

DATA SHEET

28 FRAME BLOCK-STYLE PLUNGER PUMPS



**Stainless Steel
Model:** **2831**

**Flushed Stainless
Steel Model:** **2831K**



Model 2831 Shown
(Shaft protector and mounting rails sold separately)

FEATURES

- Triplex plunger design ensures high efficiency and low pulsation.
- High-pressure and low-pressure seals are completely lubricated and cooled by pumped liquid, greatly increasing service life.
- Model 2831K offers an external flush for high-temperature or low-lubricity liquids.
- Pump comes standard with NBR seals. Alternative seal materials are available for higher temperature or chemical compatibility.

SPECIFICATIONS

	U.S. Measure	Metric Measure
Flow	25 gpm	95 lpm
Pressure Range	100–1200 psi	6.9–83 bar
Pump RPM*	1025 rpm	1025 rpm
Inlet Pressure Range	Flooded to 70 psi	Flooded to 4.8 bar
Max. Liquid Temp. (NBR)	160° F	71° C
Alternative seals available for higher temperatures up to 190° F		
Bore	1.260"	32 mm
Stroke	1.516"	38.5 mm
Crankcase Capacity	84 oz	2.5 l
Inlet Ports (2)	1¼" NPT(F)	1¼" NPT(F)
Flush Ports (2)	¼" NPT(F)	¼" NPT(F)
Discharge Ports (2)	¾" NPT(F)	¾" NPT(F)
Shaft Diameter	1.181"	30 mm
Pulley Mounting	Either Side	Either Side
Weight	104 lbs	42.7 kg
Dimensions	19.40 x 15.04 x 8.03"	493 x 382 x 204 mm

*Pump minimum is 100 RPM

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)

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

DETERMINING THE PUMP RPM

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

DETERMINING THE REQUIRED HP

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

DETERMINING MOTOR PULLEY SIZE

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

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

PARTS LIST

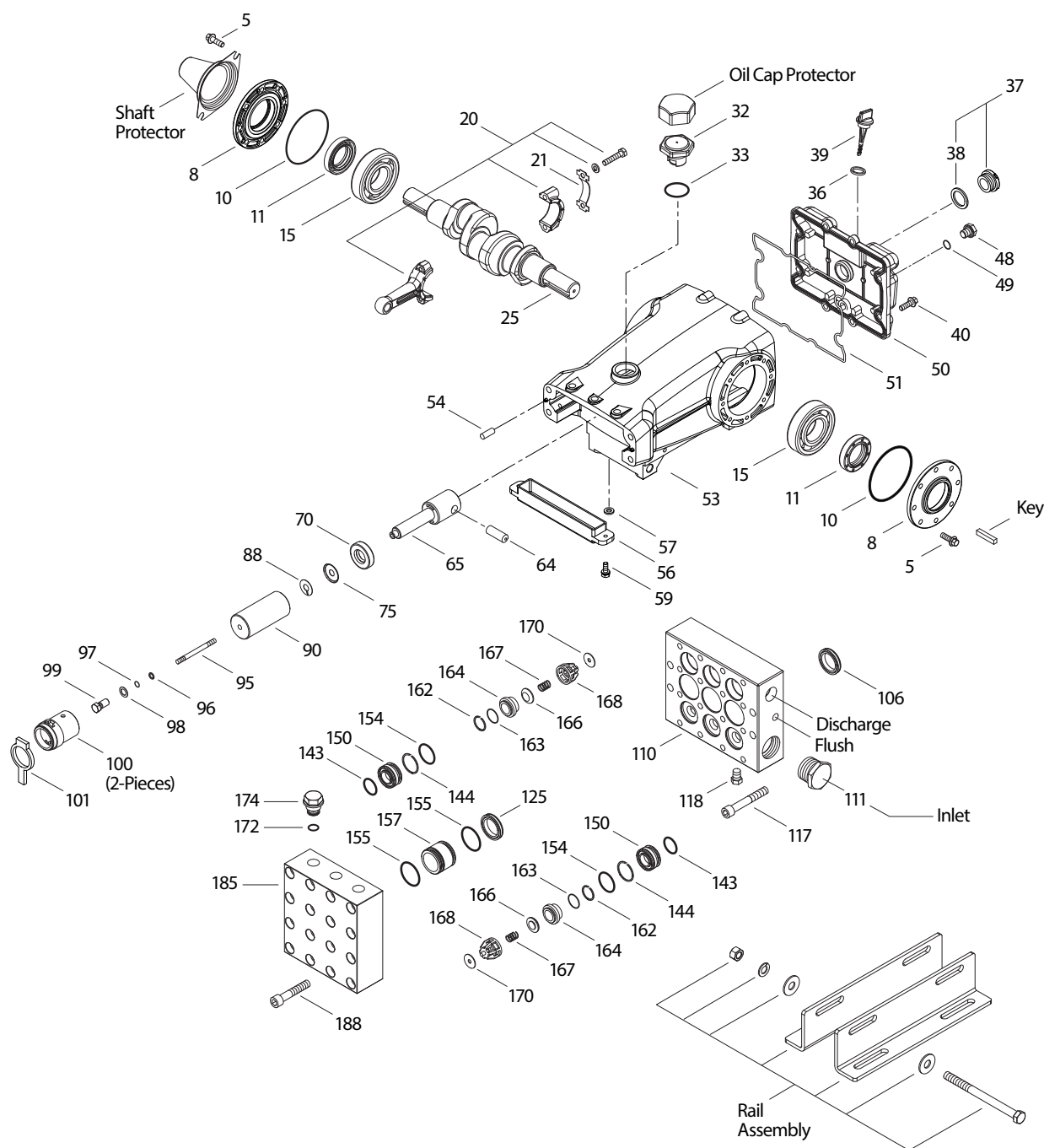
ITEM	PART NUMBER				DESCRIPTION	QTY
	2831	MATL	2831K	MATL		
5	125753	S	125753	S	Screw, Sems HHC (M8 x 25) (See Tech Bulletin 074)	8
8	134966	ALE	134966	ALE	Cover, Bearing (See Tech Bulletins 118, 135)	2
10	27772	NBR	27772	NBR	O-Ring, Cover, Bearing–70D	2
11	27771	NBR	27771	NBR	Seal, Oil, Crankshaft	2
15	26512	STL R	26512	STL R	Bearing, Ball	2
20	48613	TNM	48613	TNM	Assembly Rod, Connecting (Includes: Locking Washer, Washer, Screws) (See Tech Bulletin 074)	3
21	126562	STCP R	126562	STCP R	Washer, Locking	3
25	49795	FCM	49795	FCM	Crankshaft, Dual End (M38.5)	1
32	43211	ABS	43211	ABS	Cap, Oil Filler	1
33	14177	NBR	14177	NBR	O-Ring, Oil Filler Cap–70D	1
36	129343	RBR	129343	RBR	Gasket, Dipstick–70D	1
37	92241	PC	92241	PC	Gauge, Oil, Bubble with Gasket–80D (See Tech Bulletin 074)	1
38	44428	NBR	44428	NBR	Gasket, Flat, Oil Gauge–80D	1
39	27769	ABS	27769	ABS	Dipstick	1
40	125753	S	125753	S	Screw, Sems HHC (M8 x 25) (See Tech Bulletin 074)	8
48	25625	STCP	25625	STCP	Plug, Drain (¼" x 19 BSP)	1
49	23170	NBR	23170	NBR	O-Ring, Drain Plug–70D	1
50	133582	ALE	133582	ALE	Cover, Rear (See Tech Bulletins 118, 126)	1
51	27767	NBR	27767	NBR	O-Ring, Rear Cover–70D	1
53	133609	ALE	133609	ALE	Crankcase Assembly (Includes: 54) (See Tech Bulletins 118, 135)	1
54	27488	S	27488	S	Pin, Guide	2
56	27790	POP	27790	POP	Pan, Oil	1
57	22981	STCP R	22981	STCP R	Washer, Oil Pan	2
59	92538	S	92538	S	Screw, HHC, SEMS (M6 x 16)	2
64	27784	CM	27784	CM	Pin, Crosshead	3
65	48719	SSHS	48719	SSHS	Rod, Plunger	3
70	27785	NBR	27785	NBR	Seal, Crankcase, Oil	3
75	110669	S	110669	S	Slinger, Barrier	3
88	110670	S	110670	S	Washer, Keyhole	3
90	45749	CC	45749	CC	Plunger (M32 x 93)	3
95	89835	SS	89835	SS	Stud, Retainer, (M7 x 87)	3
96	20184	PTFE	20184	PTFE	Backup Ring, Plunger Retainer	3
97	14190	NBR	14190	NBR	O-Ring, Plunger Retainer–70D	3
98	44069	SS	44069	SS	Gasket, Plunger Retainer	3
99	44068	SS	44068	SS	Retainer, Plunger (M7) (See Tech Bulletin 074)	3
100	49788	NY	49788	NY	Retainer, Low-Pressure, Front	3
	49789	NY	49789	NY	Retainer, Low-Pressure, Rear	3
101	110796	—	110796	—	Wick, Long Tab (M32)	3
106	44098	NBR	44098	NBR	Seal, Low-Pressure with SS-Spring	3
110	701661	SS	—	—	Manifold, Inlet Block-Style	1
	—	—	701719	SS	Manifold, Inlet Block-Style, Flushed (¼" NPT[F]) Ports	1
111	701104	SS	701104	SS	Plug, Inlet Manifold, (1¼" NPT[M])	1
117	701693	S	701693	S	Screw HSH (M12 x 80) (See Tech Bulletin 074)	4
118	701077	SS	—	—	Plug, (¼" NPT[M])	3
125	45832	SNG	45832	SNG	Seal, High-Pressure with SS	3
143	14200	NBR	14200	NBR	O-Ring, Valve Adapter, Rear–70D	6
144	28243	PTFE	28243	PTFE	Backup Ring, Valve Adapter	6
150	701675	SS	701675	SS	Adapter, Valve	6
154	11379	NBR	11379	NBR	O-Ring, Valve Adapter, Front–70D	6
155	14520	NBR	14520	NBR	O-Ring, Seal Spacer–70D	6
157	701692	SS	701692	SS	Spacer, High-Pressure	3
162	21985	PTFE	21985	PTFE	Backup Ring, Seat	6
163	26089	NBR	26089	NBR	O-Ring, Seat–80D	6
164	44080	SS	44080	SS	Seat	6
166	44081	SS	44081	SS	Valve	6
167	44082	SS	44082	SS	Spring	6
168	44735	PVDF	44735	PVDF	Retainer, Spring	6
170	44794	SS	44794	SS	Washer, Spring Retainer	6
172	700008	NBR	700008	NBR	O-Ring, Valve Plug	3
174	701694	SS	701694	SS	Plug, Valve (See Tech Bulletin 074)	3
185	701662	SS	701662	SS	Manifold, Valve	1
188	89628	S	89628	S	Screw HSH (M12 x 65) (See Tech Bulletin 074)	16

Italics are optional items.

Bold print part numbers are unique to a particular pump model. For additional technical information see www.catpumps.com/literature/tech-bulletins.
MATERIAL CODES (Not Part of Part Number): ABS=ABS Plastic ALE=Aluminum Epoxy CC=Ceramic CM=Chrome-moly EPDM=Ethylene Propylene Diene Monomer
FCM=Forged Chrome-moly FPM=Fluorocarbon NBR=Medium Nitrile (Buna-N) NY=Nylon PC=Poly Carbonate PE=Polyethylene
PTFE=Pure Polytetrafluoroethylene PVDF=Polyvinylidene Fluoride RBR=Rubber S=304SS SS=316SS SNG=Special Blend (Buna)
ST2=Special PTFE 2 SSHS=316SS/High Strength STCP=Steel/Chrome Plated STL=Steel STZP=Steel/Zinc Plated
TNM=Special High Strength

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

EXPLODED VIEW



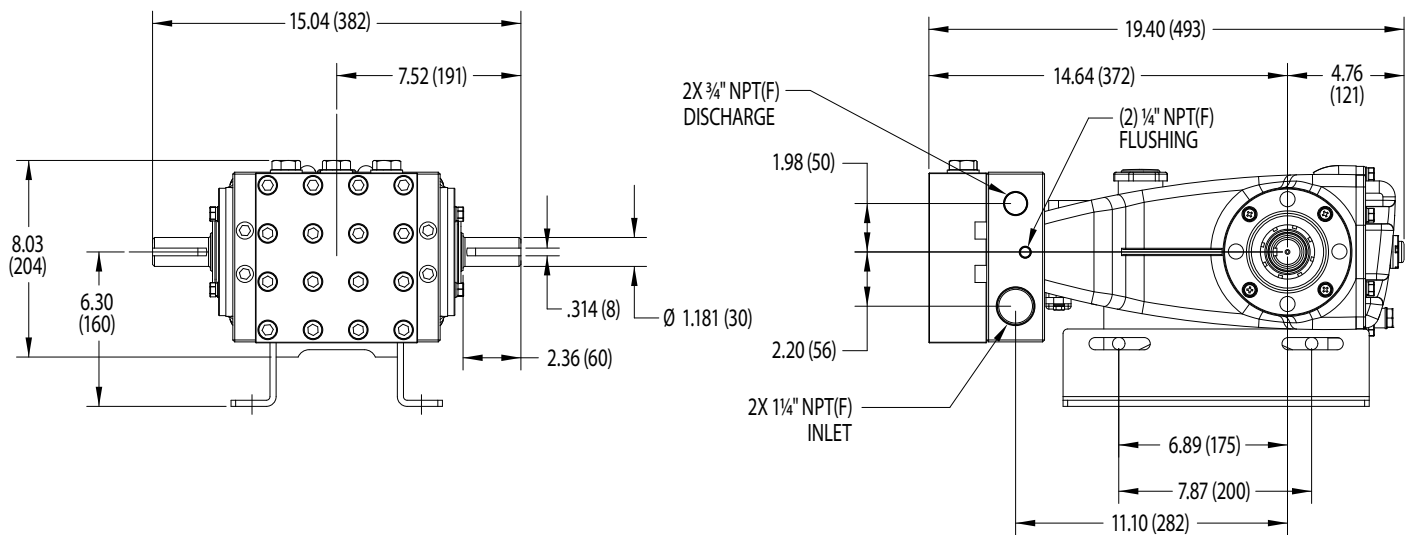
Models
2831, 2831K
September 2023

OPTIONAL PARTS AND ACCESSORIES

PART	DESCRIPTION	QTY
990036	Key (M8 x 7 x 40)	1
30614	Assembly, Rail	1
26516	Protector, Shaft	1
828710	Protector, Oil Cap	1
34334	Kit, Oil Drain (3/8" x 24") (Not Shown)	1
30696	Reverse Pliers (Not Shown)	1
990663	Assembly, Flushing (Model 2831K) (Not Shown)	1

SERVICE PARTS

PART	DESCRIPTION	QTY
701731	Seal Kit – Standard NBR	1
701732	Valve Kit – Standard NBR	1
6107	Oil, Bottle (21 oz bottle) (Fill to Specified Crankcase Capacity Prior to Start-up)	4
6139	Lubricant, Anti-Seize (8 oz) (See Tech Bulletin 095)	1
6124	Gasket, Liquid (3 oz)	1
901402	Head, Complete – with NBR Seals and O-Rings (Model 2831)	1
901403	Head, Complete – with NBR Seals and O-Rings (Model 2831K)	1



Model 2831K

SEAL KITS

One (1) seal kit required per pump

PUMP MODELS	NBR (STD)	FPM (.0110)	EPDM (.0220) ♦
2831, 2831K	701731	701806	33604

ITEM (Included in Seal Kits)				DESCRIPTION	QTY
96	20184	20184	20184	Backup Ring, Plunger Retainer	3
97	14190	14161	48239	O-Ring, Plunger Retainer	3
106	44098	44827	48244	Seal, Low-Pressure with SS-Spring	3
125	45832	48220	48220	Seal, High-Pressure with SS	3
143	14200	11719	701654	O-Ring, Adapter, Low-Pressure, Rear	6
144	28243	28243	28243	Backup Ring, Valve Adapter	6
154	11379	14183	701491	O-Ring, Adapter, Low-Pressure, Front	6
155	14520	11745	48240	O-Ring, Spacer, High-Pressure	6

♦ Silicone oil/grease required

VALVE KITS

One (1) valve kit required per pump

PUMP MODELS	NBR (STD)	FPM (.0110)	EPDM (.0220) ♦
2831, 2831K	701732	701807	701796

ITEM (Included in Valve Kits)				DESCRIPTION	QTY
143	14200	11719	701654	O-Ring, Adapter, Low-Pressure, Rear	6
144	28243	28243	28243	Backup Ring, Valve Adapter	6
154	11379	14183	701491	O-Ring, Adapter, Low-Pressure, Front	6
155	14520	11745	48240	O-Ring, Spacer, High-Pressure	6
162	21985	21985	21985	Backup Ring, Seat	6
163	26089	11377	46647	O-Ring, Seat	6
164	44080	44080	44080	Seat	6
166	44081	44081	44081	Valve	6
167	44082	44082	44082	Spring	6
168	44735	44735	44735	Retainer, Spring	6
170	44794	44794	44794	Washer, Spring Retainer	6
172	700008	700048	701782	O-Ring, Valve Plug	3

♦ Silicone oil/grease required

⚠ 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