

BIG SAVINGS

In A Small Package



Conserve energy and water, as well as space, when using a point-of-use tankless water heater.

by Kelly Faloon

The energy it takes to heat water accounts for 20 percent of an average household's annual energy use. The cost to operate a conventional gas or electric tank-type water heater is about \$200 or \$450 a year, respectively. And about 10 percent to 20 percent of a home's water-heating cost is a result of standby heat losses—when heat from hot water stored in a tank is conducted and radiated out from the tank. So says the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy.

Not only is energy wasted with storage tank water heaters, but water is as well. Each year in the United States, more than 80 billion gallons of water are wasted as people wait for hot water at the faucet, says Kyle Murray, vice president of marketing for Controlled Energy Corp.

One way to realize energy efficiency and water conservation is to install a tankless, or instantaneous, water heater. These types of water heaters dominate the European and Asian water heater market, while the United States primarily uses tank-type water heaters. But the market is growing.

"Regulations to emissions and energy efficiency make it more and more difficult to meet those standards with a tank-type water heater," explains Jim Resnick, director of product development at Bradford White Corp. However, he points out that, with recent changes to energy standards for tank-type water heaters, they use energy much better than in the past and "certainly have their place in this industry."

No argument here. But for homeowners concerned about preserving natural resources or just keeping their utility bills down, contractors need to be aware of products and technologies to serve their needs. And tankless water heating seems to be one of those technologies that will continue to grow in popularity. Tankless units create hot water on demand, which means that energy is used only when hot water is called for, i.e., when the hot water tap is turned on.

The production of hot water is immediate and unlimited. And when the tap is shut off, the water heater shuts off.

Installation and service are easier because the units are so small. A typical tankless water heater is compact and lightweight, and one person can carry it in and install it. Compare that to the 40-gallon tank that takes at least two people to install and can fill up a small room. Because of their smaller size, tankless units can be installed almost anywhere.

There are two types of applications for tankless water heaters: whole house and point-of-use. Whole-house units are most comparable to typical tank-type water heaters, but point-of-use units have more specialized uses.

Point-of-use units are used for one of two reasons: To supply hot water to a remote location not served by a larger water heater, or eliminate the wait time for hot water at a particular faucet.

"Tankless point-of-use heaters are ideal for eliminating long pipe runs," Murray explains. "They typically don't produce the same large flow volume of a whole-house tankless heater, but that's because they are supplying only one source—bathroom sink, kitchen sink, etc."

Residential Use: POU tankless units are commonly used in commercial or industrial applications—hand washing, sinks, showers and wash-downs—in offices, schools, stadiums, malls, restaurants, and factories. They are also ideal for camps, recreational vehicles and mobile homes.

"The most explosive growth for the tankless water heater has taken place in the last couple of years in the residential market," says Aaron Siegel, vice president of sales and marketing at Eemax Tankless Water Heaters. "A growing awareness of this technology and a better-educated consumer has led to end users and builders asking for tankless water heaters."

POU units are compact enough to be installed under a sink or next to a shower, wherever hot water is needed. Installation close to the hot water outlet eliminates running pipe from the tank heater.

“There is simply no other way that supplies hot water as efficiently and with as little waste of water,” says Frank Stiebel, president of Stiebel Eltron. “If you supply hot water from a central point, there is more waste of water and energy. This is especially true in a larger building where the hot water draw-off points are spaced far apart.”

Some point-of-use tankless products in the market today include:

• **Eemax Single Point Models**—

electric, microprocessing temperature control, patented staged heating elements, built to comply with water conservation codes, 99 percent efficiency, www.eemax.com.

• **Bradford White's Kwickshot**—

electric, easy access to heating element for removal and replacement, built-in integral flow restrictor to ensure proper temperature rise.

www.bradfordwhite.com.

• **Controlled Energy's Powerstream**—

electric, solid copper heat exchanger, copper-sheeting heating elements, 99 percent energy efficiency.

www.controlledenergy.com.

• **Stiebel Eltron's DHC/DHC-E**—

electric, copper-sheeted heating elements, temperature high-limit switch, built-in scald guard thermostat (below 130 degrees F for DHC units, below 125 degrees F for DHC-E units), www.stiebel-eltron.de/index.php. A.O. Smith Water Products Co. (www.hotwater.com) displayed a prototype of its ProStar tankless water heater at the recent AHR Expo, and projects it will be available through wholesale distribution during the third quarter.

Soft Or Hard Water: What about homes with hard water? Hard water does not affect tankless water heaters as it does tank-type products. Since there is no standing water, there is less chance for mineral deposits on heating elements. And tankless heaters use lower temperatures.

“Lower temperatures mean less buildup of lime and other minerals,” Stiebel explains. “In a tank-type heater, you are required to heat the water by code to 125 degrees F to ensure that there is no growth of bacteria in the tank. With tankless heaters, this concern has been eliminated since there is no tank.”

However, the inlet screen installed on most point-of-use models to help minimize sediment and deposits from getting into the heating unit can become blocked, Resnick notes. Heat-exchanger-type units should have periodic cleaning to remove calcium/sediment buildup.

“If units are not cleaned properly, they may be subject to reduced efficiency, flow rate and eventual failure of the heat exchanger,” he says. A water softener may help to minimize this risk.



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