

7" & 8" Bore High Pressure Hydraulic Cylinders

Series 3H

Heavy Duty Service — Industrial Tie-Rod Construction ■ Nominal Pressure — 3000 PSI ■ Fifteen Standard Mounting Styles



Cylinder Innovations

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

- New bolt-on gland retainer for ease of maintenance.
- New Parker exclusive Hi-Load piston is standard.

-Parker

- Newly designed cylinder body seal grooves and highstrength tie rods ensure trouble-free performance even in severe applications.
- Floating cushions with float-check action and positive metal-to-metal seal.

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

- 1¹/₂" 6" bores Series 2H
- 7" 14" bores Series 3H



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

Standard Specifications

- Heavy Duty Service ANSI/(NFPA) T3.6.7R2 1996 Specifications and Mounting Dimension Standards
- Standard Construction Square Head Tie Rod Design
- Nominal Pressure 3000 PSI*
- Standard Fluid Hydraulic Oil
- Standard Temperature -10°F. to +165°F.
- Piston Rod Diameter 3" through 51/2"

- Mounting Styles 16 standard styles at various application ratings
- Strokes Available in any practical stroke length
- Cushions Optional at either end or both ends of stroke
- Rod Ends Three Standard Choices specials to order

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

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



NOTE: Series 3H Hydraulic Cylinders fully meet ANSI/(NFPA) T3.6.7R2 - 1996 Specifications and Mounting Dimension Standards for Square Head Industrial Fluidpower Cylinders.



Tie Rod Mountings 7" and 8" Bore Sizes

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

ZB + STROKE

EE

ZB + STROKE





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





BB



Rod End Dimensions — see table 2

Thread Style 4 Thread Style 8 (NFPA Style SM) (NFPA Style IM) Small Male Intermediate Male D WRENCH FLATS -BT A high strength rod end stud is supplied on thread style 4 through 2" diameter

shouldered, style 4 rod ends are recommended through 2" piston rod diameters



applications where female rod end threads are required. If rod end is not specified, style 4 will be supplied. On 4¹/₂" rods and above, 4 .515 dia. spanner wrench holes will be provided instead of wrench flats.

"Special" Thread Style 3

DD

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

мм в BC

רס

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

Table 1—Envelope and Mounting Dimensions

					E	E					AddS	Stroke
Bore	AA	BB	DD	Е	NPTF⊖	SAE★	G	J	к	R	LG	Р
7	9.3	41/8	11/8-12	8 ¹ / ₂	1 1/4	20	23/4	23/4	1 1/4	6.58	81/2	51/2
8	10.6	41/ ₂	11/4-12	9 ¹ / ₂	1 1/2	24	3	3	1 1/2	7.50	91/2	61/4

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

 \ominus NPTF ports are available at no extra charge.

Fable 2-	-Rod	Dime	nsion	S												Moui Dime	nting ensior	ns
			Thr	ead			Rod	Exter	sions	and F	Pilot D	imens	ions				Add \$	Stroke
Bore	Rod No.	Rod Dia. MM	Style 8 CC	Style 4 & 9 KK	Α	+.000 002 B	С	D	КВ	LAF	NA	v	Max. RD	RT	WF	Y	ZB	ZJ
	1(Std.)	3	2 ³ /4-12	21/4-12	31/2	3.749	1	2 ⁵ /8	1/4	5 ³ /4	27/8	5/ ₈	5 ¹ /4	5/ ₈	21/4	3 ³ /4	12	103/4
	2	5	43/4-12	31/2-12	5	5.749	1	-	0	71/4	47/ ₈	1/4	71/4	1	21/4	33/4	12	103/4
7	3	31/2	31/4-12	21/2-12	31/2	4.249	1	3	1/4	5 ³ /4	3 3/8	5/ ₈	5 ³ /4	5/ ₈	21/4	33/4	12	103/4
	4	4	33/4-12	3-12	4	4.749	1	3 ³ /8	1/4	61/4	3 7/8	1/2	61/2	3/4	21/4	3 ³ /4	12	103/4
	5	41/2	41/4-12	31/4-12	41/2	5.249	1	-	1/4	6 ³ /4	4 ³ /8	1/2	7	3/4	21/4	3 ³ /4	12	103/4
	1(Std.)	31/2	31/4-12	21/2-12	31/2	4.249	1	3	1/4	5 ³ /4	3 ^{3/8}	5/ ₈	5 ³ /4	5/ ₈	21/4	37/8	13 ¹ /4	11 ³ / ₄
	2	51/2	51/4-12	4-12	5 ¹ /2	6.249	1	-	0	73/4	5 ^{3/8}	1/4	81/4	1	21/4	37/8	13 ¹ /4	11 ³ / ₄
8	3	4	33/4-12	3-12	4	4.749	1	3 ³ /8	1/4	61/4	37/8	1/2	61/2	3/4	21/4	37/8	13 ¹ /4	113/4
	4	41/2	41/4-12	31/4-12	41/2	5.249	1	-	1/4	6 ³ /4	4 ³ /8	1/2	7	3/4	21/4	37/8	13 ¹ / ₄	113/4
	5	5	43/4-12	31/2-12	5	5.749	1	-	0	71/4	47/ ₈	1/4	71/4	1	21/4	37/8	13 ¹ / ₄	113/4

Table 3 — **Envelope and**

For Cylinder Division Plant Locations – See Page II.



Rectangular Flange and Cap Mountings 7" and 8" Bore Sizes

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



Cap Square Flange Mounting Style HB (NFPA Style MF6)







Cap Rectangular Mounting Style HH (NFPA Style ME6)







Rod End Dimensions — see table 2

shouldered, style 4 rod ends are recommended through 2" piston rod diameters



applications where female rod end threads are required. If rod end is not specified, style 4 will be supplied. On 4¹/₂" rods and above, 4 .515 dia. spanner wrench holes will be provided instead of wrench flats.

"Special" Thread Style 3

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

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

Table 1—Envelope and Mounting Dimensions

		E	E									Adds	Stroke
Bore	Е	NPTF⊖	SAE★	F	FB	G	J	к	R	TF	UF	LG	Р
7	81/2	1 1/4	20	1	1 ³ /16	23/4	23/4	1 1/4	6.58	105/ ₈	12 ⁵ /8	8 ¹ / ₂	51/2
8	91/ ₂	1 1/2	24	1	1 ⁵ / ₁₆	3	3	1 1/2	7.50	11 ^{13/} 16	14	91/2	61/4

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

 \ominus NPTF ports are available at no extra charge.

Fable 2 [.]	-Rod	Dime	nsion	S												Moui Dime	nting ensior	าร
			Thre	ead			Rod	Exter	sions	and F	Pilot D	imens	ions				Add S	Stroke
Bore	Rod No.	Rod Dia. MM	Style 8 CC	Style 4 & 9 KK	A	+.000 002 B	С	D	КВ	LAF	NA	v	Max. RD	RT	WF	Y	XF	ZF
	1(Std.)	3	23/4-12	21/4-12	31/2	3.749	1	2 ⁵ /8	1/4	5 ³ /4	2 ⁷ /8	5/ ₈	5 ¹ /4	5/ ₈	21/4	33/4	103/4	11 ³ /4
	2	5	43/4-12	31/2-12	5	5.749	1	-	0	71/4	47/ ₈	1/4	71/4	1	21/4	33/4	103/4	11 ³ /4
7	3	31/2	31/4-12	21/2-12	3 1/2	4.249	1	3	1/4	5 ³ /4	3 ³ /8	5/ ₈	5 ³ /4	5/ ₈	21/4	33/4	103/4	11 ³ /4
	4	4	33/4-12	3-12	4	4.749	1	3 ³ /8	1/4	61/4	37/ ₈	1/2	6 ¹ / ₂	3/4	21/4	33/4	103/4	11 ³ /4
	5	41/2	41/4-12	31/4-12	41/ ₂	5.249	1	-	1/4	6 ³ /4	43/ ₈	1/2	7	3/4	21/4	33/4	103/4	11 ³ /4
	1(Std.)	31/2	31/4-12	21/2-12	3 1/2	4.249	1	3	1/4	5 ³ /4	3 ^{3/8}	5/ ₈	5 ³ /4	5/ ₈	21/4	37/8	113/4	123/4
	2	51/2	51/4-12	4-12	5 ¹ /2	6.249	1	-	0	73/4	5 ^{3/8}	1/4	8 ¹ / ₄	1	21/4	37/8	113/4	123/4
8	3	4	33/4-12	3-12	4	4.749	1	3 ³ /8	1/4	61/4	37/8	1/2	61/2	3/4	21/4	37/8	113/4	123/4
	4	41/2	41/4-12	31/4-12	4 ¹ / ₂	5.249	1	-	1/4	6 ³ / ₄	43/ ₈	1/2	7	3/4	21/4	37/8	113/4	123/4
	5	5	43/4-12	31/2-12	5	5.749	1	-	0	71/4	47/ ₈	1/4	71/4	1	21/4	37/8	113/4	123/4

Table 3 — **Envelope and**



Rectangular Flange and Head Mountings 7" and 8" Bore Sizes

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



Table 3 — Envelope and

Table 1—Envelope and Mounting Dimensions

		E	E										Add Stroke	e
Bore	E	NPTF⊖	SAE★	F	FB	G	J	к	R	TF	UF	LB	LG	Р
7	81/2	1 1/4	20	1	1 ³ / ₁₆	23/4	23/4	1 1/4	6.58	105/ ₈	12 ⁵ /8	91/ ₂	8 ¹ / ₂	51/2
8	91/2	1 1/2	24	1	1 5/ ₁₆	3	3	1 1/2	7.50	11 ^{13/} 16	14	10 ¹ /2	91/2	61/4

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

 \ominus NPTF ports are available at no extra charge.

Mounting Table 2—Rod Dimensions Dimensions Add Stroke Thread **Rod Extensions and Pilot Dimensions** Style 4 & 9 Rod Style 8 +.000 Rod Dia. -.002 Max. сc С KB NA ۷ RT WF ZΒ Bore D LAF Υ No. MM KΚ Α в RD 2⁵/8 23/4-12 21/4-12 3.749 33/4 12 1(Std.) 3 31/2 1 1/4 53/4 27/8 5/₈ 51/4 5/₈ $2^{1/4}$ 5 43/4-12 31/2-12 5 0 71/4 21/4 33/4 12 2 5.749 1 71/4 47/8 1/4 _ 1 7 31/4-12 21/2-12 31/2 **3**3/8 21/4 33/4 12 3 31/2 4.249 1 3 5^{3/4} 5^{3/4} 5/₈ 1/4 5/8 12 4 4 33/4-12 3-12 4 4.749 1 **3**3/8 1/4 61/4 37/8 1/2 61/2 3/4 21/4 33/4 4³/8 5 41/2 41/4-12 31/4-12 41/2 5.249 _ 63/4 7 3/4 21/4 33/4 12 1 1/4 1/2 31/4-12 21/2-12 131/4 1(Std.) 31/2 31/2 4.249 1 3 1/4 5³/4 33/8 5/₈ 5³/4 5/8 21/4 37/8 51/2 51/4-12 4-12 5¹/₂ 6.249 1 0 73/4 81/4 21/4 37/8 131/4 2 _ 5³/8 1/4 1 8 З 4 33/4-12 3-12 4 4.749 1 3^{3/8} 1/4 61/4 37/8 1/2 61/2 3/4 21/4 37/8 **13**¹/₄ 41/4-12 31/4-12 7 **13**¹/₄ 4 41/2 41/2 5.249 1 $1/_{4}$ 63/4 4³/8 1/2 3/4 $2^{1/4}$ 37/8 _ 5 5 43/4-12 31/2-12 5 5.749 1 0 71/4 47/8 71/4 21/4 37/8 131/4 _ 1/4 1



Side Lugs and Side Tapped Mountings 7" and 8" Bore Sizes

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

W

ΧТ

ZB + STROKE

SN + STROKE

Side Lug Mountings Style C



NT THREAD, ND DEEP 4 TAPPED MTG. HOLES



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

Table 1—Envelope and Mounting Dimensions

		E	E													Add	Stroke	
Bore	E	NPTF⊖	SAE★	G	J	к	NT	SB*	ST	SU	SW	ΤN	TS	US	LG	Р	SN	SS
7	81/2	1 1/4	20	23/4	23/4	1 1/4	11/2-6	1 9/16	1 3/4	27/8	1 ^{3/8}	33/4	11 ¹ / ₄	14	81/2	51/2	5 ^{7/8}	53/4
8	91/ ₂	1 1/2	24	3	3	1 1/2	11/2-6	1 9/16	1 3/4	27/8	1 ³ /8	4 1/ ₄	12 ¹ / ₄	15	91/ ₂	6 ¹ /4	6 ⁵ /8	63/4

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

 \ominus NPTF ports are available at no extra charge.

* Upper surface spotfaced for socket head screws.

Table 2-	–Rod⊺	Dime	nsion	s												Table Enve Mour Dime	e 3 — lope nting ensior	and าร		
			Thr	ead			Rod	Exter	sions	and F	Pilot D	imens	ions							Add Stroke
Bore	Rod No.	Rod Dia. MM	Style 8 CC	Style 4 & 9 KK	А	+.000 002 B	С	D	КВ	LAF	NA	v	Max. RD	RT	WF	ND	xs	хт	Y	ZB
	1(Std.)	3	2 ³ /4-12	21/4-12	31/2	3.749	1	2 ⁵ /8	1/4	5 ³ /4	2 ⁷ /8	5/ ₈	5 ¹ /4	5/ ₈	21/4	1 1/8	3 ⁵ /8	313/16	3 ³ / ₄	12
	2	5	43/4-12	31/2-12	5	5.749	1	-	0	71/4	47/ ₈	1/4	71/4	1	21/4	1 1/8	3 ⁵ /8	313/16	3 ³ / ₄	12
7	3	31/2	31/4-12	21/2-12	31/2	4.249	1	3	1/4	5 ³ /4	3 3/8	5/ ₈	5 ³ /4	5/ ₈	21/4	1 1/8	3 ⁵ /8	313/16	3 ³ / ₄	12
	4	4	33/4-12	3-12	4	4.749	1	3 ³ /8	1/4	61/4	3 7/8	1/2	6 ¹ / ₂	3/4	21/4	1 1/8	3 ⁵ /8	313/16	3 ³ / ₄	12
	5	41/ ₂	41/4-12	31/4-12	41/ ₂	5.249	1	-	1/4	6 ³ /4	4 ³ /8	1/2	7	3/4	21/4	1 1/8	3 ⁵ /8	313/16	3 ³ / ₄	12
	1(Std.)	31/2	31/4-12	21/2-12	31/2	4.249	1	3	1/4	5 ³ /4	3 3/8	5/ ₈	5 ³ /4	5/ ₈	21/4	1 1/2	3 ⁵ /8	315/16	37/ ₈	13 ¹ / ₄
	2	51/2	51/4-12	4-12	5 ¹ /2	6.249	1	-	0	73/4	5 ^{3/8}	1/4	81/4	1	21/4	1 1/2	3 ⁵ /8	315/16	37/ ₈	13 ¹ / ₄
8	3	4	33/4-12	3-12	4	4.749	1	3 ³ /8	1/4	61/4	37/ ₈	1/2	61/2	3/4	21/4	1 1/2	3 ⁵ /8	315/16	37/ ₈	13 ¹ / ₄
	4	41/2	41/4-12	31/4-12	41/2	5.249	1	-	1/4	6 ³ /4	43/8	1/2	7	3/4	21/4	1 1/2	35/8	315/16	37/ ₈	13 ¹ / ₄
	5	5	43/4-12	31/2-12	5	5.749	1	-	0	71/4	47/8	1/4	71/4	1	21/4	1 1/2	35/8	315/16	37/ ₈	13 ¹ /4



Cap Fixed Clevis Mounting Style BB (NFPA Style MP1)







Table 1—Envelope and Mounting Dimensions

		+.000			E	E									Add S	troke
Bore	СВ	CD*	CW	E	NPTF↔	SAE★	F	G	J	к	L	LR	М	MR	LG	Р
7	3	2.501	1 1/2	81/2	1 ¼	20	1	23/4	23/4	1 1/4	3	23/4	21/2	2 ⁷ /8	8 1/2	51/2
8	3	3.001	1 ½	91/ ₂	1 ½	24	1	3	3	1 1/2	31/4	31/4	2 ³ /4	31/8	91/2	61/4

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

 \ominus NPTF ports are available at no extra charge.

* Dimension CD is pin diameter.

Table 2 [.]	—Rod	Dime	ension	s												Enve Moui Dime	lope a nting ensior	and ns
			Thr	ead			Rod	Exter	sions	and F	Pilot D	imens	ions				Add S	Stroke
Bore	Rod No.	Rod Dia. MM	Style 8 CC	Style 4 & 9 KK	А	+.000 002 B	С	D	КВ	LAF	NA	v	Max. RD	RT	WF	Y	хс	zc
	1(Std.)	3	23/4-12	21/4-12	31/2	3.749	1	2 ⁵ /8	1/4	5 ³ /4	2 ⁷ /8	5/ ₈	5 ¹ /4	5/ ₈	21/4	3 ³ /4	133/4	16 ¹ /4
	2	5	43/4-12	31/2-12	5	5.749	1	-	0	71/4	47/ ₈	1/4	71/4	1	21/4	3 ³ /4	133/4	16 ¹ /4
7	3	31/2	31/4-12	21/2-12	31/2	4.249	1	3	1/4	5 ³ /4	3 3/8	5/ ₈	5 ³ /4	5/ ₈	21/4	3 ³ /4	133/4	16 ¹ /4
	4	4	33/4-12	3-12	4	4.749	1	3 ³ /8	1/4	61/4	3 7/8	1/2	6 ¹ / ₂	3/4	21/4	3 ³ /4	133/4	16 ¹ /4
	5	41/2	41/4-12	31/4-12	41/2	5.249	1	-	1/4	6 ³ / ₄	4 ³ /8	1/2	7	3/4	21/4	3 ³ /4	133/4	16 ¹ /4
	1(Std.)	31/2	31/4-12	21/2-12	31/2	4.249	1	3	1/4	5 ³ /4	3 ³ /8	5/ ₈	5 ³ /4	5/ ₈	21/4	3 7/8	15	17 ³ /4
	2	51/2	51/4-12	4-12	5 ¹ /2	6.249	1	-	0	73/4	5 ³ /8	1/4	81/4	1	21/4	3 7/8	15	17 ³ /4
8	3	4	33/4-12	3-12	4	4.749	1	33/8	1/4	61/4	37/8	1/2	61/2	3/4	21/4	37/8	15	17 ³ /4
	4	41/2	41/4-12	31/4-12	41/2	5.249	1	_	1/4	63/4	4 ³ /8	1/2	7	3/4	21/4	37/8	15	17 ³ /4
	5	5	43/4-12	31/2-12	5	5.749	1	-	0	71/4	47/8	1/4	71/4	1	21/4	37/8	15	17 ³ /4

Table 3 —



Trunnion Mountings 7" and 8" Bore Sizes

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

Head Trunnion Mounting



åв

2 TC





Intermediate Fixed Trunnion Mounting ZB + STROKE P + STROKE Style DD LG + STROKE (NFPA Style MT4) For "DD" Style Mount EE Maximum -BD-Pressure Rating - PSI \odot Bore PSI ₽R 6 Œ₽₽₽ 1100 7 8 1100 тD UW \bigcirc –J **→**|K|◄ WE--TL-

ТΜ

Е

Rod End Dimensions — see table 2



and style 8 rod ends are recommended on larger diameters. Use style 9 for applications where female rod end threads are required. If rod end is not specified, style 4 will be supplied. On 4¹/zⁱ rods and above, 4.515 dia. spanner wrench holes will be provided instead of wrench flats. shouldered, style 4 rod ends are recommended through 2" piston rod diameters

"Special" Thread Style 3

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

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

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

Table 3 —

Table 1—Envelope and Mounting Dimensions

			EI	E					+.000						Add S	troke	Style DD
Bore	BD	Е	NPTF⊖	SAE★	F	G	J	к	TD	ΤL	тм	UM	UT	UW	LG	Р	Stroke
7	3	8 ¹ / ₂	1 1/4	20	1	23/4	23/4	1 1/4	2.500	21/2	9 ³ / ₄	1 4 ³ / ₄	131/ ₂	11 ¹ / ₂	81/ ₂	51/2	1/8"
8	31/2	91/ ₂	1 1/2	24	1	3	3	1 1/2	3.000	3	11	17	15 ¹ /2	13 ³ /8	91/2	6 ¹ /4	1/8"

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

 \ominus NPTF ports are available at no extra charge.

Table 2	—Rod	Dime	ension	S												Enve Mour Dime	elope a nting ensior	and IS		
			Th	read			Rod	Exter	sions	and F	ilot D	imens	ions						Add S	Stroke
Bore	Rod No.	Rod Dia. MM	Style 8 CC	Style 4 & 9 KK	A	+.000 002 B	с	D	КВ	LAF	NA	v	Max. RD	RT	WF	XG	Min.† XI	Y	XJ	ZB
	1(Std.)	3	23/4-12	21/4-12	31/2	3.749	1	25/8	1/4	5 ³ /4	27/8	5/ ₈	51/4	5/ ₈	21/4	35/8	6%16	33/4	9 ³ /8	12
	2	5	43/4-12	31/2-12	5	5.749	1	-	0	71/4	47/ ₈	1/4	71/4	1	21/4	35/8	6%16	33/4	9 ³ /8	12
7	3	31/2	31/4-12	21/2-12	31/2	4.249	1	3	1/4	5 ³ /4	3 ^{3/8}	5/ ₈	5 ³ /4	5/ ₈	21/4	35/8	6%16	33/4	9 ³ /8	12
	4	4	33/4-12	3-12	4	4.749	1	3 ³ /8	1/4	61/4	37/ ₈	1/2	61/2	3/4	21/4	35/8	6%16	33/4	9 ³ /8	12
	5	41/2	41/4-12	31/4-12	41/ ₂	5.249	1	_	1/4	6 ³ / ₄	4 ³ /8	1/2	7	3/4	21/4	35/8	6%16	33/4	9 ³ /8	12
	1(Std.)	31/2	31/4-12	21/2-12	31/2	4.249	1	3	1/4	5 ³ /4	3 ^{3/8}	5/ ₈	5 ³ /4	5/ ₈	21/4	33/4	7 ¹ / ₁₆	3 7/8	101/4	131/4
	2	51/2	51/4-12	4-12	5 ¹ /2	6.249	1	-	0	73/4	5 ^{3/8}	1/4	81/4	1	21/4	33/4	71/16	37/ ₈	101/4	131/4
8	3	4	33/4-12	3-12	4	4.749	1	3 ³ /8	1/4	61/4	37/8	1/2	61/2	3/4	21/4	33/4	71/16	37/8	101/4	131/4
	4	41/2	41/4-12	31/4-12	41/2	5.249	1	-	1/4	6 ³ /4	4 ³ /8	1/ ₂	7	3/4	21/4	33/4	7 ¹ / ₁₆	3 7/ ₈	101/4	131/4
	5	5	43/4-12	31/2-12	5	5.749	1	_	0	71/4	47/8	1/4	71/4	1	21/4	33/4	71/16	37/8	101/4	131/4

[†]Dimension XI to be specified by customer.



Double Rod Cylinder Style K



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

				Add S	Stroke	_	Add 2X Stroke
Bore	Rod No.	Rod Dia. MM	LD	ZL	SNκ	SSκ	ZM
7	1	3	81/2	11 ³ / ₄	5 ³ /8	5 ³ /4	13
8	1	31/2	9 ¹ /2	12 ^{13/} 16	6 ¹ /8	6 ³ /4	14
Re	place	es:	LG	ZB	SN	SS	-
On mour	single nting st	rod yles:	All Mtg	J. Styles	F	С	All Mtgs.





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



Cylinder Accessories

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

Rod End Accessories

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

Chart A

	Ма	ting Par	ts	Ma	ting Par	ts	
Thread	Rod	Eye			Clevis		Alignment
Size	Clevis	Bracket	Pin	Knuckle	Bracket	Pin	Coupler
^{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
11/4-12	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
13/4-12	50947	*85363	68373	69096	69210	69215	133739 0175
1 ⁷ /8-12	50948	*85363	68373	69097	69210	69215	133739 0188
21/4-12	50949	*85364	68374	69098	69211	68374	
2 ¹ /2-12	50950	*85365	68375	69099	69212	68375	
23/4-12	50951	*85365	68375	69100	69213	69216	Conquit
31/4-12	50952	73538	73545	73536	73542	73545	Eastan
3 ¹ /2-12	50953	73539	73547	73437	73542	73545	Factory
4-12	50954	73539	73547	73438	73543	82181	
41/2 -12	-	-	-	73439	73544	73547	

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

Accessory Load Capacity

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

Mounting Plates

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

Chart B

Mtg. Plate	Series 2H
Part No.	Bore Size
69195	1 1/2"
69196	2", 21/2"
*85361	31/4"
69198	4"
*85362	5"
*85363	6"
*85364	7"
*85365	8"



(3) Knuckle (Female Rod Eye)



Order to fit thread size.

(4) Clevis Bracket for Knuckle



Order to fit Knuckle.

8 Mounting Plate or 5 Eye Bracket



1. When used to mate with the Rod Clevis, select from Chart A.

- 2. When used to mount the Style BB cylinders, select from the
- Mounting Plate Selection Table. See Chart B at lower left.

6 Pivot Pin



- 1. Pivot Pins are furnished with Clevis Mounted Cylinders as standard.
- 2. Pivot Pins are furnished with (2) Retainer Rings.

3. Pivot Pins must be ordered as separate item if to be used with Knuckles, Rod Clevises, or Clevis Brackets.

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

Cylinder Accessories 7" and 8" Bore Sizes

							I	Female	Rod	Clevis	Part N	umber							
	51221 [†]	50940	50941	50942	133284	50943	50944	133285	50945	133286	50946	50947	50948	50949	50950	50951	50952	50953	50954
Α	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	21/4	3	3	31/2	31/2	31/2	31/2 [‡]	4 [‡]	4 [‡]
СВ	11/ ₃₂	3/4	3/4	1 1/4	1 1/4	1 1/2	1 1/2	1 1/2	2	2	2 ¹ / ₂	21/2	21/2	3	3	3	4	41/2	41/2
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	21/2	3	3	31/2	4	4
CE	21/4	1 1/2	1 1/2	21/8	2 ³ /8	215/16	$2^{15/16}$	3 ¹ /8	3 ³ / ₄	41/ ₈	41/ ₂	5 ¹ /2	5 ¹ /2	61/2	63/4	6 ³ / ₄	73/4	8 ¹³ /16	8 ^{13/} 16
CW	13/ ₆₄	1/ ₂	1/ ₂	5/ ₈	5/ ₈	3/4	3/4	3/4	1	1	1 1/4	1 1/4	1 1/4	1 ¹ / ₂	1 1/2	1 1/2	2	21/4	21/4
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	21/2	23/4	23/4	31/2	4	4
КК	⁵ / ₁₆ -24	^{7/} 16-20	¹ / ₂ -20	3/4-16	³ /4 -16	⁷ /8 -1 4	1-14	1-14	1 ¹ /4-12	1 ¹ /4-12	1 ¹ /2-12	1 ^{3/} 4-12	17/8-12	21/4-12	21/2-12	23/4-12	31/4-12	3 ¹ /2-12	4-12
$\textbf{Load Capacity Lbs.} \ominus$	2600	4250	4900	11200	11200	18800	19500	19500	33500	33500	45600	65600	65600	98200	98200	98200	156700	193200	221200

								Knuckle	e Part I	Number	r						
	74075	69089	69090	69091	69092	69093	69094	69095	69096	69097	69098	69099	69100	73536	73437	73438	73439
Α	3/4	3/4	3/4	1 1/8	1 1/8	15/8	2	21/4	21/4	3	31/2	31/2	3 ⁵ /8	41/2	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	61/2	7 ⁵ /8	7 ^{5/} 8	9 ¹ /8	91/ ₈
СВ	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	31/2	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	21/2	3	3	31/2	31/2	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}	41/4	41/4	4 ³¹ / ₃₂	4 ³¹ / ₃₂	5 ^{11/} 16	5 ^{11/} 16
КК	^{5/} 16-24	⁷ / ₁₆ -20	¹ / ₂ -20	³ /4-16	⁷ /8-14	1-14	11/4-12	1 ¹ /2-12	13/4-12	1 ⁷ /8-12	21/4-12	21/2-12	2 ³ /4-12	31/4-12	3 ¹ /2-12	4-12	4 ¹ /2-12
Load Capacity Lbs. \ominus	3300	5000	5700	12100	13000	21700	33500	45000	53500	75000	98700	110000	123300	161300	217300	273800	308500

					Clevis	Bracket	for Knuc	kle Part N	lumber				
	74076	69205	69206	69207	69208	69209	69210	69211	69212	69213	73542	73543	73544
СВ	15/ ₃₂	3/4	1 1/4	1 1/2	2	21/2	2 ¹ / ₂	3	3	3 ¹ /2	4	41/2	5
CD	^{7/} 16	1/2	3/4	1	1 ³ /8	1 3/4	2	2 ¹ / ₂	3	3	31/2	4	4
CW	3/8	1/2	5/ ₈	3/4	1	1 1/4	1 1/2	1 1/2	1 ¹ / ₂	1 1/2	2	2	2
DD	17/64	13/ ₃₂	17/ ₃₂	21/32	21/32	29/32	1 ¹ / ₁₆	1 ³ / ₁₆	1 5/16	1 ^{5/} 16	1 ^{13/} 16	2 ¹ / ₁₆	2 ¹ / ₁₆
E	21/4	31/2	5	61/2	71/2	91/ ₂	123/4	123/4	123/4	123/4	15 ¹ /2	171/ ₂	171/ ₂
F	3/8	1/2	5/ ₈	3/4	7/8	7/8	1	1	1	1	1 ^{11/} 16	1 ^{15/} 16	1 ^{15/} 16
FL	1	1 1/2	1 7/8	21/4	3	3 ^{5/8}	41/4	41/2	6	6	6 ^{11/} 16	7 ^{11/} 16	7 ¹¹ / ₁₆
LR	5/ ₈	3/4	1 ³ / ₁₆	1 ¹ / ₂	2	23/4	3 ³ /16	3 ¹ /2	4 ¹ / ₄	4 1/ ₄	5	5 ³ /4	5 ³ /4
М	3/8	1/2	3/4	1	1 ³ /8	13/4	21/4	2 ¹ / ₂	3	3	31/2	4	4
MR	1/2	5/ ₈	29/ ₃₂	1 1/4	1 ²¹ /32	27/ ₃₂	225/32	31/8	319/ ₃₂	319/ ₃₂	41/8	47/ ₈	47/ 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. \ominus	3600	7300	14000	19200	36900	34000	33000	34900	33800	36900	83500	102600	108400

				Eye Bı	acket and	Mounting F	Plate Part N	lumber			
	74077	69195	69196	85361*	69198	85362*	85363*	85364*	85365*	73538	73539
СВ	^{5/} 16	3/4	1 1/4	1 1/2	2	21/2	21/2	3	3	4	4 ¹ / ₂
CD	5/ ₁₆	1/2	3/4	1	1 ³ /8	13/4	2	21/2	3	31/2	4
DD	17/ ₆₄	13/ ₃₂	17/ ₃₂	21/ ₃₂	21/ ₃₂	29/ ₃₂	1 1/ ₁₆	1 ³ / ₁₆	1 5/ ₁₆	1 ^{13/} 16	21/16
E	21/4	21/2	31/2	41/ ₂	5	61/2	71/2	81/2	9 ¹ / ₂	12 ⁵ /8	14 ⁷ /8
F	3/8	3/8	5/ ₈	7/8	7/8	1 1/8	1 ¹ / ₂	1 3/4	2	1 ^{11/} 16	1 ^{15/} 16
FL	1	1 1/8	1 7/8	2 ³ /8	3	3 ³ /8	4	43/4	5 ¹ /4	5 ^{11/} 16	6 ^{7/} 16
LR	5/8	3/4	1 1/4	1 1/2	21/8	21/4	21/2	3	31/4	4	41/ ₂
М	3/8	1/2	3/4	1	1 ³ /8	13/4	2	21/2	23/4	31/2	4
MR	1/2	^{9/} 16	7/8	1 1/4	1 ^{5/8}	2 ¹ /8	2 ⁷ / ₁₆	3	31/4	41/8	51/4
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

						P	ivot Pin	Part Nun	nber					
	74078	68368	68369	68370	68371	68372	68373	69215	68374	68375	69216	73545	82181	73547 °
CD	7/ ₁₆	1/ ₂	3/4	1	1 3/8	1 3/4	2	2	2 ¹ / ₂	3	3	31/2	4	4
CL	1 5/16	1 7/8	2 ⁵ /8	31/8	41/8	5 ^{3/} 16	5 ^{3/} 16	5 ^{11/} 16	6 ^{3/} 16	61/4	63/4	81/4	8 ⁵ /8	9
Shear Capacity Lbs.⊖	6600	8600	19300	34300	65000	105200	137400	137400	214700	309200	309200	420900	565800	565800

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

Θ See Accessory Load Capacity note on previous page.

•These sizes supplied with cotter pins.

†Includes Pivot Pin.

Consult appropriate cylinder rod end dimensions for compatibility.





How to Order Series "3H" Cylinders

When ordering Series 3H 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.

Water Service Modifications

Standard – When requested, Parker can supply Series 3H cylinders with standard modifications that make the cylinders more nearly suitable for use with water as the fluid medium. The modifications include chrome-plated cylinder bore; electroless nickel-plated, non-wearing internal surfaces; Lipseal style piston, Buna N Seals and chrome-plated, stainless steel piston rod. On orders for water service cyinders, be sure to specify the maximum operating pressure.

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 3H series cylinders the following make-up Class 1 Seals: Primary Piston Rod Seal – Enhanced Polyurethane

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: 7.00 CCBB3HLTS14AC 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

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

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.

Additional Lipseal[®] Piston (if desired): Parker Lipseal[®] pistons are offered as an option at no extra cost in the Series 3H cylinders. With this feature, zero leakage under static holding conditions is attained. Call out "with Lipseal piston" if this type of piston is desired. If not specified, the Hi Load piston seals will be furnished.

Fluid Medium: Series 3H hydraulic cylinders are equipped with seals for use with hydraulic oil. If other than hydraulic oil will be used, specify class of fluid (See Catalog section C.)

(These factors must be taken into account because of the lower tensile strength of stainless steels available for use in piston rods.)

Warranty– Parker will warrant Series 3H cylinders modified for water service to be free of defects in materials or workmanship. On the other hand, Parker cannot accept responsibility for premature failure of cylinder function, where failure is caused by corrosion, electrolysis or mineral deposits within the cylinder.

Piston Rod Wiper – Nitrile Piston Seals – Hi-Load. Filled PTFE Seals with a nitrile expander Options – Cast Iron Rings

O-Rings - Nitrile (nitrile back-up washer when used)

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 styless, 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: 7.00 KDD3HLT24A/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.

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.

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.

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

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

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

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

				8"	Ç	KF	Ρ	тв	3H	ĸ	Ţ	v s	1	4	2	A	Ç 1	2"
Feature	Description	Page No.	Symbol		Δ		Δ	Δ				Δ			Δ		Δ 🖌	A I
Bore*	Specify in inches				Т	ТТ	Т	Т	T	Т	Τ -	ГΤ	• T	Т	ΓT	T	Γ -	Γ
Cushion-Head	Used only if cushion required	61,C94	C	K-														Í.
Double-Rod	Used only if double-rod cylinder is required	80	K TD			_ /	/	/		/	1	[[1	- 1		1	1 1	!
Style*	Can Tie Bods Extended	68					/	/	/	/					1			
otyle -	Both Tie Bods Extended	68					/ /	/	/	1			1			1 1		
	Head Bectangular Flange	72					/ /		/	/ /	' /					1 1		
	Head Square Flange	72	JB			/ /		,	/ /	'			1			1 1		
	Head Rectangular	72	JJ		/	′ /	/											
	Cap Rectangular Flange	70	H			/	/						1					
	Cap Square Flange	70	HB			/	/	/			1		1	1				
	Cap Rectangular	70	HH			/	/	/	/				1	1	1 1	1		
	Side Lugs†	74	C†			/	/	/	/				Ι					
	Side Tapped†	74	F†			/ /	,	/	/	/	1	1		ĺ	1 1			
	Cap Fixed Clevis	76	BB			/ /			/		1	1					1	
	Head Trunnion	78	D			/ /			/	1	1	1 1	' I			1	1	
	Cap Trunnion	/8	DB		,	/ /	/	,	/	/							1	
		78	סט			/	/			/ /						1		
Mounting	Used only for Thrust Key (Styles C F G & CB)	C93	Р	4		/	/					'				1		
Modifications	Used only for Manifold Port O-Ring Seal	000			/	/	/	/										
	(Style C)	C91	м				/							- 1		1 1		
Combination	Any Practical Mounting Style	-	As	1		/ /												
Mounting	Listed Above	-	listed			_ /		/										
Style		-	above			/		/										
Series*	Used in all 3H Model Numbers	_	3H	┥┫		/	,	/										
Piston	Hi-Load Piston standard	B63, C4	K							1								
	Used only for King Packed Piston	B63					/		/	1				1				
Dertet	SAE Straight Throad O Bing Bort (Standard)	C90		4						1								
Ports	Used only for NPTE (Dry Seal Pipe Thread)	C89							/	1	1	1				1		
	Used only for RSP (Parallel Thread ISO 228)	C89	B						/	1		1				1		
	Used only for SAF Flange Ports (3000 psi)	C89	P							/						1		
	Used only for BSPT (Taper Thread)	C89	B							/	1					1		
	Used only for Metric Thread	C89	G								1 1					1		
	Used only for Metric Thread per ISO 6149	C89	Y													/		
Common	High Water Content Fluid	C83	J	1														
Modifications	Nut Retained Piston	67	F							1								
	Fluorocarbon Seals	C83	V						/									
	Water Service	C83	W							1								
Special	Lised only if special Modifications are required:	083	X	-														
Modifications	Oversize Ports	C91																
	Port Position Change	C89			1100 0					.				1				
	Special Seals	C83	S		Use a	Symbol S	to des	ignate	specia	1			1	1				
	Stop Tube††	C95																
	Stroke Adjuster	C93									1		1 1					
	Ring Type Piston			1														
Piston Rod*	For Single Rod Cylinders, select one only.	-	1								1							
Number	Refer to Rod humber listing, Table 2,	-	2								1							
	See chart in Section C, page 83 for minimum	_	3								1				1			
	piston rod diameter	_	5		Modif	ication ex	kcept p	piston	rod end	ł	1							
		_	6								•			1	1			
		_	7									11		1	1			
		-	8									11		1	1			
		-	9												1			
		-	0	4											1			
Piston*	Select:																	
NOU EIIU	Style 4 Small Male	C92	4		Styles	4. 8. and	d 9 are	catalo	o stand	lards	1							
	Style 9 Short Fomale	C92	0		Sneci	fv Style 3	for an	v snec	ial nistr	n rod	end		11					
	Style 3 Special (Specify)	C92	3		opoor	ly olylo o	ior an	<i>y</i> opoo	nai pioto	, in rou i	onia				D	ouble F	lod	
	Style 55 Rod End for Flange Coupling	C19	55											1		Cylinde	rs	
Piston Rod	Used only for male thread two times longer	0.10		1⊲—										1	For dou	uble roc		
Alternate	than standard.	C92	2	1										1	cylinde	rs, spec	ify rod	
Threads															numbe	r and ro	d end	
Piston Rod*	UNF Standard	C92	A												symbol	s tor bo	th pist	on
inreads	BSF (British Fine)	C92	W												rod mo	iypical dol nun	uouble	1
	Metric	C92	M	K-									-		would P	acı Hull	1961	
Cusnion-Cap	Useu only it cusnion required	67, C94	C	┥┫ー									/		6" K L 2	ни 11 л л	144¥1	2"
Stroke*††	opecity in incres	093	-	J											0 10-3	1014A	14/1/	۷
†Cylinders with the length equal to or	ese mounting styles should have a stroke greater than their bore diameters.	*Required for B	asic Cylinde s Indicate Ba	r Model sic Minii	Numbe num N	er Iodel Nun	nber	† ±	†In cas Specifv	e of sto / XI dim	op tube nensior	e. call n.	out gro)SS :	stroke le	ength.		

For Cylinder Division Plant Locations – See Page II.

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

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

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

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

The goal for the Parker team was to design a rod seal suitable for all types of applications, regardless of pressure profile. It had to be composed of a



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

material that would not react chemically with hydraulic fluids. And it had to produce better and more reliable "dry rod" performance than the standard serrated lip-seal design in a broad range of applications.

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

The Parker design team was successful!

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

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

> Worldclass Quality Products and Service





Large Bore High Pressure Hydraulic **Cylinders**

Series 3H





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

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

Parker's externally removable bolt-on gland assembly makes preventive maintenance fast...and easy! You **do not** have to disassemble the cylinder, loosen the tie rod nuts, or remove the long cast iron rod bearing to replace the patented Polypak[®] double bevel lipseal and double service Wiperseal. The ruggedly constructed gland assembly includes the ultimate in sealing for extra heavy

duty applications in most any industry. The high pressure large bore Series 3H hydraulic cylinder also includes the innovative anti-extrusion body end seal design...where the heads and caps are specially machined **to prevent** extrusion of the body end seals and insure against leakage — PLUS... every cylinder is individually tested before it leaves our plant.

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

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



Series 3H Large Bore High Pressure Hydraulic Cylinders

Specifications/ Mountings Large Bore Sizes

Standard Specifications

- Heavy Duty Service
- Standard Construction Square Head Tie Rod Design
- Nominal Pressure 3000 PSI*
- Standard Fluid Hydraulic Oil
- Standard Temperature -10°F. to +165°F.**
- Bore Sizes 10" through 20" (Larger sizes available)

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

- Piston Rod Diameter 4¹/₂" through 10"
- Mounting Styles Ten standard styles at various application ratings
- Strokes Available in any practical stroke length
- Cushions Optional at either end or both ends of stroke
- Rod Ends Two Standard Choices Specials to Order

*If hydraulic operating pressure exceeds 3000 PSI, send application data for engineering evaluation and recommendation. See section C, page 118 for actual design factors. ** See section C, page 83 for higher temperature service.





features make Parker Series 3H End Seals - Pressure-actuated cylinder body-to-head and cap "O" rings and back-up washers. your best choice... for all your large bore high pressure hydraulic cylinder applications... Primary Seal - Polypak® double-bevel lip design combines ease of a installation with rugged construction. The ultimate seal in extra heavy duty applications. Completely self-compensating and self-relieving to withstand pressure variations and conform to mechanical deflection that may occur. Secondary Seal – Double-Service Wiperseal® (Patent #2907596) - wipes clean any oil film adhering to the rod on the extend stroke and cleans the rod on the return stroke. Bolt-On Rod Gland Assembly - Externally removable without cylinder disassembly. Long cast-iron bearing surface is inboard of the seals, assuring positive lubrication from within the cylinder. An "O" ring is used as a seal between gland and head. Steel Head - Bored and grooved to provide **Optional Piston** concentricity for mating parts. Alloy Steel Tie Rod High Strength Tie Rods - Made from

Cast iron ring piston is available as a special modification.

Nuts - With hardened washer. 100,000 PSI minimum yield steel with rolled threads for added strength.

Parker's Exclusive Stepped floating cushions combine the best features of known cushion technology.

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

These innovative design

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

stepped cushion design shows reduced pressure peaks for most load and speed conditions, with comparable reduction of objectionable stopping forces being transmitted to the load and the support structure. The Series 3H design incorporates the longest cushion sleeve and cushion spear that can be provided in the standard envelope without decreasing the rod bearing and piston bearing lengths.





15 RMS micro finish bore providing a wear surface for long lasting piston bearing and seal life.

CUSHION PRESSURE

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

demanding applications. Provides superior performance in reducing shock. Cushions are optional and can be supplied at head end, cap end, or both ends without change in envelope or mounting dimensions.



CUSHION PERFORMANCE

CUSHION POSITION

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

b. A needle valve is provided that is flush with the side of the head

even when wide open. It may be identified by the fact that it is

number 2, next to the needle valve. It may be identified by the fact that it is slotted.

- d. The check and needle valves are interchangeable in the head.
- (2) When a cushion is specified at the cap end:
 - a. A cushion-stepped spear is provided on the piston rod.
 - b. A socket-keyed needle valve is provided that is flush with the side of the cap when wide open. It is located on side number 3 in all mounting styles except C. In this style it is located on side number 2.
 - A springless check valve is provided that is also flush with the c. side of the cap and is mounted on the same side as the needle valve except on mounting style C, where it is mounted on side number 2, next to the needle valve.
 - d. The check and needle valves are interchangeable in the cap.

For Cylinder Division Plant Locations – See Page II.



Tie Rod Mountings Large Bore Sizes

Series 3H Large Bore High Pressure Hydraulic Cylinders

ZB + STROKE

Tie Rods Extended Head End



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







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







Rod End Dimensions — see table 2





Special Thread Style 3 Special thread, extension, rod eye, blank, etc., are also available. To order, specify "Style 3" and give desired dimensions for KK, A and LAF or WF. If otherwise special, furnish dimensional sketch.

For additional information – call your local Parker Cylinder Distributor.

furnished.

Table 1—Envelope and Mounting Dimensions

				EE*	EEf▲ S A F	EE** SAF								AddS	Stroke
Bore	BB	DD	Е	NPTF	FLANGE	STRAIGHT THREAD	G	J	к	RA	RB	RC	RR	LG	Р
10	41/8	11/8-12	12 ^{5/8}	2	2	24	311/16	311/16	1 ⁹ / ₃₂	5.291	3.775	-	21/8	12 ¹ /8	81/2
12	41/2	11/4-12	14 ⁷ /8	21/2	21/2	24	4 ⁷ / ₁₆	47/ ₁₆	1 13/32	6.270	4.555	-	2 ³ /8	14 ¹ / ₂	101/8
14	41/2	11/4-12	17 1/8	21/2	21/2	24	4 ⁷ /8	4 ⁷ /8	1 13/32	7.485	6.143	4.409	21/4	15 ⁵ /8	107/8

* NPTF ports are available for an extra charge.

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

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

Table 2—Rod Dimension

Table 2-	-Rod	Dime	ension	S									Dime	ensior	าร
					Rod	Exten	sions	and P	ilot Di	imensi	ons			Add S	Stroke
Bore	Rod No.	Rod Dia. MM	Thread KK	А	+.000 005 B	с	F	LAF	NA	RD	v	WF	Y	ZB	ZJ
	1	41/ ₂	31/4-12	41/ ₂	5.249	1	1 ^{15/} 16	77/ ₁₆	4 ³ /8	81/4	1/4	215/16	4 3/ ₄	1611/32	15 ¹ / ₁₆
10	2	7	5-12	7	7.999	1	1 ^{15/} 16	101/2	6 ⁷ /8	101/2	3/ ₈	31/2	5 ⁵ /16	16 ^{29/32}	15 ⁵ /8
10	3	5	31/2-12	5	5.749	1	1 ^{15/} 16	8 ^{3/} 16	47/ ₈	87/ ₈	1/4	3 ³ / ₁₆	5	16 ^{19/32}	15 ⁵ / ₁₆
	4	51/2	4-12	5 ¹ /2	6.249	1	1 ^{15/} 16	811/16	5 ³ /8	9 ³ /8	1/4	3 ^{3/16}	5	16 ^{19/32}	15 ⁵ / ₁₆
	1	51/2	4-12	5 ¹ /2	6.249	1	1 ^{15/} 16	8 11/16	5 ³ /8	9 ³ /8	1/4	3 ^{3/16}	5 ³ /8	19 ³ / ₃₂	17 ¹¹ / ₁₆
12	2	8	5 ³ / ₄ -12	8	8.999	1	1 ^{15/} 16	12	7 7/8	121/2	3/8	4	6 ³ / ₁₆	19 ^{29/32}	18 ¹ /2
	3	7	5-12	7	7.999	1	1 ^{15/} 16	101/2	6 ⁷ /8	101/2	3/8	31/2	5 ^{11/} 16	1913/32	18
	1	7	5-12	7	7.999	1	1 ^{15/} 16	101/2	6 ⁷ /8	101/2	3/ ₈	31/2	5 ⁷ /8	2017/32	19 ¹ /8
14	2	10	71/4-12	10	10.999	1	1 ^{15/} 16	1 41/2	97/ ₈	1 41/2	3/ ₈	41/ ₂	6 ⁷ /8	2117/32	201/8
	3	8	5 ³ /4-12	8	8.999	1	1 ^{15/} 16	12	7 ⁷ /8	121/2	3/ ₈	4	6 ³ /8	211/ ₃₂	19 ⁵ /8

Table 4—Optional SAE Flange Port Pattern



Nom. Flange Size	А	Q	GG	w	x	Z-THD UNC-2B	AA Min.	SAE
11/2	1.50	2.750	1.406	1.38	0.70	1/2-13	1.06	24
2	2.00	3.062	1.688	1.53	0.84	1/2 -13	1.06	32
21/2	2.50	3.500	2.000	1.75	1.00	1/2 -13	1.19	40
3	3.00	4.188	2.438	2.09	1.22	⁵ /8-11	1.19	48

Table 5—Tie Rod Information see table 1 for dimensions

Table 3 — **Envelope and** Mounting







14" Bores, 12 Tie Rods

For Cylinder Division Plant Locations – See Page II.



Head Rectangular and Square Mountings Large Bore Sizes

Series 3H Large Bore High Pressure Hydraulic Cylinders

ZB + STROKE

Head Rectangular Mounting



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







Rod End Dimensions — see table 2





Special Thread Style 3 Special thread, extension, rod eye, blank, etc., are also available. To order, specify "Style 3" and give desired dimensions for KK, A and LAF or WF. If otherwise special, furnish dimensional sketch.

Series 3H Large Bore High Pressure Hydraulic Cylinders

Table 1—Envelope and Mounting Dimensions

			EE*	EEf▲ S.A.E.	EE* S.A.E.											AddS	troke
Bore	E	EB	NPTF	FLANGE PORT	STRAIGHT THREAD	EX	FB	G	J	к	R	RE	TE	TF	UF	LG	Р
10	125/8	1 ⁵ /16	2	2	24	16 ⁵ /8	1 ^{13/} 16	311/16	311/16	1 ⁹ / ₃₂	9.62	9.89	14.13	15 ⁷ /8	19	12 ¹ /8	8 1/2
12	14 ⁷ /8	1 9/16	21/2	21/2	24	19 3/4	2 ¹ / ₁₆	4 ⁷ / ₁₆	4 ⁷ / ₁₆	1 ¹³ / ₃₂	11.45	11.75	16.79	181/2	22	1 41/2	101/8
14	17 ¹ /8	1 ^{13/} 16	21/2	21/2	24	21 ³ / ₄	2 ⁵ /16	47/ ₈	47/ ₈	1 ¹³ /32	13.26	12.90	18.43	21	25	15 ⁵ /8	107/8

Table 1A—Envelope and Mounting Dimensions

			EE	EE													Adds	Stroke
Bore	E	EB	(SAE)	(FLANGE)	EJ	EX	FB	G	J	к	R	RA	RE	TE	TF	UF	LG	Р
16	19	1 ^{13/} 16	24	3	20	241/2	1 ^{13/} 16	5 ⁷ /8	5 ^{7/8}	1 ^{29/32}	15 ¹ /2	8	15.28	21.03	21	24 ¹ / ₂	181/8	121/8
18	22	21/16	24	3	23	261/2	2 ¹ / ₁₆	67/8	6 ⁷ /8	1 ^{29/32}	18	71/4	16.45	22.65	241/4	281/4	21 ¹ /8	151/8
20	24	21/16	24	3	25	29	2 ¹ /16	7 ⁷ /8	7 ⁷ /8	1 ^{29/32}	20	8	18.07	24.87	26 ¹ /2	301/2	235/8	17 ⁵ /8

* NPTF ports are available at an extra charge.

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

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

Table 2—Rod Dimensions

					Rod	Exten	sions	and P	ilot Di	imensi	ons			Add Stroke
Bore	Rod No.	Rod Dia. MM	Thread KK	A	+.000 005 B	с	F	LAF	NA	RD	v	WF	Y	ZB
	1	41/2	31/4-12	4 ¹ / ₂	5.249	1	1 ^{15/} 16	77/ ₁₆	4 ³ /8	8 ¹ / ₄	1/4	215/16	4 3/ ₄	16 ¹¹ /32
10	2	7	5-12	7	7.999	1	1 ^{15/} 16	101/2	6 ⁷ /8	101/2	3/ ₈	31/2	5 ^{5/} 16	16 ²⁹ /32
10	3	5	31/2-12	5	5.749	1	1 15/16	8 ^{3/16}	47/ ₈	8 7/ ₈	1/4	3 ³ /16	5	16 ¹⁹ /32
	4	5 ¹ / ₂	4-12	5 ¹ /2	6.249	1	1 ^{15/} 16	8 11/16	5 ^{3/8}	9 ³ /8	1/4	3 ^{3/16}	5	16 ¹⁹ /32
	1	5 ¹ / ₂	4-12	51/2	6.249	1	1 ^{15/} 16	8 ¹¹ / ₁₆	5 ^{3/8}	9 ³ /8	1/4	3 ^{3/16}	5 ^{3/8}	19 ³ /32
12	2	8	53/4-12	8	8.999	1	1 15/16	12	77/8	12 1/2	3/ ₈	4	6 ^{3/} 16	19 ^{29/32}
	3	7	5-12	7	7.999	1	1 ^{15/} 16	101/2	6 ⁷ /8	101/2	3/ ₈	31/2	5 ^{11/} 16	19 ¹³ /32
	1	7	5-12	7	7.999	1	1 ^{15/} 16	101/2	6 ⁷ /8	101/2	3/ ₈	31/2	5 ⁷ /8	2017/32
14	2	10	71/4-12	10	10.999	1	1 15/16	1 41/2	97/ ₈	1 41/2	3/ ₈	41/ ₂	67/ ₈	21 ¹⁷ /32
	3	8	5 ³ /4-12	8	8.999	1	1 ^{15/} 16	12	77/8	121/2	3/ ₈	4	6 ³ /8	21 ¹ / ₃₂
	1	8	53/4-12	8	8.999	1	1 ^{15/} 16	12	7 ⁷ /8	12 ¹ / ₂	3/ ₈	4	7	241/32
16	3	9	6 ¹ /2-12	9	9.999	1	1 15/16	131/4	8 7/ ₈	13 1/2	3/ ₈	41/4	71/4	24 ⁹ /32
	4	10	71/4-12	10	10.999	1	1 ^{15/} 16	1 41/2	97/ ₈	14 ¹ / ₂	3/ ₈	41/2	71/ ₂	24 ^{17/32}
10	1	9	6 ¹ /2-12	9	9.999	1	1 ^{15/} 16	131/4	87/8	131/2	3/8	41/4	71/4	279/32
18	3	10	71/4-12	10	10.999	1	1 15/16	1 41/2	97/ ₈	1 41/2	3/8	41/2	71/2	2717/32
20	1	10	71/4-12	10	10.999	1	1 ^{15/} 16	141/2	97/8	141/2	3/8	41/2	71/2	30 1/32

Table 4—Optional SAE Flange Port Pattern



Nom. Flange Size	А	Q	GG	w	x	Z-THD UNC-2B	AA Min.	SAE
11/2	1.50	2.750	1.406	1.38	0.70	1/2-13	1.06	24
2	2.00	3.062	1.688	1.53	0.84	1/2-13	1.06	32
21/2	2.50	3.500	2.000	1.75	1.00	¹ / ₂ -13	1.19	40
3	3.00	4.188	2.438	2.09	1.22	⁵ /8-11	1.19	48

Table 5—Tie Rod Information



Table 3 — Envelope and

Mounting Dimensions

1	0.	,	12"	Bores

14"	Bore	

Bore	10	12	14	16	18	20]
Tie Rod Thread	11/8-12	11/4-12	11/4-12	*	*	*	
RA	5.291	6.270	7.485	*	*	*	
RB	3.775	4.555	6.143	*	*	*	
RC	—	—	4.409	*	*	*	•

Consult factory for dimensions

RA

For Cylinder Division Plant Locations – See Page II.



Cap Rectangular and Square, Side Lug and Centerline Lug Mountings Large Bore Sizes

Series 3H Large Bore High Pressure Hydraulic Cylinders



Series 3H Large Bore **High Pressure Hydraulic Cylinders**

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

Rod End Dimensions — see table 2



Special Thread Style 3

Table 3 — Envelope and

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

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

* NPTF ports are available at an

Table 1—Envelope and Mounting Dimensions

			EE *	EEf▲ S.A.E.	EE** S.A.E.																	Ac	ld Stro	oke
Bore	Е	EB	NPTF	FLANGE	STRAIGHT THREAD	EX	FB	G	J	κ	R	RE	SB	ST	SU	sw	TE	TF	тs	UF	US	LG	Р	SS
10	125/8	1 5/ ₁₆	2	2	24	16 ⁵ /8	1 13/16	311/16	311/16	1 ⁹ / ₃₂	9.62	9.89	1 9/16	21/4	31/2	1 5/8	14.13	157/8	15 ⁷ /8	19	19 ¹ /8	12 ¹ /8	81/2	87/8
12	147/ ₈	1 9/ ₁₆	21/2	21/2	24	193/4	21/16	47/16	47/ ₁₆	1 ^{13/32}	11.45	11.75	1 9/16	3	41/4	2	16.79	18 1/2	187/8	22	227/8	14 ¹ /2	101/8	101/2
14	17 1/8	1 13/ ₁₆	21/2	21/2	24	213/4	25/16	47/8	47/8	1 13/32	13.26	12.90	25/16	4	43/4	21/4	18.43	21	21 ⁵ /8	25	261/8	155/8	107/8	11 1/8

Table 1A—Envelope and Mounting Dimensions

			<u> </u>							1									extra charge.
			FF	FF													AddS	Stroke	▲ Optional SAE flange ports may
Bore	Е	EB	(SAE)	(FLANGE)	EJ	EX	FB	G	J	к	R	RA	RE	TE	TF	UF	LG	Р	supplied by customer. See Table
16	19	1 ¹³ / ₁₆	24	3	20	241/2	1 ^{13/} 16	5 ⁷ /8	5 ⁷ /8	1 ^{29/32}	15 ¹ /2	8	15.28	21.03	21	24 ¹ /2	18¼/8	12 ¹ /8	** SAE straight thread ports are
18	22	21/16	24	3	23	261/2	21/16	6 ⁷ /8	6 ⁷ /8	1 ^{29/32}	18	7 ¹ /4	16.45	22.65	241/4	281/4	211/8	15 ¹ /8	standard and are indicated by por
20	24	21/16	24	3	25	29	21/16	7 7/8	7 7/8	1 ^{29/32}	20	8	18.07	24.87	26 ¹ /2	301/2	235/8	17 ⁵ /8	

Table 2—Rod Dimensions

Table 2 [.]	—Rod	Dime	ension	S									Mour	nting	Dime	nsion	S
					Rod	Exten	sions	and P	ilot D	imensi	ons				Add	Stroke	
Bore	Rod No.	Rod Dia. MM	Thread KK	Α	+.000 005 B	С	F	LAF	NA	RD	v	WF	Y	XS	XF	ZB	
	1(Std.)	41/2	31/4-12	41/ ₂	5.249	1	1 ^{15/16}	77/16	4 ³ /8	81/4	1/4	215/16	4 ³ / ₄	4 ^{9/} 16	15 ¹ /16	16 ¹¹ / ₃₂	
10	2	7	5-12	7	7.999	1	1 ^{15/} 16	101/2	6 ⁷ /8	101/2	3/ ₈	31/2	5 ^{5/} 16	5 ¹ /8	15 ⁵ /8	16 ²⁹ / ₃₂	
10	3	5	31/2-12	5	5.749	1	1 ^{15/} 16	8 ^{3/16}	47/8	87/8	1/4	3 ^{3/16}	5	4 ¹³ / ₁₆	155/16	16 ¹⁹ / ₃₂	
	4	5½	4-12	5 ¹ / ₂	6.249	1	1 ^{15/} 16	8 ¹¹ / ₁₆	5 ³ /8	9 ³ /8	1/4	3 ^{3/16}	5	4 ¹³ / ₁₆	155/16	16 ¹⁹ / ₃₂	
	1(Std.)	51/2	4-12	5 ¹ / ₂	6.249	1	1 ^{15/16}	8 11/16	5 ^{3/8}	9 ³ /8	1/4	3 ^{3/16}	5 ³ /8	5 ^{3/} 16	17 ¹¹ / ₁₆	19 ³ / ₃₂	
12	2	8	53/4-12	8	8.999	1	1 ^{15/} 16	12	7 ⁷ /8	121/2	3/ ₈	4	6 ³ / ₁₆	6	181/2	19 ²⁹ / ₃₂	
	3	7	5-12	7	7.999	1	1 ^{15/16}	101/2	67/8	101/2	3/ ₈	31/2	5 ^{11/} 16	51/2	18	19 ¹³ / ₃₂	
	1	7	5-12	7	7.999	1	1 ^{15/} 16	101/2	6 ⁷ /8	101/2	3/ ₈	31/2	5 ⁷ /8	5 ³ /4	19 ¹ /8	2017/32	
14	2	10	71/4-12	10	10.999	1	1 ^{15/16}	1 41/2	97/8	14 ¹ / ₂	3/ ₈	41/2	6 ⁷ /8	6 ³ /4	201/8	21 ¹⁷ / ₃₂	
	3	8	53/4-12	8	8.999	1	1 ^{15/} 16	12	7 7/8	121/2	3/8	4	6 ³ /8	61/4	195/8	21 ¹ / ₃₂	
	1	8	53/4-12	8	8.999	1	1 ^{15/16}	12	77/8	121/2	3/8	4	7	*	221/8	*	
16	3	9	6 ¹ /2-12	9	9.999	1	1 ^{15/} 16	131/4	8 7/ ₈	131/2	3/8	41/4	71/4	*	223/8	*	
	4	10	71/4-12	10	10.999	1	1 ^{15/16}	141/2	97/8	141/2	3/8	41/2	71/ ₂	*	225/8	*	
18	1	9	61/2-12	9	9.999	1	1 ^{15/} 16	131/4	8 7/ ₈	131/2	3/8	41/4	71/4	*	253/8	*	
10	3	10	71/4-12	10	10.999	1	1 ^{15/16}	1 41/2	97/ ₈	141/2	3/8	41/2	71/ ₂	*	255/8	*	
20	1	10	71/4-12	10	10.999	1	1 ^{15/} 16	1 41/2	97/ ₈	14 ¹ /2	3/8	41/2	71/2	*	281/8	*	*Consult Fac

Table 4—Optional SAE Flange Port Pattern



Table 5—Tie Rod Information

For Cylinder Division Plant Locations – See Page II.



97

Cap Fixed Clevis and Trunnion Mountings Large Bore Sizes

Series 3H Large Bore High Pressure Hydraulic Cylinders









Series 3H Large Bore High Pressure Hydraulic Cylinders

Cap Fixed Clevis and Trunnion Mountings/Optional Flange Ports Tie Rod Information Large Bore Sizes

Rod End Dimensions — see table 2



Table 1—Envelope and Mounting Dimensions

			+.001			FF*	EEf▲ S.A.E.	EE** S.A.E.								+.000							Add S	troke
Bore	BD	СВ	003 CD	cw	Е	NPTF	FLANGE PORT	STRAIGHT THREAD	G	J	κ	L	LR	м	MR	001 TD	ΤL	тм	ТҮ	UМ	UΤ	UW	LG	Ρ
10	41/ ₂	4	3.500	2	125/8	2	2	24	3 ^{11/} 16	311/16	1 ⁹ / ₃₂	4	3 ³ /8	31/2	31/2	3.500	31/2	14	13	21	19 ⁵ /8	17 1/2	121/8	8 1/2
12	51/2	41/2	4.000	2 ¹ / ₄	147/8	21/2	21/2	24	47/ ₁₆	47/ ₁₆	1 ¹³ /32	41/2	3 7/8	4	4	4.000	4	16 ¹ /2	15 1/2	241/2	22 ⁷ /8	20 ³ /4	14 ¹ /2	101/8
14	5½	6	5.000	3	17 1/8	2 ¹ /2	21/2	24	47/ ₈	47/8	1 ¹³ /32	5 ³ /4	4 ^{3/} 16	5	5	4.500	41/2	19 ¹ / ₂	19 ¹ / ₄	281/2	261/8	24 ³ /4	15 ⁵ /8	107/8

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

		FF	FF												Adds	Stroke
Bore	Е	(SAE)	(FLANGE)	СВ	CD	cw	G	J	к	L	LR	м	MD	MR	LG	Ρ
16	19	24	3	7	6	31/2	5 ⁷ /8	5 ⁷ /8	1 ^{29/32}	7	6 ¹ / ₄	6	16	6	18 ¹ /8	121/8
18	22	24	3	8	61/2	4	6 ⁷ /8	6 ⁷ /8	1 ^{29/32}	7 ⁵ /8	63/4	61/2	18	61/2	211/8	151/8
20	24	24	3	9	71/2	41/2	7 ⁷ / ₈	77/8	1 ^{29/32}	83/4	73/4	71/2	20	71/2	235/8	175/8

* NPTF ports are available at an extra charge.

▲ Optional SAE flange ports may be specified – flange to be supplied by customer. See Table

4 for flange port pattern dimensions.

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

Dimension CD is pin diameter.

-RB-

Table 3—Envelope and

Mounting Dimensions

Table 2—Rod Dimensions

					Rod	Exten	sions	and Pi	ilot Di	mensi	ons						Add	Stroke	
Bore	Rod No.	Rod Dia. MM	Thread KK	А	+.000 005 B	С	F	LAF	NA	RD	v	WF	XG	Min. XI*	Y	хс	XJ	ZB	zc
	1(Std.)	41/ ₂	31/4-12	41/2	5.249	1	1 ^{15/} 16	7 ⁷ / ₁₆	4 ³ /8	81/4	1/4	215/16	4 3/ ₄	9 ¹ / ₁₆	4 3/ ₄	19 ¹ / ₁₆	13 ³ /8	16 ¹¹ / ₃₂	22 ^{9/16}
10	2	7	5-12	7	7.999	1	1 ^{15/} 16	101/2	6 ⁷ /8	101/2	3/8	31/2	5 ^{5/} 16	9 ⁵ /8	5 ^{5/} 16	19 ^{5/8}	13 ^{15/16}	16 ²⁹ / ₃₂	231/8
10	3	5	31/2-12	5	5.749	1	1 ^{15/} 16	8 ^{3/16}	47/ ₈	87/ ₈	1/4	3 ^{3/16}	5	9 ⁵ / ₁₆	5	19 ⁵ / ₁₆	13 ⁵ /8	16 ¹⁹ / ₃₂	22 ^{13/} 16
	4	5½	4-12	5 ¹ /2	6.249	1	1 ^{15/} 16	811/16	5 ^{3/8}	9 ³ /8	1/4	3 ^{3/16}	5	9 ⁵ / ₁₆	5	19 5/16	13 ⁵ /8	16 ¹⁹ / ₃₂	22 ^{13/16}
	1(Std.)	5½	4-12	5 ¹ /2	6.249	1	1 15/16	8 ¹¹ / ₁₆	5 ^{3/8}	9 ³ /8	1/4	3 ^{3/16}	5 ³ /8	10 ⁵ /8	5 ³ /8	22 ³ / ₁₆	15 ¹ /2	19 ³ / ₃₂	26 ^{3/16}
12	2	8	53/4-12	8	8.999	1	1 ^{15/} 16	12	7 7/8	12 ¹ / ₂	3/8	4	6 ³ / ₁₆	11 ¹ / ₂	6 ³ / ₁₆	23	16 ^{5/16}	19 ^{29/32}	27
	3	7	5-12	7	7.999	1	1 ^{15/} 16	101/2	6 ⁷ /8	101/2	3/ ₈	31/2	5 ^{11/} 16	10 ^{15/16}	511/16	22 ¹ / ₂	15 ¹³ /16	19 ¹³ / ₃₂	26 ¹ / ₂
	1	7	5-12	7	7.999	1	1 ^{15/} 16	101/2	6 ⁷ /8	101/2	3/8	31/2	5 ^{15/} 16	11 7/ ₁₆	5 ⁷ /8	247/8	16 ¹¹ / ₁₆	2017/32	297/8
14	2	10	71/4-12	10	10.999	1	1 ^{15/} 16	1 41/2	97/ ₈	14½	3/8	41/2	6 ^{15/} 16	127/16	6 ⁷ /8	25 ⁷ /8	17 ¹¹ / ₁₆	21 ¹⁷ / ₃₂	307/8
	3	8	53/4-12	8	8.999	1	1 ^{15/} 16	12	7 ⁷ /8	121/2	3/ ₈	4	6 ⁷ / ₁₆	11 ^{15/} 16	6 ³ /8	25 ³ /8	17 ^{3/} 16	21 ¹ / ₃₂	30 ³ /8
	1	8	53/4-12	8	8.999	1	1 ^{15/} 16	12	7 ⁷ /8	12 ¹ / ₂	3/8	4	**	**	7	29 ¹ /8	**	**	351/8
16	3	9	6 ¹ /2-12	9	9.999	1	1 ^{15/} 16	131/4	87/8	131/2	3/8	4 1/ ₄	**	**	71/4	29 ^{3/8}	**	**	35 ³ /8
	4	10	71/4-12	10	10.999	1	1 ^{15/} 16	1 41/2	97/ ₈	14 ¹ /2	3/8	41/2	**	**	71/ ₂	29 ⁵ /8	**	**	355/8
10	1	9	6 ¹ / ₂ -12	9	9.999	1	1 ^{15/} 16	131/4	87/8	131/2	3/8	41/4	**	**	71/4	33	**	**	391/2
10	3	10	71/4-12	10	10.999	1	1 ^{15/} 16	1 4 ¹ / ₂	97/8	14½	3/8	41/2	**	**	71/2	331/4	**	**	393/4
20	1	10	71/4-12	10	10.999	1	1 ^{15/} 16	14 ¹ /2	97/ ₈	14½	3/8	41/ ₂	**	**	71/2	367/8	**	**	44 ³ /8

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

Table 4—Optional SAE Flange Port Pattern



Table 5—Tie Rod Information

For Cylinder Division Plant Locations – See Page II.



Series 3H Large Bore High Pressure Hydraulic Cylinders

How to Use Double Rod Cylinder Dimensioned Drawings



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

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

\$\$ Specify XI dimension from rod end #1.

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

On a double rod cylinder where the two rod ends are different, be sure to clearly state which rod end is to be assembled at which end. Port position 1 is standard. If other than standard, specify pos. 2, 3 or 4 when viewed from rod end #1 only. See port position information in Section C.

Bore	Rod Code	Rod Dia.	Add 2X Stroke ZM
	1	4 ¹ / ₂	18
10	2	7	19 ¹ /8
10	3	5	18 ¹ /2
	4	5 ¹ /2	18 ¹ /2
	1	5 ¹ /2	207/8
12	2	8	22 ¹ /2
	3	7	21 ¹ / ₂
	1	7	22 ⁵ /8
14	2	10	24 ⁵ /8
	3	8	235/8
	1	8	26 ¹ /8
16	3	9	26 ⁵ /8
	4	10	271/8
10	1	9	29 ⁵ /8
18	3	10	30 ¹ /8
20	1	10	325/8

Mounting Recommendations and Other Mountings

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

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

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

Side Lug Mountings — Caution, cylinders which do not absorb force on their centerline (Group 3) tend to sway when under load. Short stroke, non-centerline mounted cylinders can subject mounting bolts to large tension forces which when combined with shear forces can overstress standard mounting bolts. Side lug mounted cylinders should always be prevented from shifting through use of shear keys so located as to resist the major load, whether push or pull. **Trunnion Mountings** — Cylinders require lubricated pillow blocks with minimum bearing clearances. Pillow blocks should be carefully aligned and rigidly mounted so the trunnions will not be subjected to bending moments. The rod end connection should also be pivoted, with the customer's pin in the piston rod knuckle parallel to the trunnions.

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

Metallic Rod Wiper

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





How to Order Series "3H" Cylinders

When ordering Series 3H 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.

Water Service Modifications

Standard – When requested, Parker can supply Series 3H cylinders with standard modifications that make the cylinders more nearly suitable for use with water as the fluid medium. The modifications include chrome-plated cylinder bore; electroless nickel-plated, non-wearing internal surfaces; Lipseal style piston, Buna N Seals and chrome-plated, stainless steel piston rod. On orders for water service cyinders, be sure to specify the maximum operating pressure.

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 3H series cylinders the following make-up Class 1 Seals:

Primary Piston Rod Seal – Nitrile

Piston Rod Wiper – 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: 10.00 CCBB3HLTS14AC 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

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

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.

Additional Lipseal[®] Piston (if desired): Parker Lipseal[®] pistons are offered as an option at no extra cost in the Series 3H cylinders. With this feature, zero leakage under static holding conditions is attained. Call out "with Lipseal piston" if this type of piston is desired. If not specified, the Hi Load piston seals will be furnished.

Fluid Medium: Series 3H hydraulic cylinders are equipped with seals for use with hydraulic oil. If other than hydraulic oil will be used, specify class of fluid (See Catalog section C.)

(These factors must be taken into account because of the lower tensile strength of stainless steels available for use in piston rods.)

Warranty– Parker will warrant Series 3H cylinders modified for water service to be free of defects in materials or workmanship. On the other hand, Parker cannot accept responsibility for premature failure of cylinder function, where failure is caused by corrosion, electrolysis or mineral deposits within the cylinder.

Piston Seals – Hi-Load. Filled PTFE seals with a nitrile expander Option – Cast Iron Rings

O-Rings - Nitrile (nitrile back-up washer when used)

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

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 styless, 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: 10.00 KDD3HLT24A/18A x 10.000 XI=10.00

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.

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.

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.

Series 3H Large Bore High Pressure Hydraulic Cylinders

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

Parker Series 3H cylinders can be completely and accurately described by a model number consisting of coded symbols. To develop a model

*Required for Basic Cylinder Model Number

number, select only those symbols that represent the cylinder required, and place them in the sequence indicated below.

eature	Description	Page No.	Symbo
Bore*	Specify in inches		
Cushion-Head	Used only if cushion required	C94, 90	С
Double-Rod	Used only if double-rod cylinder is required	100	K
Mounting* Style	Tie Rods Extended Head End (10"-14" Bore)	92	ТВ
	Tie Rods Extended Cap End (10"-14" Bore)	92	TC
	Tie Rods Extended Both Ends (10"-14" Bore)	92	TD
	Head Square Flange	94	JB
	Head Rectangular	94	JJ
	Cap Square Flange	96	HB
	Cap Rectangular	96	HH
	Side Lugs (10"-14" Bore)	96	C†
	Centerline Lugs (10"-14" Bore)	96	E
	Cap Fixed Clevis	98	BB
	Head Trunnion (10"-14" Bore)	98	D
	Cap Trunnion (10"-14" Bore)	98	DB
	Intermediate Fixed Trunnion‡	98	DD
Combination	Any Practical Mounting Style	-	As listed
Style	Listed Above		above
Series*	Used in all 3H Model Numbers	_	ЗH
Piston	Hi-Load Piston standard	B89, C4	К
	Used only for Ring Packed Pistor	B88	с
Ports*	SAE Straight Thread O-Ring Port (Standard)	C89	Т
	Used only for NPTF (Dry Seal Pipe Thread) (10-14" Bore Only)	C89	U
	Used only for BSP (Parallel Thread ISO 228)	C89	R
	Used only for SAE Flange Ports (3000 psi)	C89	Р
	Used only for BSPT	C89	В
	(Taper Thread)	C80	6
	Used only for Metric Thread	003	
	per ISO 6149	C89	Y
Common	Fluorocarbon Seals	C83	V
Modifications	Water Service	C83	w
Special	Used only if special		
Modifications	Modifications are required:		
	Port Position Change	C119	S
	Special Seals	C83	
	Stop Tube•	C95,C122	
Piston Rod* Number	For Single Rod Cylinders,	-	1
i i i i i i i i i i i i i i i i i i i	Refer to Rod number listing	_	2
	Table 2 Pages 90 through 97	_	2
Piston*	Select	-	3
Rod End	Style 4 Small Male	C92	4
	Style 8 Intermediate Female	0.02	2 A
	Style 9 Short Female		٥ ۵
	Style 55 Rod End for Flange		55
	Coupling		35
	Style 3 Special (Specify)		3
Piston Rod*	UNF Standard	C92	A
Threads	BSF (British Fine)		w
	Metric		м
Overhier Oer	Used only if cushion required	C94, 90	C
Cushion-Cab		,	· · ·

В

For Cylinder Division Plant Locations – See Page II.

•In case of Stop Tube, call out Gross Stroke



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

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

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

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

The goal for the Parker team was to design a rod seal suitable for all types of applications, regardless of pressure profile. It had to be composed of a



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

material that would not react chemically with hydraulic fluids. And it had to produce better and more reliable "dry rod" performance than the standard serrated lip-seal design in a broad range of applications.

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

The Parker design team was successful!

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

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

> Worldclass Quality Products and Service

