

38 Frame Block-Style Stainless Steel Plunger Pump

Standard Models 3821, 3831

Flushed Models 3821K, 3831K

FEATURES

Superior Design

- Triplex plunger design provides smoother liquid flow.
- Inlet and discharge valve assemblies interchange for easier maintenance.
- Oil bath crankcase assures optimum lubrication.
- Close tolerance concentricity of the ceramic plunger maximizes seal life.
- **Standard Models:** Lo-Pressure Seals and V-Packings are completely lubricated and cooled by the liquid being pumped.
- **Flushed Models:** Special ported inlet manifold permits liquid to cool or flush between V-Packings and Lo-Pressure Seals providing protection against high temperatures or contaminating pumped liquids.

Quality Materials

- Precision design 316 stainless steel valves are hardened and polished for ultimate seating and extended valve life.
- 316 SSL block-style 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.
- 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

MODEL 3821, 3821K

Flow.....23 GPM (87 L/M)
Pressure Range.....100 to 2000 PSI (7 to 140 BAR)
Bore.....1.260" (32 mm)

MODEL 3831, 3831K

Flow.....36 GPM (136 L/M)
Pressure Range.....100 to 1200 PSI (7 to 85 BAR)
Bore.....1.575" (40 mm)

COMMON SPECIFICATIONS

Inlet Pressure*.....Flooded to 70 PSI (Flooded to 4.9 BAR)
RPM800 RPM (800 RPM)
Stroke.....1.890" (48 mm)
Crankcase Capacity.....4.2 Qts. (4 L)
Maximum Liquid Temperature160°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).....1/2" NPTF (1/2" NPTF)
Discharge Ports (2).....1" NPTF (1" NPTF)
Pulley MountingEither Side (Either Side)
Shaft Diameter.....1.378" (35 mm)
Weight.....167 lbs. (75 kg)
Dimensions.....24.4 x 18.11 x 9.37" (620 x 460 x 238 mm)

*"K" models have special inlet ports for cooling/flushing, containment of hazardous liquids and high inlet pressure. Contact CAT PUMPS for additional information.

HORSEPOWER REQUIREMENTS

MODEL	FLOW		PRESSURE						RPM
	U.S. GPM	L/M	PSI 800	PSI 1000	PSI 1200	PSI 1500	PSI 1800	PSI 2000	
			BAR 55	BAR 70	BAR 85	BAR 105	BAR 125	BAR 140	
3821	23	87	N/A	N/A	N/A	23.7	28.4	31.6	800
3821K	20	76	N/A	N/A	N/A	20.6	24.7	27.4	696
	18	68	N/A	N/A	N/A	18.5	22.2	24.7	626
3831	36	136	19.8	24.7	29.7	N/A	N/A	N/A	800
3831K	30	114	16.5	20.6	24.7	N/A	N/A	N/A	667
	25	95	13.7	17.2	20.6	N/A	N/A	N/A	556

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

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.

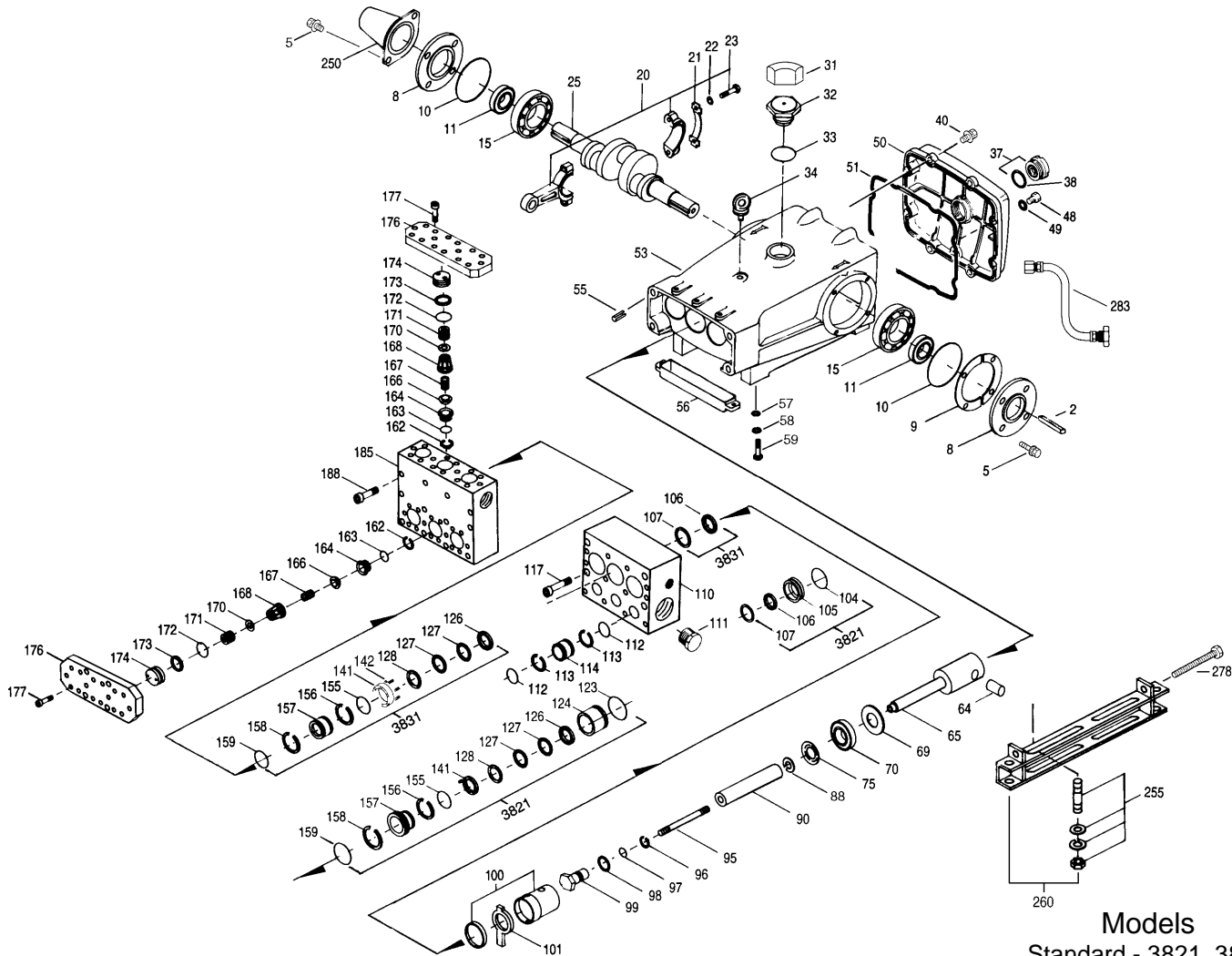
"Customer confidence is our greatest asset"

PARTS LIST

ITEM	3821	MATL	3821K	MATL	3831	MATL	3831K	MATL	DESCRIPTION	QTY
2	34021	STL	34021	STL	34021	STL	34021	STL	Key (M10x8x70)	1
5	118824	S	118824	S	118824	S	118824	S	Screw, Sems HH (M8x25)	8
8	44542	AL	44542	AL	44542	AL	44542	AL	Cover, Bearing	2
9	44543	FBR	44543	FBR	44543	FBR	44543	FBR	Shim, Bearing, Cover	4
10	12398	NBR	12398	NBR	12398	NBR	12398	NBR	O-Ring, Bearing Cover - 70D	2
11	13296	NBR	13296	NBR	13296	NBR	13296	NBR	Seal, Oil, Crankshaft	2
15	29326	STL	29326	STL	29326	STL	29326	STL	Bearing, Roller	2
20	121467	TNM	121467	TNM	121467	TNM	121467	TNM	Assy, Connecting Rod (Incls: 21,22,23) [10/00]	3
21	44940	STZP	44940	STZP	44940	STZP	44940	STZP	Washer, Locking (M10)	3
22	12490	STZP	12490	STZP	12490	STZP	12490	STZP	Washer, Flat (M10)	6
23	122045	STZP	122045	STZP	122045	STZP	122045	STZP	Screw, Con Rod, HH (M10x55)	6
25	29325	FCM	29325	FCM	29325	FCM	29325	FCM	Crankshaft, Dual End	1
31	828710	—	828710	—	828710	—	828710	—	Protector, Oil Cap	1
32	43211	ABS	43211	ABS	43211	ABS	43211	ABS	Cap, Oil Filler	1
33	14177	NBR	14177	NBR	14177	NBR	14177	NBR	O-Ring, Oil Filler Cap - 70D	1
34	44319	STZP	44319	STZP	44319	STZP	44319	STZP	Bolt, Eye (M12)	1
37	92241	—	92241	—	92241	—	92241	—	Gauge, Oil Bubble w/Gasket	1
38	44428	NBR	44428	NBR	44428	NBR	44428	NBR	Gasket, Flat, Oil Gauge - 80D	1
40	118824	S	118824	S	118824	S	118824	S	Screw, Sems HH (M8x25)	8
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	45936	AL	45936	AL	45936	AL	45936	AL	Cover, Rear	1
51	16612	NBR	16612	NBR	16612	NBR	16612	NBR	O-Ring, Rear Cover - 70D	1
53	44559	AL	44559	AL	44559	AL	44559	AL	Crankcase	1
55	27488	S	27488	S	27488	S	27488	S	Pins, Guide	2
56	27790	PE	27790	PE	27790	PE	27790	PE	Pan, Oil	1
57	19933	S	19933	S	19933	S	19933	S	Washer (M6)	2
58	15849	S	15849	S	15849	S	15849	S	Lockwasher, Split (M6)	2
59	89618	S	89618	S	89618	S	89618	S	Screw, HH (M6x16)	2
64	43864	CM	43864	CM	43864	CM	43864	CM	Pin, Crosshead	3
65	45116	SSZZ	45116	SSZZ	45116	SSZZ	45116	SSZZ	Rod, Plunger	3
69	29338	STZP	29338	STZP	29338	STZP	29338	STZP	Seal, Washer, Oil	3
70	100488	NBRS	100488	NBRS	100488	NBRS	100488	NBRS	Seal, Oil, Crankcase	3
	44739	FPM	44739	FPM	44739	FPM	44739	FPM	Seal, Oil, Crankcase	3
75	43865	S	43865	S	43865	S	43865	S	Slinger, Barrier	3
88	45676	SS	45676	SS	45676	SS	45676	SS	Washer, Keyhole (M16)	3
90	43957	CC	43957	CC	43921	CC	43921	CC	Plunger (M32x145) (M40x145)	3
95	89778	SS	89778	SS	89778	SS	89778	SS	Stud, Plunger Retainer (M10x135)	3
96	20189	PTFE	20189	PTFE	20189	PTFE	20189	PTFE	Back-up-Ring, Plunger Retainer	3
97	11345	NBR	11345	NBR	11345	NBR	11345	NBR	O-Ring, Plunger Retainer - 70D	3
	11375	FPM	11375	FPM	11375	FPM	11375	FPM	O-Ring, Plunger Retainer	3
	701490	EPDM	701490	EPDM	701490	EPDM	701490	EPDM	O-Ring, Plunger Retainer	3
98	44085	SS	44085	SS	44085	SS	44085	SS	Gasket, Plunger Retainer	3
99	44084	SS	44084	SS	44084	SS	44084	SS	Retainer, Plunger (M10)	3
100	814279	PVDF	814279	PVDF	814279	PVDF	814279	PVDF	Retainer, Seal, 2 Pc. (Incls: 44119, 44367)	3
101	44106	—	44106	—	44112	—	44112	—	Wick , Long Tab	3
104	43875	NBR	43875	NBR	—	—	—	—	O-Ring, Inlet Adapter - 70D	3
	44826	FPM	44826	FPM	—	—	—	—	O-Ring, Inlet Adapter - 70D	3
	701656	EPDM	701656	EPDM	—	—	—	—	O-Ring, Inlet Adapter - 70D	3
105	45562	SS	45562	SS	—	—	—	—	Adapter, Inlet	3
106	44098	NBR	44098	NBR	44113	NBR	44113	NBR	Seal, LPS w/SS-Spg	3
	44827	FPM	44827	FPM	44740	FPM	44740	FPM	Seal, LPS w/SS-Spg	3
	48244	EPDM	48244	EPDM	46955	EPDM	46955	EPDM	Seal, LPS w/S-Spg	3
107	44101	SS	44101	SS	45381	SS	45381	SS	Washer, LPS Seal	3
110	701286	SSL	—	701286	SSL	—	—	—	Manifold, Inlet, Block-Style	1
	—	—	701408	SSL	—	—	701408	SSL	Manifold, Inlet, Block-Style, Flushed	1
111	701116	SS	701116	SS	701116	SS	701116	SS	Plug, Inlet (1-1/2" NPT)	1
112	701794	NBR	701794	NBR	701794	NBR	701794	NBR	O-Ring, Inlet Spacer - 70D	6
	701318	FPM	701318	FPM	701318	FPM	701318	FPM	O-Ring, Inlet Spacer - 75D	6
	701495	EPDM	701495	EPDM	701495	EPDM	701495	EPDM	O-Ring, Inlet Spacer - 70D	6
113	701319	PTFE	701319	PTFE	701319	PTFE	701319	PTFE	Back-up-Ring, Inlet Spacer	6
114	701317	SS	701317	SS	701317	SS	701317	SS	Spacer, Inlet	3
117	701252	SS	701252	SS	701252	SS	701252	SS	Screw, HSH (M14x100)	4
123	12391	NBR	12391	NBR	—	—	—	—	O-Ring, V-Packing Cylinder - 70D	3
	13266	FPM	13266	FPM	—	—	—	—	O-Ring, V-Packing Cylinder - 70D	3
	701657	EPDM	701657	EPDM	—	—	—	—	O-Ring, V-Packing Cylinder - 70D	3
124	45563	SSL	45563	SSL	—	—	—	—	Cylinder, V-Packing	3
126	45564	SS	45564	SS	45367	SS	45367	SS	Adapter, Female	3
127	44608	STG*	44608	STG*	44609	STG*	44609	STG*	V-Packing	6
	44829	SFG	44829	SFG	44741	SFG	44741	SFG	V-Packing	6
128	45565	SS	45565	SS	45368	SS	45368	SS	Adapter, Male	3
141	45113	SS	45113	SS	45113	SS	45113	SS	Springs, Coil	6/18
142	45566	SS	45566	SS	45382	SS	45382	SS	Spacer w/Coil Springs	3
155	25495	NBR	25495	NBR	18697	NBR	18697	NBR	O-Ring, V-Packing Spacer - 70D	3
	11748	FPM	11748	FPM	20137	FPM	20137	FPM	O-Ring, V-Packing Spacer - 70D	3
	701492	EPDM	701492	EPDM	701492	EPDM	701492	EPDM	O-Ring, V-Packing Spacer - 70D	3
156	48362	D	48362	D	48362	D	48362	D	Back-up-Ring, V-Packing Spacer	3
157	45674	SS	45674	SS	45369	SS	45369	SS	Spacer, V-Packing	3
158	48371	D	48371	D	48362	D	48362	D	Back-up-Ring, V-Packing Spacer	3
159	18697	NBR	18697	NBR	18697	NBR	18697	NBR	O-Ring, V-Packing Spacer - 70D	3
	20137	FPM	20137	FPM	20137	FPM	20137	FPM	O-Ring, V-Packing Spacer - 70D	3
	701749	EPDM	701749	EPDM	701492	EPDM	701492	EPDM	O-Ring, V-Packing Spacer - 70D	3
162	48363	D	48363	D	48363	D	48363	D	Back-up-Ring, Seat	6
163	26142	NBR	26142	NBR	26142	NBR	26142	NBR	O-Ring, Seat	6
	14330	FPM	14330	FPM	14330	FPM	14330	FPM	O-Ring, Seat	6
	701493	EPDM	701493	EPDM	701493	EPDM	701493	EPDM	O-Ring, Seat	6
164	44612	SS	44612	SS	44612	SS	44612	SS	Seat, Stepped	6
166	44108	SS	44108	SS	44108	SS	44108	SS	Valve	6
167	44109	SS	44109	SS	44109	SS	44109	SS	Spring	6
168	44728	PVDF	44728	PVDF	44728	PVDF	44728	PVDF	Retainer, Spring	6
170	44729	SS	44729	SS	44729	SS	44729	SS	Washer, Spring Retainer	6
171	44644	SS	44644	SS	44644	SS	44644	SS	Spring, Coil (70kg), Valve Plug	6
172	89827	NBR	89827	NBR	89827	NBR	89827	NBR	O-Ring, Valve Plug - 90D	6
	11747	FPM	11747	FPM	11747	FPM	11747	FPM	O-Ring, Valve Plug - 90D	6
	701494	EPDM	701494	EPDM	701494	EPDM	701494	EPDM	O-Ring, Valve Plug - 70D	6
173	48364	D	48364	D	48364	D	48364	D	Back-up-Ring, Valve Plug	6

Replace as a set

EXPLODED VIEW



Models
 Standard - 3821, 3831
 Flushed - 3821K, 3831K
 June 2004

	3821	MATL	3821K	MATL	3831	MATL	3831K	MATL		
174	701278	SS	701278	SS	701278	SS	701278	SS	Plug, Valve	6
176	701316	SS	701316	SS	701316	SS	701316	SS	Cover, Valve	2
177	87951	S	87951	S	87951	S	87951	S	Screw, HSH (M10x30)	32
185	701315	SSL	701315	SSL	701315	SSL	701315	SSL	Manifold, Discharge, Block-Style	1
188	701279	S	701279	S	701279	S	701279	S	Screw, HSH (M12x100)	12
196	701342	SS	701342	SS	701342	SS	701342	SS	Plug, Discharge (1" NPT) Not Shown	1
250	44516	NY	44516	NY	44516	NY	44516	NY	Protector, Shaft w/2 89283 screws (Included with Pump)	1
255	34039	SS	34039	SS	34039	SS	34039	SS	Kit, Stud Mount	1
260	92674	STZP	92674	STZP	92674	STZP	92674	STZP	Mount, Rail Assy (Incls: 43888, 34018)	1
275	990013	STL	990013	STL	990013	STL	990013	STL	Hub, "B", (Keyway M10x8x70) [See Drive Packages Tech 003]	1
278	80540	ZP	80540	ZP	80540	ZP	80540	ZP	Screw, HH (M12x100) (Rail Adjusting Screw)	1
279	30278	STZP	30278	STZP	30278	STZP	30278	STZP	Oiler (1 oz.) Not Shown	3
281	30967	—	30967	—	30967	—	30967	—	Glass, Oiler Not Shown	3
282	10069	NBR	10069	NBR	10069	NBR	10069	NBR	Gasket, Oiler Not Shown	3
283	34334	—	34334	—	34334	—	34334	—	Kit, Oil Drain	1
290	6104	—	6104	—	6104	—	6104	—	Gasket, Liquid (1 oz.)	1
299	901401	SSL	—	—	901400	SSL	—	—	Head, Complete, Block-Style	1
	—	—	901405	SSL	—	—	901404	SSL	Head, Complete, Block-Style, Flushed	1
300	701699	NBR	701699	NBR	701698	NBR	701698	NBR	Kit, Seal (Incls: 97,104,106,112,113,123,127,155,156,158,159)	1
	33269	FPM	33269	FPM	33268	FPM	33268	FPM	Kit, Seal (Incls: 97,104,106,112,113,123,127,155,156,158,159)	1
	701714	EPDM	701714	EPDM	701797	EPDM	701797	EPDM	Kit, Seal (Incls: 97,104,106,112,113,123,127,155,156,158,159)	1
310	34017	NBR	34017	NBR	34017	NBR	34017	NBR	Kit, Valve (Incls: 162,163,164,166,167,168,170,172,173)	2
	31955	FPM	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	31952	EPDM	Kit, Valve (Incls: 162,163,164,166,167,168,170,172,173)	2
	819000	F	819000	F	819000	F	819000	F	Assembly, Crankcase, CAST IRON Conversion	1
370	—	—	990663	—	—	—	990663	—	Assembly, Flushing, 5 gal., 115V, 1.1 Amp, 1/2"NPT	1
	714500	SS	714500	SS	714500	SS	714500	SS	C.A.T. (For R.O. or Industrial Applications)	1
	714506	SS	714506	SS	714506	SS	711506	SS	Adapter (2 per C.A.T.) (See Data Sheet for complete selection)	2
	6565.7	—	6565.7	—	6565.7	—	6565.7	—	Video, Plunger Pump Service	1
	6100	—	6100	—	6100	—	6100	—	Oil, Case (12-21 oz. Bottles) ISO 68 Multi-Viscosity 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. ♦ Silicone oil/grease required. [] Date of latest production change.

* Review material codes for individual items (SNG and STG generally may be used as alternates).

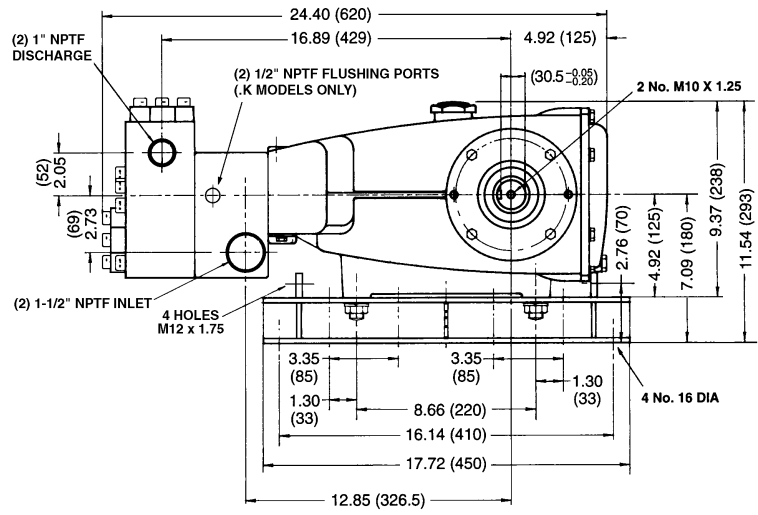
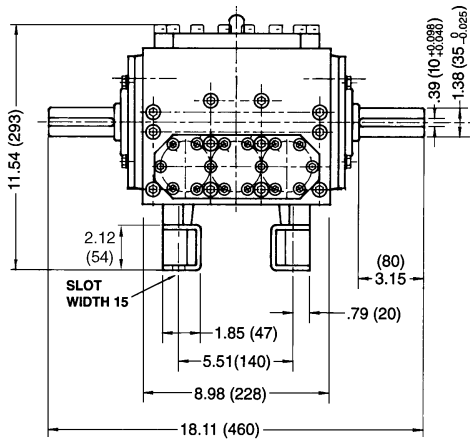
C.A.T. highly recommended for pressurized inlet, R.O. and industrial applications. See Tech Bulletins 002, 003, 024, 035, 036, 053, 074, 077 and 083 for additional information.

MATERIAL CODES (Not Part of Part Number): ABS=ABS Plastic AL=Aluminum CC=Ceramic CM=Chrome-Moly D=Acetal EPDM=Ethylene Propylene Diene Monomer

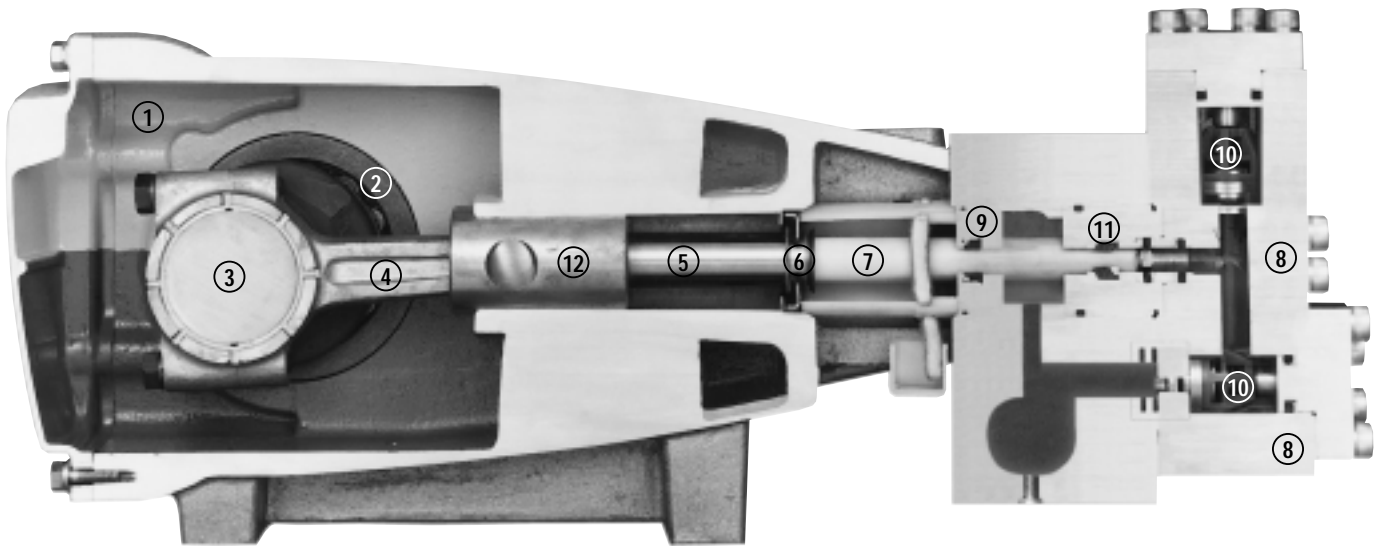
F=Cast Iron FBR=Fiber FCM=Forged Chrome-moly FPM=Fluorocarbon NBR=Medium Nitrile (Buna-N) NBRSS=Buna, Silicone Free NY=Nylon PE=Polyethylene

PTFE=Pure Polytetrafluoroethylene PVDF=Polyvinylidene Fluoride S=304SS SFG=Special Blend FPM SNG=Special Blend (Buna) SS=316SS SSL=316SS/Low Carbon

SSZZ=316SS/Zamak STCP=Steel/Chrome Plated STG=Special Blend PTFE White STL=Steel STZP=Steel/Zinc Plated TNM=Special High Strength



Models 3821, 3821K, 3831, 3831K



- 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 high strength TNM **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 316 SSL block-style for long-term, continuous-duty and corrosion resistance.
- 9 **Standard Models:** Lo-Pressure Seals and V-Packings are completely lubricated and cooled by the liquid being pumped.

- 9 **Flushed Models:** Special ported inlet manifold permits liquid to cool or flush between V-Packings and Lo-Pressure Seals providing protection against high temperatures or contaminating pumped liquids.
- 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.

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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