EATON | Vickers

Hydraulic and Pneumatic Cylinders
Heavy-Duty Imperial Mill Type

Catalog

Series AM/MM/WM

Table of Contents

Design Features

SPECIFICATIONS

Bore Sizes: 2″ - 16″

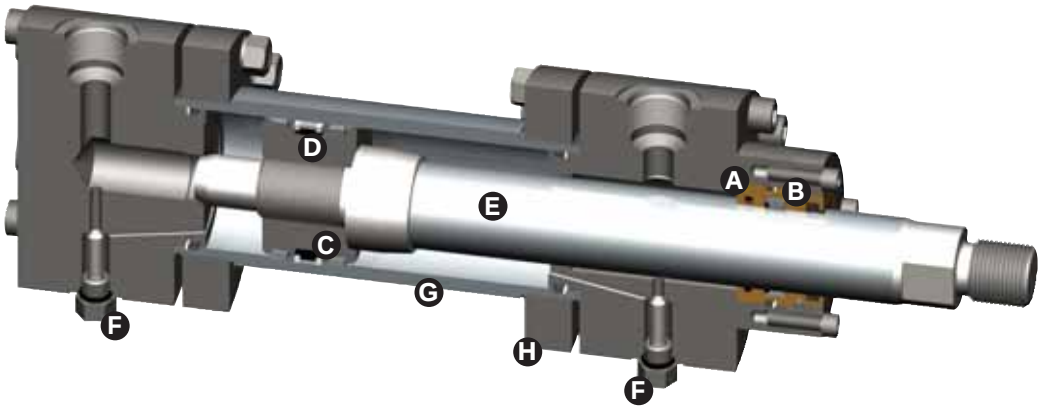
Piston Rod Dia.: 1″ - 10″

Pressure Ratings:

MM- 2,000 psi Nominal Hydraulic Service

WM- 3,000 psi Nominal Hydraulic Service

AM- 250 psi Pneumatic Service



A. Heavy Duty Rod Cartridge

- SAE 660 bronze rod cartridge is pilot-fitted into the head and incorporates inboard and outboard bearing areas.
- Aluminum bronze material available as an option.

B. Rod Seal and Wiper

Hydraulic:

- High durometer urethane mechanically loaded rod seal with a double lip rod wiper provides contamination exclusion and abrasion resistance.
- High durometer double lip rod wiper.
- Metallic rod scraper available as an option.
- Other rod sealing and wiping systems are available as options.

Pneumatic:

- High quality nitrile U-cup rod seal and double-lipped wiper.
- Other rod sealing and wiping systems are available as options.

C. Secured Piston

- One piece pilot-fitted ductile iron material.
- Piston to rod set screw staking available as premium option.
- Steel pistons available as an option with wear bands or bronze overlay.

D. Piston Seals

Hydraulic:

- Bi-directional nitrile piston seal with outboard wearbands prevents pressure traps and protects against sideloading.
- Other sealing configurations are available as an option.

Pneumatic:

- Bi-directional nitrile piston seal with outboard wearbands prevents pressure traps and protects against sideloading.
- Other sealing configurations are available as an option.

E. High Yield Piston Rod

- High yield, turned, ground and polished C1045/50 microalloy steel.
- Hard chrome plated a minimum of .0006″ diametrically.
- Heavier plating available as an option, in addition to various types of stainless steel and chrome over nickel plated rod material.

F. Cushions

- Adjustable design allows for smooth deceleration; available for all bore and rod combinations, except on 2.00” bore with 1.375” rod (rod-end side).
- Ball check design allows for a smooth breakaway from cushion.

G. High Yield Steel Tubing

Hydraulic:

- High yield strength steel.
- Chrome-plated bores available as an option.

Pneumatic:

- High yield strength steel.
- Tubes honed & chrome-plated to .0006″ minimum diametrically.
- Heavier plating available as an option.

H. Body Flanges

- Steel construction.
- High strength (per ASTM A574) bolts used for assembly with hardened steel washers.
- Hydraulic: Flanges come standard threaded to body tube for maximum strength and durability. (See Application Data, page 21)
- Pneumatic: Threaded flanges offered as standard for all applications.

Model Code

All dimensions are in inches.

WM	10	KM	5	N	3	K	W	108	PC
1, 2	3, 4	5, 6	7	8	9	10	11	12, 13, 14	15,16

1, 2 Mill Cylinder Series

WM – 3000 psi Hydraulic

MM – 2000 psi Hydraulic

AM – 250 psi Pneumatic

3, 4 Mounting Style

XX – Custom

01 – Side Lug (Foot)

09 – Head Rectangular

10 – Cap Clevis

11 – Spherical Bearing

14 – Cap Rectangular

15 – Intermediate Trunnion

24 – No Mount

25 – Double Rod Side Lug

33 – Double Rod, Rectangular

34 – Double Rod, Intermediate Trunnion

41 – Double Rod, No Mount

5, 6 Bore and Rod Diameter

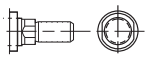
Code	Bore	Rod
DE	2	1
DH	2	1-3/8
FH	3	1-3/8
FL	3	1-3/4
FM	3	2
HL	4	1-3/4
HM	4	2
HP	4	2-1/2
KM	5	2
KP	5	2-1/2
KV	5	3-1/2
LP	6	2-1/2
LU	6	3
LW	6	4
MU	7	3
MV	7	3-1/2
MZ	7	5
NV	8	3-1/2
NW	8	4
N1	8	5-1/2
RW	10	4
RZ	10	5
R1	10	5-1/2
R4	10	7
S1	12	5-1/2
S4	12	7
S6	12	8
T4	14	7
T7	14	9
U7	16	9
U8	16	10

7 Rod End Types

Code - Rod End Style

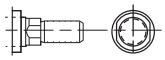
2 - Short Female UN Thread

5 - Small Male UN Thread

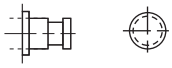


6 - Plain - No Attachment

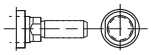
9 - Int. Male UN Thread



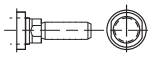
G - Grooved End



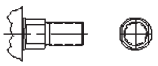
K - Extended Small Male UN Thd.



M - Extended Int. Male UN Thd.



R - Male Thread



8 Sealing Systems

N - Normal

L - Low Friction

T - High Temperature

C - Classic (Chevron/C.I. Rings)

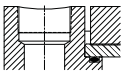
9 Ports

For maximum reliability, SAE ports are recommended.

Code - Port Style

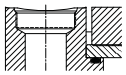
1 - NPTF

2 - Oversize NPTF

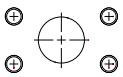


3 - SAE/UN Straight Thread O-Ring

4 - Oversize SAE/UN O-Ring

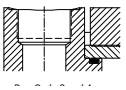


6 - SAE 4-Bolt Flange



7 - BSPP (British Parallel Thread)

8 - Oversize BSPP



Continued on the next page.

Model Code

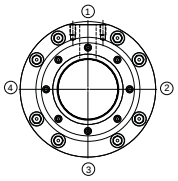
All dimensions are in inches.

WM 10 KM 5 N 3 K W 108 PC

1, 2 | 3, 4 | 5, 6 | 7 | 8 | 9 | 10 | 11 | 12, 13, 14 | 15,16

10 Port Location

Ports are located as shown below when viewing cylinder from head end (mounting end of double rod cylinder). Some mounting styles have port location restrictions.



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

11 Cushion Location

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

12, 13, 14 Cylinder Stroke

Items 12 & 13 indicate total stroke length from 1 through 99 inches. Item 14 indicates fractions of an inch as follows:

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

15, 16 Enter Applicable Code for Either:

Extra Rod Protection ("C" dimension)

Item 15 indicates inches from 0 through 9.

Item 16 indicates fractions on an inch per codes shown for item 14.

OR

Air bleed, gland drain or proximity sensor positions

Item 15 indicates air bleeds (H), gland drains (G), or proximity sensors (P).

Item 16 indicates location of air bleeds, gland drain or proximity switches as shown in item 10 when viewing cylinder from head end (or mounting end of double rod end cylinders).*

"-" in table indicates no air bleed or proximity sensor.

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

** Gland drain is used on head end only.*

How To Order

Standard Cylinders

Eaton® has created an easy system for ordering Vickers™ Series AM/MM/WM Cylinders. This system has been developed to improve our service to you. The model code consists of sixteen alpha-numeric digits which fully describe the most common standard options offered on Series AM/MM/WM cylinders.

To specify your Series AM/MM/WM 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 Vickers cylinder is assigned a sixteen digit model code. That code is unique to a particular cylinder description. That way, when you re-order your Series AM/MM/WM cylinder, you're assured of exactly the same top quality cylinder design.

• Improve identification.
Every cylinder has its sixteen digit model code clearly marked on the product. Each sixteen 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 Vickers cylinder.

Note: See pages 4 and 5 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 five digit design number on receipt of order (as explained in next section).

Replacement Cylinders

Every custom Vickers cylinder is assigned a unique design number. This number is contained in the last five digits of the sixteen digit model code, and item 12 is always an alpha character. In other words, the "Stroke" and "Extra-Rod Projection" locations (items 12 through 16) become the "Design Number" items for custom cylinders. When ordering a replacement cylinder, simply give the sixteen digit model code or the five digit design number to your local Vickers Cylinder Sales representative.

Replacement Parts

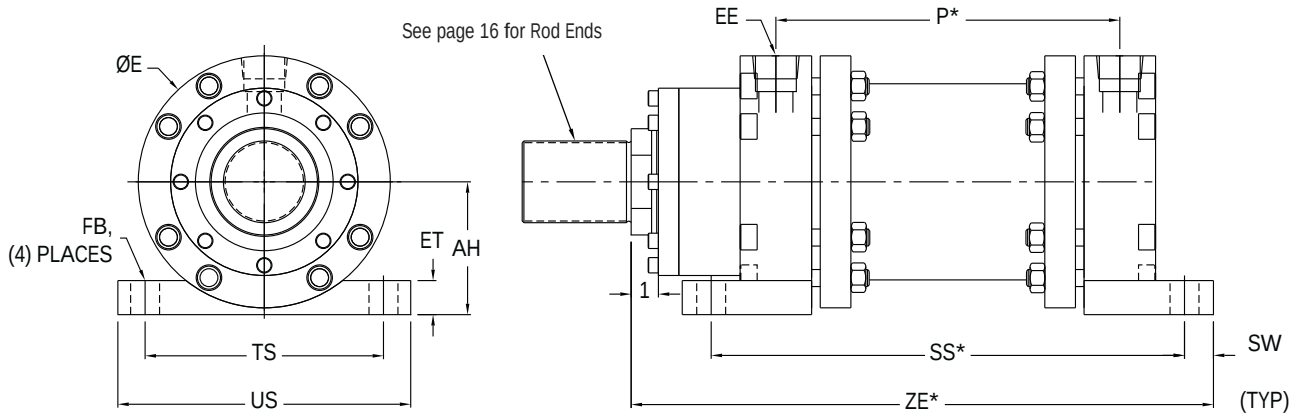
Each design number is stored in a quick retrieval computerized storage system. This gives our field sales representatives rapid access to assist you in identifying and specifying genuine Vickers replacement parts.

Mounting Style and Installation Dimensions

01 Side Lug (Foot) Mount

See page 18 for Port Options

See page 16 for Rod Ends



AM01/MM01

BORE	RODS	E	P*	ZE*	SS*	SW	FB	US	TS	ET	AH
2	1 and 1.375	3.88	3.75	8.13	6.13	.38	.41	5.06	4.25	.63	2.188
3	1.375 and 2	5.19	4.25	8.88	7.00	.50	.56	6.56	5.56	.75	2.844
4	1.75 and 2.5	6.25	4.50	10.00	7.50	.63	.69	7.88	6.63	1.00	3.375
5	2 and 3.5	7.88	5.50	12.88	9.24	.75	.81	9.75	8.25	1.13	4.188
6	2.5 and 4	9.25	6.25	14.88	10.88	1.00	1.06	11.63	9.63	1.50	4.875
7	3 and 5	10.75	6.38	16.00	11.38	1.13	1.19	13.25	11.13	1.75	5.625
8	3.5 and 5.5	12.00	7.75	18.13	13.75	1.25	1.31	14.88	12.38	1.88	6.250
10	4 and 5.5	14.94	9.25	20.44	15.75	1.50	1.56	18.31	15.31	2.25	7.781
12	5.5 and 7	17.19	10.44	23.25	17.75	1.75	1.81	21.06	17.56	2.63	9.125
14	7 and 9	19.50	10.69	25.25	18.50	2.00	2.06	23.88	19.88	3.00	10.500
16	9 and 10	23.38	11.19	28.38	20.38	2.25	2.31	28.25	23.75	3.38	12.438

All dimensions are in inches.

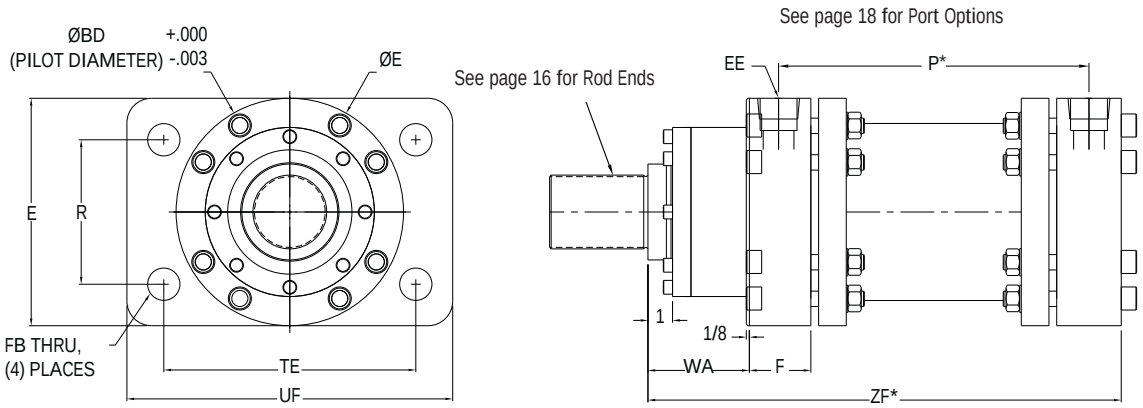
WM01 (3000psi)

BORE	RODS	E	P*	ZE*	SS*	SW	FB	US	TS	ET	AH
3	1.75 and 2	5.19	5.38	11.50	8.13	.50	.56	6.56	5.56	.75	2.844
4	2 and 2.5	6.50	5.75	12.19	8.75	.63	.69	8.13	6.88	1.00	3.500
5	2.5 and 3.5	7.88	7.00	15.25	10.75	.75	.81	9.75	8.25	1.13	4.188
6	3 and 4	9.25	7.94	17.56	12.56	1.00	1.06	11.63	9.63	1.50	4.875
7	3.5 and 5	10.75	8.63	19.63	13.50	1.13	1.19	13.38	11.13	1.56	5.625
8	4 and 5.5	12.38	10.25	22.69	16.25	1.25	1.31	15.38	12.75	1.88	6.438
10	5 and 7	14.94	10.50	25.44	17.00	1.50	1.56	18.31	15.31	2.25	7.781
12	5.5 and 8	17.50	11.31	27.88	18.63	1.75	2.06	21.63	17.88	2.63	9.125
14	7 and 9	20.38	11.56	29.75	19.38	2.00	2.06	24.75	20.75	3.00	10.688
16	9 and 10	23.38	12.50	33.75	21.25	2.25	2.31	28.25	23.75	3.38	12.438

All dimensions are in inches.
* Add stroke to these dimensions.

Mounting Style and Installation Dimensions

09 Head
Rectangular Mount



AM09/MM09

BORE	RODS	E	P*	ZF*	F	FB	R	TE	UF	BD	WA
2	1 and 1.375	3.88	3.75	7.38	1.50	.41	3.13	4.25	5.00	3.875	2.13
3	1.375 and 2	5.19	4.25	7.88	1.63	.56	4.19	5.75	6.75	5.187	2.00
4	1.75 and 2.5	6.25	4.50	8.75	1.63	.69	5.00	6.94	8.19	6.250	2.63
5	2 and 3.5	7.88	5.50	11.38	2.13	.81	6.38	8.69	10.19	7.875	3.75
6	2.5 and 4	9.25	6.25	12.88	2.50	1.06	7.25	10.31	12.31	9.250	4.13
7	3 and 5	10.75	6.38	13.63	2.50	1.19	8.38	11.94	14.19	10.750	4.75
8	3.5 and 5.5	12.00	7.75	15.63	3.38	1.31	9.50	13.94	15.81	12.000	4.50
10	4 and 5.5	14.94	9.25	17.44	3.38	1.56	11.94	16.50	19.50	14.937	4.81
12	5.5 and 7	17.19	10.44	19.75	3.69	1.81	13.69	19.00	22.50	17.187	5.63
14	7 and 9	19.50	10.69	21.50	3.69	2.06	15.50	21.56	25.56	19.500	7.13
16	9 and 10	23.38	11.19	23.88	4.13	2.31	18.88	25.69	30.19	23.375	8.13

All dimensions are in inches.

WM09 (3000psi)

BORE	RODS	E	P*	ZF*	F	FB	R	TE	UF	BD	WA
3	1.75 and 2	5.19	5.38	10.50	1.63	.56	4.19	5.75	6.75	5.187	3.50
4	2 and 2.5	6.50	5.75	10.94	1.63	.69	5.25	7.19	8.44	6.50	3.56
5	2.5 and 3.5	7.88	7.00	13.75	2.13	.81	6.38	8.69	10.19	7.875	4.63
6	3 and 4	9.25	7.94	15.56	2.50	1.06	7.25	10.31	12.31	9.250	5.13
7	3.5 and 5	10.75	8.63	17.38	2.50	1.19	8.50	11.94	14.19	10.750	6.25
8	4 and 5.5	12.38	10.25	20.19	3.38	1.31	9.88	13.69	16.19	12.375	6.56
10	5 and 7	14.94	10.50	21.44	3.38	1.56	11.94	16.50	19.50	14.937	8.56
12	5.5 and 8	17.50	11.31	24.38	3.69	1.81	14.00	19.31	22.81	17.50	9.38
14	7 and 9	20.38	11.56	25.75	3.69	2.06	16.38	22.44	26.44	20.375	10.50
16	9 and 10	23.38	12.50	29.25	4.13	2.31	18.88	25.69	25.69	23.375	12.63

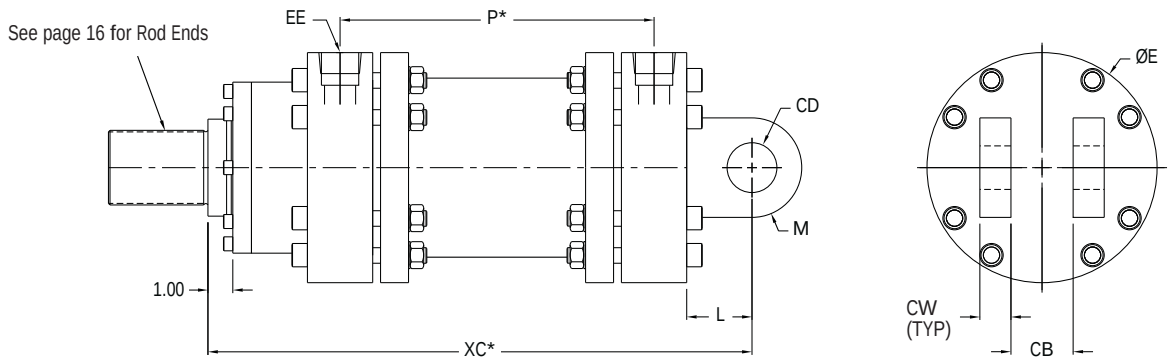
All dimensions are in inches.
* Add stroke to these dimensions.

Mounting Style and Installation Dimensions

10 Cap Clevis Mount

See page 18 for Port Options

See page 16 for Rod Ends



AM10/MM10

BORE	RODS	E	P*	XC*	M	CD	L	CW	CB
2	1 and 1.375	3.88	3.75	8.63	.75	.750	1.25	.63	1.25
3	1.375 and 2	5.19	4.25	9.38	1.00	1.000	1.50	.75	1.50
4	1.75 and 2.5	6.25	4.50	10.88	1.38	1.375	2.12	1.00	2.00
5	2 and 3.5	7.88	5.50	13.63	1.75	1.750	2.25	1.25	2.50
6	2.5 and 4	9.25	6.25	15.38	2.00	2.000	2.50	1.25	2.50
7	3 and 5	10.75	6.38	16.63	2.50	2.500	3.00	1.50	3.00
8	3.5 and 5.5	12.00	7.75	18.88	3.00	3.000	3.25	1.50	3.00
10	4 and 5.5	14.94	9.25	21.44	3.50	3.500	4.00	2.00	4.00
12	5.5 and 7	17.19	10.44	24.25	4.00	4.000	4.50	2.25	4.50
14	7 and 9	19.50	10.69	27.25	5.00	5.000	5.75	3.00	6.00
16	9 and 10	23.38	11.63	30.88	6.00	6.000	7.00	3.50	7.00

All dimensions are in inches.

WM10 (3000psi)

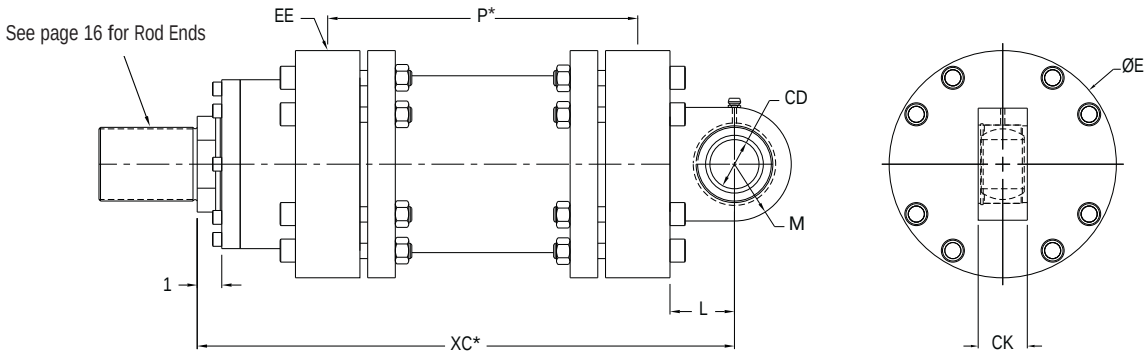
BORE	RODS	E	P*	XC*	M	CD	L	CW	CB
3	1.75 and 2	5.19	5.38	12.00	1.00	1.000	1.50	.75	1.50
4	2 and 2.5	6.50	5.75	13.06	1.38	1.375	2.13	1.00	2.00
5	2.5 and 3.5	7.88	7.00	16.00	1.75	1.750	2.25	1.25	2.50
6	3 and 4	9.25	7.94	18.06	2.00	2.000	2.50	1.25	2.50
7	3.5 and 5	10.75	8.63	20.38	2.50	2.500	3.00	1.50	3.00
8	4 and 5.5	12.38	10.25	23.44	3.00	3.000	3.25	1.50	3.00
10	5 and 7	14.94	10.50	26.44	3.50	3.500	4.00	2.00	4.00
12	5.5 and 8	17.50	11.31	28.88	4.00	4.000	4.50	2.25	4.50
14	7 and 9	20.38	11.56	31.50	5.00	5.000	5.75	3.00	6.00
16	9 and 10	23.38	12.50	36.25	6.00	6.000	7.00	3.50	7.00

All dimensions are in inches.
* Add stroke to these dimensions.

Mounting Style and Installation Dimensions

11 Spherical Bearing Mount

See page 18 for Port Options



AM11/MM11

BORE	RODS	E	P*	XC*	M	CD	L	CK
2	1 and 1.375	3.88	3.75	8.63	1.25	.750	1.25	.56
3	1.375 and 2	5.19	4.25	9.38	1.63	1.000	1.50	1.00
4	1.75 and 2.5	6.25	4.50	10.88	1.75	1.375	2.13	1.50
5	2 and 3.5	7.88	5.50	13.63	2.50	1.750	2.25	1.75
6	2.5 and 4	9.25	6.25	15.38	2.88	2.000	2.50	2.00
7	3 and 5	10.75	6.38	16.63	3.38	2.500	3.00	2.50
8	3.5 and 5.5	12.00	7.75	18.88	3.88	3.000	3.25	3.00
10	4 and 5.5	14.94	9.25	21.44	5.50	3.500	4.00	3.19
12	5.5 and 7	17.19	10.44	24.25	6.00	4.000	4.50	3.50
14	7 and 9	19.50	10.69	27.25	6.75	5.000	5.75	4.25
16	9 and 10	23.38	11.63	30.88	7.50	6.000	7.00	4.63

All dimensions are in inches.

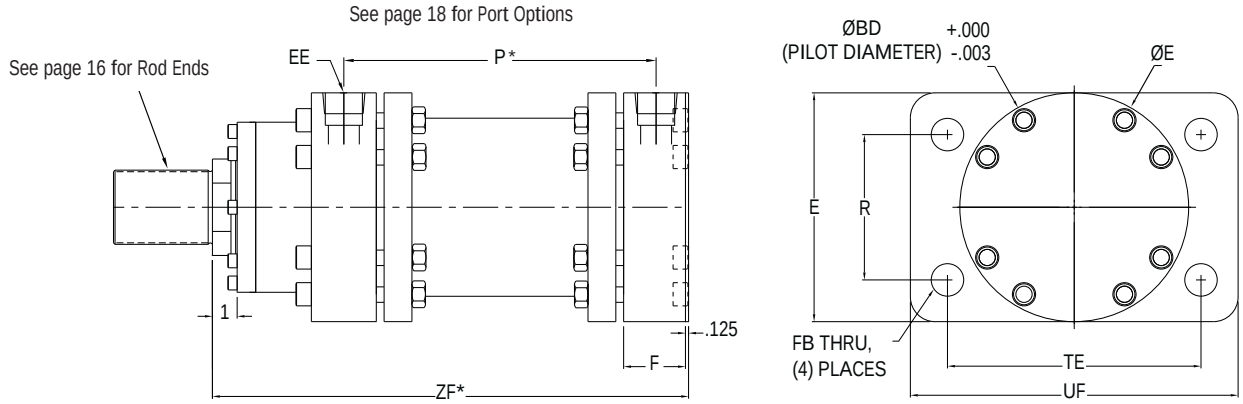
WM11 (3000psi)

BORE	RODS	E	P*	XC*	M	CD	L	CK
3	1.75 and 2	5.19	5.38	12.00	1.63	1.000	1.50	1.00
4	2 and 2.5	6.50	5.75	13.06	1.75	1.375	2.13	1.50
5	2.5 and 3.5	7.88	7.00	16.00	2.50	1.750	2.25	1.75
6	3 and 4	9.25	7.94	18.06	2.88	2.000	2.50	2.00
7	3.5 and 5	10.75	8.63	20.38	3.38	2.500	3.00	2.50
8	4 and 5.5	12.38	10.25	23.44	3.88	3.000	3.25	3.00
10	5 and 7	14.94	10.50	26.44	5.50	3.500	4.00	3.19
12	5.5 and 8	17.50	11.31	28.88	6.00	4.000	4.50	3.50
14	7 and 9	20.38	11.56	31.50	6.75	5.000	5.75	4.25
16	9 and 10	23.38	12.50	36.25	7.50	6.000	7.00	4.63

All dimensions are in inches.
* Add stroke to these dimensions.

Mounting Style and Installation Dimensions

14 Cap
Rectangular Mount



AM14/MM14

BORE	RODS	E	P*	ZF*	F	FB	R	TE	UF	BD
2	1 and 1.375	3.88	3.75	7.38	1.50	.41	3.13	4.25	5.00	3.875
3	1.375 and 2	5.19	4.25	7.88	1.63	.56	4.19	5.75	6.75	5.187
4	1.75 and 2.5	6.25	4.50	8.75	1.63	.69	5.00	6.94	8.19	6.250
5	2 and 3.5	7.88	5.50	11.38	2.13	.81	6.38	8.69	10.19	7.875
6	2.5 and 4	9.25	6.25	12.88	2.50	1.06	7.25	10.31	12.31	9.250
7	3 and 5	10.75	6.38	13.63	2.50	1.19	8.38	11.94	14.19	10.750
8	3.5 and 5.5	12.00	7.75	15.63	3.38	1.31	9.50	13.94	15.81	12.000
10	4 and 5.5	14.94	9.25	17.44	3.38	1.56	11.94	16.50	19.50	14.937
12	5.5 and 7	17.19	10.44	19.75	3.69	1.81	13.69	19.00	22.50	17.187
14	7 and 9	19.50	10.69	21.50	3.69	2.06	15.50	21.56	25.56	19.500
16	9 and 10	23.38	11.19	23.88	4.13	2.31	18.88	25.69	30.19	23.000

All dimensions are in inches.

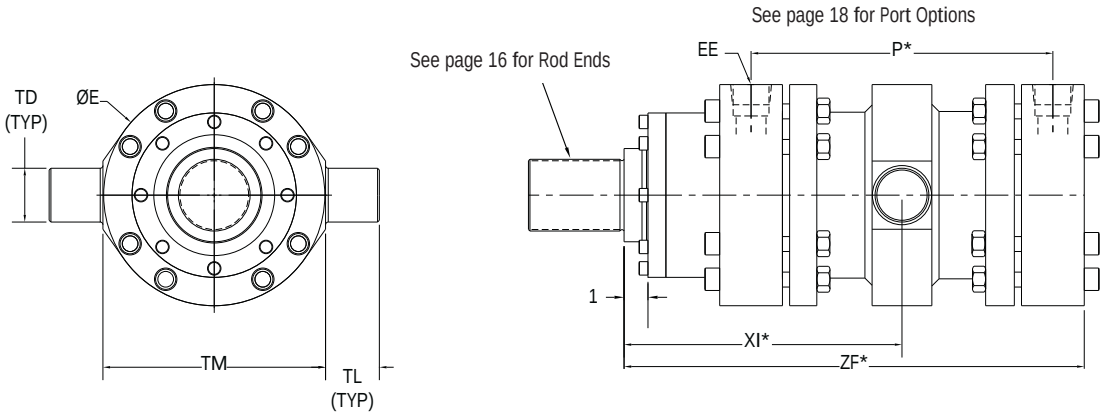
WM14 (3000psi)

BORE	RODS	E	P*	ZF*	F	FB	R	TE	UF	BD
3	1.75 and 2	5.19	5.38	10.50	1.63	.56	4.19	5.75	6.75	5.187
4	2 and 2.5	6.50	5.75	10.94	1.63	.69	5.25	7.19	8.44	6.50
5	2.5 and 3.5	7.88	7.00	13.75	2.13	.81	6.38	8.69	10.19	7.875
6	3 and 4	9.25	7.94	15.56	2.50	1.06	7.25	10.31	12.31	9.250
7	3.5 and 5	10.75	8.63	17.38	2.50	1.19	8.50	11.94	14.19	10.750
8	4 and 5.5	12.38	10.25	20.19	3.38	1.31	9.88	13.69	16.19	12.375
10	5 and 7	14.94	10.50	21.44	3.38	1.56	11.94	16.50	19.50	14.937
12	5.5 and 8	17.50	11.31	24.38	3.69	1.81	14.00	19.31	22.81	17.50
14	7 and 9	20.38	11.56	25.75	3.69	2.06	16.38	22.44	26.44	20.375
16	9 and 10	23.38	12.50	29.25	4.13	2.31	18.88	25.69	30.19	23.375

All dimensions are in inches.
* Add stroke to these dimensions.

Mounting Style and Installation Dimensions

15 Intermediate Trunnion Mount



AM15/MM15

BORE	RODS	E	P*	ZF*	TD	TL	TM
2	1 and 1.375	3.88	3.75	7.38	1.25	1.25	3.94
3	1.375 and 2	5.19	4.25	7.88	1.50	1.50	5.25
4	1.75 and 2.5	6.25	4.50	8.75	2.00	2.00	6.31
5	2 and 3.5	7.88	5.50	11.38	2.50	2.50	7.94
6	2.5 and 4	9.25	6.25	12.88	3.00	3.00	9.31
7	3 and 5	10.75	6.38	13.63	3.50	3.50	10.81
8	3.5 and 5.5	12.00	7.75	15.63	4.00	4.00	12.06
10	4 and 5.5	14.94	9.25	17.44	5.00	5.00	15.00
12	5.5 and 7	17.19	10.44	19.75	6.00	6.00	17.25
14	7 and 9	19.50	10.69	21.50	7.00	7.00	19.56
16	9 and 10	23.38	11.625	23.88	8.00	8.00	23.44

All dimensions are in inches.

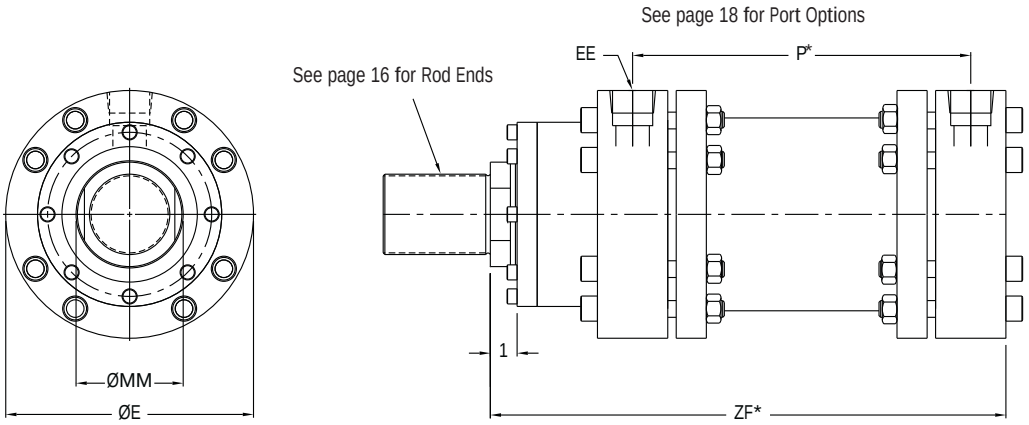
WM15 (3000psi)

BORE	RODS	E	P*	ZF*	TD	TL	TM
3	1.75 and 2	5.19	5.38	10.50	1.50	1.50	5.25
4	2 and 2.5	6.50	5.75	10.94	2.00	2.00	6.56
5	2.5 and 3.5	7.88	7.00	13.75	2.50	2.50	7.94
6	3 and 4	9.25	7.94	15.56	3.00	3.00	9.31
7	3.5 and 5	10.75	8.63	17.38	3.50	3.50	10.81
8	4 and 5.5	12.38	10.25	20.19	4.00	4.00	12.44
10	5 and 7	14.94	10.50	21.44	5.00	5.00	15.00
12	5.5 and 8	17.50	11.31	24.38	7.50	7.50	17.56
14	7 and 9	20.38	11.56	25.75	8.50	8.50	20.44
16	9 and 10	23.38	12.50	29.25	9.50	9.50	23.44

All dimensions are in inches.
* Add stroke to these dimensions.

Mounting Style and Installation Dimensions

24 Basic No Mount



AM24/MM24

BORE	RODS	E	P*	ZF*
2	1 and 1.375	3.88	3.75	7.38
3	1.375 and 2	5.19	4.25	7.88
4	1.75 and 2.5	6.25	4.50	8.75
5	2 and 3.5	7.88	5.50	11.38
6	2.5 and 4	9.25	6.25	12.88
7	3 and 5	10.75	6.38	13.63
8	3.5 and 5.5	12.00	7.75	15.63
10	4 and 5.5	14.94	9.25	17.44
12	5.5 and 7	17.19	10.44	19.75
14	7 and 9	19.50	10.69	21.50
16	9 and 10	23.38	11.63	23.88

All dimensions are in inches.

WM24 (3000psi)

BORE	RODS	E	P*	ZF*
3	1.75 and 2	5.19	5.38	10.50
4	2 and 2.5	6.50	5.75	10.94
5	2.5 and 3.5	7.88	7.00	13.75
6	3 and 4	9.25	7.94	15.56
7	3.5 and 5	10.75	8.63	17.38
8	4 and 5.5	12.38	10.25	20.19
10	5 and 7	14.94	10.50	21.44
12	5.5 and 8	17.50	11.31	24.38
14	7 and 9	20.38	11.56	25.75
16	9 and 10	23.38	12.50	29.25

All dimensions are in inches.
* Add stroke to these dimensions.

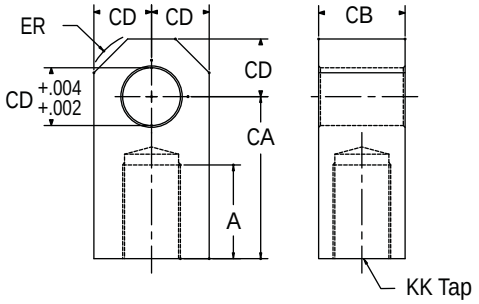
Mounting Accessories

All rod accessories must be torqued against the rod shoulder. Mounting brackets, rod clevises, and rod eyes for all AM/MM/WM cylinders 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.

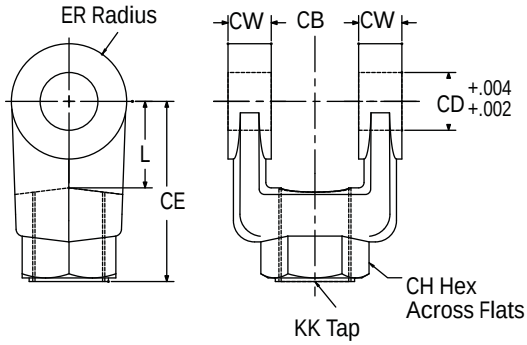
Dimensions are in inches unless otherwise noted. When ordering, please specify the part name and part number.

Rod Eye



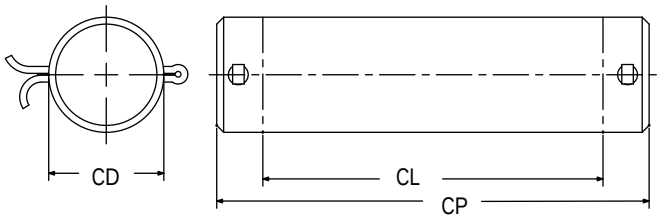
PART NUMBER	A	CA	CB	CD	ER	KK	STATIC TENSILE LOAD (LB)
WM60075A	1.13	2.06	1.25	0.75	0.88	.750-16	10,750
WM60100A	1.63	2.81	1.50	1.00	1.19	1.000-14	16,500
WM60137A	2.00	3.44	2.00	1.38	1.56	1.250-12	30,500
WM60175A	2.25	4.00	2.50	1.75	2.00	1.500-12	47,500
WM60200A	3.00	5.00	2.50	2.00	2.25	1.875-12	55,000
WM60250A	3.50	5.81	3.00	2.50	2.81	2.250-12	80,000
WM60300A	3.50	6.13	3.00	3.00	3.25	2.500-12	94,000
WM60350A	4.50	7.63	4.00	3.50	3.88	3.250-12	158,200
WM60400A	5.50	9.13	4.50	4.00	4.44	4.000-12	211,500
WM60500A	7.00	11.75	6.00	5.00	5.25	5.500-12	337,500
WM60600A	9.00	14.25	7.00	6.00	6.25	6.000-12	450,000

Rod Clevis



PART NUMBER	CB	CD	CE	CH	CW	ER	KK	L	STATIC TENSILE LOAD (LB)
WM62075A	1.25	0.75	2.38	1.38	0.63	0.75	.750-16	1.25	9,750
WM62100A	1.50	1.00	3.13	1.63	0.75	1.00	1.000-14	1.50	17,500
WM62137A	2.00	1.38	4.13	2.00	1.00	1.38	1.250-12	2.13	28,000
WM62175A	2.50	1.75	4.50	2.38	1.25	1.75	1.500-12	2.25	45,500
WM62200A	2.50	2.00	5.50	2.94	1.25	2.00	1.875-12	2.50	52,000
WM62250A	3.00	2.50	6.50	3.50	1.50	2.50	2.250-12	3.00	78,000
WM62300A	3.00	3.00	6.75	3.88	1.50	2.75	2.500-12	3.25	75,000
WM62350A	4.00	3.50	8.50	5.00	2.00	3.50	3.250-12	4.00	142,500
WM62400A	4.50	4.00	10.00	6.13	2.25	4.00	4.000-12	4.50	182,500
WM62500A	6.00	5.00	12.75	-	3.00	5.25	5.500-12	5.75	300,000
WM62600A	7.00	6.00	15.75	-	3.50	6.25	6.000-12	6.75	390,000

Pivot Pin



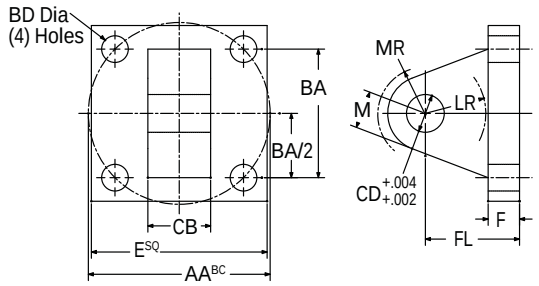
NOTE: CL = 2 x CW + CB

PART NUMBER	CD	CL	CP	STATIC SHEAR LOAD (LB)
WM83075A-10	0.750	2.50	3.13	18,425
WM83100A-10	1.000	3.00	3.75	32,775
WM83137A-10	1.375	4.00	4.75	62,000
WM83175A-10	1.750	5.00	6.03	100,425
WM83200A-10	2.000	5.00	6.03	131,175
WM83250A-10	2.500	6.00	7.03	204,975
WM83300A-10	3.000	6.00	7.13	295,175
WM83350A-10	3.500	8.00	9.63	401,775
WM83400A-10	4.000	9.00	10.63	524,750
WM83500A-10	5.000	12.00	13.63	819,950
WM83600A-10	6.000	14.00	15.63	1,180,725

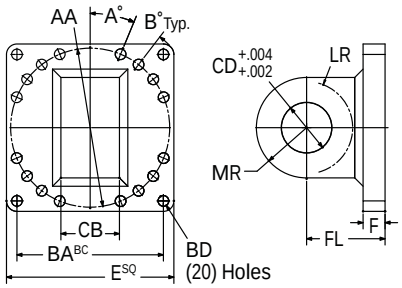
NOTES:
1. The load listed is max load in tension.
2. The pull load of the cylinder should be less than the listed load for the respective selected rod accessory.
3. Pivot pin is rated in shear.
4. The Accessories selection chart on page 14 is only a guide, select the accessories taking into consideration the pull load of the cylinder and the rated load of the accessory.
5. All rod accessories must be torqued against rod shoulder.

Mounting Accessories

Eye Bracket: WM78075A-WM78400A



Eye Bracket: WM78500A-WM78600A



PART NUMBER	CB	CD	BD	E	F	FL	LR	M	MR	BA	A°	B°	AA	STATIC TENSILE LOAD
WM78075A	1.25	0.75	0.53	3.50	0.63	1.88	1.00	0.75	1.06	2.56	-	-	3.60	11,000
WM78100A	1.50	1.00	0.66	4.50	0.88	2.38	1.00	1.00	1.13	3.25	-	-	4.60	20,000
WM78137A	2.00	1.38	0.66	5.00	0.88	3.00	1.25	1.38	1.75	3.81	-	-	5.40	22,000
WM78175A	2.50	1.75	0.91	6.50	1.13	3.38	1.75	1.75	1.88	4.95	-	-	7.00	49,500
WM78200A	2.50	2.00	1.03	7.50	1.50	4.00	2.00	2.00	2.13	5.75	-	-	8.10	62,500
WM78250A	3.00	2.50	1.16	8.50	1.75	4.75	2.50	2.50	2.50	6.59	-	-	9.30	90,000
WM78300A	3.00	3.00	1.28	9.50	2.00	5.25	2.75	2.75	2.75	7.50	-	-	10.60	105,500
WM78350A	4.00	3.50	1.78	12.63	1.69	5.69	3.50	3.50	3.50	9.62	-	-	13.60	60,000
WM78400A	4.50	4.00	2.03	14.88	1.94	6.44	3.88	3.88	4.00	11.50	-	-	16.20	75,000
WM78500A	6.00	5.00	1.03	17.25	2.19	7.94	5.00	5.00	5.25	14.41	27.60	11.60	17.31	95,650
WM78600A	7.00	6.00	1.28	20.00	2.63	9.38	5.50	6.00	6.25	17.50	22.50	15.00	19.00	187,500

Recommended Torque Values -
using MoS_2 lubricant with .12 coefficient of friction

THREAD SIZE	TORQUE
	ft•lbs
.750-16	125
1.000-14	250
1.250-12	460
1.500-12	663
1.875-12	944
2.250-12	1,315

THREAD SIZE	TORQUE
	ft•lbs
2.500-12	5,050
3.250-12	7,940
4.000-12	12,560
5.500-12	16,275
6.000-12	21,600

NOTES:
1. The load listed is max load in tension.
2. The pull load of the cylinder should be less than the listed load for the respective selected rod accessory.
3. Pivot pin is rated in shear.
4. The Accessories selection chart on page 14 is only a guide, select the accessories taking into consideration the pull load of the cylinder and the rated load of the accessory.
5. All rod accessories must be torqued against rod shoulder.

Accessories Selection Chart

BORE	PIN Ø	THREAD SIZE KK	THREAD LENGTH A	ROD CLEVIS	ROD EYE	EYE BRACKET	ROD SIZE	THREAD OPTION	ROD SIZE	THREAD OPTION
							MM Series →		**WM Series →**	
2.00	0.750	.750-16	1.13	WM62075A	WM60075A	WM78075A	1.00	5	-	-
3.00	1.000	1.000-14	1.63	WM62100A	WM60100A	WM78100A	1.38	5	1.75	R
4.00	1.375	1.250-12	2.00	WM62137A	WM60137A	WM78137A	1.75	5	2.00	R
5.00	1.750	1.500-12	2.25	WM62175A	WM60175A	WM78175A	2.00	5	2.50	R
6.00	2.000	1.875-12	3.00	WM62200A	WM60200A	WM78200A	2.50	5	3.00	R
7.00	2.500	2.250-12	3.50	WM62250A	WM60250A	WM78250A	3.00	5	3.50	R
8.00	3.000	2.500-12	3.50	WM62300A	WM60300A	WM78300A	3.50	5	4.00	R
10.00	3.500	3.250-12	4.50	WM62350A	WM60350A	WM78350A	5.50	R	5.00	R
12.00	4.000	4.000-12	5.50	WM62400A	WM60400A	WM78400A	5.50	5	5.50	5
14.00	5.000	5.500-12	7.00	WM62500A	WM60500A	WM78500A	7.00	5	7.00	5
16.00	6.000	6.000-12	9.00	WM62600A	WM60600A	WM78600A	9.00	R	9.00	R

NOTES:
The Accessories selection chart is only a guide, select the accessories taking into consideration the pull load of the cylinder and the rated load of the accessory.

Common Options

Rod End Selection

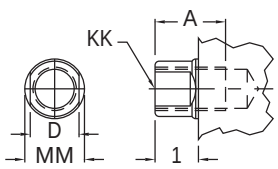
In addition to selecting the correct bore, you must specify the appropriate rod size and rod end configuration for your application.

Eight different inch rod end configurations are available. If a custom design is required, contact your local Eaton Vickers sales engineer, and we will build to your requirements.

The table on page 20 gives maximum allowable push strokes at various operating pressures for available rod diameters of Series AM/MM/WM cylinders.

Rod ends on rigid mount cylinders should be supported. Longer strokes are allowable for pull only applications. Contact your local Eaton Vickers sales engineer for application assistance if necessary.

Code 2



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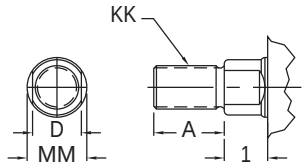
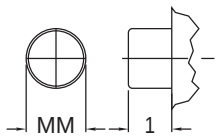


Code 6



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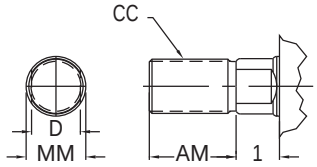

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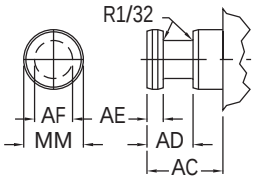
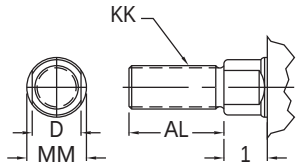


Code K



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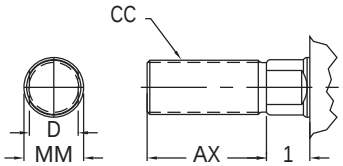
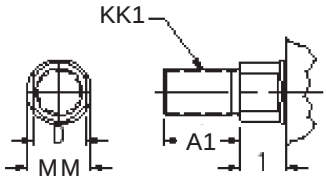


Code R**



ROD Ø MM	A	AC	AD	AE	AF	AL	AM	AX	CC	D*	KK	A1	KK1
1	1.13	1.50	.94	.375	.688	1.56	1.50	1.94	.875-14	.875 .	750-16	-	-
1.375	1.63	1.75	1.06	.375	.875	2.19	2.00	2.75	1.250-12	1.125	1.000-14	-	-
1.75	2.00	1.75	1.31	.500	1.125	2.75	2.25	3.13	1.500-12	1.500	1.250-12	1.63	1.000-14
2	2.25	2.63	1.69	.625	1.375	3.13	3.00	4.13	1.750-12	1.688	1.500-12	2.00	1.250-12
2.5	3.00	3.25	1.94	.750	1.750	4.13	3.50	4.75	2.250-12	2.062	1.875-12	2.25	1.500-12
3	3.50	3.63	2.44	.875	2.250	4.75	3.50	5.50	2.750-12	2.625	2.250-12	3.00	1.875-12
3.5	3.50	4.38	2.69	1.000	2.500	5.00	4.50	6.38	3.250-12	3.000	2.500-12	3.50	2.250-12
4	4.00	4.50	2.69	1.000	3.000	5.63	4.50	6.56	3.750-12	-	3.000-12	3.50	2.500-12
4.5	4.50	4.50	2.69	1.000	3.000	6.38	5.00	7.31	3.750-12	-	3.250-12	-	-
5	5.00	5.38	3.19	1.500	3.875	7.00	5.00	7.56	4.750-12	-	3.500-12	4.50	3.250-12
5.5	5.50	6.25	3.94	1.875	4.375	7.75	6.75	9.56	5.250-12	-	4.000-12	4.50	3.250-12
7	7.00	6.50	4.06	2.000	5.750	10.00	7.00	10.50	6.500-12	-	5.500-12	-	-
8	8.00	6.50	4.06	2.000	6.500	11.25	8.00	12.00	7.500-12	-	6.000-12	-	-
9	9.00	6.75	4.13	2.000	7.250	12.50	9.00	13.50	8.500-12	-	6.500-12	9.00	6.000-12
10	10.00	7.25	4.63	2.375	8.000	14.00	10.00	15.13	9.500-12	-	7.250-12	-	-

NOTE:
1. Dimensions in inches.
*2. Wrench flats for rods less than 4", larger rods will have 2 spanner holes 180° apart.
**3. Thread option "R" should only be used for rod accessories.

Common Options Section

Sealing Systems

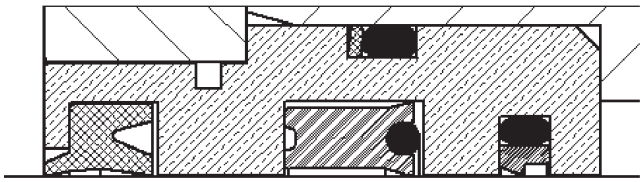
Four different sealing systems are available in Series AM/MM/WM cylinders.

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

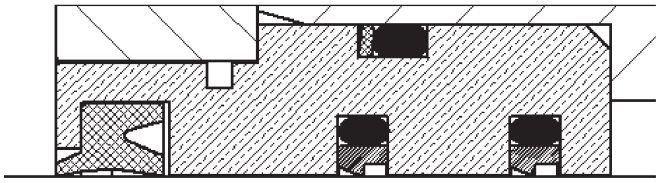
Seal Code	Rod Seal Configuration	Piston Seal Configuration	Temp °F	Seal Material	Fluid	Application
N	Polypak seal (1) Buffer Seal (1) Wiper (1)	Capped T-Seal (1) Wearbands	-20 to 200	Urethane PTFE Nitrile	Petroleum based oil Mineral based oil Water in oil emulsions	Normal Typical Industrial
L	Buffer Seal (2) Wiper (1)	Capped T-Seal (1) Wearbands	-20 to 200	PTFE Nitrile	Petroleum based oil Mineral based oil Water in oil emulsions	Low friction servo
T	Polypak Seal (1) Buffer Seal (1) Wiper (1)	Capped T-Seal (1) Wearbands	-20 to 400	Flurocarbon PTFE	Petroleum based oil Mineral based oils Water under 150° F Phosphate esters	High Temperature
C	Chevron	Cast Iron Rings	-20 to 200	Nitrile	Petroleum based oil Mineral based oil	Normal Typical Industrial

ROD SEAL CONFIGURATION

N and T Seal Options

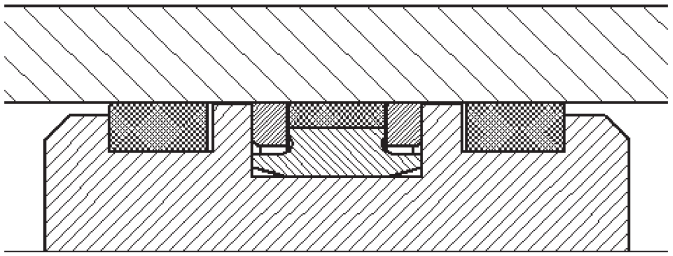


L Seal Option



PISTON SEAL CONFIGURATION

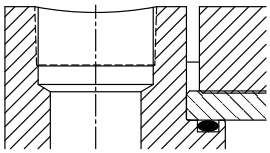
N, L and T Seal Options



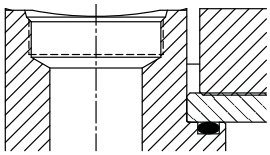
Common Options

Port and Cushion Selection

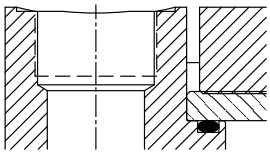
Port Code 1 and 2



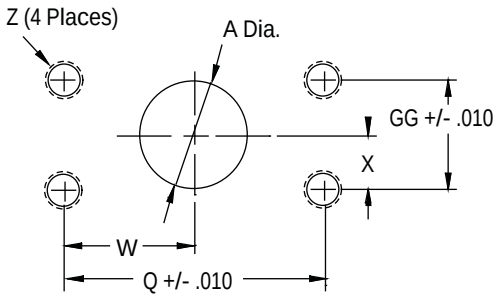
Port Code 3 and 4



Port Code 7 and 8



Port Code 6



Port Code 6 Reference Table

FLANGE SIZE	A	Q	W	X	Z	GG
1/2 (-8)	0.50	1.500	0.750	0.344	5/16-18	0.688
3/4 (-12)	0.75	1.875	0.938	0.438	3/8-16	0.875
1 (-16)	1.00	2.062	1.031	0.515	3/8-16	1.031
1-1/4 (-20)	1.25	2.312	1.156	0.594	7/16-14	1.188
1-1/2 (-24)	1.50	2.750	1.375	0.703	1/2-13	1.406
2 (-32)	2.00	3.062	1.531	0.844	1/2-13	1.688
2-1/2 (-40)	2.50	3.500	1.750	1.000	1/2-13	2.000
3 (48)	3.00	4.188	2.094	1.217	5/8-11	2.438

AM, MM Series

BORE Ø	PORT CODE 1	2	3	4	6	7	8
in.	**NPTF* Pipe**		**SAE J1926 UN Thread O-Ring/Thread Size**		**SAE 518 Code 61 Flange**	**ISO 228-1 BSPP***	
2	1/2	3/4	#6	#8	-	1/2	-
3	1/2	3/4	#8	#12	-	1/2	3/4
4	3/4	1	#10	#12	1/2 (-8)	1/2	3/4
5	3/4	1	#12	#16	3/4 (-12)	1/2	3/4
6	1	1-1/4	#16	#20	1 (-16)	3/4	1
7	1-1/4	1-1/2	#16	#20	1-1/4 (-20)	1	1-1/4
8	1-1/2	2	#24	#32	1-1/2 (-24)	1-1/4	1-1/2
10	2	-	#32	-	2 (-32)	2	-
12	2-1/2	-	#32	-	2-1/2 (-40)	2-1/2	-
14	2-1/2	-	#32	-	2-1/2 (-40)	2-1/2	-
16	3	-	#32	-	3 (-48)	3	-

WM Series

BORE Ø	PORT CODE 1	2	3	4	6	7	8
in.	**NPTF* Pipe**		**SAE J1926 UN Thread O-Ring/Thread Size**		**SAE 518 Code 61 Flange**	**ISO 228-1 BSPP***	
3	1/2	3/4	#6	#8	-	1/2	3/4
4	1/2	3/4	#10	#12	1/2 (-8)	1/2	3/4
5	3/4	1	#12	#16	3/4 (-12)	1/2	3/4
6	1	1-1/4	#16	#20	1 (-16)	3/4	1
7	1	1-1/4	#16	#20	1-1/4 (-20)	1	1-1/4
8	1-1/2	2	#20	#24	1-1/2 (-24)	1-1/4	1-1/2
10	2	-	#32	-	2 (-32)	2	-
12	2-1/2	-	#32	-	2-1/2 (-40)	2-1/2	-
14	2-1/2	-	#32	-	2-1/2 (-40)	2-1/2	-
16	3	-	#32	-	3 (-48)	3	-

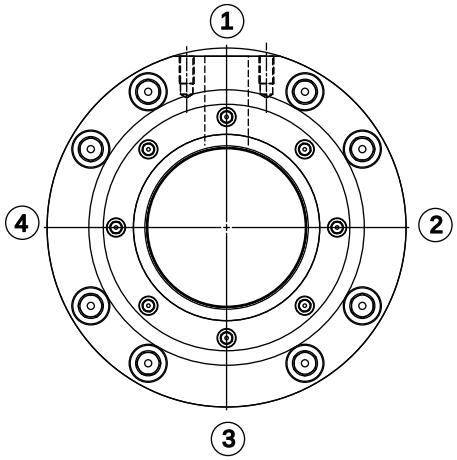
*NPTF and BSPP ports are not recommended for maximum reliability on new applications.

Common Options

Port and Cushion Selection

Port and cushion locations are identified by viewing the cylinder from the head end (or from the mounting end of double rod cylinder). The location numbers are shown to the right.

Certain port and cushion locations cannot be specified with some mounting styles. The table below indicates which of the head and cap port location are available for each Series AM/MM/WM mounting style.



Port Location Availability Chart

MOUNTING STYLE CODE	DESCRIPTION	HEAD LOCATION → 1	2	3	4	CAP LOCATION → 1	2	3	4
01	Side Lug	A	A	**N**	A	A	A	**N**	A
09	Head Rectangular	A	A	A	A	A	A	A	A
10	Cap Clevis	A	A	A	A	A	A	A	A
11	Spherical Bearing	A	A	A	A	A	A	A	A
14	Cap Rectangular	A	A	A	A	A	A	A	A
15	Intermediate Trunnion	A	A	A	A	A	A	A	A
24	No Mount	A	A	A	A	A	A	A	A
25	Double Rod Side Lug	A	A	**N**	A				
33	Double Rod Rectangular	A	A	A	A				
34	Double Rod Intermediate Trunnion	A	A	A	A				
41	Double Rod No Mount	A	A	A	A				

A- Available **N-** Not available

Cushion Availability Chart*

MOUNTING STYLE CODE	DESCRIPTION	HEAD LOCATION → 1	2	3	4	CAP LOCATION → 1	2	3	4
01	Side Lug	A	A	**N**	A	A	A	**N**	A
09	Head Rectangular	A	**N**	A	**N**	A	A	A	A
10	Cap Clevis	A	A	A	A	A	A	A	A
11	Spherical Bearing	A	A	A	A	A	A	A	A
14	Cap Rectangular	A	A	A	A	A	**N**	A	**N**
15	Intermediate Trunnion	A	A	A	A	A	A	A	A
24	No Mount	A	A	A	A	A	A	A	A
25	Double Rod Side Lug	A	A	**N**	A				
33	Double Rod Rectangular	A	**N**	A	**N**				
34	Double Rod Intermediate Trunnion	A	A	A	A				
41	Double Rod No Mount	A	A	A	A				

A- Available **N-** Not available

* Cushion option is not available on Head for 2.00 Bore & 1.375 Rod combination for all mounts.

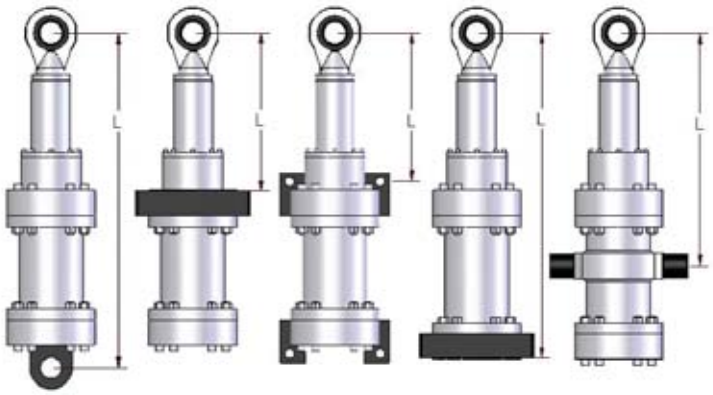
Application/ Engineering Data

Buckling Chart

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 3000 psi, consult your local Eaton Vickers representative.



10 **09** **01** **14** **15**

MAXIMUM LENGTH L (IN) AT WORKING PRESSURE (PSI) - Length L in full extend condition

BORE	ROD	Rigid Mount Styles 01, 09, 14 →							Swivel Mount Styles 10, 11, 15 →						
ø	**ø**	**3000**	**2000**	**1500**	**1000**	**750**	**500**	**250**	**3000**	**2000**	**1500**	**1000**	**750**	**500**	**250**
in	**in**	**psi**	**psi**	**psi**	**psi**	**psi**	**psi**	**psi**	**psi**	**psi**	**psi**	**psi**	**psi**	**psi**	**psi**
2.00	1.00	30	36	42	51	59	73	103	21	26	30	36	42	51	73
	1.38	56	69	79	97	112	137	194	40	49	56	69	79	97	137
3.00	1.38	37	46	53	65	75	92	130	26	32	37	46	53	65	92
	2.00	79	97	112	137	158	194	274	56	69	79	97	112	137	194
4.00	1.75	45	56	64	79	91	111	157	32	39	45	56	64	79	111
	2.50	93	114	131	161	186	227	321	66	80	93	114	131	161	227
5.00	2.00	45	58	67	82	95	116	165	32	41	47	58	67	82	116
	2.50	74	91	105	129	148	182	257	52	64	74	91	105	129	182
	3.50	145	178	206	252	291	356	504	103	126	145	178	206	252	356
6.00	2.50	60	76	87	107	124	151	214	43	54	62	76	87	107	151
	4.00	158	194	224	274	317	388	548	112	137	158	194	224	274	388
7.00	3.00	76	93	108	132	153	187	264	53	66	76	93	108	132	187
	5.00	212	260	300	367	424	519	735	150	184	212	260	300	367	519
8.00	3.50	90	111	129	157	182	223	315	64	79	91	111	129	157	223
	5.50	224	275	317	389	449	550	778	159	194	224	275	317	389	550
10.00	4.00	90	116	134	165	190	233	329	64	82	95	116	134	165	233
	5.50	180	220	254	311	359	440	622	127	156	180	220	254	311	440
	7.00	291	356	411	504	582	713	1008	206	252	291	356	411	504	713
12.00	5.50	141	183	212	259	299	367	518	100	130	150	183	212	259	367
	7.00	225	297	343	420	485	594	840	159	210	242	297	343	420	594
14.00	7.00	104	247	294	360	416	509	720	73	174	208	254	294	360	509
	9.00	341	421	486	595	687	841	1190	241	297	344	421	486	595	841
16.00	9.00	265	368	425	521	601	736	1041	187	260	301	368	425	521	736
	10.00	364	454	525	643	742	909	1285	257	321	371	454	525	643	909

End conditions for above chart:

Mount	**Condition**
01,09,14	Fixed-Guided
10,11,15	Pin-Pin

Calculation according to Euler

$$P = \left[\frac{C\pi^2 EI}{FL^2}\right] \quad \text{if} \quad \frac{L}{k} > \left[\frac{2C\pi^2 E}{S_y}\right]$$

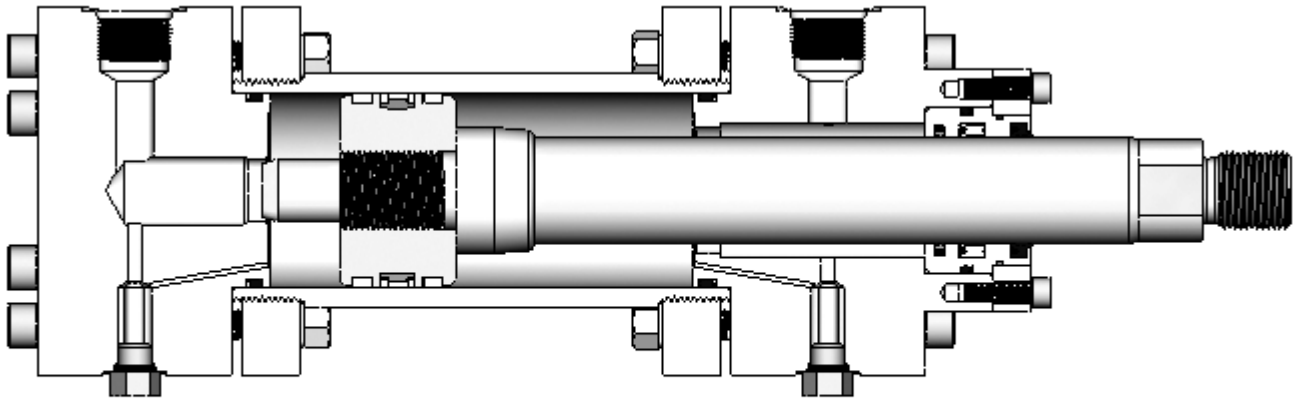
Calculation according to Jb Johnson

$$P = \frac{AS_y}{F}\left[1 - \frac{S_y L^2}{4C\pi^2 Ek^2}\right] \quad \text{if} \quad \frac{L}{k} \leq \left[\frac{2C\pi^2 E}{S_y}\right]$$

F	Safety factor, 3.5
P	Critical load, Lb
E	Modulus of elasticity, 30000000 psi
L	Length, in
I	Moment of inertia, in^4
C	End condition Fixed-Guide, 2 Fixed-Fixed, 4 Pin-Pin, 1
A	Rod area, in²
k	Radius of gyration, in

Application/ Engineering Data

Threaded Flange Design



Eaton Vickers Series AM/MM/WM cylinders now come standard from factory with flanges threaded to the body tube.

Due to a thicker, stronger steel flange design, the new Vickers threaded flange design offers over 22% greater material yield strength compared to our previous welded flange design.

In most bore size ranges and applications, the Vickers threaded flange design has superior bending stress capacity, durability, and increased safety factors of shear over both the previous Vickers welded flange design as well as the ISO 6022 (250 bar) threaded flange design.

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