

# 15 Frame Plunger Pumps

Standard Model

Stainless Steel Model

SS Flushed Model

Duplex SS Model

Nickel Aluminum Bronze Model

**1050**  
**1051**  
**1051C**  
**1051D**  
**1057**

## FEATURES

### Superior Design

- Triplex plunger design provides smoother liquid flow.
- V-Packings are completely lubricated and cooled by the liquid being pumped.
- Special ported inlet manifold permits an external flush liquid providing cooling for hi-temp liquids and lubrication for low lubricity liquids.
- Lubricated Lo-Pressure Seals provide double protection against external leakage.
- Oil bath crankcase assures optimum lubrication.
- Close tolerance concentricity of the ceramic plunger offers perfect alignment and maximizes seal life.

### Quality Materials

- Precision design 304 and 316 stainless steel valves and seats are hardened and polished for ultimate seating and extended valve life.
- Brass, Stainless Steel, Duplex SS or Nickel Aluminum Bronze manifolds 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, V-Packings offers 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 easily serviced without entering crankcase.
- Valve assemblies are accessible without disturbing piping.
- Interchangeable inlet and discharge valve assemblies.
- Preset seals require no packing adjustment.

### ⚠ 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

### STANDARD SPECIFICATIONS

Flow .....	10 gpm	(38 l/m)
Pressure Range .....	100 to 2200 psi	(7 to 155 bar)
RPM .....	958 RPM	(958 RPM)
Inlet Pressure Range .....	-5 to 60 psi	(-0.35 to 4 bar)
Maximum Liquid Temperature .....	160°F	(70°C)

Above 130°F call CAT PUMPS for inlet conditions and elastomer recommendations.

### ALTERNATE SPECIFICATIONS - MODEL 1050 ONLY

Flow* .....	12 gpm	(45 l/m)
Pressure Range* .....	100 to 1800 psi	(7 to 125 bar)
RPM* .....	1150 RPM	(1150 RPM)
Inlet Pressure Range* .....	20 to 60 psi	(1.4 to 4 bar)
Maximum Liquid Temperature* .....	100°F	(38°C)

\*C.A.T. Required

### COMMON SPECIFICATIONS

Bore .....	0.945"	(24 mm)
Stroke .....	1.180"	(30 mm)
Crankcase Capacity .....	42 oz.	(1.26 l)
Inlet Ports (2) .....	3/4" NPTF	(3/4" NPTF)
Flushing Ports (2) (1051C) .....	1/8" NPTF	(1/8" NPTF)
Discharge Ports (2) .....	1/2" NPTF	(1/2" NPTF)
Pulley Mounting .....	Either Side	(Either Side)
Shaft Diameter .....	1.181"	(30 mm)
Weight .....	44 lbs.	(20 kg)
Dimensions .....	16.28 x 12.99 x 6.44"	(414 x 330 x 164 mm)

## ELECTRIC HORSEPOWER REQUIREMENTS

FLOW		PRESSURE			MOTOR PULLEY SIZE	
		psi 1800	psi 2000	psi 2200	Using 1725 RPM Motor & Std. 10" Pump Pulley	
U.S. gpm	l/m	bar 125	bar 140	bar 155	RPM	Pulley O.D.
12.0	45	14.8	N/A	N/A	1150	6.5
10.0	38	12.4	13.7	15.1	958	5.4
9.0	34	11.1	12.4	13.6	836	4.9

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

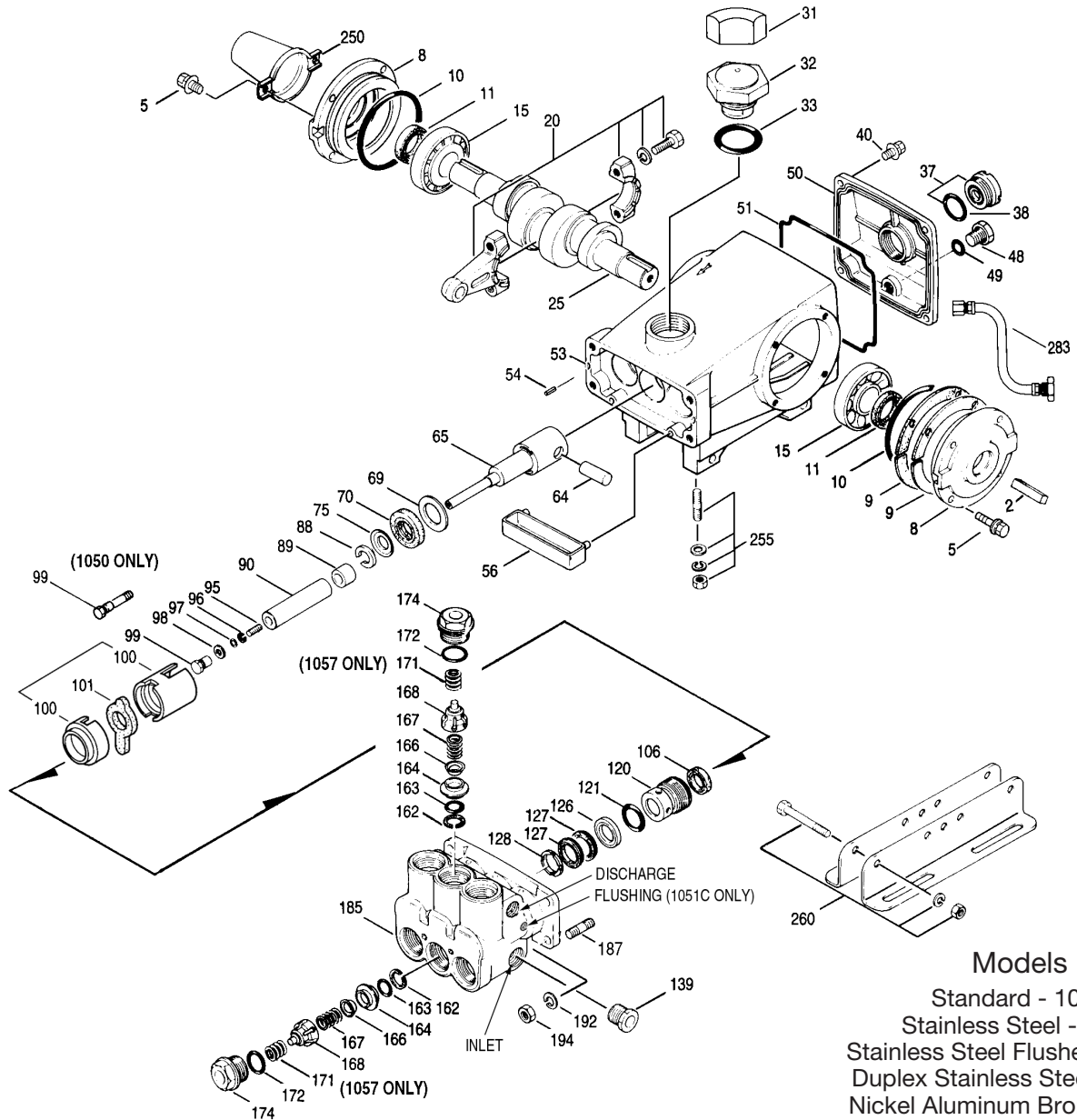
See complete Drive Packages [Incls: Pulleys, Belts, Hubs, Key] Tech Bulletin 003. Refer to pump **Service Manual** for repair procedure and additional technical information.

*"Customer confidence is our greatest asset"*

# PARTS LIST

ITEM	1050	MATL	1051/C/D	MATL	1057	MATL	DESCRIPTION	QTY
2	30067	STL	30067	STL	30067	STL	Key (M8x7.5x25))	1
5	92519	STZP	92538	S	92538	S	Screw, HHC Sems (M6x16)	8
	125824	STCPR	—	—	—	—	Screw, HHC, Sems (M6x16)	8
8	43496	AL	43496	AL	43496	AL	Cover, Bearing	2
9	815281	FBR	815281	FBR	815281	FBR	Shim, Split, Bearing Cover 2-Pc	2/4
	814800	S	814800	S	814800	S	Shim, Split, Bearing Cover 2-Pc	0/4
10	11340	NBR	11340	NBR	11340	NBR	O-Ring, Bearing Cover - 70D	2
11	43495	NBR	43495	NBR	43495	NBR	Seal, Oil, Crankshaft - 70D	2
15	39060	STL	39060	STL	39060	STL	Bearing, Roller	2
20	48600	TNM	48600	TNM	48600	TNM	Rod, Connecting Assembly [10/01]	3
25	43494	FCM	43494	FCM	43494	FCM	Crankshaft, Dual End	1
31	828710	—	828710	—	828710	—	Protector, Oil Cap w/Foam Gasket	1
32	43211	ABS	43211	ABS	43211	ABS	Cap, Oil Filler	1
33	14177	NBR	14177	NBR	14177	NBR	O-Ring, Filler Cap - 70D	1
37	92241	—	92241	—	92241	—	Gauge, Oil, Bubble w/Gasket - 80D	1
38	44428	NBR	44428	NBR	44428	NBR	Gasket, Flat, Oil Gauge - 80D	1
40	92520	STZP	92542	S	92542	S	Screw, HHC Sems (M6x20)	4
	126541	STCPR	—	—	—	—	Screw, HHC, Sems (M6x20)	4
48	25625	STCP	25625	STCP	25625	STCP	Plug, Drain (1/4"x19BSP)	1
49	23170	NBR	23170	NBR	23170	NBR	O-Ring, Drain Plug - 70D	1
50	43491	AL	43491	AL	43491	AL	Cover, Rear	1
51	44834	NBR	44834	NBR	44834	NBR	O-Ring, Rear Cover - 70D	1
53	115471	AL	115471	AL	115471	AL	Crankcase w/Guide Pins	1
54	27488	S	27488	S	27488	S	Pin, Guide	2
56	44664	POP	44664	POP	44664	POP	Pan, Oil	1
64	43507	CM	43507	CM	43507	CM	Pin, Crosshead	3
65	43501	SZZ	45258	SSZZ	45258	SSZZ	Rod, Plunger	3
69	126592	STCPR	126592	STCPR	126592	STCPR	Washer, Oil Seal	3
70	43500	NBR	43500	NBR	43500	NBR	Seal, Oil, Crankcase - 80D	3
75	43506	S	43506	S	43506	S	Slinger, Barrier	3
88	45675	S	45675	S	45675	S	Washer, Keyhole	3
89	43553	BB	45879	SS	45879	SS	Collar, Spacer	3
90	43552	CC	43552	CC	43552	CC	Plunger (M24x77)	3
95	—	SS	89651	SS	89651	SS	Stud, Plunger Retainer (M6x70)	3
96	43235	PTFE	43235	PTFE	43235	PTFE	Back-up-Ring, Plunger Retainer	3
97	17399	NBR	17399	NBR	17399	NBR	O-Ring, Plunger Retainer - 80D	3
	14160	FPM	14160	FPM	14160	FPM	O-Ring, Plunger Retainer - 80D	3
	◆ 46204	EPDM	◆ 46204	EPDM	◆ 46204	EPDM	O-Ring, Plunger Retainer - 70D	3
98	44041	SS	44041	SS	44041	SS	Gasket, Plunger Retainer	3
99	—	—	44031	SS	44031	SS	Retainer, Plunger (M6)	3
	104360	S	—	—	—	—	Retainer w/Stud	3
100	855001	POP	855001	POP	855001	POP	Retainer, Seal 2-Pc [07/05] (See Tech Bulletin 098)	3
101	43554	—	43554	—	43554	—	Wick, Long Tab	3
106	44035	NBR	44035	NBR	44035	NBR	Seal, LPS w/SS-Spg	3
	44388	FPM	44388	FPM	44388	FPM	Seal, LPS w/SS-Spg	3
	◆ 46208	EPDM	◆ 46208	EPDM	◆ 46208	EPDM	Seal, LPS w/SS-Spg	3
	76035	ST	76035	ST	—	—	Seal, LPS	3
120	49290	BB	49286	SSNP	49286	SSNP	Case, Seal [07/05]	3
121	14762	NBR	14762	NBR	14762	NBR	O-Ring, Seal Case - 70D	3
	11737	FPM	11737	FPM	11737	FPM	O-Ring, Seal Case - 75D	3
	◆ 46205	EPDM	◆ 46205	EPDM	◆ 46205	EPDM	O-Ring, Seal Case	3
126	43558	BB	48389	D	48389	D	Adapter, Female (See Tech Bulletin 087-1051 and 1057 only)	3
	—	—	45073	SS	45073	SS	Adapter, Female	3
127	43559	SNG	+ 103692	STG*	103692	STG*	V-Packing	6
128	43560	BB	45074	SS	45074	SS	Adapter, Male	3
139	20326	BBCP	44382	SS	44562	NAB	Plug, Inlet (3/4" NPT)	1
162	43248	PTFE	43248	PTFE	43248	PTFE	Back-up-Ring, Valve Seat	6
163	43249	NBR	43249	NBR	43249	NBR	O-Ring, Seat - 80D	6
	44383	FPM	44383	FPM	44383	FPM	O-Ring, Seat - 70D	6
	◆ 46206	EPDM	◆ 46206	EPDM	◆ 46206	EPDM	O-Ring, Seat - 70D	6
164	44718	S	44037	SS	44037	SS	Seat	6
166	43721	S	48793	SS	48793	SS	Valve	6
167	43751	S	44039	SS	44039	SS	Spring, Valve	6
168	44564	PVDF	44564	PVDF	44564	PVDF	Retainer, Spring	6
171	—	—	—	—	44832	S	Coil Spring, Valve Plug	6
172	17617	NBR	17617	NBR	17617	NBR	O-Ring, Valve Plug - 90D	6
	11691	FPM	11691	FPM	11691	FPM	O-Ring, Valve Plug - 90D	6
	◆ 46207	EPDM	◆ 46207	EPDM	◆ 46207	EPDM	O-Ring, Valve Plug - 70D	6
174	43851	BBCP	49293	SS	44831	NAB	Plug, Valve	6
185	46704	BBCP	48726	SS	46706	NAB	Head, Manifold [9/00]	1
	—	—	49188	SS	—	—	Head, Manifold, Flushed (1/8" Flushed Port) 1051C ONLY	1
	—	—	124230	DSS	—	—	Head, Manifold (1051D only)	1
187	126545	STCPR	44005	S	44005	S	Stud, Manifold (M10x45)	4
192	126231	STCP	15847	S	15847	S	Lockwasher (M10)	4
194	126522	STCPR	81258	S	81258	S	Nut, Hex (M10)	4
250	30764	NY	30764	NY	30764	NY	Protector, Shaft w/Two Screws	1
	30764S	NY	30764S	NY	30764S	NY	Protector, Shaft w/Two SS Screws	1
255	30264	STZP	30264	STZP	30264	STZP	Mounting, Direct	1
260	30613	STZP	30613	STZP	30613	STZP	Mount, Rail, Assy	1
265	30661	—	30661	—	30661	—	Mount, Assy, (Incls: 30613, 30206, 30059, 30067, 30764)	1
269	30206	F	30206	F	30206	F	Pulley (10") AB [See Drive Packages, Tech Bulletin 003]	1
274	30059	STL	30059	STL	30059	STL	Hub, "H", M30 (Keyway M8) [See Drive Packages, Tech Bulletin 003]	1
283	34334	—	34334	—	34334	—	Kit, Oil Drain (3/8" x 24") (See Tech Bulletin 077)	1

# EXPLODED VIEW



## Models

- Standard - 1050
- Stainless Steel - 1051
- Stainless Steel Flushed - 1051C
- Duplex Stainless Steel - 1051D
- Nickel Aluminum Bronze - 1057

	<b>1050</b>	<b>MATL</b>	<b>1051/C/D</b>	<b>MATL</b>	<b>1057</b>	<b>MATL</b>		
290	—	—	6124	—	6124	—	Gasket, Liquid (3 oz.)	1
299	814560	BBCP	816771	SS	815261	NAB	Head, Complete [9/00]	1
	—	—	818333	SS	—	—	Head, Complete - C (1051C only)	1
	—	—	818442	DSS	—	—	Head, Complete (1051D only)	1
300	30913	NBR	33916	NBR*	33916	NBR*	Kit, Seal (Incls: 97, 100, 106, 121, 127)	1
	30986	FPM*	30986	FPM*	30986	FPM*	Kit, Seal (Incls: 97, 100, 106, 121, 127)	1
	◆ 33913	EPDM*	◆ 33913	EPDM*	◆ 33913	EPDM*	Kit, Seal (Incls: 97, 100, 106, 121, 127)	1
310	34920	NBR	34387	NBR	34387	NBR	Kit, Valve Preassembled (Incls: 162, 163, 164, 166, 167, 168, 172)	2
	31256	FPM	30987	FPM	30987	FPM	Kit, Valve Preassembled (Incls: 162, 163, 164, 166, 167, 168, 172)	2
	◆ 31253	EPDM	◆ 31258	EPDM	◆ 31258	EPDM	Kit, Valve Preassembled (Incls: 162, 163, 164, 166, 167, 168, 172)	2
350	30696	STZP	30696	STZP	30696	STZP	Plier, Reverse	1
351	43523	STZP	43523	STZP	43523	STZP	Tool, Seal Case Removal	1
390	711500	SS	711500	SS	711500	SS	C.A.T. (Inlet pressure stabilizer for RO and boosted inlet applications)	1
391	711503	SS	711503	SS	711503	SS	Adapter (2 per C.A.T.) (See Data Sheet for complete selection)	2
392	701818	SS	701818	SS	701818	SS	Elbow Assy used w/Adapter Assy 711503	1
—	6575	—	6575	—	6575	—	Plunger Pump Service DVD	1
—	6107	—	6107	—	6107	—	Oil, Bottle (21 oz) ISO 68 Hydraulic	2
—	—	—	6119	—	—	—	(Fill to specified crankcase capacity prior to start-up)	
—	—	—	—	—	—	—	Lubricant, Antiseize (1 oz.) (See Tech Bulletin 095)	1

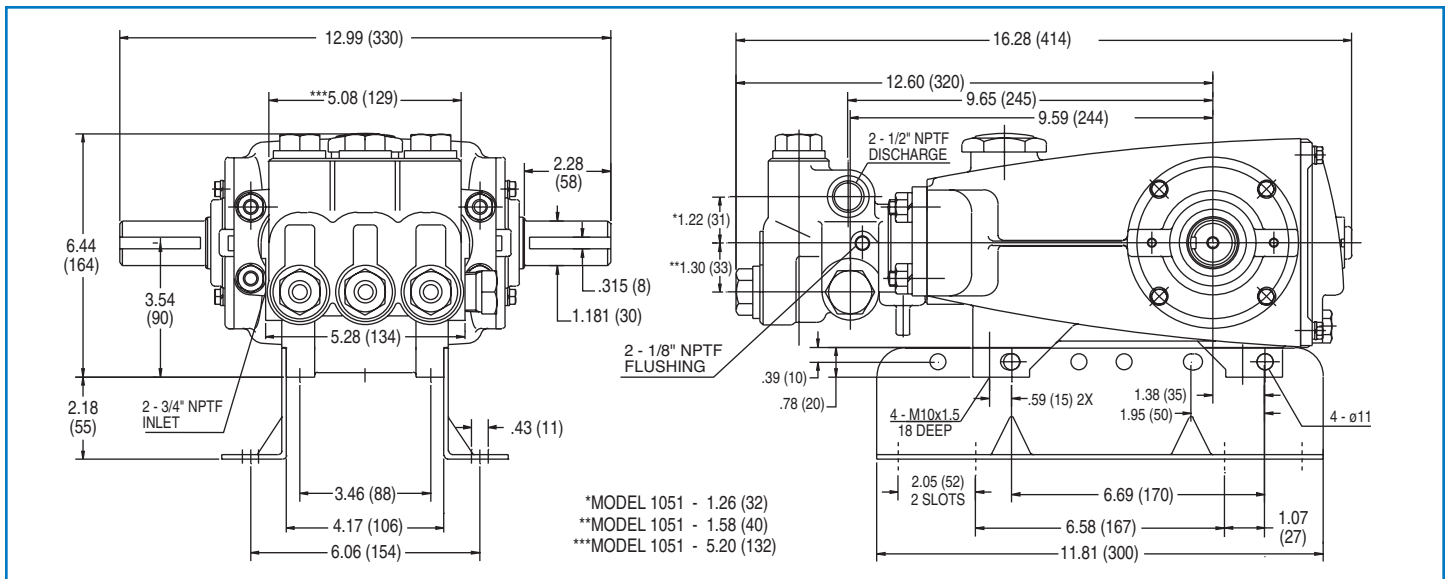
**Bold print part numbers are unique to a particular pump model. Italics are optional items. [ ]** Date of latest production change.

◆ Silicone oil/grease required. = Production parts are different than service parts. R components comply with RoHS Directive.

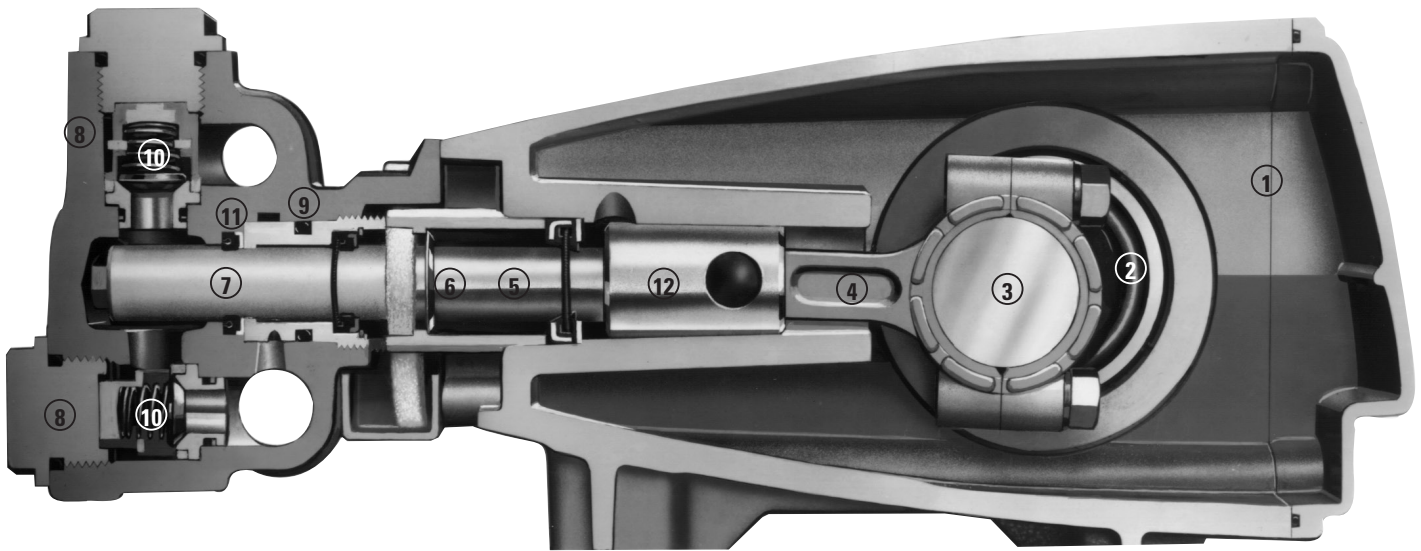
\*Review individual parts in each kit for material code identification.

View Tech Bulletins 002, 003, 024, 027, 035, 036, 043, 045, 046, 048, 049, 052, 053, 072, 074, 077, 083, 087, 089 and 098 for additional information.

MATERIAL CODES (Not Part of Part Number): ABS=ABS Plastic AL=Aluminum BB=Brass BBCP=Brass/Chrome Plated CC=Ceramic CM=Chrome-moly D=Acetal DSS= Duplex SS EPDM=Ethylene Propylene Diene Monomer F=Cast Iron FBR=Fiber FCM=Forged Chrome-moly FPM=Fluorocarbon NAB=Nickel Aluminum Bronze NBR=Medium Nitrile (Buna-N) NY=Nylon POP=Polypropylene PTFE=Pure Polytetrafluoroethylene PVDF=Polyvinylidene Fluoride S=304SS SNG=Special Blend (Buna) STG=Special Blend PTFE White SS=316SS SSZZ=316SS/Zamak STCP=Steel/Chrome Plated SSNP=316SS/Nickel Plated ST= Polyetheretherketon STL=Steel STZP=Steel/Zinc Plated SZZ=304SS/Zamak TNM=Special High Strength



Models 1050, 1051, 1051C, 1051D, 1057



- 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** noted for superior tensile strength and bearing quality.
- 5 High strength **plunger rods** for highload 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, stainless steel, duplex SS or nickel aluminum bronze 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, **V-Packings** offer unmatched performance and seal life.
- 12 **Crossheads** are 360° supported for uncompromising alignment.
- 13 Special **flushed inlet manifold** permits external flush for added cooling with high temperature liquids and lubrication with low lubricity liquids.

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