**INSTALLATION**

The AVG Thermostatic Mixing Valve should be installed as per the appropriate Standard, Code of Practice and legislation applicable to each state and any local requirements and details outlined in this section.

The AVG Thermostat Mixing Valve must be installed by a licensed plumber, or where applicable, a licensed plumber who has undertaken T.A.E.S. training in Thermostatic Mixing Valves.

**NOTE:** To effectively control microbial hazards during system design, installation, commissioning and maintenance, it is important to adhere to the requirements outlined in AS/NZS6666 and local legislation.

Inlets and outlet connections of the valve are clearly marked. The letters H and C cast into the body indicate the Hot and Cold inlet respectively. An arrow cast into the body of the valve identifies the valve outlet direction.

If the valve is not installed correctly then the warranty will be void. Please note that the user may be in danger if the valve malfunctions.

Check to ensure that the system operating conditions fall within the recommended operating range of the AVG Thermostatic Mixing valve as detailed in Section 4. If the hot water supply temperature is greater than 90°C, the valve may be damaged. A suitable temperature limiting valve must be fitted to the hot water supply, prior to the inlet fittings, if the temperature of the hot water will rise above 90°C. It is also important that both of the inlet dynamic supply pressures are 500kPa or less. If either supply pressure exceeds 500kPa then a suitable pressure reducing valve must be fitted prior to the Valve Control Valve to reduce the pressure to an acceptable limit. In order to achieve optimum performance from the valve it is recommended that the inlet pressures are balanced to within 10% of each other.

The water quality conditions should comply and not exceed the limits as listed in AS3600, Appendix B.

It may be necessary to install a water softener or water treatment device.

**NOTE:** In some installations, fitc mixers and solenoid valves are used. The water pressure may be seen to spike outside that recommended for the valve, during rapid shut off conditions. Even if the spike only lasts for a split second it is still considered to be outside the operating conditions and may cause the valve to operate incorrectly.

If this occurs, then measures must be taken to control the spike, such as inlet pressure reducing valves directly before the valve inlets. Thoroughly flush the pipe work with clean water to remove any swarf or debris before the valve is installed. Care should be taken to prevent water damage occurring during this procedure.

It is required by AS4032.1 and AS4032.2 that the recommend pressure for the water supply is 500kPa or less. If either supply pressure exceeds 500kPa then a suitable pressure reducing valve must be fitted prior to the Valve Control Valve to limit the pressure to an acceptable limit. In order to achieve optimum performance from the valve it is recommended that the inlet pressures are balanced to within 10% of each other.

The water quality conditions should comply and not exceed the limits as listed in AS3600, Appendix B.

It may be necessary to install a water softener or water treatment device.

**NOTE:** In some installations, fitc mixers and solenoid valves are used. The water pressure may be seen to spike outside that recommended for the valve, during rapid shut off conditions. Even if the spike only lasts for a split second it is still considered to be outside the operating conditions and may cause the valve to operate incorrectly.

If this occurs, then measures must be taken to control the spike, such as inlet pressure reducing valves directly before the valve inlets. Thoroughly flush the pipe work with clean water to remove any swarf or debris before the valve is installed. Care should be taken to prevent water damage occurring during this procedure.

It is required by AS3500.4 section 3.3 that “Each thermostatic mixing valve shall have an isolating stop tap, line strainer and non-return valve fitted to the hot and cold water supply lines”. The inlet fittings supplied with each TMV will ensure this requirement is met. If the AVG Thermostatic Mixing Valve is installed without the supplied inlet control valve then it will be necessary to install a separate isolating valve for ease of servicing, a non-return valve to prevent cross -connection and a strainer to both inlets to the valve.

Ensure that the test plugs in the top of the inlet fittings are water tight. Install the valve so that it can be accessed easily for maintenance or servicing. The valve can be installed in a wall cavity, under a basin or on a wall, however it is essential that the mixing valve and inlet fittings are easily accessible for servicing.

During installation or servicing heat must not be applied near the mixing valve or inlet fittings, as this will damage the valve and inlet fitting internals.

**Temperature Adjustment**

1. **TO INCREASE TEMPERATURE SETTING**
   - 1. Using a small flat bladed screwdriver lever the protective cap off the valve.
   - 2. Fit the cap over the adjusting spindle.
   - 3. Allow the mixed outlet temperature to stabilize for 60 seconds and once again take a temperature reading. Repeat the procedure until the desired temperature has been reached.
   - 4. Tighten the lock nut and push the protective cap firmly on to the top of the valve until it ‘snaps’ back into place.

2. **TOCREASE TEMPERATURE SETTING**
   - 1. Using a small flat bladed screwdriver lever the protective cap off the valve.
   - 2. Fit the cap over the adjusting spindle.
   - 3. Allow the mixed outlet temperature to stabilize for 60 seconds and once again take a temperature reading. Repeat the procedure until the desired temperature has been reached.
   - 4. Tighten the lock nut and push the protective cap firmly on to the top of the valve until it ‘snaps’ back into place.

3. **TO ADJUST**
   - 1. Using a small flat bladed screwdriver lever the protective cap off the valve.
   - 2. Fit the cap over the adjusting spindle.
   - 3. Allow the mixed outlet temperature to stabilize for 60 seconds and once again take a temperature reading. Repeat the procedure until the desired temperature has been reached.
   - 4. Tighten the lock nut and push the protective cap firmly on to the top of the valve until it ‘snaps’ back into place.

4. **TO ADJUST**
   - 1. Using a small flat bladed screwdriver lever the protective cap off the valve.
   - 2. Fit the cap over the adjusting spindle.
   - 3. Allow the mixed outlet temperature to stabilize for 60 seconds and once again take a temperature reading. Repeat the procedure until the desired temperature has been reached.
   - 4. Tighten the lock nut and push the protective cap firmly on to the top of the valve until it ‘snaps’ back into place.

5. **TO ADJUST**
   - 1. Using a small flat bladed screwdriver lever the protective cap off the valve.
   - 2. Fit the cap over the adjusting spindle.
   - 3. Allow the mixed outlet temperature to stabilize for 60 seconds and once again take a temperature reading. Repeat the procedure until the desired temperature has been reached.
   - 4. Tighten the lock nut and push the protective cap firmly on to the top of the valve until it ‘snaps’ back into place.

6. **TO ADJUST**
   - 1. Using a small flat bladed screwdriver lever the protective cap off the valve.
   - 2. Fit the cap over the adjusting spindle.
   - 3. Allow the mixed outlet temperature to stabilize for 60 seconds and once again take a temperature reading. Repeat the procedure until the desired temperature has been reached.
   - 4. Tighten the lock nut and push the protective cap firmly on to the top of the valve until it ‘snaps’ back into place.

7. **TO ADJUST**
   - 1. Using a small flat bladed screwdriver lever the protective cap off the valve.
   - 2. Fit the cap over the adjusting spindle.
   - 3. Allow the mixed outlet temperature to stabilize for 60 seconds and once again take a temperature reading. Repeat the procedure until the desired temperature has been reached.
   - 4. Tighten the lock nut and push the protective cap firmly on to the top of the valve until it ‘snaps’ back into place.

8. **TO ADJUST**
   - 1. Using a small flat bladed screwdriver lever the protective cap off the valve.
   - 2. Fit the cap over the adjusting spindle.
   - 3. Allow the mixed outlet temperature to stabilize for 60 seconds and once again take a temperature reading. Repeat the procedure until the desired temperature has been reached.
   - 4. Tighten the lock nut and push the protective cap firmly on to the top of the valve until it ‘snaps’ back into place.

9. **TO ADJUST**
   - 1. Using a small flat bladed screwdriver lever the protective cap off the valve.
   - 2. Fit the cap over the adjusting spindle.
   - 3. Allow the mixed outlet temperature to stabilize for 60 seconds and once again take a temperature reading. Repeat the procedure until the desired temperature has been reached.
   - 4. Tighten the lock nut and push the protective cap firmly on to the top of the valve until it ‘snaps’ back into place.

10. **TO ADJUST**
    - 1. Using a small flat bladed screwdriver lever the protective cap off the valve.
    - 2. Fit the cap over the adjusting spindle.
    - 3. Allow the mixed outlet temperature to stabilize for 60 seconds and once again take a temperature reading. Repeat the procedure until the desired temperature has been reached.
    - 4. Tighten the lock nut and push the protective cap firmly on to the top of the valve until it ‘snaps’ back into place.

11. **TO ADJUST**
    - 1. Using a small flat bladed screwdriver lever the protective cap off the valve.
    - 2. Fit the cap over the adjusting spindle.
    - 3. Allow the mixed outlet temperature to stabilize for 60 seconds and once again take a temperature reading. Repeat the procedure until the desired temperature has been reached.
    - 4. Tighten the lock nut and push the protective cap firmly on to the top of the valve until it ‘snaps’ back into place.

12. **TO ADJUST**
    - 1. Using a small flat bladed screwdriver lever the protective cap off the valve.
    - 2. Fit the cap over the adjusting spindle.
    - 3. Allow the mixed outlet temperature to stabilize for 60 seconds and once again take a temperature reading. Repeat the procedure until the desired temperature has been reached.
    - 4. Tighten the lock nut and push the protective cap firmly on to the top of the valve until it ‘snaps’ back into place.

13. **TO ADJUST**
    - 1. Using a small flat bladed screwdriver lever the protective cap off the valve.
    - 2. Fit the cap over the adjusting spindle.
    - 3. Allow the mixed outlet temperature to stabilize for 60 seconds and once again take a temperature reading. Repeat the procedure until the desired temperature has been reached.
    - 4. Tighten the lock nut and push the protective cap firmly on to the top of the valve until it ‘snaps’ back into place.

14. **TO ADJUST**
    - 1. Using a small flat bladed screwdriver lever the protective cap off the valve.
    - 2. Fit the cap over the adjusting spindle.
    - 3. Allow the mixed outlet temperature to stabilize for 60 seconds and once again take a temperature reading. Repeat the procedure until the desired temperature has been reached.
    - 4. Tighten the lock nut and push the protective cap firmly on to the top of the valve until it ‘snaps’ back into place.

**AVG Tempering Valve**

If the set temperature required is higher, then an AVG Tempering Valve approved to AS4032.2 would provide a greater margin for safety in reducing scalding accidents.
**Thermostatic Mixing Valve**

**Suitable For Storage Hot Water Systems**

**Thermostatic Mixing Valve** is a high performance Thermostatic Mixing Valve suitable for a wide range of applications. The valve is designed to comply with Australian Standard AS4032.1 for Thermostatic Mixing Valves-Materials, Design and Performance Requirements and the NSW Health Department requirements.

**Features**
- Meets the requirements of AS4032.1 Thermostatic Mixing Valves
- Provides high stability of mixed water temperature even under changing inlet conditions
- Ensures rapid shut down of mixed outlet flow in the event of hot, or cold water supply isolation
- Easily serviced on site
- Suitable for installation into AS3500 compliant systems with hot water temperature as low as 60°C
- The adjustment mechanism can be locked to prevent tampering

**Recommended Pressures & Temperatures**

<table>
<thead>
<tr>
<th>MIXED OUTLET TEMPERATURE</th>
<th>35°C to 45°C/°Celsius</th>
</tr>
</thead>
<tbody>
<tr>
<td>INLET TEMPERATURES</td>
<td></td>
</tr>
<tr>
<td>Cold Supply</td>
<td>5°C - 25°C</td>
</tr>
<tr>
<td>Hot Supply</td>
<td>60°C - 90°C</td>
</tr>
<tr>
<td>Hot to Mix Temperature</td>
<td>Minimum 10°C</td>
</tr>
<tr>
<td>for Stable operation</td>
<td></td>
</tr>
<tr>
<td>Cold to Mix Temperature</td>
<td>Minimum 5°C</td>
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<tr>
<td>for stable operation</td>
<td></td>
</tr>
<tr>
<td>FLOW RATES</td>
<td>Minimum 4 litres/minute</td>
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<tr>
<td>To ensure stable outlet conditions</td>
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</tr>
<tr>
<td>DYNAMIC INLET PRESSURES</td>
<td>Maximum 20 kPa</td>
</tr>
<tr>
<td>Hot and Cold Inlet</td>
<td>Maximum 500 kPa</td>
</tr>
<tr>
<td>STATIC INLET PRESSURE</td>
<td>Maximum 1000 kPa</td>
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<tr>
<td>Hot and Cold Inlet</td>
<td></td>
</tr>
<tr>
<td>INLET PRESSURE RATIO</td>
<td>Maximum 10:1</td>
</tr>
<tr>
<td>For stable operation</td>
<td>(Hot: Cold or Cold:Hot)</td>
</tr>
</tbody>
</table>

**FLOW SIZING GRAPH**

The AVG Thermostatic Mixing Valve is suitable for many applications. The Headloss Characteristic for Mixed Outlet Flow rate versus Balanced Inlet Pressure is shown below in Graph 1. It is important that the valve is sized correctly.

**Note:** To ensure optimum performance the minimum outlet flow of the mixing valve during operation should be at least 4 litres/minute.

It is important that the valve and pipe work is sized such that they comply with those listed in AS3500.1.2. and Appendix B to ensure the water velocity in the pipework is within the allowed limit.

If the valve is to be installed and operated under unequal inlet pressures the lower inlet pressure determines the outlet flow rate. However, for optimum performance and stability it is recommended that the valve be installed with balanced dynamic inlet pressures (+/- 10%).

**To ensure safety, the TMV must be installed and maintained strictly according to AVG’s installation instructions, Australian Standards and local regulatory requirements. AS3500 now calls on all valves & pipe work to be insulated. AVG provide the insulation & cable ties with the mixing valves.**

**TMV DIMENSION**

**TMV STAINLESS STEEL BOX**

**Schematic Installation Diagram (Fig. 2)**

**To ensure safety, the TMV must be installed and maintained strictly according to AVG’s installation instructions, Australian Standards and local regulatory requirements. AS3500 now calls on all valves & pipe work to be insulated. AVG provide the insulation & cable ties with the mixing valves.**