The Hydroguard® XP LFMM430 series is a temperature actuated mixing valve designed for use in hot water distribution systems, in compliance with ASSE 1017.

**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*

**Temp. Adjustment Ranges**
- **Standard:** ........................................ 90 - 160°F (32 - 71°C)
- **Low:** ..................................................... 60 - 90°F (16 - 32°C)

**Hot Water Inlet Temperature Range** ..... 120 - 180°F (49 - 82°C)
**Cold Water Inlet Temperature Range** ... 40 - 80°F (4 - 27°C)

**Listing** ......................................................... ASSE 1017
**Certified** .................................................... CSA B125

* With Equal Pressure

** NOTICE **
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.

** WARNING **
Flush all pipes thoroughly before installation. Installation and field adjustment are the responsibility of the installer.
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 position due to union inlets (see Figure 2). Make sure that union nuts are tightened securely.

4. Connect inlets and outlet and check for leaks.

---

Table 1, Capacity Tables, present the Hydroguard discharge capacity in gpm and l/m for various pressure differentials (the difference between the lowest inlet pressure and the discharge pressure at the Hydroguard).

<table>
<thead>
<tr>
<th>Model</th>
<th>Min. Flow Rate*</th>
<th>Min. Flow to ASSE 1017</th>
<th>Cv</th>
<th>5psi (34 kPa)</th>
<th>10psi (69 kPa)</th>
<th>20psi (138 kPa)</th>
<th>30psi (207 kPa)</th>
<th>45psi (310 kPa)</th>
<th>60psi (414 kPa)</th>
<th>70psi (517 kPa)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LFMM431</td>
<td>0.5 gpm 1.89 lpm</td>
<td>3 gpm 11 lpm</td>
<td>6.32</td>
<td>14 gpm</td>
<td>20 gpm</td>
<td>28 gpm</td>
<td>35 gpm</td>
<td>42 gpm</td>
<td>49 gpm</td>
<td>53 gpm</td>
</tr>
<tr>
<td></td>
<td>0.5 gpm 1.89 lpm</td>
<td>4 gpm 15 lpm</td>
<td>9.49</td>
<td>21 gpm</td>
<td>30 gpm</td>
<td>42 gpm</td>
<td>52 gpm</td>
<td>64 gpm</td>
<td>74 gpm</td>
<td>79 gpm</td>
</tr>
<tr>
<td></td>
<td>0.5 gpm 1.89 lpm</td>
<td>5 gpm 19 lpm</td>
<td>16.44</td>
<td>37 gpm</td>
<td>52 gpm</td>
<td>74 gpm</td>
<td>90 gpm</td>
<td>110 gpm</td>
<td>127 gpm</td>
<td>138 gpm</td>
</tr>
<tr>
<td>LFMM432</td>
<td>0.5 gpm 1.89 lpm</td>
<td>7 gpm 26 lpm</td>
<td>21.50</td>
<td>48 gpm</td>
<td>68 gpm</td>
<td>96 gpm</td>
<td>118 gpm</td>
<td>144 gpm</td>
<td>167 gpm</td>
<td>180 gpm</td>
</tr>
<tr>
<td></td>
<td>0.5 gpm 1.89 lpm</td>
<td>10 gpm 38 lpm</td>
<td>31.00</td>
<td>69 gpm</td>
<td>98 gpm</td>
<td>139 gpm</td>
<td>170 gpm</td>
<td>208 gpm</td>
<td>240 gpm</td>
<td>259 gpm</td>
</tr>
</tbody>
</table>

*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 balanced poppet plug and seats. Next, hot and cold water flow is directed to the mixing chamber where the thermostatic actuator is located. Temperature adjustment screw moves the actuator to determine the discharge temperature. 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.

- Cold water supply failure – causes actuator to expand allowing the motor to drastically reduce hot water flow.
- Hot water supply pressure failure – causes actuator to contract allowing return spring to close cold water port.

*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 position due to union inlets (see Figure 2). Make sure that union nuts are tightened securely.

4. Connect inlets and outlet and check for leaks.

---

**5. 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.


**Operation Check:**

After Hydroguard is installed, make certain the supply stop valves and strainers are free and clean and ready for operation by disassembling checkstops as shown in servicing.
### Parts List - LFMM431, LFMM432, LFMM433, LFMM434

<table>
<thead>
<tr>
<th>Index</th>
<th>Description</th>
<th>LFMM431</th>
<th>LFMM432</th>
<th>LFMM433</th>
<th>LFMM434</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Checkstop Rebuild Kit</td>
<td>LF390 800</td>
<td>LF390 800</td>
<td>LF390 801</td>
<td>LF390 801</td>
</tr>
<tr>
<td>2</td>
<td>Plunger Kit</td>
<td>390 802</td>
<td>390 802</td>
<td>390 803</td>
<td>390 803</td>
</tr>
<tr>
<td>3</td>
<td>Adjusting Screw</td>
<td>390 688</td>
<td>390 688</td>
<td>390 688</td>
<td>390 688</td>
</tr>
<tr>
<td>4</td>
<td>O-Ring</td>
<td>390 805</td>
<td>390 805</td>
<td>390 806</td>
<td>390 806</td>
</tr>
<tr>
<td>5</td>
<td>Actuator - Standard Temperature</td>
<td>390 807</td>
<td>390 807</td>
<td>390 809</td>
<td>390 809</td>
</tr>
<tr>
<td>6</td>
<td>Actuator - Low Temperature</td>
<td>390 808</td>
<td>390 808</td>
<td>390 810</td>
<td>390 810</td>
</tr>
<tr>
<td>7</td>
<td>Funnel Kit</td>
<td>390 826</td>
<td>390 826</td>
<td>390 827</td>
<td>390 827</td>
</tr>
<tr>
<td>8</td>
<td>Locknut</td>
<td>1051117</td>
<td>1051117</td>
<td>1051117</td>
<td>1051117</td>
</tr>
</tbody>
</table>

### Parts List - LFMM435

<table>
<thead>
<tr>
<th>Index</th>
<th>Description</th>
<th>LFMM435</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Checkstop Rebuild Kit</td>
<td>LF390 811</td>
</tr>
<tr>
<td>2</td>
<td>Plunger Kit</td>
<td>390 812</td>
</tr>
<tr>
<td>3</td>
<td>O-Ring</td>
<td>390 813</td>
</tr>
<tr>
<td>4</td>
<td>Actuator - Standard Temperature</td>
<td>390 814</td>
</tr>
<tr>
<td>5</td>
<td>Actuator - Low Temperature</td>
<td>390 815</td>
</tr>
<tr>
<td>6</td>
<td>Funnel Kit</td>
<td>390 828</td>
</tr>
<tr>
<td>7</td>
<td>Adjusting Screw</td>
<td>390 688</td>
</tr>
<tr>
<td>8</td>
<td>Locknut</td>
<td>1051117</td>
</tr>
</tbody>
</table>
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 a standard pliers.
3. Lift out thermal actuator by using a needle nose pliers.
4. Reassemble in reverse order.
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.

Temperature Adjustment

**Temperature setting for LFMM430 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:
   - LFMM431 = 3 gpm (11 Lpm)
   - LFMM432 = 4 gpm (15 Lpm)
   - LFMM433 = 5 gpm (19 Lpm)
   - LFMM434 = 7 gpm (26 Lpm)
   - LFMM435 = 10 gpm (38 Lpm)
3. Loosen locknut. (see Fig. 1)
4. Turn temperature adjustment 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.
5. When desired temperature is set, tighten the locknut. Turn recirculation 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.

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.

A Watts Water Technologies Company

USA: Phone: 1.800.669.5430 • Fax 1.847.229.0526 • www.powerscontrols.com
Canada: Phone: 1.888.208.8927 • Fax 1.888.479.2887 • www.powerscontrols.ca

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.

A Watts Water Technologies Company

USA: Phone: 1.800.669.5430 • Fax 1.847.229.0526 • www.powerscontrols.com
Canada: Phone: 1.888.208.8927 • Fax 1.888.479.2887 • www.powerscontrols.ca

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.