

# 60 Frame Plunger Pump

Nickel Aluminum  
Bronze Model

# 6747

## FEATURES

### Superior Design

- Triplex plunger design gives smoother liquid flow.
- V-Packings are completely lubricated and cooled by the liquid being pumped.
- Inlet and discharge valve assemblies interchange for easier maintenance.
- Oil bath crankcase assures optimum lubrication.
- Close tolerance concentricity of the ceramic plunger maximizes seal life.

### Quality Materials

- 316 stainless steel valves are heat treated and seats are roller burnished for a positive seal and extended valve life.
- Cast Nickel Aluminum Bronze manifolds for strength and corrosion resistance.
- Special concentric, high density, polished, graphite impregnated, solid ceramic plungers are abrasion resistant and result in extended seal life.
- Specially formulated, CAT PUMP exclusive, V-Packings offer unmatched performance and seal life.
- Die cast aluminum crankcase provides high strength, minimum weight and precision tolerance control.
- Chrome-moly crankshaft gives unmatched strength and surface hardness.
- Oversized crankshaft bearings with greater loading capacity mean longer bearing life.

### Easy Maintenance

- Wet-end is easily serviced without entering crankcase, requiring less time and effort.
- Valve assemblies are accessible without disturbing piping, for quick service.
- Preset packings mean no packing gland adjustment is necessary, reducing maintenance costs.

### **⚠ WARNING**

All systems require both a primary pressure regulating device (i.e., regulator, unloader) and a secondary pressure safety relief device (i.e., pop-off valve, safety valve). Failure to install such relief devices could result in personal injury or damage to the pump or to system components. CAT PUMPS does not assume any liability or responsibility for the operation of a customer's high pressure system.

## SPECIFICATIONS

	U.S. Measure	Metric Measure
Flow.....	48 GPM	(182 L/M)
Pressure Range.....	100 to 2000 PSI	(7 to 140 BAR)
RPM .....	615 RPM	(615 RPM)
Inlet Pressure Range* .....	Flooded to 50 PSI	(Flooded to 3.5 BAR)
Bore.....	1.772"	(45 mm)
Stroke.....	2.579"	(65.5 mm)
Crankcase Capacity.....	10 Qts.	(9.46 L)
Maximum Liquid Temperature .....	140°F	(60°C)
Above 130°F call CAT PUMPS for inlet conditions and elastomer recommendations.		
Inlet Ports (2)*.....	2" NPTF	(2" NPTF)
Discharge Ports (2).....	1-1/4" NPTF	(1-1/4" NPTF)
Shaft Diameter .....	1.772"	(45 mm)
Weight.....	335 lbs.	(151.95 kg)
Dimensions .....	31.14 x 24.37 x 12.87"	(791 x 619 x 327 mm)

\*A 2-1/2" inlet line is recommended for alternate performance.

## HORSEPOWER REQUIREMENTS

FLOW		PRESSURE				RPM
		PSI 900	PSI 1000	PSI 1200	PSI 2000	
U.S. GPM	L/M	BAR 60	BAR 70	BAR 85	BAR 140	615
48	182	29.6	32.9	39.4	65.8	

**DETERMINING THE PUMP R.P.M.**       $\frac{\text{Rated G.P.M.}}{\text{Rated R.P.M.}}$  = "Desired" G.P.M. / "Desired" R.P.M.

**DETERMINING THE REQUIRED H.P.**       $\frac{\text{GPM} \times \text{PSI}}{1460}$  = Electric Brake H. P. Required

**DETERMINING MOTOR PULLEY SIZE**       $\frac{\text{Motor Pulley O.D.}}{\text{Pump R.P.M.}}$  =  $\frac{\text{Pump Pulley O.D.}}{\text{Motor R.P.M.}}$

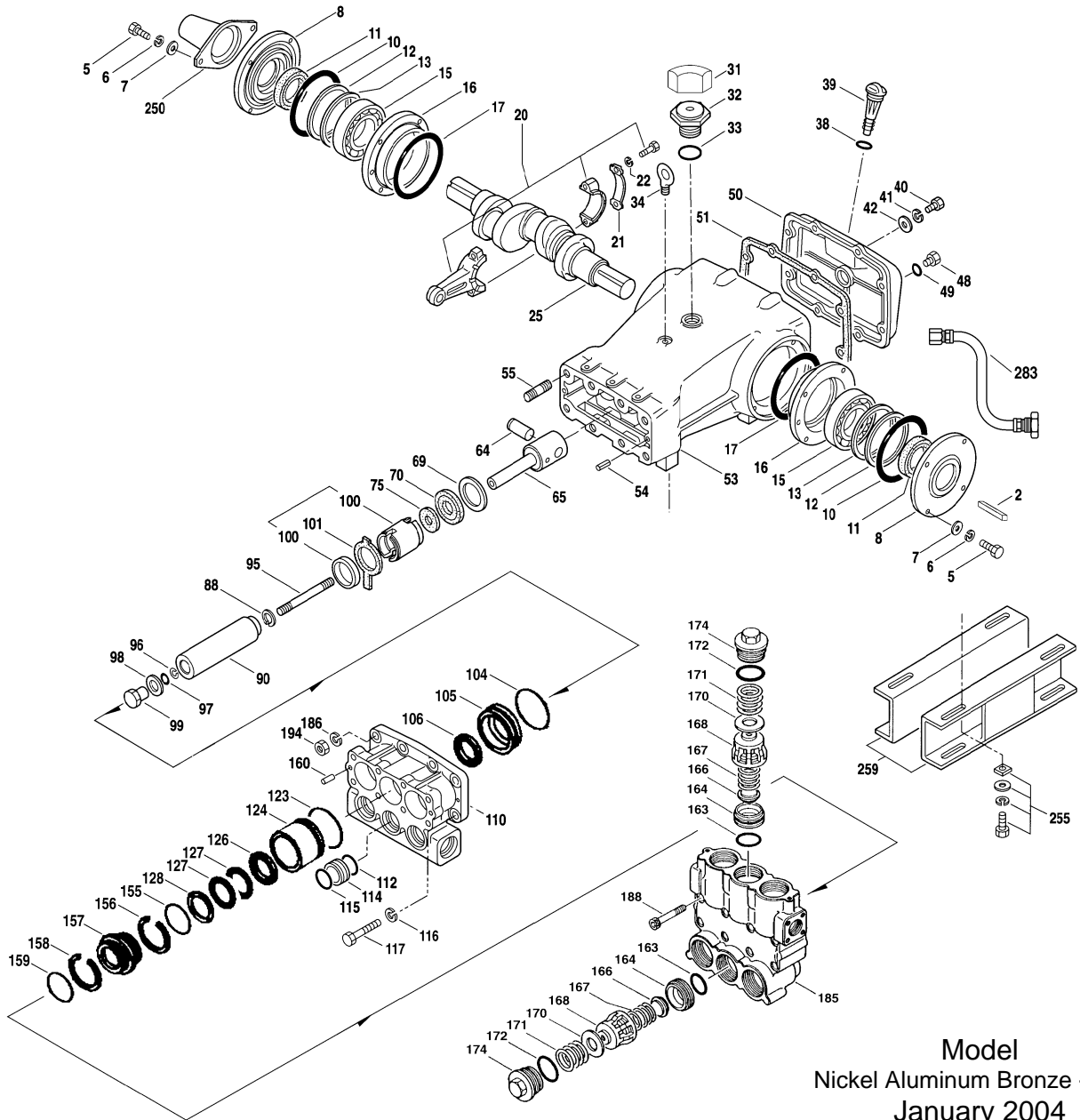
See complete Drive Packages [Incls: Pulleys, Belts, Hubs, Key] Tech Bulletin 003.  
Refer to pump Service Manual for repair procedure and additional technical information.

*"Customer confidence is our greatest asset"*

# PARTS LIST

ITEM	P/N	MATL	DESCRIPTION	QTY
2	43048	STL	Key (M14x9x90)	1
5	89728	S	Screw, HH (M10 x 40)	8
6	15847	S	Lockwasher, Split (M10)	8
7	19934	S	Washer, Flat (M10)	8
8	29443	AL	Cover, Bearing, Outer	2
10	29444	NBR	O-Ring, Bearing Case	2
11	11443	NBR	Seal, Oil, Crankshaft - 70D	2
12	43642	S	Washer, Shim (M120 x 0.3), Bearing, Inner	0-2
13	43643	S	Washer, Shim (M120 x 0.5), Bearing, Inner	0-2
15	29441	STL	Bearing, Roller	2
16	29442	STL	Cover, Bearing, Inner	2
17	29444	NBR	O-Ring, Bearing Case	2
20	115983	HS	Rod, Connecting	3
21	44941	STZP	Washer, Locking	3
22	43641	STZP	Washer, Shim (M10.5 x 1.5)	6
25	29440	FCM	Crankshaft, Dual End	1
31	828710	—	Protector, Oil Cap	1
32	43211	ABS	Cap, Oil Filler	1
33	14177	NBR	O-Ring, Oil Filler Cap - 70D	1
34	44319	STZP	Bolt, Eye (M12) [1/00]	1
38	11338	NBR	O-Ring, Dip Stick - 70D	1
39	27769	ABS	Stick, Dip	1
40	89627	S	Screw, HH (M10 x 30)	8
41	15847	S	Lockwasher, Split (M10)	8
42	19934	S	Washer, Flat (M10)	8
48	25625	STCP	Plug, Drain (1/4 x 19BSP)	1
49	23170	NBR	O-Ring, Drain Plug - 70D	1
50	29438	AL	Cover, Rear	1
51	29439	NBR	Gasket, Rear Cover	1
53	43284	AL	Crankcase w/Guide Pins [1/00]	1
54	43282	S	Pin, Guide	2
55	89615	S	Stud (M16 x 70)	2
64	29481	CM	Pin, Crosshead	3
65	45384	SSZZ	Rod, Plunger	3
69	29453	STZP	Washer, Oil Seal	3
70	29454	NBR	Seal, Oil - 80D	3
75	44752	NBR	Slinger, Barrier	3
88	45677	SS	Washers, Keyhole (M14)	3
90	45672	CC	Plunger (M45 x 185)	3
95	44748	SS	Stud, Plunger Retainer (M14 x 147)	3
96	20214	PTFE	Back-up-Ring, Plunger Retainer	3
97	17616	NBR	O-Ring, Plunger Retainer - 80D	3
	11686	FPM	O-Ring, Plunger Retainer - 80D	3
98	44751	SS	Gasket, Plunger Retainer	3
99	44750	SS	Retainer, Plunger (M14)	3
100	702014	PVDF	Retainer, Seal, Rear	3
	701580	D	Retainer, Seal, Front	3
104	18178	NBR	O-Ring, Inlet Adapter - 80D	3
	13338	FPM	O-Ring, Inlet Adapter - 70D	3
105	701355	SS	Adapter, LPS	3
106	106147	NBR	Seal, LPS w/SS-Spg	3
	701752	SFTA*	Seal, LPS w/SS-Spg	3
110	44754	NAB	Manifold, Inlet	1
112	18175	NBR	O-Ring, Spacer, Inner - 80D	3
	13266	FPM	O-Ring, Spacer, Inner - 70D	3
114	44767	SS	Spacer, Inlet Manifold	3
115	18175	NBR	O-Ring, Spacer, Outer - 80D	3
	13266	FPM	O-Ring, Spacer, Outer - 70D	3
116	19086	S	Lockwasher, Split (M16)	4
117	89729	S	Screw, HH (M16 x 55)	4
123	18178	NBR	O-Ring, Cylinder V/P - 80D	3
	13338	FPM	O-Ring, Cylinder V/P - 70D	3
124	701357	SSL	Cylinder, V/P	3
126	701358	SS	Adapter, Female	3
127	104450	STG*	V-Packing	6
128	701359	SS	Adapter, Male	3
155	701978	NBR	O-Ring, Spacer - 80D	3
	701360	FPM	O-Ring, Spacer - 70D	3
156	701361	PTFE	Back-up Ring, Inner	3
157	701362	SS	Spacer, V-Packing w/Coil Springs	3
158	701363	PTFE	Back-up Ring, Outer	3
159	18178	NBR	O-Ring, Spacer - 80D	3
	13338	FPM	O-Ring, Spacer - 70D	3
160	44756	S	Pin, Guide	2
163	18176	NBR	O-Ring, Seat	6
	13278	FPM	O-Ring, Seat	6
164	44772	SS	Seat	6
166	44774	SS	Valve	6
167	44773	SS	Spring	6
168	44775	PVDF	Retainer, Spring	6
170	44776	SS	Washer, Retainer	6
171	44780	SS	Spring, Coil, Valve Plug	6
172	18177	NBR	O-Ring, Valve Plug - 80D	6
	13279	FPM	O-Ring, Valve Plug - 70D	6
174	44778	NAB	Plug, Valve [3/00]	1
185	44769	NAB	Manifold, Discharge [3/00]	1
186	19086	S	Lockwasher, Split (M16)	2
188	89694	S	Screw, HSH (M16 x 110)	8
194	81291	S	Nut, Hex (M16)	2

# EXPLODED VIEW



Model  
Nickel Aluminum Bronze - 6747  
January 2004

ITEM	P/N	MATL	DESCRIPTION	QTY
250	29445	AL	Protector, Shaft	1
255	33243	STZP	Kit, Mount (Included w/Pump)	1
259	29477	STZP	Rail (Included w/Pump) (Two per pump required)	2
275	990014	STL	Hub, 45mm (M14x9 Keyway) [See Drive Packages, Tech Bulletin 003]	1
279	30429	STZP	Oiler (10 oz.)	3
281	30969	—	Oiler, Glass (10 oz.)	3
282	10070	NBR	Gasket, Oiler	3
283	34334	—	Kit, Oil Drain	1
290	6104	—	Gasket, Liquid (1.0 oz.)	1
299	702348	NAB	Head, Complete	1
300	702349	NBR*	Kit, Seal (Incls: 97,106,112,115,123,127,155,156,158,159)	1
	702350	FPM*	Kit, Seal (Incls: 97,106,112,115,123,127,155,156,158,159)	1
310	34092	NBR	Kit, Valve (Incls: 163,164,166,167,168,170,172)	2
	31273	FPM	Kit, Valve (Incls: 163,164,166,167,168,170,172)	2
—	819010	F	Assy, Crankcase, Cast Iron Conversion	1
—	88902	STZP	Stud (M16x277) (For removing D.M., I.M.)	2
—	—	—	C.A.T. (For R.O. or Industrial Applications)	1
—	—	—	Adapters (2 per C.A.T.) (See Data Sheet for complete selection)	2
—	6105	—	Oil, Twin Pack (Two 2.5 Gal) ISO 68 Multi-viscosity Hydraulic (Fill to specified crankcase capacity prior to start-up)	1

*Italics are optional items.* [ ] Date of latest production change. \*Review material codes for individual items (STG and SFTA generally may be used as alternate). **C.A.T. highly recommended for pressurized inlet, R.O. and Industrial applications.**

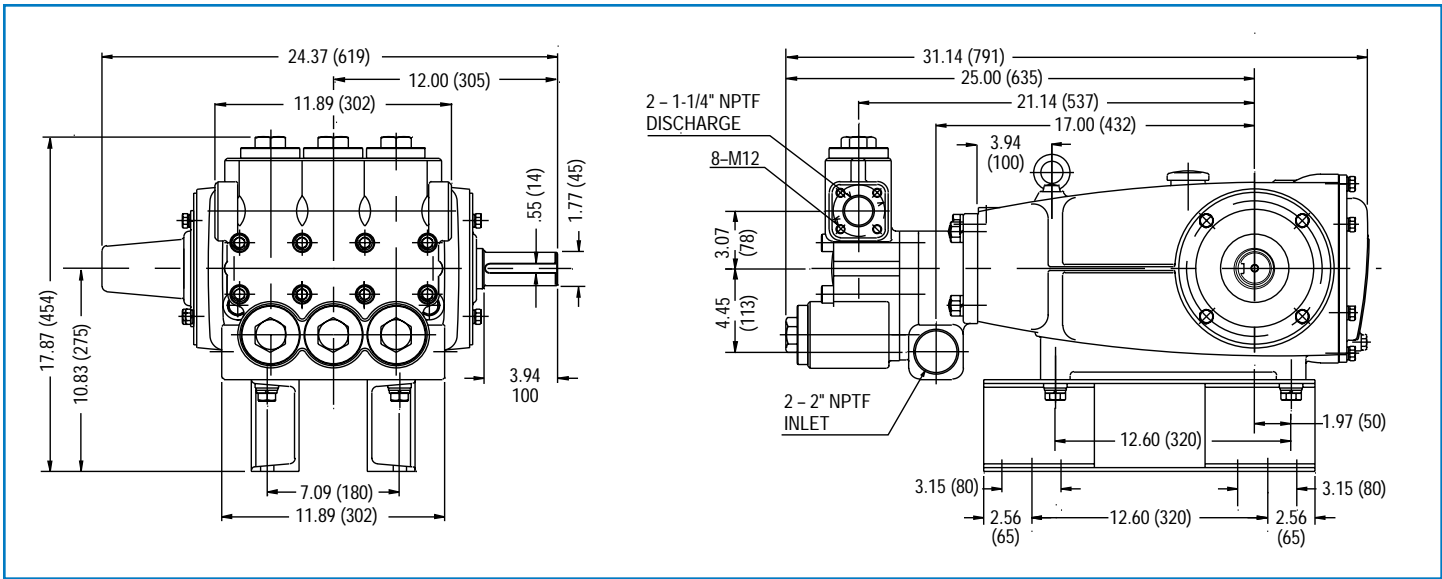
See Tech Bulletins 003, 024, 036, 043, 052, 053, 054, 064, 074, 077, 082, 083 and 084 for additional information.

MATERIAL CODES (Not Part of Part Number): ABS=ABS Plastic AL=Aluminum CC=Ceramic CM=Chrome-Moly D=Delrin®

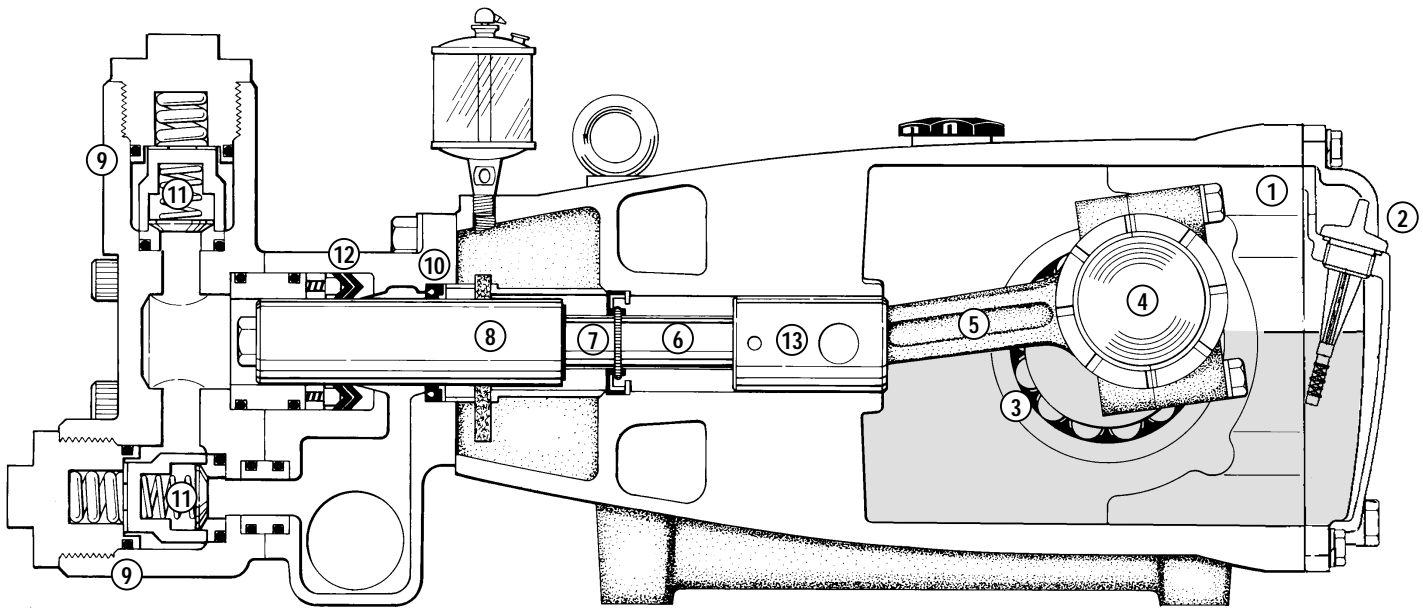
FCM=Forged Chrome-moly FPM=Fluorocarbon (Viton®) NAB=Nickel Aluminum Bronze NBR=Medium Nitrile (Buna-N)

PTFE=Pure Teflon® PVDF=Fluoroplastic (High Strength) S=304SS SFTA=Special Blend (Teflon®) Tan SS=316SS SSL=316SS/Low Carbon

SSZZ=316SS/Zamak STCP=Steel/Chrome Plated STG=Special Blend (Teflon®) White STL=Steel STZP=Steel/Zinc Plated



Model 6747



- 1 Die cast aluminum **crankcase** means high strength, lightweight, and excellent tolerance control.
- 2 **Dipstick** offers convenient top access for easy oil level check.
- 3 Oversized crankshaft **bearings** provide extended bearing life and pump performance.
- 4 Chrome-moly **crankshaft** provides unmatched strength and surface hardness for long life.
- 5 Matched oversized high strength **connecting rods** are noted for superior strength and bearing quality.
- 6 The **plunger rods** are high tensile strength stainless steel with Zamak crossheads.
- 7 The stainless steel **slinger** provides back-up protection for the crankcase seal, keeping pumped liquids out of the crankcase.
- 8 Special concentric, high density, polished, graphite impregnated, solid ceramic **plungers** are abrasion resistant and result in extended seal life.
- 9 **Manifolds** are a high tensile strength nickel aluminum bronze for long term, continuous duty.
- 10 100% **wet seal** design adds to service life by allowing pumped liquids to cool and lubricate on both sides.
- 11 Stainless steel **valves, seats and springs** provide corrosion-resistance, positive seating and long life.
- 12 Specially formulated, CAT PUMP exclusive, **V-Packings** offer unmatched performance and seal life.
- 13 **Crossheads** are 360° supported for uncompromising alignment.

Products described hereon are covered by one or more of the following U.S. patents 3558244, 3652188, 3809508, 3920356, 3930756 and 5035580

**World Headquarters**  
**CAT PUMPS**  
 1681 - 94th Lane N.E. Minneapolis, MN 55449-4324  
 Phone (763) 780-5440 — FAX (763) 780-2958  
 e-mail: techsupport@catpumps.com  
 www.catpumps.com

**International Inquiries**  
 FAX (763) 785-4329  
 e-mail: intlsales@catpumps.com



**CAT PUMPS (U.K.) LTD.**  
 1 Fleet Business Park, Sandy Lane, Church Crookham, Fleet  
 Hampshire GU52 8BF, England  
 Phone Fleet 44 1252-622031 — Fax 44 1252-626655  
 e-mail: sales@catpumps.co.uk

**N.V. CAT PUMPS INTERNATIONAL S.A.**  
 Heiveldekens 6A, 2550 Kontich, Belgium  
 Phone 32-3-450.71.50 — Fax 32-3-450.71.51  
 e-mail: cpi@catpumps.be www.catpumps.be

**CAT PUMPS DEUTSCHLAND GmbH**  
 Buchwiese 2, D-65510 Idstein, Germany  
 Phone 49 6126-9303 0 — Fax 49 6126-9303 33  
 e-mail: catpumps@t-online.de www.catpumps.de