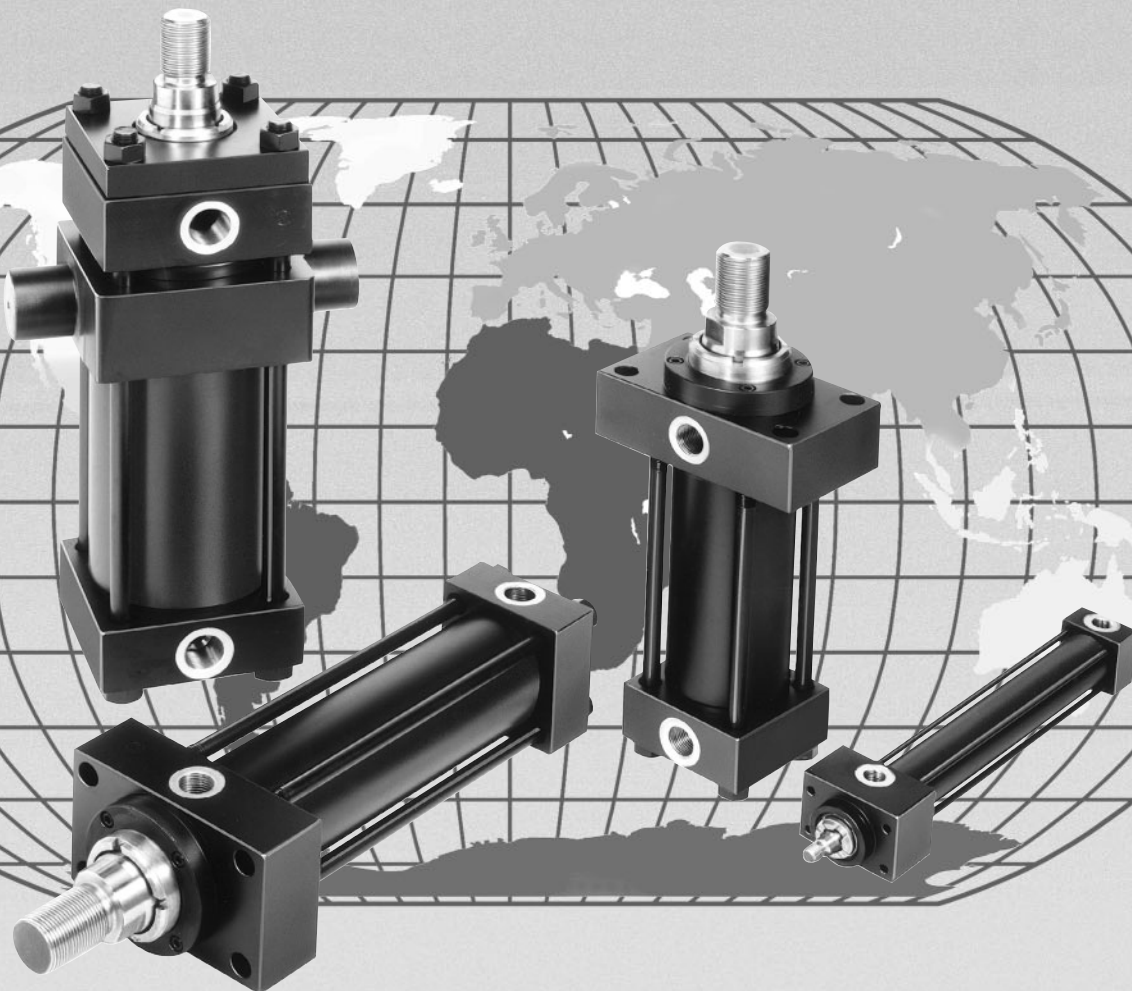




## Metric Hydraulic Cylinders Series HMI

Conforms to ISO 6020/2 (1991)  
For working pressures up to 210 bar



*Vital Technologies for  
Motion and Control*

For Cylinder Division Plant Locations – See Page II.



# Parker Series HMI Metric Hydraulic Cylinders

As the world leader in the design and manufacture of tie-rod cylinders, Parker Cylinder Division introduces the Parker Series HMI *metric* hydraulic cylinder. Parker's HMI Series cylinders are designed to meet the requirements of ISO 6020/2 (1991), 160 Bar Compact Series. HMI Series cylinders may be used for working pressures up to 210 Bar.



Parker HMI Series cylinders are the true *world standard*, available all over the globe from Parker's worldwide manufacturing facilities. Whether you or your machine are in Europe, Asia, South America, Canada, Mexico, or the United States, you can rely on the engineering expertise, manufacturing experience, and commitment to quality that you've come to expect from the Parker Cylinder Division.

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**For additional information – call your local Parker Cylinder Distributor.**

# Parker Series HMI Metric Hydraulic Cylinders

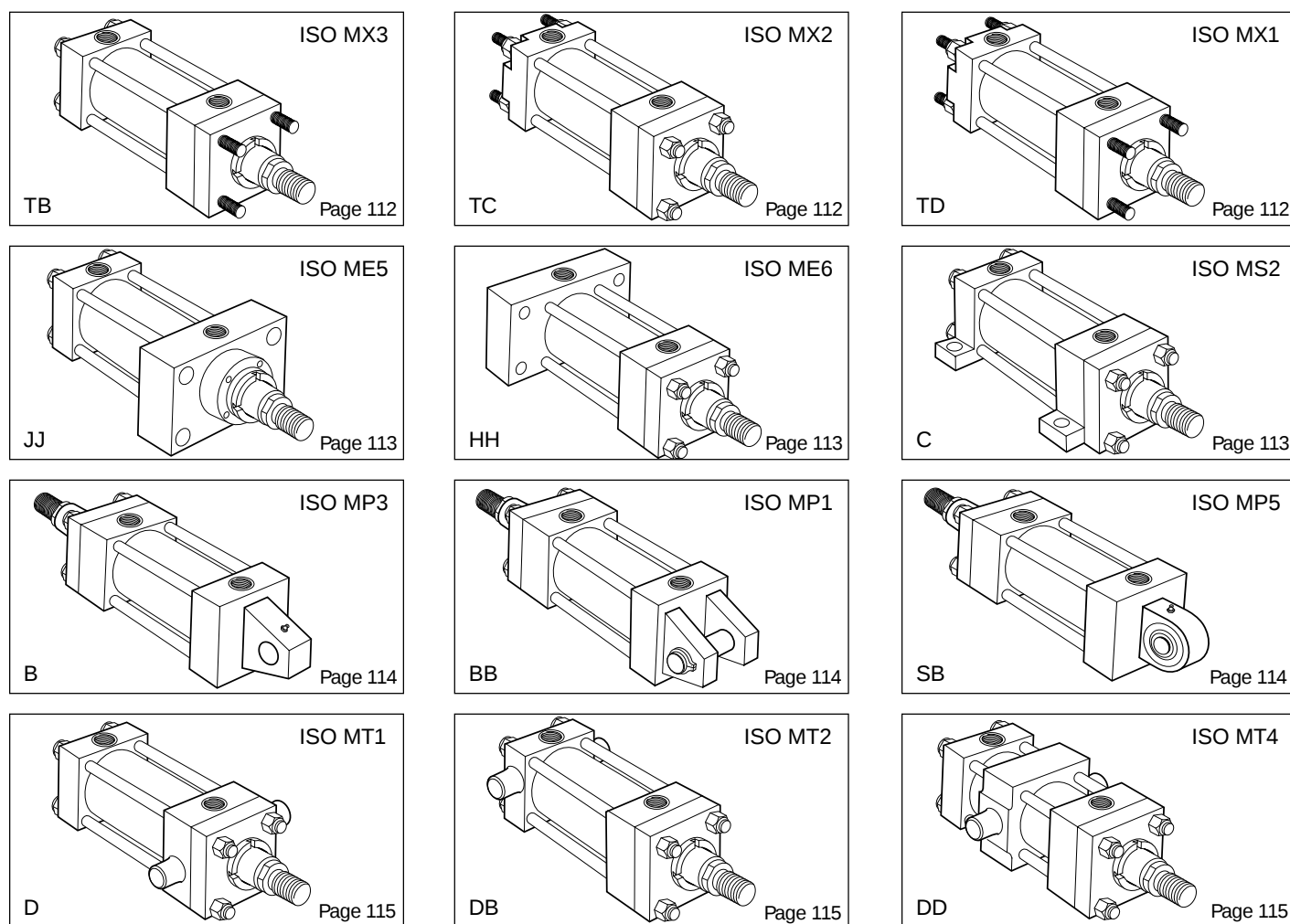
## Features, Specifications and Mountings

### Series HMI Standard Features and Specifications

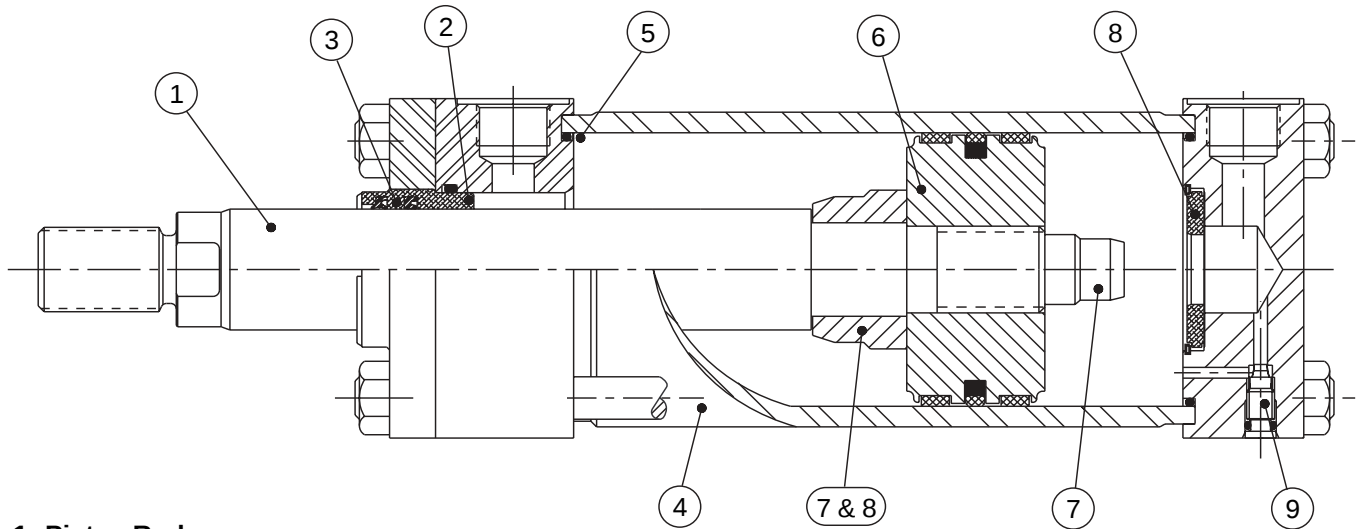
- ISO 6020/2 mounting interchangeable
- 12 standard mounting styles
- Up to 3 rod sizes per bore
- Wide range of mounting accessories
- Up to 3 male and 3 female rod end threads per bore
- Bore sizes – 25mm to 200mm
- Strokes – available in any practical stroke length
- Working pressure up to 210 bar
- Piston rods – 12mm to 140mm
- Single and Double rod designs
- Cushions available at either end
- Temperature Range – -20°C to 150°C depending on seal type
- Seal types to suit a wide variety of operating environments

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

### Available Mountings and Where To Find Them



For Cylinder Division Plant Locations – See Page II.



## 1 Piston Rod

Gland seal life is maximized by manufacturing piston rods from precision ground, high tensile carbon alloy steel, hard chrome plated and polished to 0.2µm max. Piston rods are induction case hardened to Rockwell C54 minimum before chrome plating, resulting in a dent-resistant surface.

## 2 Parker's 'Jewel' Gland

Continuous lubrication, and therefore longer gland life, are provided by the long bearing surface inboard of the primary

cylinder.

The double lip wiperseal acts as a secondary seal, trapping excess lubricating film in the chamber between the wiper and lip seals. Its outer lip prevents the ingress of dirt into the cylinder, extending the life of gland and seals.

The TS-2000 is manufactured from an enhanced polyurethane, giving efficient retention of pressurized fluid and long service life.

## 4 Cylinder Body

Strict quality control standards and precision manufacture ensure that all tubes meet rigid standards of straightness, roundness and surface finish. The steel tubing is surface finished to minimize internal friction and prolong seal life.

## 5 Cylinder Body Seals

To make sure that the cylinder body remains leaktight, even under pressure shock conditions, Parker utilizes pressure-energized body seals.

## 6 One-Piece Piston

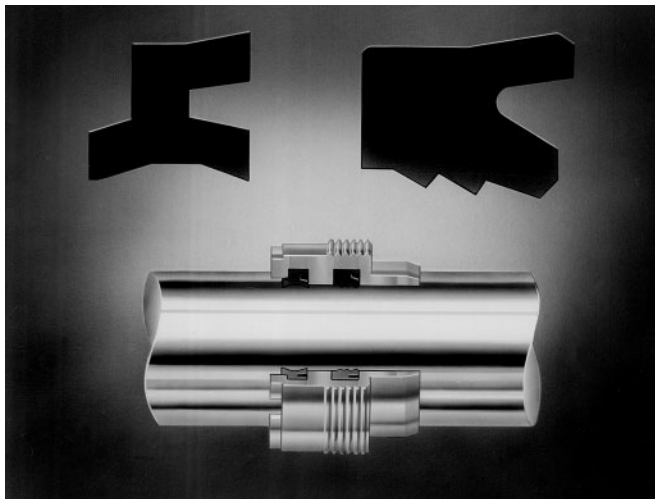
Side loading is resisted by the wide bearing surfaces of the pistons. A long thread engagement secures the piston to the piston rod and, as an added safety feature, pistons are secured by an anaerobic adhesive.

## 7 Cushioning

Progressive deceleration is available by using profiled cushions at the head and cap – see Section C for details. The head end cushion is self aligning, while the polished cap end spear is an integral part of the piston rod.

## 8 Floating Cushion Bushings and Sleeves

Closer tolerances – and therefore more effective cushioning – are permitted by the use of a floating cushion sleeve at the head end of the cylinder, and a floating cushion bushing at the cap end. A slotted cushion sleeve at the head end and the floating bronze cushion bushing in the cap, provide minimum fluid restriction at the start of the return stroke. This allows full pressure to be applied over the entire area of the piston, providing full power and fast cycle times.



seal. The Jewel gland, complete with rod seals, can easily be removed without dismantling the cylinder, so servicing is quicker – and therefore more economical.

## 3 Rod Seals

The TS-2000 primary seal has a series of sealing edges which take over successively as pressure increases, providing efficient sealing under all operating conditions. On the return stroke the serrations act as a check valve, allowing the oil adhering to the rod to pass back into the

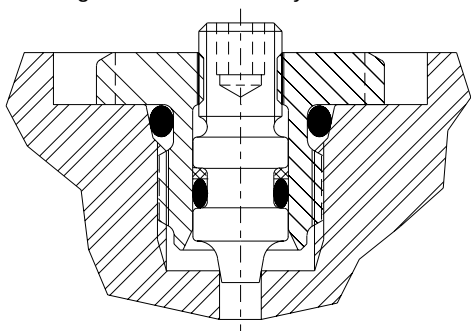
**For additional information – call your local Parker Cylinder Distributor.**

# Parker Series HMI Metric Hydraulic Cylinders

## Design Features and Benefits

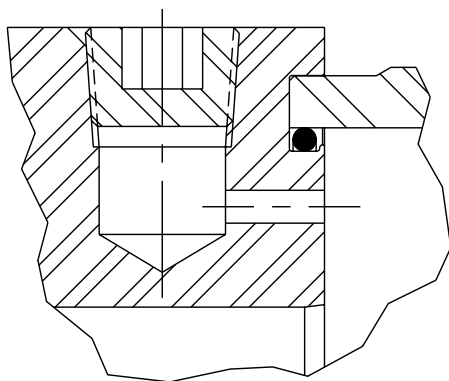
### 9 Cushion Adjustment

Needle valves are provided at both ends of the cylinder for precise cushion adjustment. 63 mm bores and smaller contain cartridge cushion assembly shown below.



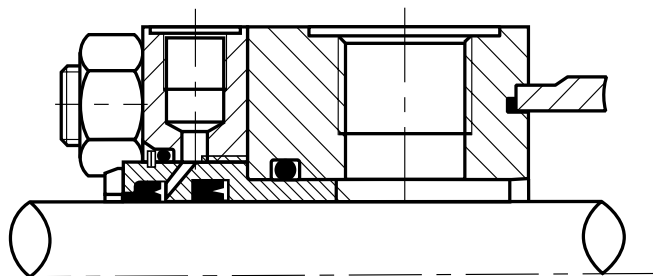
### Air Bleeds

Available as an option at both ends, the air bleeds are recessed into the head and cap.



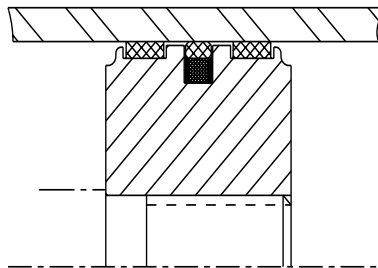
### Gland Drains

The accumulation of fluid behind the gland wiperseal of long stroke cylinders, or cylinders with constant back pressure, can be relieved by specifying the option of a gland drain. A port between the wiperseal and primary seal allows fluid to be piped back to a reservoir. By fitting a transparent tube between the port and the reservoir, fluid loss from concealed or inaccessible cylinders can be monitored to provide an early indication of the need for gland servicing. Gland drains are described in greater detail in Section C of this catalog.



### Piston Seals

Parker's B style piston is a single seal design which incorporates two wear strips. This design provides smooth operation, long bearing life, and high load carrying capacity.



### Servo Cylinders

Servo cylinders permit fine control of acceleration, velocity and position in applications where very low friction and an absence of stick-slip are required. They may be used in conjunction with integral or external transducers. Servo cylinders combine low friction piston and gland seals with specially selected tubes and rods. For low-friction applications – consult factory.

### Seal Classes

To accommodate the many types of fluids and the varying temperature ranges used in industry, Parker offers a range of rod gland, piston and body seals. These are described in detail in Section C of this catalog.

## Mounting Styles

### ISO Cylinder Mounting Styles and Where to Find Them

The standard range of Parker Series HMI cylinders comprises 12 ISO mounting styles, to suit the majority of applications. General guidance for the selection of ISO cylinders is given below, with dimensional information about each mounting style shown on the following pages. Application-specific mounting information is shown in the mounting information section, Section C of this catalog.

#### Extended Tie Rods

Cylinders with TB, TC and TD mountings are suitable for straight line force transfer applications, and are particularly useful where space is limited. For compression (push) applications, cap end tie rod mountings are most appropriate; where the major load places the piston rod in tension (pull applications), head end mounting styles should be specified. Cylinders with tie rods extended at both ends may be attached to the machine member from either end, allowing the free end of the cylinder to support a bracket or switch.

#### Flange Mounted Cylinders

These cylinders are also suitable for use on straight line force transfer applications. Two flange mounting styles are available, offering either a head flange (JJ) or a cap flange (HH). Selection of the correct flange mounting style depends on whether the major force applied to the load will result in compression (push) or tension (pull) stresses on the piston rod. For compression-type applications, the cap mounting style is most appropriate; where the major load places the piston rod in tension, a head mounting should be specified.

#### Foot Mounted Cylinders

Style C, foot mounted cylinders do not absorb forces on their centerline. As a result, the application of force by the cylinder produces a moment which attempts to rotate the cylinder about its mounting bolts. It is important, therefore, that the cylinder should be firmly secured to the mounting surface and that the load should be effectively guided to avoid side loads being applied to rod gland and piston bearings. A thrust key modification may be specified to provide positive cylinder location.

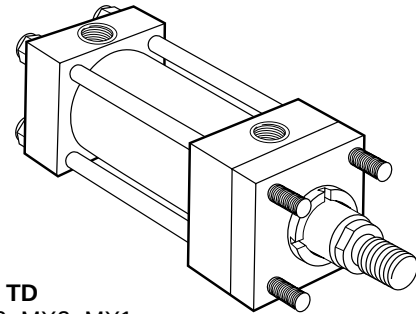
#### Pivot Mountings

Cylinders with pivot mountings, which absorb forces on their centerlines, should be used where the machine member to be moved travels in a curved path. Pivot mountings may be used for tension (pull) or compression (push) applications. Cylinders using a fixed clevis, styles BB and B, may be used if the curved path of the piston rod travel is in a single plane; for applications where the piston rod will travel in a path on either side of the true plane of motion, a spherical bearing mounting SB is recommended.

#### Trunnion Mounted Cylinders

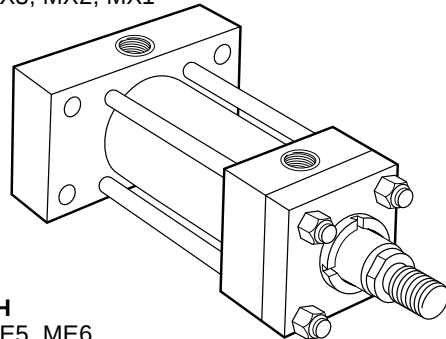
These cylinders, styles D, DB and DD, are designed to absorb force on their centerlines. They are suitable for tension (pull) or compression (push) applications, and may be used where the machine member to be moved travels in a curved path in a single plane. Trunnion pins are designed for shear loads only and should be subjected to minimum bending stresses.

**Styles TB, TC, TD**  
ISO Styles MX3, MX2, MX1



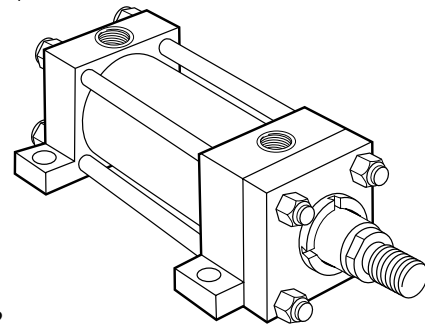
**TB**

**Styles JJ, HH**  
ISO Styles ME5, ME6



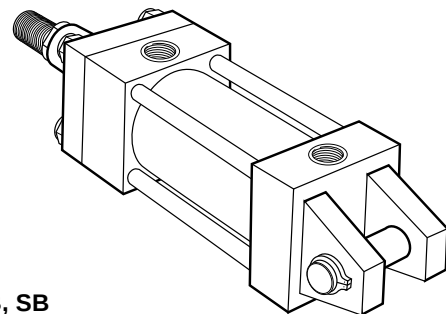
**HH**

**Style C**  
ISO Style MS2



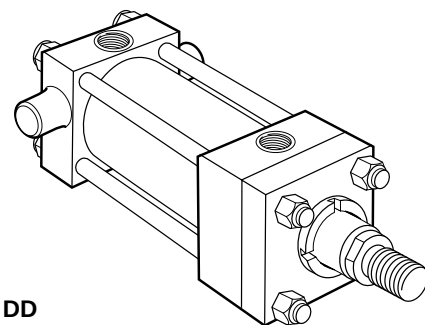
**C**

**Styles B, BB, SB**  
ISO Styles MP3, MP1, MP5



**BB**

**Styles D, DB, DD**  
ISO Styles MT1, MT2, MT4



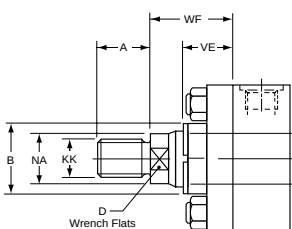
**DB**

**For additional information – call your local Parker Cylinder Distributor.**

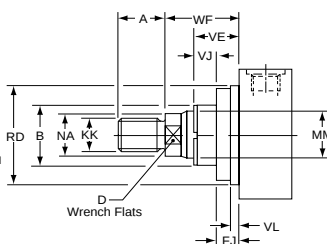
# Parker Series HMI Metric Hydraulic Cylinders

## Piston Rod End Data and Threads

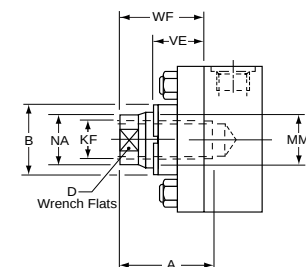
### Parker Thread Styles 4 & 7 – All Except JJ Mount



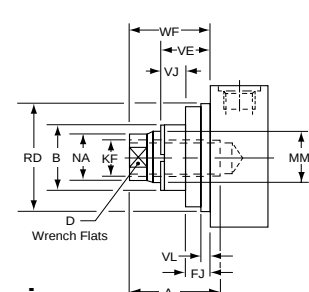
### Parker Thread Styles 4 & 7 – JJ Mount



### Parker Thread Style 9 – All Except JJ Mount



### Parker Thread Style 9 – JJ Mount



### Parker Thread Styles 4 & 7

The smallest diameter rod end thread for each bore size is designated Style 4 when supplied with a No. 1 rod. When the same rod end thread is supplied with a No. 2 or No. 3 rod, it is designated Style 7.

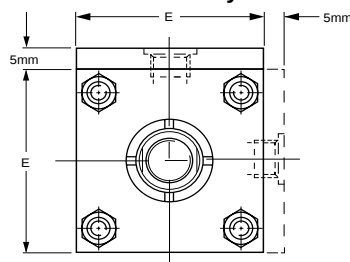
### Parker Thread Style 9 – Short Stroke Cylinders

Style 9 (female) rod ends should not be used on 160mm or 200mm bore cylinders with a stroke of 50mm or less. Please consult the factory, with details of the application.

### Parker Thread Style 3

Non-standard piston rod ends are designated 'Style 3'. A dimensional sketch or description should accompany the order. Please specify dimensions KK or KF, A, rod stand out WF and thread type.

### 25 & 32mm Bore Cylinders

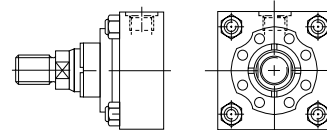


5mm extra height applies to port face at head end only.

### Gland Retainer

#### – 160 and 200mm Bore

On all 160mm and 200mm bore ISO mounting styles except TB and TD, the gland retainer is separately bolted to the head, as shown.



## Piston Rod End Dimensions

| Bore<br>φ | Rod<br>No. | MM<br>Rod<br>φ | Style 4  |     | Style 7  |    | Style 9  |     | B<br>f <sub>9</sub> | D   | NA  | VE | WF | JJ Mount Only |                      |    |    |
|-----------|------------|----------------|----------|-----|----------|----|----------|-----|---------------------|-----|-----|----|----|---------------|----------------------|----|----|
|           |            |                | KK       | A   | KK       | A  | KF       | A   |                     |     |     |    |    | VL<br>min     | RD<br>f <sub>8</sub> | VJ | FJ |
| 25        | 1          | 12             | M10x1.25 | 14  | -        | -  | M8x1     | 14  | 24                  | 10  | 11  | 16 | 25 | 3             | 38                   | 6  | 10 |
|           | 2          | 18             | M14x1.5  | 18  | M10x1.25 | 14 | M12x1.25 | 18  | 30                  | 15  | 17  | 16 |    |               |                      |    |    |
| 32        | 1          | 14             | M12x1.25 | 16  | -        | -  | M10x1.25 | 16  | 26                  | 12  | 13  | 22 | 35 | 3             | 42                   | 12 | 10 |
|           | 2          | 22             | M16x1.5  | 22  | M12x1.25 | 16 | M16x1.5  | 22  | 34                  | 18  | 21  | 22 |    |               |                      |    |    |
| 40        | 1          | 18             | M14x1.5  | 18  | -        | -  | M12x1.25 | 18  | 30                  | 15  | 17  | 16 | 35 | 3             | 62                   | 6  | 10 |
|           | 2          | 28             | M20x1.5  | 28  | M14x1.5  | 18 | M20x1.5  | 28  | 42                  | 22  | 26  | 22 |    |               |                      |    |    |
| 50        | 1          | 22             | M16x1.5  | 22  | -        | -  | M16x1.5  | 22  | 34                  | 18  | 21  | 22 | 41 | 4             | 74                   | 6  | 16 |
|           | 2          | 36             | M27x2    | 36  | M16x1.5  | 22 | M27x2    | 36  | 50                  | 30  | 34  | 25 |    |               |                      | 9  |    |
|           | 3          | 28             | M20x1.5  | 28  | M16x1.5  | 22 | M20x1.5  | 28  | 42                  | 22  | 26  | 22 |    |               |                      | 6  |    |
| 63        | 1          | 28             | M20x1.5  | 28  | -        | -  | M20x1.5  | 28  | 42                  | 22  | 26  | 22 | 48 | 4             | 75                   | 6  | 16 |
|           | 2          | 45             | M33x2    | 45  | M20x1.5  | 28 | M33x2    | 45  | 60                  | 39  | 43  | 29 |    |               |                      | 13 |    |
|           | 3          | 36             | M27x2    | 36  | M20x1.5  | 28 | M27x2    | 36  | 50                  | 30  | 34  | 25 |    |               |                      | 9  |    |
| 80        | 1          | 36             | M27x2    | 36  | -        | -  | M27x2    | 36  | 50                  | 30  | 34  | 25 | 51 | 4             | 82                   | 5  | 20 |
|           | 2          | 56             | M42x2    | 56  | M27x2    | 36 | M42x2    | 56  | 72                  | 48  | 54  | 29 |    |               |                      | 9  |    |
|           | 3          | 45             | M33x2    | 45  | M27x2    | 36 | M33x2    | 45  | 60                  | 39  | 43  | 29 |    |               |                      |    |    |
| 100       | 1          | 45             | M33x2    | 45  | -        | -  | M33x2    | 45  | 60                  | 39  | 43  | 29 | 57 | 5             | 92                   | 7  | 22 |
|           | 2          | 70             | M48x2    | 63  | M33x2    | 45 | M48x2    | 63  | 88                  | 62  | 68  | 32 |    |               |                      | 10 |    |
|           | 3          | 56             | M42x2    | 56  | M33x2    | 45 | M42x2    | 56  | 72                  | 48  | 54  | 29 |    |               |                      | 7  |    |
| 125       | 1          | 56             | M42x2    | 56  | -        | -  | M42x2    | 56  | 72                  | 48  | 54  | 29 | 57 | 5             | 105                  | 9  | 20 |
|           | 2          | 90             | M64x3    | 85  | M42x2    | 56 | M64x3    | 85  | 108                 | 80  | 88  | 32 |    |               |                      | 10 |    |
|           | 3          | 70             | M48x2    | 63  | M42x2    | 56 | M48x2    | 63  | 88                  | 62  | 68  | 32 |    |               |                      |    |    |
| 160       | 1          | 70             | M48x2    | 63  | -        | -  | M48x2    | 63  | 88                  | 62  | 68  | 32 | 57 | 5             | 125                  | 10 | 22 |
|           | 2          | 110            | M80x3    | 95  | M48x2    | 63 | M80x3    | 95  | 133                 | 100 | 108 | 32 |    |               |                      | 7  |    |
|           | 3          | 90             | M64x3    | 85  | M48x2    | 63 | M64x3    | 85  | 108                 | 80  | 88  | 32 |    |               |                      |    |    |
| 200       | 1          | 90             | M64x3    | 85  | -        | -  | M64x3    | 85  | 108                 | 80  | 88  | 32 | 57 | 5             | 150                  | 10 | 22 |
|           | 2          | 140            | M100x3   | 112 | M64x3    | 85 | M100x3   | 112 | 163                 | 128 | 138 | 32 |    |               |                      | 7  |    |
|           | 3          | 110            | M80x3    | 95  | M64x3    | 85 | M80x3    | 95  | 133                 | 100 | 108 | 32 |    |               |                      |    |    |

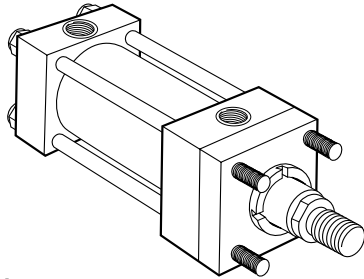
All dimensions are in millimeters unless otherwise stated.

For Cylinder Division Plant Locations – See Page II.

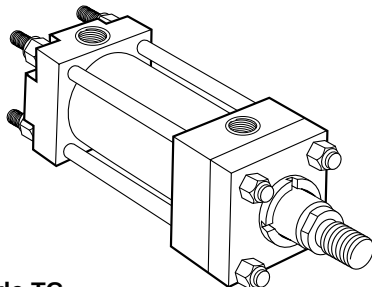
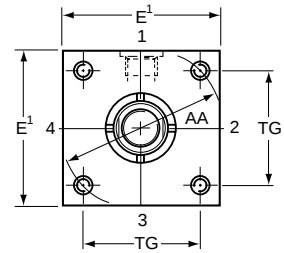
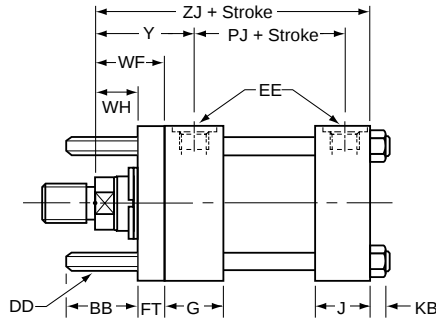


# Parker Series HMI Metric Hydraulic Cylinders

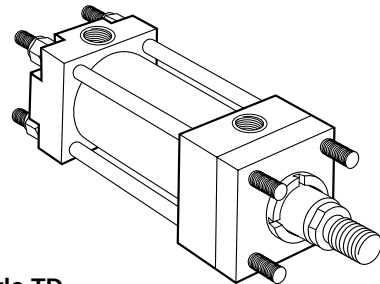
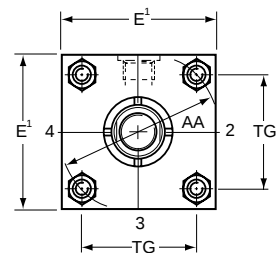
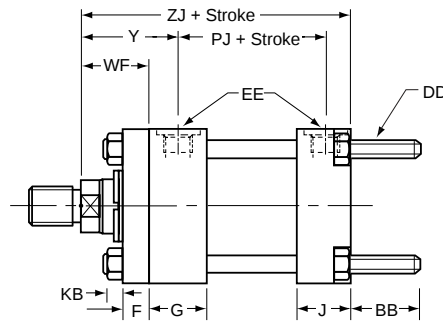
## Extended Tie Rod Mountings



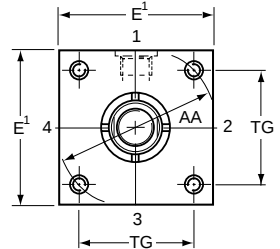
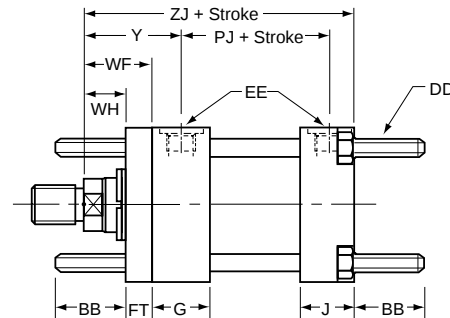
**Style TB**  
Tie Rods Extended Head End  
(ISO Style MX3)



**Style TC**  
Tie Rods Extended Cap End  
(ISO Style MX2)



**Style TD**  
Tie Rods Extended Both Ends  
(ISO Style MX1)



<sup>1</sup>Head depth increased by 5mm to accommodate port on 25mm and 32mm bore cylinders – see page 111

## Dimensions – TB, TC & TD See also Rod End Dimensions, page 111

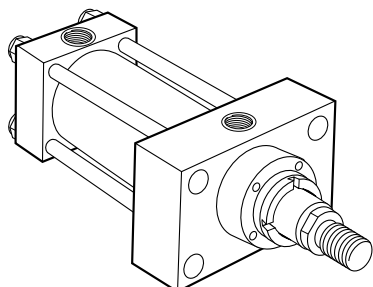
| Bore<br>φ | AA  | BB  | DD       | E               | EE<br>BSP/G<br>inches | F  | FT | G  | J  | KB  | TG    | WF | WH | Y  | + Stroke |     |
|-----------|-----|-----|----------|-----------------|-----------------------|----|----|----|----|-----|-------|----|----|----|----------|-----|
|           |     |     |          |                 |                       |    |    |    |    |     |       |    |    |    | PJ       | ZJ  |
| 25        | 40  | 19  | M5x0.8   | 40 <sup>1</sup> | 1/4                   | 10 | 10 | 40 | 25 | 4   | 28.3  | 25 | 15 | 50 | 53       | 114 |
| 32        | 47  | 24  | M6x1     | 45 <sup>1</sup> | 1/4                   | 10 | 10 | 40 | 25 | 5   | 33.2  | 35 | 25 | 60 | 56       | 128 |
| 40        | 59  | 35  | M8x1     | 63              | 3/8                   | 10 | 10 | 45 | 38 | 6.5 | 41.7  | 35 | 25 | 62 | 73       | 153 |
| 50        | 74  | 46  | M12x1.25 | 75              | 1/2                   | 16 | 16 | 45 | 38 | 10  | 52.3  | 41 | 25 | 67 | 74       | 159 |
| 63        | 91  | 46  | M12x1.25 | 90              | 1/2                   | 16 | 16 | 45 | 38 | 10  | 64.3  | 48 | 32 | 71 | 80       | 168 |
| 80        | 117 | 59  | M16x1.5  | 115             | 3/4                   | 20 | 20 | 50 | 45 | 13  | 82.7  | 51 | 31 | 77 | 93       | 190 |
| 100       | 137 | 59  | M16x1.5  | 130             | 3/4                   | 22 | 22 | 50 | 45 | 13  | 96.9  | 57 | 35 | 82 | 101      | 203 |
| 125       | 178 | 81  | M22x1.5  | 165             | 1                     | 22 | 22 | 58 | 58 | 18  | 125.9 | 57 | 35 | 86 | 117      | 232 |
| 160       | 219 | 92  | M27x2    | 205             | 1                     | 25 | 25 | 58 | 58 | 22  | 154.9 | 57 | 32 | 86 | 130      | 245 |
| 200       | 269 | 115 | M30x2    | 245             | 1-1/4                 | 25 | 25 | 76 | 76 | 24  | 190.2 | 57 | 32 | 98 | 165      | 299 |

All dimensions are in millimeters unless otherwise stated.

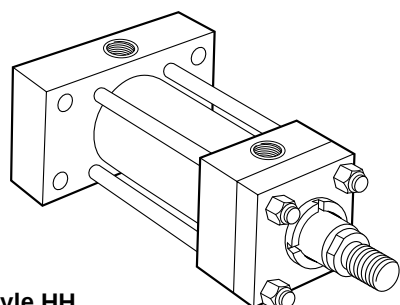
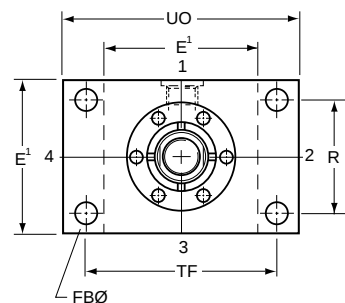
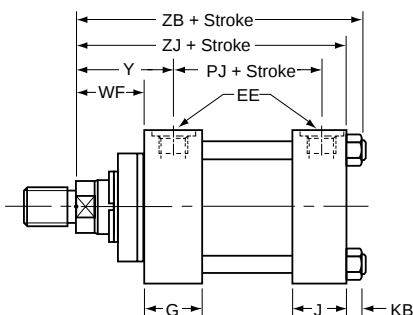
**For additional information – call your local Parker Cylinder Distributor.**

# Parker Series HMI Metric Hydraulic Cylinders

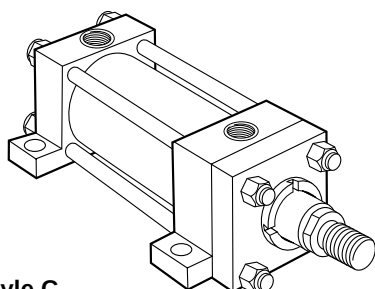
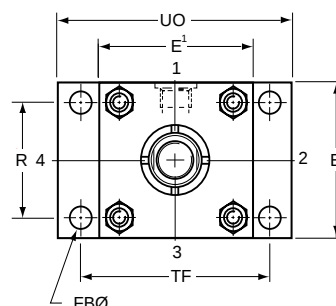
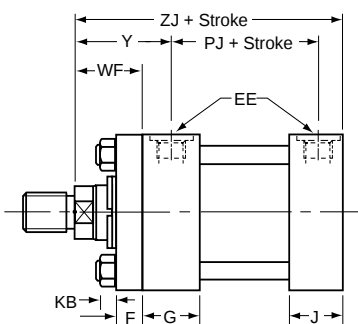
## Flange and Side Lugs Mountings



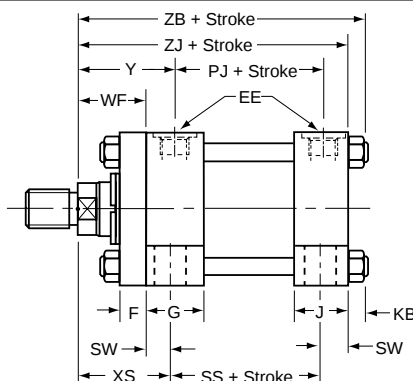
**Style JJ**  
Head Rectangular Flange  
(ISO Style ME5)



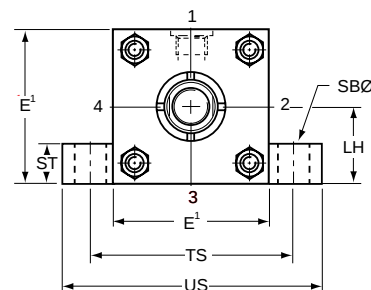
**Style HH**  
Cap Rectangular Flange  
(ISO Style ME6)



**Style C**  
Side Lugs  
(ISO Style MS2)



A thrust key may be used with this mounting style.



<sup>1</sup>Head depth increased by 5mm to accommodate port on 25mm and 32mm bore cylinders, except Style JJ in port positions 2 and 4 – see page 111

### Dimensions – JJ, HH & C See also Rod End Dimensions, page 111

| Bore<br>φ | E               | EE<br>BSP/G<br>inches | F  | FB  | G  | J  | KB  | LH<br>h10 | R   | SB  | ST   | SW | TF  | TS  | UO  | US  | WF | XS | Y  | + Stroke |     |     |     |
|-----------|-----------------|-----------------------|----|-----|----|----|-----|-----------|-----|-----|------|----|-----|-----|-----|-----|----|----|----|----------|-----|-----|-----|
|           |                 |                       |    |     |    |    |     |           |     |     |      |    |     |     |     |     |    |    |    | PJ       | SS  | ZB  | ZJ  |
| 25        | 40 <sup>1</sup> | 1/4                   | 10 | 5.5 | 40 | 25 | 4   | 19        | 27  | 6.6 | 8.5  | 8  | 51  | 54  | 65  | 72  | 25 | 33 | 50 | 53       | 73  | 121 | 114 |
| 32        | 45 <sup>1</sup> | 1/4                   | 10 | 6.6 | 40 | 25 | 5   | 22        | 33  | 9   | 12.5 | 10 | 58  | 63  | 70  | 84  | 35 | 45 | 60 | 56       | 73  | 137 | 128 |
| 40        | 63              | 3/8                   | 10 | 11  | 45 | 38 | 6.5 | 31        | 41  | 11  | 12.5 | 10 | 87  | 83  | 110 | 103 | 35 | 45 | 62 | 73       | 98  | 166 | 153 |
| 50        | 75              | 1/2                   | 16 | 14  | 45 | 38 | 10  | 37        | 52  | 14  | 19   | 13 | 105 | 102 | 130 | 127 | 41 | 54 | 67 | 74       | 92  | 176 | 159 |
| 63        | 90              | 1/2                   | 16 | 14  | 45 | 38 | 10  | 44        | 65  | 18  | 26   | 17 | 117 | 124 | 145 | 161 | 48 | 65 | 71 | 80       | 86  | 185 | 168 |
| 80        | 115             | 3/4                   | 20 | 18  | 50 | 45 | 13  | 57        | 83  | 18  | 26   | 17 | 149 | 149 | 180 | 186 | 51 | 68 | 77 | 93       | 105 | 212 | 190 |
| 100       | 130             | 3/4                   | 22 | 18  | 50 | 45 | 13  | 63        | 97  | 26  | 32   | 22 | 162 | 172 | 200 | 216 | 57 | 79 | 82 | 101      | 102 | 225 | 203 |
| 125       | 165             | 1                     | 22 | 22  | 58 | 58 | 18  | 82        | 126 | 26  | 32   | 22 | 208 | 210 | 250 | 254 | 57 | 79 | 86 | 117      | 131 | 260 | 232 |
| 160       | 205             | 1                     | 25 | 26  | 58 | 58 | 22  | 101       | 155 | 33  | 38   | 29 | 253 | 260 | 300 | 318 | 57 | 86 | 86 | 130      | 130 | 279 | 245 |
| 200       | 245             | 1-1/4                 | 25 | 33  | 76 | 76 | 24  | 122       | 190 | 39  | 44   | 35 | 300 | 311 | 360 | 381 | 57 | 92 | 98 | 165      | 172 | 336 | 299 |

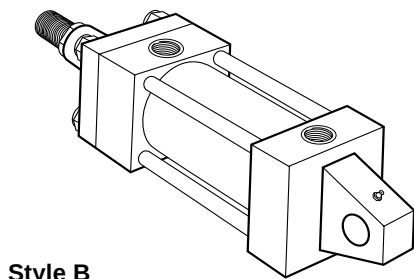
All dimensions are in millimeters unless otherwise stated.

For Cylinder Division Plant Locations – See Page II.



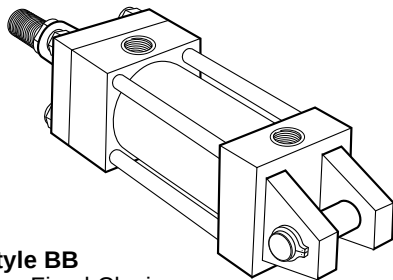
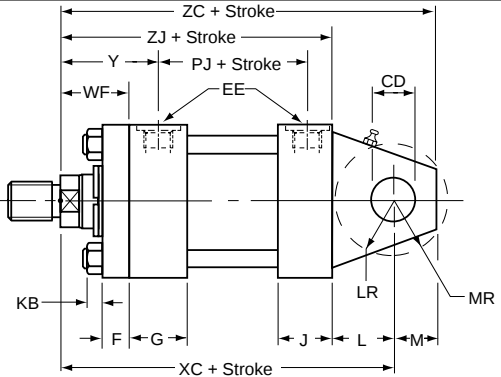
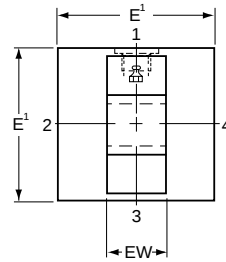
# Parker Series HMI Metric Hydraulic Cylinders

## Pivot Mountings



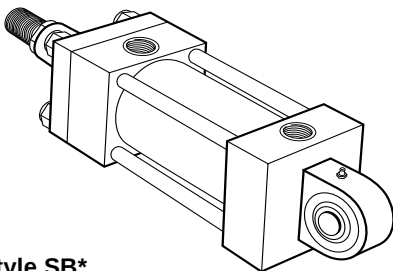
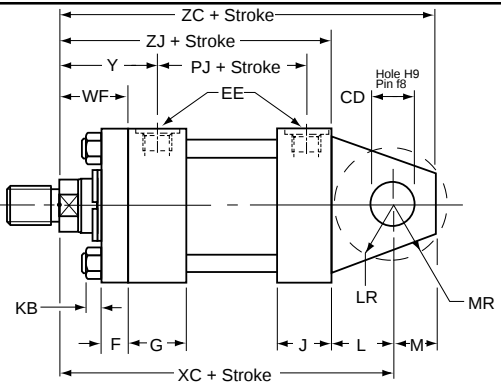
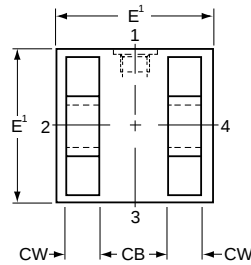
**Style B**  
Cap Fixed Eye  
(ISO Style MP3)

Pivot pin not supplied



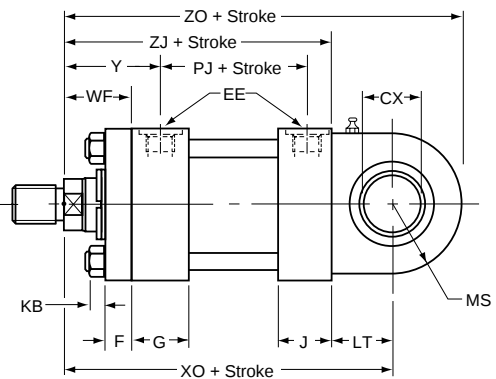
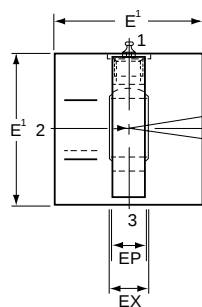
**Style BB**  
Cap Fixed Clevis  
(ISO Style MP1)

Supplied complete with pivot pin



**Style SB\***  
Cap Fixed Eye  
(ISO Style MP5)

Pivot pin not supplied



<sup>1</sup>Head depth increased by 5mm to accommodate port on 25mm and 32mm bore cylinders – see page 111

\*Parker Style SB is also known as Style SBd under Parker's European model code system

## Dimensions – B, BB & SB See also Rod End Dimensions, page 111

| Bore<br><br>ϕ | CB  | CD | CW | CX        | E               | EE<br>BSP/G<br>inches | EP | EW | EX | F  | G  | J  | KB  | L  | LR | LT  | M  | MR | MS   | WF | Y  | + Stroke |     |     |     |     |       |
|---------------|-----|----|----|-----------|-----------------|-----------------------|----|----|----|----|----|----|-----|----|----|-----|----|----|------|----|----|----------|-----|-----|-----|-----|-------|
|               | A16 | H9 |    |           |                 |                       |    |    |    |    |    |    |     |    |    |     |    |    | max  |    |    | PJ       | XC  | XO  | ZC  | ZJ  | ZO    |
| 25            | 12  | 10 | 6  | 12-0.008  | 40 <sup>1</sup> | 1/4                   | 8  | 12 | 10 | 10 | 40 | 25 | 4   | 13 | 12 | 16  | 10 | 12 | 20   | 25 | 50 | 53       | 127 | 130 | 137 | 114 | 150   |
| 32            | 16  | 12 | 8  | 16-0.008  | 45 <sup>1</sup> | 1/4                   | 11 | 16 | 14 | 10 | 40 | 25 | 5   | 19 | 17 | 20  | 12 | 15 | 22.5 | 35 | 60 | 56       | 147 | 148 | 159 | 128 | 170.5 |
| 40            | 20  | 14 | 10 | 20-0.012  | 63              | 3/8                   | 13 | 20 | 16 | 10 | 45 | 38 | 6.5 | 19 | 17 | 25  | 14 | 16 | 29   | 35 | 62 | 73       | 172 | 178 | 186 | 153 | 207   |
| 50            | 30  | 20 | 15 | 25-0.012  | 76              | 1/2                   | 17 | 30 | 20 | 16 | 45 | 38 | 10  | 32 | 29 | 31  | 20 | 25 | 33   | 41 | 67 | 74       | 191 | 190 | 211 | 159 | 223   |
| 63            | 30  | 20 | 15 | 30-0.012  | 90              | 1/2                   | 19 | 30 | 22 | 16 | 45 | 38 | 10  | 32 | 29 | 38  | 20 | 25 | 40   | 48 | 71 | 80       | 200 | 206 | 220 | 168 | 246   |
| 80            | 40  | 28 | 20 | 40-0.012  | 115             | 3/4                   | 23 | 40 | 28 | 20 | 50 | 45 | 13  | 39 | 34 | 48  | 28 | 34 | 50   | 51 | 77 | 93       | 229 | 238 | 257 | 190 | 288   |
| 100           | 50  | 36 | 25 | 50-0.012  | 130             | 3/4                   | 30 | 50 | 35 | 22 | 50 | 45 | 13  | 54 | 50 | 58  | 36 | 44 | 62   | 57 | 82 | 101      | 257 | 261 | 293 | 203 | 323   |
| 125           | 60  | 45 | 30 | 60-0.015  | 165             | 1                     | 38 | 60 | 44 | 22 | 58 | 58 | 18  | 57 | 53 | 72  | 45 | 53 | 80   | 57 | 86 | 117      | 289 | 304 | 334 | 232 | 384   |
| 160           | 70  | 56 | 35 | 80-0.015  | 205             | 1                     | 47 | 70 | 55 | 25 | 58 | 58 | 22  | 63 | 59 | 92  | 59 | 59 | 100  | 57 | 86 | 130      | 308 | 337 | 367 | 245 | 437   |
| 200           | 80  | 70 | 40 | 100-0.020 | 245             | 1-1/4                 | 57 | 80 | 70 | 25 | 76 | 76 | 24  | 82 | 78 | 116 | 70 | 76 | 120  | 57 | 98 | 165      | 381 | 415 | 451 | 299 | 535   |

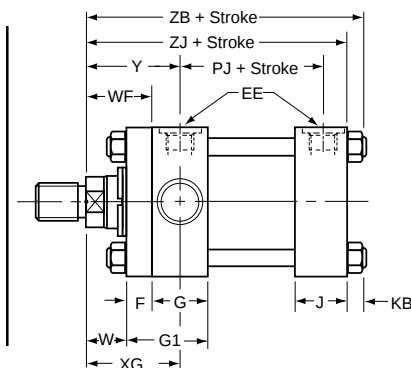
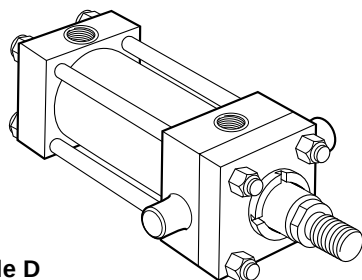
All dimensions are in millimeters unless otherwise stated.

**For additional information – call your local Parker Cylinder Distributor.**

# Parker Series HMI Metric Hydraulic Cylinders

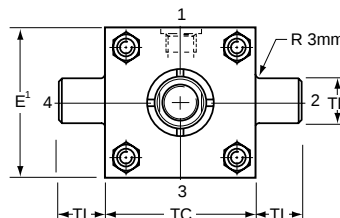
## Trunnion Mountings

**Style D**  
Head Trunnion  
(ISO Style MT1)

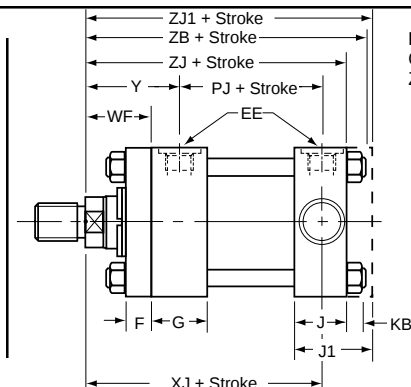
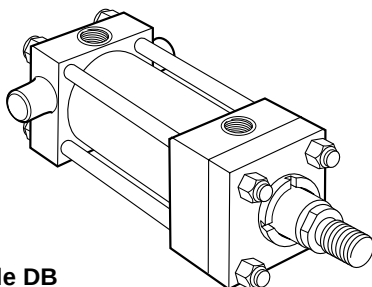


**Notes:**

A one-piece head and retainer is used on 100mm-200mm bore sizes – G1 dimension. On 160 and 200mm bores, the bolted gland is recessed, with tie rods screwed into the head.

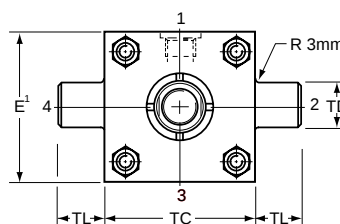


**Style DB**  
Cap Trunnion  
(ISO Style MT2)

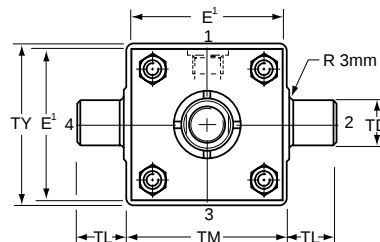
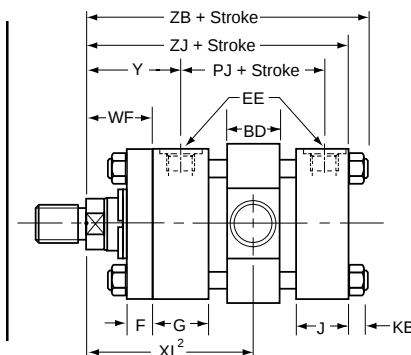
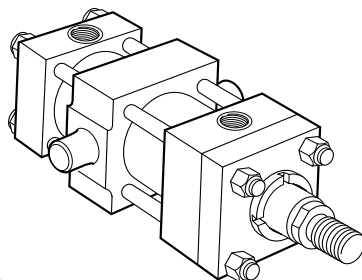


**Note:**

On 100-200mm bore cylinders, dimension J becomes J1. ZJ1 replaces ZB, and tie rods are screwed directly into the cap.



**Style DD**  
Intermediate Fixed Trunnion  
(ISO Style MT4)



<sup>1</sup>Head depth increased by 5mm to accommodate port on 25mm and 32mm bore cylinders – see page 111

<sup>2</sup>Dimensions to be specified by customer

### Dimensions – D, DB & DD See also Rod End Dimensions, page 111

| Bore<br>φ | BD  | E               | EE<br>BSP/G<br>inches | F  | G  | G1  | J  | J1  | KB  | TC  | TD<br>f8 | TL | TM  | TY  | W  | WF | XG | Y  | + Stroke |     |     |     |     | Style DD<br>min stroke | Min X<br>dim'n |
|-----------|-----|-----------------|-----------------------|----|----|-----|----|-----|-----|-----|----------|----|-----|-----|----|----|----|----|----------|-----|-----|-----|-----|------------------------|----------------|
|           |     |                 |                       |    |    |     |    |     |     |     |          |    |     |     |    |    |    |    | PJ       | XJ  | ZJ  | ZJ1 | ZB  |                        |                |
| 25        | 20  | 40 <sup>1</sup> | 1/4                   | 10 | 40 | -   | 25 | -   | 4   | 38  | 12       | 10 | 48  | 45  | -  | 25 | 44 | 50 | 53       | 101 | 114 | -   | 121 | 10                     | 78             |
| 32        | 25  | 45 <sup>1</sup> | 1/4                   | 10 | 40 | -   | 25 | -   | 5   | 44  | 16       | 12 | 55  | 54  | -  | 35 | 54 | 60 | 56       | 115 | 128 | -   | 137 | 10                     | 90             |
| 40        | 30  | 63              | 3/8                   | 10 | 45 | -   | 38 | -   | 6.5 | 63  | 20       | 16 | 76  | 76  | -  | 35 | 57 | 62 | 73       | 134 | 153 | -   | 166 | 15                     | 97             |
| 50        | 40  | 76              | 1/2                   | 16 | 45 | -   | 38 | -   | 10  | 76  | 25       | 20 | 89  | 89  | -  | 41 | 64 | 67 | 74       | 140 | 159 | -   | 176 | 15                     | 107            |
| 63        | 40  | 90              | 1/2                   | 16 | 45 | -   | 38 | -   | 10  | 89  | 32       | 25 | 100 | 95  | -  | 48 | 70 | 71 | 80       | 149 | 168 | -   | 185 | 15                     | 114            |
| 80        | 50  | 115             | 3/4                   | 20 | 50 | -   | 45 | 50  | 13  | 114 | 40       | 32 | 127 | 127 | -  | 51 | 76 | 77 | 93       | 168 | 190 | 194 | 212 | 20                     | 127            |
| 100       | 60  | 130             | 3/4                   | 22 | 50 | 72  | 45 | 58  | 13  | 127 | 50       | 40 | 140 | 140 | 35 | 57 | 71 | 82 | 101      | 187 | 203 | 216 | 225 | 20                     | 138            |
| 125       | 73  | 165             | 1                     | 22 | 58 | 80  | 58 | 71  | 18  | 165 | 63       | 50 | 178 | 178 | 35 | 57 | 75 | 86 | 117      | 209 | 232 | 245 | 260 | 25                     | 153            |
| 160       | 90  | 205             | 1                     | 25 | 58 | 88  | 58 | 88  | 22  | 203 | 80       | 63 | 215 | 216 | 32 | 57 | 75 | 86 | 130      | 230 | 245 | 275 | 279 | 30                     | 161            |
| 200       | 110 | 245             | 1-1/4                 | 25 | 76 | 108 | 76 | 108 | 24  | 241 | 100      | 80 | 279 | 280 | 32 | 57 | 85 | 98 | 165      | 276 | 299 | 330 | 336 | 30                     | 190            |

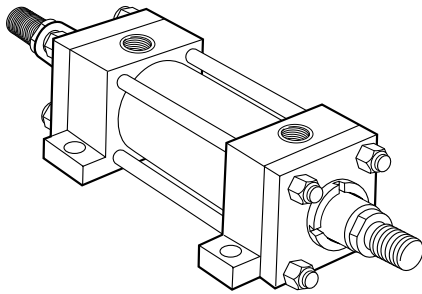
All dimensions are in millimeters unless otherwise stated.

For Cylinder Division Plant Locations – See Page II.



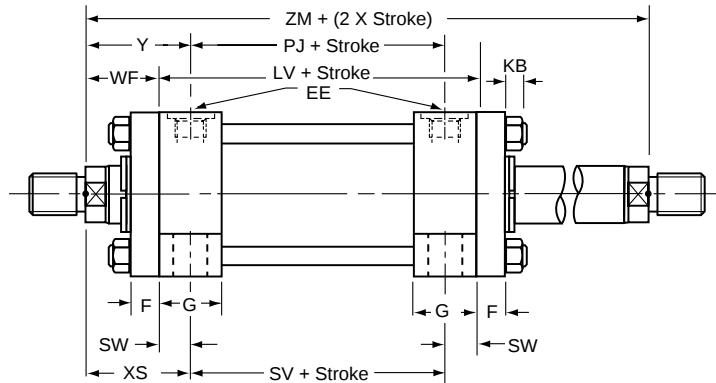
# Parker Series HMI Metric Hydraulic Cylinders

## Double Rod Cylinders



### Double Rod Cylinder

Available with Styles TB, TD, JJ, C, D, DD (Style C illustrated)



### Mounting Styles and Codes

Double rod cylinders are denoted by a 'K' in the ISO cylinder model code.

### Dimensions

To obtain dimensional information for double rod cylinders, first select the desired mounting style by referring to the corresponding single rod model. Dimensions for the appropriate single rod model should be supplemented by those from the table opposite to provide a full set of dimensions.

### Minimum Stroke Length – Style 9 Rod End

Where a style 9 (female) piston rod end is required on a double rod cylinder with a stroke of 80mm or less, and a bore of 80mm or above, please consult the factory.

### Cushioning

Double rod cylinders can be supplied with cushions at either or both ends. Cushioning requirements should be specified by inserting a 'C' in the ordering code. See cushioning section, Section C of this catalog.

### Double Rod Cylinders

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

|     |   |    |     |   |   |   |   |   |   |   |   |     |   |    |    |
|-----|---|----|-----|---|---|---|---|---|---|---|---|-----|---|----|----|
| 100 | K | JJ | HMI | R | E | 1 | 4 | M | 1 | 4 | M | 125 | M | 11 | 44 |
|-----|---|----|-----|---|---|---|---|---|---|---|---|-----|---|----|----|

| Bore<br>$\phi$ | Rod |           | Add Stroke |     |     | Add 2x Stroke |
|----------------|-----|-----------|------------|-----|-----|---------------|
|                | No. | MM $\phi$ | LV         | PJ  | SV  | ZM            |
| 25             | 1   | 12        | 104        | 53  | 88  | 154           |
|                | 2   | 18        |            |     |     |               |
| 32             | 1   | 14        | 108        | 56  | 88  | 178           |
|                | 2   | 22        |            |     |     |               |
| 40             | 1   | 18        | 125        | 73  | 105 | 195           |
|                | 2   | 28        |            |     |     |               |
| 50             | 1   | 22        | 125        | 74  | 99  | 207           |
|                | 2   | 36        |            |     |     |               |
|                | 3   | 28        |            |     |     |               |
| 63             | 1   | 28        | 127        | 80  | 93  | 223           |
|                | 2   | 45        |            |     |     |               |
|                | 3   | 36        |            |     |     |               |
| 80             | 1   | 36        | 144        | 93  | 110 | 246           |
|                | 2   | 56        |            |     |     |               |
|                | 3   | 45        |            |     |     |               |
| 100            | 1   | 45        | 151        | 101 | 107 | 265           |
|                | 2   | 70        |            |     |     |               |
|                | 3   | 56        |            |     |     |               |
| 125            | 1   | 56        | 175        | 117 | 131 | 289           |
|                | 2   | 90        |            |     |     |               |
|                | 3   | 70        |            |     |     |               |
| 160            | 1   | 70        | 188        | 130 | 130 | 302           |
|                | 2   | 110       |            |     |     |               |
|                | 3   | 90        |            |     |     |               |
| 200            | 1   | 90        | 242        | 160 | 172 | 356           |
|                | 2   | 140       |            |     |     |               |
|                | 3   | 110       |            |     |     |               |

All dimensions are in millimeters unless otherwise stated.

**For additional information – call your local Parker Cylinder Distributor.**

# Parker Series HMI Metric Hydraulic Cylinders

## Accessories

### Accessory Selection

Accessories for the rod end of a cylinder are selected by reference to the rod end thread, while the same accessories, when used at the cap end, are selected by cylinder bore size. See tables of part numbers below, and on the following pages.

The rod clevises, plain rod eyes and spherical bearings fitted as accessories to the rod end have the same pin diameters as those used at the cylinder cap ends of the corresponding mounting styles – B, BB and SB – when fitted with the No. 1 rod, or the No. 2 or No. 3 rods with Style 7 rod end.

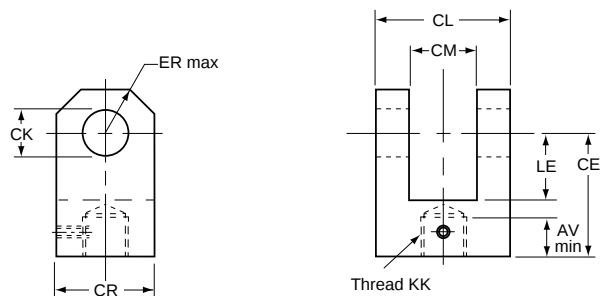
### Rod and Cap End Accessories

Accessories for the HMI ISO cylinder include:

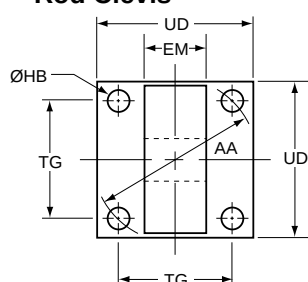
- Rod End** – rod clevis, eye bracket and pivot pin  
 – plain rod eye, clevis bracket and pivot pin  
 – rod eye with spherical bearing
- Cap End** – eye bracket for style BB mounting  
 – clevis bracket for style B mounting  
 – pivot pin for eye bracket and clevis bracket

### Rod Clevis, Eye Bracket and Pivot Pin

| Thread<br>KK | Rod<br>Clevis | Eye<br>Bracket | Pivot<br>Pin | Nominal<br>Force kN | Weight<br>kg |
|--------------|---------------|----------------|--------------|---------------------|--------------|
| M10x1.25     | 143447        | 144808         | 143477       | 8                   | 0.3          |
| M12x1.25     | 143448        | 144809         | 143478       | 12.5                | 0.6          |
| M14x1.5      | 143449        | 144810         | 143479       | 20                  | 0.8          |
| M16x1.5      | 143450        | 144811         | 143480       | 32                  | 2.2          |
| M20x1.5      | 143451        | 144812         | 143480       | 50                  | 2.7          |
| M27x2        | 143452        | 144813         | 143481       | 80                  | 5.9          |
| M33x2        | 143453        | 144814         | 143482       | 125                 | 9.4          |
| M42x2        | 143454        | 144815         | 143483       | 200                 | 17.8         |
| M48x2        | 143455        | 144816         | 143484       | 320                 | 26.8         |
| M64x3        | 143456        | 144817         | 143485       | 500                 | 39.0         |



### Rod Clevis



### Eye Bracket

All dimensions are in millimeters unless otherwise stated.

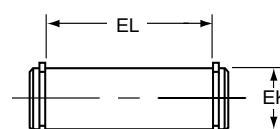
### Rod Clevis Dimensions

| Part<br>No. | AV | CE  | CK<br>H9 | CL  | CM<br>A16 | CR  | ER | KK       | LE<br>kg | Weight |
|-------------|----|-----|----------|-----|-----------|-----|----|----------|----------|--------|
| 143447      | 14 | 32  | 10       | 26  | 12        | 20  | 12 | M10x1.25 | 14       | 0.08   |
| 143448      | 16 | 36  | 12       | 34  | 16        | 32  | 17 | M12x1.25 | 19       | 0.25   |
| 143449      | 18 | 38  | 14       | 42  | 20        | 30  | 17 | M14x1.5  | 19       | 0.32   |
| 143450      | 22 | 54  | 20       | 62  | 30        | 50  | 29 | M16x1.5  | 32       | 1.0    |
| 143451      | 28 | 60  | 20       | 62  | 30        | 50  | 29 | M20x1.5  | 32       | 1.1    |
| 143452      | 36 | 75  | 28       | 83  | 40        | 60  | 34 | M27x2    | 39       | 2.3    |
| 143453      | 45 | 99  | 36       | 103 | 50        | 80  | 50 | M33x2    | 54       | 2.6    |
| 143454      | 56 | 113 | 45       | 123 | 60        | 102 | 53 | M42x2    | 57       | 5.5    |
| 143455      | 63 | 126 | 56       | 143 | 70        | 112 | 59 | M48x2    | 63       | 7.6    |
| 143456      | 85 | 168 | 70       | 163 | 80        | 146 | 78 | M64x3    | 83       | 13.0   |

### Eye Bracket Dimensions

| Part<br>No. | CK<br>H9 | EM<br>h13 | FL  | MR<br>max | LE<br>min | AA  | HB   | TG    | UD  |
|-------------|----------|-----------|-----|-----------|-----------|-----|------|-------|-----|
| 144808      | 10       | 12        | 23  | 12        | 13        | 40  | 5.5  | 28.3  | 40  |
| 144809      | 12       | 16        | 29  | 17        | 19        | 47  | 6.6  | 33.2  | 45  |
| 144810      | 14       | 20        | 29  | 17        | 19        | 59  | 9    | 41.7  | 65  |
| 144811      | 20       | 30        | 48  | 29        | 32        | 74  | 13.5 | 52.3  | 75  |
| 144812      | 20       | 30        | 48  | 29        | 32        | 91  | 13.5 | 64.3  | 90  |
| 144813      | 28       | 40        | 59  | 34        | 39        | 117 | 17.5 | 82.7  | 115 |
| 144814      | 36       | 50        | 79  | 50        | 54        | 137 | 17.5 | 96.9  | 130 |
| 144815      | 45       | 60        | 87  | 53        | 57        | 178 | 26   | 125.9 | 165 |
| 144816      | 56       | 70        | 103 | 59        | 63        | 219 | 30   | 154.9 | 205 |
| 144817      | 70       | 80        | 132 | 78        | 82        | 269 | 33   | 190.2 | 240 |

### Pivot Pin for Clevis Bracket and Plain Rod Eye – Dimensions



| Part<br>No. | EK<br>f8 | EL  | Weight<br>kg |
|-------------|----------|-----|--------------|
| 143477      | 10       | 29  | 0.02         |
| 143478      | 12       | 37  | 0.05         |
| 143479      | 14       | 45  | 0.08         |
| 143480      | 20       | 66  | 0.2          |
| 143481      | 28       | 87  | 0.4          |
| 143482      | 36       | 107 | 1.0          |
| 143483      | 45       | 129 | 1.8          |
| 143484      | 56       | 149 | 4.2          |
| 143485      | 70       | 169 | 6.0          |

### Eye Bracket – Cap End Mounting for Style BB

| Bore<br>φ | Eye Bracket | Nominal Force<br>kN | Weight<br>kg |
|-----------|-------------|---------------------|--------------|
| 25        | 144808      | 8                   | 0.2          |
| 32        | 144809      | 12.5                | 0.3          |
| 40        | 144810      | 20                  | 0.4          |
| 50        | 144811      | 32                  | 1.0          |
| 63        | 144812      | 50                  | 1.4          |
| 80        | 144813      | 80                  | 3.2          |
| 100       | 144814      | 125                 | 5.6          |
| 125       | 144815      | 200                 | 10.5         |
| 160       | 144816      | 320                 | 15.0         |
| 200       | 144817      | 500                 | 20.0         |

For Cylinder Division Plant Locations – See Page II.



# Parker Series HMI Metric Hydraulic Cylinders

## Accessories

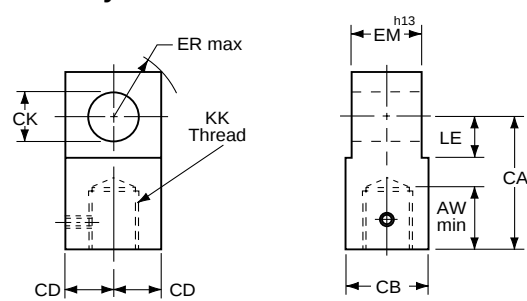
### Plain Rod Eye, Clevis Bracket and Pivot Pin

| Thread<br>KK | Plain<br>Rod Eye | Clevis<br>Bracket | Pivot Pin | Nominal<br>Force kN | Weight<br>kg |
|--------------|------------------|-------------------|-----------|---------------------|--------------|
| M10x1.25     | 143457           | 143646            | 143477    | 8                   | 0.5          |
| M12x1.25     | 143458           | 143647            | 143478    | 12.5                | 1.0          |
| M14x1.5      | 143459           | 143648            | 143479    | 20                  | 1.3          |
| M16x1.5      | 143460           | 143649            | 143480    | 32                  | 3.2          |
| M20x1.5      | 143461           | 143649            | 143480    | 50                  | 3.8          |
| M27x2        | 143462           | 143650            | 143481    | 80                  | 6.9          |
| M33x2        | 143463           | 143651            | 143482    | 125                 | 12.5         |
| M42x2        | 143464           | 143652            | 143483    | 200                 | 26.0         |
| M48x2        | 143465           | 143653            | 143484    | 320                 | 47.0         |
| M64x3        | 143466           | 143654            | 143485    | 500                 | 64.0         |

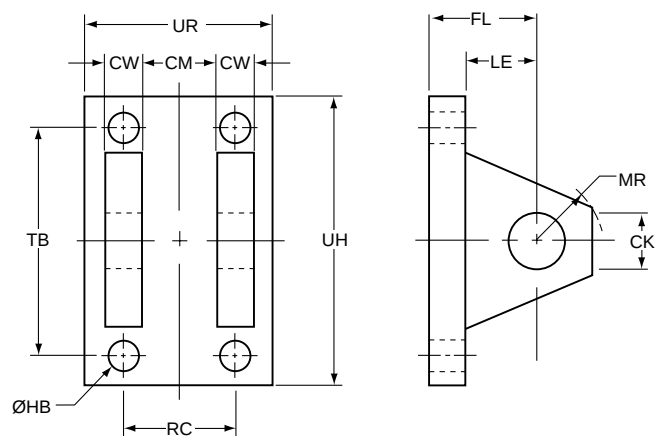
### Plain Rod Eye/Knuckle Dimensions

| Part<br>No. | AW | CA  | CB  | CD   | CK<br>H9 | EM<br>h13 | ER | KK       | LE | Weight<br>kg |
|-------------|----|-----|-----|------|----------|-----------|----|----------|----|--------------|
| 143457      | 14 | 32  | 18  | 9    | 10       | 12        | 12 | M10x1.25 | 13 | 0.08         |
| 143458      | 16 | 36  | 22  | 11   | 12       | 16        | 17 | M12x1.25 | 19 | 0.15         |
| 143459      | 18 | 38  | 20  | 12.5 | 14       | 20        | 17 | M14x1.5  | 19 | 0.22         |
| 143460      | 22 | 54  | 30  | 17.5 | 20       | 30        | 29 | M16x1.5  | 32 | 0.5          |
| 143461      | 28 | 60  | 30  | 20   | 20       | 30        | 29 | M20x1.5  | 32 | 1.1          |
| 143462      | 36 | 75  | 40  | 25   | 28       | 40        | 34 | M27x2    | 39 | 1.5          |
| 143463      | 45 | 99  | 50  | 35   | 36       | 50        | 50 | M33x2    | 54 | 2.5          |
| 143464      | 56 | 113 | 65  | 50   | 45       | 60        | 53 | M42x2    | 57 | 4.2          |
| 143465      | 63 | 126 | 90  | 56   | 56       | 70        | 59 | M48x2    | 63 | 11.8         |
| 143466      | 85 | 168 | 110 | 70   | 70       | 80        | 78 | M64x3    | 83 | 17.0         |

### Plain Rod Eye/Knuckle



### Clevis Bracket



### Clevis Bracket Dimensions

| Part<br>No. | CK<br>H9 | CM<br>A16 | CW | FL  | MR<br>max | HB   | LE<br>min | RC  | TB  | UR  | UH  |
|-------------|----------|-----------|----|-----|-----------|------|-----------|-----|-----|-----|-----|
| 143646      | 10       | 12        | 6  | 23  | 12        | 5.5  | 13        | 18  | 47  | 35  | 60  |
| 143647      | 12       | 16        | 8  | 29  | 17        | 6.6  | 19        | 24  | 57  | 45  | 70  |
| 143648      | 14       | 20        | 10 | 29  | 17        | 9    | 19        | 30  | 68  | 55  | 85  |
| 143649      | 20       | 30        | 15 | 48  | 29        | 13.5 | 32        | 45  | 102 | 80  | 125 |
| 143650      | 28       | 40        | 20 | 59  | 34        | 17.5 | 39        | 60  | 135 | 100 | 170 |
| 143651      | 36       | 50        | 25 | 79  | 50        | 17.5 | 54        | 75  | 167 | 130 | 200 |
| 143652      | 45       | 60        | 30 | 87  | 53        | 26   | 57        | 90  | 183 | 150 | 230 |
| 143653      | 56       | 70        | 35 | 103 | 59        | 30   | 63        | 105 | 242 | 180 | 300 |
| 143654      | 70       | 80        | 40 | 132 | 78        | 33   | 82        | 120 | 300 | 200 | 360 |

### Clevis Bracket – For Style B

| Bore<br>φ | Clevis Bracket | Nominal Force<br>kN | Weight<br>kg |
|-----------|----------------|---------------------|--------------|
| 25        | 143646         | 8                   | 0.4          |
| 32        | 143647         | 12.5                | 0.8          |
| 40        | 143648         | 20                  | 1.0          |
| 50        | 143649         | 32                  | 2.5          |
| 63        | 143649         | 50                  | 2.5          |
| 80        | 143650         | 80                  | 5.0          |
| 100       | 143651         | 125                 | 9.0          |
| 125       | 143652         | 200                 | 20.0         |
| 160       | 143653         | 320                 | 31.0         |
| 200       | 143654         | 500                 | 41.0         |

### Pivot Pin for Clevis Bracket and Plain Rod Eye – Dimensions



| Part<br>No. | EK<br>f8 | EL  | Weight<br>kg |
|-------------|----------|-----|--------------|
| 143477      | 10       | 29  | 0.02         |
| 143478      | 12       | 37  | 0.05         |
| 143479      | 14       | 45  | 0.08         |
| 143480      | 20       | 66  | 0.2          |
| 143481      | 28       | 87  | 0.4          |
| 143482      | 36       | 107 | 1.0          |
| 143483      | 45       | 129 | 1.8          |
| 143484      | 56       | 149 | 4.2          |
| 143485      | 70       | 169 | 6.0          |

All dimensions are in millimeters unless otherwise stated.

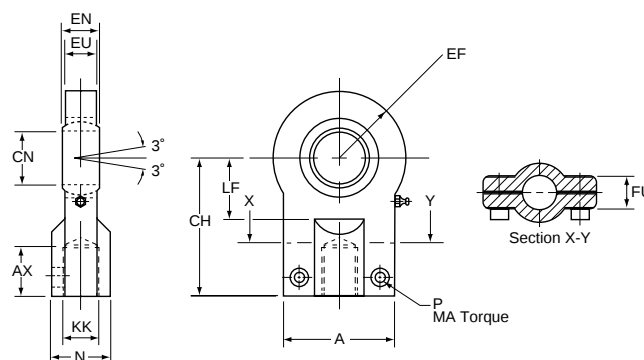
**For additional information – call your local Parker Cylinder Distributor.**

# Parker Series HMI Metric Hydraulic Cylinders

## Accessories

### Rod Eye with Spherical Bearing, Mounting Bracket and Pivot Pin

| Thread<br>KK | Rod Eye with<br>Spherical Bearing | Mounting Bracket<br>and Pivot Pin | Nominal<br>Force kN | Weight<br>kg |
|--------------|-----------------------------------|-----------------------------------|---------------------|--------------|
| M10x1.25     | 145254                            | 145530                            | 8                   | 0.2          |
| M12x1.25     | 145255                            | 145531                            | 12.5                | 0.3          |
| M14x1.5      | 145256                            | 145532                            | 20                  | 0.4          |
| M16x1.5      | 145257                            | 145533                            | 32                  | 0.7          |
| M20x1.5      | 145258                            | 145534                            | 50                  | 1.3          |
| M27x2        | 145259                            | 145535                            | 80                  | 2.3          |
| M33x2        | 145260                            | 145536                            | 125                 | 4.4          |
| M42x2        | 145261                            | 145537                            | 200                 | 8.4          |
| M48x2        | 145262                            | 145538                            | 320                 | 15.6         |
| M64x3        | 145263                            | 145539                            | 500                 | 28.0         |



### Rod Eye with Spherical Bearing

All spherical bearings should be re-packed with grease when servicing. In unusual or severe working conditions, consult the factory regarding the suitability of the bearing chosen.

### Rod Eye with Spherical Bearing Dimensions

| Part No. | A max | AX min | EF max | CH  | CN         | EN        | EU | FU | KK       | LF min | N max | MA max Nm | P   |
|----------|-------|--------|--------|-----|------------|-----------|----|----|----------|--------|-------|-----------|-----|
| 145254   | 40    | 15     | 20     | 42  | 12 -0.008  | 10 -0.012 | 8  | 13 | M10x1.25 | 16     | 17    | 10        | M6  |
| 145255   | 45    | 17     | 22.5   | 48  | 16 -0.008  | 14 -0.012 | 11 | 13 | M12x1.25 | 20     | 21    | 10        | M6  |
| 145256   | 55    | 19     | 27.5   | 58  | 20 -0.012  | 16 -0.012 | 13 | 17 | M14x1.5  | 25     | 25    | 25        | M8  |
| 145257   | 62    | 23     | 32.5   | 68  | 25 -0.012  | 20 -0.012 | 17 | 17 | M16x1.5  | 30     | 30    | 25        | M8  |
| 145258   | 80    | 29     | 40     | 85  | 30 -0.012  | 22 -0.012 | 19 | 19 | M20x1.5  | 35     | 36    | 45        | M10 |
| 145259   | 90    | 37     | 50     | 105 | 40 -0.012  | 28 -0.012 | 23 | 23 | M27x2    | 45     | 45    | 45        | M10 |
| 145260   | 105   | 46     | 62.5   | 130 | 50 -0.012  | 35 -0.012 | 30 | 30 | M33x2    | 58     | 55    | 80        | M12 |
| 145261   | 134   | 57     | 80     | 150 | 60 -0.015  | 44 -0.015 | 38 | 38 | M42x2    | 68     | 68    | 160       | M16 |
| 145262   | 156   | 64     | 102.5  | 185 | 80 -0.015  | 55 -0.015 | 47 | 47 | M48x2    | 92     | 90    | 310       | M20 |
| 145263   | 190   | 86     | 120    | 240 | 100 -0.020 | 70 -0.020 | 57 | 57 | M64x3    | 116    | 110   | 530       | M24 |

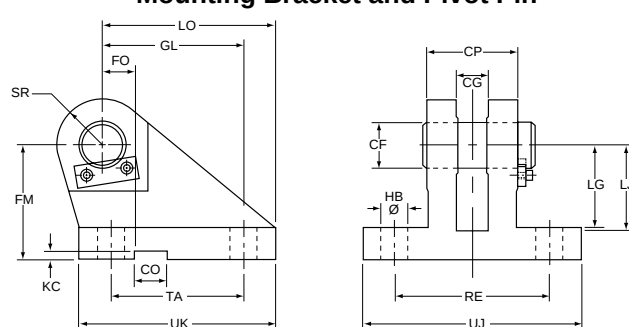
### Mounting Bracket and Pivot Pin Dimensions - For Style SB

| Part No. | CF<br>K7/h6 | CG<br>+0.1, +0.3 | CO<br>N9 | CP  | FM<br>js11 | FO<br>js14 | GL<br>js13 | HB | KC<br>0, +0.30 | LG  | LJ  | LO  | RE<br>js13 | SR<br>max | TA<br>js13 | UJ  | UK  |
|----------|-------------|------------------|----------|-----|------------|------------|------------|----|----------------|-----|-----|-----|------------|-----------|------------|-----|-----|
| 145530   | 12          | 10               | 10       | 30  | 40         | 16         | 46         | 9  | 3.3            | 28  | 29  | 56  | 55         | 12        | 40         | 75  | 60  |
| 145531   | 16          | 14               | 16       | 40  | 50         | 18         | 61         | 11 | 4.3            | 37  | 38  | 74  | 70         | 16        | 55         | 95  | 80  |
| 145532   | 20          | 16               | 16       | 50  | 55         | 20         | 64         | 14 | 4.3            | 39  | 40  | 80  | 85         | 20        | 58         | 120 | 90  |
| 145533   | 25          | 20               | 25       | 60  | 65         | 22         | 78         | 16 | 5.4            | 48  | 49  | 98  | 100        | 25        | 70         | 140 | 110 |
| 145534   | 30          | 22               | 25       | 70  | 85         | 24         | 97         | 18 | 5.4            | 62  | 63  | 120 | 115        | 30        | 90         | 160 | 135 |
| 145535   | 40          | 28               | 36       | 80  | 100        | 24         | 123        | 22 | 8.4            | 72  | 73  | 148 | 135        | 40        | 120        | 190 | 170 |
| 145536   | 50          | 35               | 36       | 100 | 125        | 35         | 155        | 30 | 8.4            | 90  | 92  | 190 | 170        | 50        | 145        | 240 | 215 |
| 145537   | 60          | 44               | 50       | 120 | 150        | 35         | 187        | 39 | 11.4           | 108 | 110 | 225 | 200        | 60        | 185        | 270 | 260 |
| 145538   | 80          | 55               | 50       | 160 | 190        | 35         | 255        | 45 | 11.4           | 140 | 142 | 295 | 240        | 80        | 260        | 320 | 340 |
| 145539   | 100         | 70               | 63       | 200 | 210        | 35         | 285        | 48 | 12.4           | 150 | 152 | 335 | 300        | 100       | 300        | 400 | 400 |

### Cap Mounting Bracket and Pivot Pin

| Bore<br>φ | Mounting Bracket<br>and Pivot Pin | Nominal Force<br>kN | Weight<br>kg |
|-----------|-----------------------------------|---------------------|--------------|
| 25        | 145530                            | 8                   | 0.6          |
| 32        | 145531                            | 12.5                | 1.3          |
| 40        | 145532                            | 20                  | 2.1          |
| 50        | 145533                            | 32                  | 3.2          |
| 63        | 145534                            | 50                  | 6.5          |
| 80        | 145535                            | 80                  | 12.0         |
| 100       | 145536                            | 125                 | 23.0         |
| 125       | 145537                            | 200                 | 37.0         |
| 160       | 145538                            | 320                 | 79.0         |
| 200       | 145539                            | 500                 | 140.0        |

### Mounting Bracket and Pivot Pin



All dimensions are in millimeters unless otherwise stated.

For Cylinder Division Plant Locations – See Page II.



## How to Order ISO Cylinders

### Data Required On All Cylinder Orders

When ordering Series HMI 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.)

**a) Bore Size**

**b) Mounting Style**

Specify your choice of mounting style – as shown and dimensioned in this catalog. If double rod is required, specify “with double rod.”

**c) Series Designation (“HMI”)**

**d) Length of Stroke**

**e) Piston Rod Diameter**

Call out rod diameter or rod code number. In Series HMI cylinders, standard rod diameters (Code No. 1) will be furnished if not otherwise specified, unless length of stroke makes the application questionable.

**f) Piston Rod End Thread Style**

Call out thread style number or specify dimensions. Thread style number 4 will be furnished if not otherwise specified.

**g) 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.

**h) Piston**

Parker B style pistons are standard. Fluorocarbon also available.

**i) Ports**

BSP (ISO 228) are standard.

**j) Fluid Medium**

Series HMI hydraulic cylinders are equipped with seals for use with hydraulic oil. If other than hydraulic oil will be used, consult factory.

**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 to Service Department at your nearest regional plant listed in the pages of this catalog.

### 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.

**For additional information – call your local Parker Cylinder Distributor.**

# Parker Series HMI Metric Hydraulic Cylinders

Model Numbers

## Series HMI Model Numbers – How to Develop and “Decode” Them

Parker Series HMI cylinders can be completely and accurately described by a model number consisting of coded symbols. 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 | Symbol | Example |   |   |   |   |     |   |   |   |   |   |   |   |     |
|--------------------------------|------------------------------------------------------------------------------------------|------|--------|---------|---|---|---|---|-----|---|---|---|---|---|---|---|-----|
|                                |                                                                                          |      |        | 80      | C | K | C | P | HMI | R | B | S | 1 | 4 | M | C | 230 |
| Bore                           | Millimeters                                                                              |      | —      | ●       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
| Cushion – Head                 | If required                                                                              | C111 | C      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
| Double Rod                     | If required                                                                              | 116  | K      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
| Mounting Style                 | Head Tie Rods Extended                                                                   | 112  | TB     | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | Cap Tie Rods Extended                                                                    | 112  | TC     | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | Both Ends Tie Rods Extended                                                              | 112  | TD     | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | Head Rectangular Flange                                                                  | 113  | JJ     | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | Cap Rectangular Flange                                                                   | 113  | HH     | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | Side Lugs                                                                                | 113  | C      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | Cap Fixed Eye                                                                            | 114  | B      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | Cap Fixed Clevis                                                                         | 114  | BB     | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | Cap Fixed Eye with Spherical Bearing*                                                    | 114  | SB*    | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | Head Trunnion                                                                            | 115  | D      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | Cap Trunnion                                                                             | 115  | DB     | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | Intermediate Fixed Trunnion‡                                                             | 115  | DD     | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
| Mounting Modifications         | Thrust Key for Style C mounting only                                                     | C106 | P      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
| Series                         | Series name                                                                              |      | HMI    | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
| Ports                          | BSP (ISO 228) – standard                                                                 | C115 | R      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | BSPT (Taper Thread)                                                                      | C115 | B      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | Metric Thread                                                                            | C115 | G      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | Metric Thread per ISO 6149                                                               | C115 | Y      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | SAE – Straight Thread O-ring Port                                                        | C115 | T      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | NPTF (Dry Seal Pipe Thread)                                                              | C115 | U      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | SAE – Flange Ports (3000 PSI)                                                            | C115 | P      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
| Piston                         | B-Style Low Friction filled PTFE seals (standard)                                        | 108  | B      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
| Special Features               | One or more of the following:                                                            |      | S      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | Gland Drain Port                                                                         | C117 |        | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | Oversize Ports                                                                           | C114 |        | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | Rod End Bellows                                                                          | C117 |        | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | Stop Tube                                                                                | C109 |        | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | Stroke Adjuster                                                                          | C117 |        | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | Tie Rod Supports                                                                         | C107 |        | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | Water Service Modifications Or to detailed descriptions or drawings supplied by customer | C116 |        | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
| Piston Rod Number              | Rod No. 1                                                                                | 111  | 1      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | Rod No. 2                                                                                | 111  | 2      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | Rod No. 3                                                                                | 111  | 3      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
| Piston Rod End                 | Style 4                                                                                  | 111  | 4      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | Style 7                                                                                  | 111  | 7      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | Style 9                                                                                  | 111  | 9      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | Style 3 (Special) Please supply description or drawing                                   | 111  | 3      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
| Rod Thread                     | Metric (standard)                                                                        | 111  | M      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
| Cushion – Cap                  | If required                                                                              | C111 | C      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
| Gross Stroke                   | Millimeters                                                                              |      | -      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
| Fluid Medium ISO 6743/4 (1982) | Mineral Oil HH, HL, HLP, HLP-D, HM, HV, MIL-H-5606 Oil, Air, Nitrogen – Group 1          | C116 | M      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | Fluorocarbon – Group 5                                                                   | C116 | D      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
| Port Positions                 | Head position 1-4                                                                        | C114 | 1      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | Cap position 1-4                                                                         | C114 | 1      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
| Air Bleeds                     | Head position 1-4                                                                        | C114 | 4      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | Cap position 1-4                                                                         | C114 | 4      | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |
|                                | No Air Bleed                                                                             | C114 | 00     | ○       | ○ | ○ | ○ | ○ | ○   | ○ | ○ | ○ | ○ | ○ | ○ | ○ | ○   |

\*Mounting Style SB is also known as Parker Style SBd in Parker's European model code system. ‡Specify XI dimension.

For Cylinder Division Plant Locations – See Page II.

