Parker
Cylinder

# 7" & 8" Bore High Pressure Hydraulic Cylinders

## Series 3H

**Heavy Duty Service —**
**Industrial Tie-Rod Construction**

- **Nominal Pressure — 3000 PSI**
- **Fifteen Standard Mounting Styles**



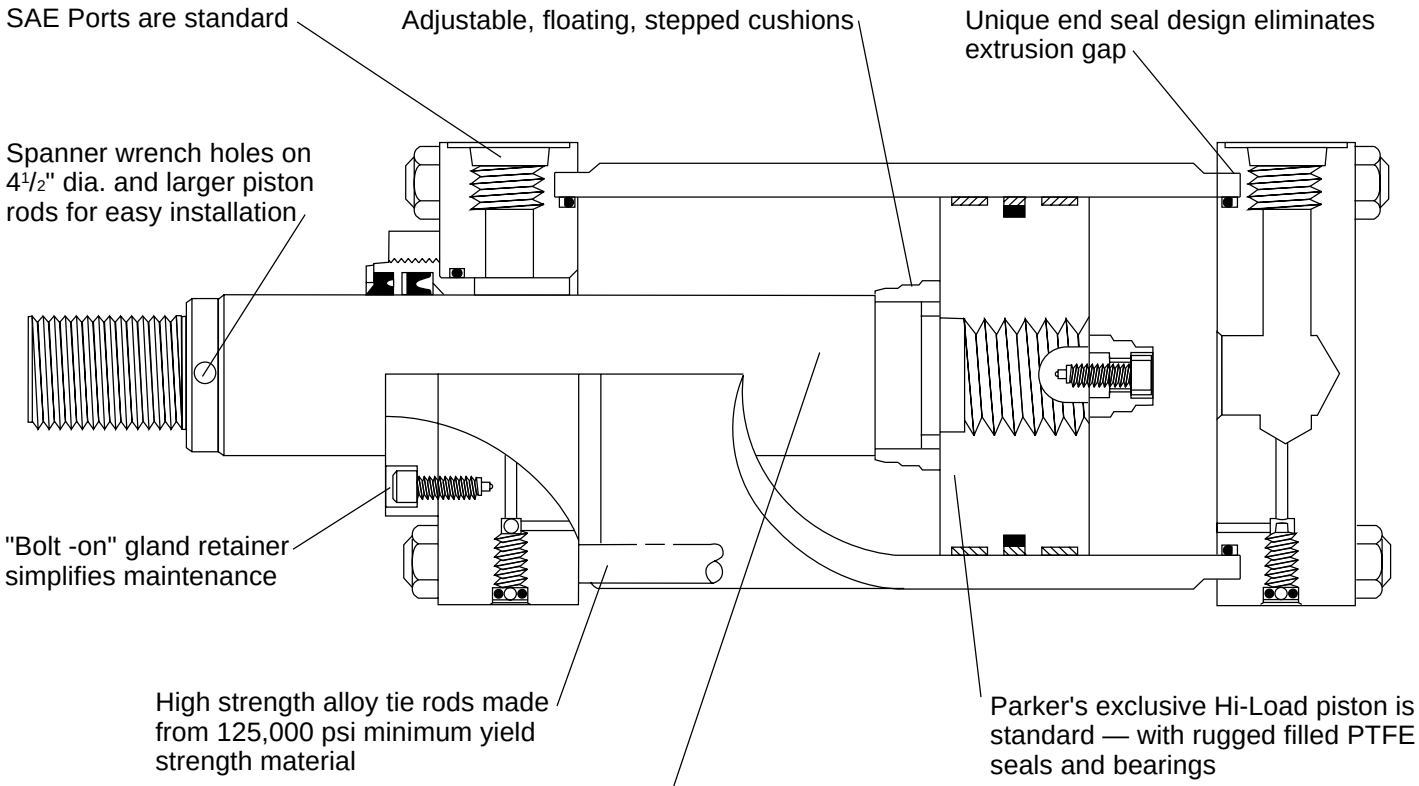
For Cylinder Division Plant Locations – See Page II.

# Introducing... Parker Series 3H 7" and 8" Bore Heavy Duty High Pressure Hydraulic Cylinders

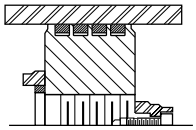
- New bolt-on gland retainer for ease of maintenance.
- New Parker exclusive Hi-Load piston is standard.
- Newly designed cylinder body seal grooves and high-strength tie rods ensure trouble-free performance even in severe applications.
- Floating cushions with float-check action and positive metal-to-metal seal.

Every Parker cylinder is *individually* tested before it leaves our plant. Parker meets all of your heavy-duty hydraulic cylinder needs:

- 1½" – 6" bores Series 2H
- 7" – 14" bores Series 3H




**Optional Piston**



Cast iron ring piston is available as a special modification.

For additional information – call your local Parker Cylinder Distributor.

# Series 3H 7" & 8" Bore
# High Pressure Hydraulic Cylinders

## Standard Specifications

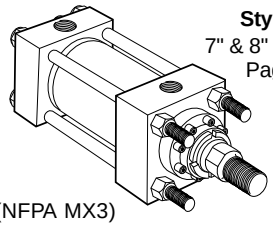
- Heavy Duty Service — NFPA specifications and ANSI B93.15-1981 mounting dimension standards
- Standard Construction — Square Head – Tie Rod Design
- Nominal Pressure — 3000 PSI*
- Standard Fluid — Hydraulic Oil
- Standard Temperature — -10½F. to +165½F.
- Piston Rod Diameter — 3" through 5½"
- Mounting Styles — 16 standard styles at various application ratings
- Strokes — Available in any practical stroke length
- Cushions — Optional at either end or both ends of stroke
- Rod Ends — Three Standard Choices — specials to order

*If hydraulic operating pressure exceeds 3000 PSI, send application data for engineering evaluation and recommendation.

*In line with our policy of continuing product improvement, specifications in this catalog are subject to change.*

## Available Mounting Styles

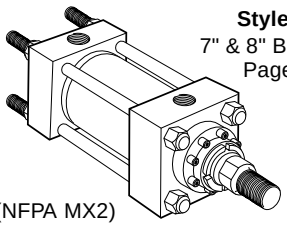
Tie Rods Extended Head End



**Style TB** 7" & 8" Bore, Page 68

(NFPA MX3)

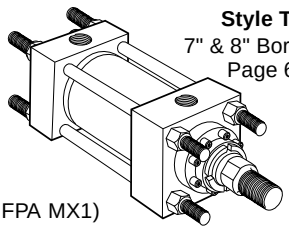
Tie Rods Extended Cap End



**Style TC** 7" & 8" Bore, Page 68

(NFPA MX2)

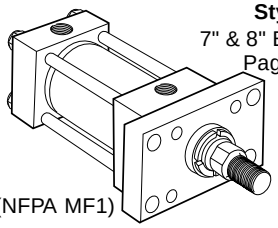
Tie Rods Extended Both Ends



**Style TD** 7" & 8" Bore, Page 68

(NFPA MX1)

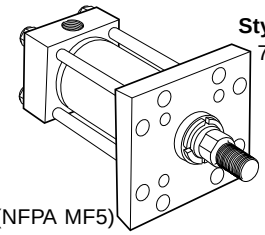
Head Rectangular Flange



**Style J** 7" & 8" Bore, Page 72

(NFPA MF1)

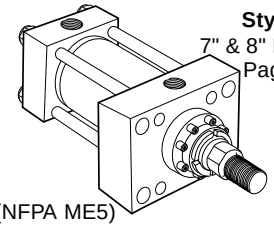
Head Square Flange



**Style JB** 7" & 8" Bore, Page 72

(NFPA MF5)

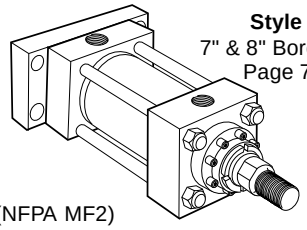
Head Rectangular



**Style JJ** 7" & 8" Bore, Page 72

(NFPA ME5)

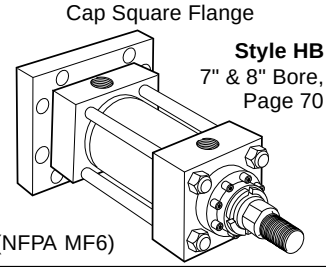
Cap Rectangular Flange



**Style H** 7" & 8" Bore, Page 70

(NFPA MF2)

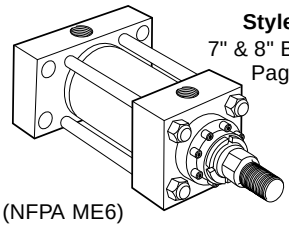
Cap Square Flange



**Style HB** 7" & 8" Bore, Page 70

(NFPA MF6)

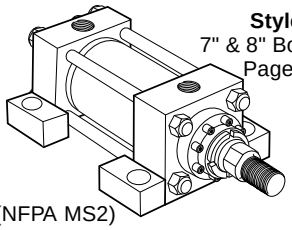
Cap Rectangular



**Style HH** 7" & 8" Bore, Page 70

(NFPA ME6)

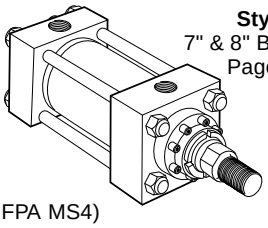
Side Lug



**Style C** 7" & 8" Bore, Page 74

(NFPA MS2)

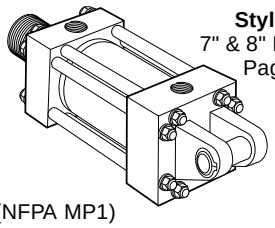
Side Tapped



**Style F** 7" & 8" Bore, Page 74

(NFPA MS4)

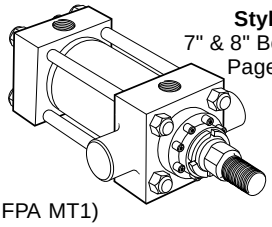
Cap Fixed Clevis



**Style BB** 7" & 8" Bore, Page 76

(NFPA MP1)

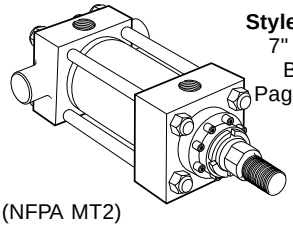
Head Trunnion



**Style D** 7" & 8" Bore, Page 78

(NFPA MT1)

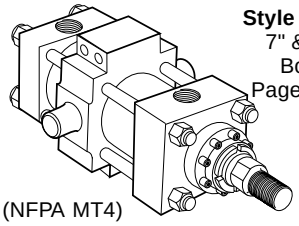
Cap Trunnion



**Style DB** 7" & 8" Bore, Page 78

(NFPA MT2)

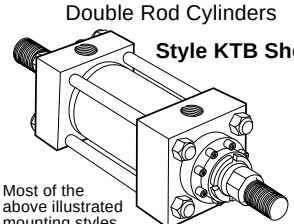
Intermediate Fixed Trunnion



**Style DD** 7" & 8" Bore, Page 78

(NFPA MT4)

Double Rod Cylinders



**Style KTB Shown**

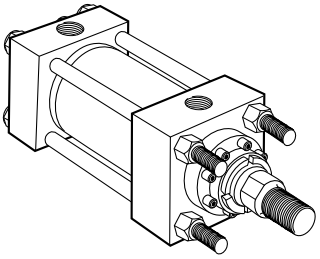
Most of the above illustrated mounting styles are available in double rod cylinders. See Catalog Page 80.

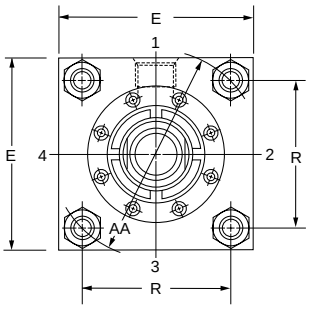
NOTE: Series 3H Hydraulic Cylinders fully meet N.F.P.A. Standards and ANSI Standard B93.15-1981 for Mounting Dimensions for Square Head Industrial Fluidpower Cylinders.

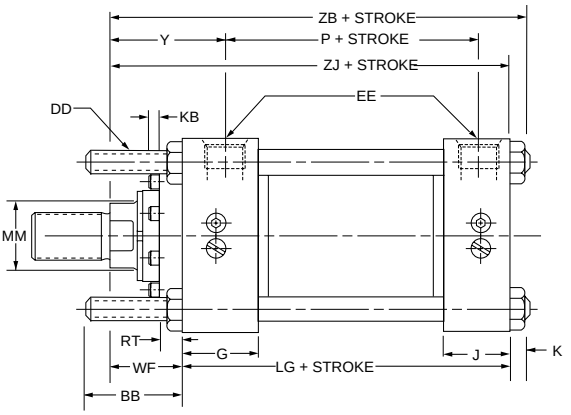
For Cylinder Division Plant Locations – See Page II.

# Series 3H 7" & 8" Bore
# Heavy Duty Hydraulic Cylinders

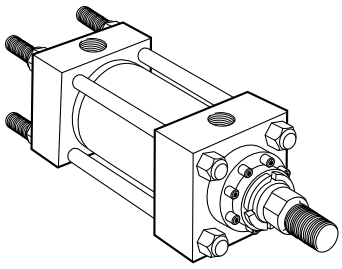
## Tie Rods Extended Head End
## Style TB
## (NFPA Style MX3)

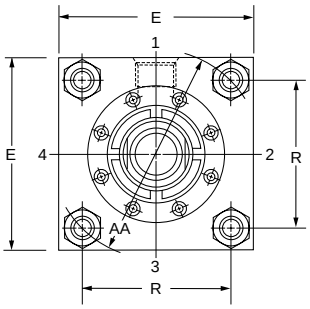


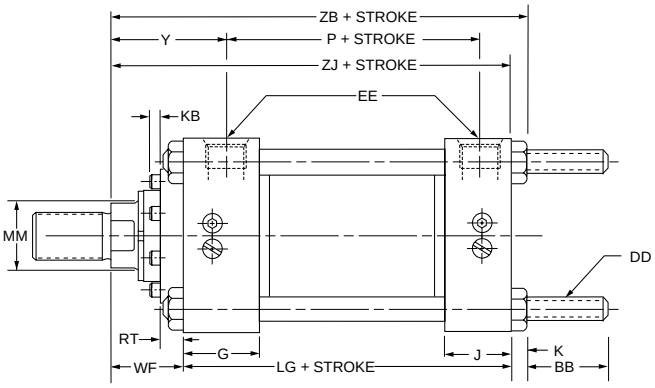


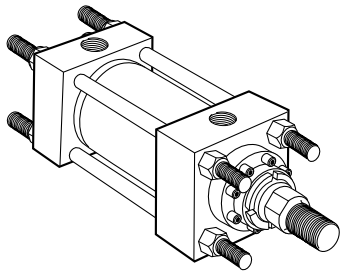

## Tie Rods Extended Cap End
## Style TC
## (NFPA Style MX2)

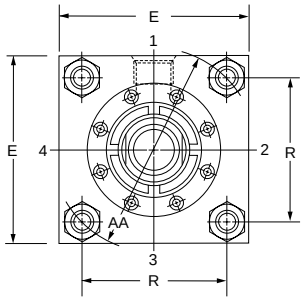


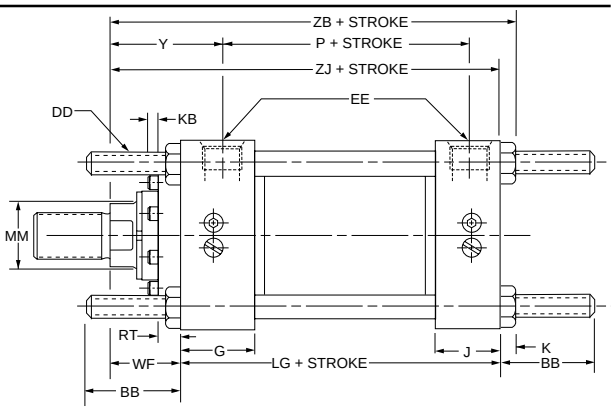



## Tie Rods Extended Both Ends
## Style TD
## (NFPA Style MX1)



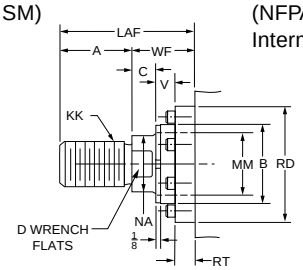


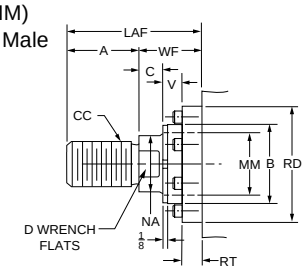

Basic Mounting (T) — NFPA MXO — Not shown is no tie rod extended and can be supplied upon request.

Rod End Dimensions — see table 2

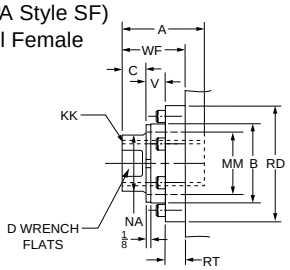
### Thread Style 4
(NFPA Style SM)
Small Male




### Thread Style 8
(NFPA Style IM)
Intermediate Male




### Thread Style 9
(NFPA Style SF)
Small Female




A high strength rod end stud is supplied on thread style 4 through 2" diameter rods and on thread style 8 through 1⅜" diameter rods. Larger sizes or special rod ends are cut threads. Style 4 rod ends are recommended where the workpiece is secured against the rod shoulder. When the workpiece is not shouldered, style 4 rod ends are recommended through 2" piston rod diameters and style 8 rod ends are recommended on larger diameters. Use style 9 for applications where female rod end threads are required. If rod end is not specified, style 4 will be supplied. On 4½" rods and above, 4 .515 dia. spanner wrench holes will be provided instead of wrench flats.

**"Special" Thread Style 3**

Special thread, extension, rod eye, blank, etc., are also available.

To order, specify "Style 3" and give desired dimensions for CC or KK, A and LAF. If otherwise special, furnish dimensional sketch.

For additional information – call your local Parker Cylinder Distributor.

Table 1—Envelope and Mounting Dimensions

| Bore | AA | BB | DD | E | EE NPTF⊖ | EE SAE★ | G | J | K | R | Add Stroke LG | Add Stroke P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 9.3 | 4 1/8 | 1 1/8-12 | 8 1/2 | 1 1/4 | 20 | 2 3/4 | 2 3/4 | 1 | 6.58 | 8 1/2 | 5 1/2 |
| 8 | 10.6 | 4 1/2 | 1 1/4-12 | 9 1/2 | 1 1/2 | 24 | 3 | 3 | 1 1/16 | 7.50 | 9 1/2 | 6 1/4 |

★ SAE straight thread ports are standard and are indicated by port number.
⊖ NPTF ports are available at no extra charge.

B

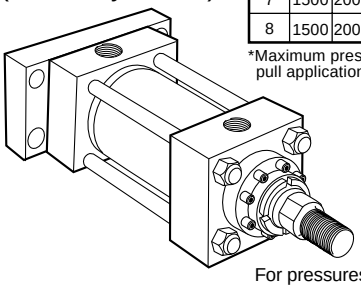
Table 2—Rod Dimensions

| Bore | Rod No. | Rod Dia. MM | Thread Style 8 CC | Thread Style 4 & 9 KK | Rod Extensions and Pilot Dimensions A | +.000 -.002 B | C | D | KB | LAF | NA | V | Max. RD | RT | WF | Add Stroke Y | Add Stroke ZB | Add Stroke ZJ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 1(Std.) | 3 | 2 3/4-12 | 2 1/4-12 | 3 1/2 | 3.749 | 1 | 2 5/8 | 1/4 | 5 3/4 | 2 7/8 | 5/8 | 5 1/4 | 5/8 | 2 1/4 | 3 3/4 | 11 3/4 | 10 3/4 |
| | 2 | 5 | 4 3/4-12 | 3 1/2-12 | 5 | 5.749 | 1 | – | 0 | 7 1/4 | 4 7/8 | 1/4 | 7 1/4 | 1 | 2 1/4 | 3 3/4 | 11 3/4 | 10 3/4 |
| | 3 | 3 1/2 | 3 1/4-12 | 2 1/2-12 | 3 1/2 | 4.249 | 1 | 3 | 1/4 | 5 3/4 | 3 3/8 | 5/8 | 5 3/4 | 5/8 | 2 1/4 | 3 3/4 | 11 3/4 | 10 3/4 |
| | 4 | 4 | 3 3/4-12 | 3-12 | 4 | 4.749 | 1 | 3 3/8 | 1/4 | 6 1/4 | 3 7/8 | 1/2 | 6 1/2 | 3/4 | 2 1/4 | 3 3/4 | 11 3/4 | 10 3/4 |
| | 5 | 4 1/2 | 4 1/4-12 | 3 1/4-12 | 4 1/2 | 5.249 | 1 | – | 1/4 | 6 3/4 | 4 3/8 | 1/2 | 7 | 3/4 | 2 1/4 | 3 3/4 | 11 3/4 | 10 3/4 |
| 8 | 1(Std.) | 3 1/2 | 3 1/4-12 | 2 1/2-12 | 3 1/2 | 4.249 | 1 | 3 | 1/4 | 5 3/4 | 3 3/8 | 5/8 | 5 3/4 | 5/8 | 2 1/4 | 3 7/8 | 12 13/16 | 11 3/4 |
| | 2 | 5 1/2 | 5 1/4-12 | 4-12 | 5 1/2 | 6.249 | 1 | – | 0 | 7 3/4 | 5 3/8 | 1/4 | 8 1/4 | 1 | 2 1/4 | 3 7/8 | 12 13/16 | 11 3/4 |
| | 3 | 4 | 3 3/4-12 | 3-12 | 4 | 4.749 | 1 | 3 3/8 | 1/4 | 6 1/4 | 3 7/8 | 1/2 | 6 1/2 | 3/4 | 2 1/4 | 3 7/8 | 12 13/16 | 11 3/4 |
| | 4 | 4 1/2 | 4 1/4-12 | 3 1/4-12 | 4 1/2 | 5.249 | 1 | – | 1/4 | 6 3/4 | 4 3/8 | 1/2 | 7 | 3/4 | 2 1/4 | 3 7/8 | 12 13/16 | 11 3/4 |
| | 5 | 5 | 4 3/4-12 | 3 1/2-12 | 5 | 5.749 | 1 | – | 0 | 7 1/4 | 4 7/8 | 1/4 | 7 1/4 | 1 | 2 1/4 | 3 7/8 | 12 13/16 | 11 3/4 |

Table 3 — Envelope and Mounting Dimensions

# Series 3H 7" & 8" Bore
# Heavy Duty Hydraulic Cylinders

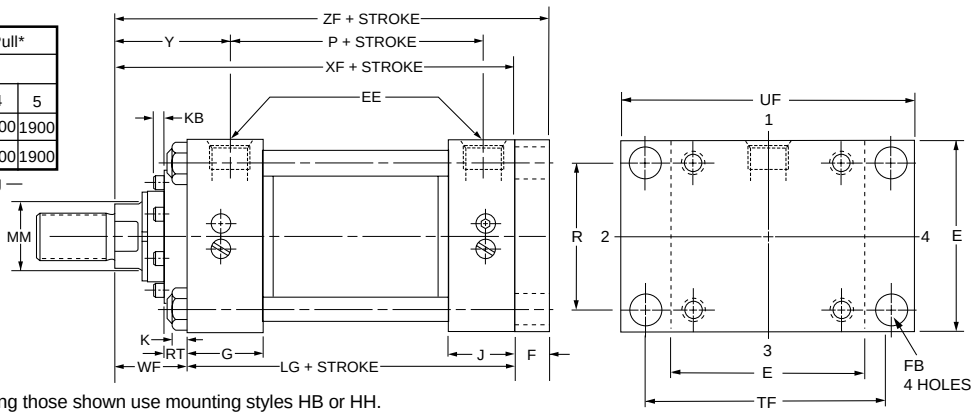
## Cap Rectangular Flange Mounting Style H
## (NFPA Style MF2)



For Style "H" Mount

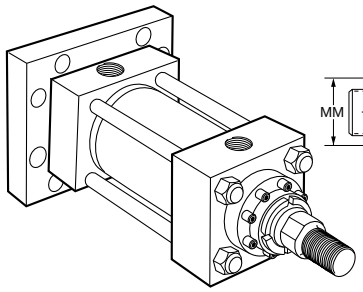
| Bore Size | Max. PSI — Pull* Rod Code 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 7 | 1500 | 2000 | 1700 | 1800 | 1900 |
| 8 | 1500 | 2000 | 1700 | 1800 | 1900 |

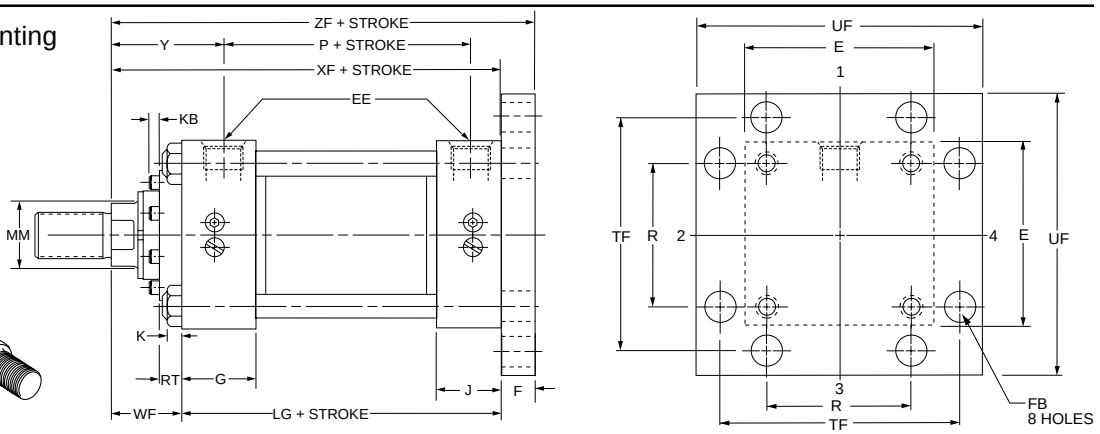
*Maximum pressure rating — pull application.



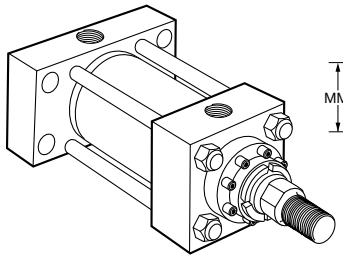

For pressures exceeding those shown use mounting styles HB or HH.

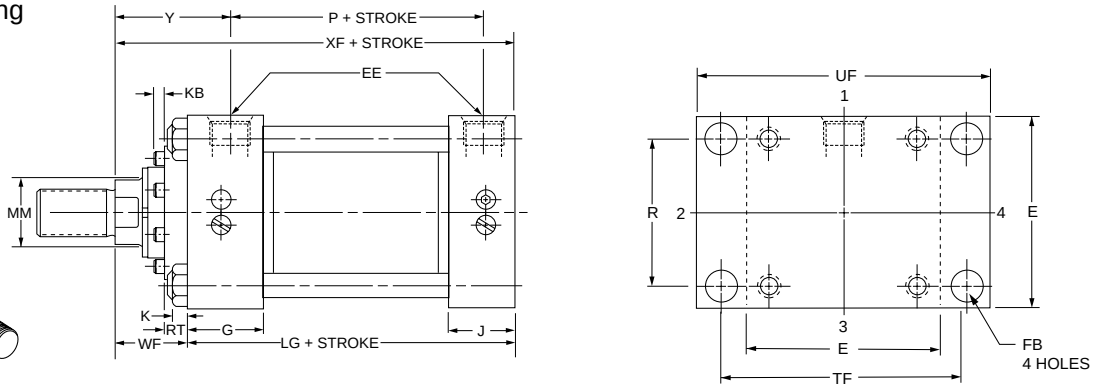
## Cap Square Flange Mounting Style HB
## (NFPA Style MF6)





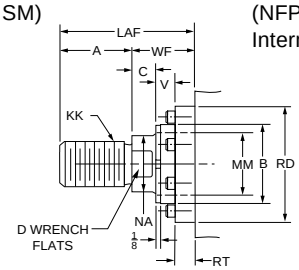

## Cap Rectangular Mounting Style HH
## (NFPA Style ME6)



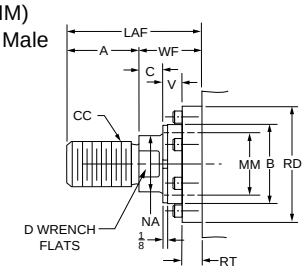



Rod End Dimensions — see table 2

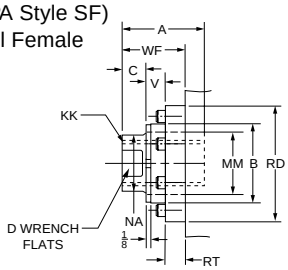
### Thread Style 4
(NFPA Style SM)
Small Male




### Thread Style 8
(NFPA Style IM)
Intermediate Male




### Thread Style 9
(NFPA Style SF)
Small Female




A high strength rod end stud is supplied on thread style 4 through 2" diameter rods and on thread style 8 through 1 3/8" diameter rods. Larger sizes or special rod ends are cut threads. Style 4 rod ends are recommended where the workpiece is secured against the rod shoulder. When the workpiece is not shouldered, style 4 rod ends are recommended through 2" piston rod diameters and style 8 rod ends are recommended on larger diameters. Use style 9 for applications where female rod end threads are required. If rod end is not specified, style 4 will be supplied. On 4 1/2" rods and above, 4 .515 dia. spanner wrench holes will be provided instead of wrench flats.

**"Special" Thread Style 3**

Special thread, extension, rod eye, blank, etc., are also available.

To order, specify "Style 3" and give desired dimensions for CC or KK, A and LAF. If otherwise special, furnish dimensional sketch.

For additional information – call your local Parker Cylinder Distributor.

Table 1—Envelope and Mounting Dimensions

| Bore | E | EE | | F | FB | G | J | K | R | TF | UF | Add Stroke | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NPTF⊖ | SAE★ | | | | | | | | | LG | P |
| 7 | 8 1/2 | 1 1/4 | 20 | 1 | 1 3/16 | 2 3/4 | 2 3/4 | 1 | 6.58 | 10 5/8 | 12 5/8 | 8 1/2 | 5 1/2 |
| 8 | 9 1/2 | 1 1/2 | 24 | 1 | 1 5/16 | 3 | 3 | 1 1/16 | 7.50 | 11 13/16 | 14 | 9 1/2 | 6 1/4 |

★ SAE straight thread ports are standard and are indicated by port number.
⊖ NPTF ports are available at no extra charge.

B

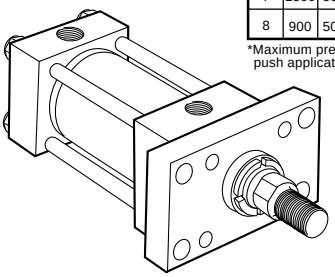
Table 2—Rod Dimensions

| Bore | Rod No. | Rod Dia. MM | Thread | | Rod Extensions and Pilot Dimensions | | | | | | | | | | | | Add Stroke | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Style 8 CC | Style 4 & 9 KK | A | +.000 -.002 B | C | D | KB | LAF | NA | V | Max. RD | RT | WF | Y | XF | ZF |
| 7 | 1(Std.) | 3 | 2 3/4-12 | 2 1/4-12 | 3 1/2 | 3.749 | 1 | 2 5/8 | 1/4 | 5 3/4 | 2 7/8 | 5/8 | 5 1/4 | 5/8 | 2 1/4 | 3 3/4 | 10 3/4 | 11 3/4 |
| | 2 | 5 | 4 3/4-12 | 3 1/2-12 | 5 | 5.749 | 1 | – | 0 | 7 1/4 | 4 7/8 | 1/4 | 7 1/4 | 1 | 2 1/4 | 3 3/4 | 10 3/4 | 11 3/4 |
| | 3 | 3 1/2 | 3 1/4-12 | 2 1/2-12 | 3 1/2 | 4.249 | 1 | 3 | 1/4 | 5 3/4 | 3 3/8 | 5/8 | 5 3/4 | 5/8 | 2 1/4 | 3 3/4 | 10 3/4 | 11 3/4 |
| | 4 | 4 | 3 3/4-12 | 3-12 | 4 | 4.749 | 1 | 3 3/8 | 1/4 | 6 1/4 | 3 7/8 | 1/2 | 6 1/2 | 3/4 | 2 1/4 | 3 3/4 | 10 3/4 | 11 3/4 |
| | 5 | 4 1/2 | 4 1/4-12 | 3 1/4-12 | 4 1/2 | 5.249 | 1 | – | 1/4 | 6 3/4 | 4 3/8 | 1/2 | 7 | 3/4 | 2 1/4 | 3 3/4 | 10 3/4 | 11 3/4 |
| 8 | 1(Std.) | 3 1/2 | 3 1/4-12 | 2 1/2-12 | 3 1/2 | 4.249 | 1 | 3 | 1/4 | 5 3/4 | 3 3/8 | 5/8 | 5 3/4 | 5/8 | 2 1/4 | 3 7/8 | 11 3/4 | 12 3/4 |
| | 2 | 5 1/2 | 5 1/4-12 | 4-12 | 5 1/2 | 6.249 | 1 | – | 0 | 7 3/4 | 5 3/8 | 1/4 | 8 1/4 | 1 | 2 1/4 | 3 7/8 | 11 3/4 | 12 3/4 |
| | 3 | 4 | 3 3/4-12 | 3-12 | 4 | 4.749 | 1 | 3 3/8 | 1/4 | 6 1/4 | 3 7/8 | 1/2 | 6 1/2 | 3/4 | 2 1/4 | 3 7/8 | 11 3/4 | 12 3/4 |
| | 4 | 4 1/2 | 4 1/4-12 | 3 1/4-12 | 4 1/2 | 5.249 | 1 | – | 1/4 | 6 3/4 | 4 3/8 | 1/2 | 7 | 3/4 | 2 1/4 | 3 7/8 | 11 3/4 | 12 3/4 |
| | 5 | 5 | 4 3/4-12 | 3 1/2-12 | 5 | 5.749 | 1 | – | 0 | 7 1/4 | 4 7/8 | 1/4 | 7 1/4 | 1 | 2 1/4 | 3 7/8 | 11 3/4 | 12 3/4 |

Table 3 — Envelope and Mounting Dimensions

# Series 3H 7" & 8" Bore
# Heavy Duty Hydraulic Cylinders

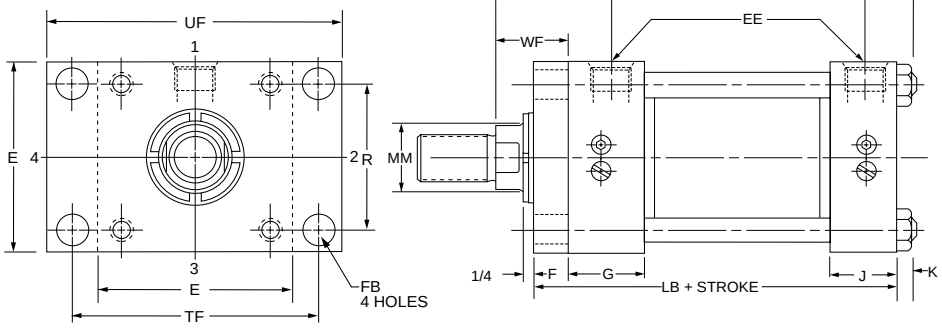
## Head Rectangular Flange Mounting Style J
(NFPA Style MF1)



For Style "J" Mount

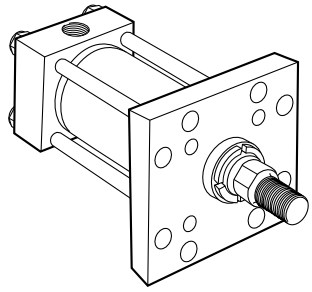
| Bore Size | Max. PSI — Push* Rod Code 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| 7 | 1500 | 500 | 1250 | 1000 | 800 |
| 8 | 900 | 500 | 800 | 700 | 600 |

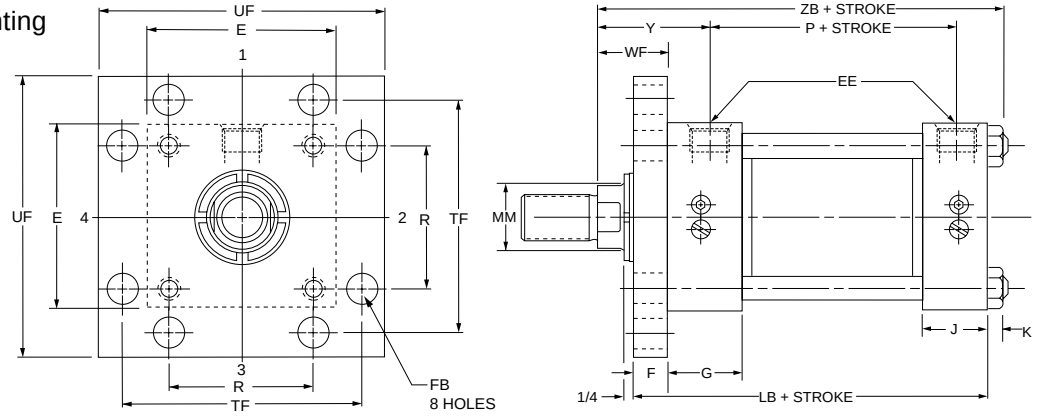
*Maximum pressure rating — push application.



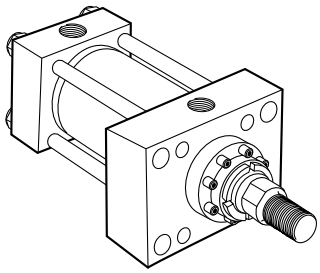

For pressures exceeding those shown use mounting styles JB or JJ.

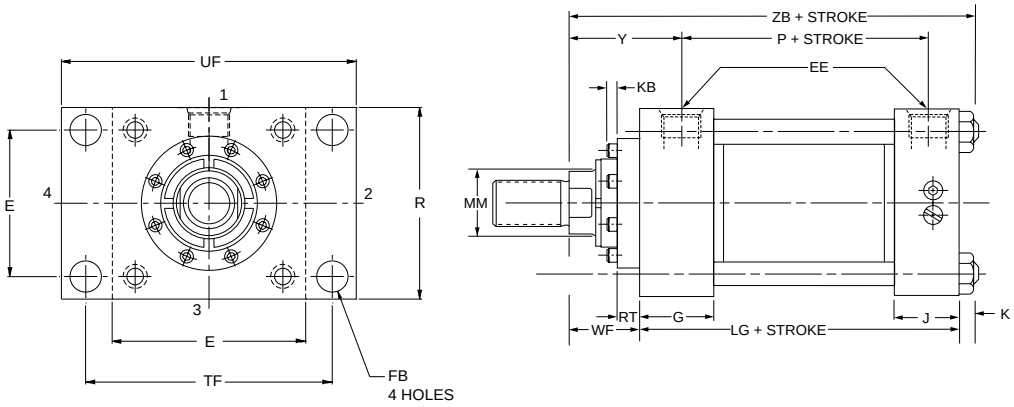
## Head Square Flange Mounting Style JB
(NFPA Style MF5)





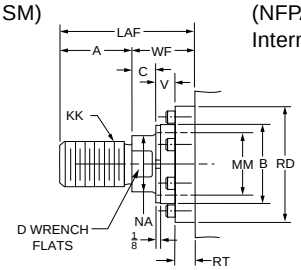

## Head Rectangular Mounting Style JJ
(NFPA Style ME5)



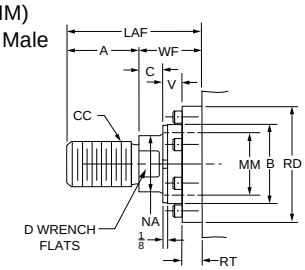



## Rod End Dimensions — see table 2

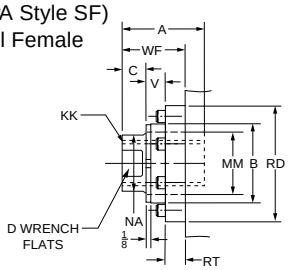
### Thread Style 4
(NFPA Style SM)
Small Male




### Thread Style 8
(NFPA Style IM)
Intermediate Male




### Thread Style 9
(NFPA Style SF)
Small Female




A high strength rod end stud is supplied on thread style 4 through 2" diameter rods and on thread style 8 through 1 3/8" diameter rods. Larger sizes or special rod ends are cut threads. Style 4 rod ends are recommended where the workpiece is secured against the rod shoulder. When the workpiece is not shouldered, style 4 rod ends are recommended through 2" piston rod diameters and style 8 rod ends are recommended on larger diameters. Use style 9 for applications where female rod end threads are required. If rod end is not specified, style 4 will be supplied. On 4 1/2" rods and above, 4 .515 dia. spanner wrench holes will be provided instead of wrench flats.

**"Special" Thread Style 3**

Special thread, extension, rod eye, blank, etc., are also available.

To order, specify "Style 3" and give desired dimensions for CC or KK, A and LAF. If otherwise special, furnish dimensional sketch.

For additional information – call your local Parker Cylinder Distributor.

Table 1—Envelope and Mounting Dimensions

| Bore | E | EE | | F | FB | G | J | K | R | TF | UF | Add Stroke | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | NPTF⊖ | SAE★ | | | | | | | | | LB | LG | P |
| 7 | 8 1/2 | 1 1/4 | 20 | 1 | 1 3/16 | 2 3/4 | 2 3/4 | 1 | 6.58 | 10 5/8 | 12 5/8 | 9 1/2 | 8 1/2 | 5 1/2 |
| 8 | 9 1/2 | 1 1/2 | 24 | 1 | 1 5/16 | 3 | 3 | 1 1/16 | 7.50 | 11 13/16 | 14 | 10 1/2 | 9 1/2 | 6 1/4 |

★ SAE straight thread ports are standard and are indicated by port number.
⊖ NPTF ports are available at no extra charge.

B

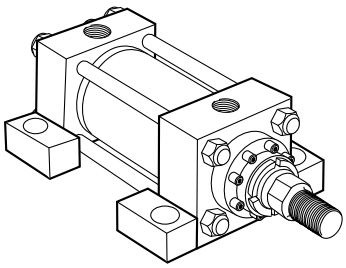
Table 2—Rod Dimensions

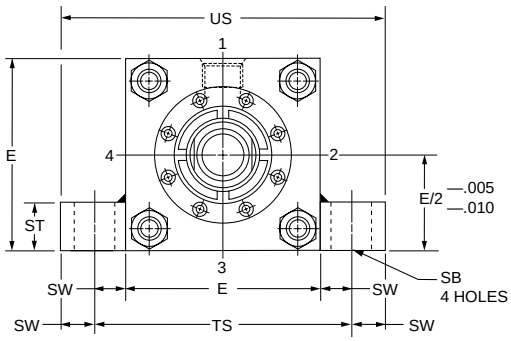
| Bore | Rod No. | Rod Dia. MM | Thread | | Rod Extensions and Pilot Dimensions | | | | | | | | | | | Add Stroke | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Style 8 CC | Style 4 & 9 KK | A | +.000 -.002 B | C | D | KB | LAF | NA | V | Max. RD | RT | WF | Y | ZB |
| 7 | 1(Std.) | 3 | 2 3/4-12 | 2 1/4-12 | 3 1/2 | 3.749 | 1 | 2 5/8 | 1/4 | 5 3/4 | 2 7/8 | 5/8 | 5 1/4 | 5/8 | 2 1/4 | 3 3/4 | 11 3/4 |
| | 2 | 5 | 4 3/4-12 | 3 1/2-12 | 5 | 5.749 | 1 | – | 0 | 7 1/4 | 4 7/8 | 1/4 | 7 1/4 | 1 | 2 1/4 | 3 3/4 | 11 3/4 |
| | 3 | 3 1/2 | 3 1/4-12 | 2 1/2-12 | 3 1/2 | 4.249 | 1 | 3 | 1/4 | 5 3/4 | 3 3/8 | 5/8 | 5 3/4 | 5/8 | 2 1/4 | 3 3/4 | 11 3/4 |
| | 4 | 4 | 3 3/4-12 | 3-12 | 4 | 4.749 | 1 | 3 3/8 | 1/4 | 6 1/4 | 3 7/8 | 1/2 | 6 1/2 | 3/4 | 2 1/4 | 3 3/4 | 11 3/4 |
| | 5 | 4 1/2 | 4 1/4-12 | 3 1/4-12 | 4 1/2 | 5.249 | 1 | – | 1/4 | 6 3/4 | 4 3/8 | 1/2 | 7 | 3/4 | 2 1/4 | 3 3/4 | 11 3/4 |
| 8 | 1(Std.) | 3 1/2 | 3 1/4-12 | 2 1/2-12 | 3 1/2 | 4.249 | 1 | 3 | 1/4 | 5 3/4 | 3 3/8 | 5/8 | 5 3/4 | 5/8 | 2 1/4 | 3 7/8 | 12 13/16 |
| | 2 | 5 1/2 | 5 1/4-12 | 4-12 | 5 1/2 | 6.249 | 1 | – | 0 | 7 3/4 | 5 3/8 | 1/4 | 8 1/4 | 1 | 2 1/4 | 3 7/8 | 12 13/16 |
| | 3 | 4 | 3 3/4-12 | 3-12 | 4 | 4.749 | 1 | 3 3/8 | 1/4 | 6 1/4 | 3 7/8 | 1/2 | 6 1/2 | 3/4 | 2 1/4 | 3 7/8 | 12 13/16 |
| | 4 | 4 1/2 | 4 1/4-12 | 3 1/4-12 | 4 1/2 | 5.249 | 1 | – | 1/4 | 6 3/4 | 4 3/8 | 1/2 | 7 | 3/4 | 2 1/4 | 3 7/8 | 12 13/16 |
| | 5 | 5 | 4 3/4-12 | 3 1/2-12 | 5 | 5.749 | 1 | – | 0 | 7 1/4 | 4 7/8 | 1/4 | 7 1/4 | 1 | 2 1/4 | 3 7/8 | 12 13/16 |

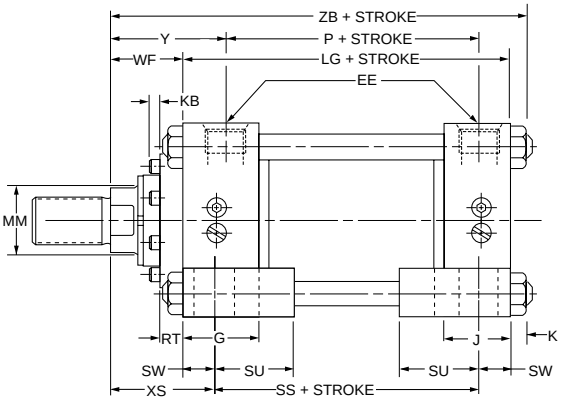
Table 3 — Envelope and Mounting Dimensions

# Series 3H 7" & 8" Bore
# Heavy Duty Hydraulic Cylinders

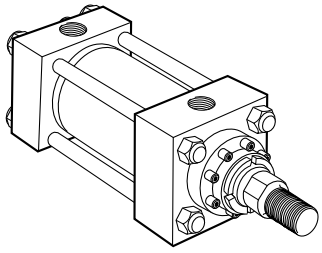
## Side Lug Mountings
## Style C
## (NFPA Style MS2)

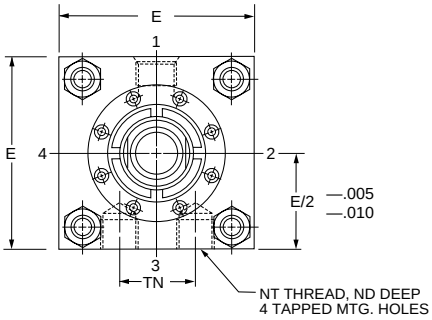


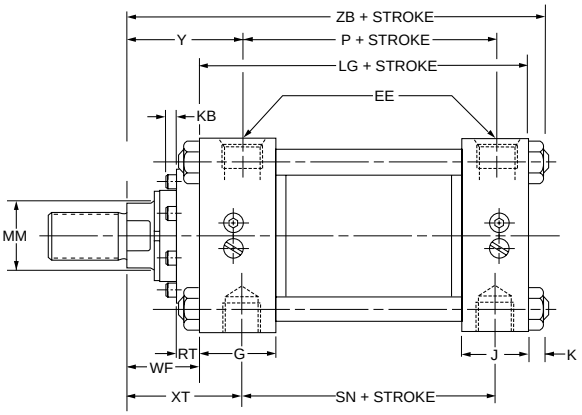



## Side Tapped Mounting
## Style F
## (NFPA Style MS4)

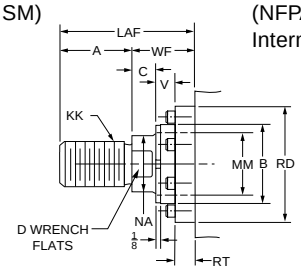




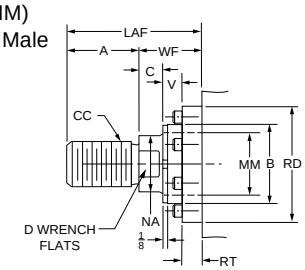




Rod End Dimensions — see table 2

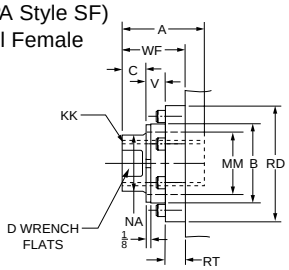
### Thread Style 4
(NFPA Style SM)
Small Male




### Thread Style 8
(NFPA Style IM)
Intermediate Male




### Thread Style 9
(NFPA Style SF)
Small Female




A high strength rod end stud is supplied on thread style 4 through 2" diameter rods and on thread style 8 through 1⅜" diameter rods. Larger sizes or special rod ends are cut threads. Style 4 rod ends are recommended where the workpiece is secured against the rod shoulder. When the workpiece is not shouldered, style 4 rod ends are recommended through 2" piston rod diameters and style 8 rod ends are recommended on larger diameters. Use style 9 for applications where female rod end threads are required. If rod end is not specified, style 4 will be supplied. On 4½" rods and above, 4 .515 dia. spanner wrench holes will be provided instead of wrench flats.

**"Special" Thread Style 3**

Special thread, extension, rod eye, blank, etc., are also available.

To order, specify "Style 3" and give desired dimensions for CC or KK, A and LAF. If otherwise special, furnish dimensional sketch.

For additional information – call your local Parker Cylinder Distributor.

Table 1—Envelope and Mounting Dimensions

| Bore | E | EE NPTF⊖ | EE SAE★ | G | J | K | NT | SB* | ST | SU | SW | TN | TS | US | Add Stroke LG | Add Stroke P | Add Stroke SN | Add Stroke SS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 8 1/2 | 1 1/4 | 20 | 2 3/4 | 2 3/4 | 1 | 1 1/2-6 | 1 9/16 | 1 3/4 | 2 7/8 | 1 3/8 | 3 3/4 | 11 1/4 | 14 | 8 1/2 | 5 1/2 | 5 7/8 | 5 3/4 |
| 8 | 9 1/2 | 1 1/2 | 24 | 3 | 3 | 1 1/16 | 1 1/2-6 | 1 9/16 | 1 3/4 | 2 7/8 | 1 3/8 | 4 1/4 | 12 1/4 | 15 | 9 1/2 | 6 1/4 | 6 5/8 | 6 3/4 |

★ SAE straight thread ports are standard and are indicated by port number.
⊖ NPTF ports are available at no extra charge.
* Upper surface spotfaced for socket head screws.

B

Table 2—Rod Dimensions

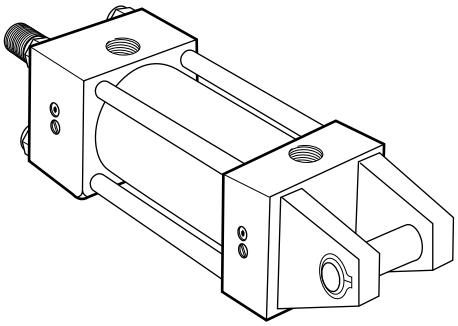
| Bore | Rod No. | Rod Dia. MM | Thread Style 8 CC | Thread Style 4 & 9 KK | Rod Extensions and Pilot Dimensions A | +.000 -.002 B | C | D | KB | LAF | NA | V | Max. RD | RT | WF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 1(Std.) | 3 | 2 3/4-12 | 2 1/4-12 | 3 1/2 | 3.749 | 1 | 2 5/8 | 1/4 | 5 3/4 | 2 7/8 | 5/8 | 5 1/4 | 5/8 | 2 1/4 |
| | 2 | 5 | 4 3/4-12 | 3 1/2-12 | 5 | 5.749 | 1 | – | 0 | 7 1/4 | 4 7/8 | 1/4 | 7 1/4 | 1 | 2 1/4 |
| | 3 | 3 1/2 | 3 1/4-12 | 2 1/2-12 | 3 1/2 | 4.249 | 1 | 3 | 1/4 | 5 3/4 | 3 3/8 | 5/8 | 5 3/4 | 5/8 | 2 1/4 |
| | 4 | 4 | 3 3/4-12 | 3-12 | 4 | 4.749 | 1 | 3 3/8 | 1/4 | 6 1/4 | 3 7/8 | 1/2 | 6 1/2 | 3/4 | 2 1/4 |
| | 5 | 4 1/2 | 4 1/4-12 | 3 1/4-12 | 4 1/2 | 5.249 | 1 | – | 1/4 | 6 3/4 | 4 3/8 | 1/2 | 7 | 3/4 | 2 1/4 |
| 8 | 1(Std.) | 3 1/2 | 3 1/4-12 | 2 1/2-12 | 3 1/2 | 4.249 | 1 | 3 | 1/4 | 5 3/4 | 3 3/8 | 5/8 | 5 3/4 | 5/8 | 2 1/4 |
| | 2 | 5 1/2 | 5 1/4-12 | 4-12 | 5 1/2 | 6.249 | 1 | – | 0 | 7 3/4 | 5 3/8 | 1/4 | 8 1/4 | 1 | 2 1/4 |
| | 3 | 4 | 3 3/4-12 | 3-12 | 4 | 4.749 | 1 | 3 3/8 | 1/4 | 6 1/4 | 3 7/8 | 1/2 | 6 1/2 | 3/4 | 2 1/4 |
| | 4 | 4 1/2 | 4 1/4-12 | 3 1/4-12 | 4 1/2 | 5.249 | 1 | – | 1/4 | 6 3/4 | 4 3/8 | 1/2 | 7 | 3/4 | 2 1/4 |
| | 5 | 5 | 4 3/4-12 | 3 1/2-12 | 5 | 5.749 | 1 | – | 0 | 7 1/4 | 4 7/8 | 1/4 | 7 1/4 | 1 | 2 1/4 |

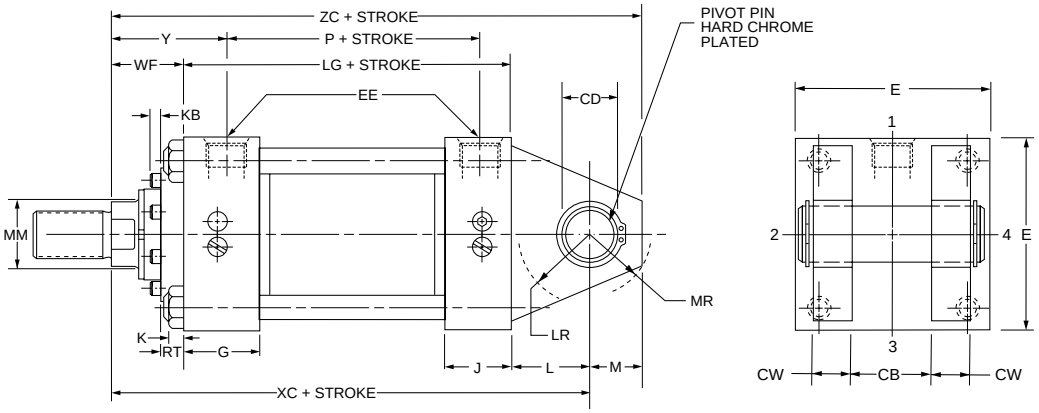
Table 3 — Envelope and Mounting Dimensions

| Bore | ND | XS | XT | Y | Add Stroke ZB |
|---|---|---|---|---|---|
| 7 | 1 1/8 | 3 5/8 | 3 13/16 | 3 3/4 | 11 3/4 |
| | 1 1/8 | 3 5/8 | 3 13/16 | 3 3/4 | 11 3/4 |
| | 1 1/8 | 3 5/8 | 3 13/16 | 3 3/4 | 11 3/4 |
| | 1 1/8 | 3 5/8 | 3 13/16 | 3 3/4 | 11 3/4 |
| | 1 1/8 | 3 5/8 | 3 13/16 | 3 3/4 | 11 3/4 |
| 8 | 1 1/2 | 3 5/8 | 3 15/16 | 3 7/8 | 12 13/16 |
| | 1 1/2 | 3 5/8 | 3 15/16 | 3 7/8 | 12 13/16 |
| | 1 1/2 | 3 5/8 | 3 15/16 | 3 7/8 | 12 13/16 |
| | 1 1/2 | 3 5/8 | 3 15/16 | 3 7/8 | 12 13/16 |
| | 1 1/2 | 3 5/8 | 3 15/16 | 3 7/8 | 12 13/16 |

# Series 3H 7" & 8" Bore
# Heavy Duty Hydraulic Cylinders

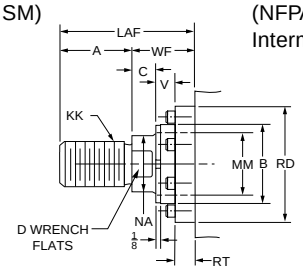
Cap Fixed Clevis Mounting
Style BB
(NFPA Style MP1)



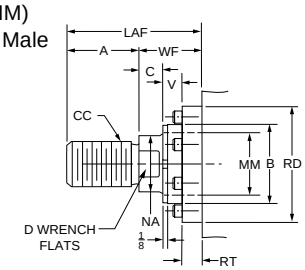



Rod End Dimensions — see table 2

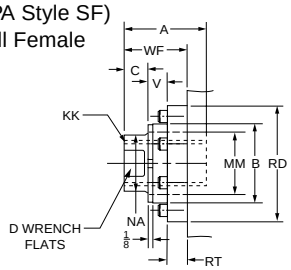
Thread Style 4
(NFPA Style SM)
Small Male




Thread Style 8
(NFPA Style IM)
Intermediate Male




Thread Style 9
(NFPA Style SF)
Small Female




A high strength rod end stud is supplied on thread style 4 through 2" diameter rods and on thread style 8 through 1 3/8" diameter rods. Larger sizes or special rod ends are cut threads. Style 4 rod ends are recommended where the workpiece is secured against the rod shoulder. When the workpiece is not shouldered, style 4 rod ends are recommended through 2" piston rod diameters and style 8 rod ends are recommended on larger diameters. Use style 9 for applications where female rod end threads are required. If rod end is not specified, style 4 will be supplied. On 4 1/2" rods and above, 4 .515 dia. spanner wrench holes will be provided instead of wrench flats.

**"Special" Thread Style 3**

Special thread, extension, rod eye, blank, etc., are also available.

To order, specify "Style 3" and give desired dimensions for CC or KK, A and LAF. If otherwise special, furnish dimensional sketch.

For additional information – call your local Parker Cylinder Distributor.

Table 1—Envelope and Mounting Dimensions

| Bore | CB | +.000 -.002 CD* | CW | E | EE NPTF⊖ | EE SAE★ | F | G | J | K | L | LR | M | MR | R | Add Stroke LG | Add Stroke P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 3 | 2.501 | 1 1/2 | 8 1/2 | 1 1/4 | 20 | 1 | 2 3/4 | 2 3/4 | 1 | 3 | 2 3/4 | 2 1/2 | 2 7/8 | 6.58 | 8 1/2 | 5 1/2 |
| 8 | 3 | 3.001 | 1 1/2 | 9 1/2 | 1 1/2 | 24 | 1 | 3 | 3 | 1 1/16 | 3 1/4 | 3 1/4 | 2 3/4 | 3 1/8 | 7.50 | 9 1/2 | 6 1/4 |

★ SAE straight thread ports are standard and are indicated by port number.
⊖ NPTF ports are available at no extra charge.
* Dimension CD is pin diameter.

B

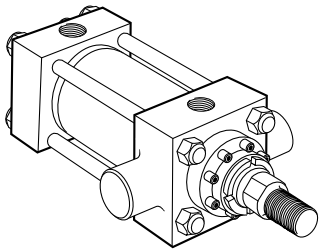
Table 2—Rod Dimensions

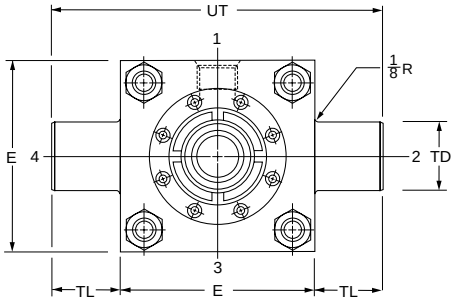
| Bore | Rod No. | Rod Dia. MM | Thread Style 8 CC | Thread Style 4 & 9 KK | A | +.000 -.002 B | C | D | KB | LAF | NA | V | Max. RD | RT | WF | Add Stroke Y | Add Stroke XC | Add Stroke ZC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 1(Std.) | 3 | 2 3/4-12 | 2 1/4-12 | 3 1/2 | 3.749 | 1 | 2 5/8 | 1/4 | 5 3/4 | 2 7/8 | 5/8 | 5 1/4 | 5/8 | 2 1/4 | 3 3/4 | 13 3/4 | 16 1/4 |
| | 2 | 5 | 4 3/4-12 | 3 1/2-12 | 5 | 5.749 | 1 | – | 0 | 7 1/4 | 4 7/8 | 1/4 | 7 1/4 | 1 | 2 1/4 | 3 3/4 | 13 3/4 | 16 1/4 |
| | 3 | 3 1/2 | 3 1/4-12 | 2 1/2-12 | 3 1/2 | 4.249 | 1 | 3 | 1/4 | 5 3/4 | 3 3/8 | 5/8 | 5 3/4 | 5/8 | 2 1/4 | 3 3/4 | 13 3/4 | 16 1/4 |
| | 4 | 4 | 3 3/4-12 | 3-12 | 4 | 4.749 | 1 | 3 3/8 | 1/4 | 6 1/4 | 3 7/8 | 1/2 | 6 1/2 | 3/4 | 2 1/4 | 3 3/4 | 13 3/4 | 16 1/4 |
| | 5 | 4 1/2 | 4 1/4-12 | 3 1/4-12 | 4 1/2 | 5.249 | 1 | – | 1/4 | 6 3/4 | 4 3/8 | 1/2 | 7 | 3/4 | 2 1/4 | 3 3/4 | 13 3/4 | 16 1/4 |
| 8 | 1(Std.) | 3 1/2 | 3 1/4-12 | 2 1/2-12 | 3 1/2 | 4.249 | 1 | 3 | 1/4 | 5 3/4 | 3 3/8 | 5/8 | 5 3/4 | 5/8 | 2 1/4 | 3 7/8 | 15 | 17 3/4 |
| | 2 | 5 1/2 | 5 1/4-12 | 4-12 | 5 1/2 | 6.249 | 1 | – | 0 | 7 3/4 | 5 3/8 | 1/4 | 8 1/4 | 1 | 2 1/4 | 3 7/8 | 15 | 17 3/4 |
| | 3 | 4 | 3 3/4-12 | 3-12 | 4 | 4.749 | 1 | 3 3/8 | 1/4 | 6 1/4 | 3 7/8 | 1/2 | 6 1/2 | 3/4 | 2 1/4 | 3 7/8 | 15 | 17 3/4 |
| | 4 | 4 1/2 | 4 1/4-12 | 3 1/4-12 | 4 1/2 | 5.249 | 1 | – | 1/4 | 6 3/4 | 4 3/8 | 1/2 | 7 | 3/4 | 2 1/4 | 3 7/8 | 15 | 17 3/4 |
| | 5 | 5 | 4 3/4-12 | 3 1/2-12 | 5 | 5.749 | 1 | – | 0 | 7 1/4 | 4 7/8 | 1/4 | 7 1/4 | 1 | 2 1/4 | 3 7/8 | 15 | 17 3/4 |

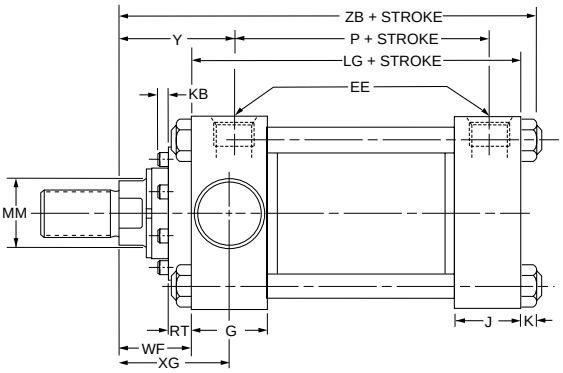
Table 3 — Envelope and Mounting Dimensions

# Series 3H 7" & 8" Bore
# Heavy Duty Hydraulic Cylinders

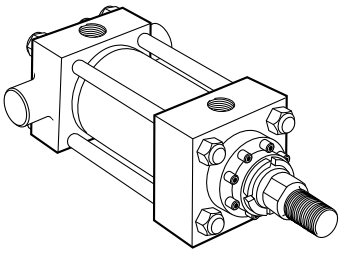
## Head Trunnion Mounting
## Style D
## (NFPA Style MT1)

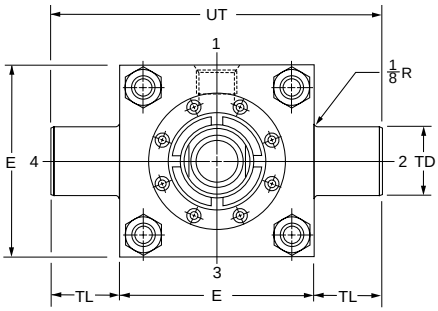


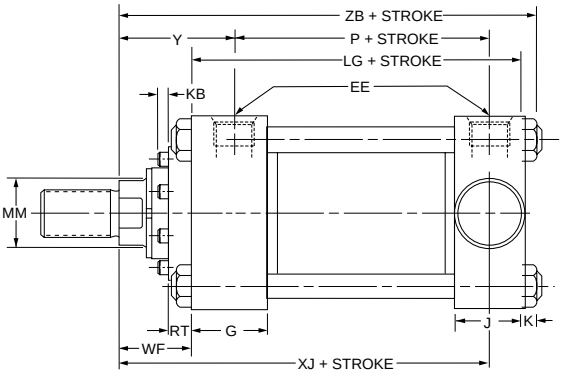


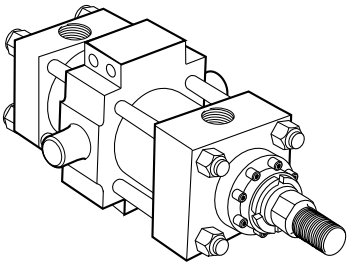

## Cap Trunnion Mounting
## Style DB
## (NFPA Style MT2)

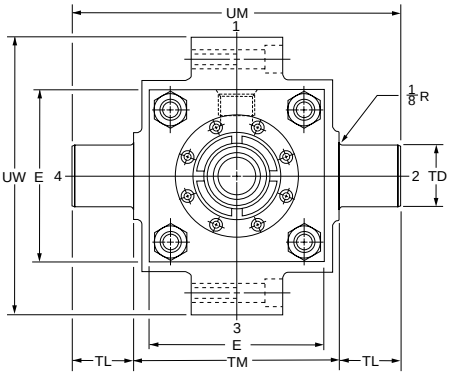


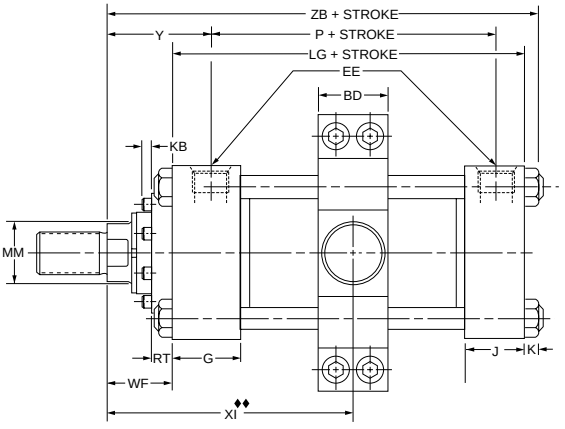



## Intermediate Fixed Trunnion Mounting
## Style DD
## (NFPA Style MT4)

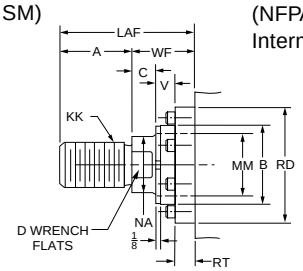




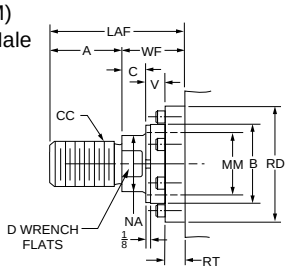




Rod End Dimensions — see table 2

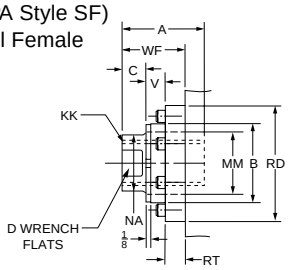
### Thread Style 4
(NFPA Style SM)
Small Male




### Thread Style 8
(NFPA Style IM)
Intermediate Male




### Thread Style 9
(NFPA Style SF)
Small Female




A high strength rod end stud is supplied on thread style 4 through 2" diameter rods and on thread style 8 through 1 3/8" diameter rods. Larger sizes or special rod ends are cut threads. Style 4 rod ends are recommended where the workpiece is secured against the rod shoulder. When the workpiece is not shouldered, style 4 rod ends are recommended through 2" piston rod diameters and style 8 rod ends are recommended on larger diameters. Use style 9 for applications where female rod end threads are required. If rod end is not specified, style 4 will be supplied. On 4 1/2" rods and above, 4 .515 dia. spanner wrench holes will be provided instead of wrench flats.

**"Special" Thread Style 3**

Special thread, extension, rod eye, blank, etc., are also available.

To order, specify "Style 3" and give desired dimensions for CC or KK, A and LAF. If otherwise special, furnish dimensional sketch.

For additional information – call your local Parker Cylinder Distributor.

Table 1—Envelope and Mounting Dimensions

| Bore | BD | E | EE NPTF⊖ | EE SAE★ | F | G | J | K | +.000 -.002 TD | TL | TM | UM | UT | UW | Add Stroke LG | Add Stroke P | Style DD Minimum Stroke |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 3 | 8 1/2 | 1 1/4 | 20 | 1 | 2 3/4 | 2 3/4 | 1 | 2.500 | 2 1/2 | 9 3/4 | 14 3/4 | 13 1/2 | 11 1/2 | 8 1/2 | 5 1/2 | 1/8" |
| 8 | 3 1/2 | 9 1/2 | 1 1/2 | 24 | 1 | 3 | 3 | 1 1/16 | 3.000 | 3 | 11 | 17 | 15 1/2 | 13 3/8 | 9 1/2 | 6 1/4 | 1/8" |

★ SAE straight thread ports are standard and are indicated by port number.
⊖ NPTF ports are available at no extra charge.

B

Table 2—Rod Dimensions

| Bore | Rod No. | Rod Dia. MM | Thread Style 8 CC | Thread Style 4 & 9 KK | Rod Extensions and Pilot Dimensions A | +.000 -.002 B | C | D | KB | LAF | NA | V | Max. RD | RT | WF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 1(Std.) | 3 | 2 3/4-12 | 2 1/4-12 | 3 1/2 | 3.749 | 1 | 2 5/8 | 1/4 | 5 3/4 | 2 7/8 | 5/8 | 5 1/4 | 5/8 | 2 1/4 |
| | 2 | 5 | 4 3/4-12 | 3 1/2-12 | 5 | 5.749 | 1 | – | 0 | 7 1/4 | 4 7/8 | 1/4 | 7 1/4 | 1 | 2 1/4 |
| | 3 | 3 1/2 | 3 1/4-12 | 2 1/2-12 | 3 1/2 | 4.249 | 1 | 3 | 1/4 | 5 3/4 | 3 3/8 | 5/8 | 5 3/4 | 5/8 | 2 1/4 |
| | 4 | 4 | 3 3/4-12 | 3-12 | 4 | 4.749 | 1 | 3 3/8 | 1/4 | 6 1/4 | 3 7/8 | 1/2 | 6 1/2 | 3/4 | 2 1/4 |
| | 5 | 4 1/2 | 4 1/4-12 | 3 1/4-12 | 4 1/2 | 5.249 | 1 | – | 1/4 | 6 3/4 | 4 3/8 | 1/2 | 7 | 3/4 | 2 1/4 |
| 8 | 1(Std.) | 3 1/2 | 3 1/4-12 | 2 1/2-12 | 3 1/2 | 4.249 | 1 | 3 | 1/4 | 5 3/4 | 3 3/8 | 5/8 | 5 3/4 | 5/8 | 2 1/4 |
| | 2 | 5 1/2 | 5 1/4-12 | 4-12 | 5 1/2 | 6.249 | 1 | – | 0 | 7 3/4 | 5 3/8 | 1/4 | 8 1/4 | 1 | 2 1/4 |
| | 3 | 4 | 3 3/4-12 | 3-12 | 4 | 4.749 | 1 | 3 3/8 | 1/4 | 6 1/4 | 3 7/8 | 1/2 | 6 1/2 | 3/4 | 2 1/4 |
| | 4 | 4 1/2 | 4 1/4-12 | 3 1/4-12 | 4 1/2 | 5.249 | 1 | – | 1/4 | 6 3/4 | 4 3/8 | 1/2 | 7 | 3/4 | 2 1/4 |
| | 5 | 5 | 4 3/4-12 | 3 1/2-12 | 5 | 5.749 | 1 | – | 0 | 7 1/4 | 4 7/8 | 1/4 | 7 1/4 | 1 | 2 1/4 |

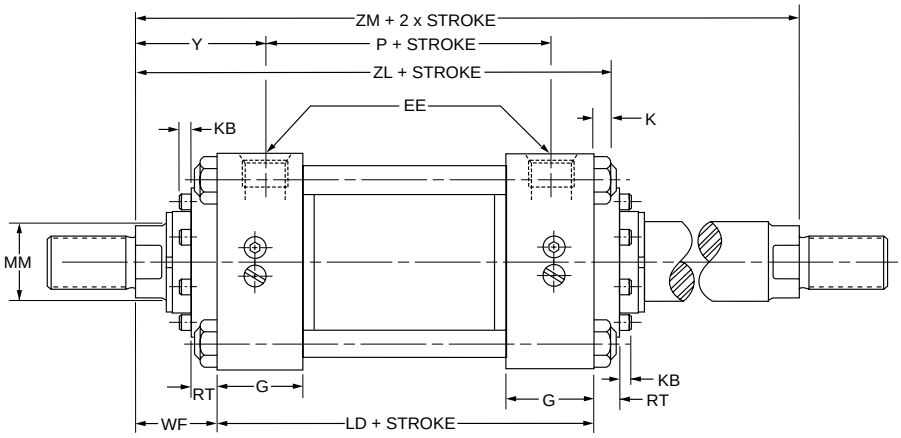
Table 3 — Envelope and Mounting Dimensions

| Bore | XG | Min.† XI | Y | Add Stroke XJ | Add Stroke ZB |
|---|---|---|---|---|---|
| 7 | 3 5/8 | 6 9/16 | 3 3/4 | 9 3/8 | 11 3/4 |
| | 3 5/8 | 6 9/16 | 3 3/4 | 9 3/8 | 11 3/4 |
| | 3 5/8 | 6 9/16 | 3 3/4 | 9 3/8 | 11 3/4 |
| | 3 5/8 | 6 9/16 | 3 3/4 | 9 3/8 | 11 3/4 |
| | 3 5/8 | 6 9/16 | 3 3/4 | 9 3/8 | 11 3/4 |
| 8 | 3 3/4 | 7 1/16 | 3 7/8 | 10 1/4 | 12 13/16 |
| | 3 3/4 | 7 1/16 | 3 7/8 | 10 1/4 | 12 13/16 |
| | 3 3/4 | 7 1/16 | 3 7/8 | 10 1/4 | 12 13/16 |
| | 3 3/4 | 7 1/16 | 3 7/8 | 10 1/4 | 12 13/16 |
| | 3 3/4 | 7 1/16 | 3 7/8 | 10 1/4 | 12 13/16 |

†Dimension XI to be specified by customer.

# Series 3H 7" & 8" Bore
# Heavy Duty Hydraulic Cylinders

Double Rod Cylinder
Style K



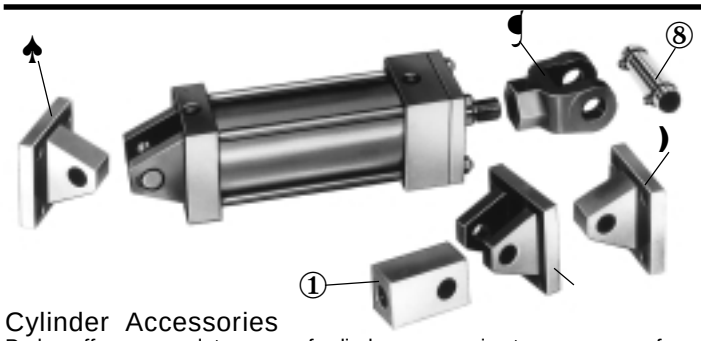

All dimensions are shown in inches and apply to Code 1 rod sizes only. For alternate rod sizes, determine all envelope dimensions (within LD dim.) as described above and then use appropriate rod end dimensions for proper rod size from single rod cylinder.

| Bore | Rod No. | Rod Dia. MM | Add Stroke | | | | Add 2X Stroke |
|---|---|---|---|---|---|---|---|
| | | | LD | ZL | $SN_K$ | $SS_K$ | ZM |
| 7 | 1 | 3 | $8\frac{1}{2}$ | $11\frac{3}{4}$ | $5\frac{3}{8}$ | $5\frac{3}{4}$ | 13 |
| 8 | 1 | $3\frac{1}{2}$ | $9\frac{1}{2}$ | $12\frac{13}{16}$ | $6\frac{1}{8}$ | $6\frac{3}{4}$ | 14 |
| **Replaces:** | | | **LG** | **ZB** | **SN** | **SS** | – |
| **On single rod mounting styles:** | | | **All Mtg. Styles** | | **F** | **C** | **All Mtgs.** |

For additional information – call your local Parker Cylinder Distributor.

# Notes

# Series 3H 7" & 8" Bore
# Heavy Duty Hydraulic Cylinders




## Cylinder Accessories

Parker offers a complete range of cylinder accessories to assure you of greatest versatility in present or future cylinder applications.

## Rod End Accessories

Accessories offered for the rod end of the cylinder include Rod Clevis, Eye Bracket, Knuckle, Clevis Bracket and Pivot Pin. To select the proper part number for any desired accessory, refer to Chart A below and look opposite the thread size of the rod end as indicated in the first column. The Pivot Pins, Eye Brackets and Clevis Brackets are listed opposite the thread size which their mating Knuckles or Clevises fit.

### Chart A

| Thread Size | Mating Parts | | | Mating Parts | | | Alignment Coupler |
|---|---|---|---|---|---|---|---|
| | Rod Clevis | Eye Bracket | Pin | Knuckle | Clevis Bracket | Pin | |
| 5/16-24 | 51221 | 74077 | — | 74075 | 74076 | 74078 | 144500-0105 |
| 7/16-20 | 50940 | 69195 | 68368 | 69089 | 69205 | 68368 | 144500-0107 |
| 1/2-20 | 50941 | 69195 | 68368 | 69090 | 69205 | 68368 | 144500-0108 |
| 3/4-16 | 50942 | 69196 | 68369 | 69091 | 69206 | 68369 | 144500-0112 |
| 3/4-16 | 133284 | 69196 | 68369 | 69091 | 69206 | 68369 | 144500-0112 |
| 7/8-14 | 50943 | *85361 | 68370 | 69092 | 69207 | 68370 | 144500-0114 |
| 1-14 | 50944 | *85361 | 68370 | 69093 | 69207 | 68370 | 144500-0116 |
| 1-14 | 133285 | *85361 | 68370 | 69093 | 69207 | 68370 | 144500-0116 |
| 1 1/4-12 | 50945 | 69198 | 68371 | 69094 | 69208 | 68371 | 144500-0120 |
| 1 1/4-12 | 133286 | 69198 | 68371 | 69094 | 69208 | 68371 | 144500-0120 |
| 1 1/2-12 | 50946 | *85362 | 68372 | 69095 | 69209 | 68372 | Consult Factory |
| 1 3/4-12 | 50947 | *85363 | 68373 | 69096 | 69210 | 69215 | |
| 1 7/8-12 | 50948 | *85363 | 68373 | 69097 | 69210 | 69215 | |
| 2 1/4-12 | 50949 | *85364 | 68374 | 69098 | 69211 | 68374 | |
| 2 1/2-12 | 50950 | *85365 | 68375 | 69099 | 69212 | 68375 | |
| 2 3/4-12 | 50951 | *85365 | 68375 | 69100 | 69213 | 69216 | |
| 3 1/4-12 | 50952 | 73538 | 73545 | 73536 | 73542 | 73545 | |
| 3 1/2-12 | 50953 | 73539 | 73547 | 73437 | 73542 | 73545 | |
| 4-12 | 50954 | 73539 | 73547 | 73438 | 73543 | 82181 | |
| 4 1/2-12 | – | – | – | 73439 | 73544 | 73547 | |

*Cylinder accessory dimensions conform to NFPA recommended standard NFPA/T3.6.8 R1-1984, NFPA recommended standard fluid power systems — cylinder — dimensions for accessories for cataloged square head industrial types. Parker adopted this standard in April, 1985. Eye Brackets or Mounting Plates shipped before this date may have different dimensions and will not necessarily interchange with the NFPA standard. For dimensional information on older style Eye Brackets or Mounting Plates consult Drawing #144805 or previous issues of this catalog.

## Accessory Load Capacity

The various accessories have been load rated for your convenience. The load capacity in lbs. is the recommended maximum load for that accessory based on a 4:1 design factor in tensions. (Pivot Pin is rated in shear.) Before specifying, compare the actual load or the tension (pull) force at maximum operating pressure of the cylinder with the load capacity of the accessory you plan to use. If load or pull force of cylinder exceeds load capacity of accessory, consult factory.

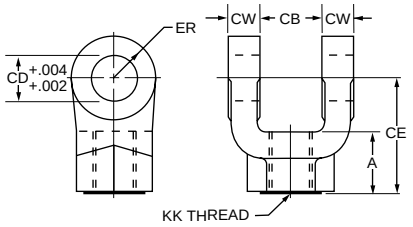
### Chart B

| Mtg. Plate Part No. | Series 2H Bore Size |
|---|---|
| 69195 | 1 1/2" |
| 69196 | 2", 2 1/2" |
| *85361 | 3 1/4" |
| 69198 | 4" |
| *85362 | 5" |
| *85363 | 6" |
| *85364 | 7" |
| *85365 | 8" |

## Mounting Plates

Mounting Plates for Style BB (Clevis mounted) cylinders are offered. To select proper part number for your application, refer to Chart B, above right.

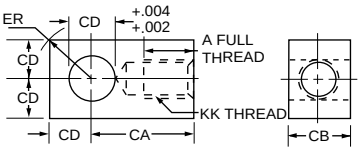
## ❩ Female Rod Clevis




②

Order to fit thread size.

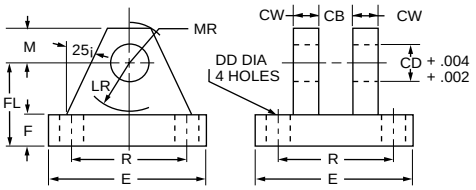
## ① Knuckle (Female Rod Eye)




②

Order to fit thread size.

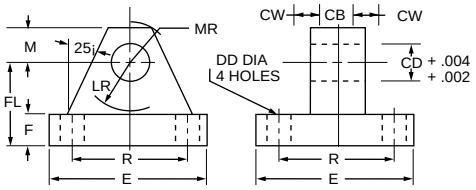
## Clevis Bracket for Knuckle




②

Order to fit Knuckle.

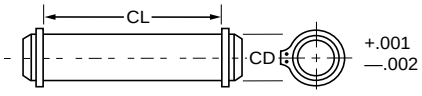
## ♠ Mounting Plate or ❫ Eye Bracket




②

1. When used to mate with the Rod Clevis, select from Chart A.
2. When used to mount the Style BB cylinders, select from the Mounting Plate Selection Table. See Chart B at lower left.

## ⑧ Pivot Pin




②

1. Pivot Pins are furnished with Clevis Mounted Cylinders as standard.
2. Pivot Pins are furnished with (2) Retainer Rings.
3. Pivot Pins must be ordered as separate item if to be used with Knuckles, Rod Clevises, or Clevis Brackets.

For additional information – call your local Parker Cylinder Distributor.

| | Female Rod Clevis Part Number | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **51221†** | **50940** | **50941** | **50942** | **133284** | **50943** | **50944** | **133285** | **50945** | **133286** | **50946** | **50947** | **50948** | **50949** | **50950** | **50951** | **50952** | **50953** | **50954** |
| A | 13/16 | 3/4 | 3/4 | 1 1/8 | 1 1/8 | 1 5/8 | 1 5/8 | 1 5/8 | 2 | 2 | 2 1/4 | 3 | 3 | 3 1/2 | 3 1/2 | 3 1/2 | 3 1/2‡ | 4‡ | 4‡ |
| CB | 11/32 | 3/4 | 3/4 | 1 1/4 | 1 1/4 | 1 1/2 | 1 1/2 | 1 1/2 | 2 | 2 | 2 1/2 | 2 1/2 | 2 1/2 | 3 | 3 | 3 | 4 | 4 1/2 | 4 1/2 |
| CD | 5/16 | 1/2 | 1/2 | 3/4 | 3/4 | 1 | 1 | 1 | 1 3/8 | 1 3/8 | 1 3/4 | 2 | 2 | 2 1/2 | 3 | 3 | 3 1/2 | 4 | 4 |
| CE | 2 1/4 | 1 1/2 | 1 1/2 | 2 1/8 | 2 3/8 | 2 15/16 | 2 15/16 | 3 1/8 | 3 3/4 | 4 1/8 | 4 1/2 | 5 1/2 | 5 1/2 | 6 1/2 | 6 3/4 | 6 3/4 | 7 3/4 | 8 13/16 | 8 13/16 |
| CW | 13/64 | 1/2 | 1/2 | 5/8 | 5/8 | 3/4 | 3/4 | 3/4 | 1 | 1 | 1 1/4 | 1 1/4 | 1 1/4 | 1 1/2 | 1 1/2 | 1 1/2 | 2 | 2 1/4 | 2 1/4 |
| ER | 19/64 | 1/2 | 1/2 | 3/4 | 3/4 | 1 | 1 | 1 | 1 3/8 | 1 3/8 | 1 3/4 | 2 | 2 | 2 1/2 | 2 3/4 | 2 3/4 | 3 1/2 | 4 | 4 |
| KK | 15/16-24 | 7/16-20 | 1/2-20 | 3/4-16 | 3/4-16 | 7/8-14 | 1-14 | 1-14 | 1 1/4-12 | 1 1/4-12 | 1 1/2-12 | 1 3/4-12 | 1 7/8-12 | 2 1/4-12 | 2 1/2-12 | 2 3/4-12 | 3 1/4-12 | 3 1/2-12 | 4-12 |
| Load Capacity Lbs. ⊖ | 2600 | 4250 | 4900 | 11200 | 11200 | 18800 | 19500 | 19500 | 33500 | 33500 | 45600 | 65600 | 65600 | 98200 | 98200 | 98200 | 156700 | 193200 | 221200 |

| | Knuckle Part Number | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **74075** | **69089** | **69090** | **69091** | **69092** | **69093** | **69094** | **69095** | **69096** | **69097** | **69098** | **69099** | **69100** | **73536** | **73437** | **73438** | **73439** |
| A | 3/4 | 3/4 | 3/4 | 1 1/8 | 1 1/8 | 1 5/8 | 2 | 2 1/4 | 2 1/4 | 3 | 3 1/2 | 3 1/2 | 3 5/8 | 4‡ | 5 | 5 1/2 | 5 1/2 |
| CA | 1 1/2 | 1 1/2 | 1 1/2 | 2 1/16 | 2 3/8 | 2 13/16 | 3 7/16 | 4 | 4 3/8 | 5 | 5 13/16 | 6 1/8 | 6 1/2 | 7 5/8 | 7 5/8 | 9 1/8 | 9 1/8 |
| CB | 7/16 | 3/4 | 3/4 | 1 1/4 | 1 1/2 | 1 1/2 | 2 | 2 1/2 | 2 1/2 | 2 1/2 | 3 | 3 | 3 1/2 | 4 | 4 | 4 1/2 | 5 |
| CD | 7/16 | 1/2 | 1/2 | 3/4 | 1 | 1 | 1 3/8 | 1 3/4 | 2 | 2 | 2 1/2 | 3 | 3 | 3 1/2 | 3 1/2 | 4 | 4 |
| ER | 19/32 | 23/32 | 23/32 | 1 1/16 | 1 7/16 | 1 7/16 | 1 31/32 | 2 1/2 | 2 27/32 | 2 27/32 | 3 9/16 | 4 1/4 | 4 1/4 | 4 31/32 | 4 31/32 | 5 11/16 | 5 11/16 |
| KK | 5/16-24 | 7/16-20 | 1/2-20 | 3/4-16 | 7/8-14 | 1-14 | 1 1/4-12 | 1 1/2-12 | 1 3/4-12 | 1 7/8-12 | 2 1/4-12 | 2 1/2-12 | 2 3/4-12 | 3 1/4-12 | 3 1/2-12 | 4-12 | 4 1/2-12 |
| Load Capacity Lbs.⊖ | 3300 | 5000 | 5700 | 12100 | 13000 | 21700 | 33500 | 45000 | 53500 | 75000 | 98700 | 110000 | 123300 | 161300 | 217300 | 273800 | 308500 |

| | Clevis Bracket for Knuckle Part Number | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **74076** | **69205** | **69206** | **69207** | **69208** | **69209** | **69210** | **69211** | **69212** | **69213** | **73542** | **73543** | **73544** |
| CB | 15/32 | 3/4 | 1 1/4 | 1 1/2 | 2 | 2 1/2 | 2 1/2 | 3 | 3 | 3 1/2 | 4 | 4 1/2 | 5 |
| CD | 7/16 | 1/2 | 3/4 | 1 | 1 3/8 | 1 3/4 | 2 | 2 1/2 | 3 | 3 | 3 1/2 | 4 | 4 |
| CW | 3/8 | 1/2 | 5/8 | 3/4 | 1 | 1 1/4 | 1 1/2 | 1 1/2 | 1 1/2 | 1 1/2 | 2 | 2 | 2 |
| DD | 17/64 | 13/32 | 17/32 | 21/32 | 21/32 | 29/32 | 1 1/16 | 1 3/16 | 1 5/16 | 1 5/16 | 1 13/16 | 2 1/16 | 2 1/16 |
| E | 2 1/4 | 3 1/2 | 5 | 6 1/2 | 7 1/2 | 9 1/2 | 12 3/4 | 12 3/4 | 12 3/4 | 12 3/4 | 15 1/2 | 17 1/2 | 17 1/2 |
| F | 3/8 | 1/2 | 5/8 | 3/4 | 7/8 | 7/8 | 1 | 1 | 1 | 1 | 1 11/16 | 1 15/16 | 1 15/16 |
| FL | 1 | 1 1/2 | 1 7/8 | 2 1/4 | 3 | 3 5/8 | 4 1/4 | 4 1/2 | 6 | 6 | 6 11/16 | 7 11/16 | 7 11/16 |
| LR | 5/8 | 3/4 | 1 3/16 | 1 1/2 | 2 | 2 3/4 | 3 3/16 | 3 1/2 | 4 1/4 | 4 1/4 | 5 | 5 3/4 | 5 3/4 |
| M | 3/8 | 1/2 | 3/4 | 1 | 1 3/8 | 1 3/4 | 2 1/4 | 2 1/2 | 3 | 3 | 3 1/2 | 4 | 4 |
| MR | 1/2 | 5/8 | 29/32 | 1 1/4 | 1 21/32 | 2 7/32 | 2 25/32 | 3 1/8 | 3 19/32 | 3 19/32 | 4 1/8 | 4 7/8 | 4 7/8 |
| R | 1.75 | 2.55 | 3.82 | 4.95 | 5.73 | 7.50 | 9.40 | 9.40 | 9.40 | 9.40 | 12.00 | 13.75 | 13.75 |
| Load Capacity Lbs.⊖ | 3600 | 7300 | 14000 | 19200 | 36900 | 34000 | 33000 | 34900 | 33800 | 36900 | 83500 | 102600 | 108400 |

| | Eye Bracket and Mounting Plate Part Number | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **74077** | **69195** | **69196** | **85361*** | **69198** | **85362*** | **85363*** | **85364*** | **85365*** | **73538** | **73539** |
| CB | 5/16 | 3/4 | 1 1/4 | 1 1/2 | 2 | 2 1/2 | 2 1/2 | 3 | 3 | 4 | 4 1/2 |
| CD | 5/16 | 1/2 | 3/4 | 1 | 1 3/8 | 1 3/4 | 2 | 2 1/2 | 3 | 3 1/2 | 4 |
| DD | 17/64 | 13/32 | 17/32 | 21/32 | 21/32 | 29/32 | 1 1/16 | 1 3/16 | 1 5/16 | 1 13/16 | 2 1/16 |
| E | 2 1/4 | 2 1/2 | 3 1/2 | 4 1/2 | 5 | 6 1/2 | 7 1/2 | 8 1/2 | 9 1/2 | 12 5/8 | 14 7/8 |
| F | 3/8 | 3/8 | 5/8 | 7/8 | 7/8 | 1 1/8 | 1 1/2 | 1 3/4 | 2 | 1 11/16 | 1 15/16 |
| FL | 1 | 1 1/8 | 1 7/8 | 2 3/8 | 3 | 3 3/8 | 4 | 4 3/4 | 5 1/4 | 5 11/16 | 6 7/16 |
| LR | 5/8 | 3/4 | 1 1/4 | 1 1/2 | 2 1/8 | 2 1/4 | 2 1/2 | 3 | 3 1/4 | 4 | 4 1/2 |
| M | 3/8 | 1/2 | 3/4 | 1 | 1 3/8 | 1 3/4 | 2 | 2 1/2 | 2 3/4 | 3 1/2 | 4 |
| MR | 1/2 | 9/16 | 7/8 | 1 1/4 | 1 5/8 | 2 1/8 | 2 7/16 | 3 | 3 1/4 | 4 1/8 | 5 1/4 |
| R | 1.75 | 1.63 | 2.55 | 3.25 | 3.82 | 4.95 | 5.73 | 6.58 | 7.50 | 9.62 | 11.45 |
| Load Capacity Lbs.⊖ | 1700 | 4100 | 10500 | 20400 | 21200 | 49480 | 70000 | 94200 | 121900 | 57400 | 75000 |

| | Pivot Pin Part Number | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **74078** | **68368** | **68369** | **68370** | **68371** | **68372** | **68373** | **69215** | **68374** | **68375** | **69216** | **73545** | **82181** | **73547•** |
| CD | 7/16 | 1/2 | 3/4 | 1 | 1 3/8 | 1 3/4 | 2 | 2 | 2 1/2 | 3 | 3 | 3 1/2 | 4 | 4 |
| CL | 1 5/16 | 1 7/8 | 2 5/8 | 3 1/8 | 4 1/8 | 5 3/16 | 5 3/16 | 5 11/16 | 6 3/16 | 6 1/4 | 6 3/4 | 8 1/4 | 8 5/8 | 9 |
| Shear Capacity Lbs.⊖ | 6600 | 8600 | 19300 | 34300 | 65000 | 105200 | 137400 | 137400 | 214700 | 309200 | 309200 | 420900 | 565800 | 565800 |

*Cylinder accessory dimensions conform to NFPA recommended standard NFPA/T3.6.8 R1-1984, NFPA recommended standard fluid power systems — cylinder — dimensions for accessories for cataloged square head industrial types. Parker adopted this standard in April, 1985. Eye Brackets or Mounting Plates shipped before this date may have different dimensions and will not necessarily interchange with the NFPA standard. For dimensional information on older style Eye Brackets or Mounting Plates consult Drawing #144805 or previous issues of this catalog.

⊖ See Accessory Load Capacity note on previous page.

•These sizes supplied with cotter pins.

†Includes Pivot Pin.

‡Consult appropriate cylinder rod end dimensions for compatibility.

For Cylinder Division Plant Locations – See Page II.

# How to Order Series 3H Cylinders

### Data Required on All Cylinder Orders

When ordering Series 3H cylinders, be sure to specify each of the following requirements:

**Note:** Duplicate cylinders can be ordered by giving the SERIAL NUMBER from the nameplate of the original cylinder. Factory records supply a quick positive identification.

| | |
|---|---|
| **Bore Size:** | Specify bore in inches. |
| **Mounting Style:** | Specify your choice of mounting style — as shown and dimensions in this catalog. If double rod is wanted, specify "with double rod". |
| **Series Designation (3H)** | |
| **Length of Stroke** | |
| **Piston Rod Diameter:** | Call out rod diameter or rod code number. In Series 3H cylinders, standard rod diameters (Code No. 1) will be furnished if not otherwise specified, unless length of stroke makes the application questionable. |
| **Piston Rod End Thread Style:** | Call out thread style number or specify dimensions. Thread style number 4 will be furnished if not otherwise specified. |
| **Cushions (If required):** | Specify "Cushion-head end", "Cushion-cap end" or "Cushion-both ends" as required. If cylinder is to have a double rod and only one cushion is required, be sure to specify clearly which end of the cylinder is to be cushioned. |
| **Hi-Load Piston or Alternate Cast Iron Rings:** | Hi-Load Pistons are furnished as standard. |
| **Ports:** | Parker recommends SAE Straight Thread Ports on Series 3H 7" and 8" bore. |
| **Fluid Medium:** | Series 3H hydraulic cylinders are equipped with seals for use with hydraulic oil. If other than hydraulic oil will be used, specify class of fluid (see Catalog section C). |
| **Additional Data:** | Additional data is required on orders for cylinders with special modifications. For further information, consult factory. |

## Class 1 Seals

Class 1 seals are the seals provided as standard in a cylinder assembly unless otherwise specified. For further information on fluid compatibility on operating limitations of all compounds, see section C.

For the 3H series cylinders the following make-up Class 1 Seals:
Primary Piston Rod Seal – Enhanced Polyurethane
Piston Rod Wiper – Nitrile
Piston Seals – Hi-Load. Filled PTFE seals with a nitrile expander
Option – Cast Iron Rings
O-Rings – Nitrile (nitrile back-up washer when used)

## Service Policy

On cylinders returned to the factory for repairs, it is standard policy for the Cylinder Division to make such part replacements as will put the cylinder in as good as new condition. Should the condition of the returned cylinder be such that expenses for repair would exceed the costs of a new one, you will be notified.

Address all correspondence and make shipments to, Service Department at your nearest regional plant listed on page VI.

## Certified Dimensions

Parker Cylinder Division guarantees that all cylinders ordered from this catalog will be built to dimensions shown. All dimensions are certified to be correct, and thus it is not necessary to request certified drawings.

## Warranty

Seller warrants the goods sold hereunder to be free from defects in material and workmanship. This warranty shall terminate eighteen months after date of shipment form Seller's plant and claims not made in writing within such period are waived.

The above warranty does not extend to goods damaged after date of shipment from Seller's plant where the damage is not directly due to a defect in material or workmanship, nor does it apply to goods altered or repaired by anyone other than Seller's authorized employees, nor to goods furnished by Buyer or acquired at Buyer's request and/or to Buyer's specifications.

If the goods are in accordance with or in reference to an engineering drawing specified by or furnished to the customer, the specifications and information on the drawing shall be applicable in determining such correct use, operation and application.

When claiming a breach of warranty, Buyer must notify Seller promptly whereupon Seller will either examine the goods at their site, or issue shipping instructions for return to Seller (transportation costs prepaid by Buyer). When any goods sold hereunder are proved as not warranted, Seller's sole obligation under this warranty shall be to repair or replace the goods, at its option, without charge to Buyer.

**The above warranty comprises Seller's sole and entire warranty obligation and liability to Buyer, its customers and assigns in connection with goods sold hereunder. All other warranties, express or implied, including but not limited to, warranties of merchantability and fitness, are expressly excluded.**

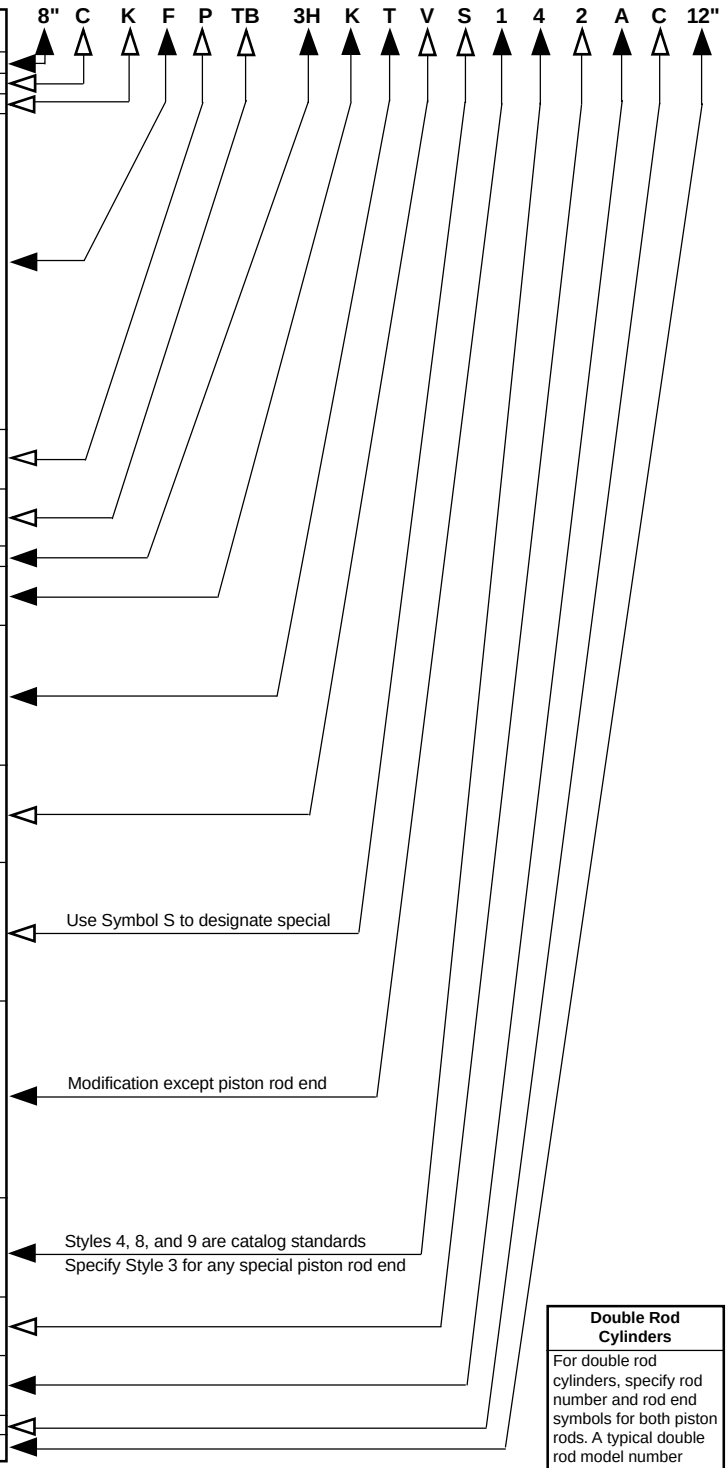
For additional information – call your local Parker Cylinder Distributor.

## Series 3H Model Numbers – How to Develop Them – How to "Decode" Them

Parker Series 3H cylinders can be completely and accurately described by a model number consisting of coded symbols. For single rod cylinders a maximum of 17 places for digits and letters are used in a prescribed sequence to produce a model number. Only nine places are needed to completely describe a standard non-cushioned Series 3H cylinder. To develop a model number, select only those symbols that represent the cylinder required, and place them in the sequence indicated below.

**Note: Page numbers with a letter prefix, ie: C77, are located in section C of this catalog.**

| Feature | Description | Page No. | Symbol |
|---|---|---|---|
| **Bore*** | Specify in inches | | |
| **Cushion-Head** | Used **only** if cushion required | 61, C94 | **C** |
| **Double-Rod** | Used **only** if double-rod cylinder is required | 80 | **K** |
| **Mounting Style*** | Head Tie Rods Extended | 68 | **TB** |
| | Cap Tie Rods Extended | 68 | **TC** |
| | Both Tie Rods Extended | 68 | **TD** |
| | Head Rectangular Flange | 72 | **J** |
| | Head Square Flange | 72 | **JB** |
| | Head Rectangular | 72 | **JJ** |
| | Cap Rectangular Flange | 70 | **H** |
| | Cap Square Flange | 70 | **HB** |
| | Cap Rectangular | 70 | **HH** |
| | Side Lugs | 74 | **C**† |
| | Side Tapped | 74 | **F**† |
| | Cap Fixed Clevis | 76 | **BB** |
| | Head Trunnion | 78 | **D** |
| | Cap Trunnion | 78 | **DB** |
| | Intermediate Fixed Trunnion | 78 | **DD** |
| **Mounting Modifications** | Used **only** for Thrust Key (Styles C,F,G, & CB) | C93 | **P** |
| | Used **only** for Manifold Port O-Ring Seal (Style C) | C91 | **M** |
| **Combination Mounting Style** | Any Practical Mounting Style Listed Above | – – – | As listed above |
| **Series*** | Used in **all** 3H Model Numbers | – | **3H** |
| **Piston** | Hi-Load Piston standard | B63, C4 | **K** |
| | Used **only** for Ring Packed Piston | B63 | **C** |
| | Used **only** for Lipseal® Piston | | **L** |
| **Ports*** | SAE Straight Thread O-Ring Port (Standard) | C89 | **T** |
| | Used **only** for NPTF (Dry Seal Pipe Thread) | C89 | **U** |
| | Used **only** for BSP (Parallel Thread ISO 228) | C89 | **R** |
| | Used **only** for SAE Flange Ports (3000 psi) | C89 | **P** |
| | Used **only** for BSPT (Taper Thread) | C89 | **B** |
| | Used **only** for Metric Thread | C89 | **G** |
| | Used **only** for Metric Thread per ISO 6149 | C89 | **Y** |
| **Common Modifications** | High Water Content Fluid | C83 | **J** |
| | Nut Retained Piston | 67 | **F** |
| | Viton Seals | C83 | **V** |
| | Water Service | C83 | **W** |
| | EPR Seals | C83 | **X** |
| **Special Modifications** | Used **only** if special Modifications are required: | | |
| | Oversize Ports | C91 | |
| | Port Position Change | C89 | |
| | Special Seals | C83 | **S** |
| | Stop Tube | C95 | |
| | Stroke Adjuster | C93 | |
| | Ring Type Piston | | |
| **Piston Rod* Number** | For Single Rod Cylinders, select one only. | – | **1** |
| | Refer to Rod number listing, Table 2, | – | **2** |
| | Pages 64 through 74 | – | **3** |
| | See chart in Section C, page 83 for minimum | – | **4** |
| | piston rod diameter | – | **5** |
| | | – | **6** |
| | | – | **7** |
| | | – | **8** |
| | | – | **9** |
| | | – | **0** |
| **Piston* Rod End** | Select: | | |
| | Style 4 Small Male | C92 | **4** |
| | Style 8 Intermediate Male | C92 | **8** |
| | Style 9 Short Female | C92 | **9** |
| | Style 3 Special (Specify) | C92 | **3** |
| **Piston Rod Alternate Threads** | Used **only** for male thread two times longer than standard. | C92 | **2** |
| **Piston Rod* Threads** | UNF Standard | C92 | **A** |
| | BSF (British Fine) | C92 | **W** |
| | Metric | C92 | **M** |
| **Cushion-Cap** | Used **only** if cushion required | 67, C94 | **C** |
| **Stroke*** | Specify in inches | C93 | **–** |




**Double Rod Cylinders**

For double rod cylinders, specify rod number and rod end symbols for both piston rods. A typical double rod model number would be:

6" KJ-3HU14A/14AX12"

***Required for Basic Cylinder Model Number**

▲ **Dark Arrows Indicate Basic Minimum Model Number**

**†Cylinders with these mounting styles should have a stroke length equal to or greater than their bore diameters.**


For Cylinder Division Plant Locations – See Page II.

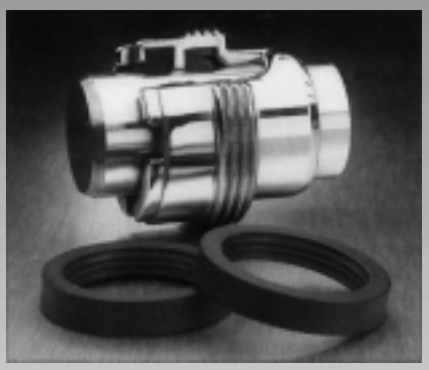
# Parker TS-2000 seal designed to eliminate cylinder rod seal leakage.

**Parker Series 2H Heavy Duty and Series 3L Medium Duty Hydraulic Cylinders with the TS-2000 seal offers positive protection against cylinder rod leakage under the most demanding applications.**

The TS-2000 seal is the product of countless hours of research, development and extensive field testing and is only available on Parker Cylinders.

Based on the popular Parker Serrated Lipseal rod design, the TS-2000 incorporates the pressure-compensated, uni-directional characteristics of a U-cup with the multiple edge sealing effectiveness of compression-type stacked-packings.

The goal for the Parker team was to design a rod seal suitable for all types of applications, regardless of pressure profile. It had to be composed of a material that would not react chemically with hydraulic fluids. And it had to produce better and more reliable "dry rod" performance than the standard serrated lip-seal design in a broad range of applications.



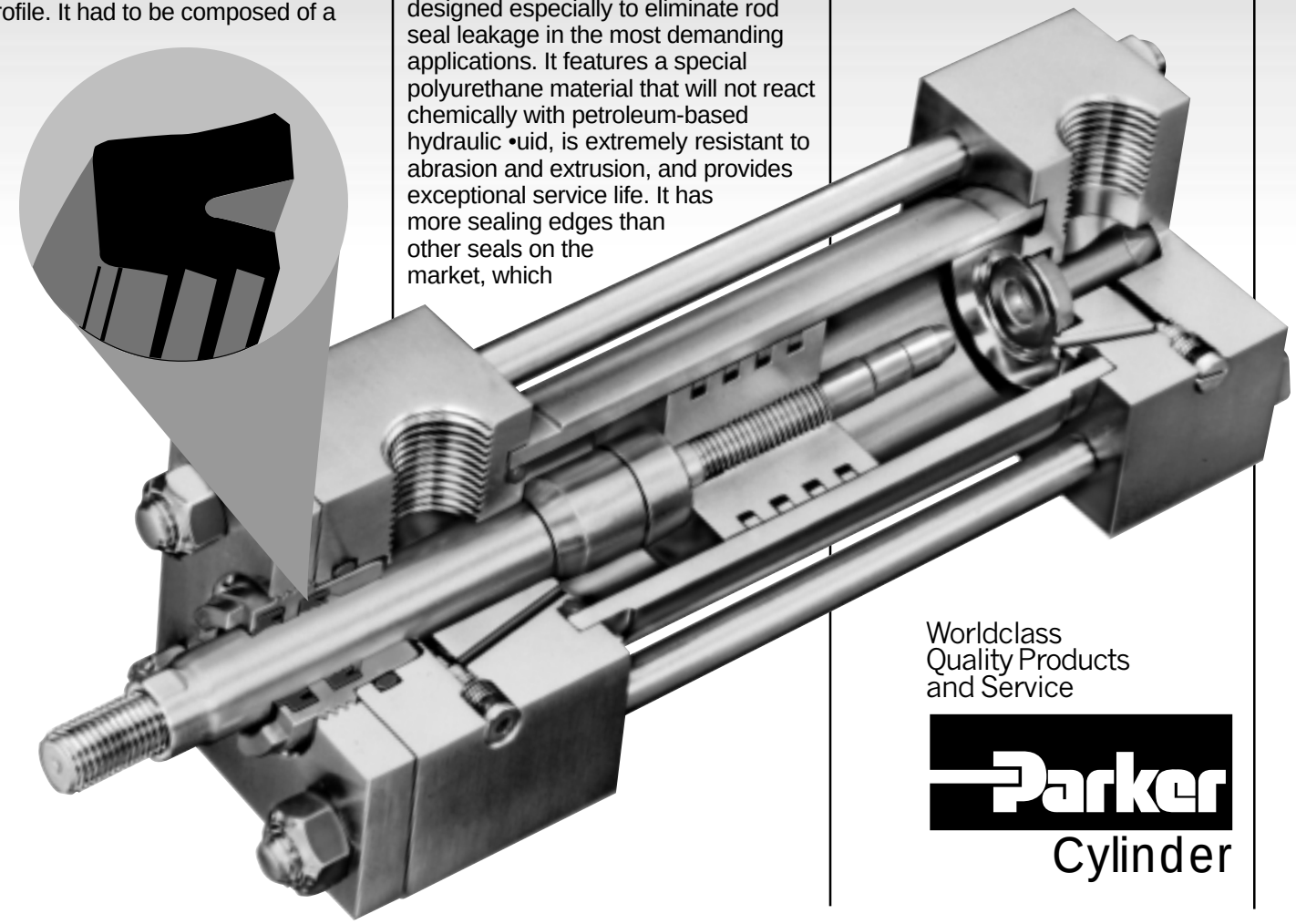
**"Jewel" gland with wiperseal and TS-2000 cylinder rod seal.**

The result is the TS-2000 seal, designed especially to eliminate rod seal leakage in the most demanding applications. It features a special polyurethane material that will not react chemically with petroleum-based hydraulic •uid, is extremely resistant to abrasion and extrusion, and provides exceptional service life. It has more sealing edges than other seals on the market, which in turn produces "dry rod" performance. The seal geometry was refined for maximum stability in the groove and has excellent performance characteristics throughout a broad range of pressures and piston rod velocities.

The Parker design team was successful!

TS-2000 rod seal has not failed in any of the test applications in the lab or on the job, no matter how tough or demanding.

For more information on the TS-2000 call or write your local Parker distributor or Parker Hannifin Corporation, Cylinder Division, 500 S. Wolf Road, Des Plaines, IL 60016, 847-298-2400.



Worldclass
Quality Products
and Service

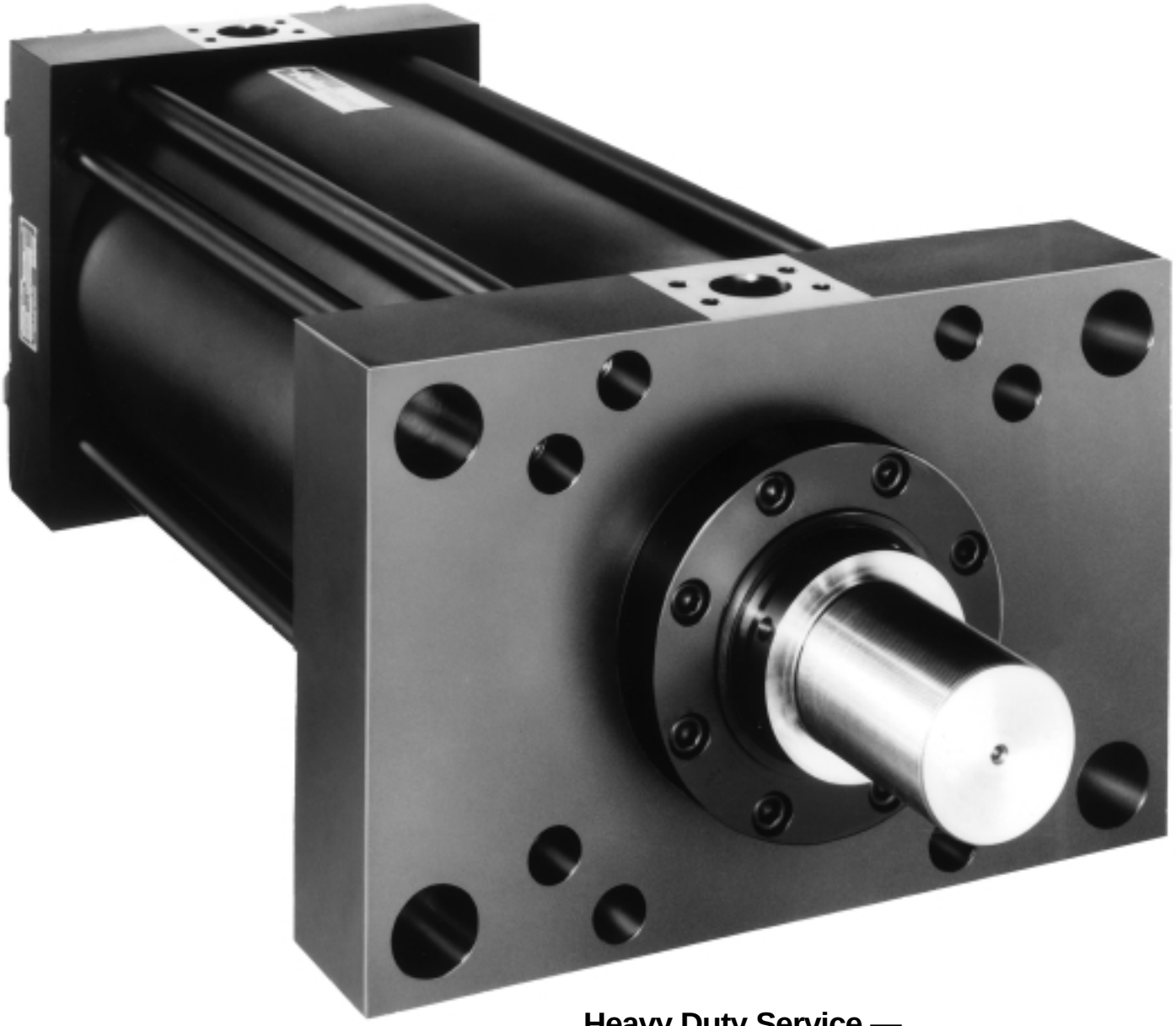
Parker
Cylinder

For additional information – call your local Parker Cylinder Distributor.

Parker
Cylinder

# Large Bore High Pressure Hydraulic Cylinders

## Series 3H



**Heavy Duty Service —**
**Industrial Tie-Rod Construction**

- **Nominal Pressure — 3000 PSI**
- **Thirteen Standard Mounting Styles**

For Cylinder Division Plant Locations – See Page II.

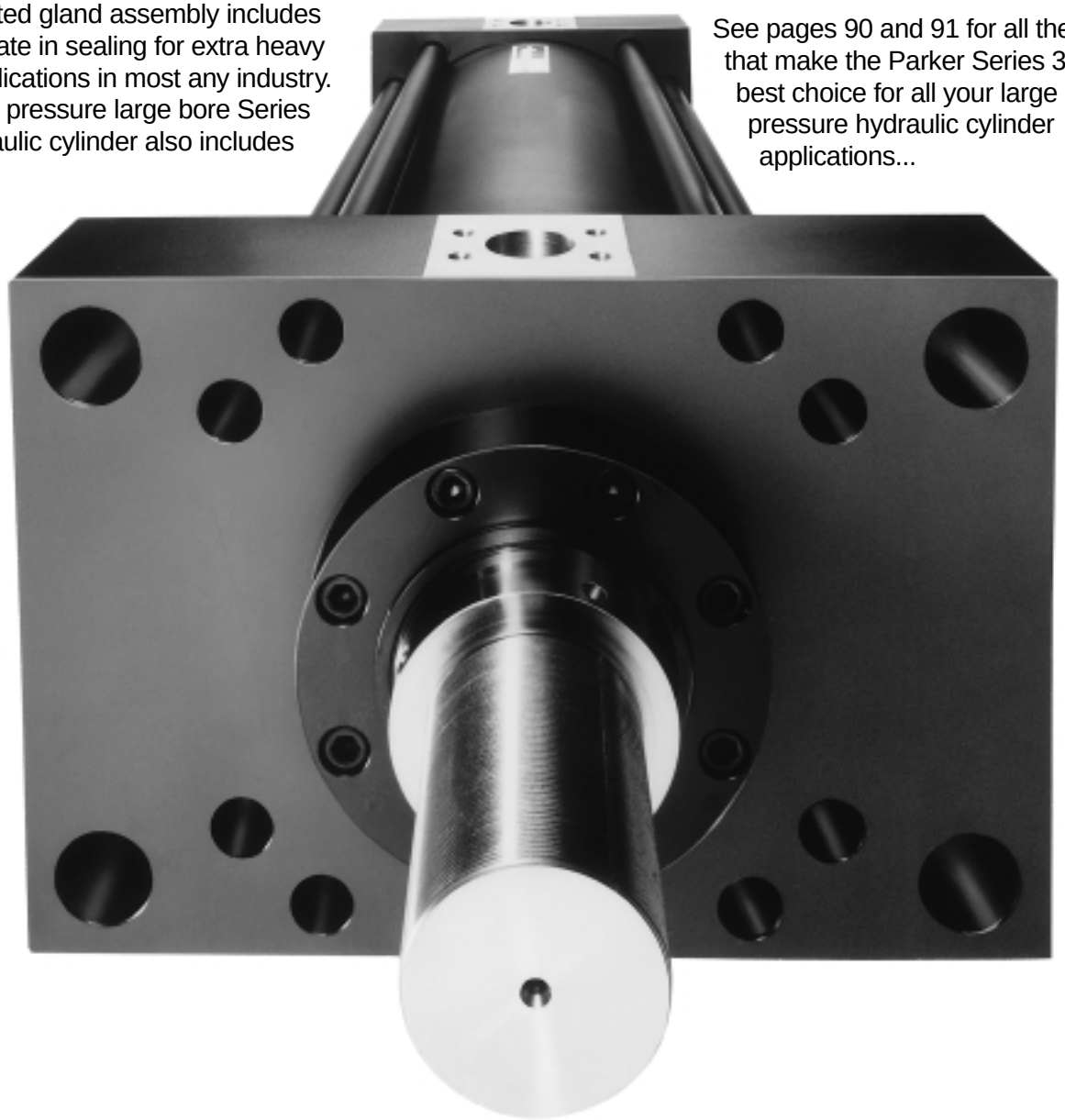
# The large bore, high pressure hydraulic cylinder Parker designed to meet your needs

In the Series 3H cylinder you get unmatched reliability, performance, and innovative design features to help increase productivity and reduce your operating costs.

Parker's externally removable bolt-on gland assembly makes preventive maintenance fast...and easy! You **do not** have to disassemble the cylinder, loosen the tie rod nuts, or remove the long cast iron rod bearing to replace the patented Polypak® double bevel lipseal and double service Wiperseal. The ruggedly constructed gland assembly includes the ultimate in sealing for extra heavy duty applications in most any industry. The high pressure large bore Series 3H hydraulic cylinder also includes the innovative anti-extrusion body end seal design...where the heads and caps are specially machined **to prevent** extrusion of the body end seals and insure against leakage — PLUS... every cylinder is individually tested before it leaves our plant.

For quick delivery, the Series 3H is available to you from our regional plant system. Select **genuine** Parker cylinder replacement parts are stocked by over 130 local Parker distributors from coast-to-coast.

See pages 90 and 91 for all the features that make the Parker Series 3H your best choice for all your large bore high pressure hydraulic cylinder applications...



For additional information – call your local Parker Cylinder Distributor.

# Series 3H Large Bore
# High Pressure Hydraulic Cylinders

## Standard Specifications

- Heavy Duty Service
- Standard Construction – Square Head – Tie Rod Design
- Nominal Pressure – 3000 PSI*
- Standard Fluid – Hydraulic Oil
- Standard Temperature -10½ F. to +165½ F.**
- Bore Sizes – 10" through 20" (Larger sizes available)
- Piston Rod Diameter – $4^1/_2$" through 10"
- Mounting Styles – Ten standard styles at various application ratings
- Strokes – Available in any practical stroke length
- Cushions – Optional at either end or both ends of stroke
- Rod Ends – Two Standard Choices – Specials to Order

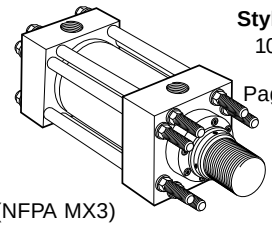
*In line with our policy of continuing product improvement, specifications in this catalog are subject to change.*

*If hydraulic operating pressure exceeds 3000 PSI, send application data for engineering evaluation and recommendation. See section C, page 118 for actual design factors.

** See section C, page 83 for higher temperature service.

## Available Mounting Styles

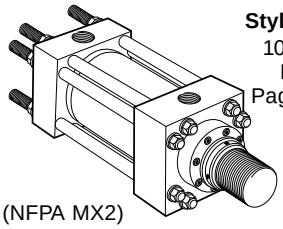
Tie Rods Extended Head End



**Style TB** 10"-14" Bore, Page 92

(NFPA MX3)

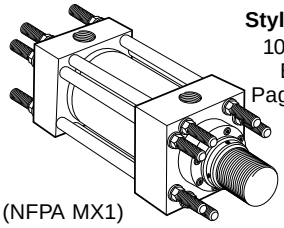
Tie Rods Extended Cap End



**Style TC** 10"-14" Bore, Page 92

(NFPA MX2)

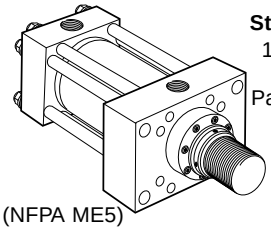
Tie Rods Extended Both Ends



**Style TD** 10"-14" Bore, Page 92

(NFPA MX1)

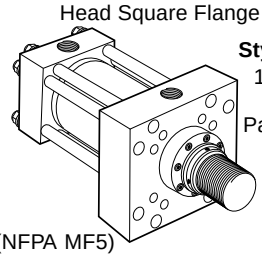
Head Rectangular



**Style JJ** 10"-20" Bore, Page 94

(NFPA ME5)

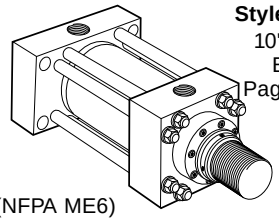
Head Square Flange



**Style JB** 10"-20" Bore, Page 94

(NFPA MF5)

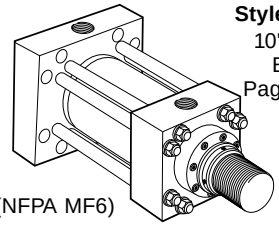
Cap Rectangular



**Style HH** 10"-20" Bore, Page 96

(NFPA ME6)

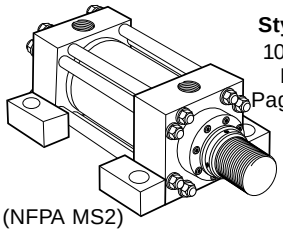
Cap Square Flange



**Style HB** 10"-20" Bore, Page 96

(NFPA MF6)

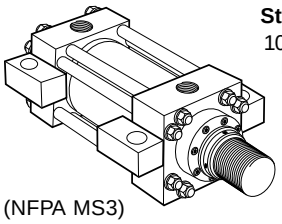
Side Lug



**Style C** 10"-14" Bore, Page 96

(NFPA MS2)

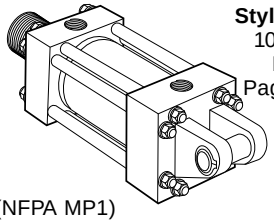
Centerline Lugs



**Style E** 10"-14" Bore, Page 96

(NFPA MS3)

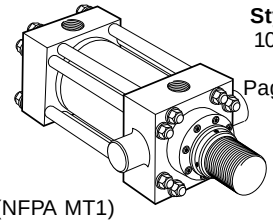
Cap Fixed Clevis



**Style BB** 10"-20" Bore, Page 98

(NFPA MP1)

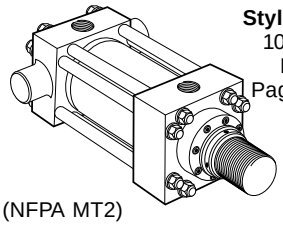
Head Trunnion



**Style D** 10"-14" Bore, Page 98

(NFPA MT1)

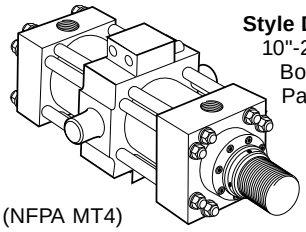
Cap Trunnion



**Style DB** 10"-14" Bore, Page 98

(NFPA MT2)

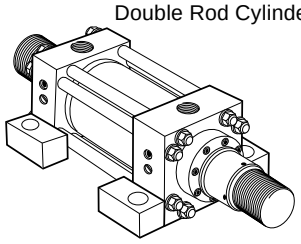
Intermediate Fixed Trunnion



**Style DD** 10"-20" Bore, Page 98

(NFPA MT4)

Double Rod Cylinders



**Style KTB Shown**

Most of the above illustrated mounting styles are available in double rod cylinders. See Catalog Page 100.

For Cylinder Division Plant Locations – See Page II.

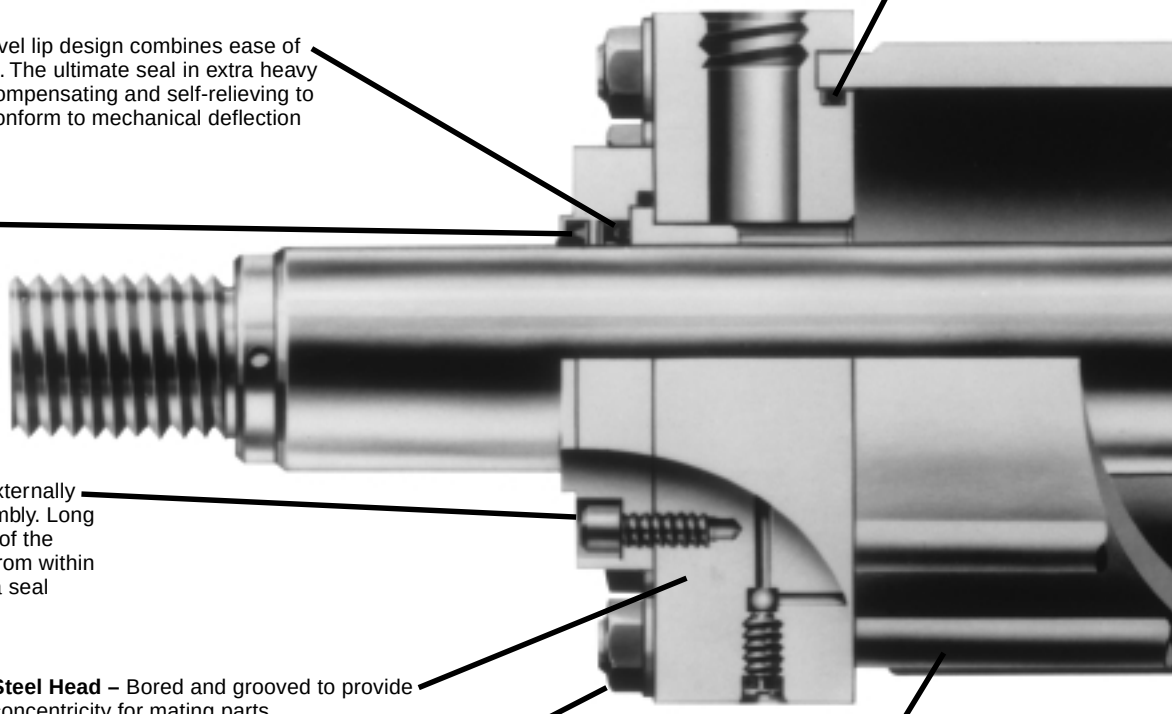
# These innovative design features make Parker Series 3H your best choice...

## for all your large bore high pressure hydraulic cylinder applications...

**End Seals –** Pressure-actuated cylinder body-to-head and cap "O" rings and back-up washers.

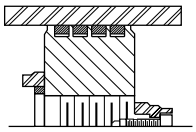
**Primary Seal –** Polypak® double-bevel lip design combines ease of installation with rugged construction. The ultimate seal in extra heavy duty applications. Completely self-compensating and self-relieving to withstand pressure variations and conform to mechanical deflection that may occur.

**Secondary Seal –** Double-Service Wiperseal® (Patent #2907596) – wipes clean any oil film adhering to the rod on the extend stroke and cleans the rod on the return stroke.



**Bolt-On Rod Gland Assembly –** Externally removable without cylinder disassembly. Long cast-iron bearing surface is inboard of the seals, assuring positive lubrication from within the cylinder. An "O" ring is used as a seal between gland and head.

**Optional Piston**



Cast iron ring piston is available as a special modification.

**Steel Head –** Bored and grooved to provide concentricity for mating parts.

**Alloy Steel Tie Rod Nuts –** With hardened washer.

**High Strength Tie Rods –** Made from 100,000 PSI minimum yield steel with rolled threads for added strength.

# Parker's Exclusive

## Stepped floating cushions combine the best features of known cushion technology.

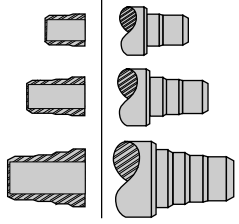
Deceleration devices or built-in "cushions" are optional and can be supplied at head end, cap end, or both ends without change in envelope or mounting dimensions.

Standard straight or tapered cushions have been used in industrial cylinders over a very broad range of applications. Parker research has found that both designs have limitations. As a result, Parker has taken a new approach in cushioning of industrial hydraulic cylinders and for specific load and velocity conditions have been able to obtain deceleration curves that come very close to the ideal. The success lies in a stepped sleeve or spear concept where the steps are calculated to approximate theoretical orifice areas curves. In the cushion performance chart, pressure traces show the results of typical orifice flow conditions. Tests of a three-step sleeve or spear show three pressure pulses coinciding with the steps. The deceleration cushion plunger curves shape comes very close to being theoretical, with the exception of the last $\frac{1}{2}$" of travel. This is a constant shape in order to have some flexibility in application. The stepped cushion design shows reduced pressure peaks for most load and speed conditions, with comparable reduction of objectionable stopping forces being transmitted to the load and the support structure.

The Series 3H design incorporates the longest cushion sleeve and cushion spear that can be provided in the standard envelope without decreasing the rod bearing and piston bearing lengths.

Stepped Cushions

Sleeve Design | Spear Design



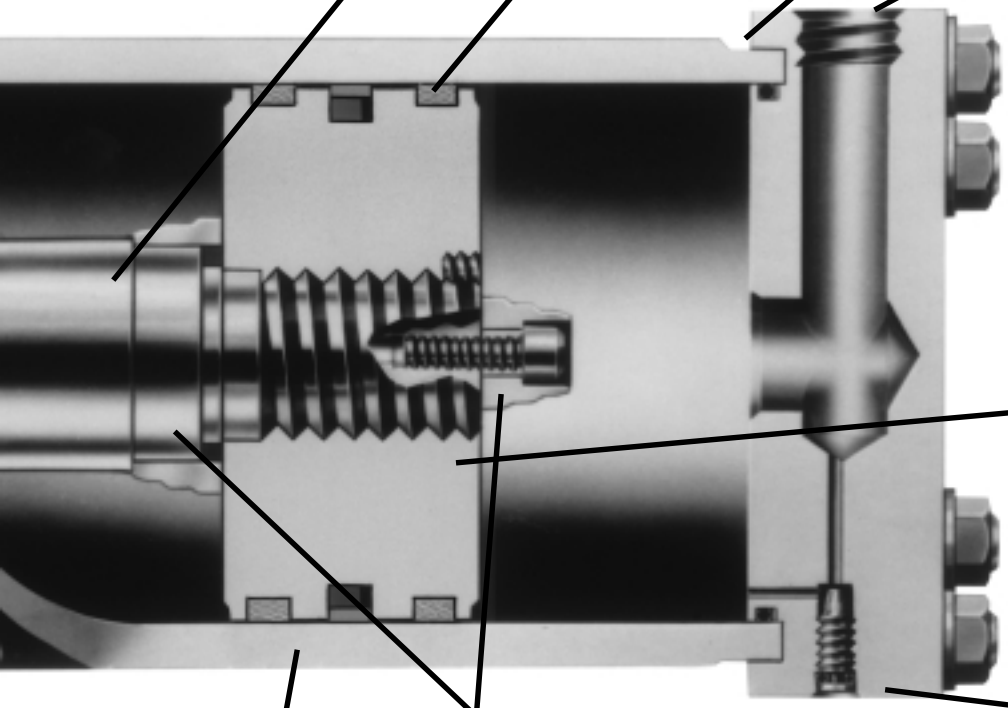
For additional information – call your local Parker Cylinder Distributor.

**Piston Rod –** Hard chrome-plated and polished for maximum seal and rod bearing life. Two standard thread styles. Rod end is supplied with spanner wrench holes.

**Hi-Load Piston Seals –** Are standard.

**Align-A-Groove® –** (Patent #3043639) – A $^{3}/_{16}$" wide surface machined at each end of the cylinder body. Makes precise mounting quick and easy.

**Ports –** SAE O-ring straight thread ports are standard.



## Optional Ports

**Ports –** SAE straight thread ports or NPTF (Dry Seal Pipe Ports) are available for an extra charge. (See pages C-99, B-101.)

**Seals –** Buna-N (Nitrile) seals are standard.

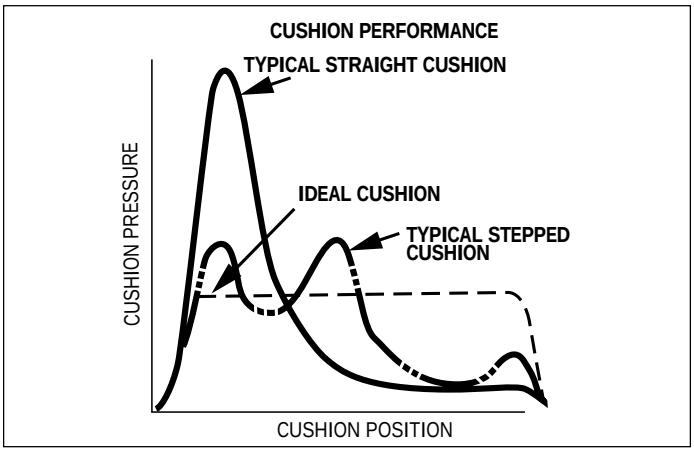
**Viton Seals –** Optional at extra charge.

**One-Piece Cast Iron Piston –** For maximum strength and minimum size. Long thread engagement and largest practical thread sized provides maximum shock resistance. One piece design is piloted to piston rod assuring concentricity. Piston is locked with set screw. Anaerobic adhesive and peening of set screw locks and seals piston to rod.

**Steel Cap –** Bored and grooved to provide concentricity for mating parts.

**The Cylinder Body –** Heavy-wall steel tubing is honed to a 15 RMS micro finish bore providing a wear surface for long lasting piston bearing and seal life.

**Adjustable Floating Stepped Cushions –** For maximum performance. Economical and flexible for even the most demanding applications. Provides superior performance in reducing shock. Cushions are optional and can be supplied at head end, cap end, or both ends without change in envelope or mounting dimensions.




(1) When a cushion is specified at the head end:

a. A stepped sleeve is furnished on the piston rod assembly.

b. A needle valve is provided that is flush with the side of the head even when wide open. It may be identified by the fact that it is socket-keyed. It is located on side number 3, in all mounting styles except C. In this style it is located on side number 2.

c. A springless check valve is provided that is also flush with the side of the head and is mounted on the same side as the needle valve except on mounting style C, where it is mounted on side number 2, next to the needle valve. It may be identified by the fact that it is slotted.

d. The check and needle valves are interchangeable in the head.

(2) When a cushion is specified at the cap end:

a. A cushion-stepped spear is provided on the piston rod.

b. A socket-keyed needle valve is provided that is flush with the side of the cap when wide open. It is located on side number 3 in all mounting styles except C. In this style it is located on side number 2.

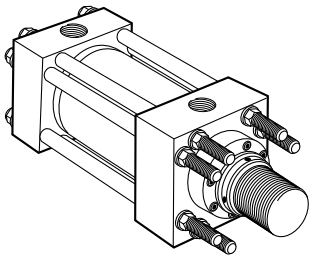
c. A springless check valve is provided that is also flush with the side of the cap and is mounted on the same side as the needle valve except on mounting style C, where it is mounted on side number 2, next to the needle valve.

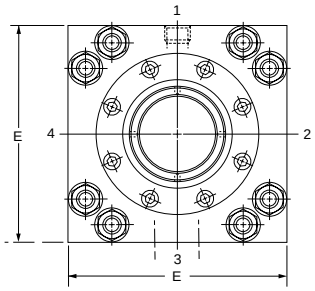
d. The check and needle valves are interchangeable in the cap.

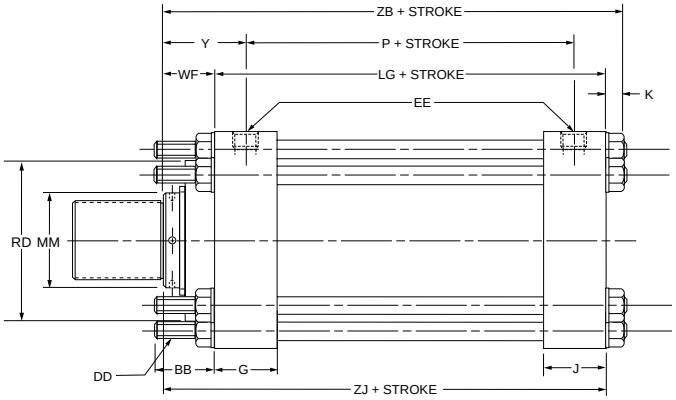
For Cylinder Division Plant Locations – See Page II.

# Series 3H Large Bore
# High Pressure Hydraulic Cylinders

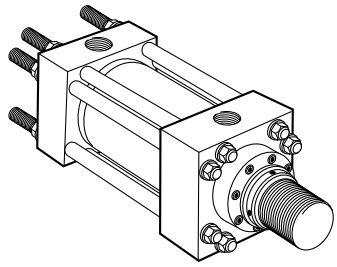
## Tie Rods Extended Head End
## Style TB
## (NFPA Style MX3)

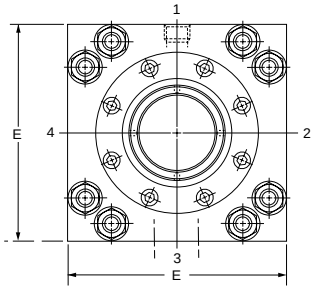


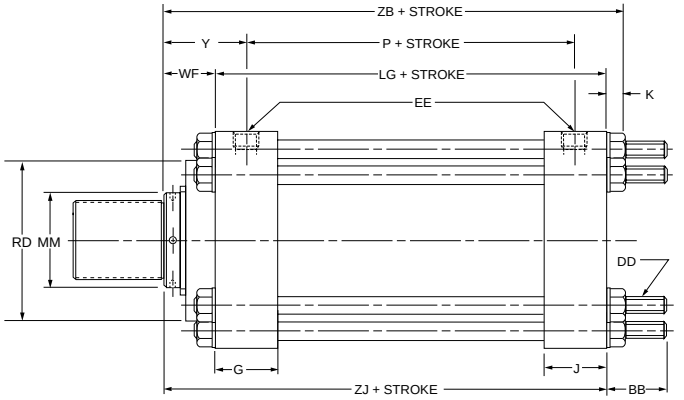


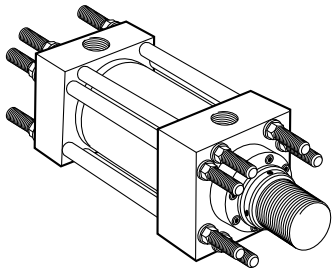

## Tie Rods Extended Cap End
## Style TC
## (NFPA Style MX2)



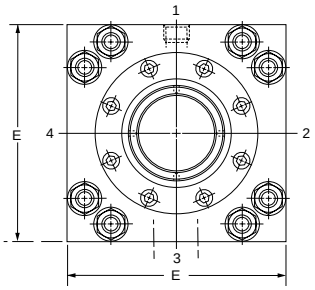


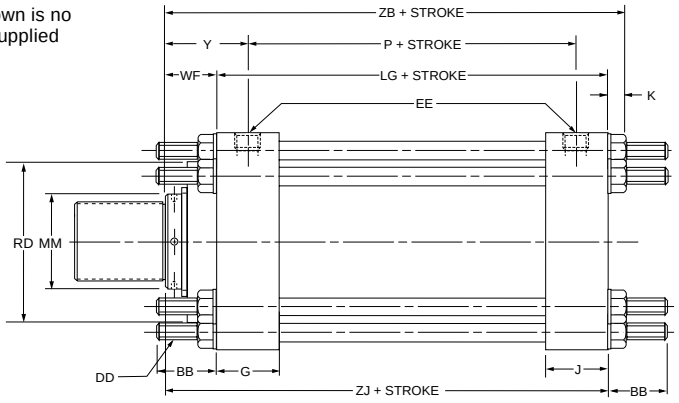




## Tie Rods Extended Both Ends
## Style TD
## (NFPA Style MX1)



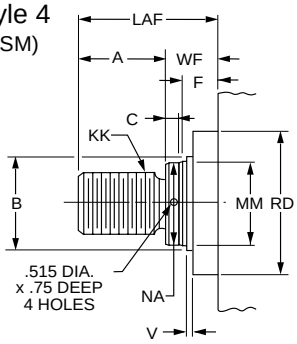
Basic Mounting (T) — Not shown is no tie rod extended and can be supplied upon request.



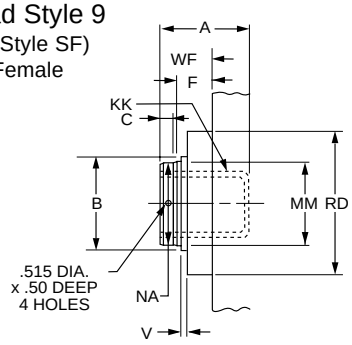

Rod End Dimensions — see table 2

### Thread Style 4
(NFPA Style SM)
Small Male




If rod end is not specified, Style 4 will be furnished.

### Thread Style 9
(NFPA Style SF)
Small Female




Use Style 9 for applications where female rod ends are required.

**Special Thread Style 3**

Special thread, extension, rod eye, blank, etc., are also available.

To order, specify "Style 3" and give desired dimensions for KK, A and LAF or WF. If otherwise special, furnish dimensional sketch.

For additional information – call your local Parker Cylinder Distributor.

Table 1—Envelope and Mounting Dimensions

| Bore | BD | DD | E | EE* NPTF | EEf▲ S.A.E. FLANGE PORT | EE** S.A.E. STRAIGHT THREAD | G | J | K | RA | RB | RC | RR | Add Stroke LG | Add Stroke P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 4 1/8 | 1 1/8-12 | 12 5/8 | 2 | 2 | 24 | 3 11/16 | 3 11/16 | 1 9/32 | 5.291 | 3.775 | – | 2 1/8 | 12 1/8 | 8 1/2 |
| 12 | 4 1/2 | 1 1/4-12 | 14 7/8 | 2 1/2 | 2 1/2 | 24 | 4 7/16 | 4 7/16 | 1 13/32 | 6.270 | 4.555 | – | 2 3/8 | 14 1/2 | 10 1/8 |
| 14 | 4 1/2 | 1 1/4-12 | 17 1/8 | 2 1/2 | 2 1/2 | 24 | 4 7/8 | 4 7/8 | 1 13/32 | 7.485 | 6.143 | 4.409 | 2 1/4 | 15 5/8 | 10 7/8 |

* NPTF ports are available for an extra charge.

▲ Optional SAE flange ports may be specified – flange to be supplied by customer. See Table 4 for flange port pattern dimensions.

** SAE straight thread ports are standard and are indicated by port number.

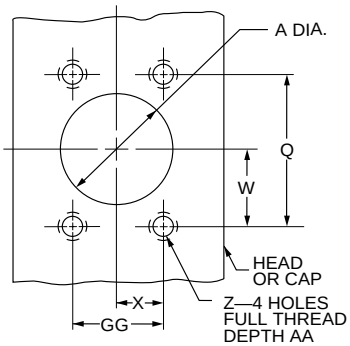
Table 2—Rod Dimensions

| Bore | Rod No. | Rod Dia. MM | Thread KK | Rod Extensions and Pilot Dimensions A | +.000 -.005 B | C | F | LAF | NA | RD | V | WF | Y | Add Stroke ZB | Add Stroke ZJ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 1 | 4 1/2 | 3 1/4-12 | 4 1/2 | 5.249 | 1 | 1 15/16 | 7 7/16 | 4 3/8 | 8 1/4 | 1/4 | 2 15/16 | 4 3/4 | 16 11/32 | 15 1/16 |
| | 2 | 7 | 5-12 | 7 | 7.999 | 1 | 1 15/16 | 10 1/2 | 6 7/8 | 10 1/2 | 3/8 | 3 1/2 | 5 5/16 | 16 29/32 | 15 5/8 |
| | 3 | 5 | 3 1/2-12 | 5 | 5.749 | 1 | 1 15/16 | 8 3/16 | 4 7/8 | 8 7/8 | 1/4 | 3 3/16 | 5 | 16 19/32 | 15 5/16 |
| | 4 | 5 1/2 | 4-12 | 5 1/2 | 6.249 | 1 | 1 15/16 | 8 11/16 | 5 3/8 | 9 3/8 | 1/4 | 3 3/16 | 5 | 16 19/32 | 15 5/16 |
| 12 | 1 | 5 1/2 | 4-12 | 5 1/2 | 6.249 | 1 | 1 15/16 | 8 11/16 | 5 3/8 | 9 3/8 | 1/4 | 3 3/16 | 5 3/8 | 19 3/32 | 17 11/16 |
| | 2 | 8 | 5 3/4-12 | 8 | 8.999 | 1 | 1 15/16 | 12 | 7 7/8 | 12 1/2 | 3/8 | 4 | 6 3/16 | 19 29/32 | 18 1/2 |
| | 3 | 7 | 5-12 | 7 | 7.999 | 1 | 1 15/16 | 10 1/2 | 6 7/8 | 10 1/2 | 3/8 | 3 1/2 | 5 11/16 | 19 13/32 | 18 |
| 14 | 1 | 7 | 5-12 | 7 | 7.999 | 1 | 1 15/16 | 10 1/2 | 6 7/8 | 10 1/2 | 3/8 | 3 1/2 | 5 7/8 | 20 17/32 | 19 1/8 |
| | 2 | 10 | 7 1/4-12 | 10 | 10.999 | 1 | 1 15/16 | 14 1/2 | 9 7/8 | 14 1/2 | 3/8 | 4 1/2 | 6 7/8 | 21 17/32 | 20 1/8 |
| | 3 | 8 | 5 3/4-12 | 8 | 8.999 | 1 | 1 15/16 | 12 | 7 7/8 | 12 1/2 | 3/8 | 4 | 6 3/8 | 21 1/32 | 21 1/32 |

Table 3 — Envelope and Mounting Dimensions

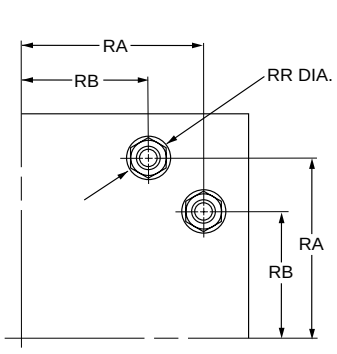
B

Table 4—Optional SAE Flange Port Pattern

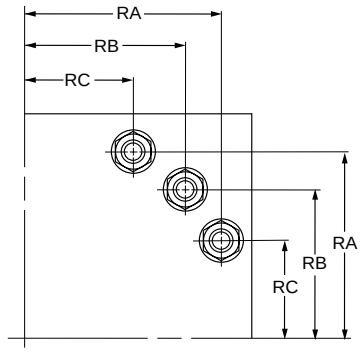



| Nom. Flange Size | A | Q | GG | W | X | Z-THD UNC-2B | AA Min. |
|---|---|---|---|---|---|---|---|
| 1 1/2 | 1.50 | 2.750 | 1.406 | 1.38 | 0.70 | 1/2-13 | 1.06 |
| 2 | 2.00 | 3.062 | 1.688 | 1.53 | 0.84 | 1/2-13 | 1.06 |
| 2 1/2 | 2.50 | 3.500 | 2.000 | 1.75 | 1.00 | 1/2-13 | 1.19 |
| 3 | 3.00 | 4.188 | 2.438 | 2.09 | 1.22 | 5/8-11 | 1.19 |

Table 5—Tie Rod Information
see table 1 for dimensions



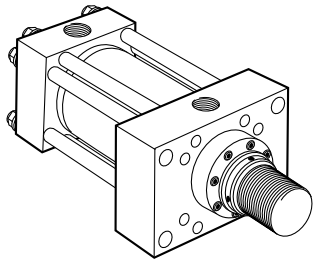

**10", 12" Bores, 8 Tie Rods**

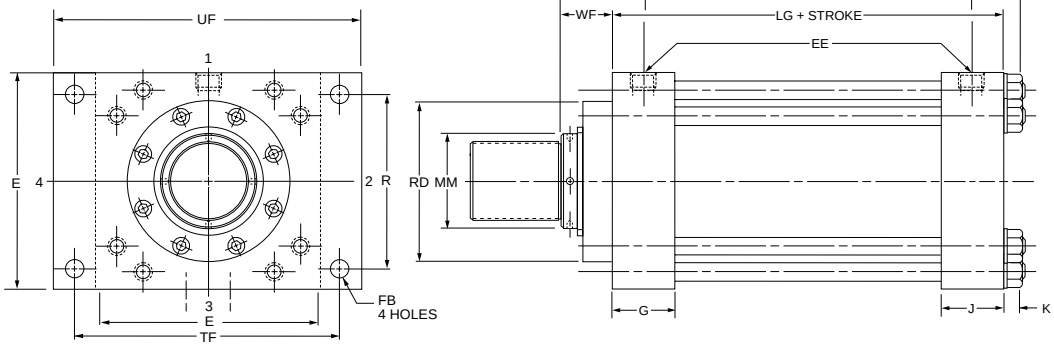



**14" Bores, 12 Tie Rods**

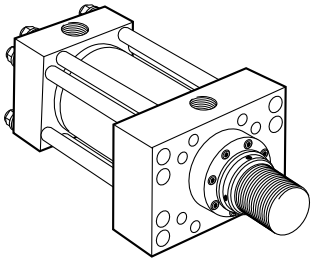
# Series 3H Large Bore
# High Pressure Hydraulic Cylinders

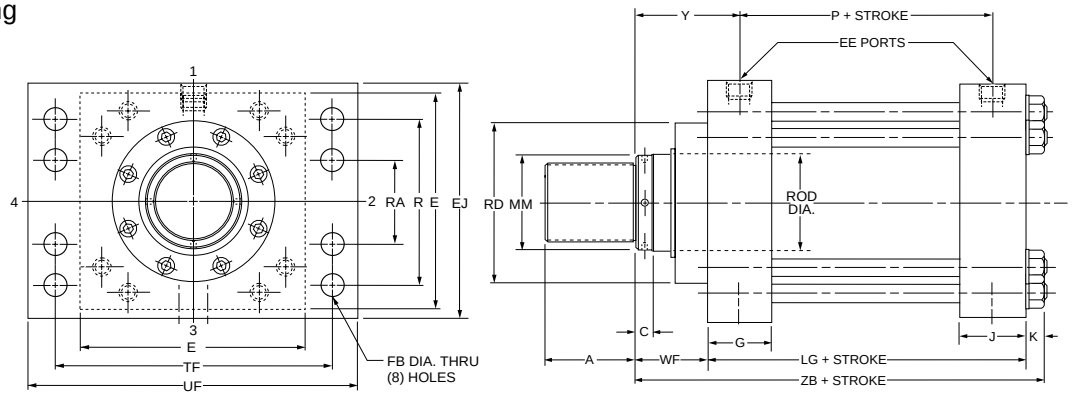
## Head Rectangular Mounting
## Style JJ (10"-14" Bore)
## (NFPA Style ME5)



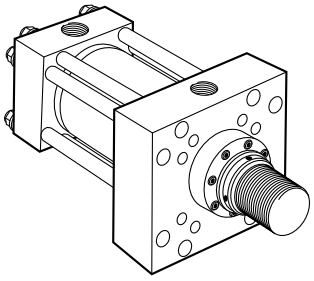


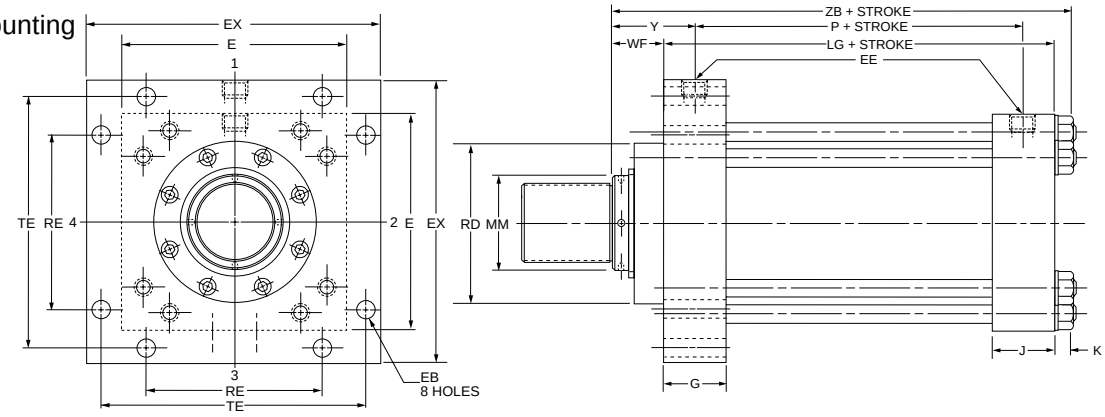

## Head Rectangular Mounting
## Style JJ (16"-20" Bore)
## (NFPA Style ME5)





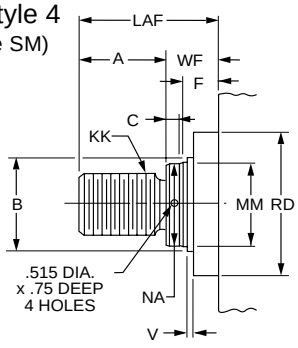

## Head Square Flange Mounting
## Style JB
## (NFPA Style MF5)





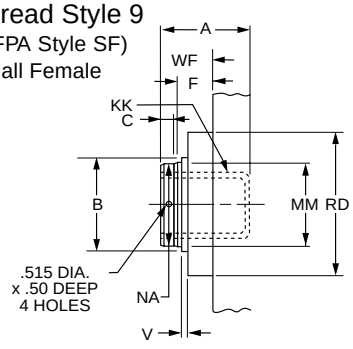

Rod End Dimensions — see table 2

### Thread Style 4
(NFPA Style SM)
Small Male




If rod end is not specified, Style 4 will be furnished.

### Thread Style 9
(NFPA Style SF)
Small Female




Use Style 9 for applications where female rod ends are required.

**Special Thread Style 3**

Special thread, extension, rod eye, blank, etc., are also available.

To order, specify "Style 3" and give desired dimensions for KK, A and LAF or WF. If otherwise special, furnish dimensional sketch.

For additional information – call your local Parker Cylinder Distributor.

Table 1—Envelope and Mounting Dimensions

| Bore | E | EB | EE* NPTF | EEf▲ S.A.E. FLANGE PORT | EE** S.A.E. STRAIGHT THREAD | EX | FB | G | J | K | R | RE | TE | TF | UF | Add Stroke LG | Add Stroke P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 12 5/8 | 1 5/16 | 2 | 2 | 24 | 16 5/8 | 1 13/16 | 3 11/16 | 3 11/16 | 1 9/32 | 9.62 | 9.89 | 14.13 | 15 7/8 | 19 | 12 1/8 | 8 1/2 |
| 12 | 14 7/8 | 1 9/16 | 2 1/2 | 2 1/2 | 24 | 19 3/4 | 2 1/16 | 4 7/16 | 4 7/16 | 1 13/32 | 11.45 | 11.75 | 16.79 | 18 1/2 | 22 | 14 1/2 | 10 1/8 |
| 14 | 17 1/8 | 1 13/16 | 2 1/2 | 2 1/2 | 24 | 21 3/4 | 2 5/16 | 4 7/8 | 4 7/8 | 1 13/32 | 13.26 | 12.90 | 18.43 | 21 | 25 | 15 5/8 | 10 7/8 |

Table 1A—Envelope and Mounting Dimensions

| Bore | E | EB | EE (SAE) | EE (FLANGE) | EJ | EX | FB | G | J | K | R | RA | RE | TE | TF | UF | Add Stroke LG | Add Stroke P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 19 | 1 13/16 | 24 | 3 | 20 | 24 1/2 | 1 13/16 | 5 7/8 | 5 7/8 | 1 29/32 | 15 1/2 | 8 | 15.28 | 21.03 | 21 | 24 1/2 | 18 1/8 | 12 1/8 |
| 18 | 22 | 2 1/16 | 24 | 3 | 23 | 26 1/2 | 2 1/16 | 6 7/8 | 6 7/8 | 1 29/32 | 18 | 7 1/4 | 16.45 | 22.65 | 24 1/4 | 28 1/4 | 21 1/8 | 15 1/8 |
| 20 | 24 | 2 1/16 | 24 | 3 | 25 | 29 | 2 1/16 | 7 7/8 | 7 7/8 | 1 29/32 | 20 | 8 | 18.07 | 24.87 | 26 1/2 | 30 1/2 | 23 5/8 | 17 5/8 |

* NPTF ports are available at an extra charge.

▲ Optional SAE flange ports may be specified – flange to be supplied by customer. See Table 4 for flange port pattern dimensions.

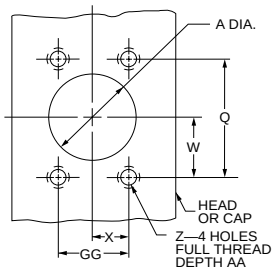
** SAE straight thread ports are standard and are indicated by port number.

Table 2—Rod Dimensions

| Bore | Rod No. | Rod Dia. MM | Thread KK | Rod Extensions and Pilot Dimensions A | +.000 -.005 B | C | F | LAF | NA | RD | V | WF | Y | Add Stroke ZB |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 1 | 4 1/2 | 3 1/4-12 | 4 1/2 | 5.249 | 1 | 1 15/16 | 7 7/16 | 4 3/8 | 8 1/4 | 1/4 | 2 15/16 | 4 3/4 | 16 11/32 |
| | 2 | 7 | 5-12 | 7 | 7.999 | 1 | 1 15/16 | 10 1/2 | 6 7/8 | 10 1/2 | 3/8 | 3 1/2 | 5 5/16 | 16 29/32 |
| | 3 | 5 | 3 1/2-12 | 5 | 5.749 | 1 | 1 15/16 | 8 3/16 | 4 7/8 | 8 7/8 | 1/4 | 3 3/16 | 5 | 16 19/32 |
| | 4 | 5 1/2 | 4-12 | 5 1/2 | 6.249 | 1 | 1 15/16 | 8 11/16 | 5 3/8 | 9 3/8 | 1/4 | 3 3/16 | 5 | 16 19/32 |
| 12 | 1 | 5 1/2 | 4-12 | 5 1/2 | 6.249 | 1 | 1 15/16 | 8 11/16 | 5 3/8 | 9 3/8 | 1/4 | 3 3/16 | 5 3/8 | 19 3/32 |
| | 2 | 8 | 5 3/4-12 | 8 | 8.999 | 1 | 1 15/16 | 12 | 7 7/8 | 12 1/2 | 3/8 | 4 | 6 3/16 | 19 29/32 |
| | 3 | 7 | 5-12 | 7 | 7.999 | 1 | 1 15/16 | 10 1/2 | 6 7/8 | 10 1/2 | 3/8 | 3 1/2 | 5 11/16 | 19 13/32 |
| 14 | 1 | 7 | 5-12 | 7 | 7.999 | 1 | 1 15/16 | 10 1/2 | 6 7/8 | 10 1/2 | 3/8 | 3 1/2 | 5 7/8 | 20 17/32 |
| | 2 | 10 | 7 1/4-12 | 10 | 10.999 | 1 | 1 15/16 | 14 1/2 | 9 7/8 | 14 1/2 | 3/8 | 4 1/2 | 6 7/8 | 21 17/32 |
| | 3 | 8 | 5 3/4-12 | 8 | 8.999 | 1 | 1 15/16 | 12 | 7 7/8 | 12 1/2 | 3/8 | 4 | 6 3/8 | 21 1/32 |
| 16 | 1 | 8 | 5 3/4-12 | 8 | 8.999 | 1 | 1 15/16 | 12 | 7 7/8 | 12 1/2 | 3/8 | 4 | 7 | 24 1/32 |
| | 3 | 9 | 6 1/2-12 | 9 | 9.999 | 1 | 1 15/16 | 13 1/4 | 8 7/8 | 13 1/2 | 3/8 | 4 1/4 | 7 1/4 | 24 9/32 |
| | 4 | 10 | 7 1/4-12 | 10 | 10.999 | 1 | 1 15/16 | 14 1/2 | 9 7/8 | 14 1/2 | 3/8 | 4 1/2 | 7 1/2 | 24 17/32 |
| 18 | 1 | 9 | 6 1/2-12 | 9 | 9.999 | 1 | 1 15/16 | 13 1/4 | 8 7/8 | 13 1/2 | 3/8 | 4 1/4 | 7 1/4 | 27 9/32 |
| | 3 | 10 | 7 1/4-12 | 10 | 10.999 | 1 | 1 15/16 | 14 1/2 | 9 7/8 | 14 1/2 | 3/8 | 4 1/2 | 7 1/2 | 27 17/32 |
| 20 | 1 | 10 | 7 1/4-12 | 10 | 10.999 | 1 | 1 15/16 | 14 1/2 | 9 7/8 | 14 1/2 | 3/8 | 4 1/2 | 7 1/2 | 30 1/32 |

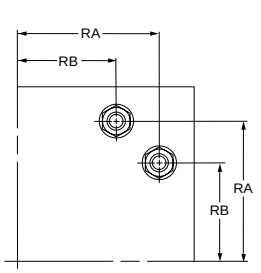
Table 3 —Envelope and Mounting Dimensions

Table 4—Optional SAE Flange Port Pattern

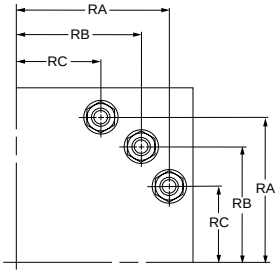



| Nom. Flange Size | A | Q | GG | W | X | Z-THD UNC-2B | AA Min. |
|---|---|---|---|---|---|---|---|
| 1 1/2 | 1.50 | 2.750 | 1.406 | 1.38 | 0.70 | 1/2-13 | 1.06 |
| 2 | 2.00 | 3.062 | 1.688 | 1.53 | 0.84 | 1/2-13 | 1.06 |
| 2 1/2 | 2.50 | 3.500 | 2.000 | 1.75 | 1.00 | 1/2-13 | 1.19 |
| 3 | 3.00 | 4.188 | 2.438 | 2.09 | 1.22 | 5/8-11 | 1.19 |

Table 5—Tie Rod Information




**10", 12" Bores**




**14" Bore**

| Bore | 10 | 12 | 14 | 16 | 18 | 20 |
|---|---|---|---|---|---|---|
| Tie Rod Thread | 1 1/8-12 | 1 1/4-12 | 1 1/4-12 | * | * | * |
| RA | 5.291 | 6.270 | 7.485 | * | * | * |
| RB | 3.775 | 4.555 | 6.143 | * | * | * |
| RC | — | — | 4.409 | * | * | * |

*Consult factory for dimensions

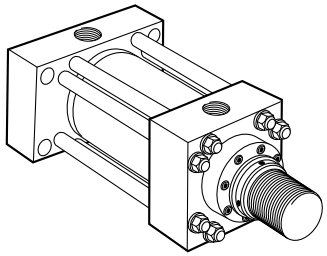
For Cylinder Division Plant Locations – See Page II.



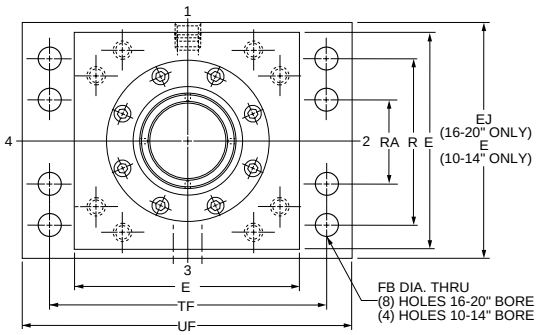
B

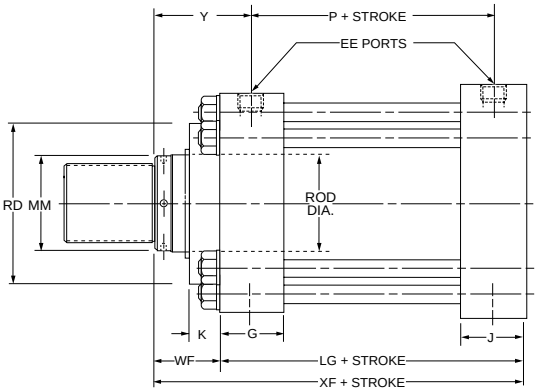
# Series 3H Large Bore
# High Pressure Hydraulic Cylinders

## Cap Rectangular Mountings
## Style HH
## (NFPA Style ME6)

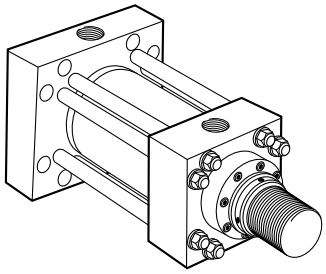


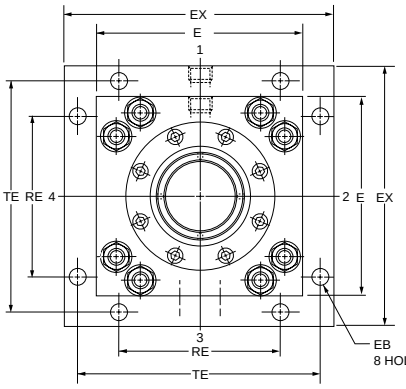
**Note:** 10"-14" Bores have (4) mounting holes, 16"-20" Bores have (8) mounting holes.

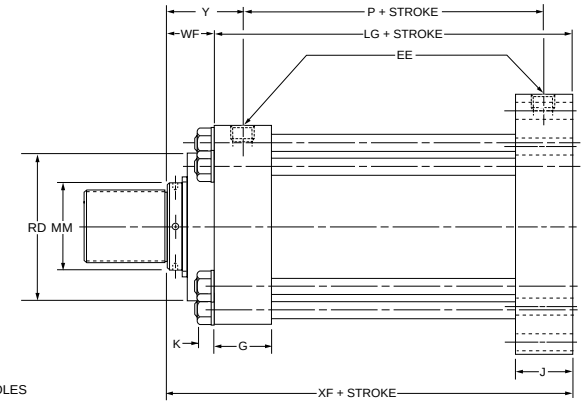


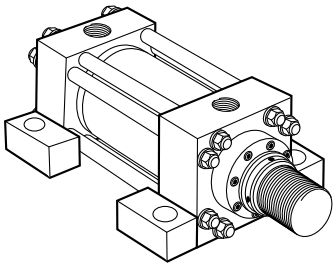

## Cap Square Flange Mounting
## Style HB
## (NFPA Style MF6)



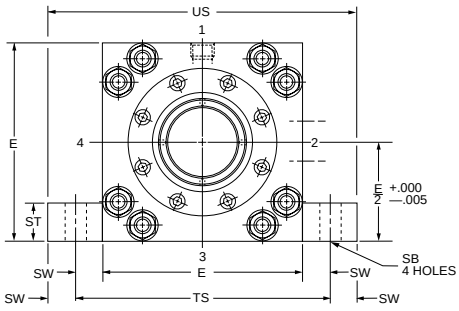


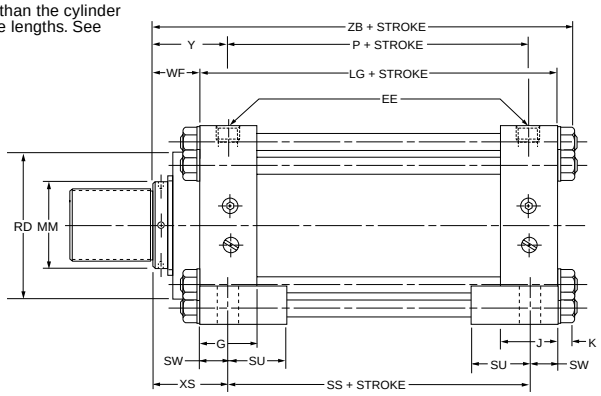




## Side Lugs Mounting
## Style C
## 10"-14" Bore only
## (NFPA Style MS2)

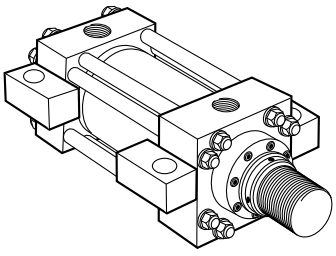


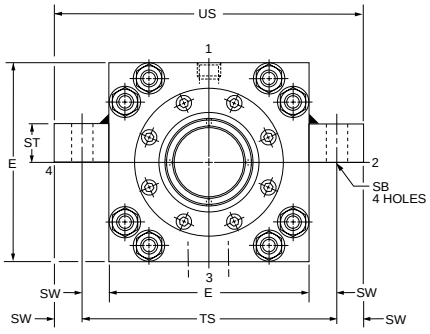
Note: Stroke lengths on lug mounted cylinders should not be shorter than the cylinder bore diameter. Consult factory for recommendations on shorter stroke lengths. See page 100 for further recommendations on side lug mountings.

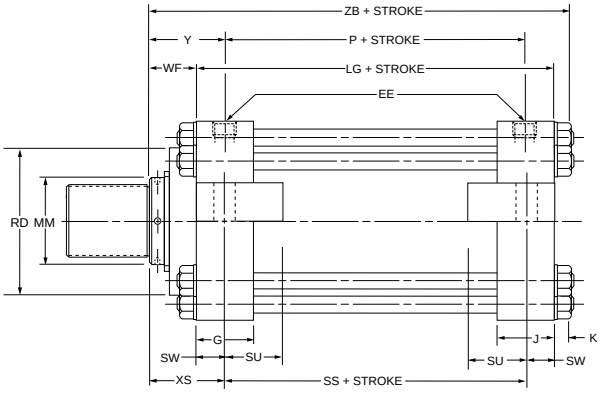



## Centerline Lugs Mounting
## Style E
## 10"-14" Bore only
## (NFPA Style MS3)





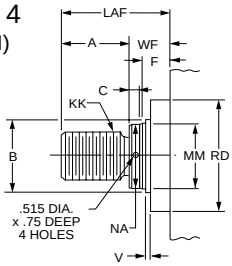

For additional information – call your local Parker Cylinder Distributor.

# Series 3H Large Bore High Pressure Hydraulic Cylinders

Cap Rectangular and Square, Side Lug and Centerline Lug Mountings, Optional Flange Ports Tie Rod Information

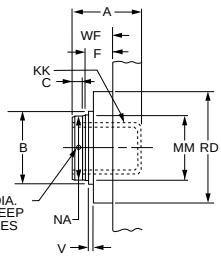
Rod End Dimensions — see table 2

Thread Style 4
(NFPA Style SM)
Small Male




If rod end is not specified, Style 4 will be furnished.

Thread Style 9
(NFPA Style SF)
Small Female




Use Style 9 for applications where female rod ends are required.

**Special Thread**
**Style 3**

Special thread, extension, rod eye, blank, etc., are also available.

To order, specify "Style 3" and give desired dimensions for KK, A and LAF or WF. If otherwise special, furnish dimensional sketch.

Table 1—Envelope and Mounting Dimensions

| Bore | E | EB | EE* NPTF | EEf▲ S.A.E. FLANGE PORT | EE** S.A.E. STRAIGHT THREAD | EX | FB | G | J | K | R | RE | SB | ST | SU | SW | TE | TF | TS | UF | US | Add Stroke LG | Add Stroke P | Add Stroke SS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 12 5/8 | 1 5/16 | 2 | 2 | 24 | 16 5/8 | 1 13/16 | 3 11/16 | 3 11/16 | 1 9/32 | 9.62 | 9.89 | 1 9/16 | 2 1/4 | 3 1/2 | 1 5/8 | 14.13 | 15 7/8 | 15 7/8 | 19 | 19 1/8 | 12 1/8 | 8 1/2 | 8 7/8 |
| 12 | 14 7/8 | 1 9/16 | 2 1/2 | 2 1/2 | 24 | 19 3/4 | 2 1/16 | 4 7/16 | 4 7/16 | 1 13/32 | 11.45 | 11.75 | 1 9/16 | 3 | 4 1/4 | 2 | 16.79 | 18 1/2 | 18 7/8 | 22 | 22 7/8 | 14 1/2 | 10 1/8 | 10 1/2 |
| 14 | 17 1/8 | 1 13/16 | 2 1/2 | 2 1/2 | 24 | 21 3/4 | 2 5/16 | 4 7/8 | 4 7/8 | 1 13/32 | 13.26 | 12.90 | 2 5/16 | 4 | 4 3/4 | 2 1/4 | 18.43 | 21 | 21 5/8 | 25 | 26 1/8 | 15 5/8 | 10 7/8 | 11 1/8 |

Table 1A—Envelope and Mounting Dimensions

| Bore | E | EB | EE (SAE) | EE (FLANGE) | EJ | EX | FB | G | J | K | R | RA | RE | TE | TF | UF | Add Stroke LG | Add Stroke P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 19 | 1 13/16 | 24 | 3 | 20 | 24 1/2 | 1 13/16 | 5 7/8 | 5 7/8 | 1 29/32 | 15 1/2 | 8 | 15.28 | 21.03 | 21 | 24 1/2 | 18 1/8 | 12 1/8 |
| 18 | 22 | 2 1/16 | 24 | 3 | 23 | 26 1/2 | 2 1/16 | 6 7/8 | 6 7/8 | 1 29/32 | 18 | 7 1/4 | 16.45 | 22.65 | 24 1/4 | 28 1/4 | 21 1/8 | 15 1/8 |
| 20 | 24 | 2 1/16 | 24 | 3 | 25 | 29 | 2 1/16 | 7 7/8 | 7 7/8 | 1 29/32 | 20 | 8 | 18.07 | 24.87 | 26 1/2 | 30 1/2 | 23 5/8 | 17 5/8 |

* NPTF ports are available at an extra charge.

▲ Optional SAE flange ports may be specified – flange to be supplied by customer. See Table 4 for flange port pattern dimensions.

** SAE straight thread ports are standard and are indicated by port number.

Table 2—Rod Dimensions

| Bore | Rod No. | Rod Dia. MM | Thread KK | Rod Extensions and Pilot Dimensions A | +.000 -.005 B | C | F | LAF | NA | RD | V | WF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 1(Std.) | 4 1/2 | 3 1/4-12 | 4 1/2 | 5.249 | 1 | 1 15/16 | 7 7/16 | 4 3/8 | 8 1/4 | 1/4 | 2 15/16 |
| | 2 | 7 | 5-12 | 7 | 7.999 | 1 | 1 15/16 | 10 1/2 | 6 7/8 | 10 1/2 | 3/8 | 3 1/2 |
| | 3 | 5 | 3 1/2-12 | 5 | 5.749 | 1 | 1 15/16 | 8 3/16 | 4 7/8 | 8 7/8 | 1/4 | 3 3/16 |
| | 4 | 5 1/2 | 4-12 | 5 1/2 | 6.249 | 1 | 1 15/16 | 8 11/16 | 5 3/8 | 9 3/8 | 1/4 | 3 3/16 |
| 12 | 1(Std.) | 5 1/2 | 4-12 | 5 1/2 | 6.249 | 1 | 1 15/16 | 8 11/16 | 5 3/8 | 9 3/8 | 1/4 | 3 3/16 |
| | 2 | 8 | 5 3/4-12 | 8 | 8.999 | 1 | 1 15/16 | 12 | 7 7/8 | 12 1/2 | 3/8 | 4 |
| | 3 | 7 | 5-12 | 7 | 7.999 | 1 | 1 15/16 | 10 1/2 | 6 7/8 | 10 1/2 | 3/8 | 3 1/2 |
| 14 | 1 | 7 | 5-12 | 7 | 7.999 | 1 | 1 15/16 | 10 1/2 | 6 7/8 | 10 1/2 | 3/8 | 3 1/2 |
| | 2 | 10 | 7 1/4-12 | 10 | 10.999 | 1 | 1 15/16 | 14 1/2 | 9 7/8 | 14 1/2 | 3/8 | 4 1/2 |
| | 3 | 8 | 5 3/4-12 | 8 | 8.999 | 1 | 1 15/16 | 12 | 7 7/8 | 12 1/2 | 3/8 | 4 |
| 16 | 1 | 8 | 5 3/4-12 | 8 | 8.999 | 1 | 1 15/16 | 12 | 7 7/8 | 12 1/2 | 3/8 | 4 |
| | 3 | 9 | 6 1/2-12 | 9 | 9.999 | 1 | 1 15/16 | 13 1/4 | 8 7/8 | 13 1/2 | 3/8 | 4 1/4 |
| | 4 | 10 | 7 1/4-12 | 10 | 10.999 | 1 | 1 15/16 | 14 1/2 | 9 7/8 | 14 1/2 | 3/8 | 4 1/2 |
| 18 | 1 | 9 | 6 1/2-12 | 9 | 9.999 | 1 | 1 15/16 | 13 1/4 | 8 7/8 | 13 1/2 | 3/8 | 4 1/4 |
| | 3 | 10 | 7 1/4-12 | 10 | 10.999 | 1 | 1 15/16 | 14 1/2 | 9 7/8 | 14 1/2 | 3/8 | 4 1/2 |
| 20 | 1 | 10 | 7 1/4-12 | 10 | 10.999 | 1 | 1 15/16 | 14 1/2 | 9 7/8 | 14 1/2 | 3/8 | 4 1/2 |

Table 3 —Envelope and Mounting Dimensions

| Bore | Y | XS | Add Stroke XF | Add Stroke ZB |
|---|---|---|---|---|
| 10 | 4 3/4 | 4 9/16 | 15 1/16 | 16 11/32 |
| | 5 5/16 | 5 1/8 | 15 5/8 | 16 29/32 |
| | 5 | 4 13/16 | 15 5/16 | 16 19/32 |
| | 5 | 4 13/16 | 15 5/16 | 16 19/32 |
| 12 | 5 3/8 | 5 3/16 | 17 11/16 | 19 3/32 |
| | 6 3/16 | 6 | 18 1/2 | 19 29/32 |
| | 5 11/16 | 5 1/2 | 18 | 19 13/32 |
| 14 | 5 7/8 | 5 3/4 | 19 1/8 | 20 17/32 |
| | 6 7/8 | 6 3/4 | 20 1/8 | 21 17/32 |
| | 6 3/8 | 6 1/4 | 19 5/8 | 21 1/32 |
| 16 | 7 | * | 22 1/8 | * |
| | 7 1/4 | * | 22 3/8 | * |
| | 7 1/2 | * | 22 5/8 | * |
| 18 | 7 1/4 | * | 25 3/8 | * |
| | 7 1/2 | * | 25 5/8 | * |
| 20 | 7 1/2 | * | 28 1/8 | * |

*Consult Factory

Table 4—Optional SAE Flange Port Pattern

| Nom. Flange Size | A | Q | GG | W | X | Z-THD UNC-2B | AA Min. |
|---|---|---|---|---|---|---|---|
| 1 1/2 | 1.50 | 2.750 | 1.406 | 1.38 | 0.70 | 1/2-13 | 1.06 |
| 2 | 2.00 | 3.062 | 1.688 | 1.53 | 0.84 | 1/2-13 | 1.06 |
| 2 1/2 | 2.50 | 3.500 | 2.000 | 1.75 | 1.00 | 1/2-13 | 1.19 |
| 3 | 3.00 | 4.188 | 2.438 | 2.09 | 1.22 | 5/8-11 | 1.19 |

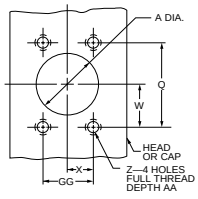
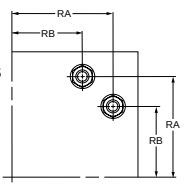
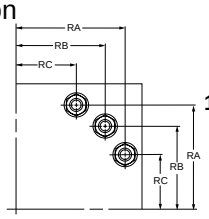



Table 5—Tie Rod Information

**10", 12" Bores**




**14" Bore**




| Bore | 10 | 12 | 14 | 16 | 18 | 20 |
|---|---|---|---|---|---|---|
| Tie Rod Thread | 1 1/8-12 | 1 1/4-12 | 1 1/4-12 | * | * | * |
| RA | 5.291 | 6.270 | 7.485 | * | * | * |
| RB | 3.775 | 4.555 | 6.143 | * | * | * |
| RC | — | — | 4.409 | * | * | * |

*Consult factory for dimensions

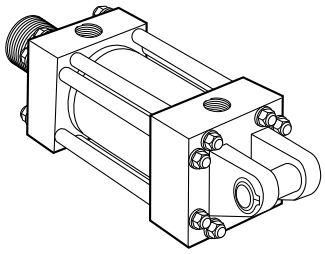
For Cylinder Division Plant Locations – See Page II.

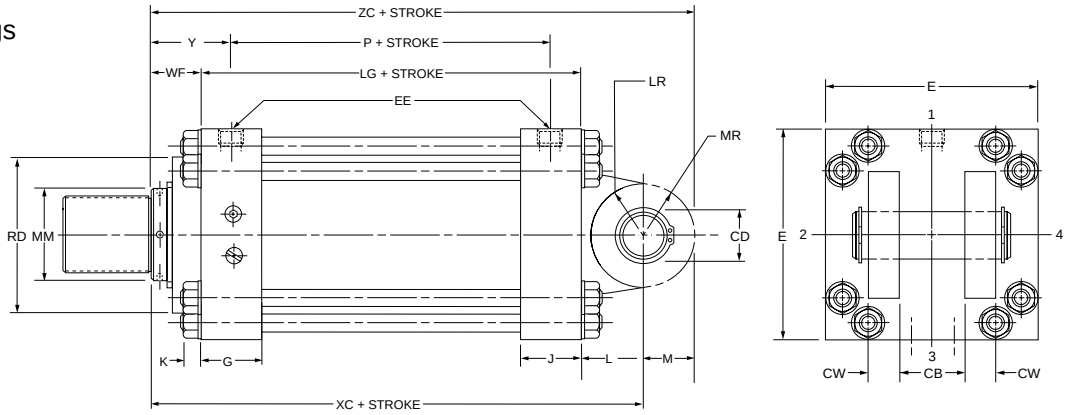


B

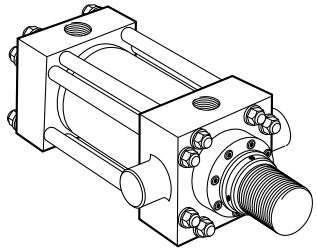
# Series 3H Large Bore
# High Pressure Hydraulic Cylinders

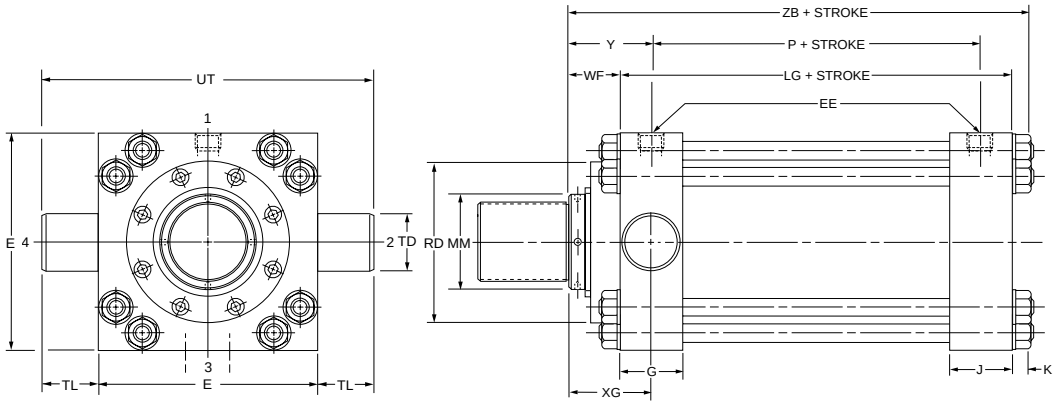
## Cap Fixed Clevis Mountings
## Style BB
## (NFPA Style MPI)



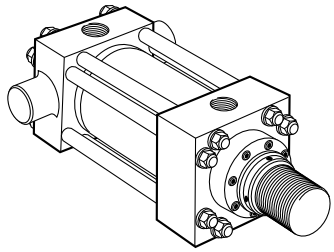


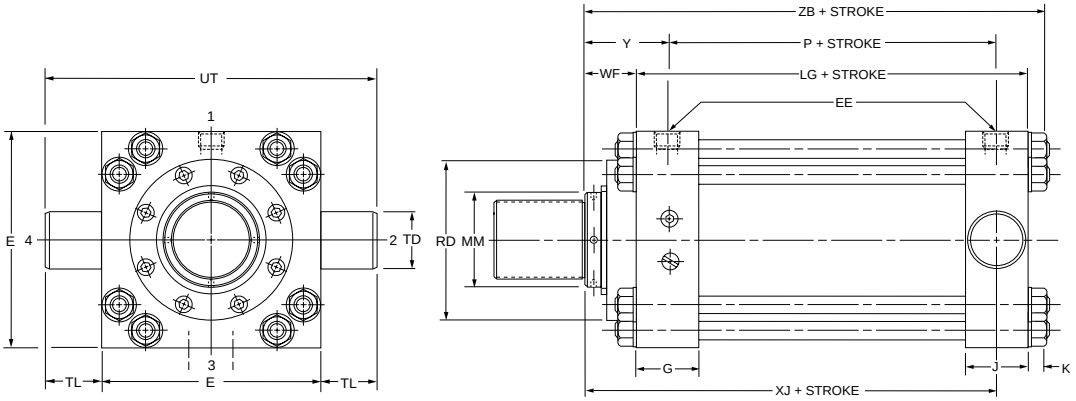

## Head Trunnion Mounting
## Style D
## 10"-14" Bore only
## (NFPA Style MT1)



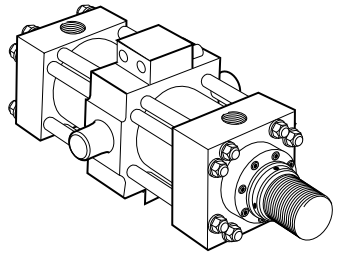


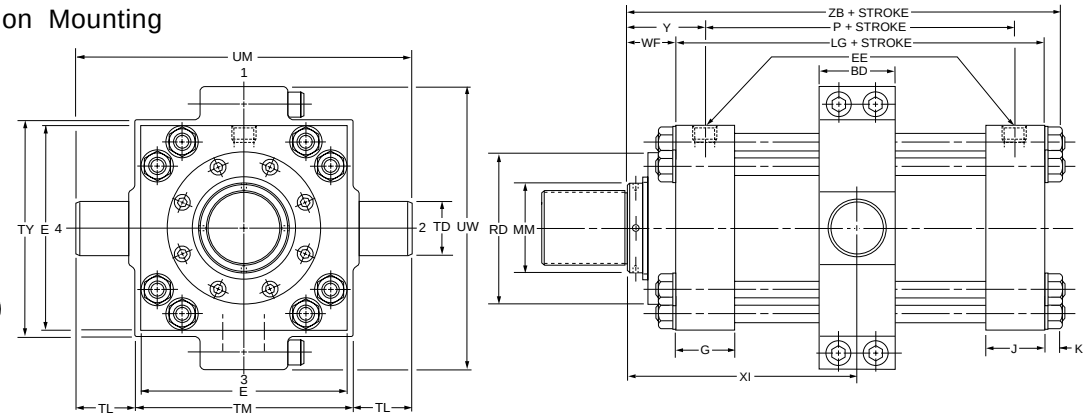

## Cap Trunnion Mounting
## Style DB
## 10"-14" Bore only
## (NFPA Style MT2)






## Intermediate Fixed Trunnion Mounting
## Style DD
## (NFPA Style MT4)





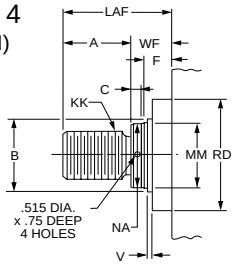

For additional information – call your local Parker Cylinder Distributor.

# Series 3H Large Bore
# High Pressure Hydraulic Cylinders



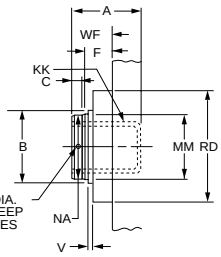
Rod End Dimensions — see table 2

### Thread Style 4
(NFPA Style SM)
Small Male




If rod end is not specified, Style 4 will be furnished.

### Thread Style 9
(NFPA Style SF)
Small Female




Use Style 9 for applications where female rod ends are required.

**Special Thread**
**Style 3**

Special thread, extension, rod eye, blank, etc., are also available.

To order, specify "Style 3" and give desired dimensions for KK, A and LAF or WF. If otherwise special, furnish dimensional sketch.

Table 1—Envelope and Mounting Dimensions

| Bore | BD | CB | +.001 -.003 CD | CW | E | EE* NPTF | EEf▲ S.A.E. FLANGE PORT | EE** S.A.E. STRAIGHT THREAD | G | J | K | L | LR | M | MR | +.000 -.001 TD | TL | TM | TY | UM | UT | UW | Add Stroke LG | Add Stroke P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 4 1/2 | 4 | 3.500 | 2 | 12 5/8 | 2 | 2 | 24 | 3 11/16 | 3 11/16 | 1 9/32 | 4 | 3 3/8 | 3 1/2 | 3 1/2 | 3.500 | 3 1/2 | 14 | 13 | 21 | 19 5/8 | 17 1/2 | 12 1/8 | 8 1/2 |
| 12 | 5 1/2 | 4 1/2 | 4.000 | 2 1/4 | 14 7/8 | 2 1/2 | 2 1/2 | 24 | 4 7/16 | 4 7/16 | 1 13/32 | 4 1/2 | 3 7/8 | 4 | 4 | 4.000 | 4 | 16 1/2 | 15 1/2 | 24 1/2 | 22 7/8 | 20 3/4 | 14 1/2 | 10 1/8 |
| 14 | 5 1/2 | 6 | 5.000 | 3 | 17 1/8 | 2 1/2 | 2 1/2 | 24 | 4 7/8 | 4 7/8 | 1 13/32 | 5 3/4 | 4 3/16 | 5 | 5 | 4.500 | 4 1/2 | 19 1/2 | 19 1/4 | 28 1/2 | 26 1/8 | 24 3/4 | 15 5/8 | 10 7/8 |

Table 1A—Envelope and Mounting Dimensions (Style BB only)

| Bore | E | EE (SAE) | EE (FLANGE) | CB | CD | CW | G | J | K | L | LR | M | MD | MR | Add Stroke LG | Add Stroke P |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 19 | 24 | 3 | 7 | 6 | 3 1/2 | 5 7/8 | 5 7/8 | 1 29/32 | 7 | 6 1/4 | 6 | 16 | 6 | 18 1/8 | 12 1/8 |
| 18 | 22 | 24 | 3 | 8 | 6 1/2 | 4 | 6 7/8 | 6 7/8 | 1 29/32 | 7 5/8 | 6 3/4 | 6 1/2 | 18 | 6 1/2 | 21 1/8 | 15 1/8 |
| 20 | 24 | 24 | 3 | 9 | 7 1/2 | 4 1/2 | 7 7/8 | 7 7/8 | 1 29/32 | 8 3/4 | 7 3/4 | 7 1/2 | 20 | 7 1/2 | 23 5/8 | 17 5/8 |

* NPTF ports are available at an extra charge.
▲ Optional SAE flange ports may be specified – flange to be supplied by customer. See Table 4 for flange port pattern dimensions.
** SAE straight thread ports are standard and are indicated by port number.
Dimension CD is pin diameter.

Table 2—Rod Dimensions

| Bore | Rod No. | Rod Dia. MM | Thread KK | Rod Extensions and Pilot Dimensions: A | +.000 -.005 B | C | F | LAF | NA | RD | V | WF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 1(Std.) | 4 1/2 | 3 1/4-12 | 4 1/2 | 5.249 | 1 | 1 15/16 | 7 7/16 | 4 3/8 | 8 1/4 | 1/4 | 2 15/16 |
| | 2 | 7 | 5-12 | 7 | 7.999 | 1 | 1 15/16 | 10 1/2 | 6 7/8 | 10 1/2 | 3/8 | 3 1/2 |
| | 3 | 5 | 3 1/2-12 | 5 | 5.749 | 1 | 1 15/16 | 8 3/16 | 4 7/8 | 8 7/8 | 1/4 | 3 3/16 |
| | 4 | 5 1/2 | 4-12 | 5 1/2 | 6.249 | 1 | 1 15/16 | 8 11/16 | 5 3/8 | 9 3/8 | 1/4 | 3 3/16 |
| 12 | 1(Std.) | 5 1/2 | 4-12 | 5 1/2 | 6.249 | 1 | 1 15/16 | 8 11/16 | 5 3/8 | 9 3/8 | 1/4 | 3 3/16 |
| | 2 | 8 | 5 3/4-12 | 8 | 8.999 | 1 | 1 15/16 | 12 | 7 7/8 | 12 1/2 | 3/8 | 4 |
| | 3 | 7 | 5-12 | 7 | 7.999 | 1 | 1 15/16 | 10 1/2 | 6 7/8 | 10 1/2 | 3/8 | 3 1/2 |
| 14 | 1 | 7 | 5-12 | 7 | 7.999 | 1 | 1 15/16 | 10 1/2 | 6 7/8 | 10 1/2 | 3/8 | 3 1/2 |
| | 2 | 10 | 7 1/4-12 | 10 | 10.999 | 1 | 1 15/16 | 14 1/2 | 9 7/8 | 14 1/2 | 3/8 | 4 1/2 |
| | 3 | 8 | 5 3/4-12 | 8 | 8.999 | 1 | 1 15/16 | 12 | 7 7/8 | 12 1/2 | 3/8 | 4 |
| 16 | 1 | 8 | 5 3/4-12 | 8 | 8.999 | 1 | 1 15/16 | 12 | 7 7/8 | 12 1/2 | 3/8 | 4 |
| | 3 | 9 | 6 1/2-12 | 9 | 9.999 | 1 | 1 15/16 | 13 1/4 | 8 7/8 | 13 1/2 | 3/8 | 4 1/4 |
| | 4 | 10 | 7 1/4-12 | 10 | 10.999 | 1 | 1 15/16 | 14 1/2 | 9 7/8 | 14 1/2 | 3/8 | 4 1/2 |
| 18 | 1 | 9 | 6 1/2-12 | 9 | 9.999 | 1 | 1 15/16 | 13 1/4 | 8 7/8 | 13 1/2 | 3/8 | 4 1/4 |
| | 3 | 10 | 7 1/4-12 | 10 | 10.999 | 1 | 1 15/16 | 14 1/2 | 9 7/8 | 14 1/2 | 3/8 | 4 1/2 |
| 20 | 1 | 10 | 7 1/4-12 | 10 | 10.999 | 1 | 1 15/16 | 14 1/2 | 9 7/8 | 14 1/2 | 3/8 | 4 1/2 |

* Dimension XI to be specified by customer. **Consult Factory.

Table 3 —Envelope and Mounting Dimensions

| Bore | XG | Min. XI* | Y | Add Stroke XC | Add Stroke XJ | Add Stroke ZB | Add Stroke ZC |
|---|---|---|---|---|---|---|---|
| 10 | 4 3/4 | 9 1/16 | 4 3/4 | 19 1/16 | 13 3/8 | 16 11/32 | 22 9/16 |
| | 5 5/16 | 9 1/8 | 5 5/16 | 19 5/8 | 13 15/16 | 16 29/32 | 23 1/8 |
| | 5 | 9 5/16 | 5 | 19 5/16 | 13 5/8 | 16 19/32 | 22 13/16 |
| | 5 | 9 5/16 | 5 | 19 5/16 | 13 5/8 | 16 19/32 | 22 13/16 |
| 12 | 5 3/8 | 10 5/8 | 5 3/8 | 22 3/16 | 15 1/2 | 19 3/32 | 26 3/16 |
| | 6 3/16 | 11 1/2 | 6 3/16 | 23 | 16 5/16 | 19 29/32 | 27 |
| | 5 11/16 | 10 15/16 | 5 11/16 | 22 1/2 | 15 13/16 | 19 13/32 | 26 1/2 |
| 14 | 5 15/16 | 11 7/16 | 5 7/8 | 24 7/8 | 16 11/16 | 20 17/32 | 29 7/8 |
| | 6 15/16 | 12 7/16 | 6 7/8 | 25 7/8 | 17 11/16 | 21 17/32 | 30 7/8 |
| | 6 7/16 | 11 15/16 | 6 3/8 | 25 3/8 | 17 3/16 | 21 1/32 | 30 3/8 |
| 16 | ** | ** | 7 | 29 1/8 | ** | ** | 35 1/8 |
| | ** | ** | 7 1/4 | 29 3/8 | ** | ** | 35 3/8 |
| | ** | ** | 7 1/2 | 29 5/8 | ** | ** | 35 5/8 |
| 18 | ** | ** | 7 1/4 | 33 | ** | ** | 39 1/2 |
| | ** | ** | 7 1/2 | 33 1/4 | ** | ** | 39 3/4 |
| 20 | ** | ** | 7 1/2 | 36 7/8 | ** | ** | 44 3/8 |

Table 4—Optional SAE Flange Port Pattern

| Nom. Flange Size | A | Q | GG | W | X | Z-THD UNC-2B | AA Min. |
|---|---|---|---|---|---|---|---|
| 1 1/2 | 1.50 | 2.750 | 1.406 | 1.38 | 0.70 | 1/2-13 | 1.06 |
| 2 | 2.00 | 3.062 | 1.688 | 1.53 | 0.84 | 1/2-13 | 1.06 |
| 2 1/2 | 2.50 | 3.500 | 2.000 | 1.75 | 1.00 | 1/2-13 | 1.19 |
| 3 | 3.00 | 4.188 | 2.438 | 2.09 | 1.22 | 5/8-11 | 1.19 |

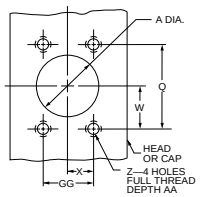
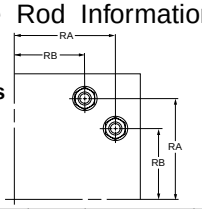
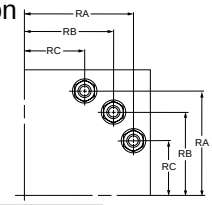



Table 5—Tie Rod Information

**10", 12" Bores**




**14" Bore**




| Bore | 10 | 12 | 14 | 16 | 18 | 20 |
|---|---|---|---|---|---|---|
| Tie Rod Thread | 1 1/8-12 | 1 1/4-12 | 1 1/4-12 | * | * | * |
| RA | 5.291 | 6.270 | 7.485 | * | * | * |
| RB | 3.775 | 4.555 | 6.143 | * | * | * |
| RC | — | — | 4.409 | * | * | * |

*Consult factory for dimensions

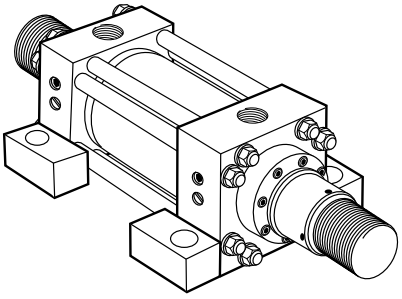
For Cylinder Division Plant Locations – See Page II.

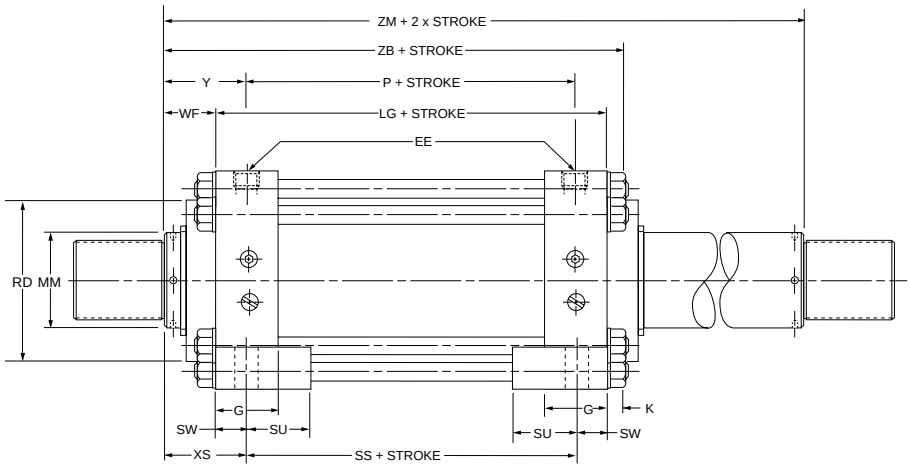


B

# Series 3H Large Bore
# High Pressure Hydraulic Cylinders

## How to Use Double Rod Cylinder Dimensioned Drawings






| Mounting Styles for Single Rod Models | Mounting Styles for Corresponding Double Rod Models* | Dimension Shown on This Page Supplement Dimensions on Pages Listed Below |
|---|---|---|
| T | K | 92 |
| TB | KTB | 92 |
| TD | KTD | 92 |
| JJ | KJJ | 94 |
| JB | KJB | 94 |
| C | KC | 96 |
| E | KE | 96 |
| D | KD | 98 |
| DD | KDD | 98 |

*If only one end of these Double Rod Cylinders is to be cushioned, be sure to specify clearly which end this will be.

To obtain dimensioning information on a double rod cylinder, first select the desired mounting style and refer to the corresponding single rod cylinder model shown on the preceding pages. (See table at left.) After you have determined all necessary dimensions from that drawing, turn back to this page and supplement those dimensions with additional ones from the drawing above and table at right. These added dimensions differ from, or are in addition to, those shown on the preceding pages and provide the additional information needed to completely dimension a double rod cylinder model.

On a double rod cylinder where the two rod ends will be different, be sure to state very clearly which rod end is to go at which end of the cylinder.

| Bore | Rod Code | Rod Dia. | Add 2X Stroke ZM |
|---|---|---|---|
| 10 | 1 | 4 1/2 | 18 |
| | 2 | 7 | 19 1/8 |
| | 3 | 5 | 18 1/2 |
| | 4 | 5 1/2 | 18 1/2 |
| 12 | 1 | 5 1/2 | 20 7/8 |
| | 2 | 8 | 22 1/2 |
| | 3 | 7 | 21 1/2 |
| 14 | 1 | 7 | 22 5/8 |
| | 2 | 10 | 24 5/8 |
| | 3 | 8 | 23 5/8 |
| 16 | 1 | 8 | 26 1/8 |
| | 3 | 9 | 26 5/8 |
| | 4 | 10 | 27 1/8 |
| 18 | 1 | 9 | 29 5/8 |
| | 3 | 10 | 30 1/8 |
| 20 | 1 | 10 | 32 5/8 |

## Mounting Recommendations and Other Mountings

In addition to the standard mountings dimensioned on the preceding pages, the following information covers mounting ideas that may prove helpful in your applications. When needed, special heads, caps, and flanges can be provided. Sketches of your requirements, together with specifications relative to the application and forces involved should be submitted.

**Mounting Bolts —** High tensile socket head screws are recommended for all mounting styles. Use $^{1}/_{16}$" smaller than hole size.

**Flange Mountings —** Cylinders can be properly centered by measuring from piston rod diameter. After mounting the flange may be drilled for pins or dowels to prevent shifting.

**Side Lug Mountings —** Caution, cylinders which do not absorb force on their centerline (Group 3) tend to sway when under load. Short stroke, non-centerline mounted cylinders can subject mounting bolts to large tension forces which when combined with shear forces can overstress standard mounting bolts. Side lug mounted cylinders should always be prevented from shifting through use of shear keys so located as to resist the major load, whether push or pull.

**Trunnion Mountings —** Cylinders require lubricated pillow blocks with minimum bearing clearances. Pillow blocks should be carefully aligned and rigidly mounted so the trunnions will not be subjected to bending moments. The rod end connection should also be pivoted, with the customer's pin in the piston rod knuckle parallel to the trunnions.

**Clevis Mountings —** Cylinders should be pivoted at both ends, with the customer's pin in the piston rod knuckle parallel to the pivot pin supplied with the clevis.

## Metallic Rod Wiper

When specified, metallic rod wipers can be supplied at extra cost, instead of the standard synthetic rubber wiperseal. Recommended in applications where atmospheric particles or splashings tend to cling to the extended piston rod and otherwise damage the synthetic rubber wiperseal. Installation of metallic rod wiper does not affect cylinder dimensions.

For additional information – call your local Parker Cylinder Distributor.

# Notes

# How to Order Series 3H Cylinders

### Data Required on All Cylinder Orders

When ordering Series 3H cylinders, be sure to specify each of the following requirements:

**Note:** Duplicate cylinders can be ordered by giving the SERIAL NUMBER from the nameplate of the original cylinder. Factory records supply a quick, positive identification.

| | |
|---|---|
| **Bore:** | Specify bore in inches. |
| **Mounting Style:** | Specify your choice of mounting style — as shown and dimensions in this catalog. If double rod is wanted, specify "with double rod". |
| **Series Designation (3H)** | |
| **Length of Stroke** | |
| **Piston Rod Diameter:** | Call out rod diameter or rod code number. In Series 3H cylinders, standard rod diameters (Code No. 1) will be furnished if not otherwise specified, unless length of stroke makes the application questionable. |
| **Piston Rod End Thread Style:** | Call out thread style number or specify dimensions. Thread style number 4 will be furnished if not otherwise specified. |
| **Cushions (If required):** | Specify "Cushion-head end", "Cushion-cap end" or "Cushion-both ends" as required. If cylinder is to have a double rod and only one cushion is required, be sure to specify clearly which end of the cylinder is to be cushioned. |
| **Hi-Load Piston or Alternate Cast Iron Rings:** | Hi-Load Pistons are furnished as standard. |
| **Ports:** | Parker recommends SAE Straight Thread Ports on Series 3H. |
| **Fluid Medium:** | Series 3H hydraulic cylinders are equipped with seals for use with hydraulic oil. If other than hydraulic oil will be used, specify class of fluid (see Catalog section C). |
| **Additional Data:** | Additional data is required on orders for cylinders with special modifications. For further information, consult factory. |

## Class 1 Seals

Class 1 seals are the seals provided as standard in a cylinder assembly unless otherwise specified. For further information on fluid compatibility on operating limitations of all compounds, see section C.

For the 3H series cylinders the following make-up Class 1 Seals:
Primary Piston Rod Seal – Nitrile
Piston Rod Wiper – Nitrile
Piston Seals – Hi-Load. Filled PTFE seals with a nitrile expander
Option – Cast Iron Rings
O-Rings – Nitrile (nitrile back-up washer when used)

Additional data is required on orders for cylinders with special modifications. For further information, consult factory.

## Service Policy

On cylinders returned to the factory for repairs, it is standard policy for the Cylinder Division to make such part replacements as will put the cylinder in as good as new condition. Should the condition of the returned cylinder be such that expenses for repair would exceed the costs of a new one, you will be notified.

Address all correspondence and make shipments to Service Department at your nearest regional plant listed on page VI.

## Certified Dimensions

Parker Cylinder Division guarantees that all cylinders ordered from this catalog will be built to dimensions shown. All dimensions are certified to be correct, and thus it is not necessary to request certified drawings.

## Warranty

Seller warrants the goods sold hereunder to be free from defects in material and workmanship. This warranty shall terminate eighteen months after date of shipment from Seller's plant and claims not made in writing within such period are waived.

The above warranty does not extend to goods damaged after date of shipment from Seller's plant where the damage is not directly due to a defect in material or workmanship, nor does it apply to goods altered or repaired by anyone other than Seller's authorized employees, nor to goods furnished by Buyer or acquired at Buyer's request and/or to Buyer's specifications.

If the goods are in accordance with or in reference to an engineering drawing specified by or furnished to the customer, the specifications and information on the drawing shall be applicable in determining such correct use, operation and application.

When claiming a breach of warranty, Buyer must notify Seller promptly whereupon Seller will either examine the goods at their site, or issue shipping instructions for return to Seller (transportation costs prepaid by Buyer). When any goods sold hereunder are proved not as warranted, Seller's sole obligation under this warranty shall be to repair or replace the goods, at its option, without charge to Buyer.

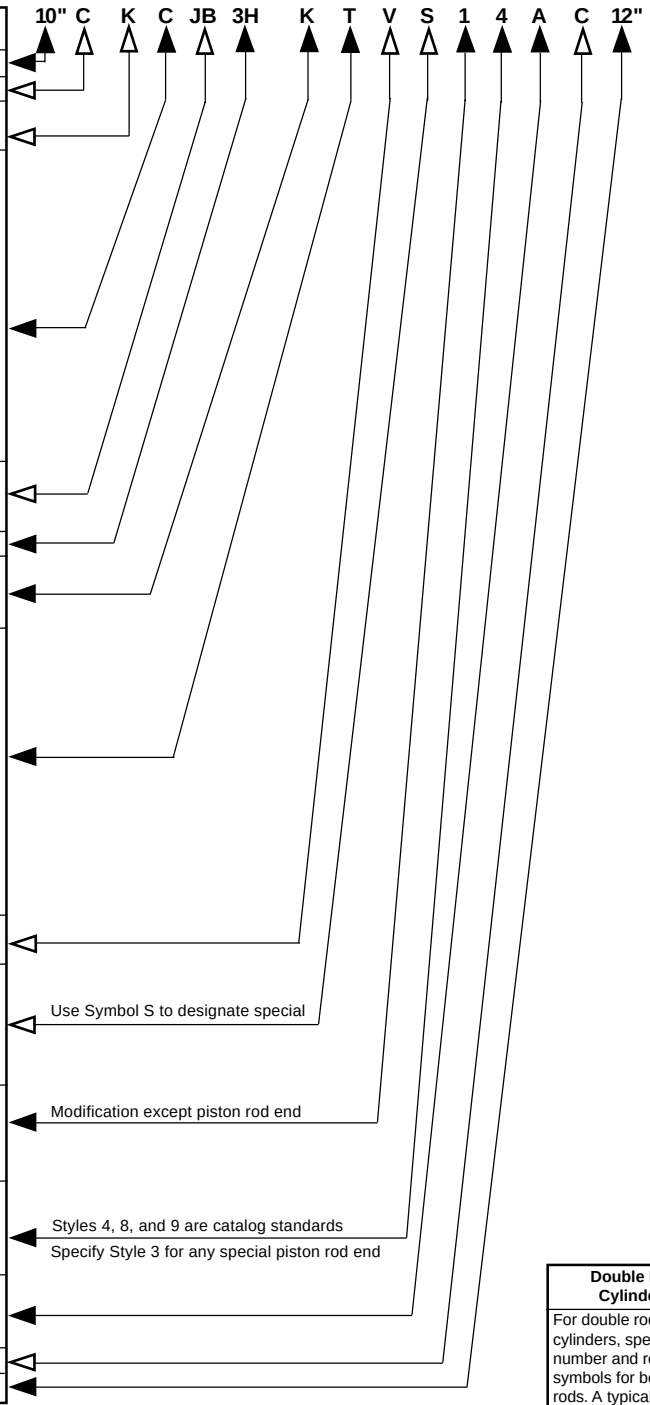
**The above warranty comprises Seller's sole and entire warranty obligation and liability to Buyer, its customers and assigns in connection with goods sold hereunder. All other warranties, express or implied, including but not limited to, warranties of merchantability and fitness, are expressly excluded.**

For additional information – call your local Parker Cylinder Distributor.

## Series 3H Model Numbers – How to Develop Them – How to "Decode" Them

Parker Series 3H cylinders can be completely and accurately described by a model number consisting of coded symbols. For single rod cylinders a maximum of 13 places for digits and letters are used in a prescribed sequence to produce a model number. Only nine places are needed to completely describe a standard non-cushioned Series 3H cylinder. To develop a model number, select only those symbols that represent the cylinder required, and place them in the sequence indicated below. The example makes use of all 13 places, although many model numbers will not require all 13, as in the case where cushioning, double rod, or special modifications are not required. **Note: Page numbers with a letter prefix, i.e.: C77, are located in section C of this catalog.**

| Feature | Description | Page No. | Symbol |
|---|---|---|---|
| **Bore*** | Specify in inches | | |
| **Cushion-Head** | Used **only** if cushion required | C94, 90 | C |
| **Double-Rod** | Used **only** if double-rod cylinder is required | 100 | K |
| **Mounting* Style** | Tie Rods Extended Cap End (10"-14" Bore) | 92 | TB |
| | Tie Rods Extended Head End (10"-14" Bore) | 92 | TC |
| | Tie Rods Extended Both Ends (10"-14" Bore) | 92 | TD |
| | Head Square Flange | 94 | JB |
| | Head Rectangular | 94 | JJ |
| | Cap Square Flange | 96 | HB |
| | Cap Rectangular | 96 | HH |
| | Side Lugs (10"-14" Bore) | 96 | C† |
| | Centerline Lugs (10"-14" Bore) | 96 | E |
| | Cap Fixed Clevis | 98 | BB |
| | Head Trunnion (10"-14" Bore) | 98 | D |
| | Cap Trunnion (10"-14" Bore) | 98 | DB |
| | Intermediate Fixed Trunnion | 98 | DD |
| **Combination Mounting Style** | Any Practical Mounting Style | – | As listed |
| | Listed Above | – | above |
| **Series*** | Used in **all** 3H Model Numbers | – | 3H |
| **Piston** | Hi-Load Piston standard | B89, C4 | K |
| | Used **only** for Ring Packed Piston | B88 | C |
| **Ports*** | SAE Straight Thread O-Ring Port (Standard) | C89 | T |
| | Used **only** for NPTF (Dry Seal Pipe Thread) (10-14" Bore Only) | C89 | U |
| | Used **only** for BSP (Parallel Thread ISO 228) | C89 | R |
| | Used **only** for SAE Flange Ports (3000 psi) | C89 | P |
| | Used **only** for BSPT (Taper Thread) | C89 | B |
| | Used **only** for Metric Thread | C89 | G |
| | Used **only** for Metric Thread per ISO 6149 | C89 | Y |
| **Common Modifications** | Viton Seals | C83 | V |
| | Water Service | C83 | W |
| **Special Modifications** | Used **only** if special Modifications are required: | | |
| | Port Position Change | C119 | S |
| | Special Seals | C83 | |
| | Stop Tube | C95, C122 | |
| **Piston Rod* Number** | For Single Rod Cylinders, | – | 1 |
| | select one only. | – | 2 |
| | Refer to Rod number listing, | – | 3 |
| | Table 2, Pages 90 through 97 | | |
| **Piston* Rod End** | Select: | | |
| | Style 4 Small Male | C92 | 4 |
| | Style 9 Short Female | | 9 |
| | Style 3 Special (Specify) | | 3 |
| **Piston Rod* Threads** | UNF Standard | C92 | A |
| | BSF (British Fine) | | W |
| | Metric | | M |
| **Cushion-Cap** | Used **only** if cushion required | C94, 90 | C |
| **Stroke*** | Specify in inches | C122 | – |




**Double Rod Cylinders**

For double rod cylinders, specify rod number and rod end symbols for both piston rods. A typical double rod model number would be:

10" KJJ-3HK14/14X12"

†Cylinders with this mounting style should have a minimum stroke length of equal to or greater than its bore diameter.

*Required for Basic Cylinder Model Number

**See chart in Section C for minimum piston rod diameter.

# Parker TS-2000 seal designed to eliminate cylinder rod seal leakage.

**Parker Series 2H Heavy Duty and Series 3L Medium Duty Hydraulic Cylinders with the TS-2000 seal offers positive protection against cylinder rod leakage under the most demanding applications.**

The TS-2000 seal is the product of countless hours of research, development and extensive field testing and is only available on Parker Cylinders.

Based on the popular Parker Serrated Lipseal rod design, the TS-2000 incorporates the pressure-compensated, uni-directional characteristics of a U-cup with the multiple edge sealing effectiveness of compression-type stacked-packings.

The goal for the Parker team was to design a rod seal suitable for all types of applications, regardless of pressure profile. It had to be composed of a material that would not react chemically with hydraulic fluids. And it had to produce better and more reliable "dry rod" performance than the standard serrated lip-seal design in a broad range of applications.

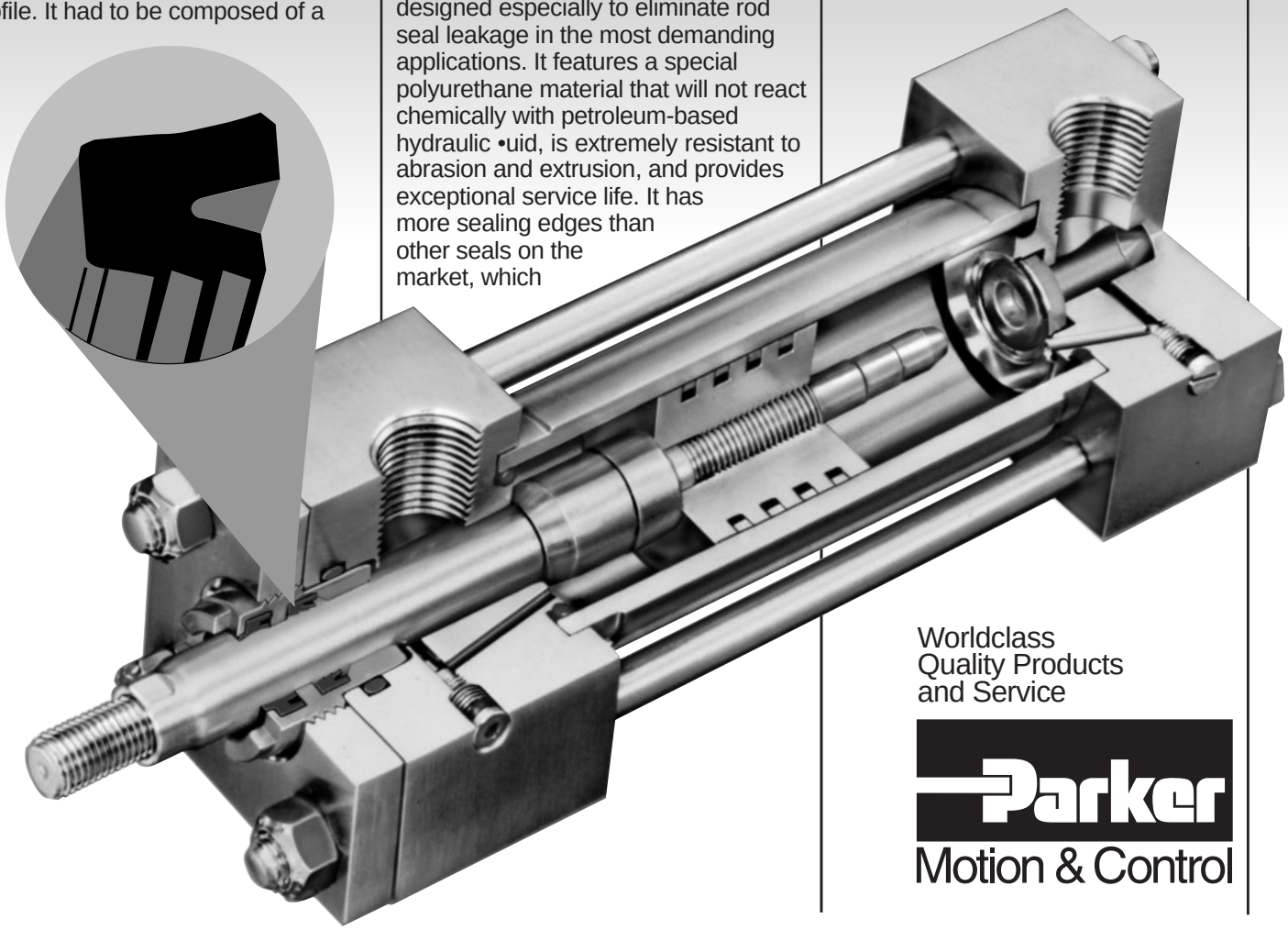
**"Jewel" gland with wiperseal and TS-2000 cylinder rod seal.**

The result is the TS-2000 seal, designed especially to eliminate rod seal leakage in the most demanding applications. It features a special polyurethane material that will not react chemically with petroleum-based hydraulic •uid, is extremely resistant to abrasion and extrusion, and provides exceptional service life. It has more sealing edges than other seals on the market, which in turn produces "dry rod" performance. The seal geometry was refined for maximum stability in the groove and has excellent performance characteristics throughout a broad range of pressures and piston rod velocities.

The Parker design team was successful!

TS-2000 rod seal has not failed in any of the test applications in the lab or on the job, no matter how tough or demanding.

For more information on the TS-2000 call or write your local Parker distributor or Parker Hannifin Corporation, Cylinder Division, 500 S. Wolf Road, Des Plaines, IL 60016, 847-298-2400.



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