

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.

COMMON SPECIFICATIONS

	U.S.	Metric
Inlet Pressure Range	Flooded to 60 psi	Flooded to 4.1 bar
Max. Liquid Temperature (NBR)	160° F	71° C
Alternate seals available for high temperature up to 180°F		
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.

ALTERNATIVE SEAL CONFIGURATION

MATERIAL	SUFFIX CODE	MAXIMUM TEMPERATURE
NBR	—	160° F (71° C)
FPM	.0110	180° F (82° C)
EPDM	.0220	160° F (71° C)
IPFE	.0770	200° F (93° C)
HT	.3000	180° F (82° C)
STHT	.3400	180° F (82° C)

See Reference Document 99REF017 for inlet conditions and RPM at high temperature.

DETERMINING THE PUMP R.P.M.	Rated gpm	=	"Desired" gpm
	Rated rpm	=	"Desired" rpm
DETERMINING THE REQUIRED H.P.	Hp (Electric Brake)	=	$\frac{\text{gpm} \times \text{psi}}{1460}$
	DETERMINING MOTOR PULLEY SIZE	$\frac{\text{Motor Pulley O.D.}}{\text{Pump rpm}}$	= $\frac{\text{Pump Pulley O.D.}}{\text{Motor rpm}}$

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			
5	92538	S	92538	S	Screw, HHC, Sems (M6x16)	8
8	133571	ALE	133571	ALE	Cover, Bearing (See Tech Bulletin 118, 123)	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 (M24 w/60mm Extension) (781, 781K)	1
	46554	FCM	—	—	Crankshaft - Single End (M24 w/34mm Extension) (781G1)	1
	44591	FCM	—	—	Crankshaft - Single End (M15 w/34mm extension) (784)	1
	44947	FCM	—	—	Crankshaft - Single End (M18.5 w/34mm extension) (786)	1
30	133572	ALE	133572	ALE	Cover, Blind Bearing (See Tech Bulletin 118, 123)	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	ALE	133569	ALE	Cover, Rear (See Tech Bulletin 118, 123)	1
51	14047	NBR	14047	NBR	O-Ring, Rear Cover - 70D (See Tech Bulletin 106)	1
53	133593	ALE	133593	ALE	Crankcase w/Guide Pins (See Tech Bulletin 118, 123)	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
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
105	701587	SS	701587	SS	Adapter, Inlet	3
106	48821	NBR	48821	NBR	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
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
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
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
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
500	8071	—	—	—	Gearbox, 1" (See Individual Data Sheet)	1

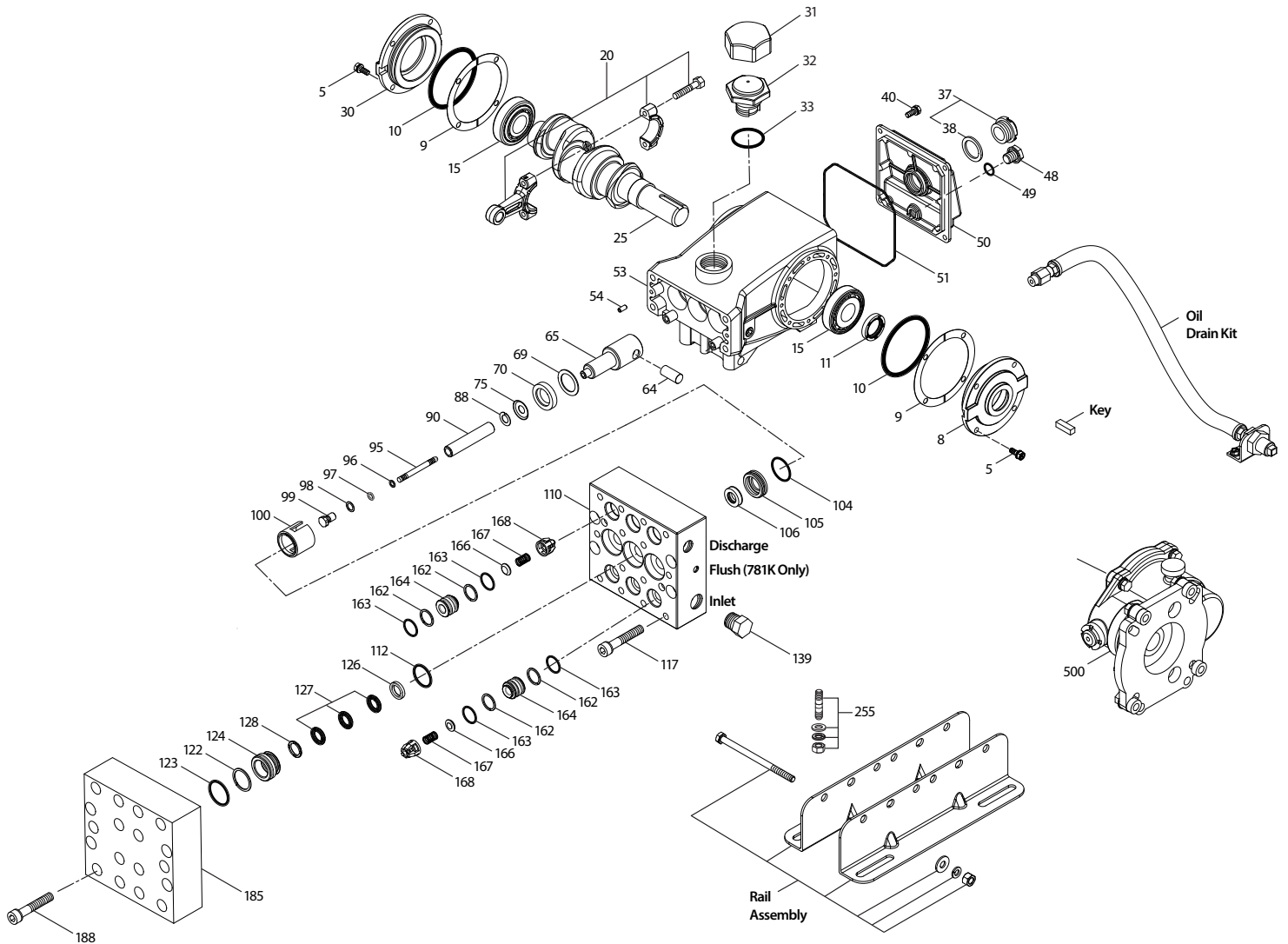
Bold printed numbers are unique to a particular pump model. Italics are optional items. [] Date of latest production change.

◆ 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 024, 035, 036, 043, 053, 054, 061, 064, 067, 074, 083, 95, 105, 106, 118 and 123 for additional information.

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

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

EXPLODED VIEW



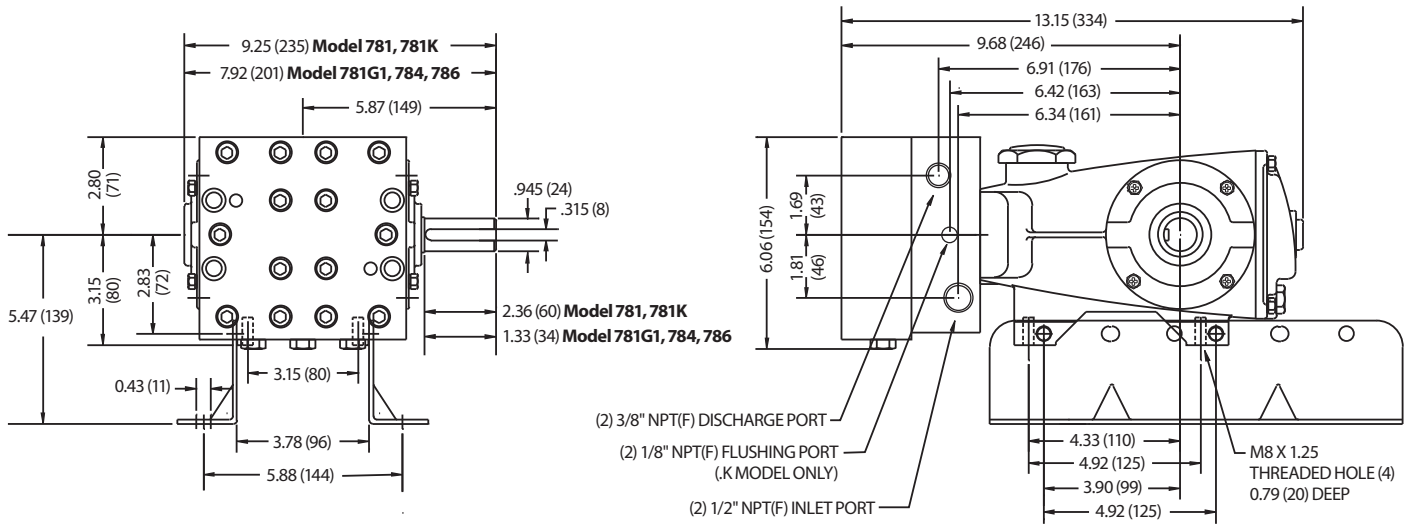
Models
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784, 786
May 2019

OPTIONAL PARTS AND ACCESSORIES

PART	DESCRIPTION	QTY
701883	Seal Kit - Standard NBR	1
701884	Valve Kit - Standard NBR	2
30660	Kit, Complete Mounting	1
30645	Assy, Standard Rail, (See 99REF018)	1
30243	Kit, Direct Mount	1
34334	Kit, Oil Drain (3/8" x 24")	1
30696	Plier, Reverse	1

SERVICE PARTS

PART	DESCRIPTION	QTY
6107	Oil, Bottle (21 oz. bottle)	1-2
30067	Key, M8 x 7.5 x 25	1
6119	Lubricant, Anti-Seize (2 oz)	1
811483	Head, Complete - W/NBR Seals and O-Rings	1
811485	Head, Complete - W/NBR Seals and O-Rings (781K)	1



Models 781, 781K, 784, 786

SEAL KITS One (1) seal kit required per pump

NBR (STD)	NBR (STD)	FPM (.0110)	EPDM (.0220)◆	IPFE (.0770)
781, 781K, 781G1, 784, 786	701883	701920 *	76883 *	702843

ITEM (Included in Seal Kits)					DESCRIPTION	QTY
96	43235	43235	43235	43235	Backup-Ring, Plunger Retainer	3
97	17399	14160	46204	701715	O-Ring, Plunger Retainer	3
104	701734	701912	703297	702774	O-Ring, Inlet Adapter	3
106	48821	704649	49466	704649	Seal, LPS w/SS-Spg	3
112	701595	701913	703298	702496	O-Ring, VP Spacer	3
122	701598	701598	701598	701598	Backup-Ring, VP Cylinder	3
123	701596	701914	703318	702769	O-Ring, VP Cylinder	3
127	45895	704666	704666	704666	V-Packing	9

◆ Silicone oil/grease required *Review material codes for individual items (STG generally may be used as alternative)

VALVE KITS Two (2) valve kits required per pump

PUMP MODELS	NBR (STD)	FPM (.0110)	EPDM (.0220)◆
781, 781K, 781G1, 784, 786	701884	701921	76884

ITEM (Included in Valve Kits)				DESCRIPTION	QTY
162	701599	701599	701599	Backup-Ring, Valve Seat	12
163	701597	701915	703180	O-Ring, Valve Seat	12
164	701591	701591	701591	Seat	6
166	701751	701751	701751	Valve	6
167	44056	44056	44056	Spring	6
168	44565	44565	44565	Retainer, Spring	6

◆ Silicone oil/grease required

⚠ 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.