

### Technical Instructions

#### Description ■

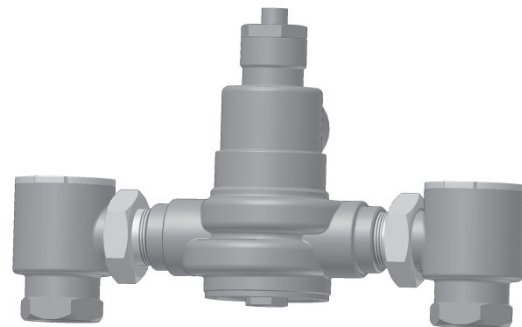
The Hydroguard® XP SH1430 series is a temperature actuated mixing valve designed for use in hot water distribution systems, in compliance with ASSE 1017.

#### Specifications ■

- Maximum Operating Pressure ..... 125 psig (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

\*\* **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.



Advanced Thermal Activation

**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 ■

Capacity Table, presents the Hydroguard discharge capacity in gpm and l/m 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										
Model	Min. Flow Rate*	Min. Flow to ASSE 1017	Pressure Drop Across Valve							
			Cv	5psi (34 kPa)	10psi (69 kPa)	20psi (138 kPa)	30psi (207 kPa)	45psi (310 kPa)	60psi (414 kPa)	70psi (517 kPa)
SH1432	0.5 gpm	1 gpm	8.54	19 gpm	27 gpm	38 gpm	47 gpm	57 gpm	66 gpm	71 gpm
	1.89 lpm	4 lpm		72 lpm	102 lpm	144 lpm	178 lpm	216 lpm	250 lpm	269 lpm
SH1434	0.5 gpm	1 gpm	19.00	42 gpm	60 gpm	85 gpm	104 gpm	127 gpm	147 gpm	159 gpm
	1.89 gpm	4 lpm		159 lpm	227 lpm	322 lpm	394 lpm	481 lpm	556 lpm	602 lpm
SH1435	0.5 gpm	5 gpm	30.00	67 gpm	95 gpm	134 gpm	164 gpm	201 gpm	232 gpm	251 gpm
	1.89 gpm	19 lpm		254 lpm	360 lpm	507 lpm	621 lpm	761 lpm	878 lpm	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.

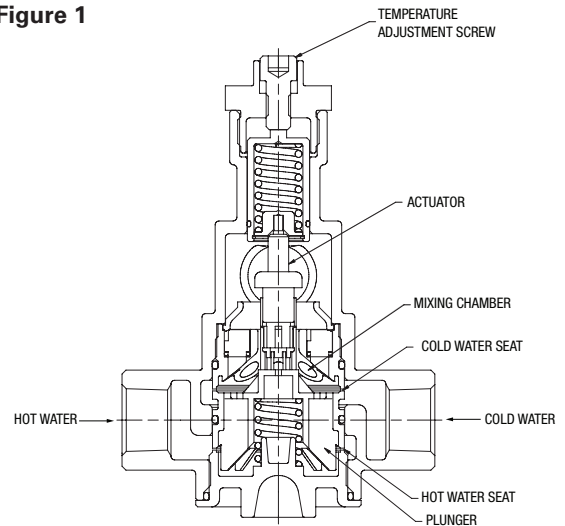
### Responses

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.

Figure 1



## Installation Instructions ■

1. **IMPORTANT:** 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 any 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.

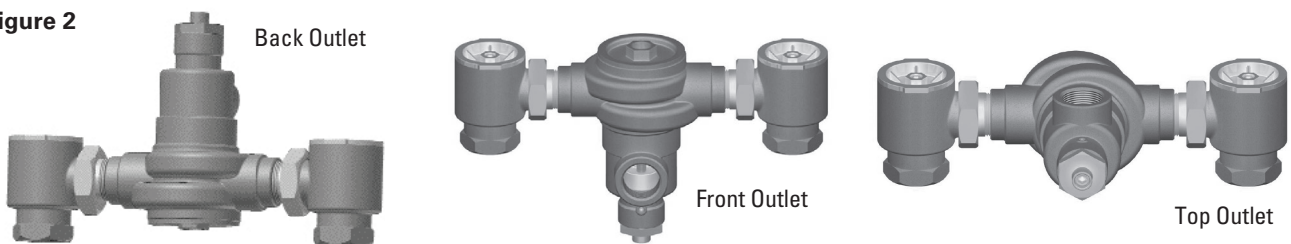
5. **CAUTION:** When the Hydroguard supplies tempered water to self-closing and/or solenoid valves, provide a shock absorber (Powers Part No. 460-353) on the discharge line.

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 and clean and ready for operation by disassembling checkstops as shown in servicing.

Figure 2



## 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...

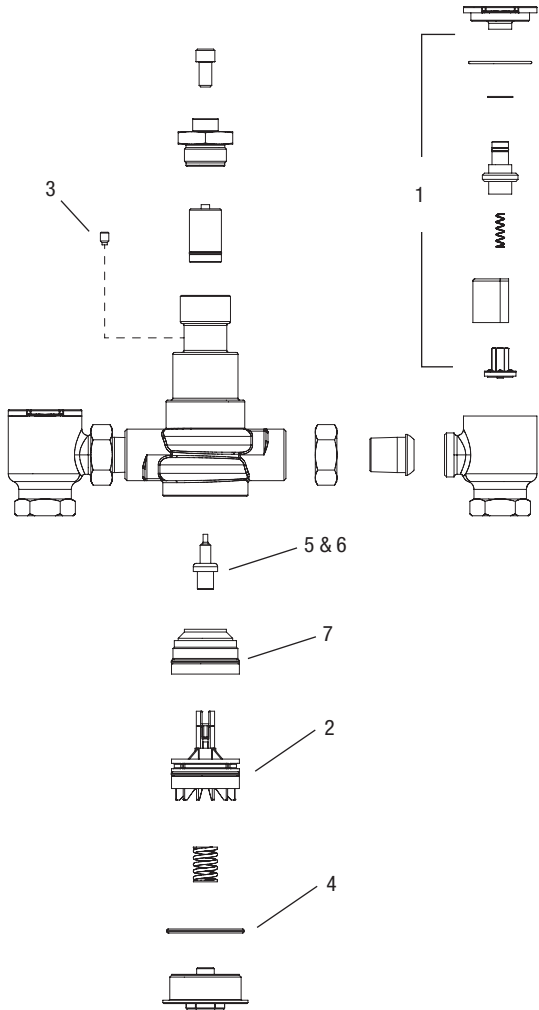
- a. Stop valves or supply valves are completely closed.
- b. Valves downstream from Hydroguard fully closed.
- c. Loss of either hot or cold water supply pressure.

### • 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.

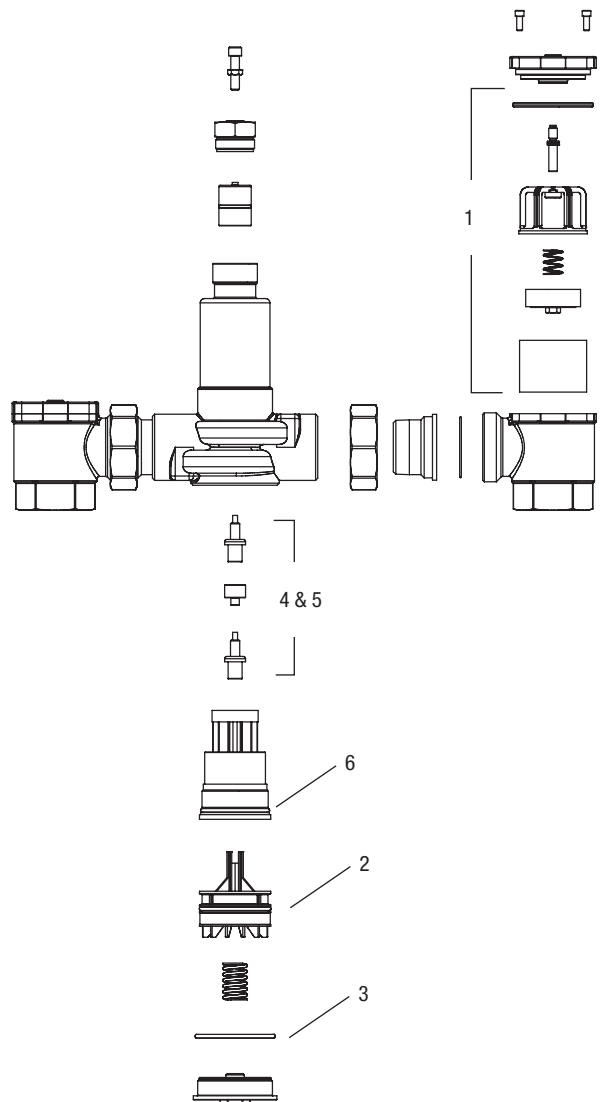
**Parts List - SH1432, SH1434 ■**

Index	Description	Part #	
		SH1432	SH1434
1	Checkstop Rebuild Kit	390 800	390 801
2	Plunger Kit	390 802	390 803
3	Set Screw	390 804	390 804
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	390 829	390 830



**Parts List - SH1435 ■**

Index	Description	Part #
		SH1435
1	Checkstop Rebuild Kit	390 811
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	390 831



## Servicing ■

**NOTE:** 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. Unscrew locking setscrew.
2. Remove bonnet and over load assembly.
3. Lift out thermal actuator.
4. Reassemble in reverse order.

#### **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.

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

## Temperature Adjustment ■

### **Temperature setting for SH1430 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:
  - SH1432 = 1 gpm
  - SH1434 = 1 gpm
  - SH1435 = 5 gpm
3. For SH1432 and SH1434 loosen set screw on the back of the body, for SH1435 loosen locknut.
4. Turn temperature adjusting screw counter-clockwise to increase or clockwise to decrease the outlet temperature. (see Fig. 1)

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

5. When desired temperature is set, tighten set screw for SH1432 and SH1434, tighten the locknut for SH1435. Turn re-circulation pump back on. Close open fixtures.

#### **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 (115°F [46°C]). RESET IF NECESSARY.**

**WARNING: FAILURE TO PERFORM THIS OPERATION COULD RESULT IN UNSAFE DISCHARGE TEMPERATURE, WHICH MAY CAUSE INJURY OR DEATH.**

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