



□ G4130 Tempering System, Recirculating, Single Water Tank with Booster Pump

System Specifications

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| Design Flow Rate: | 3-23 GPM |
| Boost Pressure: | 10-70 psi |
| Water Heater Tank: | 119 gallon tank 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: | 18-30 FLA |
| Skid Dimension: | 48" W x 60" L x 80" H |

System Requirements

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| 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 23 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.** 23 GPM system flow rate results in 11 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 via ON/OFF pressure switch or Variable Frequency Drive. *Note: A Variable Frequency Drive is required when the incoming water pressure range varies by more than 20 psi.*