For Residential and Commercial Applications

Job Name _____ Contractor _____

Job Location _____ Approval _____

Engineer _____ Contractor's P.O. No. _____

Approval _____ Representative _____

AllTemp™ Mix Valves

Non-electric, 3-port Hydronic Mix Valve
1-1/4" AllTemp Mix Valve
Model number 703200
Order number 81000716

Please read instructions completely before starting work. All work must be performed by qualified personnel in accordance with all applicable codes and ordinances.

Specifications

The AllTemp is a non-electric, 3-port mix valve for use in hydronic heating systems. The hydronic mix valve shall have a bronze body with a chrome-plated bronze piston for larger sizes. The actuator for the piston shall have linear expansion characteristics, and shall be completely filled with a temperature-sensitive liquid communicating with the hydraulically-formed brass bellows. The AllTemp is available in 1-¼" female NPT fittings.

Method Of Operation

The liquid-filled copper actuator is located in the valve mixing chamber, where the tempered water flows over it. An increase in mix temperature causes the liquid to expand. This type of thermostat is linear in its expansion, and exerts the highest possible operating force directly on the valve piston, reducing the proportion of hot water and increasing the proportion of cold. The liquid-filled copper thermostatic actuator is sensitive to the slightest variation in temperature or pressure of the supply lines, and reacts quickly to changes in operating conditions. The actuator is resistant to corrosion and has been proven in installations worldwide.

Maintenance And Adjustment

The AllTemp shall be non-electric and shall require minimal service. Inlet and outlet shall be clearly marked, and there shall be an easily accessible temperature adjustment set screw, with lock nut, to assure easy field adjustment.

⚠ CAUTION

This Engineering Sheet is not intended to provide full installation instructions and safety information. In order to avoid property damage or injury, please refer to the complete installation manual and product safety information provided with the product.

⚠ CAUTION

These mixing valves are not anti-scald valves since they do not have positive shut-off in case of failure of hot or cold water supply. We do not recommend their use for shower service.

MIX VALVE

AllTemp mix valves are available in 1-¼" female NPT fittings.

Application Parameters

Watts Radiant mix valves are designed to be a simple, durable solution for residential hydronic system designers who require multiple water temperatures in a single system. This is particularly important when one structure may have multiple floor coverings, baseboard zones, and/or fan coil units, each requiring a different delivery water temperature. Watts Radiant mix valves are most commonly used on primary/secondary pumping applications. Typically, a primary boiler loop operating at 140° to 220°F distributes heat to one or more secondary hydronic distribution zones. These mixed hydronic distribution zones typically operate at temperatures ranging from 100° to 200°F. Normally, each thermostatically-controlled zone requires its own circulator. Multiple zones, sharing a common temperature requirement, may be served by common mix valves as long as excessive flow rates are not required.

Installation Notes

Always plumb the zone circulators downstream of the mix valves. Use spring check valves on supply lines to prevent thermosiphoning to zones above the mechanical room. Do not combine hot returns (as from baseboard zones) with cooler returns from radiant slabs. The mix valves must have a source of cooler return water cooler to operate properly. Where feasible, install isolation valves on all three ports of each mix valve to facilitate servicing and air purging. When a mix valve is installed on a primary/secondary system, install an isolation valve on the primary loop between the supply and return lines (to the mix valve) to speed up purging of air from the system. See application drawings on the reverse side.

AllTemp Mix Valve CV Values

AllTemp Mix Valve Size	C_V Value
1-1/4" (100°–200°F)	6.1

c UL us

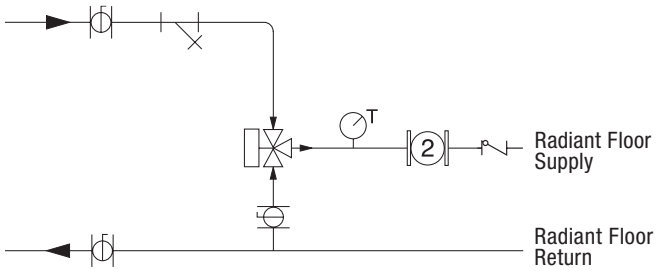
- UL Listed for U.S. under UL Standard 1693 and Canada under CAN/CSA C22.2 No. 1 30.2-93. Listing file number E185866.

WATTS®

Typical AllTemp Mix Valve Applications

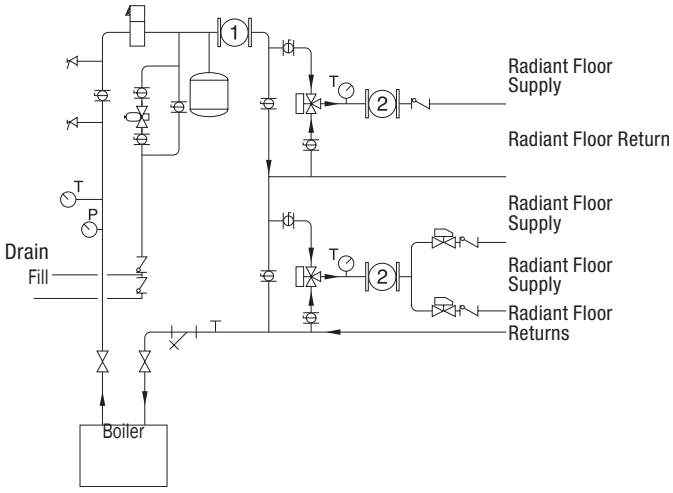
Radiant Addition to an Existing Hydronic System

A lower temperature radiant floor addition is piped into an existing high temperature heating circuit. A zone thermostat activates the zone circulator. The circulator must be plumbed downstream of the mix valve. A strainer removes any existing debris from the system. A spring check valve prevents thermosiphoning to upper zones.



Three-Zone Radiant System

Three zones are piped off of a primary loop. One radiant floor zone is served by a dedicated circulator. Two other radiant floor zones are served by a second circulator with two thermostatically controlled conventional zone valves. Mix valves reduce the delivery water feeding each circulator to the correct temperature, while maintaining the primary boiler loop above the condensing point. Always plumb the circulators downstream of the mix valves. A spring check valve prevents thermosiphoning to upper zones.



Making Temperature Adjustments:

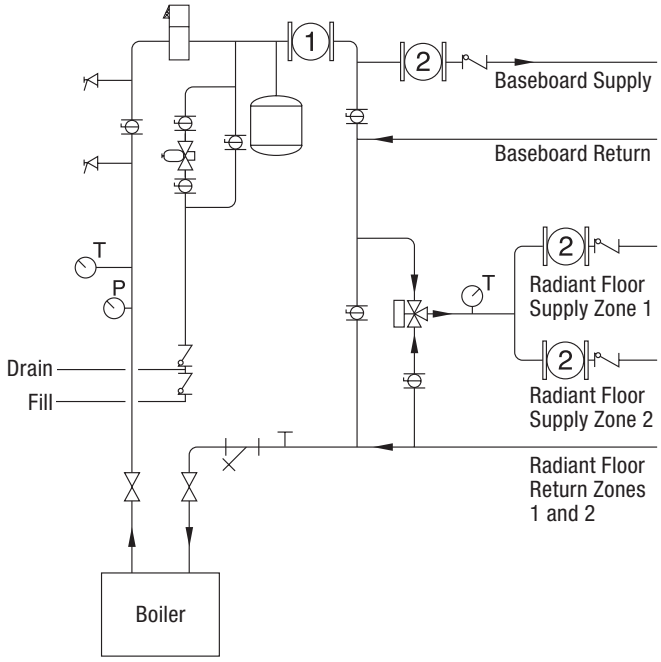
To ensure accuracy in adjusting the temperature setting, make sure that the hot water supply temperature to the valve is at least 20°F hotter than the desired temperature of the mixed water. The use of a permanent temperature monitor, such as a dial gauge or a Watts Radiant StickTemp, is suggested for correct calibration of the valve.

Temperature Range:

The delivery of the mixed water temperature is adjustable within the range indicated on the valve tag. This delivery range falls between 100° and 200°F.

Mixed Radiant and Baseboard System

Two radiant floor zones, each requiring similar delivery water temperatures, are piped off the same mix valve. Make sure that the combined flow of both zones does not exceed the capacity of the valve at a 1 psi pressure drop across the mix valve. Use circulators of similar capacity and radiant circuits of approximately the same circuit length when you use this application. A third hot water baseboard zone is also piped off the primary boiler loop. Similarly, another zone servicing an indirect hot water heater or hot water fancoil (not illustrated) can be treated like the baseboard zone shown here. A spring check valve prevents thermosiphoning to upper zones.



Legend to Schematics

- Primary Pump
- Secondary Pump
- Micro-bubble Oxygen Remover
- AllTemp Mix Valve
- Zone Valve
- Wye Strainer
- Ball Valve
- Boiler Drain
- Check Valve
- Pete's Plug
- Gate Valve
- Primary Purge Assembly
- Fill Valve
- Expansion Tank
- Backflow Preventer
- Pressure Gauge
- Temperature Gauge

⚠ WARNING

The mix valve must not be heated in excess of 230°F, or the liquid-filled actuator may rupture. To prevent damage, you must temporarily remove the actuator assembly from the valve body before soldering near the mix valve.

⚠ CAUTION

Turn off water before servicing. Open supply valves slowly to prevent water hammer or sudden shock. Wear heat-resistant gloves while making adjustments.

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