

## 5CP Stainless Steel Plunger Pump

Models **5CP6221**  
**5CP6241CS**  
**5CP6251**

### FEATURES

#### Superior Design

- Triplex plunger design gives smoother liquid flow.
- Hi-Pressure Seals are completely lubricated and cooled by the liquid being pumped.
- Inlet and discharge valve assemblies interchange for easier maintenance.
- Lubricated Lo-Pressure Seal provides double protection against external leakage.
- Oil bath crankcase assures optimum lubrication.
- Close tolerance concentricity of the ceramic plunger offers perfect alignment and maximizes seal life.

#### Quality Materials

- All 316 stainless steel valves are heat treated and seats are roller burnished for a positive seal and extended valve life.
- 316 stainless steel manifold is strong and corrosion resistant.
- Special concentric, high density, polished, graphite impregnated, solid ceramic plungers are abrasion resistant and result in extended seal life.
- Specially formulated, CAT PUMP exclusive, Hi-Pressure Seals offer unmatched performance and seal life.
- Die cast aluminum crankcase provides high strength, minimum weight and precision tolerance control.
- Chrome-moly crankshaft gives unmatched strength and surface hardness.
- Oversized crankshaft bearings with greater capacity mean longer bearing life.

#### Easy Maintenance

- Wet-end is easily serviced without entering crankcase, requiring less time and effort.
- Preset packings mean no packing gland adjustment is necessary, reducing maintenance costs.

#### **⚠ 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 5CP6221

Flow .....	6.0 GPM	(23 L/M)
Pressure Range.....	100 to 2000 PSI	(7 to 140 BAR)
Inlet Pressure Range.....	-5 to 60 PSI	(-0.35 to 4 BAR)
RPM.....	1400 RPM	(1400 RPM)
Stroke .....	0.709"	(18 mm)

#### MODEL 5CP6241CS Direct Drive

Flow .....	4.0 GPM	(15 L/M)
Pressure Range.....	100 to 2000 PSI	(7 to 140 BAR)
Inlet Pressure Range.....	Flooded to 60 PSI	(Flooded to 4 BAR)
RPM.....	1725 RPM	(1725 RPM)
Stroke .....	0.394"	(10 mm)

#### MODEL 5CP6251 Direct Drive

Flow .....	5.0 GPM	(19 L/M)
Pressure Range.....	100 to 2000 PSI	(7 to 140 BAR)
Inlet Pressure Range.....	Flooded to 60 PSI	(Flooded to 4 BAR)
RPM.....	1725 RPM	(1725 RPM)
Stroke .....	0.472"	(12 mm)

#### COMMON SPECIFICATIONS

Bore.....	0.787"	(20 mm)
Crankcase Capacity.....	17 oz.	(0.53 L)
Max Liquid Temperature .....	160°F	(71°C)
Inlet Ports (2) .....	1/2" NPTF	(1/2" NPTF)
Discharge Ports (2) .....	3/8" NPTF	(3/8" NPTF)
Shaft Diameter .....	0.787"	(20 mm)
Weight.....	20 lbs.	(8 kg)
Dimensions.....	11.47 x 10.0 x 5.75"	(291.3 x 254 x 146 mm)

### HORSEPOWER REQUIREMENTS

MODEL	FLOW		PRESSURE			RPM
	U.S. GPM	L/M	PSI 1200 BAR 85	PSI 1600 BAR 110	PSI 2000 BAR 140	
5CP6221	6.0	23	5.0	6.6	8.2	1400
	5.0	19	4.1	5.5	6.8	1208
	4.0	15	3.3	4.4	5.5	966
5CP6241CS	4.0	15	3.3	4.4	5.5	1725
5CP6251	5.0	19	4.1	5.5	6.8	1725

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

**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 [Inclds: 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"*

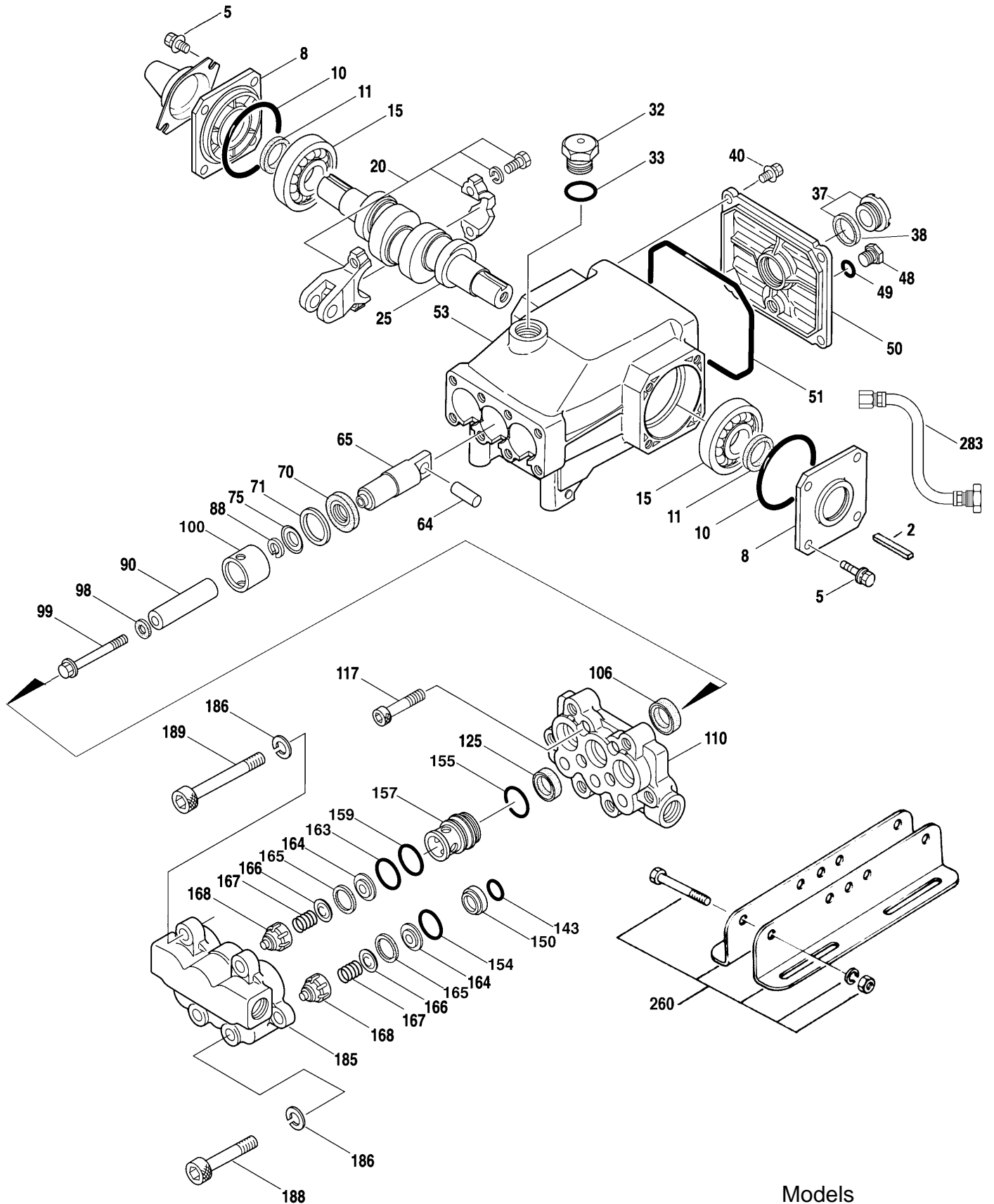
# PARTS LIST

ITEM	5CP6221	MATL	5CP6241CS	MATL	5CP6251	MATL	DESCRIPTION	QTY
● 2	30057	STL	30057	STL	30057	STL	Key (M6x6x25)	1 ●
5	119049	SS	119049	SS	119049	SS	Screw, Sems HH (M8x16)	8
8	46910	AL	46910	AL	46910	AL	Cover, Bearing	2/1
10	14028	NBR	14028	NBR	14028	NBR	O-Ring, Cover, Bearing - 70D	2/1
11	43222	NBR	43222	NBR	43222	NBR	Seal, Oil, Crankshaft	2
15	14480	STL	14480	STL	14480	STL	Bearing, Ball	2
20	48742	TNM	48742	TNM	48742	TNM	Rod Assy, Connecting	3
25	<b>46928</b>	<b>FCM</b>	—	—	<b>46982</b>	<b>FCM</b>	Crankshaft, Dual End	1
30	—	—	<b>48203</b>	<b>FCM</b>	—	—	Crankshaft, Single End	1
32	46798	—	<b>48224</b>	<b>AL</b>	—	—	Cover, Blind Bearing	1
33	14179	NBR	14179	NBR	14179	NBR	Cap, Oil Filler	1
37	92241	—	92241	—	92241	—	O-Ring, Oil Filler Cap - 70D	1
38	44428	NBR	44428	NBR	44428	NBR	Gauge, Oil, Bubble w/Gasket - 80D	1
40	92538	S	92538	S	92538	S	Gasket, Flat, Oil Gauge - 80D	1
48	25625	STCP	25625	STCP	25625	STCP	Screw, Sems HHC (M6x16)	4
49	23170	NBR	23170	NBR	23170	NBR	Plug, Drain (1/4X19BSP)	1
50	46940	AL	46940	AL	46940	AL	O-Ring, Drain Plug - 70D	1
51	14044	NBR	14044	NBR	14044	NBR	Cover, Rear	1
● 53	48617	AL	48617	AL	48617	AL	O-Ring, Cover, Rear	1
64	46746	CM	46746	CM	46746	CM	Crankcase	1 ●
65	48458	BBNP	48458	BBNP	48458	BBNP	Pin, Crosshead	3
70	46838	NBR	46838	NBR	46838	NBR	Rod, Plunger	3
71	48208	PVDF	48208	PVDF	48208	PVDF	Seal, Oil, Crankcase - 70D	3
75	43328	S	43328	S	43328	S	Washer, Oil Seal	3
88	45697	S	45697	S	45697	S	Slinger, Barrier	3
90	46841	CC	46841	CC	46841	CC	Washer, Keyhole (M18)	3
98	46730	NBR	46730	NBR	46730	NBR	Plunger (M20x50)	3
	48394	FPM	48394	FPM	48394	FPM	Washer, Seal	3
	◆ 48432	EPDM	◆ 48432	EPDM	◆ 48432	EPDM	Washer, Seal	3
99	48201	SS	48201	SS	48201	SS	Washer, Seal	3
100	46749	PVDF	46749	PVDF	46749	PVDF	Retainer, Plunger (M6x30)	3
106	44127	NBR	44127	NBR	44127	NBR	Retainer, Seal	3
	45153	FPM	45153	FPM	45153	FPM	Seal, LPS w/SS-Spg	3
	◆ 48429	EPDM	◆ 48429	EPDM	◆ 48429	EPDM	Seal, LPS w/SS-Spg	3
● 110	48552	SSL	48552	SSL	48552	SSL	Seal, LPS w/SS-Spg	3
117	119034	S	119034	S	119034	S	Manifold, Inlet	1 ●
125	44649	SNG	44649	SNG	44649	SNG	Screw, HSH (M8x35)	4
	44936	FPM	44936	FPM	44936	FPM	Seal, HPS w/SS	3
	46667	HT	46667	HT	46667	HT	Seal, HPS w/SS	3
143	17615	NBR	17615	NBR	17615	NBR	Seal, HPS w/S	3
	15855	FPM	15855	FPM	15855	FPM	O-Ring, I.V. Adapter, Rear - 75D	3
	◆ 48431	EPDM	◆ 48431	EPDM	◆ 48431	EPDM	O-Ring, I.V. Adapter, Rear - 70D	3
150	48212	SS	48212	SS	48212	SS	O-Ring, I.V. Adapter, Rear - 75D	3
154	43781	NBR	43781	NBR	43781	NBR	Adapter, Inlet	3
	11337	FPM	11337	FPM	11337	FPM	O-Ring, I.V. Adapter, Front - 75D	3
	◆ 48430	EPDM	◆ 48430	EPDM	◆ 48430	EPDM	O-Ring, I.V. Adapter, Front - 75D	3
155	43781	NBR	43781	NBR	43781	NBR	O-Ring, I.V. Adapter, Front - 75D	3
	11337	FPM	11337	FPM	11337	FPM	O-Ring, D.V. Spacer - 75D	3
	◆ 48430	EPDM	◆ 48430	EPDM	◆ 48430	EPDM	O-Ring, D.V. Spacer - 75D	3
157	48211	SS	48211	SS	48211	SS	O-Ring, D.V. Spacer - 75D	3
159	43781	NBR	43781	NBR	43781	NBR	Spacer, Discharge Valve	3
	11337	FPM	11337	FPM	11337	FPM	O-Ring, D.V. Spacer - 75D	3
	◆ 48430	EPDM	◆ 48430	EPDM	◆ 48430	EPDM	O-Ring, D.V. Spacer - 75D	3
163	43781	NBR	43781	NBR	43781	NBR	O-Ring, D.V. Spacer - 75D	3
	11337	FPM	11337	FPM	11337	FPM	O-Ring, Seat - 75D	3
	◆ 48430	EPDM	◆ 48430	EPDM	◆ 48430	EPDM	O-Ring, Seat - 75D	3
164	48216	SS	48216	SS	48216	SS	O-Ring, Seat - 75D	3
165	43793	NBR	43793	NBR	43793	NBR	Seat	6
	43791	FPM	43791	FPM	43791	FPM	O-Ring, Seat - 90D	6
	◆ 48490	EPDM	◆ 48490	EPDM	◆ 48490	EPDM	O-Ring, Seat - 90D	6
166	44038	SS	44038	SS	44038	SS	O-Ring, Seat - 90D	6
167	44039	SS	44039	SS	44039	SS	Valve	6
168	44564	PVDF	44564	PVDF	44564	PVDF	Spring	6
● 185	48554	SSL	48554	SSL	48554	SSL	Retainer, Spring	6
186	19085	S	19085	S	19085	S	Manifold, Discharge	1 ●
188	120774	S	120774	S	120774	S	Lockwasher, Split (M12)	6
189	89575	S	89575	S	89575	S	Screw, HSH (M12x40)	2
250	118672	STCP	118672	STCP	118672	STCP	Screw, HSH (M12x60)	4
260	30611	STZP	30611	STZP	30611	STZP	Protector, Shaft	1
269	—	—	—	—	—	—	Rail Assy, Angle (Incls: 28499, 30900, 30920, 30910)	1
270	<b>30944</b>	<b>STL</b>	—	—	—	—	Pulley [See Drive Packages, Tech Bulletin 003]	1
278	—	—	<b>8230</b>	<b>AL</b>	<b>34419</b>	<b>AL</b>	Hub and Key Assy [See Drive Packages, Tech Bulletin 003]	1
279	—	—	<b>34424</b>	<b>AL</b>	<b>34424</b>	<b>AL</b>	Flex Coupling Assy (M20 to 1-1/8" or 1")	1
280	—	—	—	—	—	—	Bell Housing Assy (184C-213C, 10 hp)	1
● 283	34334	—	34334	—	34334	—	BD Direct Drive Motor [See Individual Data Sheet]	1 ●
● 290	6104	—	6104	—	6104	—	Kit, Oil Drain	1 ●
● 299	816720	SSL	816720	SSL	816720	SSL	Gasket, Liquid (1.0 oz.)	1 ●
300	34353	NBR	34353	NBR	34353	NBR	Head, Complete	1 ●
	34351	FPM	34351	FPM	34351	FPM	Kit, Seal (Incls: 98, 106, 125, 143, 154, 155, 159)	1
	◆ 34352	EPDM	◆ 34352	EPDM	◆ 34352	EPDM	Kit, Seal (Incls: 98, 106, 125, 143, 154, 155, 159)	1
310	33972	NBR	33972	NBR	33972	NBR	Kit, Seal (Incls: 98, 106, 125, 143, 154, 155, 159)	1
	34362	FPM	34362	FPM	34362	FPM	Kit, Valve (Incls: 143, 154, 163, 164, 165, 166, 167, 168)	1
	◆ 34363	EPDM	◆ 34363	EPDM	◆ 34363	EPDM	Kit, Valve (Incls: 143, 154, 163, 164, 165, 166, 167, 168)	1
● —	711500	SS	711500	SS	711500	SS	Kit, Valve (Incls: 143, 154, 163, 164, 165, 166, 167, 168)	1 ●
● —	711502	SS	711502	SS	711502	SS	C.A.T. (Captive Acceleration Tube)	1 ●
—	6100	—	6100	—	6100	—	Adapter (2 per C.A.T.) (See Data Sheet for complete selection)	2 ●
							Oil, Case (12-21 oz. Bottles) ISO 68 Multi-Viscosity Hydraulic (Fill to specified crankcase capacity prior to start-up)	1

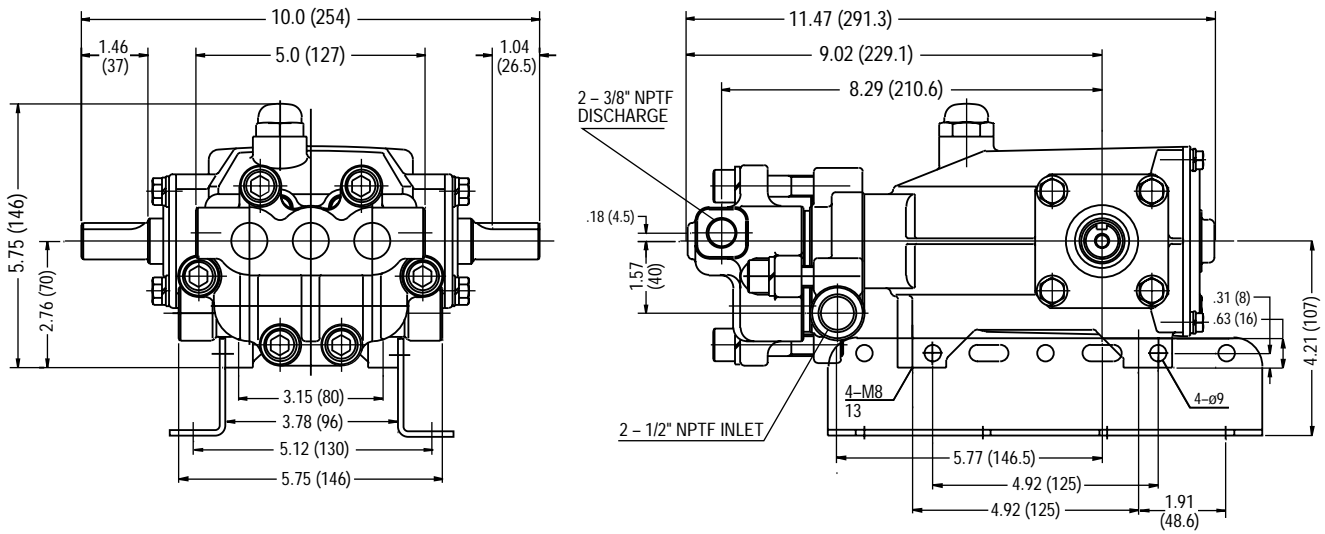
● Industrial discount. **Bold print part numbers are unique to a particular pump model.** *Italics are optional items.* ◆ Silicone oil/grease required. See Tech Bulletins 002, 003, 024, 036, 043, 053, 056, 074, 077, 083 and 088 for additional information.

MATERIAL CODES (Not Part of Part Number): AL=Aluminum BBNP=Brass/Nickel Plated CC=Ceramic CM=Chrome-moly EPDM=Ethylene Propylene Diene Monomer FCM=Forged Chrome-Moly FPM=Fluorocarbon (Viton®) HT=Hi-Temp (EPDM Alternative) NBR=Medium Nitrile (Buna-N) PVDF=Fluoroplastic (High Strength) S=304SS SS=316SS SSL=316SS/Low Carbon SNG=Special Blend (Buna) STCP=Steel/Chrome Plated STZP=Steel/Zinc Plated STL=Steel TNM=Special High Strength ZZ=Zamak

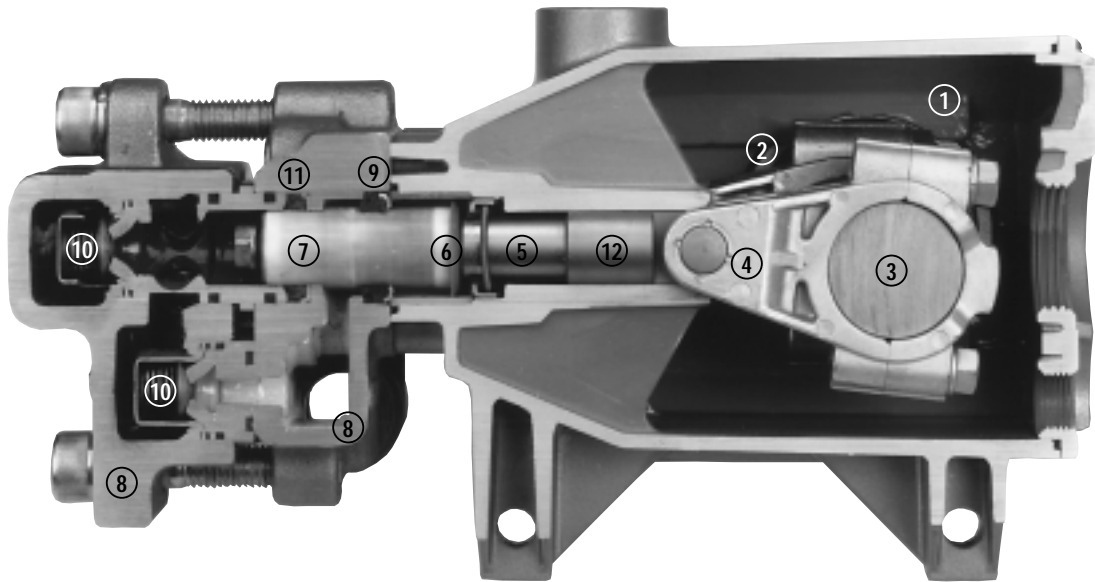
# EXPLODED VIEW



Models  
5CP6221, 5CP6241CS, 5CP6251  
February 2002



Models 5CP6221, 5CP6241CS, 5CP6251



- 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 high strength **connecting rods** noted for strength and superior bearing quality.
- 5 The **plunger rods** are hardened, surface plated for wear resistance, with high load capacity.
- 6 The stainless steel **slinger** provides back-up protection for the crankcase seal, keeping pumped liquids out of the crankcase.
- 7 Special concentric, high density, polished, graphite impregnated, solid ceramic **plungers** are abrasion resistant and result in extended seal life.
- 8 **Manifolds** are high tensile strength 316 stainless steel for liquid compatibility and long term, continuous duty.
- 9 100% wet **seal** design adds to service life by allowing pumped liquids to cool and lubricate on both sides.
- 10 316 stainless steel **valves, seats and springs** provide corrosion-resistance, positive seating and long life.
- 11 Specially formulated, CAT PUMP exclusive, **Hi-Pressure Seals** offer unmatched performance and seal life.
- 12 **Crossheads** are 360° supported for uncompromising alignment.

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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