



## 7 Frame Plunger Pump

### Models

530  
550

### FEATURES

#### Superior Design

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

#### Quality Materials

- All stainless steel valves are heat treated and seats are roller burnished for a positive seal and extended valve life.
- Forged brass 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 or V-Packings 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.
- Valve assemblies are accessible without disturbing piping, for quick service.
- 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 530

Flow .....	5.0 GPM	(19 L/M)
Pressure Range.....	100 to 2500 PSI	(7 to 175 BAR)
<b>RPM .....</b>	<b>1100 RPM</b>	<b>(1100 RPM)</b>
<b>Bore.....</b>	<b>0.708"</b>	<b>(18 mm)</b>
<b>Stroke.....</b>	<b>0.945"</b>	<b>(24 mm)</b>

#### MODEL 550

Flow .....	5.0 GPM	(19 L/M)
Pressure Range.....	100 to 3000 PSI	(7 to 210 BAR)
<b>RPM .....</b>	<b>1415 RPM</b>	<b>(1415 RPM)</b>
<b>Bore.....</b>	<b>0.630"</b>	<b>(16 mm)</b>
<b>Stroke.....</b>	<b>0.945"</b>	<b>(24 mm)</b>

#### COMMON SPECIFICATIONS

Inlet Pressure Range.....	Flooded to 60 PSI	(Flooded to 4 BAR)
Crankcase Capacity .....	25 oz.	(0.75 L)
Maximum Liquid Temperature .....	160°F	(71°C)
<small>For temperatures above 130°F call CAT PUMPS for inlet conditions and elastomer recommendations.</small>		
Inlet Ports (2) .....	1/2" NPTF	(1/2" NPTF)
Discharge Ports (2).....	3/8" NPTF	(3/8" NPTF)
Shaft Diameter .....	0.945"	(24 mm)
Weight.....	25.5 lbs.	(11.5 kg)
Dimensions.....	13.6 x 9.61 x 6.41"	(346 x 244 x 163 mm)

### HORSEPOWER REQUIREMENTS

MODEL	FLOW		PRESSURE				MOTOR PULLEY SIZE	
			PSI 1800	PSI 2150	PSI 2500	PSI 3000	Using 1725 RPM Motor & Std. 10" Pulley O.D.	
	U.S. GPM	L/M	BAR 125	BAR 150	BAR 175	BAR 210	RPM	Pulley O.D.
530	5.0	19.0	6.2	7.4	8.6	N/A	1100	6.3
	4.5	17.0	5.6	6.6	7.7	N/A	990	5.6
	4.0	15.0	5.0	5.9	6.9	N/A	880	5.0
550	5.0	19.0	6.2	7.4	8.6	10.3	1415	8.0
	4.0	15.0	5.0	5.9	6.9	8.3	1130	6.4
	3.0	11.4	3.7	4.4	5.2	6.2	850	5.0

**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.**  $\frac{\text{GPM} \times \text{PSI}}{1460}$  = 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 [Incls: 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
	<b>530</b>	<b>550</b>		
	<b>MATL</b>	<b>MATL</b>		
2	30067	30067	Key (M8x7.5x25)	1
5	92519	92519	Screw, HHC Sems (M6x16)	8
8	43223	43223	Cover, Bearing	2
9	43261	43261	Shim, Bearing Cover (2-pc)	1
10	12393	12393	O-Ring, Bearing Cover	2
11	43222	43222	Seal, Oil	2
15	43221	43221	Bearing, Roller	2
20	48863	48863	Rod, Assy, Connecting [6/02]	3
25	43220	43220	Crankshaft, Dual End	1
31	828710	828710	Protector, Oil Cap w/Gasket	1
32	43211	43211	Cap, Oil Filler	1
33	14177	14177	O-Ring, Filler Cap - 70D	1
37	92241	92241	Gauge, Oil, Bubble w/Gasket - 80D	1
38	44428	44428	Gasket, Flat, Oil Gauge - 80D	1
40	92520	92520	Screw, HHC Sems (M6x20)	4
48	25625	25625	Plug, Drain (1/4"x19BSP)	1
49	23170	23170	O-Ring, Drain Plug - 70D	1
50	43217	43217	Cover, Rear	1
51	44836	44836	O-Ring, Rear Cover - 70D	1
53	45056	45056	Crankcase (M10)	1
56	43240	43240	Pan, Oil	1
64	43237	43237	Pin, Crosshead	3
65	43229	43229	Rod, Plunger	3
69	43227	43227	Washer, Oil Seal	3
70	43228	43228	Seal, Oil, Crankcase	3
75	43328	43328	Slinger, Barrier	3
88	45697	45697	Washer, Keyhole (M18)	3
90	43232	43311	Plunger (M18x77 and M16x77)	3
96	43235	43235	Back-up-Ring, Plunger Retainer	3
97	17399	17399	O-Ring, Plunger Retainer - 80D	3
	14160	14160	O-Ring, Plunger Retainer - 80D	3
98	45891	45891	Gasket, Plunger Retainer	3
99	104360	104360	Retainer, Plunger w/Stud	3
100	45686	45686	Retainer, Seal, Rear	3
	45687	45687	Retainer, Seal, Adapter, Front	3
101	43239	43313	Wick, Long Tab	3
106	43243	43316	Seal, LPS w/S-Spg	3
	44926	—	Seal, LPS w/SS-Spg	3
	—	106660	Seal, LPS w/S-Spg	3
120	45683	45684	Case, Seal	3
121	20285	20285	O-Ring, Seal Case - 70D	3
	11693	11693	O-Ring, Seal Case	3
125	43245	—	Seal, HPS w/S	3
	44925	—	Seal, HPS w/SS	3
126	—	43320	Adapter, Female	3
127	—	43319	V-Packing	6
	—	46287	V-Packing	6
128	—	43318	Adapter, Male	3
139	22179	22179	Plug (1/2" NPT)	1
162	43248	43248	Back-up-Ring, Seat	6
163	43249	43249	O-Ring, Seat - 80D	6
	44383	44383	O-Ring, Seat - 70D	6
164	43722	43722	Seat, Q.V.	6
	43825	—	Seat, F.V.	6
166	43721	43721	Valve, Q.V.	6
	43824	—	Valve, F.V.	6
167	43751	43751	Spring, Q.V.	6
	43823	—	Spring, F.V.	6
168	44564	44564	Retainer, Spring	6
172	17617	17617	O-Ring, Valve Plug - 90D	6
	11691	11691	O-Ring, Valve Plug - 90D	6
174	43851	43851	Plug, Valve	6
185	45417	45547	Head, Manifold (M10F)	1
187	46868	46868	Stud, Manifold (M10x35)	4
194	45550	45550	Nut, Flanged (M10)	4
196	43633	43633	Plug, Discharge (3/8" NPT)	1
250	43256	43256	Protector, Shaft	1
255	30243	30243	Kit, Direct Mounting	1
260	30645	30645	Rail, Angle, Assy A-U.S. (Incls: 30635 [2.09"], 30900, 30910, 30920)	1
	30611	30611	Rail, Angle, Assy B-U.S. (Incls: 28499 [2.95"], 30900, 30910, 30920)	1
265	30660	30660	Kit, Mounting (Incls: 30645, 30206, 33000, 30067, 43256)	1
269	30206	30206	Pulley (10") [See Drive Packages, Tech Bulletin 003]	1
274	33000	33000	Hub "H", M24 (Keyway M8) [See Drive Packages, Tech Bulletin 003]	1
283	34334	34334	Kit, Oil Drain	1
298	34628	34628	Clutch Assy, Single Groove, 24mm, 12VDC	1
	34630	34630	Clutch Assy, Dual Groove, 24mm, 12VDC	1
	34959	34959	Clutch Assy, Eight Groove Poly L, 24mm, 12VDC	1
299	812183	812184	Head, Complete	1
300	30488	30610	Kit, Seal (Incls: 97, 101, 106, 121, 125, 127)	1
310	30820	30820	Kit, Valve, Q.V. (Incls: 162-164, 166, 167, 168, 172)	2
	31820	31820	Kit, Valve, F.V. (Incls: 162-164, 166, 167, 168, 172)	2
350	30696	30696	Plier, Reverse	1
351	43257	43257	Tool, Seal Case Removal	1
352	44050	44050	Tool, Oil Gauge Removal	1
—	6565.1	6565.1	Plunger Pump Service Video	1
—	6107	6107	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. [ ]** Date of latest production change.

Refer to Tech Bulletins 002, 003, 008, 024, 027, 035, 036, 043, 045, 051, 053, 054, 067, 074, 077 and 083 for additional information.

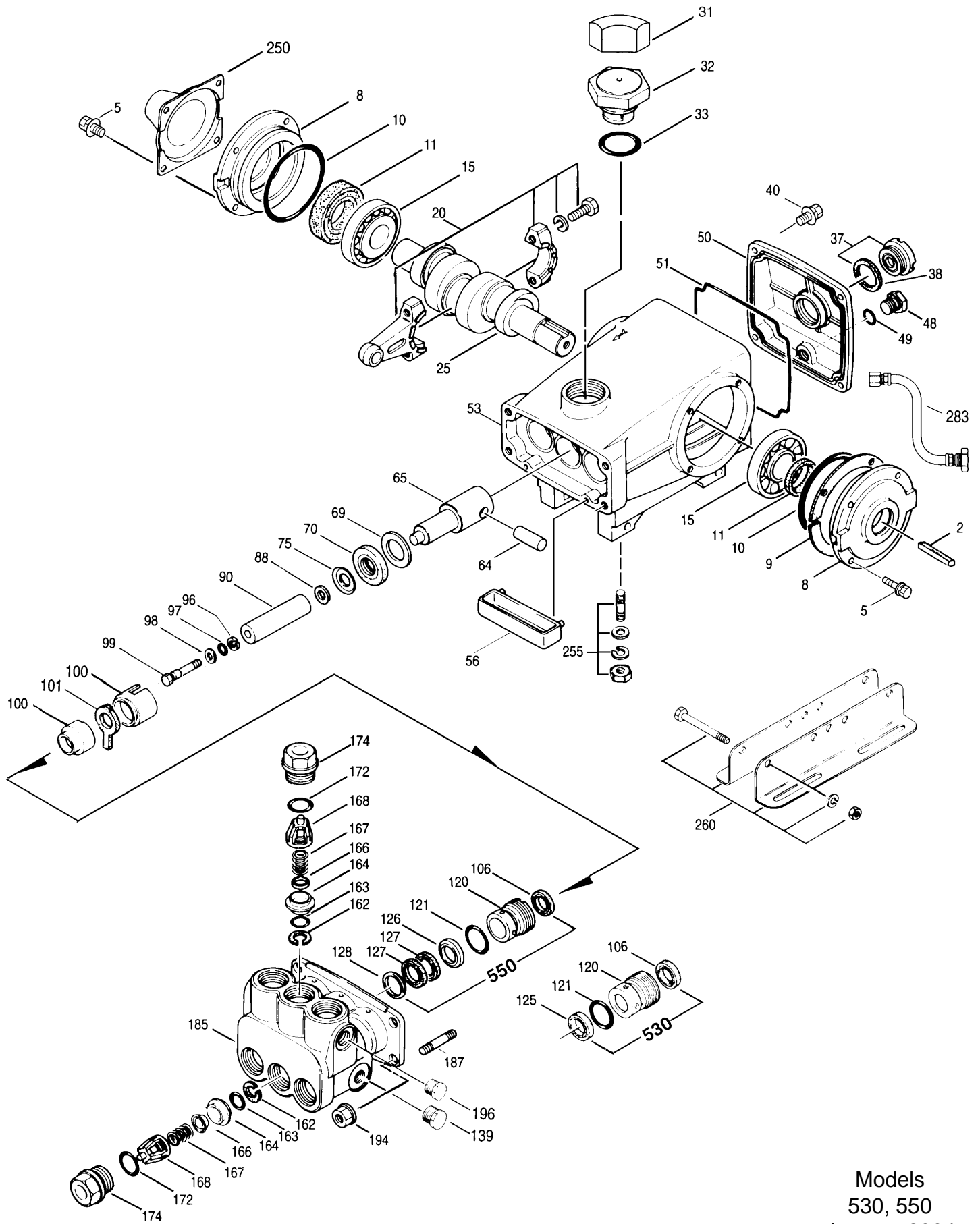
MATERIAL CODES (Not Part of Part Number): AL=Aluminum ABS=ABS Plastic BB=Brass BBCP=Brass/Chrome Plated CC=Ceramic CM=Chrome-Moly

CU=Copper F=Cast Iron FBR=Fiber FCM=Forged Chrome-moly FPM=Fluorocarbon HT=Hi-Temp NBR=Medium Nitrile (Buna-N)

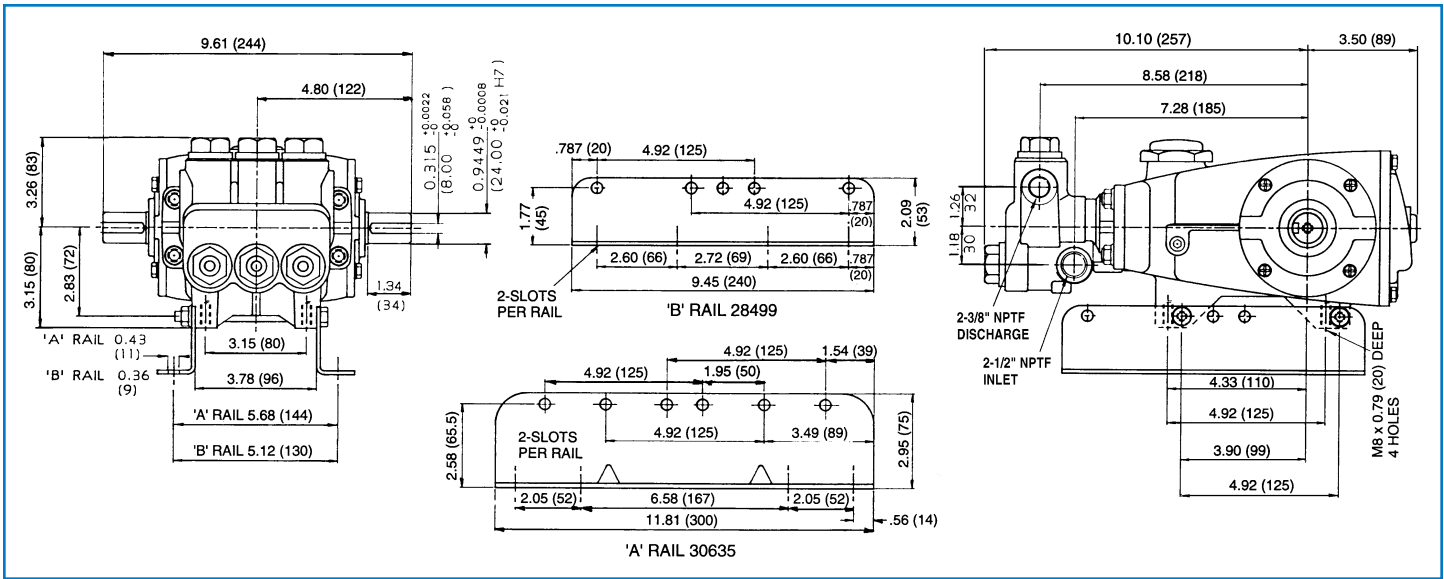
POP=Polypropylene PTFE=Pure Polytetrafluoroethylene PVDF=Polyvinylidene Fluoride S=304SS SNG=Special Blend (Buna) STCP=Steel/Chrome Plated STL=Steel

STZP=Steel/Zinc Plated ZZCP=Zamak/Chrome Plated TNM=Special High Strength

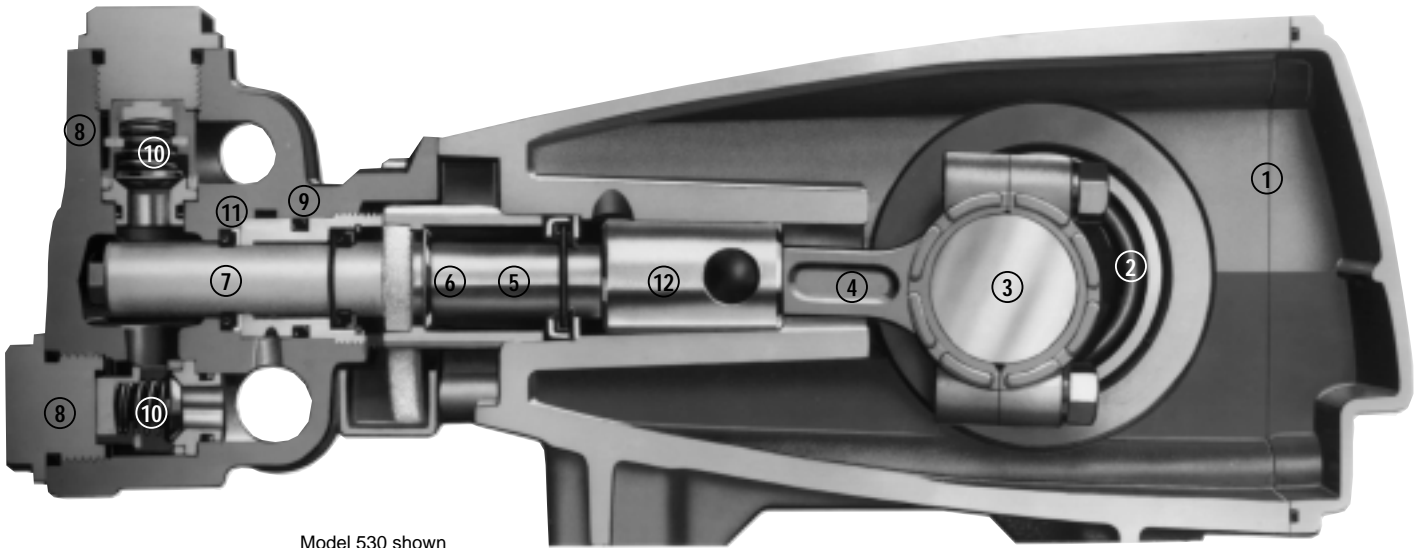
# EXPLODED VIEW



Models  
530, 550  
January 2004



### Models 530, 550



Model 530 shown

- 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** are for superior strength and bearing quality.
- 5 Special high strength **plunger 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 Special concentric, high density, polished, graphite impregnated, solid ceramic **plungers** are abrasion resistant and result in extended seal life.
- 8 **Manifolds** are a high tensile strength forged brass for 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 Stainless steel **valves, seats and springs** provide corrosion-resistance, positive seating and long life.
- 11 Specially formulated, CAT PUMP exclusive, **Hi-Pressure Seals/V-Packings** 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

**World Headquarters**  
**CAT PUMPS**  
 1681 - 94th Lane N.E. Minneapolis, MN 55449-4324  
 Phone (763) 780-5440 — FAX (763) 780-2958  
 e-mail: techsupport@catpumps.com  
 www.catpumps.com

**International Inquiries**  
 FAX (763) 785-4329  
 e-mail: intlsales@catpumps.com



**CAT PUMPS (U.K.) LTD.**  
 1 Fleet Business Park, Sandy Lane, Church Crookham, Fleet  
 Hampshire GU52 8BF, England  
 Phone Fleet 44 1252-622031 — Fax 44 1252-626655  
 e-mail: sales@catpumps.co.uk

**N.V. CAT PUMPS INTERNATIONAL S.A.**  
 Heiveldekens 6A, 2550 Kontich, Belgium  
 Phone 32-3-450.71.50 — Fax 32-3-450.71.51  
 e-mail: cpi@catpumps.be www.catpumps.be

**CAT PUMPS DEUTSCHLAND GmbH**  
 Buchwiese 2, D-65510 Idstein, Germany  
 Phone 49 6126-9303 0 — Fax 49 6126-9303 33  
 e-mail: catpumps@t-online.de www.catpumps.de