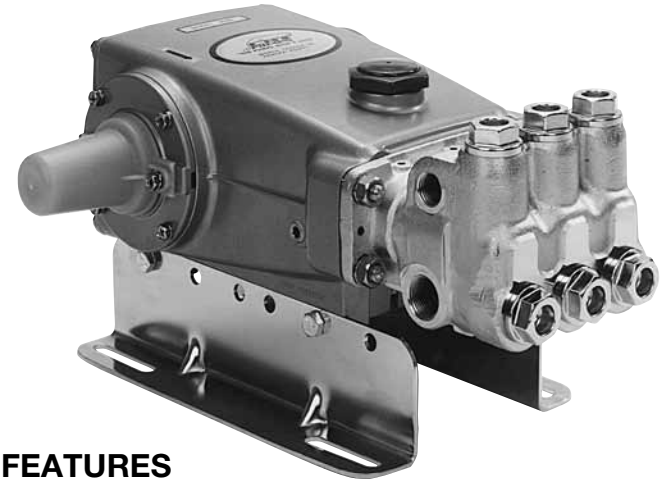
15 Frame Plunger Pumps



Standard Model	**1050**
Stainless Steel Model	**1051**
SS Flushed Model	**1051C**
Duplex SS Model	**1051D**
Nickel Aluminum Bronze Model	**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 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

STANDARD SPECIFICATIONS

	U.S. Measure	Metric Measure
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

DETERMINING THE PUMP R.P.M. $\frac{\text{Rated G.P.M.}}{\text{Rated R.P.M.}} = \frac{\text{"Desired" G.P.M.}}{\text{"Desired" R.P.M.}}$

DETERMINING THE REQUIRED H.P. $\frac{\text{GPM x psi}}{1460} =$ Electric Brake H. P. Required

DETERMINING MOTOR PULLEY SIZE $\frac{\text{Motor Pulley O.D.}}{\text{Pump R.P.M.}} = \frac{\text{Pump Pulley O.D.}}{\text{Motor R.P.M.}}$

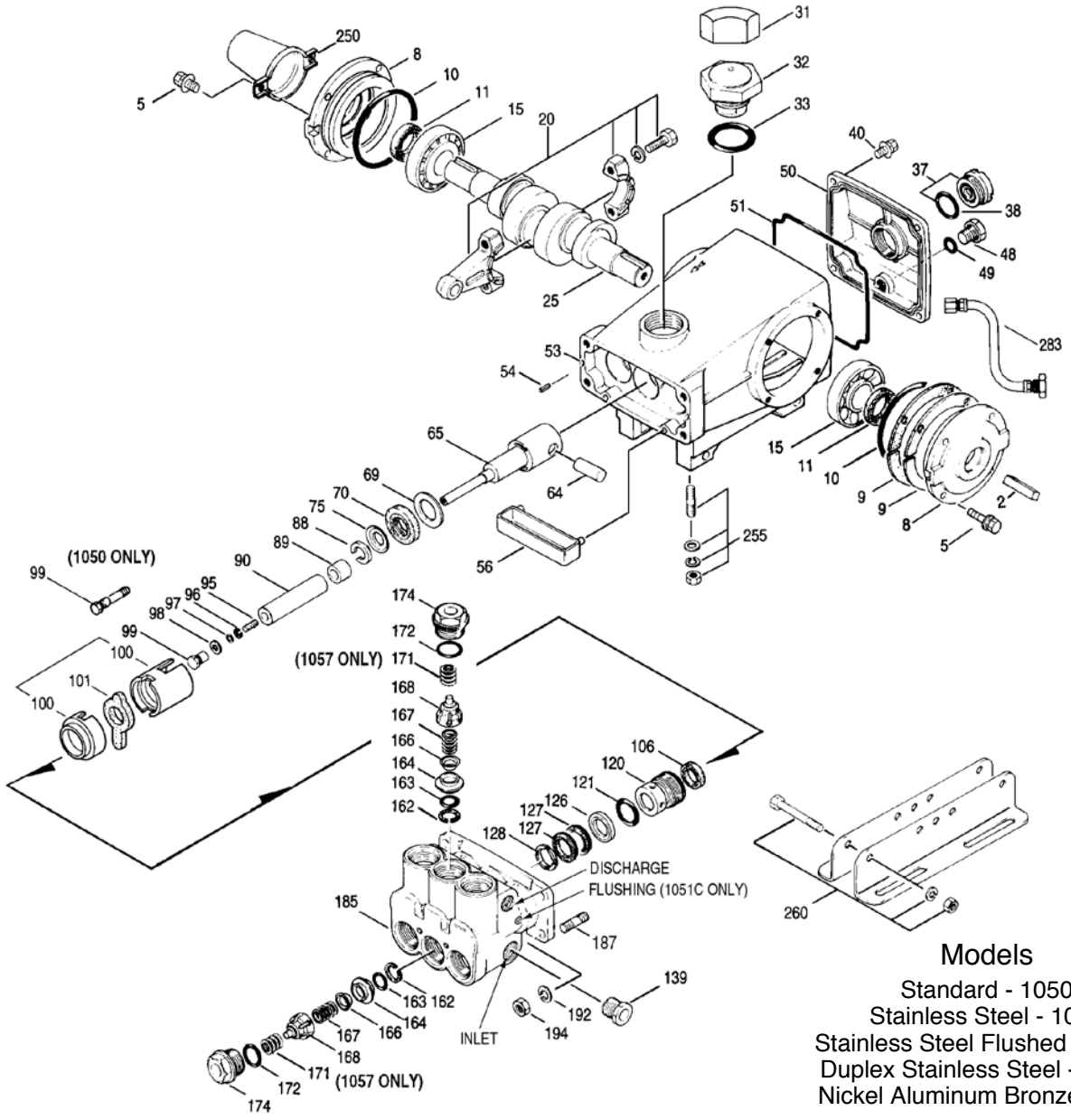
See complete Drive Packages [Incldes: Pulleys, Belts, Hubs, Key] Tech Bulletin 003.
Refer to pump **Service Manual** for repair procedure and additional technical information.

"Customer confidence is our greatest asset"

PARTS LIST

ITEM	PART NUMBER						DESCRIPTION	QTY
	1050	MATL	1051/C/D	MATL	1057	MATL		
2	*30067*	*STL*	*30067*	*STL*	*30067*	*STL*	*Key (M8x7.5x25))*	*1*
5	**92519**	**STZP**	**92538**	**S**	**92538**	**S**	Screw, HHC Sems (M6x16)	8
	125824	***STCP R***	—	—	—	—	*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	***STCP R***	—	—	—	—	*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	STCP R	126592	STCP R	126592	STCP R	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**	**STCP R**	**44005**	**S**	**44005**	**S**	Stud, Manifold (M10x45)	4
192	**126231**	**STCP**	**15847**	**S**	**15847**	**S**	Lockwasher (M10)	4
194	**126522**	**STCP R**	**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, (Incldes: 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

	1050	MATL	1051/C/D	MATL	1057	MATL		
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 (Incldes: 97, 100, 106, 121, 127)*	*1*
	30986	*FPM**	*30986*	*FPM**	*30986*	*FPM**	*Kit, Seal (Incldes: 97, 100, 106, 121, 127)*	*1*
	◆ *33913*	*EPDM**	◆ *33913*	*EPDM**	◆ *33913*	*EPDM**	*Kit, Seal (Incldes: 97, 100, 106, 121, 127)*	*1*
310	*34920*	*NBR*	*34387*	*NBR*	*34387*	*NBR*	*Kit, Valve Preassembled (Incldes: 162, 163, 164, 166, 167, 168, 172)*	*2*
	31256	*FPM*	*30987*	*FPM*	*30987*	*FPM*	*Kit, Valve Preassembled (Incldes: 162, 163, 164, 166, 167, 168, 172)*	*2*
	◆ *31253*	*EPDM*	◆ *31258*	*EPDM*	◆ *31258*	*EPDM*	*Kit, Valve Preassembled (Incldes: 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 (Fill to specified crankcase capacity prior to start-up)*	*2*
—	—	—	*6119*	—	—	—	*Lubricant, Antiseize (1 oz.) (See Tech Bulletin 095)*	*1*

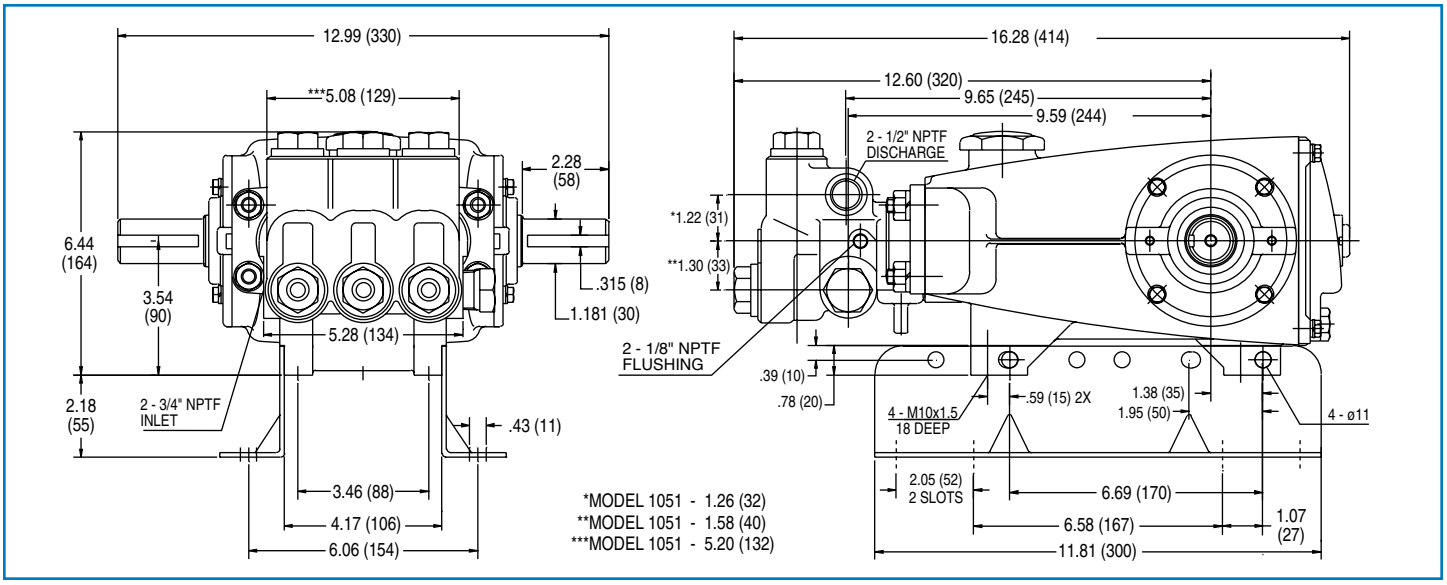
Bold print part numbers are unique to a particular pump model. *Italics are optional items.* [ ] Date of latest production change.

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

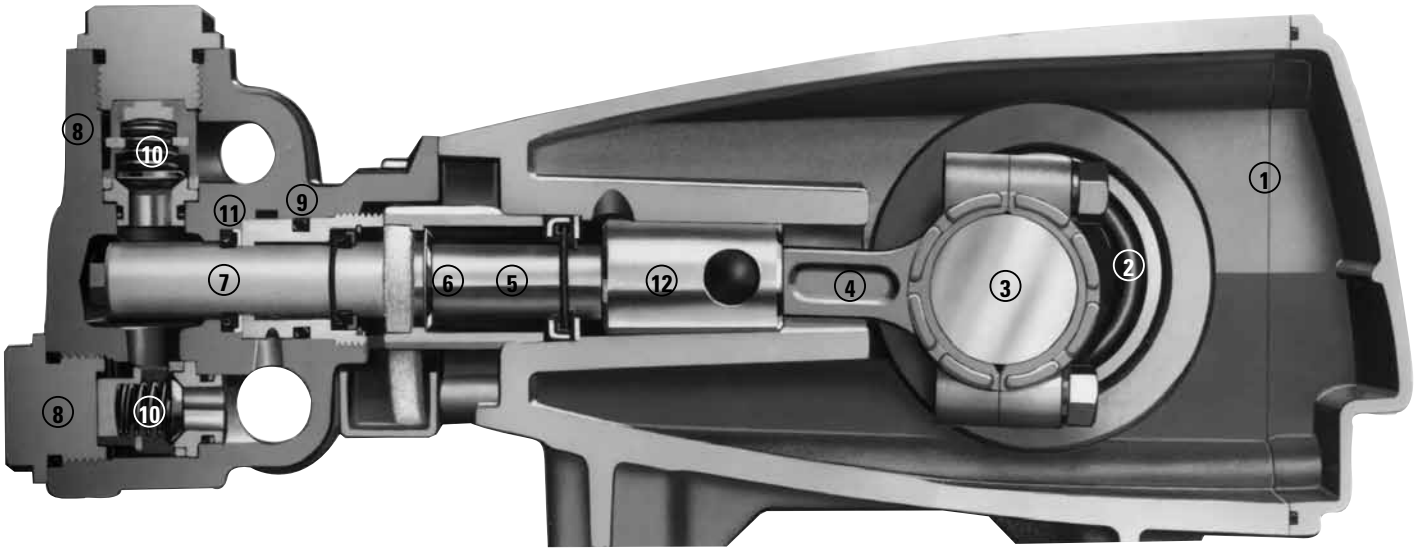
*Review individual parts in each kit for material code identification.

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 Monamer 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=SpecialBlend (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 hard**ness 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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The Pumps with Nine Lives

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