Series HB Solid Brass Cylinders

For General Industrial Use in most Environments

200 PSI Pneumatic 500 PSI Hydraulic Non shock 3/4", 1", 1 1/8", 1 1/2", 2" Bores

> Magnetic piston available to operate Aurora stainless proximity switches. Pressure energized wear compensating cup type piston seals on all models and bore sizes with one exception: 3/4" bore oversize piston rod model has an O ring piston seal. Solid brass heads and caps are precision machined. Threaded construction Brass piston is silver brazed provides a clean to the rod for an almost and compact indestructible joint. exterior. Tube is heavy wall brass honed to insure proper size, roundness, and finish for maximun cylinder life.

3/4, 1, 1 1/8 Bore Cylinders have four lobed rod seal. 1 1/2, 2 Bore Cylinders have cup type rod seal.

A natural choice where moisture is a problem .

ADDITIONAL DESIGN FEATURES

SHOCK PADS

Reduce noise and fatigue problems such as rod breakage with energy absorbing shock pads. Add 1/4" to the cylinder length for each pad. For pneumatic use only to 180°F.

ROD WIPERS

Prolong the life of cylinders operating in dirty environments by adding rod wipers. Polyurethane or Viton wipers are wear compensating and effectively prevent damaging contaminants from entering the critical rod seal/rod bushing area. Limited availability.

SEAL COMPOUNDS

Standard cylinders contain buna n (nitrile) seals and polyurethane wipers which are compatible with most lubricants and fluids, and can withstand temperatures from –40° to +200°F.

Viton seals and wipers may be ordered for temperatures ranging from -10° to +400°F and for added chemical resistance.

"Long Life" seals will provide significantly increased service life due to their excellent abrasion resistance. Fluid compatibility is identical to buna n seals and their effective temperature range is $+20^{\circ}$ - $+200^{\circ}$ F. Long life rod seals are standard on all 3/4, 1, 1 1/8" bore cylinders.

HYDRAULIC SEALS

Rod seal weepage can be substantially reduced by specifying polypak* rod seals. They are available on all 1 1/2 and 2" bore cylinders. For availability on other bore sizes consult factory.

HARD CHROMED PISTON ROD

The standard rod in all HB cylinders is ground and polished type 303 stainless steel. Hard chrome plated steel rods are available. The plating gives the rod a very hard scratch resistant surface which increases the wear life of the rod, rod bushing, and rod seal. The result is increased cycle life on all cylinders and improved sealability on hydraulic cylinders.

PISTON ROD THREADS

Rods are stocked with both fine and coarse male threads as listed in the ordering procedure. Almost any special thread – female, metric, etc. – can be produced to customer requirements in just a day or so for a modest extra charge.

- Female thread depth: #10, 1/4, 5/16, 3/8 threads are 5/8 deep. 1/2, 5/8, 3/4 threads are 1 1/4 deep.
- Threads smaller than the nominal rod diameter will be per the photo unless otherwise noted.

PIVOT BUSHING

All HB2 caps have a stainless steel pivot bushing.

STOP TUBE

Stop tubes are spacers between the piston and the cylinder head which prevent the piston from fully extending. This will reduce the bearing loads by increasing the distance between bearing points. Stop tubes should be used on long stroke cylinders and on cylinders where side load is a concern. See ordering procedure for available lengths. Also consider SMA aluminum cylinders for long strokes and side load conditions.

ADJUSTABLE CUSHIONS

Reduce noise and decelerate the piston at the end of stroke. Aurora's cup type cushion seal provides positive cushioning yet allows a high flow rate when reversing for minimum cycle time. A stainless steel metering screw offers simple adjustment of the cushion rate. The adjusting screw is fully recessed and self locking on 1 1/2 and 2" bore cylinders. The adjusting screw on 1 1/8" bore cylinders is locked in place by a low profile nut.

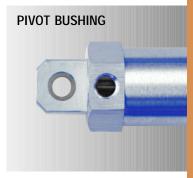




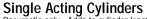












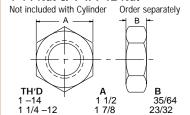
Pneumatic only Adds to cylinder length

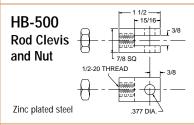
TYPE	STROKE	Add to cyl. O.A.L.	STROKE	Add to cyl. O.A.L.
Spring return	0-2"	1 1/2"	2 1/8"-4"	3"
Spring extend	0-2"	1 1/2"	2 1/8"-4"	3"

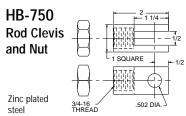
Spring Force: Spring fully extended approx. 15# Spring fully compressed approx. 50#

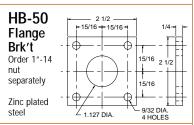
Wrench Flat chart pg 74

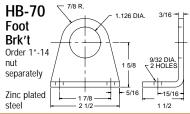
1-14 Nut & 1 1/4-12 Nut



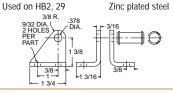




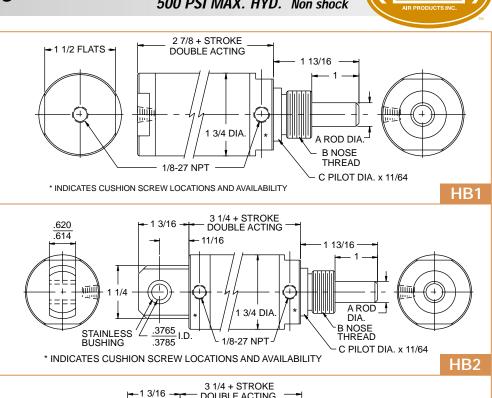


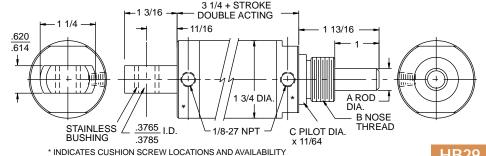


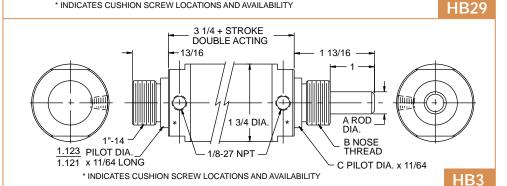
HB-90 St'd Clevis Brk't

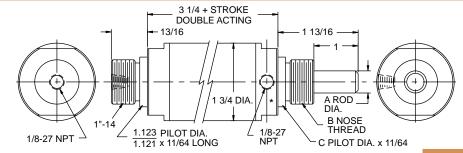


Cushions not available on cylinders with 3/4" diameter rod or oversize 1/4" ports









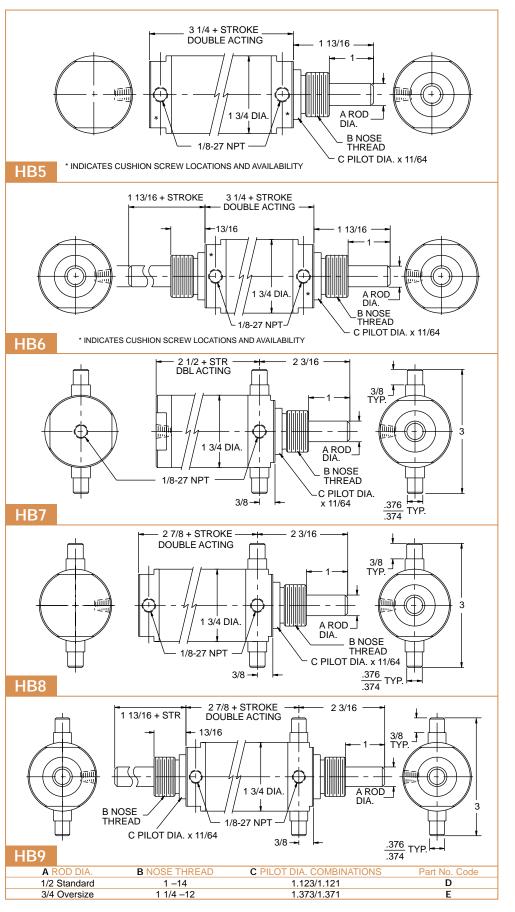
* INDICATES CUSHION SCREW LOCATIONS AND AVAILABILITY

HB4

A ROD DIA.	B NOSE THREAD	C PILOT DIA. COMBINATIONS	Part No. Code
1/2 Standard	1 –14	1.123/1.121	D
3/4 Oversize	1 1/4 –12	1.373/1.371	E

Series HB BRASS

1 1/2" BORE HB BRASS

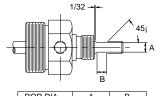


Single Acting Cylinders Pneumatic only Adds to cylinder length

TYPE	STROKE	cyl. O.A.L.	STROKE	cyl. O.A.L.
Spring return	0-2"	1 1/2"	2 1/8"-4"	3"
Spring extend	0-2"	1 1/2"	2 1/8"-4"	3"

Spring Force: Spring fully extended approx. 15# Spring fully compressed approx. 50#

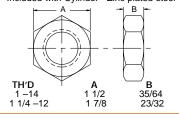
Wrench Flats Optional

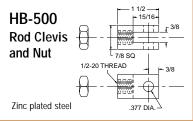


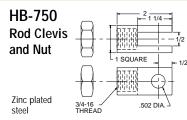
ROD DIA.	Α	В
1/2	.437	3/8
3/4	.625	3/8

1-14 Nut & 1 1/4-12 Nut Nose Mounting Nut

Included with Cylinder Zinc plated steel







HB-501 Clevis Pin Assembly

Used on HB-500

HB-601 Clevis Pin Assembly

Used on HB-750



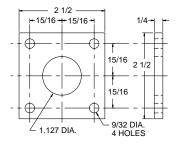
1/4" Oversize Ports Available on 1 1/2 Bore Series HB

HB Options

- Shock Pads
- · Wrench Flats
- Rod Wiper
- · Viton or Long Life Seals
- Polypak Rod Seal
- Chrome Rod
- Magnetic Piston
- Hollow Rod (1/2" only)
- Stop Tube
- Oversized Ports
- · Adjustable Cushions

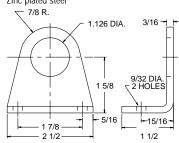
HB-50 Flange Bracket

Order 1"–14 Nut separately Zinc plated steel

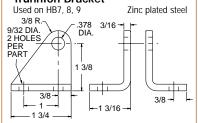


HB-70 Foot Bracket

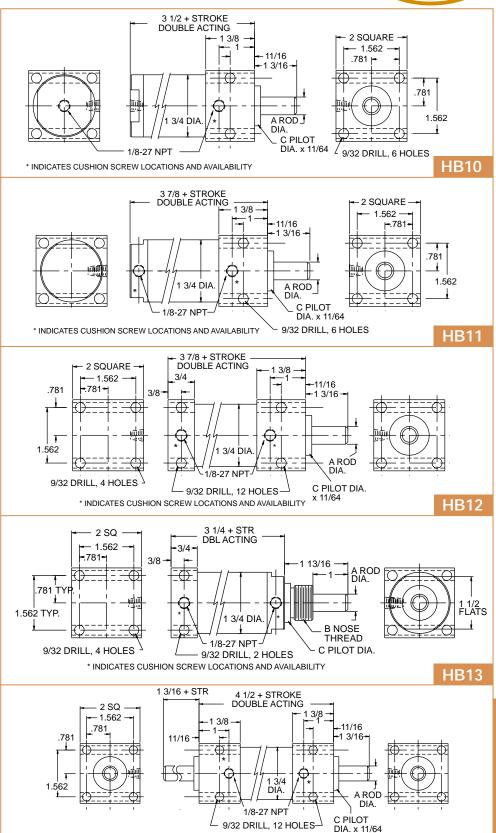
Order 1"-14 Nut separately Zinc plated steel



HB-90T Trunnion Bracket



Cushions not available on cylinders with 3/4" diameter rod or oversize 1/4" ports.



* INDICATES CUSHION SCREW LOCATIONS AND AVAILABILITY

C PILOT DIA. COMBINATIONS

1.123/1.121

1.123/1.121

1.373/1.371 HB13 Only

B NOSE THREAD

1 - 14

11/4 - 12

1/2 Standard

3/4 Oversize

3/4 Oversize

HB14

Part No. Code

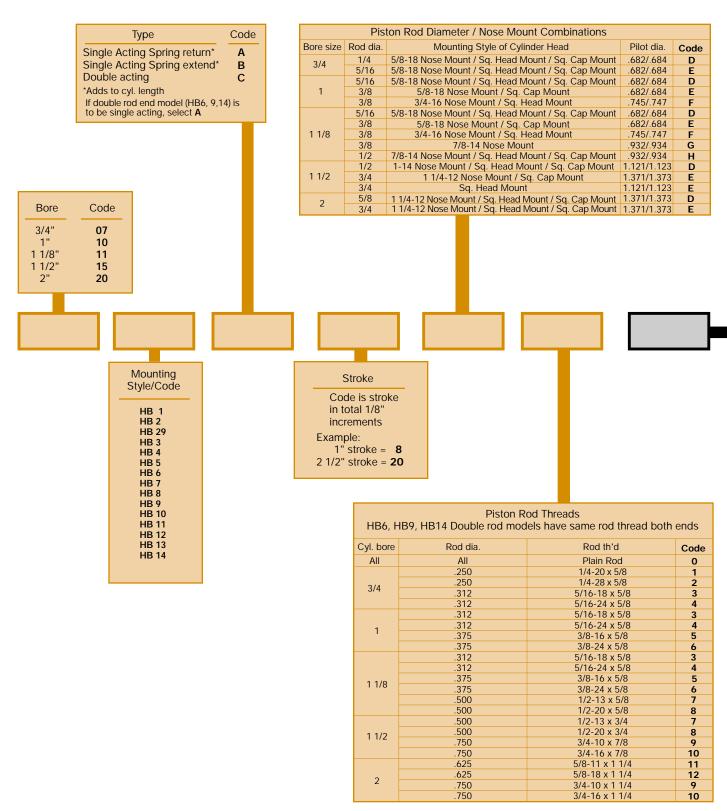
D

E

ORDERING PROCEDURE HB Brass

Select code numbers/letters (**bold type**) from each of the six boxes below - then select any options desired from the opposite page. List codes in the same sequence as shown.

The cylinder part number is an alpha numeric code.

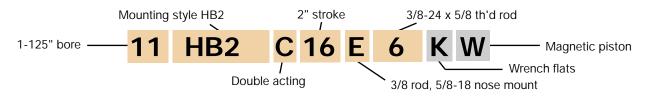




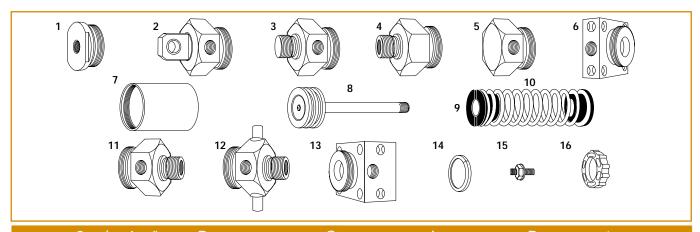
Series HB cylinder optionsList codes in the same sequence as they appear below

Option	Description		Code
Extra rod extension	Specify code letter J followed by the extra length as a two place decimal. Example: J.50 = 1/2" extra J1.25 = 1 1/4" extra HB6, 9, 14 double rod cylinders with extra extension cannot be ordered by a standard part number - consult factory for a special part number.		
Wrench flats	Specify if required If specified will be added to both ends of HB6, HB9, HB14 double rod cylinders		К
Shock pads	Available on both ends of double acting cylinders and the end opposite the spring on single acting cylinders. Each pad adds 1/4" to cylinder length. Pneumatic use only to 180° F	the spring on single acting cylinders. Pad on cap end only adds 1/4" to cylinder length.	
Rod wiper	3/4", 1" bore - Not available 1 1/8" bore - Available only with 3/8" rod, 7/8 - 14 nose mount 1 1/2, 2" bore - Available all models - standard with trunnion & adj. (cushion heads	Р
Optional seal compounds	St'd seals are buna (nitrile) and require no code -40 to +200° F Long life available for extended cycle life +10 to +200° F Viton available for temps -10 to +400°F		Q R
Polypak rod seal	For optimum sealing on hydraulic cylinders Available only in 1 1/2	and 2" bore sizes	S
Hard chromed rod	Hard chrome plated steel - 100,000 min. yield		T
Magnetic piston	Not available in 1" bore Adds 1/2" to cylinder length		W
Hollow piston rod	Available in 5/16 dia. rod – thru hole .135" Available in 3/8 dia. rod – thru hole .248" Available in 1/2 dia. rod – thru hole .313"	chrome rods	Х
Stop tube	Available on 1 1/2 & 2" bore only in 2" increments Specify code Y followed by length in inches Example: Y4 = 4" stop tube Adds to cylinder length. An 8" stroke cyl. with 2" stop tube will be as long as a 10" stoke cylinder. Order actual stroke req. (8" above)	Not avail. HB6, 9, 14 or with adj. cushions	Υ
Oversize ports	1/4 NPT ports on 1 1/2 bore cylinder (both ends)		Z
Adjustable Cushions	Available on 1 1/8, 1 1/2, 2" bore except as follows: Mounting styles HB7, 8, 9 Rear port cap on mt'g styles HB1, 4, 10 Cyl. with 1/2" or 3/4" oversize rods or oversize ports Cylinders with shock pads	Cushion head end only Cushion cap end only Cushion both ends	AA BB CC

Part No. Example:



HB Brass SERVICE PARTS



	3/4" Bor	e S
Key	Description	Part Number
	Seal Kit, Buna	07522-B
	Seal Kit, Long life	07522-LL
	Seal Kit, Viton	07522-V
1	Rear port cap	07503
2	Rear pivot cap	07506
2	90° Rear pivot cap	0750690
3	Rear stud cap	07507
4	Cap	07508
5	Сар	07509
6	Cap	07525
7	Tube - P.N. is T followed by the complete cyl. part	no.
8	Rod - P.N. is PR followed by the complete cyl. pa	rt no.

Key	Description	Part Number
9	Spring stop 1/4" rod pair	07512-250
9	Spring stop 5/16" rod pair	07512-312
10	Spring - Must supply cyl. stroke	07515
11	Head 1/4 rod	07510-250
11	Head 5/16 rod	07510-312
12	Head 1/4 rod	07510-250 TRN
12	Head 5/16 rod	07510-312 TRN
13	Head 1/4 rod	07524-250
13	Head 5/16 rod	07524-312
14	Magnet pair	SS3207
16	Shock pad	75MSP

	1" Bore	S e
Key	Description	Part Number
	Seal Kit, Buna	10022-B
	Seal Kit, Long life	10022-LL
	Seal Kit, Viton	10022-V
1	Cap	10003
2	Cap	10006
2	90° Cap	1000690
3	Cap	10007
4	Cap	10008
5	Cap	10009
6	Cap	10025
7	Tube - P.N. is T followed by the complete cyl. part	no.
8	Rod - P.N. is PR followed by the complete cyl. pa	rt no.

r	V	ice Parts	
ı	Key	Description	Part Number
	9	Spring stop 5/16" rod pair	10012-312
	9	Spring stop 3/8" rod pair	10012-375
	10	Spring	10015
	11	Head 5/16 rod, 5/8 - 18 nose	10010-312-625
	11	Head 3/8 rod, 5/8 - 18 nose	10010-375-625
	11	Head 3/8 rod, 3/4 - 16 nose	10010-375-750
	12	Head 5/16 rod, 5/8 - 18 nose	10010-312TRN
	12	Head 3/8 rod, 5/8 - 18 nose	10010-375TRN
	13	Head 5/16 rod	10024-312
	13	Head 3/8 rod	10024-375

	1 1/8" Bo	ore
Key	Description	Part Number
	Seal Kit, Buna, 5/16 rod	11222-312B
	Seal Kit, Buna, 3/8 rod	11222-375B
	Seal Kit, Buna, 1/2 rod	11222-500B
	Seal Kit, Long life, 5/16 rod	11222-312LL
	Seal Kit, Long life, 3/8 rod	11222-375LL
	Seal Kit, Long life, 1/2 rod	11222-500LL
	Seal Kit, Viton, 5/16 rod	11222-312V
	Seal Kit, Viton, 3/8 rod	11222-375V
	Seal Kit, Viton, 1/2 rod	11222-500V
1	Cap	11203
2	Cap Add suffix C for cushion	11206
2	90° Cap Add suffix C for cushion	1120690

S	e	rvice Par	t s
	Key	Description	Part Number
	10	Spring 0 - 2 1/2" Stroke	11215
	10	Spring Over - 2 1/2" Stroke	10015
	11	Head, 5/16 Rod, 5/8 - 18 Nose	11253-312-625
	11	Head, 5/16 Rod, 5/8 - 18 Nose, Cushion	11253-312-625C
	11	Head, 3/8 Rod, 5/8 - 18 Nose	11253-375-625
	11	Head, 3/8 Rod, 5/8 - 18 Nose, Cushion	11253-375-625C
	11	Head, 3/8 Rod, 3/4 - 16 Nose	11253-375-750
	11	Head, 3/8 Rod 3/4 - 16 Nose, Cushion	11253-375-750C
	11	Head, 3/8 Rod 7/8 - 14 Nose	11253-375-875
	11	Head, 3/8 rod, 7/8 - 14 nose, cushion	11253-375-875C
	11	Head, 3/8 rod, 7/8 - 14 nose, wiper	11253-375-875W
_	11	Head, 1/2 rod, 7/8 - 14 nose	11253-500-875

	1 1/8" B o	ore	S	e	rvice Par	t S (Cont.)
Key	Description	Part Number		Key	Description	Part Number
3	Cap Add suffix C for cushion	11207		12	Head, 5/16 rod, 5/8 - 18 nose	11253-312TRN
4	Cap	11208		12	Head, 3/8 rod, 5/8 - 18 nose	11253-375TRN
5	Cap Add suffix C for cushion	11209		12	Head, 1/2 rod, 7/8 - 14 nose	11253-500 TRN
6	Cap Add suffix C for cushion	11225		13	Head, 5/16 rod	11224-312
7	Tube – P.N. is T followed by the complete cyl			13	Head, 5/16 rod, cushion	11224-312C
8	Rod – P.N. is PR followed by the complete cy			13	Head, 3/8 rod	11224-375
9	Stop 5/16 rod, 0 – 2 1/2" stroke	11212-312		13	Head, 3/8 rod, cushion	11224-375C
9	Stop 5/16 rod, over 2 1/2" stroke (pair)	10012-312		13	Head, 1/2 rod	11224-500
9	Stop 3/8 rod, 0 – 2 1/2" stroke	11212-375		14	Magnet pair	SMS5911
9	Stop 3/8 rod, over 2 1/2" stroke (pair)	10012-375		15	Screw ass'y Add suffix V for Viton	11227
9	Stop 1/2 rod, 0 – 2 1/2" stroke	11212-500		16	Shock pad	11 MSP
9	Stop 1/2 rod, over 2 1/2" stroke (pair)	10012-500				
	1 1 / 2 " B o	r e	S	е	rvice Pa	r t s
Add	d suffix HYD to seal kit part no. if polypak hyd. rod se	al is required	П	10	St'd spring	15015
	Seal Kit, Buna, 1/2 rod	15022-500B		10	Spring, over 2" spring extend only	15015L
	Seal Kit, Buna, 3/4 rod	15022-750B		11	Head, 1/2 rod	15010-500
	Seal Kit, Longlife, 1/2 rod	15022-500LL		11	Head, 1/2 rod, 1/4 port	15010-500250
	Seal Kit, Longlife, 3/4 rod	15022-750LL		11	Head, 1/2 rod, wiper	15010-500W
	Seal Kit, Viton, 1/2 rod	15022-500V		11	Head, 1/2 rod, 1/4 port, wiper	15010-500250W
	Seal Kit, Viton, 3/4 rod	15022-750V		11	Head, 1/2 rod, cushion	15010-500C
1	Cap	15003		11	Head, 3/4 rod	15010-750
1	Cap 1/4" port	15003250		11	Head, 3/4 rod, 1/4 port	15010-750250
2	Cap add suffix C for cushion	15006		11	Head, 3/4 rod, wiper	15010-750W
2	Cap 1/4" port	15006250		11	Head, 3/4 rod, 1/4 port, wiper	15010-750250W
2	90i Cap add suffix C for cushion	1500690		12	Head, 1/2 rod	15010-500TRN
2	90i Cap 1/4" port	1500690250		12	Head, 3/4 rod	15010-750TRN
3	Cap add suffix C for cushion	15007		12	Head, 1/2 rod, 1/4 port	15010-500250TRN
3	Cap 1/4" port	15007250		12	Head, 3/4 rod, 1/4 port	15010-750250TRN
4	Cap	15008		13	Head, 1/2 rod	15024-500
4	Cap 1/4" port	15008250		13	Head, 1/2 rod, 1/4 port	15024-500250
5 5	Cap add suffix C for cushion	15009		13	Head, 1/2 rod, wiper	15024-500W
6	Cap 1/4" port Cap add suffix C for cushion	15009250		13	Head, 1/2 rod, 1/4 port, wiper	15024-500250W
6		15025 15025250		13 13	Head, 1/2 rod, cushion	15024-500C
7	Cap 1/4" port Tube - P.N. is T followed by the complete cyl. part				Head, 3/4 rod Head, 3/4 rod, 1/4 port	15024-750
8	Rod - P.N. is PR followed by the complete cyl. part			13 13	Head, 3/4 rod, 1/4 port Head, 3/4 rod, wiper	15024-750250 15024-750W
9	Stop, 1/2 rod, st'd pair	15012-500		13	Head, 3/4 rod, 1/4 port, wiper	15024-7500V 15024-750250W
9	Stop, 1/2 rod, st u pali Stop, 1/2 rod, spring extend over 2" str.	15012-500L		14	Magnet pair	SS3215
9	Stop 3/4 rod, st'd pair	15012-3001		16	Shock pad	15MSP
9	Stop 3/4 rod, st d pair Stop 3/4 rod, spring extend over 2" str.	15012-750L		10	Shock pad	1310131
	2 " Bore	Ser		/ i	ce Parts	
Λda	d suffix HYD to seal kit part no. if polypak hyd. rod se		- '	9	Stop, 3/4 rod, st'd pair	20012-750
Add	Seal Kit, Buna, 5/8 rod	20022-625B		9	Stop, 3/4 rod, st d pall Stop, 3/4 rod, spring extend over 2" str.	20012-750L
	Seal Kit, Buna, 3/4 rod	20022-025B 20022-750B		10	St'd spring	20012-750L 20015
	Seal Kit, Long life, 5/8 rod	20022-750B 20022-625LL		10	Spring Over - 2" spring extend only	20015L
	Seal Kit, Long life, 3/4 rod	20022-025LL 20022-750LL		11	Head, 5/8 Rod	20010-625
	Seal Kit, Viton, 5/8 rod	20022-730LL 20022-625V		11	Head, 5/8 Rod, wiper	20010-625W
	Seal Kit, Viton, 3/4 rod	20022-025V 20022-750V		11	Head, 5/8 Rod, Cushion	20010-625C
1	Cap	20003		11	Head, 3/4	20010-750
2	Cap add suffix C for cushion	20006		11	Head, 3/4 Rod, wiper	20010-750W
2	90 _i Cap add suffix C for cushion	2000690		12	Head, 5/8 Rod	20010-625TRN
3	Cap add suffix C for cushion	20007		12	Head, 3/4 Rod	20010-750TRN
4	Cap	20008		13	Head, 5/8 Rod, wiper	20024-625
5	Cap add suffix C for cushion	20009		13	Head, 5/8 Rod, wiper	20024-625W
6	Cap add suffix C for cushion	20025		13	Head, 5/8 Rod , cushion	20024-625C
7	Tube - P.N. is T followed by the complete cyl. part			13	Head, 3/4 Rod	20024-750
8	Rod - P.N. is PR followed by the complete cyl. pa			13	Head, 3/4 Rod, wiper	20024-750W
9	Stop, 5/8 rod, st'd pair	20012-625		14	Magnet pair	SS3220
9	Stop, 5/8 rod, spring extend over 2" str.	20012-625L		16	Shock pad	2MSP