



## 7 Frame Plunger Pump

**Standard Models**

**53, 55**

**Gearbox Models**

**51, 58**

### FEATURES

#### Superior Design

- Triplex plunger provides smoother liquid flow.
- Hi-Pressure Seals or V-Packings are completely lubricated and cooled by the liquid being pumped.
- Lubricated Lo-Pressure Seals provide double protection against external leakage.
- Oil bath crankcase assures optimum lubrication.
- Close tolerance concentricity of the ceramic plunger maximizes seal life.
- Optional Gearbox version for direct mounting to gas engine.

#### Quality Materials

- Precision design 304 stainless steel valves and seats are hardened and polished for ultimate seating and extended seal life.
- Forged brass manifold for strength and corrosion resistance.
- Special concentric, high-density, polished, solid ceramic plungers provide a true wear surface and extended seal life.
- Specially formulated, CAT PUMP exclusive, Hi-Pressure Seals or V-Packings 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.
- Inlet and discharge valve assemblies interchange for easier maintenance without disturbing piping.
- Preset packings mean no packing gland adjustment is necessary, reducing maintenance costs.

#### **⚠ 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>Standard Models</b>	<b>53</b>		<b>55</b>	
Flow .....	5.0 GPM	(19 L/M)	5.0 GPM	(19 L/M)
Pressure Range .....	100 to 2500 PSI	(7 to 175 BAR)	100 to 3000 PSI	(7 to 210 BAR)
Inlet Pressure Range .....	-5 to 60 PSI	(0.35 to 4 BAR)	-5 to 60 PSI	(0.35 to 4 BAR)
<b>RPM</b> .....	<b>1100 RPM</b>	<b>(1100 RPM)</b>	<b>1415 RPM</b>	<b>(1415 RPM)</b>
Bore.....	0.708"	(18 mm)	0.630"	(16 mm)
Stroke .....	<b>0.945"</b>	<b>(24 mm)</b>	<b>0.945"</b>	<b>(24 mm)</b>
<b>Gearbox Models</b>	<b>51</b>		<b>58</b>	
	<b>Gearbox 51G1 or 51G118</b>		<b>Gearbox 58G1 or 58G118</b>	
Flow .....	4.8 GPM	(18 L/M)	5.0 GPM	(19 L/M)
Pressure Range .....	100 to 3000 PSI	(7 to 210 BAR)	100 to 2500 PSI	(7 to 175 BAR)
Inlet Pressure Range .....	Fld to 60 PSI	(Fld to 4 BAR)	Fld to 60 PSI	(Fld to 4 BAR)
<b>RPM</b> .....	<b>1765 RPM</b>	<b>(1765 RPM)</b>	<b>1570 RPM</b>	<b>(1570 RPM)</b>
Bore.....	0.630"	(16 mm)	0.708"	(18 mm)
Stroke .....	<b>0.728"</b>	<b>(18.5 mm)</b>	<b>0.669"</b>	<b>(17 mm)</b>

#### COMMON SPECIFICATIONS

Crankcase Capacity.....	25 oz.	(0.75 L)
Maximum Liquid Temperature .....	160°F	(71°C)
For temperatures above 130°F call CAT PUMPS for inlet conditions and elastomer recommendations.		
Inlet Ports (2).....	1/2" NPTF	(1/2" NPTF)
Discharge Ports (2) .....	3/8" NPTF	(3/8" NPTF)
Shaft Diameter.....	0.945"	(24 mm)
Weight.....	26.5 lbs.	(12.0 kg)
Dimensions (Pump Only).....	13.6 x 8.20 x 5.90" (345 x 208.30 x 150 mm)	

### ELECTRIC HORSEPOWER REQUIREMENTS

MODEL	FLOW		PRESSURE				MOTOR PULLEY SIZE	
	U.S. GPM	L/M	PSI 1800	PSI 2000	PSI 2500	PSI 3000	RPM	Pulley O.D.
<b>53</b>	5.0	19.0	6.2	6.9	8.6	N/A	1100	6.3
	4.5	17.0	5.6	6.2	7.7	N/A	990	5.6
	4.0	15.0	5.0	5.5	6.9	N/A	880	5.0
<b>55</b>	5.0	19.0	6.2	6.9	8.6	10.3	1415	8.0
	4.0	15.0	5.0	5.5	6.9	8.3	1130	6.4
	3.0	11.4	3.7	4.2	5.2	6.2	850	5.0
<b>58</b>	5.0	19.0	6.2	6.9	8.6	N/A	1570	Gearbox
<b>51</b>	4.8	18.0	5.9	6.6	8.2	9.8	1765	Gearbox

<b>DETERMINING THE PUMP R.P.M.</b>	<u>Rated G.P.M.</u>	=	<u>"Desired" G.P.M.</u>
	Rated R.P.M.		"Desired" R.P.M.
<b>DETERMINING THE REQUIRED H.P.</b>	<u>GPM x PSI</u>	=	Electric Brake
	1460		H. P. Required
<b>DETERMINING MOTOR PULLEY SIZE</b>	<u>Motor Pulley O.D.</u>	=	<u>Pump Pulley O.D.</u>
	Pump R.P.M.		Motor R.P.M.

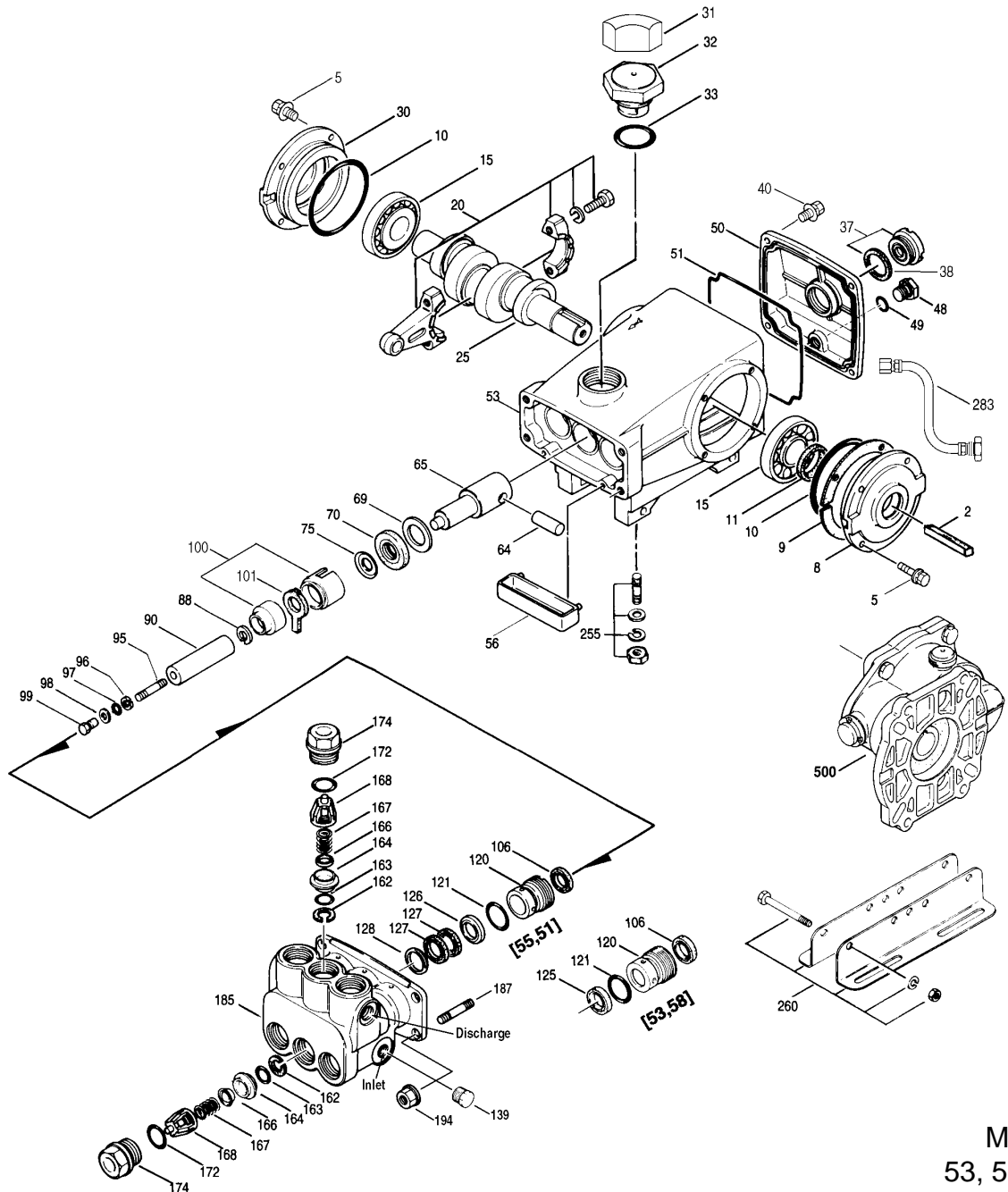
See complete Drive Packages [Incls: Pulleys, Belts, Hubs, Key] Tech Bulletin 003.  
Refer to pump **Service Manual** for repair procedure, additional technical information and **pump warranty**.

*"Customer confidence is our greatest asset"*

# PARTS LIST

ITEM	PART NUMBER				DESCRIPTION	QTY
	51 MATL	55 MATL	53 MATL	58 MATL		
2	30067 STL	30067 STL	30067 STL	30067 STL	Key (M8x7.5x25)	1
5	92519 STZP	92519 STZP	92519 STZP	92519 STZP	Screw, HHC Sems (M6x16)	8
	125824 STCP R	125824 STCP R	125824 STCP R	125824 STCP R	Screw, HHC Sems (M6x16)	8
8	43466 AL	43466 AL	43466 AL	43466 AL	Cover, Bearing	1
9	815280 FBR	815280 FBR	815280 FBR	815280 FBR	Shim, Split, 2-Pc	1
10	12393 NBR	12393 NBR	12393 NBR	12393 NBR	O-Ring, Cover	2
11	43222 NBR	43222 NBR	43222 NBR	43222 NBR	Seal, Oil, Crankshaft - 70D	1
15	43221 STL	43221 STL	43221 STL	43221 STL	Bearing, Roller	2
20	48863 TNM	48863 TNM	48863 TNM	48863 TNM	Rod, Connecting Assy [6/02]	3
25	<b>44947 FCM</b>	<b>43464 FCM</b>	<b>43464 FCM</b>	<b>44946 FCM</b>	Crankshaft - Single End	1
30	44967 AL	44967 AL	44967 AL	44967 AL	Cover, Bearing, Blind	1
31	—	828710 —	828710 —	—	Protector, Oil Cap w/Foam Gasket	1
32	<b>44666 RTP</b>	<b>43211 ABS</b>	<b>43211 ABS</b>	<b>44666 RTP</b>	Cap, Oil Filler, Domed	1
33	14177 NBR	14177 NBR	14177 NBR	14177 NBR	O-Ring, Filler Cap - 70D	1
37	92241 —	92241 —	92241 —	92241 —	Gauge, Oil, Bubble w/Gasket - 80D	1
38	44428 NBR	44428 NBR	44428 NBR	44428 NBR	Gasket, Flat, Oil Gauge - 80D	1
40	92520 STZP	92520 STZP	92520 STZP	92520 STZP	Screw, HHC Sems (M6x20)	4
	125824 STCP R	125824 STCP R	125824 STCP R	125824 STCP R	Screw, HHC Sems (M6x20)	4
48	25625 STCP	25625 STCP	25625 STCP	25625 STCP	Plug, Drain (1/4"x19BSP)	1
49	23170 NBR	23170 NBR	23170 NBR	23170 NBR	O-Ring, Drain Plug - 70D	1
50	127695 AL	127695 AL	127695 AL	127695 AL	Cover, Rear [06/08]	1
51	14047 NBR	14047 NBR	14047 NBR	14047 NBR	O-Ring, Rear Cover - 70D [06/08]	1
53	127702 AL	127702 AL	127702 AL	127702 AL	Crankcase (M10) [06/08]	1
56	43240 POP	43240 POP	43240 POP	43240 POP	Pan, Oil	1
64	43237 CM	43237 CM	43237 CM	43237 CM	Pin, Crosshead	3
65	48913 SHS	48913 SHS	48913 SHS	48913 SHS	Rod, Plunger, Short	3
69	126589 STCP R	126589 STCP R	126589 STCP R	126589 STCP R	Washer, Oil Seal	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	<b>43311 CC</b>	<b>43311 CC</b>	—	—	Plunger (M16x77)	3
	—	—	<b>43232 CC</b>	<b>43232 CC</b>	Plunger (M18x77)	3
95	126559 STCP R	126559 STCP R	126559 STCP R	126559 STCP R	Stud, Plunger Retainer (M6x70)	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 - 80D	3
	14160 FPM	14160 FPM	14160 FPM	14160 FPM	O-Ring, Plunger Retainer - 80D	3
98	45891 CU	45891 CU	45891 CU	45891 CU	Gasket, Plunger Retainer	3
99	46504 S	46504 S	46504 S	46504 S	Retainer, Plunger (M6)	3
100	45689 PVDF	45689 PVDF	45689 PVDF	45689 PVDF	Retainer, Seal, 2-PC [04/06]	3
101	<b>43313</b> —	<b>43313</b> —	<b>43239</b> —	<b>43239</b> —	Wick, Long Tab	3
106	<b>43316 NBR</b>	<b>43316 NBR</b>	<b>43243 NBR</b>	<b>43243 NBR</b>	Seal, LPS w/S-Spg	3
	<b>106660 FPM</b>	<b>106660 FPM</b>	—	—	Seal, LPS w/S-Spg	3
	—	—	<b>44926 FPM</b>	<b>44926 FPM</b>	Seal, LPS w/SS-Spg	3
120	<b>45684 BB</b>	<b>45684 BB</b>	<b>45683 BB</b>	<b>45683 BB</b>	Case, Seal	3
121	20285 NBR	20285 NBR	20285 NBR	20285 NBR	O-Ring, Seal Case - 70D	3
	11693 FPM	11693 FPM	11693 FPM	11693 FPM	O-Ring, Seal Case	3
125	—	—	<b>43245 SNG</b>	<b>43245 SNG</b>	Seal, HPS w/S	3
	—	—	<b>44925 FPM</b>	<b>44925 FPM</b>	Seal, HPS w/SS	3
126	<b>43320 BB</b>	<b>43320 BB</b>	—	—	Adapter, Female	3
127	<b>43319 SNG</b>	<b>43319 SNG</b>	—	—	V-Packing	6
	<b>46287 HT</b>	<b>46287 HT</b>	—	—	V-Packing	6
128	<b>43318 BB</b>	<b>43318 BB</b>	—	—	Adapter, Male	3
139	43448 BB	43448 BB	43448 BB	43448 BB	Plug, Inlet (1/2" NPT)	1
162	43248 PTFE	43248 PTFE	43248 PTFE	43248 PTFE	Back-up-Ring, Valve Seat	6
163	43249 NBR	43249 NBR	43249 NBR	43249 NBR	O-Ring, Valve Seat - 80D	6
	44383 FPM	44383 FPM	44383 FPM	44383 FPM	O-Ring, Valve Seat - 70D	6
164	43722 S	43722 S	43722 S	43722 S	Seat - Q.V.	6
	<b>43825 S</b>	—	<b>43825 S</b>	<b>43825 S</b>	Seat - F.V.	6
166	43721 S	43721 S	43721 S	43721 S	Valve - Q.V.	6
	<b>43824 S</b>	—	<b>43824 S</b>	<b>43824 S</b>	Valve - F.V.	6
167	43751 S	43751 S	43751 S	43751 S	Spring - Q.V.	6
	<b>43823 S</b>	—	<b>43823 S</b>	<b>43823 S</b>	Spring - F.V.	6
168	44564 PVDF	44564 PVDF	44564 PVDF	44564 PVDF	Retainer, Spring	6
172	17617 NBR	17617 NBR	17617 NBR	17617 NBR	O-Ring, Valve Plug - 90D	6
	11691 FPM	11691 FPM	11691 FPM	11691 FPM	O-Ring, Valve Plug - 90D	6
174	43850 BB	43850 BB	43850 BB	43850 BB	Plug, Valve	6
185	<b>45549 FBB</b>	<b>45549 FBB</b>	<b>45419 FBB</b>	<b>45419 FBB</b>	Head, Manifold	1
187	46868 S	46868 S	46868 S	46868 S	Stud, Manifold (M10x35)	4
194	126567 STCP R	126567 STCP R	126567 STCP R	126567 STCP R	Nut, Flanged (M10)	4
255	30243 STZP	30243 STZP	30243 STZP	30243 STZP	Kit, Direct Mount	1
260	30611 STZP	30611 STZP	30611 STZP	30611 STZP	Assy, Angle Rail, B (2.09" x 9.45")	1
	—	<b>30645 STZP</b>	<b>30645 STZP</b>	—	Assy, Angle Rail, A (2.95" x 11.81")	1
265	30660 —	30660 —	30660 —	30660 —	Kit, Mounting (Incls: 30645, 30206, 33000, 30067, 43256)	1
269	30206 F	30206 F	30206 F	30206 F	Pulley (10") AB [See Drive Packages Tech Bulletin 003]	1
274	33000 STL	33000 STL	33000 STL	33000 STL	Hub (M24), H Series	1
	—	—	—	—	[See Drive Packages Tech Bulletin 003]	
283	34334 —	34334 —	34334 —	34334 —	Kit, Oil Drain (3/8"x24")	1

# EXPLODED VIEW



Models  
53, 55, 51, 58  
December 2008

	<b>51 MATL</b>	<b>55 MATL</b>	<b>53 MATL</b>	<b>58 MATL</b>		
299	<b>816820 BB</b>	<b>816820 BB</b>	<b>814521 BB</b>	<b>814521 BB</b>	Head, Complete	1
300	<b>30610 NBR</b>	<b>30610 NBR</b>	<b>30488 NBR</b>	<b>30488 NBR</b>	Kit, Seal (Incls: 97,101,106,121,125 or 27)	1
310	<b>30820 NBR</b>	<b>30820 NBR</b>	<b>30820 NBR</b>	<b>30820 NBR</b>	Kit, Valve - Q.V. (Incls: 162-164,166,167,168,172)	2
	<b>31820 NBR</b>	<b>31820 NBR</b>	<b>31820 NBR</b>	<b>31820 NBR</b>	Kit, Valve - F.V. (Incls: 162-164,166,167,168,172)	2
350	<b>30696 STZP</b>	<b>30696 STZP</b>	<b>30696 STZP</b>	<b>30696 STZP</b>	Plier, Reverse	1
351	<b>43257 STZP</b>	<b>43257 STZP</b>	<b>43257 STZP</b>	<b>43257 STZP</b>	Tool, Seal Case Removal	1
	<b>33005 STZP</b>	<b>33005 STZP</b>	<b>33005 STZP</b>	<b>33005 STZP</b>	Tool, Seal Case Socket (1/2" Drive)	1
352	<b>44050 STZP</b>	<b>44050 STZP</b>	<b>44050 STZP</b>	<b>44050 STZP</b>	Tool, Oil Gauge Removal	1
500	<b>8051 —</b>	<b>— —</b>	<b>— —</b>	<b>8051 —</b>	Gearbox (See Individual Data Sheet)	1
	<b>8058 —</b>	<b>— —</b>	<b>— —</b>	<b>8058 —</b>	Gearbox (See Individual Data Sheet)	1
	<b>6575 —</b>	<b>6575 —</b>	<b>6575 —</b>	<b>6575 —</b>	Plunger Pump Service DVD	1
	<b>6107 —</b>	<b>6107 —</b>	<b>6107 —</b>	<b>6107 —</b>	Oil, Bottle (21 oz.) ISO-68 Hydraulic (Fill to specified crankcase capacity prior to start-up)	1

**Bold print part numbers are unique to a particular pump model. Italics are optional items. [ ]** Date of latest production change.

R Components comply with RoHS Directive. See Tech Bulletins 003, 024, 035, 036, 043, 074, 077, 083, 105, and 106 for additional information.

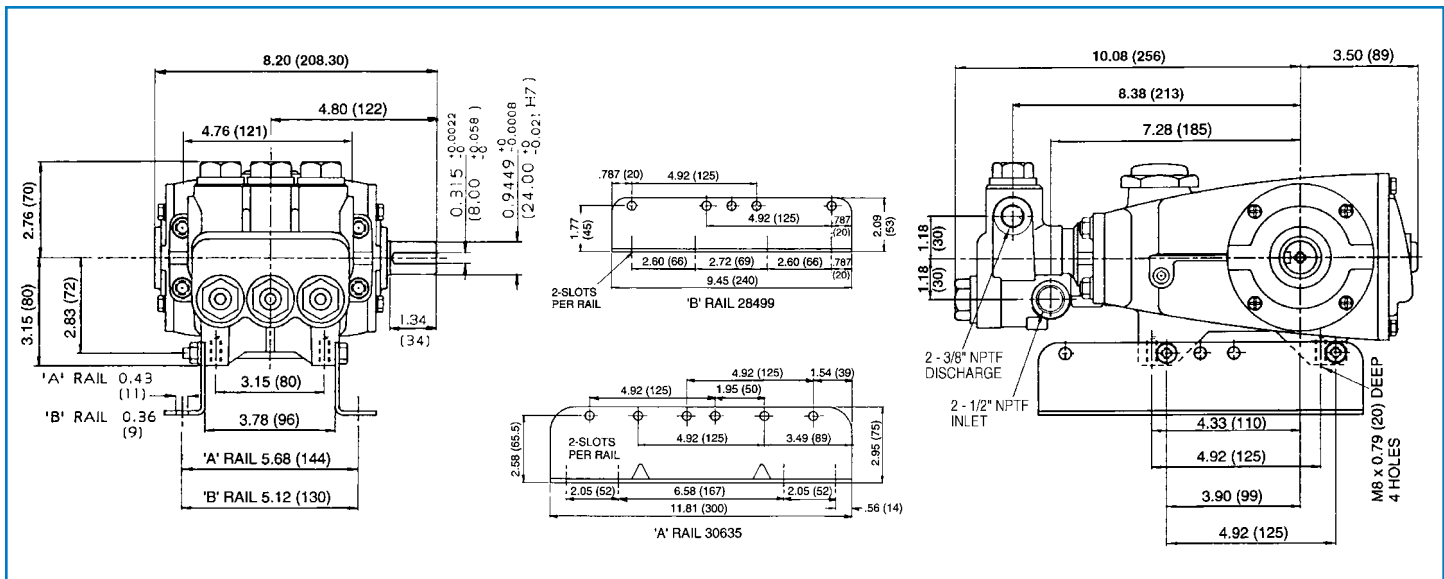
See 8051-8078 Gearbox Specification Sheet for direct drive Gas Engine option.

MATERIAL CODES (Not Part of Part Number): AL=Aluminum ABS=ABS Plastic BB=Brass CC=Ceramic CM=Chrome-Moly CU=Copper F=Cast Iron

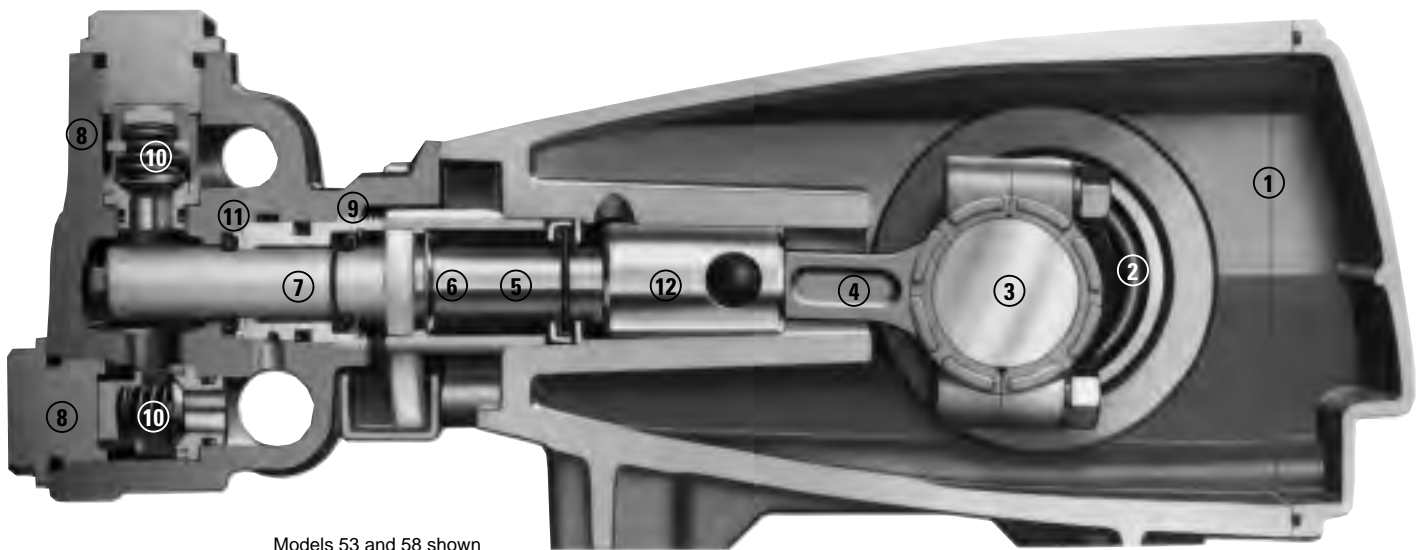
FBB=Forged Brass FBR=Fiber FCM=Forged Chrome-moly FPM=Fluorocarbon HT=Hi-Temp (EPDM Alternative) NBR=Medium Nitrile (Buna-N)

POP=Polypropylene PTFE=Pure Polytetrafluoroethylene PVDF=Polyvinylidene Fluoride RTP=Reinforced Composite S=304SS

SNG=Special Blend (Buna) SHS=304SS/High Strength STCP=Steel/Chrome Plated STL=Steel STZP=Steel/Zinc Plated TNM=Special High Strength



Models 53, 55, 51, 58



Models 53 and 58 shown

- 1 Die cast aluminum **crankcase** means high strength, lightweight, 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 TNM **connecting rods** for superior tensile strength and bearing quality.
- 5 Special **plunger rods** with high strength crossheads for high load bearing and longevity.
- 6 The stainless steel **slinger** provides back-up protection for the crankcase seal, keeping pumped liquids out of the crankcase.
- 7 Special concentric, high-density, polished, solid ceramic **plungers** provide a true wear surface and 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 liquids to cool and lubricate on both sides.
- 10 Stainless steel **valves, seats and springs** provide corrosion-resistance, ultimate seating and extended life.
- 11 Specially formulated, CAT PUMP exclusive, **Hi-Pressure Seals or V-Packings** offer unmatched performance and seal life.
- 12 **Crossheads** are 360° supported for uncompromising alignment.

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