



INDUSTRIAL PUMP DP SERIES

Installation and Operation Manual

CAUTION: "Intermittent Duty" is defined as; operated and/or frequently started within a period of time that would cause the motor to reach its maximum thermal limits. Once the maximum thermal limit is obtained, the motor must be allowed to return to ambient temperature before resuming operation.

CAUTION: DO NOT use to pump flammable liquids. Never operate the pump in an explosive environment. Arcing from the motor brushes, switch or excessive heat from an improperly cycled motor may cause an explosion.

CAUTION: DO NOT assume fluid compatibility. If the fluid is improperly matched to the pumps' elastomers, a leak may occur. Pumps used to transfer hazardous or hot (max. temperature 170°F [76°C] Viton™ only) chemicals must be in a vented area to guard against the possibility of injury due to harmful or explosive liquid/vapors.

CAUTION: DO NOT operate the pump at pressures which cause the motor to exceed the amperes rating indicated on the name plate. Various pump models are equipped with thermal breakers to interrupt operation due to excessive heat. Once the temperature of the motor is within proper limits it will automatically reset, and the pump **will start operation without warning.**

CAUTION: To prevent electrical shock, disconnect power before initiating any work. In the case of pump failure, the motor housing and/or the pumped fluid may carry high voltage to components normally considered safe.

PRESSURE SWITCH OPERATION (If Equipped)

The pressure switch reacts to outlet pressure, and interrupts power at the preset shut-off pressure indicated on the pump label. When outlet pressure drops below a predetermined limit (*typically 15-20 psi, [1-1.4 bar] less than the shut-off pressure),

the switch will close and the pump operates until the shut-off (high) pressure is achieved. The shut-off pressure is set to factory calibrated standards.

CAUTION: Improper adjustment of the pressure switch setting, may cause severe overload or premature failure. Failures due to improper adjustment of the pressure switch setting will not be covered under the limited warranty.

If the plumbing is restrictive or the flow rate is very low, the pump may re-pressurize the outlet faster than the fluid is being released, causing rapid cycling (*ON/OFF within 2 sec.). If the pump is subjected to rapid cycling during normal operation, or for infrequent periods, damage may occur. Applications which exhibit rapid cycling should have restrictions in the outlet minimized. If not feasible consider a Accumulator or a "bypass" model pump.

BYPASS OPERATION (If Equipped*)

A bypass pump may be used in application that would normally induce frequent start/stop of the motor, and thereby create a potential for overheating. Models equipped with an internal bypass are designed to pump at high pressure while at low flow rates. Bypass models equipped with a switch may operate for several seconds even though the discharge side has been closed off. Models equipped with a bypass only will continue to run until power is turned OFF.

MOUNTING

- The DP series pumps are self priming. Horizontal and vertical prime vary depending on the fluid viscosity and pump configuration. Refer to the pumps Product Data Sheet.
- The pump should be located in an area that is dry and provides adequate ventilation. If mounted within an enclosure, provisions to cool the motor may be necessary. Heat sinks which attach to the motor are available from SHURflo if increased heat dissipation is necessary.

CAUTION: DO NOT locate the motor near low temperature plastics or combustible material. The surface temperature of the motor may exceed *250°F [120°C].

- The pump may be mounted in any position. However, if mounting the pump vertically the pump head should be in the down position so that in the unlikely event of a leak, fluid will not enter the motor.
- Secure the rubber feet with #8 hardware. **DO NOT** compress the feet, doing so will reduce their ability to isolate vibration/noise.

PLUMBING

- Use flexible high pressure tubing compatible with the fluid to connect the inlet/outlet ports. Tubing should be either 3/8" or 1/2"[10 or 13 mm] I.D., and at

reduce noise. Allow for the shortest possible tubing route and avoid sharp bends that may kink over time.

- Installation of a 50 mesh strainer is recommended to prevent foreign debris from entering the system. Failures due to foreign debris is not covered under the limited warranty.

NOTE: Restrictions on the inlet may cause vacuum levels to reach the fluid vapor pressure, causing cavitation, degassing, vapor lock and a loss in performance. Inlet pressure must not exceed 30 psi [2.1 bar] maximum.

- If a check valve is installed in the plumbing it must have a cracking pressure of no more than 2 psi [.14 bar].

- **3/8" Female NPT models:** In some cases, the ports may require a suitable thread sealer applied sparingly. **DO NOT** over-tighten, max. torque 3.7 ftLb (45 inLb) [5 Nm].

- **1/2" Male threaded models:** Are intended to be used with SHURflo Swivel Barb Fittings which seal with an internal taper when **hand tightened**. Standard 1/2" NPT fittings may be used when tightened to a max. torque of 3.7 ftLb (45 inLb) [5 Nm].

CAUTION: Sealers and Teflon tape may act as lubricant causing cracked housings or stripped threads due to over tightening. Care should be used when applying sealers, it may enter the pump inhibiting valve action, causing no prime or no shut-off. Failures due to foreign debris is not covered under warranty.

- **Snap-Lock models:** The slide fittings are open when the slide is moved out toward the switch. Fittings should be inserted flush against housing port before the slide is moved to the locked position. Fittings of Nylon or Polypropylene are available in various sizes.

ELECTRICAL

CAUTION: Electrical wiring should be performed by a qualified electrician, in accordance with all local electrical codes.

- Improper duty cycle and/or rapid start & stop conditions may cause the internal thermal breaker (if equipped) to trip, or can result in premature motor failure due to excessive heat. Refer to the pumps Product Data Sheet.

- The pump should be on a dedicated (individual) circuit, controlled with a double pole switch (UL/C-UL certified) rated at or above the fuse ampere indicated by the pump motor label. Depending on distance of the power source from the pump and ampere load on the circuit, wire may need to be heavier than indicated by the chart.

CAUTION: All 115 VAC and 230 VAC pump motors and systems, MUST be ground per local and state electrical codes.

- For the pump to meet UL/C-UL requirements the circuit MUST be protected with a slow-blow fuse (UL/C-UL certified) or equivalent circuit breaker as indicated on the motor label. Use an approved wire of the size specified or heavier.

TECHNICAL DATA

TYPE	Volts (V)	AMP (A)	Flow Rate (l/min)	Max. Pressure (PSI)
DP-60	12/24	8	5	60
DP-80	12/24	9	4.5	80
DP-100	12/24	11	3.8	100
DP-120	12/24	11.8	3.3	120
DP-130	12/24	12	3.5	130
DP-160	12/24	10	5	160
DP-60M	220	0.45	5	60
DP-80M	220	0.5	4.5	80
DP-100M	220	0.6	3.8	100
DP-120M	220	0.65	3.3	120
DP-130M	220	0.65	3.5	130
DP-160M	220	0.7	5	160

- ① VDE requires a fuse (slow blow) or equivalent circuit breaker.

TROUBLESHOOTING

PUMP WILL NOT START:

- ✓ Fuse or breaker
- ✓ For correct voltage ($\pm 10\%$) and electrical connections
- ✓ Pressure switch operation and correct voltage at switch or motor wires (as equipped).
- ✓ Rectifier or motor for open or grounded circuit
- ✓ For locked drive assembly

WILL NOT PRIME: (No discharge/motor runs)

- ✓ Out of product
- ✓ Strainer for debris
- ✓ Inlet tubing/plumbing; severe vacuum leak
- ✓ Inlet/Outlet tube severely restricted (kinked)
- ✓ Debris in pump inlet/outlet valves
- ✓ Proper voltage with the pump operating ($\pm 10\%$)
- ✓ Pump housing for cracks

LEAKS FROM PUMP HEAD OR SWITCH:

- ✓ For loose screws at switch or pump head.
- ✓ Switch diaphragm ruptured or pinched
- ✓ For punctured diaphragm if fluid is present at bottom drain holes.

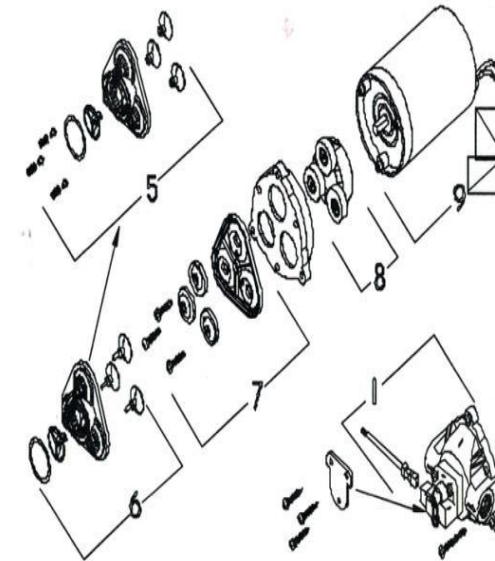
PUMP WILL NOT SHUT-OFF:

(Pressure switch equip.)

- ✓ Output line closed and no leaks
- ✓ For air trapped in outlet line or pump head
- ✓ For correct voltage to pump ($\pm 10\%$)
- ✓ Inlet/Outlet valves for debris or swelling
- ✓ For loose drive assembly or pump head screws
- ✓ Pressure switch operation/adjustment incorrect refer to S/B #1031 for differential and pressure adjustment procedure

NOISY / ROUGH OPERATION:

- ✓ Mounting feet that are compressed to tight
- ✓ For loose pump head or drive screws
- ✓ Does the mounting surface multiply noise (flexible)
- ✓ Is the pump plumbed with rigid pipe causing noise to transmit



KEY#	DESCRIPTION
1	Complete assembled pump head
2	Pressure switch assembly
3	Check valve components
4	Upper housing
5	Bypass valve and discharge valve assembly
6	Valve plate assembly
7	Diaphragm and piston components
8	Drive assembly
9	Motor assembly (less base plate)

