

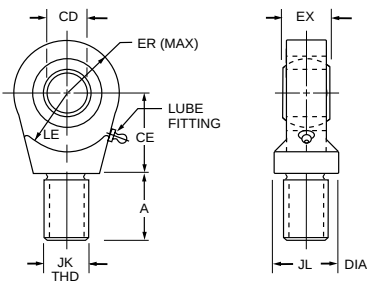
Series 2A Heavy Duty Air Cylinders

Cylinder Accessories Spherical Bearing Mounting Style SB

Parker offers a complete range of Cylinder Accessories to assure you of the greatest versatility in present or future cylinder applications. Accessories offered for the respective

cylinder include the Rod Eye, Pivot Pin and Clevis Bracket. To select the proper part number for any desired accessory refer to the charts below.

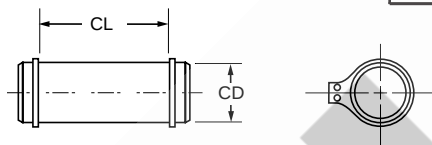
Spherical Rod Eye



Order to fit Piston Rod Thread Size.

Bore Sizes	Series 2A	1 1/2, 2 & 2 1/2	3 1/4, 4 & 5	6 & 8	10	12	14
Rod Eye	Part No.	132290	132291	132292	132293	132294	132295
CD		.5000 ^{-.0005}	.7500 ^{-.0005}	1.0000 ^{-.0005}	1.3750 ^{-.0005}	1.7500 ^{-.0005}	2.0000 ^{-.0005}
A		1 11/16	1	1 1/2	2	2 1/8	2 7/8
CE		7/8	1 1/4	1 7/8	2 1/8	2 1/2	2 3/4
EX		7/16	2 1/32	7/8	1 3/16	1 17/32	1 3/4
ER		1 3/16	1 1/8	1 1/4	1 11/16	2 1/16	2 1/2
LE		3/4	1 1/16	1 7/16	1 7/8	2 1/8	2 1/2
JK		7/16-20	3/4-16	1-14	1 1/4-12	1 1/2-12	1 7/8-12
JL		7/8	1 5/16	1 1/2	2	2 1/4	2 3/4
LOAD CAPACITY LBS.		2644	9441	16860	28562	43005	70193

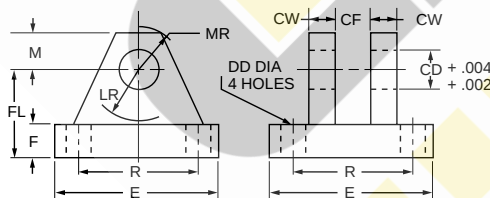
Pivot Pin



Pivot Pins are furnished with (2) Retainer Rings.

Bore Sizes	Series 2A	1 1/2, 2 & 2 1/2	3 1/4, 4 & 5	6 & 8	10	12	14
Pivot Pin	Part No.	83962	83963	83964	83965	83966	83967
CD		.4997 ^{-.0004}	.7497 ^{-.0005}	.9997 ^{-.0005}	1.3746 ^{-.0006}	1.7496 ^{-.0006}	1.9996 ^{-.0007}
CL		1 9/16	2 1/32	2 1/2	3 5/16	4 7/32	4 15/16
LOAD CAPACITY LBS.		8600	19300	34300	65000	105200	137400

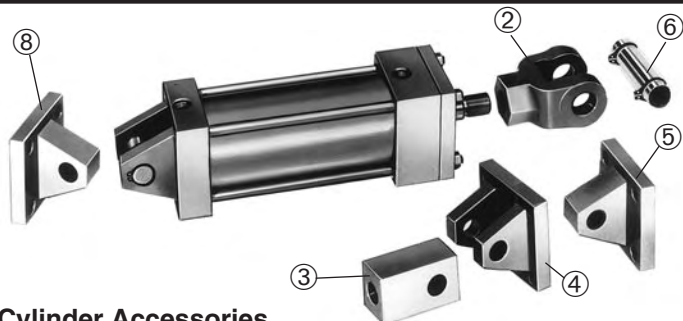
Clevis Bracket



Order to fit Mounting Plate or Rod Eye.

Bore Sizes	Series 2A	1 1/2, 2 & 2 1/2	3 1/4, 4 & 5	6 & 8	10	12	14
Clevis Bracket	Part No.	83947	83948	83949	83950	83951	83952
CD		1 1/2	3/4	1	1 3/8	1 3/4	2
CF		7/16	2 1/32	7/8	1 3/16	1 17/32	1 3/4
CW		1/2	5/8	3/4	1	1 1/4	1 1/2
DD		1 3/32	1 7/32	1 7/32	2 1/32	2 9/32	2 9/32
E		3	3 3/4	5 1/2	6 1/2	8 1/2	10 5/8
F		1 1/2	5/8	3/4	7/8	1 1/4	1 1/2
FL		1 1/2	2	2 1/2	3 1/2	4 1/2	5
LR		1 5/16	1 3/8	1 11/16	2 7/16	2 7/8	3 5/16
M		1 1/2	7/8	1	1 3/8	1 3/4	2
MR		5/8	1	1 3/16	1 5/8	2 1/16	2 3/8
R		2.05	2.76	4.10	4.95	6.58	7.92
LOAD CAPACITY LBS.		5770	9450	14300	20322	37800	50375

For Cylinder Division Plant Locations – See Page II.



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	134757 0031
⁷ / ₁₆ -20	50940	69195	68368	69089	69205	68368	134757 0044
¹ / ₂ -20	50941	69195	68368	69090	69205	68368	134757 0050
³ / ₄ -16	50942	69196	68369	69091	69206 [†]	68369	134757 0075
³ / ₄ -16	133284	69196	68369	69091	69206	68369	134757 0075
⁷ / ₈ -14	50943	*85361	68370	69092	69207	68370	134757 0088
1-14	50944	*85361	68370	69093	69207	68370	134757 0100
1-14	133285	*85361	68370	69093	69207	68370	134757 0100
1 ¹ / ₄ -12	50945	69198	68371	69094	69208	68371	134757 0125
1 ¹ / ₄ -12	133286	69198	68371	69094	69208	68371	134757 0125
1 ¹ / ₂ -12	50946	*85362	68372	69095	69209	68372	133739 0150
1 ³ / ₄ -12	50947	*85363	68373	69096	69210	69215	133739 0175
1 ⁷ / ₈ -12	50948	*85363	68373	69097	69210	69215	133739 0188
2 ¹ / ₄ -12	50949	*85364	68374	69098	69211	68374	Consult Factory
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	

[†]For alignment coupler dimensions, see Section C.

*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.

NOTE: For economical accessory selection, it is recommended that rod end style 4 be specified on your cylinder order.

Accessory Load Capacity

The various accessories on Pages 48 and 49 have been load rated for your convenience. The load capacity in lbs. shown on page 49, 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.

Mounting Plates

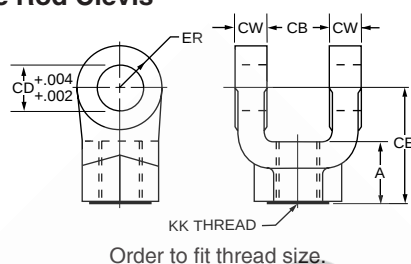
Mounting Plates for Style BB and Style BC (Clevis mounted) cylinders are offered. To select proper part number for your application, refer to Chart B, above right.

Chart B

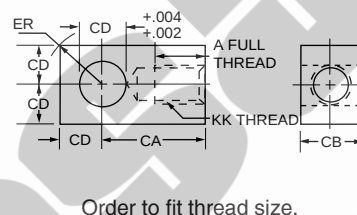
Mtg. Plate	Series 2A
Part No.	Bore Size
74076 [‡]	1"
69195	1 ¹ / ₂ ", 2", 2 ¹ / ₂ "
69196	3 ¹ / ₄ ", 4", 5"
*85361	6", 7", 8"
69198	10"
*85362	12"
*85363	14"

[‡]Mounting plate for 1" bore single lug BC & BB cylinder mounting style is Clevis Bracket P/N 74076.

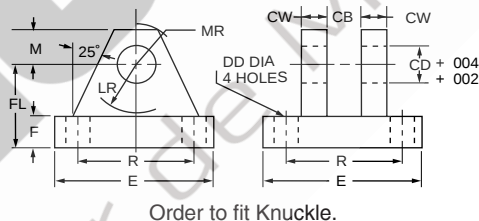
② Female Rod Clevis



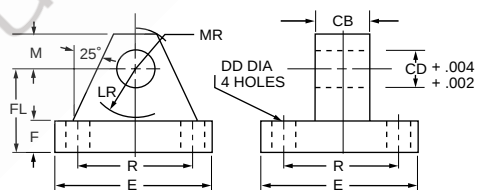
③ Knuckle (Female Rod Eye)



④ Clevis Bracket for Knuckle

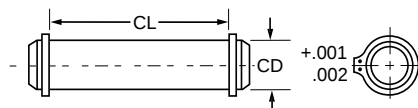


⑧ Mounting Plate or ⑤ Eye Bracket



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

⑥ Pivot Pin



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

For additional information – call your local Parker Cylinder Distributor.

Series 2A Heavy Duty Air Cylinders

Cylinder Accessories

	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	1 7/8	2	2 1/4	3	3	3 1/2	3 1/2	3 1/2	3 1/2‡	4‡	4‡
CB	1 1/32	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 5/16	2 5/16	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 3/16	8 3/16
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	5/16-24	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 ¹ / ₂	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 ¹ / 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	$\frac{15}{32}$	$\frac{3}{4}$	$\frac{1}{4}$	$\frac{1}{2}$	2	$\frac{2}{2}$	$\frac{2}{2}$	3	3	$\frac{3}{2}$	4	$\frac{4}{2}$	5
CD	$\frac{7}{16}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$\frac{1}{8}$	$\frac{1}{4}$	2	$\frac{2}{2}$	3	3	$\frac{3}{2}$	4	4
CW	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	1	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	$\frac{1}{2}$	2	2	2
DD	$\frac{17}{64}$	$\frac{13}{32}$	$\frac{17}{32}$	$\frac{21}{32}$	$\frac{21}{32}$	$\frac{29}{32}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{13/16}$	$\frac{2}{16}$	$\frac{2}{16}$
E	$\frac{2}{4}$	$\frac{3}{2}$	5	$\frac{6}{2}$	$\frac{7}{2}$	$\frac{9}{2}$	$\frac{12}{4}$	$\frac{12}{4}$	$\frac{12}{4}$	$\frac{12}{4}$	$\frac{15}{2}$	$\frac{17}{2}$	$\frac{17}{2}$
F	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{7}{8}$	$\frac{7}{8}$	1	1	1	1	$\frac{11}{16}$	$\frac{15}{16}$	$\frac{15}{16}$
FL	1	$\frac{1}{2}$	$\frac{1}{8}$	$\frac{2}{4}$	3	$\frac{3}{8}$	$\frac{4}{4}$	$\frac{4}{2}$	6	6	$\frac{6}{11/16}$	$\frac{7}{11/16}$	$\frac{7}{11/16}$
LR	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{1}{16}$	$\frac{1}{2}$	2	$\frac{2}{4}$	$\frac{3}{16}$	$\frac{3}{2}$	$\frac{4}{4}$	$\frac{4}{4}$	5	$\frac{5}{4}$	$\frac{5}{4}$
M	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$\frac{1}{8}$	$\frac{1}{4}$	$\frac{2}{4}$	$\frac{2}{2}$	3	3	$\frac{3}{2}$	4	4
MR	$\frac{1}{2}$	$\frac{5}{8}$	$\frac{29}{32}$	$\frac{1}{4}$	$\frac{1}{21/32}$	$\frac{2}{7/32}$	$\frac{2}{25/32}$	$\frac{3}{8}$	$\frac{3}{9/32}$	$\frac{3}{9/32}$	$\frac{4}{8}$	$\frac{4}{7/8}$	$\frac{4}{7/8}$
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	$\frac{5}{16}$	$\frac{3}{4}$	$\frac{1}{4}$	$\frac{1}{2}$	2	$\frac{2}{2}$	$\frac{2}{2}$	3	3	4	$\frac{4}{2}$
CD	$\frac{5}{16}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$\frac{1}{8}$	$\frac{1}{4}$	2	$\frac{2}{2}$	3	$\frac{3}{2}$	4
DD	$\frac{17}{64}$	$\frac{13}{32}$	$\frac{17}{32}$	$\frac{21}{32}$	$\frac{21}{32}$	$\frac{29}{32}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{16}$	$\frac{1}{13/16}$	$\frac{2}{16}$
E	$\frac{2}{4}$	$\frac{2}{2}$	$\frac{3}{2}$	$\frac{4}{2}$	5	$\frac{6}{2}$	$\frac{7}{2}$	$\frac{8}{2}$	$\frac{9}{2}$	$\frac{12}{8}$	$\frac{14}{8}$
F	$\frac{3}{8}$	$\frac{3}{8}$	$\frac{5}{8}$	$\frac{7}{8}$	$\frac{7}{8}$	$\frac{1}{8}$	$\frac{1}{2}$	$\frac{1}{4}$	2	$\frac{11}{16}$	$\frac{15}{16}$
FL	1	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{2}{8}$	3	$\frac{3}{8}$	4	$\frac{4}{4}$	$\frac{5}{4}$	$\frac{5}{11/16}$	$\frac{6}{16}$
LR	$\frac{5}{8}$	$\frac{3}{4}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{2}{8}$	$\frac{2}{4}$	$\frac{2}{2}$	3	$\frac{3}{4}$	4	$\frac{4}{2}$
M	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	1	$\frac{1}{8}$	$\frac{1}{4}$	2	$\frac{2}{2}$	$\frac{2}{4}$	$\frac{3}{2}$	4
MR	$\frac{1}{2}$	$\frac{9}{16}$	$\frac{7}{8}$	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{2}{8}$	$\frac{2}{16}$	3	$\frac{3}{4}$	$\frac{4}{8}$	$\frac{5}{4}$
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 / ₈	¹ / ₄	2	2	² / ₂	3	3	³ / ₂	4	4
CL	¹ / ₅ ¹⁶	¹ / ₇ ⁸	² / ₇ ⁸	³ / ₇ ⁸	⁴ / ₇ ⁸	⁵ / ₃ ¹⁶	⁵ / ₁₆ ¹⁶	⁵ / ₁₁ ¹⁶	⁶ / ₃ ¹⁶	⁶ / ₄ ¹⁶	⁶ / ₄ ¹⁶	⁸ / ₄ ¹⁶	⁸ / ₈ ¹⁶	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 page 48.

*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.



Series 2A Heavy Duty Air Cylinders

How to Order

How to Order Series “2A” Cylinders

When ordering Series 2A cylinders, please review the following:

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.

Piston Rods: Specify rod code number based on diameter. Give thread style number for a standard thread or specify dimensions. See “Style 3 Rod End” below.

Cushions: If cushions are required specify according to the model number on the next page. If the 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.

Special Modifications: Additional information is required on orders for cylinders with special modifications. This is best handled with descriptive notes. For further information, consult factory.

Fluid Medium: Series 2A hydraulic cylinders are equipped with seals for use with lubricated air.

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 or operating limitations of all components, see section C.

For the 2A series cylinders the following make-up Class 1 Seals:
Primary Piston Rod Seal – Nitrile with PTFE back-up washers

Piston Rod Wiper – Nitrile
Piston Seals – Nitrile with polymyte back-up washers
O-Rings – Nitrile

Combination Mountings

Single Rod End The first mounting is the one called out on the head end of the cylinder. The second or subsequent mountings are called out as they appear in the assembly moving away from the rod end. Exception: When tie rod mountings are part of a combination, the model number should contain an “S” (Special) in the model code and a note in the body of the order clarifying the mounting arrangement. The “P” is used to define a thrust key and is not considered to be a mounting. However, it is located at the primary end.

Example: 4.00 CCBB2ALTS14AC x 10.000

Combination “C” mounting head only. “BB” mounting cap end
This cylinder is also cushioned at both ends.

Double Rod End In general, the model number is read left to right corresponding to the cylinder as viewed from left to right with the

primary end at rod end #1. See Double Rod Models information page in this section. For this option the piston rod number, piston rod end, and piston rod threads are to be specified for both ends. The simplest are for symmetric cylinders such as: TD, C, E, F, G, and CB mounts. All other mounting styles, the description of the first rod end will be at the mounting end. In the case of multiple mounts, the description of the first rod end will be at the primary mounting end. For “DD” mounts, the description of the first rod end will be the same location as the “XI” dimension.

Example: 4.00 KDD2ALT24A/18A x 10.000 XI=8

This is a center trunnion mounting cylinder with the XI dimension measured from the code 2 rod side of the cylinder which has the style 4 thread. The opposite end code 1 rod with the style 8 thread.

Style 3 Rod End

A style 3 rod end indicates a special rod end configuration. All special piston rod dimensions must have **all three**: KK; A; W/WF or LA/LAF specified with the rod fully retracted. A sketch or drawing should be submitted for rod ends requiring special machining such as snap ring grooves, keyways, tapers, multiple diameters, etc. It is good design practice to have this machining done on a diameter at least 0.065 inches smaller than the piston rod diameter. This allows the piston rod to have a chamfer preventing rod seal damage during assembly or

maintenance. Standard style 55 rod ends with a longer than standard WG dimension should call out a style 3 rod end and the note: **same as 55 except WG=**____. A drawing should be submitted for special 55 rod ends that have specific tolerances or special radii. Special rod ends that have smaller than standard male threads, larger than standard female threads, or style 55 rod ends with smaller than standard AF or AE dimensions are to be reviewed by Engineering for proper strength at operating pressure.

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 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.

Series 2A

Heavy Duty Air Cylinders

Model Numbers

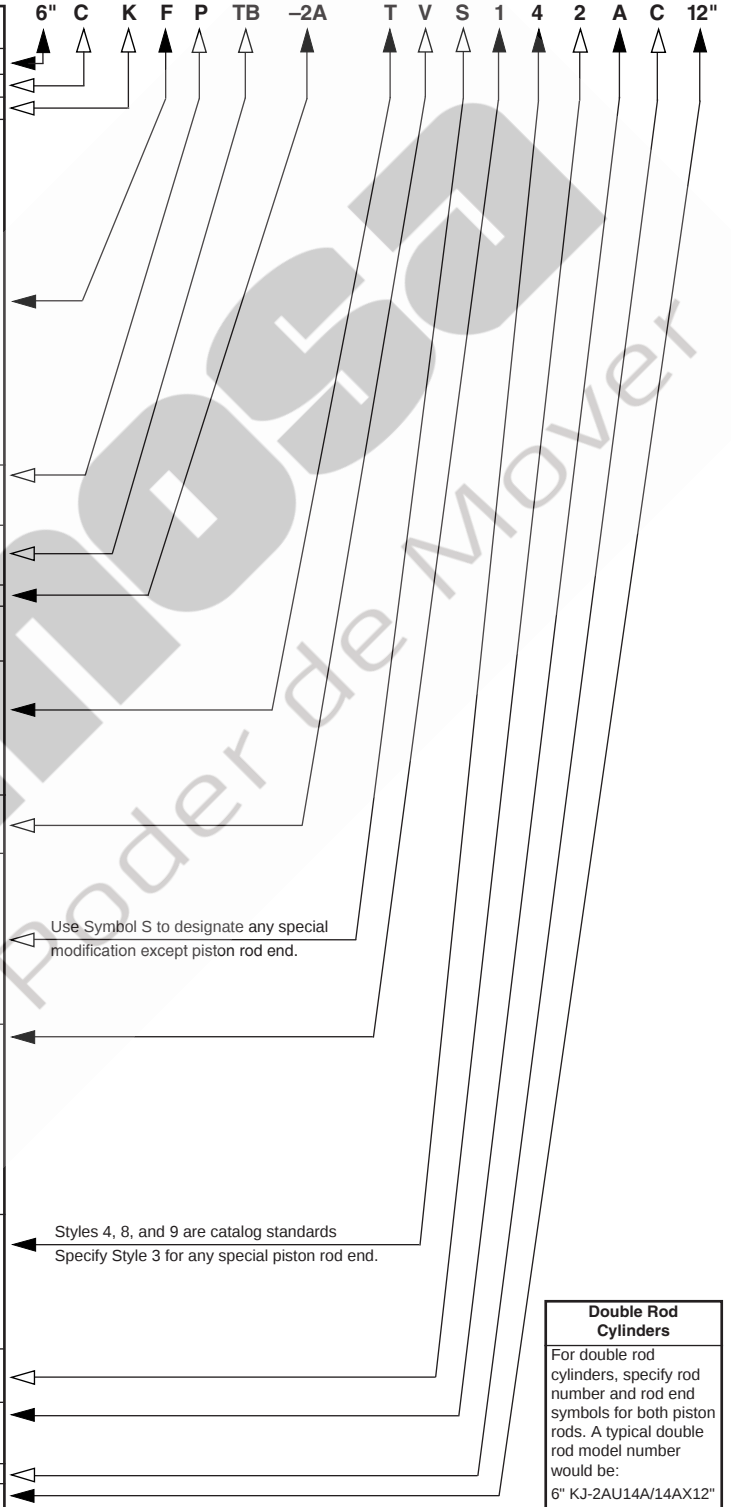
Series 2A Model Numbers – How to Develop Them – How to “Decode” Them

Parker Series 2A 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 No.	Symbol
Bore*	Specify in inches	—	—
Cushion-Head	Used only if cushion required	C101-103	C
Double-Rod	Used only if double-rod cylinder is required	A46	K
Mounting* Style	Head Tie Rods Extended	20 & 34	TB
	Cap Tie Rods Extended	20 & 34	TC
	Both End Tie Rods Extended	20 & 34	TD
	Head Rectangular Flange	20	J
	Cap Rectangular Flange	20	H
	Head Square Flange	22 & 34	JB
	Cap Square Flange	22 & 34	HB
	Side Lugs	24 & 36	C
	Centerline Lugs	24 & 36	E
	Side Tapped	24 & 38	F
	Side End Angles	26 & 40	CB
	Side End Lugs	26 & 38	G
	Cap Fixed Clevis	30 & 40	BB
	Head Trunnion	28 & 42	D
	Cap Trunnion	28 & 42	DB
	Intermediate Fixed Trunnion ‡	28 & 42	DD
	Cap Detachable Clevis	30	BC
	Spherical Bearing	44 & 45	SB
Mounting Modifications	Thrust Key (Styles C,F,G, & CB only)	C93	P
	Manifold Port O-Ring Seal (Style C only)	C89-91	M
	Removable Trunnions	C88	R
Combination Mounting Style	Any Practical Mounting Style	—	As listed above
	Listed Above	—	—
	—	—	—
Series*	Used in all 2A Model Numbers	—	-2A
Piston	Lipseal™ Piston standard. No need for symbol in model number.	—	—
	Piston Bumper Seals	C20	4
Ports*	NPTF (Dry Seal Pipe Thread) is standard.	C89-91	U
	Used only for SAE Straight Thread O-Ring Port	C89-91	T
	Used only for BSP (Parallel Thread SO 228)	C89-91	R
	Used only for BSPT (Taper Thread ISO 7-Rc)	C89-91	B
	Used only for Metric Thread	C89-91	G
	Used only for Metric Thread per SO 6149	C89-91	Y
Common Modifications	Nut Retained Piston	A19	F
	Fluorocarbon Seals	C83	V
	Water Service	C83	W
Special Modifications	Used only if special Modifications are required:	C89-91	S
	Oversize Ports	C89-91	
	Port Position Change	C104	
	Rod End Bellows	C83	
	Special Seals	C95	
	Stop Tube†	C93	
	Stroke Adjuster	C93	
	Tie Rod Supports	C93	
	Water Service Modification	C83	
Piston Rod* Number	For Single Rod Cylinders, select one only. Refer to Rod number listing, Table 2, Pages 20 through 43. Note: Check chart in Section C, page 96 for minimum piston rod diameter	—	1
	—	—	2
	—	—	3
	—	—	4
	—	—	5
	—	—	6
	—	—	7
	—	—	8
	—	—	9
	—	—	0
Piston* Rod End	Select:	C92	4
	Style 4 Small Male	A44, 45	7
	Style 7 Female Thread for Spherical Rod Eye	C92	8
	Style 8 Intermediate Male	C92	9
	Style 9 Short Female	C19	55
	Style 55 Rod End for Flange Coupling	C92	3
Piston Rod Alternate Thread	Used only for stud two times longer than standard.	C92	2
	—	—	—
Piston Rod* Threads	UNF Standard	C92	A
	BSF (British Fine)	C92	W
	Metric	C101-C103	M
Cushion-Cap	Used only if cushion required	C93	C
Stroke*†	Specify in inches	—	—



*Required for Basic Cylinder Model Number

Dark Arrows Indicate Basic Minimum Model Number

‡Specify XI dimension

†In case of Stop Tube, call out gross stroke length.

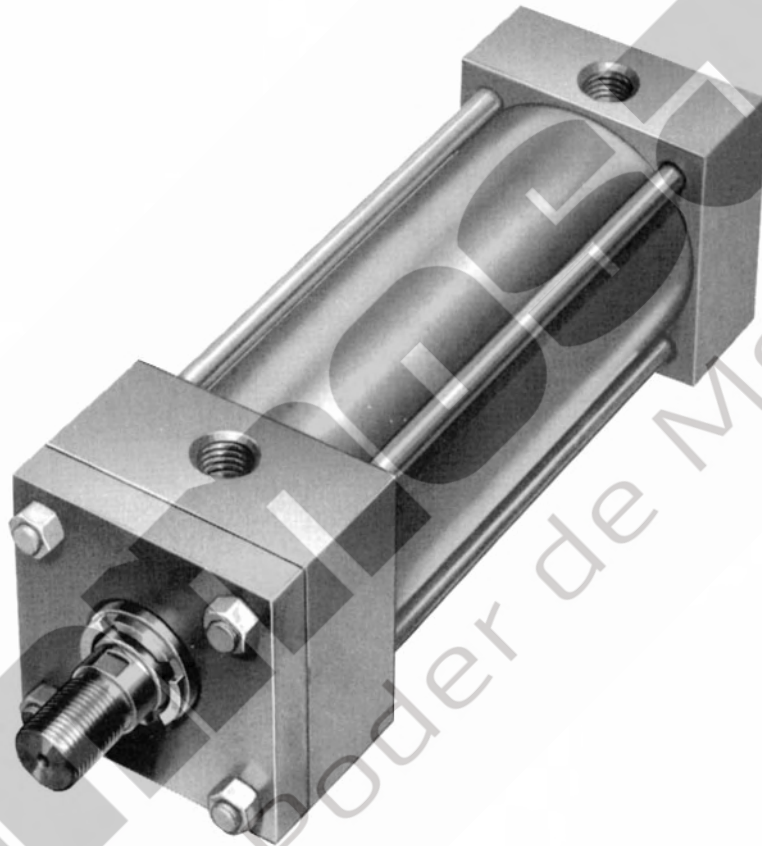
Cylinder serial numbers are factory production record numbers and are assigned to each cylinder, in addition to the model number.

For Cylinder Division Plant Locations – See Page II.



Parker Non-Lube Heavy Duty Air Cylinders

Series 2AN



For millions of trouble free cycles

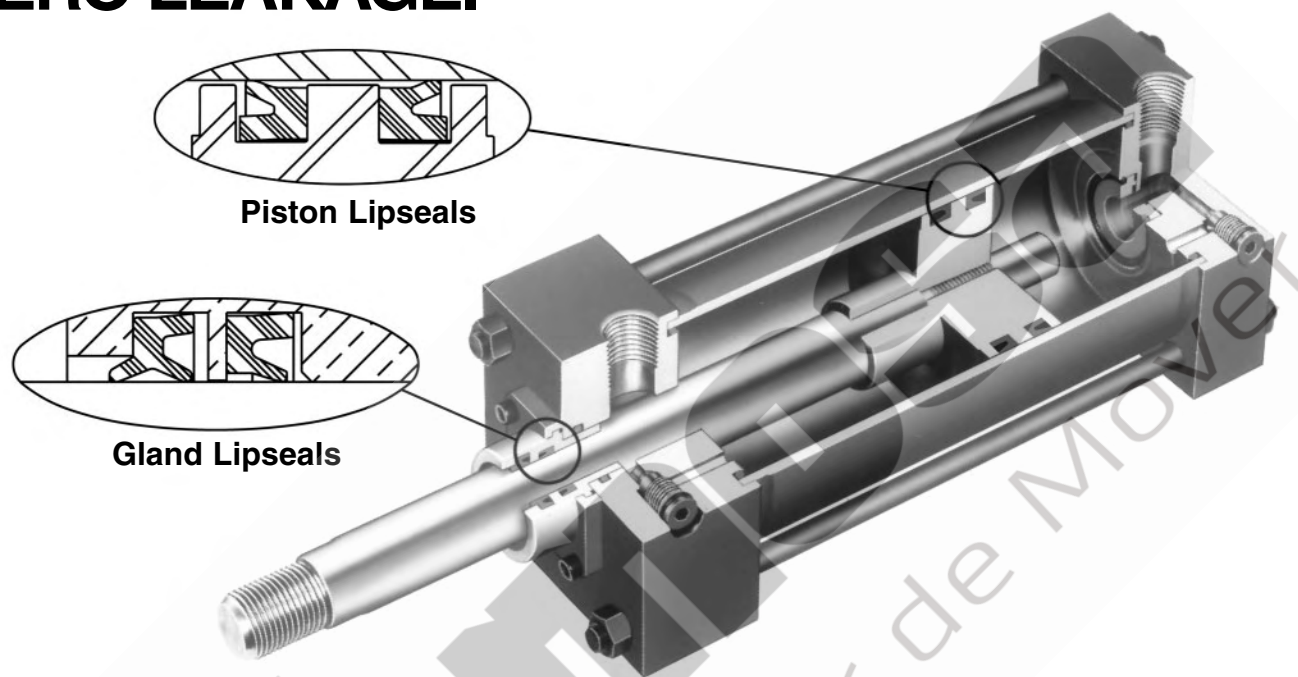
- Nominal Pressure – 250 PSI – Air Service
- Standard Bore Sizes 1½" through 14"
- Piston Rod Diameters – ⅝" through 5½"
- 17 Standard Mounting Styles
- N.F.P.A. Interchangeable
- Exceeds Automotive Specifications

For additional information – call your local Parker Cylinder Distributor.

Another Parker Cylinder Innovation...

The SERIES 2AN Non-Lube Air Cylinder with Proven Performance.

Over 21 million trouble free cycles with... ZERO LEAKAGE.



Design Data

In 1971 Parker experimented with the use of specially designed composite materials in the piston and gland of their cylinders. Their use of storing lubricating oil met with good results. Through extensive testing it was learned that the outside diameter of the material in the piston and the inside diameter on the material in the gland showed signs of wear and ultimately would lose contact with the surface of the cylinder body bore or piston rod. As a result, the cylinders lost their self lubricating capacity.

Today's industrial market demands more from a pneumatic cylinder. Cylinders are still required to handle tough, heavy-duty applications. But, more and more, these cylinders operate in environments or circumstances where it is not possible or advantageous to add lubrication to the compressed air entering the cylinder. Certain packaging and assembly operations, food environments, and microprocessor chip manufacturing are typical examples of areas where the exhausting of oil into the environment is not desirable. In many other situations, "non-lube" systems are used when proper air line lubrication is not present because of the time and expense of keeping lubricators filled and operating correctly.

Increased market demand and continuous research and testing efforts inspired the development of the

Series 2AN Non-Lubricated Air Cylinder. In bore sizes to 12" diameter and rod diameters to 2-1/2", the Parker Series 2AN air cylinder features rounded lip rod and piston seals. These seals glide over the PTFE based lubricant that is provided at the time of manufacture. The Parker Series 2AN Non Lubricated Air Cylinder maintains the lubricant film where it belongs; on the seals bearing surfaces, piston rod and cylinder bore.

Benefits include... long seal and bearing life. No oil needs to be added through the use of lubricators. As the cylinder strokes, no oil is expelled into the atmosphere with the exhaust air.

Anatomy of Series 2AN Sealing and Lubricant Retention Systems

Rounded sealing lip glides over lubricant film instead of scraping it off. Reduces friction, increases life and eliminates the need for added lubrication.

Increased heel thickness and outer lip extension improve stability, resist rolling.

Drawing not to scale



High integrity lubricant film with suspended PTFE particles

For Cylinder Division Plant Locations – See Page II.

In the Series 2AN you get all the cost saving benefits and features of the popular heavy duty Series 2A air cylinder including...

- The Jewel Rod Gland Assembly for positive no leak sealing
- Piston rod, hard chrome plated and case hardened steel
- High strength rolled thread Piston Rod Stud

- Steel tube cylinder body with chrome-plated micro finish bore...

PLUS the innovative "NON-LUBE" feature which further increases your benefits of lower operating and maintenance costs.

Standard Specifications

- Heavy Duty Service—ANSI/(NFPA) T3.6.7R2-1996 Specifications and Mounting Dimension Standards.
- Standard Construction—Square Head —Tie Rod Design.
- Standard Temperature— -10°F. to +165°F.

- Standard Fluid—Filtered Dry Air.
- Strokes—Available in any Practical Stroke Length.
- Cushions—Optional at either end or both ends of stroke. "Float Check" at cap end.

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

Available Bore and Rod Sizes*

Bore Sizes Available	1½"	2"	2½"	3¼"	4"	5"	6"	8"	10"	12"	14"
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Rod Sizes Available	5/8"	1"	1⅜"	1¾"	2"	2½"	3"	3½"	4"	4½"	5"	5½"
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*For specific cylinder bore size/piston rod availabilities and dimensions, see Series 2A Cylinder.

For additional information – call your local Parker Cylinder Distributor.

How to order Series “2AN” Non-Lube Air Cylinders

Data Required on all 2AN Cylinder Orders

When ordering Series “2AN” 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 Series 2A. If double rod is wanted, specify “with double rod”.

c) Series Designation (“2AN”)

d) Length of Stroke

e) Piston Rod Diameter

Specify rod diameter or rod code number. In Series “2AN” 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

Give thread style number or specify dimensions. Thread style number 4 will be supplied 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.

Note: Parker Series 2AN 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 as shown in the chart below.

Series 2AN Model Numbers – How to Develop Them – How to Decode Them.

	BORE SIZE	CUSHION HEAD END	DOUBLE ROD	MOUNTING STYLE	MOUNTING MOD.	COMBINATION MOUNTING STYLE	SERIES	PORT	SPECIAL FEATURES	ROD NO.	ROD END THREAD STYLE NO.	THREAD TYPE	CUSHION CAP END	STROKE
	3 1/4"	C	K	F	P	TB	2AN	U	S	1	4	A	C	X12
E X A M P L E	Specify 1 1/2" thru 14"	Specify only if cushion head end is required	Use only if Double Rod Cylinder is required	Specify—Mounting Style BB, BC, C, CB, D, DB, DD, E, F, G, H, HB, J, JB, T, TB, TC, TD	Specify: P—for Thrust Key—Mtg. Style C, F, G & CB only M—for Manifold Ports Style C only R—for Removable Trunnion Mtg. Style D & DB only	Specify any practical Mounting Style available	Specify Series 2AN	Specify—Port Type required: U = NPTF T = S.A.E. R = BSP B = BSPT G = METRIC	Specify: Only if special modification is required Note: Do not use symbol “S” for Rod End Modifications	Specify: Rod Code No.	Specify: Style 4 Small Male Style 8 Intermediate Male Style 9 Short Female Style 3 Special. Specify KK, A, LA or W Dim.	Specify: A = UNF W = BSF M = METRIC	Specify only if Cushion Cap End is Req'd.	Specify in inches. Show Symbol “X” just ahead of stroke length.

Modifications: All modifications that apply to the Series 2A Air Cylinder also apply to the Series 2AN *except* the use of Fluorocarbon seals. The maximum temperature of the Series 2AN is +165°F. Consult factory for higher temperature applications.

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.

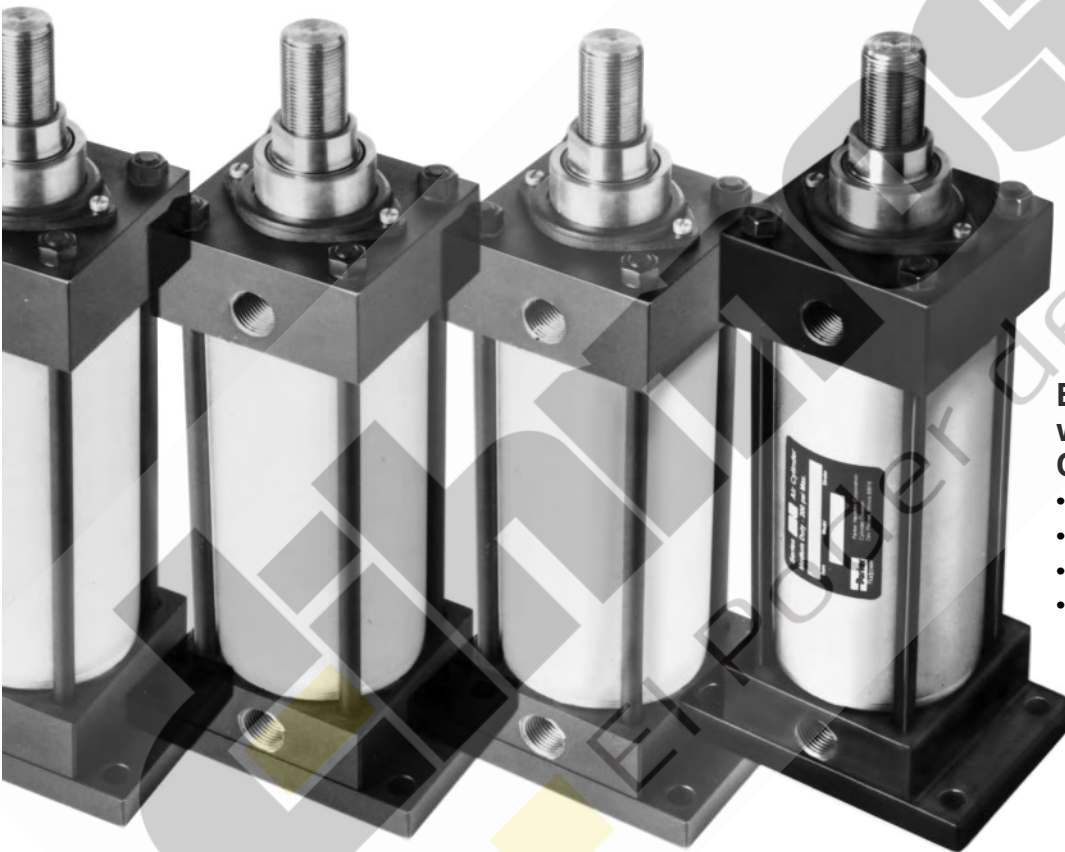
For Cylinder Division Plant Locations – See Page II.

Series MA

The No-Compromise Design

N.F.P.A. Air Cylinder from Parker

Proven Parker reliability at a cost that makes it right for your air cylinder application.



**Exclusive
with the New Parker
Check Seal Cushions:**

- Faster Cycle Time
- Easy Precision Adjustment
- Minimum Wear
- Low Pressure Drop

Factory Prelubricated

200 psi nominal air pressure

Standard bore sizes: 1½", 2", 2½", 3¼", 4", 5" and 6"

12 Standard mounting styles

For additional information – call your local Parker Cylinder Distributor.

Parker Series MA

N.F.P.A. Industrial Air Cylinders

Parker Series MA air cylinders meet or exceed N.F.P.A. Pneumatic Standards and except for Tie Rod Mount Styles conform to ANSI Standard B93.15-1981 for mounting dimensions of Square Head Industrial Fluid Power Cylinders.

For heavy-duty applications see Parker Series 2A cylinder page 17.

Standard Specifications

- Seven bore sizes – 1½" through 6"
- Three rod diameters – 5/8", 1" and 1¾"
- Twelve mounting styles
- Choice of three rod end styles
- Cushions at head, cap or both ends

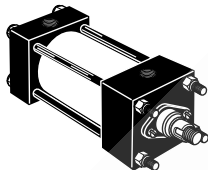
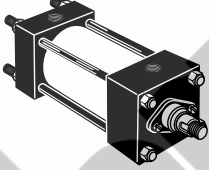
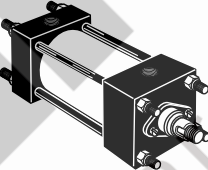
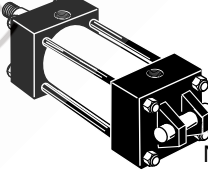
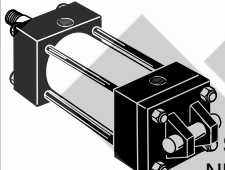
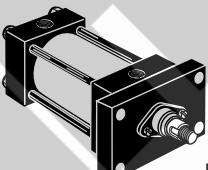
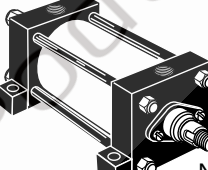
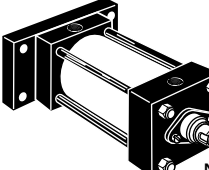
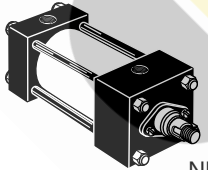
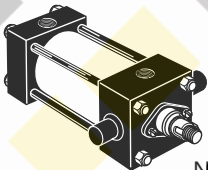
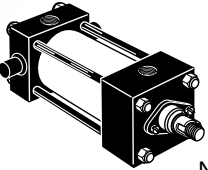
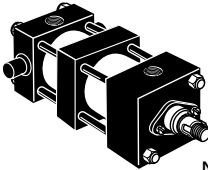
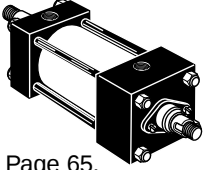
- Double rod models in six mounting styles
- JIC interchangeable
- Temperature Range – 10° F. to 165° F.*

*See Section C for higher temperature service, operating fluids, and temperature range.

For complete ordering information, see Page 69.

AVAILABLE MOUNTINGS

For Single Rod Styles, see Pages 60 through 63.

Tie Rods Extended Head End  Style TB	Tie Rods Extended Cap End  Style TC NFPA MX2	Tie Rods Extended Both Ends  Style TD	Cap Fixed Clevis  Style BB NFPA MP1
Cap Detachable Clevis  Style BC NFPA MP2	Head Rectangular Flange  Style J NFPA MF1	Side Lugs  Style C NFPA MS2	Cap Rectangular Flange  Style H NFPA MF2
Side Tapped  Style F NFPA MS4	Head Trunnion  Style D NFPA MT1	Cap Trunnion  Style DB NFPA MT2	Intermediate Trunnion  Style DD NFPA MT4
Double Rod Cylinders  Style KTB For Double Rod Styles, see Page 65.			

For Cylinder Division Plant Locations – See Page II.

Parker Series MA

N.F.P.A. Industrial Air Cylinders

The inside story on the no-compromise design

Here's an inside look at the solid design and construction that makes Parker Series MA the high performing, longer-lasting, economical choice for your air cylinder applications.

Rugged square steel heads and caps resist shock and provide maximum strength within minimum space. Factory-treated to resist corrosion.

Piston rod lipseal/wiper combination is completely self-compensating for zero leakage at all pressures. Keeps pressure in, contamination out.

High strength piston rod end stud (125,000 psi minimum yield steel) with rolled threads for 52% greater strength at this critical fatigue point. Choice of male or female thread at no extra cost. Anaerobic adhesive is used to permanently lock the stud to the rod.

Bolt-on, high strength, rod gland removes screwdriver-easy on all mounting styles and bore sizes for fast, on-the-job rod seal replacement if needed.

Extra long inboard bearing surface insures lubrication from within the cylinder for longer life.

Factory prelubrication of rod and piston seal surfaces (rod bearing and cylinder bore surfaces).

Tie rods are 100,000 psi minimum yield steel with rolled threads for added strength. High strength nuts provide extra margin of safety.

Ports
N.P.T.F. ports are standard.

Parker's New Exclusive Check Seal Cushions For Increased Productivity and Maximum Performance

The Parker check seal cushion is new and different from ordinary cushion designs. It combines the sealing capabilities of a lipseal for efficient capture of air for effective cushioning with check valve action for quick stroke reversal.

The lipseal design also provides "floating cushions" to assure cushion repeatability and long life. At the start of the stroke in each direction, the check valve design allows full fluid flow to piston face with a minimum pressure drop for maximum power stroke.

Additional benefits of the new check seal cushions are increased productivity and top performance for faster cycle time, minimum wear, easy adjustment and low pressure drop.

The basic cushion design is optional and available on either the head end, cap end or both ends without change in envelope or mounting dimensions. A cushion adjusting needle is supplied for easy, precise adjustment on all bore sizes.

At the **head end** of the cylinder, the check seal is assembled into a groove in the central bore of the head, with the groove being slightly wider and larger in diameter than the check seal, so that it floats laterally and radially within predetermined limits. The check seal has four grooves molded into the face to provide flow passages; the assembly is put together with the lip of the seal facing toward the inside of the cylinder.

A cushion sleeve is mounted on the piston rod, so that as the rod extends, air ahead of the piston flows freely out the head-end port. When the end of the cushion sleeve reaches the lip of the check seal, it seals on the wall of the groove, trapping air for cushioning.

As pressure is applied to the head-end port on retraction, the air forces the seal towards the inside of the cylinder. The air

For additional information – call your local Parker Cylinder Distributor.

Hard chrome-plated and polished piston rod of 100,000 psi yield, high tensile strength steel for reliable performance and long rod seal life, less friction.

Cylinder body O-ring seals are pressure-actuated for positive sealing. Commercially available and easily replaced, if necessary.

Unique “check seal” cushions with molded flow passages combine the benefits of floating cushions with check valve action, provides effective cushioning and quick stroke reversal for more cycles per hour and higher production rates. Cushion needle valves make precise adjustment quick and easy.

Longest standard cushions in the industry for maximum cushioning capability.

Fully dynamic, self-compensating Lipseal™ piston seals designed for no-leak service at all operating pressures; easily replaced, if needed, without removing piston from rod.

One-piece, nodular iron piston, positively locked to rod – retains lubrication and provides a wide bearing surface. An anaerobic adhesive is used to permanently lock and seal the piston to the rod.

Piston-to-rod thread diameter increases with rod diameter for added strength and is equal to outer end Style 4 thread on all rod sizes.

Aluminum Alloy cylinder body with corrosion resistant smooth hard coated bore on 1½" and 2" bores.

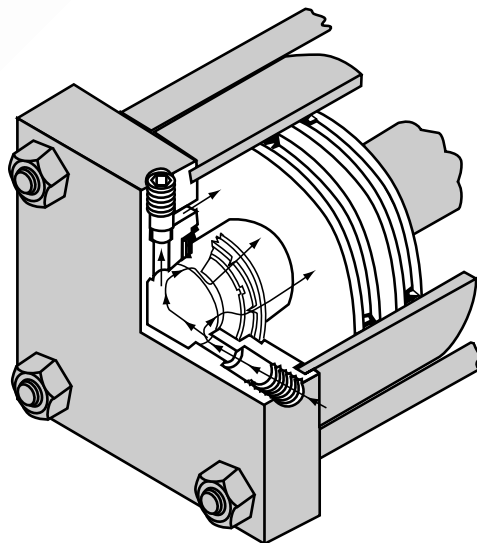
Chrome Plated Steel Tubing honed to a 15 micro inch finish on 2½", 3¼", 4", 5" and 6" bores (cylinders supplied with reed switches are equipped with aluminum barrels).

then flows around the OD of the seal and through the flutes of the seal washer. Full-flow, quick starts with little or no pressure drop is just one of the major benefits of the design.

At the **cap end** of the cylinder, the check seal is assembled into a cavity in the face of the cap with four beads molded on the OD to provide a flow passage. A fluted washer and retaining ring, rather than a groove, and a cushion spear which extends from the rear face of the piston complete the cap end assembly. When the rounded, tapered portion of the cushion spear reaches the lip of the seal, the seal seats against the rear wall of the cavity, trapping air for cushioning.

The configuration of the check-seal lip, and the controlled shape of the cushion sleeve together prevent the lip from rolling over or extruding. A check seal used at both ends provides the benefits of floating cushions with check valve action for maximum cushion effectiveness and quick stroke reversal. This new check-seal design has been tested in millions of cycles, in the lab and in the field.

Series MA cushions are the longest in the industry and are designed for maximum customer benefit.



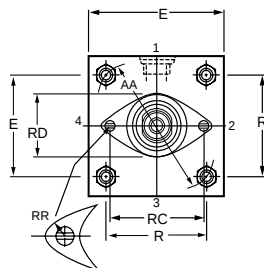
For Cylinder Division Plant Locations – See Page II.

Basic Cylinder Style T (NFA Style MX0)

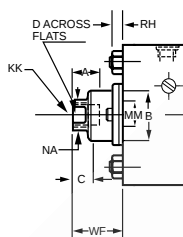
Rod end Style 4 is standard per dimension KK. Styles 8 or 9 are optional at no extra charge. A high strength rod end stud is standard on Styles 4 and 8 for all rod sizes.

For special rod ends such as nonstandard threads, rod extensions, blanks, etc., specify Style 3 and furnish desired dimensions for CC, KK, A, WF, LA and LAF.

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



Style 9 Rod End
NFA SF

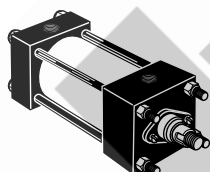


Style 4 & 8 Rod End
NFA SM & IM

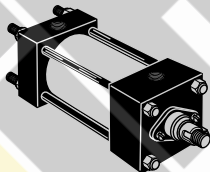
Rod End Dimensions – Styles 9 (NFA SF), 4 (NFA SM) and 8 (NFA IM)																				Basic Envelope and Mounting Dimensions									
Bore	Rod No.	Rod Dia. MM	Thread		A	+0.000 -0.002 B	C	D	LA	LAF	NA	RC	RD	RH	RR	V	W	WF	Y	AA	E	(NPTF) EE	G	J	K	Add Stroke			
			Style 8 CC	Style 4 & 9 KK																						LF	P	ZB	
1½	1	5/8	½-20	7/16-20	¾	.999	3/8	½	1¾	1¾	9/16	11½/16	15/16	3/16	11/64	¼	5/8	1	15½/16	2.02	2	¾	1½/2	1	¼	35/8	2¼	47/8	
2	1	5/8	½-20	7/16-20	¾	.999	3/8	½	1¾	1¾	9/16	11½/16	15/16	3/16	11/64	¼	5/8	1	15½/16	2.6	2½/2	¾	1½/2	1	5/16	35/8	2¼	415/16	
	3	1	7/8-14	¾-16	1½	1.499	½	7/8	2½	2½	15/16	23/16	113/16	3/16	11/64	½	1	13/8	25/16									5½/16	
2½/2	1	5/8	½-20	7/16-20	¾	.999	3/8	½	1¾	1¾	9/16	11½/16	15/16	3/16	11/64	¼	5/8	1	15½/16	3.1	3	¾	1½/2	1	5/16	3¾/4	23/8	5¼/16	
	3	1	7/8-14	¾-16	1½	1.499	½	7/8	2½	2½	15/16	23/16	113/16	3/16	11/64	½	1	13/8	25/16									57/16	
3¼/4	1	1	7/8-14	¾-16	1½	1.499	½	7/8	17/8	2½	15/16	23/16	113/16	3/16	11/64	¼	¾	13/8	27/16	3.9	3¾/4	½	1¾/4	1¼/4	¾	4¼/4	25/8	6	
	3	1¾/8	1¼-12	1-14	15/8	1.874	5/8	1½/8	25/8	3¼	15/16	21½/16	215/64	7/32	13/64	¾	1	15/8	21½/16									6¾/4	
4	1	1	7/8-14	¾-16	1½	1.499	½	7/8	17/8	2½	15/16	23/16	113/16	3/16	11/64	¼	¾	13/8	27/16	4.7	4½/2	½	1¾/4	1¼/4	¾	4¼/4	25/8	6	
	3	1¾/8	1¼-12	1-14	15/8	1.874	5/8	1½/8	25/8	3¼	15/16	21½/16	215/64	7/32	13/64	¾	1	15/8	21½/16									6¾/4	
5	1	1	7/8-14	¾-16	1½	1.499	½	7/8	17/8	2½	15/16	23/16	113/16	3/16	11/64	¼	¾	13/8	27/16	5.8	5½/2	½	1¾/4	1¼/4	7/16	4½/2	27/8	65/16	
	3	1¾/8	1¼-12	1-14	15/8	1.874	5/8	1½/8	25/8	3¼	15/16	21½/16	215/64	7/32	13/64	¾	1	15/8	21½/16									69½/16	

Tie Rod Mounted Styles TB, TC, TD

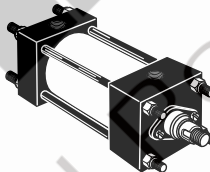
Style TB



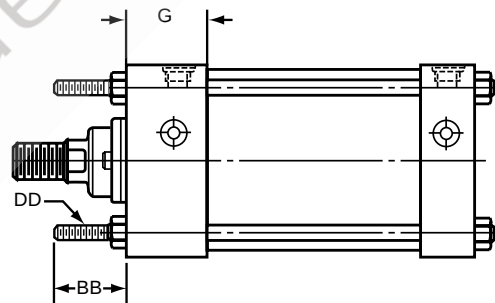
Style TC
NFA
(MX2)



Style TD



Style TB, Tie Rods Extended, is illustrated at right. Style TC, Cap Tie Rods Extended, and Style TD, Both Ends Tie Rods Extended, can be dimensioned from Style TB drawing.



Dimensions for Specific Series MA Mounting Styles H, J, C, F, BB and BC

Bore	Rod No.	Rod Dia. MM	BB	CB	+0.000 -0.002 CD	CW	DD	F	FB	L	LR	M	MR	ND	NT	R	SB*
1 1/2	1	5/8	1	3/4	.501	1/2	1 1/4-28	3/8	5/16	3/4	3/4	1/2	5/8	5/16	1 1/4-20	1.43	7/16
2	1	5/8	1 1/8	3/4	.501	1/2	5/16-24	3/8	3/8	3/4	3/4	1/2	5/8	11/32	5/16-18	1.84	7/16
	3	1	1 1/8	3/4	.501	1/2	5/16-24	3/8	3/8	3/4	3/4	1/2	5/8	7/16	3/8-16	2.19	7/16
2 1/2	1	5/8	1 1/8	3/4	.501	1/2	5/16-24	3/8	3/8	3/4	3/4	1/2	5/8	7/16	3/8-16	2.19	7/16
	3	1	1 1/8	3/4	.501	1/2	5/16-24	3/8	3/8	3/4	3/4	1/2	5/8	7/16	3/8-16	2.19	7/16
3 1/4	1	1	1 3/8	1 1/4	.751	5/8	3/8-24	5/8	7/16	1 1/4	1	3/4	15/16	1/2	1 1/2-13	2.76	9/16
	3	1 3/8	1 3/8	1 1/4	.751	5/8	3/8-24	5/8	7/16	1 1/4	1	3/4	15/16	5/8	1 1/2-13	3.32	9/16
4	1	1	1 3/8	1 1/4	.751	5/8	3/8-24	5/8	7/16	1 1/4	1	3/4	15/16	5/8	1 1/2-13	3.32	9/16
	3	1 3/8	1 3/8	1 1/4	.751	5/8	3/8-24	5/8	7/16	1 1/4	1	3/4	15/16	5/8	1 1/2-13	3.32	9/16
5	1	1	1 3/8	1 1/4	.751	5/8	1 1/2-20	5/8	9/16	1 1/4	1	3/4	15/16	3/4	5/8-11	4.10	13/16
	3	1 3/8	1 3/8	1 1/4	.751	5/8	1 1/2-20	5/8	9/16	1 1/4	1	3/4	15/16	3/4	5/8-11	4.10	13/16

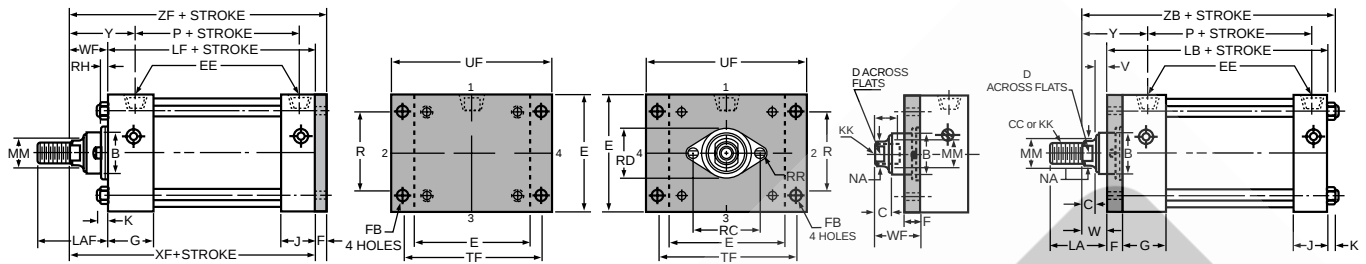
*Upper surface spotfaced for socket head screws.

For additional information – call your local Parker Cylinder Distributor.

Series MA NFFPA Industrial Air Cylinders

Tie Rod Mountings Single Rod

Flange Mountings Styles H, J

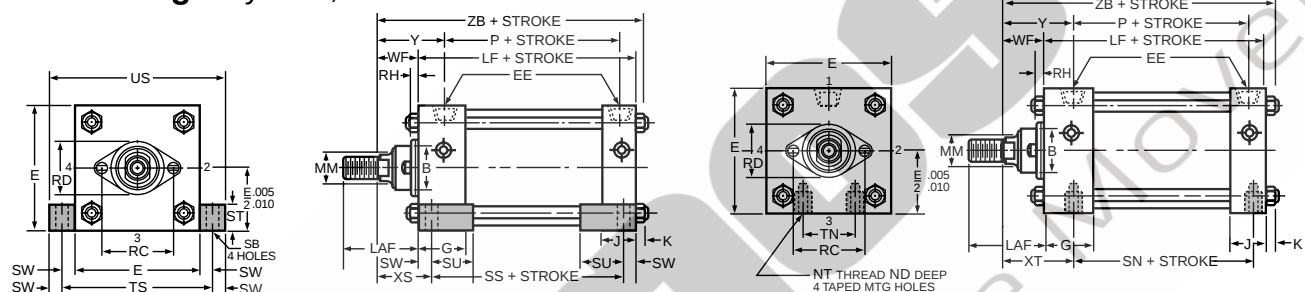


Style H (NFFPA MF2)

Style 9 Rod End J Mount Only

Style J (NFFPA MF1)

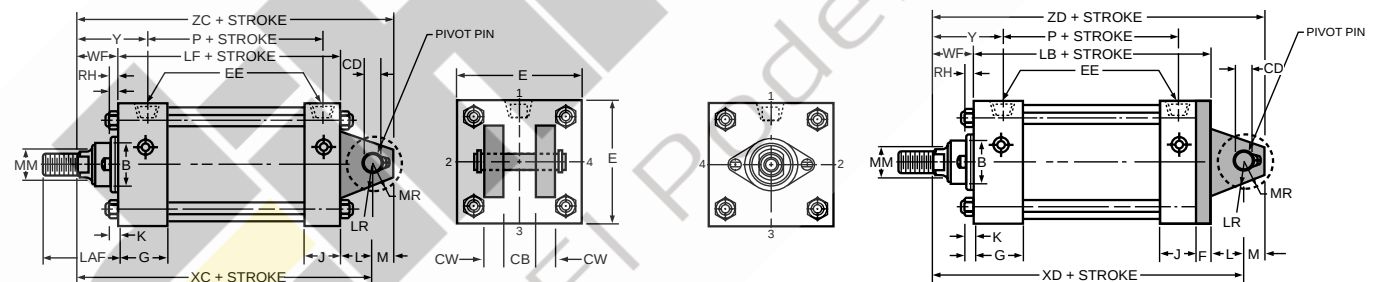
Side Mountings Styles C, F



Style C (NFFPA MS2)

Style F (NFFPA MS4)

Pivot Mountings Styles BB, BC



Style BB (NFFPA MP1)

Style BC (NFFPA MP2)

Tie Rods thread into Cap on 1½", 2", 2½" & 3¼" bore sizes as shown. Larger sizes have Tie Rod Nuts at both ends.

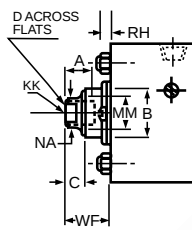
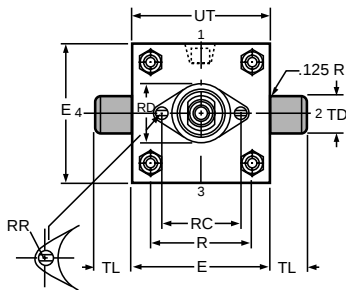
ST	SU	SW	TF	TN	TS	UF	US	LB	Add Stroke									
									SN	SS	XC	XD	XF	XS	XT	ZC	ZF	ZD
1/2	15/16	3/8	23/4	5/8	23/4	33/8	3 1/2	4	2 1/4	27/8	53/8	53/4	45/8	13/8	115/16	57/8	5	6 1/4
1/2	15/16	3/8	33/8	7/8	3 1/4	4 1/8	4	4	2 1/4	27/8	53/8	53/4	45/8	13/8	115/16	57/8	5	6 1/4
1/2	15/16	3/8	37/8	1 1/4	3 3/4	4 5/8	4 1/2	4 1/8	2 3/8	3	5 1/2	57/8	43/4	13/8	115/16	6	5 1/8	6 3/8
3/4	1 1/4	1/2	4 11/16	1 1/2	4 3/4	5 1/2	5 3/4	4 7/8	2 5/8	3 1/4	6 7/8	7 1/2	5 5/8	17/8	27/16	7 5/8	6 1/4	8 1/4
3/4	1 1/4	1/2	5 7/16	2 1/16	5 1/2	6 1/4	6 1/2	4 7/8	2 5/8	3 1/4	6 7/8	7 1/2	5 5/8	17/8	27/16	7 5/8	6 1/4	8 1/4
1	1 9/16	11/16	6 5/8	2 11/16	6 7/8	7 5/8	8 1/4	5 1/8	2 7/8	3 1/8	7 1/8	7 3/4	5 7/8	2 1/16	27/16	7 7/8	6 1/2	8 1/2

For Cylinder Division Plant Locations – See Page II.

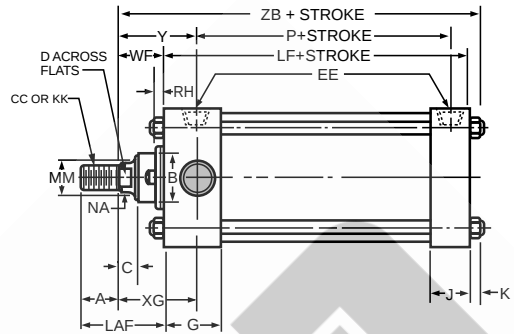
Series MA NFA Industrial Air Cylinders

Trunnion Mountings

Head Trunnion Mounting Style D (NFA Style MT1)

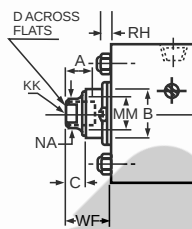
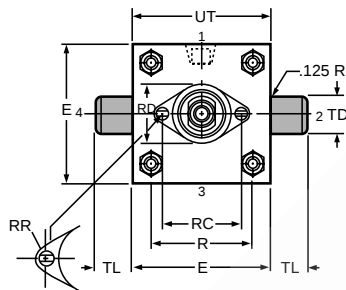


Style 9 Rod End
(NFA SF)

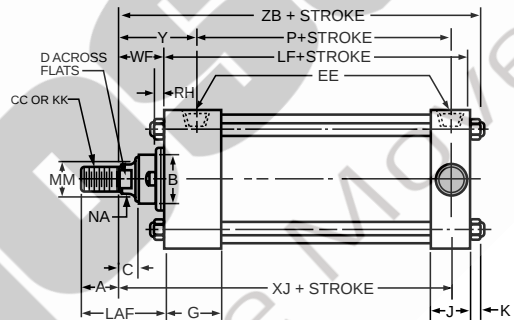


Style 4 & 8 Rod End
(NFA SM & IM)

Cap Trunnion Mounting Style DB (NFA Style MT2)

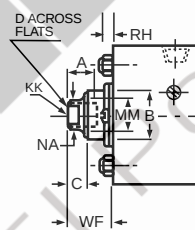
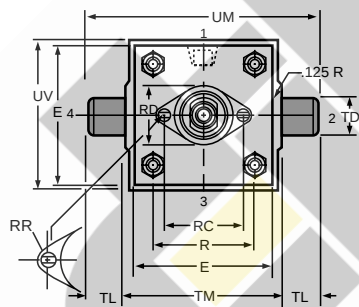


Style 9 Rod End
(NFA SF)

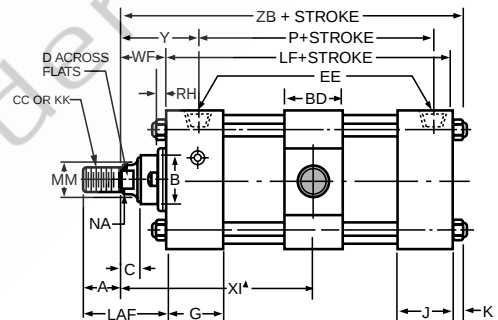


Style 4 & 8 Rod End
(NFA SM & IM)

Intermediate Fixed Trunnion Mounting Style DD (NFA Style MT4)



Style 9 Rod End
(NFA SF)



Style 4 & 8 Rod End
(NFA SM & IM)

Note: For Rod End Dimensions See Page 60.					Basic Envelope and Mounting Dimensions																	
Bore	Rod No.	Rod Dia. MM	Thread		BD	E	(NPTF) EE	G	J	K	+0.000 TD -0.001	TL	TM	UM	UT	UV	XG	Min. XI▲	Add Stroke			
			Style 8 CC	Style 4 & 9 KK															LF	P	XJ	ZB
1½	1	5/8	1½-20	7/16-20	1¼	2	3/8	1½	1	¼	1.000	1	2½	4½	4	2½	1¾	33/16	35/8	2¼	4¼	47/8
2	1 3	5/8 1	1½-20 7/8-14	7/16-20 3/4-16	1½	2½	3/8	1½	1	5/16	1.000	1	3	5	4½	3	1¾ 2½	35/16 311/16	35/8	2¼	4¼	415/16 55/16
2½	1 3	5/8 1	1½-20 7/8-14	7/16-20 3/4-16	1½	3	3/8	1½	1	5/16	1.000	1	3½	5½	5	3½	1¾ 2½	35/16 311/16	3¾	23/8	4¼ 45/8	51/16 57/16
3¼	1 3	1 13/8	7/8-14 1¼-12	¾-16 1-14	2	3¾	½	1¾	1¼	3/8	1.000	1	4½	6½	5¾	4¼	2¼ 2½	43/16 47/16	4¼	25/8	5 5¼	6 6¼
4	1 3	1 13/8	7/8-14 1¼-12	¾-16 1-14	2	4½	½	1¾	1¼	3/8	1.000	1	5¼	7¼	6½	5	2¼ 2½	43/16 47/16	4¼	25/8	5 5¼	6 6¼
5	1 3	1 13/8	7/8-14 1¼-12	¾-16 1-14	2	5½	½	1¾	1¼	7/16	1.000	1	6¼	8¼	7½	6	2¼ 2½	43/16 47/16	4½	27/8	5¼ 5½	65/16 69/16

▲ Dimension XI to be specified by customer

For additional information – call your local Parker Cylinder Distributor.

Series MA, 6" Bore NFFPA Industrial Air Cylinders

Tie Rod and Flange Mountings
6" Bore Size

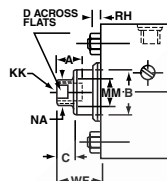
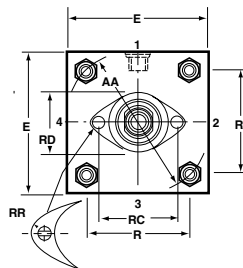
Basic Cylinder Style T (NFFPA Style MX0)

Rod end Style 4 is standard per dimension KK. Styles 8 or 9 are optional at no extra charge. A high strength rod end stud is standard on Styles 4 and 8 for all rod sizes.

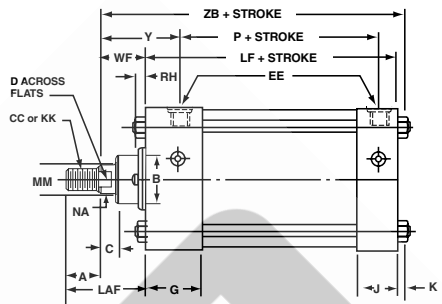
For special rod ends such as nonstandard threads, rod extensions, blanks, etc., specify Style 3 and furnish desired dimensions for CC, KK, A, WF, LA and LAF.

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

See Table 3 for rod end dimensions.

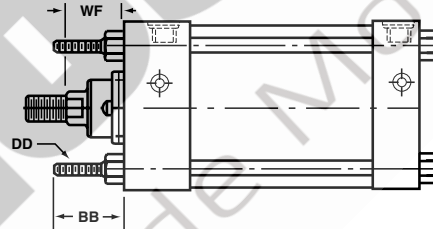
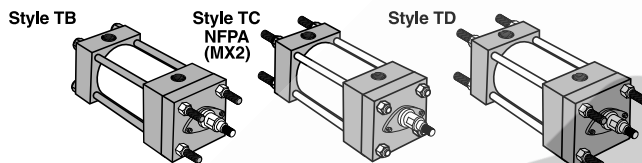


Parker Style 9 Rod End
NFFPA SF



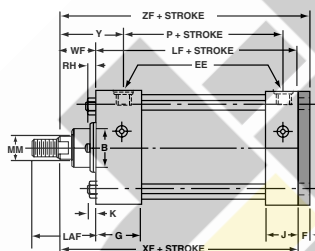
Parker Style 4 & 8 Rod End
NFFPA SM & IM

Tie Rod Mounted Styles, TB, TC, TD

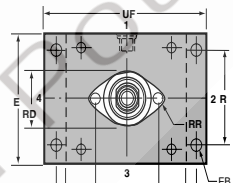
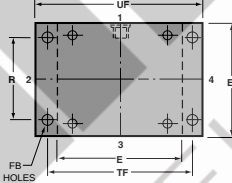


Style TB, Tie Rods Extended, is illustrated at right. Style TC, Cap Tie Rods Extended, and Style TD, Both Ends Tie Rods Extended, can be dimensioned from Style TB drawing.

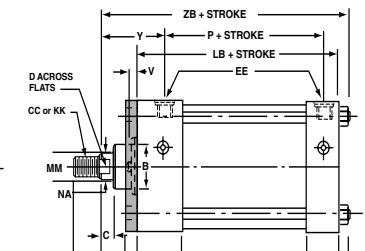
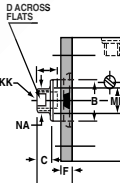
Flange Mountings Styles H, J



Style H (NFFPA MF2)

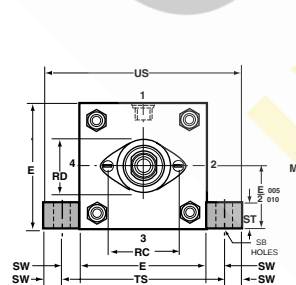


Style 9 Rod End (NFFPA SF)

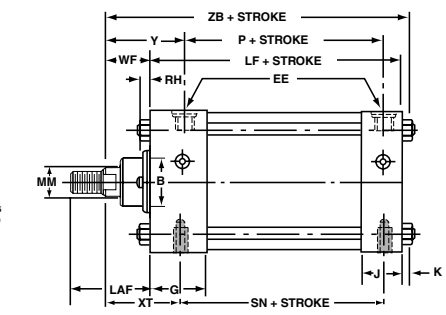
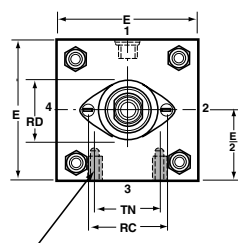
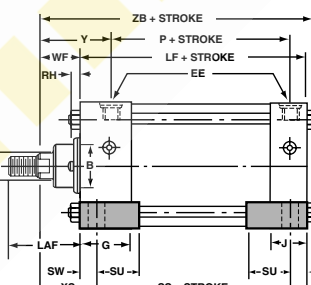


Style J (NFFPA MF1)

Side Mountings Styles C, F



Style C (NFFPA MS2)

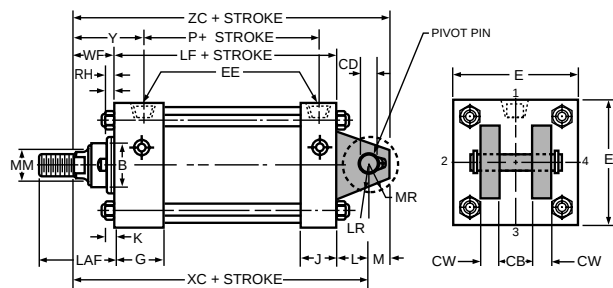


Style F (NFFPA MS4)

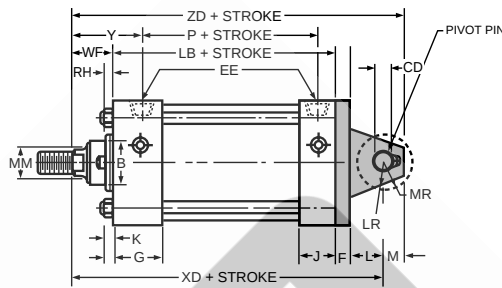
For Cylinder Division Plant Locations – See Page II.



Pivot Mountings Styles BB, BC

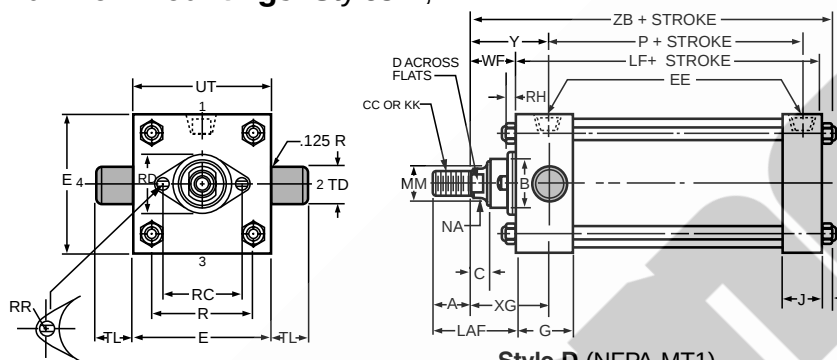


Style BB (NFPA MP1)

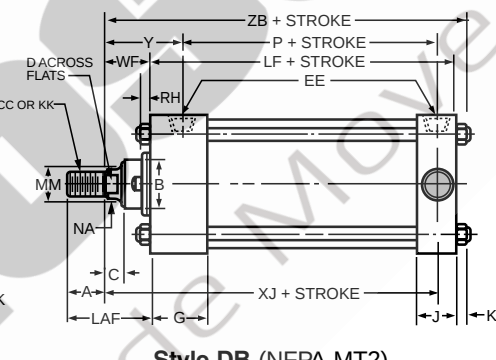


Style BC (NFPA MP2)

Trunnion Mountings Styles D, DB

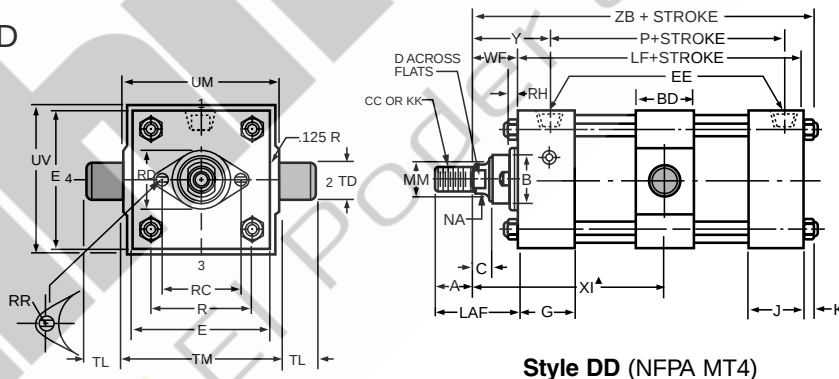


Style D (NFPA MT1)



Style DB (NFPA MT2)

Trunnion Mounting Style DD



Style DD (NFPA MT4)

Table 3 Rod End Dimensions—Styles 9 (NFPA SF), 4 (NFPA SM) and 8 (NFPA IM)

Bore	Rod No.	Rod Dia. MM	Thread		A	+.000 -.002 B	MIN. C	D	LA	LAF	NA	RC	RD	RH	RR	V	W	WF	Y
			Style 8 CC	Style 4 & 9 KK															
6	1	1 3/8	1 1/4-12	1-14	15/8	1.874	5/8	1 1/8	2 1/2	3 1/4	15/16	2 11/16	2 15/64	7/32	13/64	1/4	7/8	1 5/8	2 13/16

Table 4 Basic Envelope and Mounting Dimensions

Bore	Rod No.	Rod Dia. MM	AA	BB	BD	CB	+.000 -.002 CD	CW	DD	E	(NPTF) EE	F	FB	G	J	K	L	LR	M	MR	ND	NT	R	SB*	ST	SU	SW
6	1	1 3/8	6.9	1 13/16	2 1/2	1 1/2	1.001	3/4	1 1/2-20	6 1/2	3/4	3/4	9/16	2	1 1/2	7/16	1 1/2	1 1/4	1	13/16	7/8	3/4-10	4.88	13/16	1	19/16	11/16

Basic Envelope and Mounting Dimensions (cont.)

Bore	Rod No.	Rod Dia. MM	+.000 TD -.002	ADD STROKE																MIN. XI								
				TF	TL	TM	TN	TS	UF	UM	US	UT	UV	XG	LB	LF	P	SN	SS	XC	XD	XF	XJ	XS	XT	ZB	ZC	ZF
6	1	1 3/8	1.375	7 5/8	1 3/8	7 5/8	3 3/4	7 7/8	8 5/8	10 3/8	9 1/4	9 1/4	7	2 5/8	5 3/4	5	3 1/8	3 1/8	3 5/8	8 1/8	8 7/8	6 5/8	5 7/8	2 5/16	2 13/16	7 1/16	9 1/8	7 3/8

* Upper surface spotfaced for socket head screws. ▲ Dimension XI to be specified by customer.

For additional information – call your local Parker Cylinder Distributor.

Series MA NFFPA Industrial Air Cylinders

Double Rod Models
1" to 6" bore sizes

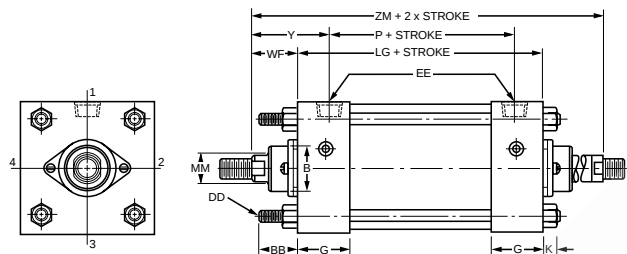
To dimension double rod cylinders, select the desired mounting style and refer to corresponding single rod model on pages 60-

64. After obtaining necessary dimensions from that drawing, supplement those with the drawings and tables below.

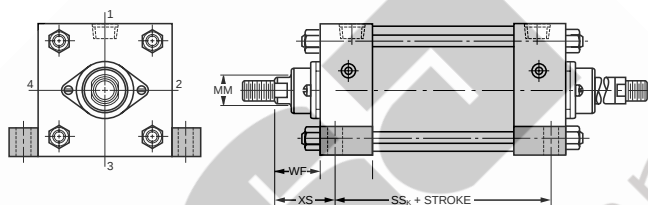
Tie Rods Extended Parker Style KT

Tie Rods Extended Head End, Style **KTB**.

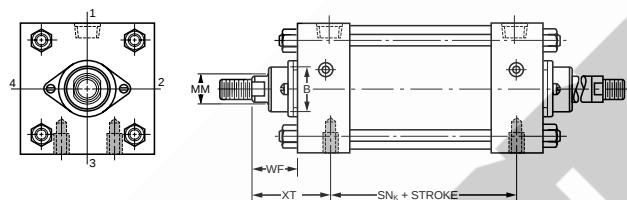
Tie Rods Extended Both Ends, Style **KTD**.



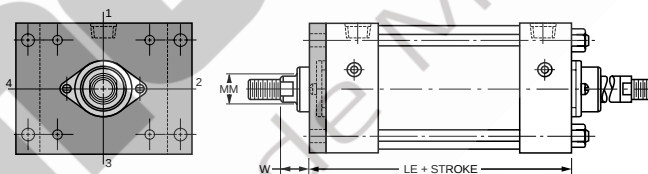
Side Lug Mounting Parker Style KC



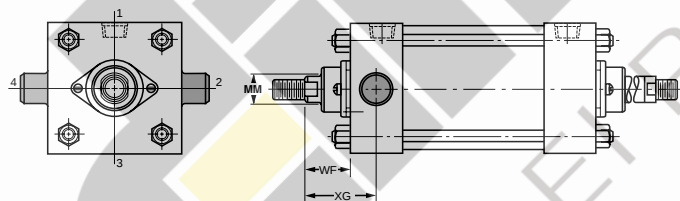
Side Tapped Mounting Parker Style KF



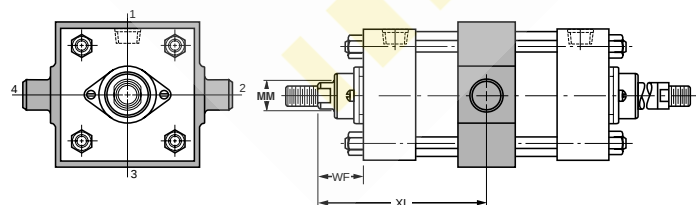
Rectangular Flange Mounting Parker Style KJ



Head Trunnion Mounting Parker Style KD



Intermediate Fixed Trunnion Mounting Parker Style KDD



Double Rod Cylinder Dimensions

Bore	Rod Dia.	Rod No.	Add Stroke				Add 2x Stroke ZM
			LG	LE	SS _K	SN _K	
1 1/2	5/8	1	4 1/8	4 1/2	3 3/8	2 1/4	6 1/8
2	5/8	1	4 1/8	4 1/2	3 3/8	2 1/4	6 1/8
	1	3					6 7/8
2 1/2	5/8	1	4 1/4	4 5/8	3 1/2	2 3/8	6 1/4
	1	3					7
3 1/4	1	1	4 3/4	5 3/8	3 3/4	2 5/8	7 1/2
	1 3/8	3					8
4	1	1	4 3/4	5 3/8	3 3/4	2 5/8	7 1/2
	1 3/8	3					8
5	1	1	5	5 5/8	3 5/8	2 7/8	7 3/4
	1 3/8	3					8 1/4
6	1 3/8	1	5 1/2	6 1/4	4 1/8	3 1/8	8 3/4
REPLACES DIMENSION			LF	LB	SS	SN	-
ON SINGLE ROD MOUNTING STYLES			T, TB, TC, C, F, D & DD	J	C	F	ALL

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.

NOTE: For Rod End Dimensions, see pages 60 and 64.

For Cylinder Division Plant Locations – See Page II.

Series MA NFFPA Industrial Air Cylinders

Accessories

Cylinder Accessories

Parker offers a range of heavy-duty cylinder accessories for convenient mounting of pivot mount cylinders or for use at rod end of fixed mount types. All are load capacity rated for use at 4:1 design factor in tension or compression (pivot pin is rated in shear)

when used on bore sizes recommended in tables below. Select rod clevises or knuckles by bore and thread size along with mating parts shown. Pivot pin must be ordered as separate item, if needed.

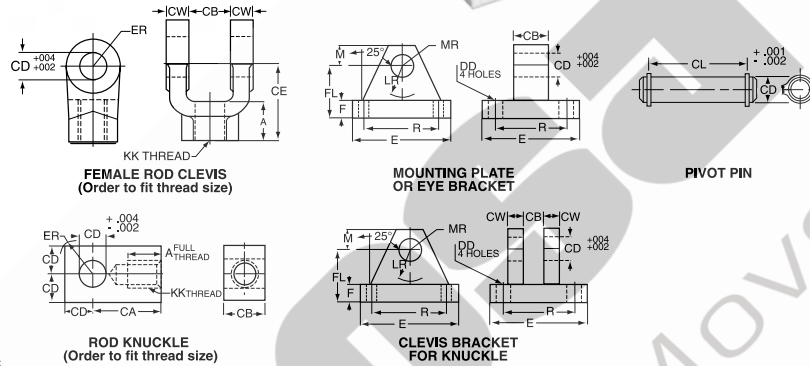
Mounting Plate



Mounting Plates

Mounting plates for Style BB and Style BC (clevis mounted) cylinders are offered. To select proper part number for your application, refer to Chart below.

Mounting Plate	Series "MA"
Part No.	Bore Size
69195	1½", 2", 2½"
69196	3¼", 4", 5"
▲85361	6"



Dimensions for Rod Clevis and Mating Parts

Bore Size	Rod Dia.	KK Thread Size	Rod Clevis	Eye Brkt.	Pivot Pin	A	CB	CD	CE	CL	CW	DD	E	ER	F	FL	LR	M	MR	R
1½	5/8	7/16-20	50940	69195	68368	3/4	3/4	1/2	11½	17/8	1/2	13/32	2½	1/2	3/8	11/8	3/4	1/2	9/16	1.63
2	5/8	7/16-20	50940	69195	68368	3/4	3/4	1/2	11½	17/8	1/2	13/32	2½	1/2	3/8	11/8	3/4	1/2	9/16	1.63
	1	3/4-16	50942 133284	69196	68369	1½	1¼	3/4	21/8 23/8	25/8	5/8	17/32	3½	3/4	5/8	17/8	1¼	3/4	7/8	2.55
2½	5/8	7/16-20	50940	69195	68368	3/4	3/4	1/2	11½	17/8	1/2	13/32	2½	1/2	3/8	11/8	3/4	1/2	9/16	1.63
	1	3/4-16	50942 133284	69196	68369	1½	1¼	3/4	21/8 23/8	25/8	5/8	17/32	3½	3/4	5/8	17/8	1¼	3/4	7/8	2.55
3¼	1	3/4-16	50942 133284	69196	68369	1½	1¼	3/4	21/8 23/8	25/8	5/8	17/32	3½	3/4	5/8	17/8	1¼	3/4	7/8	2.55
	1¾	1-14	50944 133285	85361▲	68370	15/8	1½	1	215/16 31/8	31/8	3/4	21/32	4½	1	7/8	23/8	1½	1	1¼	3.25
4 & 5	1	3/4-16	50942 133284	69196	68369	1½	1¼	3/4	21/8 23/8	25/8	5/8	17/32	3½	3/4	5/8	17/8	1¼	3/4	7/8	2.55
	1¾	1-14	50944 133285	85361▲	68370	15/8	1½	1	215/16 31/8	31/8	3/4	21/32	4½	1	7/8	23/8	1½	1	1¼	3.25
-	1¾	1-14	50944 133285	85361▲	68370	15/8	1½	1	215/16 31/8	31/8	3/4	21/32	4½	1	7/8	23/8	1½	1	1¼	3.25

Dimensions for Rod Knuckle and Mating Parts

Bore Size	Rod Dia.	KK Thread Size	Knuckle	Clevis Brkt.	Pivot Pin	A	CA	CB	CD	CL	CW	DD	E	ER	F	FL	LR	M	MR	R
1½	5/8	7/16-20	69089	69205	68368	3/4	1½	3/4	1/2	17/8	1/2	13/32	3½	23/32	1/2	1½	3/4	1/2	5/8	2.55
2	5/8	7/16-20	69089	69205	68368	3/4	1½	3/4	1/2	17/8	1/2	13/32	3½	23/32	1/2	1½	3/4	1/2	5/8	2.55
	1	3/4-16	69091	69206	68369	1½	2¼	1¼	3/4	25/8	5/8	17/32	5	11/16	5/8	17/8	13/16	3/4	29/32	3.82
2½	5/8	7/16-20	69089	69205	68368	3/4	1½	3/4	1/2	17/8	1/2	13/32	3½	23/32	1/2	1½	3/4	1/2	5/8	2.55
	1	3/4-16	69091	69206	68369	1½	2¼	1¼	3/4	25/8	5/8	17/32	5	11/16	5/8	17/8	13/16	3/4	29/32	3.82
3¼	1	3/4-16	69091	69206	68369	1½	2¼	1¼	3/4	25/8	5/8	17/32	5	11/16	5/8	17/8	13/16	3/4	29/32	3.82
	1¾	1-14	69093	69207	68370	15/8	213/16	1½	1	31/8	3/4	21/32	6½	17/16	3/4	2¼	1½	1	1¼	4.95
4 & 5	1	3/4-16	69091	69206	68369	1½	2¼	1¼	3/4	25/8	5/8	17/32	5	11/16	5/8	17/8	13/16	3/4	29/32	3.82
	1¾	1-14	69093	69207	68370	15/8	213/16	1½	1	31/8	3/4	21/32	6½	17/16	3/4	2¼	1½	1	1¼	4.95
6	1¾	1-14	69093	69207	68370	15/8	213/16	1½	1	31/8	3/4	21/32	6½	17/16	3/4	2¼	1½	1	1¼	4.95

▲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 his 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.

For additional information – call your local Parker Cylinder Distributor.

NOTES

A



For Cylinder Division Plant Locations – See Page II.

Series MA

NFPA Industrial Air Cylinders

How to Order

How to Order Series “MA” Cylinders

When ordering Series MA cylinders, please review the following:

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.

Piston Rods: Specify rod code number based on diameter. Give thread style number for a standard thread or specify dimensions. See “Style 3 Rod End” below.

Cushions: If cushions are required specify according to the model number on the next page. If the 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.

Special Modifications: Additional information is required on orders for cylinders with special modifications. This is best handled with descriptive notes. For further information, consult factory.

Fluid Medium: Series MA hydraulic cylinders are equipped with seals for use with lubricated air.

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 or operating limitations of all components, see section C.

For the MA series cylinders the following make-up Class 1 Seals:
Primary Piston Rod Seal – Nitrile with PTFE back-up washers

Piston Rod Wiper – Nitrile
Piston Seals – Nitrile with polymyte back-up washers
O-Rings – Nitrile

Combination Mountings

Single Rod End The first mounting is the one called out on the head end of the cylinder. The second or subsequent mountings are called out as they appear in the assembly moving away from the rod end. Exception: When tie rod mountings are part of a combination, the model number should contain an “S” (Special) in the model code and a note in the body of the order clarifying the mounting arrangement. The “P” is used to define a thrust key and is not considered to be a mounting. However, it is located at the primary end.

Example: 4.00 CCBMALTS14AC x 10.000

Combination “C” mounting head only. “BB” mounting cap end
This cylinder is also cushioned at both ends.

Double Rod End In general, the model number is read left to right corresponding to the cylinder as viewed from left to right with the primary end at rod end #1. See Double Rod Models information page

in this section. For this option the piston rod number, piston rod end, and piston rod threads are to be specified for both ends. The simplest are for symmetric cylinders such as: TD, C, E, F, G, and CB mounts. All other mounting styles, the description of the first rod end will be at the mounting end. In the case of multiple mounts, the description of the first rod end will be at the primary mounting end. For “DD” mounts, the description of the first rod end will be the same location as the “XI” dimension.

Example: 4.00 KDDMALT24A/18A x 10.000 XI=8

This is a center trunnion mounting cylinder with the XI dimension measured from the code 2 rod side of the cylinder which has the style 4 thread. The opposite end code 1 rod with the style 8 thread.

Style 3 Rod End

A style 3 rod end indicates a special rod end configuration. All special piston rod dimensions must have **all three**: KK; A; W/WF or LA/LAF specified with the rod fully retracted. A sketch or drawing should be submitted for rod ends requiring special machining such as snap ring grooves, keyways, tapers, multiple diameters, etc. It is good design practice to have this machining done on a diameter at least 0.065 inches smaller than the piston rod diameter. This allows the piston rod to have a chamfer preventing rod seal damage during assembly or maintenance. Standard style 55 rod ends with a longer than standard

WG dimension should call out a style 3 rod end and the note: **same as 55 except WG=_____**. A drawing should be submitted for special 55 rod ends that have specific tolerances or special radii. Special rod ends that have smaller than standard male threads, larger than standard female threads, or style 55 rod ends with smaller than standard AF or AE dimensions are to be reviewed by Engineering for proper strength at operating pressure.

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 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.

Series MA

NFPA Industrial Air Cylinders

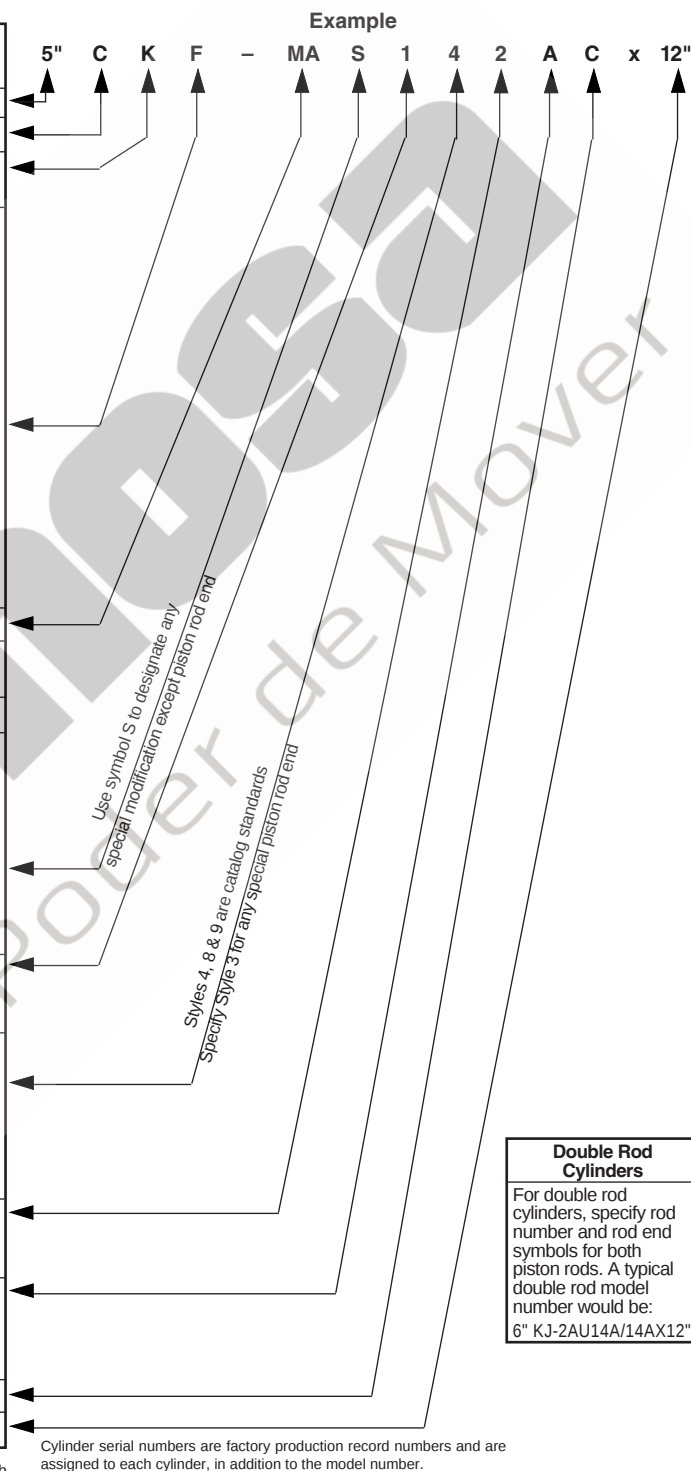
Model Numbers

Series MA Model Numbers – How to Develop Them – How to “Decode” Them

Parker Series MA 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 No.	Symbol
Bore	Specify in inches	—	—
Cushion Head	Used only if cushion head is required	58	C
Double Rod	Used only if double rod cylinder is required	65	K
Mounting Style	Head Tie Rods Extended	60, 61 62, 63, 64 & 65	T B
	Cap Tie Rods Extended		T C
	Both End Tie Rods Extended		T D
	Head Rectangular Flange		J
	Cap Rectangular Flange		H
	Side Lug		C
	Side Tapped		F
	Cap Fixed Clevis		B B
	Cap Detachable Clevis		B C
	Head Trunnion		D
	Cap Trunnion		D B
	Intermediate Fixed Trunnion		D D
Series	Used in all MA Model Numbers	—	MA
Piston	Lipseal™ Piston standard. No need for symbol in model number.	—	—
Ports	NPTF (Dry Seal) Ports are standard.	C89-91	—
Special Modifications	Used only if special modifications are required:		
	Oversize Ports	C89-91	S
	Port Position Change	C89-91	
	Stop Tube•	C95	
	Stroke Adjuster	C93	
	Fluorocarbon Seals	C83	
Piston Rod Number	For Single Rod Cylinders, Select only one. Check chart on Page C96 for minimum piston rod diameter.	60 & 65	1 3
	Select:		
Piston Rod End	Style 4 Small Male	60, 62, 64, 65	4
	Style 8 Intermediate Male		8
	Style 9 Short Female		9
	Style 3 Special (Specify)		3
Piston Rod Alternate Threads	Used only for two times longer than standard.	C92	2
Piston Rod Threads	UNF Standard	C92	A
	BSF (British Fine)		W
	Metric		M
Cushion Cap	Used only if cushion cap is required	58	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-2AU14A/14AX12"

*Required for Basic Cylinder Model Number •In case of stop tube, call out gross stroke length.
Dark Arrows Indicate Basic Minimum Model Number.

Cylinder serial numbers are factory production record numbers and are assigned to each cylinder, in addition to the model number.

For Cylinder Division Plant Locations – See Page II.

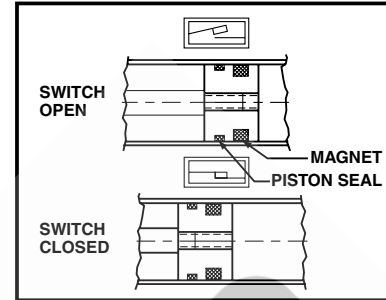
Series MA NFA Industrial Air Cylinders

Switches

Magnetically Actuated Switches

The MA adjustable switch has been designed for use on Series MA Pneumatic Cylinders. It is a normally open switch. The compact design of the switch causes a minimum interference with cylinder envelope dimensions. The MA switch will sense the magnetic piston through a non-ferrous cylinder barrel. Several MA switches may be mounted on a single cylinder to control or sequence several functions.

The MA switch is mounted on a single tie rod with an aluminum extrusion for easy adjustment. Its rugged construction will provide millions of trouble free cycles. It is ideally suited as an input to programmable controllers or to activate an industrial relay.



Switch Specifications

	Reed Switch Assembly MAR-2 L074480000	Solid State Switch Assembly MAS-3 PNP Sourcing L074490000 MAS-4 NPN Sinking L074500000		Reed Switch Assembly MAR-2 L074480000	Solid State Switch Assembly MAS-3 PNP Sourcing L074490000 MAS-4 NPN Sinking L074500000
Switching Logic	Normally Open, SPST	PNP or NPN	Operating Temperature	14° to 140°F (-10° to 60°C)	14° to 158°F (-10° to 70°C)
Supply Voltage Range	5 to 125 V AC/DC	5 TO 30 VDC	Storage Temperature	-4° to 158°F (-20° to 70°C)	-4° to 176°F (-20° to 80°C)
Max. Switching Power	10 Watts (Resistive) 5 Watts (Inductive)	6 Watts	LED Indicator	Red, Target Present When On	Red, Target Present When On
Max. Switching Current	300 mA (Resistive) 150 mA (Inductive)	200 mA at 24 VDC	Minimum Current To Light LED	18 mA	1 mA
Circuit Current Consumption	—	Max 14 mA at 24 VDC	Lead Wire Lengths	39 Inches, 1 Meter	39 Inches, 1 Meter
Short Circuit Interruption Current	—	370 mA			
Leakage Current	—	10 µA Maximum			
Residual Voltage	Maximum 3 V	1.5 V Maximum			
On State Voltage Drop	1.7V Maximum	See Below			
Response	1000 Hz Maximum	1000 Hz Maximum			
Shock Resistance	30G Non-Repeated Shock	30G Non-Repeated Shock			
Degree Of Protection	IEC IP 67	IEC IP 67			

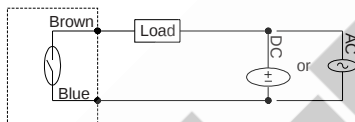
*Polarity is restricted to DC operation: (+) to Brown (-) to Blue
If these connections are reversed the contacts will close, but the LED will not light.
Note: For switches with connectors and cordsets, see Section C.

Circuits

Reed Switch (MAS-2)

Part No. L074480000

NOTE: Polarity must be observed for DC operation only.

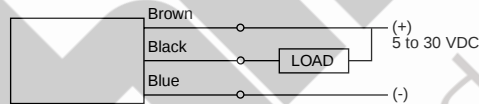


NPN Sinking Output (MAS-4)

Part No. L074500000

Color of Cable Black

"On" State Voltage Drop 0.7V Maximum

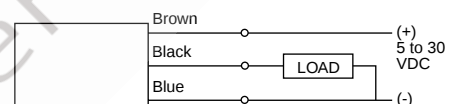


PNP Sourcing Output (MAS-3)

Part No. L074490000

Color of Cable Gray

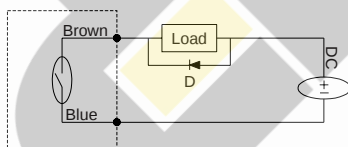
"On" State Voltage Drop 0.2V Maximum



Circuit for Switching Contact Protection (Inductive Loads)

(Required for proper operation 24V DC)

Put Diode parallel to loads following polarity as shown below.



D: Diode: select a Diode with the breakdown voltage and current rating according to the load.

Typical Example—100 Volt, 1 Amp Diode

Load: Relay coil (under 0.5W coil rating) (Recommended for longer life 125 VAC)

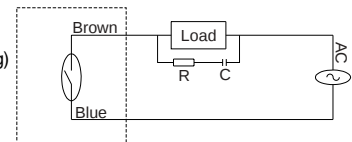
Put a resistor and capacitor in parallel with the load. Select the resistor and capacitor according to the load.

Typical Example:

Load: Relay coil (under 2W coil rating)

R: Resistor 1 KΩ - 5 KΩ, 1/4 W

C: Capacitor 0.1 µF, 600 V



⚠ Caution

- Use an ammeter to test reed switch current. Testing devices such as incandescent light bulbs may subject the reed switch to high in-rush loads.
- NOTE:** When checking an unpowered reed switch for continuity with a digital ohmmeter the resistance reading will change from infinity to a very large resistance (2 M ohm) when the switch is activated. This is due to the presence of a diode in the reed switch.
- Anti-magnetic shielding is recommended for reed switches exposed to high external RF or magnetic fields.
- The magnetic field strength of the piston magnet is designed to operate with our switches. Other manufacturers' switches or sensors may not operate correctly in conjunction with these magnets.

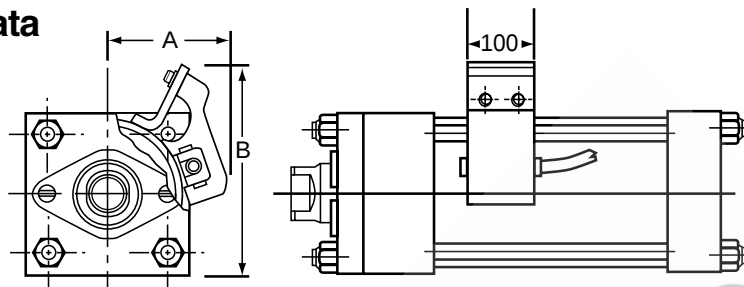
- Current capabilities are relative to operational temperatures.
- Use relay coils for reed switch contact protection.
- The operation of some 120 VAC PLC's (especially some older Allen-Bradley PLC's) can overload the reed switch. The switch may fail to release after the piston magnet has passed. This problem may be corrected by the placement of a 700 to 1K OHM resistor between the switch and the PLC input terminal. Consult the manufacturer of the PLC for appropriate circuit.
- Switches with long wire leads (greater than 15 feet) can cause capacitance build-up and sticking will result. Attach a resistor in series with the reed switch (the resistor should be installed as close as possible to the switch). The resistor should be selected such that R (ohms) > E/0.3.

For additional information – call your local Parker Cylinder Distributor.

Series MA NFFPA Industrial Air Cylinders

Switch Mounting Data

MA Switch Mounting Data



Bore	A	B	PISTON TRAVEL AT MIDSTROKE (SWITCH ON) (±.01)	MINIMUM ACTIVATION DISTANCE FROM END OF STROKE	
				Head	Cap
1½	1.90	2.71	.37	.20	.20
2	2.10	3.25	.37	.20	.20
2½*	2.20	3.60	.37	.13	.13
3¼*	2.70	4.25	.37	.13	.13
4*	2.90	4.90	.37	.13	.13
5*†	3.20	5.85	.37	0	0
6*†	3.82	6.70	.37	0	0

NOTE:

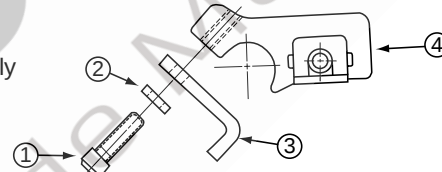
* To maintain minimum activation distance switch can only be mounted with "LED" against end plate because of cable interference on 'End of Stroke' applications.

† On 5.0" and 6.0" bore cylinders, end of stroke activation will occur without the switch physically touching the head or cap.

Standard MA Switch Assembly

Consists of:

- 0106280032 (2) #8-32 Sh. Cap Screw
- 0108850008 (2) Lockwasher
- 0854530000 (1) Bracket Clamp
- (1) Switch & Bracket Sub-Assembly
MAR-2 – 0862580000
MAS-3 – 0862590000
MAS-4 – 0862600000



How to Order:

MA switches are not mounted to the cylinder prior to shipment. When ordering a cylinder to accommodate a MA switch:

- Derive a proper model number as shown in the table below.
- Place an "S" in the special features column.
- Underneath the model number specify:
1) Cylinder prepared for MA switch.
- As a separate item specify the number of switch assemblies required.

	BORE SIZE	CUSHION HEAD END	DOUBLE ROD	MOUNTING STYLE	SERIES	SPECIAL FEATURES	PISTON ROD NO.	PISTON ROD END	PISTON ROD ALTERNATE THREADS	THREAD TYPE	CUSHION CAP END	STROKE
	6	C	K	J	MA	S	1	4	2	A	C	X12
E X A M P L E	Specify 1½" thru 6"	Specify only if cushion head end is required	Use only if Double Rod Cylinder is required	Specify Mounting Style: T, TB, TC, TD, J, H, C, F, BB, BC, D, DB or DD	Specify Series MA	Specify for cylinder prepared for switches and/or other modifications	Specify Rod Code No.	Specify Style 4 Small Male Style 8 Intermediate Male Style 9 Short Female Style 3 Special Specify KK, A, LA, LAF, W, WF Dim.	Use only for 2x longer than standard rod end thread	Specify: A = UNF W = BSF M = METRIC	Specify only if Cushion Cap End is required	Specify in inches. Show Symbol "X" just ahead of stroke length

Example: To order a 2½" x 10" MA cylinder with MA switches to sense the end of stroke at both the head and cap end specify:

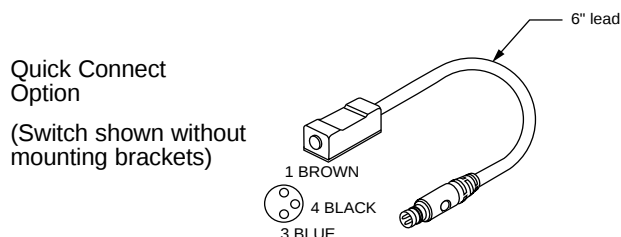
Item	Qty.	Description	
A	(1)	2.50 C J MAS 14A C x 10.000 (1) Cylinder prepared for MA Switch	* #L074480000 – MAR-2 #L074490000 – MAS-3 #L074500000 – MAS-4
B	(2)	(*) Switch Assemblies	

For Cylinder Division Plant Locations – See Page II.

Magnet Actuated Switches with Quick Connect

Magnet Actuated Switches are available for Series SRM, P, 2MA, MP, and RC cylinders. Refer to the appropriate Catalog information for electrical specifications on each switch. The standard lead wire length is 39" (1 meter).

Switches for the above cylinders are also offered with a 6 (six) inch lead with a male quick connect option.



Switches with 6" Lead and Quick Connect Male End

Series	Reed	NPN Sinking	PNP Sourcing
SR, P	145903000C	146714000C	146715000C
MA	L07448000C	L07450000C	L07449000C
2MA (1½"-2½", 5", 6") (3¼", 4", 8")	L07486000C L07487000C	L07488000C L07490000C	L07491000C L07492000C
MP 32mm, 40mm 50mm, 63mm 80mm, 100mm	L07525000C L07526000C L07527000C	L07528000C L07529000C L07530000C	L07531000C L07532000C L07533000C
RC	L07480000C	L07481000C	L07482000C

Switches are supplied with the bracket to mount the switch to the cylinder. Refer to the switch information for each series for bracket dimensions.

**Cordset with Female Quick Connect
(Order Separately)**

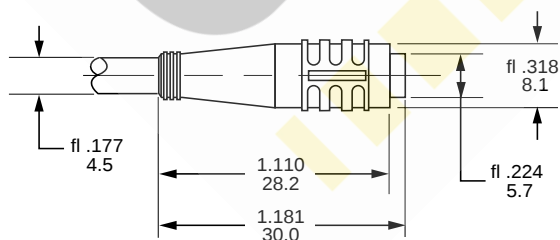
A female connector is available for all switches with the male quick connect option. The male plug will accept a snap-on or threaded connector. Cylinder Division cordset part numbers and other manufacturer's part numbers are listed below:

Manufacturer	Snap-On Version	Threaded Version
Parker	086620S005	086620T005

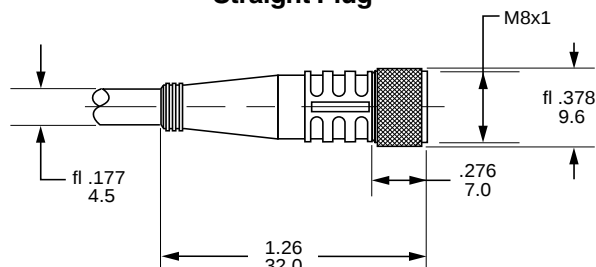
Cordset Specifications:

Connector:	Oil resistant polyurethane body material, PA 6 (Nylon) contact carrier, spacings to VDE 0110 Group C, (150 VAC / DC)
Contacts:	Gold plated beryllium copper, machined from solid stock
Coupling Method:	Snap-Lock or chrome plated brass nut
Cord Construction:	Oil resistant black PUR jacket, non-wicking, non-hygroscopic, 300V. Cable end is stripped and tinned.
Conductors:	Extra high flex stranding, PVC insulation
Temperature:	-40° to 185°F (-40° to 85°C)
Protection:	NEMA 1, 3, 4, 6P and IEC IP67
Cable Length:	6.56 ft (2m) or 16.4 ft (5m)

**Snap-On
Straight Plug**



**Threaded
Straight Plug**



For additional information – call your local Parker Cylinder Distributor.

Parker *inPHorm*TM

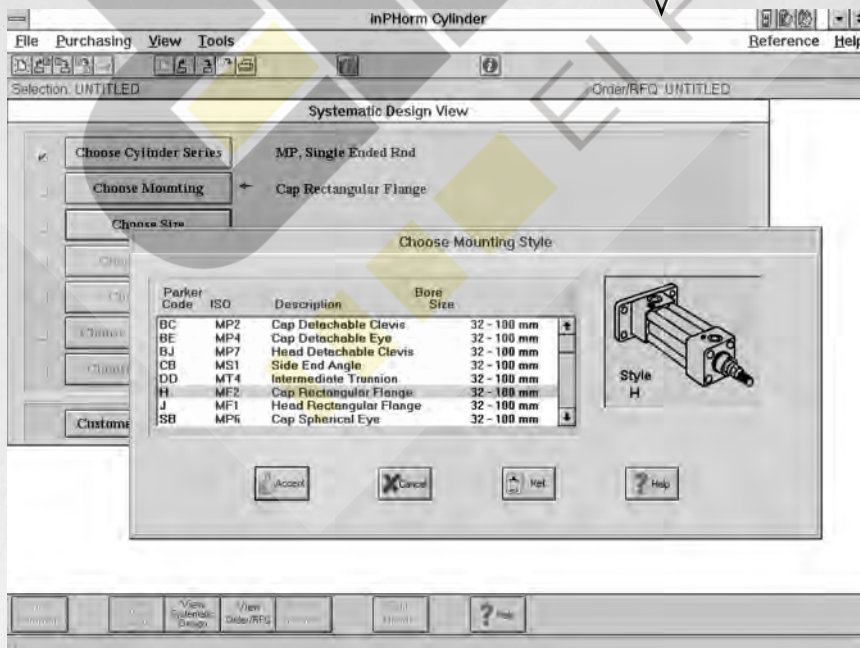
Cylinder Sizing, Selection, and Parametric CAD Software

Parker is pleased to introduce Version 1.5 of ***inPHorm*TM for Cylinders**. This program allows you to select the proper Parker cylinder for your application. ***inPHorm* for Cylinders** will increase your efficiency and minimize the engineering time required to design in cylinders. This new release, ***inPHorm* 0860 CD/USA Version 1.5** has been updated with new product lines and seal kit information.

***inPHorm* for Cylinders** is written for use with Windows, which makes it extremely user friendly. You can use the program to develop a model number. ***inPHorm* for Cylinders** guides you through the selection process, performs the calculations, and eases the process of sorting through catalog drawings, charts and tables. You can also employ the "Direct Part Number Entry" module to input a known model number. In either case, you can view a dimensioned

drawing, generate a print or DXF file and even create a quote request or order form.

"Advisor" options within the program offer additional assistance with special modifications and design considerations.



During any portion of the program, reference material can be accessed or printed for future use.

The ***inPHorm*** cylinders sizing, selection and parametric CAD software is designed around the user to assist in the design process and minimize the time required to specify, draw and file your favorite Parker Cylinder product. By working with the Parker ***inPHorm* for Cylinders** software, the design, selection and specification of Parker cylinders becomes easier and faster for the most effective use of your valuable time.

System Highlights

- Cylinder Sizing and Selection
- Parametric Drawing Creation
- Windows-based
- Input Formats:
 - Direct Part Number Entry
 - Systematic Design
- Available Information Outputs:
 - HPGL CAD Drawing
 - CAD File (*.dxf)
 - Selection Summary
 - Printout
 - RFQ/Order Sheet Printout

For further details, or to purchase your copy of ***inPHorm* for Cylinders**, call your local Parker distributor or 1-800-C-Parker (272-7537). To try ***inPHorm*** visit our web site at www.Parker.com/cylinder.

Worldclass
Quality Products
and Service



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Series 2H, Heavy Duty, 3000 PSI	Catalog HY08-1114-3/NA
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B

For Cylinder Division Plant Locations – See Page II.

Hydraulic Cylinders

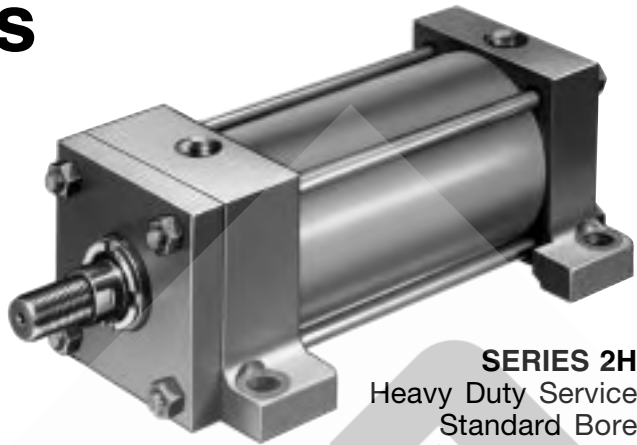
SERIES HMI

Heavy Duty Service
ISO Bore Sizes 25mm-200mm



SERIES 2H

Heavy Duty Service
Standard Bore
Sizes
1½" through 6"



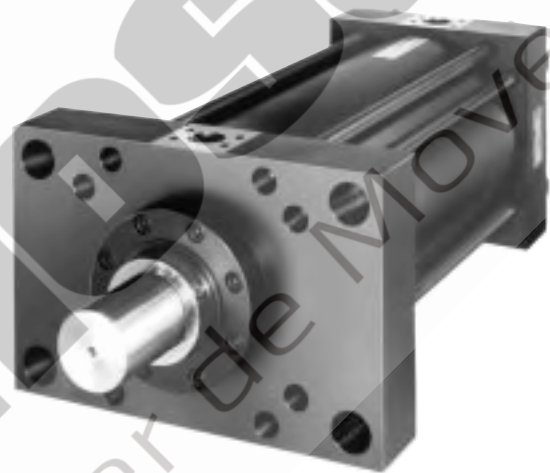
SERIES 3L

Medium Duty Service
Standard Bore Sizes
1" through 8"



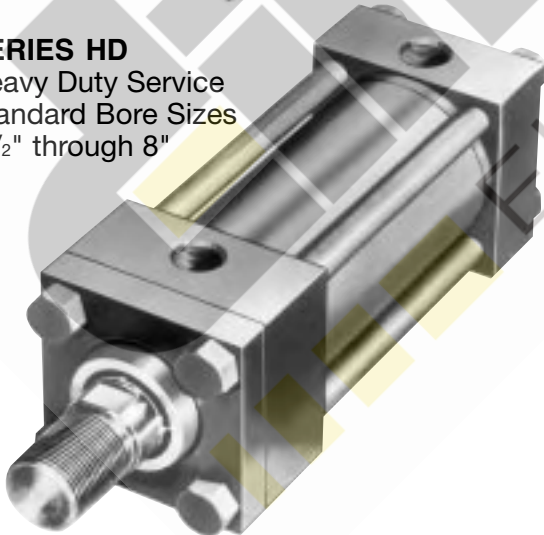
SERIES 3H

Heavy Duty Service
Bore Sizes
7" through 20"



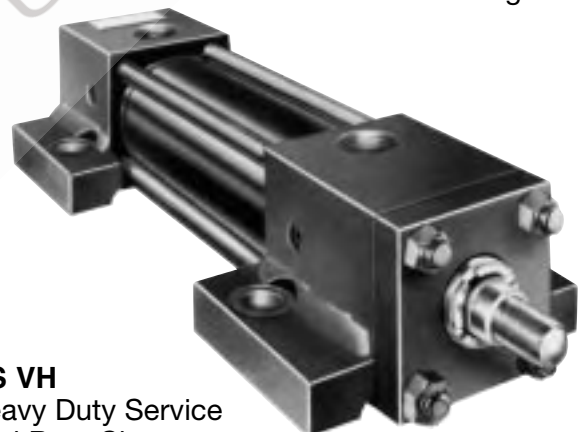
SERIES HD

Heavy Duty Service
Standard Bore Sizes
1½" through 8"



SERIES VH

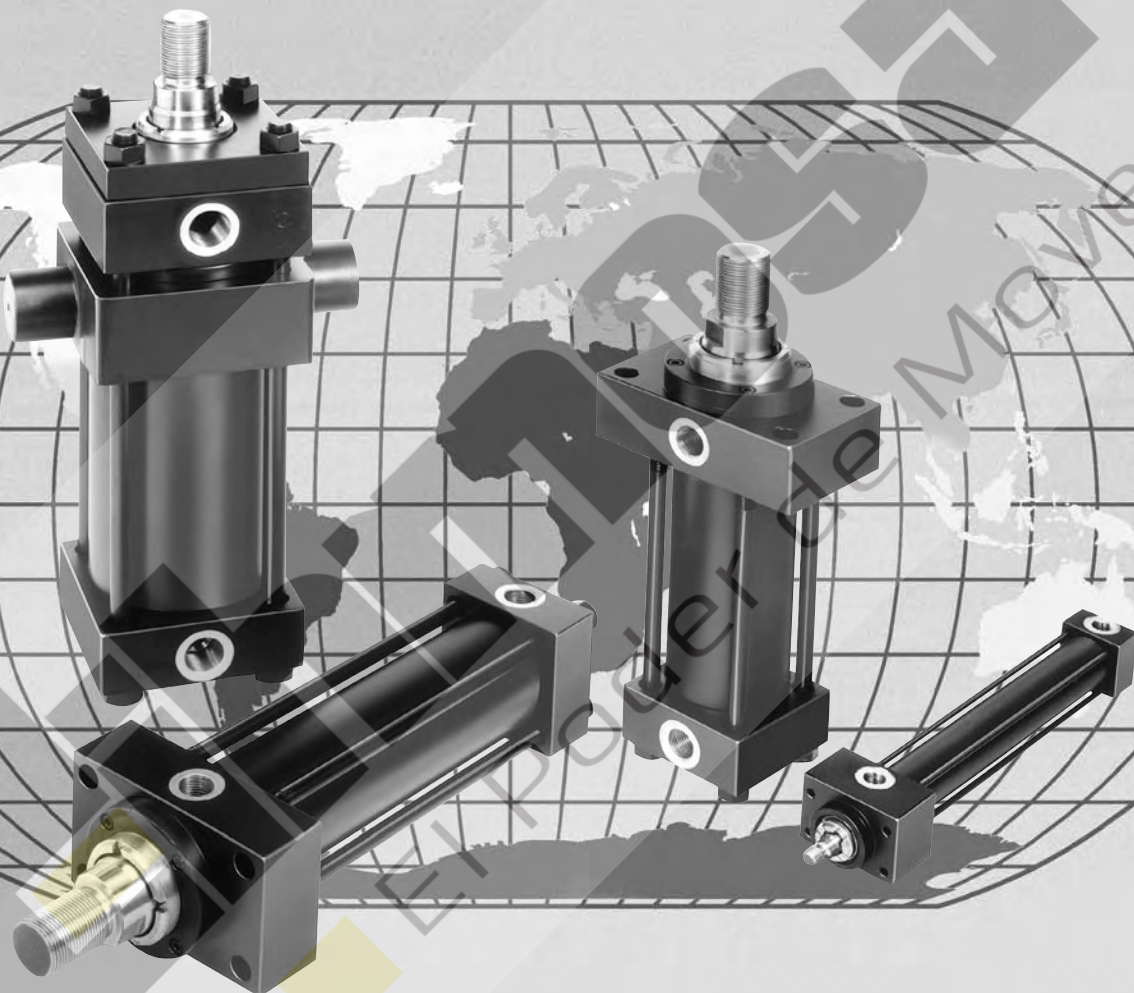
Very Heavy Duty Service
Standard Bore Sizes
2½" through 8"



For additional information – call your local Parker Cylinder Distributor.

Metric Hydraulic Cylinders Series HMI

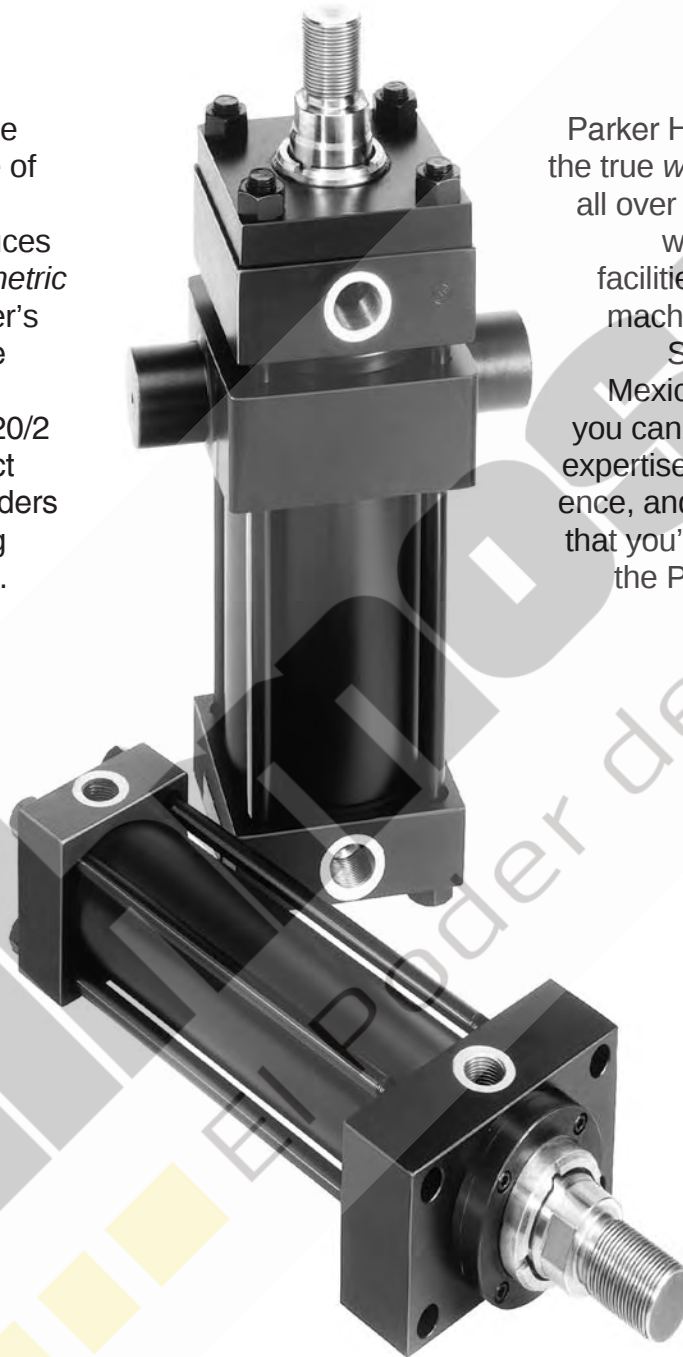
Conforms to ISO 6020/2 (1991)
For working pressures up to 210 bar



*Vital Technologies for
Motion and Control*

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.

For additional information – call your local Parker Cylinder Distributor.

Parker Series HMI Metric Hydraulic Cylinders

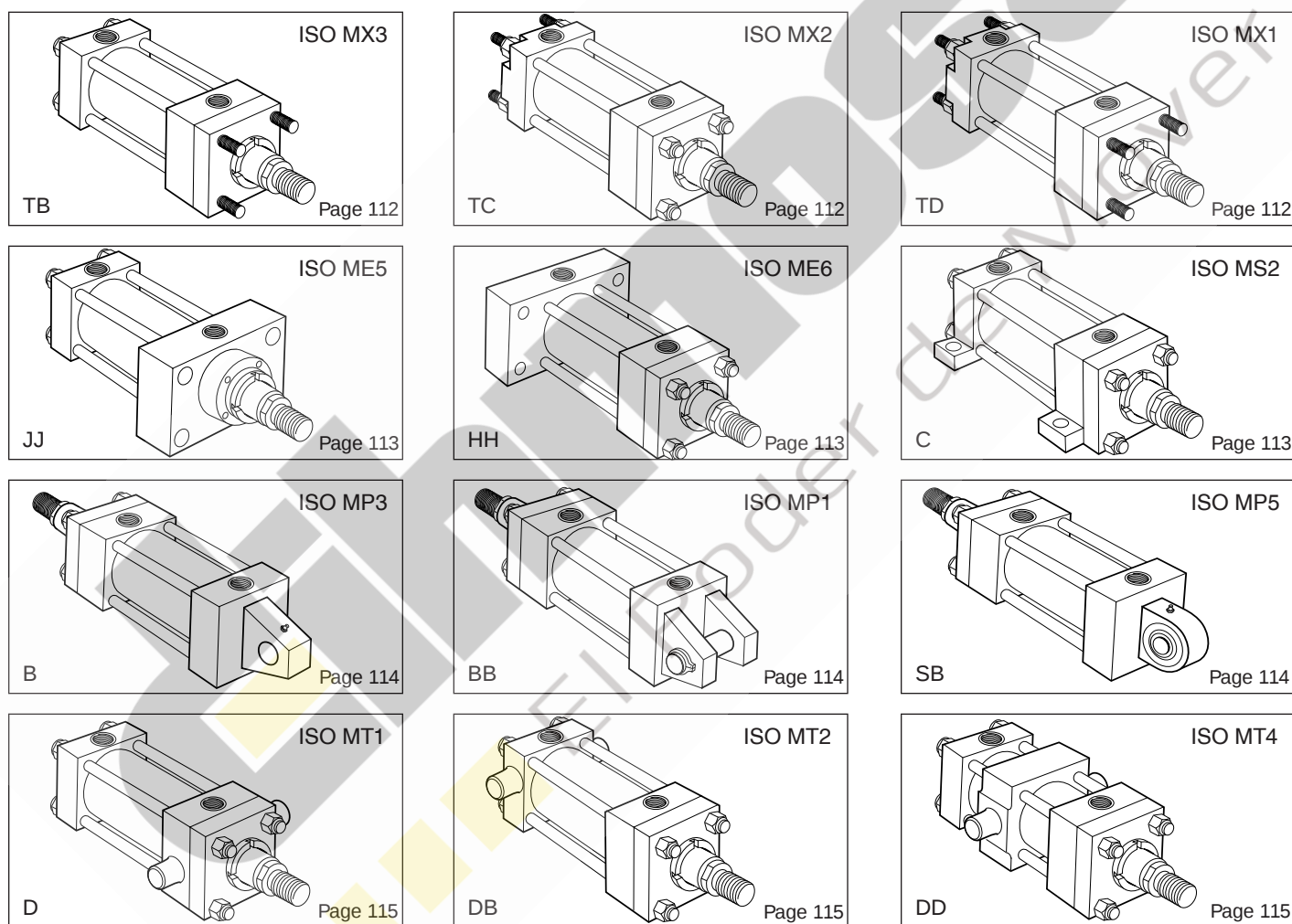
Features, Specifications
and Mountings

Series HMI Standard Features and Specifications

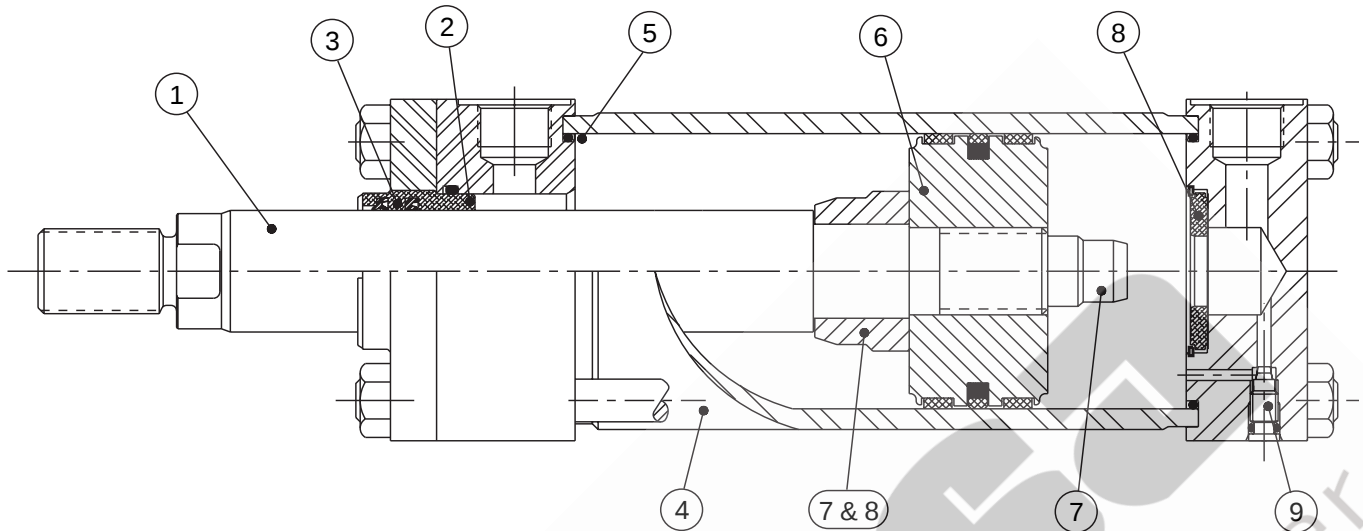
- ISO 6020/2 mounting interchangeable
- 12 standard mounting styles
- Up to 3 rod sizes per bore
- Wide range of mounting accessories
- Up to 3 male and 3 female rod end threads per bore
- Bore sizes – 25mm to 200mm
- Strokes – available in any practical stroke length
- Working pressure up to 210 bar
- 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.

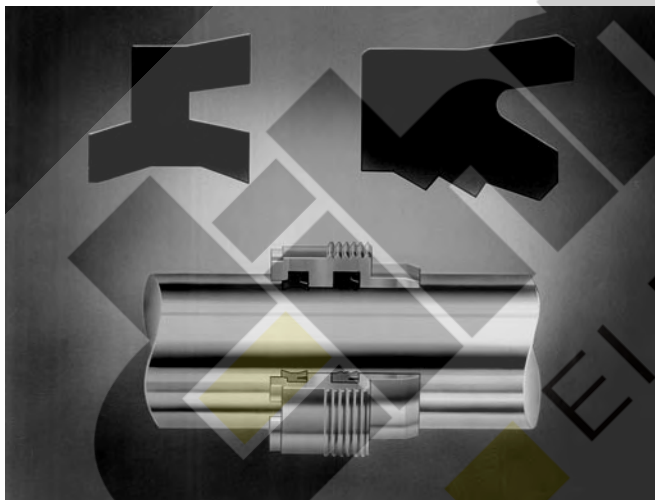


1 Piston Rod

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.

2 Parker's 'Jewel' Gland

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

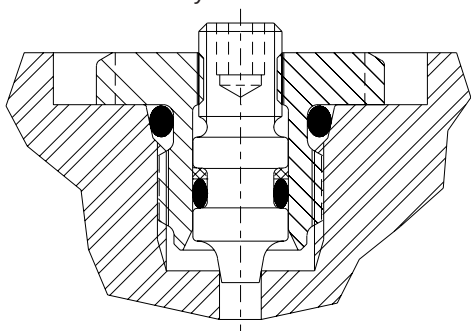
For additional information – call your local Parker Cylinder Distributor.

Parker Series HMI Metric Hydraulic Cylinders

Design Features and Benefits

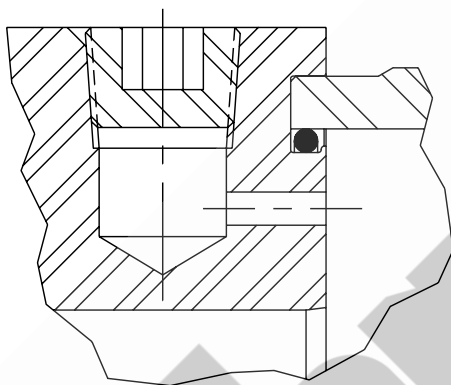
9 Cushion Adjustment

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.



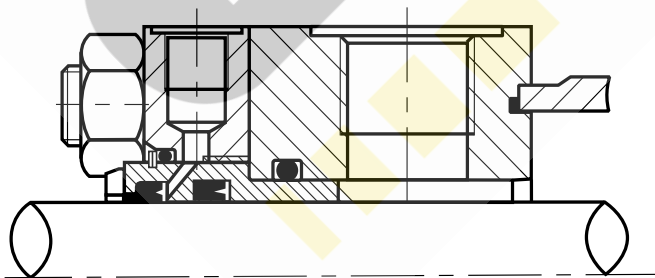
Air Bleeds

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



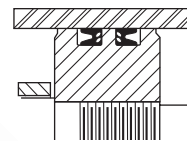
Gland Drains

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.

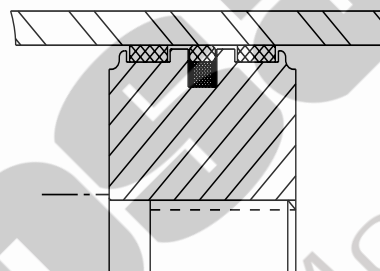


Piston Seals

Standard on 25mm, 32mm and 40mm bore sizes, Parker's Lipseal™ Piston provides zero leakage under static conditions for hydraulic pressures up to 3000 psi. Seals are self-compensating to conform to variations in pressure, mechanical deflection, and wear. Back-up washers prevent extrusion.



Standard on 50mm bore sizes and larger, 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.



Mixed Media Piston Seals

For applications requiring different media on either side of the piston specify Mixed Media Piston Seals with a W piston code. This option is ideal when hydraulic oil is on one side of the piston and air on the opposite side; and it can be equally effective when dissimilar fluids are on either side of the piston. Superior low-friction bi-directional sealing is accomplished by combining an energized filled PTFE seal with a redundant elastomer seal.

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.

For Cylinder Division Plant Locations – See Page II.

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.

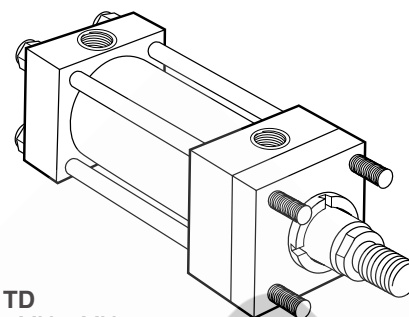
Pivot Mountings

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

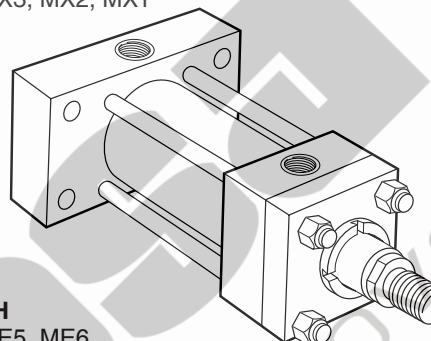
These cylinders, styles D, DB and DD, are designed to absorb force on their centerlines. They are suitable for tension (pull) or compression (push) applications, and may be used where the machine member to be moved travels in a curved path in a single plane. Trunnion pins are designed for shear loads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

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



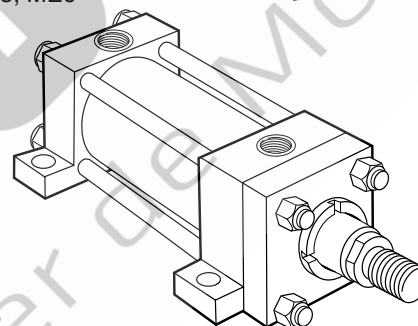
TB

Styles JJ, HH
ISO Styles ME5, ME6



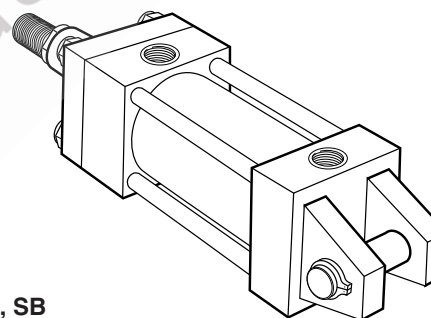
HH

Style C
ISO Style MS2



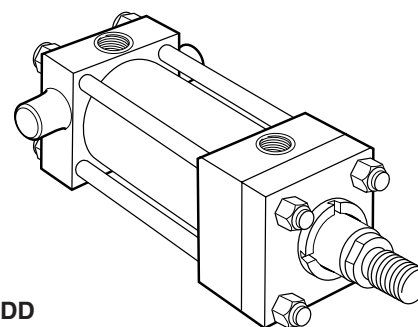
C

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



BB

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



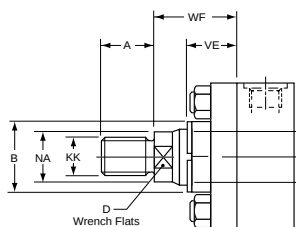
DB

For additional information – call your local Parker Cylinder Distributor.

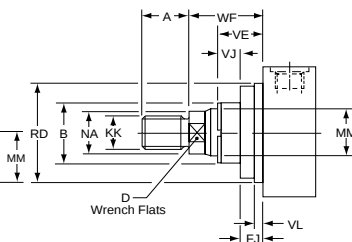
Parker Series HMI Metric Hydraulic Cylinders

Piston Rod End Data and Threads

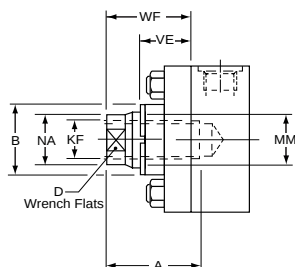
Parker Thread Styles 4 & 7 – All Except JJ Mount



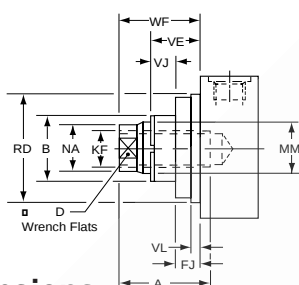
Parker Thread Styles 4 & 7 – JJ Mount



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.

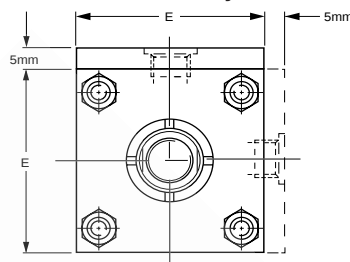
Parker Thread Style 9 – Short Stroke Cylinders

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.

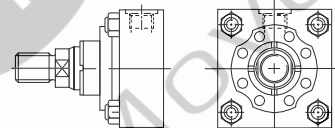
25 & 32mm Bore Cylinders



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 φ	Rod No.	MM Rod φ	Style 4		Style 7		Style 9		B f9	D	NA	VE	WF	JJ Mount Only			
			KK	A	KK	A	KF	A						VL min	RD f8	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	35	3	42	12	10
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	35	3	62	6	10
40	1	18	M14x1.5	18	-	-	M12x1.25	18	30	15	17	16	35	3	62	12	10
	2	28	M20x1.5	28	M14x1.5	18	M20x1.5	28	42	22	26	22	41	4	74	9	16
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	41	4	74	9	16
	3	28	M20x1.5	28	M16x1.5	22	M20x1.5	28	42	22	26	22	41	4	74	6	16
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	48	4	88	13	16
	3	36	M27x2	36	M20x1.5	28	M27x2	36	50	30	34	25	48	4	88	9	16
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	51	4	105	9	20
	3	45	M33x2	45	M27x2	36	M33x2	45	60	39	43	29	51	4	105	9	20
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	57	5	125	10	22
	3	56	M42x2	56	M33x2	45	M42x2	56	72	48	54	29	57	5	125	7	22
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	57	5	150	10	22
	3	70	M48x2	63	M42x2	56	M48x2	63	88	62	68	32	57	5	150	10	22
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	57	5	170	7	25
	3	90	M64x3	85	M48x2	63	M64x3	85	108	80	88	32	57	5	170	7	25
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	57	5	210	7	25
	3	110	M80x3	95	M64x3	85	M80x3	95	133	100	108	32	57	5	210	7	25

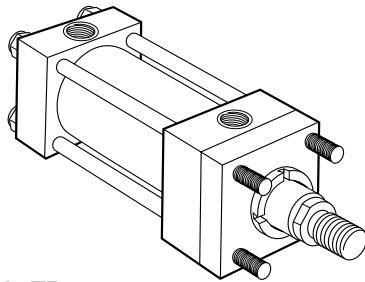
All dimensions are in millimeters unless otherwise stated.

For Cylinder Division Plant Locations – See Page II.

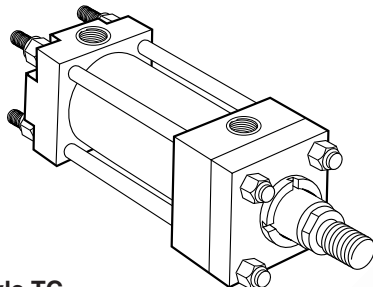
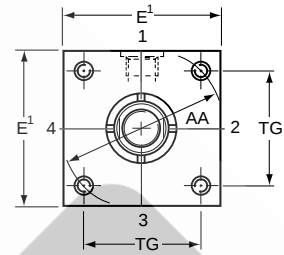
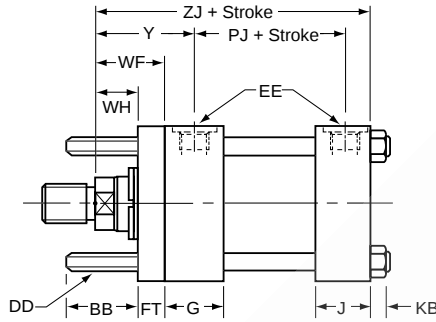


Parker Series HMI Metric Hydraulic Cylinders

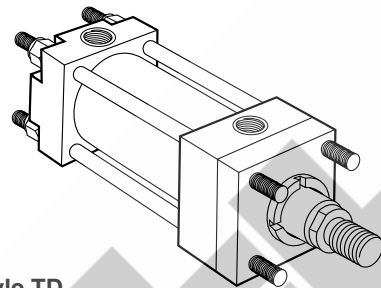
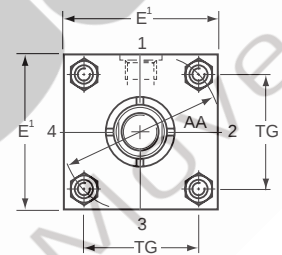
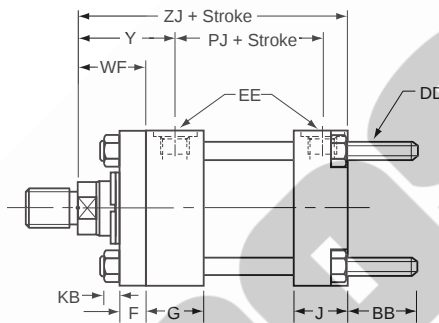
Extended Tie Rod Mountings



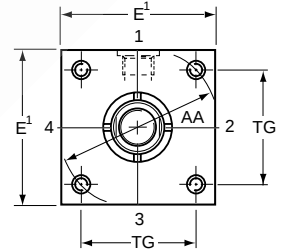
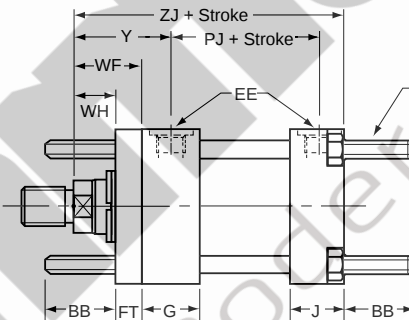
Style TB
Tie Rods Extended Head End
(ISO Style MX3)



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



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



¹Head 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

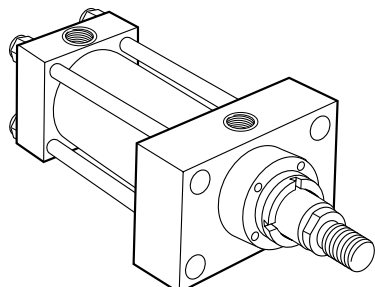
Bore φ	AA	BB	DD	E	EE BSP/G inches	F	FT	G	J	KB	TG	WF	WH	Y	+ Stroke	
															PJ	ZJ
25	40	19	M5x0.8	40 ¹	1/4	10	10	40	25	4	28.3	25	15	50	53	114
32	47	24	M6x1	45 ¹	1/4	10	10	40	25	5	33.2	35	25	60	56	128
40	59	35	M8x1	63	3/8	10	10	45	38	6.5	41.7	35	25	62	73	153
50	74	46	M12x1.25	75	1/2	16	16	45	38	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.

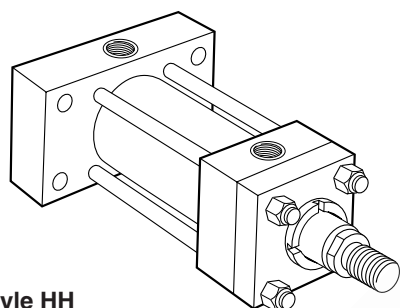
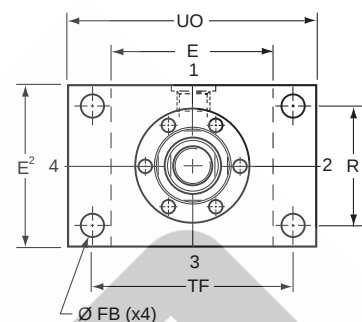
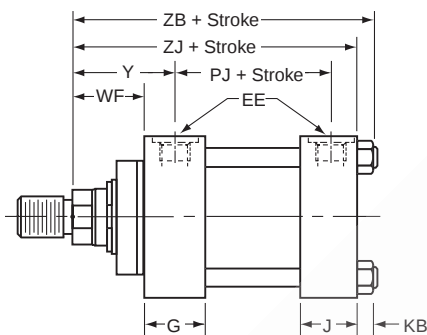
For additional information – call your local Parker Cylinder Distributor.

Parker Series HMI Metric Hydraulic Cylinders

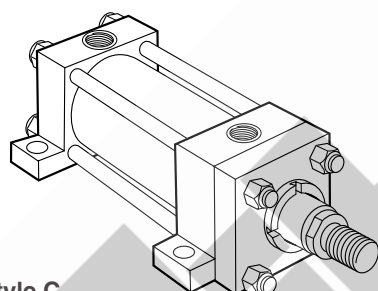
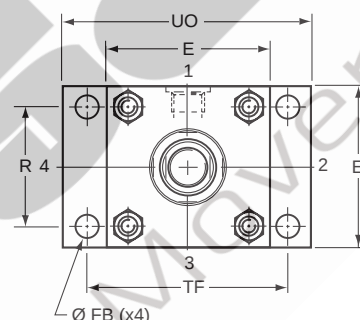
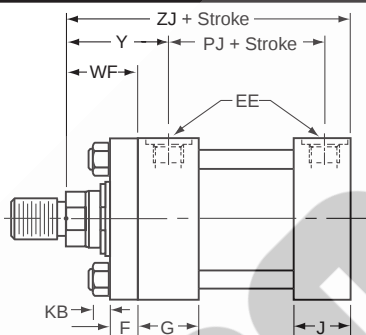
Flange and Side Lugs Mountings



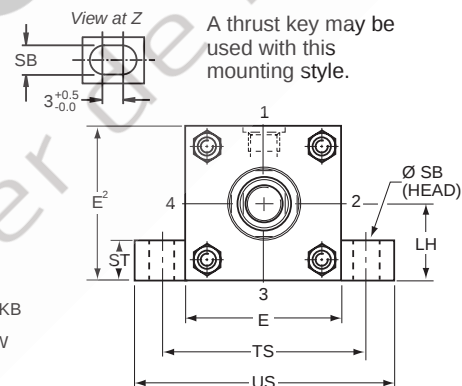
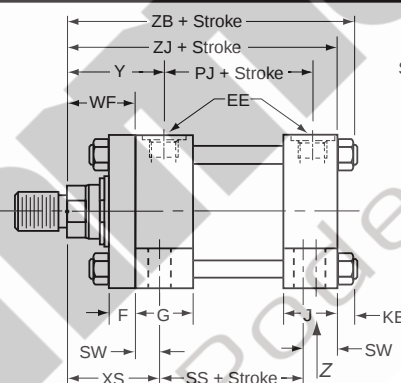
Style JJ
Head Rectangular Flange
(ISO Style ME5)



Style HH
Cap Rectangular Flange
(ISO Style ME6)



Style C
Side Lugs
(ISO Style MS2)



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

²On 25mm and 32 mm bore C mount and JJ mount cylinders with port in position 2 or 4, head depth E is increased by 5mm in position 1.

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

Bore φ	E	EE BSP/G inches	F	FB	G	J	KB	LH h10	R	SB	ST	SW	TF	TS	UO	US	WF	XS	Y	+ Stroke			
																				PJ	SS	ZB	ZJ
25	40 ¹	1/4	10	5.5	40	25	4	19	27	6.6	8.5	8	51	54	65	72	25	33	50	53	72	121	114
32	45 ¹	1/4	10	6.6	40	25	5	22	33	9	12.5	10	58	63	70	84	35	45	60	56	72	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	97	166	153
50	75	1/2	16	14	45	38	10	37	52	14	19	13	105	102	130	127	41	54	67	74	91	176	159
63	90	1/2	16	14	45	38	10	44	65	18	26	17	117	124	145	161	48	65	71	80	85	185	168
80	115	3/4	20	18	50	45	13	57	83	18	26	17	149	149	180	186	51	68	77	93	104	212	190
100	130	3/4	22	18	50	45	13	63	97	26	32	22	162	172	200	216	57	79	82	101	101	225	203
125	165	1	22	22	58	58	18	82	126	26	32	22	208	210	250	254	57	79	86	117	130	260	232
160	205	1	25	26	58	58	22	101	155	33	38	29	253	260	300	318	57	86	86	130	129	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	171	336	299

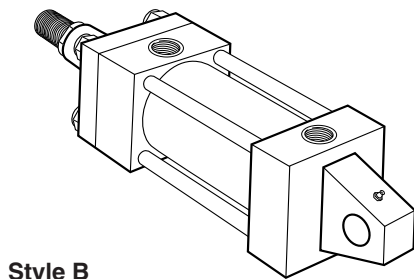
All dimensions are in millimeters unless otherwise stated.

For Cylinder Division Plant Locations – See Page II.



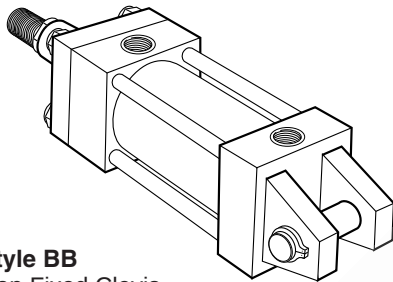
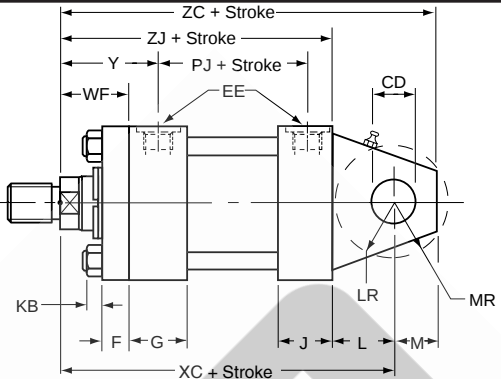
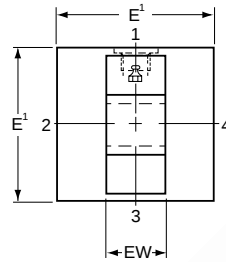
Parker Series HMI Metric Hydraulic Cylinders

Pivot Mountings



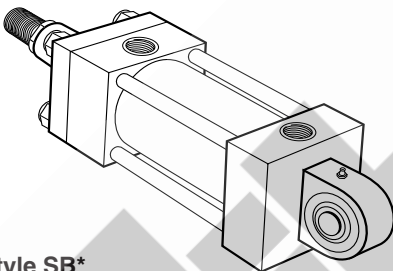
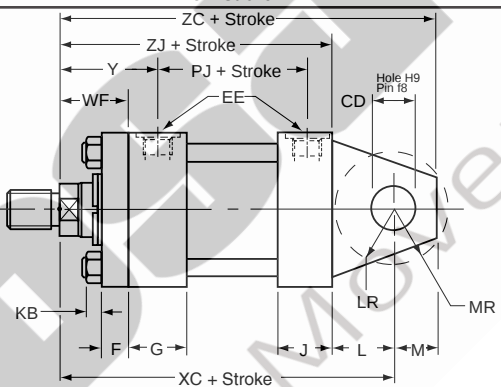
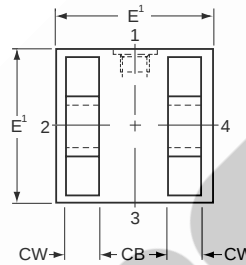
Style B
Cap Fixed Eye
(ISO Style MP3)

Pivot pin not supplied



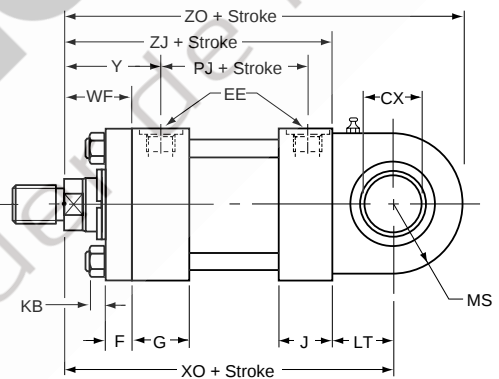
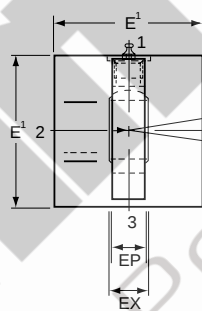
Style BB
Cap Fixed Clevis
(ISO Style MP1)

Supplied complete with pivot pin



Style SB*
Cap Fixed Eye
(ISO Style MP5)

Pivot pin not supplied



*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 ϕ	CB	CD	CW	CX	E	EE BSP/G inches	EP	EW	EX	F	G	J	KB	L	LR	LT	M	MR	MS	WF	Y	+ Stroke					
	A16	H9						h14											max			PJ	XC	XO	ZC	ZJ	ZO
25	12	10	6	12-0.008	40 ¹	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 ¹	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

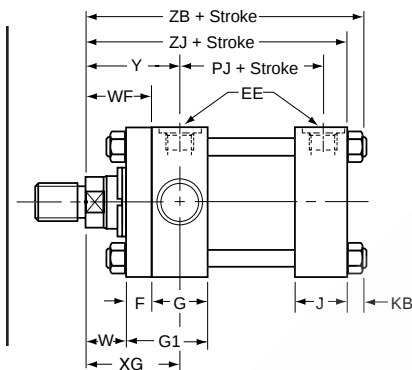
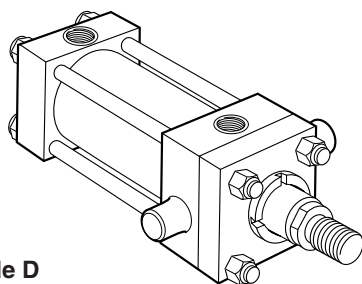
All dimensions are in millimeters unless otherwise stated.

For additional information – call your local Parker Cylinder Distributor.

Parker Series HMI Metric Hydraulic Cylinders

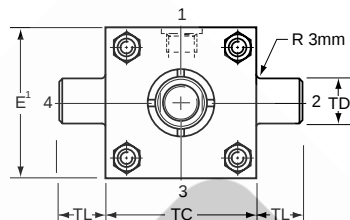
Trunnion Mountings

Style D
Head Trunnion
(ISO Style MT1)

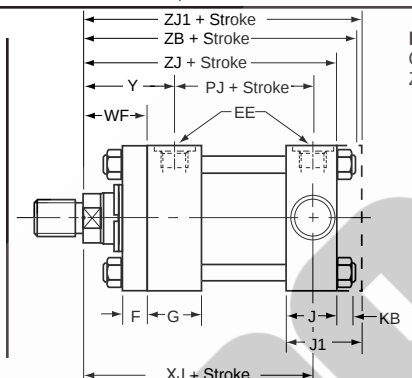
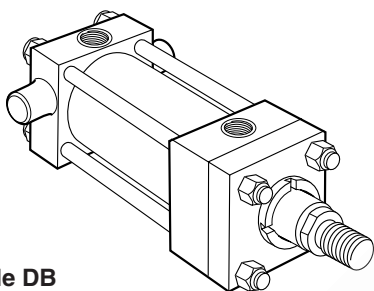


Notes:

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.

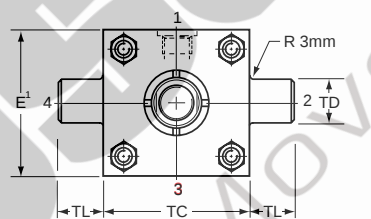


Style DB
Cap Trunnion
(ISO Style MT2)

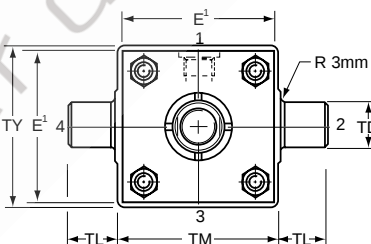
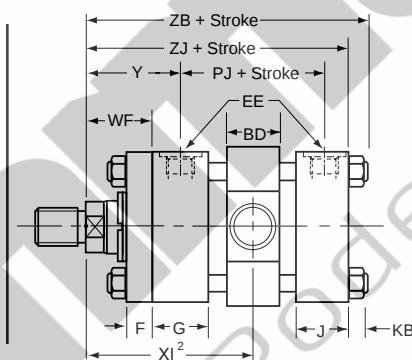
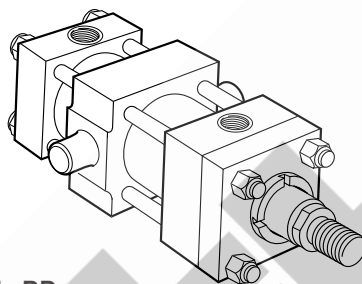


Note:

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)



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

²Dimensions to be specified by customer

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

Bore φ	BD	E	EE BSP/G inches	F	G	G1	J	J1	KB	TC	TD	TL	TM	TY	W	WF	XG	Y	+ Stroke					Style DD min stroke	Min XI dim'n
																			PJ	XJ	ZJ	ZJ1	ZB		
25	20	40 ¹	1/4	10	40	-	25	-	4	38	12	10	48	45	-	25	44	50	53	101	114	-	121	10	78
32	25	45 ¹	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

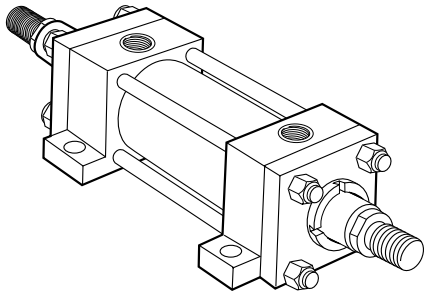
All dimensions are in millimeters unless otherwise stated.

For Cylinder Division Plant Locations – See Page II.



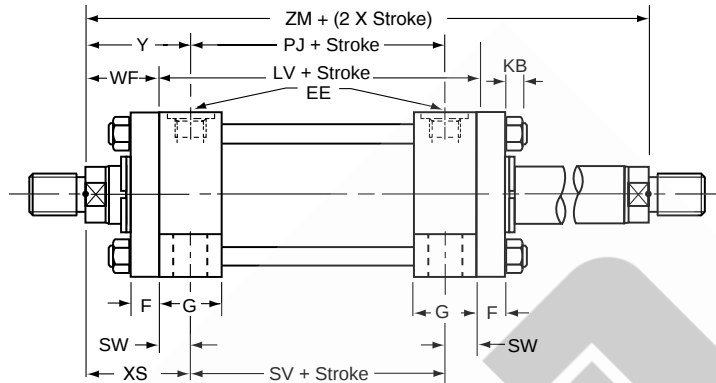
Parker Series HMI Metric Hydraulic Cylinders

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 φ	Rod		Add Stroke			Add 2x Stroke
	No.	MM φ	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				
	2	36	125	74	99	207
	3	28				
63	1	28				
	2	45	127	80	93	223
	3	36				
80	1	36				
	2	56	144	93	110	246
	3	45				
100	1	45				
	2	70	151	101	107	265
	3	56				
125	1	56				
	2	90	175	117	131	289
	3	70				
160	1	70				
	2	110	188	130	130	302
	3	90				
200	1	90				
	2	140	242	160	172	356
	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 KK	Rod Clevis	Eye Bracket	Pivot Pin	Nominal Force kN	Weight 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

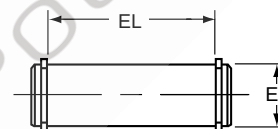
Rod Clevis Dimensions

Part No.	AV	CE	CK H9	CL	CM A16	CR	ER	KK	LE 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

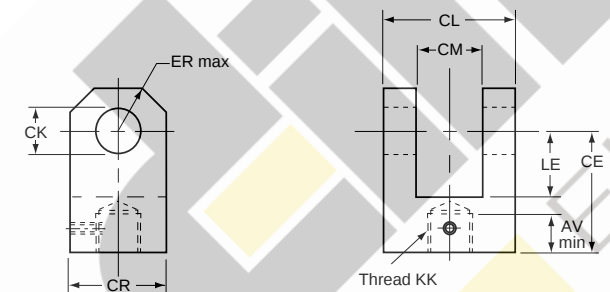
Eye Bracket Dimensions

Part No.	CK H9	EM h13	FL	MR max	LE 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

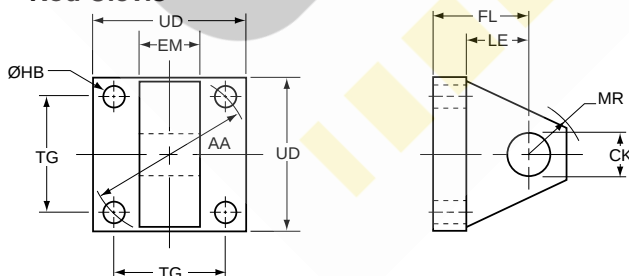
Pivot Pin for Clevis Bracket and Plain Rod Eye – Dimensions



Part No.	EK f8	EL	Weight 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



Rod Clevis



Eye Bracket

All dimensions are in millimeters unless otherwise stated.

Eye Bracket – Cap End Mounting for Style BB

Bore ϕ	Eye Bracket	Nominal Force kN	Weight 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

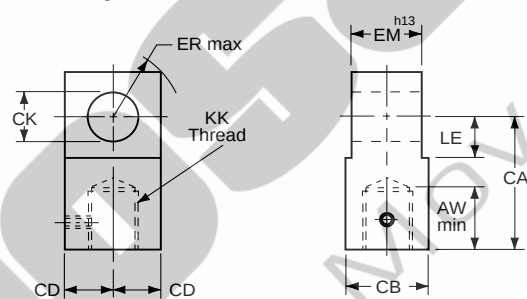
Plain Rod Eye, Clevis Bracket and Pivot Pin

Thread KK	Plain Rod Eye	Clevis Bracket	Pivot Pin	Nominal Force kN	Weight 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

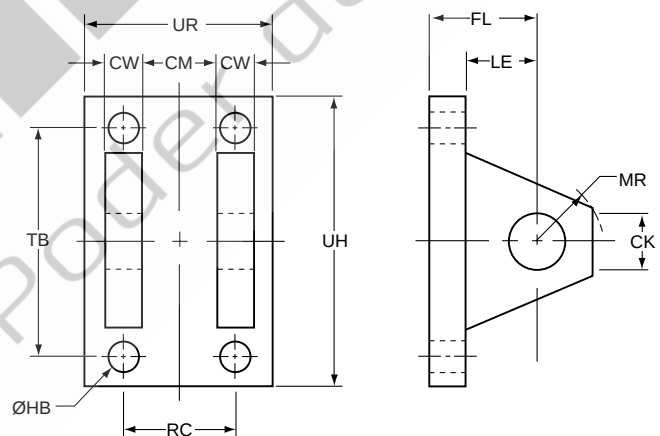
Plain Rod Eye/Knuckle Dimensions

Part No.	AW	CA	CB	CD	CK H9	EM h13	ER	KK	LE	Weight 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



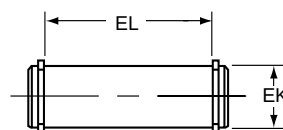
Clevis Bracket Dimensions

Part No.	CK H9	CM A16	CW	FL	MR max	HB	LE 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 φ	Clevis Bracket	Nominal Force kN	Weight 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 No.	EK f8	EL	Weight 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.

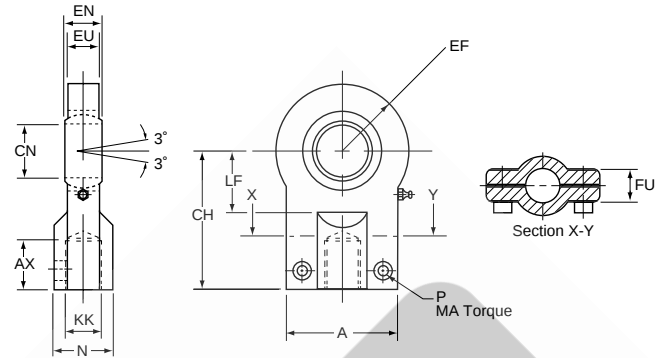
For additional information – call your local Parker Cylinder Distributor.

Parker Series HMI Metric Hydraulic Cylinders

Accessories

Rod Eye with Spherical Bearing, Mounting Bracket and Pivot Pin

Thread KK	Rod Eye with Spherical Bearing	Mounting Bracket and Pivot Pin	Nominal Force kN	Weight 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

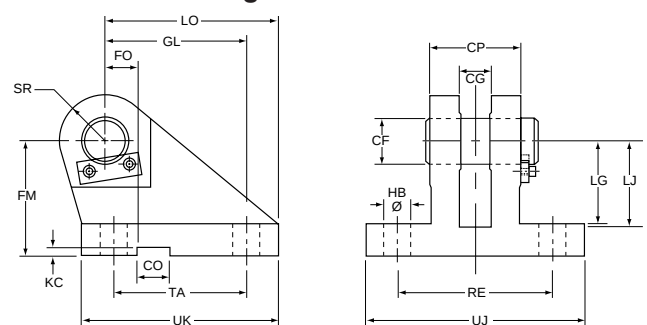
Mounting Bracket and Pivot Pin Dimensions - For Style SB

Part No.	CF K7/h6	CG +0.1, +0.3	CO N9	CP	FM js11	FO js14	GL js13	HB	KC 0, +0.30	LG	LJ	LO	RE js13	SR max	TA 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 φ	Mounting Bracket and Pivot Pin	Nominal Force kN	Weight 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.

Feature	Description	Page	Symbol	Example																		
				80	C	K	C	K	HMI	R	B	S	1	4	M	C	230	M	11	44		
Bore	Millimeters		–	●	○	○	●	○	●	●	●	○	●	●	○	●	●	●	●	●		
Cushion – Head	If required	C117	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	113	JJ	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	Cap Rectangular	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 – Thrust key - 25mm & 32mm bores	C112	P	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	– Thrust key - 40mm bore and larger	C112	K	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
Series	Series name		HMI	●	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
Ports	BSP (ISO 228) – standard	C121	R	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	BSPT (Taper Thread)	C121	B	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	Metric Thread	C121	M	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	Metric Thread per ISO 6149	C121	Y	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	SAE – Straight Thread O-ring Port	C121	T	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	NPTF (Dry Seal Pipe Thread)	C121	U	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	SAE – Flange Ports (3000 PSI)	C121	P	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
Piston	Lipseal™ Piston**	109	L	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	(standard 25mm - 40mm bores)			○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	B-Style Low Friction filled PTFE seals (standard 50mm - 200mm bores)	109	B	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	Mixed Media Low Friction Piston seal (Optional 25mm - 200mm bores)	109	W	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
Special Features	One or more of the following:		S	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	Gland Drain Port	C123		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	Oversize Ports	C120		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	Rod End Bellows	C123		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	Stop Tube	C115		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	Stroke Adjuster	C123		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	Tie Rod Supports	C113		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	Water Service Modifications	C122		○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	Or to detailed descriptions or drawings supplied by customer			○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
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	C117	C	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
Gross Stroke	Millimeters		–	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
Fluid Medium ISO 6743/4 (1982)	Mineral Oil HH, HL, HLP, – Group 1	C122	M	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	HLP-D, HM, HV, MIL-H-5606 Oil, Air, Nitrogen – Group 5	C122	D	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
Port Positions	Head position 1-4	C120	1	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	Cap position 1-4	C120	1	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
Air Bleeds	Head position 1-4	C120	4	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	Cap position 1-4	C120	4	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		
	No Air Bleed	C120	00	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○		

*Mounting Style SB is also known as Parker Style SBd in Parker's European model code system.

†Specify XI dimension.

**Lipseal piston not available 50mm - 200mm bores. Contact factory regarding B-style piston availability in 25mm - 40mm bores.

Key: ● Essential information
○ Optional features

Note: Page numbers with a letter prefix, ie: C117, are located in section C of this catalog.

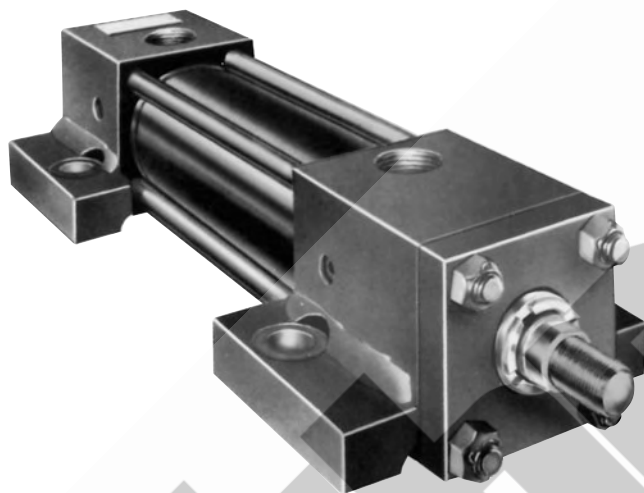
Key: ● Essential information
○ Optional features

Note: Page numbers with a letter prefix, ie: C117, are located in section C of this catalog.

For Cylinder Division Plant Locations – See Page II.



Series VH Hydraulic Cylinders



Extra-long Tapered Cushions Oversize Ports Meets N.F.P.A. Specifications

Nominal Pressure - 3000 PSI
Standard Bore Sizes - 2½" Through 8"
Piston Rod Diameters - 1" Through 5½"
Fifteen Standard Mounting Styles

Series "VH" very heavy-duty hydraulic cylinders are premium quality cylinders—with operating capacities of 3,000 PSI. They fully meet NFPA standards. And to make sure every cylinder is premium-quality, Parker Hannifin subjects each and every one – not just batch samples – to tough inspection and performance tests.

OTHER SERIES "VH" FEATURES AND SPECIFICATIONS

Ports

Series "VH" ports are two sizes or larger than NFPA standards. Standard location is position 1 as shown in dimensional drawings. Where mountings do not interfere, ports may be located at positions 2, 3, or 4. Ports are not available at positions 2 or 4 on mounting style C, 2½" thru 5" bore cylinders. SAE straight thread O-ring ports will be supplied unless otherwise specified.

Cushions

Cushions on Series "VH" cylinders are 3" long on all sizes except 3¼" and 4" bore sized equipped with 2" and 2½" diameter piston rods which are supplied with cushions 2¹³/₁₆" long at head end. Self-centering floating cushion sleeve at head end and cushion spear at cap is tapered for ⅔ its length to give maximum cushioning effect for ⅓ its length.

Thrust Key

An extended retainer plate, to serve as a thrust key, can be supplied on mounting styles C and F. The thrust key would be the same as used on Parker Hannifin "2H" hydraulic cylinders.

Air Bleeds

When specified, ⅛" NPTF bleed ports are available at either head or cap end. For design and location, ask for Drawing 81292.

Accessories

Mounting accessories for Series "VH" are the same as used on Parker Hannifin Series 2H hydraulic cylinders. For dimensional data for rod clevis, knuckle, clevis bracket, mounting plate and pivot pin, see the Parker Series 2H section of this catalog.

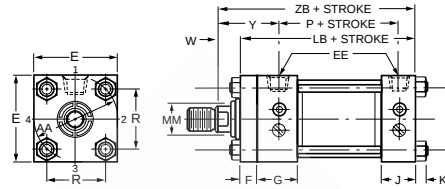
*See Section C for actual design factors.

For additional information – call your local Parker Cylinder Distributor.

Parker Series VH Hydraulic Cylinders

Mounting Styles Dimensions

Basic Cylinder Style T (NFPA Style MX01)

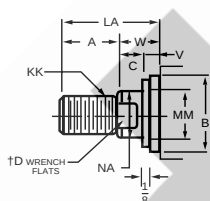


Rod end dimensions

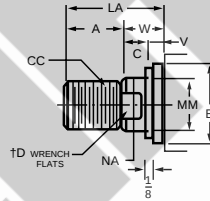
BORE	ROD NO.	ROD DIA.	THREAD		ROD EXTENSIONS AND PILOT DIMENSIONS										BASIC ENVELOPE AND MOUNTING DIMENSIONS									
			MM	CC	KK	A	B ^{+0.000 -0.002}	C	D	LA	NA	V	W	Y	E	EE		F	G	J	K	ADD STROKE		
																NPTF◆	SAE°					LB	P	ZB
2 ^{1/2}	1(Std.)	1	7/8-14	3/4-16	1 ^{1/8}	1.499	1/2	7/8	1 ^{7/8}	1 ^{5/16}	1/4	3/4	4 ^{1/8}	3 ^{1/2}	1	16	5/8	3 ^{3/4}	3 ^{1/2}	7/16	9 ^{3/8}	3 ^{1/2}	10 ^{9/16}	
	2	1 ^{3/4}	1 ^{1/2} -12	1 ^{1/4} -12	2	2.374	3/4	1 ^{1/2}	3 ^{3/4}	1 ^{11/16}	1/2	1 ^{1/4}	4 ^{5/8}											
	3	1 ^{3/8}	1 ^{1/4} -12	1-14	1 ^{5/8}	1.999	5/8	1 ^{1/8}	2 ^{5/8}	1 ^{5/16}	3/8	1	4 ^{3/8}											
3 ^{1/4}	1(Std.)	1 ^{3/8}	1 ^{1/4} -12	1-14	1 ^{5/8}	1.999	5/8	1 ^{1/8}	2 ^{1/2}	1 ^{5/16}	1/4	7/8	4 ^{3/16}	4 ^{1/2}	1 ^{1/4}	20	3/4	3 ^{3/4}	3 ^{1/2}	9/16	9 ^{3/4}	4 ^{1/8}	11 ^{3/16}	
	2	2	1 ^{1/4} -12	1 ^{1/2} -12	2 ^{1/4}	2.624	7/8	1 ^{11/16}	3 ^{1/2}	1 ^{15/16}	3/8	1 ^{1/4}	4 ^{9/16}											
	3	1 ^{3/4}	1 ^{1/2} -12	1 ^{1/4} -12	2	2.374	3/4	1 ^{1/2}	3 ^{3/8}	1 ^{11/16}	3/8	1 ^{1/8}	4 ^{7/16}											
4	1(Std.)	1 ^{7/8}	1 ^{1/2} -12	1 ^{1/4} -12	2	2.374	3/4	1 ^{1/2}	3	1 ^{11/16}	3/8	1	4 ^{7/16}	5	1 ^{1/4}	20	7/8	3 ^{3/4}	3 ^{1/2}	9/16	10 ^{1/8}	4 ^{3/8}	11 ^{11/16}	
	2	2 ^{1/2}	2 ^{1/4} -12	1 ^{7/8} -12	3	3.124	1	2 ^{1/16}	4 ^{3/8}	2 ^{3/8}	3/8	1 ^{3/8}	4 ^{13/16}											
	3	2	1 ^{1/4} -12	1 ^{1/2} -12	2 ^{1/4}	2.624	7/8	1 ^{11/16}	3 ^{3/8}	1 ^{15/16}	1/4	1 ^{1/8}	4 ^{9/16}											
5	1(Std.)	2	1 ^{3/4} -12	1 ^{1/2} -12	2 ^{1/4}	2.624	7/8	1 ^{11/16}	3 ^{3/8}	1 ^{15/16}	1/4	1 ^{1/8}	4 ^{11/16}	6 ^{1/2}	1 ^{1/2}	24	7/8	4	3 ^{3/4}	1 ^{3/16}	11 ^{1/8}	5 ^{1/8}	13 ^{3/16}	
	2	3 ^{1/2}	3 ^{1/4} -12	2 ^{1/2} -12	3 ^{1/2}	4.249	1	3	4 ^{7/8}	3 ^{3/8}	3/8	1 ^{3/8}	4 ^{15/16}											
	3	2 ^{1/2}	2 ^{1/4} -12	1 ^{7/8} -12	3	3.124	1	2 ^{1/16}	4 ^{3/8}	2 ^{3/8}	3/8	1 ^{3/8}	4 ^{15/16}											
	4	3	2 ^{3/4} -12	2 ^{1/4} -12	3 ^{1/2}	3.749	1	2 ^{5/8}	4 ^{7/8}	2 ^{7/8}	3/8	1 ^{3/8}	4 ^{15/16}											
6	1(Std.)	2 ^{1/2}	2 ^{1/4} -12	1 ^{7/8} -12	3	3.124	1	2 ^{1/16}	4 ^{1/4}	2 ^{3/8}	1/4	1 ^{1/4}	4 ^{7/8}	7 ^{1/2}	2	32	1	4 ^{1/4}	4 ^{1/4}	7/8	12 ^{3/8}	6 ^{1/8}	14 ^{1/2}	
	2	4	3 ^{1/4} -12	3-12	4	4.749	1	3 ^{3/8}	5 ^{1/4}	3 ^{7/8}	1/4	1 ^{1/4}	4 ^{7/8}											
	3	3	2 ^{3/4} -12	2 ^{1/4} -12	3 ^{1/2}	3.749	1	2 ^{5/8}	4 ^{3/4}	2 ^{7/8}	1/4	1 ^{1/4}	4 ^{7/8}											
	4	3 ^{1/2}	3 ^{1/4} -12	2 ^{1/2} -12	3 ^{1/2}	4.249	1	3	4 ^{3/4}	3 ^{3/8}	1/4	1 ^{1/4}	4 ^{7/8}											
7	1(Std.)	3	2 ^{3/4} -12	2 ^{1/4} -12	3 1/2	3.749	1	2 ^{5/8}	4 ^{3/4}	2 ^{7/8}	1/4	1 ^{1/4}	4 ^{3/4}	8 ^{1/2}	2	32	1	4 ^{1/4}	4 ^{1/4}	1 ^{1/4}	12 ^{1/2}	6 ^{1/2}	15	
	2	5	4 ^{3/4} -12	3 ^{1/2} -12	5	5.749	1	4 ^{1/4}	6 ^{1/4}	4 ^{7/8}	1/4	1 ^{1/4}	4 ^{3/4}											
	3	3 ^{1/2}	3 ^{1/4} -12	2 ^{1/2} -12	3 ^{1/2}	4.249	1	3	4 ^{3/4}	3 ^{3/8}	1/4	1 ^{1/4}	4 ^{3/4}											
	4	4	3 ^{3/4} -12	3-12	4	4.749	1	3 ^{3/8}	5 ^{1/4}	3 ^{7/8}	1/4	1 ^{1/4}	4 ^{3/4}											
	5	4 ^{1/4}	4 ^{1/4} -12	3 ^{1/4} -12	4 ^{1/2}	5.249	1	3 ^{7/8}	5 ^{3/4}	4 ^{3/8}	1/4	1 ^{1/4}	4 ^{3/4}											
8	1(Std.)	3 ^{1/2}	3 ^{1/4} -12	2 ^{1/2} -12	3 ^{1/2}	4.249	1	3	4 ^{3/4}	3 ^{3/8}	1/4	1 ^{1/4}	4 ^{3/4}	9 ^{1/2}	2 ^{1/2}	32	1	4 ^{1/2}	4 ^{1/2}	1 ^{1/2}	13 ^{1/2}	7 ^{1/2}	16 ^{1/4}	
	2	5 ^{1/2}	5 ^{1/4} -12	4-12	5 ^{1/2}	6.249	1	4 ^{5/8}	6 ^{3/4}	5 ^{3/8}	1/4	1 ^{1/4}	4 ^{3/4}											
	3	4	3 ^{3/4} -12	3-12	4	4.749	1	3 ^{3/8}	5 ^{1/4}	3 ^{7/8}	1/4	1 ^{1/4}	4 ^{3/4}											
	4	4 ^{1/2}	4 ^{1/4} -12	3 ^{1/4} -12	4 ^{1/2}	5.249	1	3 ^{7/8}	5 ^{3/4}	4 ^{3/8}	1/4	1 ^{1/4}	4 ^{3/4}											
	5	5	4 ^{3/4} -12	3 ^{1/2} -12	5	5.749	1	4 ^{1/4}	6 ^{1/4}	4 ^{7/8}	1/4	1 ^{1/4}	4 ^{3/4}											

◆ SAE straight thread ports are standard and are indicated by port number. For dimensional information see Section C.
° NPTF ports are available at no extra charge.

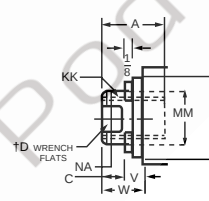
PISTON ROD END THREADS



**PARKER THREAD
STYLE 4
(NFPA SM)**



**PARKER THREAD
STYLE 8
(NFPA IM)**



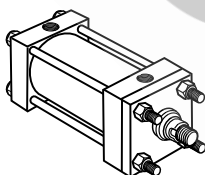
**PARKER THREAD
STYLE 9
(NFPA SF)**

Style 4 Rod Ends recommended for applications where workpiece is secured against rod shoulder. When workpiece is not shouldered, Style 4 Rod Ends are recommended through 2" rod diameter, Style 8 on larger diameters. If rod end is not specified, Style 4 will be furnished.

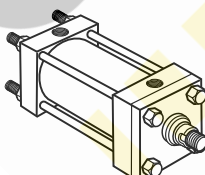
NOTE: Special piston rod end threads, two times length are available on 2 1/2" diameter piston rods and smaller. To order, specify thread Style 42 which has KK thread dia. or Style 82 which has CC thread dia. Other piston rod threads are available. To order, specify Style 3 and give desired dimensions for CC or KK, A and LA. For other specials, send dimensions or sketch.

† On 4 1/2" diameter rods and larger, 4 each .515 diameter spanner wrench holes will be provided.

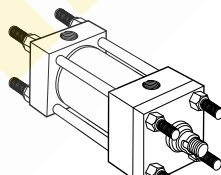
Tie Rod Mounted Styles TB, TC, TD (NFPA Styles MX3, MX2, MX1)



**Style TB
(MX3)**

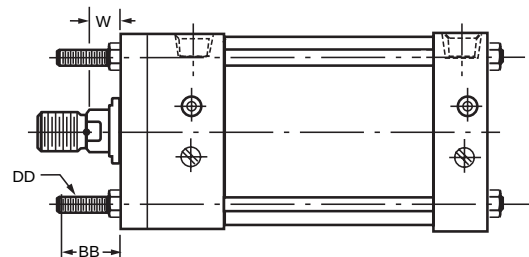


**Style TC
(MX2)**



**Style TD
(MX1)**

Style TB, Tie Rods Extended, is illustrated at right. Style TC, Cap Tie Rods Extended, and Style TD, Both Ends Tie Rods Extended, can be dimensioned from Style TB drawing.



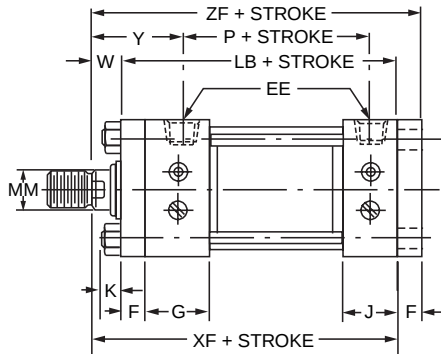
For Cylinder Division Plant Locations – See Page II.

Mounting Styles Dimensions

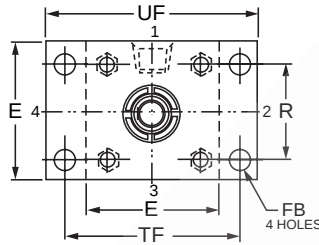
Parker Series VH Hydraulic Cylinders

Flange Mountings

Style H, J, HB, JB



STYLE H (NFPA MF2)



STYLE J (NFPA MF1)

For Style "H" Mount

Bore Size	Max. PSI - Pull*				
	Rod Code				
	1	2	3	4	5
2 1/2	3000	3000	3000	—	—
3 1/4	3000	3000	3000	—	—
4	3000	3000	3000	—	—
5	2000	3000	2000	2500	—
6	1800	2500	2000	2000	—
7	2000	3000	2000	2500	2800
8	1700	2500	1700	1800	2200

* Maximum pressure rating - pull application

For Style "J" Mount

Bore Size	Max. PSI - Push*				
	Rod Code				
	1	2	3	4	5
2 1/2	2000	1100	1500	—	—
3 1/4	1800	1300	1400	—	—
4	1800	1300	1700	—	—
5	1300	800	1200	1000	—
6	1200	800	1000	900	—
7	1400	800	1200	1100	1000
8	1100	800	1000	1000	800

* Maximum pressure rating - push application

Specific Dimensions for Series VH Mounting Styles (in inches)

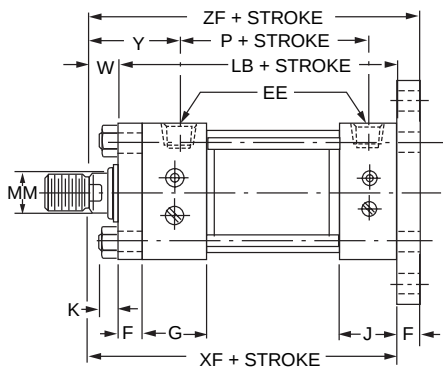
BORE	ROD NO.	ROD DIA.	AA	BB	BD	CB	+0.000 CD♦ -.002	CW	DD	+0.000 FA -.003	FB	L	+0.000 LH -.002	LR	M	MR	ND	NT	PA	PC	PD	PF	R	SB•	ST	
2 1/2	1	1	3.6	1 13/16	1 1/2	1 1/4	.751	5/8	1 1/2-20	.562	9/16	1 1/4	1.744	15/16	3/4	15/16	9/16	5/8-11	5/16	2 3/4	2 1/16	3 1/16	2.55	13/16	1	
	2	1 3/4															1 1/2									
	3	1 3/8																								
3 1/4	1	1 3/8	4.6	2 5/16	2	1 1/2	1.001	3/4	5/8-18	.687	11/16	1 1/2	2.244	1 1/4	1	1 3/16	7/8	11/16	3/4-10	3/8	2 1/2	2 5/8	2 15/16	3.25	13/16	1
	2	2															1 1/8									
	3	1 3/4															7/8									
4	1	1 3/4	5.4	2 5/16	2	2	1.376	1	5/8-18	.812	11/16	2 1/8	2.494	1 3/4	1 3/8	1 5/8	1	1-8	7/16	2 11/16	2 15/16	2 15/16	3.82	1 1/16	1 1/4	
	2	2 1/2															1 1/16									
	3	2															1									
5	1	2	7.0	3 3/16	2	2 1/2	1.751	1 1/4	7/8-14	.812	15/16	2 1/4	3.244	2 1/16	1 3/4	2 1/8	1 1/8	1-8	7/16	2 15/16	3 11/16	3 3/16	4.95	1 1/16	1 1/4	
	2	3 1/2															1									
	3	2 1/2															1 1/8									
6	1	2 1/2	8.1	3 5/8	3	2 1/2	2.001	1 1/4	1-14	.937	1 1/16	2 1/2	3.744	2 5/16	2	2 3/8	1 3/4	1 1/4-7	1/2	3 3/16	4 1/4	3 5/16	5.73	1 5/16	1 1/2	
	2	4															1 1/4									
	3	3															1 3/4									
7	1	3	9.3	4 1/8	3	3	2.501	1 1/2	1 1/8-12	.937	1 3/16	3	4.244	2 3/4	2 1/2	2 7/8	1 1/8	1 1/2-6	1/2	2 15/16	4 3/4	3 1/8	6.58	1 9/16	1 3/4	
	2	5															1 1/8									
	3	3 1/2															1 1/8									
8	1	3 1/2	10.6	4 1/2	3 1/2	3	3.001	1 1/2	1 1/4-12	.937	1 5/16	3 1/4	4.744	3 1/4	2 3/4	3 1/8	1 1/2	1 1/2-6	1/2	2 15/16	5 1/4	3 1/4	7.50	1 9/16	1 3/4	
	2	5 1/2															1 1/2									
	3	4															1 1/2									

♦ Dimension CD is pin diameter. • Upper surface spotfaced for socket head screws. ♦♦ Dimension to be specified by customer.

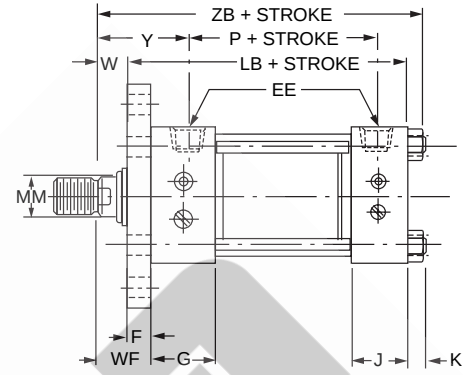
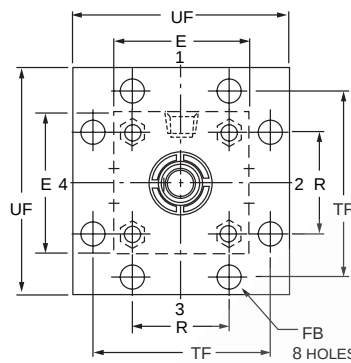
For additional information – call your local Parker Cylinder Distributor.

Parker Series VH Hydraulic Cylinders

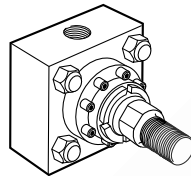
Mounting Styles Dimensions



STYLE HB (NFPA MF6)



STYLE JB (NFPA MF5)



For 7" & 8" bores, this style retainer configuration applies to all but J and JB mounts.

For Style "JB" Mount

Bore Size	Max. PSI - Push*				
	Rod Code				
	1	2	3	4	5
2 1/2	3000	3000	3000	—	—
3 1/4	3000	3000	3000	—	—
4	3000	3000	3000	—	—
5	3000	3000	3000	3000	—
6	3000	2700	3000	2700	—
7	3000	2700	3000	3000	3000
8	3000	2300	2500	2500	2500

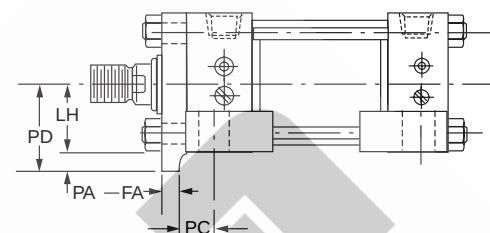
* Maximum pressure rating - push application

SU	SW	SY	+0.000 TD -0.001	TF	TL	TM	TN	TS	TY	UF	UM	UT	US	UW	XG	MIN. XI ◆◆	DD MTG. MIN. STK.	XS	XT	add stroke						
																				SN	SS	XC	XF	XJ	ZC	ZF
1 ^{9/16}	1 ^{11/16}	2 ^{11/16}	1.375	4 ^{5/8}	1 ^{3/8}	4	1 ^{5/16}	4 ^{7/8}	3 ^{3/4}	5 ^{3/8}	6 ^{3/4}	6 ^{1/4}	6 ^{1/4}	4 ^{5/8}	4 ^{1/4} 4 ^{3/4}	5 ^{15/16} 6 ^{7/16}	1/8	4 ^{1/16} 4 ^{9/16}	4 ^{3/8} 4 ^{7/8}	3	3 ^{3/8}	11 ^{3/8} 11 ^{7/8}	10 ^{1/8} 10 ^{5/8}	7 ^{3/8} 7 ^{7/8}	12 ^{1/8} 12 ^{5/8}	10 ^{3/4} 11 ^{1/4}
1 ^{9/16}	1 ^{11/16}	2 ^{7/16}	1.750	5 ^{7/8}	1 ^{3/4}	5	1 ^{1/2}	5 ^{7/8}	4 ^{3/4}	7 ^{1/8}	8 ^{1/2}	8	7 ^{1/4}	5 ^{13/16}	4 ^{3/8} 4 ^{3/4}	6 ^{7/16} 6 ^{13/16}	3/8	4 ^{1/16} 4 ^{7/16}	4 ^{1/2} 4 ^{7/8}	3 ^{1/2}	4 ^{1/8}	12 ^{1/2} 12 ^{3/4}	11 11 ^{1/2}	8 8 ^{3/8}	13 ^{1/2} 13 ^{3/8}	11 ^{3/8} 11 ^{5/8}
2	7/8	2 ^{5/8}	1.750	6 ^{3/8}	1 ^{3/4}	5 ^{1/2}	2 ^{1/16}	6 ^{3/4}	5 ^{1/4}	7 ^{5/8}	9	8 ^{1/2}	8 ^{1/2}	6 ^{3/8}	5 4 ^{3/4}	7 ^{1/16} 6 ^{13/16}	1/8	4 ^{7/8} 4 ^{5/8}	5 ^{1/8} 4 ^{7/8}	3 ^{3/4}	4	13 ^{5/8} 13 ^{3/8}	11 ^{1/2} 11 ^{1/4}	8 ^{1/2} 8 ^{3/8}	15 14 ^{3/4}	12 ^{3/8} 12 ^{1/8}
2	7/8	2 ^{7/8}	1.750	8 ^{3/16}	1 ^{3/4}	7	2 ^{15/16}	8 ^{1/4}	6 ^{3/4}	9 ^{3/4}	10 ^{1/2}	10	10	7 ^{3/4}	5 5 ^{1/4}	7 ^{1/16} 7 ^{5/16}	0	4 ^{7/8} 5 ^{1/8}	5 ^{1/8} 5 ^{3/8}	4 ^{1/4}	4 ^{1/2}	14 ^{1/2} 14 ^{3/4}	12 ^{1/2} 12 ^{1/2}	9 ^{3/8} 9 ^{5/8}	16 ^{1/4} 16 ^{1/2}	13 ^{3/8} 13 ^{3/8}
2 ^{1/2}	1 ^{1/8}	3 ^{1/8}	2.000	9 ^{7/16}	2	8 ^{1/2}	3 ^{5/16}	9 ^{3/4}	7 ^{3/4}	11 ^{1/4}	12 ^{1/2}	11 ^{1/2}	12	10 ^{3/4}	5 ^{3/8} 5 ^{5/8}	8 ^{1/16} 8 ^{1/16}	1/4	5 ^{3/8} 5 ^{3/8}	5 ^{1/2} 5 ^{1/2}	5 ^{1/8}	5 ^{1/8}	16 ^{1/8} 16 ^{1/8}	13 ^{5/8} 13 ^{5/8}	10 ^{3/8} 10 ^{3/8}	18 ^{1/8} 18 ^{1/8}	14 ^{5/8} 14 ^{5/8}
2 ^{7/8}	1 ^{3/8}	2 ^{7/8}	2.500	10 ^{5/8}	2 ^{1/2}	9 ^{3/4}	3 ^{3/4}	11 ^{1/4}	8 ^{3/4}	12 ^{5/8}	14 ^{3/4}	13 ^{1/2}	14	11 ^{1/2}	5 ^{3/8} 5 ^{5/8}	8 ^{1/16} 8 ^{1/16}	1/8	5 ^{3/8} 5 ^{1/8}	5 ^{5/16} 5 ^{5/16}	5 ^{7/8}	5 ^{3/4}	16 ^{3/4} 16 ^{3/4}	13 ^{3/4} 13 ^{3/4}	10 ^{7/8} 10 ^{7/8}	19 ^{1/4} 19 ^{1/4}	14 ^{3/4} 14 ^{3/4}
2 ^{7/8}	1 ^{3/8}	2 ^{7/8}	3.000	11 ^{13/16}	3	11	4 ^{1/4}	12 ^{1/4}	9 ^{3/4}	14	17	15 ^{1/2}	15	13 ^{3/8}	5 ^{1/4} 5 ^{1/4}	8 ^{9/16} 8 ^{9/16}	1/8	5 ^{1/8} 5 ^{1/8}	5 ^{7/16} 5 ^{7/16}	6 ^{5/8}	6 ^{3/4}	18 18	14 ^{3/4} 14 ^{3/4}	11 ^{3/4} 11 ^{3/4}	20 ^{3/4} 20 ^{3/4}	15 ^{3/4} 15 ^{3/4}

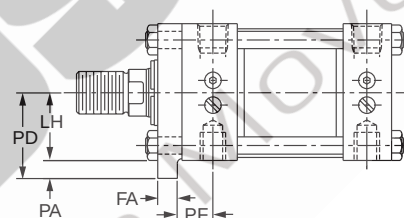
For Cylinder Division Plant Locations – See Page II.

Parker Series VH Hydraulic Cylinders

Style C, CP, F, FP



STYLE CP Side Lugs with Thrust Key Modification



STYLE FP Side Tapped with Thrust Key Modification

BORE	ROD NO.	ROD DIA.	AA	BB	BD	CB	+0.000 CD◆ -.002	CW	DD	+0.000 FA -.003	FB	L	+0.000 LH -.002	LR	M	MR	ND	NT	PA	PC	PD	PF	R	SB•	ST
2 1/2	1	1															9/16								
	2	1 3/4	3.6	1 13/16	1 1/2	1 1/4	.751	5/8	1 1/2-20	.562	9/16	1 1/4	1.744	15/16	3/4	15/16	1 1/2	5/8-11	5/16	2 3/4	2 1/16	3 1/16	2.55	13/16	1
	3	1 3/8															9/16								
3 1/4	1	1 3/8															7/8								
	2	2	4.6	2 5/16	2	1 1/2	1.001	3/4	5/8-18	.687	11/16	1 1/2	2.244	1 1/4	1	1 3/16	11/16	3/4-10	3/8	2 1/2	2 5/8	2 15/16	3.25	13/16	1
	3	1 3/4															7/8								
4	1	1 3/4															1								
	2	2 1/2	5.4	2 5/16	2	2	1.376	1	5/8-18	.812	11/16	2 1/8	2.494	1 3/4	1 3/8	1 5/8	11/16	1-8	7/16	2 11/16	2 15/16	2 15/16	3.82	1 1/16	1 1/4
	3	2															1								
5	1	2															1 1/8								
	2	3 1/2															1								
	3	2 1/2	7.0	3 3/16	2	2 1/2	1.751	1 1/4	7/8-14	.812	15/16	2 1/4	3.244	2 1/16	1 3/4	2 1/8	1 1/8	1-8	7/16	2 15/16	3 11/16	3 3/16	4.95	1 1/16	1 1/4
6	1	2 1/2															1 1/8								
	2	4															1 3/4								
	3	3	8.1	3 5/8	3	2 1/2	2.001	1 1/4	1-14	.937	1 1/16	2 1/2	3.744	2 5/16	2	2 3/8	1 1/4	1 1/4-7	1/2	3 3/16	4 1/4	3 5/16	5.73	1 5/16	1 1/2
7	1	3															1 1/8								
	2	5															1 1/8								
	3	3 1/2	9.3	4 1/8	3	3	2.501	1 1/2	1 1/8-12	.937	1 3/16	3	4.244	2 3/4	2 1/2	2 7/8	1 1/8	1 1/2-6	1/2	2 15/16	4 3/4	3 1/8	6.58	1 9/16	1 3/4
8	1	3															1 1/8								
	2	5 1/2															1 1/2								
	3	4	10.6	4 1/2	3 1/2	3	3.001	1 1/2	1 1/4-12	.937	1 5/16	3 1/4	4.744	3 1/4	2 3/4	3 1/8	1 1/2	1 1/2-6	1/2	2 15/16	5 1/4	3 1/4	7.50	1 9/16	1 3/4
5	4	4 1/2															1 1/2								
	5	5															1 1/2								

◆ Dimension CD is pin diameter. • Upper surface spotfaced for socket head screws. ◆◆ Dimension to be specified by customer.

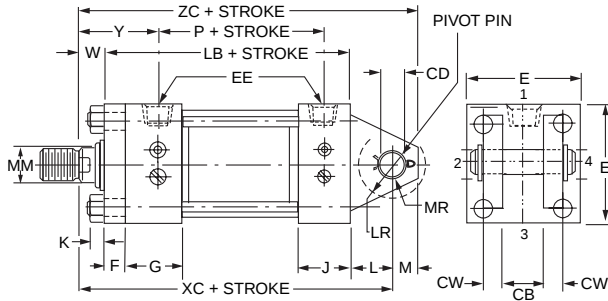
For additional information – call your local Parker Cylinder Distributor.

Parker Series VH Hydraulic Cylinders

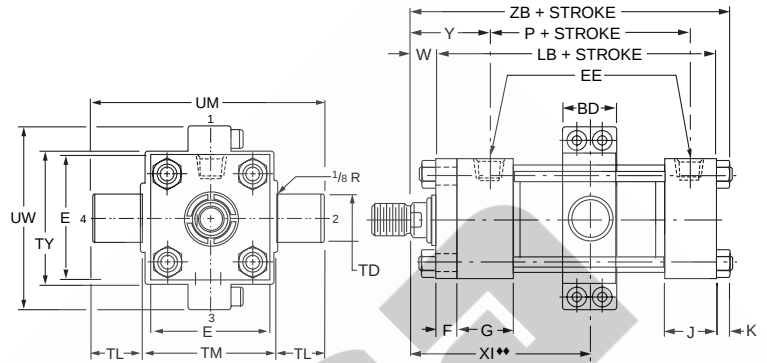
Mounting Styles Dimensions

Pivot Mountings

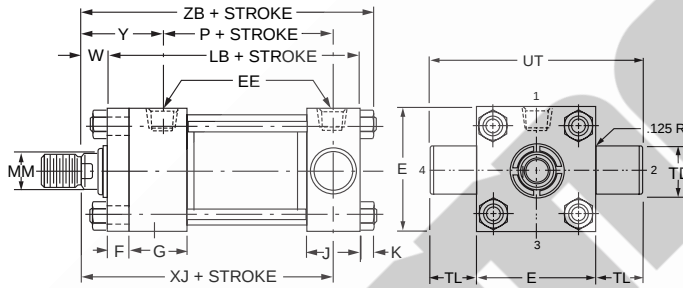
Styles BB, DB, D, DD



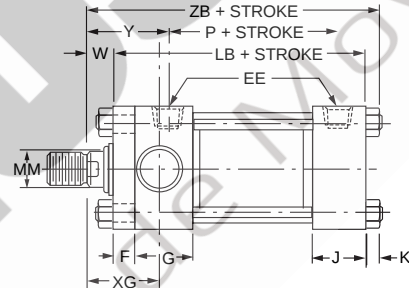
STYLE BB (NFPA MP1)



STYLE DD (NFPA MT4)



STYLE DB (NFPA MT2)



STYLE D (NFPA MT1)

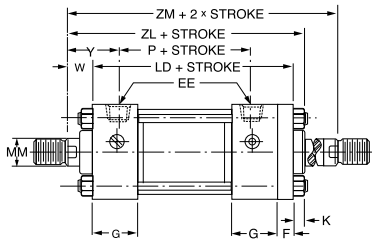
SU	SW	SY	+0.000 TD -0.001	TF	TL	TM	TN	TS	TY	UF	UM	UT	US	UW	XG	MIN. XI ◆	DD MTG. MIN. STK.	XS	XT	ADD STROKE						
																				SN	SS	XC	XF	XJ	ZC	ZF
1 ⁹ / ₁₆	1 ¹ / ₁₆	2 ¹ / ₁₆	1.375	4 ⁵ / ₈	1 ³ / ₈	4	1 ⁵ / ₁₆	4 ⁷ / ₈	3 ³ / ₄	5 ³ / ₈	6 ³ / ₄	6 ¹ / ₄	6 ¹ / ₄	4 ⁵ / ₈	4 ¹ / ₄ 4 ³ / ₄ 4 ¹ / ₂	5 ¹⁵ / ₁₆ 6 ⁷ / ₁₆ 6 ³ / ₁₆	1/8	4 ¹ / ₁₆ 4 ⁷ / ₈ 4 ⁵ / ₈	4 ³ / ₈ 4 ⁷ / ₈ 4 ⁵ / ₈	3	3 ³ / ₈	11 ³ / ₈ 11 ¹ / ₈ 12 ¹ / ₈	10 ¹ / ₈ 10 ⁵ / ₈ 10 ³ / ₈	7 ³ / ₈ 7 ⁷ / ₈ 7 ⁵ / ₈	12 ¹ / ₈ 12 ⁵ / ₈ 12 ³ / ₈	10 ³ / ₄ 11 ¹ / ₄ 11
1 ⁹ / ₁₆	1 ¹ / ₁₆	2 ⁷ / ₁₆	1.750	5 ⁷ / ₈	1 ³ / ₄	5	1 ¹ / ₂	5 ⁷ / ₈	4 ³ / ₄	7 ¹ / ₈	8 ¹ / ₂	8	7 ¹ / ₄	5 ¹³ / ₁₆	4 ³ / ₈ 4 ³ / ₄ 4 ⁵ / ₈	6 ⁷ / ₁₆ 6 ¹³ / ₁₆ 6 ¹¹ / ₁₆	3/8	4 ¹ / ₁₆ 4 ⁷ / ₁₆ 4 ⁵ / ₁₆	4 ¹ / ₂ 4 ⁷ / ₈ 4 ³ / ₄	3 ¹ / ₂	4 ¹ / ₈	12 ¹ / ₈ 12 ¹ / ₂ 12 ³ / ₈	10 ⁵ / ₈ 11 8 ³ / ₈	8 8 ³ / ₈ 8 ¹ / ₄	13 ³ / ₈ 13 ¹ / ₂ 13 ³ / ₈	11 ³ / ₈ 11 ¹ / ₄ 11 ⁵ / ₈
2	7/8	2 ⁵ / ₈	1.750	6 ³ / ₈	1 ³ / ₄	5 ¹ / ₂	2 ¹ / ₁₆	6 ³ / ₄	5 ¹ / ₄	7 ⁵ / ₈	9	8 ¹ / ₂	8 ¹ / ₂	6 ³ / ₈	4 ⁵ / ₈ 5 4 ³ / ₄	6 ¹¹ / ₁₆ 7 ¹ / ₁₆ 6 ¹³ / ₁₆	1/8	4 ¹ / ₂ 4 ⁷ / ₈ 4 ⁵ / ₈	4 ³ / ₄ 5 ¹ / ₈ 4 ⁷ / ₈	3 ³ / ₄	4	13 ³ / ₈ 13 ⁵ / ₈ 13 ³ / ₈	11 ¹ / ₂ 11 ³ / ₈ 11 ¹ / ₂	8 ¹ / ₂ 8 ⁷ / ₈ 8 ⁵ / ₈	14 ⁵ / ₈ 15 14 ³ / ₄	12 12 ³ / ₈ 12 ¹ / ₈
2	7/8	2 ⁷ / ₈	1.750	8 ³ / ₁₆	1 ³ / ₄	7	2 ¹⁵ / ₁₆	8 ¹ / ₄	6 ³ / ₄	9 ³ / ₄	10 ¹ / ₂	10	10	7 ³ / ₄	5 5 ¹ / ₄ 5 ¹ / ₄	7 ¹ / ₁₆ 7 ⁹ / ₁₆ 7 ⁵ / ₁₆	0	4 ⁷ / ₈ 5 ¹ / ₈ 5 ¹ / ₈	5 ¹ / ₈ 5 ³ / ₈ 5 ³ / ₈	4 ¹ / ₄	4 ¹ / ₂	14 ³ / ₄ 14 ³ / ₄ 14 ³ / ₄	12 ¹ / ₂ 12 ¹ / ₂ 12 ¹ / ₂	9 ³ / ₈ 9 ⁵ / ₈ 9 ⁵ / ₈	16 ¹ / ₄ 16 ¹ / ₂ 16 ¹ / ₂	13 ³ / ₈ 13 ³ / ₈ 13 ³ / ₈
2 ¹ / ₂	1 ¹ / ₈	3 ¹ / ₈	2.000	9 ⁷ / ₁₆	2	8 ¹ / ₂	3 ⁵ / ₁₆	9 ³ / ₄	7 ³ / ₄	11 ¹ / ₄	12 ¹ / ₂	11 ¹ / ₂	12	10 ³ / ₄	5 ³ / ₈ 5 ³ / ₈ 5 ³ / ₈	8 ¹ / ₁₆ 8 ¹ / ₁₆ 8 ¹ / ₁₆	1/4	5 ³ / ₈ 5 ¹ / ₂ 5 ³ / ₈	5 ¹ / ₂ 5 ¹ / ₂ 5 ¹ / ₂	5 ¹ / ₈	5 ¹ / ₈	16 ¹ / ₈ 16 ¹ / ₈ 16 ¹ / ₈	13 ⁵ / ₈ 13 ^{5/₈ 13^{5/₈}}	10 ³ / ₈ 10 ³ / ₈ 10 ³ / ₈	18 ¹ / ₈ 18 ¹ / ₈ 18 ¹ / ₈	14 ⁵ / ₈ 14 ⁵ / ₈ 14 ⁵ / ₈
2 ⁷ / ₈	1 ³ / ₈	2 ⁷ / ₈	2.500	10 ⁵ / ₈	2 ¹ / ₂	9 ³ / ₄	3 ³ / ₄	11 ¹ / ₄	8 ³ / ₄	12 ⁵ / ₈	14 ³ / ₄	13 ¹ / ₂	14	11 ¹ / ₂	5 ¹ / ₈ 5 ¹ / ₈ 5 ¹ / ₈	8 ¹ / ₁₆ 8 ¹ / ₁₆ 8 ¹ / ₁₆	1/8	5 ¹ / ₈ 5 ⁵ / ₁₆ 5 ⁵ / ₁₆	5 ⁵ / ₁₆ 5 ⁵ / ₁₆ 5 ⁵ / ₁₆	5 ⁷ / ₈	5 ³ / ₄	16 ³ / ₄ 16 ³ / ₄ 16 ³ / ₄	13 ³ / ₄ 13 ³ / ₄ 13 ³ / ₄	10 ⁷ / ₈ 10 ⁷ / ₈ 10 ⁷ / ₈	19 ¹ / ₄ 19 ¹ / ₄ 19 ¹ / ₄	14 ³ / ₄ 14 ³ / ₄ 14 ³ / ₄
2 ⁷ / ₈	1 ³ / ₈	2 ⁷ / ₈	3.000	11 ¹³ / ₁₆	3	11	4 ¹ / ₄	12 ¹ / ₄	9 ³ / ₄	14	17	15 ¹ / ₂	15	13 ³ / ₈	5 ¹ / ₄ 5 ¹ / ₄ 5 ¹ / ₄	8 ⁹ / ₁₆ 8 ⁹ / ₁₆ 8 ⁹ / ₁₆	1/8	5 ¹ / ₈ 5 ⁷ / ₁₆ 5 ⁷ / ₁₆	5 ⁷ / ₁₆ 5 ⁷ / ₁₆ 5 ⁷ / ₁₆	6 ⁵ / ₈	6 ³ / ₄	18 18 18	14 ³ / ₄ 14 ³ / ₄ 14 ³ / ₄	11 ³ / ₄ 11 ³ / ₄ 11 ³ / ₄	20 ³ / ₄ 20 ³ / ₄ 20 ³ / ₄	15 ³ / ₄ 15 ³ / ₄ 15 ³ / ₄

For Cylinder Division Plant Locations – See Page II.



DIMENSIONS

DOUBLE ROD CYLINDERS



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. After you have determined all necessary dimensions from that drawing, turn back to this page and supplement those dimensions with additional ones from this drawing and the table at right. These added dimensions 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 which rod end is to go at which end of the cylinder.

BORE SIZE	ROD NO.	ROD DIA.	ADD STROKE				ADD 2X STROKE
			LD	ZL	SN _k	SS _k	ZM
2 1/2	1	1		11 7/16			11 3/4
	2	1 3/4	10 1/4	11 15/16	3	3 5/8	12 3/4
	3	1 3/8		11 11/16			12 1/4
3 1/4	1	1 3/8		12 3/16			12 1/2
	2	2	10 3/4	12 9/16	3 1/2	4 3/8	13 1/4
	3	1		12 7/16			13
4	1	1 3/4		12 13/16			13 1/4
	2	2 1/2	11 1/4	13 3/16	3 3/4	4 1/4	14
	3	2		12 15/16			13 1/2
5	1	2		14 3/16			14 1/2
	2	3 1/2	12 1/4	14 7/16	4 1/4	4 3/4	15
	3	2 1/2		14 7/16			15
6	1	3		14 7/16			15
	2	4		14 7/16			15
	3	3	13 3/8	15 1/2	4 7/8	5 1/8	15 7/8
7	1	3 1/2		15 1/2			16
	2	5		15 3/4			16
	3	3 1/2	13 1/2	15 3/4	5 3/8	5 3/4	16
8	1	4		16 1/2			17
	2	5 1/2		16 13/16			17
	3	4	14 1/2	16 13/16	6 1/8	6 3/4	17
REPLACES ON SINGLE ROD MOUNTING STYLE	4	4 1/2					
	5	5					
			LB	ZB	SN	SS	—
			ALL MTG. STYLES		F	C	ALL MTG.

HOW TO ORDER SERIES VH CYLINDERS

Note: Parker Series VH Cylinders can be completely & 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 shown in the chart below.

SERIES VH MODEL NUMBERS—HOW TO DEVELOP THEM—HOW TO DECODE THEM.																	
E X A M P L E	BORE SIZE	CUSHION HEAD END	DOUBLE ROD	MOUNTING STYLE	MOUNTING MOD.	COMBINATION MOUNTING STYLE	SERIES	PISTON	PORTS	COMMON MODIFICATION	SPECIAL MODIFICATIONS	PISTON ROD NO.	ROD END THREAD STYLE NO.	ALTERNATE STANDARD ROD END THD. LENGTH	THREAD TYPE	CUSHION CAP END	STROKE
	6	C	K	C	P	TB	VH		T	V	S	1	4	2	A	C	X50
	Specify 2½" thru 8"	Specify only if Cushion Head End is required	Use only if Double Rod Cyl. is required	Specify mounting style T, TB, TC, TD, F, H, J, BB, C, D, DB, DD, HB, JB.	Specify P-for Thrust Key Mtg. M-for Manifold Ports	Specify any practical mtg. style available	Specify Series VH	For ring type piston no letter req'd. Use K for Hi-load Piston	Specify Port Type req'd. U=NPTF T=S.A.E. P=S.A.E. Flange Ports R=BSP B=BSPT G=Metric Y=metric ISO 6149	If required specify V=Fluoro-carbon Seals F=Nut Retained Piston X=E.P.R. Seals W=Water Service J=High Water Content Fluid See Section C	Specify only if special modifications are required. Do not use symbol "S" for rod end modifications.	Specify rod code no. See chart in Section C for min. Piston rod diameter	Specify Style 4 Small Male Style 8 Intermediate Male Style 9 Short Female Style 3 Special. Specify KK, A, LA or W dim. req'd	Specify only if 2 times Standard Catalog "A" dim. is required	Specify A=UNF W=BSF M=Metric	Specify only if Cushion Cap End is required	Specify in inches. Show symbol "X" just ahead of stk. length.

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 VH series cylinders the following make-up Class 1 Seals:

Primary Piston Rod Seal—Enhanced Polyurethane

Piston Rod Wiper—Nitrile

Piston Seals—Cast Iron Rings

Option—Nitrile lipseals with polymyte back-up washers

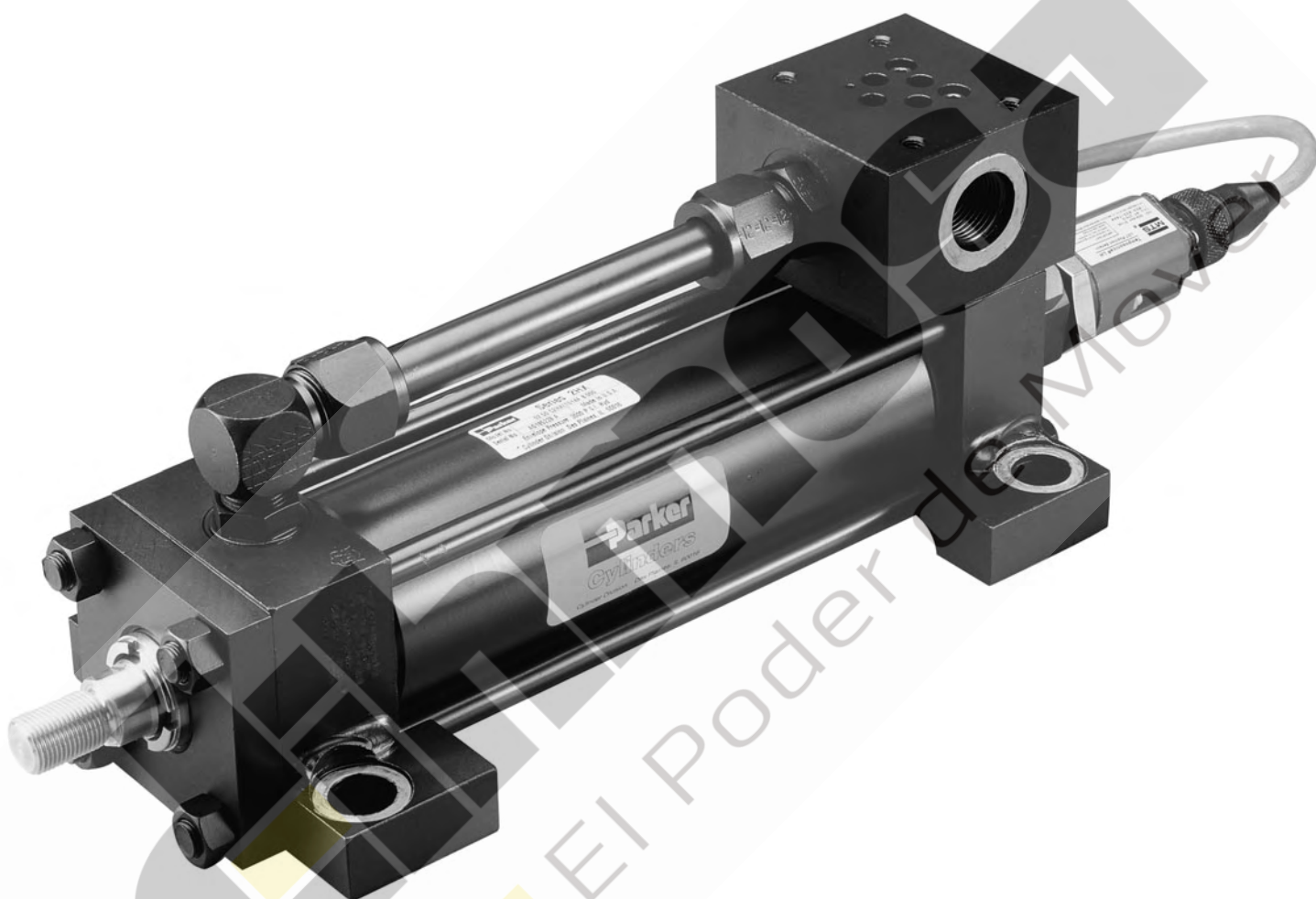
Option—Hi-Load, Filled P.T.F.E. seals with a nitrite expander

O-rings—Nitrile (nitrile back-up washer when used)

For additional information – call your local Parker Cylinder Distributor.

Hydraulic and Electrohydraulic Actuators

Series 2HX



Featuring...

- Two Valve Manifold Options
 - 7 Standard Bolt-on Manifolds
 - 4 Standard Integral Manifolds
- Two Feedback Options
 - LDT
 - LRT

For Cylinder Division Plant Locations – See Page II.