Note: Installation should be in accordance with accepted plumbing practices. Flush all pipes thoroughly before installation. Installation and field adjustment are the responsibility of the installer.

**INSTALLATION**

1. Close both hot and cold water shutoff valves upstream of the tempering valve.
2. Bleed pressure from the system.
3. Route copper tubing or piping to fit valve dimensions.
4. Remove tailpieces from the valve and make sure union nuts are over the tubing/piping before connecting to the tailpiece.
5. Flush piping again, install valve using filter gasket on hot and cold water inlets and fiber gasket on mixed water outlet.
6. Turn on the cold and hot water. If any leak are observed, tighten connections as necessary to stop leak before proceeding.

**TO ADJUST TEMPERATURE (FIGURE 4)**

LM490 is factory pre-set to 120° F (49° C) and LM490-10 is factory set to 90° F (31° C) outlet temperatures under the following conditions:
- Cold inlet: 60° - 70° F (16 - 21° C)
- Hot inlet: 140° - 145° F (60 - 63° C)
- Supply Pressures: 45 psi (310 kPa)

1. Let the water flow for at least two minutes to allow supply temperature to stabilize.
2. Place a thermometer in the outlet water stream.
3. Loosen handle screw with hex wrench.
4. Handle must be lifted 1/4" to adjust temperature. Rotate handle clockwise to decrease temperature and counter-clockwise to increase the temperature.
5. Lower handle and tighten screw.
6. Check for outlet temperature.

**CAUTION: NEED PERIODIC INSPECTION**

This valve requires periodic inspection and verification of outlet temperature by a licensed contractor. Corrosive water conditions, inlet temperatures over 200° F (93° C), unauthorized adjustments or repair could render the valve ineffective for service intended. Regular cleaning and checking of thermostat assembly helps to assure maximum life and proper product function. Frequency of cleaning depends upon local water conditions.
SPECIFICATIONS

Temperature Adjustment:
- Series LM490: 90°-160°F (32° to 71°C)
- Series LM490-10: 60°-120°F (16° to 49°C)

Union Connections:

<table>
<thead>
<tr>
<th></th>
<th>Female NPT</th>
<th>Sweat</th>
<th>CPVC</th>
<th>PEX</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1/2&quot;</td>
<td>3/4&quot;</td>
<td>1&quot;</td>
<td>1/2&quot;</td>
</tr>
</tbody>
</table>

Capacity:

<table>
<thead>
<tr>
<th>Pressure Drop Across the Valve</th>
<th>(CV) 1 psi</th>
<th>5 psi</th>
<th>10 psi</th>
<th>15 psi</th>
<th>20 psi</th>
<th>30 psi</th>
<th>45 psi</th>
<th>60 psi</th>
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<tbody>
<tr>
<td></td>
<td>7.6 gpm</td>
<td>11.0 gpm</td>
<td>13.0 gpm</td>
<td>15.0 gpm</td>
<td>19.0 gpm</td>
<td>23.0 gpm</td>
<td>27.0 gpm</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(29.0 lpm)</td>
<td>(42.0 lpm)</td>
<td>(49.0 lpm)</td>
<td>(57.0 lpm)</td>
<td>(72.0 lpm)</td>
<td>(87.0 lpm)</td>
<td>(102.0 lpm)</td>
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Approach Temperature: 10°F (5.6°C) above set point
Max. Operating Pressure: 150 psi (1034 kPa)
Max. Hot Water Temperature: 200°F (93°C)
Minimum Flow: 0.5 gpm (1.90 lpm) when tested in accordance with ASSE 1017-2003
Check Valves: Integral
Construction: Cast Brass Body
Approval: CSA B125 Certified
Listing: ASSE 1017

ATTENTION INSTALLER:

Fluctuating or erratic hot water temperature at fixture:
Unbalanced Pressure. Install balancing or throttling valve at the hot and cold water supplies and adjust accordingly for demand.

Hot water backing up into cold water line:
Hot water pressure is higher than cold water pressure.
Examine check valves for dirt & debris, clean as necessary.

Cannot adjust water temperature to desire temperature:
Install balancing or throttling valve at the hot and cold water supplies and adjust accordingly for demand.

High pressure drop through the tempering valve:
Valve Undersized. Install larger thermostatic tempering valve.

Insufficient hot water during peak demand:
Check flow requirement during peak demand period. Use larger thermostatic tempering valve.

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WARNING:
For valves with CPVC or PEX-end connections, do not exceed the tubing manufacturers pressure and temperature ratings. Refer to the tubing manufacturers product specifications for that information.

Warning:
Powers Hot Water Temperature Control Valve Series LM490 & LM490-10 are designed to be installed at or near the boiler or water heater. They cannot be used by themselves for tempering water temperatures at fixtures where ASSE Standard 1016 or ASSE Standard 1070 listed devices are required. To comply with ASSE Standard 1016 & ASSE Standard 1070, listed devices such as Powers Series e480 or LM495 should be used at fixtures to prevent possible injury.
Powers Hot Water Temperature Control Valve Series LM490 or LM490-10 are not designed to compensate for system pressure fluctuations. Such use may result in severe bodily injury (i.e., scalding or chiling) and/or death.

When installing the Series LM490 or LM490-10 valves in radiant heat applications, the components of the radiant heat system must be of materials with a construction capable of withstanding the high limit output temperatures of the heating boiler. If you are uncertain as to the product's adaptability for your application, please consult an authorized representative before installing or using the product.

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