

Intro to Tankless Water Heaters Training Flyer

One type of product we sell is Navien tankless water heaters. There are many advantages of a tankless water heater over a tank type. Working in our industry, it's important we all have at least a basic understanding of what those advantages are and how tankless water heaters work. This flyer will serve to cover just that.



Some Advantages of Tankless:

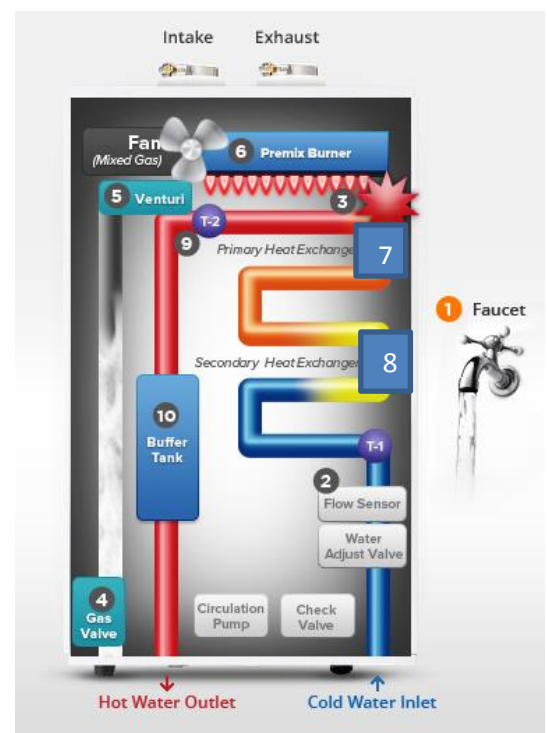
A tankless water heater is an alternative solution to heating water in a home or commercial building. It only runs when hot water is needed rather than traditional methods. There are many advantages of a tankless water heater over a tank type. Below is a brief overview of some of them.

- **Energy Savings:** Traditional tank type heaters work by storing a certain number of gallons and keeping that water heated all the time. Tankless units (also called “on demand” units) heat water only when you turn on the faucet. They usually operate on natural gas or propane. The main advantage is that they eliminate the extra cost of keeping 40 to 50 gallons of water hot all the time, creating energy savings.
- **No cold showers:** Conventional tank-type water heaters eventually run out of hot water when you take multiple draws in a row from the tank. Since Navien Condensing tankless water heaters only provide hot water when you need it and can provide an endless supply of hot water, you never have to worry about running out of hot water no matter how many hot water draws you have in a row.
- **Product Life:** A tankless heater has a lifespan of 15-20 years whereas a tank type is around 10 years. Navien has a 15 year warranty on the exchanger for residential application.
- **Rebate:** Although more expensive up front, tankless heaters have associated rebates to offset some of the these cost. The rebates are typically \$300. You can find specific rebate information [here](#).

How does a Navien Tankless Work:

Navien tankless are the most efficient tankless heaters available. This section will discuss how Navien tankless heaters work and how that varies from other brands. Navien tankless are **condensing** tankless models. Navien Tankless heaters burn natural gas (or LP) for heat. Condensing units more efficiently use the exhaust gasses than non-condensing tankless. Below is a quick step by step of how it operates. This is similar to the Condensing Boiler discussed in the [Boiler Flyer](#).

1. When a hot water tap is opened the unit detects the flow.
2. The flow sensor determines how much hot water is needed.
3. The igniter is activated.
4. The gas valve opens and allows gas into the system.
5. The fan and venturi (something that measures the flow rate of the gas) turn on to provide gas.
6. The burner ignites.
7. The exhaust gas is ran over a heat exchanger to heat the water.
8. As the exhaust gas gets further away from the flame it is ran over a second heat exchanger closer to the cold water inlet.
 - a. The cooler water in the second heat exchanger causes moisture to condense out of the air and drip down into a drain line.
9. The unit detects the temperature of the water and adjusts the flame when needed.
10. The heated water is moved to a small buffer tank and desired hot water is delivered to the system.

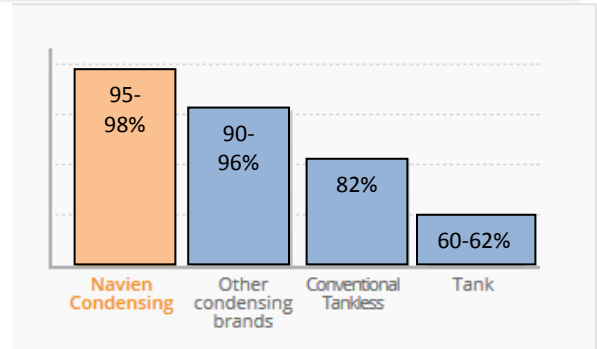


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Navien v. Non-Condensing Tankless:

Non-Condensing units have a similar process to heat water; however, they do not run the gas over a second heat exchanger. Because of this the exhaust air is expelled into the outside air while it still has heat energy in it. This is the main reason why Navien condensing tankless heaters are so much more efficient than non-condensing. The exhaust gas leaving a Navien is around 85-130 degrees while a non-condensing tankless exhaust air is around 250 degrees.

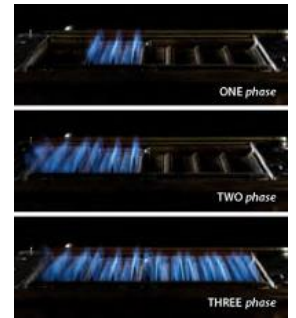
Navien tankless exhausts such cool air it can be vented through PVC pipe where the other systems may require specialized metal venting which can be expensive.



Phasing:

Navien tankless water heaters have the ability to adjust the level of heat they are producing based on how much hot water is needed. It does this by having 3 phases. If the water heater detects only a small amount of hot water needed, for example a bathroom faucet, it will only turn on to Phase 1. If someone is taking a shower while the dishwasher is running the system may kick on all the way up to Phase 3.

This allows the heater to burn less gas when smaller amounts of hot water are needed. This is a similar concept to [Turn Down](#) in Tankless Boilers and [Multi-Staging](#) in HVAC Systems.



Recirculating Pump:

Navien's standard model of tankless heater comes with a recirculating pump in it. These systems slowly pump hot water through your hot water pipes which means hot water is always available at the tap. This dramatically reduces waste water ran down the drain while the water heats up. It is estimated that a typical U.S. home wastes 12,000 to 38,000 gallons of water annually waiting for hot water. Having the recirculating pump helps save some of that wasted water.

You can read more on re-circulating pumps in the [Re-Circulating Pump Flyer](#).

Ready Link:

Navien Tankless heaters have what is called a Ready Link Cascade System. In this system up to 16 heaters can be used in one application. The heaters act as one unit by connecting them through a ready link cable. This can be a great alternative to large commercial tank type water heaters.



Next Steps and a Couple Questions:

The first next step is to learn more. The link below shows the steps listed above in a video.

http://us.navien.com/What_is_a_Tankless/How_Does_It_Work/

TRUE or FALSE: Non-Condensing tankless units have a second heat exchanger it is just less efficient.

TRUE or FALSE: Tankless can have up to twice the life of conventional tank-type heaters.