

HydroGuard® XP Master Tempering Valves Series LFSH1430

Technical Instructions

⚠ 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.

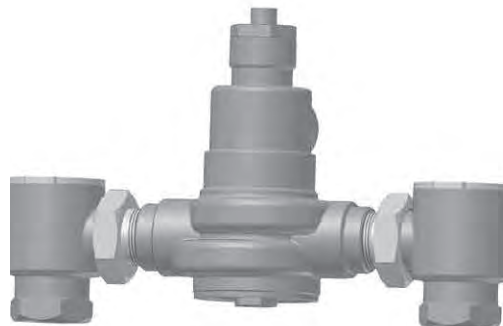
⚠ WARNING

Need for Periodic Inspection and Yearly Maintenance:

Periodic inspection and yearly maintenance by a licensed contractor is required. Corrosive water conditions and/or 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.



Advanced Thermal Actuation

Description ■

The HydroGuard® XP LFSH1430 series is a temperature actuated mixing valve designed for use in hot water distribution systems, in compliance with ASSE 1017.

Specifications ■

- Maximum Operating Pressure 125 psi (861 kPa)
- Maximum Hot Water Temperature 200°F (93°C)
- Minimum Hot Water Supply Temp. 5°F (3°C) Above Set-Point*
- Hot Water Inlet Temperature Range 120 -180°F (49 - 82°C)
- Cold Water Inlet Temperature Range 40 - 80°F (4 - 27°C)
- Temp. Adjustment Ranges **Standard: 90 - 160°F (32 - 71°C)
 Low: 60 - 90°F (16 - 32°C)
- Listing ASSE 1017
- Certified CSA B125

* With Equal Pressure

** Low limit cannot be less than the cold water temperature.
 For best operation, hot water should be at least 5°F (3°C) above desired set point.

Capacity ■

Capacity Table, presents the HydroGuard discharge capacity in gpm and lpm for various pressure drops across the valves (the difference

between the lowest inlet pressure and the discharge pressure at the HydroGuard.)

| Flow Capacity at 50-50 mixed ratio | | | | | | | | | | |
|------------------------------------|---------------------|------------------------|----------------------------|-------------------|-------------------|--------------------|--------------------|--------------------|--------------------|--------------------|
| | | | Pressure Drop Across Valve | | | | | | | |
| Model | Min. Flow Rate* | Min. Flow to ASSE 1017 | C _v | 5psi (34 kPa) | 10psi (69 kPa) | 20psi (138 kPa) | 30psi (207 kPa) | 45psi (310 kPa) | 60psi (414 kPa) | 70psi (517 kPa) |
| LFSH1432 | 0.5 gpm 1.89 lpm | 1 gpm 4 lpm | 8.54 | 19 gpm 72 lpm | 27 gpm 102 lpm | 38 gpm 144 lpm | 47 gpm 178 lpm | 57 gpm 216 lpm | 66 gpm 250 lpm | 71 gpm 269 lpm |
| LFSH1434 | 0.5 gpm 1.89 lpm | 1 gpm 4 lpm | 19.00 | 42 gpm 159 lpm | 60 gpm 227 lpm | 85 gpm 322 lpm | 104 gpm 394 lpm | 127 gpm 481 lpm | 147 gpm 556 lpm | 159 gpm 602 lpm |
| LFSH1435 | 0.5 gpm 1.89 lpm | 5 gpm 19 lpm | 30.00 | 67 gpm 254 lpm | 95 gpm 360 lpm | 134 gpm 507 lpm | 164 gpm 621 lpm | 201 gpm 761 lpm | 232 gpm 878 lpm | 251 gpm 950 lpm |

* Minimum flow when HydroGuard is installed at or near hot water source with recirculated tempered water with continuously operating recirculating pump.

Operation ■

Typical Flow

Hot and cold water supplies enter HydroGuard at indicated ports, (see Figure 1) then flow past their respective seats. Next, hot and cold water flow is directed to the mixing chamber where the thermostatic motor is located.

Temperature Change

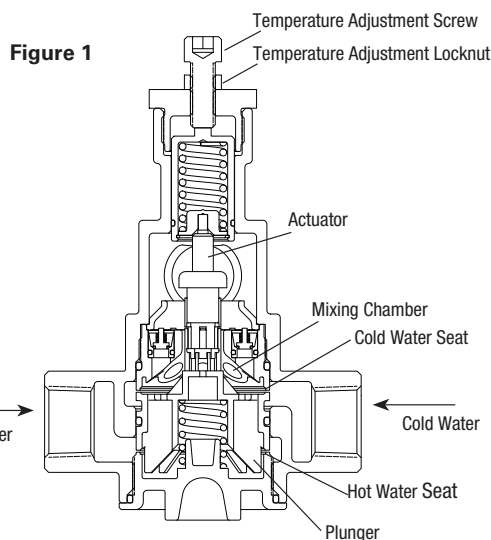
With a rise in discharge temperature due to pressure or temperature fluctuation on the inlet, the actuator expands, decreasing flow of hot water. The reverse occurs with a drop in discharge temperature.

Responses

Temperature adjustment screw moves the actuator to the desired discharge temperature.

- Cold water supply failure – causes actuator to expand drastically reducing the flow of hot water*.
- Hot water supply pressure failure – causes actuator to contract drastically reducing the flow of cold water*.

*When tested in accordance to conditions described in ASSE 1017.



Installation Instructions ■

NOTICE

1. Installation should be in accordance with acceptable plumbing practices. Flush all piping thoroughly before installation. Installation and field adjustment are the responsibility of the installer.
2. Valves are to be installed as close to building inlet supply as possible to prevent/minimize pressure fluctuations.
3. Valve body can be rotated to install in multiple positions due to union inlets (see Figure 2). Make sure that union nuts are tightened securely.
4. Connect inlets and outlet and check for leaks.

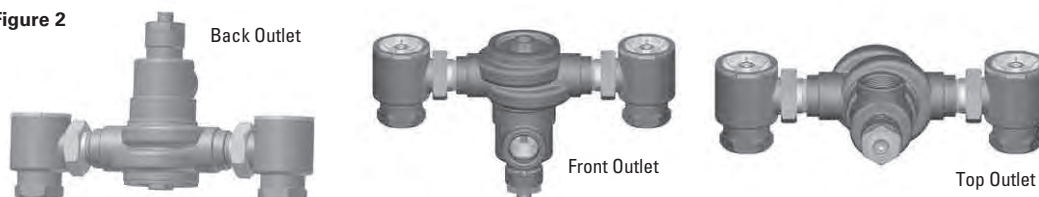
CAUTION

5. When the HydroGuard supplies tempered water to self-closing and/or solenoid valves, provide a shock absorber (Powers Part No. 460-353) on the discharge line.
6. **Before use, check discharge temperature. Reset if necessary.**

OPERATION CHECK:

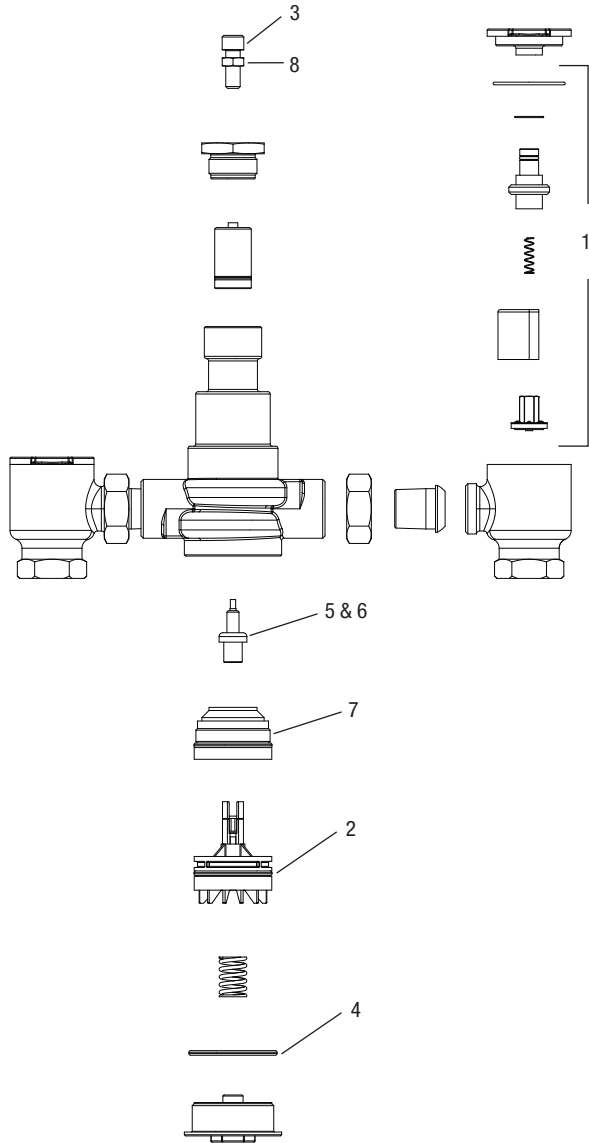
After HydroGuard is installed, make certain the supply stop valves and strainers are free of debris, clean and ready for operation by disassembling checkstops as shown in servicing.

Figure 2



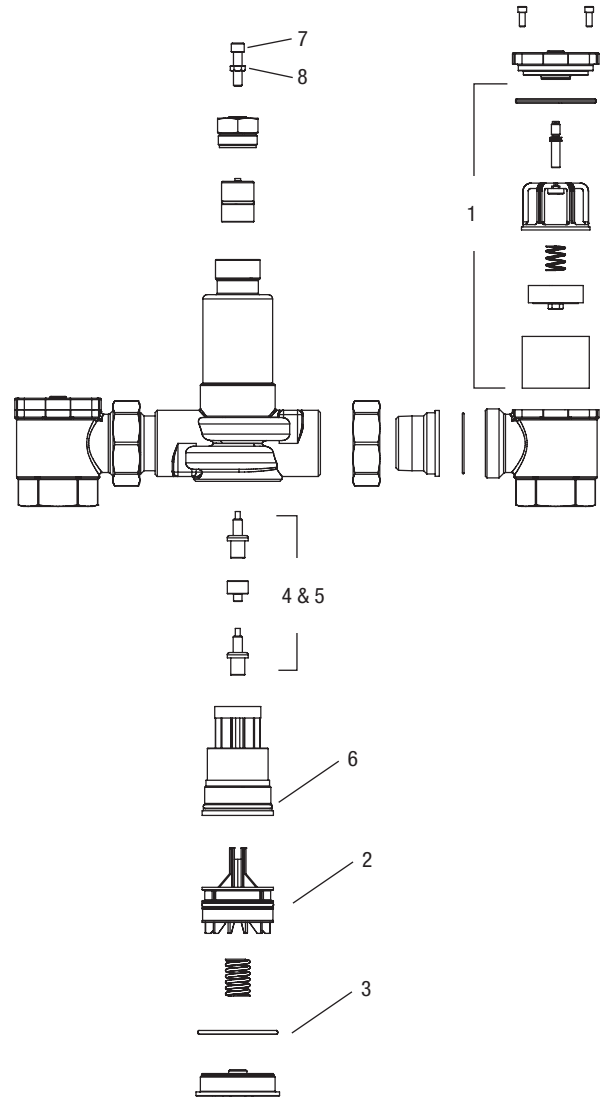
Parts List - LFSH1432, LFSH1434 ■

| Index | Description | | |
|-------|---------------------------------|-----------|-----------|
| | | LFSH1432 | LFSH1434 |
| 1 | Checkstop Rebuild Kit | LF390 800 | LF390 801 |
| 2 | Plunger Kit | 390 802 | 390 803 |
| 3 | Adjusting Screw | 390 688 | 390 688 |
| 4 | O-Ring | 390 805 | 390 806 |
| 5 | Actuator - Standard Temperature | 390 807 | 390 809 |
| 6 | Actuator - Low Temperature | 390 808 | 390 810 |
| 7 | Funnel Kit | LF390 829 | LF390 830 |
| 8 | Locknut | 1051117 | 1051117 |



Parts List - LFSH1435 ■

| Index | Description | | |
|-------|---------------------------------|-----------|--|
| | | LFSH1435 | |
| 1 | Checkstop Rebuild Kit | LF390 811 | |
| 2 | Plunger Kit | 390 812 | |
| 3 | O-Ring | 390 813 | |
| 4 | Actuator - Standard Temperature | 390 814 | |
| 5 | Actuator - Low Temperature | 390 815 | |
| 6 | Funnel Kit | LF390 831 | |
| 7 | Adjusting Screw | 390 688 | |
| 8 | Locknut | 105 1117 | |



Maintenance and Troubleshooting ■

What to look for if:

- **The flow of water is less than desired...**
 - a. Stop valves or supply to HydroGuard not fully open.
 - b. Clogged checkstop strainer screens.
 - c. Accumulation of lime deposits around valve seats.
 - d. Low supply pressures.
- **The flow of water is completely shut off...**
 - a. Stop valves or supply valves are completely closed.
 - b. Valves downstream from HydroGuard fully closed.
 - c. Loss of either hot or cold water supply pressure.
- **Discharge temperature varies...**
 - a. Very large restriction in outlet flow.
 - b. Very large drop in inlet pressure.
 - c. Very large fluctuation of hot water supply temperature.
 - d. Worn valve seats.
 - e. Minimum flow requirement not achieved.
 - f. Lime deposits around motor, poppets and/or seat.

Servicing ■

NOTICE

Before disassembling, make certain both hot and cold water supplies are shut off.

Checkstop Disassembly

1. Remove bonnet with socket wrench.
2. Lift out strainer screen.
3. Reassemble in reverse order.

Valve Disassembly

To Remove Thermal Actuator from Top

1. Loosen locknut.
2. Remove bonnet and pull out overload assembly by using standard pliers.
3. Lift out thermal actuator by using a needle nose plier.
4. Reassemble in reverse order.

Temperature Adjustment ■

Temperature setting for LFSH1430 Series Valves:

1. Turn off re-circulation pump (if one is in the system).
2. Open up enough fixtures to meet minimum flow requirement of:
 - LFSH1432 = 1 gpm (4 Lpm)
 - LFSH1434 = 1 gpm (4 Lpm)
 - LFSH1435 = 5 gpm (19 Lpm)
3. Loosen locknut (see Fig. 1)
4. Turn temperature adjusting screw counterclockwise to increase or clockwise to decrease the outlet temperature. (see Fig. 1)

NOTICE

Please allow valve temperature to settle in before making your next adjustment.

Warranty ■

The Seller warrants that the equipment manufactured by it and covered by this order or contract is free from defects in material and workmanship and, without charge, equipment found to be defective in material or workmanship will be repaired, or at Seller's option replaced F.O.B. original point of shipment, if written notice of failure is received by Seller within one (1) year after date of shipment (unless specifically noted elsewhere), provided said equipment has been properly installed, operated in accordance with the Seller's instructions, and provided such defects are not due to abuse or decomposition by chemical or galvanic action. THIS EXPRESS WARRANTY IS IN LIEU OF AND EXCLUDES ALL OTHER WARRANTIES, GUARANTEES, OR REPRESENTATIONS, EXPRESS OR IMPLIED. THERE ARE NO IMPLIED WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE. The Seller assumes no responsibility for repairs made on the Seller's equipment unless done by the Seller's authorized personnel, or by written authority from the Seller. The Seller makes no guarantee with respect to material not manufactured by it.

5. Temperature setting must be checked by an installer before use. See temperature adjustment below.

To Remove The Plunger Assembly Or Funnel from Bottom

1. Remove the bottom cap.

CAUTION

Spring is under tension.

2. Pull out spring.
3. Pull out plunger using a pair of pliers.
4. To remove Funnel, you will need a deep socket wrench and funnel removal tool.
5. Reassemble in reverse order.

6. Temperature setting must be checked by an installer before use. See temperature adjustment below.

After reassembling go back to thermal actuator section and make sure it is sitting in its holder properly.

5. When desired temperature is set, tighten the locknut. Turn re-circulation pump back on. Close open fixtures.

WARNING

Any changes in supply condition could effect the outlet water temperature. Check and adjust the valves accordingly to prevent injury to the users. After completing repairs, check discharge temperature, (105°F [41°C]). Reset if necessary. Failure to perform this operation could result in unsafe discharge temperature, which may cause injury or death.

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

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