

HydroGuard®



Emergency Tempering Valves

Combination Shower, Drench Shower & Eye/Face Wash

POWERS™

Water Tempering Innovation Since 1891

what it is ■

The ES series is a single-valve emergency tempering solution featuring Powers' exclusive "Dual/Internal By-Pass" system which provides two distinct mechanisms for cold water by-pass actuation in the event of valve failure or loss of hot water pressure. Built from proven ATA platforms featuring paraffin-based thermal actuation technology, the series include valves to cover all emergency fixture tempering applications.

The ES Series 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.

what it offers ■

- Dual Internal By-Pass that provides both thermal (primary) and pressure (secondary) assisted activation. This feature ensures uninterrupted flow of flushing fluid in the event of hot water loss or actuator failure.
- Advanced Thermal Actuation Technology (ATA) provides greater force than conventional elements resulting to superior control for improved safety. Powers' exclusive paraffin-based thermostatic control element meets the performance requirements of ASSE 1017 and will not stick or lime-up like bi-metal coils.
- Tamper-Resistant Temperature Adjustment that includes an allen screw locking mechanism ensuring that selected temperature is securely locked in place. Selection range is between 60-95°F (tepid) and is factory set at 85°F.



14 gpm @ 30 psi



36 gpm @ 30 psi



66 gpm @ 30 psi

- Rotatable, Union Checkstops (ES200 and ES400) that offers triple duty performance. This allows the valve to be mounted in any position and is ideal for existing installations. Metal strainers prevent supply line debris from entering the valve and the checks prevent cross flow and maintain integrity of temperature setpoint.
- Powers' ES Series does not utilize costly liquid-based cartridges or antiquated bi-metal coils so maintenance is less frequent and less costly. Long-term value saves money.

specifications ■

Operating

Maximum Pressure	125 psig (861 kPa)
Maximum Hot Water Temperature	180°F (82°C)
Approach Temperature	15°F (8°C)
Temperature Adjustment Range	60° - 95°F (15° - 35°C)
Factory Set Temperature	85°F (29°C)
Compliance	ANSI Z 358-1 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.

typical specifications ■

Thermostatic mixing valve for supplying tepid water to emergency fixtures shall feature dual internal cold-water by-pass system to ensure flow in the event of valve failure or loss of hot water supply. By-pass shall respond to changes in temperature and pressure. The valve shall provide precise temperature control in accordance with ASSE 1017, and effectively shut down on loss of cold-water pressure. The valve shall feature powerful paraffin-based actuation technology for precise accuracy and include union inlets with strainer checkstops for easy service. Valve shall have bronze body construction with non-corrosive parts. ES200 and ES400 valve construction shall employ poppets, which are independently seated, balanced and self-aligning. Valve shall also include a temperature display for visual safety.

The valve shall be Powers HydroGuard model ES150-RB, ES200-RB or ES400-RB. Any alternate must have a written approval prior to bidding.

where it applies ■

- Eye Wash Fixtures
- Eye/Face Wash Fixtures
- Emergency Drench Showers
- Combination Shower and Eye/Face Wash Units

what the ANSI standard states ■

Z358.1-1998 is the ANSI (American National Standards Institute) performance standard for Emergency Eye Wash and Shower Equipment.

Pertaining to water tempering the standard states,

"Delivered flushing fluid shall be tepid (lukewarm or moderately warm). In circumstances where chemical reaction is accelerated by flushing fluid temperature, a medical advisor should be consulted for optimum temperature for each application."

The standard also states,

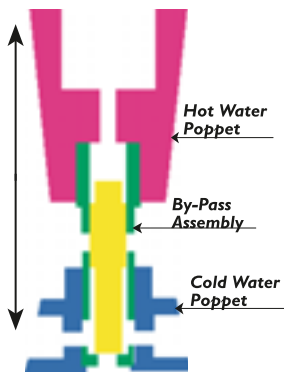
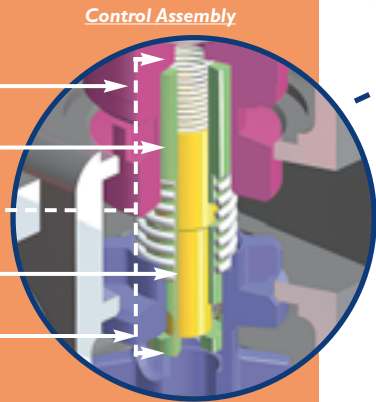
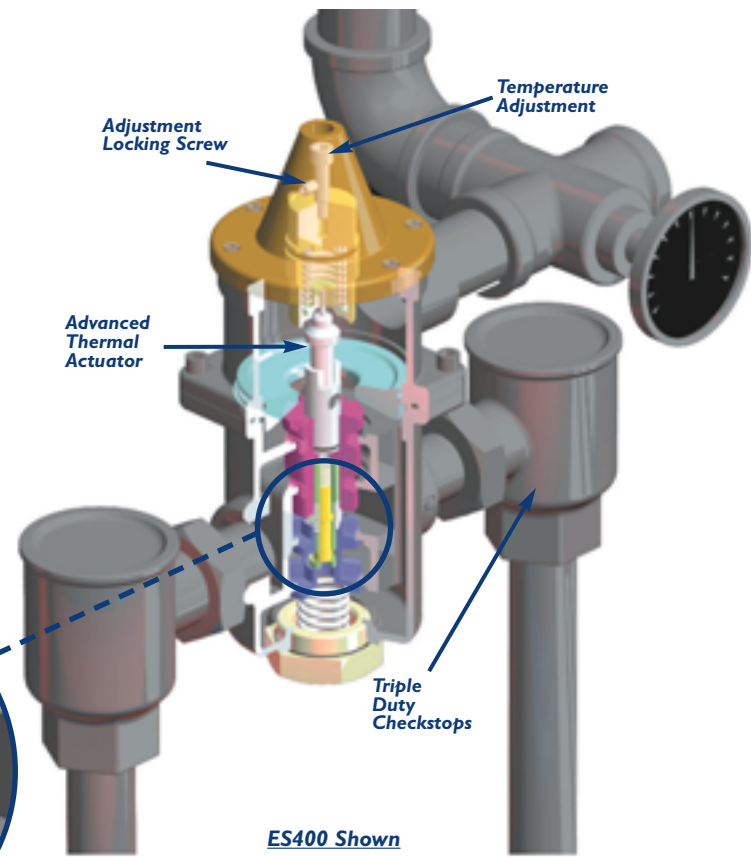
"Temperatures in excess of 38°C (100°F) have proven to be harmful to the eyes and can enhance chemical reaction with the skin."

how it works ■

Hot and cold water supplies enter HydroGuard at indicated ports, 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.

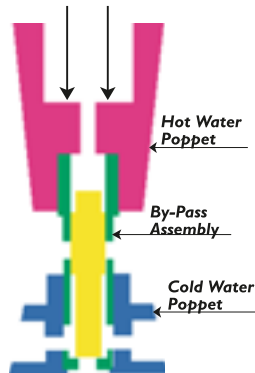
With a rise in discharge temperature due to pressure or temperature fluctuation on the inlet, the actuator expands, decreasing flow of hot water. The reverse occurs with a drop in discharge temperature.



Normal Operation

Valve Provides Tepid Water

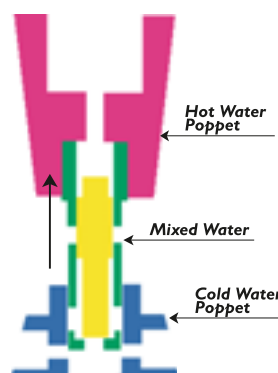
Both primary and secondary by-passes are closed allowing the actuator to control the outlet temperature by modulating the entire assembly control.



Cold Water Failure

Effectively Shuts Down Hot Water Supply

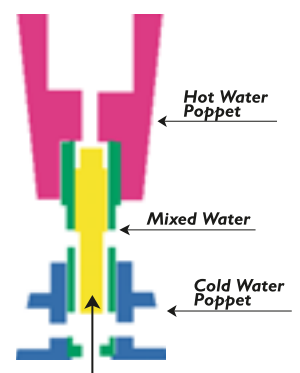
In the absence of cold water, actuator rapidly expands, pushing the hot water poppet down against its seat, effectively closing off hot water flow through the valve.



Hot Water Failure

Opens Primary (Thermal) Cold Water By-Pass

Actuator retracts on hot water failure causing hot water poppet and by-pass assembly to move up, allowing cold water to flow through valve.



Actuator/Valve Failure

Opens Secondary (Pressure) By-Pass System

Provides uninterrupted cold water flow in the event of any of the following conditions:

- Hot water failure with high demand.
- Actuator failure with high demand.

Pressure differential between cold water and outlet will push open secondary by-pass.

flow capacity & how to order

Flow Capacity When Tested to ASSE 1017 Standards

Valve Model	Min. Flow to ASSE 1017	(CV) 1 psi (7 kPa)	Pressure Drop Across Valve						
			5 psi (35 kPa)	10 psi (69 kPa)	15 psi (103 kPa)	20 psi (138 kPa)	30 psi (207 kPa)	45 psi (310 kPa)	60 psi (414 kPa)
ES150	1.0 gpm (3.8 lpm)	2.53	5.7 gpm (21.0 lpm)	8.0 gpm (30.0 lpm)	9.8 gpm (37.0 lpm)	11.3 gpm (43.0 lpm)	13.9 gpm (52.0 lpm)	17.0 gpm (64.0 lpm)	19.6 gpm (74.0 lpm)
ES200	3.0 gpm (11.0 lpm)	6.71	15.0 gpm (57.0 lpm)	21.2 gpm (80.0 lpm)	26.0 gpm (98.0 lpm)	30.0 gpm (114.0 lpm)	36.8 gpm (139.0 lpm)	45.0 gpm (170.0 lpm)	52.0 gpm (197.0 lpm)
ES400	3.0 gpm (11.0 lpm)	11.93	26.7 gpm (101.0 lpm)	37.7 gpm (143.0 lpm)	46.2 gpm (175.0 lpm)	53.4 gpm (202.0 lpm)	65.3 gpm (247.0 lpm)	80.0 gpm (303.0 lpm)	92.4 gpm (350.0 lpm)

Valve and Pipe Finish

ES150

1/2" IN, 1/2" OUT, 14 gpm @ 30 psi

ES200

3/4" IN, 1" OUT, 36 gpm @ 30 psi

ES400

1-1/4" IN, 1-1/2" OUT, 66 gpm @ 30 psi

Order Code

150

200

400

ES RB

Flow Rate GPM	Pressure Drop (ft. H ₂ O)		
	ES150	ES200	ES400
1	0.36	0.05	0.02
2	1.44	0.21	0.06
3	3.24	0.46	0.15
4	5.77	0.82	0.26
5	9.02	1.28	0.41
6	12.99	1.85	0.58
7	17.68	2.51	0.79
8	23.09	3.28	1.04
9	29.22	4.15	1.31
10	36.07	5.13	1.62

ES

150 200 400 Order Code

Valve and Pipe Finish

Rough Bronze

Rough Chrome (ES150 only)

Polish Chrome (ES200 & ES400 only)

A

B

C

Piping Inlets/Outlets

Top/Top

Top/Bottom

Bottom/Top

Bottom/Bottom

Bottom/Side

D

M

E

F

G

Cabinet Style^A

Exposed, no cabinet

Stainless Steel, Recessed

Stainless Steel, Semi-Recessed

Stainless Steel, Wall Mount

Painted, Recessed

Painted, Semi-Recessed

Painted, Wall Mount

O

N

P

Q

R

T

U

Options

None

Vacuum Breaker

Dial Thermometers on inlets

Dial Thermometers on inlets and Vacuum Breaker

0

1

5

6

Alarm System

None

AquaSentry 2

Alarm System*

0

4

Engineering Approval

Project _____

Contractor _____

Architect/Engineer _____

*AquaSentry 2 includes control module, temperature sensor, sensor junction box, 4x4 electrical box UL/CSA approved 24 VAC-class 2 transformer and 25ft. 4 station cable.

△ **Window on the cabinet door, please consult Powers Technical Support Department for the part number.**

POWERS™

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