

35 Frame Plunger Pumps

Standard Brass Model

3535

Stainless Steel Model

3531

SS Flushed Model

3531C

Nickel Aluminum Bronze Model

3537

FEATURES

Superior Design

- Triplex plunger design gives smoother liquid flow.
- V-Packings are completely lubricated and cooled by the liquid being pumped.
- Inlet and discharge valve assemblies interchange for easier maintenance.
- 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.

Quality Materials

- Precision design 304 and 316 stainless steel valves and seats are hardened and polished for ultimate seating and extended valve life.
- Forged Brass, 316 Stainless Steel, Duplex Stainless 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 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 means longer bearing life.

Easy Maintenance

- Wet-end is easily serviced without entering crankcase, requiring less time and effort.
- Valve assemblies are accessible without disturbing piping, for quick service.
- 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
Flow	36 GPM	(136 L/M)
Pressure Range	100 to 1200 PSI	(7 to 85 BAR)
Inlet Pressure Range	Flooded to 70 PSI	(Flooded to 4.9 BAR)
RPM	800 RPM	(800 RPM)
Bore	1.575"	(40 mm)
Stroke	1.890"	(48 mm)
Crankcase Capacity	4.2 Qts.	(4 L)
Maximum Liquid Temperature	160°F	(71°C)
Above 130°F call CAT PUMPS for inlet conditions and elastomer recommendations.		
Inlet Ports (2).....	1-1/2" NPTF	(1-1/2 NPTF)
Flushing Ports (2) (3531C).....	1/4" NPTF	1/4" NPTF
Discharge Ports (2)	1" NPTF	(1" NPTF)
Pulley Mounting.....	Either Side	(Either Side)
Shaft Diameter.....	1.378"	(35 mm)
Weight	139 lbs.	(63 kg)
Dimensions (3535).....	24.09 x 18.11 x 9.72"	(612 x 460 x 247 mm)
Dimensions (3531, 3531C, 3537).....	24.33 x 18.11 x 9.72"	(618 x 460 x 247 mm)

ELECTRIC HORSEPOWER REQUIREMENTS

FLOW		PRESSURE			RPM	DRIVE
U.S. GPM	L/M	PSI 800	PSI 1000	PSI 1200		
		BAR 55	BAR 70	BAR 85		Consult CAT PUMPS for Pump and Motor Pulley Sizes
36	136	19.8	24.7	29.7	800	
30	114	16.5	20.6	24.7	667	
25	95	13.7	17.2	20.6	556	

DETERMINING THE PUMP R.P.M.	<u>Rated G.P.M.</u>	=	<u>"Desired" G.P.M.</u>
	<u>Rated R.P.M.</u>		<u>"Desired" R.P.M.</u>
DETERMINING THE REQUIRED H.P.	<u>GPM x PSI</u>	=	Electric Brake
	1460		H. P. Required
DETERMINING MOTOR PULLEY SIZE	<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, additional technical information and **pump warranty**.

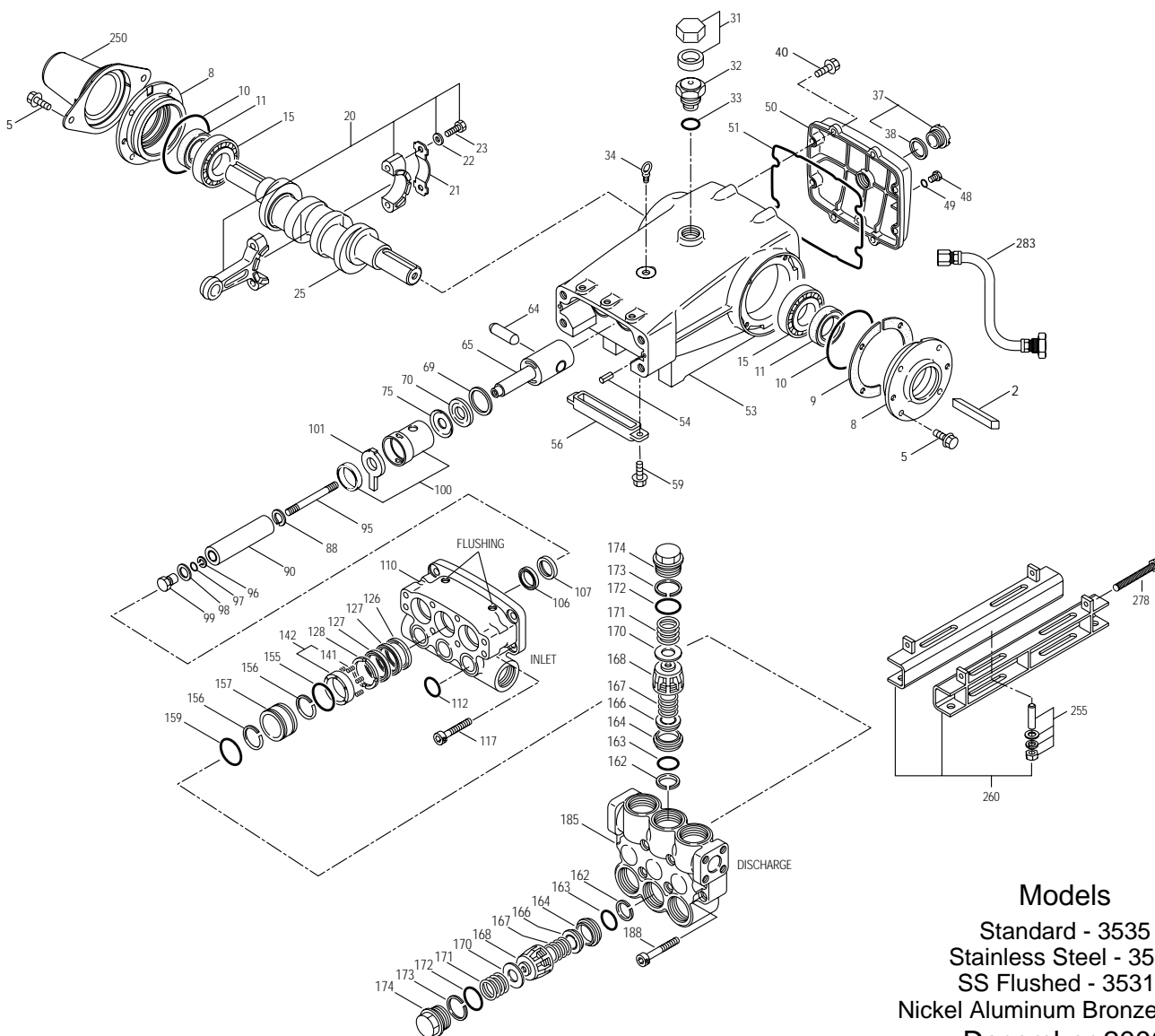
"Customer confidence is our greatest asset"

PARTS LIST

ITEM	PART NUMBER				DESCRIPTION	QTY		
	3535	MATL	3531	MATL	3537	MATL		
2	34021	STL	34021	STL	34021	STL	Key (M10x8x70)	1
5	125753	S	125753	S	125753	S	Screw, HHC Sems (M8x25)	8
8	44542	AL	44542	AL	44542	AL	Cover, Bearing	2
9	815279	FBR	815279	FBR	815279	FBR	Shim, Split 2-Pc	4
10	12398	NBR	12398	NBR	12398	NBR	O-Ring, Bearing Cover - 70D	2
11	13296	NBR	13296	NBR	13296	NBR	Seal, Oil, Crankshaft	2
15	29326	STL	29326	STL	29326	STL	Bearing, Roller	2
20	121467	TNM	121467	TNM	121467	TNM	Rod, Connecting Assy (Incls: 21,22,23) [10/00]	3
21	44940	STZP	44940	STZP	44940	STZP	Locking Washer (M10)	3
22	126749	STCP R	126749	STCP R	126749	STCP R	Locking Washer (M10)	3
	12490	STZP	12490	STZP	12490	STZP	Washer, Flat (M10)	6
	126574	STCP R	126574	STCP R	126574	STCP R	Washer, Flat (M10)	6
23	122045	STZP	122045	STZP	122045	STZP	Screw, HH (M10x55)	6
25	29325	FCM	29325	FCM	29325	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, Oil Filler Cap - 70D	1
34	126743	STCP R	126743	STCP R	126743	STCP R	Bolt, Eye (M12x1.75) (For Lifting Pump Only)	1
37	92241	—	92241	—	92241	—	Gauge, Oil, Bubble w/Gasket	1
38	44428	NBR	44428	NBR	44428	NBR	Gasket, Flat, Oil Gauge - 80D	1
40	125753	S	125753	S	125753	S	Screw, HHC Sems (M8x25)	8
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	45936	AL	45936	AL	45936	AL	Cover, Rear	1
51	16612	NBR	16612	NBR	16612	NBR	O-Ring, Crankcase Cover - 70D	1
53	44487	AL	44487	AL	44487	AL	Crankcase Assy (Incls: 34, 54)	1
54	27488	S	27488	S	27488	S	Pins, Guide	2
56	27790	POP	27790	POP	27790	POP	Pan, Oil	1
59	92538	S	92538	S	92538	S	Screw, Sems HHC (M6x16)	2
64	43864	CM	43864	CM	43864	CM	Pin, Crosshead	3
65	† 45116	SSZZ	† 45116	SSZZ	† 45116	SSZZ	Rod, Plunger	3
69	29338	STZP	29338	STZP	29338	STZP	Washer, Oil Seal	3
	126587	STCP R	126587	STCP R	126587	STCP R	Washer, Oil Seal	3
70	100488	NBR	100488	NBR	100488	NBR	Seal, Oil, Crankcase	3
	44739	FPM	44739	FPM	44739	FPM	Seal, Oil, Crankcase	3
75	43865	S	43865	S	43865	S	Slinger, Barrier	3
88	45676	S	45676	S	45676	S	Washer, Keyhole (M16)	3
90	43921	CC	43921	CC	43921	CC	Plunger (M40x145)	3
95	† 89778	SS	† 89778	SS	† 89778	SS	Stud, Plunger Retainer (M10x135)	3
96	20189	PTFE	20189	PTFE	20189	PTFE	Back-up-Ring, Plunger Retainer	3
97	11345	NBR	11345	NBR	11345	NBR	O-Ring, Plunger Retainer - 70D	3
	11375	FPM	11375	FPM	11375	FPM	O-Ring, Plunger Retainer	3
	◆ 701490	EPDM	◆ 701490	EPDM	◆ 701490	EPDM	O-Ring, Plunger Retainer	3
98	44085	SS	44085	SS	44085	SS	Gasket, Retainer	3
99	44084	SS	44084	SS	44084	SS	Retainer, Plunger (M10)	3
100	814279	PVDF	814279	PVDF	814279	PVDF	Retainer, Seal, 2 Pc.	3
101	44112	—	44112	—	44112	—	Wick, Long Tab	3
106	44113	NBR	44113	NBR	44113	NBR	Seal, LPS w/SS-Spg	3
	44740	FPM	44740	FPM	44740	FPM	Seal, LPS w/SS-Spg	3
	◆ 46955	EPDM	◆ 46955	EPDM	◆ 46955	EPDM	Seal, LPS w/S-Spg	3
107	43925	BB	45381	SS	44115	NAB	Spacer, Lo-Pressure Seal	3
110	46392	BBCP	45365	SS	45124	NAB	Manifold, Inlet	1
	—	—	125397	SS	—	—	Manifold, Inlet, Flushed (1/4" Flush Ports) 3531C ONLY	1
112	11379	NBR	11379	NBR	11379	NBR	O-Ring, Inlet Manifold - 70D	3
	14183	FPM	14183	FPM	14183	FPM	O-Ring, Inlet Manifold	3
	◆ 701491	EPDM	◆ 701491	EPDM	◆ 701491	EPDM	O-Ring, Inlet Manifold - 70D	3
117	44585	S	44585	S	44585	S	Screw, HSH (M14x40)	4
126	43926	BB	48391	D	48391	D	Adapter, Female	3
	—	—	45367	SS	† 45367	SS	Adapter Female	3
127	44609	STG*	44609	STG*	44609	STG*	V-Packing	6
	44741	SFG	44741	SFG	44741	SFG	V-Packing	6
128	43928	BB	45368	SS	† 45368	SS	Adapter, Male	3
141	45113	SS	45113	SS	45113	SS	Springs, Coil	6/18
142	46352	BB	45382	SS	† 45382	SS	Spacer, w/Coil Springs	3
155	48860	NBR	48860	NBR	48860	NBR	O-Ring, V-Packing-Spacer - 90D	3
	20137	FPM	20137	FPM	20137	FPM	O-Ring, V-Packing-Spacer - 70D	3
	◆ 701492	EPDM	◆ 701492	EPDM	◆ 701492	EPDM	O-Ring, V-Packing-Spacer	3
156	48362	D	48362	D	48362	D	Back-up-Ring, Spacer	3
157	† 45369	SS	45369	SS	† 45369	SS	Spacer, V-Packing	3
158	48362	D	48362	D	48362	D	Back-up-Ring, V-Packing-Spacer	3
159	48860	NBR	48860	NBR	48860	NBR	O-Ring, V-Packing-Spacer - 90D	3
	20137	FPM	20137	FPM	20137	FPM	O-Ring, V-Packing-Spacer - 70D	3
	◆ 701492	EPDM	◆ 701492	EPDM	◆ 701492	EPDM	O-Ring, V-Packing-Spacer	3
162	48363	D	48363	D	48363	D	Back-up-Ring, Valve Seat	6
163	26142	NBR	26142	NBR	26142	NBR	O-Ring, Seat - 80D	6
	14330	FPM	14330	FPM	14330	FPM	O-Ring, Seat	6
	◆ 701493	EPDM	◆ 701493	EPDM	◆ 701493	EPDM	O-Ring, Seat	6
164	44727	S	44612	SSL	44612	SSL	Seat, Stepped	6
166	43932	S	44108	SSL	44108	SSL	Valve	6
167	44109	SS	44109	SS	44109	SS	Spring	6
168	44728	PVDF	44728	PVDF	44728	PVDF	Retainer, Spring	6
170	44729	SS	44729	SS	44729	SS	Washer, Spring Retainer	6
171	44644	SS	44644	SS	44644	SS	Coil Spring (70kg), Valve Plug	6
172	89827	NBR	89827	NBR	89827	NBR	O-Ring, Valve Plug - 90D	6
	11747	FPM	11747	FPM	11747	FPM	O-Ring, Valve Plug - 90D	6
	◆ 701494	EPDM	◆ 701494	EPDM	◆ 701494	EPDM	O-Ring, Valve Plug - 70D	6
173	48364	D	48364	D	48364	D	Back-up-Ring, Valve Plug	6
174	46444	FBB	49300	SSD	44643	NAB	Plug, Valve	6
185	76394	BBCP	49299	SSD	76335	NAB	Manifold, Discharge	1
188	89981	S	89981	S	89981	S	Screw, HSH (M12x70)	8
250	44516	NY	44516	NY	44516	NY	Protector, Shaft w/2 Screws, Lockwashers and Washers (Included With Pump)	1

Replace as a set

EXPLODED VIEW



Models
 Standard - 3535
 Stainless Steel - 3531
 SS Flushed - 3531C
 Nickel Aluminum Bronze - 3537
 December 2006

	3535	MATL	3531	MATL	3537	MATL		
255	34018	STCP R	34018	STCP R	34018	STCP R	Kit, Direct Mount	1
	34039	SS	34039	SS	34039	SS	Kit, Direct Mount	1
260	92674	STZP	92674	STZP	92674	STZP	Mounting, Box Assy (Incls: 34018)	1
275	990013	STL	990013	STL	990013	STL	Hub, 'B' 35mm w/Keyway [See Drive Packages, Tech Bulletin 03]	1
278	80540	ZP	80540	ZP	80540	ZP	Screw, HH (M12x100) (Rail Adjusting Screw)	1
279	30278	STZP	30278	STZP	30278	STZP	Oiler (1 oz.)	3
281	30967	—	30967	—	30967	—	Glass, Oiler	3
282	10069	NBR	10069	NBR	10069	NBR	Gasket, Oiler	3
283	34314	—	34314	—	34314	—	Kit, Oil Drain	1
290	6124	—	6124	—	6124	—	Gasket, Liquid (3 oz.)	1
299	814821	BBCP	818372	SS	814522	NAB	Complete Head	1
300	31040	NBR*	31040	NBR*	31040	NBR*	Kit, Seal (Incls: 97,106,112,127,155,156,158,159)	1
	33055	FPM	33055	FPM	33055	FPM	Kit, Seal (Incls: 97,106,112,127,155,156,158,159)	1
	◆ 33262	EPDM*	◆ 33262	EPDM*	◆ 33262	EPDM*	Kit, Seal (Incls: 97,106,112,127,155,156,158,159)	1
310	34235	NBR	34017	NBR	34017	NBR	Kit, Valve (Incls: 162,163,164,166,167,168,170,172,173)	2
	31955	FPM	31955	FPM	31955	FPM	Kit, Valve (Incls: 162,163,164,166,167,168,170,172,173)	2
	◆ 31952	EPDM	◆ 31952	EPDM	◆ 31952	EPDM	Kit, Valve (Incls: 162,163,164,166,167,168,170,172,173)	2
—	819000	F	819000	F	819000	F	Assy, Crankcase Conversion	1
—	714500	SS	714500	SS	714500	SS	C.A.T. (For R.O. or Industrial Applications)	1
—	714506	SS	714506	SS	714506	SS	Adapter (2 per C.A.T.) (See Data Sheet for complete selection)	2
—	6575	—	6575	—	6575	—	Plunger Pump Service DVD	1
—	6100	—	6100	—	6100	—	Oil, Case (12 Bottles) ISO 68 Multi-viscosity Hydraulic (Fill to specified crankcase capacity prior to start-up)	1
—	—	—	6119	—	—	—	Lubricant, Antiseize (1oz)	1

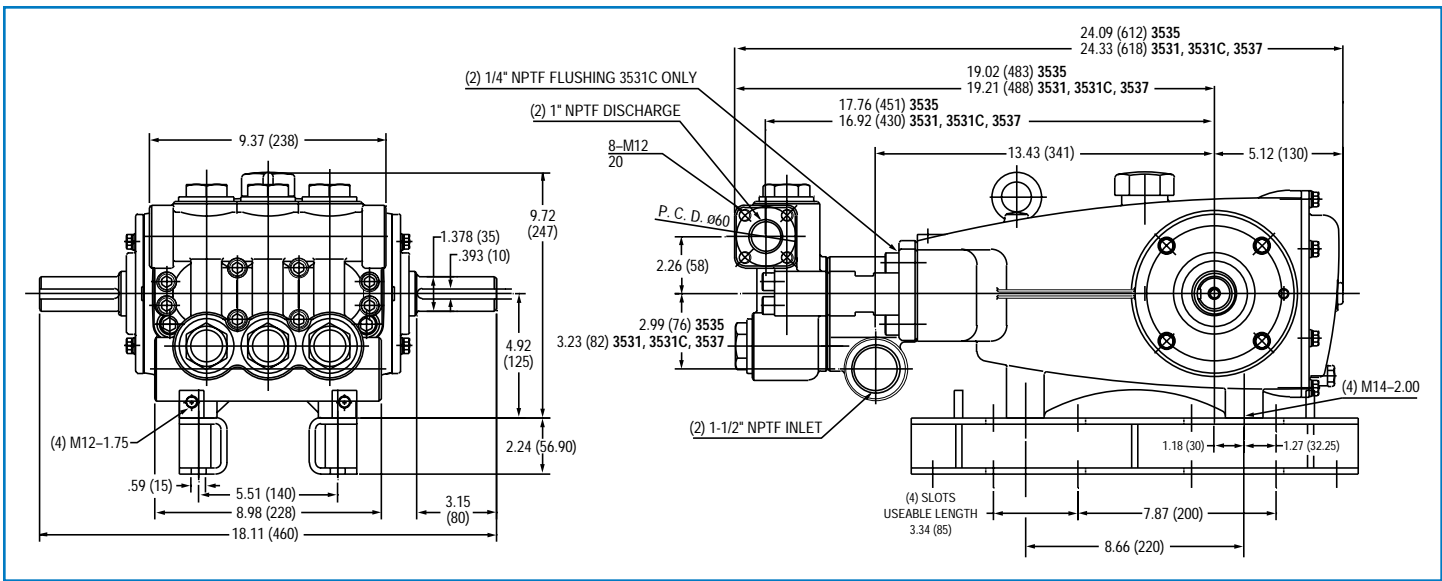
Bold print part numbers are unique to a particular pump model. Italics are optional items. [] Date of latest production change. **◆** Silicone oil/grease required.

† Production parts are different than repair parts. R Components comply with RoHS Directive.

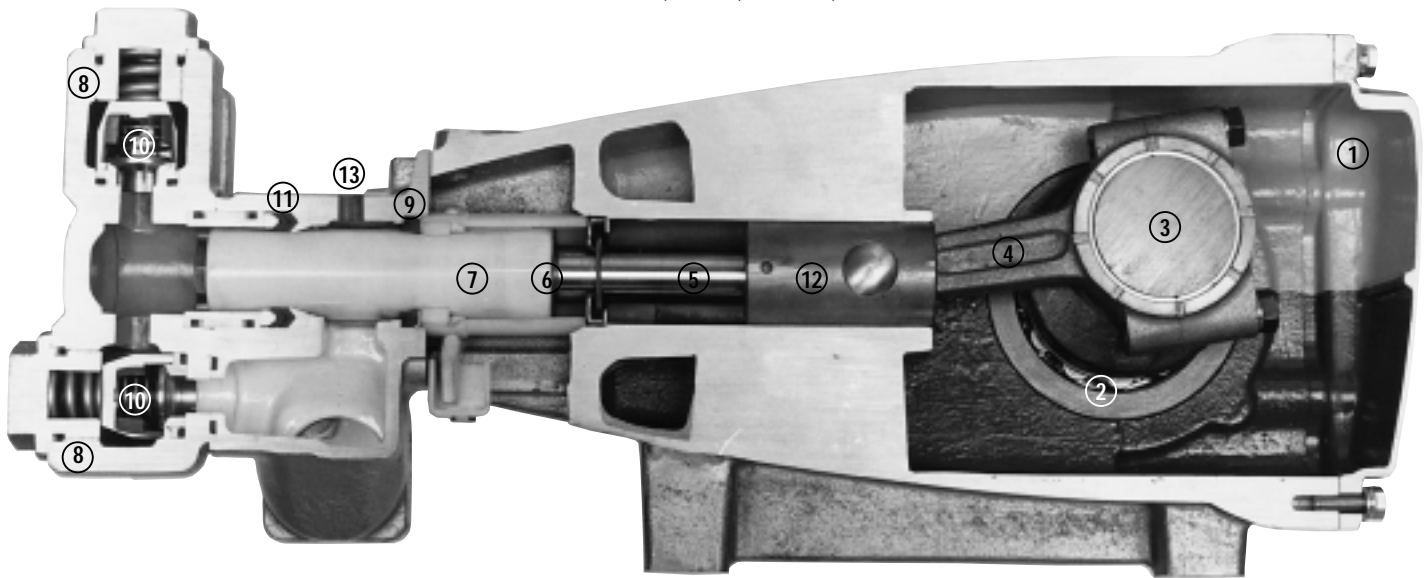
* Review material codes for individual items (STG generally may be used as alternate). **C.A.T. highly recommended for pressurized inlet, R.O. and Industrial applications.**

See Tech Bulletins 03, 024, 035, 036, 040, 041, 043, 050, 052, 053, 069, 074, 077, 083 and 099 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 EPDM=Ethylene Propylene Diene Monomer F=Cast Iron FBB=Forged Brass FBR=Fiber FCM=Forged Chrome-moly FPM=Fluorocarbon NAB=Nickel Aluminum Bronze NBR=Medium Nitrile (Buna-N) NBRSS=Buna, Silicone Free NY=Nylon POP=Polypropylene PTFE=Pure Polytetrafluoroethylene PVDF=Polyvinylidene Fluoride S=304SS SS=316SS SSD=Duplex Stainless Steel SSL=316/Low Carbon SSZZ=316SS/Zamak STCP=Steel/Chrome Plated SFG=Special Blend (FPM) STG=Special Blend (PTFE) White STL=Steel STZP=Steel/Zinc Plated TNM=Special High Strength ZP=Zinc Plated



Models 3535, 3531, 3531C, 3537



- 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 Special stainless steel **plunger rods** with high strength crossheads for longevity and corrosion resistance.
- 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, 316 stainless steel, duplex stainless 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 providing uncompromising alignment.
- 13 Optional special **ported Flushed Inlet Manifold** permits external flush for lubricating and cooling seals when pumping liquids such as DI water, Hi-Temp or low lubricity.

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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