

Technical Instructions

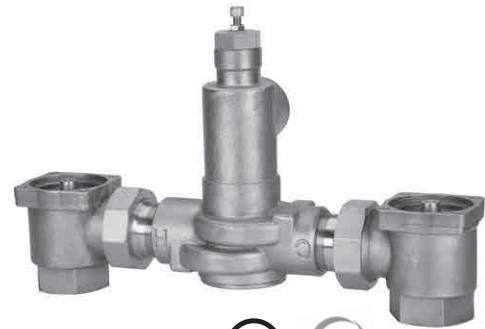
⚠ WARNING

Read this Manual BEFORE using this equipment.

Failure to read and follow all safety and use information can result in death, serious personal injury, property damage, or damage to the equipment.

Keep this Manual for future reference.

THINK SAFETY FIRST



Advanced Thermal Activation

Description ■

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 Pending

Specifications ■

Connections (NPT)

ETV200	3/4" inlets, 1" outlet
ETV400	1-1/4" inlets, 1-1/2" outlet
ETV500	2" inlets, 2" outlet

Maximum Operating Pressure 125psi (861 kPa)

Maximum Hot Water Temperature 180°F (82°C)

Temperature Adjustment Range 60 - 95°F (15 - 35°C)

Factory Set Temperature* 85°F (29°C)

Bypass Flow Rate at 30psid*

ETV200	30 gpm (114 lpm)
ETV400	50 gpm (189 lpm)
ETV500	81 gpm (307 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

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)
ETV200	3.0 gpm	6	13.4 gpm	19.0 gpm	23.2 gpm	26.8 gpm	32.9 gpm	40.2 gpm	46.5 gpm
	11.4 lpm		50.7 lpm	71.9 lpm	87.8 lpm	101.4 lpm	124.5 lpm	152.2 lpm	176.0 lpm
ETV400	3.0 gpm	15.2	34.0 gpm	48.1 gpm	58.9 gpm	68.0 gpm	83.2 gpm	102.0 gpm	118.0 gpm
	11.4 lpm		128.7 lpm	182.0 lpm	223.0 lpm	257.4 lpm	315.0 lpm	386.1 lpm	446.7 lpm
ETV500	3.0 gpm	21.8	48.7 gpm	68.9 gpm	84.4 gpm	97.5 gpm	119.4 gpm	146.2 gpm	168.9 gpm
	11.4 lpm		184.3 lpm	260.8 lpm	319.5 lpm	369.1 lpm	452.0 lpm	553.4 lpm	639.4 lpm

⚠ 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.

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.

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 forcing the plunger against the hot water seat.

In case of hot water failure cold water will flow through cold water bypass to the outlet.

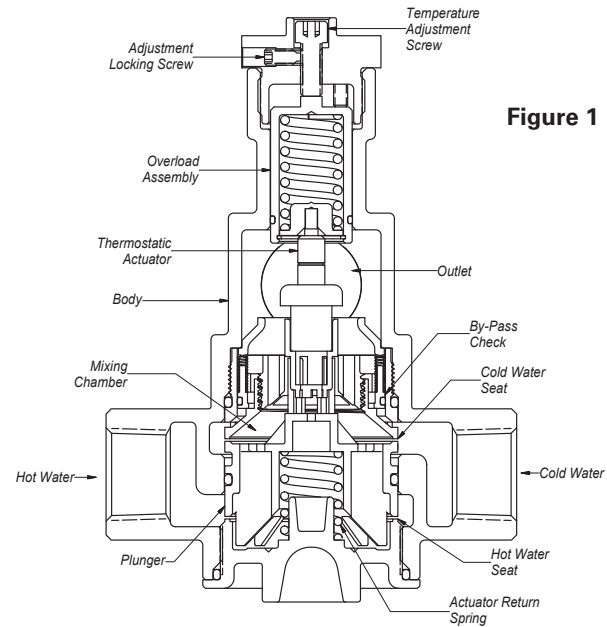


Figure 1

Installation Guidelines ■

1. Flush all piping thoroughly before installing.
2. The installation and field adjustment of ETV valves are the responsibility of the installer and shall be carried out in accordance with the following steps.
3. Locate ETV valve 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 ETV valve 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 ETV valve actuator from damage by water shock waves generated by the 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 loosening adjustment locking screw and 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.

NOTICE

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® XP 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 shutoff.**
 - a. Stop valves or supply valves are completely closed.
 - b. Valves downstream from HydroGuard® XP are 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. Temperature must be checked and adjusted. For temperature adjustment see Adjustment & Testing section.

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. To remove thermal actuator from top
 - a) Loosen adjustment locking setscrew.
 - b) Remove bonnet and overload assembly.
 - c) Lift out thermal actuator.
 - d) Assemble in reverse order
4. To remove the plunger assembly from bottom
 - a) Remove the bottom cap.

⚠ CAUTION

Spring is under tension.

- b) Pull out spring

sembled for any reason. Temperature must be checked and adjusted. For temperature adjustment see Adjustment & Testing section.

- c) Pull out plunger using a pair of pliers.
- d) Reassemble in reverse order.

NOTICE

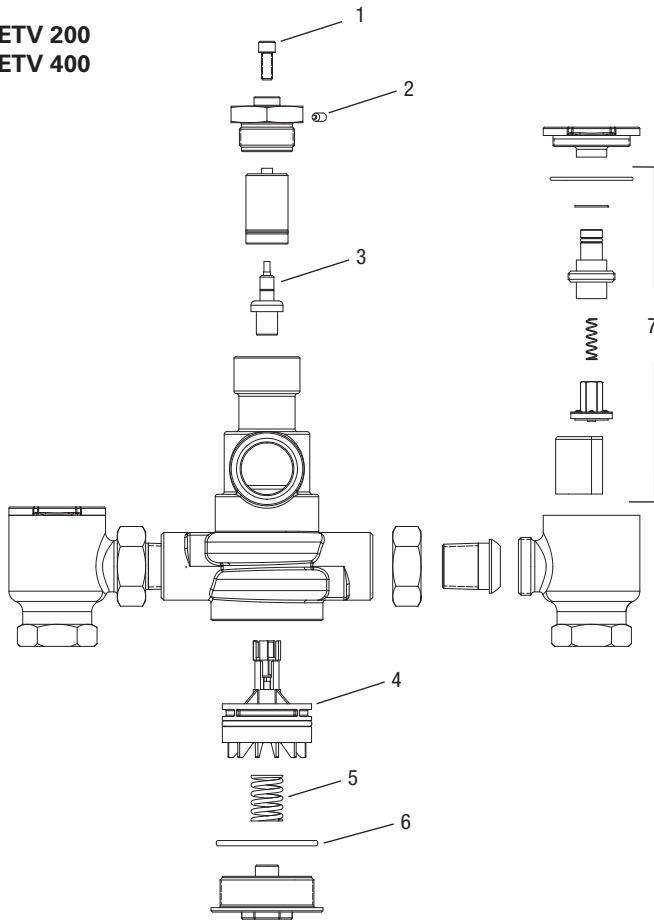
After reassembling go back to thermal actuator section and make sure it is sitting in its holder properly.

Inspection

1. Inspect body for any damage, deposits or pitting. Clean or replace as necessary.
2. Check the actuator for proper operation at room temperature. Hold actuator between your finger and thumb. Apply 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.

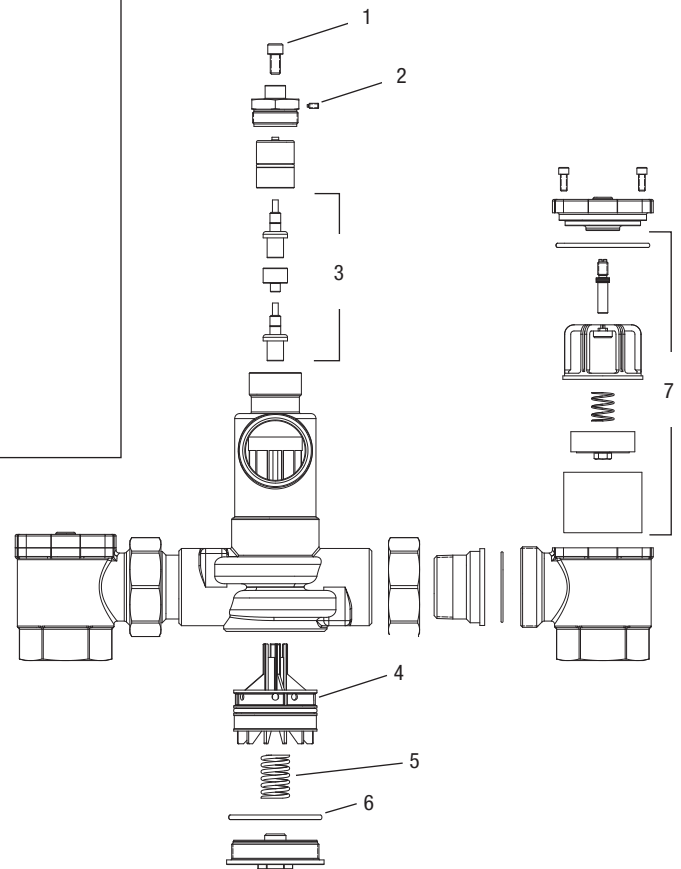
Parts List ■

ETV 200
ETV 400



Index	Description	Part No.	
		ETV200	ETV400
1	Temperature Adjustment Screw	390 777	390 787
2	Adjustment Locking Screw	390 795	390 795
3	Actuator	390 808	390 810
4	Plunger Kit	390 802	390 803
5	Spring	390 620	390 162
6	O-Ring	1101575	2101003
7	Checkstop Rebuild Kit	390 800	390 801

ETV 500



Index	Description	ETV500
		Part No.
1	Temperature Adjustment Screw	390 787
2	Adjustment Locking Screw	390 795
3	Actuator Kit	390 815
4	Plunger Kit	390 816
5	Spring	390 162
6	O-Ring	2101003
7	Checkstop Rebuild Kit	390 811

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 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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