

**EAT•N**

**Vickers**

**Standard Power Units**

Start-Up and Maintenance

Value-Pak

System-Pak

System Pak-Plus

Low-Pak

System-Center

System-L

System-Overhead



**VICKERS**<sup>®</sup>

# Table of Contents

<b>General Information</b> .....	<b>1</b>
<b>General Safety Information</b> .....	<b>2</b>
<b>Power Unit Installation and Start-Up Information</b> .....	<b>3</b>
Unpacking & Setup .....	<b>3</b>
Operation .....	<b>4</b>
Adjusting Relief Valve/Compensator Setting .....	<b>4</b>
General Operating Specifications .....	<b>4</b>
<b>Maximum Pressure and Flow</b> .....	<b>5</b>
<b>System Pressure Limitations</b> .....	<b>6</b>
<b>Maintenance</b> .....	<b>9</b>
<b>Troubleshooting Guide &amp; Maintenance Hints</b> .....	<b>10</b>
Excessive Noise .....	<b>10</b>
Excessive Heat .....	<b>11</b>
Incorrect Flow .....	<b>12</b>
Incorrect Pressure .....	<b>13</b>
Faulty Operation .....	<b>14</b>
<b>Installation Drawings</b> .....	<b>15</b>
PSVP Value-Pak 5 gallon .....	<b>15</b>
PSVP Value-Pak 10, 15, 20, 30 gallon .....	<b>16</b>
PSSP System-Pak II 5 gallon .....	<b>17</b>
PSSP System-Pak II 10, 15, 20, 30 gallon .....	<b>18</b>

## General Information

This manual outlines installation, operation, and troubleshooting practices for the Vickers standard power unit series.

Value-Pak, PSVP  
System-Pak, PSSP  
System Pak-Plus, PSPP  
Low-Pak, PSLP  
System-Center, PSSC  
System-L, PSSL  
System-Overhead PSSO

# General Safety Information



## **WARNING:**

**Read General Safety Information carefully before attempting to assemble, install, operate, or maintain these products. Failure to comply with these instructions may result in personal injury and/or property damage. Retain these instructions for future reference.**

1. Make all electrical connections in accordance with the National Electrical Code (NEC) and Occupational Safety and Health Act (OSHA) regarding branch circuit protection and means of motor disconnection to avoid electric shock and fire hazards.

2. Avoid the potential for oil spills and slippery floor conditions by:

- Maintaining oil reservoir on a level surface
- Maintaining leak-free hydraulic hose or pipe connections to the unit
- Not overfilling the unit with hydraulic fluid.

3. Exceeding the recommended operating temperatures may cause system components to become too hot to handle. Overheated components create a potential for burns, leaks, and premature component failure.

4. Ensure that the relief valve setting does not exceed the pressure rating of the unit or of the lowest rated component connected to the power unit. The system pressure setting should be within the horsepower specifications of the unit's electric motor. Use the formula

$$HP = PSI * GPM * 0.00073$$

for a general guideline. Refer to tables on Page 9 for specific operation limitations.

5. Ensure all pressure is released from the system before attempting to remove or repair any valve, pump, or component of the system. Failure to follow this procedure may result in the release of pressurized hydraulic fluid that has the potential to cause severe personal injury.

6. Ensure that all electrical power is disconnected at the junction box before attempting removal or repair of any electric motor starter, valves, or pumps, or other components in the system.

# Power Unit Installation and Start-Up Information

## Unpacking & Setup

1. Unpacking: All power units are tested and inspected before shipment. Any damage or shortages evident when the equipment is received should be reported immediately reported to the commercial carrier that transported the equipment. Assistance is available from your Eaton representative, if required. Always refer to the purchase order number and Eaton model and serial numbers when contacting Eaton.
2. Select a clean and well-ventilated area to install the power unit. Level the power unit before bolting the reservoir to the floor. Mounting hole dimensions can be found in the installation drawings in the appendix.
3. Fill the reservoir through the filler-breather with a high-quality hydraulic oil:
  - For ambient temperature  $-18^{\circ}\text{C}$  to  $70^{\circ}\text{C}$  ( $0^{\circ}$  to  $160^{\circ}\text{F}$ ), use SAE 10 grade oil,
  - For ambient temperature  $0^{\circ}\text{C}$  to  $90^{\circ}\text{C}$  ( $32^{\circ}$  to  $200^{\circ}\text{F}$ ), use SAE 20 grade oil.

New hydraulic oil is often highly contaminated. Assure the oil is filtered through a high efficiency filter when filling.
4. Fill oil to the top of the full mark on fluid level gauge on the reservoir. Do not overfill.
5. Fill the case of external horizontally mounted piston pumps. Open pump inlet valves, if installed.
6. Connect the powerunit's hydraulic pressure supply and return connections using proper line sizing and cleanliness practices. Connect all other model auxiliary functions per manufacturer's data sheets included with power unit information packet, i.e. temperature switches, pressure switches, water coolers etc.
7. Check the motor nameplate and motor starter identification tag, if your unit is so equipped, for proper voltage requirements. Connect the power unit to a proper electrical source. Jog the motor to check rotation. Rotation must match the direction of the arrow decal(s) affixed to the unit, or the pump may be damaged. Polyphase motors are bi-directional, and proper rotation can be established by reversing any two power leads.
8. System pressures should be set as low as possible to prevent unnecessary fluid heating. On some applications, this setting may be from 3,5 to 14 bar (50 to 200 psi) above necessary static pressures to overcome dynamic pressure drop or to achieve proper acceleration.
9. Pump noise and "crackle" are most often caused by air entering the pump suction inlet. Tightening the suction fittings will usually eliminate such problems. If the pump fails to the prime, vent the pump discharge to atmosphere to establish fluid flow. Continue to jog the electric motor to initially prime the pump and lines. Completion of the jog mode will be achieved when the pressure gauge indicates a positive pressure. The power unit is now ready for operation.
10. The fluid level should be rechecked and maintained so it always registers in the sight gauge.
11. The first few hours of operation are critical to the life of the system. The system should be run at minimum pressure and maximum flow for a minimum of two hours to remove contamination introduced during installation. After the first few hours of operation, any foreign material from the system will be flushed to the return filter. It is good practice to replace filter elements to maintain fluid cleanliness. Fluid temperature should be monitored to achieve stability below  $54^{\circ}\text{C}$  ( $130^{\circ}\text{F}$ ) range during the initial start-up and commissioning period.
12. For most industrial applications, an operating temperature of  $66^{\circ}\text{C}$  ( $150^{\circ}\text{F}$ ) is considered maximum. At higher temperatures, reliable and consistent hydraulic control is reduced, component service life is compromised, hydraulic fluid deteriorates and a potential danger to operation personnel is created. Note: At least once a year or every 4,000 operating hours, the air vent filter should be replaced and the entire system checked for possible future difficulties. A fluid sample should be taken and analyzed for particle contamination and chemical composition. Vickers Fluid Analysis part number 894277 is recommended. Some applications or environmental conditions may dictate such maintenance be performed at more frequent intervals. See the Maintenance Section of this brochure for more details.

# Power Unit Installation and Start-Up Information



## **OPERATION WARNING:**

**Read General Safety Information section on Page 2 prior to starting any maintenance procedures.**

### **CAUTION**

Never run unit without oil.

1. At initial startup, start and stop the motor several times to allow the pump to prime before full flow begins.
2. Bleed all air from the hydraulic system to prevent erratic operation of the pump.
3. Re-check reservoir oil level after a few complete cycles of the hydraulic system and refill, if necessary.

### **Adjusting Relief Valve/Compensator Setting**

The relief valve and/or compensator on this unit is factory set at 0 - 25 bar (0-350 psi), unless otherwise specified at time of order. Use the formula

$$HP = PSI * GPM * 0.00073$$

for a general guideline before adjusting the relief valve or compensator to ensure you are within the operating limits of the electric motor being used. Refer to the tables on Page for specific operation limitations. Set the relief valve at least 9 bar (120 psi) higher than the compensator if this unit has a pressure compensated pump (see note below). It is recommended that the compensator (or relief valve in the case of a non-compensated pump) be approximately 7 bar (100 psi) higher than the operating pressure required. To adjust the setting, refer to the following steps:

1. Turn unit on.
2. Block supply port or extend cylinder to full stroke so oil is going over the relief valve for fixed volume pumps or compensation is reached for variable piston pumps. Note the pressure settings shown on Pages 6-8 for the maximum suggested pressure value.
3. Check system pressure gauge.

4. Loosen lock nut on relief valve or compensator adjustment valve.

5. Turn the adjustment screw:

- Clockwise (CW) to increase pressure setting.
- Counterclockwise (CCW) to decrease pressure setting.

6. When the desired pressure is reached on the pressure gauge, tighten lock nut.

- Note: To set the relief valve on a unit that has a pressure compensator: Close the compensator CW all the way before adjusting the relief. Set the relief to no more than 16 bar (220 psi) above the maximum recommended operating pressure. Open the compensator CCW to the lower of 9 bar (120 psi) below the relief setting, or 7 bar (100psi) above the desired operating pressure.

### **General Operating Specifications**

- Maintain fluid cleanliness at an ISO code of 18/16/14 or better. Use original equipment replacement filter elements
- Filtration return line 18/16/14 or better
- Operating temperature 66° C (150° F) maximum
- Fluid viscosity 70-250 SUS (13-54 cSt)
- Inlet pressure 5 In. Hg. vacuum – atmospheric
- When looking at the fan end of the motor or shaft end of the pump, the typical motor rotation is clockwise.

# Maximum Pressure and Flow

Specifications for Eaton and Vickers branded pumps.

PUMP STYLE	MODEL	MAX FLOW	MAX PRESSURE	MODEL	MAX FLOW	MAX PRESSURE
OPEN CIRCUIT PISTON	P010	5.0 GPM	3000 PSI	P013	6.0 GPM	2000 PSI
	P020	10.0 GPM	3000 PSI	P032	15.0 GPM	2000 PSI
GB-C-2010*	P040	19.0 GPM	3000 PSI	P045	21.0 GPM	2700 PSI
GB-C-2132*	P057	27.0 GPM	3625 PSI	P074	35.0 GPM	3625 PSI
VANE V-PV-MG-0001-E*	V003	1.5 GPM	2500 PSI	V007	3.0 GPM	2500 PSI
	V010	4.5 GPM	2500 PSI	V013	6.0 GPM	2500 PSI
	V016	7.5 GPM	2500 PSI	V020	9.0 GPM	2200 PSI
	V023	10.5 GPM	2000 PSI	V027	12.5 GPM	2500 PSI
	V030	14.0 GPM	2500 PSI	V036	17.0 GPM	2500 PSI
	V039	18.5 GPM	2400 PSI	V042	20.0 GPM	2400 PSI
	V055	26.0 GPM	2500 PSI	V067	31.5 GPM	2500 PSI
	V081	37.5 GPM	2500 PSI	V097	45.0 GPM	2500 PSI
	V112	52.5 GPM	2500 PSI	V121	57.0 GPM	2500 PSI
	GEAR 11-609*	G007	3.0 GPM	3000 PSI	G010	5.0 GPM
G014		6.5 GPM	3000 PSI	G017	8.0 GPM	3000 PSI
G022		10.5 GPM	3000 PSI			

\* Refer to Vickers product brochures for detailed information on pump products.

# System Pressure Limitations

(by pump model  
and motor horsepower)

$$\text{psi} = \frac{\text{hp} \times 1714 \times 80\%}{\text{gpm}}$$

$$\text{hp} = \frac{\text{gpm} \times \text{psi}}{1714 \times 80\%}$$

## AC HORSEPOWER PUMP CONT.

PUMP	MODEL CODE	FLOW LITERS (USgpm)		MAX PRESSURE BAR (PSI)	1/2 HP		3/4 HP		1-1/2 HP		3 HP	
		1200 RPM	1800 RPM		1200	1800	1200	1800	1200	1800	1200	1800
PISTON	<b>P010</b>	12.6 (3.3)	18.9 (5.0)	207 (3,000)	14 (206)	9 (137)	21 (309)	14 (206)	43 (618)	28 (411)	85 (1235)	57 (823)
	<b>P013</b>	15.1 (4.0)	22.7 (6.0)	138 (2,000)	12 (172)	8 (114)	18 (257)	12 (171)	35 (515)	24 (343)	71 (1029)	47 (686)
	<b>P020</b>	25.2 (6.7)	37.8 (10.0)	207 (3,000)	7 (103)	5 (69)	11 (154)	7 (103)	21 (309)	14 (206)	43 (618)	28 (411)
	<b>P032</b>	37.8 (10.0)	56.7 (15.0)	138 (2,000)	5 (69)	3 (46)	7 (103)	5 (69)	14 (206)	9 (137)	28 (412)	19 (274)
	<b>P040</b>	47.8 (12.7)	71.8 (19.0)	207 (3,000)	4 (54)	2 (36)	6 (81)	4 (54)	11 (163)	7 (108)	22 (325)	15 (217)
	<b>P045</b>	52.9 (14.0)	79.4 (21.0)	186 (2,700)	3 (49)	2 (33)	5 (74)	3 (49)	10 (147)	7 (98)	20 (294)	14 (196)
	<b>P057</b>	68.0 (18.0)	102.1 (27.0)	250 (3,625)	3 (38)	2 (25)	4 (57)	3 (38)	8 (114)	5 (76)	16 (229)	11 (152)
	<b>P074</b>	88.1 (23.3)	132.3 (35.0)	250 (3,625)	2 (29)	1 (20)	3 (44)	2 (29)	6 (86)	4 (59)	12 (176)	8 (118)
VANE	<b>V003</b>	3.8 (1.0)	5.7 (1.5)	172 (2,500)	47 (686)	32 (457)	71 (1029)	47 (686)	142 (2059)	95 (1371)	172 (2500)	172 (2500)
	<b>V007</b>	7.6 (2.0)	11.3 (3.0)	172 (2,500)	24 (343)	16 (229)	35 (515)	24 (343)	71 (1029)	47 (686)	142 (2059)	95 (1371)
	<b>V010</b>	11.3 (3.0)	17.0 (4.5)	172 (2,500)	16 (229)	11 (152)	24 (343)	16 (229)	47 (686)	32 (457)	95 (1373)	63 (914)
	<b>V013</b>	15.1 (4.0)	22.7 (6.0)	172 (2,500)	12 (172)	8 (114)	18 (257)	12 (171)	35 (515)	24 (343)	71 (1029)	47 (686)
	<b>V016</b>	18.9 (5.0)	28.4 (7.5)	172 (2,500)	9 (137)	6 (91)	14 (206)	9 (137)	28 (412)	19 (274)	57 (824)	38 (548)
	<b>V020</b>	22.7 (6.0)	34.0 (9.0)	152 (2,200)	8 (114)	5 (76)	12 (172)	8 (114)	24 (343)	16 (229)	47 (686)	32 (457)
	<b>V023</b>	26.4 (7.0)	39.7 (10.5)	138 (2,000)	7 (98)	5 (65)	10 (147)	7 (98)	20 (294)	14 (196)	41 (588)	27 (392)
	<b>V027</b>	31.5 (8.3)	47.3 (12.5)	172 (2,500)	6 (82)	4 (55)	9 (124)	6 (82)	17 (247)	11 (165)	34 (494)	23 (329)
	<b>V030</b>	35.2 (9.3)	52.9 (14.0)	172 (2,500)	5 (74)	3 (49)	8 (110)	5 (73)	15 (221)	10 (147)	30 (441)	20 (294)
	<b>V036</b>	42.8 (11.3)	64.3 (17.0)	172 (2,500)	4 (61)	3 (40)	6 (91)	4 (60)	13 (182)	8 (121)	25 (363)	17 (242)
	<b>V039</b>	46.6 (12.3)	69.9 (18.5)	166 (2,400)	4 (56)	3 (37)	6 (83)	4 (56)	12 (167)	8 (111)	23 (334)	15 (222)
	<b>V042</b>	50.3 (13.3)	75.6 (20.0)	166 (2,400)	4 (51)	2 (34)	5 (77)	4 (51)	11 (154)	7 (103)	21 (309)	14 (206)
	<b>V055</b>	65.5 (17.3)	98.3 (26.0)	172 (2,500)	3 (40)	2 (26)	4 (59)	3 (40)	8 (119)	5 (79)	16 (238)	11 (158)
<b>V067</b>	79.3 (21.0)	119.1 (31.5)	172 (2,500)	2 (33)	2 (22)	3 (49)	2 (33)	7 (98)	5 (65)	14 (196)	9 (131)	
<b>V081</b>	94.4 (25.0)	141.8 (37.5)	172 (2,500)	2 (27)	1 (18)	3 (41)	2 (27)	6 (82)	4 (55)	11 (165)	8 (110)	
<b>V097</b>	113.3 (30.0)	170.1 (45.0)	172 (2,500)	2 (23)	1 (15)	2 (34)	2 (23)	5 (69)	3 (46)	9 (137)	6 (91)	
<b>V112</b>	132.2 (35.0)	198.5 (52.5)	172 (2,500)	1 (20)	1 (13)	2 (29)	1 (20)	4 (59)	3 (39)	8 (118)	5 (78)	
<b>V121</b>	143.5 (38.0)	215.5 (57.0)	172 (2,500)	1 (18)	1 (12)	2 (27)	1 (18)	4 (54)	2 (36)	7 (108)	5 (72)	
GEAR	<b>G007</b>	7.6 (2.0)	11.3 (3.0)	207 (3,000)	24 (343)	16 (229)	35 (515)	24 (343)	71 (1029)	47 (686)	142 (2059)	95 (1371)
	<b>G010</b>	12.6 (3.3)	18.9 (5.0)	207 (3,000)	14 (206)	9 (137)	21 (309)	14 (206)	43 (618)	28 (411)	85 (1235)	57 (823)
	<b>G014</b>	16.4 (4.3)	24.6 (6.5)	207 (3,000)	11 (158)	7 (105)	16 (238)	11 (158)	33 (475)	22 (316)	66 (950)	44 (633)
	<b>G017</b>	20.1 (5.3)	30.2 (8.0)	207 (3,000)	9 (129)	6 (86)	13 (193)	9 (129)	27 (386)	18 (257)	53 (772)	35 (514)
	<b>G022</b>	26.4 (7.0)	39.7 (10.5)	207 (3,000)	7 (98)	5 (65)	10 (147)	7 (98)	20 (294)	14 (196)	41 (588)	27 (392)

# System Pressure Limitations

(by pump model  
and motor horsepower)

$$\text{psi} = \frac{\text{hp} \times 1714 \times 80\%}{\text{gpm}}$$

$$\text{hp} = \frac{\text{gpm} \times \text{psi}}{1714 \times 80\%}$$

## AC HORSEPOWER PUMP CONT.

PUMP	MODEL CODE	FLOW LITERS (USgpm)		MAX PRESSURE	5 HP		7-1/2 HP		10 HP		15 HP	
		1200 RPM	1800 RPM	BAR (PSI)	1200	1800	1200	1800	1200	1800	1200	1800
PISTON	<b>P010</b>	12.6 (3.3)	18.9 (5.0)	207 (3,000)	142 (2059)	95 (1371)	207 (3000)	142 (2057)	207 (3000)	189 (2742)	207 (3000)	207 (3000)
	<b>P013</b>	15.1 (4.0)	22.7 (6.0)	138 (2,000)	118 (1716)	79 (1143)	138 (2000)	118 (1714)	138 (2000)	138 (2000)	138 (2000)	138 (2000)
	<b>P020</b>	25.2 (6.7)	37.8 (10.0)	207 (3,000)	71 (1029)	47 (686)	106 (1544)	71 (1028)	142 (2059)	95 (1371)	207 (3000)	142 (2057)
	<b>P032</b>	37.8 (10.0)	56.7 (15.0)	138 (2,000)	47 (686)	32 (457)	71 (1029)	47 (686)	95 (1373)	63 (914)	138 (2000)	95 (1371)
	<b>P040</b>	47.8 (12.7)	71.8 (19.0)	207 (3,000)	37 (542)	25 (361)	56 (813)	37 (541)	75 (1084)	50 (722)	112 (1625)	75 (1083)
	<b>P045</b>	52.9 (14.0)	79.4 (21.0)	186 (2,700)	34 (490)	23 (326)	51 (735)	34 (490)	68 (980)	45 (653)	101 (1471)	68 (979)
	<b>P057</b>	68.0 (18.0)	102.1 (27.0)	250 (3,625)	26 (381)	18 (254)	39 (572)	26 (381)	53 (763)	35 (508)	79 (1144)	53 (762)
	<b>P074</b>	88.1 (23.3)	132.3 (35.0)	250 (3,625)	20 (294)	14 (196)	30 (441)	20 (294)	41 (588)	27 (392)	61 (882)	41 (588)
VANE	<b>V003</b>	3.8 (1.0)	5.7 (1.5)	172 (2,500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)
	<b>V007</b>	7.6 (2.0)	11.3 (3.0)	172 (2,500)	172 (2500)	158 (2285)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)
	<b>V010</b>	11.3 (3.0)	17.0 (4.5)	172 (2,500)	158 (2288)	105 (1524)	172 (2500)	158 (2285)	172 (2500)	172 (2500)	172 (2500)	172 (2500)
	<b>V013</b>	15.1 (4.0)	22.7 (6.0)	172 (2,500)	118 (1716)	79 (1143)	172 (2500)	118 (1714)	172 (2500)	158 (2285)	172 (2500)	172 (2500)
	<b>V016</b>	18.9 (5.0)	28.4 (7.5)	172 (2,500)	95 (1373)	63 (914)	142 (2059)	95 (1371)	172 (2500)	126 (1828)	172 (2500)	172 (2500)
	<b>V020</b>	22.7 (6.0)	34.0 (9.0)	152 (2,200)	79 (1144)	53 (762)	118 (1716)	79 (1143)	152 (2200)	105 (1524)	152 (2200)	152 (2200)
	<b>V023</b>	26.4 (7.0)	39.7 (10.5)	138 (2,000)	68 (980)	45 (653)	101 (1471)	68 (979)	135 (1961)	90 (1306)	138 (2000)	135 (1959)
	<b>V027</b>	31.5 (8.3)	47.3 (12.5)	172 (2,500)	57 (824)	38 (548)	85 (1235)	57 (823)	114 (1647)	76 (1097)	170 (2471)	113 (1645)
	<b>V030</b>	35.2 (9.3)	52.9 (14.0)	172 (2,500)	51 (735)	34 (490)	76 (1103)	51 (735)	101 (1471)	68 (979)	152 (2206)	101 (1469)
	<b>V036</b>	42.8 (11.3)	64.3 (17.0)	172 (2,500)	42 (606)	28 (403)	63 (908)	42 (605)	84 (1211)	56 (807)	125 (1817)	83 (1210)
	<b>V039</b>	46.6 (12.3)	69.9 (18.5)	166 (2,400)	38 (556)	26 (371)	58 (835)	38 (556)	77 (1113)	51 (741)	115 (1669)	77 (1112)
	<b>V042</b>	50.3 (13.3)	75.6 (20.0)	166 (2,400)	35 (515)	24 (343)	53 (772)	35 (514)	71 (1029)	47 (686)	106 (1544)	71 (1028)
	<b>V055</b>	65.5 (17.3)	98.3 (26.0)	172 (2,500)	27 (396)	18 (264)	41 (594)	27 (396)	55 (792)	36 (527)	82 (1188)	55 (791)
	<b>V067</b>	79.3 (21.0)	119.1 (31.5)	172 (2,500)	23 (327)	15 (218)	34 (490)	23 (326)	45 (654)	30 (435)	68 (980)	45 (653)
	<b>V081</b>	94.4 (25.0)	141.8 (37.5)	172 (2,500)	19 (275)	13 (183)	28 (412)	19 (274)	38 (549)	25 (366)	57 (824)	38 (548)
	<b>V097</b>	113.3 (30.0)	170.1 (45.0)	172 (2,500)	16 (229)	11 (152)	24 (343)	16 (229)	32 (458)	21 (305)	47 (686)	32 (457)
<b>V112</b>	132.2 (35.0)	198.5 (52.5)	172 (2,500)	14 (196)	9 (131)	20 (294)	14 (196)	27 (392)	18 (261)	41 (588)	27 (392)	
<b>V121</b>	143.5 (38.0)	215.5 (57.0)	172 (2,500)	12 (181)	8 (120)	19 (271)	12 (180)	25 (361)	17 (241)	37 (542)	25 (361)	
GEAR	<b>G007</b>	7.6 (2.0)	11.3 (3.0)	207 (3,000)	207 (3000)	158 (2285)	207 (3000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)
	<b>G010</b>	12.6 (3.3)	18.9 (5.0)	207 (3,000)	142 (2059)	95 (1371)	207 (3000)	142 (2057)	207 (3000)	189 (2742)	207 (3000)	207 (3000)
	<b>G014</b>	16.4 (4.3)	24.6 (6.5)	207 (3,000)	109 (1584)	73 (1055)	164 (2376)	109 (1582)	207 (3000)	145 (2110)	207 (3000)	207 (3000)
	<b>G017</b>	20.1 (5.3)	30.2 (8.0)	207 (3,000)	89 (1287)	59 (857)	133 (1930)	89 (1286)	177 (2574)	118 (1714)	207 (3000)	177 (2571)
	<b>G022</b>	26.4 (7.0)	39.7 (10.5)	207 (3,000)	68 (980)	45 (653)	101 (1471)	68 (979)	135 (1961)	90 (1306)	203 (2941)	135 (1959)

# System Pressure Limitations

(by pump model  
and motor horsepower)

$$\text{psi} = \frac{\text{hp} \times 1714 \times 80\%}{\text{gpm}}$$

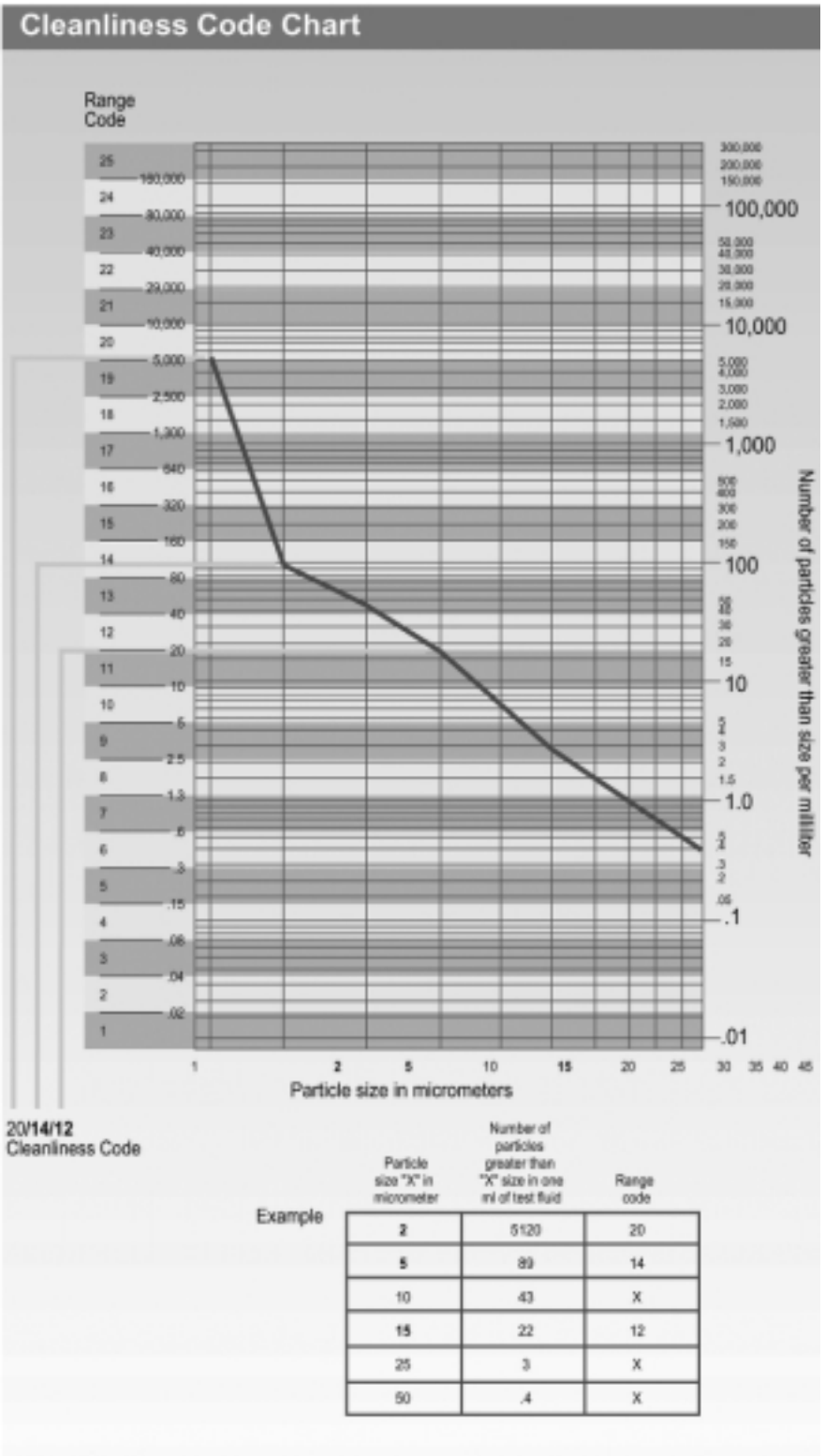
$$\text{hp} = \frac{\text{gpm} \times \text{psi}}{1714 \times 80\%}$$

## AC HORSEPOWER PUMP CONT.

PUMP	MODEL CODE	FLOW LITERS (USgpm)		MAX PRESSURE BAR (PSI)	20 HP		30 HP		40 HP		50 HP	
		1200 RPM	1800 RPM		1200	1800	1200	1800	1200	1800	1200	1800
PISTON	<b>P010</b>	12.6 (3.3)	18.9 (5.0)	207 (3,000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)
	<b>P013</b>	15.1 (4.0)	22.7 (6.0)	138 (2,000)	138 (2000)	138 (2000)	138 (2000)	138 (2000)	138 (2000)	138 (2000)	138 (2000)	138 (2000)
	<b>P020</b>	25.2 (6.7)	37.8 (10.0)	207 (3,000)	207 (3000)	189 (2742)	207 (3000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)
	<b>P032</b>	37.8 (10.0)	56.7 (15.0)	138 (2,000)	138 (2000)	126 (1828)	138 (2000)	138 (2000)	138 (2000)	138 (2000)	138 (2000)	138 (2000)
	<b>P040</b>	47.8 (12.7)	71.8 (19.0)	207 (3,000)	149 (2167)	100 (1443)	207 (3000)	149 (2165)	207 (3000)	199 (2887)	207 (3000)	207 (3000)
	<b>P045</b>	52.9 (14.0)	79.4 (21.0)	186 (2,700)	135 (1961)	90 (1306)	186 (2700)	135 (1959)	186 (2700)	180 (2612)	186 (2700)	186 (2700)
	<b>P057</b>	68.0 (18.0)	102.1 (27.0)	250 (3,625)	105 (1525)	70 (1016)	158 (2288)	105 (1524)	210 (3050)	140 (2031)	250 (3625)	175 (2539)
	<b>P074</b>	88.1 (23.3)	132.3 (35.0)	250 (3,625)	81 (1176)	54 (784)	122 (1765)	81 (1175)	162 (2353)	108 (1567)	203 (2941)	135 (1959)
	VANE	<b>V003</b>	3.8 (1.0)	5.7 (1.5)	172 (2,500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)
<b>V007</b>		7.6 (2.0)	11.3 (3.0)	172 (2,500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)
<b>V010</b>		11.3 (3.0)	17.0 (4.5)	172 (2,500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)
<b>V013</b>		15.1 (4.0)	22.7 (6.0)	172 (2,500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)
<b>V016</b>		18.9 (5.0)	28.4 (7.5)	172 (2,500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)
<b>V020</b>		22.7 (6.0)	34.0 (9.0)	152 (2,200)	152 (2200)	152 (2200)	152 (2200)	152 (2200)	152 (2200)	152 (2200)	152 (2200)	152 (2200)
<b>V023</b>		26.4 (7.0)	39.7 (10.5)	138 (2,000)	138 (2000)	138 (2000)	138 (2000)	138 (2000)	138 (2000)	138 (2000)	138 (2000)	138 (2000)
<b>V027</b>		31.5 (8.3)	47.3 (12.5)	172 (2,500)	172 (2500)	151 (2194)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)
<b>V030</b>		35.2 (9.3)	52.9 (14.0)	172 (2,500)	172 (2500)	135 (1959)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)	172 (2500)
<b>V036</b>		42.8 (11.3)	64.3 (17.0)	172 (2,500)	167 (2422)	111 (1613)	172 (2500)	167 (2420)	172 (2500)	172 (2500)	172 (2500)	172 (2500)
<b>V039</b>		46.6 (12.3)	69.9 (18.5)	166 (2,400)	154 (2226)	102 (1482)	166 (2400)	153 (2224)	166 (2400)	166 (2400)	166 (2400)	166 (2400)
<b>V042</b>		50.3 (13.3)	75.6 (20.0)	166 (2,400)	142 (2059)	95 (1371)	166 (2400)	142 (2057)	166 (2400)	166 (2400)	166 (2400)	166 (2400)
<b>V055</b>		65.5 (17.3)	98.3 (26.0)	172 (2,500)	109 (1584)	73 (1055)	164 (2376)	109 (1582)	172 (2500)	145 (2110)	172 (2500)	172 (2500)
<b>V067</b>		79.3 (21.0)	119.1 (31.5)	172 (2,500)	90 (1307)	60 (871)	135 (1961)	90 (1306)	172 (2500)	120 (1741)	172 (2500)	150 (2177)
<b>V081</b>	94.4 (25.0)	141.8 (37.5)	172 (2,500)	76 (1098)	50 (731)	114 (1647)	76 (1097)	151 (2196)	101 (1463)	172 (2500)	126 (1828)	
<b>V097</b>	113.3 (30.0)	170.1 (45.0)	172 (2,500)	63 (915)	42 (609)	95 (1373)	63 (914)	126 (1830)	84 (1219)	158 (2288)	105 (1524)	
<b>V112</b>	132.2 (35.0)	198.5 (52.5)	172 (2,500)	54 (784)	36 (522)	81 (1176)	54 (784)	108 (1569)	72 (1045)	135 (1961)	90 (1306)	
<b>V121</b>	143.5 (38.0)	215.5 (57.0)	172 (2,500)	50 (722)	33 (481)	75 (1084)	50 (722)	100 (1445)	66 (962)	125 (1806)	83 (1203)	
GEAR	<b>G007</b>	7.6 (2.0)	11.3 (3.0)	207 (3,000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)
	<b>G010</b>	12.6 (3.3)	18.9 (5.0)	207 (3,000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)
	<b>G014</b>	16.4 (4.3)	24.6 (6.5)	207 (3,000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)
	<b>G017</b>	20.1 (5.3)	30.2 (8.0)	207 (3,000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)
	<b>G022</b>	26.4 (7.0)	39.7 (10.5)	207 (3,000)	207 (3000)	180 (2612)	207 (3000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)	207 (3000)

# Maintenance

- Motor bearings should be greased per the motor manufacturer's recommended procedure.
- Filters should be checked at least once a month and changed per indicators. Fluid condition should be checked at regular intervals, depending on environment and application conditions, to maintain optimum component life. Recommended cleanliness levels for systems operating 3000 psi or below and using petroleum oil under common conditions should meet an ISO code level of 18/16/14 or better. Fluids other than petroleum, severe service cycles, proportional or servo valve applications, or temperature extremes are cause for adjustment of this cleanliness code. See *Eaton Hydraulic Fluids Information Update #03-401* for exact details. Vickers Fluid Analysis Kit # 894277 or similar should be used to monitor the fluid life. Contact your Eaton Representative for more information on our Contamination Control Programs.
- Fluid reservoir should be filled to maintain fluid level between the high and low black lines on the sight-level gauge.
- At least once a year or every 4,000 operating hours, the air vent filter should be replaced and the entire system checked for possible future difficulties. Some applications or environmental conditions may dictate such maintenance should be performed at more frequent intervals.



# Troubleshooting Guide

## Excessive Noise

PROBLEM	CAUSE	REMEDY
<b>Noisy Pump</b>	Cavitation	Replace dirty filters. Wash strainers in solvent compatible with system fluid. Clean clogged inlet line. Clean reservoir breather vent. Change system fluid. Change to proper pump-drive motor speed. Overhaul or replace supercharge pump. Fluid may be too cold. Eliminate air in the fluid by any or all of the following: - Tighten leaky inlet connection. - Fill reservoir to proper level (with rare exception all return lines should be below fluid level in reservoir) . - Bleed air from system. - Replace pump shaft seal (and shaft if worn at seal journal).
	Pump worn or damaged	Overhaul or replace.
<b>Noisy Motor</b>	Coupling misaligned	Align unit, if assembled with pump/motor adapter and couplings, and check condition of seals, bearings, and couplings.
<b>Noisy Relief Valve</b>	Setting too low or too close to another valve	Install pressure gage and adjust to correct pressure.
	Worn poppet and seat	Overhaul or replace.

# Troubleshooting Guide

## Excessive Heat

PROBLEM	CAUSE	REMEDY
<b>Pump Heated</b>	Fluid heated	Install pressure gage and adjust to correct pressure (keep at least 9 bar (130 psi) difference between valve settings). Also, refer to Fluid Heated below.
	Cavitation	Replace dirty filter. Clean clogged inlet line. Clean reservoir breather vent. Change system fluid. Change to proper pump drive motor speed. Air in fluid Any or all of the following: - Tighten leaky connections. - Fill reservoir to proper level (with rare exception all return lines should be below fluid level in reservoir). - Bleed air from system. - Replace pump shaft seal (and shaft, if worn at seal journal).
	Relief or unloading valve set too high	Install pressure gage and adjust to correct pressure. (Keep at least 9 bar (130 psi) difference between valve setting).
	Excessive load	Align unit, if assembled with pump/motor adapter and couplings and check condition of seals and bearings. Locate and correct mechanical binding. Check for workload in excess of circuit design.
	Pump worn or damaged	Overhaul or replace.
	<b>Motor Heated</b>	Fluid heated
	Relief valve or unloading valve set too high	Install pressure gage and adjust to correct pressure. (Keep at least 9 bar (130-psi) difference between valve setting).
	Excessive load	Align unit, if assembled with pump/motor adapter and couplings, and check condition of seals and bearings. Locate and correct mechanical binding. Check for workload in excess of circuit design.
	Motor worn or damaged	Overhaul or replace
	Relief Valve setting incorrect	Install pressure gage and adjust to correct pressure (keep at least 9 bar (130 psi) difference between valve settings).
	Worn or damaged relief valve	Overhaul or replace.
<b>Excessive Heat</b>	Unloading valve set too high	Install pressure gage and adjust to correct pressure (keep at least 9 bar (130-psi) difference between valve settings). Also refer to Fluid Heated below
	Fluid dirty or low supply	Change filters and system fluid if incorrect viscosity. Fill reservoir to proper level.
	Incorrect fluid viscosity	Change filters and system fluid if incorrect viscosity. Fill reservoir to proper level.
	Faulty fluid cooling system	Clean cooler. Repair or replace cooler.
	Worn pump, valve, motor, cylinder, or other component	Overhaul or replace.
<b>Fluid Heated</b>	System pressure too high	Install pressure gage and adjust to correct pressure (keep at least 9 bar (130-psi) difference between valve settings).

# Troubleshooting Guide

## Incorrect Flow

PROBLEM	CAUSE	REMEDY	
<b>No Flow</b>	Pump not receiving fluid	Replace dirty filters. Clean clogged inlet line. Clean reservoir breather vent. Fill reservoir to proper level. Overhaul or replace supercharge pump.	
	Pump drive motor not operating	Overhaul or replace.	
	Pump to drive coupling sheared	Check for damaged pump or pump drive. Replace and align coupling.	
	Pump drive motor turning in wrong direction	Reverse rotation.	
	Directional control set in wrong position	Check position of manually operated controls. Check electrical circuit on solenoid operated controls. Repair or replace pilot pressure pump.	
	Entire flow passing over relief valve	Adjust.	
	Damaged pump	Check for damaged pump or pump drive. Replace and align coupling	
	Improperly assembled pump	Overhaul or replace.	
	<b>Low Flow</b>	Flow-control set too low	Adjust.
		Relief or unloading valve set too low	Adjust.
Flow bypassing thru partially open valve		Overhaul or replace--or check position of manually operated controls. Check electrical circuit on solenoid operated controls. Repair or replace pilot pressure pump.	
External leak in system		Tighten leaky connections. Bleed air from system.	
Yoke actuating device inoperative (variable displacement pumps)		Overhaul or replace.	
RPM of pump drive motor incorrect		Replace with correct unit.	
Worn pump, valve, motor, cylinder, or other components.		Overhaul or replace.	
<b>Excessive Flow</b>	Flow-control set too high	Adjust.	
	Yoke actuating device inoperative (variable displacement pumps)	Overhaul or replace.	
	RPM of pump drive motor incorrect	Replace with correct unit.	
	Improper sized pumps for replacement	Replace with correct unit.	

# Troubleshooting Guide

## Incorrect Pressure

PROBLEM	CAUSE	REMEDY
<b>No Pressure (No Flow)</b>	Pump not receiving fluid	Replace dirty filters.
		Clean clogged inlet line.
		Clean reservoir breather vent.
		Fill reservoir to proper level.
		Overhaul or replace super-charge pump.
	Pump drive motor not operating	Overhaul or replace.
	Pump-to-drive coupling sheared	Check for damaged pump or pump drive. Replace and align coupling.
	Pump drive motor turning in wrong direction.	Reverse rotation.
	Directional control set in wrong position	Check position of manually operated controls.
		Check electrical circuit on solenoid operated controls. Repair or replace pilot-pressure pump.
Entire flow passing over relief valve	Adjust	
Damaged pump	Check for damaged pump or pump drive. Replace and align coupling.	
Improperly assembled pump	Overhaul or replace.	
<b>Low Pressure</b>	Pressure relief path exists	Refer to remedies above for No Pressure and the following remedies.
	Flow-control set too low	Adjust.
	Relief/unloading valve set too low	Adjust.
	Flow bypass thru partially open valve	Overhaul or replace--or check position of manually operated control.
		Check electrical circuit on solenoid operated controls. Repair or replace pilot-pressure pump.
	External leak in system	Tighten leaky connections.
		Bleed air from system.
	Yoke actuating device inoperative (variable displacement pump)	Overhaul or replace.
	RPM of pump-drive motor incorrect	Replace with correct unit.
	Worn pump, valve, motor, cylinder, etc.	Overhaul or replace.
Pressure reducing set too low	Check position of manually operated control.	
	Check electrical circuit on solenoid-operated controls. Repair or replace pilot-pressure pump	
Damaged pump, motor, or cylinder	Overhaul or replace	
<b>Erratic Pressure</b>	Air in fluid	Tighten leaky connections.
		Fill reservoir to proper level and bleed air from system.
	Worn relief valve	Overhaul or replace.
	Contamination in fluid	Replace dirty filters and system fluid.
	Accumulator defective or has lost charge	Charge to correct pressure.
Check gas valve for leakage. Overhaul if defective.		
Worn pump, motor, or cylinder	Overhaul or replace.	
<b>Excessive Pressure</b>	Incorrect setting of pressure reducing, relief, or unloading valve	Adjust
	Yoke actuating device inoperative (variable displacement pumps)	Overhaul or replace.
	Pressure reducing, relief, or unloading valve worn or damaged	Overhaul or replace.

# Troubleshooting Guide

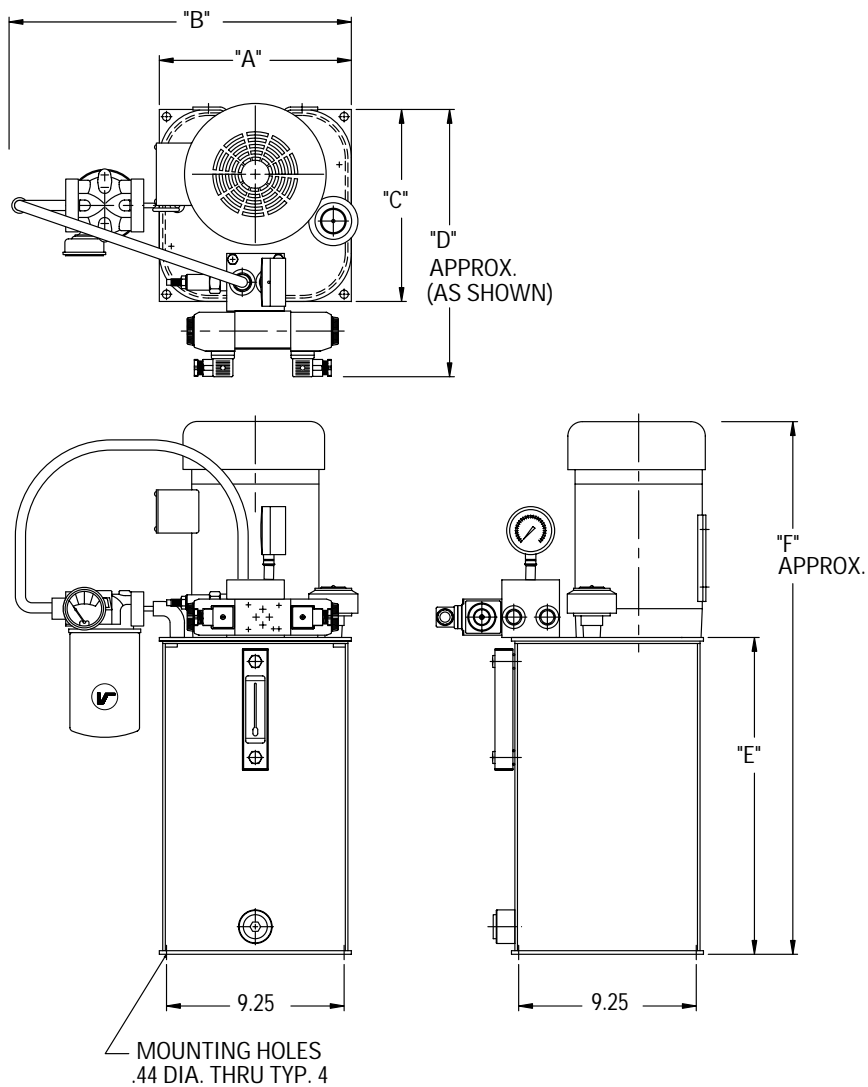
## Faulty Operation

PROBLEM	CAUSE	REMEDY	
<b>No Movement</b>	No flow or pressure	Refer to Incorrect Flow Chart.	
	Limit or sequence device (mechanical, electrical, or hydraulic) inoperative or misadjusted	Overhaul or replace.	
	Mechanical bind	Locate bind and repair.	
	No command signal to servo amplifier	Repair command console or interconnecting wires.	
	Inoperative or misadjusted servo amplifier	Adjust, repair or replace	
<b>Slow Movement</b>	Inoperative servo-valve	Overhaul or replace.	
	Fluid viscosity too high	Low flow Refer to Incorrect Flow chart Fluid may be too cold or should be changed to clean fluid of correct viscosity.	
	Insufficient control pressure for valves	Refer to Incorrect Pressure chart.	
	No lubrication of machine ways or linkage	Lubricate.	
	Misadjusted or malfunctioning servo amplifier	Adjust, repair, or replace	
	Sticking servo-valve	Clean and adjust or replace. Check condition of system fluid and filters.	
	Worn or damaged cylinder or motor	Overhaul or replace.	
	<b>Erratic Movement</b>	Erratic pressure	Refer to Incorrect Pressure chart.
Air in fluid		Any or all of the following: - Tighten leaky inlet connection. - Fill reservoir to proper level (with rare exception all return lines should be below fluid level in reservoir). - Bleed air from system. - Replace pump shaft seal (and shaft, if worn at seal journal).	
No lubrication of machine ways or linkage		Lubricate	
Erratic command signal		Repair command console or interconnecting wires.	
Misadjusted or malfunctioning servo amplifier		Adjust, repair, or replace	
Malfunctioning feedback transducer		Overhaul or replace.	
Sticking servo-valve		Clean and adjust or replace. Check condition of system fluid and filters	
Worn or damaged cylinder or motor		Overhaul or replace.	
<b>Excessive Speed or Movement</b>		Excessive flow	Refer to Incorrect Flow chart.
		Malfunctioning feedback transducer.	Overhaul or replace
	Overriding work load	Adjust, repair, or replace counterbalance valve.	
	Misadjusted or malfunctioning servo amplifier	Adjust, repair, or replace.	

# Installation Drawings

## PSVP Value-Pak

### 5 gallon

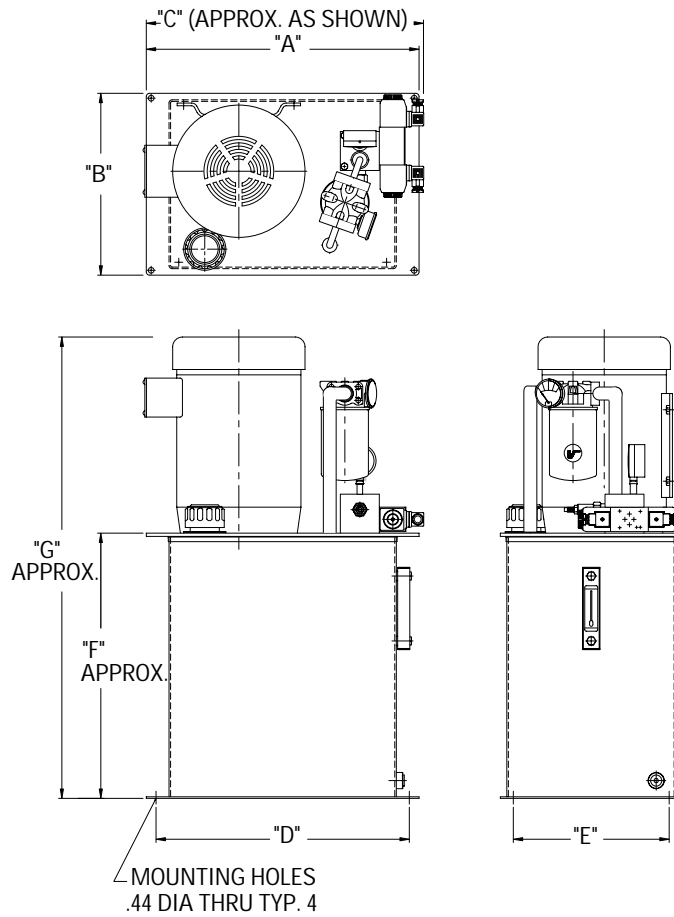


RESERVOIR SIZE	ELECTRIC MOTOR	DIM. " A "	DIM. " B "	DIM. " C "	DIM. " D "	DIM. " E "	DIM. " F "
5 GALLON	"710" 1.5HP	10.00	17.9	10.00	14.0	16.5	27.8
5 GALLON	"720" 3HP	10.00	17.9	10.00	14.0	16.5	30.0

# Installation Drawings

## PSVP Value-Pak

### 10, 15, 20, 30 gallon

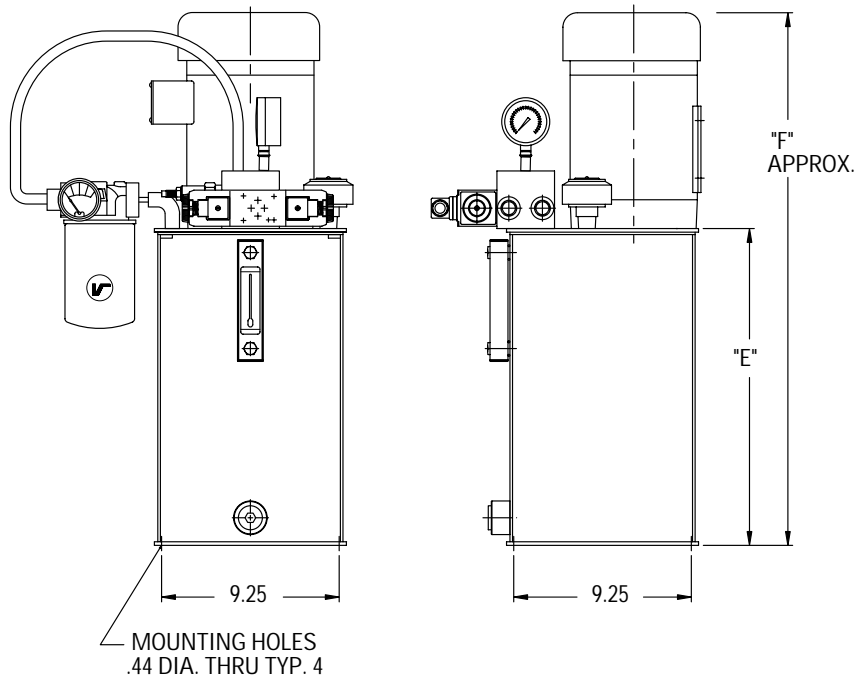
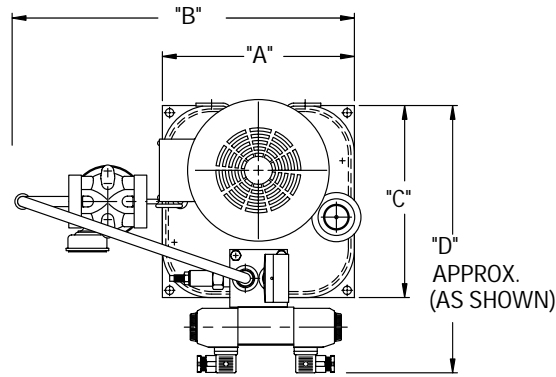


RESERVOIR SIZE	ELECTRIC MOTOR	DIM. "A"	DIM. "B"	DIM. "C"	DIM. "D"	DIM. "E"	DIM. "F"	DIM. "G"
10 GALLON	"710" 1.5HP	21.00	14.00	21.4	19.50	12.00	14.0	25.3
10 GALLON	"720" 3HP	21.00	14.00	21.4	19.50	12.00	14.0	27.5
10 GALLON	"730" 5HP	21.00	14.00	21.4	19.50	12.00	14.0	29.1
10 GALLON	"740" 7.5HP	21.00	14.00	21.4	19.50	12.00	14.0	28.4
10 GALLON	"750" 10HP	21.00	14.00	21.4	19.50	12.00	14.0	29.5
15 GALLON	"710" 1.5HP	21.00	14.00	21.4	19.50	12.00	20.5	31.8
15 GALLON	"720" 3HP	21.00	14.00	21.4	19.50	12.00	20.5	34.0
15 GALLON	"730" 5HP	21.00	14.00	21.4	19.50	12.00	20.5	35.6
15 GALLON	"740" 7.5HP	21.00	14.00	21.4	19.50	12.00	20.5	34.9
15 GALLON	"750" 10HP	21.00	14.00	21.4	19.50	12.00	20.5	36.0
20 GALLON	"710" 1.5HP	21.00	14.00	21.4	19.50	12.00	27.5	38.8
20 GALLON	"720" 3HP	21.00	14.00	21.4	19.50	12.00	27.5	41.0
20 GALLON	"730" 5HP	21.00	14.00	21.4	19.50	12.00	27.5	42.6
20 GALLON	"740" 7.5HP	21.00	14.00	21.4	19.50	12.00	27.5	41.9
20 GALLON	"750" 10HP	21.00	14.00	21.4	19.50	12.00	27.5	43.0
30 GALLON	"720" 3HP	27.00	18.00	27.2	25.00	17.00	20.5	34.0
30 GALLON	"730" 5HP	27.00	18.00	27.2	25.00	17.00	20.5	35.6
30 GALLON	"740" 7.5HP	27.00	18.00	27.2	25.00	17.00	20.5	34.9
30 GALLON	"750" 10HP	27.00	18.00	27.2	25.00	17.00	20.5	36.0

# Installation Drawings

## PSSP Value-Pak

### 3 & 5 gallon

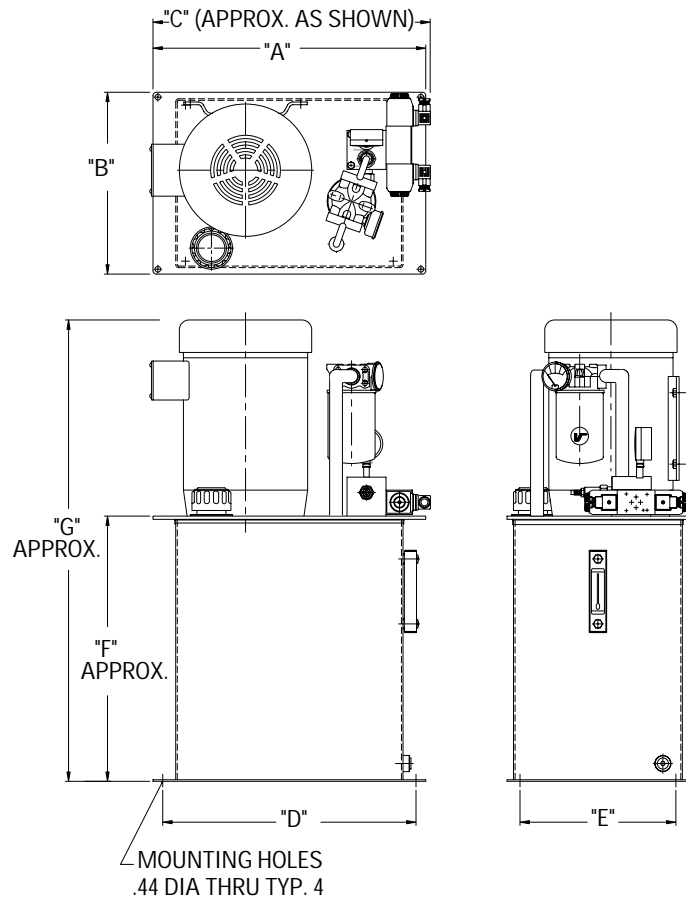


RESERVOIR SIZE	ELECTRIC MOTOR	DIM. "A"	DIM. "B"	DIM. "C"	DIM. "D"	DIM. "E"	DIM. "F"
3 GALLON	"700" OR "701" .75HP	10.00	17.9	10.00	14.0	12.5	22.8
3 GALLON	"704" .75HP	10.00	17.9	10.00	14.0	12.5	23.7
3 GALLON	"710" OR "711" 1.5HP	10.00	17.9	10.00	14.0	12.5	23.8
3 GALLON	"714" 1.5HP	10.00	17.9	10.00	14.0	12.5	24.6
3 GALLON	"720" 3HP	10.00	17.9	10.00	14.0	12.5	26.0
5 GALLON	"700" OR "701" .75HP	10.00	17.9	10.00	14.0	16.5	26.8
5 GALLON	"704" .75HP	10.00	17.9	10.00	14.0	16.5	27.7
5 GALLON	"710" OR "711" 1.5HP	10.00	17.9	10.00	14.0	16.5	27.8
5 GALLON	"714" 1.5HP	10.00	17.9	10.00	14.0	16.5	28.6
5 GALLON	"720" 3HP	10.00	17.9	10.00	14.0	16.5	30.0

# Installation Drawings

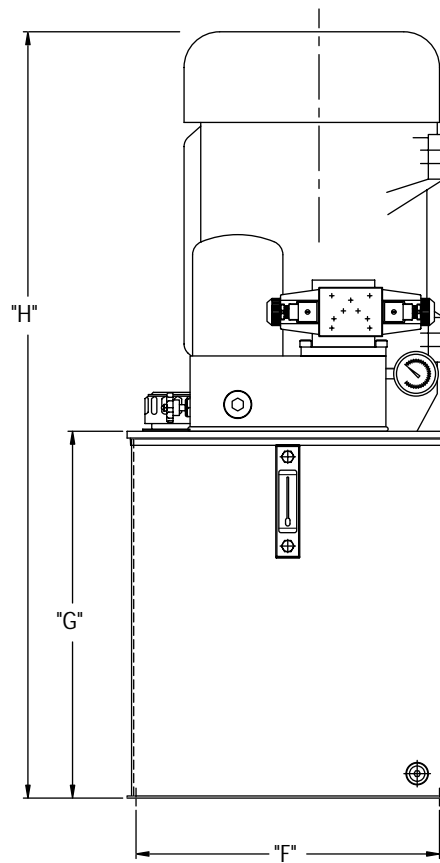
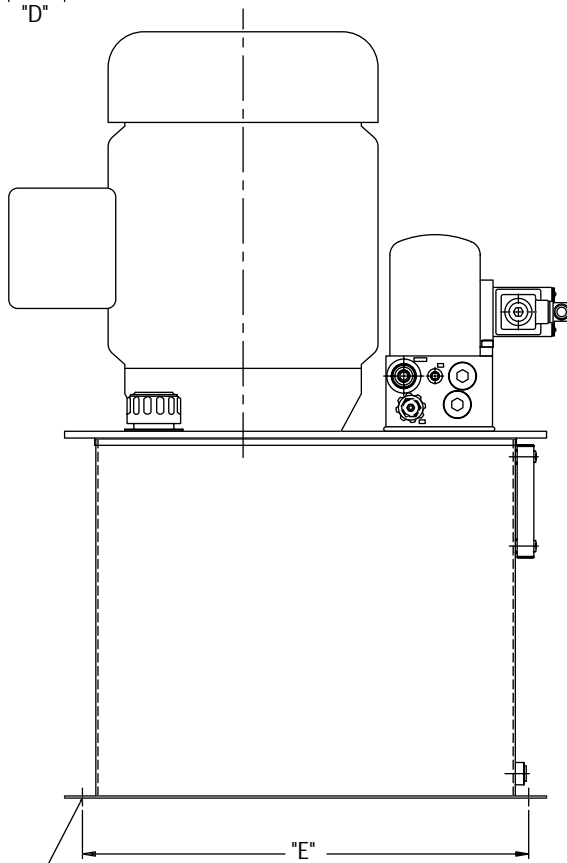
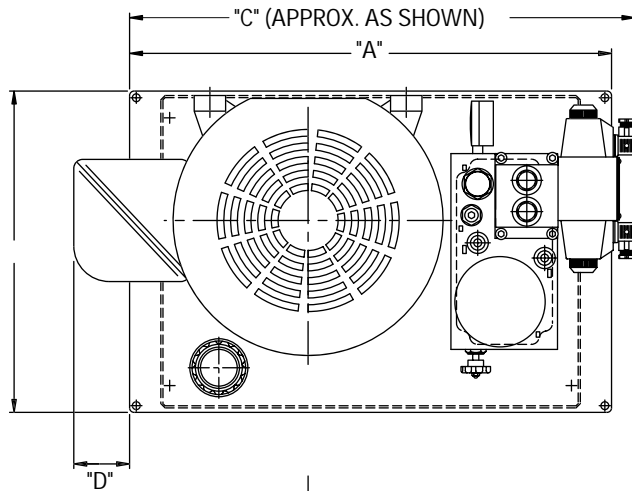
## PSSP Value-Pak

### 10, 15, 20, 30 gallon



RESERVOIR SIZE	ELECTRIC MOTOR	DIM. "A"	DIM. "B"	DIM. "C"	DIM. "D"	DIM. "E"	DIM. "F"	DIM. "G"
10 GALLON	"710" 1.5HP	21.00	14.00	21.4	19.50	12.00	14.0	25.3
10 GALLON	"720" 3HP	21.00	14.00	21.4	19.50	12.00	14.0	27.5
10 GALLON	"730" 5HP	21.00	14.00	21.4	19.50	12.00	14.0	29.1
10 GALLON	"740" 7.5HP	21.00	14.00	21.4	19.50	12.00	14.0	28.4
10 GALLON	"750" 10HP	21.00	14.00	21.4	19.50	12.00	14.0	29.5
15 GALLON	"710" 1.5HP	21.00	14.00	21.4	19.50	12.00	20.5	31.8
15 GALLON	"720" 3HP	21.00	14.00	21.4	19.50	12.00	20.5	34.0
15 GALLON	"730" 5HP	21.00	14.00	21.4	19.50	12.00	20.5	35.6
15 GALLON	"740" 7.5HP	21.00	14.00	21.4	19.50	12.00	20.5	34.9
15 GALLON	"750" 10HP	21.00	14.00	21.4	19.50	12.00	20.5	36.0
20 GALLON	"710" 1.5HP	21.00	14.00	21.4	19.50	12.00	27.5	38.8
20 GALLON	"720" 3HP	21.00	14.00	21.4	19.50	12.00	27.5	41.0
20 GALLON	"730" 5HP	21.00	14.00	21.4	19.50	12.00	27.5	42.6
20 GALLON	"740" 7.5HP	21.00	14.00	21.4	19.50	12.00	27.5	41.9
20 GALLON	"750" 10HP	21.00	14.00	21.4	19.50	12.00	27.5	43.0
30 GALLON	"720" 3HP	27.00	18.00	27.2	25.00	17.00	20.5	34.0
30 GALLON	"730" 5HP	27.00	18.00	27.2	25.00	17.00	20.5	35.6
30 GALLON	"740" 7.5HP	27.00	18.00	27.2	25.00	17.00	20.5	34.9
30 GALLON	"750" 10HP	27.00	18.00	27.2	25.00	17.00	20.5	36.0

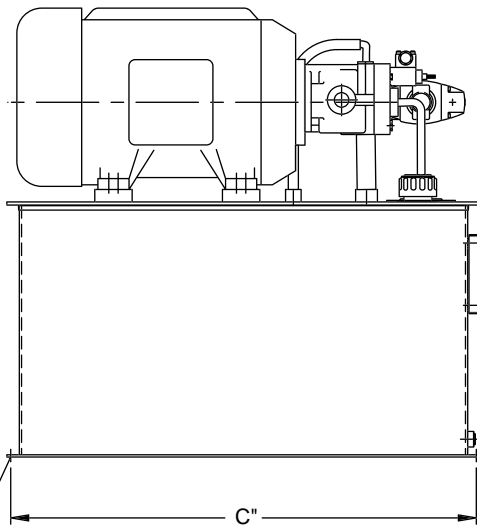
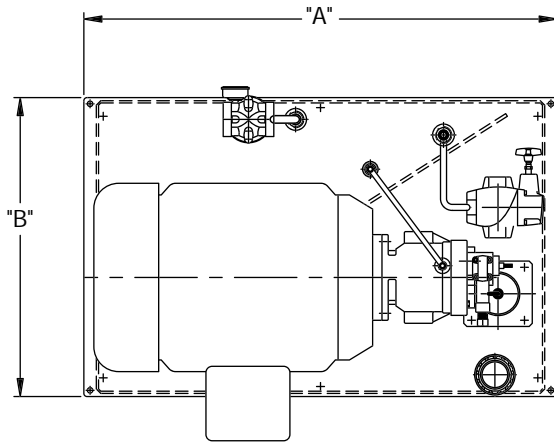
# Installation Drawings PSPP System-Pak Plus



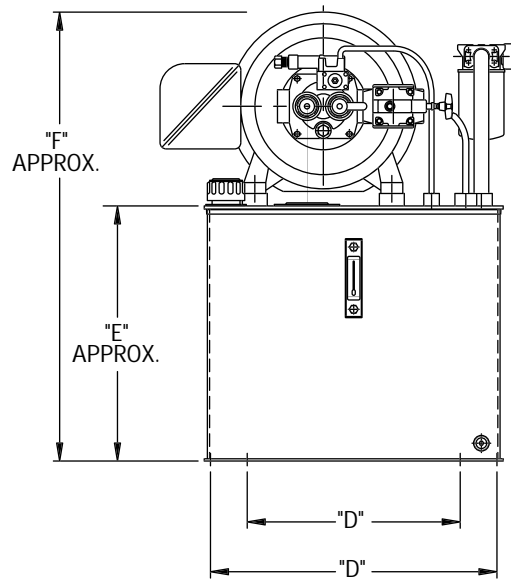
# Installation Drawings PSPP System-Pak Plus

RESERVOIR SIZE	ELECTRIC MOTOR	DIM. " A "	DIM. " B "	DIM. " C "	DIM. " D "	DIM. " E "	DIM. " F "	DIM. " G "	DIM. " H "
20 GALLON	"740" THRU "743" 7.5HP	27.00	18.00	28.4	N.A.	25.00	17.00	14.1	28.5
20 GALLON	"750" THRU "753" 10HP	27.00	18.00	28.4	N.A.	25.00	17.00	14.1	29.6
20 GALLON	"760" THRU "763" 15HP	27.00	18.00	28.4	N.A.	25.00	17.00	14.1	30.3
20 GALLON	"770" THRU "773" 20HP	27.00	18.00	28.4	N.A.	25.00	17.00	14.1	33.5
20 GALLON	"780" THRU "783" 25HP	27.00	18.00	28.4	3.2	25.00	17.00	14.1	36.5
20 GALLON	"790" THRU "793" 30HP	27.00	18.00	28.4	3.2	25.00	17.00	14.1	36.5
30 GALLON	"740" THRU "743" 7.5HP	27.00	18.00	28.4	N.A.	25.00	17.00	20.6	35.0
30 GALLON	"750" THRU "753" 10HP	27.00	18.00	28.4	N.A.	25.00	17.00	20.6	36.1
30 GALLON	"760" THRU "763" 15HP	27.00	18.00	28.4	N.A.	25.00	17.00	20.6	36.8
30 GALLON	"770" THRU "773" 20HP	27.00	18.00	28.4	N.A.	25.00	17.00	20.6	40.0
30 GALLON	"780" THRU "783" 25HP	27.00	18.00	28.4	3.2	25.00	17.00	20.6	43.0
30 GALLON	"790" THRU "793" 30HP	27.00	18.00	28.4	3.2	25.00	17.00	20.6	43.0
40 GALLON	"740" THRU "743" 7.5HP	27.00	18.00	28.4	N.A.	25.00	17.00	27.6	42.0
40 GALLON	"750" THRU "753" 10HP	27.00	18.00	28.4	N.A.	25.00	17.00	27.6	43.1
40 GALLON	"760" THRU "763" 15HP	27.00	18.00	28.4	N.A.	25.00	17.00	27.6	43.8
40 GALLON	"770" THRU "773" 20HP	27.00	18.00	28.4	N.A.	25.00	17.00	27.6	47.0
40 GALLON	"780" THRU "783" 25HP	27.00	18.00	28.4	3.2	25.00	17.00	27.6	50.0
40 GALLON	"790" THRU "793" 30HP	27.00	18.00	28.4	3.2	25.00	17.00	27.6	50.0
60 GALLON	"740" THRU "743" 7.5HP	38.00	24.00	N.A.	N.A.	37.38	17.10 & 23.00	20.6	35.0
60 GALLON	"750" THRU "753" 10HP	38.00	24.00	N.A.	N.A.	37.38	17.10 & 23.00	20.6	36.1
60 GALLON	"760" THRU "763" 15HP	38.00	24.00	N.A.	N.A.	37.38	17.10 & 23.00	20.6	43.8
60 GALLON	"770" THRU "773" 20HP	38.00	24.00	N.A.	N.A.	37.38	17.10 & 23.00	20.6	40.0
60 GALLON	"780" THRU "783" 25HP	38.00	24.00	N.A.	N.A.	37.38	17.10 & 23.00	20.6	43.0
60 GALLON	"790" THRU "793" 30HP	38.00	24.00	N.A.	N.A.	37.38	17.10 & 23.00	20.6	43.0

# Installation Drawings PSSC System-Center II



MOUNTING HOLES  
.44 DIA. THRU TYP. 4 OR 8



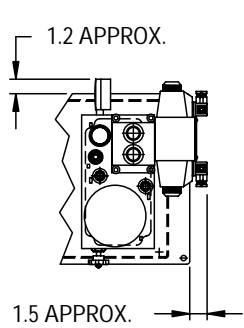
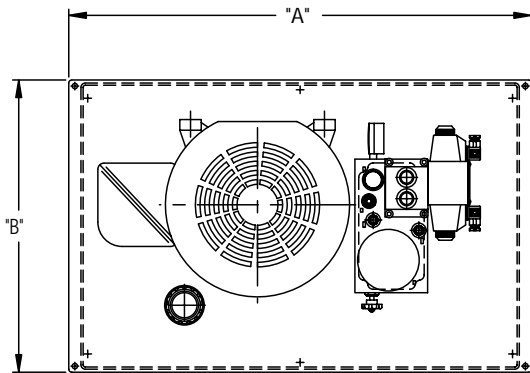
# Installation Drawings

## PSSC System-Center II

RESERVOIR SIZE	ELECTRIC MOTOR	DIM. " A"	DIM. " B"	DIM. " C"	DIM. " D"	DIM. " E"	DIM. " F"
10 GALLON	"700" OR "701" .75HP	27.00	18.00	25.00	17.00	8.9	16.8
10 GALLON	"704" .75HP	27.00	18.00	25.00	17.00	8.9	18.7
10 GALLON	"710" OR "711" 1.5HP	27.00	18.00	25.00	17.00	8.9	16.8
10 GALLON	"714" 1.5HP	27.00	18.00	25.00	17.00	8.9	18.7
10 GALLON	"720" OR "721" 3HP	27.00	18.00	25.00	17.00	8.9	16.8
10 GALLON	"724" 3HP	27.00	18.00	25.00	17.00	8.9	20.0
10 GALLON	"730" THRU "733" 5HP	27.00	18.00	25.00	17.00	8.9	18.4
10 GALLON	"740" THRU "743" 7.5HP	27.00	18.00	25.00	17.00	8.9	19.9
10 GALLON	"750" THRU "753" 10HP	27.00	18.00	25.00	17.00	8.9	19.9
20 GALLON	"700" OR "701" .75HP	27.00	18.00	25.00	17.00	13.9	21.8
20 GALLON	"704" .75HP	27.00	18.00	25.00	17.00	13.9	23.7
20 GALLON	"710" OR "711" 1.5HP	27.00	18.00	25.00	17.00	13.9	21.8
20 GALLON	"714" 1.5HP	27.00	18.00	25.00	17.00	13.9	23.7
20 GALLON	"720" OR "721" 3HP	27.00	18.00	25.00	17.00	13.9	21.8
20 GALLON	"724" 3HP	27.00	18.00	25.00	17.00	13.9	25.0
20 GALLON	"730" THRU "733" 5HP	27.00	18.00	25.00	17.00	13.9	23.4
20 GALLON	"740" THRU "743" 7.5HP	27.00	18.00	25.00	17.00	13.9	24.9
20 GALLON	"750" THRU "753" 10HP	27.00	18.00	25.00	17.00	13.9	24.9
30 GALLON	"720" OR "721" 3HP	38.00	24.00	37.38	17.10 & 23.00	11.5	19.4
30 GALLON	"724" 3HP	38.00	24.00	37.38	17.10 & 23.00	11.5	22.6
30 GALLON	"730" THRU "733" 5HP	38.00	24.00	37.38	17.10 & 23.00	11.5	21.0
30 GALLON	"740" THRU "743" 7.5HP	38.00	24.00	37.38	17.10 & 23.00	11.5	22.5
30 GALLON	"750" THRU "753" 10HP	38.00	24.00	37.38	17.10 & 23.00	11.5	22.5
30 GALLON	"760" THRU "763" 15HP	38.00	24.00	37.38	17.10 & 23.00	11.5	22.5
30 GALLON	"770" THRU "773" 20HP	38.00	24.00	37.38	17.10 & 23.00	11.5	25.0
30 GALLON	"780" THRU "783" 25HP	38.00	24.00	37.38	17.10 & 23.00	11.5	26.8
30 GALLON	"790" THRU "793" 30HP	38.00	24.00	37.38	17.10 & 23.00	11.5	26.8
40 GALLON	"730" THRU "733" 5HP	38.00	24.00	37.38	17.10 & 23.00	14.0	23.5
40 GALLON	"740" THRU "743" 7.5HP	38.00	24.00	37.38	17.10 & 23.00	14.0	25.0
40 GALLON	"750" THRU "753" 10HP	38.00	24.00	37.38	17.10 & 23.00	14.0	25.0
40 GALLON	"760" THRU "763" 15HP	38.00	24.00	37.38	17.10 & 23.00	14.0	25.0
40 GALLON	"770" THRU "773" 20HP	38.00	24.00	37.38	17.10 & 23.00	14.0	27.5
40 GALLON	"780" THRU "783" 25HP	38.00	24.00	37.38	17.10 & 23.00	14.0	29.3
40 GALLON	"790" THRU "793" 30HP	38.00	24.00	37.38	17.10 & 23.00	14.0	29.3
60 GALLON	"740" THRU "743" 7.5HP	38.00	24.00	37.38	17.10 & 23.00	20.5	31.5
60 GALLON	"750" THRU "753" 10HP	38.00	24.00	37.38	17.10 & 23.00	20.5	31.5
60 GALLON	"760" THRU "763" 15HP	38.00	24.00	37.38	17.10 & 23.00	20.5	31.5
60 GALLON	"770" THRU "773" 20HP	38.00	24.00	37.38	17.10 & 23.00	20.5	34.0
60 GALLON	"780" THRU "783" 25HP	38.00	24.00	37.38	17.10 & 23.00	20.5	35.8
60 GALLON	"790" THRU "793" 30HP	38.00	24.00	37.38	17.10 & 23.00	20.5	35.8
80 GALLON	"750" THRU "753" 10HP	38.00	24.00	37.38	17.10 & 23.00	27.5	38.5
80 GALLON	"760" THRU "763" 15HP	38.00	24.00	37.38	17.10 & 23.00	27.5	38.5
80 GALLON	"770" THRU "773" 20HP	38.00	24.00	37.38	17.10 & 23.00	27.5	41.0
80 GALLON	"780" THRU "783" 25HP	38.00	24.00	37.38	17.10 & 23.00	27.5	42.8
80 GALLON	"790" THRU "793" 30HP	38.00	24.00	37.38	17.10 & 23.00	27.5	42.8
100 GALLON	"760" THRU "763" 15HP	38.00	24.00	37.38	17.10 & 23.00	31.5	42.5
100 GALLON	"770" THRU "773" 20HP	38.00	24.00	37.38	17.10 & 23.00	31.5	45.0
100 GALLON	"780" THRU "783" 25HP	38.00	24.00	37.38	17.10 & 23.00	31.5	46.8
100 GALLON	"790" THRU "793" 30HP	38.00	24.00	37.38	17.10 & 23.00	31.5	46.8

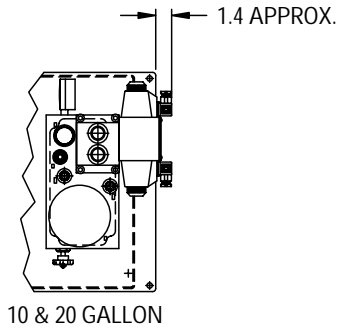
# Installation Drawings

## PSLP Profile-Pak



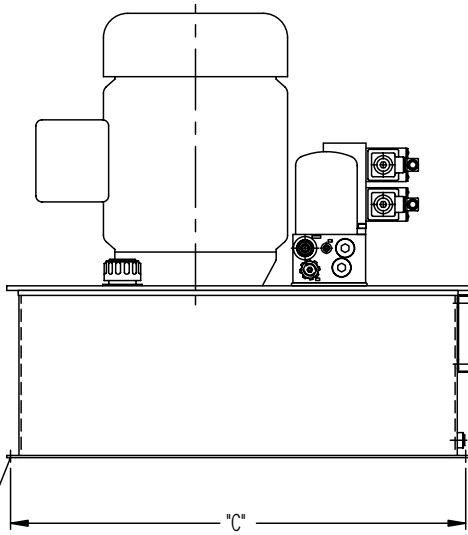
1.5 APPROX.

NOTE:  
THE ABOVE VIEW SHOWS  
HOW THE MANIFOLD AS  
SHOWN WILL APPEAR  
ON THE 5 GALLON UNIT

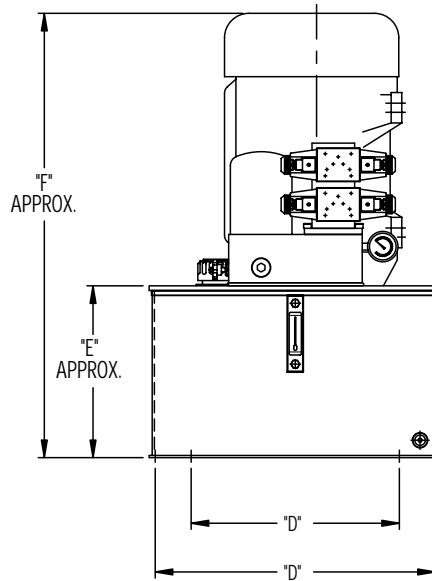


10 & 20 GALLON

NOTE:  
THE ABOVE VIEW SHOWS  
HOW THE MANIFOLD AS  
SHOWN WILL APPEAR ON  
THE 10 & 20 GALLON UNIT



MOUNTING HOLES  
.44 DIA. THRU TYP. 4 OR 8

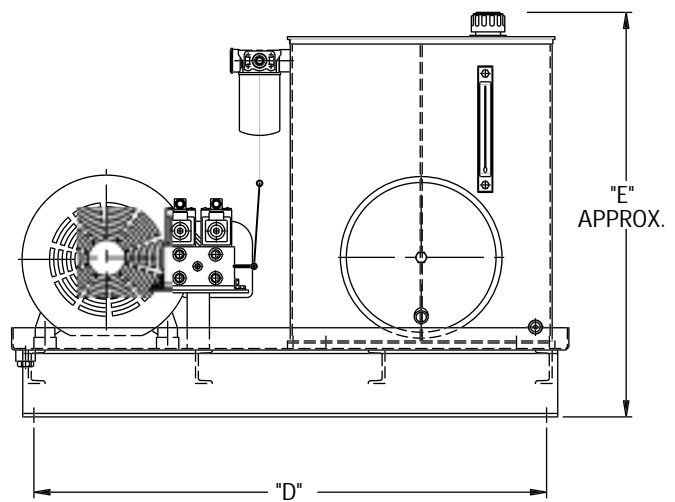
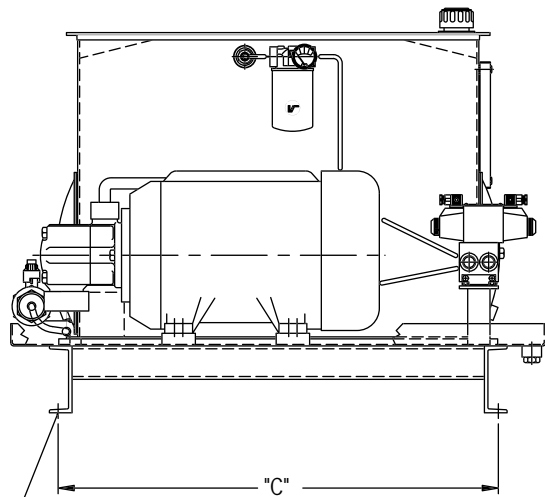
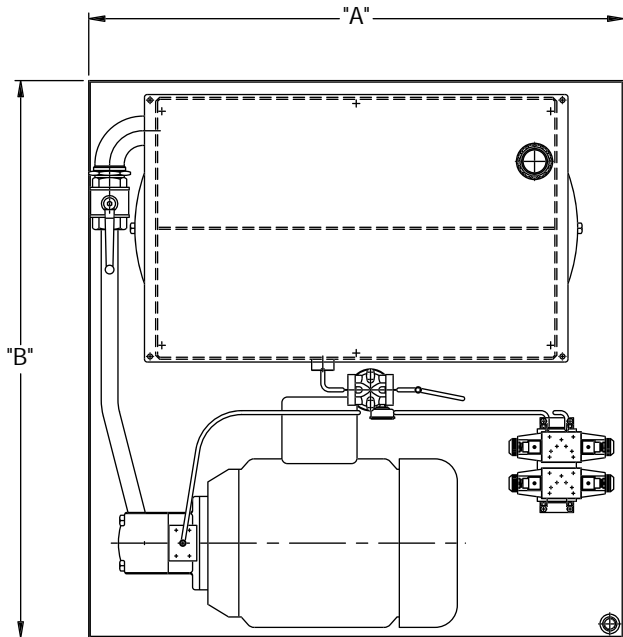


# Installation Drawings PSLP Profile-Pak

RESERVOIR SIZE	ELECTRIC MOTOR	DIM. " A"	DIM. " B"	DIM. " C"	DIM. " D"	DIM. " E"	DIM. " F"
5 GALLON	"700" OR "701" .75HP	21.00	14.00	19.50	12.00	8.7	19.0
5 GALLON	"704" .75HP	21.00	14.00	19.50	12.00	8.7	19.9
5 GALLON	"710" OR "711" 1.5HP	21.00	14.00	19.50	12.00	8.7	20.0
5 GALLON	"714" 1.5HP	21.00	14.00	19.50	12.00	8.7	20.8
5 GALLON	"720" OR "721" 3HP	21.00	14.00	19.50	12.00	8.7	22.2
5 GALLON	"724" 3HP	21.00	14.00	19.50	12.00	8.7	23.8
5 GALLON	"730" THRU "733" 5HP	21.00	14.00	19.50	12.00	8.7	23.8
5 GALLON	"740" THRU "743" 7.5HP	21.00	14.00	19.50	12.00	8.7	23.1
5 GALLON	"750" THRU "753" 10HP	21.00	14.00	19.50	12.00	8.7	24.2
10 GALLON	"700" OR "701" .75HP	27.00	18.00	25.00	17.00	8.8	19.1
10 GALLON	"704" .75HP	27.00	18.00	25.00	17.00	8.8	20.0
10 GALLON	"710" OR "711" 1.5HP	27.00	18.00	25.00	17.00	8.8	20.1
10 GALLON	"714" 1.5HP	27.00	18.00	25.00	17.00	8.8	20.9
10 GALLON	"720" OR "721" 3HP	27.00	18.00	25.00	17.00	8.8	22.3
10 GALLON	"724" 3HP	27.00	18.00	25.00	17.00	8.8	23.9
10 GALLON	"730" THRU "733" 5HP	27.00	18.00	25.00	17.00	8.8	23.9
10 GALLON	"740" THRU "743" 7.5HP	27.00	18.00	25.00	17.00	8.8	23.2
10 GALLON	"750" THRU "753" 10HP	27.00	18.00	25.00	17.00	8.8	24.3
20 GALLON	"720" OR "721" 3HP	27.00	18.00	25.00	17.00	13.8	27.3
20 GALLON	"724" 3HP	27.00	18.00	25.00	17.00	13.8	28.9
20 GALLON	"730" THRU "733" 5HP	27.00	18.00	25.00	17.00	13.8	28.9
20 GALLON	"740" THRU "743" 7.5HP	27.00	18.00	25.00	17.00	13.8	28.2
20 GALLON	"750" THRU "753" 10HP	27.00	18.00	25.00	17.00	13.8	29.3
20 GALLON	"760" THRU "763" 15HP	27.00	18.00	25.00	17.00	13.8	30.0
20 GALLON	"770" THRU "773" 20HP	27.00	18.00	25.00	17.00	13.8	33.2
20 GALLON	"780" THRU "783" 25HP	27.00	18.00	25.00	17.00	13.8	36.2
30 GALLON	"730" THRU "733" 5HP	38.00	24.00	37.38	17.10 & 23.00	11.7	26.8
30 GALLON	"740" THRU "743" 7.5HP	38.00	24.00	37.38	17.10 & 23.00	11.7	26.1
30 GALLON	"750" THRU "753" 10HP	38.00	24.00	37.38	17.10 & 23.00	11.7	27.2
30 GALLON	"760" THRU "763" 15HP	38.00	24.00	37.38	17.10 & 23.00	11.7	27.9
30 GALLON	"770" THRU "773" 20HP	38.00	24.00	37.38	17.10 & 23.00	11.7	31.1
30 GALLON	"780" THRU "783" 25HP	38.00	24.00	37.38	17.10 & 23.00	11.7	34.1
30 GALLON	"790" THRU "793" 30HP	38.00	24.00	37.38	17.10 & 23.00	11.7	34.1
40 GALLON	"750" THRU "753" 10HP	38.00	24.00	37.38	17.10 & 23.00	14.2	29.7
40 GALLON	"760" THRU "763" 15HP	38.00	24.00	37.38	17.10 & 23.00	14.2	30.4
40 GALLON	"770" THRU "773" 20HP	38.00	24.00	37.38	17.10 & 23.00	14.2	33.6
40 GALLON	"780" THRU "783" 25HP	38.00	24.00	37.38	17.10 & 23.00	14.2	36.6
40 GALLON	"790" THRU "793" 30HP	38.00	24.00	37.38	17.10 & 23.00	14.2	36.6
60 GALLON	"750" THRU "753" 10HP	38.00	24.00	37.38	17.10 & 23.00	20.7	36.2
60 GALLON	"760" THRU "763" 15HP	38.00	24.00	37.38	17.10 & 23.00	20.7	36.9
60 GALLON	"770" THRU "773" 20HP	38.00	24.00	37.38	17.10 & 23.00	20.7	40.1
60 GALLON	"780" THRU "783" 25HP	38.00	24.00	37.38	17.10 & 23.00	20.7	43.1
60 GALLON	"790" THRU "793" 30HP	38.00	24.00	37.38	17.10 & 23.00	20.7	43.1

# Installation Drawings

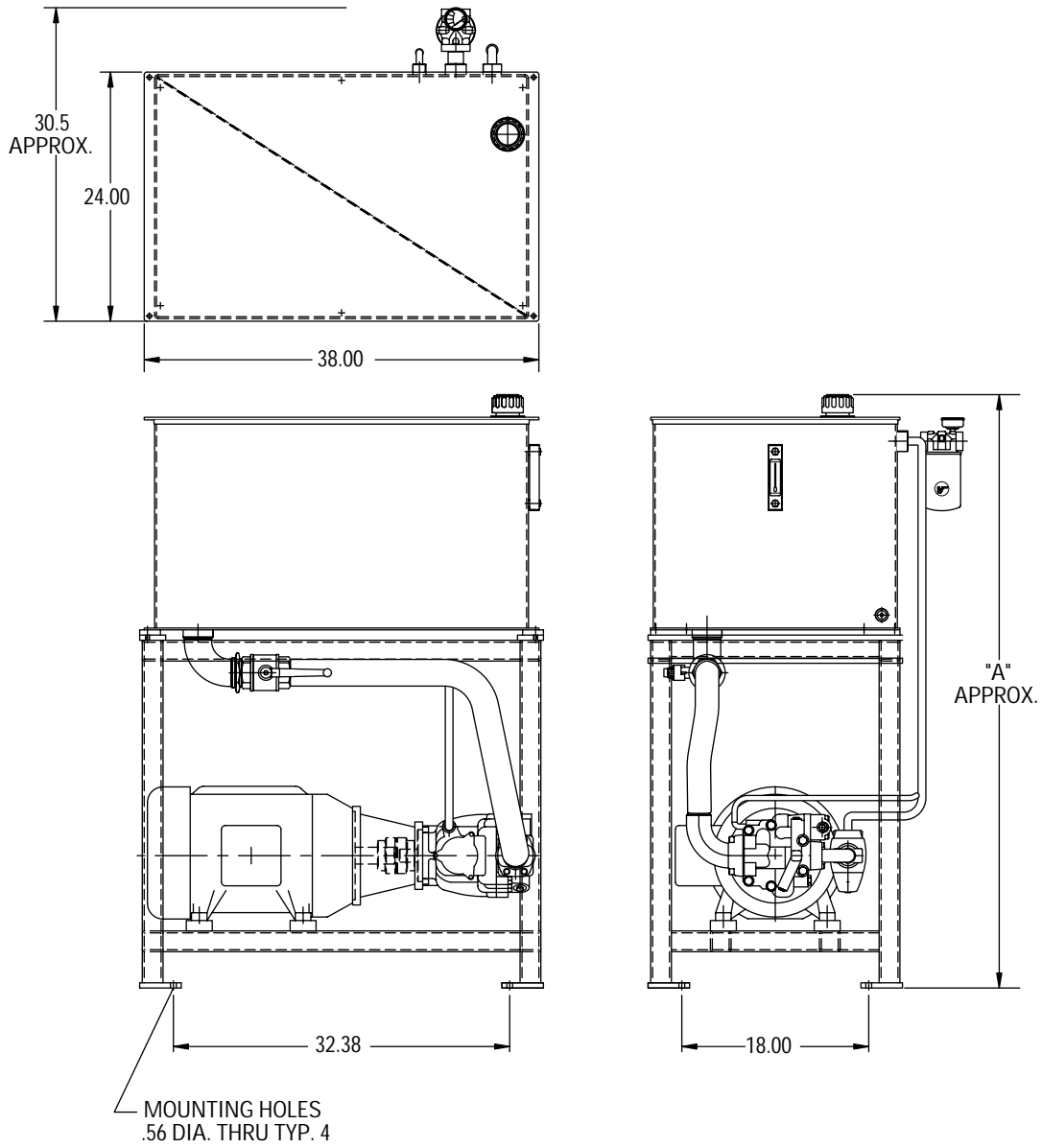
## PSSL System-L Series



MOUNTING HOLES  
.56 DIA. THRU TYP. 4

RESERVOIR SIZE	ELECTRIC MOTOR	DIM. " A "	DIM. " B "	DIM. " C "	DIM. " D "	DIM. " E "
10 GALLON	ANY SIZE MOTOR	28.00	30.00	19.50	26.00	29.3
20 GALLON	ANY SIZE MOTOR	28.00	30.00	19.50	26.00	36.3
30 GALLON	ANY SIZE MOTOR	36.00	40.00	27.50	36.00	36.3
40 GALLON	ANY SIZE MOTOR	36.00	40.00	27.50	36.00	39.3
60 GALLON	ANY SIZE MOTOR	48.00	50.00	39.50	46.00	29.5
80 GALLON	ANY SIZE MOTOR	48.00	50.00	39.50	46.00	36.5
100 GALLON	ANY SIZE MOTOR	48.00	50.00	39.50	46.00	40.5

# Installation Drawings PSSO System Overhead



RESERVOIR SIZE	DIM. "A"
30 GALLON	50.7
40 GALLON	57.2
60 GALLON	57.2
80 GALLON	64.2
100 GALLON	68.2

# Protect your System with Vickers ProActive Maintenance Products and Services!

- **Products**

- Filters
- Portable Particle Counters
- Breathers
- Off-line Filter Units
- Clean Carts
- Water Removal Products
- Laboratory Services

- **Custom Services**

- Floor Mapping
- Set Cleanliness Standards
- Fluid Handling Procedures
- Recommend System Upgrades
- Fluid Sampling
- Inventory Consolidation
- Data Management



**Eaton® is committed to the practice of systemic contamination control and superior performance of our products.**

**Eaton will extend by one year, the standard warranty on all Vickers products used in a system that is protected by Vickers filters applied consistently with the principles of the PAM program.**

Eaton  
14615 Lone Oak Road  
Eden Prairie, MN 55344  
USA  
Tel: 952 937-9800  
Fax: 952 974-7722  
[www.hydraulics.eaton.com](http://www.hydraulics.eaton.com)

Eaton  
5601 Park Road-STEC  
Columbia, MO 65202  
USA  
Tel: 573 886-0444

Eaton  
2425 West Michigan Avenue  
Jackson, MI 49202  
USA  
Tel: 517 789-1193