

150 Frame R-Series Duplex Stainless Steel Reciprocating Process Pumps

Standard and C-Flushed Models

152R060, 152R060C 152R080, 152R080C 152R100, 152R100C

FEATURES

- Triplex design delivers high efficiency and low pulsation.
- Durable dual V-Packings are lubricated and cooled by pumped liquid.
- Pre-Set Lo-Pressure Seals provide secondary protection against external leaks and require no packing adjustment.
- Special high density, polished, concentric plungers provide a true wear surface and extended seal life.
- Specially formulated Seals and V-Packings offer unmatched performance and extended seal life.
- Ceramic plungers, Seals and V-Packings are serviceable from the top of the crankcase permitting easy in-field servicing.

COMMON SPECIFICATIONS

| | | |
|---|------------------------|-------------------------|
| Inlet Pressure Range..... | Flooded to 50 psi | (Flooded to 3.5 bar) |
| Minimum RPM..... | 75 rpm | (75 min ⁻¹) |
| Stroke..... | 5.91" | (150 mm) |
| Crankcase Capacity..... | 22.4 Gals | (85 l) |
| Lubrication..... | Splash | (splash) |
| Maximum Liquid Temperature | 140°F | (60°C) |
| Inlet Ports (2) (Flange Required) | 6.0" | (150 mm) |
| Discharge Ports (2) (Flange Required) | 4.0" | (100 mm) |
| Shaft Diameter | 3.937" | (100 mm) |
| Weight..... | 3087 Lbs | (1400 kg) |
| Dimensions..... | 68.11 x 42.13 x 22.05" | (1730 x 1070 x 560 mm) |

⚠ 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/cautions-warnings or can be requested directly from CAT PUMPS.

WARRANTY

View the Limited Warranty on-line at www.catpumps.com/warranty.

SPECIFICATIONS

| | U.S. Measure | Metric Measure | U.S. Measure | Metric Measure |
|-----------------------------------|-----------------|--------------------------|-----------------|--------------------------|
| MODEL 152R060 | STANDARD | | API | |
| Flow..... | 115 gpm | (435 l/m) | 86 gpm | (326 l/m) |
| Barrels Per Day (U.S., Petroleum) | — | — | 2948 bbl/d | — |
| Pressure Range*..... | 100 to 1200psi | (7 to 85 bar) | 100 to 1200 psi | (7 to 85 bar) |
| Maximum RPM | 360 rpm | (360 min ⁻¹) | 270 rpm | (270 min ⁻¹) |
| Bore | 2.375" | (60.3 mm) | 2.375" | (60.3 mm) |
| MODEL 152R080 | STANDARD | | API | |
| Flow..... | 200 gpm | (757 l/m) | 152 gpm | (576 l/m) |
| Barrels Per Day (U.S., Petroleum) | — | — | 5211 bbl/d | — |
| Pressure Range*..... | 100 to 1200 psi | (7 to 85 bar) | 100 to 1200 psi | (7 to 85 bar) |
| Maximum RPM | 355 rpm | (355 min ⁻¹) | 270 rpm | (270 min ⁻¹) |
| Bore | 3.15" | (80 mm) | 3.15" | (80 mm) |
| MODEL 152R100 | STANDARD | | API | |
| Flow..... | 240 gpm | (908 l/m) | 240 gpm | (908 l/m) |
| Barrels Per Day (U.S., Petroleum) | — | — | 8228 bbl/d | — |
| Pressure Range*..... | 100 to 1000 psi | (7 to 70 bar) | 100 to 1000 psi | (7 to 70 bar) |
| Maximum RPM | 270 rpm | (270 min ⁻¹) | 270 rpm | (270 min ⁻¹) |
| Bore | 3.94" | (100 mm) | 3.94" | (100 mm) |

ALTERNATE

| | | |
|----------------------|----------|--------------------------|
| Flow..... | 280 gpm | (1060 l/m) |
| Pressure Range*..... | 1000 psi | (70 bar) |
| Maximum RPM**..... | 314 rpm | (314 min ⁻¹) |

*Relief pressure should be set at maximum 10% over system pressure.

**Optimum inlet conditions required.

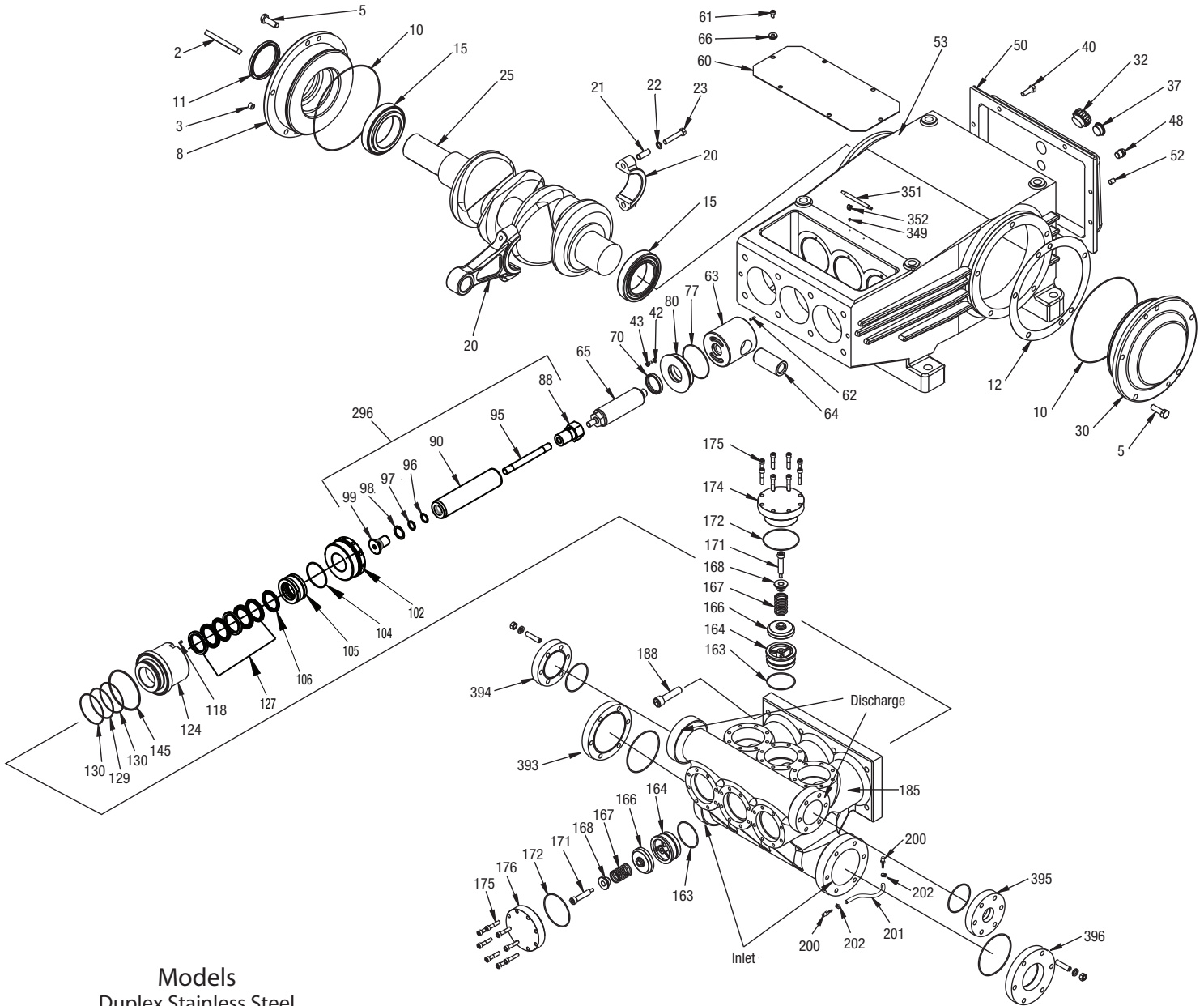
ELECTRIC HORSEPOWER REQUIREMENTS

| MODEL | FLOW | | PRESSURE | | RPM |
|--------------------|-------------|-----|-----------|-----------|-----|
| | | | psi | psi | |
| | U.S. gpm | l/m | 1000 | 1200 | |
| 152R060 | 115 | 435 | 79/58.9 | 95/70.8 | 360 |
| 152R060 API | 86 | 326 | 59/44.0 | 71/52.9 | 270 |
| 152R080 | 200 | 757 | 137/102.2 | 165/123.0 | 355 |
| 157R080 API | 152 | 576 | 103/76.8 | 123/91.7 | 270 |
| 157R100 | 240 | 908 | 164/122.3 | N/A | 270 |
| 157R100 API | 240 | 908 | 164/122.3 | N/A | 270 |

PARTS LIST

| ITEM | 152R060 | | PART NUMBER | | 152R080 | | 152R100 | | DESCRIPTION | QTY |
|------|---------------|-------------|---------------|-------------|---------------|-------------|--|----|-------------|-----|
| | MATL | | MATL | | MATL | | | | | |
| 2 | 890602 | STL | 890602 | STL | 890602 | STL | Key (M28x16x170) | 1 | | |
| 3 | 891238 | STL | 891238 | STL | 891238 | STL | Screw, Grub (M20x20) | 4 | | |
| 4 | 891275 | SS | 891275 | SS | 891275 | SS | Plate, Serial No. (Not Shown) | 1 | | |
| 5 | 891228 | STL | 891228 | STL | 891228 | STL | Screw, HH (M20x60) | 10 | | |
| 8 | 891235 | F | 891235 | F | 891235 | F | Cover, Bearing | 1 | | |
| 10 | 890215 | FPM | 890215 | FPM | 890215 | FPM | O-Ring, Bearing Cover - 70D | 2 | | |
| 11 | 890270 | NBR | 890270 | NBR | 890270 | NBR | Seal, Oil | 1 | | |
| 12 | 890230 | POP | 890230 | POP | 890230 | POP | Shim Set | 1 | | |
| 15 | 891240 | STL | 891240 | STL | 891240 | STL | Bearing, Roller | 2 | | |
| 20 | 891360 | HS | 891360 | HS | 891360 | HS | Rod, Connecting (Incls: 2-Sleeves, 2-Washers, 2-Screws) [03/09] | 3 | | |
| 25 | 891361 | CM | 891361 | CM | 891361 | CM | Crankshaft, Single End [03/09] | 1 | | |
| 30 | 891230 | F | 891230 | F | 891230 | F | Cover, Bearing, Blind | 1 | | |
| 32 | 891234 | NY | 891234 | NY | 891234 | NY | Cap, Filler w/Gasket | 1 | | |
| 35 | 891226 | SS | 891226 | SS | 891226 | SS | Rivet (M2.9x6.5) (Not Shown) | 6 | | |
| 36 | 891202 | SS | 891202 | SS | 891202 | SS | Nameplate (Not Shown) | 1 | | |
| 37 | 891233 | — | 891233 | — | 891233 | — | Gauge, Oil Bubble w/Gasket | 1 | | |
| 40 | 890295 | STL | 890295 | STL | 890295 | STL | Screw, HH (M16x50) | 10 | | |
| 42 | 891237 | SS | 891237 | SS | 891237 | SS | Washer, Flat (M8) | 6 | | |
| 43 | 891225 | SS | 891225 | SS | 891225 | SS | Screw, HSH (M8x15) | 6 | | |
| 48 | 891232 | AL | 891232 | AL | 891232 | AL | Plug, HH Drain | 1 | | |
| 50 | 891250 | F | 891250 | F | 891250 | F | Cover, Rear | 1 | | |
| 52 | 891244 | STL | 891244 | STL | 891244 | STL | Screw, Grub (M16) | 2 | | |
| 53 | 891200 | F | 891200 | F | 891200 | F | Crankcase | 1 | | |
| 60 | 891201 | — | 891201 | — | 891201 | — | Cover, Rod Box | 1 | | |
| 61 | 891224 | SS | 891224 | SS | 891224 | SS | Screw, HSH (M10x15) | 2 | | |
| 62 | 891282 | STL | 891282 | STL | 891282 | STL | Pin, Roll (M6x25) | 3 | | |
| 63 | 891280 | F | 891280 | F | 891280 | F | Crosshead | 3 | | |
| 64 | 891281 | STL | 891281 | STL | 891281 | STL | Pin, Crosshead | 3 | | |
| 65 | 891261 | SS | 891261 | SS | 891261 | SS | Rod, Plunger | 3 | | |
| 66 | 891236 | RBR | 891236 | RBR | 891236 | RBR | Grommet, Cover | 6 | | |
| 70 | 890275 | PTFE | 890275 | PTFE | 890275 | PTFE | Seal, Oil - 70D | 3 | | |
| 77 | 890216 | FPM | 890216 | FPM | 890216 | FPM | O-Ring, Carrier | 3 | | |
| 80 | 891255 | SS | 891255 | SS | 891255 | SS | Carrier, Oil Seal [07/05] | 3 | | |
| 88 | 890347 | SS | 890347 | SS | 890347 | SS | Insert, Plunger | 3 | | |
| 90 | 890415 | CC | — | — | — | — | Plunger (M60.3x262) (See Tech Bulletin 115) | 3 | | |
| — | — | — | 890416 | CC | — | — | Plunger (M80x262) (See Tech Bulletin 115) | 3 | | |
| — | — | — | — | — | 890417 | CC | Plunger (M100x262) (See Tech Bulletin 115) | 3 | | |
| 95 | 890368 | SS | 890368 | SS | 890368 | SS | Stud, M20 x 200 | 3 | | |
| 96 | 890336 | PTFE | 890336 | PTFE | 890336 | PTFE | Back-Up Ring | 3 | | |
| 97 | 890335 | NBR | 890335 | NBR | 890335 | NBR | O-Ring, 70D | 3 | | |
| 98 | 890348 | SSD | 890348 | SSD | 890348 | SSD | Gasket, Plunger Retainer Bolt | 3 | | |
| 99 | 890312 | SSD | 890312 | SSD | 890312 | SSD | Retainer, Plunger | 3 | | |
| 102 | 890372 | NAB | 890371 | NAB | 890370 | NAB | Adjuster, Packing | 3 | | |
| 104 | 890203 | NBR | 890204 | NBR | 890205 | NBR | O-Ring, Spacer - 70D | 3 | | |
| — | 890313 | FPM | 890314 | FPM | 890315 | FPM | O-Ring, Spacer - 70D | 3 | | |
| 105 | 890580 | SSD | 890332 | SSD | 890333 | SSD | Case, Seal [01/11] | 3 | | |
| 106 | 890565 | NBR | 890566 | NBR | 890567 | NBR | Seal, LPS | 3 | | |
| — | 890561 | FPM | 890563 | FPM | 890564 | FPM | Seal, LPS | 3 | | |
| 118 | 890389 | SSD | 890389 | SSD | 890389 | SSD | Plug, 1/16" NPT | 3 | | |
| 124 | 890352 | SSD | 890351 | SSD | 890350 | SSD | Housing, Seal | 3 | | |
| 127 | 890520 | SFTK | 890521 | SFTK | 890522 | SFTK | V-Packing, Set | 3 | | |
| 129 | 890202 | NBR | 890202 | NBR | 890202 | NBR | O-Ring, Housing - 70D | 3 | | |
| — | 890228 | FPM | 890228 | FPM | 890228 | FPM | O-Ring, Housing - 70D | 3 | | |
| 130 | 890591 | PTFE | 890591 | PTFE | 890591 | PTFE | Back-up-Ring, Housing | 6 | | |
| 145 | 890589 | D | 890589 | D | 890589 | D | Ring, Sealing | 3 | | |
| 163 | 890201 | NBR | 890201 | NBR | 890201 | NBR | O-Ring, Seat - 70D | 6 | | |
| — | 890229 | FPM | 890229 | FPM | 890229 | FPM | O-Ring, Seat - 70D | 6 | | |
| 164 | 890260 | SSD | 890260 | SSD | 890260 | SSD | Seat, FV | 6 | | |
| 166 | 890427 | D | 890427 | D | 890427 | D | Valve, FV (See Tech Bulletin 116) | 6 | | |
| 167 | 890428 | SS | 890428 | SS | 890428 | SS | Spring (See Tech Bulletin 116) | 6 | | |
| 168 | 890429 | D | 890429 | D | 890429 | D | Retainer, Spring (See Tech Bulletin 116) | 6 | | |
| 171 | 890280 | SSD | 890280 | SSD | 890280 | SSD | Stud, Valve Guide | 6 | | |
| 172 | 890217 | NBR | 890217 | NBR | 890217 | NBR | O-Ring, Plug - 70D | 6 | | |
| — | 890245 | FPM | 890245 | FPM | 890245 | FPM | O-Ring, Plug - 70D | 6 | | |
| 174 | 890290 | SSD | 890290 | SSD | 890290 | SSD | Plug, Valve Inlet | 3 | | |
| 175 | 891229 | SS | 891229 | SS | 891229 | SS | Screw, HSH (M12x55) | 48 | | |
| 176 | 891290 | SSD | 891290 | SSD | 891290 | SSD | Plug, Valve Discharge | 3 | | |
| 185 | 892012 | SSD | 892012 | SSD | 892012 | SSD | Head, Manifold | 1 | | |
| 188 | 890221 | STTC | 890221 | STTC | 890221 | STTC | Screw, HSH (M20x80) | 8 | | |
| 200 | 892016 | POP | 892016 | POP | 892016 | POP | Barb, 1/4" NPT x 1/4" Barb | 6 | | |
| 201 | 892018 | RBR | 892018 | RBR | 892018 | RBR | Hose, 9"x1/4" LOP | 3 | | |
| 202 | 892019 | SS | 892019 | SS | 892019 | SS | Clamp, 1/4" Hose | 6 | | |
| 290 | 890999 | — | 890999 | — | 890999 | — | Loctite® 641, 10ML | 1 | | |
| 295 | 891102 | — | 891102 | — | 891102 | — | Drive-end w/o Plungers (Incls: Items 2 thru 80, 349, 351, 352) | 1 | | |
| 296 | 890395 | SSD | 890396 | SSD | 890397 | SSD | Assembly, Plunger (Incls: Items 88, 90, 95, 96, 97, 98, 99) (See Tech Bulletin 115) | 3 | | |
| 297 | 891112 | SSD | 891112 | SSD | 891112 | SSD | Assembly, Head (Incls: Items 163 thru 202) | 1 | | |
| 299 | 892111 | SSD | 892112 | SSD | 892113 | SSD | Head, Complete (Incls: Items 102 thru 145, 297) | 1 | | |
| 300 | 890036 | NBR* | 890037 | NBR* | 890038 | NBR* | Kit, Seal (Incls: 70, 77, 96, 97, 104, 106, 127) | 1 | | |
| — | — | — | 891037 | FPM | — | — | Kit, Seal (Incls: 70, 77, 96, 97, 104, 106, 127) | 1 | | |
| 310 | 890020 | NBR | 890020 | NBR | 890020 | NBR | Kit, Valve (Incls: 163, 164, 166, 167, 168, 171, 172, 290) | 2 | | |
| — | 890022 | NBR | 890022 | NBR | 890022 | NBR | Kit, Valve w/o Seat (Incls: 166, 167, 168, 171, 172) | 2 | | |

EXPLODED VIEW



Models
 Duplex Stainless Steel
 152R060, 152R060C, 152R080
 152R080C, 152R100, 152R100C
 October 2012

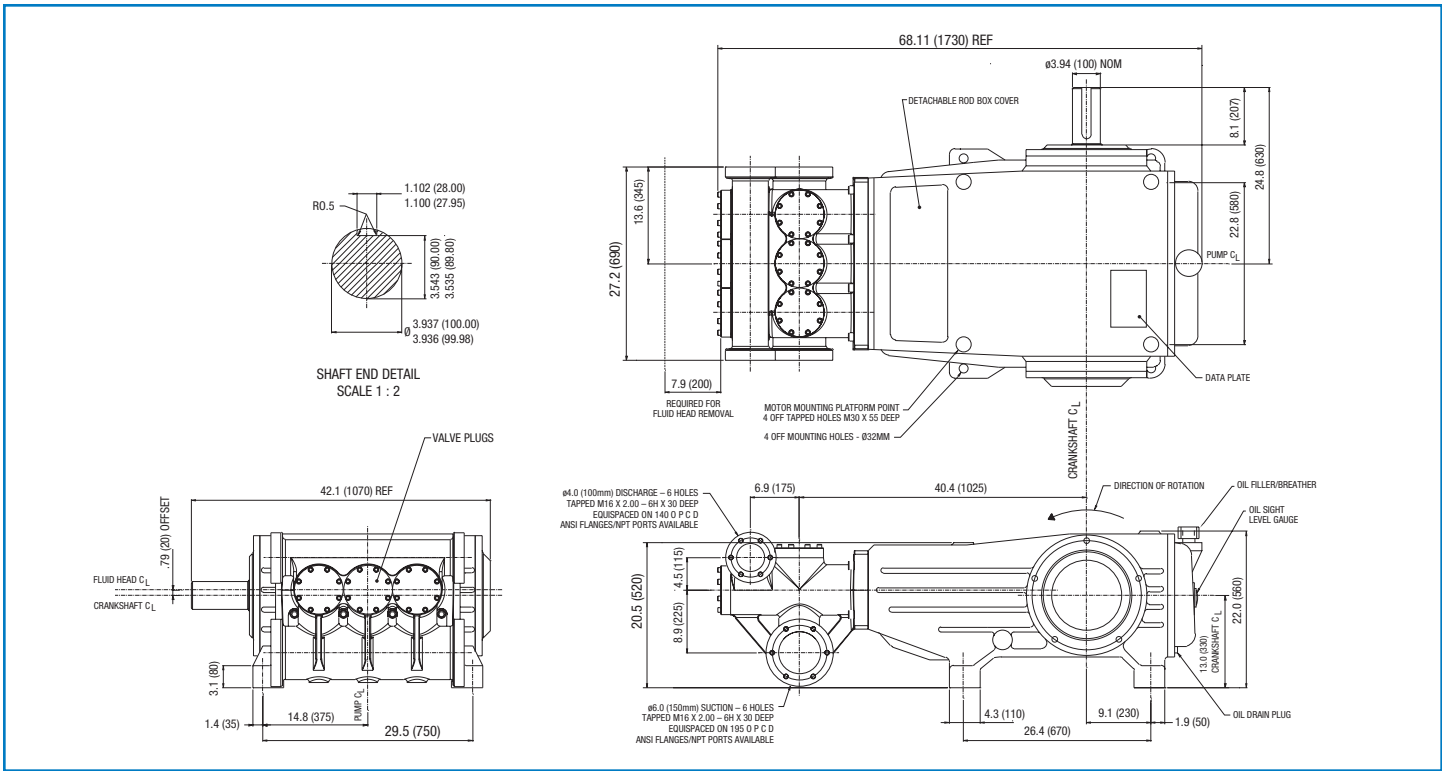
| | 152R060 | MATL | 152R080 | MATL | 152R100 | MATL | | |
|-----|----------------|-------------|----------------|-------------|----------------|-------------|---|-----|
| 349 | 891231 | SS | 891231 | SS | 891231 | SS | Screw, HSH (M3x5) | 2 |
| 351 | 890990 | SS | 890990 | SS | 890990 | SS | Tool, Packing Adjuster | 1 |
| 352 | 890998 | STZP | 890998 | STZP | 890998 | STZP | Clip, Tool | 2 |
| 370 | 998605 | — | 998605 | — | 998605 | — | Flushing Assembly, 5 GPM, 10 PSI (152R060C, 152R080C, 152R100C) | 1 |
| 390 | 719500 | SS | 719500 | SS | 719500 | SS | C.A.T. (Inlet pressure stabilizer for RO and boosted inlet applications) | 1 |
| — | 890700 | SS | 890702 | SS | 890704 | SS | Valve, Relief 2" | 1 |
| — | 701557 | SS | 701557 | SS | 701557 | SS | Dampener, Pulsation (NBR Bladder) | 1 |
| 393 | 892092 | SS | 892092 | SS | 892092 | SS | Flange, Blank, Inlet (Specify Flange Type When Ordering) | 1 |
| 394 | 892093 | SS | 892093 | SS | 892093 | SS | Flange, Blank, Discharge (Specify Flange Type When Ordering) | 1 |
| 395 | 892096 | SS | 892096 | SS | 892096 | SS | Flange, Discharge 2" NPT (Specify Flange Type When Ordering) | 1 |
| 396 | 892088 | SS | 892088 | SS | 892088 | SS | Flange, Inlet 3" NPT (Specify Flange Type When Ordering) | 1 |
| — | 6119 | — | 6119 | — | 6119 | — | Lubricant, Antiseize (1 oz.) | 1 |
| — | 6116 | — | 6116 | — | 6116 | — | Oil, Drum (16 gal.) ISO 100 Multi-viscosity Hydraulic (Fill to specified crankcase capacity prior to start-up) | 1-2 |

Loctite is a registered trademark of the Henkel Corporation.

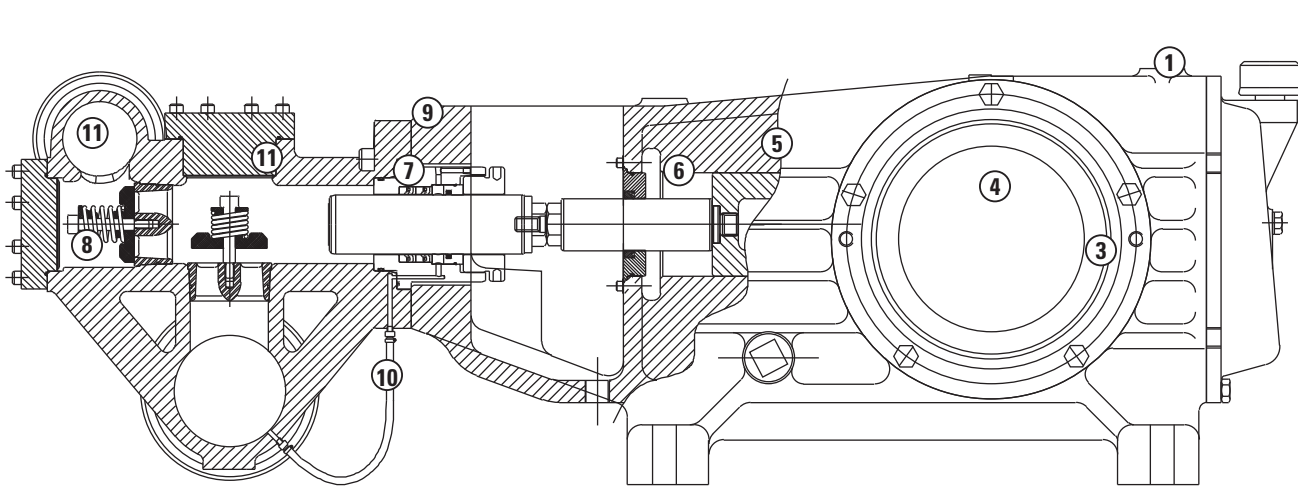
Bold print part numbers are unique to a particular pump model. Italics are optional items.

[] Date of latest production change. *Review material codes for individual items (SFTK generally may be used as alternate).

MATERIAL CODES (Not Part of Part Number): AL=Aluminum CC=Ceramic CM=Chrome-Moly D=Acetal F=Cast Iron FPM=Fluorocarbon HS=High Strength
 NAB=Nickel Aluminum Bronze NBR=Medium Nitrile (Buna-N) NY=Nylon POP=Polypropylene PTFE=Pure Polytetrafluoroethylene RBR=Rubber
 SFTK=Polytetrafluoroethylene/Aramid Fiber Blend SS=316SS SSD=Duplex Stainless STL=Steel STTC=Steel PTFE Coated STZP=Steel/Zinc Plated



Models 152R060, 152R060C, 152R080, 152R080C, 152R100, 152R100C



- 1 Spheroid graphite cast iron **crankcase** provides strength, vibration dampening and flame and spark resistance.
- 2 Convenient top rear access for **oil filler cap** permits easy access to oil level check.
- 3 Heavy-duty tapered roller crankshaft **bearings** for long life and secure alignment.
- 4 Chrome-moly, nitrided **crankshaft** provides unmatched strength and surface hardness for long life.
- 5 Matched oversized, **connecting rods** noted for superior tensile strength and bearing quality.
- 6 Special 316SS **plunger rods** with high-strength crossheads for longevity and corrosion resistance.
- 7 Special concentric, hardened, polished solid ceramic **plungers offer** resistance to corrosion and a true sealing surface for extended seal life. Plungers are conveniently serviceable from the top of the pump.
- 8 **Manifolds** are a high-strength, corrosion resistant Duplex stainless steel alloy for compatibility and long life.
- 9 High integrity **V-Packings** of PTFE/Aramid Fiber Blend require no-adjustment and provide long life with harsh liquids.
- 10 High pressure **V-packing bleed (weep) hose** captures leaks as V-Packings begin to wear preventing external leaks.
- 11 Duplex stainless steel **seats** and 316SS **springs** for corrosion resistance and extended life. Acetal **valves** for compatibility and cushioned seating.



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