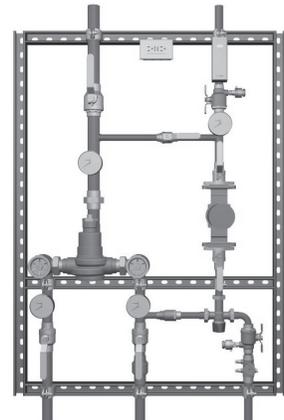


## Single Valve PowerStation™ Supply Fixture Capacity up to 208 gpm @ 45psi

### Technical Instructions

#### Description ■

PowerStation™ is a complete, fully assembled water tempering system, designed to provide safe water throughout commercial and institutional facilities. PowerStation™ features the HydroGuard® XP MM430, LFMM430 or SH1430, LFSH1430 master tempering series valve which utilize paraffin-based actuation technology to sense and adjust outlet temperature. Each PowerStation™ is mounted heavy-duty, welded struts and factory tested as a complete system. Each PowerStation™ includes an engineer specified circulator, GFCI outlet, combination temperature/pressure gauges and Powers' triple-duty checkstops. Optional equipment includes an Aquastat and/or Powers' exclusive automatic balancing valve and an internal bypass loop for easy set-up.



Advanced Thermal Activation

#### 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)
- Minimum Flow\*\* ..... 0.5 gpm (1.89 lpm)
- Temp. Adjustment Range \*\*\* ..... 90 - 160°F (32 - 71°C)
- Listing/Compliance (Valve Only)..... ASSE 1017, CSA B125

\* With Equal Pressure

\*\* Minimum flow when PowerStation™ is installed at or near hot water source recirculating tempered water with a properly sized continuously operating recirculating pump.

\*\*\* 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.

#### Capacity ■



**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.**

Flow Capacity at 50-50 Mixed Ratio								
Model	Min. Flow to ASSE 1017	C <sub>v</sub>	Pressure Drop Across Valve					
			5psi (34 kPa)	10psi (69 kPa)	20psi (138 kPa)	30psi (207 kPa)	45psi (310 kPa)	60psi (414 kPa)
MM431 and 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
MM432 and 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
MM433 and 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
MM434 and 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
MM435 and 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
SH1432 and 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
SH1434 and 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
SH1435 and 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

## Prior to Installation ■

1. Flush all piping thoroughly before installing.
2. Check for leaks.

## Set Up Procedure ■

**NOTE:** Perform all 15 steps before moving on to the next section. Steps 1-15 are to set thermostatic valve.

1. Close B3, B4 and B6.
2. Close D1 and D2.
3. Open B1, B2 and B5.
4. Connect hose to D2 and run to a drain.
5. Open D2 with a screwdriver and verify flow to drain is greater than the minimum flow of the valve.
6. For system with an automatic balancing valve, adjust the knob to full hot position (force the water through the hose).
7. If flow rate is less than the minimum flow, turn pump P1 on.
8. Let valve run until readings on inlet gauges T/P2 & T/P3 are steady.
9. Adjust temperature of mixing valve to desired set point (read temperature on T/P1). Refer to IS-P-MM430 and IS-P-SH1430
10. Lock temperature screw/locknut in place.
11. Turn off pump.
12. Close B5 and open B4.
13. Open D1 to purge air out of recirculation line.
14. Close D1 when you begin to get water.
15. Open B6 and wait until T/P4 reaches the maximum recirculation temperature (must be less than the mixing valve setpoint).
16. Skip to the type of recirculation below.

## Aquastat ■

1. Close D2 and open B3.
2. Apply power to pump P1.
3. Set the pump on and off temperatures.
4. With the recirculation temperature set to its maximum, the pump/Aquastat will remain off until the temperature cools to the low point.
5. Wait until the recirculation line cools to the low point.
6. Verify the pump turns on at this point.
7. Verify recirculation line heats back up and turns pump off at the maximum setting from step 3.
8. The system is now set.

## Continuous Recirculation ■

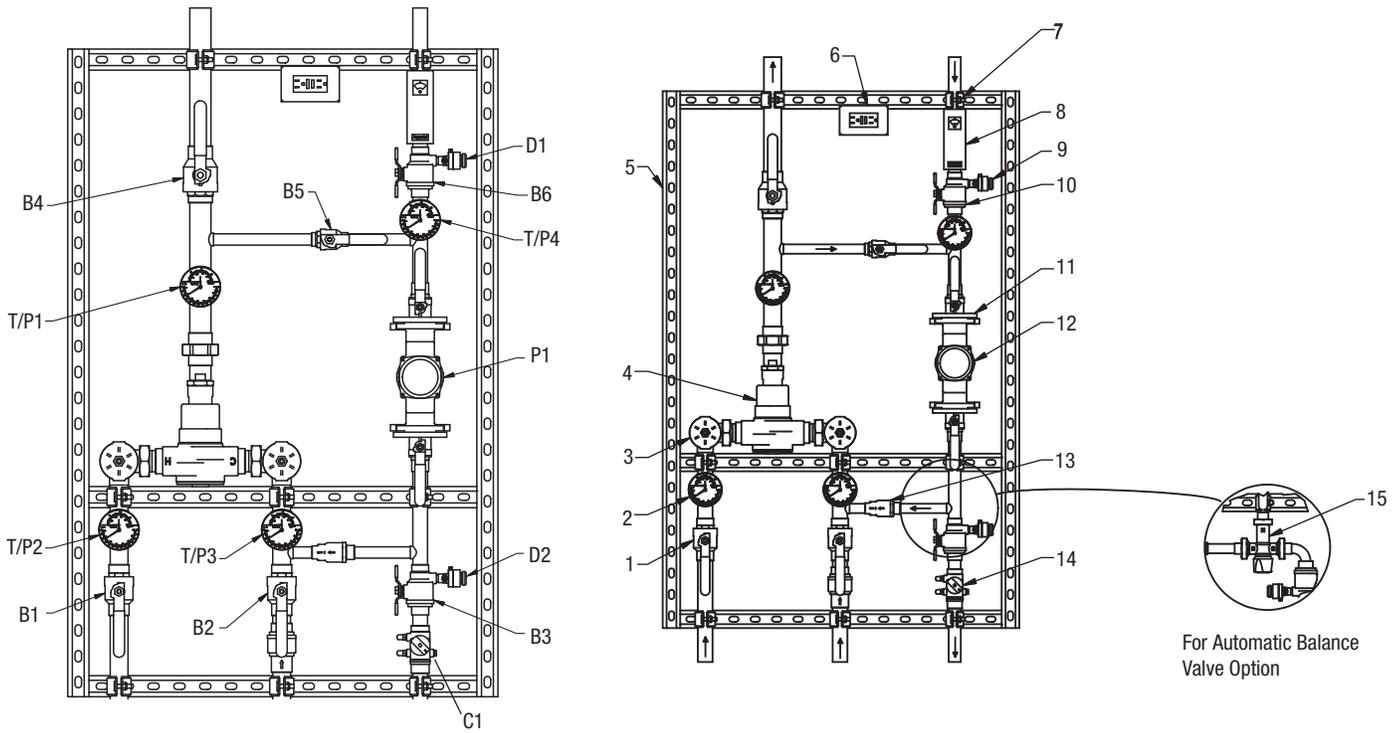
1. Close D2
2. Open B3 fully and open C1 approximately 10%.
3. Allow time for recirculated water to travel around the loop.
4. If the temperature at the T/P4 begins falling, you will need to open C1 another 10%.
5. If the temperature at T/P4 begins to rise, you will need to close C1 by 5%.
6. Repeat steps 4 and 5 until the temperature at T/P4 is stable (less than the set point of the mixing valve).
7. The system is now set.

## Continuous Recirculation with Automatic Balancing Valve ■

1. For systems with an automatic balancing valve, adjust the knob to the full cold position (restricts the flow of water in the hose to a trickle).
2. Slowly turn the automatic balancing valve's knob toward the hot position until you just start to get water through the hose. At this point, it is set to the temperature shown on T/P4.
3. Close D2.
4. Open B3.
5. The system is now set.

**NOTE:** For any problem, refer to Troubleshooting section of the document or contact Powers' Technical Support Department at 1.800.669.5430 or [info@powerscontrols.com](mailto:info@powerscontrols.com).

**Legends ■**



Item Number	Item Description	Options	Quantity Required
1	Ball Valve	Std	4
2	Temperature / Pressure Gauge	Std	4
3	Triple Duty Check Stop	Std	2
4	Thermostatic Valve	See Order Code	1
5	Welded Mounting Struts	Std	1
6	GFCI Outlet	Std	1
7	Pipe Straps	Std	Typical
8	Aquastat	Optional	1
9	Vacuum Breaker	Std	2
10	Ball Valve w/Drain	Std	2
11	Isolation Flange	Std	2
12	Circulator	Application Specific	1
13	Check Valve	Std	2
14	Circuit Setter	Optional	1
15	Automatic Balance Valve	Optional	1

## Troubleshooting ■

*What to look for if:*

- **Outlet temperature is too hot with low flow:**
  1. The thermal actuator of the valve is not working properly. Test and replace according to the appropriate technical instructions, IS-P-MM430 or IS-P-SH1430 enclosed.
- **Outlet temperature is too hot with a high flow:**
  1. The thermal actuator of the valve is not working properly. Test and replace accordingly, IS-P-MM430 or IS-P-SH1430.
- **Outlet temperature too low on low and high flow:**
  1. The hot water temperature is too low. You must have a supply temperature of at least 5° F (3° C) higher than the set temperature. Re-adjust the hot water supply.
  2. The checkstops on the hot side of the valve are not fully open or may be stuck due to liming. Open and clean checkstops.
  3. The temperature has not been set properly. Refer to set up procedure and reset the valves.
- **Outlet flow drops off:**
  1. The checkstops are not fully open or stuck. Open and clean checkstops.
  2. The system pressure varies by more than 50% of the inlet supply pressure.
- **Outlet temperature cycles between hot and cold:**
  1. The system pressure varies by more than 50% of the inlet supply pressure.

## Preventative Maintenance ■

Thermostatic water mixing valves are control devices which must be cleaned and maintained on a regular basis.

1. Before servicing checkstops or piping, turn off the water upstream. At least every twelve (12) months, open up the checkstops and check for the free movement of the poppet.
2. Before servicing the valve, turn off the water supply upstream or close the checkstops. To close the checkstops, turn the adjusting screw clockwise.
3. When opening checkstops after servicing, do not over adjust; turn adjusting screw fully counterclockwise then 1/2-turn clockwise.
4. Every three (3) months, check the maximum temperature adjustments.
5. Every twelve (12) months, remove the valve bonnets and check the internal components for freedom of movement.

### CAUTION:

**Any changes in supply condition could effect the outlet water temperature. Check and adjust the valves accordingly to prevent injury to the users.**

### Part List For Valve ■

See enclosed IS-P-MM430 and IS-P-SH1430.

#### CALIFORNIA PROPOSITION 65 WARNING

**WARNING:** This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. (California law requires this warning to be given to customers in the State of California.)

For more information: [www.watts.com/prop65](http://www.watts.com/prop65)



**NOTE: AFTER COMPLETING REPAIRS, CHECK DISCHARGE TEMPERATURE. RESET IF NECESSARY.**

**WARNING: 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.

# POWERS™

A Watts Water Technologies Company

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