

35 Frame Plunger Pump

Standard Brass Model

3520

Stainless Steel Model

3521

Nickel Aluminum Bronze Model

3527

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

- All stainless steel valves are heat treated and seats are roller burnished for a positive seal and extended valve life.
- Forged Brass, 316 Stainless Steel or Nickel Aluminum Bronze manifolds for strength and corrosion resistance.
- Special concentric, high density, polished, graphite impregnated, solid ceramic plungers are abrasion resistant and result in 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	23 GPM	(87 L/M)
Pressure Range	100 to 2000 PSI	(7 to 140 BAR)
Inlet Pressure Range	Flooded to 70 PSI	(Flooded to 4.9 BAR)
RPM	800 RPM	(800 RPM)
Bore	1.260"	(32 mm)
Stroke	1.890"	(48 mm)
Crankcase Capacity	4.2 Qts.	(4 L)
Maximum Liquid Temperature	160°F	(71°C)
Inlet Ports (2)	1-1/2" NPTF	(1-1/2 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	24.15 x 18.11 x 9.72"	(613.5 x 460 x 247 mm)

HORSEPOWER REQUIREMENTS

FLOW		PRESSURE				RPM
		PSI 1200	PSI 1500	PSI 1800	PSI 2000	
U.S. GPM	L/M	BAR 85	BAR 105	BAR 125	BAR 140	
23	87	18.9	23.6	28.4	31.6	800
20	76	16.5	20.6	24.7	27.4	696
18	68	14.8	18.5	22.2	24.7	626

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. $\frac{\text{GPM} \times \text{PSI}}{1460} = \text{Electric Brake H. P. Required}$

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

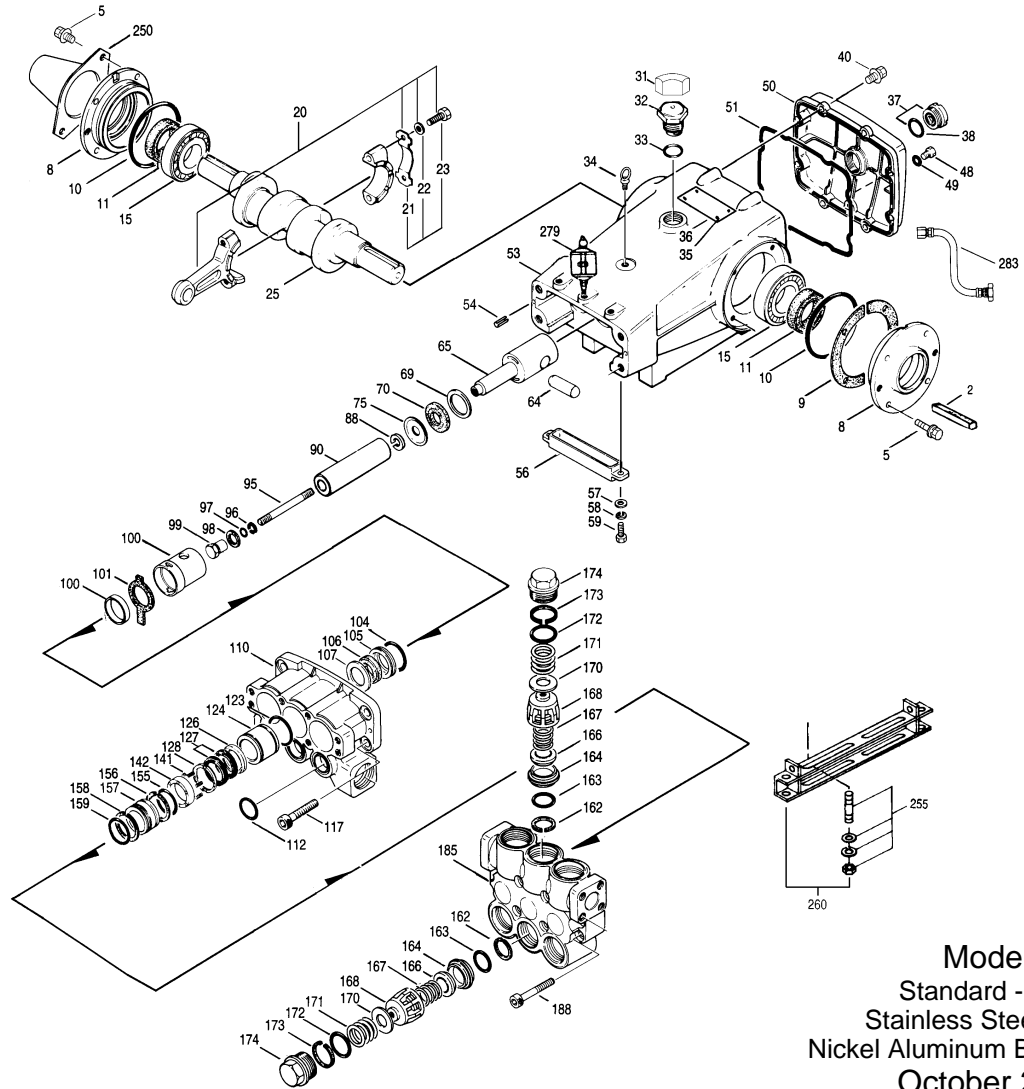
See complete Drive Packages [Incls: Pulleys, Belts, Hubs, Key] Tech Bulletin 003.
Refer to pump Service Manual for repair procedure and additional technical information.

"Customer confidence is our greatest asset"

PARTS LIST

ITEM	PART NUMBER		DESCRIPTION		QTY			
	3520	MATL	3521	MATL	3527	MATL		
2	34021	STL	34021	STL	34021	STL	Key (M10x8x70)	1
5	118824	S	118824	S	118824	S	Screw, HHC Sems (M8x25)	8
8	44542	AL	44542	AL	44542	AL	Cover, Bearing	2
	701138	F	701138	F	701138	F	Cover, Bearing (Use w/701139, 40, 45, 47, 428)	2
9	44543	FBR	44543	FBR	44543	FBR	Shim, Split, Bearing Cover	1
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: 44940, 43641, 88155) [10/00]	3
21	44940	STZP	44940	STZP	44940	STZP	Washer, Locking	3
22	43641	STZP	43641	STZP	43641	STZP	Washer (M10.5x1.5)	6
23	88155	STZP	88155	STZP	88155	STZP	Screw, HH (M10x60F) Replace as a set	3
25	29325	FCM	29325	FCM	29325	FCM	Crankshaft, Dual End	1
31	828710		828710		828710		Protector, Oil Cap	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	44319	STZP	44319	STZP	44319	STZP	Bolt, Eye (M12x1.75)	1
35	701145	AL	701145	AL	701145	AL	Rivet, Serial Plate (Use w/701138, 39, 40, 47, 428)	4
36	701147	AL	701147	AL	701147	AL	Name Plate ((Use w/701138, 39, 40, 45, 428)	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	118824	S	118824	S	118824	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
	701139	F	701139	F	701139	F	Cover, Rear (Use w/701138, 40, 45, 47, 428)	1
51	16612	NBR	16612	NBR	16612	NBR	O-Ring, Cover - 70D	1
53	44559	AL	44559	AL	44559	AL	Crankcase w/Guide Pins	1
	701428	F	701428	F	701428	F	Crankcase w/Guide Pins (Use w/701138, 39, 40, 45, 47)	1
54	27488	S	27488	S	27488	S	Pins, Guide	2
56	27790	PE	27790	PE	27790	PE	Pan, Oil	1
57	—		19933	S	19933	S	Washer (M6)	2
58	—		15849	S	15849	S	Lockwasher, Split (M6)	2
59	—		89618	S	89618	S	Screw, HH (M6x16)	2
59	92538	S	—		—		Screw, HHC Sems (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
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	SS	45676	SS	45676	SS	Washer, Keyhole (M16)	3
90	43957	CC	43957	CC	43957	CC	Plunger (M32x145)	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	44106		44106		44106		Wick, Long Tab	3
104	43875	NBR	43875	NBR	43875	NBR	O-Ring, Inlet Adapter - 70D	3
	44826	FPM	44826	FPM	44826	FPM	O-Ring, Inlet Adapter - 70D	3
	701656	EPDM	701656	EPDM	701656	EPDM	O-Ring, Inlet Adapter	3
105	43961	BB	43961	BB	43961	BB	Inlet Adapter	3
106	44098	NBR	44098	NBR	44098	NBR	Seal, LPS w/SS-Spg	3
	44827	FPM	44827	FPM	44827	FPM	Seal, LPS w/SS-Spg	3
	48244	EPDM	48244	EPDM	48244	EPDM	Seal, LPS w/SS-Spg	3
107	43962	S	44101	SS	44101	SS	Washer	3
110	46392	BBCP	45365	SS	45124	NAB	Manifold, Inlet	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	3
117	44585	S	44585	S	44585	S	Screw, HSH (M14x40)	4
123	12391	NBR	12391	NBR	12391	NBR	O-Ring, V-Packing Cylinder - 70D	3
	13266	FPM	13266	FPM	13266	FPM	O-Ring, V-Packing Cylinder - 70D	3
	701748	EPDM	701748	EPDM	701748	EPDM	O-Ring, V-Packing Cylinder	3
124	46348	BB	45563	SSL	45563	SSL	Cylinder, V-Packing	3
126	43963	BB	48390	D	48390	D	Adapter, Female	3
	—		45564	SS	45564	SS	Adapter, Female	3
127	44608	STG*	44608	STG*	44608	STG*	V-Packing	6
	44829	SFG	44829	SFG	44829	SFG	V-Packing	6
128	43965	BB	45565	SS	45565	SS	Adapter, Male	3
141	45113	SS	45113	SS	45113	SS	Spring, Coil	6/18
142	46349	BB	45566	SS	45566	SS	Spacer, w/Coil Springs	3
155	25495	NBR	25495	NBR	25495	NBR	O-Ring, V-Packing Spacer - 70D	3
	11748	FPM	11748	FPM	11748	FPM	O-Ring, V-Packing Spacer - 70D	3
	701749	EPDM	701749	EPDM	701749	EPDM	O-Ring, V-Packing Spacer - 70D	3
156	48371	D	48371	D	48371	D	Back-up-Ring, V-Packing Spacer	3
157	43966	BB	45674	SS	45674	SS	Spacer, V-Packing	3
158	48362	D	48362	D	48362	D	Back-up-Ring, V-Packing Spacer	3
159	18697	NBR	18697	NBR	18697	NBR	O-Ring, V-Packing Spacer - 70D	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	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	SS	44612	SS	Seat, Stepped	6
166	43932	S	44108	SS	44108	SS	Valve	6
167	44109	SS	44109	SS	44109	SS	Spring	6
168	44728	PVDF	44728	PVDF	44728	PVDF	Retainer, Spring	6

EXPLODED VIEW



Models
 Standard - 3520
 Stainless Steel - 3521
 Nickel Aluminum Bronze - 3527
 October 2001

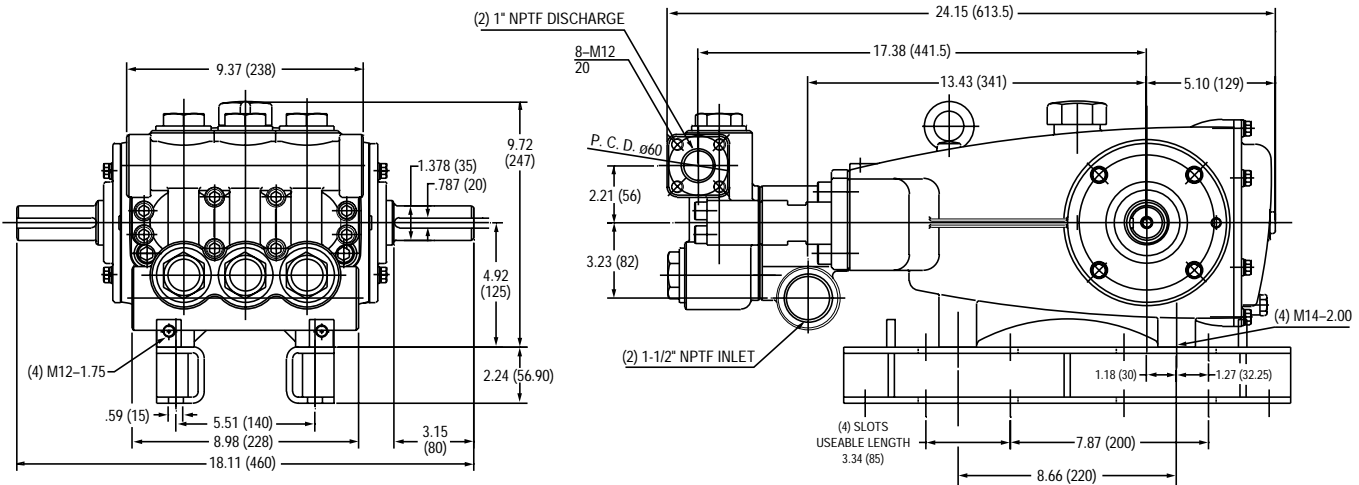
	3520	MATL	3521	MATL	3527	MATL		
170	44729	SS	44729	SS	44729	SS	Washer, Spring Retainer	6
171	44730	S	44644	SS	44644	SS	Coil Spring (70kg), Valve Plug	6
172	89827	NBR	89827	NBR	89827	NBR	O-Ring, Valve Plug - 90D	6
	11747	FPM	11747	FPM	11747	FPM	O-Ring, Valve Plug - 90D	6
	♦ 701494	EPDM	♦ 701494	EPDM	♦ 701494	EPDM	O-Ring, Valve Plug - 70D	6
173	48364	D	48364	D	48364	D	Back-up-Ring, Valve Plug	6
174	46444	FBB	48419	SSNP	46443	NAB	Plug, Valve	6
● 185	46394	BBCP	46326	SSL	46335	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 89283 screws (Included with pump)	1 ●
● 255	701140	F	701140	F	701140	F	Protector, Shaft (Use w/701138, 39 45, 47, 428)	1 ●
● 260	34018	STZP	34018	STZP	34018	STZP	Mount, Stud Kit	1 ●
275	34039	SS	34039	SS	34039	SS	Mount, Stud Kit	1 ●
283	92674	STZP	92674	STZP	92674	STZP	Mounting, Box Assy	1 ●
279	—	—	—	—	—	—	Pulley, Hub & Key [See Drive Packages, Tech Bulletin 003]	1 ●
281	34334	—	34334	—	34334	—	Kit, Oil Drain	1 ●
282	30278	STZP	30278	STZP	30278	STZP	Oiler (1 oz.)	3 ●
● 299	30967	—	30967	—	30967	—	Glass, Oiler	3 ●
300	10069	NBR	10069	NBR	10069	NBR	Gasket, Oiler	3
	814822	BBCP	814797	SS	815438	NAB	Head, Complete	1 ●
	31039	NBR*	31039	NBR*	31039	NBR*	Kit, Seal (Incls: 97,104,106,112,123,127,155,156,158,159)	1
	33259	FPM	33259	FPM	33259	FPM	Kit, Seal (Incls: 97,104,106,112,123,127,155,156,158,159)	1
	♦ 33456	EPDM*	♦ 33456	EPDM*	♦ 33456	EPDM*	Kit, Seal (Incls: 97,104,106,112,123,127,155,156,158,159)	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
● —	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 ●
—	6565.3	—	6565.3	—	6565.3	—	Service Video	1

● Industrial discount. **Bold print part numbers are unique to a particular pump model.** *Italics are optional items.* ♦ Silicone oil/grease required. [] Date of latest production change.
 *Review material codes for individual items (STG generally may be used as alternate). † Production Parts Nickel Aluminum Bronze, Replacement Parts are 316 Stainless Steel.

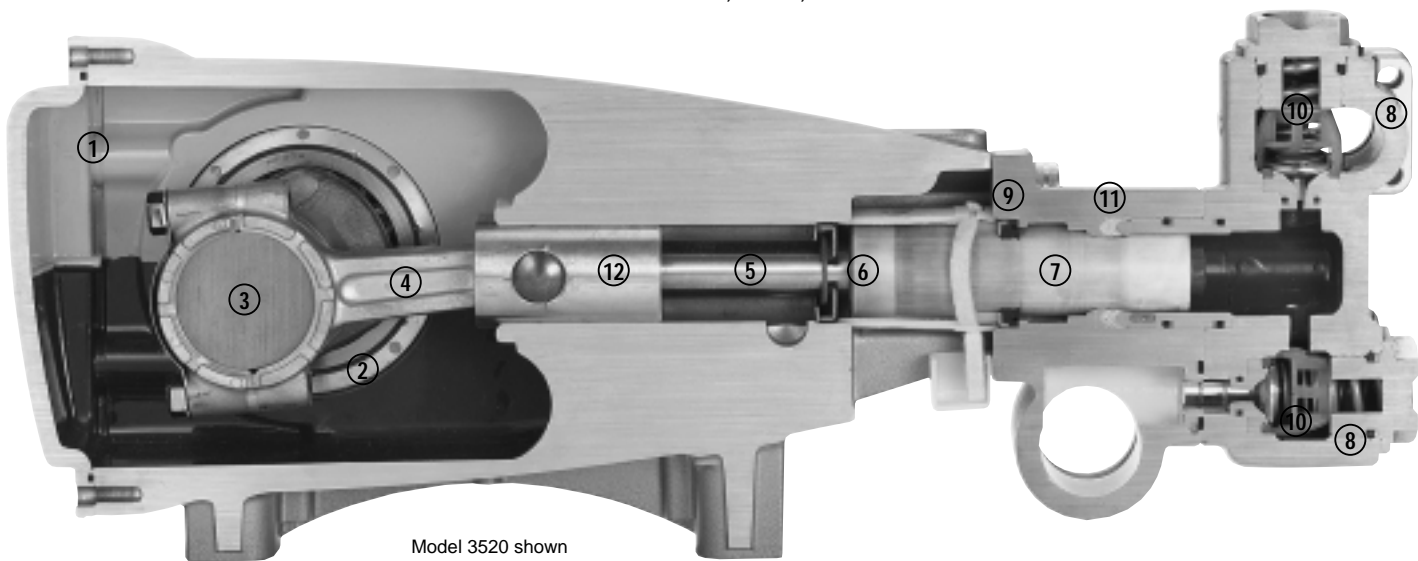
Pressurized Inlet and C.A.T. highly recommended for Hi-Temp, R.O. and industrial applications.

See Tech Bulletins 002, 003, 024, 040, 041, 050, 052, 053, 064, 069, 074, 077 and 083 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=Delrin®
 F=Cast Iron FBR=Fiber FCM=Forged Chrome-moly FPM=Fluorocarbon (Viton®) NAB=Nickel Aluminum Bronze NBR=Medium Nitrile (Buna-N) NBRS=Buna, Silicone Free
 NY=Nylon PE=Polyethylene PTFE=Pure Teflon® PVDF=Fluoroplastic (High Strength) S=304SS SS=316SS SFG=Special Blend (Viton®) SSL=316SS/Low Carbon
 STG=Special Blend (Teflon®) White STL=Steel STZP=Steel/Zinc Plated SSNP=316SS/Nickel Plated SSZZ=316SS/Zamak TNM=Special High Strength



Models 3520, 3521, 3527



Model 3520 shown

- 1 Die cast aluminum **crankcase** means high strength, light weight, 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 high strength **connecting rods** are noted for superior 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, graphite impregnated, solid ceramic **plungers** are abrasion resistant and result in extended seal life.
- 8 **Manifolds** are a high tensile strength forged brass, 316 stainless steel 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, positive seating and long life.
- 11 Specially formulated, CAT PUMP exclusive, **V-Packings** offer unmatched performance and seal life.
- 12 **Crossheads** are 360° supported for uncompromising alignment.

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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