

Motor-Driven Zone Valves

Installation and Operation Instructions

INSTALLATION**Inspection**

Inspect the package for damage. If package is damaged, notify the appropriate carrier immediately. If undamaged, open the package and inspect the device for obvious damage. Return damaged products.

Requirements

- Tools (not provided)
- — Wrench 1 to 1-5/8" (if threaded valves)
- — Soldering: Installer must be a qualified, experienced technician
- Other accessories as appropriate

Precautions**⚠ WARNING ⚠**

- Electrical shock hazard! Disconnect power before installation to prevent electrical shock or equipment damage.
- When end switch is installed, more than one disconnect switch may be required to de-energize this device for servicing.
- Make all connections in accordance with the electrical wiring diagram and in accordance with national and local electrical codes. Use copper conductors only.
- All conductors shall be provided with insulation rated for the highest voltage for motor and end switch circuits.

⚠ CAUTION ⚠

- Avoid locations where excessive moisture, corrosive fumes, explosive vapors or vibration are present.
- Avoid electrical noise interference. Do not install near large conductors, electrical machinery or welding equipment.
- When making lead connections within the actuator, use caution not to put leads or connectors underneath the motor.

Motor-driven valves, like all other mechanical equipment, should be installed with a degree of accessibility to enable quick and economical servicing or replacement. In high-rise buildings, use reducing valves on branch lines on lower floors.

Mounting

The valves can be mounted in horizontal or vertical piping. When installed in horizontal piping, the actuator must be above the valve body and can be tilted left or right but must not be tilted below 85° from vertical. Refer to Figure 9.

Piping

The zone valves must be piped so that the paddle always closes against the direction of flow, except in diverting configurations. The manual operating lever, provided on all 2-way normally-closed and all 3-way valves, can be used to allow flushing of the hydronic system after installation. Owing to condensation in chilled water applications, install the valve over a drip pan. Zone valves are designed for use in closed hydronic heating and cooling systems. Use in systems which have substantial make-up water (open systems) is not recommended. High levels of dissolved oxygen and chlorine found in open systems may attack the valve materials and result in premature failure.

Manual Operating Lever

Move the manual operating lever slowly to the open position and hold in the retaining notch until the gear is taken up by the return spring. When valves are placed in the open position with the manual operating lever, the paddle is removed from the seat or port.

The manual operating lever will reset to the automatic position when the valve is cycled electrically the first time.

NOTES

- 3-way valves always require a normally-closed actuator.
- 3-way valves are always closed at Port 1 when no power is applied to the motor.
- On power-up, the valve closes to Port 2 on 3-way valves.
- Orient the 3-way valve body as needed for normally-open or normally-closed flow through coil.
- 3-way N.O. applications can be achieved when using a N.C. actuator, by piping the valve in reverse. The 3-way examples show normally-closed actuators.

Sweat Connections**⚠ CAUTION ⚠**

Do not solder with actuator in place, or with paddle against seat, as the heat can damage the unit. Before soldering, lift the release lever and turn the actuator fully clockwise to disengage the actuator on the body. Orient paddle so it is not against a seat.

BODY CONFIGURATION

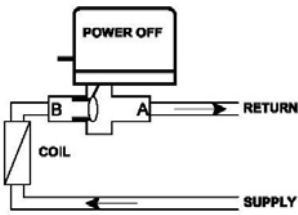


Fig. 1: 2-Way Valve Normally-Closed to the Coil

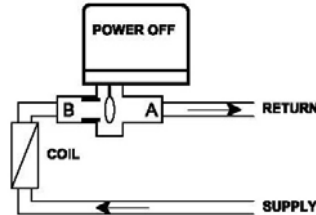


Fig. 2: 2-Way Valve Normally Open to the Coil

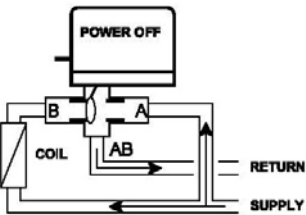


Fig. 3: 3-Way Valve in Mixing Configuration, Normally Closed to the Coil

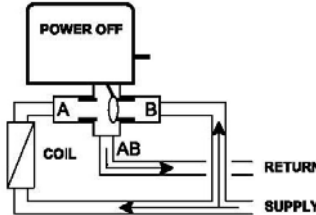


Fig. 4: 3-Way Valve in Mixing Configuration, Normally Open to the Coil

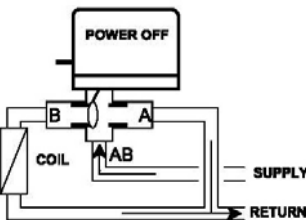


Fig. 5: 3-Way Valve in Diverting Configuration, Normally Closed to the Coil

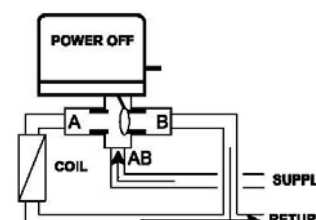


Fig. 6: 3-Way Valve in Diverting Configuration, Normally Open to the Coil

ACTUATOR WIRING

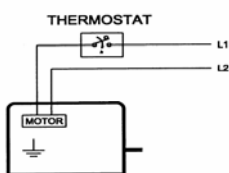


Fig. 7: Wiring with No Options

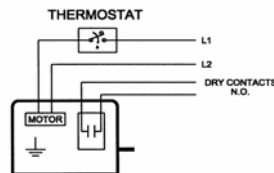


Fig. 8: Wiring with End Switch

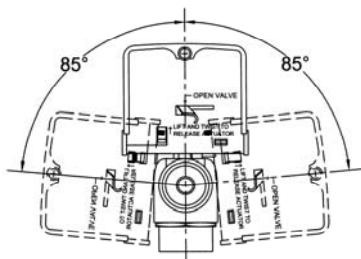


Fig. 9: Mounting Position

Use lead or tin-based solder with melting point below 300°C (600°F). Avoid overheating the end connections. Direct flame tip away from valve. Cool valve quickly with a wet cloth.

Body assembly can be submerged in water for leak testing prior to attaching the actuator.

Threaded Connections

Apply Teflon tape to all but the last two threads of male pipe thread. Hand screw the pipe into the valve, turning it as far as it will go. Use a wrench to fully tighten the valve to the pipe. Do not over tighten or strip threads.

Installing Actuator on Valve Body

Align the body with the actuator to ensure the valve stem is inserted into the large mating hole and the latching post on the body is inserted into the elliptic mating hole, both holes being on the bottom side of the actuator. Turn the actuator fully counter-clockwise to engage the actuator on the body.

Removing Actuator from Valve Body

Lift the release lever and turn the actuator fully clockwise to disengage the actuator on the body. Release the release lever and remove actuator from body.

CHECKOUT

1. Make sure the valve stem rotates freely before and after inserting the actuator.
2. If the stems does not operate freely it may indicate that the stem was damaged and may require that the valve be repaired or replaced.
3. After the piping is under pressure, check the valve body and the connections for leaks.
4. After the valve body and actuator are installed, energize the actuator and check the operation.

MAINTENANCE

Motor-driven 2-position spring-return valves are maintenance free. Actuator may be replaced without removing the valve body.

FIELD REPAIR

Replace any failed motor or complete actuator unit.