



O.E.M. 5 Frame Plunger Pump

Models

30, 31 34, 35

FEATURES

Superior Design

- Triplex plunger design gives smoother fluid flow.
- Hi-Pressure Seals are completely lubricated and cooled by the fluid 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 maximizes seal life.
- Convenient direct drive gearbox or electric motor options.

Quality Materials

- All stainless steel valves are heat treated and seats are roller burnished for a positive seal and extended valve life.
- Forged brass manifolds for strength and corrosion resistance.
- 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 loading 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.

| | | | |
|--------------------------------------|---|---|---|
| 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 | $\frac{\text{Motor Pulley O.D.}}{\text{Pump R.P.M.}}$ | = | $\frac{\text{Pump Pulley O.D.}}{\text{Motor R.P.M.}}$ |

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 30 Direct Drive | | |
| Flow | 3.2 GPM | (12.1 L/M) |
| Pressure Range | 100 to 2200 PSI | (7 to 155 BAR) |
| RPM | 1725 RPM | (1725 RPM) |
| Max. Inlet Pressure | Flooded to 60 PSI | (Flooded to 4 BAR) |
| Stroke | 0.315" | (8 mm) |
| MODEL 31 Standard | | |
| Flow | 4.0 GPM | (15 L/M) |
| Pressure Range | 100 to 2000 PSI | (7 to 140 BAR) |
| RPM | 950 RPM | (950 RPM) |
| Max. Inlet Pressure | -5 to 60 PSI | (-0.35 to 4 BAR) |
| Stroke | 0.709" | (18 mm) |
| MODEL 34 Direct Drive or Gearbox | | |
| Flow | 4.0 GPM | (15 L/M) |
| Pressure Range | 100 to 2000 PSI | (7 to 140 BAR) |
| RPM | 1725 RPM | (1725 RPM) |
| Max. Inlet Pressure | Flooded to 60 PSI | (Flooded to 4 BAR) |
| Stroke | 0.394" | (10 mm) |
| MODEL 35 Direct Drive or Gearbox | | |
| Flow | 5.0 GPM | (19 L/M) |
| Pressure Range | 100 to 1500 PSI | (7 to 105 BAR) |
| RPM | 1725 RPM | (1725 RPM) |
| Max. Inlet Pressure | Flooded to 60 PSI | (Flooded to 4 BAR) |
| Stroke | 0.472" | (12 mm) |

COMMON SPECIFICATIONS

| | | |
|---------------------------------|------------------------|---------------------|
| Bore | 0.787" | (20 mm) |
| Crankcase Capacity | 18 oz. | (0.55 L) |
| Maximum Fluid Temperature | 160°F | (71°C) |
| Inlet Ports (2) | 1/2" NPT | (1/2" NPT) |
| Discharge Ports (2) | 3/8" NPT | (3/8" NPT) |
| Shaft Diameter | 0.787" | (20 mm) |
| Weight | 19.8 lbs. | (9 kg) |
| Dimensions | 11.69" x 8.35" x 5.28" | (297x 212 x 134 mm) |

HORSEPOWER REQUIREMENTS

| MODEL | FLOW | | PRESSURE | | | | MOTOR PULLEY SIZE | |
|-------|----------|------|--------------------|---------------------|---------------------|---------------------|--|--------------|
| | U.S. GPM | L/M | PSI 1200 BAR 85 | PSI 1500 BAR 105 | PSI 2000 BAR 140 | PSI 2200 BAR 155 | Using 1725 RPM Motor & Std. 8" Pump Pulley | |
| 31 | 5.0 | 19 | 4.1 | 5.2 | N/A | N/A | 1190 | 5.5 |
| | 4.5 | 17 | 3.7 | 4.6 | 6.2 | 6.8 | 1070 | 5.0 |
| | 4.0 | 15 | 3.3 | 4.1 | 5.5 | 6.0 | 950 | 4.4 |
| 30 | 3.2 | 12.1 | 2.6 | 3.3 | 4.4 | 4.9 | 1725 | Direct Drive |
| 34 | 4.0 | 15 | 3.3 | 4.1 | 5.5 | N/A | 1725 | Direct Drive |
| 35 | 5.0 | 19 | 4.1 | 5.2 | N/A | N/A | 1725 | Direct Drive |

See complete Drive Packages [Incls: Pulleys, Belts, Hubs, Key] Tech Bulletin 03.

"Customer confidence is our greatest asset"

PARTS LIST

| ITEM | PART NUMBER | | | | | | DESCRIPTION | QTY | | |
|-------|--------------|------------|--------------|------------|--------------|------------|--------------|------------|---|-----|
| | 30 | MATL | 31 | MATL | 34 | MATL | 35 | MATL | | |
| 2 | 30057 | STL | 30057 | STL | 30057 | STL | 30057 | STL | Key (M6x6) | 1 |
| 5 | 92519 | STZP | 92519 | STZP | 92519 | STZP | 92519 | STZP | Screw, Sems HHC (M6x16) | 8 |
| 8 | 43745 | AL | 43745 | AL | 43745 | AL | 43745 | AL | Cover, Bearing, - O.E.M. | 1 |
| 10 | 43343 | NBR | 43343 | NBR | 43343 | NBR | 43343 | NBR | O-Ring, Bearing Case | 2 |
| 11 | 43222 | NBR | 43222 | NBR | 43222 | NBR | 43222 | NBR | Seal, Oil, Crankshaft | 1 |
| 15 | 14480 | STL | 14480 | STL | 14480 | STL | 14480 | STL | Bearing, Ball | 2 |
| 20 | 43345 | ZZ | 43345 | ZZ | 43345 | ZZ | 43345 | ZZ | Rod, Connecting, Assy | 3 |
| 25 | 44923 | FCM | 45911 | FCM | 44945 | FCM | 44270 | FCM | Crankshaft, Single End | 1 |
| 30 | 44944 | AL | 44944 | AL | 44944 | AL | 44944 | AL | Cover, Blind Shaft, - O.E.M. | 1 |
| 31 | 828710 | | 828710 | | 828710 | | 828710 | | Protector, Oil Cap | 1 |
| 32 | 43211 | | 43211 | | 43211 | | 43211 | | Cap, Oil Filler | 1 |
| | 44666 | RTP | — | | 44666 | RTP | 44666 | RTP | Cap, Oil Filler, Domed - Gearbox Models | 1 |
| 33 | 14177 | NBR | 14177 | NBR | 14177 | NBR | 14177 | NBR | O-Ring, Filler Cap | 1 |
| 37 | 43987 | | 43987 | | 43987 | | 43987 | | Gauge, Oil, Bubble | 1 |
| 38 | 44428 | NBR | 44428 | NBR | 44428 | NBR | 44428 | NBR | Gasket, Flat, Oil Gauge | 1 |
| 40 | 92520 | STZP | 92520 | STZP | 92520 | STZP | 92520 | STZP | Screw, Sems HHC (M6x20) | 4 |
| 48 | 25625 | BBCP | 25625 | BBCP | 25625 | BBCP | 25625 | BBCP | Plug, Drain (1/4"x11) | 1 |
| 49 | 23170 | NBR | 23170 | NBR | 23170 | NBR | 23170 | NBR | O-Ring, Drain Plug | 1 |
| 50 | 44222 | AL | 44222 | AL | 44222 | AL | 44222 | AL | Cover, Crankcase, - O.E.M. | 1 |
| 51 | 43340 | NBR | 43340 | NBR | 43340 | NBR | 43340 | NBR | O-Ring, Crankcase Cover | 1 |
| 53 | 44221 | AL | 44221 | AL | 44221 | AL | 44221 | AL | Crankcase - O.E.M. | 1 |
| 56 | 43355 | POP | 43355 | POP | 43355 | POP | 43355 | POP | Pan, Oil | 1 |
| 64 | 43351 | S | 43351 | S | 43351 | S | 43351 | S | Pin, Rist | 3 |
| 65 | 45908 | SZZ | 45908 | SZZ | 45908 | SZZ | 45908 | SZZ | Rod, Plunger, - O.E.M., Short | 3 |
| 70 | 43228 | NBR | 43228 | NBR | 43228 | NBR | 43228 | NBR | Seal, Oil, Crankcase | 3 |
| 75 | 43328 | S | 43328 | S | 43328 | S | 43328 | S | Slinger, Barrier | 3 |
| 88 | 45697 | S | 45697 | S | 45697 | S | 45697 | S | Washer, Keyhole (M18) | 3 |
| 90 | 43367 | CC | 43367 | CC | 43367 | CC | 43367 | CC | Plunger (M71) | 3 |
| 95 | 89648 | STZP | 89648 | STZP | 89648 | STZP | 89648 | STZP | Stud, Plunger Retainer (M6x64.5) | 3 |
| 96 | 43235 | PTFE | 43235 | PTFE | 43235 | PTFE | 43235 | PTFE | Back-up-Ring, Plunger Retainer | 3 |
| 97 | 17399 | NBR | 17399 | NBR | 17399 | NBR | 17399 | NBR | O-Ring, Plunger Retainer | 3 |
| | 14160 | FPM | 14160 | FPM | 14160 | FPM | 14160 | FPM | O-Ring, Plunger Retainer | 3 |
| 98 | 45891 | CU | 45891 | CU | 45891 | CU | 45891 | CU | Gasket | 3 |
| 99 | 46504 | S | 46504 | S | 46504 | S | 46504 | S | Retainer, Plunger | 3 |
| 100 | 45681 | PVDF | 45681 | PVDF | 45681 | PVDF | 45681 | PVDF | Retainer, Seal - Rear | 3 |
| | 45682 | PVDF | 45682 | PVDF | 45682 | PVDF | 45682 | PVDF | Retianer, Seal, Adapter | 3 |
| 101 | 43302 | | 43302 | | 43302 | | 43302 | | Wick, Long Tab | 3 |
| 106 | 43305 | NBR | 43305 | NBR | 43305 | NBR | 43305 | NBR | Seal, LPS w/S-Spg | 3 |
| | 45153 | FPM | 45153 | FPM | 45153 | FPM | 45153 | FPM | Seal, LPS w/S-Spg | 3 |
| 120 | 45679 | BB | 45679 | BB | 45679 | BB | 45679 | BB | Case, Seal | 3 |
| 121 | 14200 | NBR | 14200 | NBR | 14200 | NBR | 14200 | NBR | O-Ring, Seal Case | 3 |
| | 11719 | FPM | 11719 | FPM | 11719 | FPM | 11719 | FPM | O-Ring, Seal Case | 3 |
| 125 | 43307 | NBR | 43307 | NBR | 43307 | NBR | 43307 | NBR | Seal, HPS w/S | 3 |
| | 44936 | FPM | 44936 | FPM | 44936 | FPM | 44936 | FPM | Seal, HPS w/SS | 3 |
| | 46667 | HT | 46667 | HT | 46667 | HT | 46667 | HT | Seal, HPS w/S, Hi-Temp | 3 |
| 139 | 22179 | BBCP | 22179 | BBCP | 22179 | BBCP | 22179 | BBCP | Plug, Inlet (1/2" NPT) | 1 |
| 162 | 43357 | PTFE | 43357 | PTFE | 43357 | PTFE | 43357 | PTFE | Back-up-Ring, Seat | 6 |
| 163 | 43358 | NBR | 43358 | NBR | 43358 | NBR | 43358 | NBR | O-Ring, Seat | 6 |
| | 44938 | FPM | 44938 | FPM | 44938 | FPM | 44938 | FPM | O-Ring, Seat | 6 |
| 164 | 43725 | S | 43725 | S | 43725 | S | 43725 | S | Seat | 6 |
| 166 | 43723 | S | 43723 | S | 43723 | S | 43723 | S | Valve | 6 |
| 167 | 43750 | S | 43750 | S | 43750 | S | 43750 | S | Spring | 6 |
| 168 | 44565 | PVDF | 44565 | PVDF | 44565 | PVDF | 44565 | PVDF | Retainer, Spring | 6 |
| 172 | 17615 | NBR | 17615 | NBR | 17615 | NBR | 17615 | NBR | O-Ring, Valve Plug | 6 |
| | 15855 | FPM | 15855 | FPM | 15855 | FPM | 15855 | FPM | O-Ring, Valve Plug | 6 |
| 174 | 44202 | BB | 44202 | BB | 44202 | BB | 44202 | BB | Plug, Valve - O.E.M. | 6 |
| 185 | 45062 | BB | 45062 | BB | 45062 | BB | 45062 | BB | Head, Manifold - O.E.M. | 1 |
| 186 | 12503 | STZP | 12503 | STZP | 12503 | STZP | 12503 | STZP | Lockwasher, Split (M10) | 2 |
| 188 | 87931 | STZP | 87931 | STZP | 87931 | STZP | 87931 | STZP | Screw, HSH (M10x35) | 2 |
| 196 | 43633 | BB | 43633 | BB | 43633 | BB | 43633 | BB | Plug, Discharge, (3/8" NPT) | 1 |
| 255 | — | | 30243 | STZP | — | | — | | Mount Kit, Direct (Belt Drive Only) | 1 |
| 260 | — | | 30611 | STZP | — | | — | | Rail Mounting, Angle - B - (28499,30900,30910,30920) | 1 |
| 265 | — | | 30659 | — | — | | — | | Kit, Complete Mounting (30611,30633, 30944,109692) | 1 |
| 270 | — | | 30633 | STL | — | | — | | Pulley & Key Assy (30058,30057) | 1 |
| ● 275 | — | | 30944 | STL | — | | — | | Hub & Key Assy (M20 w/M6 Keyway) | 1 ● |
| | | | | | | | | | [See complete Drive Packages Tech Bulletin 03] | |
| 277 | 34131 | AL | 34131 | AL | 34131 | AL | 34131 | AL | Housing, Bell (182TC-184TC) | 1 |
| 278 | 34418 | AL | 34418 | AL | 34418 | AL | 34418 | AL | Flexible Coupling & Key (M20 to 1-1/8") | 1 |
| ● 283 | 34334 | | 34334 | | 34334 | | 34334 | | Kit, Oil Drain | 1 ● |
| ● 299 | 812208 | FBB | 812208 | FBB | 812208 | FBB | 812208 | FBB | Head, Complete | 1 ● |
| 300 | 30623 | NBR | 30623 | NBR | 30623 | NBR | 30623 | NBR | Kit, Seal (Incls: 97,101,106,121,125) | 1 |
| | 34155 | FPM | 34155 | FPM | 34155 | FPM | 34155 | FPM | Kit, Seal (Incls: 97,101,106,121,125) | 1 |
| | 33623 | HT | 33623 | HT | 33623 | HT | 33623 | HT | Kit, Seal (Incls: 97,101,106,121,125) | 1 |
| 310 | 30821 | NBR | 30821 | NBR | 30821 | NBR | 30821 | NBR | Kit, Valve (Incls: 162,163,164,166,167,168,172) | 2 |
| | 31821 | FPM | 31821 | FPM | 31821 | FPM | 31821 | FPM | Kit, Valve (Incls: 162,163,164,166,167,168,172) | 2 |
| 350 | 30696 | STZP | 30696 | STZP | 30696 | STZP | 30696 | STZP | Valve Seat Removal Tool | 1 |
| 351 | 33004 | STZP | 33004 | STZP | 33004 | STZP | 33004 | STZP | Seal Case Socket, 1/2" Drive | 1 |
| — | 6565.1 | | 6565.1 | | 6565.1 | | 6565.1 | | Plunger Pump Service Video | 1 |

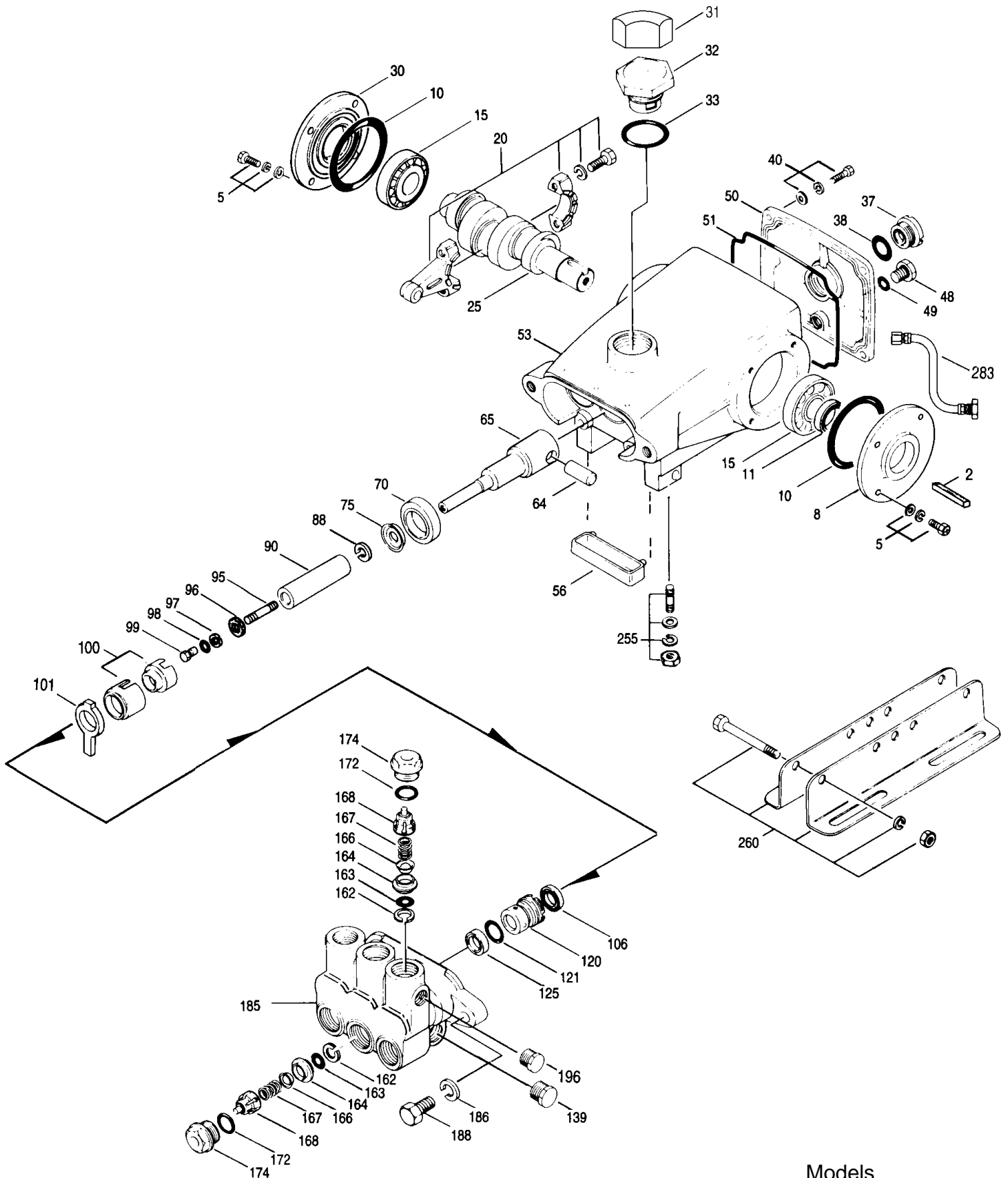
● Industrial discount. **Bold print part numbers are unique to a particular pump model.** *Italics are optional items.*

See Tech Bulletins 03, 24, 36, 74, 77 and 78 for additional information.

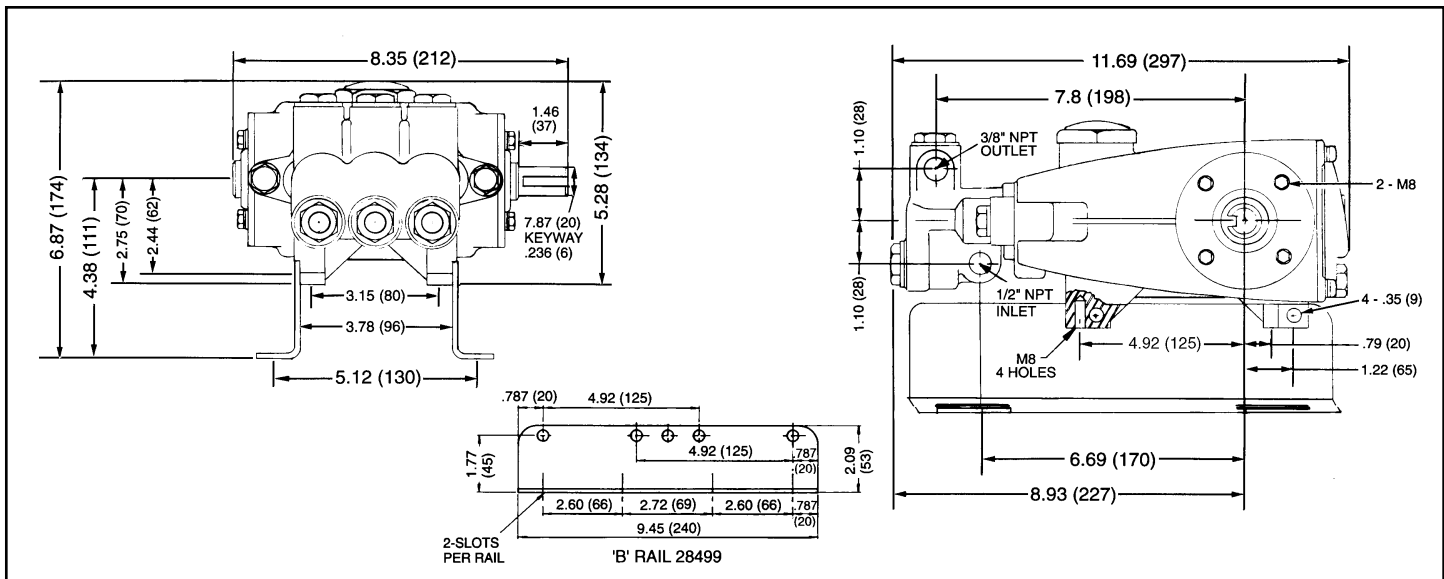
See 8051-8078 Gearbox Gas Engine Drive and 8023ES-8029ES BD Electric Motor Drive data sheets for additional information.

MATERIAL CODES (Not Part of Part Number): AL=Aluminum BB=Brass BBCP=Brass/Chrome Plated CC=Ceramic CU=Copper FBB=Forged Brass
FCM=Forged Chrome-moly FPM=Fluorocarbon (Viton®) HT=Hi-Temp NBR=Medium Nitrile (Buna-N) POP=Polypropylene PTFE=Polytetrafluoroethylene (Teflon®)
PVDF=Fluoroplastic (High Strength) RTP=Reinforced Composite S=304SS SS=316SS STL=Steel STZP=Steel/Zinc Plated ZZ=Zamak

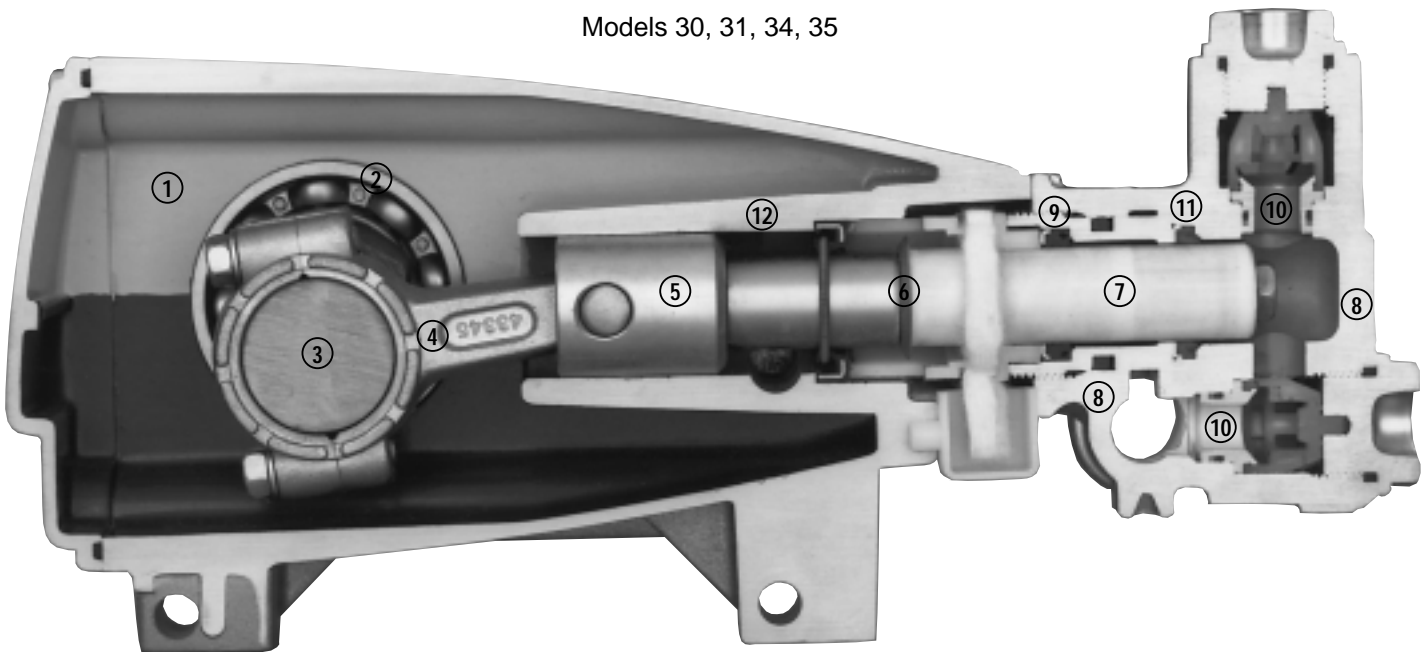
EXPLODED VIEW



Models
30, 31, 34, 35
May 1999



Models 30, 31, 34, 35



- 1 Die cast aluminum **crankcase** means high strength, light weight, 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 **plunger rods** are high tensile strength 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 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 fluids 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** 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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