



WATERLESS®
GEOTHERMAL



SIMPLE. EFFICIENT. EFFECTIVE.

WHAT MAKES WATERLESS® GEOHERMAL SO DIFFERENT?

A Waterless® direct exchange geothermal, also known as a DX geothermal, is a type of geothermal heating and cooling system. Unlike traditional geothermal systems that use a water-filled loop buried in the ground, DX geothermal circulates refrigerant directly through the ground loop, transferring heat to or from the earth's surface. In summary: the main difference lies in the medium used to exchange heat with the earth: while water source geothermal uses both water and refrigerant, Waterless® uses only refrigerant, eliminating the need for a heat exchanger, which reduces heat transfer losses and improves overall system efficiency. This results in higher energy efficiency and lower operating costs.

At the heart of the Waterless® geothermal system is the most conductive geothermal loop design in the industry. Copper tubing provides superior heat absorption from the ground, and allows the system to transfer more heat while using much less electricity than other heat pump and geothermal designs.

A Waterless® geothermal system can provide both heating and air-conditioning with savings of up to 70% over a conventional heating and cooling system (see figure 1). The copper ground loop can be installed either in a horizontal, diagonal, or vertical configuration.

Direct exchange systems require less space for installation, especially when using vertical boreholes, making them suitable for properties with limited space or difficult terrain.

**HEAT AND COOL A
2,100 SQ. FT. HOME
FOR AS LITTLE AS \$29
A MONTH WITH THE
REVOLUTIONARY
WATERLESS®
GEOHERMAL SYSTEM!**

Since the ground temperature remains relatively constant year round at the deeper depths, the Waterless® geothermal system operates at ultra-high efficiencies year-round. At times, the system requires as little electricity as a hand-held hair dryer to heat or cool a home.

The Earth loop options for a Waterless® system can be seen in figure 2 on the next page. The vertical copper ground loop requires a small area for the installation, however the diagonal loop configuration can be installed in an area as small as a 3-foot diameter space in the yard. The diagonal loop configuration provides flexibility when determining the location of the ground loop on your property. This means the Waterless® geothermal system can be installed virtually anywhere. It's ideal in areas with little space, like a small lot in town or a lot in the middle of a woods.

The simple design of a Waterless® geothermal also eliminates a lot of extra parts that are typically used in geothermal. No water, no antifreeze, no water pumps, no plastic pipes, and no water heat exchangers are necessary with the simple, yet efficient design of a Waterless® geothermal.

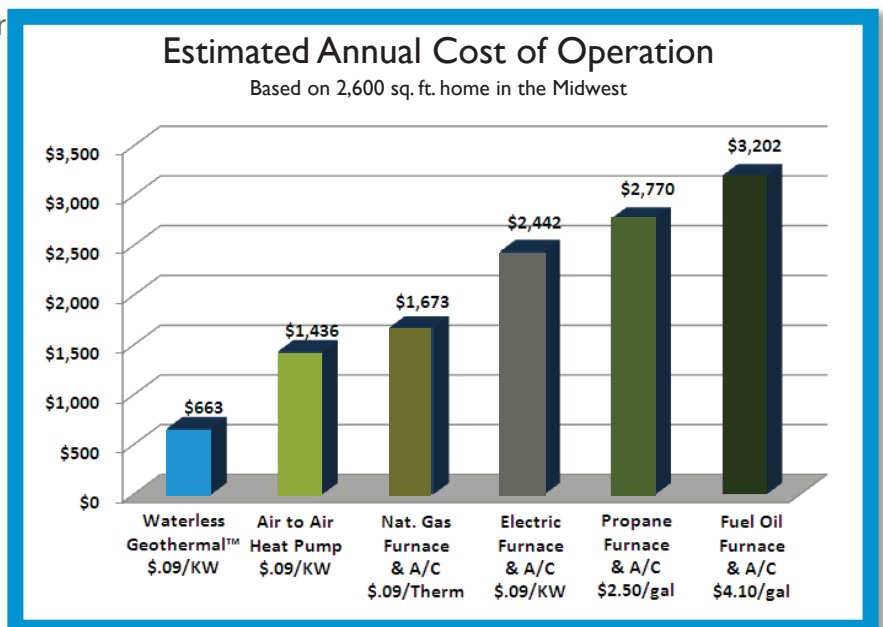
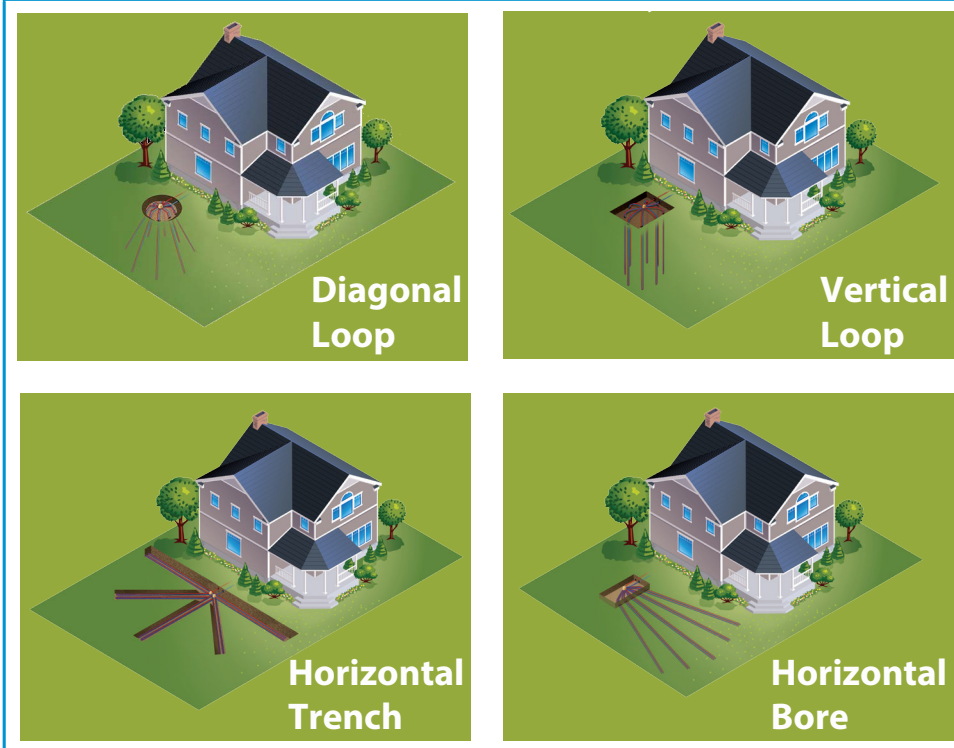


Figure 1

LOOP OPTIONS



Advantages of a Waterless® Geothermal

1. Bigger Savings
2. Longer life expectancy
3. Higher efficiencies
4. No water or antifreeze
5. Less parts
 - No water pumps
 - No plastic pipes
 - No water heat exchanger
6. Conductive Copper ground loop

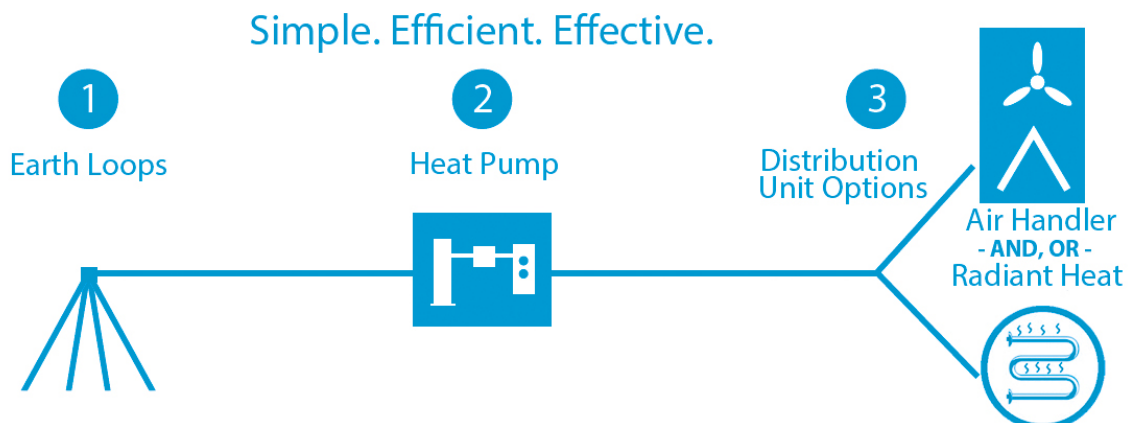
Figure 2

SIMPLE DESIGN

HOW IT WORKS

Pre-engineered for maximum performance, a Waterless™ Geothermal Renewable Energy System works seamlessly with the stored energy in the earth. By using small, highly conductive copper **1** earth loops and environmentally friendly refrigerant, only a small yard space is needed to capture enough energy from the earth to heat and cool your entire home. In the winter, the geothermal **2** heat pump transfers the sun's warm thermal energy stored in the earth into your home.

While maintaining a comfortable indoor environment, in the summer months, the process is reversed and the unwanted heat from your home is sent back into the earth. Our patented technology, controls this process to deliver heat safely and efficiently to your home. The **3** Distribution system conditions the individual rooms in your home via an air duct system or a radiant tube system.



ULTIMATE COMFORT



The Waterless™ Geothermal System is designed to provide maximum comfort and meet all of your heating, and cooling demands by transferring more heat while using less electricity. Waterless™ Geothermal system can provide year round comfort, maximum heat in the winter, and plenty of cool air in the summer. Since the system is so efficient, you will be able to keep your home at a warmer temperature setting during the cold winter months, and still save thousands of dollars every year! See figure 3 below for a breakdown of the long-term savings.

LOW MAINTENANCE & LONGER SYSTEM LIFE

Since the copper ground loop is buried underground, and the Waterless® geothermal system compressor unit is usually set inside the building, this eliminates the need for unsightly outdoor equipment. The Waterless® geothermal design also eliminates a lot of extra components within the system creating greater reliability, and less potential for future system breakdowns. This simplicity allows for more efficient heat transfers, higher efficiencies, more savings, and lower operating cost.

- **Greater Simplicity...**
- **Less Parts...**
- **Better Reliability...**
- **More Efficient Heat Transfers...**
- **Savings you can count on!**

Waterless™ Geothermal Estimated Savings

5 yrs Savings	= \$10,535
10 yrs Savings	= \$21,070
15 yrs Savings	= \$31,605
20 yrs Savings	= \$42,140

Figure 3

COMMITMENT TO THE ENVIRONMENT

Natural gas, propane gas and fuel oil furnaces emit greenhouse gas (CO₂), which can cause global warming. The operation of one fossil fuel furnace is equivalent to cutting down 384 trees! With a geothermal system, greenhouse gases are non-existent, saving our environment and the 384 trees.

Refrigerant is a substance or mixture used in cooling systems, such as air conditioners, refrigerators, and heat pumps. Environmentally friendly refrigerant is used in every brand of geothermal system manufactured today. Since refrigerant has the ability to transfer large amounts of heat from one area to another very efficiently, **it captures the heat directly from the earth transferring the heat to your home very effectively & efficiently.** The refrigerant circulates through the copper ground loops and offers a major efficiency advantage. The Environmental Protection Agency (EPA) even makes a statement that refers to the efficiency advantages of refrigerant. They say, "Refrigerant is a non-toxic, inert gas, posing no direct health threat to humans – nor to the groundwater – and it can be used with confidence in underground heat exchangers... and has an inherent efficiency advantage over a conventional water source geothermal"... so you can rest assured a DX geothermal is not only efficient, but also environmentally safe as well.

EASY INSTALLATION

The entire installation typically takes only 5-7 days. The copper ground loop can be installed before or after the ductwork inside the house is installed. The Waterless™ Geothermal System does not require extensive excavation throughout the whole yard.

1. The ground loops are installed. The loop design will determine what type of equipment will be used to install the loops.
2. A trench leading back to the house is dug and two small copper lines are ran into the house.
3. The ground loop is pressure checked and the area is back-filled which will be unnoticeable once grass grows back over the area.
4. The air handler and compressor unit is set inside the house, and the air ducts (or other distribution system) are connected to the geothermal unit.
5. The ground loop is connected to the geothermal unit which is usually located in a utility area like a basement, closet, garage or can be set outside.
6. The system is charged with refrigerant and started up.



INVESTMENT ADVANTAGE

A copper ground loop may cost slightly more, but can easily be offset by a lower drilling cost. However, the value-conscious homeowner quickly realizes the Waterless™ Geothermal System ultimately costs less in the long run (Figure 4.) **offering a quick return on your investment, a short payback period after applying credits from the federal and local incentives to the system cost.** After a proper installation is completed you can dramatically reduce your monthly operating cost for utilities, resulting in annual savings as high as 50% to 70% year after year. As future fuel prices continue to rise, your savings just keeps stacking up!

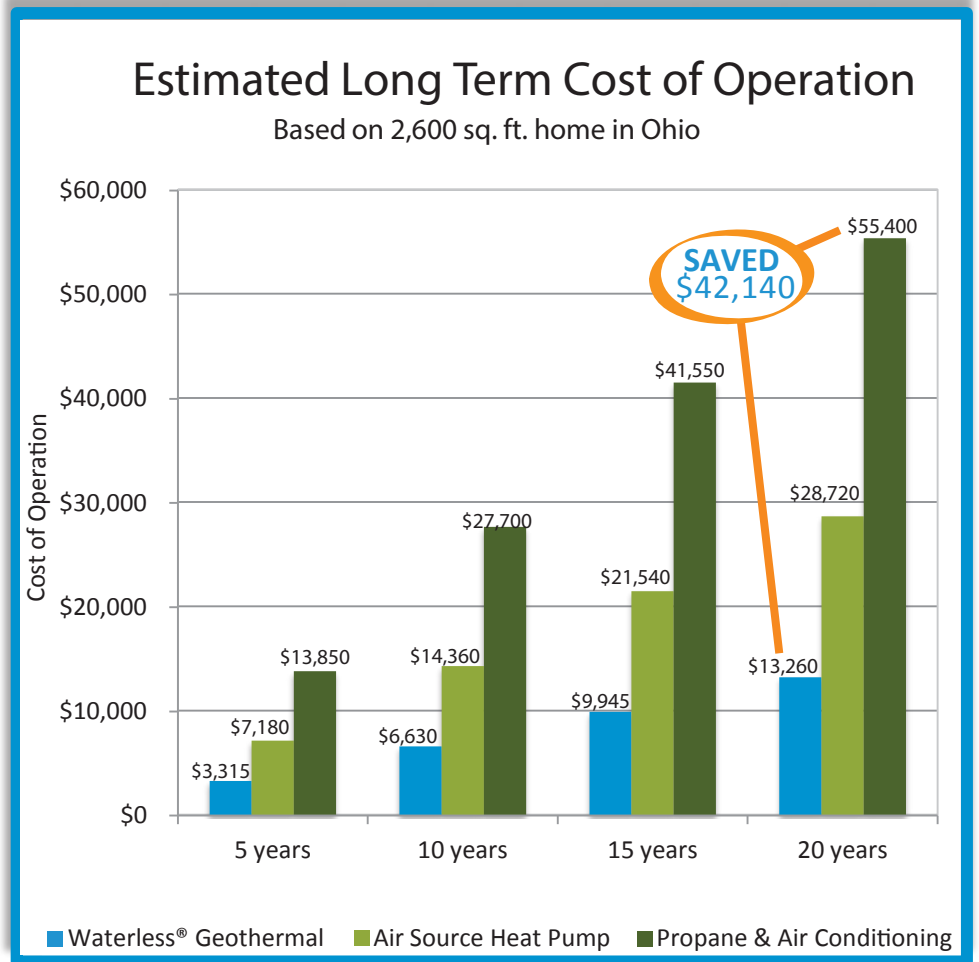


Figure 4



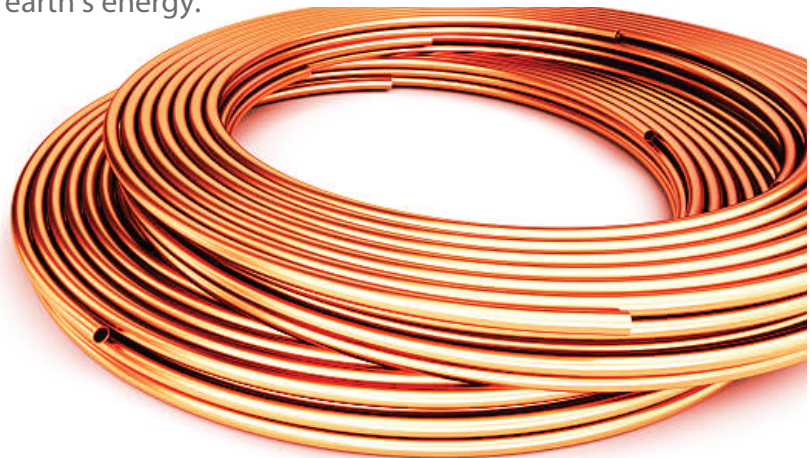
Free Hot Water!

By utilizing the optional domestic hot water module, called a desuperheater, the system can produce free hot water for you! Capturing excess heat in the refrigerant, this module can typically provide as much as 50% of the total hot water needs of many homes or businesses. The geothermal system can both heat and cooling at the same time the system heats your water. A standard water heater averages a cost of approximately \$600 per year to heat your water, and with the optional desuperheater you can save up to \$300 per year. These savings, combined with the heating and cooling savings, result in a short system payback period and real cash savings for you.



THE POWER OF COPPER

Ancient Egyptians understood the longevity of copper. Even today some 5,000 year-old copper pipes that were used to convey water in Egypt are still in existence! Copper is a naturally occurring element in the earth and in most cases is resistant to corrosion. When copper is exposed to harsh or corrosive soil, it will still maintain its strength due to our Ground Loop Protection System. The principles of our Ground Loop Protection System have been used for over 100 years to prevent buried metal pipes, and other metals from corroding in many industries like the oil and gas, plumbing and marine industries. The rugged durability along with the super conductive properties of the copper, provide outstanding longevity and is the obvious reason why copper is the material of choice when it comes to utilizing the earth's energy.



SELECT DEALER ORGANIZATION

Ask your Waterless™ Geothermal dealer to perform a detailed energy analysis of the heating and cooling requirements of your home and to recommend the system that will deliver the maximum level of comfort and savings to you. You can rest assured that your system will be installed by an industry professional who stands ready to serve you.



SAVE MORE with the Tax Credit

- In August 2022, congress updated and extended the geothermal tax credit to include a 30% tax credit for both commercial and residential installations
- The tax credit can be calculated on the entire cost of the system, with no limit to the credit amount.
- The tax credit can be used to offset both regular income taxes and alternative minimum taxes.
- If the federal tax credit exceeds the tax liability, the extra amount can be carried over into the future tax year(s).

30%
TAX CREDIT
2022-2032

26%
TAX CREDIT
THROUGH
2033

22%
TAX CREDIT
THROUGH
2034

There can be many more rebates and incentives available depending on your region, consult with your sales rep for more information.

