

7 Frame Plunger Pump

Models

530
550

FEATURES

Superior Design

- Triplex plunger provides 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

- Precision design 304 stainless steel valves and seats are hardened and polished for ultimate seating and extended valve life.
- Forged brass manifold is strong and corrosion resistant.
- 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 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) |
| RPM | 1100 RPM | (1100 RPM) |
| Bore..... | 0.708" | (18 mm) |
| Stroke..... | 0.945" | (24 mm) |

MODEL 550

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

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) |

ELECTRIC HORSEPOWER REQUIREMENTS

| MODEL | FLOW | | PRESSURE | | | | MOTOR PULLEY SIZE | |
|-------|----------|------|----------|----------|----------|----------|---|-------------|
| | U.S. GPM | L/M | PSI 1800 | PSI 2150 | PSI 2500 | PSI 3000 | Using 1725 RPM Motor & Std. 10" Pulley O.D. | |
| | | | 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. $\frac{\text{GPM x PSI}}{1460}$ = 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, additional technical information and **pump warranty**.

"Customer confidence is our greatest asset"

PARTS LIST

| ITEM | PART NUMBER | | DESCRIPTION | QTY |
|------|---------------|---------------|--|-----|
| | 530 | 550 | | |
| | MATL | MATL | | |
| 2 | 30067 | 30067 | Key (M8x7.5x25) | 1 |
| 5 | 92519 | 92519 | Screw, HHC, Sems (M6x16) | 8 |
| | 125824 | 125824 | Screw, HHC, Sems (M6x16) | 8 |
| 8 | 43223 | 43223 | Cover, Bearing | 2 |
| 9 | 815280 | 815280 | Shim, Split, 2-Pc | 1 |
| 10 | 12393 | 12393 | O-Ring, Bearing Cover | 2 |
| 11 | 43222 | 43222 | Seal, Oil, Crankshaft | 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/Foam 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 | 125824 | 125824 | Screw, HHC Sems (M6x16) [06/08] | 4 |
| 48 | 25625 | 25625 | Plug, Drain (1/4"x19BSP) | 1 |
| 49 | 23170 | 23170 | O-Ring, Drain Plug - 70D | 1 |
| 50 | 127701 | 127701 | Cover, Rear [06/08] | 1 |
| 51 | 14047 | 14047 | O-Ring, Rear Cover - 70D [06/08] | 1 |
| 53 | 127698 | 127698 | Crankcase (M10) [06/08] | 1 |
| 56 | 43240 | 43240 | Pan, Oil | 1 |
| 64 | 43237 | 43237 | Pin, Crosshead | 3 |
| 65 | 43229 | 43229 | Rod, Plunger | 3 |
| 69 | 126589 | 126589 | 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 | CC | 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 - 70D | 3 |
| 98 | 45891 | 45891 | Gasket, Plunger Retainer | 3 |
| 99 | 104360 | 104360 | Retainer, Plunger w/Stud | 3 |
| 100 | 45689 | 45689 | Retainer, Seal, 2-Pc [04/06] | 3 |
| 101 | 43239 | — | 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 | BB | 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 |
| | — | 43318 | Adapter, Male | 3 |
| 128 | — | — | Plug (1/2" NPTM) | 1 |
| 139 | 22179 | 22179 | Back-up-Ring, Seat | 6 |
| 162 | 43248 | 43248 | O-Ring, Seat - 80D | 6 |
| 163 | 43249 | 43249 | O-Ring, Seat - 70D | 6 |
| | 44383 | 44383 | Seat, Q.V. | 6 |
| 164 | 43722 | 43722 | Seat, F.V. | 6 |
| | 43825 | — | Valve, Q.V. | 6 |
| 166 | 43721 | 43721 | Valve, F.V. | 6 |
| | 43824 | — | Spring, Q.V. | 6 |
| 167 | 43751 | 43751 | Spring, F.V. | 6 |
| | 43823 | — | Retainer, Spring | 6 |
| 168 | 44564 | 44564 | O-Ring, Valve Plug - 90D | 6 |
| 172 | 17617 | 17617 | O-Ring, Valve Plug - 90D | 6 |
| | 11691 | 11691 | Plug, Valve | 6 |
| 174 | 43851 | 43851 | Head, Manifold (M10F) | 1 |
| 185 | 45417 | BB | Stud, Manifold (M10x35) | 4 |
| 187 | 46868 | 46868 | Nut, Flanged (M10) | 4 |
| 194 | 126567 | 126567 | Plug, Discharge (3/8" NPTM) | 1 |
| 196 | 43633 | 43633 | Protector, Shaft | 1 |
| 250 | 43256 | 43256 | Kit, Direct Mounting | 1 |
| 255 | 30243 | 30243 | Rail, Angle, Assy A-U.S. (2.09") | 1 |
| 260 | 30645 | 30645 | Rail, Angle, Assy B-U.S. (2.95") | 1 |
| | 30611 | 30611 | Kit, Mounting (Incls: 30645, 30206, 33000, 30067, 43256) | 1 |
| 265 | 30660 | 30660 | Pulley (10") [See Drive Packages, Tech Bulletin 003] | 1 |
| 269 | 30206 | 30206 | Hub "H", M24 (Keyway M8) [See Drive Packages, Tech Bulletin 003] | 1 |
| 274 | 33000 | 33000 | Kit, Oil Drain | 1 |
| 283 | 34334 | 34334 | Clutch Assy, Single Groove, 24mm, 12VDC | 1 |
| 298 | 34628 | 34628 | Clutch Assy, Dual Groove, 24mm, 12VDC | 1 |
| | 34630 | 34630 | Clutch Assy, Eight Groove Poly L, 24mm, 12VDC | 1 |
| | 34959 | 34959 | Head, Complete | 1 |
| 299 | 812183 | BB | Kit, Seal (Incls: 97, 101, 106, 121, 125 or 127) | 1 |
| 300 | 30488 | HT | Kit, Seal, HT (Incls: 97, 101, 106, 121, 127) | 1 |
| | — | — | Kit, Valve, Q.V. (Incls: 162-164, 166, 167, 168, 172) | 2 |
| 310 | 30820 | 30820 | Kit, Valve, F.V. (Incls: 162-164, 166, 167, 168, 172) | 2 |
| | 31820 | 31820 | Plier, Reverse | 1 |
| 350 | 30696 | 30696 | Tool, Seal Case Removal | 1 |
| 351 | 43257 | 43257 | Tool, Oil Gauge Removal | 1 |
| 352 | 44050 | 44050 | Plunger Pump Service DVD | 1 |
| — | 6575 | 6575 | Oil, Bottle (21 oz.) ISO 68 Multi-Viscosity Hydraulic | 1-2 |
| — | 6107 | 6107 | (Fill to specified crankcase capacity prior to start-up) | |

Bold print part numbers are unique to a particular pump model. Italics are optional items.

[] Date of latest production change. R Components comply with RoHS Directive

Refer to Tech Bulletins 002, 003, 008, 024, 027, 035, 036,043, 045, 051, 053, 054, 067, 074, 077, 083 and 106 for additional information.

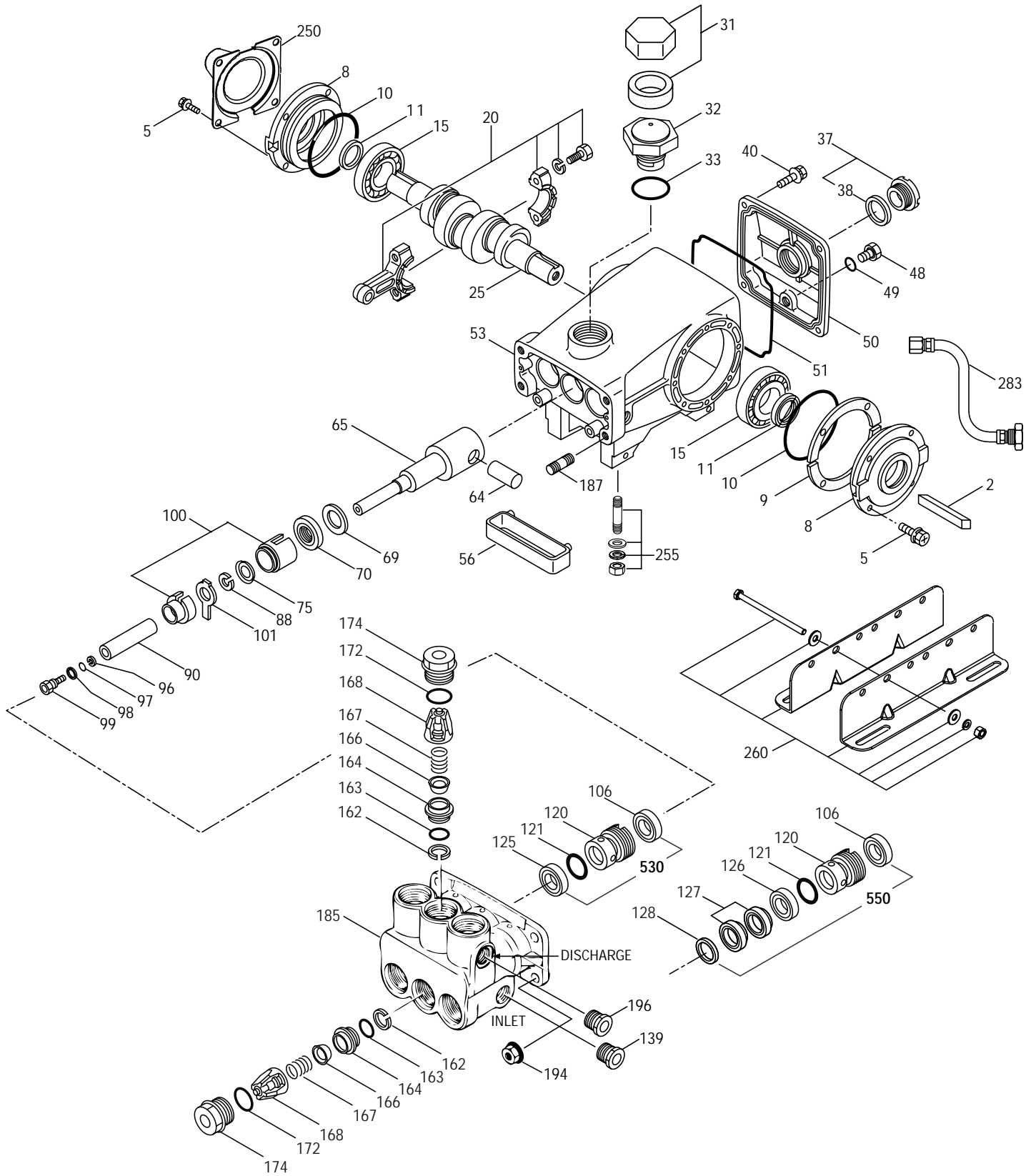
MATERIAL CODES (Not Part of Part Number): AL=Aluminum ABS=ABS Plastic BB=Brass BBPC=Brass/Chrome Plated CC=Ceramic CM=Chrome-Moly

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

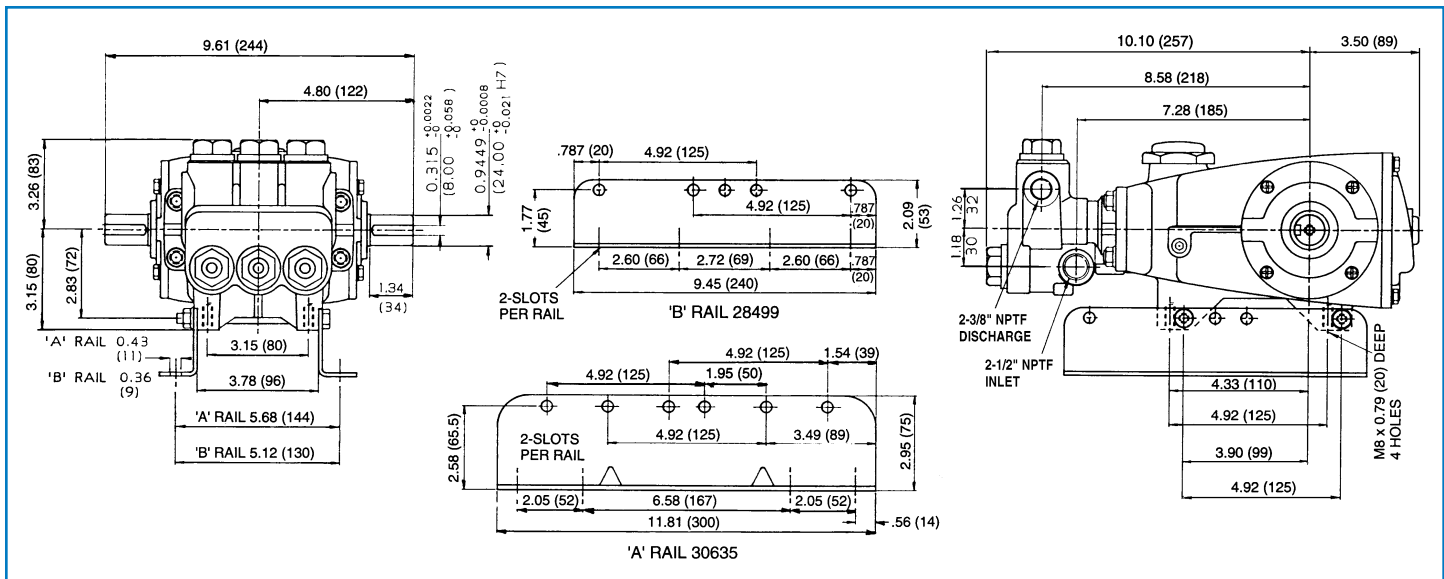
POP=Polypropylene PTFE=Pure Polytetrafluoroethylene PVDF=Polyvinylidene Fluoride S=304SS SNG=Special Blend (Buna) STCP=Steel/Chrome Plated STL=Steel

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

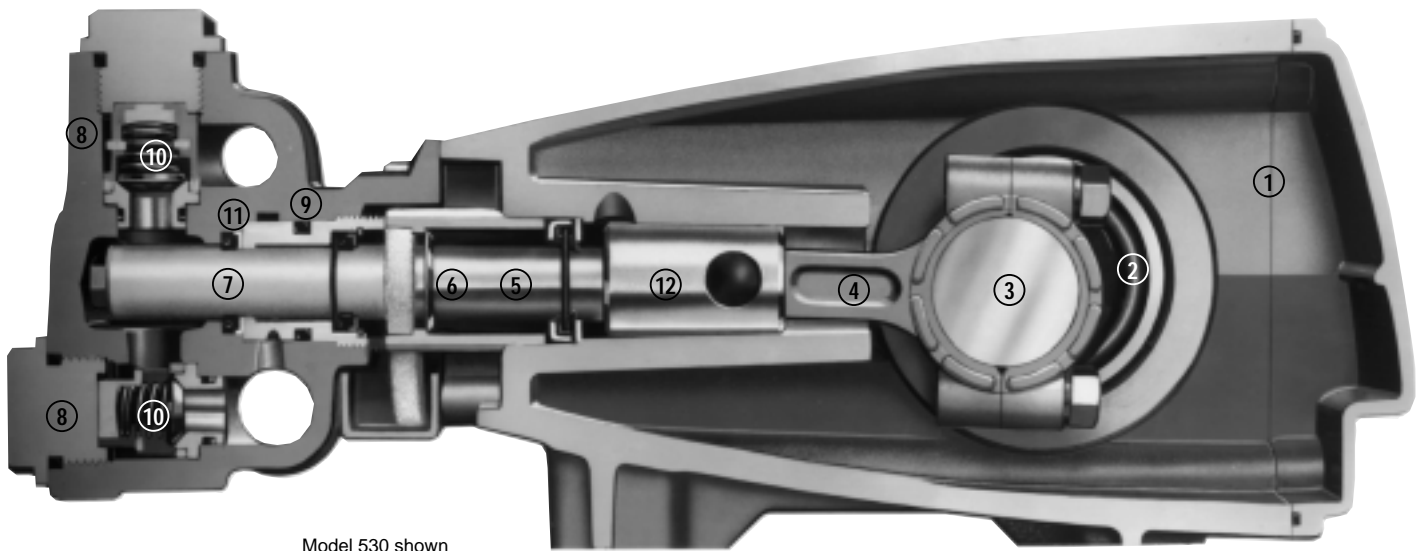
EXPLODED VIEW



Models
530, 550
April 2008



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, solid ceramic **plungers** provide a true wear surface and 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, ultimate seating and extended 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

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