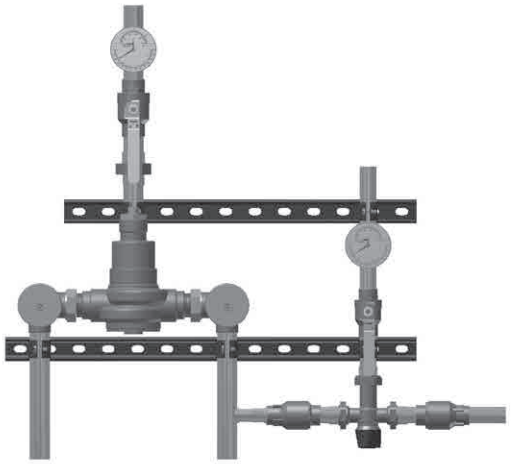
POWERS™

Lead Free* HydroGuard® Water Tempering with Automatic Balancing System

Technical Instructions

LEAD FREE*

Please read and retain these instructions.



Description ■

The HydroGuard® Lead Free* water tempering and recirculation loop is an economical way to provide a safe, balanced system for stand-alone master tempering valves. The system monitors return line temperature and automatically directs water to the cold side of the tempering valve (if within set point) or to the hot water source (below set point). This is accomplished with Powers exclusive automatic balancing valve (ABV), featuring paraffin-based, advanced actuation technology.

Specifications ■

Maximum Operating Pressure	125psi (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)
Temperature Adjustment Range ***	
Standard	90 - 160°F (32 - 71°C)
Low	60 - 90°F (16 - 32°C)
Listing - Valve Only	ASSE 1017
Certified - Valve Only	CSA B125

*** With Equal Pressure*

**** Note: 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

Need for Periodic Inspection: Periodic inspection by a licensed contractor is recommended. Corrosive water conditions, temperatures over 200°F, unauthorized adjustments or repair could render the valve ineffective for service intended. Regular checking and cleaning of thermostat assembly helps to assure maximum life and proper product function. Frequency of cleaning depends upon local water conditions.

⚠ WARNING

TO ENSURE THE ACCURATE AND RELIABLE OPERATION OF THIS PRODUCT, IT IS ESSENTIAL TO:

- Properly size each valve based on the individual application.
- Properly design the recirculation system to minimize pressure and temperature variations.
- Conduct an annual maintenance program to ensure proper operation of all critical components.

THIS VALVE MUST BE USED IN CONJUNCTION WITH TEMPERATURE ACTUATED POINT-OF-USE DEVICES THAT COMPLY WITH ASSE 1016, 1069, OR 1070. FAILURE TO COMPLY WITH PROPER INSTALLATION INSTRUCTIONS COULD CONTRIBUTE TO VALVE FAILURE, RESULTING IN INJURY OR DEATH.

Capacity ■

Flow Capacity at 50-50 Mixed Ratio								
			Pressure Drop Across Valve					
Model	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)
LFMM431	3 gpm 11 lpm	6.32	14 gpm 53 lpm	20 gpm 76 lpm	28 gpm 106 lpm	35 gpm 132 lpm	42 gpm 159 lpm	49 gpm 185 lpm
LFMM432	4 gpm 15 lpm	9.49	21 gpm 80 lpm	30 gpm 114 lpm	42 gpm 159 lpm	52 gpm 197 lpm	64 gpm 242 lpm	74 gpm 280 lpm
LFMM433	5 gpm 19 lpm	16.44	37 gpm 140 lpm	52 gpm 197 lpm	74 gpm 280 lpm	90 gpm 341 lpm	110 gpm 416 lpm	127 gpm 481 lpm
LFMM434	7 gpm 26 lpm	21.50	48 gpm 182 lpm	68 gpm 257 lpm	96 gpm 363 lpm	118 gpm 447 lpm	144 gpm 545 lpm	167 gpm 632 lpm
LFMM435	10 gpm 38 lpm	31.00	69 gpm 261 lpm	98 gpm 371 lpm	139 gpm 526 lpm	170 gpm 644 lpm	208 gpm 787 lpm	240 gpm 908 lpm
LFSH1432	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
LFSH1434	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
LFSH1435	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

*The wetted surface of this product contacted by consumable water contains less than 0.25% of lead by weight.

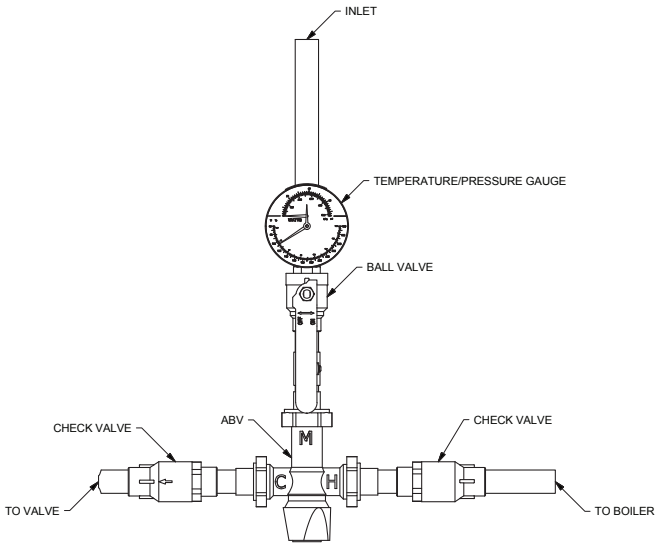
Installation Instructions ■

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. Return loop assembly to be installed as close to building supply as possible to prevent/minimize pressure fluctuations.
3. Connect inlets, outlets and check for leaks.
4. **Temperature Adjustment;**
   - i) Turn off recirculation pump
   - ii) Open 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)
     - LFSH1432 = 1 GPM (4 LPM)
     - LFSH1434 = 1 GPM (4 LPM)
     - LFSH1435 = 5 GPM (19 LPM)
   - iii) Loosen temperature adjustment locknut located on top of the bonnet.
   - iv) Turn temperature adjustment screw (located on top of the bonnet) counterclockwise to increase or clockwise to decrease the outlet temperature.

NOTICE

Allow valve temperature to settle in before making your next adjustment.

   - v) When desired temperature is set, tighten the locknut. Turn recirculation pump back on. Close open fixtures.
5. **Automatic Balancing Valve (ABV) Adjustment**
   - i) Set ABV to full cold by turning knob to full clockwise position.
   - ii) Open enough fixtures to meet minimum flow rate of the valve (see above).
   - iii) Open ball valve and verify water is flowing.
   - iv) Make sure water travels through the facility and stabilizes temperature at the return thermometer.
   - v) While holding boiler return pipe, slowly rotate ABV knob counterclockwise until warm water begins to flow. Stop rotating the knob.
   - vi) Turn all fixtures off and let the system stabilize (water must flow through the entire recirculating loop).
   - vii) Monitor return temperature gauge. If the temperature is less then desired, rotate ABV knob counterclockwise. If the temperature is higher than desired, rotate ABV knob clockwise. After each adjustment you must allow time for the water to flow through the entire recirculating loop.
   - viii) At this point ABV is set.
   - ix) Open enough fixtures to meet minimum flow of the valve.
   - x) Readjust tempering valve set point. See step 4.
   - xi) Check and make sure system maintains temperature. Allow the system to reach a steady state condition.



Valve Servicing and Part List ■

See attached IS-P-LFMM430 and IS-P-LFSH1430.

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

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 OF 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.