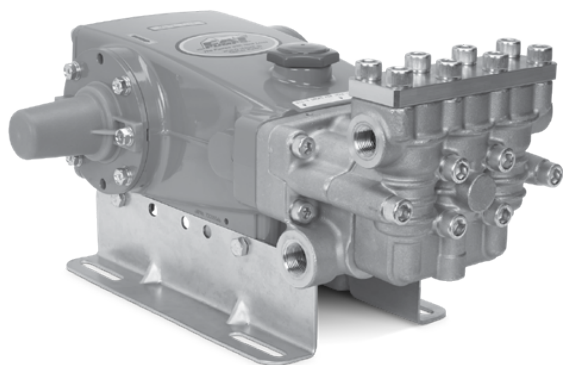


DATA SHEET

15 FRAME PLUNGER PUMP



Brass Model: **1780**



(Shaft protector included. Mounting rails sold separately)

FEATURES

- Triplex plunger design ensures high efficiency and low pulsation.
- Stacked valve design allows for easy servicing.
- Belt-driven option provides precision flow settings.
- Direct-drive option offers a compact footprint for electric motors with a NEMA or IEC frame, or SAE hydraulic motor with a bell housing/flexible coupler assembly.
- Pump comes standard with NBR seals. Alternative seal materials are available for higher temperature or chemical compatibility.

SPECIFICATIONS

	U.S. Measure	Metric Measure
Flow	12.2 gpm	46.3 lpm
Pressure Range	100 - 3000 psi	6.9 - 207 bar
Pump RPM*	1470 rpm	1470 rpm
Inlet Pressure	Flooded to 70 psi	Flooded to 4.8 bar
Max. Liquid Temp. (NBR)	140° F	60° C
Alternative seals available for higher temperatures up to 88°C (190° F)		
Bore	0.945"	24 mm
Stroke	0.984"	25mm
Crankcase Capacity	42 oz.	1.26 l
Inlets Ports (2)	3/4" NPT(F)	3/4" NPT(F)
Discharge Ports (2)	1/2" NPT(F)	1/2" NPT(F)
Pulley Mounting	Either Side	Either Side
Shaft Diameter	1.181"	30 mm
Weight	59.5 lbs.	27 kg
Dimensions	16.89 x 12.99 x 7.24"	429 x 330 x 184 mm

*Pump minimum is 100 RPM.

ALTERNATIVE SEAL CONFIGURATION

MATERIAL	SUFFIX CODE	MAXIMUM TEMPERATURE	
NBR	—	140°F	(60°C)
FPM	.0110	180°F	(82°C)
STHT	.3400	190°F	(88°C)

$$\begin{array}{l} \text{DETERMINING} \\ \text{THE PUMP R.P.M.} \end{array} \quad \frac{\text{Rated gpm}}{\text{Rated rpm}} = \frac{\text{"Desired" gpm}}{\text{"Desired" rpm}}$$

$$\begin{array}{l} \text{DETERMINING} \\ \text{THE REQUIRED H.P.} \end{array} \quad \frac{\text{Hp}}{\text{(Electric Brake)}} = \frac{\text{gpm x psi}}{1460}$$

$$\begin{array}{l} \text{DETERMINING} \\ \text{MOTOR PULLEY SIZE} \end{array} \quad \frac{\text{Motor Pulley O.D.}}{\text{Pump rpm}} = \frac{\text{Pump Pulley O.D.}}{\text{Motor rpm}}$$

Refer to pump **Service Manual** for repair procedure and additional technical information.

PARTS LIST

ITEM	PART NUMBER	MATL	DESCRIPTION	QTY
	1780			
5	126540	STCP R	Screw, HHC, Sems (M8x20) (See Tech Bulletin 074, 128)	8
8	134805	ALE	Cover, Bearing (See Tech Bulletin 118, 128)	2
9	855043	FBR	Shim, Split, 2-Piece (See Tech Bulletin 128)	0-2
10	11340	NBR	O-Ring, Bearing Cover - 70D	2
11	43495	NBR	Seal, Oil, Crankshaft	2
12	855044	S	Shim, Split, 2-Piece (See Tech Bulletin 128)	0-2
15	39060	STL	Bearing, Roller	2
20	126805	BZ	Rod, Connecting Assembly (See Tech Bulletin 074)	3
25	670009	FCM	Crankshaft, Dual-End (M25)	1
32	43211	ABS	Cap, Oil Filler	1
33	14177	NBR	O-Ring, Filler Cap - 70D	1
37	92241	PC	Gauge, Oil, Bubble with Gasket - 80D (See Tech Bulletin 074)	1
38	44428	NBR	Gasket, Flat, Oil Gauge - 80D	1
40	126541	STCP R	Screw, HHC, Sems (M6x20) (See Tech Bulletin 074)	4
48	25625	STCP	Plug, Drain (1/4"x19 BSP)	1
49	23170	NBR	O-Ring, Drain Plug - 70D	1
50	133576	ALE	Cover, Rear (See Tech Bulletin 118)	1
51	44834	NBR	O-Ring, Rear Cover - 70D	1
53	134889	ALE	Crankcase (Includes Guide Pins) (See Tech Bulletin 118, 128)	1
54	27488	S	Pin, Guide	2
56	44664	POP	Pan, Oil	1
64	43507	CM	Pin, Crosshead	3
65	49223	SBZ	Rod, Plunger	3
69	126592	STCP R	Washer, Oil Seal	3
70	43500	NBR	Seal, Oil Crankcase	3
75	43506	S	Slinger, Barrier	3
88	45675	S	Washer, Keyhole	3
89	43553	BB	Spacer	3
90	43552	CC	Plunger, Ceramic (M24x77)	3
96	43235	PTFE	Back-up Ring, Plunger Retainer	3
97	17399	NBR	O-Ring, Plunger Retainer - 80D	3
98	45891	CU	Gasket, Plunger Retainer	3
99	104360	S	Retainer, Plunger with Stud (See Tech Bulletin 074)	3
100	855001	POP	Retainer, Seal, 2-Piece	3
101	43554	—	Wick	3
106	44035	NBR	Seal, LPS with SS-Spring	3
110	133140	FBB	Manifold, Inlet	1
112	14179	NBR	O-Ring, Inlet Manifold - 70D	3
117	126515	STCP R	Screw, HSH (M10x55) (See Tech Bulletin 074)	4
126	43558	BB	Adapter, Female	3
127	43559	SNG	V-Packing	6
128	43560	BB	Adapter, Male	3
155	11442	NBR	O-Ring, Adapter - 70D	6
156	23086	PTFE	Backup Ring, Adapter	6
157	133141	BB	Adapter	3
160	49238	NBR	O-Ring, Seat, Inlet - 90D	3
161	133144	S	Seat, Inlet	3
162	49235	PTFE	Backup Ring, Seat	3
163	49236	NBR	O-Ring, Seat, Discharge - 70D	3
164	49234	S	Seat, Discharge	3
165	49198	PVDF	Retainer, Spring, Inlet	3
166	48793	SS	Valve	6
167	43751	S	Spring	6
168	49199	PVDF	Retainer, Spring, Discharge	3
172	14176	NBR	O-Ring, Valve Plug - 70D	3
173	49232	PTFE	Backup Ring, Valve Plug	3
174	49239	BB	Plug, Valve	3
177	126783	STCP R	Screw, HSH (M12x25) (See Tech Bulletin 074)	8
178	49227	BB	Cover, Valve	1
185	133143	BB	Manifold, Discharge	1
188	126519	STCP R	Screw, HSH (M12x70) (See Tech Bulletin 074)	6
250	855046	NY	Protector, Shaft with 2-Screws (See Tech Bulletin 128)	1

*Review individual parts in each kit for material code identification. *Italics are optional items.*

R Components comply with RoHS Directive. For additional technical information see www.catpumps.com/literature/tech-bulletins.

MATERIAL CODES (Not Part of Part Number): ABS=ABS Plastic ALE=Aluminum Epoxy BB=Brass BZ=Bronze CC=Ceramic CM=Chrome-moly CU=Copper F=Cast Iron

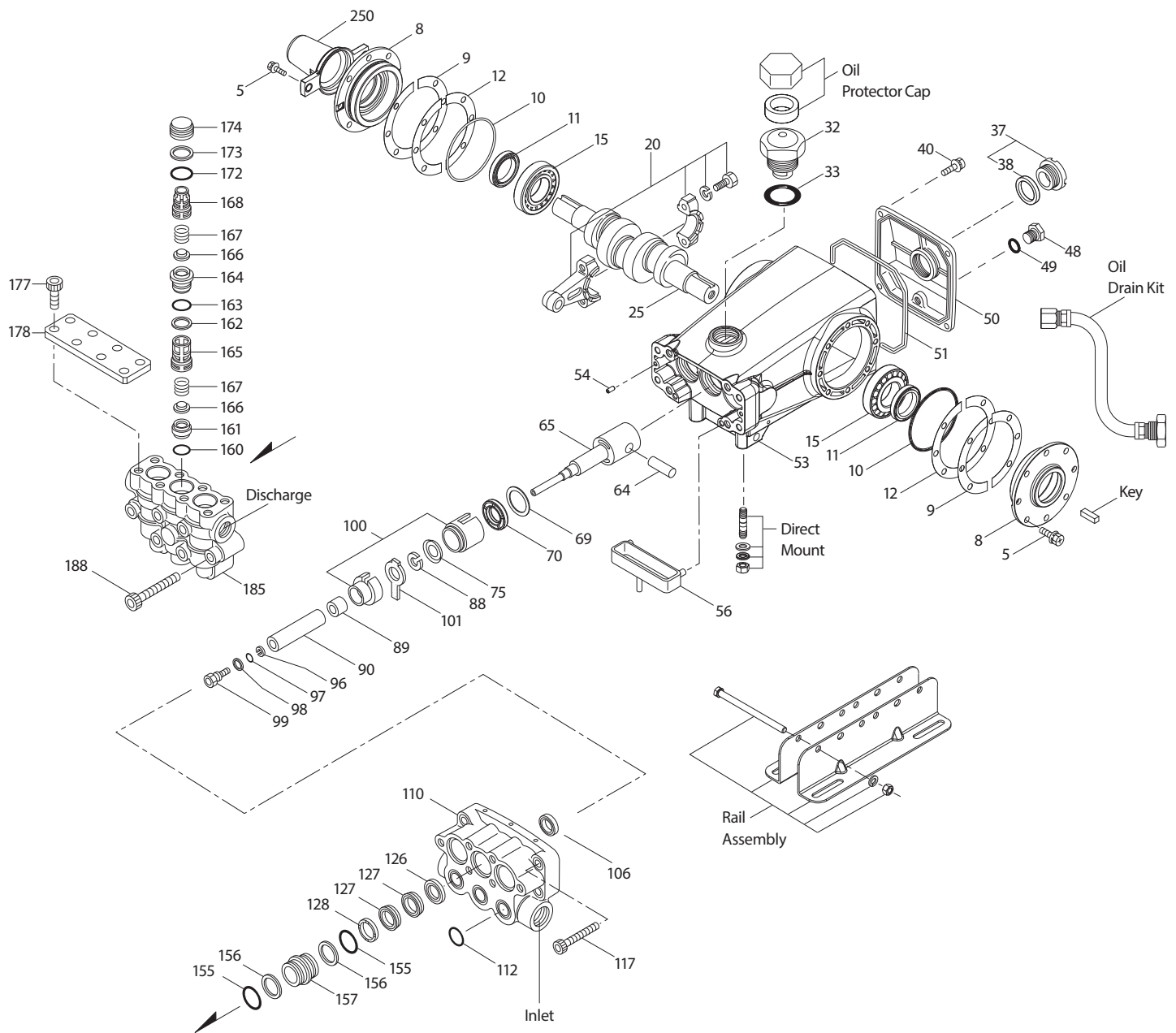
FBB=Forged Brass FBR=Fiber FCM=Forged Chrome-moly FPM=Fluorocarbon NBR=Medium Nitrile (Buna-N) NY=Nylon PC=Poly Carbonate

PE=Polyethylene POP=Polypropylene PTFE=Pure Polytetrafluoroethylene PVDF=Polyvinylidene Fluoride S=304SS SS=316SS SBZ=304SS/Bronze STCP=Steel/Chrome Plated

SNG=Special Blend (Buna) STG=Special Blend PTFE White ST=Special PTFE STL=Steel STZP=Steel/Zinc Plated

Optional Parts and Accessories and Service parts listed on Page 3. Standard and optional Seal Kits and Valve Kits listed on pages 3 and 4.

EXPLODED VIEW



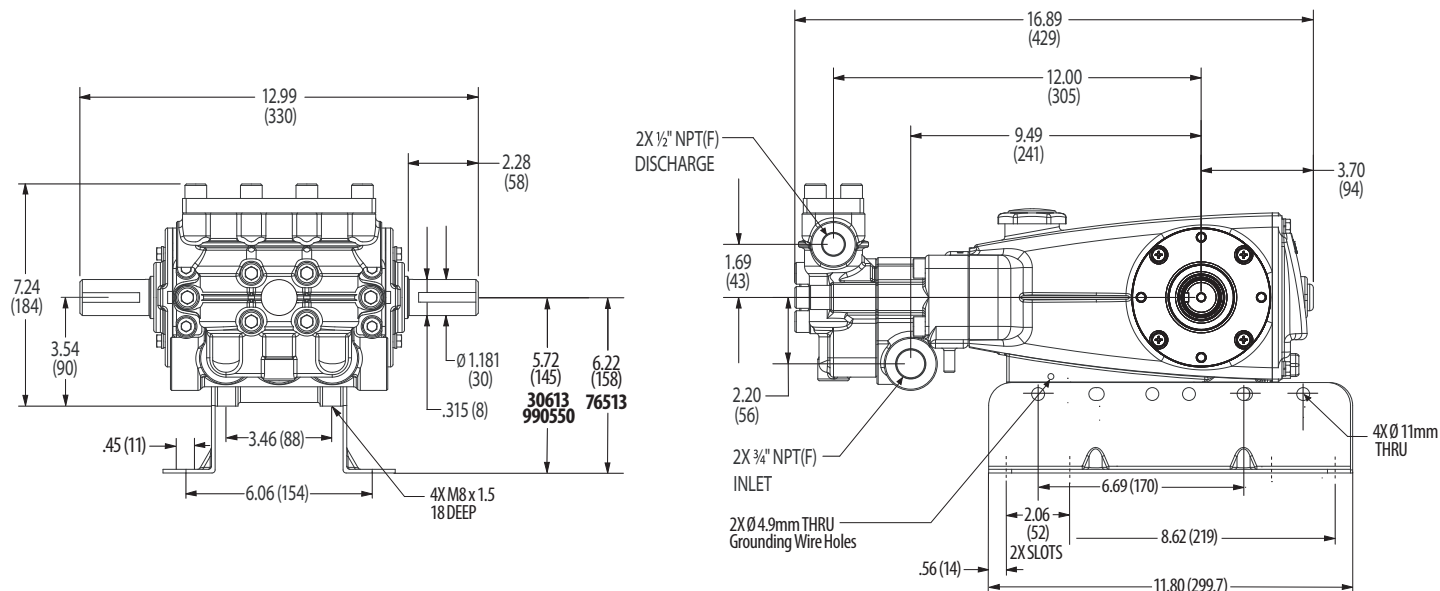
Model 1780
July 2022

OPTIONAL PARTS AND ACCESSORIES

PART	DESCRIPTION	QTY
30716	Key (8 x 7 x 43)	1
126609	Assembly, Rail	1
30264	Mount, Direct	1
828710	Protector, Oil Cap	1
34334	Kit, Oil Drain (3/8" x 24")	1

SERVICE PARTS

PART	DESCRIPTION	QTY
76432	Kit, Seal - Standard NBR	1
76428	Kit, Valve - Standard NBR	1
6107	Oil, Bottle (21 oz / 0,62 l) ISO 68 Hydraulic (Fill to Specified Crankcase Capacity Prior to Start-up)	2
6124	Gasket, Liquid (0,1 l)	1
818606	Head, Complete with NBR Seals and O-Rings	1



Model 1780

SEAL KITS One (1) seal kit required per pump

PUMP MODELS	NBR (STD)	FPM (.0110)	STHT (.3400)
1780	76432	76858	32125

ITEM (Included in Seal Kits)				DESCRIPTION	QTY
97	17399	14160	17399	O-Ring, Plunger Retainer	3
106	44035	44388	76035	Seal, LPS	3
112	14179	15855	14179	O-Ring, Inlet Manifold	3
127	43559	103692	103692	V-Packing	6
155	11442	77318	11442	O-Ring, Adapter	6
156	23086	23086	23086	Backup Ring,, Adapter	6

VALVE KITS One (1) valve kit required per pump

PUMP MODELS	NBR (STD)	FPM (.0110)	STHT (.3400)
1780	76428	76871	76428

ITEM (Included in Valve Kits)				DESCRIPTION	QTY
160	49238	129593	49238	O-Ring, Seat, Inlet	3
161	133144	133144	133144	Seat, Inlet	3
162	49235	49235	49235	Backup Ring, Seat	3
163	49236	129594	49236	O-Ring, Seat, Discharge	3
164	49234	49234	49234	Seat, Discharge	3
165	49198	49198	49198	Retainer, Spring, Inlet	3
166	48793	48793	48793	Valve	6
167	43751	43751	43751	Spring	6
168	49199	49199	49199	Retainer, Spring, Discharge	3
172	14176	77319	14176	O-Ring, Valve Plug	3
173	49232	49232	49232	Backup Ring, Valve Plug	3

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.de or can be requested directly from CAT PUMPS