



### □ G4430 Tempering System, Recirculating, Dual Water Tank with Booster Pump

#### System Specifications

Design Flow Rate:	3-46 GPM
Boost Pressure:	10-70 psi
Water Heater Tanks:	Two (2) 119 gallon tanks, each with 9 kW heater set to 160°F (71°C)
System Recovery Time:	3.5 hours with incoming water temperature of 50°F (10°C)
Design Recirculation Flow Rate:	8-10 GPM
Recirculation Heater:	In-line heater (1.5 kW-9 kW) with high temperature shutoff
Recirculation Water Purifier:	In-line ultraviolet light to kill bacteria
Voltage:	Single point fused connection, 480 VAC, 3Ø, 60 Hz
Amp Draw:	30-45 FLA
Skid Dimension:	48" W x 96" L x 80" H

#### System Requirements

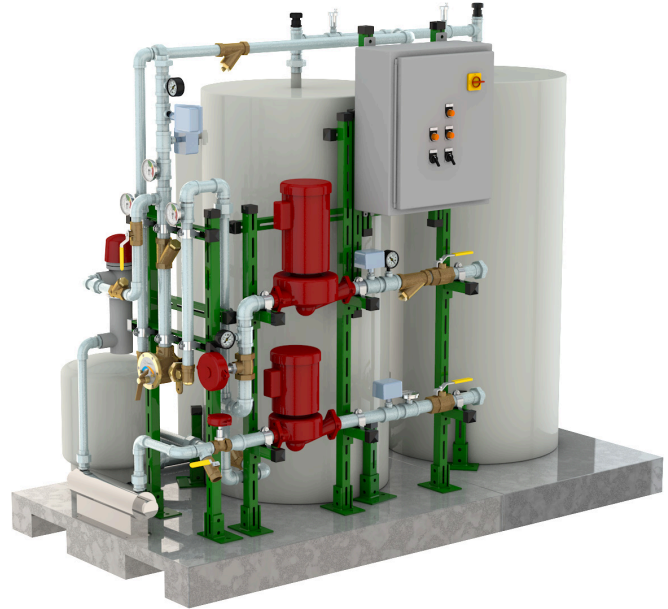
Incoming Water Pressure:	30-95 psi dynamic
Incoming Water Temperature:	Minimum 50°F (10°C) required to produce 85°F (29°C) flush for 15 minutes at 46 GPM flow rate
Incoming Water Pipe Size:	Must be sized to support appropriate flow
System Location:	Must be located in an indoor, non-hazardous environment at a temperature above 45°F (7°C)

#### System Variables

Minimum 30 psi dynamic pressure is required at the furthest/highest safety station. To meet minimum pressure requirement, the following system pressure losses must be calculated and taken into account:

##### Pressure Losses Must Be Calculated Due To:

- » **Elevation.** Calculated by the vertical distance from incoming water pipe on tempering skid to highest shower head outlet (2.31 ft = -1 psi).
- » **Friction.** Calculation is dependent on pipe size, material, length, and number of turns in the supply line.
- » **Tempering Skid.** 46 GPM system flow rate results in 32 psi loss.



#### Keys to Appropriate Loop Sizing

##### Effective loop sizing must take into account the following:

- » Supply piping must be selected based on friction loss at the highest flow rate.
- » Vertical rise of supply piping should be kept to a minimum to reduce the pressure loss due to elevation.
- » Number of turns in the loop should be minimized.
- » Return pipe size should be selected based on friction loss at a recirculating flow rate of 10 GPM.
- » Loop should be insulated to reduce heat loss through piping.

#### Insufficient Water Pressure

A booster pump is required in situations where there is insufficient incoming water pressure to adequately supply the loop. The in-line booster pump will increase water pressure to psi required for proper emergency equipment operation. Booster pump motor sizes range from 1/2 HP – 5 HP and operate with a Variable Frequency Drive.