

#### DESCRIPTION



The Series e427 and e428 HydroGuard valves automatically mix hot and cold water to deliver blended water at any desired temperature within a specified range. The assembly contains an advanced thermal actuators which maintains the selected water temperature within rigid tolerances despite temperature and pressure fluctuations in the water supply.

Construction features include a built-in shutoff valve for delivery water, a poppet type mixing valve, a concealed adjustment for raising and lowering the temperature range, and corrosion resistant parts.

The Series e427/e428 HydroGuard is simply constructed. All parts are accessible from the front, to facilitate cleaning and maintenance.

The Series e427/e428 HydroGuard is preferred for a wide variety of applications because of its accuracy, reliability, and economy of water and energy. It is chiefly used in showers, baths, hospital hydrotherapy and residential areas, where precise, consistent water temperature is required.

#### SPECIFICATIONS

Maximum Hot Water Supply Temp. ....	190°F (88°C)
Minimum Hot Water Supply Temp. ....	10°F (6°C) above set point
Maximum Operating Pressure .....	125 psi (861 kPa)
Temperature Range (standard) .....	90-110°F (32-43°C)
(low temperature) .....	60-100°F (16-38°C)
(high temperature) .....	100-160°F (38-71°C)
Connections .....	1/2" NPT
Capacity .....	14 gpm (0.90 l/s)
Minimum Flow .....	2.5 gpm
Maximum Static Pressure .....	125 psi (861 kPa)
Finish .....	Chrome Plated on e428, Rough Bronze on e427
Listing .....	ASSE 1016
Compliance .....	CSA B125 Certified
Shipping Weight .....	6.0 lbs.

#### SAFETY AND PERFORMANCE GUIDELINES

Adherence to these guidelines and recommendations promotes safe product use and ensures proper valve performance.

1. Thermostatic water mixing valves are control devices which must be cleaned and maintained on a regular basis. Powers specifies periodic maintenance at least once a year or immediately after any changes are made to the plumbing system. Although annual cleaning is recommended, frequency of cleaning depends on quality of local water conditions. Refer to Preventive Maintenance on page 2 for recommended cleaning procedure.
2. Locate the valve as close as possible to the fixture being supplied to avoid waste of energy and water.

#### OPERATION

Hot and cold water supplies enter the e427/e428 HydroGuard through their respective inlet ports. Hot and cold water mix in the chamber containing the cartridge and thermal actuator assemblies. The resulting mixture flows across the thermostatic motor, and the motor positions the valve assembly to maintain the desired delivery water temperature. Delivery water temperature can be varied by turning the adjustment handle. Turning the handle counterclockwise raises the temperature of the delivery water, and turning the handle clockwise lowers the temperature. Turning the handle completely clockwise seats the shut off valve and completely stops the flow. At the same time the hot water disc seats, preventing crossflow of the water supplies. Valve (without checkstops) does not prevent crossflow if left in open position and a downstream shutoff valve is used. If the temperature of the mixture is higher than the temperature setting, the advanced thermal actuator expands and forces the valve assembly to move toward the hot water seat. The reverse occurs when the mixture temperature is lower than the temperature setting. A change in water temperature of either hot or cold water supply will cause the advanced thermal actuator to reposition the valve assembly to maintain the desired delivery temperature.

#### PREVENTIVE MAINTENANCE

**NOTE: Before servicing checkstops or piping, always turn off the upstream water supply.**

##### EVERY 12 MONTHS:

- Open up the checkstops and check for free movement of the poppet. To access the checkstops, remove the handle assembly and trim plate.
- Before servicing the valve, turn off the water supply upstream OR close the checkstops. To close the checkstops, turn the adjustment screw fully clockwise on each checkstop.
- Remove the valve bonnet and rinse all grit and impurities from the cartridges.
- Winterize valves that are used outdoors. Remove and store the internal components and drain all water from the valve.

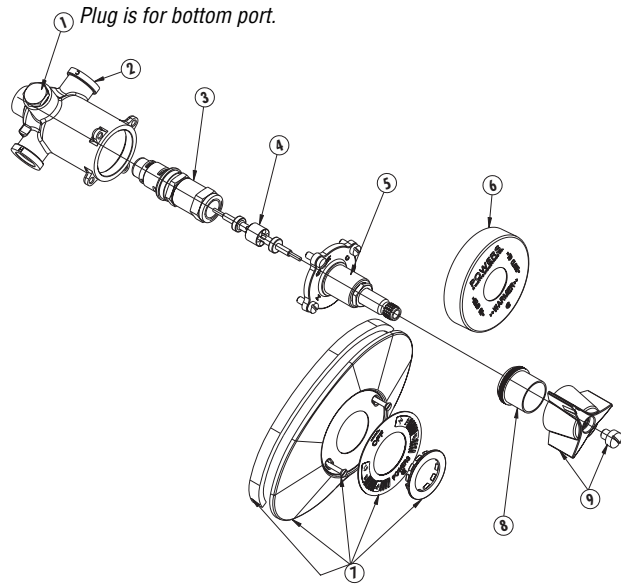
##### EVERY 3 MONTHS:

- Every three months, check the maximum temperature setting.

**PARTS LIST**

NO.	DESCRIPTION	427-0000	428-0000
1	1/2" PLUG*	200-046	200-046G
2	BODY	N/A	N/A
3	KIT, CARTRIDGE ASSEMBLY	427-017	427-017
4	WAX MOTOR KIT	427-250	427-250
	LOW TEMP. WAX MOTOR KIT	427-251	427-251
	HIGH TEMP. WAX MOTOR KIT	427-252	427-252
5	KIT, BONNET ASSEMBLY	427-019	427-019
6	DUAL PLATE EXPOSED	N/A	225-261A
7	TRIM ASSEMBLY	420-335	N/A
8	LOCK RING, POLISHED CHROME	225-394A	225-294A
9	HANDLE	420-242	420-242

\* Plug is for bottom port.



**TROUBLESHOOTING**

What to look for if:

**The maximum temperature cannot be obtained...**

- a. Lime deposits may have accumulated in the hot water pipes, restricting the hot water supply.
- b. The hot water supply temperature may be too low.
- c. The handle rotation setting may be too low. Remove valve handle, and readjust the high temperature limit stop.

**Flow of water is less than desired...**

- a. The upstream supply valves may not be fully open.
- b. The inlet supply pressure(s) may be low.
- c. Lime deposits may have accumulated in cartridge, restricting water flow.
- d. The showerhead may be clogged. Remove and clean.
- e. The checkstops may be clogged. Refer to Preventive Maintenance section.

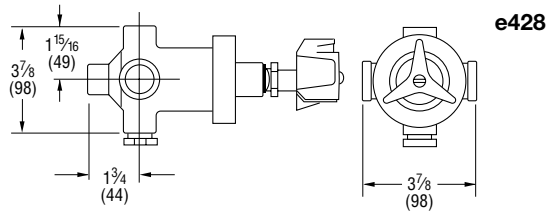
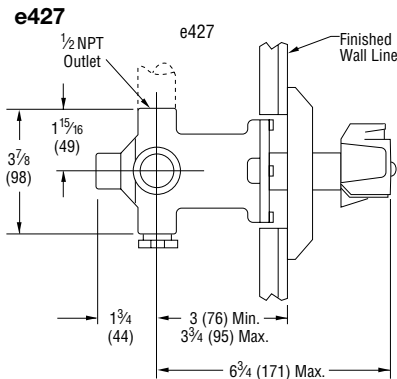
**The valve opens with hot water flow rather than cold water flow...**

- a. The inlet water supplies are connected to the wrong ports or cartridge is installed improperly. **The tempered water is too cold, although cartridge has been replaced, OR the hot water temperature is below 115°F..**
- a. Raise the temperature of the hot water supply.

**Flow of water is completely shut off...**

- a. The upstream supply valves may be completely closed.
- b. The hot or cold water supply pressure may have failed. The e427/e428 valve is designed to close down upon cold water failure.
- c. The checkstops may be closed. Access the checkstops and open by turning the adjustment screw fully counter-clockwise.

**DIMENSIONS**



**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](http://www.wattsind.com/prop65)

**POWERS™**

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