

3 Frame Piston Pump

Models

280 290

FEATURES

Superior Design

- Triplex UniFlo 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.
- All stainless steel discharge valves are a spherical design for quieter operation.
- Oil bath crankcase assures optimum lubrication.
- Lubricated inlet seals prevent leakage and prolong 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 handy kits.
- Routine lubrication checks are the only maintenance required on this precision built pump.

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

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

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

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

	U.S. Measure	Metric Measure
MODEL 280		
Volume	3.0 GPM	(11 L/M)
Discharge Pressure	100 to 1000 PSI	(7 to 70 Bar)
RPM	1330 RPM	(1330 RPM)
Stroke	0.394"	(10 mm)
Weight	11.7 lbs.	(5.3 kg)

MODEL 290		
Volume	3.5 GPM	(13 L/M)
Discharge Pressure	100 to 1200 PSI	(7 to 85 BAR)
RPM	1200 RPM	(1200 RPM)
Stroke	0.472"	(12 mm)
Weight	12.1 lbs.	(5.5 kg)

COMMON SPECIFICATIONS

Maximum Inlet Pressure	-8.5 to 40 PSI	(-0.6 to + 2.8 BAR)
Bore	0.787"	(20 mm)
Crankcase Capacity	10 oz.	(.3 L)
Maximum Fluid Temperature	160°F	(71°C)
Inlet Ports (1)	1/2" NPT	(1/2" NPT)
Chemical Injection Port (1)	1/4" NPT	(1/4" NPT)
Discharge Ports (2)	3/8" NPT	(3/8" NPT)
Pulley Mounting	Either side	(Either side)
Shaft Diameters	0.650"	(16.5 mm)
Dimensions	10.77" x 9.06" x 5.14" (273.5 x 230 x 130.5 mm)	

HORSEPOWER REQUIREMENTS

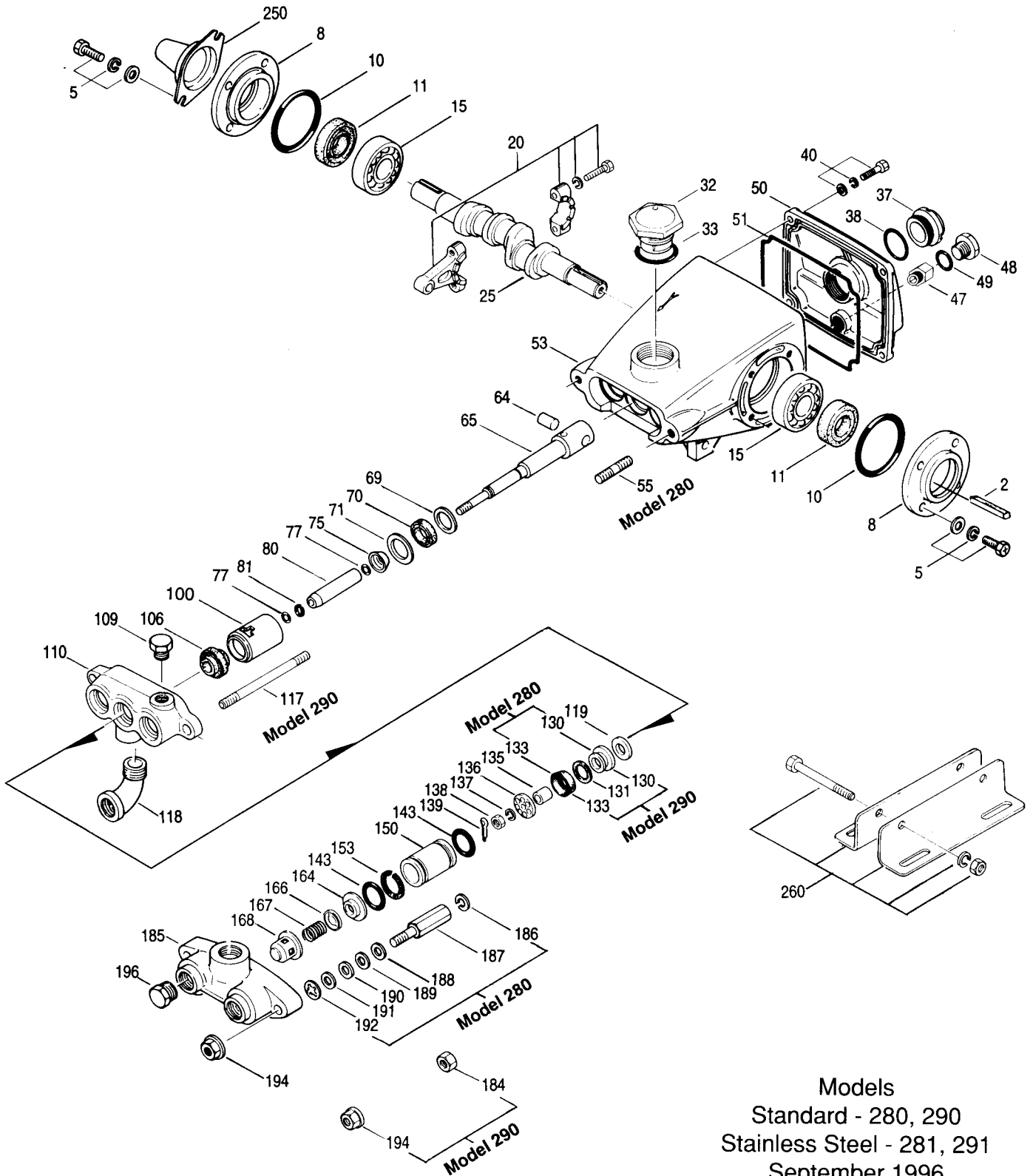
MODEL	FLOW		PRESSURE			MOTOR PULLEY SIZE	
			PSI 800	PSI 1000	PSI 1200	Using 1725 Nom. RPM Motor & 5.0" Pump Pulley O.D.	
	U.S. GPM	L/M	BAR 55	BAR 70	BAR 85	RPM	Pulley O.D.
280	3.0	11	1.6	2.1	N/A	1330	3.9
	2.5	10	1.4	1.7	N/A	1108	3.2
	2.0	8	1.1	1.4	N/A	887	2.8
290	3.5	13	1.9	2.4	2.9	1200	3.5
	3.0	11	1.6	2.1	2.5	1029	3.0
	2.5	9	1.4	1.7	2.1	858	2.5

"Customer confidence is our greatest asset"

PARTS LIST

ITEM	PART NUMBER		DESCRIPTION	QTY
	Model 280	Model 290		
2	30047 A	30047 A	Key (M5)	1
5	92519 Z	92519 Z	Screw, Sems Comb Head (M6 x 16)	8
8	27950	27950	Bearing Case	2
10	26536 B	26536 B	O-Ring, Bearing Case	2
11	24159 B	24159 B	Oil Seal, Crankshaft	2
15	14487	14487	Bearing	2
20	17556	101799	Connecting Rod Assy	3
25	26239	43804	Crankshaft	1
32	43211	43211	Oil Filler Cap	1
33	14177 B	14177 B	O-Ring, Oil Filler Cap	1
37	43987	43987	Oil Gauge, Bubble	1
38	44428	44428	Gasket, Flat Flex, Oil Gauge	1
40	92520 Z	92520 Z	Screw, Sems Comb Head (M6 x 20)	4
47	25144 Z	25144 Z	Adapter, Drain Plug (1/4" NPT) (For Optional Drain Hose)	1
48	25625	25625	Drain Plug	1
49	23170 B	23170 B	O-Ring, Drain Plug	1
50	43339	43339	Crankcase Cover	1
51	43340 B	43340 B	O-Ring, Crankcase Cover	1
53	44658	44658	Crankcase, 4 Screws - Large Cap	1
55	14137 C	—	Stud, (M8 x 41.4)	2
64	16948	16948	Pin, Piston Rod	3
65	29612	101800	Piston Rod	3
69	20017	20017	Washer, Oil Seal	3
70	25301 B	25301 B	Oil Seal	3
71	26854 S	26854 S	Seal Washer	3
75	25327 S	25327 S	Barrier Slinger	3
77	25392 B	25392 B	O-Ring Sleeve	6
	28771 V	28771 V	O-Ring Sleeve	6
80	29614 CS	29614 CS	Sleeve	3
	29743 S	29743 S	Sleeve	3
81	—	29003 T	Back-up Ring, Sleeve	3
100	28597 P	28597 P	Seal Retainer	3
106	30315 B	30315 B	Seal, Prrrrm-A-Lube	3
	30325 V	30325 V	Seal, Prrrrm-A-Lube	3
109	22177 CBB	22177 CBB	Plug, 1/4" NPT	1
110	25128 B	25128 B	Manifold, Inlet	1
	25635 SS	25635 SS	Manifold, Inlet	1
117	—	85680 C	Stud, (M8 x 99.5)	2
118	22160 CBB	22160 CBB	Elbow, 1/2" NPT	1
119	27004 S	27004 S	Valve, Inlet	3
130	22021 S	30543 S	Piston	3
131	—	30544 T	Bac-Cup Ring	3
133	43172 V	43172 V	Cup, Piston	3
133	29089	29089	Cup, V-Hot	3
135	27003 S	27983 S	Piston Spacer	3
136	27002 S	27002 S	Piston Retainer	3
137	27006 S	27006 S	Washer, Conical (M6)	3
138	27000 S	27000 S	Nut (M6)	3
139	14158	14158	Cotterpin	3
143	23172 B	23172 B	O-Ring, Cylinder	6
	11377 V	11377 V	O-Ring, Cylinder	6
	26961 T	26961 T	O-Ring, Cylinder	3
150	26112 CS	101802 CS	Cylinder	3
	28774 S	43834 S	Cylinder	3
153	—	21985 T	Back-Up Ring, Cylinder	3
164	43434 S	43434 S	Valve Seat, Q.V.	3
	29487 S	29487 S	Valve Seat, F.V.	3
166	43723 S	43723 S	Valve, Q.V.	3
	22842 S	22842 S	Valve, F.V.	3
167	43360 S	43360 S	Valve Spring, Q.V.	3
	22031 S	22031 S	Valve Spring, F.V.	3
168	43442 S	43442 S	Retainer, Valve Spring, Q.V.	3
	22841 S	22841 S	Retainer, Valve Spring, F.V.	3
184	—	81109 Z	Nut, Hex (M8)	2
185	24459 CBB	24459 CBB	Manifold, Discharge	1
	25634 SS	25634 SS	Manifold, Discharge	1
186	15845 Z	—	Washer, Split Lock (M8)	2
187	26245 Z	—	Cylinder Bolt (M8 x 62.5)	2
188	22902 Z	—	Shim (M8 x 13 x 1.0)	2-4
189	13533 Z	—	Shim (M8 x 13 x 0.5)	2-4
190	43258 Z	—	Shim (M8 x 13 x 0.3)	2-4
191	43425 Z	—	Shim (M8 x 13 x 2.0)	2-4
192	26676 Z	—	Retainer, Washer	2
194	101804 Z	101804 Z	Nut, Hex Flange (M8)	2
196	22187 CBB	22187 CBB	Plug, 3/8" NPT	1
250	25130	25130	Shaft Protector	1
260	30612	30612	Angle Rail Assy (Incls: 26246,30901,30920,30910)	1
270	30246	30246	Pulley Assy (Incls: 30032,30047)	1
275	30942	30942	Hub & Key Assy (Incls: 30943,30047)	1

EXPLODED VIEW



Models
 Standard - 280, 290
 Stainless Steel - 281, 291
 September 1996

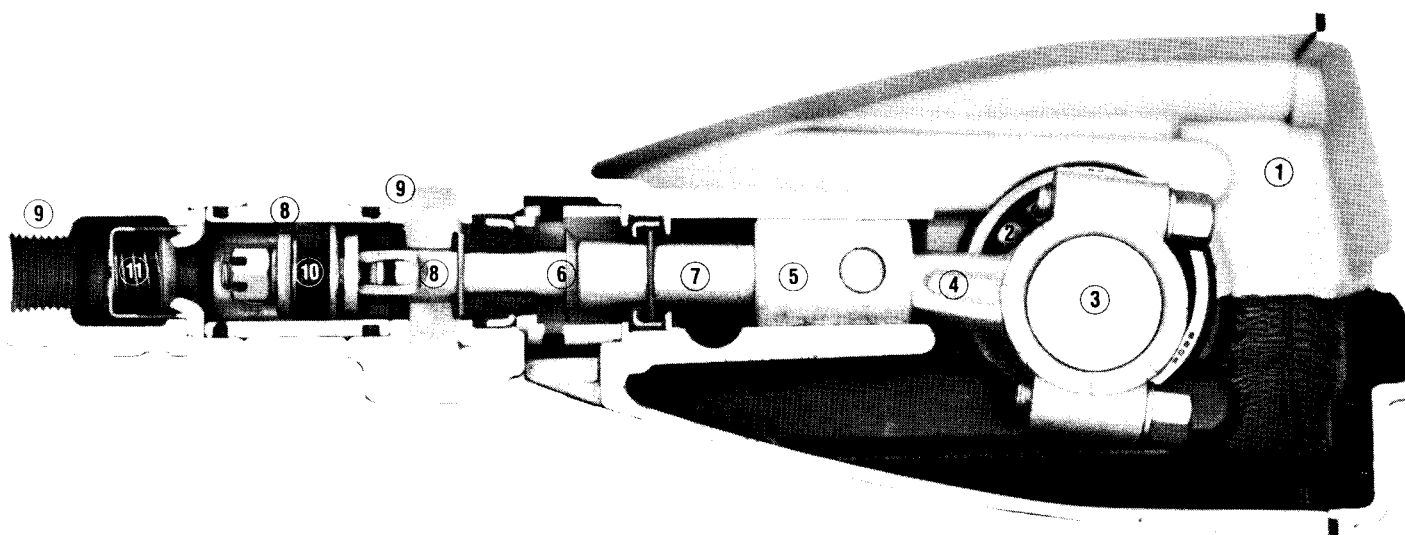
300	30023	30023	Cup Kit (Incls: 133,139,143)	1
302	30202	30860	Piston Kit (Incls: 119-139, 143, 153)	1
305	30431	30431	Sleeve & Seal Kit (Incls: 75,77,80,106,139)	1
306	30305	30305	Seal Kit (Incls: 106,139)	1
310	30686	30686	Valve Kit, Q.V. (Incls:143,168-164)	1
310	30024	30024	Valve Kit, F.V. (Incls 143, 164-168)	1
355	22130	22130	Cup Inserter	1

Bold printed part numbers are standard and unique to a particular pump model. Italics are optional items.

All Q.V. parts are necessary for conversions, Q.V. and F.V. parts cannot be mixed. See Tech Bulletin 24, 33 and 34 for additional information.

MATERIAL CODES (Not Part of Part Number)

A=Aluminum B=Buna-N BB=Brass C=Chromeplated P=PVPDF S=304SS SS=316SS T=Teflon V=Viton Z=Zinc Plated



- 1 Diecast 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 **connecting rods** are made of Zamak, a material noted for strength and superior bearing quality.
- 5 The **piston rods** are high tensile strength 316 stainless steel with zamak crossheads.
- 6 The stainless steel **slinger** provides back-up protection for the crankcase seal, keeping pumped fluids 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 fluids 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.

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

Sept 1996 8694



CAT PUMPS U.S.A.

1681 - 94th Lane N.E. Minneapolis, MN 55449-4324
Phone (612) 780-5440 — Fax (612) 780-2958

<http://www.usinternet.com/catpumps>

<http://www.industry.net/cat.pumps>

<http://www.thomasregister.com>

• N.V. CAT PUMPS INTERNATIONAL S.A. •
Gemzenstraat 2 Wilrijk, B 2610 Antwerp, Belgium
Phone 32-3-449 39.70 — Fax 32-3-449.39.76

• CAT PUMPS — A.G. •
Loretöhöhe 5, CH-6300 Zug, Switzerland
Phone 41 41 729 3050 — Fax 41 41 729 3055 — Telex 865 160 cpag ch

• CAT PUMPS DEUTSCHLAND GmbH •
Buchwiese 2, D-65510 Idstein, Germany
Phone 49 6126-93030 — Fax 49 6126-930333

• CAT PUMPS (U.K.) LTD. •
1 Fleet Business Park, Sandy Lane, Church Crookham, Fleet
Hampshire GU13 0BF, England
Phone Fleet 44 1252-622031 — Fax 44 1252-626655

Distributed By: