



7 Frame Block-Style Stainless Steel Plunger Pump

**Standard
Model**

781

**Flushed
Model**

781K

FEATURES

Superior Design

- Triplex plunger design gives smoother fluid 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 fluid being pumped.
- **Flushed Models:** Special ported inlet manifold permits fluid to cool or flush between V-Packings and Lo-Pressure Seals providing protection against high temperatures or contaminating pumped fluids.

Quality Materials

- All 316 SSL valves and seats for 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 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 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.

SPECIFICATIONS

	U.S. Measure	Metric Measure
Volume	4.5 GPM	(17 L/M)
Discharge Pressure	100 to 5000 PSI	(7 to 350 BAR)
Inlet Pressure	Flooded to 40 PSI	(Flooded to 2.8 BAR)
RPM	1700 RPM	(1700 RPM)
Bore.....	0.551"	(14 mm)
Stroke.....	0.945"	(24 mm)
Crankcase Capacity	25 oz.	(0.75 L)
Max Fluid Temperature	160° F	(71° C)
Inlet Ports (2)	1/2" NPT	(1/2" NPT)
Flushing Ports (2).....	1/4" NPT	(1/4" NPT)
Discharge Ports (2)	3/8" NPT	(3/8" NPT)
Shaft Diameter - Single End.....	0.945"	(24 mm)
Weight.....	48.1 lbs.	(21.8 kg)
Dimensions	13.16" x 8.18" x 6.05"	(334 x 208 x 154 mm)

HORSEPOWER REQUIREMENTS

FLOW		PRESSURE				MOTOR PULLEY SIZE	
		PSI 3000	PSI 3500	PSI 4000	PSI 5000	Using 1725 RPM Motor & Std. Pump Pulley O.D.	
U.S. GPM	L/M	BAR 210	BAR 245	BAR 280	BAR 350	RPM	Pulley O.D.
4.5	17	9.3	10.8	12.3	15.4	1700	9.5
4.0	15	8.3	9.5	11.0	13.7	1511	8.5

See complete Drive Packages [Incls: Pulleys, Belts, Hubs, Key] Tech Bulletin 03.

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

Note: Consult engine manufacturer when using gas or diesel engine.

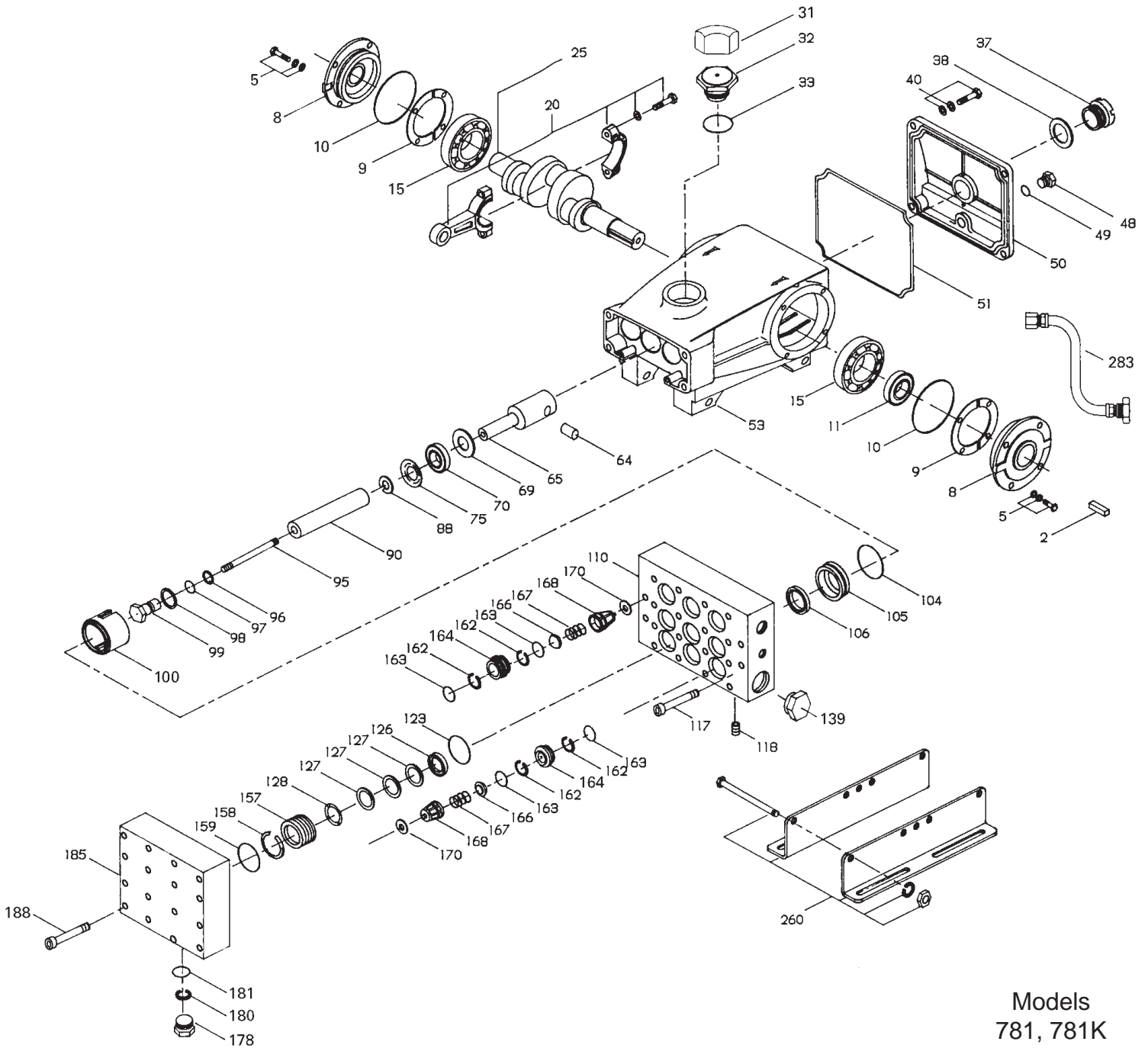
Refer to pump Service Manual for important Inlet Condition Check-List, Start-up Procedure, Tech Bulletins and Pump Maintenance information.

"Customer confidence is our greatest asset"

PARTS LIST

ITEM	PART NUMBER				DESCRIPTION	QTY
	781	MATL	781K	MATL		
● 2	30067	STL	30067	STL	Key (M8x7.5x25)	1 ●
5	89618	S	89618	S	Screw, Sems HH (M6x16)	8
8	43466	AL	43466	AL	Cover, Bearing - O.E.M.	1
9	43261	—	43261	—	Shim, Adjusting, Bearing, 2 Pc.	1/2
10	12393	NBR	12393	NBR	O-Ring, Bearing Cover	2
11	43222	NBR	43222	NBR	Seal, Oil, Crankshaft	1
15	43221	STL	43221	STL	Bearing, Roller	2
20	46555	HS	46555	HS	Rod, Connecting	3
25	46554	FCM	46554	FCM	Crankshaft, Single End	1
30	44967	AL	44967	AL	Cover, Blind Shaft - O.E.M.	1
31	828710	—	828710	—	Protector, Oil Cap	1
32	44666	RTP	44666	RTP	Cap, Oil Filler, Domed	1
33	14177	NBR	14177	NBR	O-Ring, Oil Filler Cap - 70	1
37	43987	—	43987	—	Gauge, Bubble, Oil	1
38	44428	NBR	44428	NBR	Gasket, Flat Flex., Oil Gauge - 80	1
40	89618	S	89618	S	Screw, Sems HH (M6x16)	4
48	25625	STCP	25625	STCP	Plug, Drain (1/4"x11)	1
49	23170	NBR	23170	NBR	O-Ring, Drain Plug	1
50	46509	AL	46509	AL	Cover, Crankcase - O.E.M.	1
51	44836	NBR	44836	NBR	O-Ring, Crankcase Cover - 70	1
53	44555	AL	44555	AL	Crankcase (M10) - O.E.M.	1
64	43237	S	43237	S	Pin, Rist	3
65	44234	CPZZ	44234	CPZZ	Rod, Plunger, Short - O.E.M.	3
69	43227	STZP	43227	STZP	Washer, Oil Seal	3
70	43228	NBR	43228	NBR	Seal, Oil, Crankcase	3
75	43328	S	43328	S	Slinger, Barrier	3
88	45697	S	45697	S	Washer, Keyhole (M18)	3
90	45890	CC	45890	CC	Plunger	3
95	89653	SS	89653	SS	Stud, Plunger Retainer (M6x58)	3
96	43235	PTFE	43235	PTFE	Back-up-Ring, Plunger Retainer	3
97	17399	NBR	17399	NBR	O-Ring, Plunger Retainer - 80	3
	14160	FPM	14160	FPM	O-Ring, Plunger Retainer	3
98	44041	SS	44041	SS	Gasket, Plunger Retainer	3
99	44031	SS	44031	SS	Retainer, Plunger (M5)	3
100	45686	PVDF	45686	PVDF	Retainer, Seal	3
104	701734	NBR	701734	NBR	O-Ring, Inlet Adapter	3
	701912	FPM	701912	FPM	O-Ring, Inlet Adapter	3
105	701587	SS	701587	SS	Adapter, Inlet	3
106	45188	NBR	45188	NBR	Seal, LPS w/SS-Spg	3
	701790	PTFE	701790	PTFE	Seal, LPS w/SS-Spg	3
● 110	701593	SSL	—	—	Manifold, Inlet/Discharge, Block-Style	1 ●
●	—	—	701917	SSL	Manifold, Inlet/Discharge, Block-Style, Flushed	1 ●
117	87952	SS	87952	SS	Screw, HSH (M10x55)	4
118	701740	SS	701740	SS	Plug (M8x10)	1
123	701595	NBR	701595	NBR	O-Ring, V.P. Spacer	3
	701913	FPM	701913	FPM	O-Ring, V.P. Spacer	3
126	701682	SS	701682	SS	Adapter, Female	3
127	45895	NBR	45895	NBR	V-Packing	9
	701911	PTFE	701911	PTFE	V-Packing	9
128	701683	SS	701683	SS	Adapter, Male	3
139	45156	SS	45156	SS	Plug, Inlet Manifold (1/2" NPT)	1
157	701589	SS	701589	SS	Spacer, V.P.	3
158	701598	PTFE	701598	PTFE	Back-up-Ring, V.P. Spacer	3
159	701596	NBR	701596	NBR	O-Ring, V.P. Spacer	3
	701914	FPM	701914	FPM	O-Ring, V.P. Spacer	3
162	701599	PTFE	701599	PTFE	Back-up-Ring, Valve Seat	12
163	701597	NBR	701597	NBR	O-Ring, Seat	12
	701915	FPM	701915	FPM	O-Ring, Seat	12
164	701591	SSL	701591	SSL	Seat	6
166	701751	SSL	701751	SSL	Valve	6
167	44056	SS	44056	SS	Spring	6
168	44565	PVDF	44565	PVDF	Retainer, Spring	6
170	701737	S	701737	S	Washer, Retainer	6
178	701733	SS	701733	SS	Plug, Discharge Manifold (3/8")	3
180	701736	PTFE	701736	PTFE	Back-up-Ring, Plug	3
181	701735	NBR	701735	NBR	O-Ring, Plug	3
	701916	FPM	701916	FPM	O-Ring, Plug	3
● 185	701594	SSL	701594	SSL	Manifold, Valve, Block-Style	1 ●
188	87952	SS	87952	SS	Screw, HSH (M10x55)	14
255	30243	STZP	30243	STZP	Kit, Direct Mount	1
260	30645	STZP	30645	STZP	Assy, Angle Rail A, U.S. (30635,30900,30910,30920)	1
	30611	STZP	30611	STZP	Assy, Angle Rail B, U.S. (28499,30900,30910,30920)	1
●	990550	STZP	990550	STZP	Mounting Assy, Gas/Diesel Drive	1 ●
265	30660	—	30660	—	Kit, Complete Mounting, U.S. (30645,33000,30206,43256,30067)	1

EXPLODED VIEW



Models
781, 781K
August 1998

● 269	—	—	Pulley [See complete Drive Package Tech 03]	1 ●
274	33000 STL	33000 STL	Hub (M24)	1
● 283	34334	34334	Kit, Oil Drain	●
● 299	910102 SSL	—	Head, Complete, Block-Style	1 ●
●	—	910103 SSL	Head, Complete, Block-Style, Flushed	1 ●
300	701883 NBR	701883 NBR	Kit, Seal (Incls: 96,97,104,106,123,127,158,159)	1
	701920 FPM	701920 FPM	Kit, Seal (Incls: 96,97,104,106,123,127,158,159)	1
310	701884 NBR	701884 NBR	Kit, Valve (Incls: 162,163,164,166,167,168)	2
	701921 FPM	701921 FPM	Kit, Valve (Incls: 162,163,164,166,167,168)	2
350	30696 STZP	30696 STZP	Tool, Valve Seat Removal	1
352	44050 STZP	44050 STZP	Gauge, Oil, Removal Tool	1
● 370	990663	990663	Assembly, Flushing, 5 gal, 1 GPM, 3 PSI	1 ●

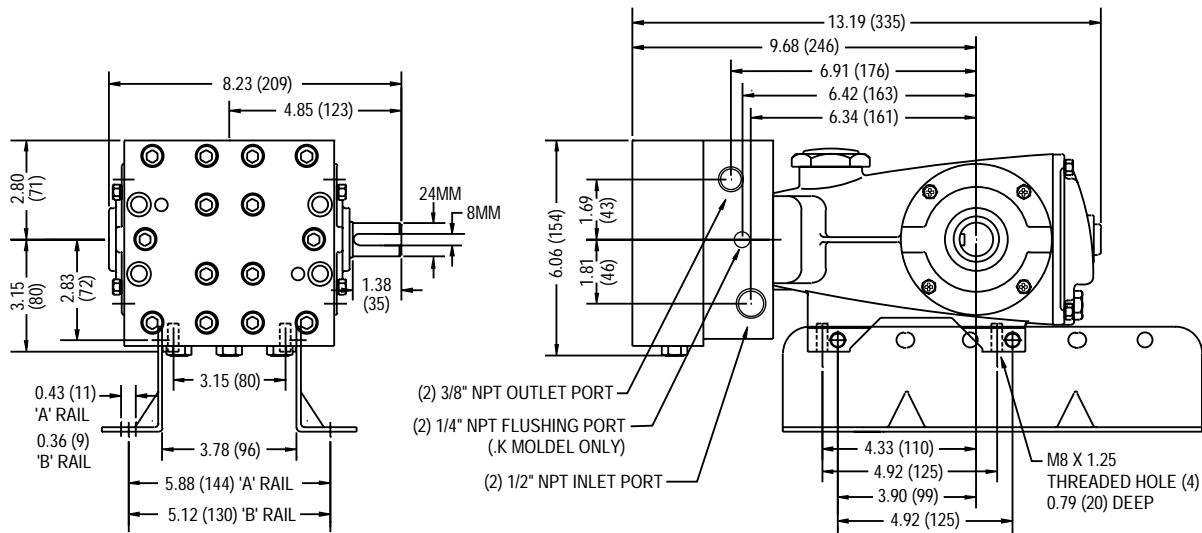
Bold print part numbers are unique to a particular pump model. ● Industrial discount. *Italics are optional items.*

See Tech Bulletins 03, 24, 35, 36, 43, 54, 61, 64, 67, 74 and 77 for additional information. See 8051-8078 Gearbox data sheet for optional gearbox drive.

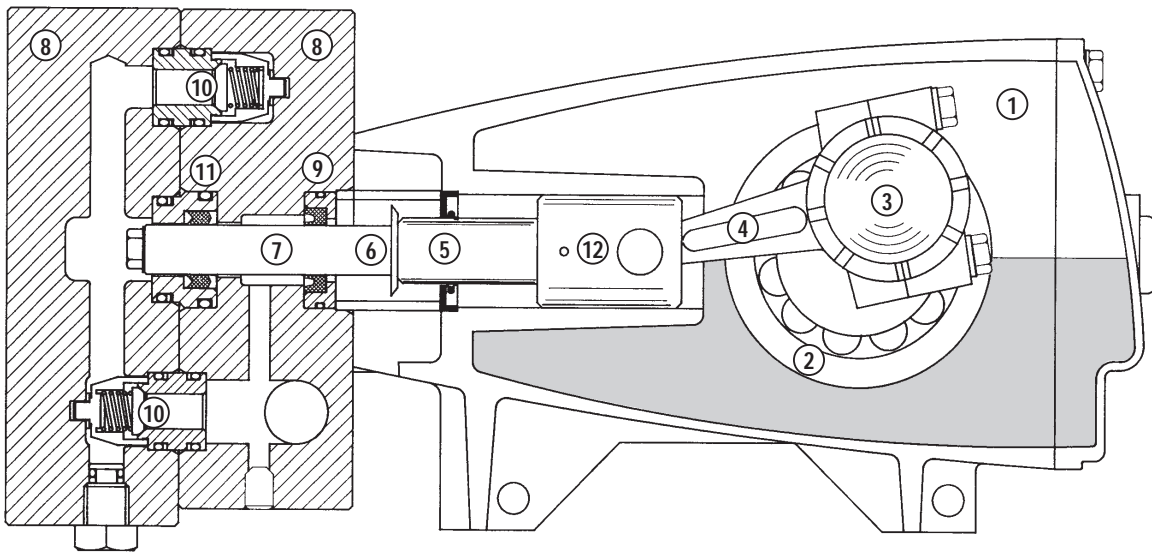
MATERIAL CODES (Not Part of Part Number): AL=Aluminum BB=Brass CC=Ceramic FCM=Forged Chrome-moly FPM=Fluorocarbon (Viton®)

HS=High Strength NBR=Medium Nitrile (Buna-N) PTFE=Polytetrafluoroethylene (Teflon®) PVDF=Fluoroplastic (High Strength)

RTP=Reinforced Composite S=304SS SS=316SS SSL=316SS/Low Carbon STCP=Steel/Chrome Plated STL=Steel STZP=Steel/Zinc Plated



Models 781, 781K



- 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 **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 fluids 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 fluid being pumped.
- 9 **Flushed Models:** Special ported inlet manifold permits fluid to cool or flush between V-Packings and Lo-Pressure Seals providing protection against high temperatures or contaminating pumped fluids.
- 10 316 SSL **valves and seats** 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 providing 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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