

## 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 <sup>-1</sup> )
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](http://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](http://www.catpumps.com/warranty).

### SPECIFICATIONS

	U.S. Measure	Metric Measure	U.S. Measure	Metric Measure
<b>MODEL 152R060</b>	<b>STANDARD</b>		<b>API</b>	
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 <sup>-1</sup> )	270 rpm	(270 min <sup>-1</sup> )
Bore .....	2.375"	(60.3 mm)	2.375"	(60.3 mm)
<b>MODEL 152R080</b>	<b>STANDARD</b>		<b>API</b>	
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 <sup>-1</sup> )	270 rpm	(270 min <sup>-1</sup> )
Bore .....	3.15"	(80 mm)	3.15"	(80 mm)
<b>MODEL 152R100</b>	<b>STANDARD</b>		<b>API</b>	
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 <sup>-1</sup> )	270 rpm	(270 min <sup>-1</sup> )
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 <sup>-1</sup> )

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

\*\*Optimum inlet conditions required.

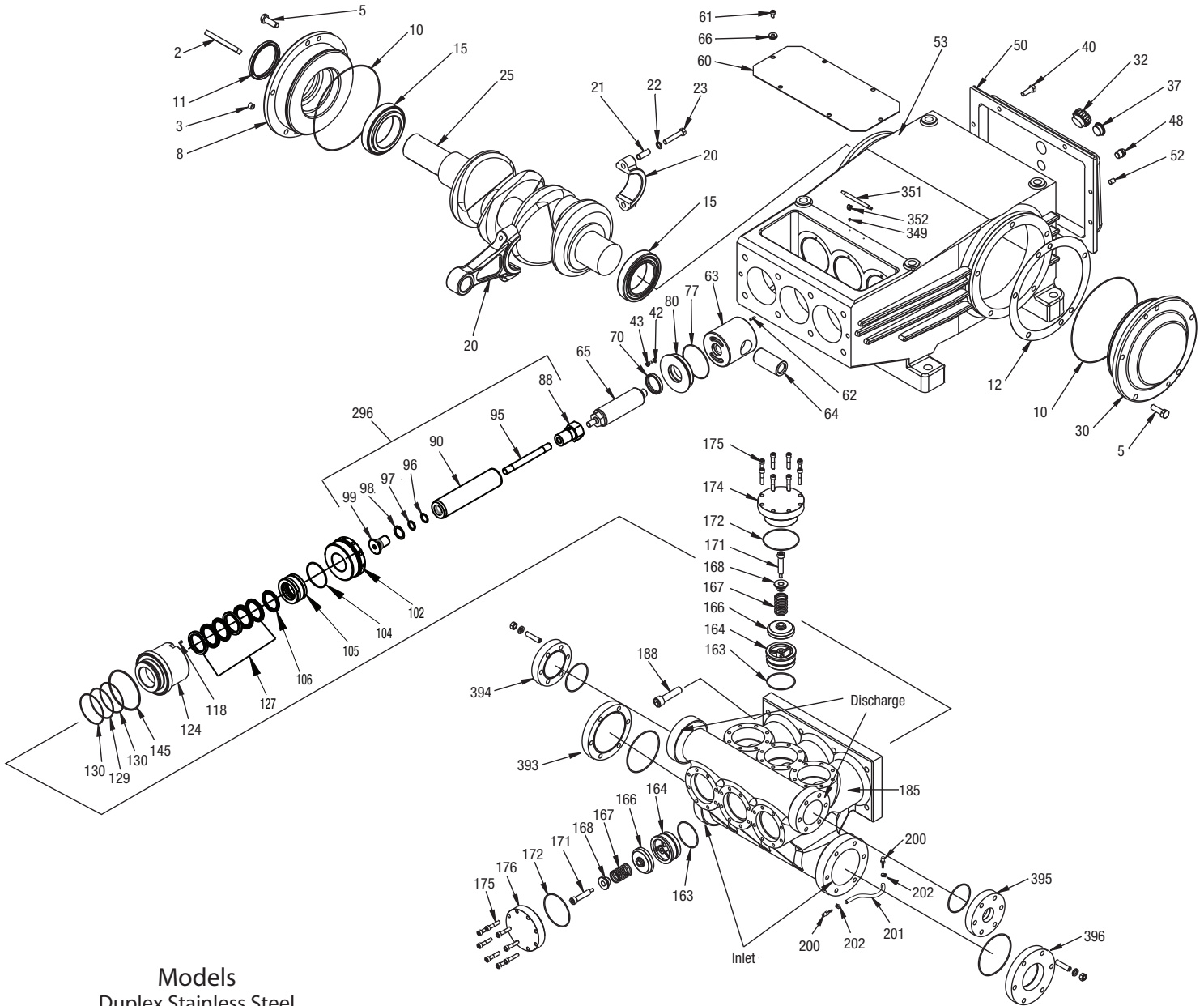
### ELECTRIC HORSEPOWER REQUIREMENTS

MODEL	FLOW		PRESSURE		RPM
			psi	psi	
	U.S. gpm	l/m	1000	1200	
<b>152R060</b>	115	435	79/58.9	95/70.8	360
<b>152R060 API</b>	86	326	59/44.0	71/52.9	270
<b>152R080</b>	200	757	137/102.2	165/123.0	355
<b>157R080 API</b>	152	576	103/76.8	123/91.7	270
<b>157R100</b>	240	908	164/122.3	N/A	270
<b>157R100 API</b>	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	<b>890415</b>	<b>CC</b>	—	—	—	—	Plunger (M60.3x262) (See Tech Bulletin 115)	3		
—	—	—	<b>890416</b>	<b>CC</b>	—	—	Plunger (M80x262) (See Tech Bulletin 115)	3		
—	—	—	—	—	<b>890417</b>	<b>CC</b>	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	<b>890372</b>	<b>NAB</b>	<b>890371</b>	<b>NAB</b>	<b>890370</b>	<b>NAB</b>	Adjuster, Packing	3		
104	<b>890203</b>	<b>NBR</b>	<b>890204</b>	<b>NBR</b>	<b>890205</b>	<b>NBR</b>	O-Ring, Spacer - 70D	3		
—	<b>890313</b>	<b>FPM</b>	<b>890314</b>	<b>FPM</b>	<b>890315</b>	<b>FPM</b>	O-Ring, Spacer - 70D	3		
105	<b>890580</b>	<b>SSD</b>	<b>890332</b>	<b>SSD</b>	<b>890333</b>	<b>SSD</b>	Case, Seal [01/11]	3		
106	<b>890565</b>	<b>NBR</b>	<b>890566</b>	<b>NBR</b>	<b>890567</b>	<b>NBR</b>	Seal, LPS	3		
—	<b>890561</b>	<b>FPM</b>	<b>890563</b>	<b>FPM</b>	<b>890564</b>	<b>FPM</b>	Seal, LPS	3		
118	890389	SSD	890389	SSD	890389	SSD	Plug, 1/16" NPT	3		
124	<b>890352</b>	<b>SSD</b>	<b>890351</b>	<b>SSD</b>	<b>890350</b>	<b>SSD</b>	Housing, Seal	3		
127	<b>890520</b>	<b>SFTK</b>	<b>890521</b>	<b>SFTK</b>	<b>890522</b>	<b>SFTK</b>	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	<b>892111</b>	<b>SSD</b>	<b>892112</b>	<b>SSD</b>	<b>892113</b>	<b>SSD</b>	Head, Complete (Incls: Items 102 thru 145, 297)	1		
300	<b>890036</b>	<b>NBR*</b>	<b>890037</b>	<b>NBR*</b>	<b>890038</b>	<b>NBR*</b>	Kit, Seal (Incls: 70, 77, 96, 97, 104, 106, 127)	1		
—	—	—	<b>891037</b>	<b>FPM</b>	—	—	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

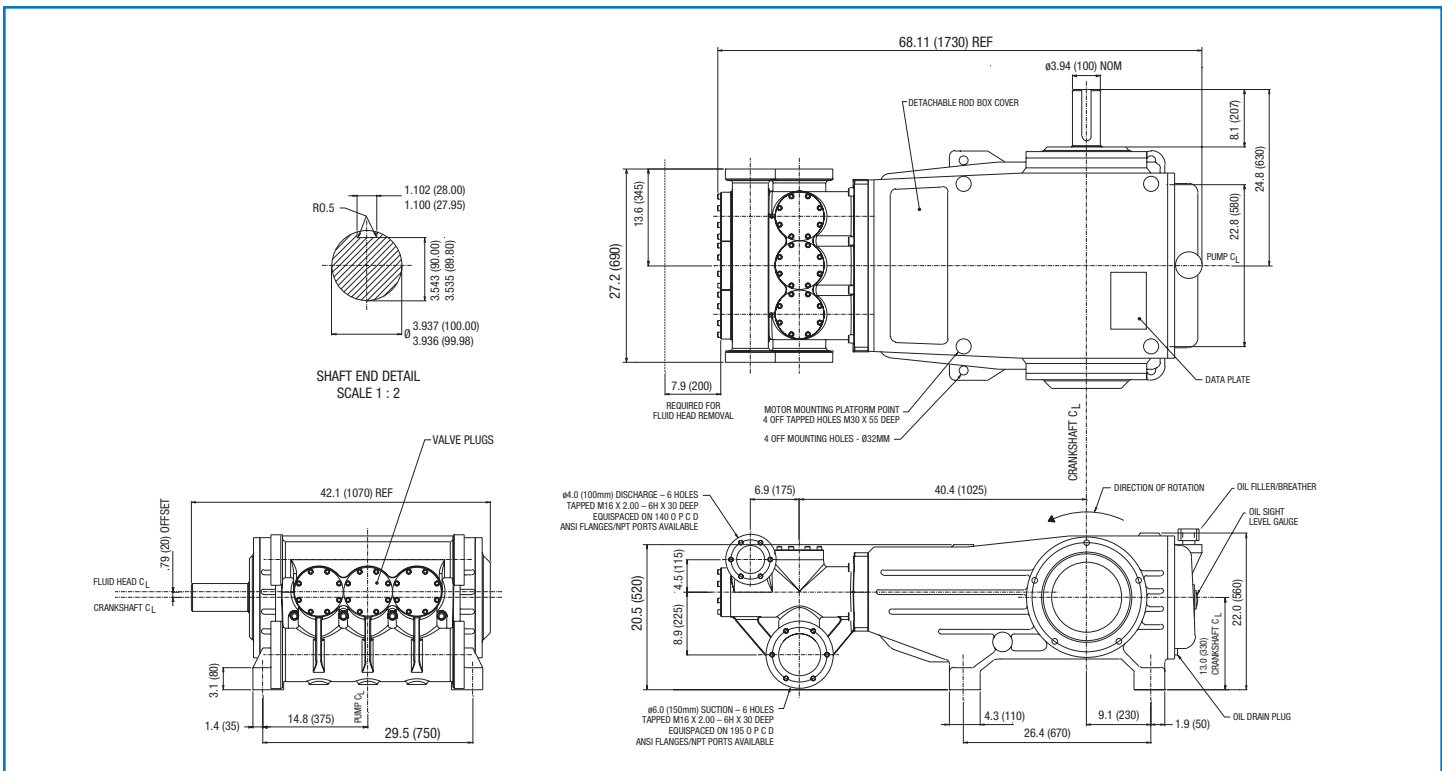
	<b>152R060</b>	<b>MATL</b>	<b>152R080</b>	<b>MATL</b>	<b>152R100</b>	<b>MATL</b>		
349	891231	SS	891231	SS	891231	SS	Screw, HSH (M3x5)	2
351	890990	SS	890990	SS	890990	SS	Tool, Packing Adjuster	1
352	890998	STZP	890998	STZP	890998	STZP	Clip, Tool	2
370	998605	—	998605	—	998605	—	Flushing Assembly, 5 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
—	<b>890700</b>	<b>SS</b>	<b>890702</b>	<b>SS</b>	<b>890704</b>	<b>SS</b>	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.

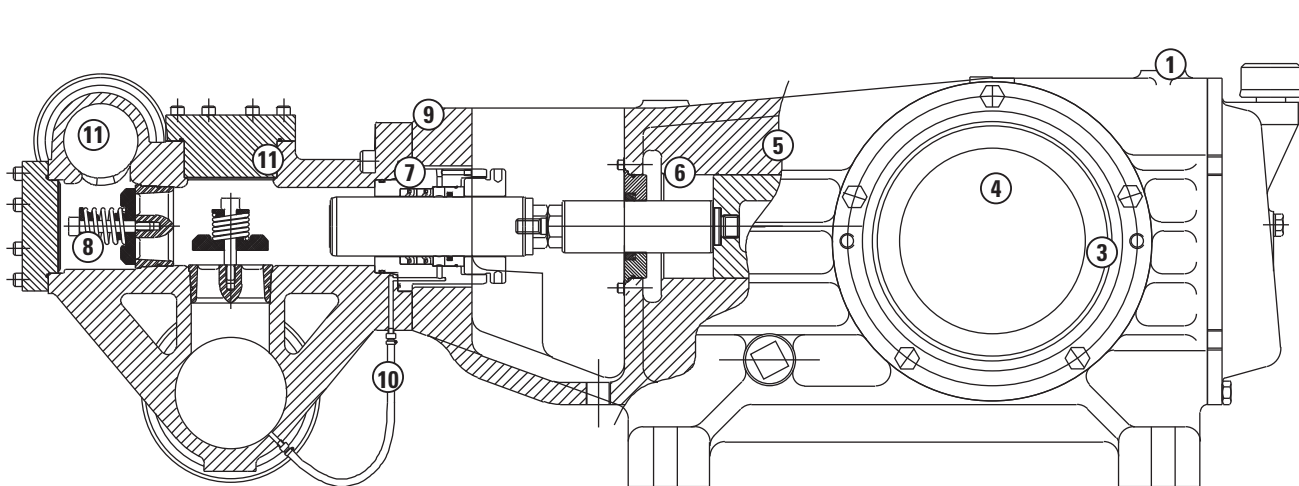
**Bold print part numbers are unique to a particular pump model. Italics are optional items.**

[ ] 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**

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