

E.2 pump less volute kits

Installation and operating instructions

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CAUTION



Always disconnect power supply from motor before servicing.

1.0 APPLICATION

Armstrong E.2 pump less volute kits are primarily designed to replace, upgrade, and renew all working parts of all models in the E series family of circulators. The kits are suitable for both hydronic fluid and potable water applications.

This Pump Less Volute (PLV) includes all the new features that were introduced with the second generation of the E series. They are fully compatible with the original E series, making it possible to economically upgrade the older series to the latest technology. The only difference is that the motor section is 0.69 inches longer.

2.0 INSTALLATION

All direct coupled circulators should always be installed with the shaft in a horizontal position. The circulator should be mounted by the volute pipe connections only. No other support for the circulator should be used.

Circulator replacement should only be performed by qualified personnel. To avoid personal injury or property damage, before attempting circulator replacement:

- 1 Ensure that electric power is disconnected and locked out. Loosen the screw from the terminal box cover and remove the cover. Disconnect the supply wires from the circulator only, leaving the capacitor wires connected.
- 2 If valves have been installed, on the suction and discharge sides of the pump, close them before attempting to remove the circulator from the volute. If no valves have been installed it may be necessary to drain the system.



Allow water to cool to 100°F (40°C) before draining the system. It is best to leave the drain valve open and the supply and return valves fully closed, while working on the system.

- 3 To relieve any residual pressure which may be present in the pump body, loosen the flange bolts and gently move the pump body back and forth to allow the pressurized water to escape.

NOTE: Place a pan under the pump to collect the drain water.

3.0 PLV INSTALLATION

- 1 Check the motor nameplate for the correct model and motor rating.
- 2 Place the supplied gasket in the volute gasket groove.
- 3 Remove and recycle the nylon wing nuts from the four motor mounting bolts.
- 4 Insert the impeller end of the assembly into the volute.
- 5 Ensure the gasket is properly seated between the faceplate and volute.
- 6 Tighten the motor mounting bolts evenly to 5 lb-ft (6.7 N-m). There should be a small gap between the volute and motor casing.
- 7 Ensure the impeller spins freely:
 - A Remove the plug from the center of the end of the motor housing.
 - B Insert a flat blade screwdriver into the slot in the end of the motor shaft.
 - C Turn the shaft and verify there is no rubbing against the screwdriver.
- 8 Reconnect the electrical conduit, wiring and strain relief as follows:

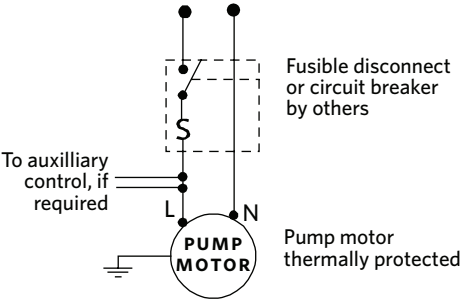
FOR 120V- 1PH/60HZ MODELS:

Referring to **DIAGRAM 1** (on page 5), connect the hot (black, L) and neutral (white, N) leads of the supply wire to the black and white motor leads respectively inside the terminal box. Connect the ground wire to any one of the four green ground screws inside of the terminal box (use a minimum 18 AWG wire size).

FOR 240V - 1PH/60HZ OR 208/277V - 3 PH/60HZ MODELS:

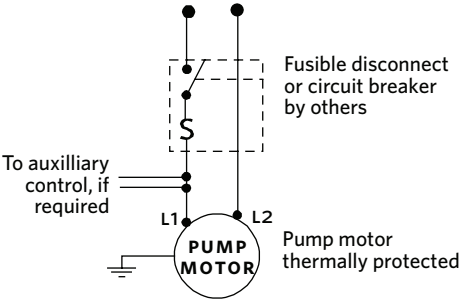
Referring to the **DIAGRAM 2** (on page 5), connect the black (L1) and blue (L2) leads of the supply wire to the black and white motor leads respectively inside the terminal box. Connect the ground wire to any one of the four green screws inside the terminal box (use a minimum 18 AWG wire size).

DIAGRAM 1 120 v installations



Typical wiring diagram for
single phase, 120 V, 60 HZ power source

DIAGRAM 2 208/240/277 v installations



Typical wiring diagram for
A single phase, 240 v, 60 HZ power source
B three phase, 208/277 v, 60 HZ power source

4.0 START-UP

- 1 The pump must be fully primed on start-up. Fill system piping and pump body with liquid and purge all air from the system, turning pump by hand to dislodge air from body. Make sure fittings and drain valves are airtight, and then add any additional fill required.
- 2 Check motor electrics against available supply and then start pump making sure rotation is correct. If pressure does not develop, stop pump, re-check, vent and fill. Never attempt to fill system when pump is running.

5.0 MOTOR LUBRICATION

PLV motors are permanently lubricated and require no maintenance, i.e. no oiling or greasing is required.

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