

DATA SHEET

8 FRAME BLOCK-STYLE PLUNGER PUMP



Stainless Steel Models

781, 784, 786

Stainless Steel Flushed Model

781K

Gearbox Model

781G1



Model 781 Shown
(Mounting rails sold separately)

FEATURES

- Triplex design delivers high efficiency and low pulsation.
- Durable V-Packings are lubricated and cooled by the liquid being pumped.
- Special high-density, polished, concentric plungers provide a true wear surface and extended seal life.
- Standard NBR seals with alternative options for temperature and chemical compatibility
 - FPM – .0110
 - EPDM – .0220

COMMON SPECIFICATIONS

	U.S.	Metric
Inlet Pressure Range	Flooded to 60 psi	Flooded to 4.1 bar
Max. Liquid Temperature	160° F	71° C
Above 130°F call Cat Pumps for inlet conditions and elastomer recommendations.		
Bore	0.551"	14 mm
Stroke	0.945"	24 mm
Stroke (Model 784)	0.591"	15 mm
Stroke (Model 786)	0.728"	18.5 mm
Crankcase Capacity	25 oz.	0.75 l
Inlet Ports (2)	1/2" NPT(F)	1/2" NPT(F)
Flushing Ports (2)**	1/8" NPT(F)	1/8" NPT(F)
Discharge Port (2)	3/8" NPT(F)	3/8" NPT(F)
Shaft Diameter - Single End	0.945"	24 mm
Weight	48.1 lbs.	21.8 kg
Dimensions	13.15 x 9.25 x 6.06"	334 x 235 x 154 mm

SPECIFICATIONS

781, 781K

	U.S. Measure	Metric Measure
Flow	4.7 gpm	17.8 lpm
Pressure Range	100 to 5000 psi	6.9 to 345 bar
Pump RPM*	1750 rpm	1750 rpm

786

	U.S. Measure	Metric Measure
Flow	3.6 gpm	13.6 lpm
Pressure Range	100 to 5000 psi	6.9 to 345 bar
Pump RPM*	1750 rpm	1750 rpm

784

	U.S. Measure	Metric Measure
Flow	2.9 gpm	11.0 lpm
Pressure Range	100 to 5000 psi	6.9 to 345 bar
Pump RPM*	1750 rpm	1750 rpm

781G1

	U.S. Measure	Metric Measure
Flow	4.5 gpm	17.0 lpm
Pressure Range	100 to 5000 psi	6.9 to 345 bar
Pump RPM	1700 rpm	1700 rpm
Engine RPM	3465 rpm	3465 rpm

*Pump minimum is 100 RPM.

**Flushed K Models: Special ported inlet manifold permits an external flush liquid providing cooling for hi-temp liquids and lubrication for low lubricity liquids.

ELECTRIC HORSEPOWER REQUIREMENTS

MODELS	FLOW		PRESSURE				RPM
			psi 3000	psi 3500	psi 4000	psi 5000	
	gpm	lpm	bar 207	bar 245	bar 275	bar 345	
784	2.9	11.0	6.0	7.0	7.9	9.9	1750
786	3.6	13.6	7.4	8.6	9.9	12.3	1750
781G1	4.5	17.0	Consult Engine Manufacturer				1700
781, 781K	4.7	17.8	9.7	11.3	12.9	16.1	1750

DETERMINING THE PUMP R.P.M.

$$\frac{\text{Rated gpm}}{\text{Rated rpm}} = \frac{\text{"Desired" gpm}}{\text{"Desired" rpm}}$$

DETERMINING THE REQUIRED H.P.

$$\frac{\text{Hp (Electric Brake)}}{1460} = \frac{\text{gpm x psi}}{1460}$$

DETERMINING MOTOR PULLEY SIZE

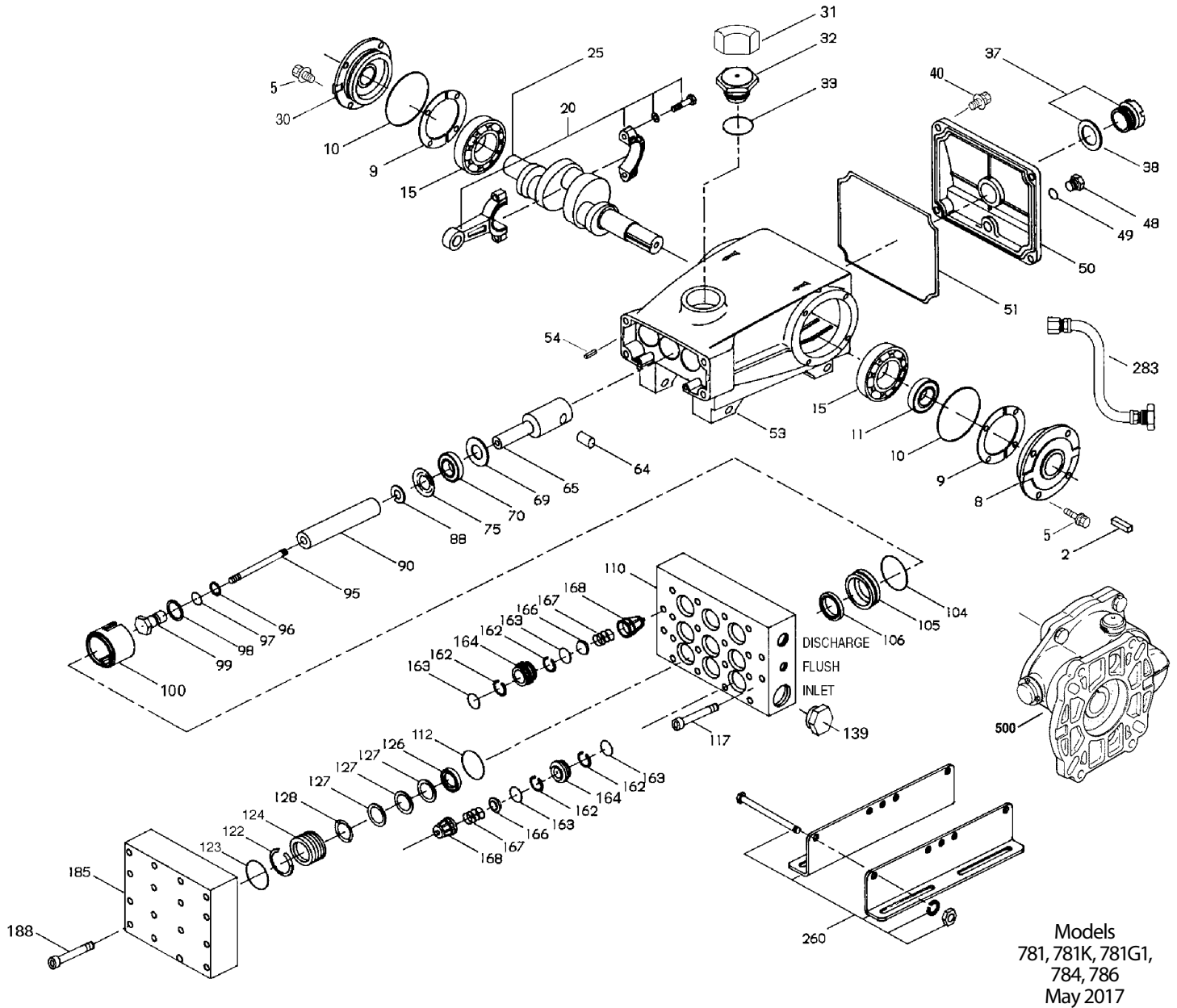
$$\frac{\text{Motor Pulley O.D.}}{\text{Pump rpm}} = \frac{\text{Pump Pulley O.D.}}{\text{Motor rpm}}$$

See complete Drive Packages [Includes: pulleys, belts, hubs, key] Tech Bulletin 003. Refer to pump **Service Manual** for repair procedure and additional technical information.

PARTS LIST

ITEM	PART NUMBER	MATL	PART NUMBER	MATL	DESCRIPTION	QTY
	781/781G1/ 784/786		781K			
2	30067	STL	30067	STL	Key (M8x7.5x25)	1
5	92538	S	92538	S	Screw, HHC, Sems (M6x16)	8
8	133571	AL	133571	AL	Cover, Bearing (See Tech Bulletin 118)	1
9	815280	FBR	815280	FBR	Split Shim, 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	48863	TNM	48863	TNM	Rod Assy, Connecting [6/02]	3
25	119234	FCM	119234	FCM	Crankshaft - Single End (60mm Extension)(781, 781K)	1
	46554	FCM	—	—	Crankshaft - Single End (34mm Extension) (781G1)	1
	44591	FCM	—	—	Crankshaft - Single End (784) (34mm extension)	1
	44947	FCM	—	—	Crankshaft - Single End (786) (34mm extension)	1
30	133572	AL	133572	AL	Cover, Blind Bearing (See Tech Bulletin 118)	1
31	828710	PE	828710	PE	Protector, Oil Cap w/Foam Gasket	1
32	44666	RTP	44666	RTP	Cap, Oil Filler, Domed	1
33	14177	NBR	14177	NBR	O-Ring, Filler Cap - 70D	1
37	92241	—	92241	—	Gauge, Oil, Bubble w/Gasket - 80D	1
38	44428	NBR	44428	NBR	Gasket, Flat Flex., Oil Gauge - 80D	1
40	92538	S	92538	S	Screw, HHC, Sems (M6x16) (See Tech Bulletin 106)	4
48	25625	STCP	25625	STCP	Plug, Drain (1/4"x19BSP)	1
49	23170	NBR	23170	NBR	O-Ring, Drain Plug - 70D	1
50	133569	AL	133569	AL	Cover, Rear [03/10] (See Tech Bulletin 118)	1
51	14047	NBR	14047	NBR	O-Ring, Rear Cover - 70D (See Tech Bulletin 106)	1
53	133593	AL	133593	AL	Crankcase w/Guide Pins [03/10] (See Tech Bulletin 118)	1
54	27488	S	27488	S	Pin, Guide	2
64	43237	CM	43237	CM	Pin, Crosshead	3
65	48913	SHS	48913	SHS	Rod, Plunger, Short [05/02]	3
69	126589	STCP R	126589	STCP R	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 (M14x72)	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 - 80D	3
	14160	FPM	14160	FPM	O-Ring, Plunger Retainer - 80D	3
	◆ 46204	EPDM	◆ 46204	EPDM	O-Ring, Plunger Retainer - 70D	3
98	44041	SS	44041	SS	Gasket, Plunger Retainer	3
99	49665	SS	49665	SS	Retainer, Plunger (M6)	3
100	995686	PVDF	995686	PVDF	Retainer, Seal (See Tech Bulletin 105)	3
104	701734	NBR	701734	NBR	O-Ring, Inlet Adapter - 70D	3
	701912	FPM	701912	FPM	O-Ring, Inlet Adapter - 75D	3
	◆ 703297	EPDM	◆ 703297	EPDM	O-Ring, Inlet Adapter - 70D	3
105	701587	SS	701587	SS	Adapter, Inlet	3
106	48821	NBR	48821	NBR	Seal, LPS w/SS-Spg	3
	704649	ST4	704649	ST4	Seal, LPS w/NIH-Spg	3
	◆ 49466	EPDM	◆ 49466	EPDM	Seal, LPS w/SS-Spg	3
110	49205	SS	—	—	Manifold, Inlet/Discharge, Block-Style	1
	—	—	49241	SS	Manifold, Inlet/Discharge, Block-Style Flushed (1/8" Flushed Port)	1
112	701595	NBR	701595	NBR	O-Ring, V.P. Spacer - 70D	3
	701913	FPM	701913	FPM	O-Ring, V.P. Spacer - 75D	3
	◆ 703298	EPDM	◆ 703298	EPDM	O-Ring, V.P. Spacer - 70D	3
117	87952	S	87952	S	Screw, HSH (M10x55)	4
122	701598	PTFE	701598	PTFE	Back-Up Ring, V.P. Cylinder	3
123	701596	NBR	701596	NBR	O-Ring, V.P. Cylinder - 70D	3
	701914	FPM	701914	FPM	O-Ring, V.P. Cylinder - 75D	3
	◆ 703318	EPDM	◆ 703318	EPDM	O-Ring, V.P. Cylinder	3
124	701589	SS	701589	SS	Cylinder V.P.	3
126	701682	SS	701682	SS	Adapter, Female	3
127	45895	SNG	45895	SNG	V-Packing	9
	704666	ST4	704666	ST4	V-Packing	9
128	701683	SS	701683	SS	Adapter, Male	3
139	45156	SS	45156	SS	Plug, Inlet/Discharge Manifold [1/2" NPT(M)]	1
162	701599	PTFE	701599	PTFE	Back-up-Ring, Valve Seat	12
163	701597	NBR	701597	NBR	O-Ring, Seat - 70D	12
	701915	FPM	701915	FPM	O-Ring, Seat - 75D	12
	◆ 703180	EPDM	◆ 703180	EPDM	O-Ring, Seat	12
164	701591	SS	701591	SS	Seat	6
166	701751	SS	701751	SS	Valve	6
167	44056	SS	44056	SS	Spring	6
168	44565	PVDF	44565	PVDF	Retainer, Spring	6
185	49214	SS	49214	SS	Manifold, Valve, Block-Style	1
188	87952	S	87952	S	Screw, HSH, (M10x55)	14
255	30243	STZP	30243	STZP	Kit, Direct Mount	1
260	30645	STZPR	30645	STZPR	Assy, Angle Rail A	1
	30611	STZPR	30611	STZPR	Assy, Angle Rail B	1
265	30660	—	30660	—	Kit, Complete Mounting	1

EXPLODED VIEW



Models
781, 781K, 781G1,
784, 786
May 2017

ITEM	PART NUMBER	MATL	PART NUMBER	MATL	DESCRIPTION	QTY
	781/781G1/ 784/786		781K			
283	34334	—	34334	—	Kit, Oil Drain (3/8"x24")	1
299	811483	SS	—	—	Head, Complete, Block-Style	1
	—	—	811485	SS	Head, Complete, Block-Style, Flushed	1
300	701883	NBR	701883	NBR	Kit, Seal (Incls: 96,97,104,106,112,122,123,127) Standard	1
	701920	FPM*	701920	FPM*	Kit, Seal (Incls: 96,97,104,106,112,122,123,127) .0110	1
	◆ 76883	EPDM	◆ 76883	EPDM	Kit, Seal (Incls: 96,97,104,106,112,122,123,127) .0220	1
310	701884	NBR	701884	NBR	Kit, Valve (Incls: 162,163,164,166,167,168) Standard	2
	701921	FPM	701921	FPM	Kit, Valve (Incls: 162,163,164,166,167,168) .0110	2
	◆ 76884	EPDM	◆ 76884	EPDM	Kit, Valve (Incls: 162,163,164,166,167,168) .0220	2
370	—	—	990663	—	Assembly, Flushing, 5 Gal, 1 GPM, 3 PSI	1
500	8071	—	—	—	Gearbox, 1" (See Individual Data Sheet)	1
	6107	—	6107	—	Oil, Bottle (21 oz.) ISO 68 Hydraulic (Fill to specified crankcase capacity prior to start-up)	1-2
	6119	—	6119	—	Lubricant, Antiseize (2 oz.) [See Tech Bulletin 095]	1

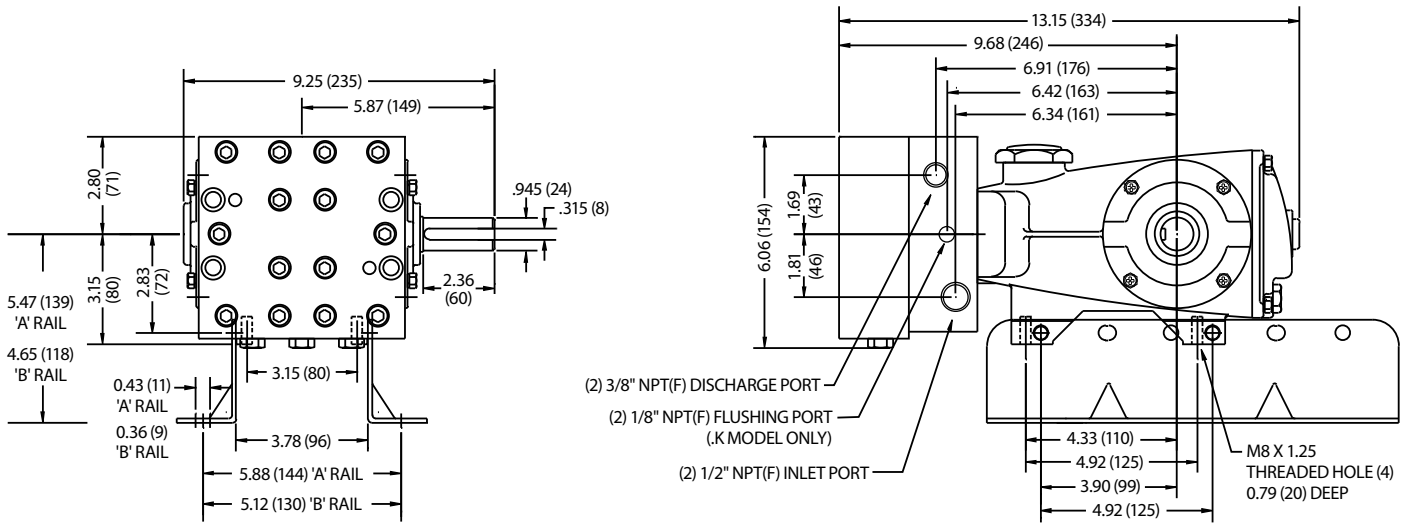
Bold print numbers are unique to a particular pump model. Italics are optional items. [] Date of latest production change.

◆ Silicone oil/grease required. *Review material codes for individual items (ST4 generally may be used as alternate). R Components comply with RoHS Directive.

See Tech Bulletins 002, 003, 024, 035, 036, 043, 053, 054, 061, 064, 067, 074, 083, 95, 105, 106 and 118 for additional information.

See 8051-8078 Gearbox data sheet for optional gearbox drive.

MATERIAL CODES (Not Part of Part Number): AL=Aluminum CC=Ceramic CM=Chrome-Moly EPDM=Ethylene Propylene Diene Monomer FBR=Fiber FCM=Forged Chrome-Moly
FPM=Fluorocarbon NBR=Medium Nitrile (Buna-N) PE=Polyethylene PTFE=Pure Polytetrafluoroethylene PVDF=Polyvinylidene Fluoride RTP=Reinforced Composite S=304SS
SHS=304SS/High Strength SNG=Special Blend (Buna) SS=316SS ST4=Special PTFE4 STCP=Steel/Chrome Plated STL=Steel STZP=Steel/Zinc Plated TNM=Special High Strength



Models 781, 781K, 784, 786

⚠ 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 Accessory 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.



CAT PUMPS

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