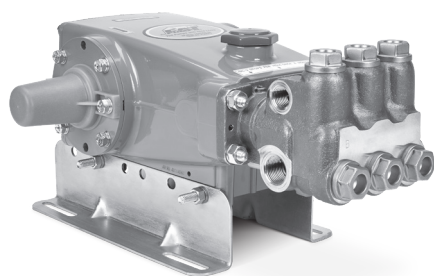


DATA SHEET

15 FRAME PLUNGER PUMP



Brass Model: 650



(Shaft protector included rails sold separately)

FEATURES

- Triplex plunger design ensures high efficiency and low pulsation.
- V-packings and low-pressure seals are completely lubricated and cooled by pumped liquid, greatly increasing service life.
- Direct-drive option offers a compact foot print for electric motors with a NEMA or IEC frame, or SAE hydraulic motors with a bell housing/flexible coupler assembly.
- Belt-driven option provides precision flow setting.

SPECIFICATIONS

	U.S. Measure	Metric Measure
Flow	7.0 gpm	27 lpm
Pressure Range	100–3000 psi	6.9–207 bar
Pump RPM*	1000 rpm	1000 rpm
Inlet Pressure Range	–5 to +60 psi	–.35 to +4.1 bar
Max. Liquid Temp. (NBR)	160° F	71° C
Bore	0.787"	20 mm
Stroke	1.181"	30 mm
Crankcase Capacity	42 oz	1.26 l
Inlet Ports (2)	¾" NPT(F)	¾" NPT(F)
Discharge Ports (2)	½" NPT(F)	½" NPT(F)
Pulley Mounting	Either Side	Either Side
Shaft Diameter	1.181"	30 mm
Weight	42 lbs	19 kg
Dimensions	16.30 x 12.99 x 6.45"	414 x 330 x 164 mm

*Pump minimum is 100 rpm.

DETERMINING THE PUMP RPM

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

DETERMINING THE REQUIRED HP

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

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	P/N	MATL	DESCRIPTION	QTY
5	126540	STCP R	Screw, HHC (M8 x 20) (See Tech Bulletin 074)	8
8	134805	ALE	Cover, Bearing	2
9	855043	FBR	Split Shim, Bearing Cover, 2-Piece	0-2
10	11340	NBR	O-Ring, Bearing Case	2
11	43495	NBR	Seal, Oil, Crankshaft	2
12	855044	S	Split Shim, Bearing Cover, 2-Piece	0-2
15	39060	STL	Bearing, Roller	2
20	48600	TNM	Rod Assembly, Connecting (See Tech Bulletin 074)	3
25	43494	FCM	Crankshaft Dual-End (M30)	1
32	43211	ABS	Cap, Oil Filler	1
33	14177	NBR	O-Ring, Filler Cap	1
37	92241	PC	Gauge, Oil, Bubble with Gasket	1
38	44428	NBR	Gasket, Flat, Oil Gauge	1
40	126541	STCP R	Screw, Sems HHC (M6 x 20) (See Tech Bulletin 074)	4
48	25625	STCP	Plug, Drain (1/4" x 19 BSP)	1
49	23170	NBR	O-Ring, Drain Plug	1
50	133576	ALE	Cover, Rear	1
51	44834	NBR	O-Ring, Rear Cover	1
53	134836	ALE	Crankcase with Guide Pins (Includes: 54, 55)	1
54	27488	S	Pin, Guide	2
55	126545	STCP R	Stud (M10 x 45)	4
56	44664	POP	Pan, Oil	1
64	43507	CM	Pin, Crosshead	3
65	43501	SZZ	Rod, Plunger	3
69	126592	STCP R	Washer, Seal	3
70	43500	NBR	Seal, Oil, Crankcase	3
75	43506	S	Slinger, Barrier	3
88	45675	S	Washer, Keyhole	3
89	43505	BB	Spacer, Plunger	3
90	43300	CC	Plunger (M20x77)	3
96	43235	PTFE	Backup Ring, Plunger Retainer	3
97	17399	NBR	O-Ring, Plunger Retainer	3
98	45891	CU	Gasket, Plunger Retainer	3
99	104360	S	Retainer with Stud, Plunger (M6) (See Tech Bulletin 074)	3
100	855001	POP	Retainer, Seal 2-Piece	3
101	43508	—	Wick, Long Tab	3
106	† 44071	NBR	Seal, Low-Pressure with SS-Spring	3
120	49291	BB	Case, Seal (See Tech Bulletin 074)	3
121	14762	NBR	O-Ring, Seal Case	3
126	43515	BB	Adapter, Female	3
127	† 44607	STG	V-Packing	6
128	43517	BB	Adapter, Male	3
139	20326	BBCP	Plug, Inlet (3/4" NPT[M])	1
162	43248	PTFE	Backup Ring, Seat	6
163	43249	NBR	O-Ring, Seat-80D	6
164	43722	S	Seat	6
166	43721	S	Valve	6
167	43751	S	Spring	6
168	44564	PVDF	Retainer, Spring	6
172	17617	NBR	O-Ring, Valve Plug	6
174	43850	BB	Plug, Valve (See Tech Bulletin 074)	6
185	45975	NAB	Head, Manifold	1
192	126231	STCP R	Lockwasher (M10)	4
194	126522	STCP R	Nut, Hex (M10) (See Tech Bulletin 074)	4
250	855046	POP	Protector, Shaft with Two (2) Screws	1

Italics are optional items. † Production parts different from service parts.

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 BBCP=Brass/Chrome Plated

CC=Ceramic CM=Chrome-Moly CU=Copper F=Cast Iron FBR=Fiber FCM=Forged Chrome-Moly NAB=Nickel Aluminum Bronze

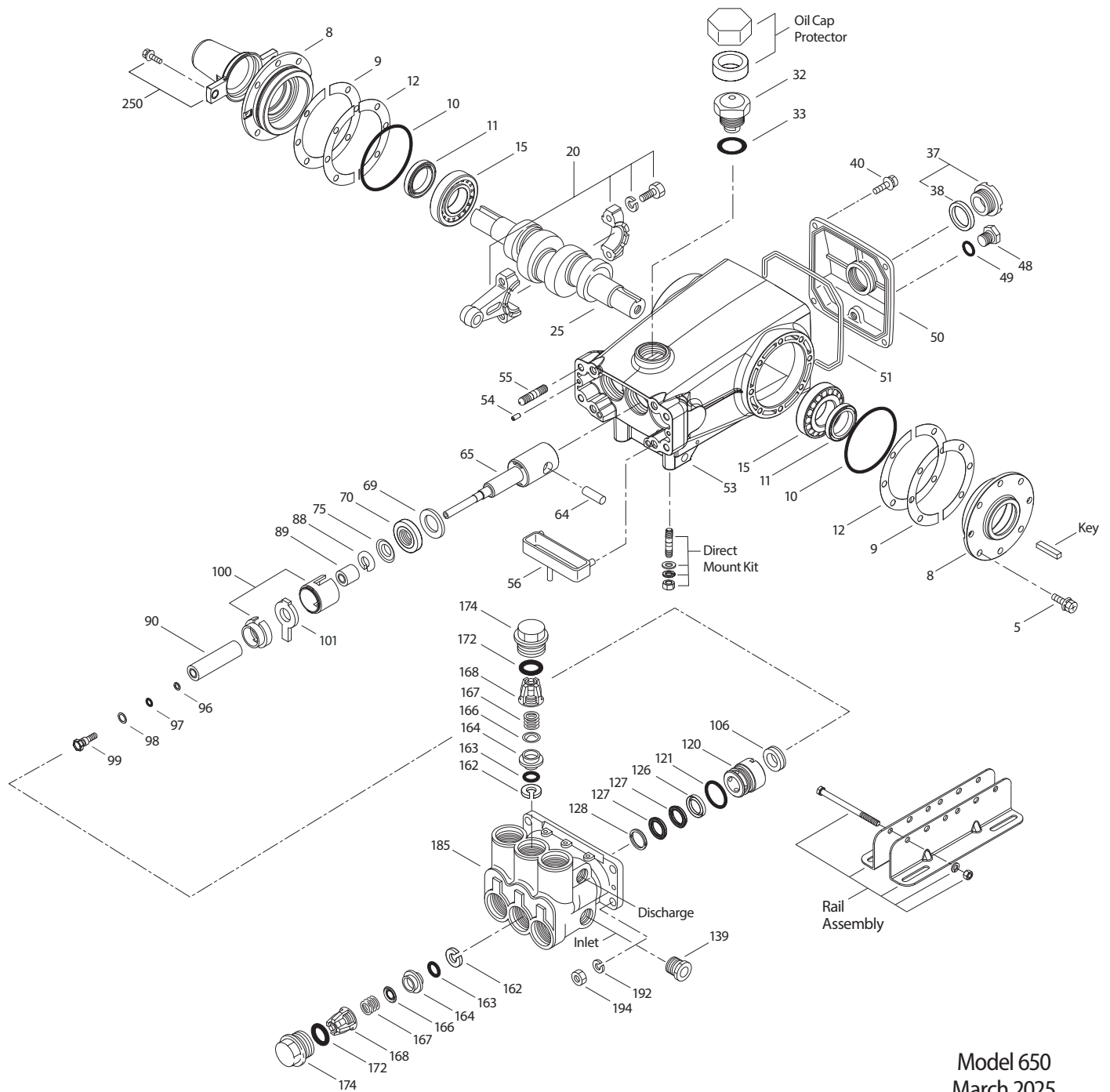
NBR=Medium Nitrile (Buna-N) PC=Poly Carbonate PE=Polyethylene POP=Polypropylene PTFE=Pure Polytetrafluoroethylene

PVDF=Polyvinylidene Fluoride S=304S STCP=Steel/Chrome Plated STG=Special Blend PTFE White STL=Steel

STZP=Steel/Zinc Plated SZZ=304SS/Zamak TNM=Special High Strength

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

EXPLODED VIEW



Model 650
March 2025

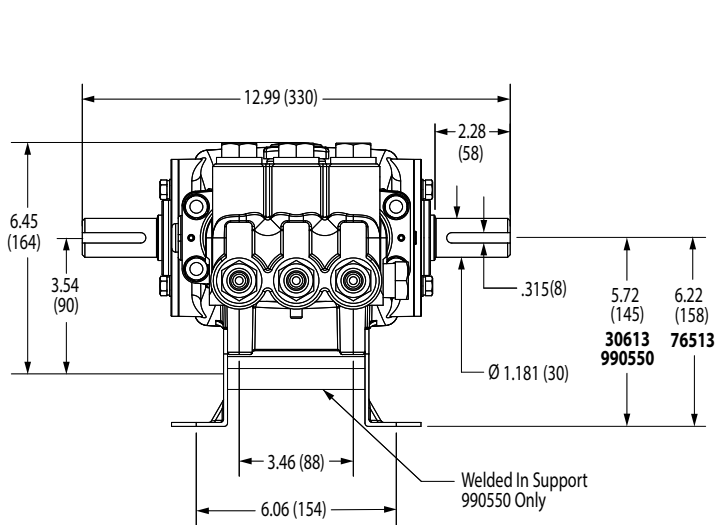
OPTIONAL PARTS AND ACCESSORIES

PART	DESCRIPTION	QTY
30067	Key (M8 x 7.5 x 25)	1
30661	Kit, Complete Mounting	1
30613	Rail Assembly (5.72" – See Dimensional Drawing)	1
990550	Rail Assembly for Diesel/Gas (5.72" – See Dimensional Drawing)	1
76513	Rail Assembly (6.22" – See Dimensional Drawing)	1
30264	Kit, Direct Mount	1
828710	Protector, Oil Cap	1
30206	Pulley, 10" (A/B) (Not Shown)	1
30059	Hub, "H" (M30) (Not Shown)	1
34334	Kit, Oil Drain (3/8" x 24") (Not Shown)	1
991745	Cover, Oil, Flip Top (0.188") (Not Shown)	1

SERVICE PARTS

PART	DESCRIPTION	QTY
30798	Seal Kit – Standard NBR	1
30820	Valve Kit – Standard NBR	2
6107	Oil, Bottle (21 oz bottle) (Fill to Specified Crankcase Capacity Prior to Start-up)	2
30696	Pliers, Reverse (Not Shown)	1
33006	Socket, Seal Case 1/2" Drive (Not Shown)	1
814561	Head, Complete – with NBR Seals and O-Rings	1

Kits – NBR listed on page 4.



Model 650

SEAL KITS One (1) seal kit required per pump

PUMP MODELS	NBR (STD)
650	30798 *

ITEM (Included in Seal Kits)	DESCRIPTION	QTY
97	17399 O-Ring, Plunger Retainer	3
106	44071 Seal, Low-Pressure with SS-Spring	3
121	14762 O-Ring, Seal Case	3
127	44607 V-Packing	6

* Review material codes for individual items (STG may be used as an alternative)

VALVE KITS Two (2) valve kits required per pump

PUMP MODELS	NBR (STD)
650	30820

ITEM (Included in Valve Kits)	DESCRIPTION	QTY
162	43248 Backup Ring, Valve Seat	3
163	43249 O-Ring, Valve Seat	3
164	43722 Seat	3
166	43721 Valve	3
167	43751 Spring	3
168	44564 Retainer, Spring	3
172	17617 O-Ring, Valve Plug	3

⚠ 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