

Instructions

Series LF1170 and LFL1170

Hot Water Temperature Control Valves

Size: 1/2", 3/4", 1"



⚠ WARNING



Read this Manual **BEFORE** using this equipment. Failure to read and follow all safety and use information can result in death, serious personal injury, property damage, or damage to the equipment. Keep this Manual for future reference.

⚠ WARNING

FAILURE TO COMPLY WITH PROPER INSTALLATION AND MAINTENANCE INSTRUCTIONS COULD CONTRIBUTE TO THE VALVE FAILURE.

This Hot Water Master Tempering Valves cannot be used for tempering water temperature at fixtures. Severe bodily injury (i.e., scalding or chilling) and/or death may result depending upon system water pressure changes and/or supply water temperature changes. ASSE standard 1016, 1069 or 1070 listed devices should be used at fixtures to prevent possible injury.

These Hot Water Tempering Valves are designed to be installed at or near the boiler or water heater. They are not designed to compensate for system pressure fluctuations and should not be used where ASSE standard 1016, 1069 or 1070 devices are required. These valves should never be used to provide "anti-scald" or "anti-chill" service.

The components of the system must be of materials with a construction capable of withstanding the high limit output temperatures of the water heating source.

⚠ WARNING

Need for Periodic Inspection and Yearly Maintenance: Periodic inspection and yearly maintenance by a licensed contractor is required. Corrosive water conditions, temperatures over 200°F, unauthorized adjustments or repair could render the valve ineffective for service intended. Regular checking and cleaning of the valve's internal components and check stops helps assure maximum life and proper product function. Frequency of cleaning and inspection depends upon local water conditions.

⚠ WARNING

You are required to consult the local building and plumbing codes prior to installation. If the information in this manual is not consistent with local building or plumbing codes, the local codes should be followed. Inquire with governing authorities for additional local requirements.



LF1170-UT-M2



LF1170-QC-M2

Installation

⚠ WARNING

Valve should be installed and adjusted by a licensed contractor in accordance with local codes and ordinances. Further, this valve should be installed in a location where it is accessible for cleaning, service or adjustment.

1. Close both the hot and cold water shutoff valves upstream nearest to the intended installation.
2. Bleed the remaining water from the system.
3. Connect the water supply to valve as shown in Figure 1 or 2, depending on the application. Supply piping must be flushed clean before making connections to the valve.

NOTICE

To prolong the life of the Model LF1170-M2 or LFL1170-M2 valve, it is recommended that it be trapped as shown (Figure1): i.e. the hot water inlet to the LF1170-M2 valve should be 8" – 12" (200 – 305mm) below the hot water supply feed.

4. Valve can be installed in any position. Note: the inlet hot supply is to be connected to the "H" side of the valve, the cold supply side to the "C" side and the mixed water outlet to the "M" side.
5. Make sure union nuts are placed over tailpieces prior to soldering or threading to pipe.
6. For valves with Quick-Connect tailpieces refer to "Quick-Connect Installation" instructions below.

NOTICE

To prevent damage to valve from excessive heat during soldering, remove unions and gaskets from valve body prior to soldering.

⚠ WARNING

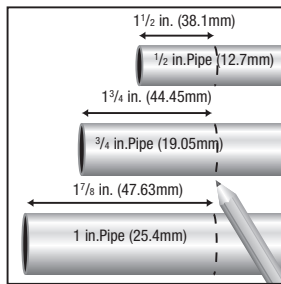
Use caution when soldering. Protect yourself and others. FUMES AND GASES can be hazardous to your health. HEAT RAYS (INFRARED RADIATION) from flame or hot metal can injure eyes.

7. After soldering, flush piping and install valve using filter washer on hot and cold water inlet and fiber washer on the mixed water outlet.
8. Start-up: Open cold water supply, then hot water supply. Inspect for leaks.
9. Adjust temperature to desired setting (see Temperature Adjustment Section).

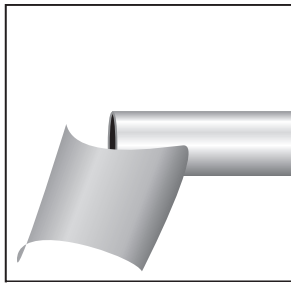
WATTS®

Quick-Connect Installation

To Connect

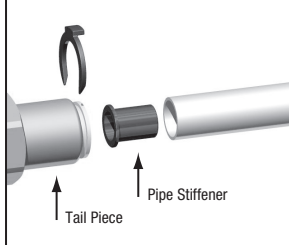


1. Mark pipe as shown. This is pipe insertion depth.

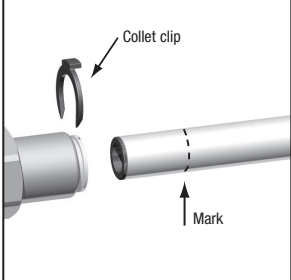


2. Clean pipe end.

PEX tubing only

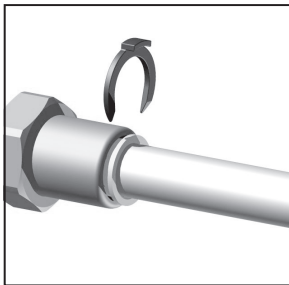


3. If using PEX tubing, insert pipe stiffener (provided) into end of pipe.

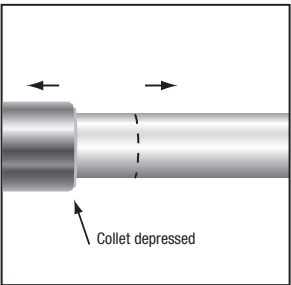


4. Push tubing into tailpiece up to mark.
5. Insert collet clip.

To Disconnect



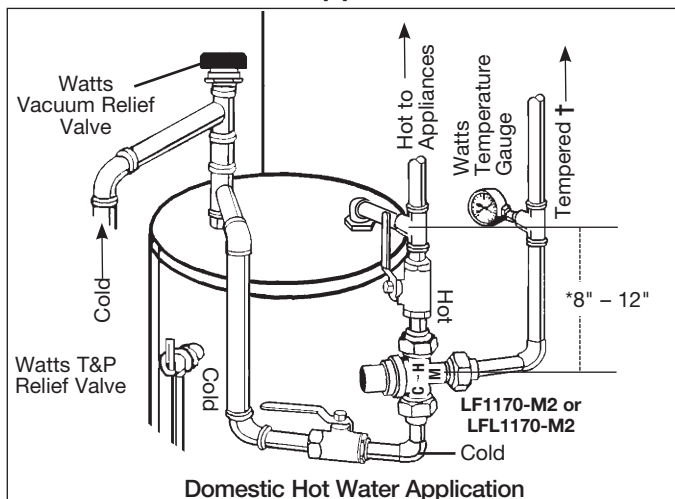
1. Remove collet clip.



2. Depress collet.
3. Pull tubing from tailpiece.

Figure 1

Domestic Hot Water Application



Domestic Hot Water Application

NOTICE

To prolong the life of the valve, it is recommended the valve be trapped as shown

† Devices tested to ASSE 1016, ASSE 1070 or ASSE 1069 such as Watts LFUSG, LFL111 or LFMMV should be used at fixture to prevent possible injury.

Figure 2

Radiant Heat Application

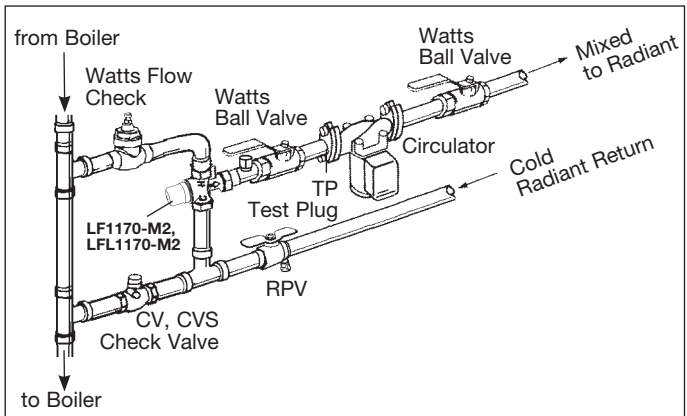


Figure 3

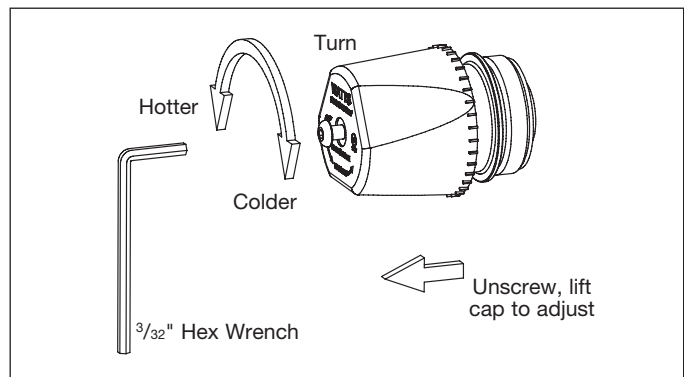
Temperature Adjustment

Factory Preset:

LF1170-M2: 120°F (49°C)
LFL1170-M2: 90°F (31°C)

Under following conditions:

Cold Inlet: 60-70°F (16-21°C)
Hot Inlet: 140-145°F (60-63°C)
Supply Pressure: 45psi (3.15 bar)



1. Let water flow for at least two minutes to allow supply temperature to stabilize.
2. Calibrate the mixed water outlet temperature by placing a thermometer in the mixed water stream.
3. To adjust the setting of the valve, loosen locking cap screw with hex wrench, see Figure 3. Cap must be lifted 1/4" to adjust temperature. To increase the temperature, turn counterclockwise. To decrease temperature turn clockwise.
4. Lower handle and tighten screw.
5. Check outlet temperature.

Period Inspection/Maintenance

This valve requires periodic inspection and verification of the outlet temperature by a licensed contractor. Corrosive water conditions, hot inlet water temperature over 200°F (93°C), unauthorized adjustments or repairs could render the valve ineffective for its intended service. Regular cleaning and checking of thermostat assembly helps to maximize valve life and mixing function. Frequency of cleaning depends on local water conditions.

Pressure — Temperature

Minimum Supply Pressure (Static): 30psi (207 kPa)

Inlet Temperatures: hot inlet, 120°F – 200°F (49°C – 93°C),
cold inlet, 40°F – 85°F (4°C – 29°C)

Hot Water Inlet to Outlet Differential Temperature: 5°F (3°C)

LF1170-M2 Temperature Out:

Field range: 90°F – 160°F (32°C – 71°C), adjustable.
Accurate within ±3°F (1.7°C)

LFL1170-M2 Temperature Out:

Field range: 60°F – 120°F (16°C – 49°C), adjustable.
Accurate within ±3°F (1.7°C)

Maximum Temperature: 200°F (93°C)

Maximum Pressure: 150psi (10.3 bar)

Maximum Pressure Differential Between Hot and Cold Water Supplies: 25%.

Approval: CSA B125 certified
Listing: ASSE 1017 and IAPMO UPC



Troubleshooting Guide

Series LF1170-M2 and LFL1170-M2

Symptom	Cause	Solution
Unable to reach required set point or set point difficult to set	1. Supply temperatures not within specified limits 2. Hot and cold supplies reversed 3. Filters are blocked by debris	1. Check differential temperature between hot and cold supplies and outlet 10°F (5.6°C) minimum required 2. Reinstall valve with supplies connected to marked inlets 3. Clean filters
Unable to achieve required flow	1. Too much pressure drop at fixture 2. Check valves/filters blocked by debris	1. Measure supply pressures and check against flow chart. Look for restrictions in valve or piping 2. Clean check valves/filters
Valve does not maintain required temperature or temperature changes over time	1. Fluctuation in supply pressures 2. Check valve/filters blocked by debris 3. Recirculation loop not piped properly	1. Stabilize water pressures with pressure regulating or balancing valves 2. Clean check valves/filters 3. Pipe recirculated tempered water return so it connects to hot water source and cold side of mixing valve (see Product Guide for piping details)
Discharge temperature too hot or cold	1. Valve not calibrated properly	1. Readjust valve temperature per installation instructions
Hot water from cold water tap or cold from hot	1. Check valves fouled	1. Clean check valves/filters
Valve is noisy	1. Water velocity is too high 2. Valve not sized properly	1. Reduce water velocity with pressure regulating valves 2. Check flow required versus rated flow capacity of valve
No flow from valve	1. Hot or cold water supply failure or shutoffs closed 2. Check valve/filters blocked by debris	1. Open shutoffs or restore hot and cold supply 2. Clean check valves and filters
Flow from valve fluctuates	1. Fluctuation in supply pressures 2. Check valve/filters blocked by debris	1. Stabilize water pressure with pressure regulating valves 2. Clean check valves and filters

ATTENTION INSTALLER: After installation, please leave this Instruction Sheet for occupant's information.

⚠ 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: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.
For more information: www.watts.com/prop65

Limited Warranty: Watts Regulator Co. (the "Company") warrants each product to be free from defects in material and workmanship under normal usage for a period of one year from the date of original shipment. In the event of such defects within the warranty period, the Company will, at its option, replace or recondition the product without charge.

THE WARRANTY SET FORTH HEREIN IS GIVEN EXPRESSLY AND IS THE ONLY WARRANTY GIVEN BY THE COMPANY WITH RESPECT TO THE PRODUCT. THE COMPANY MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED. THE COMPANY HEREBY SPECIFICALLY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

The remedy described in the first paragraph of this warranty shall constitute the sole and exclusive remedy for breach of warranty, and the Company shall not be responsible for any incidental, special or consequential damages, including without limitation, lost profits or the cost of repairing or replacing other property which is damaged if this product does not work properly, other costs resulting from labor charges, delays, vandalism, negligence, fouling caused by foreign material, damage from adverse water conditions, chemical, or any other circumstances over which the Company has no control. This warranty shall be invalidated by any abuse, misuse, misapplication, improper installation or improper maintenance or alteration of the product.

Some States do not allow limitations on how long an implied warranty lasts, and some States do not allow the exclusion or limitation of incidental or consequential damages. Therefore the above limitations may not apply to you. This Limited Warranty gives you specific legal rights, and you may have other rights that vary from State to State. You should consult applicable state laws to determine your rights. **SO FAR AS IS CONSISTENT WITH APPLICABLE STATE LAW, ANY IMPLIED WARRANTIES THAT MAY NOT BE DISCLAIMED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO ONE YEAR FROM THE DATE OF ORIGINAL SHIPMENT.**



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