

# 150 Frame R-Series Duplex Stainless Steel Reciprocating Process Pumps

Models **152R060**  
**152R080**  
**152R100**

## FEATURES

### Superior Design

- Triplex plunger design provides smooth low-pulsation liquid flow.
- Interchangeable inlet and discharge valve assemblies accessible without removing the head for easy servicing.
- Standard oil bath crankcase lubrication assures optimum lubrication.
- Packing design offers strength under pressure and requires no packing adjustment.

### Quality Materials

- Duplex stainless steel seats, 316 stainless steel springs and Acetal valves offer corrosion resistance and extended life.
- Duplex stainless steel manifold head offers strength and corrosion resistance.
- Special concentric, high density, solid ceramic plungers provide a true wear surface and extended seal life.
- Special PTFE blend V-Packings offer unmatched seal life.
- Spheroid graphite cast iron crankcase provides strength, vibration dampening and flame and spark resistance.
- Chrome-moly, nitrated crankshaft offers high-strength and greater surface hardness.
- High strength connecting rods provide exceptional bearing quality and long life.

### Easy Maintenance

- Ceramic plungers, seals and V-Packings are serviceable from the top of the crankcase permitting easy in-field servicing.
- V-Packings require no adjustment reducing maintenance time.

### **⚠ 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	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	(2864 bbl/d)
Pressure Range* .....	100 to 1200 PSI	(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 .....	2.36"	(60 mm)	2.36"	(60 mm)
<b>MODEL 152R080</b>	<b>STANDARD</b>		<b>API</b>	
Flow .....	200 GPM	(765 l/m)	150 GPM	(580 l/m)
Barrels Per Day (U.S., Petroleum) .....	—	—	5142 bbl/d	(4996 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 .....	260 GPM	(985 l/m)	240 GPM	(905 l/m)
Barrels Per Day (U.S., Petroleum) .....	—	—	8228 bbl/d	(7994 bbl/d)
Pressure Range* .....	100 to 1000 PSI	(7 to 70 bar)	100 to 1000 PSI	(7 to 70 bar)
Maximum RPM .....	295 RPM	(295 min <sup>-1</sup> )	270 RPM	(270 min <sup>-1</sup> )
Bore .....	3.94"	(100 mm)	3.94"	(100 mm)

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

## 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 Temperature .....	120°F	(50°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)

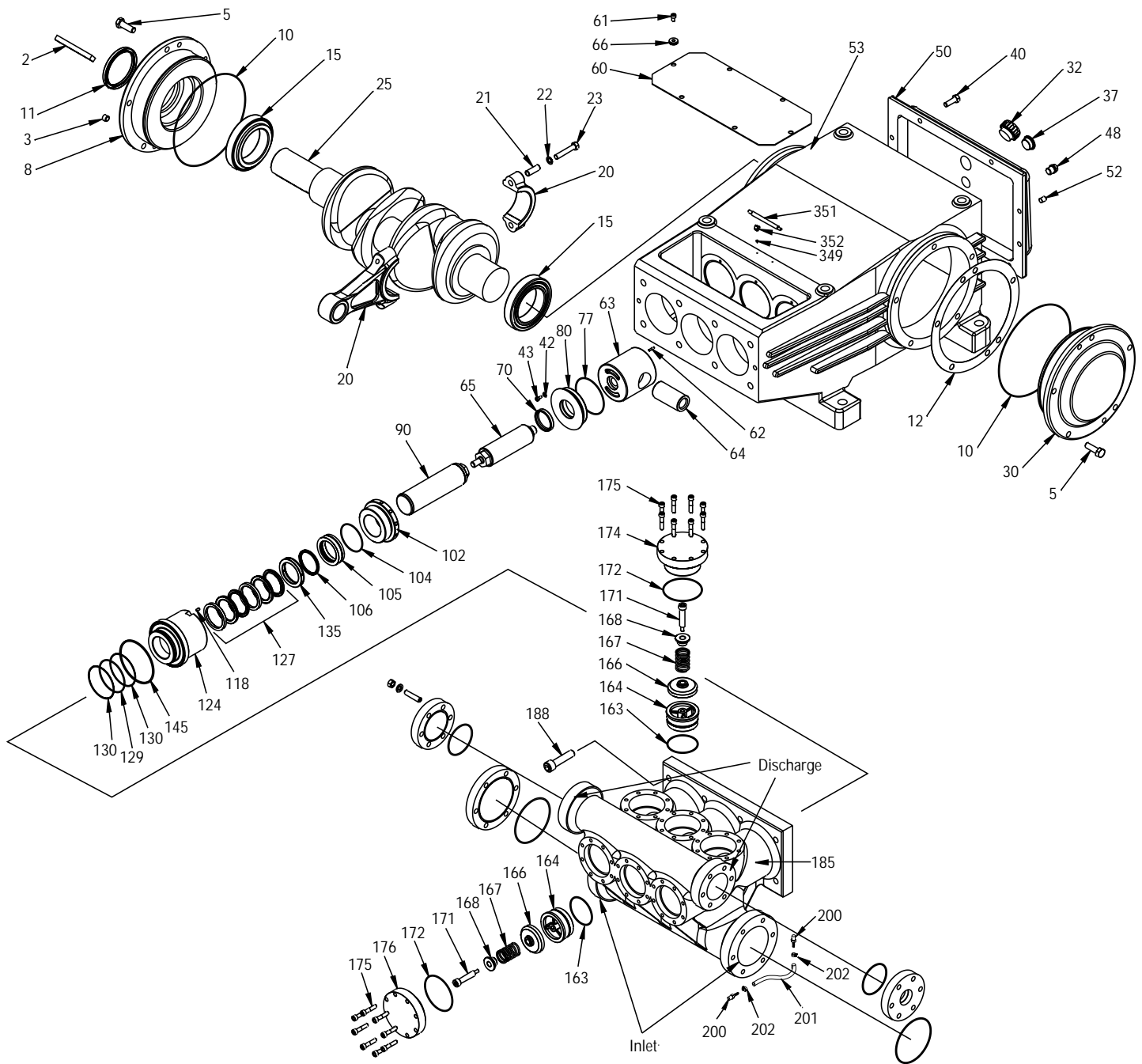
## ELECTRIC HORSEPOWER REQUIREMENTS

MODEL	FLOW		PRESSURE		RPM
	U.S. GPM	l/m	PSI	PSI	
			1000	1200	
<b>152R060</b>	115	435	79	95	360
<b>152R060 API</b>	86	326	59	71	270
<b>152R080</b>	200	765	137	165	355
<b>152R080 API</b>	150	580	103	123	270
<b>152R100</b>	260	985	178	N/A	295
<b>152R100 API</b>	240	905	164	N/A	270

*“Customer confidence is our greatest asset”*

# PARTS LIST

ITEM	PART NUMBER				DESCRIPTION	QTY		
	<b>152R060</b>	<b>MATL</b>	<b>152R080</b>	<b>MATL</b>	<b>152R100</b>	<b>MATL</b>		
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	891220	HS	891220	HS	891220	HS	Rod, Connecting (Incls: 21, 22, 23)	3
21	—	STL	—	STL	—	STL	Sleeve, Alignment	6
22	—	STL	—	STL	—	STL	Washer, Flat (M16)	6
23	—	STL	—	STL	—	STL	Screw, HH, Lock (M16x90)	6
25	891210	CM	891210	CM	891210	CM	Crankshaft, Single End	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	3
90	<b>890401</b>	<b>CC</b>	—	—	—	—	Plunger (M60.3x262)	3
	—	—	<b>890402</b>	<b>CC</b>	—	—	Plunger (M80x262)	3
	—	—	—	—	<b>890403</b>	<b>CC</b>	Plunger (M100x262)	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
105	<b>890580</b>	<b>SSD</b>	<b>890341</b>	<b>SSD</b>	<b>890340</b>	<b>SSD</b>	Spacer, V-Packing	3
106	<b>890565</b>	<b>NBR</b>	<b>890566</b>	<b>NBR</b>	<b>890567</b>	<b>NBR</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
130	890591	PTFE	890591	PTFE	890591	PTFE	Back-up-Ring, Housing	6
135	—	—	<b>890581</b>	<b>SSD</b>	<b>890582</b>	<b>SSD</b>	Spacer	3
145	890589	D	890589	D	890589	D	Ring, Sealing	3
163	890201	NBR	890201	NBR	890201	NBR	O-Ring, Seat - 70D	6
164	890260	SSD	890260	SSD	890260	SSD	Seat, FV	6
166	890251	D	890251	D	890251	D	Valve, FV	6
167	890320	SS	890320	SS	890320	SS	Spring	6
168	890301	SSD	890301	SSD	890301	SSD	Retainer, Spring	6
171	890280	SSD	890280	SSD	890280	SSD	Stud, Valve Guide	6
172	890217	NBR	890217	NBR	890217	NBR	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
299	891112	SSD	891112	SSD	891112	SSD	Assembly, Head	1
							(Incls: 163, 164, 166, 167, 168, 171, 172, 174, 175, 176, 185, 188, 200, 201, 202)	
300	<b>890036</b>	<b>NBR*</b>	<b>890037</b>	<b>NBR*</b>	<b>890038</b>	<b>NBR*</b>	Kit, Seal (Incls: 70, 77, 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
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
—	<b>891122</b>	<b>SSD</b>	<b>891132</b>	<b>SSD</b>	<b>891142</b>	<b>SSD</b>	Assy, Plunger, Conversion	3
							(Incls: 90, 102, 104-106, 118, 124, 127, 129, 130, 135, 145)	
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



**Models**  
 Duplex Stainless Steel  
 152R060, 152R080, 152R100  
 October 2008

**152R060 MATL 152R080 MATL 152R100 MATL**

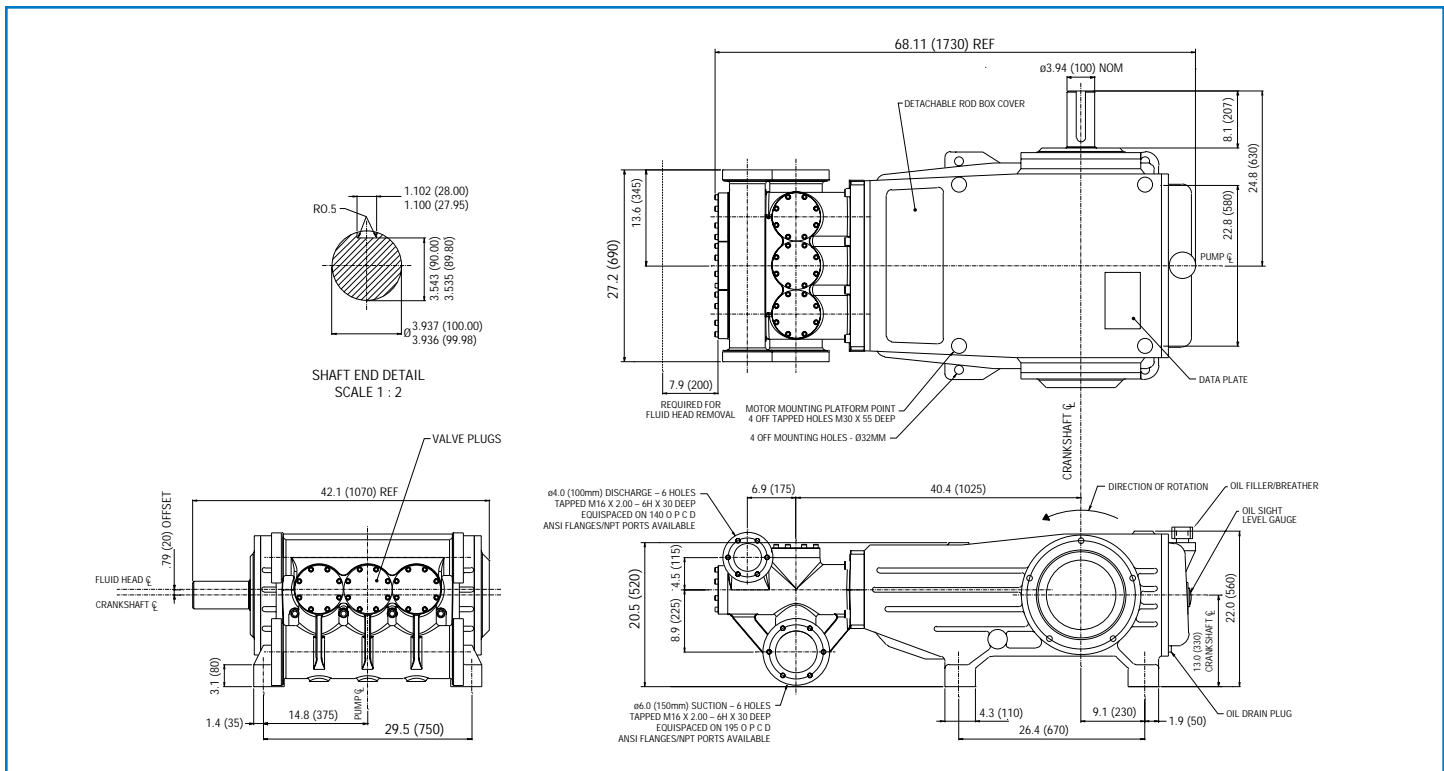
—	<b>892092</b> SS	<b>892092</b> SS	<b>892092</b> SS	Flange, Blank, Inlet (Specify Flange Type When Ordering)	1
—	<b>892093</b> SS	<b>892093</b> SS	<b>892093</b> SS	Flange, Blank, Discharge (Specify Flange Type When Ordering)	1
—	<b>892096</b> SS	<b>892096</b> SS	<b>892096</b> SS	Flange, Discharge 2" NPT (Specify Flange Type When Ordering)	1
—	<b>998605</b> —	<b>998605</b> —	<b>998605</b> —	Flushing Assembly, 5 GPH, 10 PSI	1
—	<b>6119</b> —	<b>6119</b> —	<b>6119</b> —	Lubricant, Antiseize (1 oz.)	1
—	<b>6116</b> —	<b>6116</b> —	<b>6116</b> —	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.

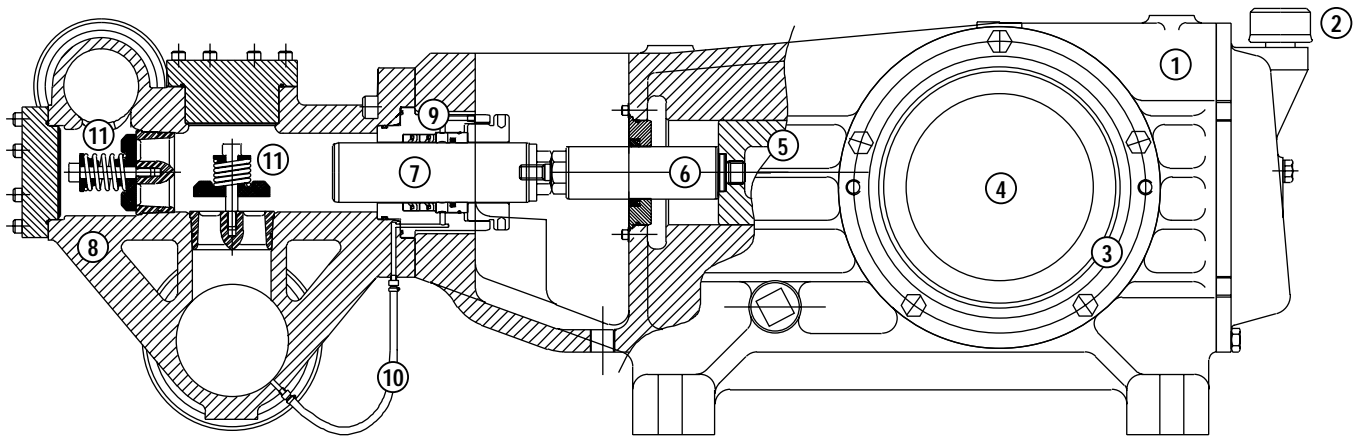
**Bold print part numbers are unique to a particular pump model. Italics are optional items**

[ ] 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, 152R080, 152R100



- 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.

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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