

## HydroPanel™ II Shower System with HydroGuard® e420 Combination Valve

### Technical Instructions

#### Description ■

The Powers HydroPanel™ II Shower System with HydroGuard® e420 valve combines thermostatic and pressure balancing water control with the convenience of modular shrouding. It provides a concealed shower system where in-wall piping does not exist or may not be practical. The HydroGuard® e420 features heavy cast brass construction, self actuated thermostatic element to quickly sense any change in hot or cold supply water temperature or pressure and respond to maintain the user selected temperature. In the event of cold water failure, the thermostatic element virtually shuts off the flow of hot water. A built-in adjustable metal-to-metal temperature limit stop reduces chances of accidental scalding due to over adjustment of handle. HydroPanel™ II comes complete with inline checkstops, stainless steel shrouding, e420 combination valve, ADA compliant lever handle, piping, end caps and mounting hardware. Some models feature a stainless steel soap dish. An optional hand shower comes preassembled.

#### Specifications ■

HydroPanel™	Brushed 18 Gauge 304 stainless steel
Piping	1/2" (15mm) copper tubing
Connections	1/2" (15mm) copper
Flow Rate	5 gpm (19 lpm) +/- 0.25 gpm [0.90 lpm]
Maximum Hot Water Temperature	190°F (88°C)
Minimum Hot Water Temperature*	10°F (6°C) Above Set Point
Maximum Operating Pressure	125psi (862 kPa)
Showerhead	Fixed chrome plated brass Adjustable swivel chrome plated brass
Hand Shower	Full spray with push button
Listing/Certification (Valve only)	ASSE 1016, CSA B125

\*with equal pressure



Advanced Thermal Activation

#### ⚠ WARNING

**FAILURE TO COMPLY WITH PROPER INSTALLATION AND MAINTENANCE INSTRUCTIONS COULD CONTRIBUTE TO THE VALVE FAILURE, RESULTING IN INJURY AND/OR DEATH.**

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

- Properly design the system to minimize pressure and temperature variations.
- Conduct an annual maintenance program to ensure proper operation of all critical components.
- **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.

#### ⚠ WARNING

**Need for Periodic Inspection:** Periodic inspection by a licensed contractor is recommended. Corrosive water conditions, and/or unauthorized adjustments or repair could render the valve ineffective for service intended. Regular checking and cleaning of the valve's internal components and check stops helps assure maximum life and proper product function. Frequency of cleaning and inspection depends upon local water conditions.

## Installation ■

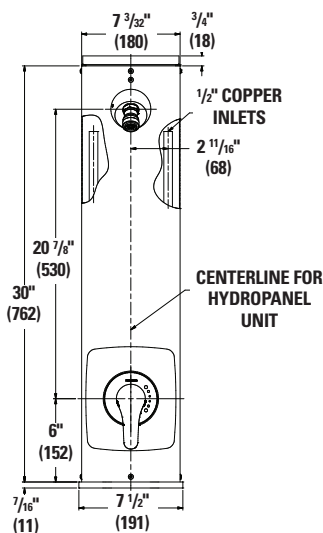


Figure 1: Front dimensions,  
HydroPanel II Model 450-4210E

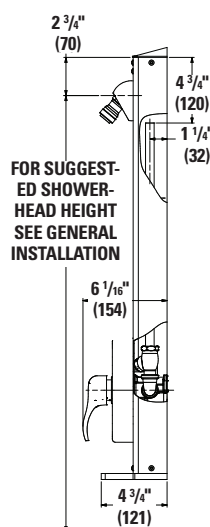


Figure 2: Side dimensions,  
HydroPanel II Model 450-4210E

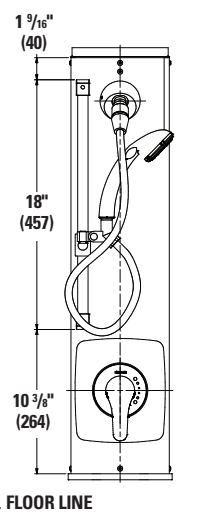


Figure 3: Front dimensions,  
HydroPanel II Model 450-4214E

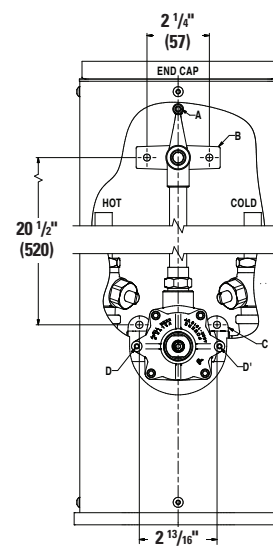


Fig. 4

Installation should be in accordance with acceptable plumbing practices. Flush all piping thoroughly before installation.

Failure to do so can result in valve malfunction. Before installation of HydroPanel™ II, rotate the stem or handle off.

### Position The HydroPanel™ II Unit ■

1. See Figure 1, 2 & 3 to determine the horizontal position of the unit according to shower room layout and mark the centerlines. For multiple shower applications, the recommended minimum distance between the centerlines of the two units is 36 inches (914 mm).
2. Determine floor to showerhead height for the unit.  
Recommended heights--for men 77" (1956 mm), male youth 66" (1676 mm), women 70" (1778 mm) and female youth 60" (1524 mm).
3. The preassembled copper tubing for supply water inlets are 4-3/4" (120 mm) from the top of the shroud and 2-11/16" (68 mm) left and right of the centerline. Adjust supply line accordingly.

### Install the Piping Assembly ■

1. Detach the piping from the shrouding by removing screw A above the showerhead (see Figure 4). Slide piping out of the shrouding; the showerhead remains attached to the shroud.
2. For mounting the piping assembly bracket B, use bracket as a template and drill 2 small holes in the wall at showerhead height.
3. For mounting lower piping assembly, drill a small hole in the wall that is 20-1/2" (520 mm) below the upper bracket (B) and 1-13/32" (36 mm) to the left and right of the center line.
4. Install mounting anchors per room specifications. Secure bracket with mounting screws (NOT INCLUDED).
5. Connect the supply lines to the piping assembly.

### Attach the Shrouding ■

Do not remove the entire chrome plated end cap from the shrouding; it functions as an end cap and gasket for shroud extension. Part of the end cap can be broken out to provide vertical and horizontal piping clearance.

1. To remove scored section, hit it sharply with a hammer.
2. To connect the showerhead, slide the showerhead nipple on the inside of the shroud into the piping assembly. Secure shrouding with the screw at A.
3. Fit the handle over the stem. Turn on water supply. Turn handle fully counterclockwise and measure the outlet water temperature. Adjust temperature if required (see high temperature limit stop adjustment)
4. Check for leaks. Secure shrouding.
5. The cover plate fits over the tabs around the shroud valve hole. Snap the cover plate into place. Secure it at D and D' with screws.
6. Place the name plate over the cover plate, snap the retaining ring. Thread sleeve on the bonnet making sure that the cut-away on the sleeve is toward you, and it is in the bottom position when tightened.
7. Install the handle with the screw provided.

## High Temperature Limit Stop Adjustment ■

Maximum temperature setting adjustment must be set on job site (See Fig. 5). The high temperature limit stop is threaded into the bonnet and is turned counterclockwise for an increased setting and clockwise for a decreased setting. Powers recommends a maximum setting of 110°F (43°C). To adjust temperature, rotate handle to the maximum desired outlet temperature, screw temperature limit stop until it touches stem's shoulder. Close valve and open it to verify setting.

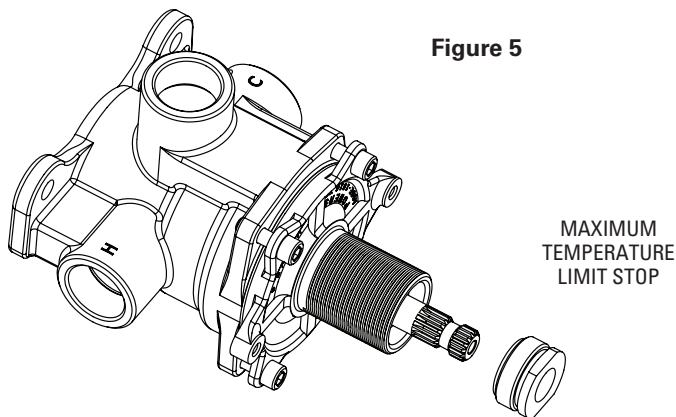


Figure 5



### WARNING

**Always verify the maximum temperature setting to the valve after any changes are made. This should also be checked as a part of a facilities maintenance/safety program.**

## Servicing ■

Before servicing checkstops or piping, turn off water supplies upstream. To access the checkstops, remove handle, name plate and cover plate.

At least every twelve months, open up the checkstops and check for the free movement of the poppet.

Before servicing the valve, either turn off the water supply upstream or close the checkstops. To close the checkstops, turn the adjustment screw on each stops clockwise.

Every six month, check and adjust the handle rotation setting.

Every twelve months, remove the valve bonnet and check the internal components for the freedom of movement.

## Troubleshooting ■

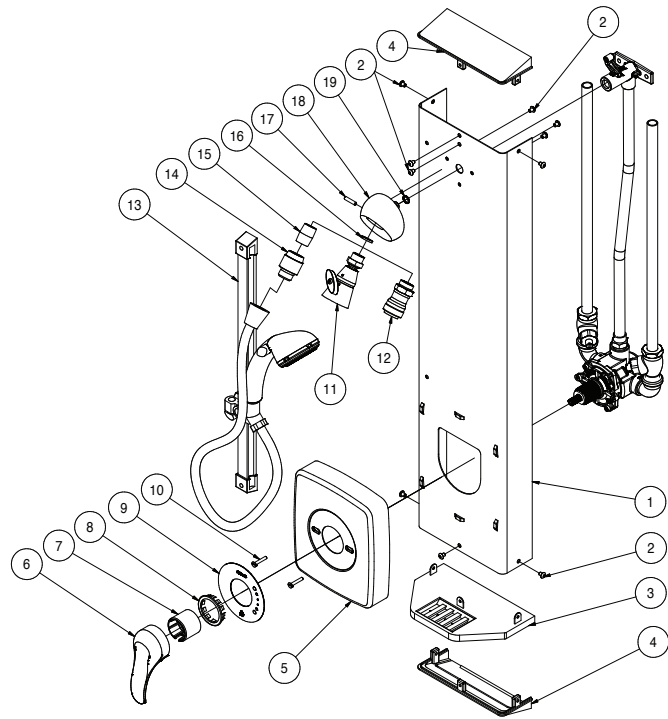
*What to look for if:*

- 1. The flow of the water is less then desired.**
  - a. Valves upstream from supply not fully open.
  - b. Low supply pressure.
  - c. Accumulation of lime deposit in hot water pipes, restricting the flow of the hot water
  - d. Showerhead clogged. Remove and clean.
  - e. Checkstops may not be fully open.
- 2. Flow of water is completely shut off.**
  - a. Valves upstream from supply completely closed.
  - b. Failure of hot or cold water supply pressure.
  - c. Checkstops closed.
- 3. If the water varies in temperature.**
  - a. Lime deposit may have accumulated in the hot water pipes, restricting water flow.
  - b. Thermostatic wax element may have failed. Replace wax element.
  - c. The inlet water supplies may be connected to the wrong ports. Remove HydroPanel™ II and re-install.
  - d. There may be extreme pressure variation in the water supply lines. Check with plumber or plumbing engineer.
- 4. Flow of water continues when valve is shut off.**
  - a. Worn shutoff disc. Replace cartridge.
- 5. Checkstops leak or they won't shut off.**
  - a. The checkstops may be damaged. Replace with check-stop replacement kit.
- 6. Maximum temperature is too low.**
  - a. Accumulation of lime deposit in hot water pipes, restricting the flow of the hot water.
  - b. The concealed maximum temperature limit stop is not at its maximum adjustment. Set the maximum temperature limit stop.
  - c. Hot water temperature is too low.

**Parts List ■**

Parts List		
Item	Part Number	Description
1	N/A	SHROUD (showerhead)
1	N/A	SHROUD (handshower)
2	450273A	SCREW 10-32 UNF x 1/4
3	450 268	SOAP DISH
4	450269G	CAP, END CHROME PLATE
5	450 356	COVER PLATE
6	420 049	HANDLE KIT
7	420 017	SLEEVE
8	227 167	RETAINER - DIAL INSERT
9	420 063	NAMEPLATE & BASEPLATE ASSEMBLY
10	080 009	SCREW 8-32 X 1-1/4
11	141 379	SHOWERHEAD - ADJUSTABLE SWIVEL
12	141 816	SHOWERHEAD - FIXED
13	141 837	PUSHBUTTON SHOWER HAND SPRAY
14	141 319	IN-LINE VACUUM BREAKER (handshower)
15	042672G	NIPPLE - 12" 'NPT X 1-1/8" LG (handshower)
16	450 277	GASKET - SHOWERHEAD BASE
17	450 276	SET SCREW 10-32 UNF X 7/8
18	450267G	BASE, SHOWERHEAD CHROME PLATE
19	047 013	QUAD RING 3/8" ID X 1/2" OD
20*	420 452	KIT, CARTRIDGE
21*	420 024	WAX ELEMENT
22*	420 457	KIT, BONNET
23*	141 000	KIT, CHECKSTOP

\* Not Shown



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

**NOTE: AFTER COMPLETING REPAIRS, CHECK DISCHARGE TEMPERATURE. RESET IF NECESSARY.**  
**WARNING: FAILURE TO PERFORM THIS OPERATION COULD RESULT IN UNSAFE DISCHARGE TEMPERATURE, WHICH MAY CAUSE INJURY OR DEATH.**

**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.

**POWERS™**

A Watts Water Technologies Company

**ISO 9001-2008  
 CERTIFIED**