

DATA SHEET

3 FRAME PISTON PUMPS



Brass Models: 280, 290

Stainless Steel Models: 281, 291



Model 280 Shown
(Mounting rails and shaft protector sold separately)

FEATURES

- Triplex Uniflow design provides continuous forward liquid flow, promoting smooth operation.
- Wetted cups and floating pistons are lubricated and cooled by pumped liquid, resulting in longer cup life.
- Mechanically-actuated inlet valves create strong lift, helping to prime the pump.
- Optional 316 stainless steel manifolds provide added corrosion resistance.
- Pump comes standard with NBR seals. Alternative seal materials are available for higher temperature or chemical compatibility.

COMMON

SPECIFICATIONS	U.S.	Metric
Crankcase Capacity	10 oz	0.3 l
Max. Liquid Temperature (NBR)	160° F	71° C
Alternative seals available for higher temperatures up to 180° F		
Inlet Pressure Range	-8.5–40 psi	-0.6–2.8 bar
Inlet Port (1)	½" NPT(F)	½" NPT(F)
Auxiliary Port (1)	¼" NPT(F)	¼" NPT(F)
Discharge Ports (2)	⅜" NPT(F)	⅜" NPT(F)
Discharge Port (1)	½" NPT(F)	½" NPT(F)
Shaft Diameter	0.650"	16.5 mm
Pulley Mounting	Either Side	Either Side
Dimensions (280, 281)	10.62 x 8.78 x 5.30"	270 x 223 x 135 mm
Dimensions (290, 291)	10.83 x 8.78 x 5.30"	275 x 223 x 135 mm

SPECIFICATIONS

	U.S. Measure	Metric Measure
Models 280, 281		
Flow	3.0 gpm	11.4 lpm
Pressure Range	100–1000 psi	6.9–69 bar
Pump RPM*	1330 rpm	1330 rpm
Bore	0.787"	20 mm
Stroke	0.394"	10 mm
Weight	11.7 lbs	5.3 kg
Models 290, 291		
Flow	3.5 gpm	13.2 lpm
Pressure Range	100–1200 psi	6.9–83 bar
Pump RPM*	1200 rpm	1200 rpm
Bore	0.787"	20 mm
Stroke	0.472"	12 mm
Weight	12.1 lbs	5.5 kg

*Pump minimum is 100 RPM.

ALTERNATIVE SEAL CONFIGURATION

MATERIAL	SUFFIX CODE	MAXIMUM TEMPERATURE	
NBR	—	160° F	(71° C)
FPM	.0110	180° F	(82° C)
HT	.3000	180° F	(82° C)

See **Tech Bulletin 002** for inlet conditions and RPM at high-temperature.

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

$$\frac{\text{hp}}{\text{(Electric Brake)}} = \frac{\text{gpm} \times \text{psi}}{1460}$$

$$\frac{\text{Motor Pulley OD}}{\text{Pump rpm}} = \frac{\text{Pump Pulley OD}}{\text{Motor rpm}}$$

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

PARTS LIST

ITEM	PART NUMBER		DESCRIPTION		QTY	
	280, 281	MATL	290, 291	MATL		
5	125824	STCP R	125824	STCP R	Screw, HHC Sems (M6 x 16) (See Tech Bulletin 074)	8
8	27950	AL	27950	AL	Cover, Bearing	2
10	26536	NBR	26536	NBR	O-Ring, Cover, Bearing	2
11	24159	NBR	24159	NBR	Seal, Oil, Crankshaft	2
15	14487	STL R	14487	STL R	Bearing, Ball	2
20	122041	TNM	48867	TNM	Assembly, Connecting Rod (See Tech Bulletin 074)	3
25	26239	FCM	43804	FCM	Crankshaft, Dual-End	1
32	43211	ABS	43211	ABS	Cap, Oil Filler	1
33	14177	NBR	14177	NBR	O-Ring, Oil Filler Cap	1
37	92241	PC	92241	PC	Gauge, Oil Bubble with Gasket	1
38	44428	NBR	44428	NBR	Gasket, Flat, Oil Gauge	1
40	126541	STCP R	126541	STCP R	Screw, HHC Sems (M6 x 20) (See Tech Bulletin 074)	4
48	25625	STCP	25625	STCP	Plug, Drain (1/4" x 19 BSP)	1
49	23170	NBR	23170	NBR	O-Ring, Drain Plug	1
50	48772	AL	48772	AL	Cover, Rear	1
51	48773	NBR	48773	NBR	O-Ring, Rear Cover	1
53	128361	AL	128361	AL	Crankcase	1
55	126546	STCP R	—	—	Stud (M8 x 41.4)	2
64	16948	CM	16948	CM	Pin, Crosshead	3
65	29612	SZZ	101800	SZZ	Rod, Piston	3
69	126259	STCP R	126259	STCP R	Washer, Oil Seal	3
70	25301	NBR	25301	NBR	Seal, Oil, Crankcase	3
71	126189	STCP R	126189	STCP R	Washer, Oil Seal	3
75	25327	S	25327	S	Slinger, Barrier	3
77	25392	NBR	25392	NBR	O-Ring, Sleeve	6
80	29614	SCP	29614	SCP	Sleeve	3
	29743	S	29743	S	<i>Sleeve (Unchromed)</i>	3
81	—	—	29003	PTFE	Backup Ring, Sleeve	3
100	28597	PVDF	28597	PVDF	Retainer, Seal	3
106	30315	NBR	30315	NBR	Seal, Low-Pressure	3
110	25128	BBCP	25128	BBCP	Manifold, Inlet	1
	25635	SS	25635	SS	<i>Manifold, Inlet</i>	1
117	—	—	85680	STCP	Stud (M8 x 99.5) (Models 290, 291)	2
118	22160	BBCP	—	—	Elbow (1/2" NPT(F)) (Model 280)	1
119	27004	S	27004	S	Valve, Inlet	3
130	22021	S	—	—	Piston	3
133	43172	FPM	—	—	Bac-Cup	3
	—	—	43474	FPM	Assembly, Bac-Cup (Includes: Piston, Bac-Cup Ring, Cup)	3
135	27003	S	27983	S	Spacer, Piston	3
136	27002	S	27002	S	Retainer, Piston	3
137	27006	S	27006	S	Washer, Conical (M6)	3
138	27000	S	27000	S	Nut, Slotted (M6)	3
139	14158	S	14158	S	Cotterpin (M1.6 x 10)	3
143	23172	NBR	23172	NBR	O-Ring, Cylinder	6
150	26112	SCP	101802	SCP	Cylinder	3
	28774	S	43834	S	<i>Cylinder (Unchromed)</i>	3
153	—	—	21985	PTFE	Backup Ring, Cylinder	3
164	43434	S	43434	S	Seat	3
166	43723	S	43723	S	Valve	3
167	43360	S	43360	S	Spring	3
168	43442	S	43442	S	Retainer, Spring	3
184	—	—	126521	STCP R	Nut, Hex (M8) (Models 290, 291)	2
185	24459	BBCP	24459	BBCP	Manifold, Discharge	1
	25634	SS	25634	SS	<i>Manifold, Discharge</i>	1
186	126232	STCP R	—	—	Lockwasher (M8)	2
187	126565	STCP R	—	—	Bolt, Cylinder (M8 x 62.5) (Models 280, 281)	2
188	126813	STCP R	—	—	Shim (M8 x 13 x 1.0)	2-4
189	126576	STCP R	—	—	Shim (M8 x 13 x 0.5)	2-4
190	126590	STCP R	—	—	Shim (M8 x 13 x 0.3)	2-4
191	126591	STCP R	—	—	Shim (M8 x 13 x 2.0)	2-4
192	26676	S	—	—	Retainer, Shim (M8)	2
194	126201	STCP R	126201	STCP R	Nut, Hex Flange (M8) (See Tech Bulletin 074)	2

Bold part numbers are unique to a particular pump model. 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 AL=Aluminum BBCP=Brass/Chrome Plated CM=Chrome-Moly

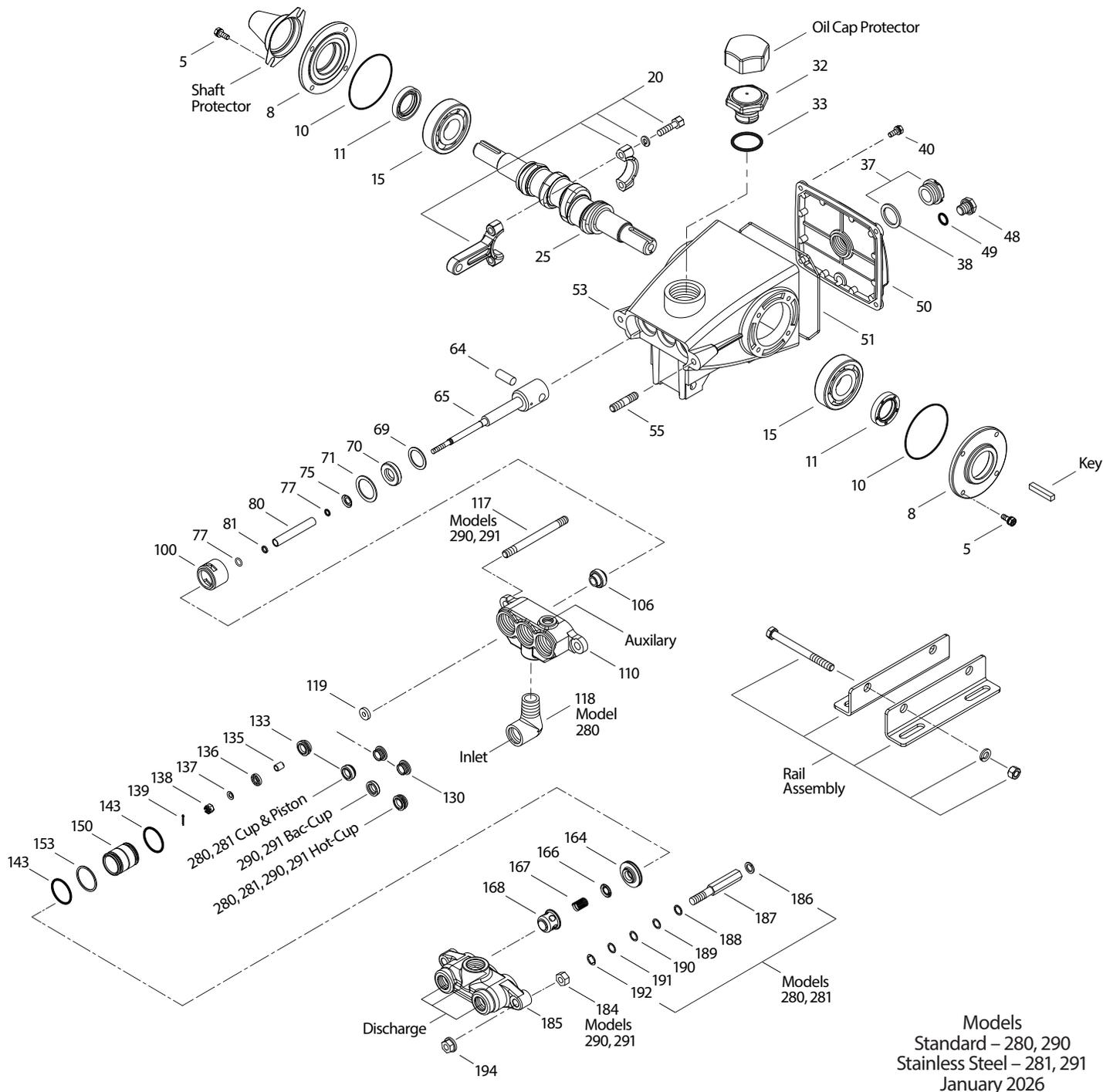
FCM=Forged Chrome-Moly FPM=Fluorocarbon NBR=Medium Nitrile (Buna) NY=Nylon PC=Poly Carbonate PTFE=Pure Polytetrafluoroethylene

PVDF=Polyvinylidene Fluoride S=304SS SCP=304SS/Chrome Plated SNG=Special Blend Buna SS=316SS STCP=Steel/Chrome Plated

STL=Steel STZP=Steel/Zinc Plated SZZ=304SS/Zamak TG=PTFE Graphite Compound (GIT) TNM=Special High Strength

Optional Parts and Accessories and Service Parts listed on page 3. Standard and optional Seal Kits, Sleeve and Seal Kits, Cup Kits, Piston Kits and Valve Kits listed on page 4.

EXPLODED VIEW



OPTIONAL PARTS AND ACCESSORIES

PART	DESCRIPTION	QTY
30047	Key (M5 x 5 x 24)	1
30612	Assembly, Rail	1
828710	Protector, Oil Cap	1
25130	Protector, Shaft	1
34334	Kit, Oil Drain (Not Shown)	1
32603	Pulley, Hub and Key Assembly (Includes: 99AK51H, 30943, 30047)	1
30942	Hub and Key Assembly (Includes: 30943, 30047) (Not Shown)	3
22177	Plug, Auxiliary (Not Shown)	3
22187	Plug, Discharge (Not Shown)	3

SERVICE PARTS

PART	DESCRIPTION	QTY
30305	Kit, Seal - Standard NBR	1
30686	Kit, Valve - Standard NBR	1
6107	Oil, Bottle (21 oz) ISO 68 Hydraulic (Fill to Specified Crankcase Capacity Prior to Start-up)	1
6124	Gasket, Liquid (3 oz)	1
6139	Lubricant, Anti-Seize (8 oz) (Models 281, 291)	1

SEAL KITS One (1) seal kit required per pump

Pump Models	280, 281, 290, 291		DESCRIPTION	QTY
	NBR (STD)	FPM (.0110)		
	30305	30355		
ITEM (Included in Seal Kits)				
106	30315	30325	Seal, Low-Pressure	3
139	14158	14158	Cotterpin	3
—	30168	30168	Paper, Abrasive (400)	2

SLEEVE AND SEAL KIT One (1) sleeve and seal kit required per pump

Pump Models	280, 281, 290, 291		DESCRIPTION	QTY
	NBR (STD)	FPM (.0110)		
	30431	76901		
ITEM (Included in Sleeve and Seal Kits)				
75	25327	25327	Slinger, Barrier	3
77	25392*	28771	O-Ring, Sleeve	6
80	29614	29614	Sleeve	3
106	30315	30325	Seal, Low-Pressure	3
139	14158	14158	Cotterpin	3

* Use PN 702026 for FFKM

CUP KITS One (1) cup kit required per pump

Pump Models	280, 281	280, 281	280, 281	280, 281	290, 291	290, 291	290, 291	DESCRIPTION	QTY
	NBR (STD)	NBR (HOT)	TG (Cup-Piston)	FPM (.0110)	NBR (STD)	NBR (HOT)	TG (Cup-Piston)		
	30023	30272	701443*	76898	76023	30272	701443*		
ITEM (Included in Cup Kits)									
131	—	—	—	—	30544	—	—	Ring, Bac-Cup	3
133	43172	29089	76515*	43172	43172	29089	76515*	Cup	3
139	14158	14158	14158	14158	14158	14158	14158	Cotterpin	3
143	23172**	23172**	11377	11377	23172**	23172**	11377	O-Ring, Cylinder	6
355	22130	—	—	22130	22130	—	—	Inserter, Cup	1

* 76515 Cup Includes FPM O-ring, ** Use PN 703244 for FFKM

PISTON KITS One (1) piston kit required per pump

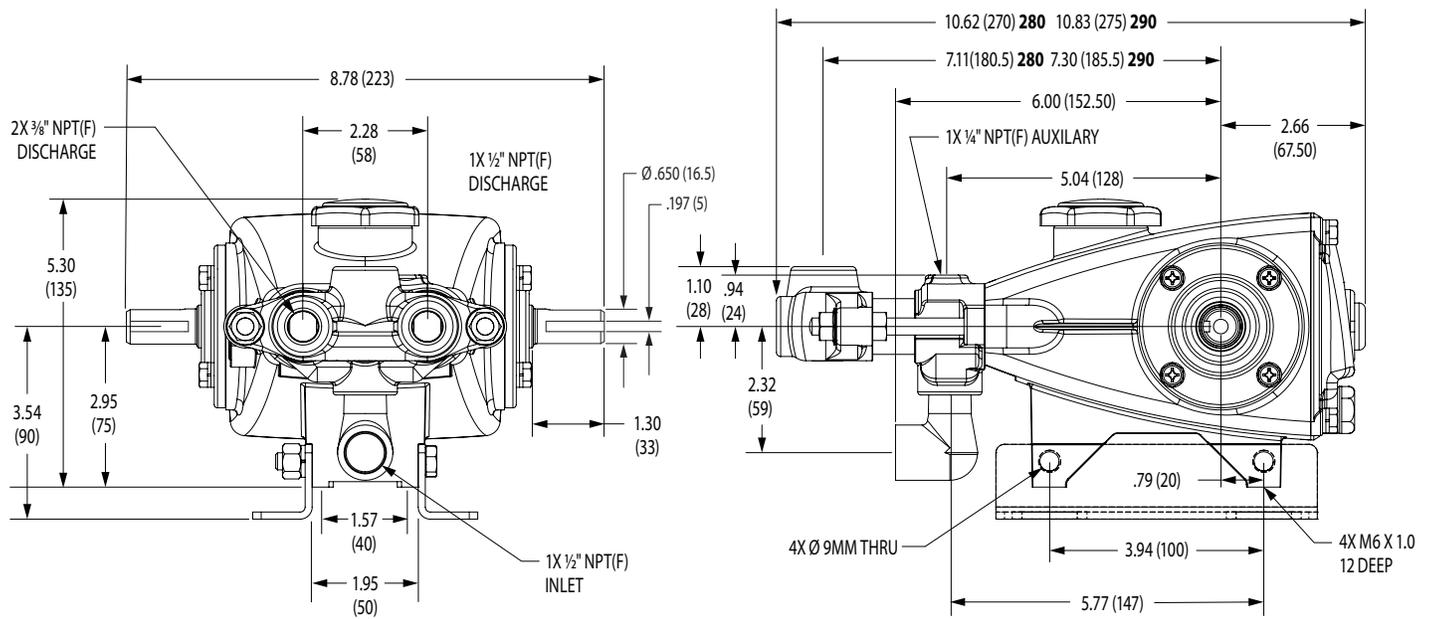
Pump Models	280, 281	290, 291	280, 281	DESCRIPTION	QTY
	NBR (STD)	NBR (STD)	FPM (.0110)		
	30202	30860	76891		
ITEM (Included in Piston Kits)					
119	27004	27004	27004	Valve, Inlet	3
130	22021	—	22021	Piston	3
133	—	43474	—	Assembly, Bac-Cup (Includes: Piston, Bac-Cup Ring, Cup)	3
133	43172	—	43172	Cup	3
135	27003	27983	27003	Spacer, Piston	3
136	27002	27002	27002	Retainer, Piston	3
137	27006	27006	27006	Washer, Conical	3
138	27000	27000	27000	Nut, Slotted	3
139	14158	14158	14158	Cotterpin	3
143	23172*	23172*	11377	O-Ring, Cylinder	6
153	—	21985	—	Backup Ring, Cylinder	3
355	22130	—	22130	Inserter, Cup	1

*Use PN 703244 for FFKM

VALVE KITS One (1) valve kit required per pump

Pump Models	NBR (Quiet)	NBR (Flat)	FPM (.0110)	DESCRIPTION	QTY
	280, 281, 290, 291	30686	30024		
ITEM (Included in Valve Kits)					
143	23172 *	23172 *	11377	O-Ring, Cylinder	6
164	43434	29487	43434	Seat	3
166	43723	22842	43723	Valve	3
167	43360	22031	43360	Spring	3
168	43442	22841	43442	Retainer, Spring	3

*Use PN 703244 for FFKM



Models 280, 281

⚠ CAUTIONS AND WARNINGS

All high-pressure systems require a primary pressure regulating device (e.g. regulator, unloader) and a secondary pressure relief device (e.g. 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/dynamic-literature/cautions-and-warnings or can be requested directly from Cat Pumps.

WARRANTY

View the Limited Warranty online at www.catpumps.com/literature/cat-pumps-limited-warranty