.593	0.656	4.44	0.81	11.10	6.88	9.13	0.69
	4.00	4.750	1.00	12.75	2.25	2.00	0.875	0.375	6.44	0.81	11.10	6.88	9.13	0.69
	5.50	6.250	1.00	12.75	2.25	2.00	0.875	0.375	8.38	0.81	11.10	6.88	9.13	0.69
14.00	2.50	3.125	1.00	14.75	2.25	2.25	0.594	0.656	4.44	0.94	12.87	8.13	10.38	0.81
	3.00	3.750	1.00	14.75	2.25	2.25	0.719	0.531	5.25	0.94	12.87	8.13	10.38	0.81
	4.00	4.750	1.00	14.75	2.25	2.25	0.875	0.375	6.44	0.94	12.87	8.13	10.38	0.81
	5.50	6.250	1.00	14.75	2.25	2.25	0.875	0.375	8.38	0.94	12.87	8.13	10.38	0.81

Mounting style and installation dimensions – RE/RF08 head square flange mount



Bore	ØMM Rods	B +.000/ -.002	C	E	G	J	FH	VB	RM	W	FB	R	TF	UF	ZB+	LB+	K MAX.
1.50	0.63	1.125	0.38	2.00	1.50	1.00	0.375	0.250	-	0.63	0.31	1.43	2.75	3.38	4.88	3.63	0.25
	1.00	1.500	0.50	2.00	1.50	1.00	0.375	0.500	-	1.00	0.31	1.43	2.75	3.38	5.25	3.63	0.25
2.00	0.63	1.125	0.38	2.50	1.50	1.00	0.375	0.250	-	0.63	0.38	1.84	3.38	4.13	4.94	3.63	0.31
	1.00	1.500	0.50	2.50	1.50	1.00	0.375	0.500	-	1.00	0.38	1.84	3.38	4.13	5.31	3.63	0.31
	1.38	2.000	0.63	2.50	1.50	1.00	0.375	0.625	-	1.25	0.38	1.84	3.38	4.13	5.56	3.63	0.31
2.50	0.63	1.125	0.38	3.00	1.50	1.00	0.375	0.281	2.375	0.63	0.38	2.19	3.88	4.63	5.06	3.75	0.31
	1.00	1.500	0.50	3.00	1.50	1.00	0.375	0.531	2.484	1.00	0.38	2.19	3.88	4.63	5.44	3.75	0.31
	1.38	2.000	0.63	3.00	1.50	1.00	0.375	0.625	-	1.25	0.38	2.19	3.88	4.63	5.69	3.75	0.31
	1.75	2.375	0.75	3.00	1.50	1.00	0.375	0.750	-	1.50	0.38	2.19	3.88	4.63	5.94	3.75	0.31
3.25	1.00	1.500	0.50	3.75	1.75	1.25	0.625	0.375	2.625	0.75	0.44	2.76	4.69	5.50	6.00	4.25	0.38
	1.38	2.000	0.63	3.75	1.75	1.25	0.625	0.406	3.250	1.00	0.44	2.76	4.69	5.50	6.25	4.25	0.38
	1.75	2.375	0.75	3.75	1.75	1.25	0.625	0.500	-	1.25	0.44	2.76	4.69	5.50	6.50	4.25	0.38
	2.00	2.625	0.88	3.75	1.75	1.25	0.625	0.500	-	1.38	0.44	2.76	4.69	5.50	6.63	4.25	0.38
4.00	1.00	1.500	0.50	4.50	1.75	1.25	0.625	0.375	2.625	0.75	0.44	3.32	5.44	6.25	6.00	4.25	0.38
	1.38	2.000	0.63	4.50	1.75	1.25	0.625	0.406	3.250	1.00	0.44	3.32	5.44	6.25	6.25	4.25	0.38
	1.75	2.375	0.75	4.50	1.75	1.25	0.625	0.531	3.875	1.25	0.44	3.32	5.44	6.25	6.50	4.25	0.38
	2.00	2.625	0.88	4.50	1.75	1.25	0.625	0.531	4.000	1.38	0.44	3.32	5.44	6.25	6.63	4.25	0.38
	2.50	3.125	1.00	4.50	1.75	1.25	0.625	0.625	-	1.63	0.44	3.32	5.44	6.25	6.88	4.25	0.38
5.00	1.00	1.500	0.50	5.50	1.75	1.25	0.625	0.375	2.625	0.75	0.56	4.10	6.63	7.63	6.31	4.50	0.44
	1.38	2.000	0.63	5.50	1.75	1.25	0.625	0.406	3.250	1.00	0.56	4.10	6.63	7.63	6.56	4.50	0.44
	1.75	2.375	0.75	5.50	1.75	1.25	0.625	0.531	3.875	1.25	0.56	4.10	6.63	7.63	6.81	4.50	0.44
	2.00	2.625	0.88	5.50	1.75	1.25	0.625	0.531	4.000	1.38	0.56	4.10	6.63	7.63	6.94	4.50	0.44
	2.50	3.125	1.00	5.50	1.75	1.25	0.625	0.656	4.438	1.63	0.56	4.10	6.63	7.63	7.19	4.50	0.44
	3.00	3.750	1.00	5.50	1.75	1.25	0.625	0.625	-	1.63	0.56	4.10	6.63	7.63	7.19	4.50	0.44
	3.50	4.250	1.00	5.50	1.75	1.25	0.625	0.625	-	1.63	0.56	4.10	6.63	7.63	7.19	4.50	0.44
6.00	1.38	2.000	0.63	6.50	2.00	1.50	0.750	0.406	3.250	0.88	0.56	4.88	7.63	8.63	7.06	5.00	0.44
	1.75	2.375	0.75	6.50	2.00	1.50	0.750	0.531	3.875	1.13	0.56	4.88	7.63	8.63	7.31	5.00	0.44
	2.50	3.125	1.00	6.50	2.00	1.50	0.750	0.656	4.438	1.50	0.56	4.88	7.63	8.63	7.69	5.00	0.44
	4.00	4.750	1.00	6.50	2.00	1.50	0.750	0.531	6.000	1.50	0.56	4.88	7.63	8.63	7.69	5.00	0.44

+ Plus Stroke

Mounting style and installation dimensions – RE/RF08 head square flange mount

These mounts are ideal for straight line force transfer applications in which the cylinder is used in tension (pulling).

The mounting surface should be flat, and the rod end cartridge should be piloted into it.

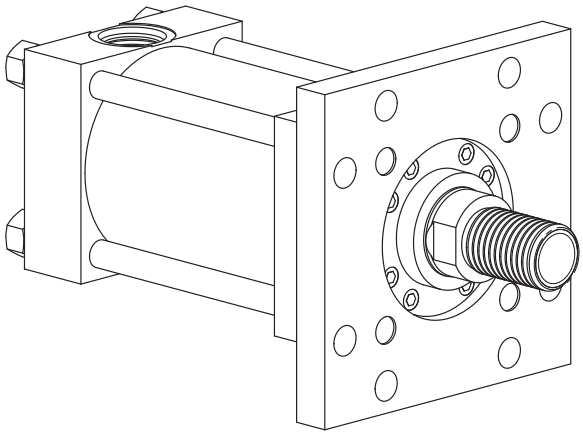
The frame on which the cylinder is mounted *must* be sufficiently rigid to resist bending moments.

NOTE
For strokes in excess of 30 inches, see "Stop tube selection" on page 59.

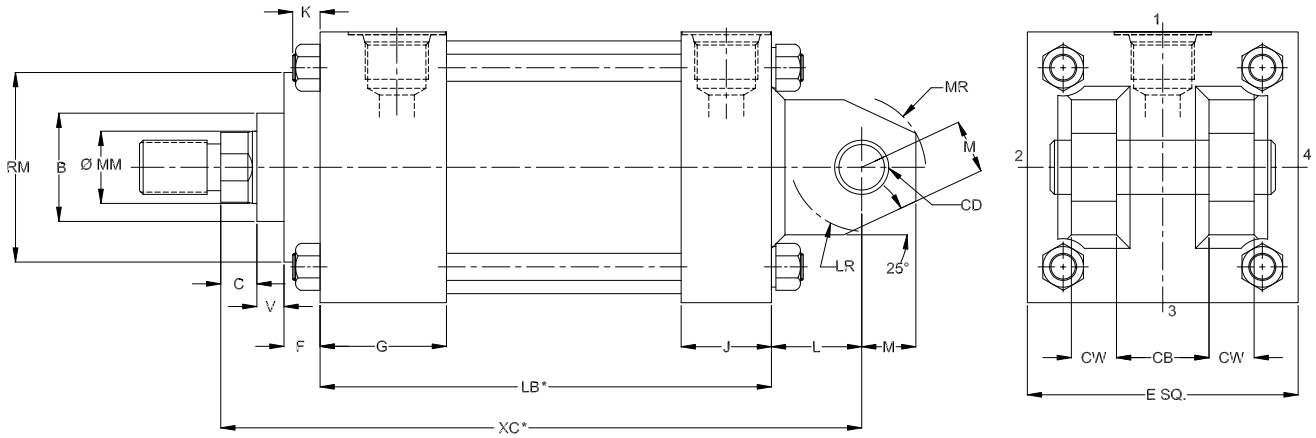
WARNING
The force of the load should be perpendicular to the mounting surface and parallel to the centerline of the piston rod. For eccentric loads, the larger of the two available rods in each bore size is recommended. Stop tubes should also be considered.

Use high tensile socket head cap screws or hex head bolts tightened to the manufacturer's recommended torque.

WARNING
Failure to mount the cylinder correctly on the frame may result in death, bodily injury and/or property damage.



Mounting style and installation dimensions – RE/RF10 cap fixed clevis mount



Bore	ØMM Rods	B +.001/ -.003	C	E	G	J	F	V	RM	L	LB*	M	CB	CD	CW	LR	MR	XC*	K MAX.
1.50	0.63	1.125	0.38	2.00	1.50	1.00	0.375	0.250	-	0.75	3.63	0.50	0.75	0.50	0.50	0.56	0.56	5.38	0.25
	1.00	1.500	0.50	2.00	1.50	1.00	0.375	0.500	-	0.75	3.63	0.50	0.75	0.50	0.50	0.56	0.56	5.75	0.25
2.00	0.63	1.125	0.38	2.50	1.50	1.00	0.375	0.250	-	0.75	3.63	0.50	0.75	0.50	0.50	0.56	0.56	5.38	0.31
	1.00	1.500	0.50	2.50	1.50	1.00	0.375	0.500	-	0.75	3.63	0.50	0.75	0.50	0.50	0.56	0.56	5.75	0.31
	1.38	2.000	0.63	2.50	1.50	1.00	0.375	0.625	-	0.75	3.63	0.50	0.75	0.50	0.50	0.56	0.56	6.00	0.31
2.50	0.63	1.125	0.38	3.00	1.50	1.00	0.343	0.281	2.375	0.75	3.75	0.50	0.75	0.50	0.50	0.56	0.56	5.50	0.31
	1.00	1.500	0.50	3.00	1.50	1.00	0.343	0.531	2.484	0.75	3.75	0.50	0.75	0.50	0.50	0.56	0.56	5.88	0.31
	1.38	2.000	0.63	3.00	1.50	1.00	0.375	0.625	-	0.75	3.75	0.50	0.75	0.50	0.50	0.56	0.56	6.13	0.31
	1.75	2.375	0.75	3.00	1.50	1.00	0.375	0.750	-	0.75	3.75	0.50	0.75	0.50	0.50	0.56	0.56	6.38	0.31
3.25	1.00	1.500	0.50	3.75	1.75	1.25	0.500	0.375	2.625	1.25	4.25	0.75	1.25	0.75	0.63	1.06	1.06	6.88	0.38
	1.38	2.000	0.63	3.75	1.75	1.25	0.594	0.406	3.250	1.25	4.25	0.75	1.25	0.75	0.63	1.06	1.06	7.13	0.38
	1.75	2.375	0.75	3.75	1.75	1.25	0.625	0.500	-	1.25	4.25	0.75	1.25	0.75	0.63	1.06	1.06	7.38	0.38
	2.00	2.625	0.88	3.75	1.75	1.25	0.625	0.500	-	1.25	4.25	0.75	1.25	0.75	0.63	1.06	1.06	7.50	0.38
4.00	1.00	1.500	0.50	4.50	1.75	1.25	0.500	0.375	2.625	1.25	4.25	0.75	1.25	0.75	0.63	1.06	1.06	6.88	0.38
	1.38	2.000	0.63	4.50	1.75	1.25	0.594	0.406	3.250	1.25	4.25	0.75	1.25	0.75	0.63	1.06	1.06	7.13	0.38
	1.75	2.375	0.75	4.50	1.75	1.25	0.594	0.531	3.875	1.25	4.25	0.75	1.25	0.75	0.63	1.06	1.06	7.38	0.38
	2.00	2.625	0.88	4.50	1.75	1.25	0.594	0.531	4.000	1.25	4.25	0.75	1.25	0.75	0.63	1.06	1.06	7.50	0.38
	2.50	3.125	1.00	4.50	1.75	1.25	0.625	0.625	-	1.25	4.25	0.75	1.25	0.75	0.63	1.06	1.06	7.75	0.38
5.00	1.00	1.500	0.50	5.50	1.75	1.25	0.500	0.375	2.625	1.25	4.50	0.75	1.25	0.75	0.63	1.06	1.06	7.13	0.44
	1.38	2.000	0.63	5.50	1.75	1.25	0.594	0.406	3.250	1.25	4.50	0.75	1.25	0.75	0.63	1.06	1.06	7.38	0.44
	1.75	2.375	0.75	5.50	1.75	1.25	0.594	0.531	3.875	1.25	4.50	0.75	1.25	0.75	0.63	1.06	1.06	7.63	0.44
	2.00	2.625	0.88	5.50	1.75	1.25	0.594	0.531	4.000	1.25	4.50	0.75	1.25	0.75	0.63	1.06	1.06	7.75	0.44
	2.50	3.125	1.00	5.50	1.75	1.25	0.594	0.656	4.438	1.25	4.50	0.75	1.25	0.75	0.63	1.06	1.06	8.00	0.44
	3.00	3.750	1.00	5.50	1.75	1.25	0.625	0.625	-	1.25	4.50	0.75	1.25	0.75	0.63	1.06	1.06	8.00	0.44
	3.50	4.250	1.00	5.50	1.75	1.25	0.625	0.625	-	1.25	4.50	0.75	1.25	0.75	0.63	1.06	1.06	8.00	0.44
6.00	1.38	2.000	0.63	6.50	2.00	1.50	0.594	0.406	3.250	1.50	5.00	1.00	1.50	1.00	0.75	1.31	1.13	8.13	0.44
	1.75	2.375	0.75	6.50	2.00	1.50	0.594	0.531	3.875	1.50	5.00	1.00	1.50	1.00	0.75	1.31	1.13	8.38	0.44
	2.50	3.125	1.00	6.50	2.00	1.50	0.594	0.656	4.438	1.50	5.00	1.00	1.50	1.00	0.75	1.31	1.13	8.75	0.44
	4.00	4.750	1.00	6.50	2.00	1.50	0.719	0.531	6.000	1.50	5.00	1.00	1.50	1.00	0.75	1.31	1.13	8.75	0.44

Mounting style and installation dimensions – RE/RF10 cap fixed clevis mount

These mounts are for applications in which the machine member travels in a curved path within one plane.

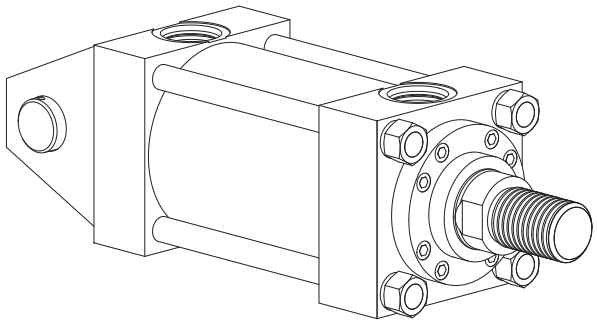
These mounts can be used both in compression (push) and tension (pull). Care *must* be exercised to prevent rod buckling in compression applications with long strokes. See page 62 for stroke limitations.

NOTE
For strokes in excess of 24 inches, see "Stop tube selection" on page 59.

WARNING
The centerline of the machine member that attaches to the swivel pin must be perpendicular to the centerline of the piston rod and the curved path must be in one plane only. Any misalignment will cause excess side loading on the bearing and piston. This will lead to premature failure.

For applications with small amounts of misalignment, consider the spherical bearing mount, as shown in the RE11

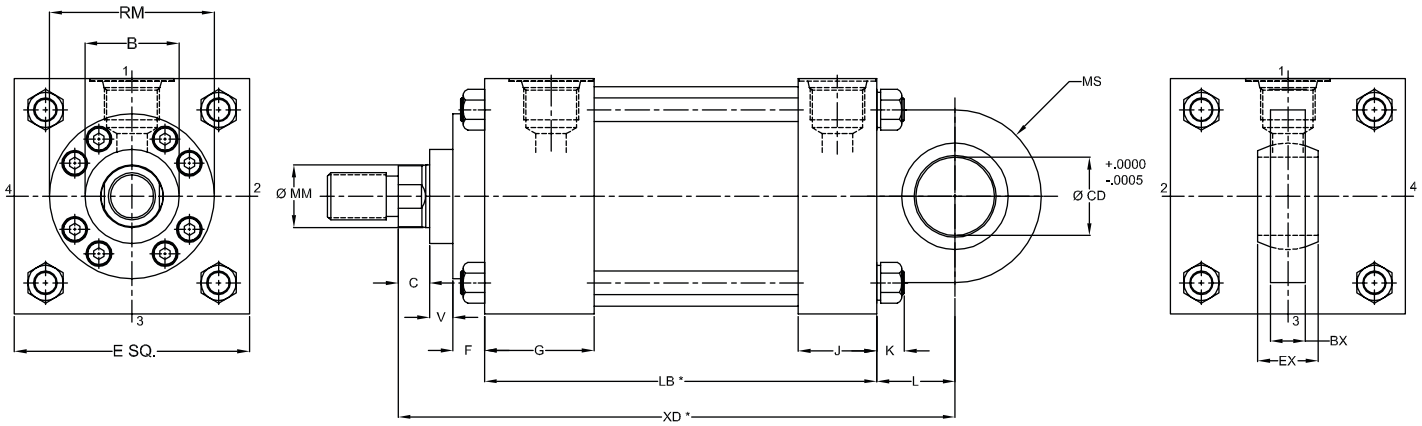
WARNING
Failure to mount the cylinder correctly on the frame may result in death, bodily injury and/or property damage.



Bore	ØMM Rods	B +.001/ -.003	C	E	G	J	F	V	RM	L	LB*	M	CB	CD	CW	LR	MR	XC*	K MAX.
8.00	1.38	2.000	0.63	8.50	2.00	1.50	0.594	0.406	3.250	1.50	5.13	1.00	1.50	1.00	0.75	1.19	1.13	8.25	0.56
	1.75	2.375	0.75	8.50	2.00	1.50	0.594	0.531	3.875	1.50	5.13	1.00	1.50	1.00	0.75	1.19	1.13	8.50	0.56
	3.50	4.250	1.00	8.50	2.00	1.50	0.719	0.531	5.625	1.500	5.13	1.00	1.50	1.00	0.75	1.19	1.13	8.88	0.56
	5.50	6.250	1.00	8.50	2.00	1.50	0.750	0.500	7 SQ	1.500	5.13	1.00	1.50	1.00	0.75	1.19	1.13	8.88	0.56
10.00	1.75	2.000	0.75	10.63	2.25	2.00	0.594	0.531	3.875	2.125	6.38	1.38	2.00	1.38	1.00	1.81	1.75	10.38	0.69
	2.00	2.625	0.88	10.63	2.25	2.00	0.594	0.531	4.000	2.125	6.38	1.38	2.00	1.38	1.00	1.81	1.75	10.50	0.69
	3.50	4.250	1.00	10.63	2.25	2.00	0.719	0.531	5.625	2.125	6.38	1.38	2.00	1.38	1.00	1.81	1.75	10.75	0.69
	5.50	6.250	1.00	10.63	2.25	2.00	0.875	0.375	8.375	2.125	6.38	1.38	2.00	1.38	1.00	1.81	1.75	10.75	0.69
12.00	2.00	2.625	0.88	12.75	2.25	2.00	0.594	0.531	4.000	2.250	6.88	1.75	2.50	1.75	1.25	1.94	1.88	11.13	0.69
	2.50	3.125	1.00	12.75	2.25	2.00	0.594	0.656	4.438	2.250	6.88	1.75	2.50	1.75	1.25	1.94	1.88	11.38	0.69
	4.00	4.750	1.00	12.75	2.25	2.00	0.875	0.375	6.438	2.250	6.88	1.75	2.50	1.75	1.25	1.94	1.88	11.38	0.69
	5.50	6.250	1.00	12.75	2.25	2.00	0.875	0.375	8.375	2.250	6.88	1.75	2.50	1.75	1.25	1.94	1.88	11.38	0.69
14.00	2.50	3.125	1.00	14.75	2.75	2.25	0.594	0.656	4.438	2.500	8.13	2.00	2.50	2.00	1.25	2.19	2.13	12.88	0.81
	3.00	3.750	1.00	14.75	2.75	2.25	0.719	0.531	5.250	2.500	8.13	2.00	2.50	2.00	1.25	2.19	2.13	12.88	0.81
	4.00	4.750	1.00	14.75	2.75	2.25	0.875	0.375	6.438	2.500	8.13	2.00	2.50	2.00	1.25	2.19	2.13	12.88	0.81
	5.50	6.250	1.00	14.75	2.75	2.25	0.875	0.375	8.375	2.500	8.13	2.00	2.50	2.00	1.25	2.19	2.13	12.88	0.81

* Plus Stroke

Mounting style and installation dimensions – RE/RF11 cap spherical bearing mount



Bore	ØMM Rods	B -.001/ -.003	C	E	G	J	F	V	RM	L	LB*	MS	EX	CD	BX	XD*	K MAX.
1.50	0.63	1.125	0.38	2.00	1.50	1.00	0.375	0.250	-	0.88	3.63	0.88	0.44	0.50	0.38	5.50	0.25
	1.00	1.500	0.50	2.00	1.50	1.00	0.375	0.500	-	0.88	3.63	0.88	0.44	0.50	0.38	5.88	0.25
2.00	0.63	1.125	0.38	2.50	1.50	1.00	0.375	0.250	-	0.88	3.63	0.88	0.44	0.50	0.38	5.50	0.31
	1.00	1.500	0.50	2.50	1.50	1.00	0.375	0.500	-	0.88	3.63	0.88	0.44	0.50	0.38	5.88	0.31
	1.38	2.000	0.63	2.50	1.50	1.00	0.375	0.625	-	0.88	3.63	0.88	0.44	0.50	0.38	6.13	0.31
2.50	0.63	1.125	0.38	3.00	1.50	1.00	0.343	0.281	2.375	0.88	3.75	0.88	0.44	0.50	0.38	5.62	0.31
	1.00	1.500	0.50	3.00	1.50	1.00	0.343	0.531	2.484	0.88	3.75	0.88	0.44	0.50	0.38	6.00	0.31
	1.38	2.000	0.63	3.00	1.50	1.00	0.375	0.625	-	0.88	3.75	0.88	0.44	0.50	0.38	6.25	0.31
	1.75	2.375	0.75	3.00	1.50	1.00	0.375	0.750	-	0.88	3.75	0.88	0.44	0.50	0.38	6.50	0.31
3.25	1.00	1.500	0.50	3.75	1.75	1.00	0.500	0.375	2.625	1.25	4.25	1.38	0.66	0.75	0.56	6.88	0.38
	1.38	2.000	0.63	3.75	1.75	1.00	0.594	0.406	3.250	1.25	4.25	1.38	0.66	0.75	0.56	7.13	0.38
	1.75	2.375	0.75	3.75	1.75	1.00	0.625	0.500	-	1.25	4.25	1.38	0.66	0.75	0.56	7.38	0.38
	2.00	2.625	0.88	3.75	1.75	1.00	0.625	0.500	-	1.25	4.25	1.38	0.66	0.75	0.56	7.50	0.38
4.00	1.00	1.500	0.50	4.50	1.75	1.25	0.500	0.375	2.625	1.25	4.25	1.38	0.66	0.75	0.56	6.88	0.38
	1.38	2.000	0.63	4.50	1.75	1.25	0.594	0.406	3.250	1.25	4.25	1.38	0.66	0.75	0.56	7.13	0.38
	1.75	2.375	0.75	4.50	1.75	1.25	0.594	0.531	3.875	1.25	4.25	1.38	0.66	0.75	0.56	7.38	0.38
	2.00	2.625	0.88	4.50	1.75	1.25	0.594	0.531	4.000	1.25	4.25	1.38	0.66	0.75	0.56	7.50	0.38
	2.50	3.125	1.00	4.50	1.75	1.25	0.625	0.625	-	1.25	4.25	1.38	0.66	0.75	0.56	7.75	0.38
5.00	1.00	1.500	0.50	5.50	1.75	1.25	0.500	0.375	2.625	1.25	4.50	1.38	0.66	0.75	0.56	7.13	0.44
	1.38	2.000	0.63	5.50	1.75	1.25	0.594	0.406	3.250	1.25	4.50	1.38	0.66	0.75	0.56	7.38	0.44
	1.75	2.375	0.75	5.50	1.75	1.25	0.594	0.531	3.875	1.25	4.50	1.38	0.66	0.75	0.56	7.63	0.44
	2.00	2.625	0.88	5.50	1.75	1.25	0.594	0.531	4.000	1.25	4.50	1.38	0.66	0.75	0.56	7.75	0.44
	2.50	3.125	1.00	5.50	1.75	1.25	0.594	0.656	4.438	1.25	4.50	1.38	0.66	0.75	0.56	8.00	0.44
	3.00	3.750	1.00	5.50	1.75	1.25	0.625	0.625	-	1.25	4.50	1.38	0.66	0.75	0.56	8.00	0.44
	3.50	4.250	1.00	5.50	1.75	1.25	0.625	0.625	-	1.25	4.50	1.38	0.66	0.75	0.56	8.00	0.44
6.00	1.38	2.000	0.63	6.50	2.00	1.50	0.594	0.406	3.250	1.63	5.00	1.63	0.88	1.00	0.75	8.25	0.44
	1.75	2.375	0.75	6.50	2.00	1.50	0.594	0.531	3.875	1.63	5.00	1.63	0.88	1.00	0.75	8.50	0.44
	2.50	3.125	1.00	6.50	2.00	1.50	0.594	0.656	4.438	1.63	5.00	1.63	0.88	1.00	0.75	8.88	0.44
	4.00	4.750	1.00	6.50	2.00	1.50	0.719	0.531	6.000	1.63	5.00	1.63	0.88	1.00	0.75	8.88	0.44
8.00	1.38	2.000	0.63	8.50	2.00	1.50	0.594	0.406	3.250	1.63	5.13	1.63	0.88	1.00	0.75	8.38	0.56
	1.75	2.375	0.75	8.50	2.00	1.50	0.594	0.531	3.875	1.63	5.13	1.63	0.88	1.00	0.75	8.63	0.56
	3.50	4.250	1.00	8.50	2.00	1.50	0.719	0.531	5.625	1.63	5.13	1.63	0.88	1.00	0.75	9.00	0.56
	5.50	6.250	1.00	8.50	2.00	1.50	0.750	0.500	7 SQ	1.63	5.13	1.63	0.88	1.00	0.75	9.00	0.56

Mounting style and installation dimensions – RE/RF11 cap spherical bearing mount

This mount is for applications in which the machine member travels in a curved path in one plane where some misalignment is unavoidable.

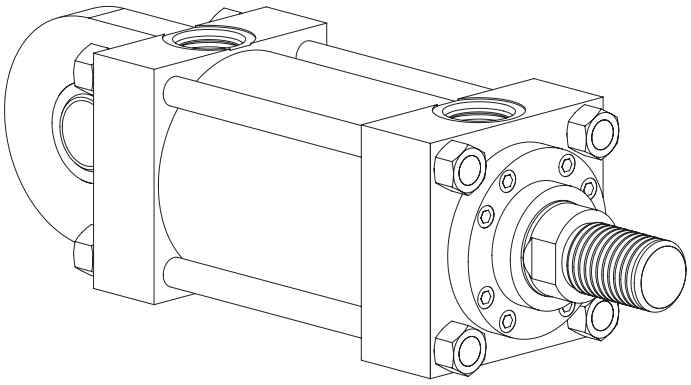
The amount of allowable misalignment can be calculated.

This mount can be used both in compression (push) and tension (pull) applications.

Care must be exercised to prevent rod buckling in compression applications with long strokes.

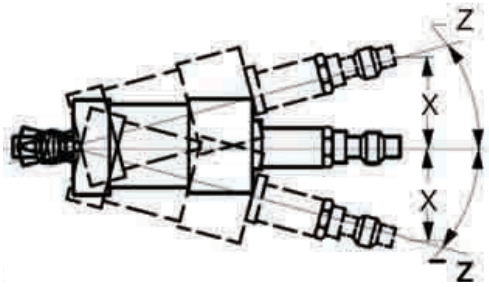
NOTE

For strokes in excess of 24 inches, see "Stop tube selection" on page 59. Maximum radial static and dynamic bearing loads must not exceed the recommended ratings shown in the following table. Angle Z is the recommended maximum angle of misalignment. To find the maximum recommended X distance, multiply the distance between pivot mounting holes (see RE/RF11 dimensional drawing) by the tangent of angle Z.



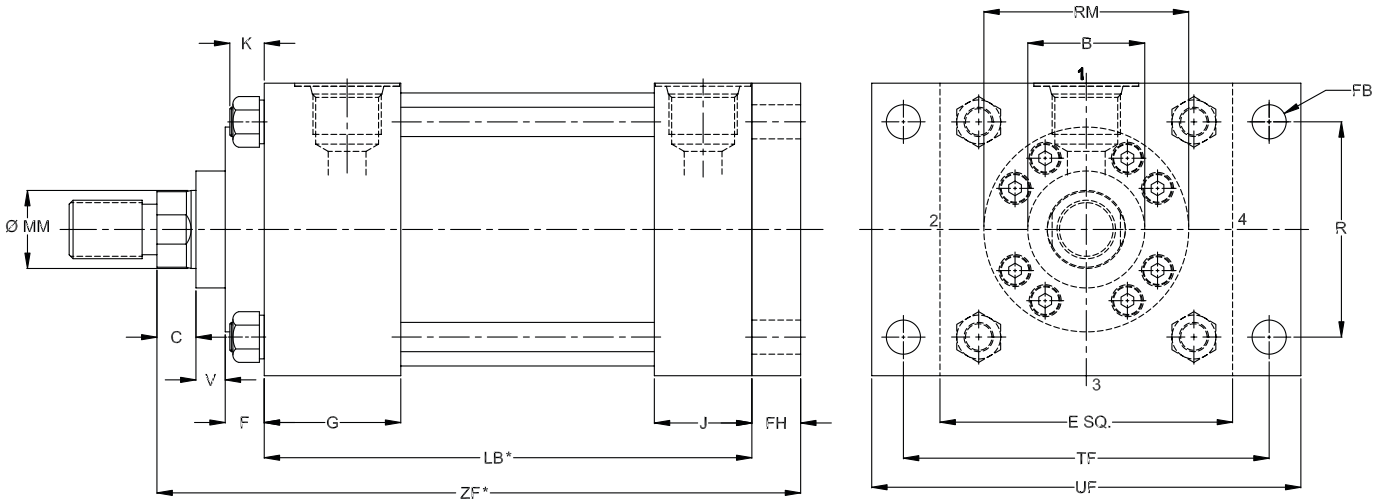
Bore	ØMM Rods	B -.001/ -.003	C	E	G	J	F	V	RM	L	LB*	MS	EX	CD	BX	XD*	K MAX.
10.00	1.75	2.000	0.75	10.63	2.25	2.00	0.594	0.531	3.875	2.13	6.38	1.69	1.19	1.38	1.03	10.38	0.69
	2.00	2.625	0.88	10.63	2.25	2.00	0.594	0.531	4.000	2.13	6.38	1.69	1.19	1.38	1.03	10.51	0.69
	3.50	4.250	1.00	10.63	2.25	2.00	0.719	0.531	5.625	2.13	6.38	1.69	1.19	1.38	1.03	10.76	0.69
	5.50	6.250	1.00	10.63	2.25	2.00	0.875	0.375	8.375	2.13	6.38	1.69	1.19	1.38	1.03	10.76	0.69
12.00	2.00	2.625	0.88	12.75	2.25	2.00	0.594	0.531	4.000	2.38	6.88	2.13	1.53	1.75	1.31	11.26	0.69
	2.50	3.125	1.00	12.75	2.25	2.00	0.594	0.656	4.438	2.38	6.88	2.13	1.53	1.75	1.31	11.51	0.69
	4.00	4.750	1.00	12.75	2.25	2.00	0.875	0.375	6.438	2.38	6.88	2.13	1.53	1.75	1.31	11.51	0.69
	5.50	6.250	1.00	12.75	2.25	2.00	0.875	0.375	8.438	2.38	6.88	2.13	1.53	1.75	1.31	11.51	0.69
14.00	2.50	3.125	1.00	14.75	2.75	2.25	0.594	0.656	4.438	2.63	8.13	2.44	1.75	2.00	1.50	13.01	0.81
	3.00	3.750	1.00	14.75	2.75	2.25	0.719	0.531	5.250	2.63	8.13	2.44	1.75	2.00	1.50	13.01	0.81
	4.00	4.750	1.00	14.75	2.75	2.25	0.875	0.375	6.438	2.63	8.13	2.44	1.75	2.00	1.50	13.01	0.81
	5.50	6.250	1.00	14.75	2.75	2.25	0.875	0.375	8.438	2.63	8.13	2.44	1.75	2.00	1.50	13.01	0.81

+ Plus Stroke



Bore	Rod	Pin dia	Angle "Z"	Tangent of "Z"	Static Load Ratings Radial	Thrust
1.50	0.625	0.50	1.5	0.026	8100	3200
2.00	0.625	0.50	1.5	0.026	8100	3200
2.50	0.625	0.50	1.5	0.026	8100	3200
3.25	0.75	0.75	2	0.035	18800	7500
4.00	1.00	0.75	2	0.035	18800	7500
5.00	1.00	0.75	2	0.035	18800	7500
6.00	1.38	1.00	2	0.035	33300	13300
8.00	1.38	1.00	2	0.035	33300	13300
10.00	1.75	1.38	2	0.035	59800	24000
12.00	2.00	1.75	2.5	0.044	102000	40700
14.00	2.50	2.00	2.5	0.044	132000	53000

Mounting style and installation dimensions – RE/RF12 cap rectangular flange mount



Bore	ØMM Rods	B +.000/ -.002	C	E	G	J	F	VB	RM	W	FB	R	TF	UF	ZB+	LB+	K MAX.	FH
1.50	0.63	1.125	0.38	2.00	1.50	1.00	0.375	0.250	-	0.375	0.31	1.43	2.75	3.38	5.00	3.63	0.25	.375
	1.00	1.500	0.50	2.00	1.50	1.00	0.375	0.500	-	0.375	0.31	1.43	2.75	3.38	5.38	3.63	0.25	.375
2.00	0.63	1.125	0.38	2.50	1.50	1.00	0.375	0.250	-	0.375	0.38	1.84	3.38	4.13	5.00	3.63	0.31	.375
	1.00	1.500	0.50	2.50	1.50	1.00	0.375	0.500	-	0.375	0.38	1.84	3.38	4.13	5.38	3.63	0.31	.375
	1.38	2.000	0.63	2.50	1.50	1.00	0.375	0.625	-	0.375	0.38	1.84	3.38	4.13	5.63	3.63	0.31	.375
2.50	0.63	1.125	0.38	3.00	1.50	1.00	0.343	0.281	2.375	0.375	0.38	2.19	3.88	4.63	5.13	3.75	0.31	.375
	1.00	1.500	0.50	3.00	1.50	1.00	0.343	0.531	2.484	0.375	0.38	2.19	3.88	4.63	5.50	3.75	0.31	.375
	1.38	2.000	0.63	3.00	1.50	1.00	0.375	0.625	-	0.375	0.38	2.19	3.88	4.63	5.75	3.75	0.31	.375
	1.75	2.375	0.75	3.00	1.50	1.00	0.375	0.750	-	0.375	0.38	2.19	3.88	4.63	6.00	3.75	0.31	.375
3.25	1.00	1.500	0.50	3.75	1.75	1.25	0.500	0.375	2.625	0.625	0.44	2.76	4.69	5.50	6.25	4.25	0.38	.625
	1.38	2.000	0.63	3.75	1.75	1.25	0.593	0.406	3.250	0.625	0.44	2.76	4.69	5.50	6.50	4.25	0.38	.625
	1.75	2.375	0.75	3.75	1.75	1.25	0.625	0.500	-	0.625	0.44	2.76	4.69	5.50	6.75	4.25	0.38	.625
	2.00	2.625	0.88	3.75	1.75	1.25	0.625	0.500	-	0.625	0.44	2.76	4.69	5.50	6.88	4.25	0.38	.625
4.00	1.00	1.500	0.50	4.50	1.75	1.25	0.593	0.375	2.625	0.625	0.44	3.32	5.44	6.25	6.25	4.25	0.38	.625
	1.38	2.000	0.63	4.50	1.75	1.25	0.593	0.406	3.250	0.625	0.44	3.32	5.44	6.25	6.50	4.25	0.38	.625
	1.75	2.375	0.75	4.50	1.75	1.25	0.593	0.531	3.875	0.625	0.44	3.32	5.44	6.25	6.75	4.25	0.38	.625
	2.00	2.625	0.88	4.50	1.75	1.25	0.593	0.531	4.000	0.625	0.44	3.32	5.44	6.25	6.88	4.25	0.38	.625
	2.50	3.125	1.00	4.50	1.75	1.25	0.625	0.625	-	0.625	0.44	3.32	5.44	6.25	7.13	4.25	0.38	.625
5.00	1.00	1.500	0.50	5.50	1.75	1.25	0.593	0.375	2.625	0.625	0.56	4.10	6.63	7.63	6.50	4.50	0.44	.625
	1.38	2.000	0.63	5.50	1.75	1.25	0.593	0.406	3.250	0.625	0.56	4.10	6.63	7.63	6.75	4.50	0.44	.625
	1.75	2.375	0.75	5.50	1.75	1.25	0.593	0.531	3.875	0.625	0.56	4.10	6.63	7.63	7.00	4.50	0.44	.625
	2.00	2.625	0.88	5.50	1.75	1.25	0.593	0.531	4.000	0.625	0.56	4.10	6.63	7.63	7.13	4.50	0.44	.625
	2.50	3.125	1.00	5.50	1.75	1.25	0.593	0.656	4.438	0.625	0.56	4.10	6.63	7.63	7.38	4.50	0.44	.625
	3.00	3.750	1.00	5.50	1.75	1.25	0.625	0.625	-	0.625	0.56	4.10	6.63	7.63	7.38	4.50	0.44	.625
	3.50	4.250	1.00	5.50	1.75	1.25	0.625	0.625	-	0.625	0.56	4.10	6.63	7.63	7.38	4.50	0.44	.625
6.00	1.38	2.000	0.63	6.50	2.00	1.50	0.593	0.406	3.250	0.750	0.56	4.88	7.63	8.63	7.38	5.00	0.44	.750
	1.75	2.375	0.75	6.50	2.00	1.50	0.593	0.531	3.875	0.750	0.56	4.88	7.63	8.63	7.63	5.00	0.44	.750
	2.50	3.125	1.00	6.50	2.00	1.50	0.593	0.656	4.438	0.750	0.56	4.88	7.63	8.63	8.00	5.00	0.44	.750
	4.00	4.750	1.00	6.50	2.00	1.50	0.719	0.531	6.000	0.750	0.56	4.88	7.63	8.63	8.00	5.00	0.44	.750

+ Plus Stroke

Mounting style and installation dimensions – RE/RF12 cap rectangular flange mount

These mounts are ideal for straight line force transfer applications in which the cylinder is used in compression (pushing), as in push presses.

For tension applications (pulling), a head rectangular mount is more appropriate.

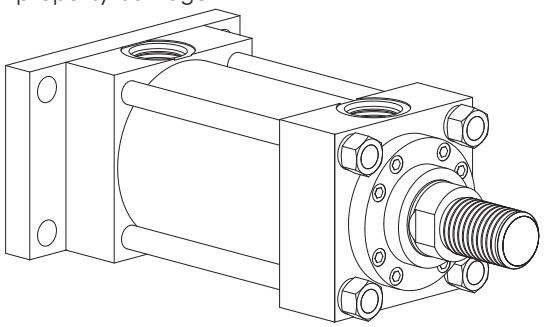
NOTE
For strokes in excess of 30 inches, see "Stop tube selection" on page 59.

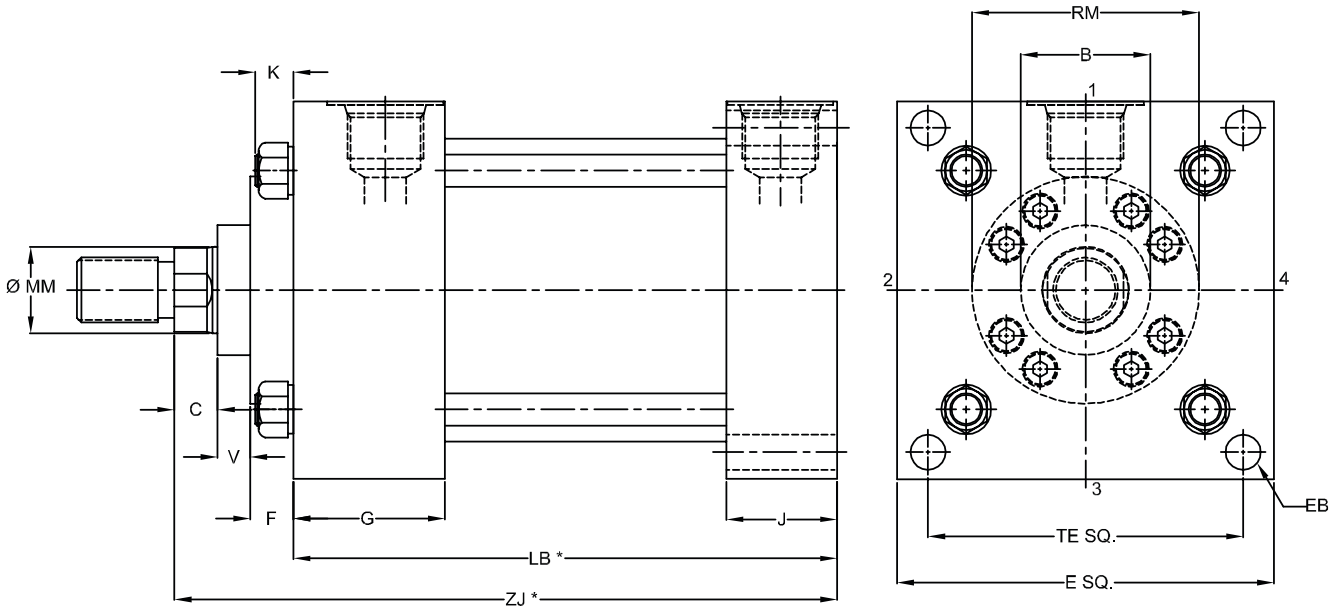
WARNING
The frame on which the cylinder is mounted must be sufficiently rigid to resist bending moments.

The cap square mount is offered for bore sizes 8.00 and above in place of cap rectangular flange mount.

Use high tensile socket head cap screws or hex head bolts tightened to the manufacturer's recommended torque.

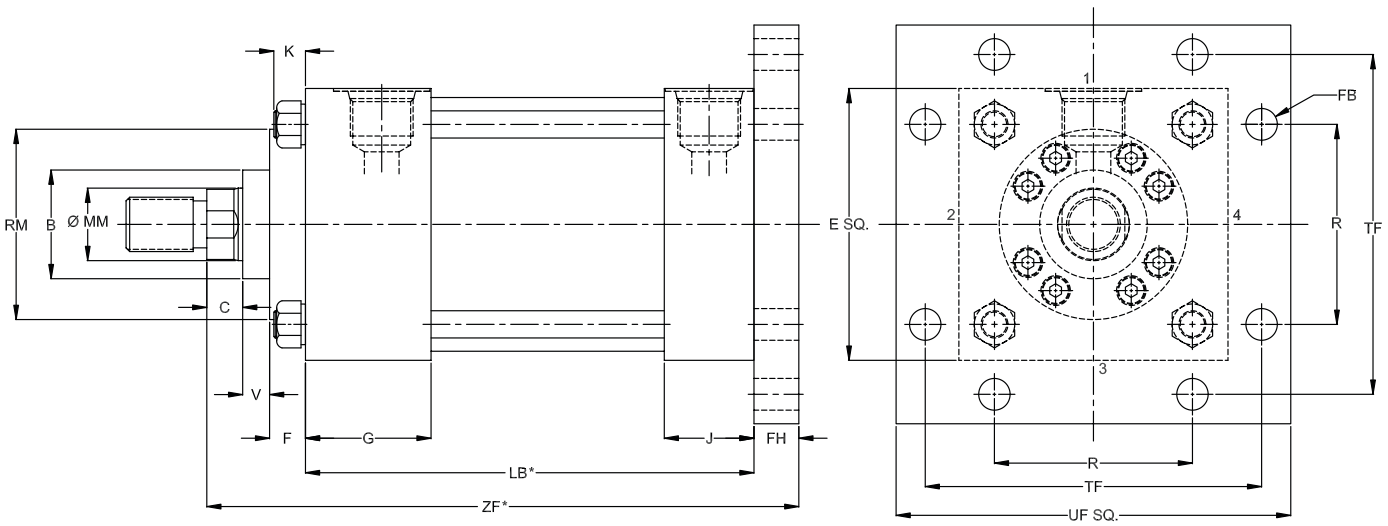
WARNING
Failure to mount the cylinder correctly on the frame may result in death, bodily injury and/or property damage.





Bore	ØMM Rod	B +.000/-.002	C	E	G	J	F	V	RM	FB	TF	LB*	ZJ*	K
8.00	1.38	2.000	0.63	8.50	2.00	1.50	0.593	0.406	3.25	0.69	7.57	5.13	6.38	0.56
	1.75	2.375	0.75	8.50	2.00	1.50	0.593	0.531	3.88	0.69	7.57	5.13	7.00	0.56
	3.50	4.250	1.00	8.50	2.00	1.50	0.719	0.531	5.63	0.69	7.57	5.13	7.38	0.56
	5.50	6.250	1.00	8.50	2.00	1.50	0.750	0.500	7 SQ	0.69	7.57	5.13	7.38	0.56
10.00	1.75	2.000	0.75	10.63	2.25	2.00	0.593	0.375	3.88	0.81	9.40	6.38	8.25	0.69
	2.00	2.625	0.88	10.63	2.25	2.00	0.593	0.531	4.00	0.81	9.40	6.38	8.38	0.69
	3.50	4.250	1.00	10.63	2.25	2.00	0.719	0.531	5.63	0.81	9.40	6.38	8.63	0.69
	5.50	6.250	1.00	10.63	2.25	2.00	0.875	0.375	8.38	0.81	9.40	6.38	8.63	0.69
12.00	2.00	2.625	0.88	12.75	2.25	2.00	0.593	0.531	4.00	0.81	11.10	6.88	8.88	0.69
	2.50	3.125	1.00	12.75	2.25	2.00	0.593	0.656	4.44	0.81	11.10	6.88	9.13	0.69
	4.00	4.750	1.00	12.75	2.25	2.00	0.875	0.375	6.44	0.81	11.10	6.88	9.13	0.69
	5.50	6.250	1.00	12.75	2.25	2.00	0.875	0.375	8.38	0.81	11.10	6.88	9.13	0.69
14.00	2.50	3.125	1.00	14.75	2.25	2.25	0.594	0.656	4.44	0.94	12.87	8.13	10.38	0.81
	3.00	3.750	1.00	14.75	2.25	2.25	0.719	0.531	5.25	0.94	12.87	8.13	10.38	0.81
	4.00	4.750	1.00	14.75	2.25	2.25	0.875	0.375	6.44	0.94	12.87	8.13	10.38	0.81
	5.50	6.250	1.00	14.75	2.25	2.25	0.875	0.375	8.38	0.94	12.87	8.13	10.38	0.81

Mounting style and installation dimensions – RE/RF13 cap square flange mount



Bore	ØMM Rods	B +.000/ -.002	C	E	G	J	F	V	RM	FH+	FB	R	TF	UF	ZF+	LB+	K MAX.
1.50	0.63	1.125	0.38	2.00	1.50	1.00	0.375	0.250	-	0.375	0.31	1.43	2.75	3.38	5.00	3.63	0.25
	1.00	1.500	0.50	2.00	1.50	1.00	0.375	0.500	-	0.375	0.31	1.43	2.75	3.38	5.38	3.63	0.25
2.00	0.63	1.125	0.38	2.50	1.50	1.00	0.375	0.250	-	0.375	0.38	1.84	3.38	4.13	5.00	3.63	0.31
	1.00	1.500	0.50	2.50	1.50	1.00	0.375	0.500	-	0.375	0.38	1.84	3.38	4.13	5.38	3.63	0.31
	1.38	2.000	0.63	2.50	1.50	1.00	0.375	0.625	-	0.375	0.38	1.84	3.38	4.13	5.63	3.63	0.31
2.50	0.63	1.125	0.38	3.00	1.50	1.00	0.343	0.281	2.375	0.375	0.38	2.19	3.88	4.63	5.13	3.75	0.31
	1.00	1.500	0.50	3.00	1.50	1.00	0.343	0.531	2.484	0.375	0.38	2.19	3.88	4.63	5.50	3.75	0.31
	1.38	2.000	0.63	3.00	1.50	1.00	0.375	0.625	-	0.375	0.38	2.19	3.88	4.63	5.75	3.75	0.31
	1.75	2.375	0.75	3.00	1.50	1.00	0.375	0.750	-	0.375	0.38	2.19	3.88	4.63	6.00	3.75	0.31
3.25	1.00	1.500	0.50	3.75	1.75	1.25	0.500	0.375	2.625	0.625	0.44	2.76	4.69	5.50	6.25	4.25	0.38
	1.38	2.000	0.63	3.75	1.75	1.25	0.593	0.406	3.250	0.625	0.44	2.76	4.69	5.50	6.50	4.25	0.38
	1.75	2.375	0.75	3.75	1.75	1.25	0.625	0.500	-	0.625	0.44	2.76	4.69	5.50	6.75	4.25	0.38
	2.00	2.625	0.88	3.75	1.75	1.25	0.625	0.500	-	0.625	0.44	2.76	4.69	5.50	6.88	4.25	0.38
4.00	1.00	1.500	0.50	4.50	1.75	1.25	0.593	0.375	2.625	0.625	0.44	3.32	5.44	6.25	6.25	4.25	0.38
	1.38	2.000	0.63	4.50	1.75	1.25	0.593	0.406	3.250	0.625	0.44	3.32	5.44	6.25	6.50	4.25	0.38
	1.75	2.375	0.75	4.50	1.75	1.25	0.593	0.531	3.875	0.625	0.44	3.32	5.44	6.25	6.75	4.25	0.38
	2.00	2.625	0.88	4.50	1.75	1.25	0.593	0.531	4.000	0.625	0.44	3.32	5.44	6.25	6.88	4.25	0.38
	2.50	3.125	1.00	4.50	1.75	1.25	0.625	0.625	-	0.625	0.44	3.32	5.44	6.25	7.13	4.25	0.38
5.00	1.00	1.500	0.50	5.50	1.75	1.25	0.593	0.375	2.625	0.625	0.56	4.10	6.63	7.63	6.50	4.50	0.44
	1.38	2.000	0.63	5.50	1.75	1.25	0.593	0.406	3.250	0.625	0.56	4.10	6.63	7.63	6.75	4.50	0.44
	1.75	2.375	0.75	5.50	1.75	1.25	0.593	0.531	3.875	0.625	0.56	4.10	6.63	7.63	7.00	4.50	0.44
	2.00	2.625	0.88	5.50	1.75	1.25	0.593	0.531	4.000	0.625	0.56	4.10	6.63	7.63	7.13	4.50	0.44
	2.50	3.125	1.00	5.50	1.75	1.25	0.593	0.656	4.438	0.625	0.56	4.10	6.63	7.63	7.38	4.50	0.44
	3.00	3.750	1.00	5.50	1.75	1.25	0.625	0.625	-	0.625	0.56	4.10	6.63	7.63	7.38	4.50	0.44
	3.50	4.250	1.00	5.50	1.75	1.25	0.625	0.625	-	0.625	0.56	4.10	6.63	7.63	7.38	4.50	0.44
6.00	1.38	2.000	0.63	6.50	2.00	1.50	0.593	0.406	3.250	0.750	0.56	4.88	7.63	8.63	7.38	5.00	0.44
	1.75	2.375	0.75	6.50	2.00	1.50	0.593	0.531	3.875	0.750	0.56	4.88	7.63	8.63	7.63	5.00	0.44
	2.50	3.125	1.00	6.50	2.00	1.50	0.593	0.656	4.438	0.750	0.56	4.88	7.63	8.63	8.00	5.00	0.44
	4.00	4.750	1.00	6.50	2.00	1.50	0.719	0.531	6.000	0.750	0.56	4.88	7.63	8.63	8.00	5.00	0.44

+ Plus Stroke

Mounting style and installation dimensions – RE/RF13 cap square flange mount

These mounts are ideal for straight line force transfer applications in which the cylinder is used in compression (pushing), as in push presses.

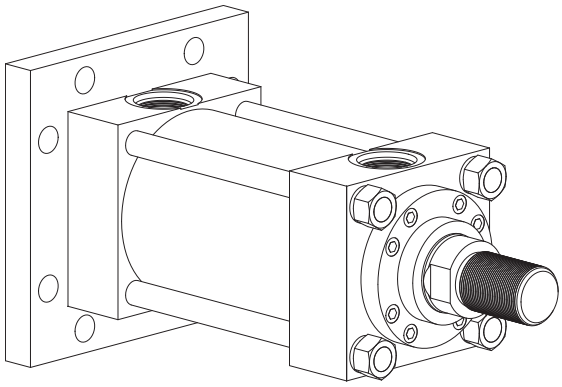
For tension applications (pulling), a head rectangular mount is more appropriate.

NOTE
For strokes in excess of 30 inches, see "Stop tube selection" on page 59.

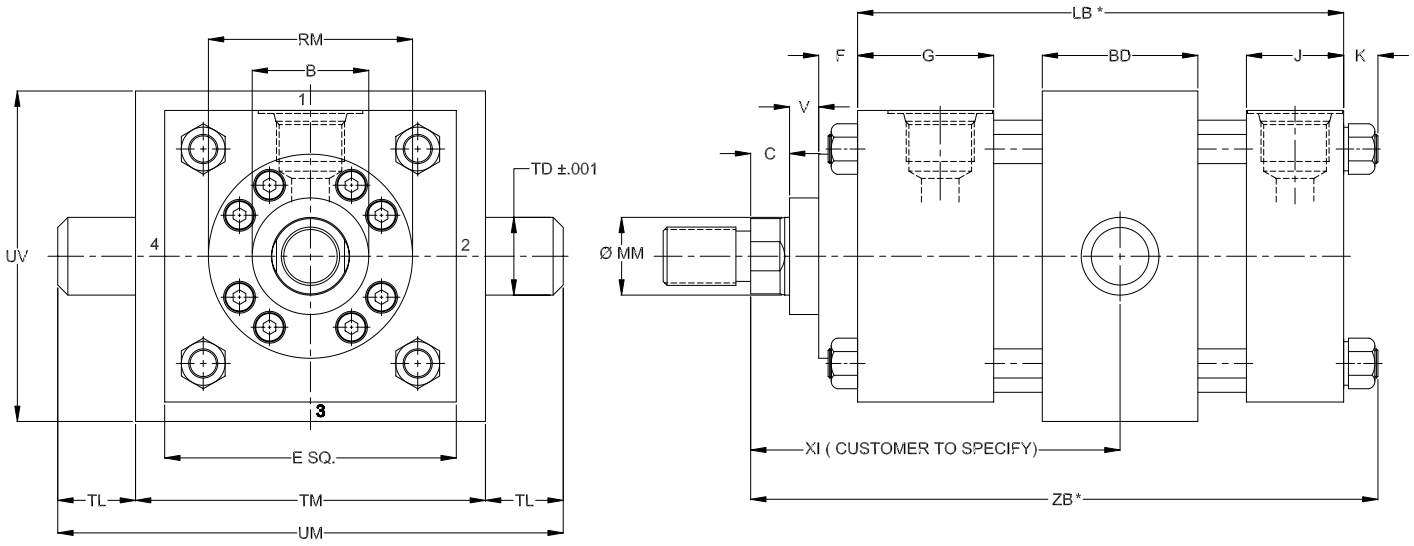
WARNING
The frame on which the cylinder is mounted must be sufficiently rigid to resist bending moments. The cap rectangular mounts (RE14) is recommended for heavy duty applications.

Use high tensile socket head cap screws or hex head bolts tightened to the manufacturer's recommended torque.

WARNING
Failure to mount the cylinder correctly on the frame may result in death, bodily injury and/or property damage.

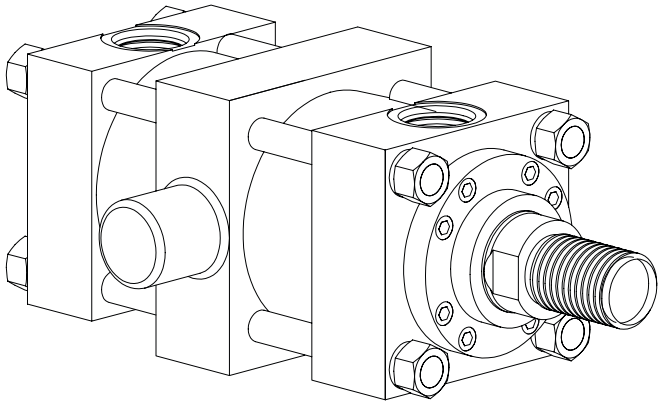


Mounting style and installation dimensions – RE/RF15 Intermediate trunnion mount



Bore	ØMM Rods	B +.000/ -.002	C	E	G	J	F	V	RM	TD+/ - .001	TL	TM	UM	UV	BD	ZB+	LB+	K MAX.
1.50	0.63	1.125	0.38	2.00	1.50	1.00	0.375	0.250	-	1.000	1.00	2.50	4.50	2.50	1.25	4.88	3.63	0.25
	1.00	1.500	0.50	2.00	1.50	1.00	0.375	0.500	-	1.000	1.00	2.50	4.50	2.50	1.25	5.25	3.63	0.25
2.00	0.63	1.125	0.38	2.50	1.50	1.00	0.375	0.250	-	1.000	1.00	3.00	5.00	3.00	1.50	4.94	3.63	0.31
	1.00	1.500	0.50	2.50	1.50	1.00	0.375	0.500	-	1.000	1.00	3.00	5.00	3.00	1.50	5.31	3.63	0.31
	1.38	2.000	0.63	2.50	1.50	1.00	0.375	0.625	-	1.000	1.00	3.00	5.00	3.00	1.50	5.56	3.63	0.31
2.50	0.63	1.125	0.38	3.00	1.50	1.00	0.375	0.281	2.375	1.000	1.00	3.50	5.50	3.50	1.50	5.06	3.75	0.31
	1.00	1.500	0.50	3.00	1.50	1.00	0.343	0.531	2.484	1.000	1.00	3.50	5.50	3.50	1.50	5.44	3.75	0.31
	1.38	2.000	0.63	3.00	1.50	1.00	0.375	0.625	-	1.000	1.00	3.50	5.50	3.50	1.50	5.69	3.75	0.31
	1.75	2.375	0.75	3.00	1.50	1.00	0.375	0.750	-	1.000	1.00	3.50	5.50	3.50	1.50	5.94	3.75	0.31
3.25	1.00	1.500	0.50	3.75	1.75	1.25	0.625	0.375	2.625	1.000	1.00	4.50	6.50	4.25	2.00	6.00	4.25	0.38
	1.38	2.000	0.63	3.75	1.75	1.25	0.593	0.406	3.250	1.000	1.00	4.50	6.50	4.25	2.00	6.25	4.25	0.38
	1.75	2.375	0.75	3.75	1.75	1.25	0.625	0.500	-	1.000	1.00	4.50	6.50	4.25	2.00	6.50	4.25	0.38
	2.00	2.625	0.88	3.75	1.75	1.25	0.625	0.500	-	1.000	1.00	4.50	6.50	4.25	2.00	6.63	4.25	0.38
4.00	1.00	1.500	0.50	4.50	1.75	1.25	0.625	0.375	2.625	1.000	1.00	5.25	7.25	5.00	2.00	6.00	4.25	0.38
	1.38	2.000	0.63	4.50	1.75	1.25	0.593	0.406	3.250	1.000	1.00	5.25	7.25	5.00	2.00	6.25	4.25	0.38
	1.75	2.375	0.75	4.50	1.75	1.25	0.593	0.531	3.875	1.000	1.00	5.25	7.25	5.00	2.00	6.50	4.25	0.38
	2.00	2.625	0.88	4.50	1.75	1.25	0.593	0.531	4.000	1.000	1.00	5.25	7.25	5.00	2.00	6.63	4.25	0.38
	2.50	3.125	1.00	4.50	1.75	1.25	0.625	0.625	-	1.000	1.00	5.25	7.25	5.00	2.00	6.88	4.25	0.38
5.00	1.00	1.500	0.50	5.50	1.75	1.25	0.625	0.375	2.625	1.000	1.00	6.25	8.25	6.00	2.00	6.31	4.50	0.44
	1.38	2.000	0.63	5.50	1.75	1.25	0.593	0.406	3.250	1.000	1.00	6.25	8.25	6.00	2.00	6.56	4.50	0.44
	1.75	2.375	0.75	5.50	1.75	1.25	0.593	0.531	3.875	1.000	1.00	6.25	8.25	6.00	2.00	6.81	4.50	0.44
	2.00	2.625	0.88	5.50	1.75	1.25	0.593	0.531	4.000	1.000	1.00	6.25	8.25	6.00	2.00	6.94	4.50	0.44
	2.50	3.125	1.00	5.50	1.75	1.25	0.593	0.656	4.438	1.000	1.00	6.25	8.25	6.00	2.00	7.19	4.50	0.44
	3.00	3.750	1.00	5.50	1.75	1.25	0.625	0.625	-	1.000	1.00	6.25	8.25	6.00	2.00	7.19	4.50	0.44
	3.50	4.250	1.00	5.50	1.75	1.25	0.625	0.625	-	1.000	1.00	6.25	8.25	6.00	2.00	7.19	4.50	0.44
6.00	1.38	2.000	0.63	6.50	2.00	1.50	0.750	0.406	3.250	1.375	1.380	7.63	10.38	7.00	2.00	7.06	5.00	0.44
	1.75	2.375	0.75	6.50	2.00	1.50	0.593	0.531	3.875	1.375	1.380	7.63	10.38	7.00	2.00	7.31	5.00	0.44
	2.50	3.125	1.00	6.50	2.00	1.50	0.593	0.656	4.438	1.375	1.380	7.63	10.38	7.00	2.00	7.69	5.00	0.44
	4.00	4.750	1.00	6.50	2.00	1.50	0.719	0.531	6.000	1.375	1.380	7.63	10.38	7.00	2.00	7.69	5.00	0.44

Mounting style and installation dimensions – RE/RF15 intermediate trunnion mount



The Intermediate Trunnion Mount is for longer stroke applications in which the machine member travels in a curved path in one plane.

On special orders, the trunnion can be located anywhere along the body.

This mount can be used both in compression (push) and tension (pull) applications.

NOTE
For strokes in excess of 24 inches, see "Stop tube selection" on page 59.

WARNING

It is recommended that rigidly mounted pillow blocks with bearings at least as long as the trunnion pins be used. The pillow blocks should be installed as close to the shoulder of the trunnion as possible. Refer to the below table for pressure rating.

Bore Size	Recommended Pressure Rating
1.50" - 5.00"	1500 psi
6.00" - 12.00"	1200 psi
14.00"	1000 psi

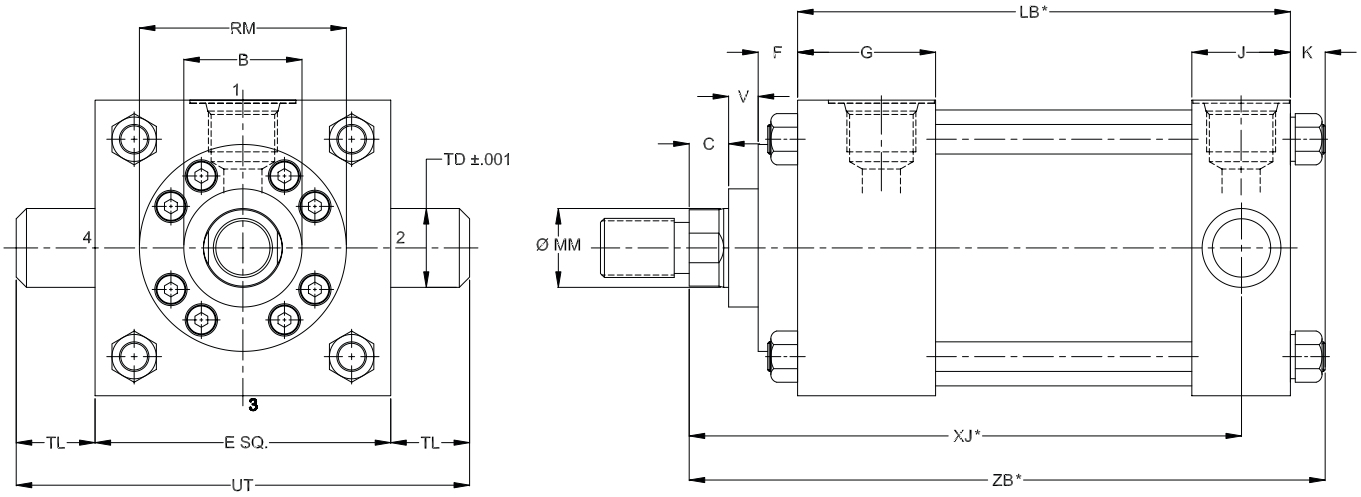
WARNING

Failure to mount the cylinder correctly on the frame may result in death, bodily injury and/or property damage.

Bore	ØMM Rods	B +.000/ -.002	C	E	G	J	F	V	RM	TD+/ - .001	TL	TM	UM	UV	BD	ZB+	LB+	K MAX.
8.00	1.38	2.000	0.63	8.50	2.00	1.50	0.594	0.406	3.250	1.375	1.380	9.75	12.50	9.50	2.50	7.31	5.13	0.56
	1.75	2.375	0.75	8.50	2.00	1.50	0.594	0.531	3.875	1.375	1.380	9.75	12.50	9.50	2.50	7.56	5.13	0.56
	3.50	4.250	1.00	8.50	2.00	1.50	0.719	0.531	5.625	1.375	1.380	9.75	12.50	9.50	2.50	7.94	5.13	0.56
	5.50	6.250	1.00	8.50	2.00	1.50	0.750	0.500	7 SQ	1.375	1.75	9.75	12.50	9.50	2.50	7.94	5.13	0.56
10.00	1.75	2.000	0.75	10.63	2.25	2.00	0.594	0.531	3.875	1.750	1.75	12.00	15.50	11.75	3.00	8.94	6.38	0.69
	2.00	2.625	0.88	10.63	2.25	2.00	0.594	0.531	4.000	1.750	1.75	12.00	15.50	11.75	3.00	9.06	6.38	0.69
	3.50	4.250	1.00	10.63	2.25	2.00	0.719	0.531	5.625	1.750	1.75	12.00	15.50	11.75	3.00	9.31	6.38	0.69
	5.50	6.250	1.00	10.63	2.25	2.00	0.875	0.375	8.375	1.750	1.75	12.00	15.50	11.75	3.00	9.31	6.38	0.69
12.00	2.00	2.625	0.88	12.75	2.25	2.00	0.594	0.531	4.000	1.750	1.75	14.00	17.50	13.75	3.00	9.56	6.88	0.69
	2.50	3.125	1.00	12.75	2.25	2.00	0.594	0.656	4.438	1.750	1.75	14.00	17.50	13.75	3.00	9.81	6.88	0.69
	4.00	4.750	1.00	12.75	2.25	2.00	0.875	0.375	6.438	1.750	1.75	14.00	17.50	13.75	3.00	9.81	6.88	0.69
	5.50	6.250	1.00	12.75	2.25	2.00	0.875	0.375	8.375	1.750	1.75	14.00	17.50	13.75	3.00	9.81	6.88	0.69
14.00	2.50	3.125	1.00	14.75	2.75	2.25	0.594	0.656	4.438	2.000	2.00	16.25	20.25	16.00	3.50	11.19	8.13	0.81
	3.00	3.750	1.00	14.75	2.75	2.25	0.719	0.531	5.250	2.000	2.00	16.25	20.25	16.00	3.50	11.19	8.13	0.81
	4.00	4.750	1.00	14.75	2.75	2.25	0.875	0.375	6.438	2.000	2.00	16.25	20.25	16.00	3.50	11.19	8.13	0.81
	5.50	6.250	1.00	14.75	2.75	2.25	0.875	0.375	8.375	2.000	2.00	16.25	20.25	16.00	3.50	11.19	8.13	0.81

+ Plus Stroke

Mounting style and installation dimensions – RE/RF16 cap trunnion mount



Bore	ØMM Rods	B +.000/ -.002	C	E	G	J	F	V	RM	TD+/ - .001	TL	UT	XJ*	ZB*	LB*	K MAX.
1.50	0.63	1.125	0.38	2.00	1.50	1.00	0.375	0.250	-	1.000	1.00	4.00	4.13	4.88	3.63	0.25
	1.00	1.500	0.50	2.00	1.50	1.00	0.375	0.500	-	1.000	1.00	4.00	4.50	5.25	3.63	0.25
2.00	0.63	1.125	0.38	2.50	1.50	1.00	0.375	0.250	-	1.000	1.00	4.50	4.13	4.94	3.63	0.31
	1.00	1.500	0.50	2.50	1.50	1.00	0.375	0.500	-	1.000	1.00	4.50	4.50	5.31	3.63	0.31
	1.38	2.000	0.63	2.50	1.50	1.00	0.375	0.625	-	1.000	1.00	4.50	4.75	5.56	3.63	0.31
2.50	0.63	1.125	0.38	3.00	1.50	1.00	0.375	0.281	2.375	1.000	1.00	5.00	4.25	5.06	3.75	0.31
	1.00	1.500	0.50	3.00	1.50	1.00	0.343	0.531	2.484	1.000	1.00	5.00	4.63	5.44	3.75	0.31
	1.38	2.000	0.63	3.00	1.50	1.00	0.375	0.625	-	1.000	1.00	5.00	4.88	5.69	3.75	0.31
	1.75	2.375	0.75	3.00	1.50	1.00	0.375	0.750	-	1.000	1.00	5.00	5.13	5.94	3.75	0.31
3.25	1.00	1.500	0.50	3.75	1.75	1.25	0.625	0.375	2.625	1.000	1.00	5.75	5.00	6.00	4.25	0.38
	1.38	2.000	0.63	3.75	1.75	1.25	0.593	0.406	3.250	1.000	1.00	5.75	5.25	6.25	4.25	0.38
	1.75	2.375	0.75	3.75	1.75	1.25	0.625	0.500	-	1.000	1.00	5.75	5.50	6.50	4.25	0.38
	2.00	2.625	0.88	3.75	1.75	1.25	0.625	0.500	-	1.000	1.00	5.75	5.63	6.63	4.25	0.38
4.00	1.00	1.500	0.50	4.50	1.75	1.25	0.625	0.375	2.625	1.000	1.00	6.50	5.00	6.00	4.25	0.38
	1.38	2.000	0.63	4.50	1.75	1.25	0.593	0.406	3.250	1.000	1.00	6.50	5.25	6.25	4.25	0.38
	1.75	2.375	0.75	4.50	1.75	1.25	0.593	0.531	3.875	1.000	1.00	6.50	5.50	6.50	4.25	0.38
	2.00	2.625	0.88	4.50	1.75	1.25	0.593	0.531	4.000	1.000	1.00	6.50	5.63	6.63	4.25	0.38
	2.50	3.125	1.00	4.50	1.75	1.25	0.625	0.625	-	1.000	1.00	6.50	5.88	6.88	4.25	0.38
5.00	1.00	1.500	0.50	5.50	1.75	1.25	0.625	0.375	2.625	1.000	1.00	7.50	5.25	6.31	4.50	0.44
	1.38	2.000	0.63	5.50	1.75	1.25	0.593	0.406	3.250	1.000	1.00	7.50	5.50	6.56	4.50	0.44
	1.75	2.375	0.75	5.50	1.75	1.25	0.593	0.531	3.875	1.000	1.00	7.50	5.75	6.81	4.50	0.44
	2.00	2.625	0.88	5.50	1.75	1.25	0.593	0.531	4.000	1.000	1.00	7.50	5.88	6.94	4.50	0.44
	2.50	3.125	1.00	5.50	1.75	1.25	0.593	0.656	4.438	1.000	1.00	7.50	6.13	7.19	4.50	0.44
	3.00	3.750	1.00	5.50	1.75	1.25	0.625	0.625	-	1.000	1.00	7.50	6.13	7.19	4.50	0.44
	3.50	4.250	1.00	5.50	1.75	1.25	0.625	0.625	-	1.000	1.00	7.50	6.13	7.19	4.50	0.44
6.00	1.38	2.000	0.63	6.50	2.00	1.50	0.750	0.406	3.250	1.375	1.380	9.25	5.88	7.06	5.00	0.44
	1.75	2.375	0.75	6.50	2.00	1.50	0.593	0.531	3.875	1.375	1.380	9.25	6.13	7.31	5.00	0.44
	2.50	3.125	1.00	6.50	2.00	1.50	0.593	0.656	4.438	1.375	1.380	9.25	6.50	7.69	5.00	0.44
	4.00	4.750	1.00	6.50	2.00	1.50	0.719	0.531	6.000	1.375	1.380	9.25	6.50	7.69	5.00	0.44
8.00	1.38	2.000	0.63	8.50	2.00	1.50	0.594	0.406	3.250	1.375	1.380	11.25	6.00	7.31	5.13	0.56
	1.75	2.375	0.75	8.50	2.00	1.50	0.594	0.531	3.875	1.375	1.380	11.25	6.25	7.56	5.13	0.56
	3.50	4.250	1.00	8.50	2.00	1.50	0.719	0.531	5.625	1.375	1.380	11.25	6.63	7.94	5.13	0.56
	5.50	6.250	1.00	8.50	2.00	1.50	0.750	0.500	7 SQ	1.375	1.75	11.25	6.63	7.94	5.13	0.56

Mounting style and installation dimensions – RE/RF16 cap trunnion mount

These mounts are for applications in which the machine member travels in a curved path in one plane.

Either mount can be used both in compression (push) and tension (pull) applications. When used in compression applications, head trunnion mounts provide a longer maximum stroke than cap trunnion mounts.

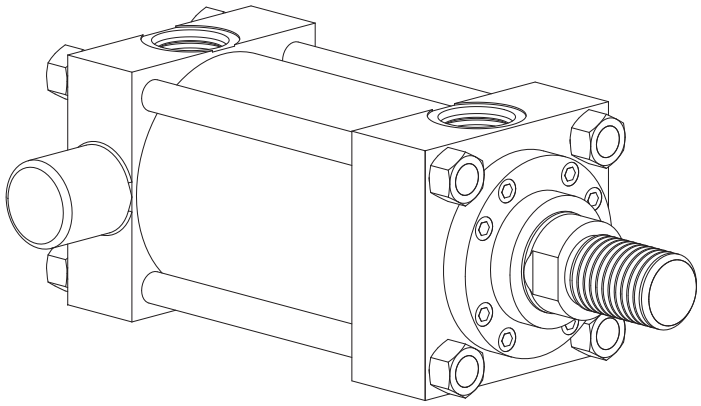
NOTE

For strokes in excess of 24 inches, see "Stop tube selection" on page 59.

The trunnion pins are an integral part of the head and can be sleeved to provide an extremely tight fit to the mating machine member and permit curvilinear motion.

It is recommended that rigidly mounted pillow blocks with bearings at least as long as the trunnion pins be used. Refer to the below table for pressure rating.

The pillow blocks should be installed as close to the shoulder of the trunnion as possible.



Bore Size	Recommended Pressure Rating (psi)
1.50" - 2.50"	1500
3.25"	1200
4.00"	1000
5.00"	750
6.00"	750
8.00"	500
10.00"	500
12.00"	400
14.00"	400

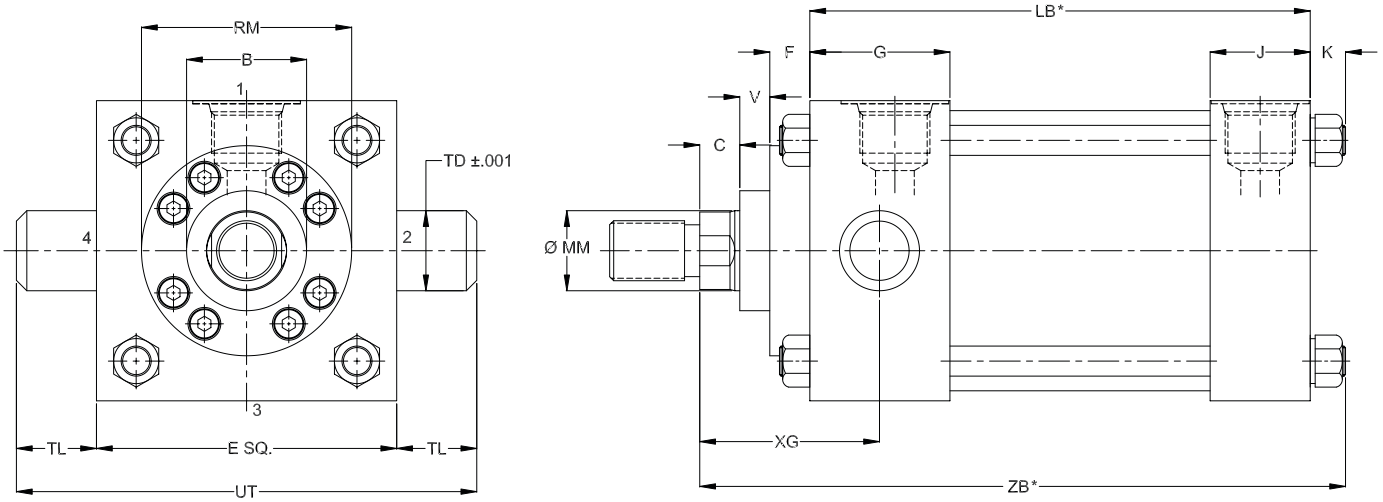
WARNING

Failure to mount the cylinder correctly on the frame may result in death, bodily injury and/or property damage.

Bore	ØMM Rods	B +.000/ -.002	C	E	G	J	F	V	RM	TD+/ - .001	TL	UT	XJ*	ZB*	LB*	K MAX.
10.00	1.75	2.000	0.75	10.63	2.25	2.00	0.594	0.531	3.875	1.750	1.75	14.13	7.25	8.94	6.38	0.69
	2.00	2.625	0.88	10.63	2.25	2.00	0.594	0.531	4.000	1.750	1.75	14.13	7.38	9.06	6.38	0.69
	3.50	4.250	1.00	10.63	2.25	2.00	0.719	0.531	5.625	1.750	1.75	14.13	7.63	9.31	6.38	0.69
	4.00	4.750	1.00	10.63	2.25	2.00	0.875	0.375	6.438	1.750	1.75	14.13	7.63	9.31	6.38	0.69
12.00	2.00	2.625	0.88	12.75	2.25	2.00	0.594	0.531	4.000	1.750	1.75	16.25	7.88	9.56	6.88	0.69
	2.50	3.125	1.00	12.75	2.25	2.00	0.594	0.656	4.438	1.750	1.75	16.25	8.13	9.81	6.88	0.69
	4.00	4.750	1.00	12.75	2.25	2.00	0.875	0.375	6.438	1.750	1.75	16.25	8.13	9.81	6.88	0.69
	5.50	6.250	1.00	12.75	2.25	2.00	0.875	0.375	8.375	1.750	1.75	16.25	8.13	9.81	6.88	0.69
14.00	2.50	3.125	1.00	14.75	2.75	2.25	0.594	0.656	4.438	2.000	2.00	18.75	9.25	11.19	8.13	0.81
	3.00	3.750	1.00	14.75	2.75	2.25	0.719	0.531	5.250	2.000	2.00	18.75	9.25	11.19	8.13	0.81
	4.00	4.750	1.00	14.75	2.75	2.25	0.875	0.375	6.438	2.000	2.00	18.75	9.25	11.19	8.13	0.81
	5.50	6.250	1.00	14.75	2.75	2.25	0.875	0.375	8.375	2.000	2.00	18.75	9.25	11.19	8.13	0.81

+ Plus Stroke

Mounting style and installation dimensions – RE/RF17 head trunnion mount



Bore	ØMM Rods	B +.000/ -.002	C	E	G	J	F	V	RM	TD+/ - .001	TL	UT	XG*	ZB*	LB*	K MAX.
1.50	0.63	1.125	0.38	2.00	1.50	1.00	0.375	0.250	-	1.000	1.00	4.00	1.75	4.88	3.63	0.25
	1.00	1.500	0.50	2.00	1.50	1.00	0.375	0.500	-	1.000	1.00	4.00	2.13	5.25	3.63	0.25
2.00	0.63	1.125	0.38	2.50	1.50	1.00	0.375	0.250	-	1.000	1.00	4.50	1.75	4.94	3.63	0.31
	1.00	1.500	0.50	2.50	1.50	1.00	0.375	0.500	-	1.000	1.00	4.50	2.13	5.31	3.63	0.31
	1.38	2.000	0.63	2.50	1.50	1.00	0.375	0.625	-	1.000	1.00	4.50	2.38	5.56	3.63	0.31
2.50	0.63	1.125	0.38	3.00	1.50	1.00	0.375	0.281	2.375	1.000	1.00	5.00	1.75	5.06	3.75	0.31
	1.00	1.500	0.50	3.00	1.50	1.00	0.343	0.531	2.484	1.000	1.00	5.00	2.13	5.44	3.75	0.31
	1.38	2.000	0.63	3.00	1.50	1.00	0.375	0.625	-	1.000	1.00	5.00	2.38	5.69	3.75	0.31
	1.75	2.375	0.75	3.00	1.50	1.00	0.375	0.750	-	1.000	1.00	5.00	2.63	5.94	3.75	0.31
3.25	1.00	1.500	0.50	3.75	1.75	1.25	0.625	0.375	2.625	1.000	1.00	5.75	2.25	6.00	4.25	0.38
	1.38	2.000	0.63	3.75	1.75	1.25	0.593	0.406	3.250	1.000	1.00	5.75	2.50	6.25	4.25	0.38
	1.75	2.375	0.75	3.75	1.75	1.25	0.625	0.500	-	1.000	1.00	5.75	2.75	6.50	4.25	0.38
	2.00	2.625	0.88	3.75	1.75	1.25	0.625	0.500	-	1.000	1.00	5.75	2.88	6.63	4.25	0.38
4.00	1.00	1.500	0.50	4.50	1.75	1.25	0.625	0.375	2.625	1.000	1.00	6.50	2.25	6.00	4.25	0.38
	1.38	2.000	0.63	4.50	1.75	1.25	0.593	0.406	3.250	1.000	1.00	6.50	2.50	6.25	4.25	0.38
	1.75	2.375	0.75	4.50	1.75	1.25	0.593	0.531	3.875	1.000	1.00	6.50	2.75	6.50	4.25	0.38
	2.00	2.625	0.88	4.50	1.75	1.25	0.593	0.531	4.000	1.000	1.00	6.50	2.88	6.63	4.25	0.38
	2.50	3.125	1.00	4.50	1.75	1.25	0.625	0.625	-	1.000	1.00	6.50	3.13	6.88	4.25	0.38
5.00	1.00	1.500	0.50	5.50	1.75	1.25	0.625	0.375	2.625	1.000	1.00	7.50	2.25	6.31	4.50	0.44
	1.38	2.000	0.63	5.50	1.75	1.25	0.593	0.406	3.250	1.000	1.00	7.50	2.50	6.56	4.50	0.44
	1.75	2.375	0.75	5.50	1.75	1.25	0.593	0.531	3.875	1.000	1.00	7.50	2.75	6.81	4.50	0.44
	2.00	2.625	0.88	5.50	1.75	1.25	0.593	0.531	4.000	1.000	1.00	7.50	2.88	6.94	4.50	0.44
	2.50	3.125	1.00	5.50	1.75	1.25	0.593	0.656	4.438	1.000	1.00	7.50	3.13	7.19	4.50	0.44
	3.00	3.750	1.00	5.50	1.75	1.25	0.625	0.625	-	1.000	1.00	7.50	3.13	7.19	4.50	0.44
	3.50	4.250	1.00	5.50	1.75	1.25	0.625	0.625	-	1.000	1.00	7.50	3.13	7.19	4.50	0.44
6.00	1.38	2.000	0.63	6.50	2.00	1.50	0.750	0.406	3.250	1.375	1.380	9.25	2.63	7.06	5.00	0.44
	1.75	2.375	0.75	6.50	2.00	1.50	0.593	0.531	3.875	1.375	1.380	9.25	2.88	7.31	5.00	0.44
	2.50	3.125	1.00	6.50	2.00	1.50	0.593	0.656	4.438	1.375	1.380	9.25	3.25	7.69	5.00	0.44
	4.00	4.750	1.00	6.50	2.00	1.50	0.719	0.531	6.000	1.375	1.380	9.25	3.25	7.69	5.00	0.44
8.00	1.38	2.000	0.63	8.50	2.00	1.50	0.594	0.406	3.250	1.375	1.380	11.25	2.63	7.31	5.13	0.56
	1.75	2.375	0.75	8.50	2.00	1.50	0.594	0.531	3.875	1.375	1.380	11.25	2.875	7.56	5.13	0.56
	3.50	4.250	1.00	8.50	2.00	1.50	0.719	0.531	5.625	1.375	1.380	11.25	3.25	7.94	5.13	0.56
	5.50	6.250	1.00	8.50	2.00	1.50	0.750	0.500	7 SQ	1.375	1.75	11.25	3.25	7.94	5.13	0.56

Mounting style and installation dimensions – RE/RF17 head trunnion mount

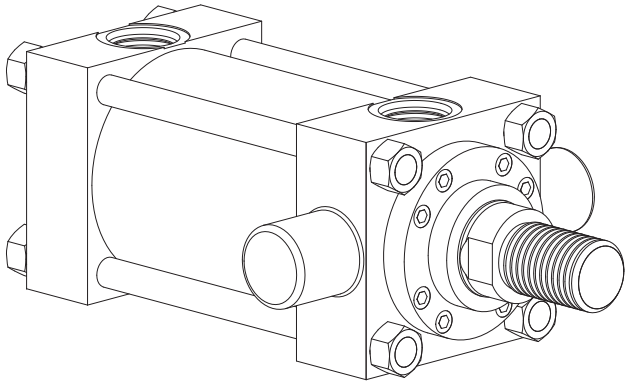
These mounts are for applications in which the machine member travels in a curved path in one plane.

Either mount can be used both in compression (push) and tension (pull) applications. When used in compression applications, head trunnion mounts provide a longer maximum stroke than cap trunnion mounts.

NOTE
For strokes in excess of 24 inches, see "Stop tube selection" on page 59.

The trunnion pins are an integral part of the head and can be sleeved to provide an extremely tight fit to the mating machine member and permit curvilinear motion.

It is recommended that rigidly mounted pillow blocks with bearings at least as long as the trunnion pins be used. The pillow blocks should be installed as close to the shoulder of the trunnion as possible. Refer to the below table for pressure rating.



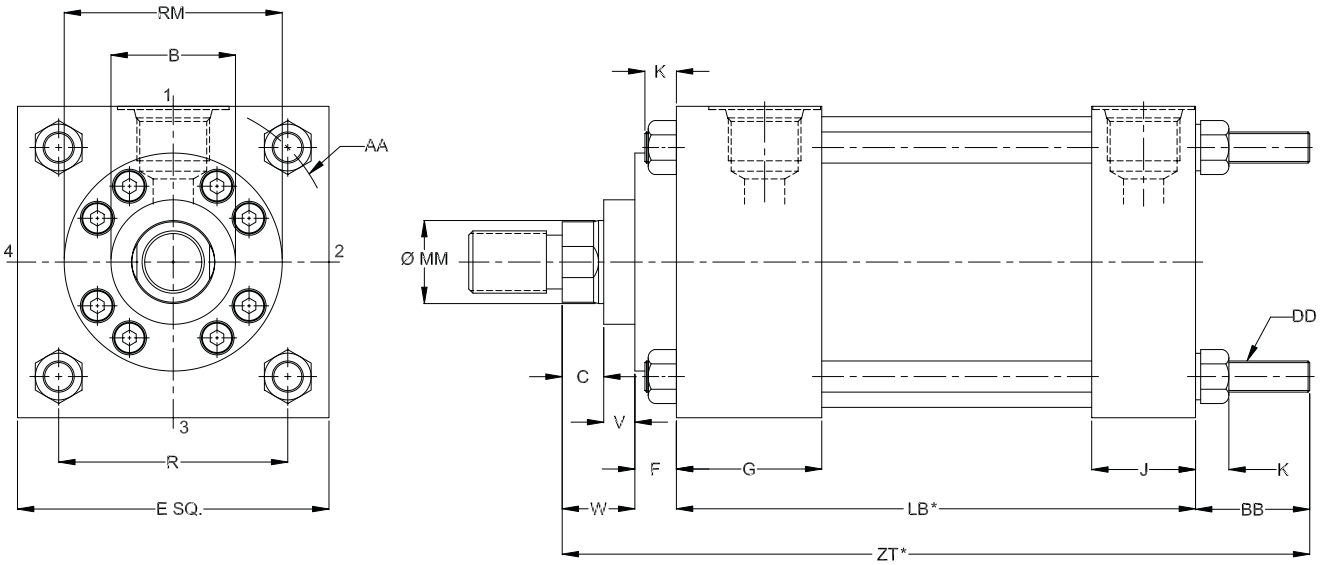
Bore Size	Recommended Pressure Rating (psi)
1.50" - 3.25"	1500
4.00"	1000
5.00" - 6.00"	750
8.00"	500
10.00"	500
12.00"	400
14.00"	400

WARNING
Failure to mount the cylinder correctly on the frame may result in death, bodily injury and/or property damage.

Bore	ØMM Rods	B +.000/ -.002	C	E	G	J	F	V	RM	TD+/ - .001	TL	UT	XG*	ZB*	LB*	K MAX.
10.00	1.75	2.000	0.75	10.63	2.25	2.00	0.594	0.531	3.875	1.750	1.75	14.13	3.00	8.94	6.38	0.69
	2.00	2.625	0.88	10.63	2.25	2.00	0.594	0.531	4.000	1.750	1.75	14.13	3.13	9.06	6.38	0.69
	3.50	4.250	1.00	10.63	2.25	2.00	0.719	0.531	5.625	1.750	1.75	14.13	3.38	9.31	6.38	0.69
	5.50	6.250	1.00	10.63	2.25	2.00	0.875	0.375	8.375	1.750	1.75	14.13	3.38	9.31	6.38	0.69
12.00	2.00	2.625	0.88	12.75	2.25	2.00	0.594	0.531	4.000	1.750	1.75	16.25	3.13	9.56	6.88	0.69
	2.50	3.125	1.00	12.75	2.25	2.00	0.594	0.656	4.438	1.750	1.75	16.25	3.38	9.81	6.88	0.69
	4.00	4.750	1.00	12.75	2.25	2.00	0.875	0.375	6.438	1.750	1.75	16.25	3.38	9.81	6.88	0.69
	5.50	6.250	1.00	12.75	2.25	2.00	0.875	0.375	8.375	1.750	1.75	16.25	3.38	9.81	6.88	0.69
14.00	2.50	3.125	1.00	14.75	2.75	2.25	0.594	0.656	4.438	2.000	2.00	18.75	3.63	11.19	8.13	0.81
	3.00	3.750	1.00	14.75	2.75	2.25	0.719	0.531	5.250	2.000	2.00	18.75	3.63	11.19	8.13	0.81
	4.00	4.750	1.00	14.75	2.75	2.25	0.875	0.375	6.438	2.000	2.00	18.75	3.63	11.19	8.13	0.81
	5.50	6.250	1.00	14.75	2.75	2.25	0.875	0.375	8.375	2.000	2.00	18.75	3.63	11.19	8.13	0.81

* Plus Stroke

Mounting style and installation dimensions – RE/RF21 cap end extended tie rod mount



Bore	ØMM Rods	B +.000/ -.002	C	E	G	J	F	V	RM	DD	BB	AA	R	ZT*	LB*	K MAX.
1.50	0.63	1.125	0.38	2.00	1.50	1.00	0.375	0.250	-	1/4-28	1.00	2.02	1.43	5.63	3.63	0.25
	1.00	1.500	0.50	2.00	1.50	1.00	0.375	0.500	-	14/-28	1.00	2.02	1.43	6.00	3.63	0.25
2.00	0.63	1.125	0.38	2.50	1.50	1.00	0.375	0.250	-	5/16-24	1.13	2.60	1.84	5.75	3.63	0.31
	1.00	1.500	0.50	2.50	1.50	1.00	0.375	0.500	-	5/16-24	1.13	2.60	1.84	6.13	3.63	0.31
	1.38	2.000	0.63	2.50	1.50	1.00	0.375	0.625	-	5/16-24	1.13	2.60	1.84	6.38	3.63	0.31
2.50	0.63	1.125	0.38	3.00	1.50	1.00	0.343	0.281	2.375	5/16-24	1.13	3.10	2.19	5.88	3.75	0.31
	1.00	1.500	0.50	3.00	1.50	1.00	0.343	0.531	2.484	5/16-24	1.13	3.10	2.19	6.25	3.75	0.31
	1.38	2.000	0.63	3.00	1.50	1.00	0.375	0.625	-	5/16-24	1.13	3.10	2.19	6.50	3.75	0.31
	1.75	2.375	0.75	3.00	1.50	1.00	0.375	0.750	-	5/16-24	1.13	3.10	2.19	6.75	3.75	0.31
3.25	1.00	1.500	0.50	3.75	1.75	1.25	0.500	0.375	2.625	3/8-24	1.38	3.90	2.76	7.00	4.25	0.38
	1.38	2.000	0.63	3.75	1.75	1.25	0.594	0.406	3.250	3/8-24	1.38	3.90	2.76	7.25	4.25	0.38
	1.75	2.375	0.75	3.75	1.75	1.25	0.625	0.500	-	3/8-24	1.38	3.90	2.76	7.50	4.25	0.38
	2.00	2.625	0.88	3.75	1.75	1.25	0.625	0.500	-	3/8-24	1.38	3.90	2.76	7.63	4.25	0.38
4.00	1.00	1.500	0.50	4.50	1.75	1.25	0.500	0.375	2.625	3/8-24	1.38	4.70	3.32	7.00	4.25	0.38
	1.38	2.000	0.63	4.50	1.75	1.25	0.594	0.406	3.250	3/8-24	1.38	4.70	3.32	7.25	4.25	0.38
	1.75	2.375	0.75	4.50	1.75	1.25	0.594	0.531	3.875	3/8-24	1.38	4.70	3.32	7.50	4.25	0.38
	2.00	2.625	0.88	4.50	1.75	1.25	0.594	0.531	4.000	3/8-24	1.38	4.70	3.32	7.63	4.25	0.38
	2.50	3.125	1.00	4.50	1.75	1.25	0.625	0.625	-	3/8-24	1.38	4.70	3.32	7.88	4.25	0.38
5.00	1.00	1.500	0.50	5.50	1.75	1.25	0.500	0.375	2.625	1/2-20	1.81	5.80	4.10	7.69	4.50	0.44
	1.38	2.000	0.63	5.50	1.75	1.25	0.594	0.406	3.250	1/2-20	1.81	5.80	4.10	7.94	4.50	0.44
	1.75	2.375	0.75	5.50	1.75	1.25	0.594	0.531	3.875	1/2-20	1.81	5.80	4.10	8.19	4.50	0.44
	2.00	2.625	0.88	5.50	1.75	1.25	0.594	0.531	4.000	1/2-20	1.81	5.80	4.10	8.31	4.50	0.44
	2.50	3.125	1.00	5.50	1.75	1.25	0.594	0.656	4.438	1/2-20	1.81	5.80	4.10	8.56	4.50	0.44
	3.00	3.750	1.00	5.50	1.75	1.25	0.625	0.625	-	1/2-20	1.81	5.80	4.10	8.56	4.50	0.44
	3.50	4.250	1.00	5.50	1.75	1.25	0.625	0.625	-	1/2-20	1.81	5.80	4.10	8.56	4.50	0.44
6.00	1.38	2.000	0.63	6.50	2.00	1.50	0.594	0.406	3.250	1/2-20	1.81	6.90	4.88	8.44	5.00	0.44
	1.75	2.375	0.75	6.50	2.00	1.50	0.594	0.531	3.875	1/2-20	1.81	6.90	4.88	8.69	5.00	0.44
	2.50	3.125	1.00	6.50	2.00	1.50	0.594	0.656	4.438	1/2-20	1.81	6.90	4.88	9.06	5.00	0.44
	4.00	4.750	1.00	6.50	2.00	1.50	0.719	0.531	6.000	1/2-20	1.81	6.90	4.88	9.06	5.00	0.44

Mounting style and installation dimensions – RE/RF21 cap end extended tie rod mount

These mounts are for straight line force transfer applications. The cap extended tie rod mount is recommended for compression (pushing) applications.

The mounting surface should be flat and the frame on which the cylinder is mounted *must* be sufficiently rigid to resist bending moments.

Once fitted into the application framework, mounting nuts should be torqued to the values listed in the table (right).

Tie Rod Torque Values

Torque values in the following table apply to all mounting styles.

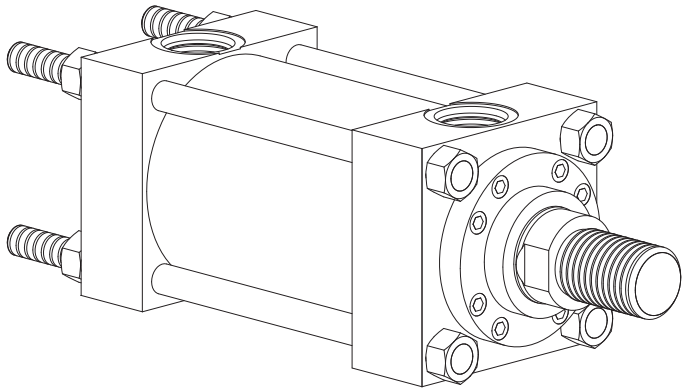
Bore	Tie Rod Torque Ft-Lb	Nm
1.50	10	14
2.00	18	24
2.50	18	24
3.25	30	41
4.00	30	41
5.00	80	108
6.00	80	108
8.00	190	258
10.00	300	407
12.00	300	407
14.00	550	746

NOTE

For strokes in excess of 30 inches, see "Stop tube selection" on page 59.

WARNING

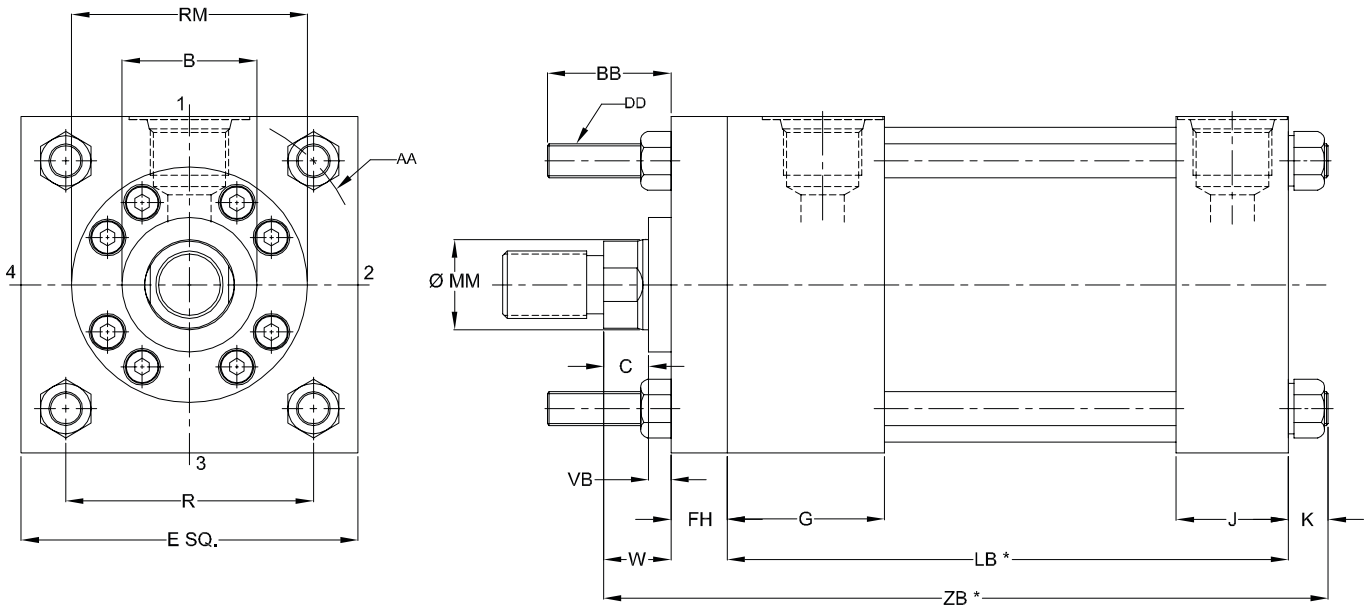
Failure to mount the cylinder correctly on the frame may result in death, bodily injury and/or property damage.



Bore	ØMM Rods	B +.000/ -.002	C	E	G	J	F	V	RM	DD	BB	AA	R	ZT*	LB*	K MAX.
8.00	1.38	2.000	0.63	8.50	2.00	1.50	0.594	0.406	3.250	5/8-18	2.31	9.1	6.44	9.06	5.13	0.56
	1.75	2.375	0.75	8.50	2.00	1.50	0.594	0.531	3.875	5/8-18	2.31	9.1	6.44	9.31	5.13	0.56
	3.50	4.250	1.00	8.50	2.00	1.50	0.719	0.531	5.625	5/8-18	2.31	9.1	6.44	9.69	5.13	0.56
	5.50	6.250	1.00	8.50	2.00	1.50	0.750	0.500	7 SQ	5/8-18	2.31	9.1	6.44	9.69	5.13	0.56
10.00	1.75	2.000	0.75	10.63	2.25	2.00	0.594	0.531	3.875	3/4-16	2.69	11.2	7.92	10.94	6.38	0.69
	2.00	2.625	0.88	10.63	2.25	2.00	0.594	0.531	4.000	3/4-16	2.69	11.2	7.92	11.06	6.38	0.69
	3.50	4.250	1.00	10.63	2.25	2.00	0.719	0.531	5.625	3/4-16	2.69	11.2	7.92	11.31	6.38	0.69
	5.50	6.250	1.00	10.63	2.25	2.00	0.875	0.375	8.375	3/4-16	2.69	11.2	7.92	11.31	6.38	0.69
12.00	2.00	2.625	0.88	12.75	2.25	2.00	0.594	0.531	4.000	3/4-16	2.69	13.3	9.40	11.56	6.88	0.69
	2.50	3.125	1.00	12.75	2.25	2.00	0.594	0.656	4.438	3/4-16	2.69	13.3	9.40	11.81	6.88	0.69
	4.00	4.750	1.00	12.75	2.25	2.00	0.875	0.375	6.438	3/4-16	2.69	13.3	9.40	11.81	6.88	0.69
	5.50	6.250	1.00	12.75	2.25	2.00	0.875	0.375	8.375	3/4-16	2.69	13.3	9.40	11.81	6.88	0.69
14.00	2.50	3.125	1.00	14.75	2.75	2.25	0.594	0.656	4.438	7/8-14	3.19	15.4	9.40	13.56	8.13	0.81
	3.00	3.750	1.00	14.75	2.75	2.25	0.719	0.531	5.250	7/8-14	3.19	15.4	10.90	13.56	8.13	0.81
	4.00	4.750	1.00	14.75	2.75	2.25	0.875	0.375	6.438	7/8-14	3.19	15.4	10.90	13.56	8.13	0.81
	5.50	6.250	1.00	14.75	2.75	2.25	0.875	0.375	8.375	7/8-14	3.19	15.4	10.90	13.56	8.13	0.81

* Plus Stroke

Mounting style and installation dimensions – RE/RF22 head end extended tie rod mount



Bore	ØMM Rods	B +.001/ -.003	C	E	G	J	FH	VB	W	RM	DD	BB	AA	R	ZB*	LB*	K MAX.
1.50	0.63	1.125	0.38	2.00	1.50	1.00	0.375	0.250	0.625	-	1/4-28	1.00	2.02	1.43	4.88	3.63	0.25
	1.00	1.500	0.50	2.00	1.50	1.00	0.375	0.500	1.000	-	14/-28	1.00	2.02	1.43	5.25	3.63	0.25
2.00	0.63	1.125	0.38	2.50	1.50	1.00	0.375	0.250	0.625	-	5/16-24	1.13	2.60	1.84	4.94	3.63	0.31
	1.00	1.500	0.50	2.50	1.50	1.00	0.375	0.500	1.000	-	5/16-24	1.13	2.60	1.84	5.31	3.63	0.31
	1.38	2.000	0.63	2.50	1.50	1.00	0.375	0.625	1.250	-	5/16-24	1.13	2.60	1.84	5.56	3.63	0.31
2.50	0.63	1.125	0.38	3.00	1.50	1.00	0.375	0.250	0.625	2.375	5/16-24	1.13	3.10	2.19	5.06	3.75	0.31
	1.00	1.500	0.50	3.00	1.50	1.00	0.375	0.500	1.000	2.484	5/16-24	1.13	3.10	2.19	5.44	3.75	0.31
	1.38	2.000	0.63	3.00	1.50	1.00	0.375	0.625	1.250	-	5/16-24	1.13	3.10	2.19	5.69	3.75	0.31
	1.75	2.375	0.75	3.00	1.50	1.00	0.375	0.750	1.500	-	5/16-24	1.13	3.10	2.19	5.94	3.75	0.31
3.25	1.00	1.500	0.50	3.75	1.75	1.25	0.625	0.250	0.750	2.625	3/8-24	1.38	3.90	2.76	6.00	4.25	0.38
	1.38	2.000	0.63	3.75	1.75	1.25	0.625	0.375	1.000	3.250	3/8-24	1.38	3.90	2.76	6.25	4.25	0.38
	1.75	2.375	0.75	3.75	1.75	1.25	0.625	0.500	1.250	-	3/8-24	1.38	3.90	2.76	6.50	4.25	0.38
	2.00	2.625	0.88	3.75	1.75	1.25	0.625	0.500	1.375	-	3/8-24	1.38	3.90	2.76	6.63	4.25	0.38
4.00	1.00	1.500	0.50	4.50	1.75	1.25	0.625	0.250	0.750	2.625	3/8-24	1.38	4.70	3.32	6.00	4.25	0.38
	1.38	2.000	0.63	4.50	1.75	1.25	0.625	0.375	1.000	3.250	3/8-24	1.38	4.70	3.32	6.25	4.25	0.38
	1.75	2.375	0.75	4.50	1.75	1.25	0.625	0.500	1.250	3.875	3/8-24	1.38	4.70	3.32	6.50	4.25	0.38
	2.00	2.625	0.88	4.50	1.75	1.25	0.625	0.500	1.375	4.000	3/8-24	1.38	4.70	3.32	6.63	4.25	0.38
	2.50	3.125	1.00	4.50	1.75	1.25	0.625	0.625	1.625	-	3/8-24	1.38	4.70	3.32	6.88	4.25	0.38
5.00	1.00	1.500	0.50	5.50	1.75	1.25	0.625	0.250	0.750	2.625	1/2-20	1.81	5.80	4.10	6.31	4.50	0.44
	1.38	2.000	0.63	5.50	1.75	1.25	0.625	0.375	1.000	3.250	1/2-20	1.81	5.80	4.10	6.56	4.50	0.44
	1.75	2.375	0.75	5.50	1.75	1.25	0.625	0.500	1.250	3.875	1/2-20	1.81	5.80	4.10	6.81	4.50	0.44
	2.00	2.625	0.88	5.50	1.75	1.25	0.625	0.500	1.375	4.000	1/2-20	1.81	5.80	4.10	6.94	4.50	0.44
	2.50	3.125	1.00	5.50	1.75	1.25	0.625	0.625	1.625	4.438	1/2-20	1.81	5.80	4.10	7.19	4.50	0.44
	3.00	3.750	1.00	5.50	1.75	1.25	0.625	0.625	1.625	-	1/2-20	1.81	5.80	4.10	7.19	4.50	0.44
	3.50	4.250	1.00	5.50	1.75	1.25	0.625	0.625	1.625	-	1/2-20	1.81	5.80	4.10	7.19	4.50	0.44
6.00	1.38	2.000	0.63	6.50	2.00	1.50	0.750	0.250	0.875	3.250	1/2-20	1.81	6.90	4.88	7.06	5.00	0.44
	1.75	2.375	0.75	6.50	2.00	1.50	0.750	0.375	1.125	3.875	1/2-20	1.81	6.90	4.88	7.31	5.00	0.44
	2.50	3.125	1.00	6.50	2.00	1.50	0.750	0.500	1.500	4.438	1/2-20	1.81	6.90	4.88	7.69	5.00	0.44
	4.00	4.750	1.00	6.50	2.00	1.50	0.750	0.500	1.500	6.000	1/2-20	1.81	6.90	4.88	7.69	5.00	0.44

Mounting style and installation dimensions – RE/RF22 head end extended tie rod mount

These mounts are for straight line force transfer applications.The head extended tie rod mount is recommended for tension (pulling) applications.

The mounting surface should be flat and the frame on which the cylinder is mounted *must* be sufficiently rigid to resist bending moments.

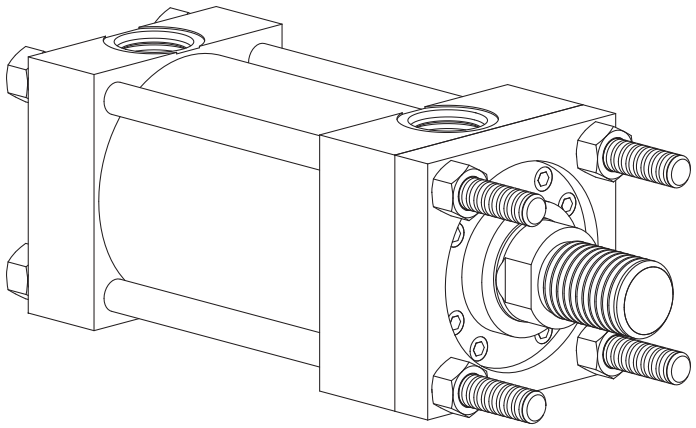
On head mount applications, the cartridge provides a pilot diameter to align the rod in the mounting frame.

Once fitted into the application framework, mounting nuts should be torqued to the values listed in the table on page 37.

NOTE
For strokes in excess of 30 inches, see "Stop tube selection" on page 59.

WARNING
The force on the rod should be perpendicular to the mounting surface and coincide with the centerline of the piston rod. For eccentric loads, the larger of the two available rods in each bore size is recommended. Stop tubes should also be considered.

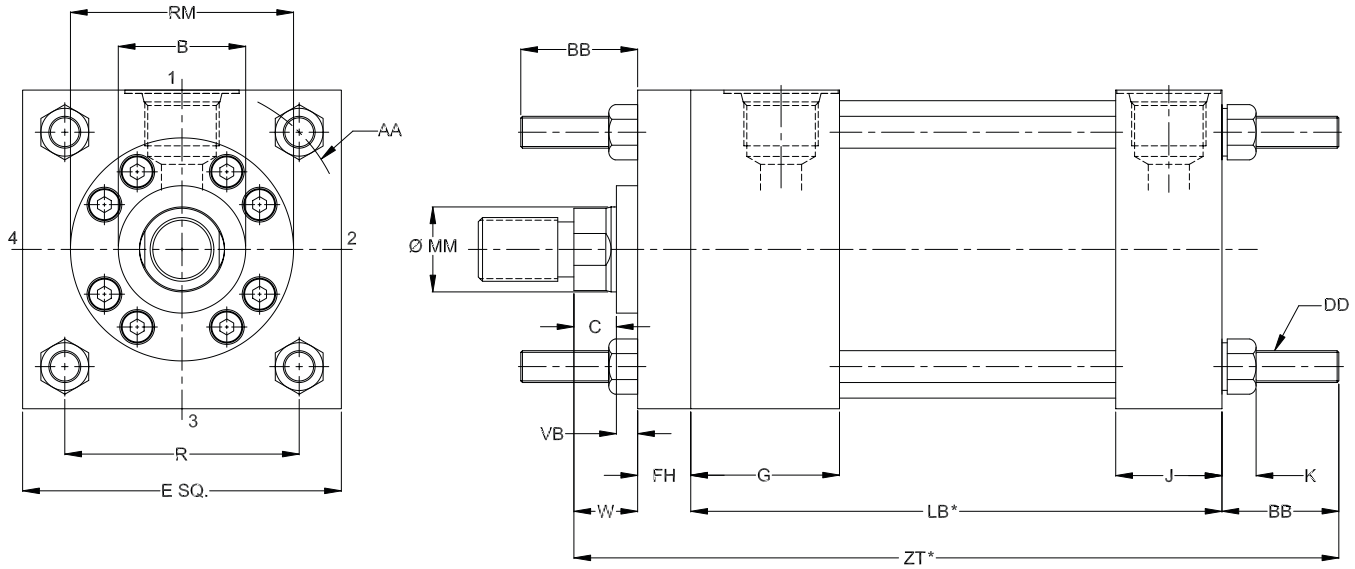
WARNING
Failure to mount the cylinder correctly on the frame may result in death, bodily injury and/or property damage.



Bore	ØMM Rods	B +.001/ -.003	C	E	G	J	FH	VB	W	RM	DD	BB	AA	R	ZB*	LB*	K MAX.
8.00	1.38	2.000	0.63	8.50	2.00	1.50	0.594	0.406	1.031	3.250	5/8-18	2.31	9.1	6.44	7.31	5.13	0.56
	1.75	2.375	0.75	8.50	2.00	1.50	0.594	0.531	1.281	3.875	5/8-18	2.31	9.1	6.44	7.56	5.13	0.56
	3.50	4.250	1.00	8.50	2.00	1.50	0.719	0.531	1.531	5.625	5/8-18	2.31	9.1	6.44	7.94	5.13	0.56
	5.50	6.250	1.00	8.50	2.00	1.50	0.750	0.500	1.500	7 SQ.	5/8-18	2.31	9.1	6.44	7.94	5.13	0.56
10.00	1.75	2.000	0.75	10.63	2.25	2.00	0.594	0.531	1.281	3.875	3/4-16	2.69	11.2	7.92	8.94	6.38	0.69
	2.00	2.625	0.88	10.63	2.25	2.00	0.594	0.531	1.406	4.000	3/4-16	2.69	11.2	7.92	9.06	6.38	0.69
	3.50	4.250	1.00	10.63	2.25	2.00	0.719	0.531	1.531	5.625	3/4-16	2.69	11.2	7.92	9.31	6.38	0.69
	4.00	4.750	1.00	10.63	2.25	2.00	0.875	0.375	1.375	6.438	3/4-16	2.69	11.2	7.92	9.31	6.38	0.69
	5.50	6.250	1.00	10.63	2.25	2.00	0.875	0.375	1.375	8.375	3/4-16	2.69	11.2	7.92	9.31	6.38	0.69
12.00	2.00	2.625	0.88	12.75	2.25	2.00	0.594	0.531	1.406	4.000	3/4-16	2.69	13.3	9.40	9.56	6.88	0.69
	2.50	3.125	1.00	12.75	2.25	2.00	0.594	0.656	1.656	4.438	3/4-16	2.69	13.3	9.40	9.81	6.88	0.69
	4.00	4.750	1.00	12.75	2.25	2.00	0.875	0.375	1.375	6.438	3/4-16	2.69	13.3	9.40	9.81	6.88	0.69
	5.50	6.250	1.00	12.75	2.25	2.00	0.875	0.375	1.375	8.375	3/4-16	2.69	13.3	9.40	9.81	6.88	0.69
14.00	2.50	3.125	1.00	14.75	2.75	2.25	0.594	0.656	1.656	4.438	7/8-14	3.19	15.4	9.40	11.19	8.13	0.81
	3.00	3.750	1.00	14.75	2.75	2.25	0.719	0.531	1.531	5.250	7/8-14	3.19	15.4	10.90	11.19	8.13	0.81
	4.00	4.750	1.00	14.75	2.75	2.25	0.875	0.375	1.375	6.438	7/8-14	3.19	15.4	10.90	11.19	8.13	0.81
	5.50	6.250	1.00	14.75	2.75	2.25	0.875	0.375	1.375	8.375	7/8-14	3.19	15.4	10.90	11.19	8.13	0.81

* Plus Stroke

Mounting style and installation dimensions – RE/RF23 both end extended tie rod mount



Bore	ØMM Rods	B +.001/ -.003	C	E	G	J	FH	VB	W	RM	DD	BB	AA	R	ZT*	LB*	K MAX.
1.50	0.63	1.125	0.38	2.00	1.50	1.00	0.375	0.250	0.625	-	1/4-28	1.00	2.02	1.43	5.63	3.63	0.25
	1.00	1.500	0.50	2.00	1.50	1.00	0.375	0.500	1.000	-	14/-28	1.00	2.02	1.43	6.00	3.63	0.25
2.00	0.63	1.125	0.38	2.50	1.50	1.00	0.375	0.250	0.625	-	5/16-24	1.13	2.60	1.84	5.75	3.63	0.31
	1.00	1.500	0.50	2.50	1.50	1.00	0.375	0.500	1.000	-	5/16-24	1.13	2.60	1.84	6.13	3.63	0.31
	1.38	2.000	0.63	2.50	1.50	1.00	0.375	0.625	1.250	-	5/16-24	1.13	2.60	1.84	6.38	3.63	0.31
2.50	0.63	1.125	0.38	3.00	1.50	1.00	0.375	0.250	0.625	2.375	5/16-24	1.13	3.10	2.19	5.88	3.75	0.31
	1.00	1.500	0.50	3.00	1.50	1.00	0.375	0.500	1.000	2.484	5/16-24	1.13	3.10	2.19	6.25	3.75	0.31
	1.38	2.000	0.63	3.00	1.50	1.00	0.375	0.625	1.250	-	5/16-24	1.13	3.10	2.19	6.50	3.75	0.31
	1.75	2.375	0.75	3.00	1.50	1.00	0.375	0.750	1.500	-	5/16-24	1.13	3.10	2.19	6.75	3.75	0.31
3.25	1.00	1.500	0.50	3.75	1.75	1.25	0.625	0.250	0.750	2.625	3/8-24	1.38	3.90	2.76	7.00	4.25	0.38
	1.38	2.000	0.63	3.75	1.75	1.25	0.625	0.375	1.000	3.250	3/8-24	1.38	3.90	2.76	7.25	4.25	0.38
	1.75	2.375	0.75	3.75	1.75	1.25	0.625	0.500	1.250	-	3/8-24	1.38	3.90	2.76	7.50	4.25	0.38
	2.00	2.625	0.88	3.75	1.75	1.25	0.625	0.500	1.375	-	3/8-24	1.38	3.90	2.76	7.63	4.25	0.38
4.00	1.00	1.500	0.50	4.50	1.75	1.25	0.625	0.250	0.750	2.625	3/8-24	1.38	4.70	3.32	7.00	4.25	0.38
	1.38	2.000	0.63	4.50	1.75	1.25	0.625	0.375	1.000	3.250	3/8-24	1.38	4.70	3.32	7.25	4.25	0.38
	1.75	2.375	0.75	4.50	1.75	1.25	0.625	0.500	1.250	3.875	3/8-24	1.38	4.70	3.32	7.50	4.25	0.38
	2.00	2.625	0.88	4.50	1.75	1.25	0.625	0.500	1.375	4.000	3/8-24	1.38	4.70	3.32	7.63	4.25	0.38
	2.50	3.125	1.00	4.50	1.75	1.25	0.625	0.625	1.625	-	3/8-24	1.38	4.70	3.32	7.88	4.25	0.38
5.00	1.00	1.500	0.50	5.50	1.75	1.25	0.625	0.250	0.750	2.625	1/2-20	1.81	5.80	4.10	7.69	4.50	0.44
	1.38	2.000	0.63	5.50	1.75	1.25	0.625	0.375	1.000	3.250	1/2-20	1.81	5.80	4.10	7.94	4.50	0.44
	1.75	2.375	0.75	5.50	1.75	1.25	0.625	0.500	1.250	3.875	1/2-20	1.81	5.80	4.10	8.19	4.50	0.44
	2.00	2.625	0.88	5.50	1.75	1.25	0.625	0.500	1.375	4.000	1/2-20	1.81	5.80	4.10	8.31	4.50	0.44
	2.50	3.125	1.00	5.50	1.75	1.25	0.625	0.625	1.625	4.438	1/2-20	1.81	5.80	4.10	8.56	4.50	0.44
	3.00	3.750	1.00	5.50	1.75	1.25	0.625	0.625	1.625	-	1/2-20	1.81	5.80	4.10	8.56	4.50	0.44
	3.50	4.250	1.00	5.50	1.75	1.25	0.625	0.625	1.625	-	1/2-20	1.81	5.80	4.10	8.56	4.50	0.44
6.00	1.38	2.000	0.63	6.50	2.00	1.50	0.750	0.250	0.875	3.250	1/2-20	1.81	6.90	4.88	8.44	5.00	0.44
	1.75	2.375	0.75	6.50	2.00	1.50	0.750	0.375	1.125	3.875	1/2-20	1.81	6.90	4.88	8.69	5.00	0.44
	2.50	3.125	1.00	6.50	2.00	1.50	0.750	0.500	1.500	4.438	1/2-20	1.81	6.90	4.88	9.06	5.00	0.44
	4.00	4.750	1.00	6.50	2.00	1.50	0.750	0.500	1.500	6.000	1/2-20	1.81	6.90	4.88	9.06	5.00	0.44
8.00	1.38	2.000	0.63	8.50	2.00	1.50	0.594	0.406	1.031	3.250	5/8-18	2.31	9.1	6.44	9.06	5.13	0.56
	1.75	2.375	0.75	8.50	2.00	1.50	0.594	0.531	1.281	3.875	5/8-18	2.31	9.1	6.44	9.31	5.13	0.56
	3.50	4.250	1.00	8.50	2.00	1.50	0.719	0.531	1.531	5.625	5/8-18	2.31	9.1	6.44	9.69	5.13	0.56
	5.50	6.250	1.00	8.50	2.00	1.50	0.750	0.500	1.500	7 SQ	5/8-18	2.31	9.1	6.44	9.69	5.13	0.56

Mounting style and installation dimensions – RE/RF23 both end extended tie rod mount

These mounts are for straight line force transfer applications. Both ends extended tie rod mounts are suited for tension and compression applications or applications where additional hardware is to be attached to cylinders.

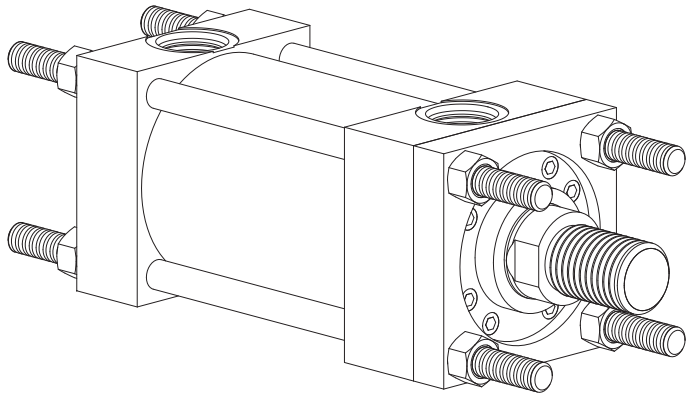
The mounting surface should be flat and the frame on which the cylinder is mounted *must* be sufficiently rigid to resist bending moments.

Once fitted into the application framework, mounting nuts should be torqued to the values listed in the table on page 37.

NOTE
For strokes in excess of 30 inches, see "Stop tube selection" on page 59.

WARNING
The force on the rod should be perpendicular to the mounting surface and coincide with the centerline of the piston rod. For eccentric loads, the larger of the two available rods in each bore size is recommended. Stop tubes should also be considered.

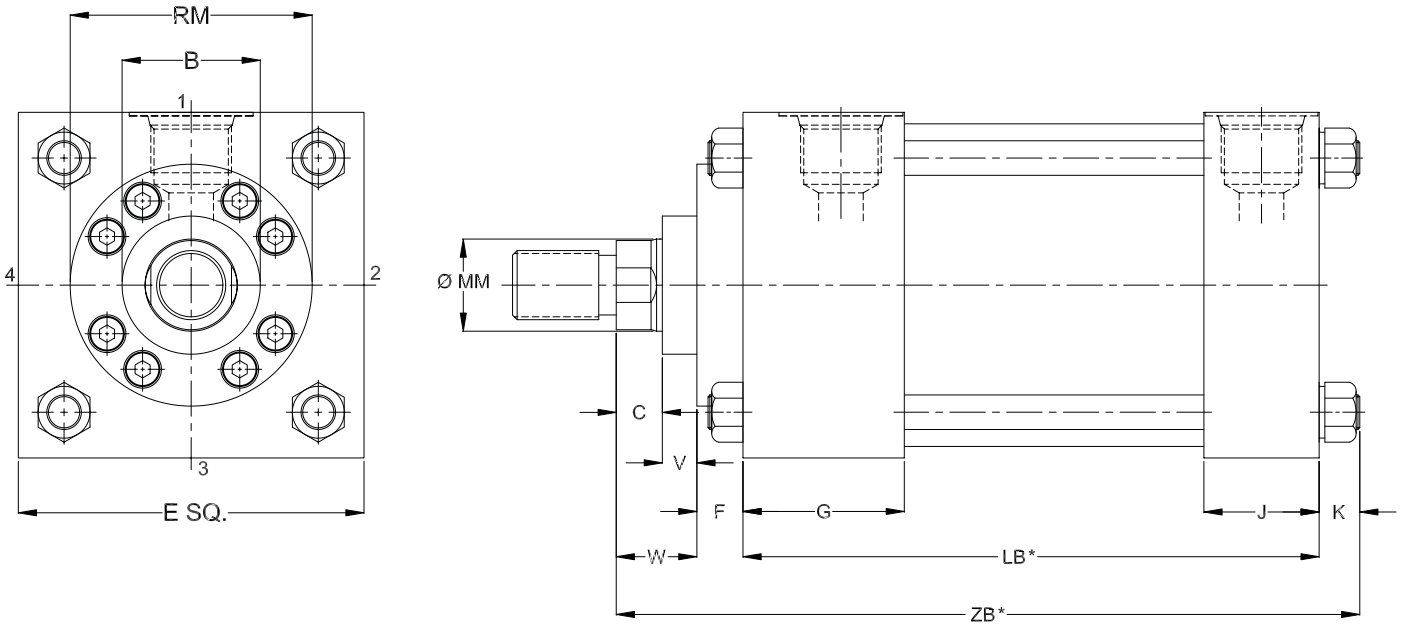
WARNING
Failure to mount the cylinder correctly on the frame may result in death, bodily injury and/or property damage.



Bore	ØMM Rods	B +.001/ -.003	C	E	G	J	FH	VB	W	RM	DD	BB	AA	R	ZT*	LB*	K MAX.
10.00	1.75	2.000	0.75	10.63	2.25	2.00	0.594	0.531	1.281	3.875	3/4-16	2.69	11.2	7.92	10.94	6.38	0.69
	2.00	2.625	0.88	10.63	2.25	2.00	0.594	0.531	1.406	4.000	3/4-16	2.69	11.2	7.92	11.06	6.38	0.69
	3.50	4.250	1.00	10.63	2.25	2.00	0.719	0.531	1.531	5.625	3/4-16	2.69	11.2	7.92	11.31	6.38	0.69
	5.50	6.250	1.00	10.63	2.25	2.00	0.875	0.375	1.375	8.375	3/4-16	2.69	11.2	7.92	11.31	6.38	0.69
12.00	2.00	2.625	0.88	12.75	2.25	2.00	0.594	0.531	1.406	4.000	3/4-16	2.69	13.3	9.40	11.56	6.88	0.69
	2.50	3.125	1.00	12.75	2.25	2.00	0.594	0.656	1.656	4.438	3/4-16	2.69	13.3	9.40	11.81	6.88	0.69
	4.00	4.750	1.00	12.75	2.25	2.00	0.875	0.375	1.375	6.438	3/4-16	2.69	13.3	9.40	11.81	6.88	0.69
	5.50	6.250	1.00	12.75	2.25	2.00	0.875	0.375	1.375	8.375	3/4-16	2.69	13.3	9.40	11.81	6.88	0.69
14.00	2.50	3.125	1.00	14.75	2.75	2.25	0.594	0.656	1.656	4.438	7/8-14	3.19	15.4	9.40	13.56	8.13	0.81
	3.00	3.750	1.00	14.75	2.75	2.25	0.719	0.531	1.531	5.250	7/8-14	3.19	15.4	10.90	13.56	8.13	0.81
	4.00	4.750	1.00	14.75	2.75	2.25	0.875	0.375	1.375	6.438	7/8-14	3.19	15.4	10.90	13.56	8.13	0.81
	5.50	6.250	1.00	14.75	2.75	2.25	0.875	0.375	1.375	8.375	7/8-14	3.19	15.4	10.90	13.56	8.13	0.81

* Plus Stroke

Mounting style and installation dimensions – RE/RF24 no mount



Bore	ØMM Rods	B +.001/ -.003	C	E	G	J	F	V	RM	ZB*	LB*	K MAX.
1.50	0.63	1.125	0.38	2.00	1.50	1.00	0.375	0.250	-	4.88	3.63	0.25
	1.00	1.500	0.50	2.00	1.50	1.00	0.375	0.500	-	5.25	3.63	0.25
2.00	0.63	1.125	0.38	2.50	1.50	1.00	0.375	0.250	-	4.94	3.63	0.31
	1.00	1.500	0.50	2.50	1.50	1.00	0.375	0.500	-	5.31	3.63	0.31
	1.38	2.000	0.63	2.50	1.50	1.00	0.375	0.625	-	5.56	3.63	0.31
2.50	0.63	1.125	0.38	3.00	1.50	1.00	0.343	0.281	2.375	5.06	3.75	0.31
	1.00	1.500	0.50	3.00	1.50	1.00	0.343	0.531	2.484	5.44	3.75	0.31
	1.38	2.000	0.63	3.00	1.50	1.00	0.375	0.625	-	5.69	3.75	0.31
	1.75	2.375	0.75	3.00	1.50	1.00	0.375	0.750	-	5.94	3.75	0.31
3.25	1.00	1.500	0.50	3.75	1.75	1.25	0.500	0.375	2.625	6.00	4.25	0.38
	1.38	2.000	0.63	3.75	1.75	1.25	0.594	0.406	3.250	6.25	4.25	0.38
	1.75	2.375	0.75	3.75	1.75	1.25	0.625	0.500	-	6.50	4.25	0.38
	2.00	2.625	0.88	3.75	1.75	1.25	0.625	0.500	-	6.63	4.25	0.38
4.00	1.00	1.500	0.50	4.50	1.75	1.25	0.500	0.375	2.625	6.00	4.25	0.38
	1.38	2.000	0.63	4.50	1.75	1.25	0.594	0.406	3.250	6.25	4.25	0.38
	1.75	2.375	0.75	4.50	1.75	1.25	0.594	0.531	3.875	6.50	4.25	0.38
	2.00	2.625	0.88	4.50	1.75	1.25	0.594	0.531	4.000	6.63	4.25	0.38
	2.50	3.125	1.00	4.50	1.75	1.25	0.625	0.625	-	6.88	4.25	0.38
5.00	1.00	1.500	0.50	5.50	1.75	1.25	0.500	0.375	2.625	6.31	4.50	0.44
	1.38	2.000	0.63	5.50	1.75	1.25	0.594	0.406	3.250	6.56	4.50	0.44
	1.75	2.375	0.75	5.50	1.75	1.25	0.594	0.531	3.875	6.81	4.50	0.44
	2.00	2.625	0.88	5.50	1.75	1.25	0.594	0.531	4.000	6.94	4.50	0.44
	2.50	3.125	1.00	5.50	1.75	1.25	0.594	0.656	4.438	7.19	4.50	0.44
	3.00	3.750	1.00	5.50	1.75	1.25	0.625	0.625	-	7.19	4.50	0.44
	3.50	4.250	1.00	5.50	1.75	1.25	0.625	0.625	-	7.19	4.50	0.44
6.00	1.38	2.000	0.63	6.50	2.00	1.50	0.594	0.406	3.250	7.06	5.00	0.44
	1.75	2.375	0.75	6.50	2.00	1.50	0.594	0.531	3.875	7.31	5.00	0.44
	2.50	3.125	1.00	6.50	2.00	1.50	0.594	0.656	4.438	7.69	5.00	0.44
	4.00	4.750	1.00	6.50	2.00	1.50	0.719	0.531	6.000	7.69	5.00	0.44

Mounting style and installation dimensions – RE/RF24 no mount

No mounts are for moving loads on a flat guided surface such as carriage rails.

Mounting surface should be flat and parallel to centerline of the piston rod.

The load should be guided to traverse along the centerline of the piston rod.

The frame on which the cylinder is mounted *must* be sufficiently rigid to resist bending moments.

NOTE
For strokes in excess of 30 inches, see "Stop tube selection" on page 59.

WARNING
With unsupported loads, the bearing must absorb more force.

For these applications, the larger available rod is recommended, and stop tubes should be considered.

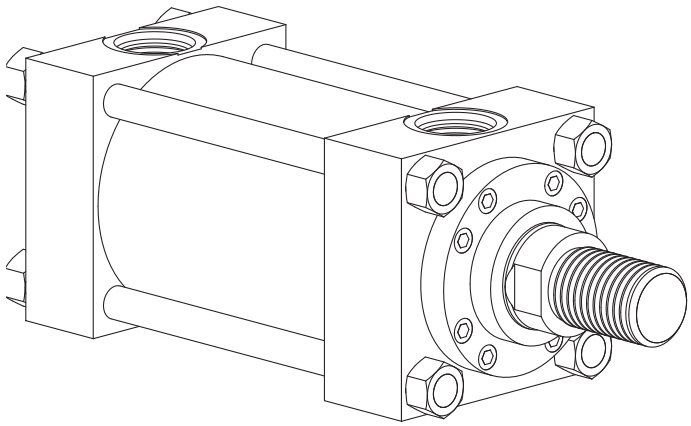
External clamping mechanism on head and cap is required to hold cylinder in place during operation.

Use high tensile socket head cap screws or hex head bolts tightened to the manufacturer's recommended torque in clamping.

For high shock applications, dowel pins or shear keys should be incorporated in the mounting design. For these applications, consider a keyed side lug mount, RE04.

For severe side load applications, consult your local Eaton sales engineer.

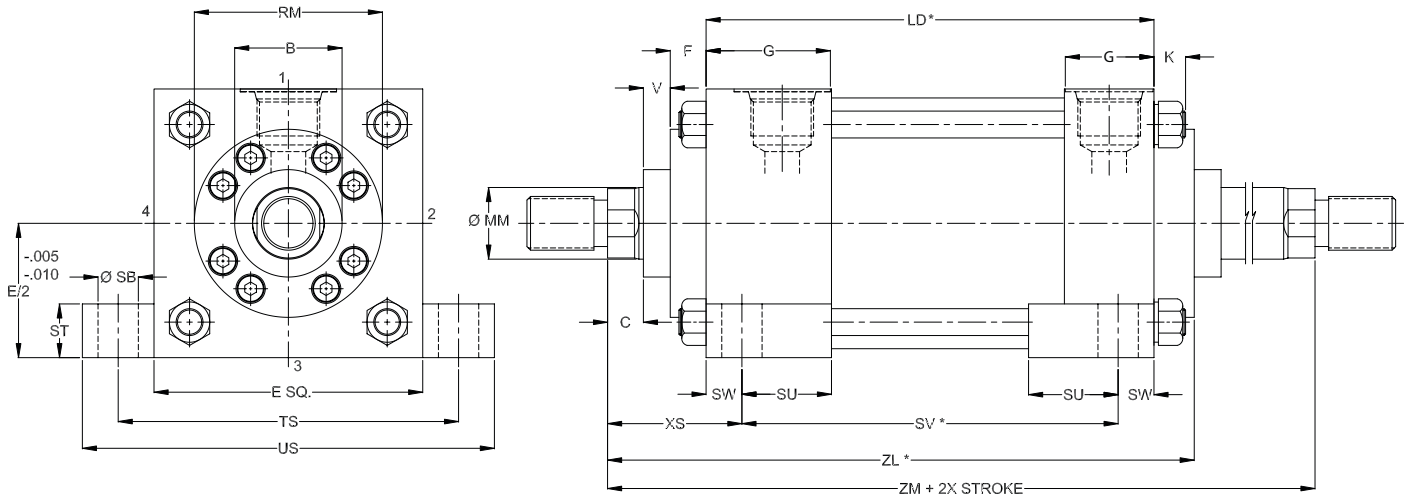
WARNING
Failure to mount the cylinder correctly on the frame may result in death, bodily injury and/or property damage.



Bore	ØMM Rods	B +.001/ -.003	C	E	G	J	F	V	RM	ZB*	LB*	K MAX.
8.00	1.38	2.000	0.63	8.50	2.00	1.50	0.594	0.406	3.250	7.31	5.13	0.56
	1.75	2.375	0.75	8.50	2.00	1.50	0.594	0.531	3.875	7.56	5.13	0.56
	3.50	4.250	1.00	8.50	2.00	1.50	0.719	0.531	5.625	7.94	5.13	0.56
	5.50	6.250	1.00	8.50	2.00	1.50	0.750	0.500	7 SQ	7.94	5.13	0.56
10.00	1.75	2.000	0.75	10.63	2.25	2.00	0.594	0.531	3.875	8.94	6.38	0.69
	2.00	2.625	0.88	10.63	2.25	2.00	0.594	0.531	4.000	9.06	6.38	0.69
	3.50	4.250	1.00	10.63	2.25	2.00	0.719	0.531	5.625	9.31	6.38	0.69
	5.50	6.250	1.00	10.63	2.25	2.00	0.875	0.375	8.375	9.31	6.38	0.69
12.00	2.00	2.625	0.88	12.75	2.25	2.00	0.594	0.531	4.000	9.56	6.88	0.69
	2.50	3.125	1.00	12.75	2.25	2.00	0.594	0.656	4.438	9.81	6.88	0.69
	4.00	4.750	1.00	12.75	2.25	2.00	0.875	0.375	6.438	9.81	6.88	0.69
	5.50	6.250	1.00	12.75	2.25	2.00	0.875	0.375	8.375	9.81	6.88	0.69
14.00	2.50	3.125	1.00	14.75	2.75	2.25	0.594	0.656	4.438	11.19	8.13	0.81
	3.00	3.750	1.00	14.75	2.75	2.25	0.719	0.531	5.250	11.19	8.13	0.81
	4.00	4.750	1.00	14.75	2.75	2.25	0.875	0.375	6.438	11.19	8.13	0.81
	5.50	6.250	1.00	14.75	2.75	2.25	0.875	0.375	8.375	11.19	8.13	0.81

* Plus Stroke

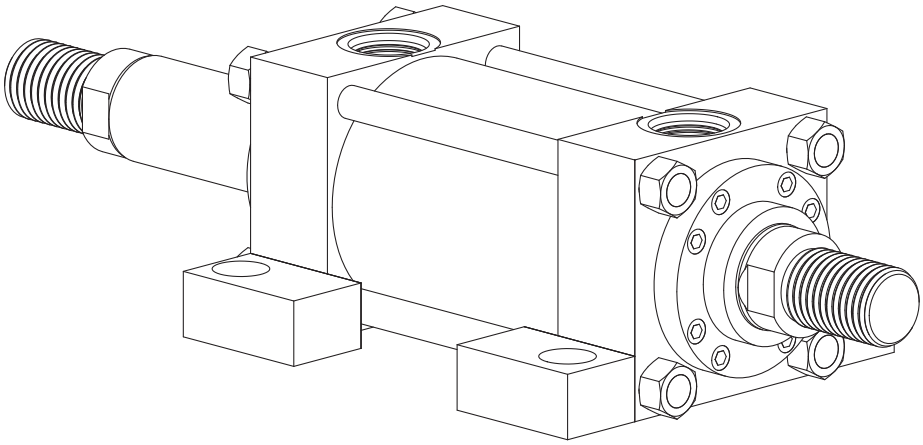
Mounting style and installation dimensions – RE/RF25 double rod side lug mount



Bore	ØMM Rods	B +.001 /-.003	C	E	G	F	V	RM	SV*	ST	SU	SW	TS	US	SB	XS	ZM*	LD*	ZL*	K MAX.
1.50	0.63	1.125	0.38	2.00	1.50	0.375	0.250	-	3.38	0.50	0.94	0.38	2.75	3.50	0.44	1.38	6.13	4.13	5.50	0.25
	1.00	1.500	0.50	2.00	1.50	0.375	0.500	-	3.38	0.50	0.94	0.38	2.75	3.50	0.44	1.75	6.88	4.13	5.88	0.25
2.00	0.63	1.125	0.38	2.50	1.50	0.375	0.250	-	3.38	0.50	0.94	0.38	3.25	4.00	0.44	1.38	6.13	4.13	5.50	0.31
	1.00	1.500	0.50	2.50	1.50	0.375	0.500	-	3.38	0.50	0.94	0.38	3.25	4.00	0.44	1.75	6.88	4.13	5.88	0.31
	1.38	2.000	0.63	2.50	1.50	0.375	0.625	-	3.38	0.50	0.94	0.38	3.25	4.00	0.44	2.00	7.38	4.13	6.13	0.31
2.50	0.63	1.125	0.38	3.00	1.50	0.343	0.281	2.375	3.50	0.50	0.94	0.38	3.75	4.50	0.44	1.38	6.25	4.25	5.59	0.31
	1.00	1.500	0.50	3.00	1.50	0.343	0.531	2.484	3.50	0.50	0.94	0.38	3.75	4.50	0.44	1.75	7.00	4.25	5.97	0.31
	1.38	2.000	0.63	3.00	1.50	0.375	0.625	-	3.50	0.50	0.94	0.38	3.75	4.50	0.44	2.00	7.50	4.25	6.25	0.31
	1.75	2.375	0.75	3.00	1.50	0.375	0.750	-	3.50	0.50	0.94	0.38	3.75	4.50	0.44	2.25	8.00	4.25	6.50	0.31
3.25	1.00	1.500	0.50	3.75	1.75	0.500	0.375	2.625	3.75	0.75	1.25	0.50	4.75	5.75	0.56	1.88	7.50	4.75	6.63	0.38
	1.38	2.000	0.63	3.75	1.75	0.594	0.406	3.250	3.75	0.75	1.25	0.50	4.75	5.75	0.56	2.13	8.00	4.75	6.97	0.38
	1.75	2.375	0.75	3.75	1.75	0.625	0.500	-	3.75	0.75	1.25	0.50	4.75	5.75	0.56	2.38	8.50	4.75	7.25	0.38
	2.00	2.625	0.88	3.75	1.75	0.625	0.500	-	3.75	0.75	1.25	0.50	4.75	5.75	0.56	2.50	8.75	4.75	7.38	0.38
4.00	1.00	1.500	0.50	4.50	1.75	0.500	0.375	2.625	3.75	0.75	1.25	0.50	5.50	6.50	0.56	1.88	7.50	4.75	6.63	0.38
	1.38	2.000	0.63	4.50	1.75	0.594	0.406	3.250	3.75	0.75	1.25	0.50	5.50	6.50	0.56	2.13	8.00	4.75	6.97	0.38
	1.75	2.375	0.75	4.50	1.75	0.594	0.531	3.875	3.75	0.75	1.25	0.50	5.50	6.50	0.56	2.38	8.50	4.75	7.22	0.38
	2.00	2.625	0.88	4.50	1.75	0.594	0.531	4.000	3.75	0.75	1.25	0.50	5.50	6.50	0.56	2.50	8.75	4.75	7.34	0.38
	2.50	3.125	1.00	4.50	1.75	0.625	0.625	-	3.75	0.75	1.25	0.50	5.50	6.50	0.56	2.75	9.25	4.75	7.63	0.38
5.00	1.00	1.500	0.50	5.50	1.75	0.500	0.375	2.625	3.63	1.00	1.56	0.69	6.88	8.25	0.81	2.06	7.75	5.00	6.88	0.44
	1.38	2.000	0.63	5.50	1.75	0.594	0.406	3.250	3.63	1.00	1.56	0.69	6.88	8.25	0.81	2.31	8.25	5.00	7.22	0.44
	1.75	2.375	0.75	5.50	1.75	0.594	0.531	3.875	3.63	1.00	1.56	0.69	6.88	8.25	0.81	2.56	8.75	5.00	7.47	0.44
	2.00	2.625	0.88	5.50	1.75	0.594	0.531	4.000	3.63	1.00	1.56	0.69	6.88	8.25	0.81	2.69	9.00	5.00	7.59	0.44
	2.50	3.125	1.00	5.50	1.75	0.594	0.656	4.438	3.63	1.00	1.56	0.69	6.88	8.25	0.81	2.94	9.50	5.00	7.84	0.44
	3.00	3.750	1.00	5.50	1.75	0.625	0.625	-	3.63	1.00	1.56	0.69	6.88	8.25	0.81	2.94	9.50	5.00	7.88	0.44
	3.50	4.250	1.00	5.50	1.75	0.625	0.625	-	3.63	1.00	1.56	0.69	6.88	8.25	0.81	2.94	9.50	5.00	7.88	0.44
6.00	1.38	2.000	0.63	6.50	2.00	0.594	0.406	3.250	4.13	1.00	1.56	0.69	7.88	9.25	0.81	2.31	8.75	5.50	7.72	0.44
	1.75	2.375	0.75	6.50	2.00	0.594	0.531	3.875	4.13	1.00	1.56	0.69	7.88	9.25	0.81	2.56	9.25	5.50	7.97	0.44
	2.50	3.125	1.00	6.50	2.00	0.594	0.656	4.438	4.13	1.00	1.56	0.69	7.88	9.25	0.81	2.94	10.00	5.50	8.34	0.44
	4.00	4.750	1.00	6.50	2.00	0.719	0.531	6.000	4.13	1.00	1.56	0.69	7.88	9.25	0.81	2.94	10.00	5.50	8.47	0.44
8.00	1.38	2.000	0.63	8.50	2.00	0.594	0.406	3.250	4.25	1.00	1.56	0.69	9.88	11.25	0.81	2.31	8.88	5.63	7.84	0.56
	1.75	2.375	0.75	8.50	2.00	0.594	0.531	3.875	4.25	1.00	1.56	0.69	9.88	11.25	0.81	2.56	9.38	5.63	8.09	0.56
	3.50	4.250	1.00	8.50	2.00	0.719	0.531	5.625	4.25	1.00	1.56	0.69	9.88	11.25	0.81	2.94	10.13	5.63	8.59	0.56
	5.50	6.250	1.00	8.50	2.00	0.750	0.500	7 SQ	4.25	1.00	1.56	0.69	9.88	11.25	0.81	2.94	10.13	5.63	8.63	0.56

Mounting style and installation dimensions – RE/RF25 double rod side lug mount

Double rod cylinders are specified when equal displacement is desired on both sides of the piston, or when the application is such that another function can be performed simultaneously with a second rod. The single rod mount application data is also applicable to double rod cylinders. Rod and pilot related dimensions are typical for both ends.



WARNING
Failure to mount the cylinder correctly on the frame may result in death, bodily injury and/or property damage.

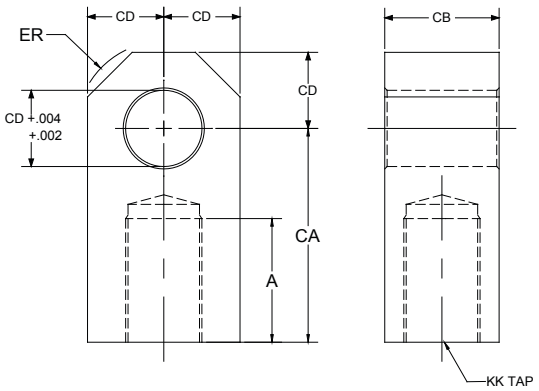
Bore	ØMM Rods	B +.001 /-.003	C	E	G	F	V	RM	SV*	ST	SU	SW	TS	US	SB	XS	ZM*	LD*	ZL*	K MAX.
10.00	1.75	2.000	0.75	10.63	2.25	0.594	0.531	3.875	4.88	1.25	2.00	0.88	12.38	14.13	1.06	2.75	10.38	6.63	9.09	0.69
	2.00	2.625	0.88	10.63	2.25	0.594	0.531	4.000	4.88	1.25	2.00	0.88	12.38	14.13	1.06	2.88	10.63	6.63	9.22	0.69
	3.50	4.250	1.00	10.63	2.25	0.719	0.531	5.625	4.88	1.25	2.00	0.88	12.38	14.13	1.06	3.13	11.13	6.63	9.59	0.69
	5.50	6.250	1.00	10.63	2.25	0.875	0.375	8.375	4.88	1.25	2.00	0.88	12.38	14.13	1.06	3.13	11.13	6.63	9.75	0.69
12.00	2.00	2.625	0.88	12.75	2.25	0.594	0.531	4.000	5.38	1.25	2.00	0.88	14.50	16.25	1.06	2.88	11.13	7.13	9.72	0.69
	2.50	3.125	1.00	12.75	2.25	0.594	0.656	4.438	5.38	1.25	2.00	0.88	14.50	16.25	1.06	3.13	11.63	7.13	9.97	0.69
	4.00	4.750	1.00	12.75	2.25	0.875	0.375	6.438	5.38	1.25	2.00	0.88	14.50	16.25	1.06	3.13	11.63	7.13	10.25	0.69
	5.50	6.250	1.00	12.75	2.25	0.875	0.375	8.375	5.38	1.25	2.00	0.88	14.50	16.25	1.06	3.13	11.63	7.13	10.25	0.69
14.00	2.50	3.125	1.00	14.75	2.75	0.594	0.656	4.438	6.38	1.50	2.50	1.13	17.00	19.25	1.31	3.38	13.13	8.63	11.47	0.81
	3.00	3.750	1.00	14.75	2.75	0.719	0.531	5.250	6.38	1.50	2.50	1.13	17.00	19.25	1.31	3.38	13.13	8.63	11.59	0.81
	4.00	4.750	1.00	14.75	2.75	0.875	0.375	6.438	6.38	1.50	2.50	1.13	17.00	19.25	1.31	3.38	13.13	8.63	11.75	0.81
	5.50	6.250	1.00	14.75	2.75	0.875	0.375	8.375	6.38	1.50	2.50	1.13	17.00	19.25	1.31	3.38	13.13	8.63	11.75	0.81

* Plus Stroke

Mounting accessories

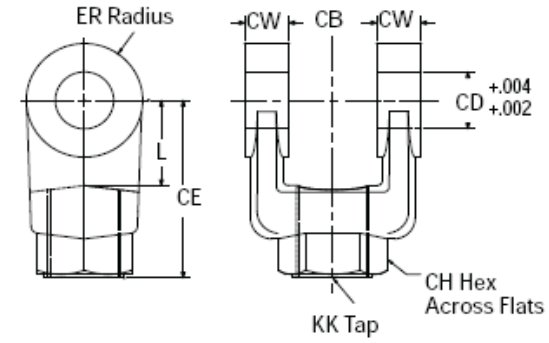
- All rod accessories must be torqued against the rod shoulder.
- Mounting brackets,rod clevises and rod eyes are available from Eaton.
- These accessories are detailed below showing part numbers and all pertinent dimensional data.
- Make sure the rod end type selected has threads that match the threads of any required accessory.
- Dimensions are in inches unless otherwise noted, when ordering,please specify the part name and part number.

Rod Eye



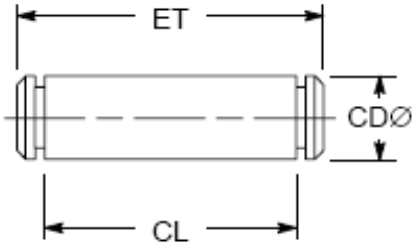
Eaton Part No	"KK"	"A"	"CA"	"CB"	"CD"	"ER"	Static Tensile Load(Lb)
FRE-0437	7/16-20 UNF	0.75	1.50	0.75	0.502	0.50	5,000
FRE-0750	3/4-16-UNF	1.13	2.06	1.25	0.752	0.75	10,750
FRE-1000	1-14 UNS	1.63	2.81	1.50	1.002	1.00	16,500
FRE-1250	1 1/4-12 UNF	2.00	3.44	2.00	1.377	1.38	30,500
FRE-1500	1 1/2-12 UN	2.25	4.00	2.50	1.752	1.75	47,500
FRE-1875	1 7/8-12 UN	3.00	5.00	2.50	2.002	2.00	55,000
FRE-2250	2 1/4-12 UN	3.50	5.81	3.00	2.502	2.50	80,000
FRE-2500	2 1/2-12 UN	3.50	6.13	3.00	3.002	3.00	94,000
FRE-3250	3 1/4-12 UN	4.50	7.63	4.00	3.502	3.50	158,200
FRE-4000	4-12 UN	5.50	9.13	4.50	4.002	4.00	211,500

Rod Clevis (Includes Swivel Pin & Retaining Rings)



Part No	CB	CD	CE	CH	CW	ER	KK	L	Static Tensile Load(Lb)
FRC-0437	0.75	0.50	1.50	1.00	0.50	0.50	7/16-20 UNF	0.75	4250
FRC-0750	1.25	0.75	2.38	1.38	0.63	0.75	3/4-16 UNF	1.25	9750
FRC-1000	1.50	1.00	3.13	1.63	0.75	1.00	1-14 UN	1.50	17500
FRC-1250	2.00	1.38	4.13	2.00	1.00	1.38	1 1/4-12 UNF	2.13	28000
FRC-1500	2.50	1.75	4.50	2.38	1.25	1.75	1 1/2-12 UNF	2.25	45500
FRC-1875	2.50	2.00	5.50	2.94	1.25	2.00	1 7/8-12 UNF	2.50	52000
FRC-2250	3.00	2.50	6.50	3.50	1.50	2.50	2 1/4-12 UNF	3.00	78000
FRC-2500	3.00	3.00	6.75	3.88	1.50	2.75	2 1/2-12 UNF	3.25	75000
FRC-3250	4.00	3.50	8.50	5.00	2.00	3.50	3 1/4-12 UNF	4.00	142500
FRC-4000	4.50	4.00	10.00	6.13	2.25	4.00	4-12 UNF	4.50	182500

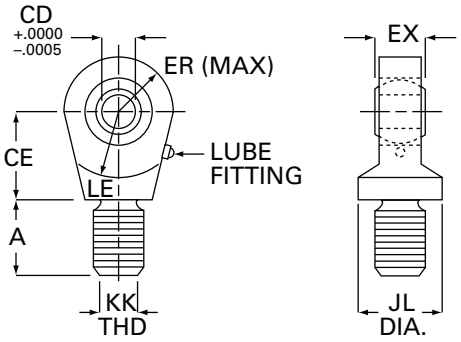
Swivel Pin (Includes 2 Retaining Rings)



Part Number	CD	CL	ET
SVPIN-044-10	0.44	1.29	1.57
SVPIN-050-10	0.50	1.88	2.10
SVPIN-075-10	0.75	2.63	2.89
SVPIN-100-10	1.00	3.13	3.39
SVPIN-138-10	1.38	4.16	4.47
SVPIN-175-10	1.75	5.16	5.56
SVPIN-200-10	2.00	5.16	5.56
SVPIN-250-10	2.50	6.16	6.64
SVPIN-300-10	3.00	6.19	6.77
SVPIN-350-10	3.50	8.13	8.84
SVPIN-400-10	4.00	9.13	9.86

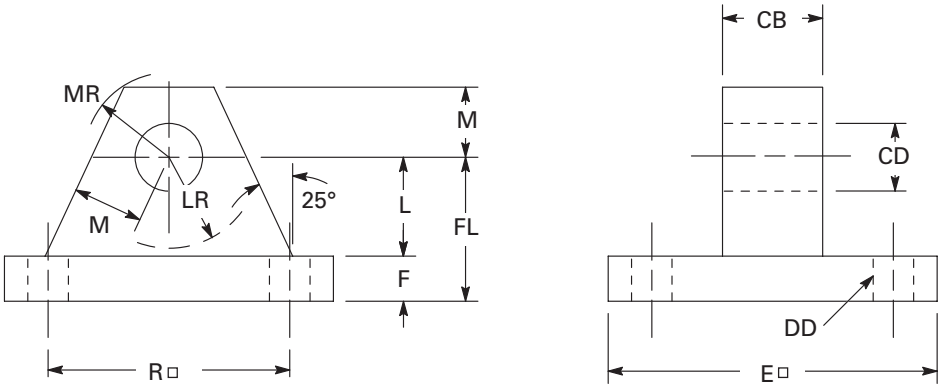
Mounting accessories

Spherical Rod Eye



KK	Part No.	A	CD +.0000 -.0005	CE	EX	ER	JL	LE	Load Capacity (lbs)
7/16-20	BRE-0437	0.69	0.5000	0.88	0.44	0.88	0.88	0.75	2600
3/4-16	BRE-0750	1.00	0.7500	1.25	0.66	1.25	1.31	1.06	9400
3/4-16	BRE-0750	1.00	0.7500	1.25	0.66	1.25	1.31	1.06	9400
1-14	BRE-1000	1.50	1.0000	1.88	0.88	1.38	1.50	1.44	16800
1 1/4-12	BRE-1250	2.00	1.3750	2.13	1.19	1.81	2.00	1.88	28600
1 1/2-12	BRE-1500	2.13	1.7500	2.50	1.53	2.19	2.25	2.13	43000
1 7/8-12	BRE-1875	2.88	2.0000	2.75	1.75	2.63	2.75	2.50	70000

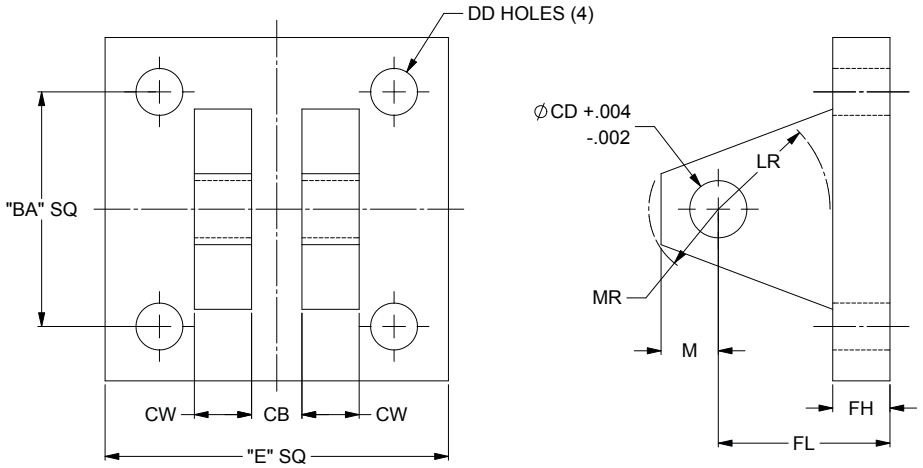
Mounting Eye Bracket



Part Number	Weight (lbs)	E	F	L	M	R	CB	CD	DD	FL	LR	MR
SEB-0500	0.94	2.50	0.38	0.75	0.50	1.63	0.75	0.50	0.38	1.13	0.50	0.56
SEB-0750	3.19	3.50	0.63	1.25	0.75	2.55	1.25	0.75	0.50	1.88	1.00	1.06
SEB-0750	3.19	3.50	0.63	1.25	0.75	2.55	1.25	0.75	0.50	1.88	1.00	1.06
SEB-1000	7.17	4.50	0.88	1.50	1.00	3.25	1.50	1.00	0.63	2.38	1.00	1.13
SEB-1375	11.7	5.00	0.88	2.13	1.38	3.82	2.00	1.38	0.63	3.00	1.13	1.75
SEB-1750A	22	6.50	1.13	2.25	1.75	4.95	2.50	1.75	0.88	3.38	1.75	1.88
SEB-2000A	34.5	7.50	1.50	2.50	2.00	5.73	2.50	2.00	1.00	4.00	2.00	2.13
SEB-2500A	55.4	8.50	1.75	3.00	2.50	6.58	3.00	2.50	1.13	4.75	2.50	2.50
SEB-3000	72.5	9.50	2.00	3.25	2.75	7.50	3.00	3.00	1.25	5.25	2.75	2.75

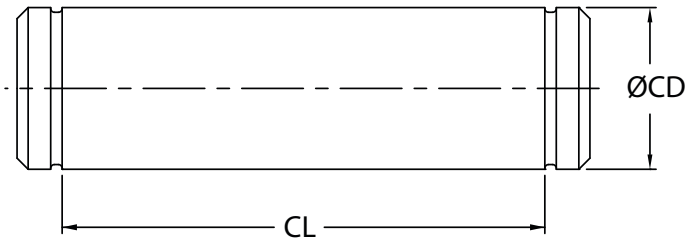
Mounting accessories

Spherical Clevis Bracket



Part No.	BA	CB	CD	CW	DD	E	FH	FL	LR	M	MR
SEB-0500	2.05	0.44	0.500	0.50	0.41	3.00	0.50	1.50	0.94	0.50	0.62
SEB-0750	2.76	0.66	0.750	0.62	0.53	3.75	0.62	2.00	1.38	0.88	1.00
SEB-0750	2.76	0.66	0.750	0.62	0.53	3.75	0.62	2.00	1.38	0.88	1.00
SEB-1000	4.10	0.88	1.000	0.75	0.53	5.50	0.75	2.50	1.69	1.00	1.19
SEB-1380	4.95	1.19	1.375	1.00	0.66	6.50	0.88	3.50	2.44	1.38	1.62
SEB-1750	6.58	1.53	1.750	1.25	0.91	8.50	1.25	4.50	2.88	1.75	2.06
SEB-2000	7.92	1.75	2.000	1.50	0.91	10.62	1.50	5.00	3.31	2.00	2.38

Pivot Pin - for Spherical Bearing

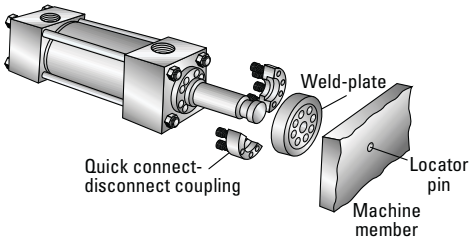


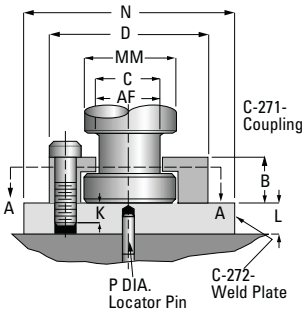
Part No.	CD	CL
SBPIN-050-10	0.500	1.56
SBPIN-075-10	0.750	2.03
SBPIN-075-10	0.750	2.03
SBPIN-100-10	1.000	2.50
SBPIN-138-10	1.375	3.31
SBPIN-175-10	1.750	4.22
SBPIN-200-10	2.000	4.94

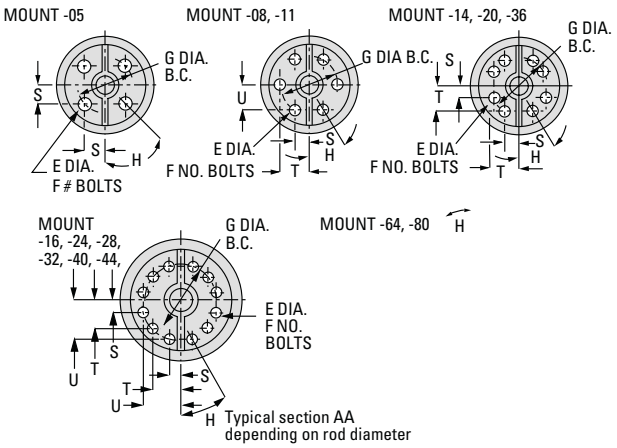
* Pivot pins supplied with retainer clips.

Rod end couplings

Used with the Vickers style G Rod End, the Vickers Rod End Coupling provides for close lateral alignment between the rod end and machine member. The two-piece steel coupling features high tensile strength socket head cap screws (with safety factor designed to take full load), permits quick assembly/disassembly for fast and easy installation and servicing.







Coupling and Weld Plate Assembly*	Coupling C-271	Rod Dia (MM)	AF	B	C	D	E	F	G	H	K
C-275-05	C-271-05	0.63	0.38	0.44	0.41	1.50	0.22	4	1.12	45°	0.44
C-275-08	C-271-08	1.00	0.69	0.62	0.75	2.00	0.28	6	1.50	30°	0.38
C-275-11	C-271-11	1.38	0.88	0.69	0.94	2.50	0.34	6	2.00	30°	0.56
C-275-14	C-271-14	1.75	1.12	0.88	1.18	3.00	0.41	8	2.38	22° 30′	0.62
C-275-16	C-271-16	2.00	1.38	1.25	1.44	3.50	0.41	12	2.69	15°	0.75
C-275-20	C-271-20	2.50	1.75	1.38	1.88	4.25	0.53	8	3.44	22°30′	0.88
C-275-24	C-271-24	3.00	2.25	1.88	2.38	5.00	0.53	12	4.00	15°	0.88
C-275-28	C-271-28	3.50	2.50	2.00	2.62	5.88	0.66	12	4.69	15°	1.00
C-275-32	C-271-32	4.00	3.00	2.00	3.12	6.38	0.66	12	5.18	15°	1.00
C-275-36	C-271-36	4.50	3.50	2.38	3.62	6.88	0.78	8	5.69	22° 30′	1.12
C-275-40	C-271-40	5.00	3.88	2.50	4.00	7.38	0.66	12	6.18	15°	1.25
C-275-44	C-271-44	5.50	4.38	3.12	4.50	8.25	0.78	12	6.88	15°	1.38

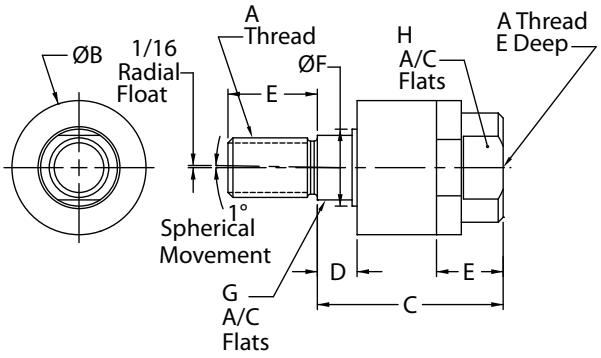
Weld Plate	L	N	P	Sco. Hd. Cap Screws	Bolt Torq. Ft. lb.	S	T	U	X
C-272-05	0.50	2.00	0.25	#10-24x.88	5	0.40	–	–	–
C-272-08	0.50	2.50	0.25	1/4″-20x1.0	14	0.38	0.75	0.65	–
C-272-11	0.62	3.00	0.25	5/16″-18x1.25	30	0.50	1.00	0.87	–
C-272-14	0.75	3.50	0.25	3/8″-16x1.5	52	0.45	1.10	–	–
C-272-16	0.88	4.00	0.38	3/8″-16x2.0	52	0.35	0.95	1.30	–
C-272-20	1.00	5.00	0.38	1/2″-13x2.25	128	0.66	1.59	–	–
C-272-24	1.00	5.50	0.38	1/2″-13x2.75	128	0.52	1.41	1.93	–
C-272-28	1.12	6.50	0.38	5/8″-11x3.0	255	0.61	1.66	2.26	–
C-272-32	1.12	7.00	0.38	5/8″-11x3.0	255	0.67	1.83	2.51	–
C-272-36	1.25	7.50	0.38	3/4″-10x3.5	450	1.09	2.63	–	–
C-272-40	1.38	8.00	0.38	5/8″-11x3.75	255	0.80	2.19	2.99	–
C-272-44	1.50	9.00	0.38	3/4″-10x4.5	450	0.89	2.43	3.32	–

* To order C-271 and C-272 as an assembly, use part no. C-275-

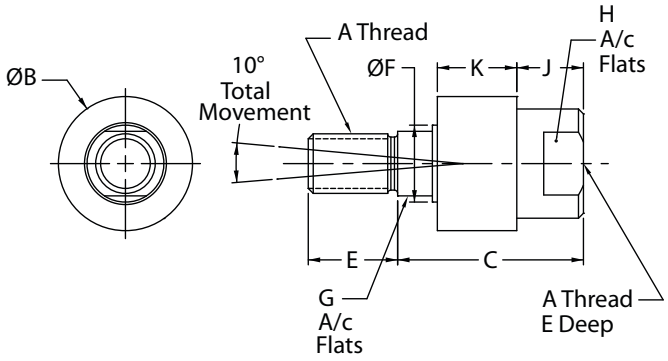
Self-aligning coupler

Lateral movement (on push only) and radial movement provide precision alignment between cylinder and machine. Couplers preset with proper clearances and completely lubricated at factory before shipping.

NOTE
When ordering oversize and 2:1 rod cylinders, specify modification to suit standard rod diameter's coupler.



SAC-0312 Thru SAC-2000, SAC-4000



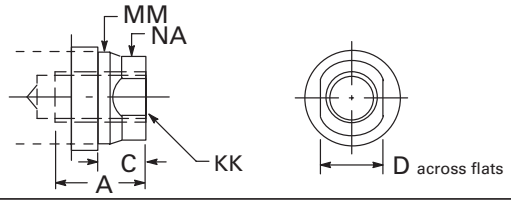
SAC-2250 Thru SAC-3250

Part No.	"A" Thread	B	C	D	E	F	G	H	J	K	M° of Movement	Load Rating Max Pull at Yield (lbs)
SAC-0312	5/16-24	0.88	1.25	0.25	0.63	0.31	0.25	0.81	–	–	1	4,000
SAC-0375	3/8-24	0.88	1.25	0.25	0.63	0.37	0.31	0.81	–	–	1	5,000
SAC-0437	7/16-20	1.25	2.00	0.50	0.75	0.63	0.56	1.13	–	–	1	10,000
SAC-0500	1/2-20	1.25	2.00	0.50	0.75	0.63	0.56	1.13	–	–	1	14,000
SAC-0625	5/8-18	1.25	2.00	0.50	0.75	0.63	0.50	1.13	–	–	1	14,000
SAC-0750	3/4-16	1.75	2.31	0.31	1.13	0.97	0.88	1.50	–	–	1	34,000
SAC-0875	7/8-14	1.75	2.31	0.31	1.13	0.97	0.88	1.50	–	–	1	34,000
SAC-1000	1-14	2.50	2.94	0.50	1.63	1.38	1.25	2.25	–	–	1	64,000
SAC-1250	1-1/4-12	2.50	2.94	0.50	1.63	1.38	1.25	2.25	–	–	1	64,000
SAC-1500	1-1/2-12	3.25	4.38	0.81	2.25	1.75	1.50	3.00	–	–	1	120,000
SAC-1750	1-3/4-12	3.25	4.38	0.81	2.25	1.75	1.50	3.00	–	–	1	120,000
SAC-1875	1-7/8-12	3.75	5.44	0.69	3.00	2.25	1.88	3.50	–	–	1	240,000
SAC-2000	2-12	3.75	5.44	0.69	3.00	2.25	1.88	3.50	–	–	1	240,000
SAC-2250	2-1/4-12	6.75	6.38	–	3.50	2.75	2.38	2.88	1.63	3.38	10	397,000
SAC-2500	2-1/2-12	7.00	6.50	–	3.50	3.25	2.88	3.38	1.63	3.88	10	495,000
SAC-2375	2-3/4-12	7.00	6.50	–	3.50	3.25	2.88	3.38	1.63	3.88	10	603,800
SAC-3000	3-12	7.00	6.50	–	3.50	3.25	2.88	3.38	1.63	3.88	10	723,040
SAC-3250	3-1/4-12	9.25	8.50	–	4.50	4.00	3.38	4.50	2.00	5.50	10	853,800
SAC-4000	4 -12	7.25	9.38	1.00	5.50	5.47	*	1.88	-	-	1	750,010

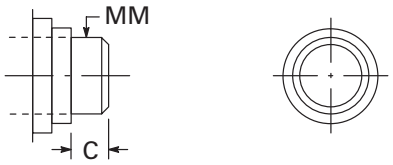
Common options - rod end selection

Inch Rod Ends

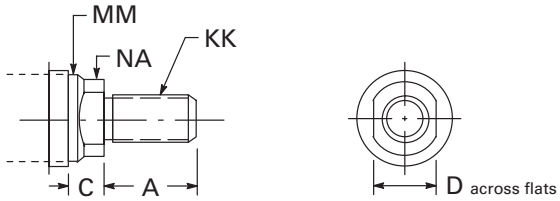
Code 2



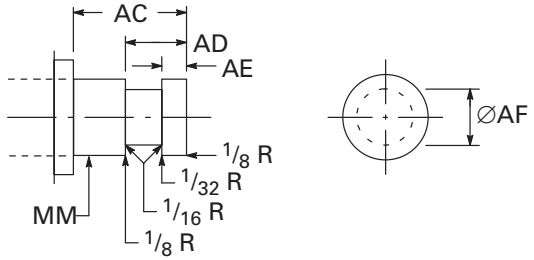
Code 6



Code 5



Code G



MM (Rod Dia.)	C	KK	A	D	AC	AD	AE	AF
0.63	0.38	.4375-20	0.75	0.53	1.13	0.63	0.25	0.38
1.00	0.5	.750-16	1.12	0.88	1.50	0.94	0.38	0.69
1.38	0.63	1.000-14	1.62	1.13	1.75	1.06	0.38	0.88
1.75	0.75	1.250-12	2.00	1.50	2.00	1.31	0.50	1.13
2.00	0.88	1.500-12	2.25	1.75	2.63	1.69	0.63	1.38
2.50	1.00	1.875-12	3.00	2.13	3.25	1.94	0.75	1.75
3.00	1.00	2.250-12	3.50	2.63	3.63	2.44	0.88	2.25
3.50	1.00	2.500-12	3.50	3.00	4.38	2.69	1.00	2.50
4.00	1.00	3.000-12	4.00	SP	4.50	2.69	1.00	3.00
5.00	1.00	3.500-12	5.00	SP	5.38	3.19	1.50	3.88
5.50	1.00	4.000-12	5.50	SP	6.25	3.94	1.88	4.38

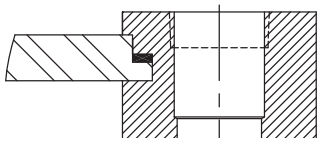
* Four 1/2" diameter X 1/2 " deep spanner holes instead of flats.
For rod diameters 4.00 & above four 1/2" diameter x 1/2' deep spanner holes are provided in place of flats.

Port type and size

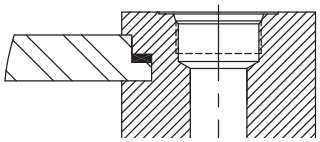
Available Ports

Series RE/RF cylinders are available with NPTF and SAE straight thread O-ring ports as listed below. Some mounting style have port locations restrictions. Check the port location table on the page 52 for your particular mounting style. Where a port interfere with cylinder mounting, mounting should take precedence.

CODE 1



CODE 3



Bore	Std NPTF (Code-1)	Std SAE (Code-3)
1.50	0.38	6
2.00	0.38	6
2.50	0.38	6
3.25	0.50	10
4.00	0.50	10
5.00	0.50	10
6.00	0.75	12
8.00	0.75	12
10.00	1.00	16
12.00	1.00	16
14.00	1.25	20

Port selections

Use this table to determine which bore diameter, rod diameter and port combination will provide the piston velocity required for your application.

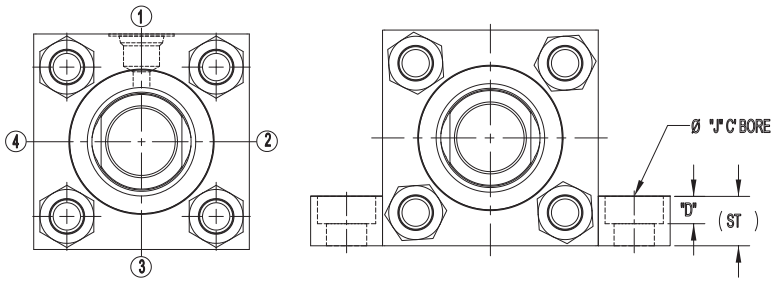
Bore Ø in	Rod Ø in	Fluid Required Per Inch of Stroke (gal)	Fluid Required Per Inch of Stroke (in^3)	Port Codes 1 Flow (gpm)	Port Codes 1 Piston Velocity (In/sec)	Port Code 3 Flow (gpm)	Port Code 3 Piston Velocity (In/sec)
1.50	Cap	0.008	1.767	6.0	13.1	6.0	13.1
	0.63	0.006	1.460	6.0	15.8	6.0	15.8
	1.00	0.004	0.982	6.0	23.5	6.0	23.5
2.00	Cap	0.014	3.142	6.0	7.4	6.0	7.4
	1.00	0.010	2.356	6.0	9.8	6.0	9.8
	1.38	0.007	1.657	6.0	13.9	6.0	13.9
2.50	Cap	0.021	4.909	6.0	4.7	6.0	4.7
	1.00	0.018	4.123	6.0	5.6	6.0	5.6
	1.38	0.015	3.424	6.0	6.7	6.0	6.7
	1.75	0.011	2.503	6.0	9.2	6.0	9.2
3.25	Cap	0.036	8.296	14.5	6.7	14.5	6.7
	1.38	0.029	6.811	14.5	8.2	14.5	8.2
	1.75	0.026	5.891	14.5	9.5	14.5	9.5
	2.00	0.022	5.154	14.5	10.8	14.5	10.8
4.00	Cap	0.054	12.566	14.5	4.4	14.5	4.4
	1.75	0.044	10.161	14.5	5.5	14.5	5.5
	2.00	0.041	9.425	14.5	5.9	14.5	5.9
	2.50	0.033	7.658	14.5	7.3	14.5	7.3
5.00	Cap	0.085	19.635	14.5	2.8	14.5	2.8
	2.00	0.071	16.493	14.5	3.4	14.5	3.4
	2.50	0.064	14.726	14.5	3.8	14.5	3.8
	3.00	0.054	12.566	14.5	4.4	14.5	4.4
	3.50	0.043	10.014	14.5	5.6	14.5	5.6

Bore Ø in	Rod Ø in	Fluid Required Per Inch of Stroke (gal)	Fluid Required Per Inch of Stroke (in^3)	Port Codes 1 Flow (gpm)	Port Codes 1 Piston Velocity (In/sec)	Port Code 3 Flow (gpm)	Port Code 3 Piston Velocity (In/sec)
6.00	Cap	0.122	28.274	27.9	3.8	27.9	3.8
	2.50	0.101	23.366	27.9	4.6	27.9	4.6
	3.00	0.092	21.206	27.9	5.1	27.9	5.1
	3.50	0.081	18.653	27.9	5.8	27.9	5.8
	4.00	0.068	15.708	27.9	6.8	27.9	6.8
7.00	Cap	0.167	38.485	45.5	4.6	45.5	4.6
	3.00	0.136	31.416	45.5	5.6	45.5	5.6
	3.50	0.125	28.863	45.5	6.1	45.5	6.1
	4.00	0.112	25.918	45.5	6.8	45.5	6.8
	4.50	0.098	22.580	45.5	7.8	45.5	7.8
	5.00	0.082	18.850	45.5	9.3	45.5	9.3
8.00	Cap	0.218	50.266	67.4	5.2	45.5	3.5
	3.50	0.176	40.644	67.4	6.4	45.5	4.3
	4.00	0.163	37.699	67.4	6.9	45.5	4.6
	4.50	0.149	34.361	67.4	7.6	45.5	5.1
	5.00	0.133	30.631	67.4	8.5	45.5	5.7
	5.50	0.115	26.507	67.4	9.8	45.5	6.6

Port locations

Port locations are identified by viewing the cylinder from the head end (or from the mounting end of double rod cylinders). The location numbers are shown here.

Certain Port locations cannot be specified with some mounting styles. The table below indicates which of the head and cap port locations are available for each Series RE mounting style.



Mounting Style Code	Description	Head location 1	2	3	4	Cap location 1	2	3	4	5
01	Side Lug	A	A	A	A	A	A	A	A	A
02	Side Tapped	A	A	N	A	A	A	N	A	A
04	Keyed Side Lug	A	A	A	A	A	A	A	A	A
05	Keyed Tapped	A	A	N	A	A	A	N	A	A
07	Head Rectangular Flange	A	A	A	A	A	A	A	A	A
08	Head Square Flange	A	A	A	A	A	A	A	A	A
10	Clevis	A	A	A	A	A	A	A	A	N
11	Spherical Bushing	A	A	A	A	A	A	A	A	N
12	Cap Rectangular Flange	A	A	A	A	A	A	A	A	N
13	Cap Square Flange	A	A	A	A	A	A	A	A	N
15	Intermediate Trunnion	A	A	A	A	A	A	A	A	A
16	Cap Trunnion	A	A	A	A	A	N	A	N	A
17	Head Trunnion	A	N	A	N	A	A	A	A	A
21	Cap End Extended Tie Rod	A	A	A	A	A	A	A	A	A
22	Head End Extended Tie Rod	A	A	A	A	A	A	A	A	A
23	Both Ends Extended Tie Rod	A	A	A	A	A	A	A	A	A
24	No Mount	A	A	A	A	A	A	A	A	A
25	Double Rod, Side Lug	A	A	A	A					
26	Double Rod, Tapped	A	A	N	A					
27	Double Rod, End Lug	A	A	N	A					
28	Double Rod, Keyed Side Lug	A	A	A	A					
29	Double Rod, Keyed Tapped	A	A	N	A					
31	Double Rod, Rectangular Flange	A	A	A	A					
32	Double Rod, Square Flange	A	A	A	A					
33	Double Rod, Head Rectangular	A	A	A	A					
34	Double Rod, Intermediate Trunnion	A	A	A	A					
35	Double Rod, Head Trunnion	A	N	A	N					
37	Double Rod, Centerline Lug	A	N	A	N					
39	Double Rod, Extended Tie Rod	A	A	A	A					
40	Double Rod, Both Ends Extended Tie Rod	A	A	A	A					
41	Double Rod, No Mount	A	A	A	A					

A - Available
N - Not available

Sealing system

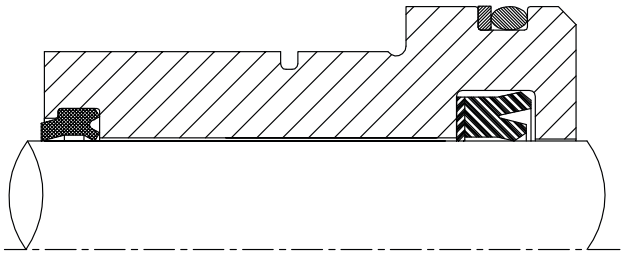
Four different sealing systems are available in Series RE/RF cylinders.

Determine the correct seal code for your application, then enter it as item 8 in the model code.

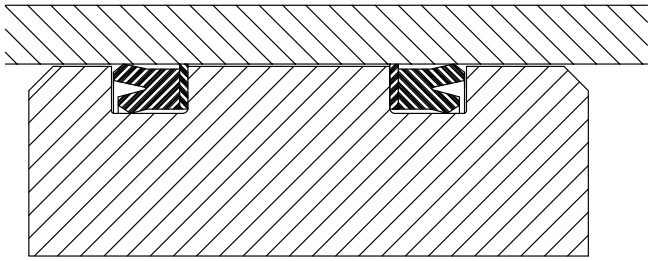
Sealing System Code	Air / Hydraulic Rod Seal Configuration	Piston Seal Configuration	Seal Material	Temperature (Deg.F)	Max. Speed (ft/s)	Fluid	Application
N / P*	Rod seal - Lip type (1) Wiper -Double lipped (1)	Piston Seal Lip type (2)	Nitrile	-31 to 176	15	Air,Mineral oil ,Petroleum base fluids	Normal , typical industrial
T / S*			Viton	32 to 392	15	Mineral Oil, Phosphate esters, Petroleum oil blends	High Temperature

* Applicable only for air cylinders for non lube option, Cylinders permanently lubricated at assembly by filling piston and rod seals with molybdenum disulfide grease.

Rod Seal Configuration



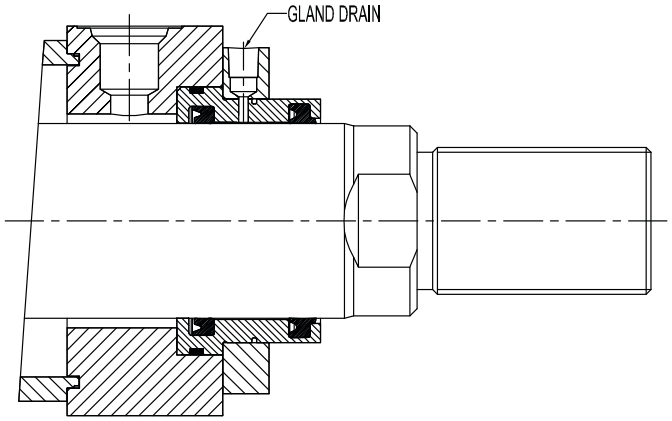
Piston Seal Configuration



Optional features

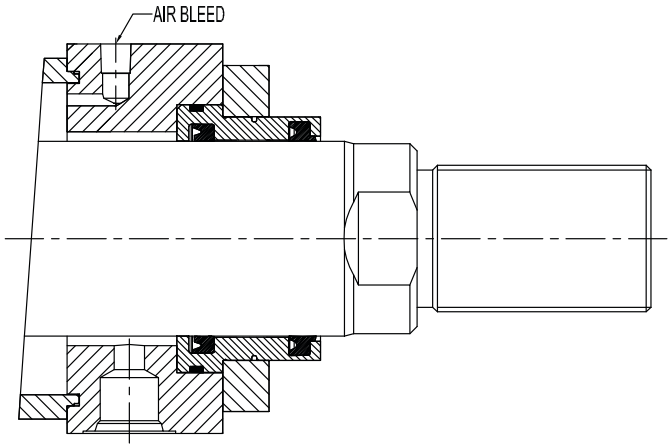
Gland Drain

Gland Drains are primarily used for long stroke cylinders and when extended speed exceeds retract speed. The gland drain is used to return any accumulated fluid, between the rod seal and wiper, to tank. This is used in servo applications, for ultra low leakage requirements, or for remote visual monitoring of rod seal leakage for preventive maintenance purposes.



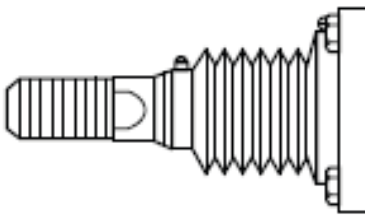
Air Bleed Option

Usually cylinders will bleed themselves of air when ports are vertical, on top. Bleed ports are often desirable to remove entrapped air, when the ports are on the bottom. High performance and high speed or heavy load applications are a few examples where air bleeds are desirable.



Bellows for Piston Rod Protection

To protect the piston rod surface from hard particles of surrounding atmosphere the bellows are used. This option is offered on request.



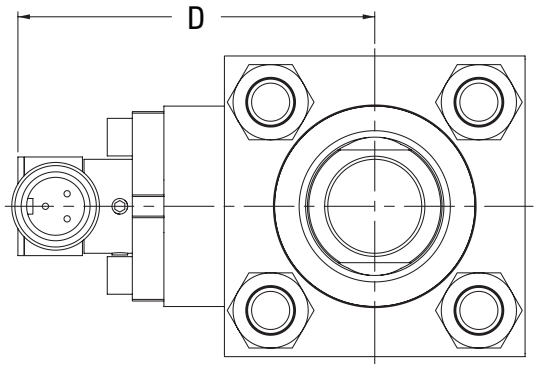
Special Cylinders

For special cylinder out of this catalog range,Eaton's engineering and design team is ready to produce special designs to meet customer's requirements. Kindly contact nearest Eaton sales office for any special requirements like special mounting, special seals, special bore diameter,special piston rod diameter,special pressure requirements etc.

Proximity switches

Bore	Rod	RE-RF Switch Part No	Probe Length	D Max.
1.50	0.63	C-554-2	1.250	3.18
1.50	1.00	C-554-2	1.250	3.58
1.50	CAP	C-554-3	2.062	3.44
2.00	0.63	C-554-3	2.062	3.99
2.00	1.00	C-554-3	2.062	4.14
2.00	1.38	C-554-2	1.250	3.55
2.00	CAP	C-554-3	2.062	3.97
2.50	0.63	C-554-2	1.250	3.18
2.50	1.00	C-554-2	1.250	3.33
2.50	1.38	C-554-1	1.025	3.33
2.50	1.75	C-554-1	1.025	3.51
2.50	CAP	C-554-3	2.062	3.77
3.25	1.00	C-554-3	2.062	4.14
3.25	1.38	C-554-2	1.250	3.55
3.25	1.75	C-554-2	1.250	3.74
3.25	2.00	C-554-2	1.250	3.93
3.25	CAP	C-554-3	2.062	3.88
4.00	1.00	C-554-3	2.062	4.14
4.00	1.38	C-554-3	2.062	4.36
4.00	1.75	C-554-3	2.062	4.55
4.00	2.00	C-554-2	1.250	3.93
4.00	2.50	C-554-1	1.025	3.95
4.00	CAP	C-554-3	2.062	3.88
5.00	1.00	C-554-4	2.875	4.96
5.00	1.38	C-554-3	2.062	4.36
5.00	1.75	C-554-3	2.062	4.55
5.00	2.00	C-554-3	2.062	4.74
5.00	2.50	C-554-3	2.062	4.99
5.00	3.00	C-554-2	1.250	4.43
5.00	3.50	C-554-1	1.025	4.45
5.00	CAP	C-554-4	2.875	4.69
6.00	1.38	C-554-4	2.875	5.18
6.00	1.75	C-554-4	2.875	5.36
6.00	2.50	C-554-3	2.062	4.99
6.00	4.00	C-554-3	2.062	4.80
6.00	CAP	C-554-4	2.875	4.80
8.00	1.38	C-554-5	3.775	6.08
8.00	1.75	C-554-5	3.775	6.26
8.00	3.50	C-554-4	2.875	6.30
8.00	5.50	C-554-3	2.062	6.42
8.00	CAP	C-554-6	4.560	5.84

* For bores above 8.00" consult Eaton



Proximity switches for series RE/RF cylinder are inductive type switches with sensing probe that "looks" at the cushion collar or button to provide extended or retracted indication. Since the probe is inside the cylinder, harsh external environments don't affect sensing. The 2-wire circuit will operate on AC or DC and works as reliably as a programmable controller. Proximity switches will meet UL requirements for 3000-psi (210 bar) hydraulic cylinder.

Switch will allow 304° rotations. Short Circuit protection is standard feature on Proximity proximity switch. SCP protects the switch from shorts in load or line. Upon sensing short condition, the switch assumes a non-conducting mode.

The fault condition must be removed and power turned off in order to reset the switch. This feature prevents unintended automatic restarts. The switch indicated when it is in SCP mode by flashing both leads.

Torque ¼-20 mounting screws to 15 ft-lb (20 Nm).

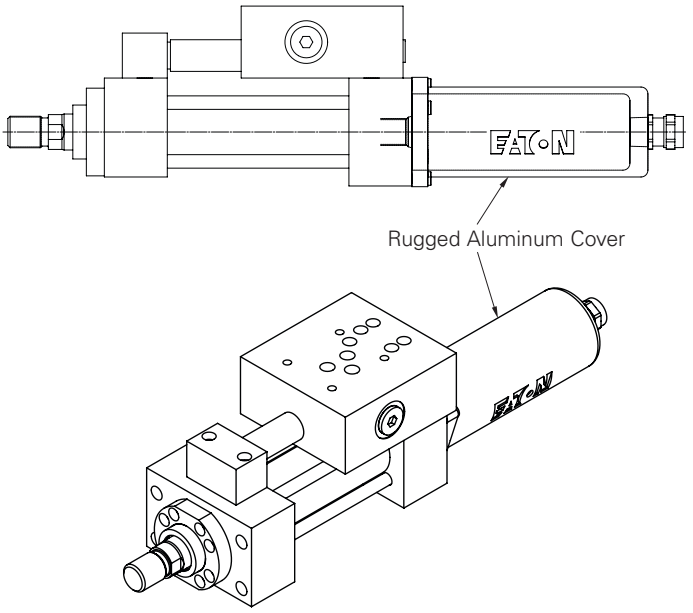
Series PS 200 2-wire AC / DC Proximaty Switch

Pressure	3000 PSI
Sensing Range	0.08 in ± 10%
Sensing distance from End of	0.25" - 0.38" stroke to go stroke
Operating temperature range	-13° to +158° F
Repeatability	0.001 in
Switching differential	≤ 15%
Supply Voltage	20 - 250 V AC / DC
Voltage drop	≤ 6 V
Load Current capacity @ 25° C	5-4.00 mA
Inrush current	≤ 3A (t ≤ 20ms)
Indicating LED's (Standard)	1 lit:Power on non-conducting 2 lit: Target present (both flashing = SCP mode)

Application engineering data
transducer options

A wide variety of precision cylinder position sensing and feedback devices are available. These packaged cylinder systems can handle virtually any application requiring feedback throughout the cylinder stroke with or without velocity monitoring and with resolutions of ± 0.001 or better. Cylinders can be manufactured prepared for transducer or with transducer already installed.

Two different protective cover options are available for rugged environments to protect the electronics.

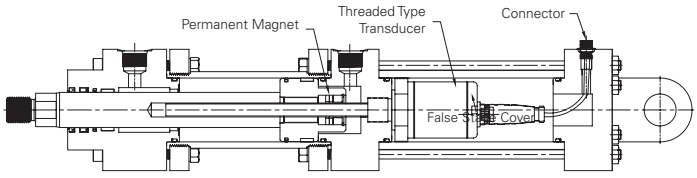


Transducer Cover

Rugged aluminum casting cover protects the transducer form minor wear and tear, yet is easily removable to service the transducer.

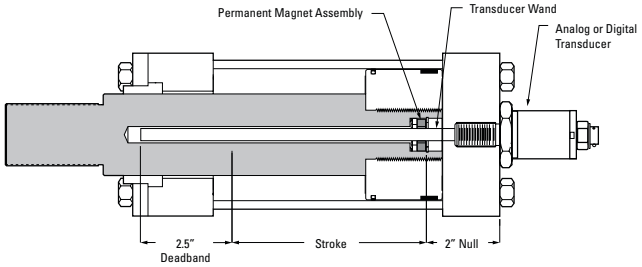
False Stage Cover

Transducer is protected by a tie-rod cylinder body and end cap for the best protection short of the encapsulated HLT II design. Utilize this design when you need heavy duty protection for the transducer, yet need output options not available in the HLT II.



Eaton HLT II

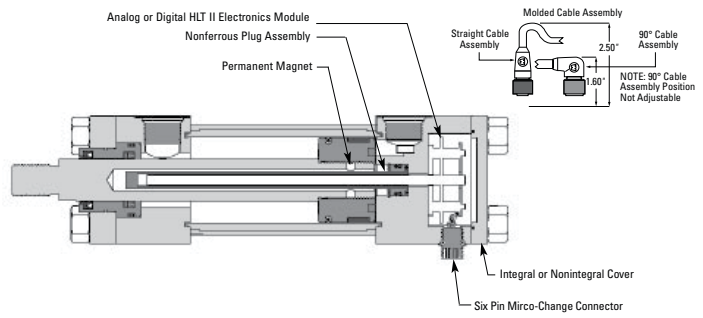
The Eaton HLT II is a linear displacement transducers are precise, durable, cost-effective measurement devices. Well protected within the core of the cylinder, the HLT II not only measures the position of the moving elements of the cylinder, but also remains untouched, and unaffected by even the harshest elements. HLT II also is an ideal choice, with its compact design, when overall cylinder length is a concern. The innovative encapsulated design and engineering along with the rugged construction of Eaton HLT II transducer guarantee the best reliability, precision and durability in even the toughest industrial environment.



Typical Probe Design Threaded in Cap

Additional Probe Options

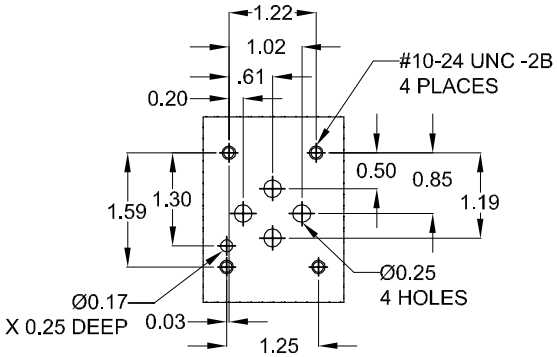
Eaton has years of experience providing cylinders with a variety of transducer feedback options. From the common mangetostrictive type transducers to solid state transducers, Eaton can provide a solution for your feedback needs regardless of application or condition. Eaton can also provide a cylinder "prepared" for a transducer if you prefer to provide your own feedback. Please contact your Eaton representative with your requirements and we can provide a cylinder solution.



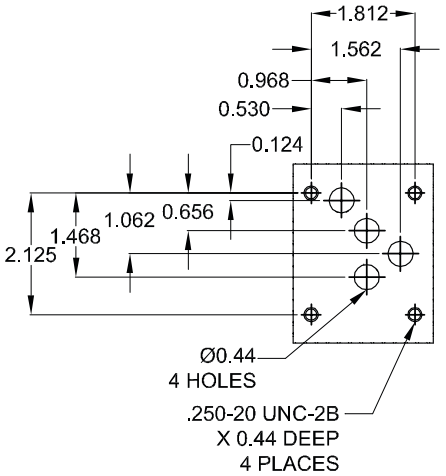
HLT II

Application/engineering data
manifold options

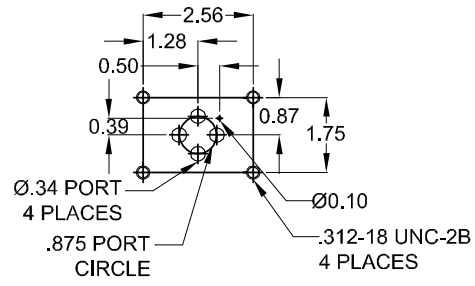
Eaton cylinders can be specified to include hydraulic manifolds and plumbing to simplify the integration of the cylinder with a control valve. Eaton offers standard hydraulic manifold options for valve interfaces of CETOP D03, D05 and SM4-20. Other manifolds can be designed as a special and incorporated with or without feedback.



D03 (CETOP 3)



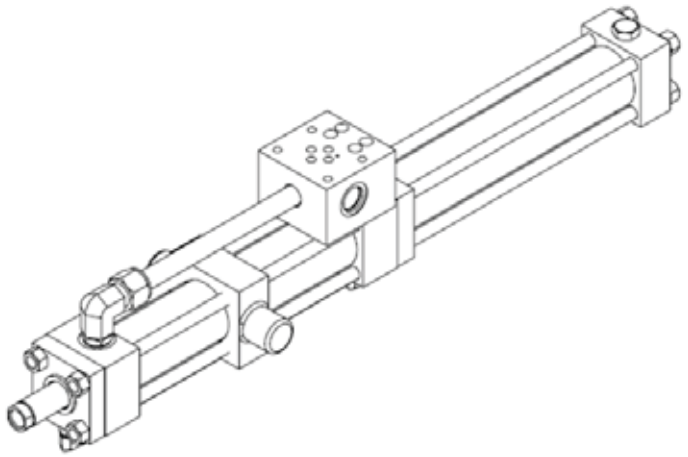
D05 (CETOP 5)

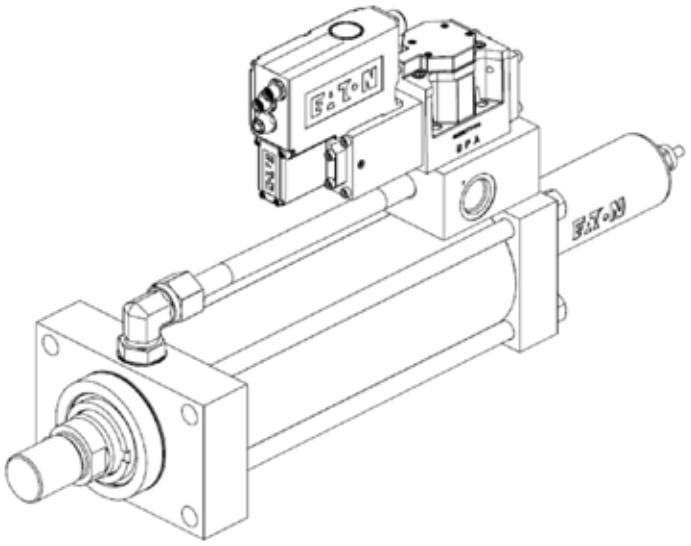


SM4-20 (.875 PORT CIRCLE)

Customer Requirements

Eaton has been an industry pioneer incorporating positioning systems into industrial cylinders, and can design systems for any application. If a specific type of system is required and not covered here, we can work with you to create a cylinder configuration incorporating your needs.





Stop tube and tie rod spacer selection

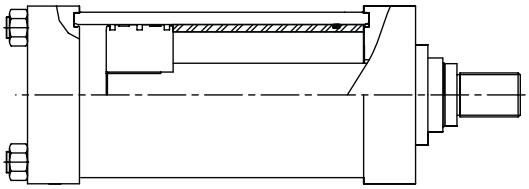
As the stroke length of a cylinder increases, the resultant bearing loads on the piston rod becomes greater. To keep these bearing loads from exceeding design limitations and to obtain optimum life from a cylinder, stop tubes should be specified according to the following procedures:

Specify one inch of stop tube for each 10 inches (or fractions thereof) of stroke in excess of the maximums listed in the table below.

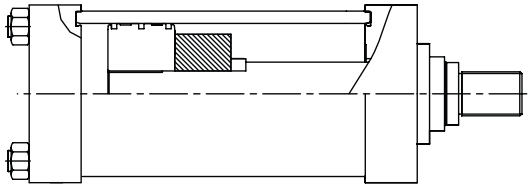
Stop Tube Designs

Three typical stop tube designs are illustrated here.

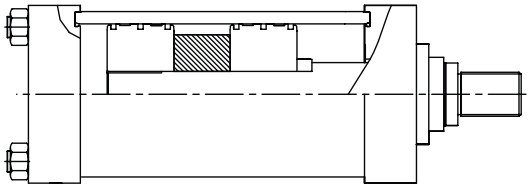
Design A (Stop Tube)
Used for cylinders non-cushioned on the rod.



Design B (Stop Spacer)
Used for cushioned cylinders.



Design C (Double Piston with Spacer)
The best choice for a cylinder with an exceptionally long stop tube requirement.

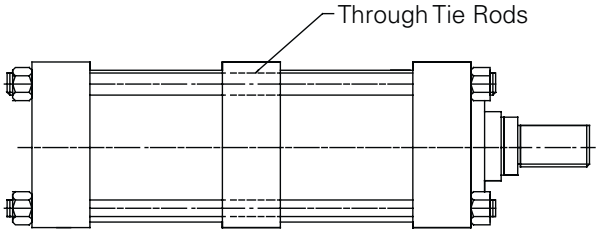


Note that piston's effective bearing area is doubled, in addition to gaining the normal increased minimum distance between bearing points

Tie rod spacers and center supports are used to improve the structural rigidity of long stroke tie rod cylinders. A tie rod spacer or center support should be applied when the stroke length exceeds 20 times the bore diameter.

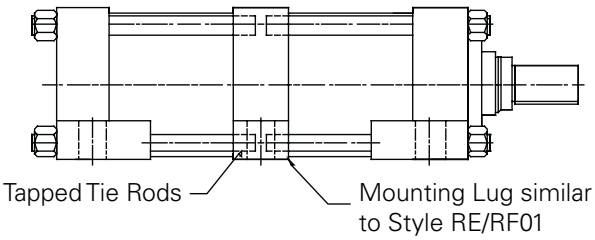
Tie Rod Spacer

The spacers have through holes for the tie rods and are held in place on the cylinder barrel with a small tack weld or set screw. The spacers keeps the tie rod in the proper position around the centerline of the cylinder and acts much like a truss in preventing excessive deflection in a long stroke cylinder that is not rigidly mounted (Clevis mount etc).



Tie Rod Center Support

The center support has side mounting lugs similar to side lug mount heads and serves as additional mounting location. The tie rods are studded in to the center support and it becomes a load carrying component of the cylinder assembly. The exact location of the tie rod center support is generally optional, which greatly increases the flexibility in mounting a long stroke cylinder.



Bore and rod diameter – cylinder size selection

To choose the proper size of cylinder for your application, first determine the maximum push or pull force required to do the job. Then use the below table to select the cylinder that will provide that force.

Remember that force capabilities derived from charts and formulas may be theoretically correct, but other factor must be considered. Be sure to allow for pressure drop between pump outlet and cylinder port. Also some of a cylinder force is used up overcoming seal friction and lesser extent the inertia of the piston itself.

WARNING
It is the user's responsibility to select the correct cylinder size.

Bore	Rod	Work Area	Rod Area	60 psi	80 psi	100 psi	200 psi	250 psi	300 psi	400 psi	500 psi	600 psi	750 psi	1000 psi
1.50	_	1.77		106	141	177	353	442	530	707	884	1060	1325	1767
1.50	0.63	1.46	1.46	88	117	146	292	365	438	584	730	876	1095	1460
1.50	1.00	0.98	0.98	59	79	98	196	245	295	393	491	589	736	982
2.00	_	3.14		188	251	314	628	785	942	1257	1571	1885	2356	3142
2.00	0.63	2.83	2.83	170	227	283	567	709	850	1134	1417	1701	2126	2835
2.00	1.00	2.36	2.36	141	188	236	471	589	707	942	1178	1414	1767	2356
2.00	1.38	1.66	1.66	99	133	166	331	414	497	663	828	994	1243	1657
2.50	_	4.91		295	393	491	982	1227	1473	1963	2454	2945	3682	4909
2.50	0.63	4.52	4.60	271	361	452	904	1130	1355	1807	2259	2711	3389	4518
2.50	1.00	3.91	4.12	235	313	391	782	977	1173	1563	1954	2345	2932	3909
2.50	1.38	3.02	3.42	181	241	302	604	755	905	1207	1509	1811	2264	3018
2.50	1.75	1.85	2.50	111	148	185	369	462	554	738	923	1108	1385	1846
3.25	_	8.30		498	664	830	1659	2074	2489	3318	4148	4977	6222	8296
3.25	1.00	7.51	7.51	451	601	751	1502	1878	2253	3004	3755	4506	5633	7510
3.25	1.38	6.81	6.81	409	545	681	1362	1703	2043	2724	3405	4087	5108	6811
3.25	1.75	5.89	5.89	353	471	589	1178	1473	1767	2356	2945	3534	4418	5890
3.25	2.00	5.15	5.15	309	412	515	1031	1289	1546	2062	2577	3093	3866	5154
4.00	_	12.57		754	1005	1257	2513	3142	3770	5027	6283	7540	9425	12566
4.00	1.00	11.57	11.78	694	925	1157	2313	2892	3470	4627	5783	6940	8675	11566
4.00	1.38	10.68	11.08	641	854	1068	2135	2669	3203	4270	5338	6405	8007	10676
4.00	1.75	9.50	10.16	570	760	950	1901	2376	2851	3802	4752	5702	7128	9504
4.00	2.00	8.57	9.42	514	685	857	1713	2142	2570	3427	4283	5140	6425	8566
4.00	2.50	6.32	7.66	379	505	632	1263	1579	1895	2527	3158	3790	4737	6316
5.00	_	19.63		1178	1571	1963	3927	4909	5890	7854	9817	11781	14726	19635
5.00	1.00	18.63	18.85	1118	1491	1863	3727	4659	5590	7454	9317	11181	13976	18635
5.00	1.38	17.74	18.15	1065	1420	1774	3549	4436	5323	7098	8872	10647	13308	17744
5.00	1.75	16.57	17.23	994	1326	1657	3314	4143	4972	6629	8286	9943	12429	16572
5.00	2.00	15.63	16.49	938	1251	1563	3127	3909	4690	6254	7817	9381	11726	15635
5.00	2.50	13.38	14.73	803	1071	1338	2677	3346	4015	5354	6692	8031	10039	13385
5.00	3.00	10.63	12.57	638	851	1063	2127	2659	3190	4254	5317	6381	7976	10635
5.00	3.50	7.38	10.01	443	591	738	1477	1846	2215	2954	3692	4431	5539	7385
6.00	_	28.27		1696	2262	2827	5655	7069	8482	11310	14137	16965	21206	28274
6.00	1.38	26.38	26.79	1583	2111	2638	5277	6596	7915	10553	13192	15830	19788	26384
6.00	1.75	25.21	25.87	1513	2017	2521	5042	6303	7564	10085	12606	15127	18909	25212
6.00	2.00	24.27	25.13	1456	1942	2427	4855	6069	7282	9710	12137	14565	18206	24274
6.00	2.50	22.02	23.37	1321	1762	2202	4405	5506	6607	8810	11012	13215	16518	22024
6.00	3.00	19.27	21.21	1156	1542	1927	3855	4819	5782	7710	9637	11565	14456	19274
6.00	3.50	16.02	18.65	961	1282	1602	3205	4006	4807	6410	8012	9615	12018	16024
6.00	4.00	12.27	15.71	736	982	1227	2455	3069	3682	4910	6137	7365	9206	12274
8.00	_	50.27		3016	4021	5027	10053	12566	15080	20106	25133	30159	37699	50265
8.00	1.38	48.37	48.78	2902	3870	4837	9675	12094	14512	19350	24187	29025	36281	48375
8.00	1.75	47.20	47.86	2832	3776	4720	9441	11801	14161	18881	23601	28322	35402	47203

Bore and rod diameter – cylinder size selection

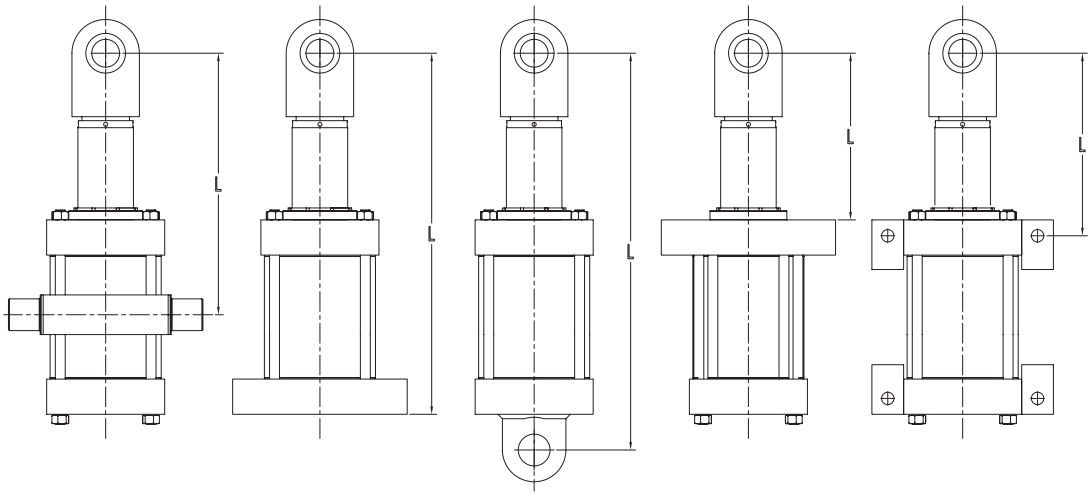
Bore	Rod	Work Area	Rod Area	60 psi	80 psi	100 psi	200 psi	250 psi	300 psi	400 psi	500 psi	600 psi	750 psi	1000 psi
8.00	2.00	46.27	47.12	2776	3701	4627	9253	11566	13880	18506	23133	27759	34699	46265
8.00	2.50	44.02	45.36	2641	3521	4402	8803	11004	13205	17606	22008	26409	33012	44015
8.00	3.00	41.27	43.20	2476	3301	4127	8253	10316	12380	16506	20633	24759	30949	41265
8.00	3.50	38.02	40.64	2281	3041	3802	7603	9504	11405	15206	19008	22809	28512	38015
8.00	4.00	34.27	37.70	2056	2741	3427	6853	8566	10280	13706	17133	20559	25699	34265
8.00	4.50	30.02	34.36	1801	2401	3002	6003	7504	9005	12006	15008	18009	22512	30015
8.00	5.00	25.27	30.63	1516	2021	2527	5053	6316	7580	10106	12633	15159	18949	25265
8.00	5.50	20.02	26.51	1201	1601	2002	4003	5004	6005	8006	10008	12009	15012	20015
10.00	_	78.54		4712	6283	7854	15708	19635	23562	31416	39270	47124	58905	78540
10.00	1.75	75.48	76.13	4529	6038	7548	15095	18869	22643	30191	37739	45286	56608	75477
10.00	2.00	74.54	75.40	4472	5963	7454	14908	18635	22362	29816	37270	44724	55905	74540
10.00	3.50	66.29	68.92	3977	5303	6629	13258	16572	19887	26516	33145	39774	49717	66290
10.00	5.50	48.29	54.78	2897	3863	4829	9658	12072	14487	19316	24145	28974	36217	48290
12.00	_	113.10		6786	9048	11310	22619	28274	33929	45239	56549	67858	84823	113097
12.00	2.00	109.10	109.96	6546	8728	10910	21819	27274	32729	43639	54549	65458	81823	109097
12.00	2.50	106.85	108.19	6411	8548	10685	21369	26712	32054	42739	53424	64108	80136	106847
12.00	4.00	97.10	100.53	5826	7768	9710	19419	24274	29129	38839	48549	58258	72823	97097
12.00	5.50	82.85	89.34	4971	6628	8285	16569	20712	24854	33139	41424	49708	62136	82847
14.00	_	153.94		9236	12315	15394	30788	38485	46181	61575	76969	92363	115454	153938
14.00	2.50	147.69	149.03	8861	11815	14769	29538	36922	44306	59075	73844	88613	110766	147688
14.00	3.00	144.94	146.87	8696	11595	14494	28988	36235	43481	57975	72469	86963	108704	144938
14.00	4.00	137.94	141.37	8276	11035	13794	27588	34485	41381	55175	68969	82763	103454	137938
14.00	5.50	123.69	130.18	7421	9895	12369	24738	30922	37106	49475	61844	74213	92766	123688

Application / engineering data buckling chart

Maximum allowable length 'L' in full extend condition In push applications, a cylinder acts as a loaded column. To use the table below, first go to the section for your mounting style. Then locate the column with pressure which is closest to, but not below, your application's operating pressure. The intersection of operating pressure and the bore/ rod size represents the maximum allowable length 'L' in full extend condition.

This maximum length is based on column loading analysis only and does not consider side loading,stop tube requirements,or other cylinder stroke limiter.

For pressures above 1000psi, consult your local Eaton representative.



The maximum allowable lengths are calculated using below formulae

1. Calculation per Euler

$$P = \frac{C\pi^2 EI}{FL^2} \quad if \quad \frac{L}{k} > \sqrt{\frac{2C\pi^2 E}{Sy}}$$

2. Calculation per JB Johnson

$$P = \frac{ASy}{F}\left[1 - \frac{SyL^2}{4C\pi^2 Ek^2}\right] \quad if \quad \frac{L}{k} \leq \sqrt{\frac{2C\pi^2 E}{Sy}}$$

F	Safety factor, 3.5
P	Critical load, N
E	Modulus of elasticity, $3x10^7$ psi
L	Length, in
I	Moment of inertia, in^4
C	End condition, refer respective mounting
A	Rod area, in^2
k	Radius of gyration, in
Sy	Yield strength of material, psi

Fixed Mounts (01, 02, 04, 05, 07, 08, 12, 13, 21, 22, 23, 24)

Bore	Rod	1000 psi	600 psi	500 psi	300 psi	250 psi	150 psi	100 psi	80 psi
1.50	0.63	27	35	38	49	54	69	85	95
1.50	1.00	69	89	97	125	137	177	217	242
2.00	0.63	20	26	28	37	40	52	64	71
2.00	1.00	51	66	73	94	103	133	163	182
2.00	1.38	97	125	137	177	194	251	307	344
2.50	0.63	16	21	23	29	32	41	51	57
2.50	1.00	41	53	58	75	82	106	130	145
2.50	1.38	78	100	110	142	156	201	246	275
2.50	1.75	126	163	178	230	252	325	398	445
3.25	1.00	32	41	45	58	63	82	100	112
3.25	1.38	60	77	85	109	120	154	189	211
3.25	1.75	97	125	137	177	194	250	306	343
3.25	2.00	127	163	179	231	253	327	400	447
4.00	1.00	26	33	36	47	51	66	81	91
4.00	1.38	49	63	69	89	97	125	154	172
4.00	1.75	79	102	111	144	157	203	249	278
4.00	2.00	103	133	145	188	206	266	325	364
4.00	2.50	161	207	227	293	321	415	508	568

Swivel Mounts (10, 11, 15, 16, 17)

Bore	Rod	1000 psi	600 psi	500 psi	300 psi	250 psi	150 psi	100 psi	80 psi
1.50	0.63	19	24	27	35	38	49	60	67
1.50	1.00	48	63	69	89	97	125	153	171
2.00	0.63	14	18	20	26	28	37	45	50
2.00	1.00	36	47	51	66	73	94	115	129
2.00	1.38	69	89	97	125	137	177	217	243
2.50	0.63	11	15	16	21	23	29	36	40
2.50	1.00	29	38	41	53	58	75	92	103
2.50	1.38	55	71	78	100	110	142	174	194
2.50	1.75	89	115	126	163	178	230	282	315
3.25	1.00	22	29	32	41	45	58	71	79
3.25	1.38	42	55	60	77	85	109	134	150
3.25	1.75	69	88	97	125	137	177	217	242
3.25	2.00	89	116	127	163	179	231	283	316
4.00	1.00	18	23	26	33	36	47	57	64
4.00	1.38	34	44	49	63	69	89	109	122
4.00	1.75	56	72	79	102	111	144	176	197
4.00	2.00	73	94	103	133	145	188	230	257
4.00	2.50	114	147	161	207	227	293	359	402

Application / engineering data
buckling chart

Fixed Mounts (01, 02, 04, 05, 07, 08, 12, 13, 21, 22, 23, 24)

Bore	Rod	1000 psi	600 psi	500 psi	300 psi	250 psi	150 psi	100 psi	80 psi
5.00	1.00	21	27	29	38	41	53	65	73
5.00	1.38	39	50	55	71	78	100	123	137
5.00	1.75	63	81	89	115	126	163	199	223
5.00	2.00	82	106	116	150	165	212	260	291
5.00	2.50	129	166	182	235	257	332	406	454
5.00	3.00	185	239	262	338	370	478	585	654
5.00	3.50	252	325	356	460	504	651	797	891
6.00	1.38	32	42	46	59	65	84	102	115
6.00	1.75	52	68	74	96	105	136	166	186
6.00	2.50	107	138	151	196	214	277	339	379
6.00	4.00	274	354	388	501	548	708	867	970
8.00	1.38	24	31	34	44	49	63	77	86
8.00	1.75	39	51	56	72	79	102	124	139
8.00	3.50	157	203	223	287	315	407	498	557
8.00	5.50	389	502	550	710	778	1004	1230	1375
10.00	1.75	31	41	45	57	63	81	100	111
10.00	2.00	41	53	58	75	82	106	130	145
10.00	3.50	126	163	178	230	252	325	398	445
10.00	5.50	311	402	440	568	622	803	984	1100
12.00	2.00	34	44	48	63	69	89	108	121
12.00	2.50	54	69	76	98	107	138	169	189
12.00	4.00	137	177	194	250	274	354	434	485
12.00	5.50	259	335	367	473	518	669	820	916
14.00	2.50	46	59	65	84	92	119	145	162
14.00	3.00	66	85	93	121	132	171	209	234
14.00	4.00	118	152	166	215	235	303	372	416
14.00	5.50	222	287	314	406	444	574	703	786

Fixed Mounts (01, 02, 04, 05, 07, 08, 12, 13, 21, 22, 23, 24)

Bore	Rod	1000 psi	600 psi	500 psi	300 psi	250 psi	150 psi	100 psi	80 psi
5.00	1.00	15	19	21	27	29	38	46	51
5.00	1.38	27	35	39	50	55	71	87	97
5.00	1.75	45	57	63	81	89	115	141	157
5.00	2.00	58	75	82	106	116	150	184	206
5.00	2.50	91	117	129	166	182	235	287	321
5.00	3.00	131	169	185	239	262	338	414	463
5.00	3.50	178	230	252	325	356	460	563	630
6.00	1.38	23	30	32	42	46	59	72	81
6.00	1.75	37	48	52	68	74	96	117	131
6.00	2.50	76	98	107	138	151	196	240	268
6.00	4.00	194	250	274	354	388	501	613	686
8.00	1.38	17	22	24	31	34	44	54	61
8.00	1.75	28	36	39	51	56	72	88	98
8.00	3.50	111	144	157	203	223	287	352	394
8.00	5.50	275	355	389	502	550	710	869	972
10.00	1.75	22	29	31	41	45	57	70	79
10.00	2.00	29	38	41	53	58	75	92	103
10.00	3.50	89	115	126	163	178	230	282	315
10.00	5.50	220	284	311	402	440	568	696	778
12.00	2.00	24	31	34	44	48	63	77	86
12.00	2.50	38	49	54	69	76	98	120	134
12.00	4.00	97	125	137	177	194	250	307	343
12.00	5.50	183	237	259	335	367	473	580	648
14.00	2.50	32	42	46	59	65	84	103	115
14.00	3.00	47	60	66	85	93	121	148	165
14.00	4.00	83	107	118	152	166	215	263	294
14.00	5.50	157	203	222	287	314	406	497	555

Technical data cushion formulas and factors

Cushions are recommended when piston speed is in excess of 20-25 feet per minute. Cushions decelerate the piston and rod assembly at the end of the stroke, lessening the noise and shock and increasing cylinder life. Heavy loads attached to the piston and rod assembly should be stopped by external means, such as shock absorbers, springs, decelerating valves, etc.

Use the information below, along with the examples on page 83 to determine if standard cushioning is sufficient for your application.

Force Factor Chart

Force Factors (a = v2 x .001294)

Piston	Force factor
ips	a
1	0.001
2	0.005
3	0.012
4	0.021
5	0.032
6	0.047
7	0.063
8	0.083
9	0.105
10	0.129
11	0.157
12	0.186
13	0.219
14	0.254
15	0.291
16	0.331
17	0.374
18	0.419
19	0.467
20	0.518
21	0.571
22	0.626
23	0.685
24	0.745
25	0.809

(continued)

Piston	Force factor
ips	a
26	.875
27	.944
28	1.02
29	1.09
30	1.16
31	1.24
32	1.33
33	1.41
34	1.50
35	1.59
36	1.68
37	1.77
38	1.87
39	1.97
40	2.07
41	2.18
42	2.28
43	2.39
44	2.51
45	2.62
46	2.74
47	2.86
48	2.98
49	3.11
50	3.24

General Formulas

Horizontal motion	F_{acc} or $F_{dec} = W \times {}^{a}/_{s}$
Vertical motion, decelerating downward or accelerating upward	F_{acc} or $F_{dec} = (W \times {}^{a}/_{s}) + W$
Vertical motion, decelerating upward or accelerating downward	F_{acc} or $F_{dec} = (W \times {}^{a}/_{s}) - W$
Frictional force	$F_f = u \times W$
Total cushioning force (+ F_f if load accelerating, — F_f if load decelerating)	$F_t = F_{acc}$ or $F_{dec} + F_p \pm F_f$
Contained pressure	$P_c = F_t/A_{cc}$ or F_t/A_{hc}

Force Factor Terminology

Term Used	Explanation	Units
W	Weight of load	pounds
Ab	Bore area	square inches
Ah	Ab less rod area	square inches
Acc	Ab less cap plunger cross- sectional area	square inches
Ahc	Ab less head plunger cross- sectional area	square inches
a	Force factor	-
s	Acceleration or deceleration distance	inches
u	Coefficient of friction of laod motions	Horizontal = .15 Vertical = 0
v	Velocity	inches per second (ips)
Facc	Force needed to accelerate a weight	pounds
Fdec	Force needed to decelerate a weight	pounds
Ff	Friction force due to load motion	pounds
Fp	Driving pressure force	pounds
Ft	Total cushioning force	pounds
Pp	Pump pressure	inches per second (ips)
Pc	Contained cushioning pressure	inches per second (ips)

Acceleration and Deceleration Forces

The a force factors shown are used to determine the forces required to accelerate or decelerate a weight through a given distance, s (Refer to **Force Factor Chart**).

- If the motion of the load is horizontal, use the general formula F_{acc} or $F_{dec} = W \times {}^{a}/_{s}$.
- If the motion of the load is vertical and is being decelerated downward or accelerated upward, use the general formula F_{acc} or $F_{dec} = (W \times {}^{a}/_{s}) + W$.
- If the motion of the load is vertical and is being decelerated upward or accelerated downward, use the general formula F_{acc} or $F_{dec} = (W \times {}^{a}/_{s}) - W$.
- Friction due to load motion affects F_t. Add F_f to F_t if the load is accelerating. Subtract F_f from F_t if the load is decelerating.
- Cylinder friction is negligible.

NOTE

The contained cushioning pressure must not exceed 5000 psi. If the standard cushion results in a too high pressure, then a longer cushion spud must be specified.

Technical data
how to calculate cushion requirements

Hydraulic Examples
Example A

Horizontal deceleration

RF series cylinder, 3 1/4" bore, 1 3/8" rod (standard), cushioning at cap.

A weight of 3000 lbs., moving at 25 ips, and driven by a pump pressure of 1000 psi should stopped in 1 1/4". Assume the coefficient of friction to be .15.

1. $\mathbf{F_f}$ = $\mathbf{u \times W}$
   = .15 x 3000 lbs.
   $\mathbf{F_f}$ = 450 lbs.
2. $\mathbf{F_p}$ = $\mathbf{A_h \times P_p}$
   $\mathbf{A_h}$ = $\mathbf{A_b}$ – rod area
   = 8.45 sq. in.–
   1.49 sq. in.
   $\mathbf{A_h}$ = 6.96 sq. in.
   $\mathbf{F_p}$ = 6.96 sq. in. x
   1000 psi
   $\mathbf{F_p}$ = 6960 lbs.
3. $\mathbf{F_{dec}}$ = $\mathbf{W \times {}^{a}/_{s}}$
   = 3000 lbs. x
   .809/1.25 in.
   $\mathbf{F_{dec}}$ = 1942 lbs.
4. $\mathbf{F_t}$ = $\mathbf{F_{dec} + F_p - F_f}$
   = 1942 + 6960 – 450
   $\mathbf{F_t}$ = 8452 lbs.
5. $\mathbf{P_c}$ = $\mathbf{F_t / Acc}$
   = 8452 lbs./7.85 sq. in.
   $\mathbf{P_c}$ = 1077 psi

This figure does not exceed the pressure capability of the cylinder, therefore, the standard cushion is acceptable.

Example B

Horizontal deceleration

RF series cylinder, 6" bore, 2 1/2" rod (standard), cushioning at head. The cylinder is mounted vertical rod down, with a 2000 lb. load attached to the rod end. Pump pressure is 750 psi, the load is moving at 40 ips, and must be stopped in 1 3/8" There is no load friction.

1. $\mathbf{F_p}$ = $\mathbf{P_p \times A_b}$
   = 750 psi x
   28.56 sq. in.
   $\mathbf{F_p}$ = 21,420 lbs.
3. $\mathbf{F_{dec}}$ = $\mathbf{(W \times {}^{a}/_{s}) + W}$
   = (2000 lbs. x
   2.07/1.375 in.)
   + 2000 lbs.
   $\mathbf{F_{dec}}$ = 5011 lbs.
4. $\mathbf{F_t}$ = $\mathbf{F_p + F_{dec}}$
   = 21,420 + 5011 lbs.
   $\mathbf{F_t}$ = 26,431 lbs.
5. $\mathbf{P_c}$ = $\mathbf{F_t / A_{hc}}$
   = 26,431 lbs.
   /22.07 sq. in.
   $\mathbf{P_c}$ = 1198 psi

This does not exceed the pressure capability of the cylinder, therefore, the standard cushion is acceptable.

Note: If your calculations show you need a longer cushion than standard, longer cushions are available in 1/4 inch increments.

Cylinder Bore Dia. (Inch)	Piston Rod Dia. (Inch)	Cushion Length Head	Cap	Plunger Cross Section Area Head	Cap
1.50	0.63	0.87	0.81	0.602	0.138
2.00	0.63	0.87	0.81	0.602	0.138
2.50	0.63	0.87	0.81	0.602	0.138
3.25	1.00	1.12	1.00	1.108	0.331
4.00	1.00	1.12	1.00	1.108	0.331
5.00	1.00	1.12	1.00	1.108	0.331
6.00	1.38	1.37	1.25	2.076	0.601
8.00	1.38	1.37	1.25	2.076	0.601
10.00	1.75	1.37	1.75	3.144	0.601
12.00	2.00	1.37	1.75	4.433	1.226
14.00	2.50	1.37	2.00	6.496	2.400

Application data sheet

Customer Name:			
Customer P/N	Rev	Machine	Function
Contact	Ph	Fax	e-mail
Cylinder Description			
Series	Mtg Style	Bore	Rod	Stroke
Cushions: None ☐	Rod End ☐ Pos:	Blind End ☐ Pos:		
Weight Connected to Rod (lbs):			
How is Cylinder Mounted			
Horizontal ☐	Vertical Rod Up ☐ Rod Down ☐	Angle ☐ Degrees from Vertical	
Rod End Connection	Firmly Guided ☐ Supported ☐ Unsupported ☐ Know Side Load (lbs)		
How is Cylinder Used			
Operating Fluid: Petroleum Oil	Fluid Temp @ Cylinder:		
Pressure Setting Extend:	Pressure Setting Retract:		
Stop Internal Ext ☐	Stop Internal Ret ☐	Stop External Ext ☐	Stop External Ret ☐
Force Ext lb_f	Force Ret lb_f	Velocity Ext:	Velocity Ret:
Cycle Rate:	Cycle Life of Cylinder:	Cycle Life Seals:	
Environmental Conditions			
Standard Factory ☐ Very Dirty ☐ Outdoors ☐ Other:			
Application Sketch		Special Requirements	
Prepared By	Date	Reviewed By	Date

Notes

Eaton
Hydraulics Group USA
14615 Lone Oak Road
Eden Prairie, MN 55344
USA
Tel: 952-937-9800
Fax: 952-294-7722
www.eaton.com/hydraulics

Eaton
Hydraulics Group Europe
Route de la Longeraie 7
1110 Morges
Switzerland
Tel: +41 (0) 21 811 4600
Fax: +41 (0) 21 811 4601

Eaton
Hydraulics Group Asia Pacific
Eaton Building
No.7 Lane 280 Linhong Road
Changning District, Shanghai
200335 China
Tel: (+86 21) 5200 0099
Fax: (+86 21) 2230 7240

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