

Technical Instructions

Description ■

ES150 HydroGuard® XP Emergency Tempering valves thermostatically blend hot and cold water to deliver tepid water to emergency fixtures, quickly compensating for temperature variations due to the changes in inlet temperature or pressure. Powers' exclusive internal bypass ensures cold water flow in the event of loss of hot water.

US Patent 6,575,377



Advanced Thermal Activation

Specifications ■

- Connections 1/2" NPT inlets and outlet
- Maximum Operating Pressure 125psi (861 kPa)
- Maximum Hot Water Temperature 180°F (82°C)
- Temperature Adjustment Ranges 60 - 95°F (15 - 35°C)
- Factory Set Temperature* 85°F (29°C)
- Bypass Flow Rate at 30psid* 6.5 gpm (25 lpm)
- Maximum Flow with Cold Water Shutoff* 0.5 gpm (1.9 lpm)
- Listing ASSE 1071

* When tested under conditions specified in ASSE 1071 Standard

⚠ WARNING

FAILURE TO COMPLY WITH PROPER INSTALLATION AND MAINTENANCE INSTRUCTIONS COULD CONTRIBUTE TO THE VALVE FAILURE, RESULTING IN INJURY AND DEATH. 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.
- Check outlet temperature to ensure it does not exceed 110°F (43°C). Make sure temperature limit stop is properly reset to maximum 110°F (43°C) following valve maintenance or repair. Tampering with limit stop in any way may result in scalding temperature causing serious bodily harm and/or death.

Periodic Inspection/Maintenance: OPERATION OF EMERGENCY VALVES AND FIXTURES SHOULD BE TESTED WEEKLY PER ANSI Z358.1. In addition conduct an annual maintenance program by a licensed plumber or a qualified service technician to ensure proper operation of the critical components. Regular checking and cleaning of the thermostat assembly assures proper product function. Corrosive water conditions, temperatures over 210°F, unauthorized adjustments or repair could render the valve ineffective for the service intended.

Capacity ■

Flow Capacity at 85°F (29.4°C)									
		Pressure Drop Across Valve							
Model	Min. Flow to ASSE 1071	C _v	5psi (34 kPa)	10psi (69 kPa)	15psi (103 kPa)	20psi (138 kPa)	30psi (207 kPa)	45psi (310 kPa)	60psi (414 kPa)
ES150	1.0 gpm 3.8 lpm	1.59	3.6 gpm 13.6 lpm	5.0 gpm 18.9 lpm	6.2 gpm 23.5 lpm	7.1 gpm 26.9 lpm	8.7 gpm 32.9 lpm	10.7 gpm 40.5 lpm	12.3 gpm 46.6 lpm

Operation ■

Hot and cold water supplies enter HydroGuard® XP at indicated ports (see Fig. 1) then flow past plunger and seats. Next, hot and cold water flow is directed to the mixing chamber where the thermostatic actuator is located.

The temperature adjustment screw moves the actuator to determine the discharge temperature. If discharge temperature rises due to inlet pressure or temperature, 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 effectively closing hot water port.

Hot water supply failure - causes actuator to contract opening cold water bypass ports.

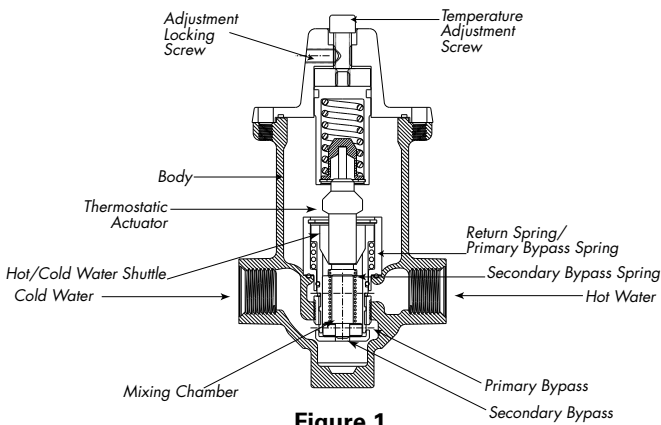


Figure 1

Installation Instructions ■

1. Flush all piping thoroughly before installing.
2. The installation and field adjustment of ES150 is the responsibility of the installer and shall be carried out in accordance with the following steps.
3. Locate ES150 as close as possible to the fixture being supplied. It shall be accessible for testing, adjustment and/or maintenance in its installed position.
4. Shutoff valves are installed for maintenance purposes. Provision shall be made to prevent unauthorized shutoff.
5. When ES150 supplies tempered water to self-closing and/or solenoid valves, provide a shock absorber (Powers' part # 460 353) on the discharge line. This protects the ES150 actuator from damage by water shock waves generated by quick closing valves.
6. **Consult proper medical/safety authorities for the optimum temperature for your application. Before use, check for proper discharge temperature. Reset if necessary. Valve is preset for 85°F (29°C)**

Adjustment and Testing ■

1. Loosen adjustment locking screw
2. Check outlet temperature, which is factory set to 85°F (29°C). If it is not, reset it by rotating temperature adjustment screw clockwise to reduce temperature or counterclockwise to increase the outlet temperature.
3. Close cold water checkstop. Verify that flow shuts down immediately.
4. Open cold water checkstop. Close hot water checkstop. Verify adequate flow from fixture(s).
5. Open hot water checkstop, verify temperature returns to set temperature.
6. Tighten adjustment locking screw.
7. Record test data on maintenance tag which should be provided by the facility.

NOTE: Contact Powers application department at 800.669.5430 for high temperature readjustment procedure.

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 deposit around valve seats.
 - d. Low supply pressure or unusual supply temperature.
- **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 cold water supply pressure

Disassembly and Inspection ■

Due to the safety nature of this product, we recommend removal of the valve by a licensed contractor and full inspection of all components whenever the valve is disassembled for any reason.

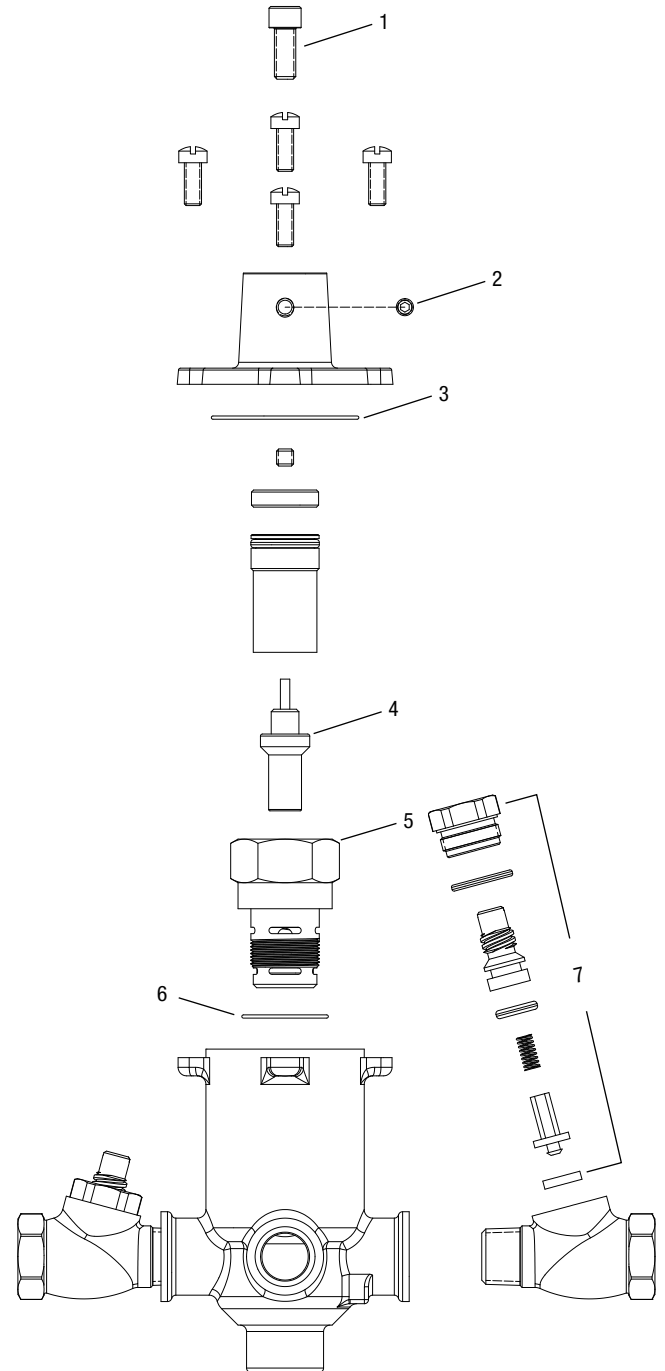
Disassembly

1. Close supply valves and/or checkstops
2. Remove valve from its outlet piping. Work should be performed on a clean table or workbench.
3. Remove bonnet screws, bonnet and actuator.
4. Loosen cartridge and remove.
5. Remove O-ring from the back of the cartridge.

Inspection

1. Inspect body for any damage, deposits or pitting. Clean or replace as necessary.
2. Check the cartridge for any damage, deposit or pitting. Ensure that the shuttle is free by placing the cartridge on a hard surface and pressing on the shuttle with your thumb. Shuttle should move smoothly approximately 1/8" with approximately 20 lbs. of force. Press on the bypass poppet with a ball point pen or similar instrument to insure it moves smoothly and freely. Poppet should move 1/16" with less than 1 lb. force. Do not attempt to disassemble the cartridge. If any component appears stuck, worn or damaged, replace the entire cartridge.
3. Check the actuator for proper operation at room temperature. Hold actuator between your finger and thumb. Apply gentle force on end of stem. Measure the entire length of the actuator and then place it in the hot water (105-110°F) for 10 seconds. Actuator stem should extend at least 1/8" longer than when at room temperature.

Parts List ■



Index	Description	Part No.
1	Adjustment Screw	390 546
2	Adjustment Locking Screw	390 026
3, 4	Actuator Kit	390 579
3, 5	Cartridge Kit	390 580
3, 6, 13 (not shown)	Gasket & O'Ring Kit	390 581
7	Checkstop Rebuild Kit, RB	141 000
7	Checkstop Rebuild Kit, CP	141000A

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

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.

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