

## 5CP Block-Style Stainless Steel Plunger Pump

**Standard Models** 5CP2821, 5CP2841  
5CP2851

**Flushed Models** 5CP2821K, 5CP2841K  
5CP2851K

### FEATURES

#### Superior Design

- Triplex plunger design provides smoother liquid flow.
- Inlet and discharge valve assemblies interchange for easier maintenance.
- Oil bath crankcase assures optimum lubrication.
- Close tolerance concentricity of the ceramic plunger maximizes seal life.
- **Standard Models:** Lo-Pressure Seals and Hi-Pressure Seals are completely lubricated and cooled by the liquid being pumped.
- **Flushed K Models:** Special ported inlet manifold permits an external flush liquid providing cooling for hi-temp liquids and lubrication for low lubricity liquids.

#### Quality Materials

- All 316 SSL valves and seats for extended valve life.
- 316 SSL block-style manifolds for strength and corrosion resistance.
- Special concentric, high-density, polished, solid ceramic plungers provide a true wear surface and 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 means 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
<b>MODELS 5CP2821, 5CP2821K</b>		
Flow .....	4.0 GPM	(15 L/M)
Pressure Range .....	100-2500 PSI	(7-175 BAR)
RPM .....	950 RPM	(950 RPM)
Stroke .....	0.709"	(18 mm)
<b>MODELS 5CP2841, 5CP2841K</b>		
Flow .....	4.0 GPM	(15 L/M)
Pressure Range .....	100-2500 PSI	(7-175 BAR)
RPM .....	1725 RPM	(1725 RPM)
Stroke .....	0.394"	(10 mm)
<b>MODELS 5CP2851, 5CP2851K</b>		
Flow .....	4.9 GPM	(18.5 L/M)
Pressure Range .....	100-2000 PSI	(7-140 BAR)
RPM .....	1725 RPM	(1725 RPM)
Stroke .....	0.472"	(12 mm)

#### COMMON SPECIFICATIONS

Inlet Pressure Range (950 RPM) .....	-5 to 60 PSI	(-0.35 to 4 BAR)
Inlet Pressure Range (1725 RPM) .....	Flooded to 60 PSI	(Flooded to 4 BAR)
Bore .....	0.787"	(20 mm)
Crankcase Capacity .....	17 oz.	(0.51 L)
Max. Liquid Temperature .....	160°F	(71°C)
Above 130°F call CAT PUMPS for inlet conditions and elastomer recommendations.		
Inlet Ports (2) .....	1/2" NPTF	(1/2" NPTF)
Discharge Ports (2) .....	3/8" NPTF	(3/8" NPTF)
Flushing Ports (2)* .....	1/8" NPTF	(1/8" NPTF)
Shaft Diameter .....	0.787"	(20 mm)
Weight .....	28 lbs.	(13 kg)
Dimensions .....	10.75 x 10.0 x 5.20"	(273 x 254 x 132 mm)

\* Flushed K Models: Special ported inlet manifold permits an external flush liquid providing cooling for hi-temp liquids and lubrication for low lubricity liquids..

### ELECTRIC HORSEPOWER REQUIREMENTS

MODEL	FLOW		PRESSURE				MOTOR PULLEY SIZE	
	U.S. GPM	L/M	PSI 1200	PSI 1500	PSI 2000	PSI 2500	Using 1725 RPM Motor & 8" Std. Pump Pulley	RPM
5CP2821 5CP2821K	4.0	15	3.3	4.1	5.5	6.9	950	4.3
5CP2841 5CP2841K	4.0	15	3.3	4.1	5.5	6.9	1725	Direct
5CP2851 5CP2851K	4.9	18.5	4.0	5.0	6.7	N/A	1725	Direct

<b>DETERMINING THE PUMP R.P.M.</b>	<u>Rated G.P.M.</u>	=	<u>"Desired" G.P.M.</u>
<b>DETERMINING THE REQUIRED H.P.</b>	<u>Rated R.P.M.</u>	=	<u>"Desired" R.P.M.</u>
<b>DETERMINING MOTOR PULLEY SIZE</b>	<u>GPM x PSI</u>	=	<u>Electric Brake</u>
	1460	=	<u>H. P. Required</u>
	<u>Motor Pulley O.D.</u>	=	<u>Pump Pulley O.D.</u>
	<u>Pump R.P.M.</u>	=	<u>Motor R.P.M.</u>

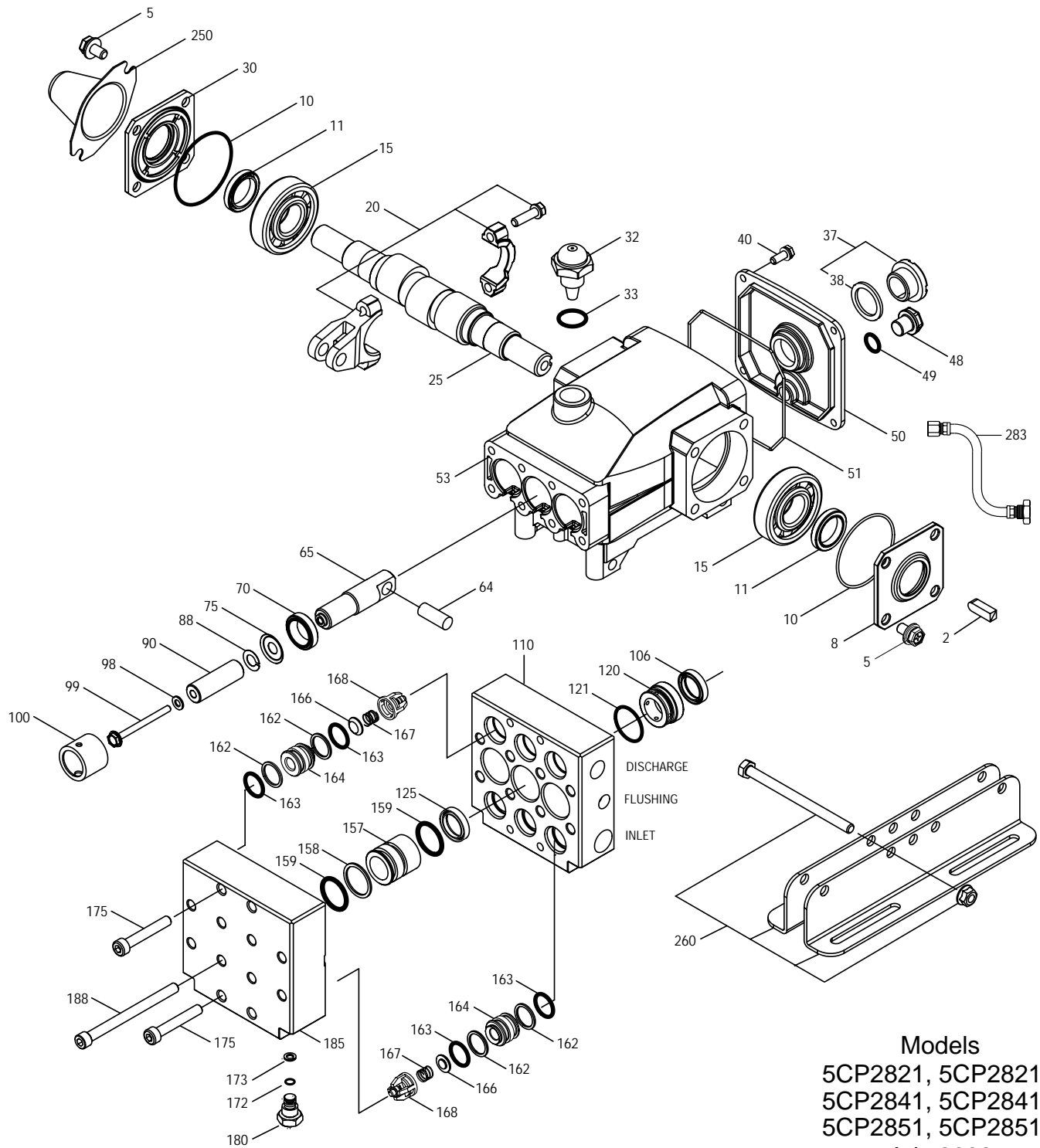
See complete Drive Packages [Incls: Pulleys, Belts, Hubs, Key] Tech Bulletin 003.  
Refer to pump **Service Manual** for repair procedure, additional technical information and **pump warranty**.

*"Customer confidence is our greatest asset"*

# PARTS LIST

ITEM	5CP2821		PART NUMBER		5CP2851		DESCRIPTION	QTY
	5CP2821K	MATL	5CP2841	MATL	5CP2851	MATL		
	5CP2821K		5CP2841K		5CP2851K			
2	30057	STL	30057	STL	30057	STL	Key (M6x6x25)	1
5	119049	SS	119049	SS	119049	SS	Screw, HH Sems (M8x16)	8
8	46910	AL	46910	AL	46910	AL	Cover, Bearing	2/1
10	14028	NBR	14028	NBR	14028	NBR	O-Ring, Bearing Cover - 70D	2
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, Connecting Assy [10/01]	3
25	46928	FCM	—	—	46928	FCM	Crankshaft, Dual End	1
	—	—	48203	FCM	—	—	Crankshaft, Single End	1
30	—	—	48224	AL	—	—	Cover, Bearing Blind	1
32	46798	—	46798	—	46798	—	Cap, Oil Filler, Domed	1
33	14179	NBR	14179	NBR	14179	NBR	O-Ring, Oil Filler Cap - 70D	1
37	92241	—	92241	—	92241	—	Gauge, Oil, Bubble w/Gasket - 80D	1
38	44428	NBR	44428	NBR	44428	NBR	Gasket, Flat, Oil Gauge - 80D	1
40	92538	S	92538	S	92538	S	Screw, HHC Sems (M6x16)	4
48	25625	STCP	25625	STCP	25625	STCP	Plug, Drain (1/4"x19BSP)	1
49	23170	NBR	23170	NBR	23170	NBR	O-Ring, Drain Plug - 70D	1
50	46940	AL	46940	AL	46940	AL	Cover, Rear	1
51	14044	NBR	14044	NBR	14044	NBR	O-Ring, Rear Cover	1
53	48617	AL	48617	AL	48617	AL	Crankcase	1
64	46746	CM	46746	CM	46746	CM	Pin, Crosshead	3
65	48458	BBNP	48458	BBNP	48458	BBNP	Rod, Plunger	3
70	46838	NBR	46838	NBR	46838	NBR	Seal, Oil, Crankcase - 70D	3
75	43328	S	43328	S	43328	S	Slinger, Barrier	3
88	45697	S	45697	S	45697	S	Washer, Keyhole (M18)	3
90	46841	CC	46841	CC	46841	CC	Plunger (M20x50)	3
98	46730	NBR	46730	NBR	46730	NBR	Washer, Seal - 90D	3
	48394	FPM	48394	FPM	48394	FPM	Washer, Seal - 90D	3
	◆ 48432	EPDM	◆ 48432	EPDM	◆ 48432	EPDM	Washer, Seal	3
99	† 48201	SSL	† 48201	SSL	† 48201	SSL	Retainer, Plunger w/Stud (M6)	3
100	46749	PVDF	46749	PVDF	46749	PVDF	Retainer, Seal	3
106	43305	NBR	43305	NBR	43305	NBR	Seal, LPS w/S-Spg	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	701898	SSL	701898	SSL	701898	SSL	Manifold, Inlet/Discharge, Block-Style	1
	701899	SSL	701899	SSL	701899	SSL	Manifold, Inlet/Discharge, Flushed	1
120	701975	SSL	701975	SSL	701975	SSL	Case, Seal	3
121	13978	NBR	13978	NBR	13978	NBR	O-Ring, Seal Case - 70D	3
	14329	FPM	14329	FPM	14329	FPM	O-Ring, Seal Case	3
	◆ 48904	EPDM	◆ 48904	EPDM	◆ 48904	EPDM	O-Ring, Seal Case	3
125	43307	SNG	43307	SNG	43307	SNG	Seal, HPS w/S	3
	44936	FPM	44936	FPM	44936	FPM	Seal, HPS w/SS	3
	46667	HT	46667	HT	46667	HT	Seal, HPS 2-Pc w/S-Support	3
157	701976	SSL	701976	SSL	701976	SSL	Cylinder, V/P	3
158	701598	PTFE	701598	PTFE	701598	PTFE	Back-up Ring, Cylinder V/P	3
159	701596	NBR	701596	NBR	701596	NBR	O-Ring, Cylinder V/P - 70D	6
	701914	FPM	701914	FPM	701914	FPM	O-Ring, Cylinder V/P - 75D	6
	◆ 703318	EPDM	◆ 703318	EPDM	◆ 703318	EPDM	O-Ring, Cylinder V/P	6
162	701599	PTFE	701599	PTFE	701599	PTFE	Back-up Ring, Seat	12
163	701597	NBR	701597	NBR	701597	NBR	O-Ring, Seat - 70D	12
	701915	FPM	701915	FPM	701915	FPM	O-Ring, Seat - 75D	12
	◆ 703180	EPDM	◆ 703180	EPDM	◆ 703180	EPDM	O-Ring, Seat	12
164	701591	SSL	701591	SSL	701591	SSL	Seat	6
166	701751	SSL	701751	SSL	701751	SSL	Valve	6
167	44056	SS	44056	SS	44056	SS	Spring	6
168	44565	PVDF	44565	PVDF	44565	PVDF	Retainer, Spring	6
172	701735	NBR	701735	NBR	701735	NBR	O-Ring, Plug	3
	701916	FPM	701916	FPM	701916	FPM	O-Ring, Plug	3
	◆ 703181	EPDM	◆ 703181	EPDM	◆ 703181	EPDM	O-Ring, Plug	3
173	701736	PTFE	701736	PTFE	701736	PTFE	Back-up Ring, Plug	3
175	701904	SS	701904	SS	701904	SS	Screw, HSH (M8x45)	4
180	701733	SS	701733	SS	701733	SS	Plug, Manifold	3
185	701900	SSL	701900	SSL	701900	SSL	Manifold, Block	1
188	701905	SS	701905	SS	701905	SS	Screw, HSH (M8x90)	8
250	118672	STCP	118672	STCP	118672	STCP	Protector, Shaft	1
260	30611	STZP	30611	STZP	30611	STZP	Mount, Rail, Assy	1
283	34334	—	34334	—	34334	—	Kit, Oil Drain	1
299	910104	SSL	910104	SSL	910104	SSL	Head, Complete, Block-Style	1
	910105	SSL	910105	SSL	910105	SSL	Head, Complete, Flushed	1
300	701939	NBR	701939	NBR	701939	NBR	Kit, Seal (Incls: 98,106,121,125,158,159,162,163,172,173)	1
	703177	FPM	703177	FPM	703177	FPM	Kit, Seal (Incls: 98,106,121,125,158,159,162,163,172,173)	1
	◆ 703182	EPDM	◆ 703182	EPDM	◆ 703182	EPDM	Kit, Seal (Incls: 98,106,121,125,158,159,162,163,172,173)	1

# EXPLODED VIEW



**Models**  
 5CP2821, 5CP2821K  
 5CP2841, 5CP2841K  
 5CP2851, 5CP2851K  
 July 2008

	<b>5CP2821</b>	<b>MATL</b>	<b>5CP2841</b>	<b>MATL</b>	<b>5CP2851</b>	<b>MATL</b>		
310	<b>701884</b>	<i>NBR</i>	<b>701884</b>	<i>NBR</i>	<b>701884</b>	<i>NBR</i>	Kit, Valve (Incls: 162, 163, 164, 166, 167, 168)	2
	<b>701921</b>	<i>FPM</i>	<b>701921</b>	<i>FPM</i>	<b>701921</b>	<i>FPM</i>	Kit, Valve (Incls: 162, 163, 164, 166, 167, 168)	2
	◆ <b>76884</b>	<i>EPDM</i>	◆ <b>76884</b>	<i>EPDM</i>	◆ <b>76884</b>	<i>EPDM</i>	Kit, Valve (Incls: 162, 163, 164, 166, 167, 168)	2
350	<b>30696</b>	<i>STZP</i>	<b>30696</b>	<i>STZP</i>	<b>30696</b>	<i>STZP</i>	Plier, Reverse	1
—	<b>6107</b>	—	<b>6107</b>	—	<b>6107</b>	—	Oil, Bottle (21 oz) ISO 68 Multi-viscosity Hydraulic (Fill to specified crankcase capacity prior to start-up)	1

**Bold print part numbers are unique to a particular pump model. Italics are optional items. ◆ Silicone oil/grease required.**

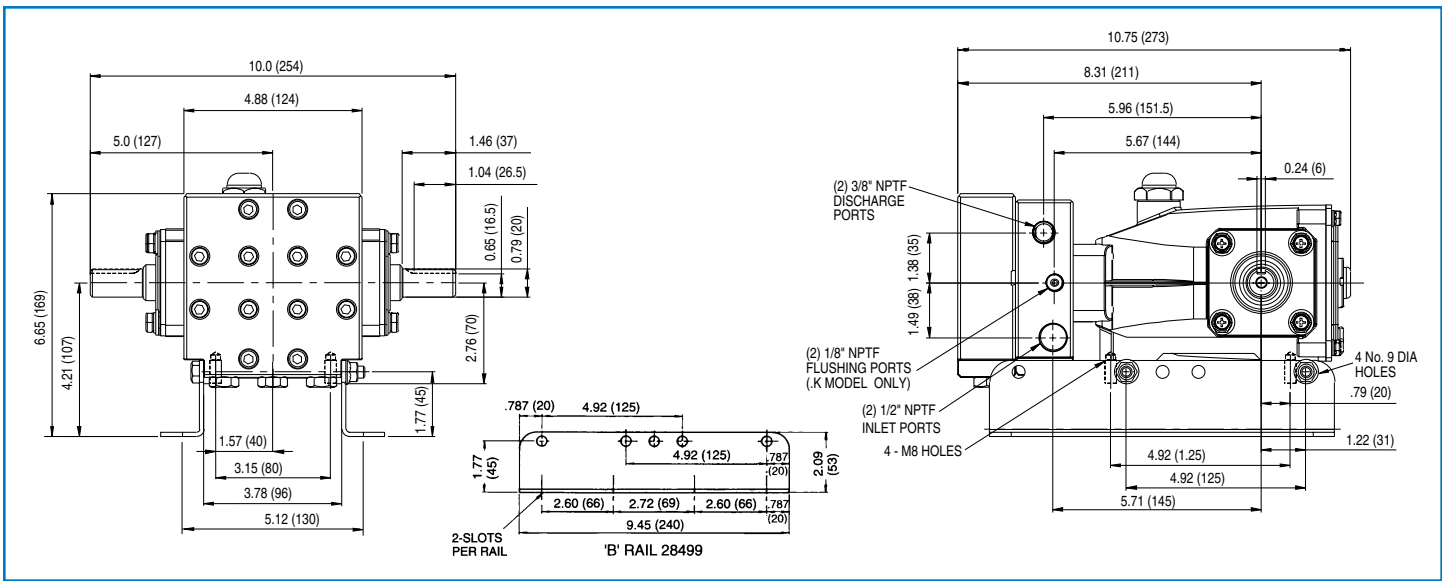
† Production parts are different than repair parts. [ ] Date of latest production change.

See Tech Bulletins 002, 003, 024, 036, 043, 053, 060, 061, 064, 073, 074, 077, and 083 for additional information.

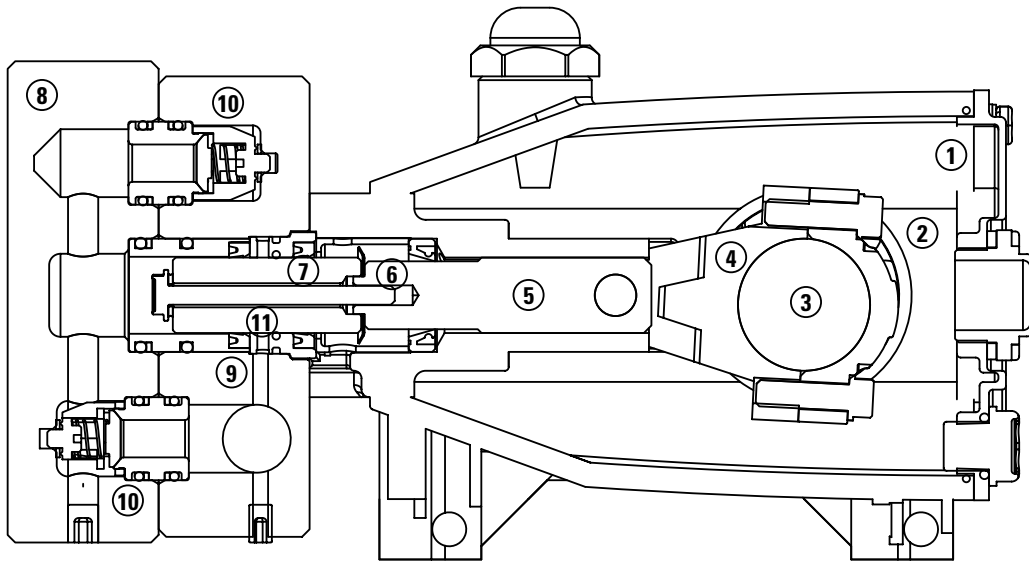
MATERIAL CODES (Not Part of Part Number): AL=Aluminum BBNP=Brass/Nickel Plated CC=Ceramic CM=Chrome-moly EPDM=Ethylene Propylene Diene Monomer  
 FCM=Forged Chrome-moly FPM=Fluorocarbon HT=Hi-Temp (EPDM Alternative) NBR=Medium Nitrile (Buna-N)

PTFE=Pure Polytetrafluoroethylene PVDF=Polyvinylidene Fluoride S=304SS SS=316SS SSL=316SS/Low Carbon STL=Steel

STCP=Steel/Chrome Plated STZP=Steel/Zinc Plated TNM=Special High Strength



Models 5CP2821, 5CP2821K, 5CP2841, 5CP2841K, 5CP2851, 5CP2851K



- 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** with hardened surfaces offer wear resistance and Zamak cross-heads for 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, solid ceramic **plungers** provide a true wear surface and extended seal life.
- 8 **Manifolds** are 316 SSL block-style for long-term continuous duty and corrosion resistance.
- 9 **Standard Models:** Lo-Pressure Seals and Hi-Pressure Seals are completely lubricated and cooled by the liquid being pumped.
- 9 Optional special ported **Flushed Inlet Manifold** permits external flush for lubricating and cooling seals when pumping liquids such as DI water, Hi-Temp or low lubricity.
- 10 316 SSL **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.

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