

DATA SHEET

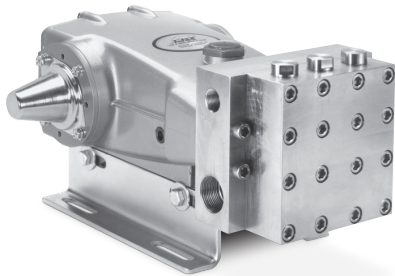
28 FRAME BLOCK-STYLE PLUNGER PUMPS



The Pumps with Nine Lives

Stainless Steel Model: **2831**

Flushed Stainless Steel Model: **2831K**



Model 2831 Shown
(Shaft protector mounting rails sold separately)

FEATURES

- Triplex plunger design ensures high efficiency and low pulsation.
- Low-pressure seals and V-Packings are continuously lubricated and cooled by the liquid being pumped.
- Model 2831K offers an external flush for high-temperature or low-lubricity liquids.
- Pump comes standard with NBR seals. Alternative seal materials are available for higher temperature or chemical compatibility.

| SPECIFICATIONS | U.S. Measure | Metric Measure |
|-------------------------|-------------------|--------------------|
| Flow | 25 gpm | 95 lpm |
| Pressure Range | 100–1200 psi | 6.9–83 bar |
| Pump RPM* | 1025 rpm | 1025 rpm |
| Inlet Pressure Range | Flooded to 70 psi | Flooded to 4.8 bar |
| Max. Liquid Temp. (NBR) | 160° F | 71° C |

Alternative seals available for higher temperatures up to 190° F

| | | |
|---------------------|-----------------------|--------------------|
| Bore | 1.260" | 32 mm |
| Stroke | 1.516" | 38.5 mm |
| Crankcase Capacity | 84 oz | 2.5 l |
| Inlet Ports (2) | 1 ¼" NPT(F) | 1 ¼" NPT(F) |
| Flush Ports (2) | ¼" NPT(F) | ¼" NPT(F) |
| Discharge Ports (2) | ¾" NPT(F) | ¾" NPT(F) |
| Pulley Mounting | Either Side | Either Side |
| Shaft Diameter | 1.181" | 30 mm |
| Weight | 104 lbs | 42.7 kg |
| Dimensions | 19.40 x 15.04 x 8.03" | 493 x 382 x 204 mm |

*Pump minimum is 100 RPM

ALTERNATIVE SEAL CONFIGURATION

| MATERIAL | SUFFIX CODE | MAXIMUM TEMPERATURE |
|----------|-------------|---------------------|
| NBR | — | 160° F (71° C) |
| FPM | .0110 | 180° F (82° C) |
| EPDM | .0220 | 160° F (71° C) |
| HT | .3000 | 180° F (82° C) |
| STHT | .3400 | 190° F (88° C) |

See **Tech Bulletin 002** for inlet conditions and RPM at high temperature.

$$\frac{\text{DETERMINING THE PUMP RPM}}{\text{Rated gpm}} = \frac{\text{Desired gpm}}{\text{Rated rpm}} = \frac{\text{Desired rpm}}{\text{Rated rpm}}$$

$$\frac{\text{DETERMINING THE REQUIRED HP}}{\text{hp (Electric Brake)}} = \frac{\text{gpm x psi}}{1460}$$

$$\frac{\text{DETERMINING MOTOR PULLEY SIZE}}{\text{Motor Pulley OD}} = \frac{\text{Pump Pulley OD}}{\text{Pump rpm}} = \frac{\text{Motor Pulley OD}}{\text{Motor rpm}}$$

Refer to pump **Service Manual** for repair procedure and additional technical information.

PARTS LIST

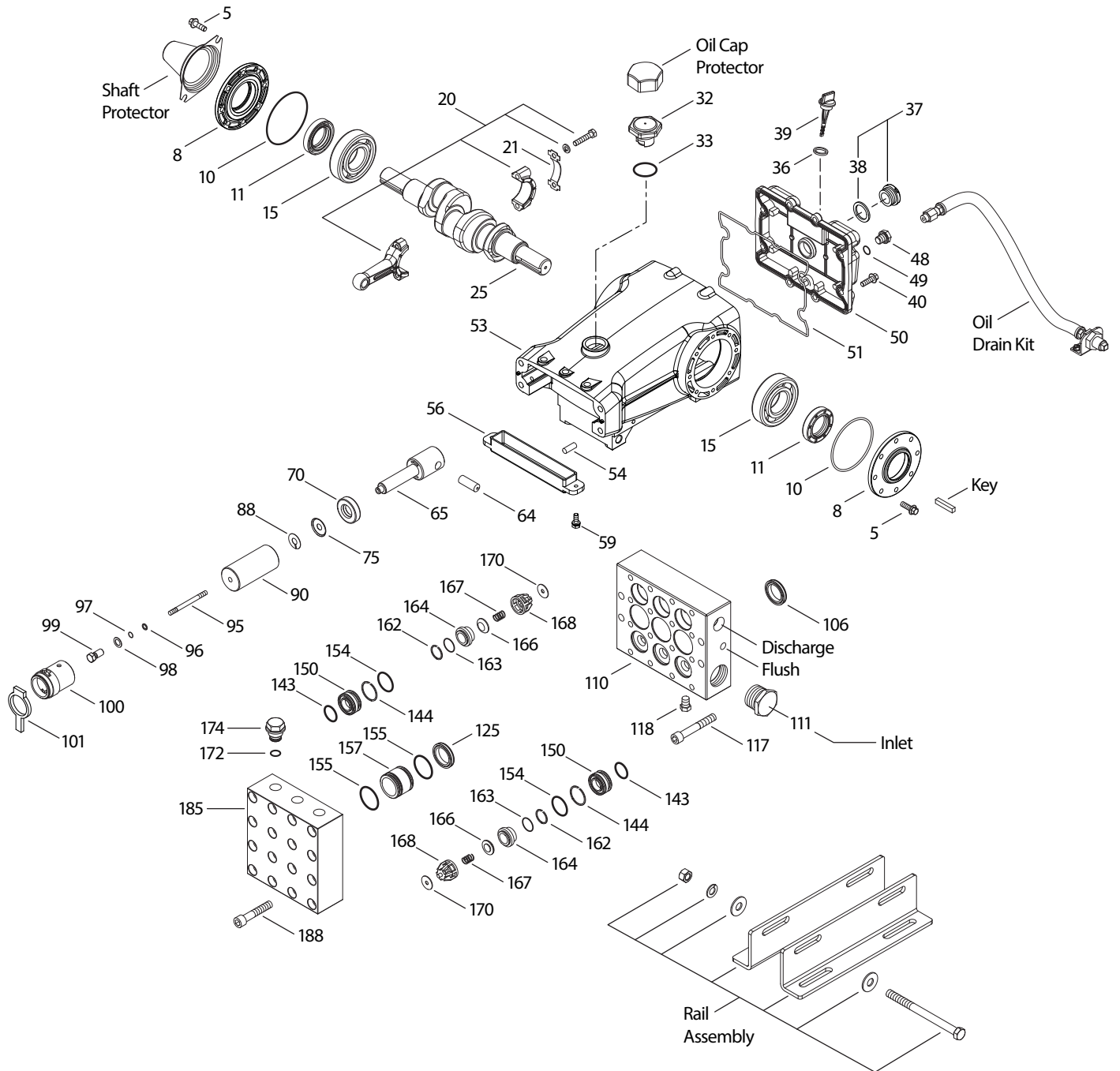
| ITEM | PART NUMBER | | | | DESCRIPTION | QTY |
|------|---------------|--------|---------------|--------|---|-----|
| | 2831 | MATL | 2831K | MATL | | |
| 5 | 125753 | S | 125753 | S | Screw, Sems HHC (M8 x 25) (See Tech Bulletin 074) | 8 |
| 8 | 134966 | ALE | 134966 | ALE | Cover, Bearing (See Tech Bulletin 118, 135) | 2 |
| 10 | 27772 | NBR | 27772 | NBR | O-Ring, Cover, Bearing-70D | 2 |
| 11 | 27771 | NBR | 27771 | NBR | Seal, Oil, Crankshaft | 2 |
| 15 | 26512 | STL | 26512 | STL | Bearing, Ball | 2 |
| 20 | 48613 | TNM | 48613 | TNM | Assembly Rod, Connecting (Includes: Locking Washer, Washer, Screws) (See Tech Bulletin 074) | 3 |
| 21 | 126562 | STCP R | 126562 | STCP R | Washer, Locking | 3 |
| 25 | 49795 | FCM | 49795 | FCM | Crankshaft, Dual End | 1 |
| 32 | 43211 | ABS | 43211 | ABS | Cap, Oil Filler | 1 |
| 33 | 14177 | NBR | 14177 | NBR | O-Ring, Oil Filler Cap-70D | 1 |
| 36 | 129343 | RBR | 129343 | RBR | Gasket, Dipstick-70D | 1 |
| 37 | 92241 | PC | 92241 | PC | Guage, Oil, Bubble with Gasket-80D | 1 |
| 38 | 44428 | NBR | 44428 | NBR | Gasket, Flat, Oil Gauge-80D | 1 |
| 39 | 27769 | ABS | 27769 | ABS | Dipstick | 1 |
| 40 | 125753 | S | 125753 | S | Screw, Sems HHC (M8 x 25) (See Tech Bulletin 074) | 8 |
| 48 | 25625 | STCP | 25625 | STCP | Plug, Drain (1/4" x 19 BSP) | 1 |
| 49 | 23170 | NBR | 23170 | NBR | O-Ring, Drain Plug-70D | 1 |
| 50 | 133582 | ALE | 133582 | ALE | Cover, Rear (See Tech Bulletin 118, 126) | 1 |
| 51 | 27767 | NBR | 27767 | NBR | O-Ring, Rear Cover-70D | 1 |
| 53 | 133609 | ALE | 133609 | ALE | Crankcase with Guide Pins (See Tech Bulletin 118, 135) | 1 |
| 54 | 27488 | S | 27488 | S | Pin, Guide | 2 |
| 56 | 27790 | POP | 27790 | POP | Pan, Oil | 1 |
| 59 | 92538 | S | 92538 | S | Screw, HHC, SEMS (M6 x 16) | 2 |
| 64 | 27784 | CM | 27784 | CM | Pin, Crosshead | 3 |
| 65 | 48719 | SSHS | 48719 | SSHS | Rod, Plunger | 3 |
| 70 | 27785 | NBR | 27785 | NBR | Seal, Crankcase, Oil | 3 |
| 75 | 110669 | S | 110669 | S | Slinger, Barrier | 3 |
| 88 | 110670 | S | 110670 | S | Washer, Keyhole | 3 |
| 90 | 45749 | CC | 45749 | CC | Plunger (M32 x 93) | 3 |
| 95 | 89835 | SS | 89835 | SS | Stud, Retainer, (M7 x 87) | 3 |
| 96 | 20184 | PTFE | 20184 | PTFE | Backup Ring, Plunger Retainer | 3 |
| 97 | 14190 | NBR | 14190 | NBR | O-Ring, Plunger Retainer-70D | 3 |
| 98 | 44069 | SS | 44069 | SS | Gasket, Plunger Retainer | 3 |
| 99 | 44068 | SS | 44068 | SS | Retainer, Plunger (M7) (See Tech Bulletin 074) | 3 |
| 100 | 49788 | NY | 49788 | NY | Retainer, LPS Front | 3 |
| | 49789 | NY | 49789 | NY | Retainer, LPS Rear | 3 |
| 101 | 110796 | — | 110796 | — | Wick, Long Tab (M32) | 3 |
| 106 | 44098 | NBR | 44098 | NBR | Seal, LPS with SS-Spring | 3 |
| 110 | 701661 | SS | — | — | Manifold, Inlet Block-Style | 1 |
| | — | — | 701719 | SS | Manifold, Inlet Block-Style, Flushed [1/4" NPT(F)] Ports | 1 |
| 111 | 701104 | SS | 701104 | SS | Plug, Inlet Manifold, [1 1/4" NPT(M)] | 1 |
| 117 | 701693 | S | 701693 | S | Screw HSH (M12 x 80) (See Tech Bulletin 074) | 4 |
| 118 | 701077 | SS | — | — | Plug, [1/4" NPT(M)] | 3 |
| 125 | 45832 | SNG | 45832 | SNG | Seal, HPS with SS | 3 |
| 143 | 14200 | NBR | 14200 | NBR | O-Ring, Valve Adapter, Rear-70D | 6 |
| 144 | 28243 | PTFE | 28243 | PTFE | Backup Ring, Valve Adapter | 6 |
| 150 | 701675 | SS | 701675 | SS | Adapter, Valve | 6 |
| 154 | 11379 | NBR | 11379 | NBR | O-Ring, Valve Adapter, Front-70D | 6 |
| 155 | 14520 | NBR | 14520 | NBR | O-Ring, Seal Spacer-70D | 6 |
| 157 | 701692 | SS | 701692 | SS | Spacer, HPS | 3 |
| 162 | 21985 | PTFE | 21985 | PTFE | Backup Ring, Seat | 6 |
| 163 | 26089 | NBR | 26089 | NBR | O-Ring, Seat-80D | 6 |
| 164 | 44080 | SS | 44080 | SS | Seat | 6 |
| 166 | 44081 | SS | 44081 | SS | Valve | 6 |
| 167 | 44082 | SS | 44082 | SS | Spring | 6 |
| 168 | 44735 | PVDF | 44735 | PVDF | Retainer, Spring | 6 |
| 170 | 44794 | SS | 44794 | SS | Washer, Spring Retainer | 6 |
| 172 | 700008 | NBR | 700008 | NBR | O-Ring, Valve Plug | 3 |
| 174 | 701694 | SS | 701694 | SS | Plug, Valve (See Tech Bulletin 074) | 3 |
| 185 | 701662 | SS | 701662 | SS | Manifold, Valve, Block-Style | 1 |
| 188 | 89628 | S | 89628 | S | Screw HSH (M12 x 65) (See Tech Bulletin 074) | 16 |

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

[] Date of latest production change. For additional technical information see www.catpumps.com/literature/tech-bulletins.

MATERIAL CODES (Not Part of Part Number): ABS=ABS Plastic ALE=Aluminum Epoxy CC=Ceramic CM=Chrome-moly EPDM=Ethylene Propylene Diene Monomer
 FCM=Forged Chrome-moly FPM=Fluorocarbon HT=High Temp NBR=Medium Nitrile (Buna-N) NY=Nylon PC=Poly Carbonate PE=Polyethylene PTFE=Pure Polytetrafluoroethylene
 PVDF=Polyvinylidene Fluoride RBR=Rubber S=304SS SS=316SS SNG=Special Blend (Buna) ST2=Special PTFE 2 SSS=316SS/High Strength STCP=Steel/Chrome Plated STL=Steel
 STZP=Steel/Zinc Plated TNM=Special High Strength

EXPLODED VIEW



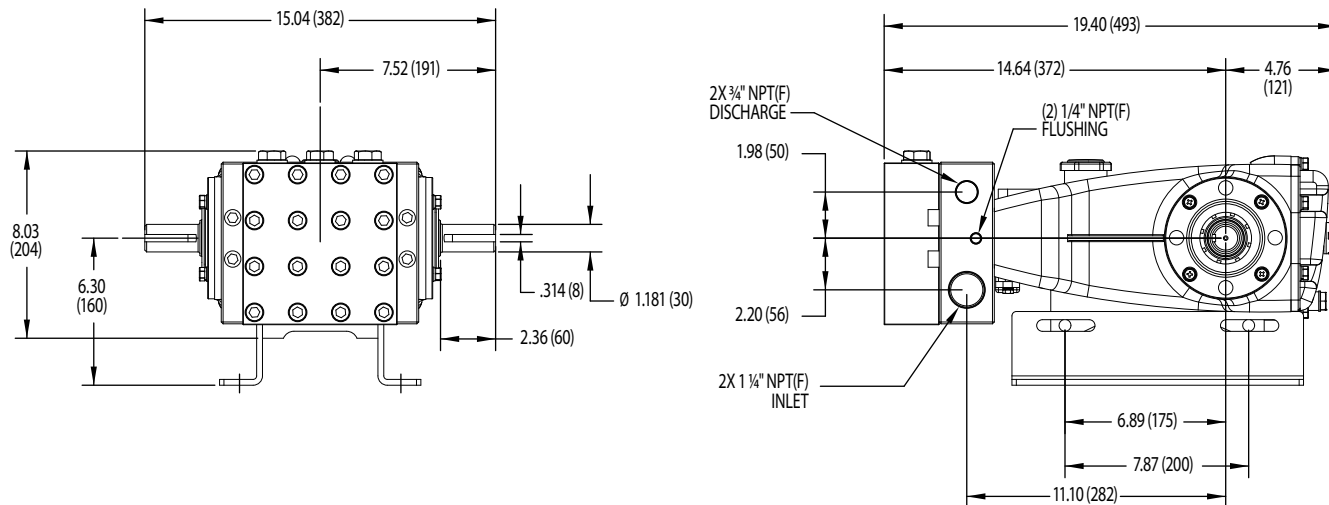
Models
2831, 2831K
June 2021

OPTIONAL PARTS AND ACCESSORIES

| PART | DESCRIPTION | QTY |
|--------|----------------------------------|-----|
| 990036 | Key (M8 x 7 x 40) | 1 |
| 30614 | Assembly, Rail | 1 |
| 26516 | Protector, Shaft | 1 |
| 828710 | Protector, Oil Cap | 1 |
| 34334 | Kit, Oil Drain (3/8" x 24") | 1 |
| 30696 | Pliers, Reverse | 1 |
| 990663 | Assembly, Flushing (Model 2831K) | 1 |

SERVICE PARTS

| PART | DESCRIPTION | QTY |
|--------|--|-----|
| 701731 | Seal Kit – Standard NBR | 1 |
| 701732 | Valve Kit – Standard NBR | 1 |
| 6107 | Oil, Bottle (21 oz bottle) | 4 |
| 6119 | Lubricant, Anti-Seize (2 oz) (See Tech Bulletin 095) | 1 |
| 6124 | Gasket, Liquid (3 oz) (See Tech Bulletin 053) | 1 |
| 901402 | Head, Complete – 2831 with NBR Seals and O-Rings | 1 |
| 901403 | Head, Complete – 2831K with NBR Seals and O-Rings | 1 |



Model 2831K

SEAL KITS One (1) seal kit required per pump

| PUMP MODELS | NBR (STD) | FPM (.0110) | EPDM (.0220) ♦ |
|-------------|---------------|---------------|----------------|
| 2831, 2831K | 701731 | 701806 | 33604 |

| ITEM (Included in Seal Kits) | | | | DESCRIPTION | QTY |
|------------------------------|-------|-------|--------|-------------------------------|-----|
| 96 | 20184 | 20184 | 20184 | Backup Ring, Plunger Retainer | 3 |
| 97 | 14190 | 14161 | 48239 | O-Ring, Plunger Retainer | 3 |
| 106 | 44098 | 44827 | 48244 | Seal, LPS with SS-Spring | 3 |
| 125 | 45832 | 48220 | 48220 | Seal, HPS with SS | 3 |
| 143 | 14200 | 11719 | 701654 | O-Ring, Adapter, LPS Rear | 6 |
| 144 | 28243 | 28243 | 28243 | Backup Ring, Valve Adapter | 6 |
| 154 | 11379 | 14183 | 701491 | O-Ring, Adapter, LPS Front | 6 |
| 155 | 14520 | 11745 | 48240 | O-Ring, Spacer, HPS | 6 |

♦ Silicone oil/grease required

VALVE KITS One (1) valve kits required per pump

| PUMP MODELS | NBR (STD) | FPM (.0110) | EPDM (.0220) ♦ |
|-------------|---------------|---------------|----------------|
| 2831, 2831K | 701732 | 701807 | 701796 |

| ITEM (Included in Valve Kits) | | | | DESCRIPTION | QTY |
|-------------------------------|--------|--------|--------|----------------------------|-----|
| 143 | 14200 | 11719 | 701654 | O-Ring, Adapter, LPS Rear | 6 |
| 144 | 28243 | 28243 | 28243 | Backup Ring, Valve Adapter | 6 |
| 154 | 11379 | 14183 | 701491 | O-Ring, Adapter, LPS Front | 6 |
| 155 | 14520 | 11745 | 48240 | O-Ring, Spacer, HPS | 6 |
| 162 | 21985 | 21985 | 21985 | Backup Ring, Seat | 6 |
| 163 | 26089 | 11377 | 46647 | O-Ring, Seat | 6 |
| 164 | 44080 | 44080 | 44080 | Seat | 6 |
| 166 | 44081 | 44081 | 44081 | Valve | 6 |
| 167 | 44082 | 44082 | 44082 | Spring | 6 |
| 168 | 44735 | 44735 | 44735 | Retainer, Spring | 6 |
| 170 | 44794 | 44794 | 44794 | Washer, Spring Retainer | 6 |
| 172 | 700008 | 700048 | 701782 | O-Ring, Valve Plug | 3 |

♦ Silicone oil/grease required

CAUTIONS AND WARNINGS

All high-pressure systems require a primary pressure regulating device (i.e. regulator, unloader) and a secondary pressure relief device (i.e. pop-off valve, relief valve). Failure to install such relief devices could result in personal injury or damage to pump or property. Cat Pumps does not assume any liability or responsibility for the operation of a customer's high-pressure system. Read all CAUTIONS and WARNINGS before commencing service or operation of any high-pressure system. The CAUTIONS and WARNINGS are included in each Service Manual and with each Accessory Data sheet. CAUTIONS and WARNINGS can also be viewed online at www.catpumps.com/dynamic-literature/cautions-and-warnings or can be requested directly from Cat Pumps.

WARRANTY

View the Limited Warranty online at www.catpumps.com/literature/cat-pumps-limited-warranty

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