

Fact Sheet - Tankless Water Heaters

(Draft copy from National Food and Energy Council)



Getting the terms straight:

The term *tankless water heater* can refer to two designs: (1) the central, whole-house unit that takes the place of a conventional water heater, and (2) the smaller under-the-sink units that are often called *point-of-use* water heaters. This second style delivers hot water to a single faucet. There could be several of these used in the same house; another common application is in hotel rooms.

Capacity for Electric Units (kW):

Manufacturers' literature suggests that newer tankless units have sensors that vary the electrical demand (watts) according to the amount of hot water required at the time. In other words, they come on in stages to use just the amount of electricity needed for the water flow rate going through them, to maintain the set temperature. Below is a description taken from one manufacturer's Web site (Siesco) that describes this:

POWER RATING: The four-chamber models contain four electric heating elements whose combined wattage is the total power rating of the heater. For instance, the standard RA-28 model contains four 7000-watt elements for a total of 28,000 watts, or 28 kilowatts (kW) of power. The two-chamber model, RA-14, contains only two 7000-watt elements for a total power rating of 14,000 watts, or 14 kilowatts (kW). However, because of Seisco's "Power Sharing" technology, the heater may not always use the maximum available power. The power output can vary with flow rate and temperature rise. Refer to the Product Specifications Table for the maximum power ratings of each model.

MAXIMUM CURRENT RATING: Each Seisco Model has a maximum electrical current rating (or amp rating) equivalent to the sum of the heating element ratings. For example, a four-chamber model, RA-28, operating at 240 VAC has four heating elements, each with a maximum rating of 29 amps. The maximum current rating or total current rating of the RA-28 is therefore 116 amps or the sum of the four heating elements. However, because of Seisco's "Power Modulating Technology", the actual current measured during relatively low flow rates and/or low temperature rises can be less than the maximum rating of the heater during operation. Refer to the A (max) or maximum amp rating under "Electrical" in the Product Specifications Table for each model.

Documenting Energy Savings Potential:

For any water heater, the majority of energy is used to heat the incoming water from approximately 50 degrees F to the final temperature of about 120 degrees F. Of the total energy used by an electric water heater, approximately 85 to 95% of the electricity goes to this purpose. Any savings in energy (and water) over a conventional water heater would come from two areas:

Reducing standby losses – a tank of hot water will lose heat through the sidewalls over time. For a well-insulated conventional water heater, these standby losses are relatively low. When the water tank is located in an unheated basement, standby losses can be higher but still in the range of 10 to 15% of total energy use. Tankless units would eliminate these losses.

Reducing line losses - the heat that is lost from the water remaining in the pipes between the tank and the faucet represents line losses. In winter months, this heat is not "lost", because it helps heat the home (if pipes are run through interior walls). Typical values for line losses are 4 to 12% of total water heating energy use, so this is the savings potential for a tankless unit.

For long houses with lengthy pipe runs, standby losses will be greater. Also, water waste is higher as family members run water down the drain waiting for it to heat up.

Some Web Sites With Interesting Information:

Below is a partial listing of Web sites that contain useful information

www.seisco.com/

www.meikib.com/

www.dulley.com/search.shtml

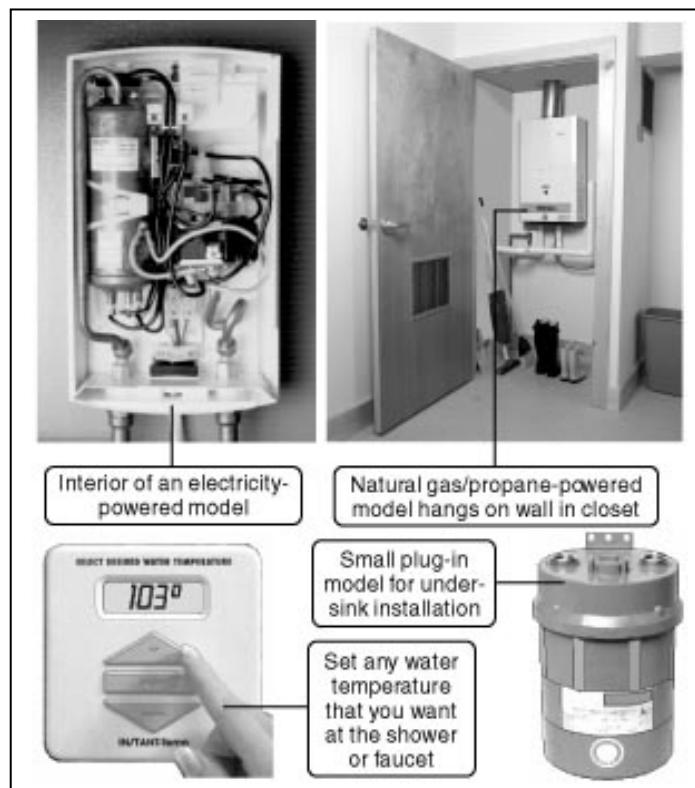
www.ControlledEnergy.com

www.houseneeds.com/shop/HeatingProducts/WaterHeating/ProductsWaterHeaters.htm

www.hotwaterheater.com

www.s-t.com/daily/03-98/03-29-98/d02ho142.htm

Photo:



Developed by Richard Hiatt, President
National Food and Energy Council