PLUMBING PRODUCT APPLICATION

The tankless takeover: Tankless water heaters take on low-flow handwashing

How can remote commercial and industrial locations efficiently gain access to heated water? Engineers and specifiers were asking this question in the 1960s: The inconvenient answer had always been extensive piping and labor. A conventional tank heater in these applications was expensive and, often, hot water would be cold again by the time it arrived, due to long runs in the piping system. Microprocessor technology has now revolutionized instant hot water delivery.

With new standards mandating a maximum flow rate of 1.91 Lpm @ 551.6 kPa (0.5 gpm @ 80 psi), the microprocessor-controlled water heater is replacing the conventional tank heater as the most efficient and cost-effective solution. Over time, these water heaters have proven to reduce installation costs (the owner/installer no longer has to run expensive lengths of copper piping to the destination for hot water), and have evolved to decrease water waste at the same time (no running water and waiting for it to heat up).

An inexpensive, more efficient way

Point-of-use tankless water heaters use electricity to create hot water on demand, as close to the point of use as possible. The element assembly houses a series of coils that instantly heat water as it flows through the vessel (i.e. a series of pipes). A power switch automatically applies electrical current to the coils only when hot water is requested. The microprocessor can be preset at the factory to maintain a constant output temperature, even at varying flow rates. Some allow users to change the output temperature if desired.

Tankless water heaters are compact and easily placed underneath wash systems and hand basins. Because they use only a cold water line and an electrical hook-up, installation costs are minimal. Further, there is no need for a temperature and pressure relief valve (unless specified by code) or costly piping/valving associated with conventional hot water heaters.

The installation and maintenance costs could rise sharply for conventional systems if they were required to match the performance of tankless heaters. When providing equivalent systems, installed costs are a great deal lower with a tankless microprocessor-controlled system using a single cold water pipe minus a temperature and pressure valve or drain and mixing valve. Moreover, the actual price of operation specific to models with microprocessors is lower than that of both the storage heater and more traditional tankless heaters. A microprocessor-controlled product provides a variable rise in water temperature and modulates energy consumption; it only uses as much energy as needed to reach the desired temperature and is, therefore, more efficient.

Since water and energy conservation are nationwide concerns, and centerpieces of plumbing codes, microprocessor-controlled water heaters are increasingly specified for projects.

Technology has come a long way

These systems have proven to be instrumental in water and energy conservation. Microprocessor technology enables the system to sense varying inlet flow and temperature at a rate of 7,200 times per minute and to appropriately adjust the heater's power in the event that changes occur in the inlet flow rate, water temperature or
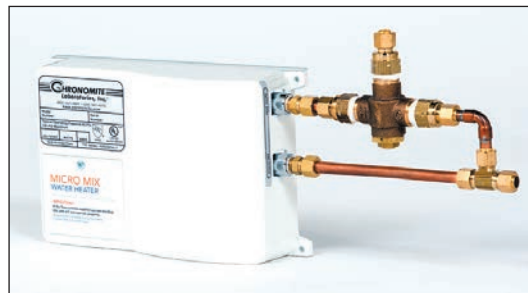
The Instant-Flow Micro Mix tankless water heater by Chronomite Laboratories, Inc.® creates on-demand hot water at 99% energy efficiency.

pressure. The microprocessor-controlled water heater operates at up to 99 percent energy efficiency with no wasted hot water; unlimited supplies are delivered on demand to multiple faucet sinks with standard or sensor faucets. Conventional tank water heaters are constantly operating to keep stored water hot.

Different proprietary models provide different options. Microprocessor models use temperapure control and can adjust to meet changes in incoming water temperature but have no direct user control. Some models are made with fixed power, so temperature is determined by the amount of water flowing through them, an added benefit in compliance with a wide array of federal, state and local codes.

Proper handwashing, an often neglected practice, is important in preventing infections. Microprocessor-controlled tankless units meet hygiene-related problems head on by supplying hot water at an effective temperature that encourages handwashing.

Decreased wait time equals increased hygiene

The positive impact of tankless water heating on hygiene in public places is just one aspect of the plumbing industry's concerted effort to increase the convenience and effectiveness of personal-care facilities that serve large groups of people on a regular basis.

There are two other ways in which a microprocessor-controlled tankless water heater is as protective as it is efficient. Microprocessor-controlled tankless water heaters designed with built-in anti-scald circuits are able to maintain constant control of output temperature, a valuable "insurance policy" against scalding. It is also economical, as hot water storage systems require the addition of a point-of-source or point-of-use tempering valve to ensure comparable protection.

Further, a tankless system heats water only when needed, and bacteria such as Legionella are dormant in cold water. In contrast, the conventional storage tank system tends to produce a more hospitable environment for Legionella. Within this environment, temperature ranges between 20 and 50 C (68 and 122 F), promote rapid bacterial growth.

In some cases, a tankless electric water heater is the best solution for meeting various demands, whether for cost savings, water conservation or health benefits. In certain applications, such as public lavatories with high-traffic handwashing, the tankless electric water heater is quickly proving to be the best solution for lowered environmental impact and cost savings. ●