



Model 390 shown

# 5 Frame Piston Pump Models

# 323 390

## FEATURES

### Superior Design

- Triplex Uniflow design provides continuous forward fluid flow for smooth operation.
- Wetted cups and floating pistons are lubricated and cooled by pumped fluid 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 fluid 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.
- Heavy duty connecting rods are made of high quality Zamak offering 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.

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

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

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

Note: Consult engine manufacturer when using gas or diesel engine. Refer to pump Service Manual for important Inlet Condition Check-List, Start-up Procedure, Tech Bulletins and Pump Maintenance information.

## SPECIFICATIONS

### MODEL 323

	U.S. Measure	Metric Measure
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 Fluid Temperature	160°F	(71°C)
Inlet Ports (1)	1/2" NPT	(1/2" NPT)
Injection Port (1)	1/4" NPT	(1/4" NPT)
Weight	16.6 lbs.	(7.5 kg)
Dimensions	12.4x10.0x5.28"	(315x254x134 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)
(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 Fluid Temperature	140°F	(60°C)
Inlet Ports (1)	1" NPTM	(1" NPTM)
Weight	18.8 lbs.	(8.5 kg)
Dimensions	14.1x10.0x5.28"	(358x254x134 mm)

## COMMON SPECIFICATIONS

Discharge Ports (3)	1/2" NPT	(1/2" NPT)
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	
	U.S. GPM	L/M	PSI 400	PSI 500	PSI 600	PSI 1000	PSI 1200	PSI 1500	RPM	DRIVE
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	2.8	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	5.0	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

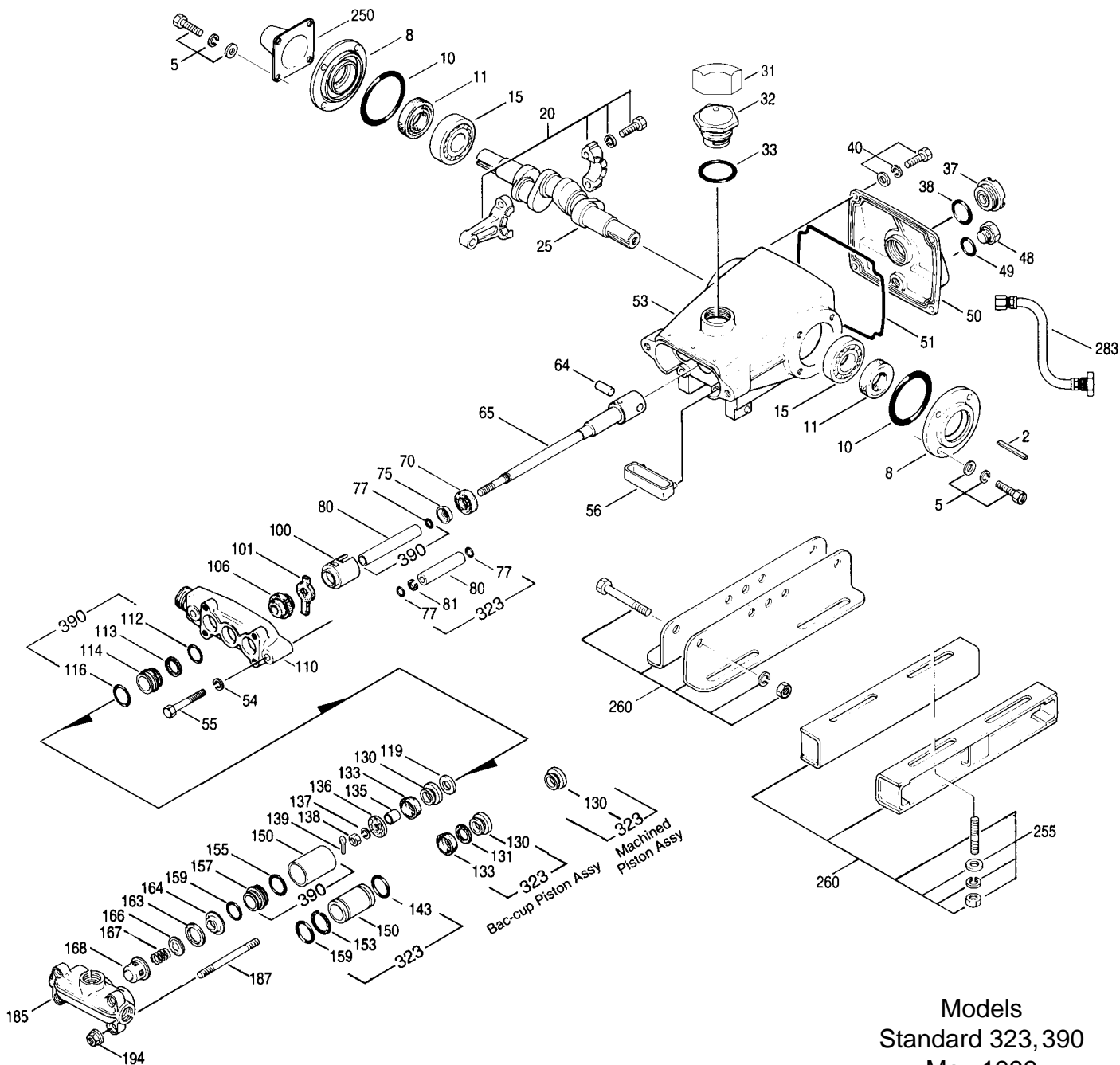
See complete Drive Packages [Incls: Pulleys, Belts, Hubs, Key] Tech Bulletin 03.

*“Customer confidence is our greatest asset”*

# PARTS LIST

ITEM	PART NUMBER				DESCRIPTION	QTY
	<b>323</b>	<b>MATL</b>	<b>390</b>	<b>MATL</b>		
2	30057	STL	30057	STL	Key (M6)	1
5	92519	STZP	92519	STZP	Screw, Sems HHC (M6x16)	8
8	43344	AL	43344	AL	Cover, Bearing	2
10	43343	NBR	43343	NBR	O-Ring, Bearing Cover	2
11	43222	NBR	43222	NBR	Seal, Oil	2
15	14480	STL	14480	STL	Bearing	2
20	43345	ZZ	43345	ZZ	Rod, Connecting	3
25	43342	FCM	43342	FCM	Crankshaft	1
31	828710		828710		Protector, Oil Cap	1
32	43211		43211		Cap, Oil Filler	1
33	14177	NBR	14177	NBR	O-Ring, Oil Filler Cap	1
37	43987		43987		Gauge, Bubble Oil	1
38	44428	NBR	44428	NBR	Gasket, Flat Flex, Oil Gauge	1
40	92520	STZP	92520	STZP	Screw, Sems HHC (M6x20)	4
48	25625	STCP	25625	STCP	Plug, Drain (1/4"x11 mm)	1
49	23170	NBR	23170	NBR	O-Ring, Drain Plug	1
50	43339	AL	43339	AL	Cover, Rear	1
51	43340	NBR	43340	NBR	O-Ring, Rear Cover	1
53	43338	AL	43338	AL	Crankcase	1
54	12503	STZP	12503	STZP	Lockwasher (M10)	2
55	80288	STZP	87936	STZP	Screw, Inlet Manifold (M10x30) (M10x50)	2
56	43355	POP	43355	POP	Pan, Oil	1
64	43351	S	43351	S	Pin, Piston Rod	3
65	43775	SZZ	44312	SZZ	Rod, Piston	3
70	43527	NBR	43527	NBR	Seal, Oil, Crankcase	3
75	25327	S	25327	S	Slinger, Barrier	3
77	25392	NBR	25392	NBR	O-Ring, Sleeve	6/3
	28771	FPM	28771	FPM	O-Ring, Sleeve	6/3
80	25299	SCP	44311	SCP	Sleeve	3
	28460	S	44625	S	Sleeve	3
81	29003	PTFE	—	—	Back-up-Ring, Sleeve	3/0
100	43530	PVDF	43530	PVDF	Retainer, Seal	3
101	43532		43532		Wick, Long Tab	3
106	25153	NBR	100015	FPM	Seal, Blue Dot	3
	30315	NBR	30315	NBR	Seal, Prrrrrrm-A-Lube	3
	30325	FPM	30325	FPM	Seal, Prrrrrrm-A-Lube	3
110	43767	BBCP	44286	BBCP	Manifold, Inlet - Sideport	1
112	—	—	43781	NBR	O-Ring, Inlet Adapter - Inner	3
	—	—	11337	FPM	O-Ring, Inlet Adapter - Inner	3
113	—	—	11261	S	Spacer, Cylinder	0/3
114	—	—	44287	BB	Adapter, Inlet	0/3
116	—	—	27536	NBR	O-Ring, Inlet Adapter - Outer	0/6
	—	—	43174	FPM	O-Ring, Inlet Adapter - Outer	0/6
119	43533	S	27944	S	Valve, Inlet	3
130	—	—	27945	S	Piston	0/3
	103741	—	—	—	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	NBR	Cup-Piston-V-Hot	0/3
135	27983	S	27796	S	Spacer, Piston	3
136	29588	S	27947	S	Retainer, Piston	3
137	27006	S	15850	S	Washer	3
138	27000	S	26546	S	Nut, Slotted	3
139	14158	S	14158	S	Cotterpin	3
143	43781	NBR	—	—	O-Ring, Cylinder	3
	11337	FPM	—	—	O-Ring, Cylinder	3
150	43768	SCP	44288	SCP	Cylinder	3
	43835	S	44627	S	Cylinder	3
153	21986	PTFE	—	—	Back-up-Ring, Cylinder	3
155	—	—	27536	NBR	O-Ring, Adapter - Inner	3
156	21986	PTFE	21986	PTFE	Back-up-Ring, Adapter - Inner	3/0
157	—	—	44310	BB	Discharge Adapter	0/3
159	43781	NBR	43781	NBR	O-Ring (Adapter) (Cylinder)	3
	11337	FPM	11337	FPM	O-Ring (Adapter) (Cylinder)	3
163	43793	NBR	43793	NBR	O-Ring, D.V.S.	3
	43791	FPM	43791	FPM	O-Ring, D.V.S.	3
164	43779	S	103956	S	Seat	3
166	43721	S	104302	S	Valve	3
167	43251	S	43251	S	Spring	3
168	43780	S	103957	S	Retainer, Spring	3
185	43770	BBCP	43770	BBCP	Manifold, Discharge	1
187	85661	STZP	85191	STZP	Stud, Discharge Manifold (M8x100) (M8x110)	4
194	101804	STZP	101804	STZP	Nut, Hex Flange	4
250	118672		118672		Protector, Shaft	1
255	30243		30243		Kit, Direct Mount	1
—	30633	STL	30633	STL	Assembly, Pulley (Incls: 30058, 30057)	1

# EXPLODED VIEW



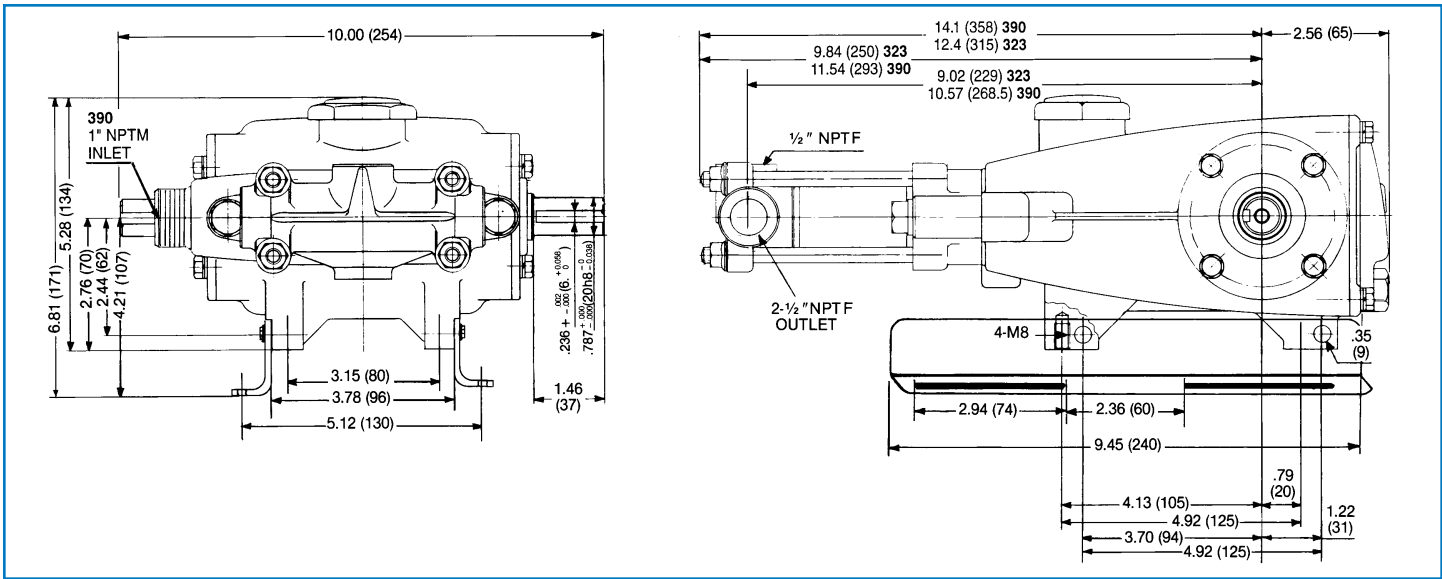
Models  
Standard 323, 390  
May 1999

	<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>NBR</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, 156,)	1
	302	—	—	<b>31823</b>	<b>NBR</b>	Kit, Piston, Standard ( <b>390</b> Incls: 116, 119, 130, 133, 135, 137, 138, 139, 143, 155)	1
	306	<b>30857</b>	<b>NBR</b>	—	—	Kit, Bac-Cup Piston (Incls: 119, 130, 131, 133, 135, 139, 143, 156)	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>NBR</b>	Kit, Seal, Blue Dot (Incls: 101, 106, 139)	0/1
	—	—	—	<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.*

See Tech Bulletins 24, 34, 36, 37, 38, 39 and 64 for additional information.

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



Models 323, 390



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

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

May 1999 4950

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