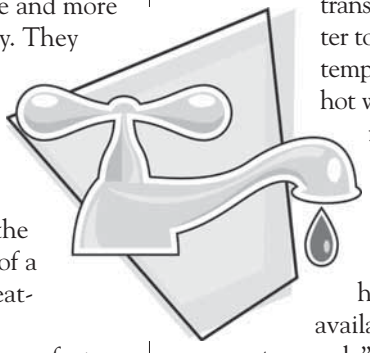
Tankless or On-Demand Water Heaters vs. Conventional Water Heaters

Recently, members have questioned the benefits of tankless (aka on-demand) water heaters. Tankless water heaters are becoming more and more prevalent in today's society. They have their advantages and disadvantages, as do tank-storage water heaters, and we would like to help you make an informed decision before the purchase and installation of a new/replacement water heating device.



Tankless water heater manufacturers usually state four advantages over conventional tank style water heaters.

- Less space required for installation.
- Unlimited (continuous) supply of hot water.
- Instantaneous hot water if installed at the point of-use.
- Reduced water heating costs.

It's true that tankless water heaters require less space than a tank style unit. Typically, a whole house tankless unit is mounted on a wall and is 2 foot square and extends 8 – 10 inches from the wall. The claim of "unlimited supply of hot water" may not be entirely true. A tankless water heater's outgoing water temperature depends greatly on entering water temperature and flow rate. If the user demands too much hot water, even the largest tankless unit may not be able to meet the demand. Tankless water heaters are designed to raise the temperature of water as it passes through the unit. The faster the water passes through, the less heat is able to be transferred into the water. Showers in use simultaneously, or the combination of a washing machine, dishwasher and sink all being used at the same time may cause the temperature of the hot water generated by the tankless unit to drop. Also, the colder the water is as it enters the unit, the more heat must be transferred into the water to get it to the desired temperature. A reduced hot water temperature may be experienced in the winter as compared to the summer time.

It's true that hot water will be available almost "instantaneously" if the unit is installed near the point of use. If it's not installed within close proximity (a few feet), it will take a few seconds to get hot water to the faucet, which you will also experience with a conventional tank style water heating system.

The claim of "reduced water heating costs" is the part that we are most interested in, and you probably are as well. Tankless water heater manufacturers do not claim to be able to heat water more efficiently, but claim that savings will come from the fact that you will no longer have standby losses from the water heater. Heat losses on a conventional water heater can be reduced by the use of insulation. Providing adequate insulation around and underneath your tank style water heater, can reduce your standby losses. Placing your tank style water heater on top of a piece of Styrofoam insulation board (this may not be recommended for gas units) will help prevent the heat from being transferred out of the water in the tank and into the floor of your home. Insulating your hot water piping, using timers and low-flow showerheads can increase savings from your hot water system.

Some other items that should be considered with a tankless system are:

- Is your service size large enough to handle the added load that's required?
- Dimming lights and low voltage concerns may occur with the tankless units due to the high current draw when starting.
- If maintenance is required, are qualified service technicians available? What is the availability of parts, and the lead-time for them?

We, as an electric utility, also have some concerns about the installation of tankless units as well:

- Larger transformers and service wires will be needed to supply the high demand of a tankless unit when it starts, thus increasing the cost of electric service for us and for you.
- Reducing our overall demand, especially in peak times, reduces our cost of electricity, thus reducing yours as well.

Tankless water heaters have advantages. They are compact and are easy to drain; consequently, they could be ideal for applications where space is a premium or in small vacation homes. In addition, they could serve quite effectively in point of use applications. However, their use as the central source of hot water in a residence should be carefully considered. While tankless water heaters offer some modest energy cost savings over storage water heaters, those minimal gains are at the expense of higher initial costs, higher installation costs, higher maintenance costs and the potential need for lifestyle changes to accommodate the limited flow rate output of tankless water heaters.

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