POWERS™

A WATTS INDUSTRIES CO.

INSTALLATION INSTRUCTIONS

Hydroguard Series Emergency Tempering Valves with Dual Internal Cold Water By-Pass ES200 and ES400

Form II ES200/ES400 v2

DESCRIPTION

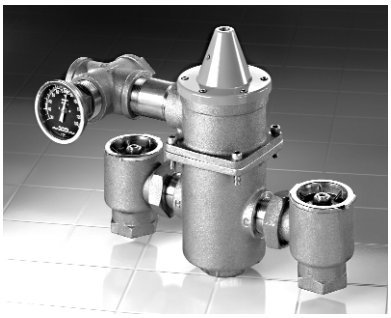
The Series ES Hydroguard thermostatically blends hot and cold water to deliver tepid water to emergency fixtures, quickly compensating for temperature variations due to changes in inlet temperature or pressure. Powers' exclusive Dual Internal By-Pass ensures cold water flow in the event of a valve failure or loss of hot water.

US Patent 6,575,377

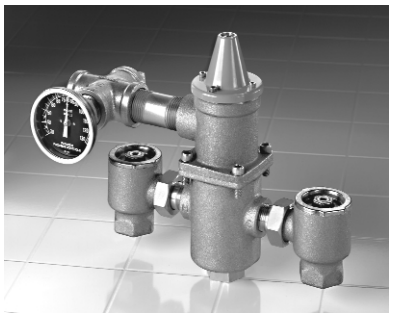
WARNING: TO ENSURE THE ACCURATE AND RELIABLE OPERATION OF THIS PRODUCT, IT IS ESSENTIAL TO:

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

FAILURE TO COMPLY WITH PROPER INSTALLATION INSTRUCTIONS COULD CONTRIBUTE TO VALVE FAILURE, RESULTING IN INJURY OR DEATH.



Model ES400



Model ES200

SPECIFICATIONS

Operating

Maximum Pressure	125 psig (861.25 kPa)
Maximum Hot Water Temperature	180°F (82°C)
Approach Temperature	15°F (8°C)
Temperature Adjustment Range	60°F (15°C) - 95°F (35°C)
Factory Set Temperature	85°F (29°C)
Compliance	ANSI Z358.1 1998

Note: Set point cannot be less than the cold water temperature. For best operation, hot and cold water should be at least 15°F (8°C) from desired set point.

OPERATION

Typical Flow

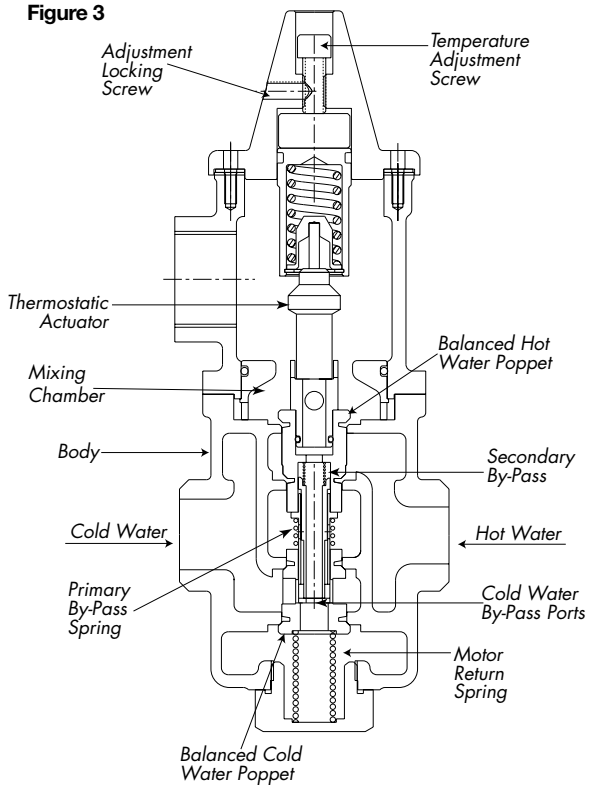
Hot and cold water supplies enter Hydroguard at indicated ports, (see Figure 3) then flow past their respective balanced poppet plug and seats. Next, hot and cold water flow is directed to the mixing chamber where the thermostatic actuator is located.

Temperature adjustment screw moves the actuator to determine the discharge temperature.

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.

- Cold water supply failure – causes actuator to expand allowing the motor to seat hot water poppet.
- Hot water supply pressure failure – causes actuator to contract opening cold water bypass ports. Secondary bypass mechanism opens upon failure of actuator or hot water.

Figure 3



SIZING

Table 1, Capacity Tables, present the Hydroguard discharge capacity in gpm and lpm for various pressure differentials (the difference between the lowest inlet pressure and the discharge pressure at the Hydroguard).

Table 1- Capacity Tables

Flow Capacity in US gpm at 50-50 Mixed Ratio

Model	Min. Flow Rate	Pressure Drop Across Valves in psi 5	10	20	30	45	60	75
ES200	3.0 gpm	15	20	30	36	45	52	58
ES400	3.0 gpm	27	38	54	66	80	93	104

Flow Capacity in lpm at 50-50 Mixed Ratio

Model	Min. Flow Rate	Pressure Drop Across Valves in kPa 34	69	138	207	310	414	517
ES200	11.0 lpm	57	76	113	136	170	197	220
ES400	11.0 lpm	102	144	203	249	305	352	393

By-Pass flows will vary depending on supply conditions and application.

INSTALLATION INSTRUCTIONS

1. **IMPORTANT: Flush all piping thoroughly before installing.**
2. Locate the Hydroguard as close as possible to the fixture being supplied.
3. **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. This protects the Hydroguard thermostatic motor from damage by water shock waves generated by the quick closing valves.
4. **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).**
5. **OPERATION CHECK:**
   Activate drench shower. Verify water temperature is correct (85°F Typ.) Reset if necessary. Allow fixture to remain on for at least three (3) minutes to flush out any debris or bacteria in the system. Return handle to the off position and replace any protective covers. Log inspection date and results.

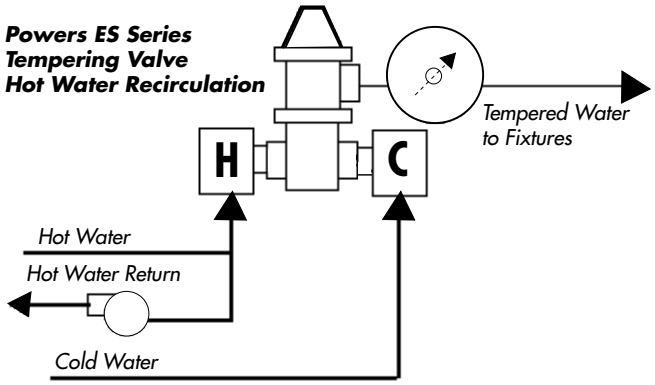
   Note: Remove body screws to turn outlet to any of four positions. The Hydroguard body can be rotated to any position due to the union inlets. Install thermometer in discharge using supplied fittings.

   Make certain the body screws and unions are tightened securely to prevent leakage.

RECIRCULATION

The mixing valve should be mounted as close as possible to the fixture(s) that it serves.

If the valve is some distance from the hot water source, recirculation may be required to keep the hot water supply within specified limits.



CAUTION: Use care in installing the cold water line such that it does not pass through areas with high ambient temperatures or become exposed to direct sunlight. Cold water must be maintained at least 15° less than the setpoint of the valve.

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 or unusual supply temperatures.

- **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.

OPERATION OF EMERGENCY VALVES AND FIXTURES SHOULD BE TESTED WEEKLY PER ANSI Z-358.1 1998.

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.wattsind.com/prop65

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