HydroGuard T/P® Series e420

Bath and Shower Tempering for Healthcare Facilities Since 1891
Advanced Thermal Actuation dramatically improves performance, providing greater safety and lower risk of liability for facility owner.

Certified to the performance requirements of ASSE 1016 Type T, Type P, and Type T/P.

CSA B125, Certified

Provides the thermal protection of a thermostatic valve (not found with common pressure balancing valves), while also responding almost instantaneously to dramatic pressure fluctuations— even when they exceed 50%!

Capable of providing mixed outlet temperature within 5° F (2.8°C) of hot water supply temperature for applications where low hot water supply temperatures exist.

Innovative self-contained cartridge simplifies maintenance and repair. Installs in just 5 minutes...quickly and easily retrofits into Powers 420 valves dating back to the 1960's.

Now, more than ever, it's Powers for Showers.
Traditional valve designs for tempering water have been divided into two categories — pressure balancing devices — where a diaphragm and poppet design reacts to pressure changes — and thermostatic technology, where a thermostatic element responds to incoming temperature fluctuations and minimal pressure fluctuations.

**The Powers e420 offers the best of both worlds.**

The advanced thermal actuator provides an unparalleled response time to quickly compensate for both pressure and temperature changes. The valve enhancements meet the stringent performance requirements of ASSE 1016 Type T, Type P and the most demanding Type T/P. The result is a precisely tempered water flow which helps protect users from both pressure and temperature fluctuations.

**Powers Advanced Thermal Actuator allows the e420 to compensate for supply pressure fluctuations of over 50% while quickly compensating for supply temperature changes.**

Visit us online at www.powerscontrols.com
Fluctuating water temperatures are not only unpleasant — they can be a real liability for health care and institutional facilities.

Scalding from showers and immersion burns due to hot water are an ever-present danger at any facility where supply temperatures can be higher than 120°F and users may be immobilized in showers, hydrotherapy baths or when wheelchair bound. The solution is a Powers HydroGuard mixing valve.

Another healthcare concern is bacteria. Because bacteria can grow and spread in plumbing systems with circulation temperatures less than 120°F, ASPE, ASHRAE and the CDC recommend storing water at 140°F or higher, and circulating it so that the temperature is no less than 120°F at the return point.

The high maximum inlet temperature, and fast reaction time of the HydroGuard T/P make it the ideal choice when designing a plumbing system that is resistant to the growth of bacteria such as legionellae.

Wherever you need safe, tempered water, we can provide the right product for your application.

Whether you are building a new facility, upgrading an existing one or just want the highest quality, most reliable mixing valves on the market.

Now, more than ever it’s Powers for showers!
Need a Pressure Balancing Valve? Thermostatic? A Combination of Both?
HydroGuard T/P can do it all...

The governing body for plumbing system safety requirements is the American Society of Sanitary Engineers (ASSE). Through the years they have developed and refined a standard for shower systems commonly known as ASSE 1016.

ASSE 1016 recognizes three (3) types of valves as acceptable for shower systems, particularly in health and safety environments where patient/user's well-being is at issue. These include:

**ASSE 1016 Type P Valves** — Otherwise known as Pressure Balancing Valves, Type P valves compensate for fluctuations in supply pressure up to 50%. It is important to note that Type P Valves DO NOT compensate for fluctuations in supply temperature -- they ONLY respond to changes in water pressure.

**ASSE 1016 Type T Valves** — Commonly referred to as Thermostatic Valves, Type T valves offer greater bather protection, as they compensate for fluctuations in the temperature of the hot water supply. Thermostatic valves also provide limited protection against supply pressure fluctuations -- up to 20%. However, more dramatic pressure fluctuations can result in patient discomfort or injury.

**ASSE 1016 Type T/P Valves** — Or “Combination” Valves, offer the widest possible bather protection. They compensate for fluctuations in supply pressure up to 50% as well as changes in hot water temperature.

### Powers e420 meets the performance requirements of ASSE 1016, Type T, Type P and Type T/P!

<table>
<thead>
<tr>
<th>Valve Type</th>
<th>ASSE 1016 Valve Designation</th>
<th>Supply Pressure Fluctuations ≥ 20%</th>
<th>Supply Pressure Fluctuations ≥ 50%</th>
<th>Hot Water Temperature Fluctuations</th>
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</thead>
<tbody>
<tr>
<td>Pressure Balancing</td>
<td>Type P</td>
<td>yes</td>
<td>yes</td>
<td>NO</td>
</tr>
<tr>
<td>Thermostatic</td>
<td>Type T</td>
<td>yes</td>
<td>NO</td>
<td>yes</td>
</tr>
<tr>
<td>Combination</td>
<td>Type T/P</td>
<td>yes</td>
<td>yes</td>
<td>YES</td>
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<tr>
<td>POWERS e420</td>
<td></td>
<td>YES</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>

**Advanced Thermal Actuation:**

**Normal Operation**

1. Thermal actuator expands and contracts in response to the temperature of the mixed water. This expansion/contraction moves the shuttle.
2. As shuttle is moved back and forth by the thermal actuator...
3. Hot & cold water flow are increased/decreased proportionally to maintain temperature set point.

**When Hot Water Supply Temperature or Pressure Increases or Cold Water Pressure Decreases:**

Thermal actuator expands, compensating for temperature and pressure increases by reducing hot water flow while increasing cold water flow.

**When Cold Water Supply Fails:**

Thermal actuator expands, compensating for temperature increase by substantially reducing the flow of hot water.
**Specifications:**

**Construction**
- Cast Bronze

**Capacity**
- 5.25 gpm (20.8 lpm) ±0.25 gpm/1.9 lpm)*

**Maximum Hot Water Supply Temperature**
- 190°F (88°C)

**Minimum Hot Water Supply Temperature**
- 5°F (2.8°C) above set point

**Maximum Operating Pressure**
- 125 psig (862 kPa)

**Temperature Ranges**
- Type T/P, Type P
  - 90°-110°F (32°-43°C)
- Type T
  - 65°-115°F (18°-46°C)

**Maximum Static Pressure**
- 125 psig (862 kPa)

**Minimum Flow**
- 1 gpm (3.78 lpm)

* 45psi ΔP 50/50 mix.

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**e420 Typical Specification**

Valve shall meet the performance requirements of ASSE 1016 -
Type T/P, compensating for 50% fluctuations in supply line pressure, and compensate for increases in hot water supply temperature. Valve shall be capable of supplying mixed water temperature within 5°F (2.8°C) of hot water supply temperature. Valve shall contain a powerful, thermal actuator and feature a self-contained cartridge design for ease of repair and maintenance.

Water tempering valve shall not be subject to failure due to lime build-up or dirt particles. Construction shall be conducive to long lasting, trouble-free life, and shall not have close fitting, sliding parts, which, through wear or binding, may impair operation.

Valve shall have an all cast bronze housing and a capacity of 5.25 gpm (20.8 lpm) at a 45 psig. Valve shall include an adjustable limit stop, factory set at 110°F (43°C). Valve shall always open through cold water to maximize bather safety.

Valves shall be Powers No. e42x. Any alternates must have written approval prior to bidding.

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**Valve Selection Chart**

**Valves**
- Concealed Valve, 3-Port, Lucite Knob Handle 421
- Concealed Valve, 4-Port, Lucite Knob Handle 422
- Exposed Valve, Polished Lever Handle 423
- Concealed Valve, 3-Port, Metal Lever Handle 425
- Concealed Valve, 4-Port, Metal Lever Handle 426

**Checkstops (Sold in Pairs)**
- Straight, 1/2" Sweat A
- Angled, 1/2" Sweat C
- Exposed Straight, 1/2" IPS, Polished Chrome B
- Angled, with Strainer, 1/2" IPS E

**Factory installation of checkstops**
(Add suffix “X” to checkstop code) Minimum order 10 X

**Showerheads**
- Economizer, Chrome-Plated ABS J
- Standard, Chrome-Plated Brass K
- Deluxe, Chrome-Plated Brass M

**Arm and Flange Kits**
- Standard Arm and Flange 1
- Deluxe Arm and Flange 2
- Standard Arm/Flange & High Temp. Shut-Off 4
- Deluxe Arm/Flange & High Temp. Shut-Off 5

**Tub Spouts**
- Diverter, Chrome-Plated Brass, 3/4" IPS G
- Non-Diverter, Chrome-Plated, 1/2" IPS R
- Diverter, Chrome-Plated Brass, 1/2" IPS T
- Diverter, Chrome-Plated, 1/2" SlipU

**Hand Shower Systems**
- 24" Chrome ADA Wall Grab Bar System 1
- 36" Chrome ADA Wall Grab Bar System 2
- Professional, Metal Hose, 30" Slip Bar 3
- Standard, Metal Hose, 24" Slip Bar 4
- Professional, Metal Hose, 24" Slip Bar 5
- Standard Plus, Metal Hose, 24" Slip Bar 6
- European, Metal Hose, 23" Slip Bar 7

**Divers**
- Diverter, Concealed, Deluxe ABS Handle A
- Diverter, Concealed, Deluxe Metal Handle B
- Exposed Diverter, Shower Arm-Type, Chrome-Plated Z
- Concealed Diverting Valve, 1/2" IPS Y

**Vacuum Breakers**
- Vacuum Breaker, In-Line W
- Vacuum Breaker, Elevated, Chrome-Plated V

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**POWERS**

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