



THE ULTIMATE GUIDE TO

TANKLESS WATER HEATERS



Ultimate Guide to Tankless Water Heaters

A water heater is one of the most important fixtures in a home because of its ability to provide a home with hot water. Sooner or later, a water heater will need to be replaced. Finding the right water heater for your home can be a daunting task, which is why we've created this ultimate guide to make this process easier and more concise.

Monkey Wrench Plumbing, Heating & Air is trained and certified with some of the top tankless water heaters manufacturers like Noritz and Navien. Since 2007, we've helped thousands of homeowners across the Los Angeles area with their tankless water heater needs, including helping them decide if a tankless water heater is right for them. Now, it's your turn!

In this guide, we will tackle all the basics you need to know when considering purchasing a tankless water heater, such as:

- **What a tankless water heater is**
- **Tankless water heater costs and pricing**
- **Top brands**
- **Available rebates and tax credits**
- **Pros and cons of a tankless water heater**
- **Warranty**
- **Maintenance for a tankless water heater**
- **Top issues seen with a tankless water heater**

By the end, this guide will bring you up to date with everything regarding tankless water heaters so you're in a better position to determine if this system is suitable for you and your home. Let's jump right in!



Noritz and Navien tankless water heaters.

What Is a Tankless Water Heater?

A [tankless water heater](#) is a water heater that heats your water without the bulkiness of a tank. **Instead of using a water tank to hold hot water, a tankless water heater continuously heats up water on demand using natural gas or electricity.** Whenever hot water is needed, the tankless water heater pulls water from the main line and heats up via a built-in heat exchanger.

Whereas tank-style water heaters are available in different gallon sizes, **tankless water heaters are measured by how many gallons of water they can deliver per minute.** Also known as GPM, this rating system helps homeowners and technicians pick and choose a tankless water heater that is more than capable of meeting a home's hot water demands.

The notion of eliminating the tank design of a water heater is not a new concept. Tankless water heaters have been around for the last few decades. [Brands](#) like Rinnai and Noritz were one of the first companies to debut tankless water heaters for residential homes.

Since their introduction, these brands, along with Navien and Rheem, have continued to refine the mechanical design of the tankless water heater to improve their water heating ability and energy efficiency.

Let's take a closer look at how exactly tankless water heaters operate.

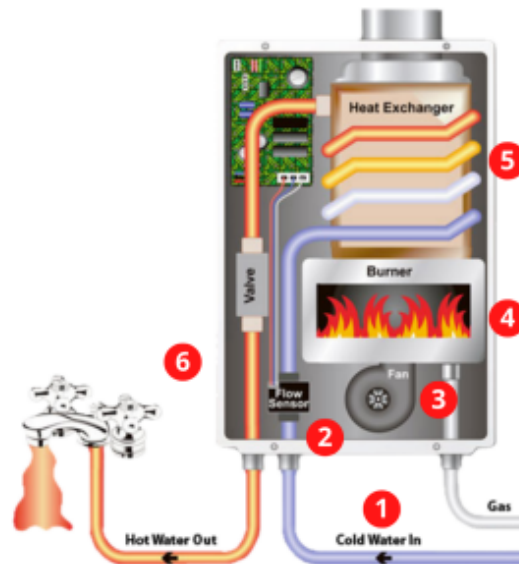


A Monkey Wrench technician inspects the inside of a Noritz tankless water heater.

How Does a Tankless Water Heater Work?

Tankless water heaters can be complex, but thankfully, there is an easy way to understand [how a tankless water heater works](#), and it can be broken down into a step-by-step process along with a fun graphic to help.

1. Cold water enters your tankless water heater from the mainline and passes through the flow sensor.
2. The flow sensor alerts the computer board that water is entering the water heater.
3. The computer board then turns the fan on, and the gas valve opens. You may hear a clunking sound as this happens. Don't worry; this is normal! (If the tankless water heater is powered by electricity, then the sensor activates the heating power source.)
4. Once gas flows into the unit, the burner roars to life. Or, if the system is electricity only, the power source begins to heat up.
5. The cold water enters the heat exchanger and goes through a series of tight bends in the pipes to get up to the temperature set on the control panel.
6. After the water reaches the correct temperature, it exits the heat exchanger, passes through the bypass valve, and comes out of your fixtures.



The graphic shows a numbered path of water for tankless water heaters.

Your tankless water heater will go through this process each time you use hot water in your home.

Tankless water heaters are designed to provide hot water without running up energy consumption costs. These water heaters can save you money in the long run, but how much do they cost upfront? In the following section, we'll break down tankless water heater costs.

How Much Do Tankless Water Heaters Cost?

Tankless water heaters can range anywhere from \$4,500 to \$8,500 when it is provided and installed by a certified tankless water heater company. A tankless water heater can cost a few hundred to a few thousand dollars for just the unit without any installation.



A Noritz tankless water heater mounted on a wall.

Installation is just one part of the factors that affect [tankless water heater pricing](#). **A home's entire layout, number of bathrooms, fixtures, and overall hot water usage are some factors that can determine what kind of tankless water heater is required.**

While every home is different, there are a few main factors that can increase or decrease the overall cost of installing a tankless water heater.

1. Water Heater Brand

Just like with a new car, the brand, make, and model of your tankless water heater will affect the overall price. **Most brands will price their tankless water heaters between \$1,000 to \$5,000 for just the unit itself.** The most popular brands of tankless water heaters include:

- [Noritz](#)
- [Navien](#)
- [Rheem](#)
- [Takagi](#)
- [Rinnai](#)
- Bosch
- EcoSmart
- Ruud

Some of these brands can be purchased directly through a hardware store or online, while some manufacturers only offer their tankless water heaters through a third-party business that can also provide installation.

Although it may be cheaper to purchase a tankless water heater through a store and potentially install it yourself, it is highly recommended to contract a certified technician.



Two Monkey Wrench technicians preparing to mount a Noritz tankless water heater.

A technician is capable of ensuring that the installation goes smoothly without any issues that can possibly void a warranty. Technicians can also correctly size your tankless water heater if you're making the switch from conventional to tankless.

These brands have tankless water heaters with different GPM capacities so that homeowners in Los Angeles and the surrounding areas have the right-size tankless water heater to meet their hot water usage. Most of them have two kinds of tankless water heaters available: condensing vs. non-condensing.

2. Condensing vs. Non-Condensing

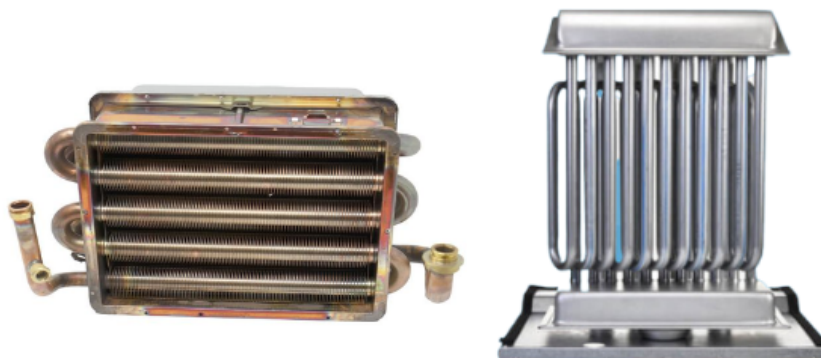
Tankless water heaters can either be condensing or non-condensing. **Condensing units tend to cost more than non-condensing.** Here's the difference between condensing tankless water heaters and non-condensing.

- **Condensing tankless water heaters:** This type of tankless water heater is more energy efficient than non-condensing. They have a secondary heat exchanger that is able to extract extra heat to help use as much heat as possible from the heating process. It produces condensed water, which can be drained away.
- **Non-condensing tankless water heaters:** Unlike condensing water heaters, non-condensing tankless water heaters do not have another heat exchanger and are not able to use all of the heat as efficiently. Any extra hot exhaust gasses are released instead of being used to heat water. It also doesn't produce condensed water.

One major difference between the two is the addition of an extra heat exchanger. This component is responsible for ensuring water coming into the tankless water heater is being heated.

3. Heat Exchanger Material

The kind of heat exchanger inside your tankless water heater will also affect the overall cost. Heat exchangers are made of two materials: copper and stainless steel. While the heat exchanger doesn't significantly impact the overall cost, **copper heat exchangers tend to have a shorter lifespan than stainless steel heat exchangers.**



Copper and stainless steel heat exchangers for a tankless water heater.

Check out this article on [Copper vs. Stainless Steel Heat Exchangers](#) for a more in-depth look at the difference between the two.

The heat exchanger is important, but there are additional components that also factor into the final price.

4. Installation Materials

You may be surprised to learn that, even if you purchase a tankless water heater, **there are some materials that are not included in the water heater**. A technician usually has these additional parts on hand and ready for installation with a tankless water heater. **Other materials that will affect the cost of your tankless water heater are:**

- **Any new water pipes**
- **Any new gas venting**
- **Any new gas lines**
- **Any electrical work**

Choosing to install your tankless water heater where your old water heater was will save you from having to run new water and gas lines. However, if you'd like to change where your tankless water heater is installed, running new water and gas lines will increase the cost of your overall installation.

While every installation has a few modifications that need to be made, the more that need to be updated or replaced will increase the overall cost of installing your tankless water heater.

5. Installation

The actual cost of the labor required to complete a [tankless water heater installation](#) is one of the biggest contributors to its overall cost. **Although you can save money installing a tankless water heater on your own, it's highly recommended by manufacturers to contract a certified technician to complete the installation.** This ensures there aren't any issues that affect the performance of a tankless water heater.

[Experienced technicians usually take between four to six hours to complete a full tankless water heater installation.](#)



Two Monkey Wrench technicians in the process of installing a tankless water heater.

There isn't a set price for all technicians who specialize in tankless water heaters, so it's important to seek a business that is reputable and has plenty of great reviews from previous customers. Knowledgeable technicians can also recommend any additional accessories that can help protect a tankless water heater.

6. Add-Ons

While purchasing a tankless water heater (and the additional installation pieces) will get you endless hot water, there are add-ons that you can add to your tankless water heater to help your hot water flow, prolong the life of your unit, or keep your house safe. These add-ons can cost anywhere from a few hundred to thousands of dollars.

Add-ons that you can include with your tankless water heater are:

- **A neutralizer:** This additional component may be required by some local plumbing codes. A neutralizer helps neutralize the condensed water that is too acidic to simply drain away.
- **Expansion tank:** Expansion tanks are helpful for any water heater, including a tankless water heater. It helps expand thermal heat, which can be helpful in cold climates.
- **Circulation Pump:** A circulation pump helps tankless water heaters provide easier access to hot water and can provide energy savings by reducing wasted water.
- **Water filtration:** Water filtration is installed before a tankless water heater to help reduce scale buildup in the unit. There are various water filtration systems available that can also improve the taste of water entering a home.

Water softeners are another optional add-on with multiple benefits. These systems produce soft water, which is beneficial in areas like Los Angeles that deal with [hard water](#). By removing the minerals in hard water that cause limescale buildup, water-softening systems can help extend the life of a tankless water heater.



A water softener with a brine tank.

Available Rebates and Tax Credits for Tankless Water Heaters

Local and federal incentives are available for homeowners who want to install a tankless water heater in their homes. Federal tax credits are available for homeowners nationwide. Still, some local agencies can incentivize homeowners through special rebates and credits of their own.

For example, in southern California, these rebates are offered by SoCal Gas, and the City of Long Beach offers its own rebates through the 2023 Home Energy-Efficiency Rebate Program. Homeowners can earn up to \$1,600 if they qualify for the rebates and tax credits.

To qualify, homeowners must meet the following criteria:

- Replace a traditional water heater with a high-efficiency tankless water heater that qualifies.
- Purchase the tankless water heater before the end of the year.

The credit earned depends on the tankless water heater model. Here's a list of manufacturers with qualifying tankless water heaters.

- [Noritz](#)
- [Navien](#)
- [Rheem](#)
- [Takagi](#)
- American Standard
- Bosch
- Ecosmart
- Rinnai

Having the ability to apply for rebates to help reduce the cost of a tankless water heater is just one of the many benefits available. In the following section, we'll look at other pros and review the cons of tankless water heaters.

Pros and Cons of a Tankless Water Heater

Tankless water heaters have plenty of benefits but a few drawbacks that are worth noting. We'll look at benefits first before jumping into drawbacks.

Benefits

- **Take up less space**
 - **One of the biggest pros of having a tankless water heater is that it's much smaller than a conventional heater** and can help open up a space if you need it. The extra space is helpful for smaller homes or houses with limited space.
- **Tankless water heaters last a long time**
 - **On average, a [tankless water heater can last up to 20 years with proper yearly maintenance](#)**. However, with proper water filtration and by doing maintenance once a year, typically, a tankless water heater with a copper heat exchanger can last anywhere from 12 to 20 years.
 - With a stainless steel heat exchanger, the lifespan of a tankless water heater increases. **With the proper maintenance and water filtration, the tankless water heater can last about 25 to 30 years.**

- **Energy Costs**
 - **Tankless water heaters offer more energy savings than conventional water heaters.** These units consume less energy to heat up water and help households save hundreds of dollars in energy bills.
- **Rebates**
 - If you have a conventional water heater and are looking to go tankless, there are rebates in Southern California for qualifying tankless water heater models, including a federal tax credit. Check out this article [here as we dive deeper into the rebates offered for tankless water heaters in Southern California.](#)
- **Unlimited Hot Water**
 - Tankless water heaters can heat as much water as you need for as long as you need. This means:
 - Bathtubs can be filled to the brim with hot water
 - Showers can be as long as you want
 - Planning showers around family members is a thing of the past
 - Showers can be taken after loads of laundry or washing dishes

Instead of holding water in a tank, tankless water heaters provide a continuous stream of hot water. The water available is measured in gallons per minute (GPM), ranging from 2 to 8 GPM.

Endless hot water means endless possibilities.

Drawbacks

- **Upfront Cost**
 - Tankless water heaters have a higher upfront cost compared to conventional water heaters. **While conventional water heaters can cost \$3,200 to \$5,900, tankless water heaters can cost anywhere from \$4,500 to \$8,500, including installation.** While the upfront cost of a tankless water heater is higher, the warranties and life expectancy of a tankless water can actually save you money in the long run.
- **Larger Homes**
 - While most tankless water heaters have no problem keeping up with hot water demands, the larger your home is, the larger the demand. **If you live in a large home, you may need to install more than one tankless water heater to make sure you'll always have endless hot water.**

- **Yearly Maintenance**

- With a tankless water heater, yearly maintenance is highly recommended for homes that have hard water. While yearly maintenance is recommended to keep a tankless water heater running smoothly, you can have a trained tankless specialist perform your cleaning or even do it yourself.

- **Hard Water Issues**

- Hard water is not a fan of the tankless water heater, so if you don't have water treatment installed on your tankless, it can very likely cause early breakdowns or a leak. Because water is heated up through the heat exchanger, hard water will create scale buildup inside of your tankless water heater. This can cause your tankless water heater to work harder to heat water and shorten the lifespan of your tankless water heater.



A copper heat exchanger with hard water damage caused by scale.

What Do Warranties Look Like for a Tankless Water Heater?

All tankless water heaters come with a manufacturer warranty that can be reviewed online or available as a physical copy with every tankless water heater. **In general, the warranty for a tankless water heater is 10 to 15 years, but some brands, like Noritz, have models that come with a 25-year warranty.**

Heat exchangers are vital for any tankless water heaters and have their own warranty. **With a copper tankless heat exchanger, your tankless water heater has a warranty of 12 to 15 years. A standard warranty for a tankless water heater with a stainless steel heat exchanger is 15 to 25 years.**

Maintenance for a Tankless Water Heater

A tankless water heater is an investment and needs maintenance to have a long and happy life, but what does that entail? With tankless water heaters, [there are two types of maintenance](#):

1. **Internal maintenance**
2. **External maintenance**

When you clean and maintain the internal and external components of your tankless water heater, you're protecting it from early breakdowns. Preventative maintenance can help your tankless water heater last longer without repairs or breakdowns.

Though annual maintenance isn't a cost you have to worry about during installation, keep in mind that yearly cleaning for your tankless water heater will be one of the most important things you do to protect your tankless water heater (outside of water filtration).

Internal Tankless Water Heater Maintenance

Internal tankless water heater maintenance involves cleaning the parts of your tankless water heater where water runs through. These areas can build up sediment that can affect the performance of a tankless water heater. The best way to remove this sediment is through an annual tankless water heater flush.



Monkey Wrench technician performing a flush on a tankless water heater.

Think of your tankless unit as a coffee machine. If you do not clean it out regularly, it will not work. When cleaning a tankless water heater, it's important to cycle the cleaning mixture through the pipes for about an hour to remove as much debris as possible.

Learn how to [gain a better understanding of what flushing a tankless water heater is, along with how to do it yourself](#). *Hint: you can do it yourself!

External Tankless Water Heater Maintenance

If you only focus on the internal maintenance of your tankless water, you could still have things clogging your tankless unit, including:

- Bug infestations
- Feathers/fur
- Animal nests
- Leaves
- Dirt

These pesky things can either wiggle their way into your tankless unit or be blown in by the wind. What's worse is without the proper cleanout, any debris that is in your tankless water heater will continue to accumulate and may cause breakdowns.

Other external components that are important to clean include:

- **Fan motor, fresh intake valve, and exhaust:** These parts should be cleaned with an air compressor to reduce energy waste.
- **Filters:** Filters should be cleaned out or replaced to keep the water heater protected from grime.
- **Burner and assembly:** Both should be cleaned to make sure they're working correctly.
- **Gas and manifold:** The gas and manifold on your tankless water heater should be checked during maintenance to make sure they're at stable pressures and working correctly.
- **Flame and ignition rods:** Flame and ignition rods should be inspected and cleaned for proper levels and to ensure easy ignition.

The external maintenance can be done by the homeowner. Or, it is usually a part of the annual service performed on a tankless water heater by a technician. A professional technician can ensure the tankless water heater is serviced inside and out.



A Monkey Wrench technician inspects a Noritz tankless water heater with a flashlight.

How to Prolong the Lifespan of Your Tankless Water Heater

We now know what to look for when it comes time to get maintenance done on your tankless water heater, but now you must be wondering, “Well, how do I avoid all that and make my tankless unit last its full life?”

Prolonging the lifespan of your tankless water heater relies on several different factors.

1. Maintenance

One of the top ways to get the most out of your tankless water heater is to get yearly maintenance done on your unit. Lack of maintenance will cause early breakdowns regardless if you have water treatment or not. As mentioned before, maintenance is super important!

While sometimes it may seem like a quick fix, having maintenance done isn't just flushing out the water heater. Other maintenance includes using an automatic compressor to clean out the debris or lint that can get into the internal parts, such as the fan.

2. Prevent Hard Water

Another way to prolong the life of your tankless water heater is to avoid having hard water. If you are in an area that has hard water, like much of Los Angeles, it is highly recommended that you get water treatment to prevent early breakdowns. Not having a water treatment with hard water can slowly start to cause a leak in the heat exchanger or early failure of parts inside the unit.

Top Potential Issues with Tankless Water Heaters

To have your tankless water heater live its full life, it is recommended that you get maintenance performed on your tankless water heater once a year. But how do you know it's time for a checkup on your unit?

Well, there are a few ways to tell that it's time to get maintenance done on your tankless water heater, whether it's an old or a new model.

1. Error Codes

If you find that your tankless water heater is showing any error codes, then it may be time to get service done on your tankless water heater. Error codes are numeric or alphanumeric (numbers and letters) codes that appear when the control unit inside a tankless water heater recognizes a possible problem. Much like a check engine light on your car, an error code is usually a sign that something is wrong.

While some of the most common error codes have simple fixes (like cleaning and maintenance), other codes could help indicate something more serious, like combustion issues or part malfunctions. So, if you find that your tankless water heater is flashing an error code, it is best to call a technician.

2. Dirty Unit

Like anything else, your tankless water heater gets dirty. Over time, your tankless water heater will collect dust and debris. On Noritz models, that will appear as "[Error Code 90](#)," or for Navien models, it'll pop up as "[Error Code e760](#)."

When the unit gets dirty, don't panic because the tankless water heater will still try to provide hot water for you and will self-adjust your gas pressures. Because of this, the gas manifold will need to be reset to factory settings as part of the maintenance.

3. No Gas

Sometimes, the gas will cut out from the tankless water heater, and it's almost always because of the earthquake shutoff valve that was tripped.

If your tankless water heater's gas meter is in a high-foot-traffic area, the pipes near the gas line can be bumped into, shutting off the gas line. With Noritz models, an "[Error Code 11](#)" will appear, and with Navien models, it will show "Error Code e003."

Gas lines should not be tampered with, and it's best to contact 811 to report a leaky gas line. If there's no hot water, then it's also a good idea to contact a technician.

4. Flame Loss

Flame loss is another common issue with tankless water heaters. It generally means that the tankless water heater wasn't running, and for some reason, it just cut out. With Noritz models, "[Error Code 12](#)" appears, and with Navien models, "[Error Code e012](#)" will pop up. But why does this happen?

Some of the reasons your tankless water heater flame would run out include:

1. **The water heater is picking up moisture.**
2. **There's a gas leak.**
3. **Something is blocking the vent.**

If this happens, it typically means that the issue is more complicated and will likely need to be addressed by a certified technician.

Is a Tankless Water Heater Right for You?

Tankless water heaters are popular among homeowners, but are they for you?

You should consider getting a tankless water heater if:

- If long-term savings are your top priority, a tankless water heater can provide long-term savings that balance out the higher upfront costs.
- If energy savings are your top priority, a tankless water heater is more efficient because it eliminates the need to keep your water supply heated.
- If you have a smaller home with one or two bathrooms, a tankless water heater can provide enough hot water with fewer limited flow rates.

A tankless water heater might not be right for you if:

- If you are not ready for the upfront investment of a tankless water heater, [conventional water heaters](#) often have a lower upfront cost.
- If you own a large home with multiple bathrooms and fixtures that use hot water, then it may be best to consider getting two tankless water heaters or a conventional water heater that holds more than 50 gallons to meet your hot water needs.

Are You Ready for a Tankless Water Heater?

Tankless water heaters are an investment, so it is important to know the basics involved with a tankless unit. Understanding what a tankless is, how it works, the costs involved, the problems that may arise, and how to address them are important so that you can get the absolute most out of your tankless water heater.

We here at Monkey Wrench Plumbing, Heating & Air are dedicated to giving you all the information you need on tankless water heaters so that you can make the best decision for you and your home. If you're in the Los Angeles area and are interested in seeing what a tankless water heater would look like for your home, book online or call. If you're still not sure or want to learn more, check out our tankless water heater content available at our learning center.