



Model 390 shown

## 5 Frame Piston Pump

### Models

# 323 390

### FEATURES

#### Superior Design

- Triplex Uniflow design provides continuous forward liquid flow for smooth operation.
- Wetted cups and floating pistons are lubricated and cooled by pumped liquid for long cup life.
- Mechanically actuated inlet valves give strong lift and easy prime.
- 304 stainless steel discharge valves for wear resistance.
- Oil bath crankcase assures optimum lubrication.
- 100% wetted seal design allows pumped liquid to cool and lubricate for longer life.

#### Quality Materials

- Cylinder and sleeve wear surfaces are hard chrome plated 304 stainless steel for maximum durability and abrasion resistance.
- Chrome plated, brass manifolds and optional stainless steel manifolds are strong and corrosion resistant.
- Special high strength TNM connecting rods offer superior bearing quality strength.
- Chrome-moly crankshaft gives unmatched strength and surface hardness.
- Oversized crankshaft bearings with greater loading capacity mean longer bearing life.

#### Easy Maintenance

- Stepped stainless steel piston rod with chrome-plated, stainless steel sleeve allows easy replacement from front of pump.
- All wet-end wear parts are easily serviced without entering crankcase, requiring less time and effort.
- Wear parts are available in convenient kits.

#### **⚠ WARNING**

All systems require both a primary pressure regulating device (i.e., regulator, unloader) and a secondary pressure safety relief device (i.e., pop-off valve, safety valve). Failure to install such relief devices could result in personal injury or damage to the pump or to system components. CAT PUMPS does not assume any liability or responsibility for the operation of a customer's high pressure system.

### SPECIFICATIONS

U.S. Measure

Metric Measure

#### MODEL 323

Flow .....	5.0 GPM	(19 L/M)
Pressure Range .....	100 to 1500 PSI	(7 to 105 BAR)
Inlet Pressure .....	-8.5 to + 40 PSI	(-0.6 to + 2.8 BAR)
RPM .....	1000 RPM	(1000 RPM)
Bore .....	0.866"	(22 mm)
Stroke .....	0.669"	(17 mm)
Maximum Liquid Temperature .....	160°F	(71°C)
Inlet Ports (1) .....	1/2" NPTF	(1/2" NPTF)
Injection Port (1) .....	1/4" NPTF	(1/4" NPTF)
Weight .....	16.6 lbs.	(7.5 kg)
Dimensions .....	12.4 x 10.0 x 5.28"	(315 x 254 x 134 mm)

#### MODEL 390

Flow .....	12.0 GPM	(45 L/M)
Pressure Range .....	100 to 600 PSI	(7 to 40 BAR)
Inlet Pressure (up to 8 GPM) .....	-8.5 to +40 PSI	(-0.6 to +2.8 BAR)
Inlet Pressure (8 to 12 GPM) .....	Flooded to 40 PSI	(Flooded to +2.8 Bar)
RPM .....	1200 RPM	(1200 RPM)
Bore .....	1.260"	(32 mm)
Stroke .....	0.629"	(16 mm)
Maximum Liquid Temperature .....	140°F	(60°C)
Inlet Ports (1) .....	1" NPTM	(1" NPTM)
Weight .....	18.8 lbs.	(8.5 kg)
Dimensions .....	14.1 x 10.0 x 5.28"	(358 x 254 x 134 mm)

#### COMMON SPECIFICATIONS

Discharge Ports (3) .....	1/2" NPTF	(1/2" NPTF)
Crankcase Capacity .....	.21 oz.	(0.6 L)
Pulley Mounting .....	Either side	(Either side)
Shaft Diameter .....	0.787"	(20 mm)

### HORSEPOWER REQUIREMENTS

MODEL	FLOW		PRESSURE						MOTOR PULLEY SIZE	
			PSI 400	PSI 500	PSI 600	PSI 1000	PSI 1200	PSI 1500	RPM	DRIVE
	U.S. GPM	L/M	BAR 30	BAR 35	BAR 40	BAR 70	BAR 85	BAR 105		
323	5	19	N/A	N/A	N/A	3.4	4.1	5.1	1000	4.6
	4	15	N/A	N/A	N/A	2.7	3.3	4.1	800	3.7
	3	11	N/A	N/A	N/A	2.1	2.5	3.1	600	2.8
390	12	45	3.3	4.1	4.9	N/A	N/A	N/A	1200	5.6
	10	38	2.8	3.4	4.1	N/A	N/A	N/A	1000	4.6
	8	30	2.2	2.8	3.3	N/A	N/A	N/A	800	3.7

**DETERMINING THE PUMP R.P.M.**       $\frac{\text{Rated G.P.M.}}{\text{Rated R.P.M.}}$       =       $\frac{\text{"Desired" G.P.M.}}{\text{"Desired" R.P.M.}}$

**DETERMINING THE REQUIRED H.P.**       $\frac{\text{GPM x PSI}}{1460}$       =      Electric Brake  
H. P. Required

**DETERMINING MOTOR PULLEY SIZE**       $\frac{\text{Motor Pulley O.D.}}{\text{Pump R.P.M.}}$       =       $\frac{\text{Pump Pulley O.D.}}{\text{Motor R.P.M.}}$

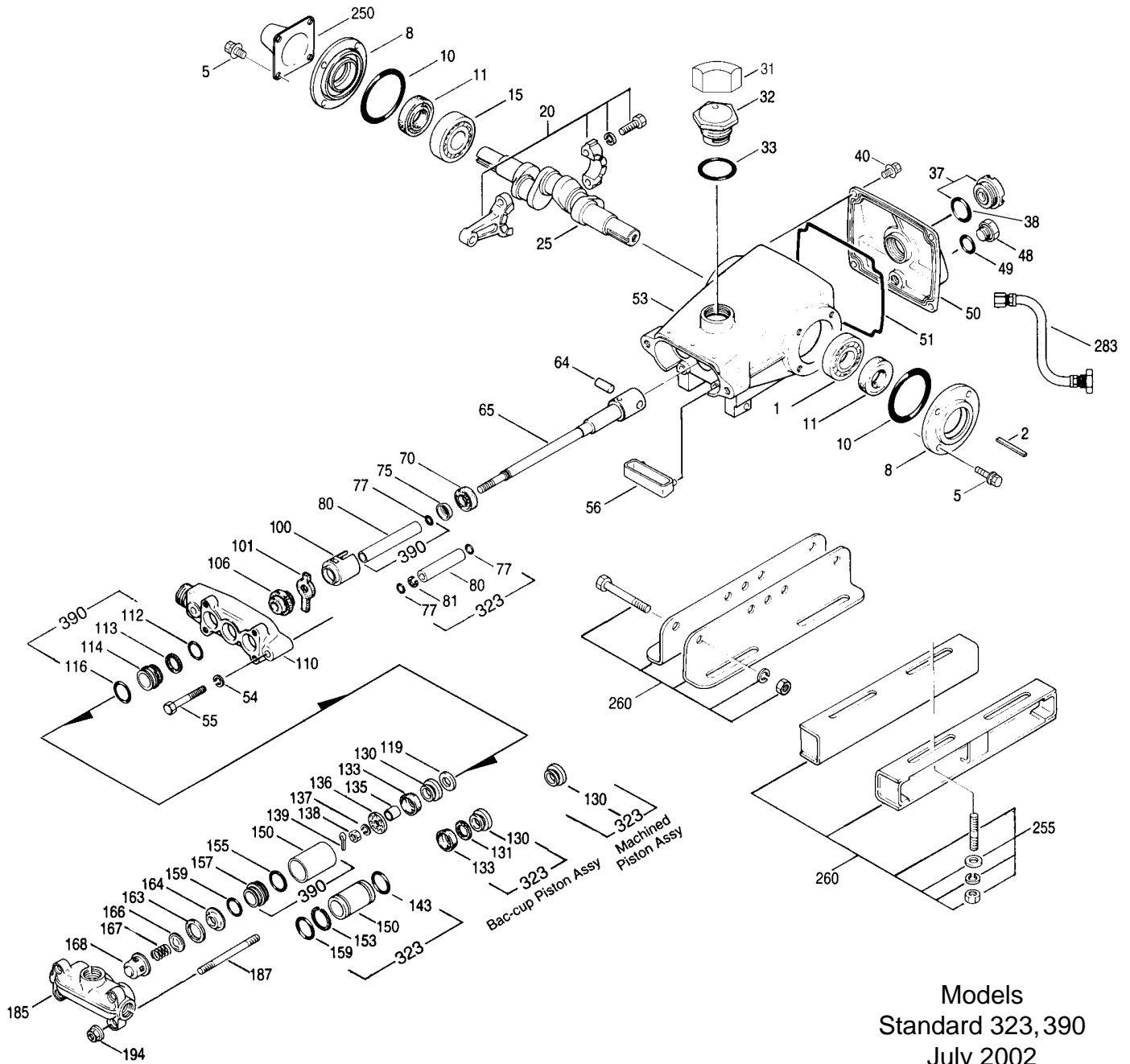
See complete Drive Packages [Includes: Pulleys, Belts, Hubs, Key] Tech Bulletin 003.  
Refer to pump Service Manual for repair procedure and additional technical information.

*"Customer confidence is our greatest asset"*

# PARTS LIST

ITEM	PART NUMBER		DESCRIPTION		QTY
	323 MATL	390 MATL			
2	30057	30057	STL	Key (M6x6x25)	1
5	92519	92519	STZP	Screw, Sems HHC (M6x16)	8
8	43344	43344	AL	Cover, Bearing	2
10	43343	43343	NBR	O-Ring, Bearing Cover	2
11	43222	43222	NBR	Seal, Oil	2
15	14480	14480	STL	Bearing, Ball	2
20	48737	48737	TNM	Rod, Connecting [10/01]	3
25	43342	43342	FCM	Crankshaft	1
31	828710	828710		Protector, Oil Cap	1
32	43211	43211	ABS	Cap, Oil Filler	1
33	14177	14177	NBR	O-Ring, Oil Filler Cap - 70D	1
37	92241	92241		Gauge, Bubble Oil w/Gasket	1
38	44428	44428	NBR	Gasket, Flat Flex, Oil Gauge - 80D	1
40	92520	92520	STZP	Screw, Sems HHC (M6x20)	4
48	25625	25625	STCP	Plug, Drain (1/4"x19 BSP)	1
49	23170	23170	NBR	O-Ring, Drain Plug - 70D	1
50	48772	48772	AL	Cover, Rear [10/01]	1
51	48773	48773	NBR	O-Ring, Rear Cover [10/01]	1
53	48770	48770	AL	Crankcase [10/01]	1
54	12503	12503	STZP	Lockwasher (M10)	2
55	80288	87936	STZP	Screw, Inlet Manifold (M10x30) (M10x50)	2
56	43355	43355	POP	Pan, Oil	1
64	43351	43351	CM	Pin, Crosshead	3
65	43775	44312	SZZ	Rod, Piston	3
70	43527	43527	NBR	Seal, Oil, Crankcase	3
75	25327	25327	S	Slinger, Barrier	3
77	25392	25392	NBR	O-Ring, Sleeve	6/3
	28771	28771	FPM	O-Ring, Sleeve	6/3
80	25299	44311	SCP	Sleeve	3
	28460	44625	S	Sleeve	3
81	29003	—	PTFE	Back-up-Ring, Sleeve	3/0
100	43530	43530	PVDF	Retainer, Seal	3
101	43532	43532		Wick, Long Tab	3
106	25153	100015	NBR FPM	Seal, Blue Dot	3
	30315	30315	NBR	Seal, Prrrrm-A-Lube	3
	30325	30325	FPM	Seal, Prrrrm-A-Lube	3
110	43767	44286	BBCP	Manifold, Inlet - Sideport	1
112	—	43781	NBR	O-Ring, Inlet Adapter, Inner - 75D	3
	—	11337	FPM	O-Ring, Inlet Adapter, Inner - 75D	3
113	—	11261	S	Spacer, Cylinder (Center Only)	0/1
114	—	44287	BB	Adapter, Inlet	0/3
116	—	27536	NBR	O-Ring, Inlet Adapter, Outer - 70D	0/6
	—	43174	FPM	O-Ring, Inlet Adapter, Outer - 70D	0/6
119	43533	27944	S	Valve, Inlet	3
130	—	27945	S	Piston	0/3
	103741	—	NBR	Cup-Piston, Machined	3/0
	43787	—	S	Piston, Bac-Cup	3/0
131	43788	—	PTFE	Ring, Bac-Cup	3/0
133	43792	—	NBR	Bac-Cup	3/0
	43789	—	FPM	Bac-Cup	3/0
	—	27946	FPM	Cup	0/3
	—	29093	SNG	Cup-Piston, V-Hot	0/3
135	27983	27796	S	Spacer, Piston	3
136	29588	27947	S	Retainer, Piston	3
137	27006	15850	S	Washer	3
138	27000	26546	S	Nut, Slotted	3
139	14158	14158	S	Cotterpin	3
143	43781	—	NBR	O-Ring, Cylinder - 75D	3
	11337	—	FPM	O-Ring, Cylinder - 75D	3
150	43768	44288	SCP	Cylinder	3
	43835	44627	S	Cylinder	3
153	21986	—	PTFE	Back-up-Ring, Cylinder	3
155	—	27536	NBR	O-Ring, Adapter, Inner - 70D	3
157	—	44310	BB	Adapter, Discharge	0/3
159	43781	43781	NBR	O-Ring, Adapter (390), Cylinder (323) - 75D	3
	11337	11337	FPM	O-Ring, Adapter (390), Cylinder (323) - 75D	3
163	43793	43793	NBR	O-Ring, Seat - 90D	3
	43791	43791	FPM	O-Ring, Seat - 90D	3
164	43779	103956	S	Seat	3
166	43721	104302	S	Valve	3
167	43251	43251	S	Spring	3
168	43780	103957	S	Retainer, Spring	3
185	43770	43770	BBCP	Manifold, Discharge	1
187	85661	85191	STZP	Stud, Discharge Manifold (M8x100) (M8x110)	4
194	101804	101804	STZP	Nut, Hex Flange	4
250	118672	118672	STCP	Protector, Shaft	1
255	30243	30243	STZP	Kit, Direct Mount	1
—	30633	30633	STL	Assembly, Pulley (Incls: 30058, 30057)	1

Replace as a set



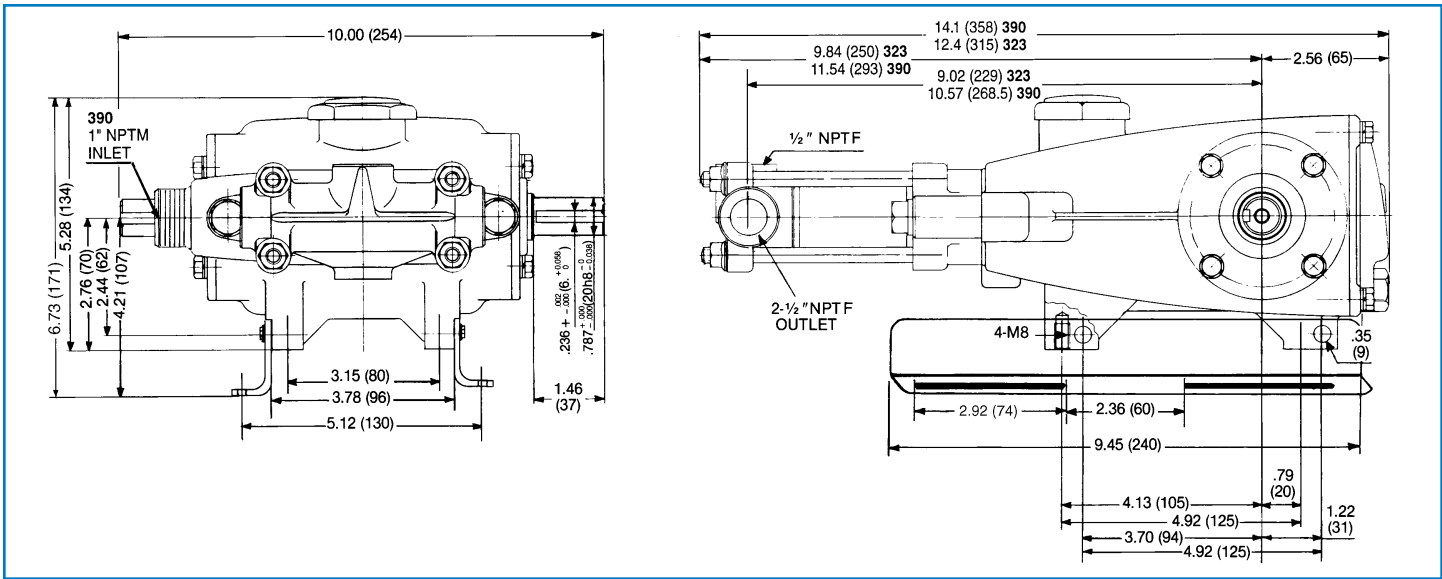
Models  
Standard 323, 390  
July 2002

	<b>323</b>	<b>MATL</b>	<b>390</b>	<b>MATL</b>		
260	30611	STZP	30611	STZP	Assembly, Angle Rail (Incls: 28499, 30900, 30910, 30920)	1
260	30241	STZP	30241	STZP	Assembly, Box Rail (Incls: 23950, 12489, 15845, 81109)	1
265	30659		30659		Kit, Mounting (Angle Rail, Pulley, Shaft Protector, Key)	1
● 275	30944	STL	30944	STL	Assembly, Hub & Key (Incls: 30945, 30057)	1 ●
● 283	34334		34334		Kit, Oil Drain	1 ●
300	<b>30993</b>	<b>NBR</b>	<b>31822</b>	<b>FPM</b>	Kit, Cup, Standard ( <b>323</b> Incls: 130, 139, 143) ( <b>390</b> Incls: 116, 130, 139, 143)	1
301	<b>30858</b>	<b>NBR</b>	—	—	Kit, Bac-Cup <b>323</b> (Incls: 130, 139, 143)	1
302	<b>30992</b>	<b>NBR</b>	—	—	Kit, Piston, Standard ( <b>323</b> Incls: 119, 130, 135, 136, 137, 138, 139, 143, 153)	1
	—	—	<b>31823</b>	<b>NBR</b>	Kit, Piston, Standard ( <b>390</b> Incls: 116, 119, 130, 133, 135, 137, 138, 139, 155)	1
302	<b>30857</b>	<b>NBR</b>	—	—	Kit, Bac-Cup Piston (Incls: 119, 130, 131, 133, 135, 137, 138, 139, 143, 153)	1/0
306	<b>30305</b>	<b>NBR</b>	—	—	Kit, Prrrrm-A-Lube Seal (Incls: 106, 139)	1
306	<b>34011</b>	<b>NBR</b>	<b>31825</b>	<b>FPM</b>	Kit, Seal, Blue Dot (Incls: 101, 106, 139)	0/1
—	<b>30312</b>	<b>NBR</b>	<b>31824</b>	<b>NBR</b>	Kit, Sleeve and Seal, Blue Dot (Incls: 75, 77, 80, 101, 106, 139)	1
310	<b>30859</b>	<b>NBR</b>	—	—	Kit, Valve, <b>Q.V. Std for 323</b> (Incls: 163, 164, 166, 167, 168)	1
310	—	—	<b>34010</b>	<b>NBR</b>	Kit, Valve, <b>F.V. Std for 390</b> (Incls: 155, 159, 163, 164, 166, 167, 168)	1
355	<b>43548</b>	<b>NY</b>	<b>27964</b>	<b>NY</b>	Cup Inserter	1

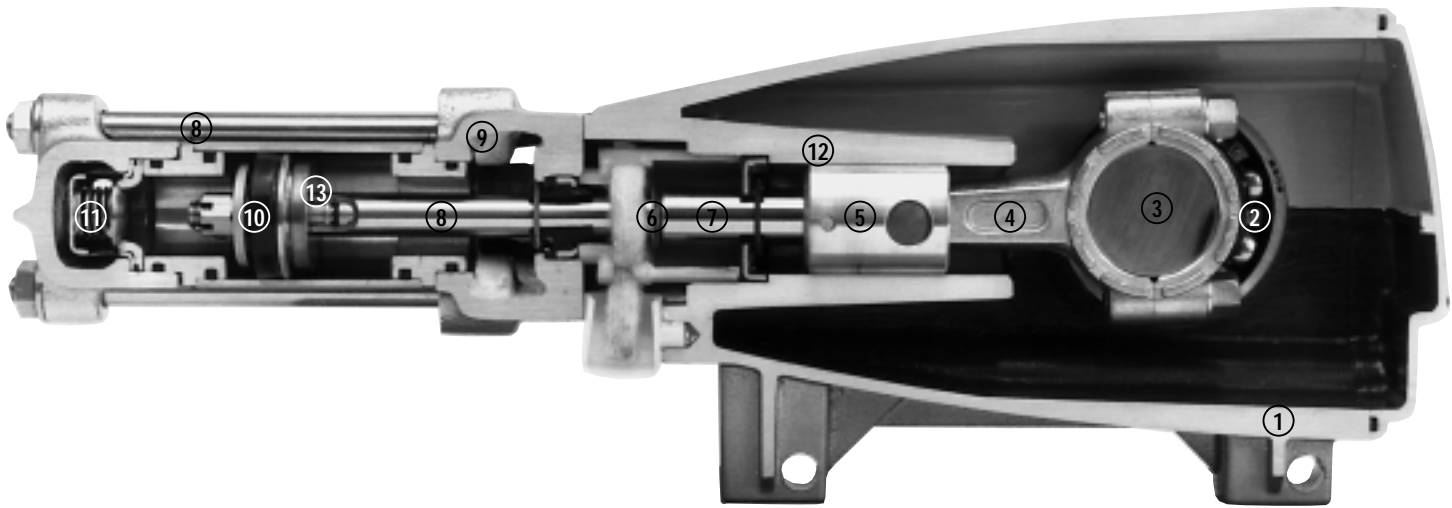
● Industrial discount. **Bold print part numbers are unique to a particular pump model.** *Italics are optional items.* [ ] Date of latest production change.

See Tech Bulletins 024, 034, 036, 037, 038, 039 and 064 for additional information.

MATERIAL CODES (Not Part of Part Number): ABS=ABS Plastic AL=Aluminum BB=Brass BBCP=Brass/Chrome Plated CM=Chrome-Moly  
FCM=Forged Chrome-Moly FPM=Fluorocarbon (Viton®) NBR=Medium Nitrile (Buna-N) NY=Nylon POP=Polypropylene PTFE=Pure Teflon®  
PVDF=Fluoroplastic (High Strength) S=304SS SCP=304SS/Chrome Plated SNG=Special Blend (Buna) STCP=Steel/Chrome Plated STL=Steel  
STCP=Steel/Chrome Plated STZP=Steel/Zinc Plated SZZ=304SS/Zamak TNM=Special High Strength



Models 323, 390



- 1 Die cast aluminum **crankcase** means high strength, lightweight, and excellent tolerance control.
- 2 Oversized crankshaft **bearings** provide extended bearing life and pump performance.
- 3 Chrome-moly **crankshaft** provides unmatched strength and surface hardness for long life.
- 4 Matched oversized high strength **connecting rods** are noted for superior strength and bearing quality.
- 5 Special stainless steel **piston rods** with Zamak crossheads for longevity and corrosion resistance.
- 6 The stainless steel **slinger** provides back-up protection for the crankcase seal, keeping pumped liquids out of the crankcase.
- 7 The **patented stepped piston rod** with hard chrome-plated **stainless steel sleeve** provides a durable wear surface and easy wet end servicing.
- 8 The **cylinder** and **sleeve** wear surfaces are hard chrome-plated 304 stainless steel for longer service life.
- 9 **Manifolds** are of high tensile strength chrome-plated brass or 316 stainless steel for special corrosion resistance.
- 10 100% wet **cup/seal** design adds to service life by allowing pumped liquids to cool and lubricate the elastomers on both sides.
- 11 304 stainless steel **valves, seats, and springs** provide corrosion-resistance, positive seating and long life.
- 12 **Crossheads** are 360° supported for uncompromising alignment.
- 13 Mechanically actuated **inlet valves** provide strong lift and easy prime.

Products described hereon are covered by one or more of the following U.S. patents 3558244, 3652188, 3809508, 3920356, 3930756 and 5035580

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