BEST PRACTICES...

ADVANCED SAFETY FEATURES OF THE HAWS® TANKLESS WATER HEATER

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ENGINEERED SOLUTIONS® FOR SAFETY
Tankless water heaters, also known as instantaneous water heaters, are designed to deliver a constant supply of hot water as needed without the use of a storage tank. When a water source is activated, cold water travels through a pipe, into the unit, and an electric element heats the water. Tempered water is a crucial component to victim comfort during emergency response. Not only does appropriately tempered water prevent hypothermia, enhanced victim comfort increases the user’s desire to stay in the shower for the full 15 minutes as prescribed by ANSI Z358.1.

Haws model 9326/9327 tankless water heater was specifically designed with the demands of complex safety circumstances in mind. The unit provides superior temperature control for situations when tempered water is a vital requirement. With more than 20 years of experience specifying heaters for various types of applications, Haws was keenly aware of the challenges and problems associated with heating methods used on existing products. Through the years, a crucial element was recognized as absent from existing configurations – scald protection. This valuable feature is a must when using heating equipment to flush chemicals from exposed skin and eyes.

TEMPERATURE CONTROL AND MONITORING

Electromechanical devices like temperature sensors and solenoids for dumping, or cutoff sensors on copper tubing, can protect from scalding, but the Haws Engineering Team determined a stronger algorithm with a safer option was needed. While many heating systems only monitor the outlet water temperature, which can create issues should the inlet water temperature change, the Haws model 9326/9327 is constantly sensing the input as well as the output temperatures to more accurately modulate the heating load in real-time. Without dual monitoring, as inlet temperatures increase, there is a delay in controlling the heat input. By monitoring both the inlet and the outlet temperatures, the model 9326/9327 has eliminated that concern.

In addition, many current models in the field are designed with a temperature sensor on the piping. Once the piping is over-temperature, a switch cuts power to the heating elements. This delay in waiting for the pipe to heat, rather than measuring the actual water temperature, is not the most effective way to protect the user. Again, the 9326/9327 measures the water temperature at the inlet. If there was a scenario where the inlet water temperature reached 100° F (38° C), power to the heating elements would be turned-off instantly. This gives added protection to the user.

FLOW DIFFERENCES

An additional issue with other tankless heaters is the flow balance and control when supplying water to a high-flow combination shower/eyewash to a lower required flow of an eyewash only. The latent heat in the heating elements is always transferred to the water. When the flow is dramatically reduced, this can cause overheating of the low flow supply. Some existing tankless heaters are designed to open a solenoid valve to dump the over-temperature water until the latent heat is gone. This is major concern because there might be a dump of water in an environment where the ambient temperatures instantly turn the water to ice causing a serious hazard and clean-up issue. Even in an area where freezing is not an issue, 20 gpm for even a short amount of time is not an insignificant amount of water to deal with. The Haws 9326/9327 heating elements have a low thermal mass so there is no latent heat issue. Additionally, there is a flow meter that will sense the change in flow and thereby modulate the amount of power to the heating elements. The Haws Engineering team spent many testing hours monitoring the transition of high flow to low flow to ensure no temperature spikes in the water temperature.

Haws Integrated’s™ primary focus and experience is the delivery of tepid water for safety showers and eyewashes. This includes tank, steam, process heat, and tankless systems. Safety is the ultimate goal and over-temperature issues are a concern when developing a safety response system that will effectively and efficiently provide a dependable, comfortable solution. After many years of field experience and testing, the Haws model 9326/9327 tankless water heater utilizes a reliable algorithm that incorporates features not found in other heaters on the market, thereby offering a complete safety solution.