

5 Frame Plunger Pump

Model

Gearbox Model

45
45G1

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.
- Lubricated Lo-Pressure Seals provide double protection against external leakage.
- Oil bath crankcase assures optimum lubrication.
- Close tolerance concentricity of the ceramic plunger maximizes seal life.
- Optional Gearbox version for direct mounting to gas engine.

Quality Materials

- Precision design 304 stainless steel valves and seats are hardened and polished for ultimate seating and extended valve life.
- Forged brass manifold for strength and corrosion resistance.
- Special concentric, high-density, polished, solid ceramic plungers provide a true wear surface and 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 means 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

MODEL 45

Flow.....	4.5 GPM	(17 L/M)
Pressure Range.....	100 to 3500 PSI	(7 to 245 BAR)
Inlet Pressure Range.....	Flooded to 60 PSI	(Flooded to 4 BAR)
RPM	1645 RPM	(1645 RPM)
Bore.....	0.630"	(16 mm)
Stroke.....	0.708"	(18 mm)
Crankcase Capacity	18 oz.	(0.55 L)
Maximum Liquid Temperature	160°F	(71°C)
Above 130°F call CAT PUMPS for inlet conditions and elastomer recommendations.		
Inlet Ports (2)	1/2" NPTF	(1/2" NPTF)
Discharge Ports (2).....	3/8" NPTF	(3/8" NPTF)
Shaft Diameter - Single End.....	0.787"	(20 mm)
Weight.....	21.1 lbs.	(9.6 kg)
Dimensions	11.99 x 8.54 x 5.5"	(304.5 x 217.10 x 139 mm)

Consult engine manufacturer for gas engine selection.

ELECTRIC HORSEPOWER REQUIREMENTS

FLOW		PRESSURE					MOTOR PULLEY SIZE	
		PSI 1500	PSI 2000	PSI 2500	PSI 3000	PSI 3500	Using 1725 RPM Motor & 7.0" Pump Pulley	
U.S. GPM	L/M	BAR 105	BAR 140	BAR 175	BAR 210	BAR 245	RPM	Pulley O.D.
4.0	15	4.1	5.5	6.9	8.3	9.6	1455	5.4
4.5	17	4.6	6.2	7.7	9.3	10.8	1645	6.0
4.5	17	4.6	6.2	7.7	9.3	10.8	1645	Gearbox

**DETERMINING
THE PUMP R.P.M.**

$\frac{\text{Rated G.P.M.}}{\text{Rated R.P.M.}} = \frac{\text{"Desired" G.P.M.}}{\text{"Desired" R.P.M.}}$

**DETERMINING
THE REQUIRED H.P.**

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

**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, additional technical information and **pump warranty**.

"Customer confidence is our greatest asset"

PARTS LIST

ITEM	P/N	MATL	DESCRIPTION	QTY
2	30057	STL	Key (M6x6x25)	1
5	96031	STZP	Screw, Sems HHC (M8x16)	8
8	45951	AL	Cover, Bearing (M8)	1
10	43343	NBR	O-Ring, Bearing Cover	2
11	43222	NBR	Seal, Oil, Crankshaft	1
15	14480	STL	Bearing, Ball	2
20	48737	TNM	Rod, Connecting Assy	3
25	45911	FCM	Crankshaft - Single End (M18)	1
30	45953	AL	Cover, Blind Shaft (M8)	1
31	828710	—	Protector, Oil Cap	1
32	44666	RTP	Cap, Oil Filler, Domed	1
33	14177	NBR	O-Ring, Oil Filler Cap - 70D	1
37	92241		Gauge, Oil, Bubble w/Gasket - 80D	1
38	44428	NBR	Gasket, Flat, Oil Gauge - 80D	1
40	92519	STZP	Screw, Sems HHC (M6x16)	4
48	25625	STCP	Plug, Drain (1/4"x19BSP)	1
49	23170	NBR	O-Ring, Drain Plug - 70D	1
50	48777	AL	Cover, Rear [5/02]	1
51	48773	NBR	O-Ring, Rear Cover [5/02]	1
53	48778	AL	Crankcase (M8) [5/02]	1
64	43351	CM	Pin, Crosshead	3
65	45908	ZZCP	Rod, Plunger	3
70	43228	NBR	Seal, Oil, Crankcase	3
75	43328	S	Slinger, Barrier	3
88	45697	S	Washer, Keyhole	3
90	45783	CC	Plunger (M16x72)	3
95	89648	STZP	Stud, Plunger Retainer (M6x64.5)	3
96	43235	PTFE	Back-up-Ring, Plunger Retainer	3
97	17399	NBR	O-Ring, Plunger Retainer - 80D	3
	14160	FPM	O-Ring, Plunger Retainer - 80D	3
98	45891	CU	Gasket, Plunger Retainer	3
99	46504	S	Retainer, Plunger (M6)	3
100	45681	PVDF	Retainer, Seal, Rear	3
	45687	PVDF	Retainer, Seal Adapter, Front	3
106	43316	NBR	Seal, LPS w/S-Spg	3
	106660	FPM	Seal, LPS w/S-Spg	3
120	45789	BB	Case, Seal	3
121	14200	NBR	O-Ring, Seal Case - 70D	3
	11719	FPM	O-Ring, Seal Case	3
126	43320	BB	Adapter, Female	3
127	43319	PTFE	V-Packing	6
	46287	HT	V-Packing	6
128	43318	BB	Adapter, Male	3
163	17547	NBR	O-Ring, Valve Seat - 85D	6
	11685	FPM	O-Ring, Valve Seat - 85D	6
164	45790	S	Seat	6
166	45899	S	Valve	6
167	43750	S	Spring	6
168	44565	PVDF	Retainer, Spring	6
172	17549	NBR	O-Ring, Valve Plug - 70D	6
	26996	FPM	O-Ring, Valve Plug - 70D	6
173	48365	D	Back-up-Ring, Valve Plug	6
174	45900	BB	Plug, Valve	6
185	45907	FBB	Head, Manifold	1
186	12503	STZP	Lockwasher, Split (M10)	2
188	124396	STZP	Srew, HSH (M10x35) [01/04]	2
260	30611	STZP	Rail, Angle Assy, Low-B (Incls: 28499, 30900, 30910, 30920)	1
	30645	STZP	Rail, Angle Assy, High-A (Incls: 30635, 30900, 30910, 30920)	1
275	30944	STL	Hub & Key Assy, "H" Series, M20, (M6 Key) (Incls: 30057, 30945)	1
			[See Drive Accessory Packages, Tech Bulletin 003]	
283	34334		Kit, Oil Drain	1
300	30629	NBR	Kit, Seal (Incls: 97, 106, 121, 127)	1
	31629	HT	Kit, Seal (Incls: 97, 106, 121, 127)	1
310	30683	NBR	Kit, Valve (Incls: 163, 164, 166, 167, 168, 172, 173)	2
350	30696	STZP	Plier, Reverse	1
351	43257	STZP	Tool, Seal Case Removal	1
	33005	STZP	Socket, Seal Case (1/2" Drive)	1
—	6575	—	Plunger Pump Service DVD	1
500	8065	—	Gearbox (See Individual Data Sheet)	1
—	6107	—	Oil, Bottle (21 oz.) ISO 68 Multi-viscosity Hydraulic (Fill to specified crankcase capacity prior to start-up)	1

Italics are optional items. [] Date of latest production change.

See Tech Bulletins 02, 03, 024, 035, 036, 043, 054, 060, 067, 074, 077, 083 and 90 for additional information.

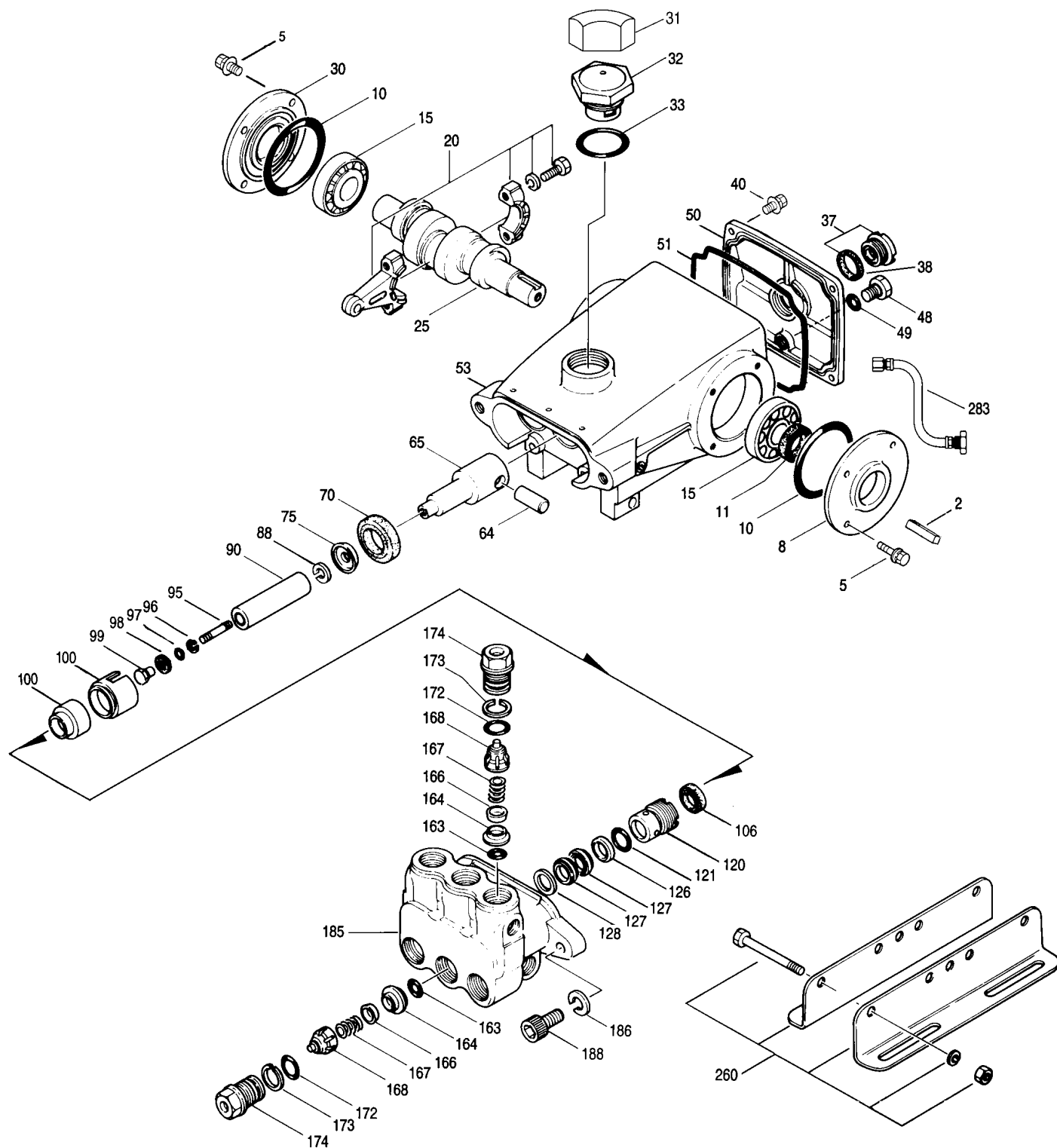
MATERIAL CODES (Not Part of Part Number): AL=Aluminum BB=Brass CC=Ceramic CM=Chrome-moly CU=Copper D=Acetal

FCM=Forged Chrome-moly FPM=Fluorocarbon HT=Hi-Temp (EPDM Alternative) NBR=Medium Nitrile (Buna-N) PTFE=Pure Polytetrafluoroethylene

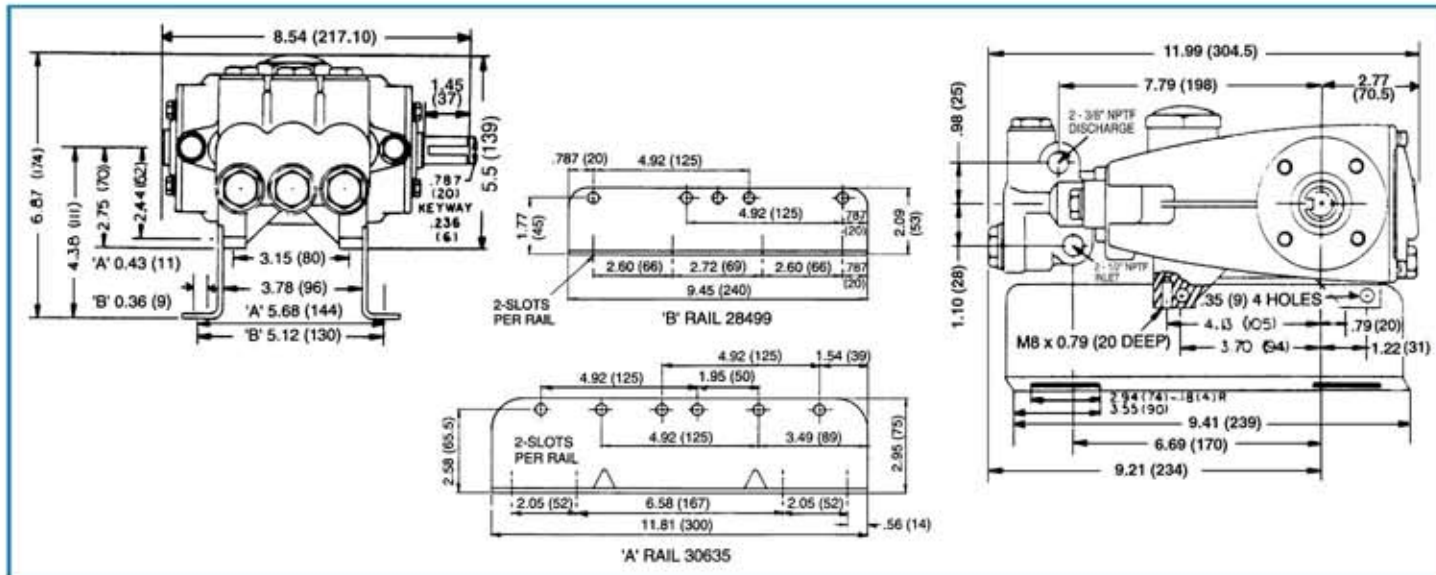
PVDF=Polyvinylidene Fluoride RTP=Reinforced Composite S=304SS STCP=Steel/Chrome Plated STL=Steel STZP=Steel/Zinc Plated

TNM=Special High Strength ZZ=Zamak ZZCP=Zamak/Chrome Plated

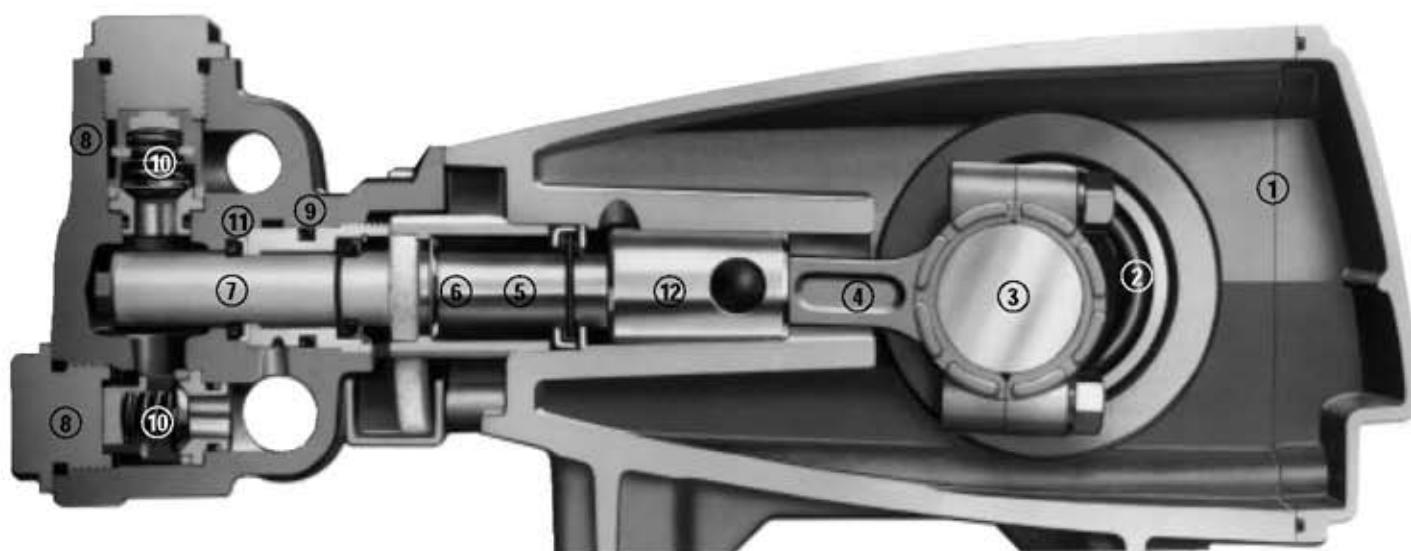
EXPLODED VIEW



Model
45
August 2005



Model 45



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

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

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