Renewable Energy System Specialists.

thermasys
renewable energy systems

Thermasys design, supply, install and commission ground source heat pump systems which are suitable for all of your hot water & heating requirements. We also design, supply, install and commission the heat distribution system which can be an underfloor heating system which is the most efficient choice due to the low flow temperature or we can also incorporate a radiator system.
No matter how large or small the building, we will have a heat pump system to meet your needs. Our systems range from a single 4kW unit to multiple units with a single controller producing around 300kW. Domestic hot water storage is also provided using 180 to 1000 litre pressurized vessels designed specifically for our heat pumps.
What sets us apart form our competitors is that we are not bound to one heat pump manufacture so you can be sure that the system we design will offer optimum efficiency. We also offer a full service package and a FREE post installation check up to ensure the system is running as efficient as possible.

Frequently asked questions

How does a Heat Pump Work?
A mixture of water and environmentally-friendly anti freeze solution (brine) circulates in a collector pipe and absorbs the heat energy from bedrock, ground, or water. In the UK the temperature at approximately 1m below ground level remains a fairly constant 8-10 °C all year round.
At the heat exchanger (evaporator) the tepid brine in the collector pipe meets the ice-cold refrigerant in the heat pump, which is then heated a few degrees and evaporates.
Then, a compressor compresses the refrigerant. The heat that is then generated is transferred via a heat exchanger (condenser) to the house's heating system.
The refrigerant circulates and an expansion valve lowers the pressure and the refrigerant becomes cold again. The process begins again when the refrigerant meets the tepid brine from the collector pipe.

How efficient are heat pumps?
The efficiency of a ground source heat pump is measured by a coefficient of performance (CoP) - the amount of heat it produces compared to the amount of energy needed to run it. A typical CoP for a ground source heat pump is around 4:1 with 4kW of heat being produced for every 1kW of electricity used to run the heat pump. The key to any efficient heating system is to ensure there is a suitable level of insulation in the property.

How Much Space Does a Ground Source Heat Pump Unit Require?
Most of a ground source heat pump installation is underground. The length of ground loop required depends on the energy requirements of the property. A horizontal ground loop for a well insulated new build property will need an area of land approximately 1.5 times larger than the total floor plan area of the property. For a retro fit this will increase to an area of land 2 or 3 times larger than the total floor plan of the property. Inside the house, the heat pump unit itself is about the same size as a fridge freezer.

How Long Will My Ground Source Heat Pump System Last?
Ground source heat pumps are durable, highly reliable and require little scheduled maintenance. A ground source heat pump contains fewer mechanical components and all components are either buried in the ground or located inside the home which protects them from outside conditions. The life expectancy can be in excess of 25 years depending on the type of property and type of distribution system.

How Do Running Costs Compare With Conventional Energy Sources?
This depends on the alternative energy source and also on the costs of these, which are highly variable over time. For example, based on recent oil prices, ground source heat pumps will have considerably lower operational costs than a conventional oil boiler. In general, in a modern property with high levels of insulation, a ground source heat pump system can offer up to 70% lower running costs especially when you consider the cost of regular servicing and maintenance that a conventional boiler requires.

Contact Details

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A heat pump will lower your energy bills & reduce your carbon footprint compared to conventional systems

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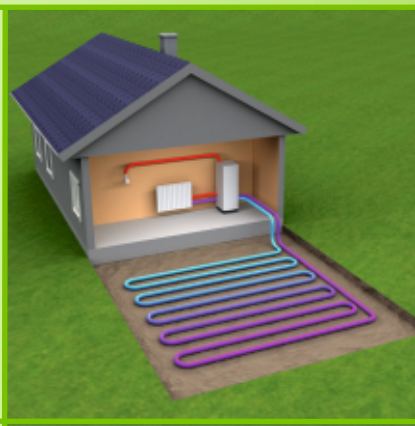
Ground Source Heat Pump - Horizontal Loops

Ground source heat pumps harness solar energy from just beneath the ground surface. When there is plenty of land available this is normally the most cost effective method. Polyethylene pipe is laid in trenches approximately 1m deep and a mixture of water and food grade anti-freeze ('brine') is circulated to collect energy from the ground.

Advantages

- No drilling needed
- Lower installation cost

The pipe in the ground maintains an even temperature throughout the year



Ground Source Heat Pump - Vertical Loops

Where space is tight, vertical boreholes may be the answer. They can range from 25m-150m deep but can be expensive depending on the location. A closed U-tube is placed in the borehole and brine is circulated to collect energy.

Advantages

- No large plot required
- The hole in the rock maintains an even temperature throughout the year

Suitable for all building types; large and small

Water Source Heat Pumps - Closed Pond Loops

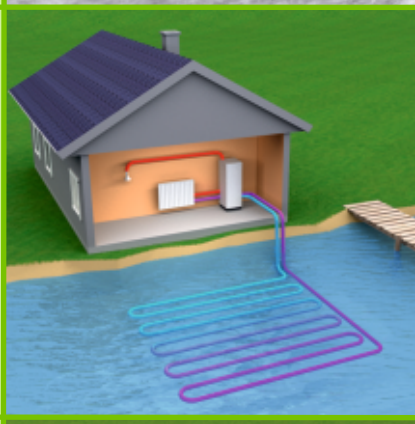
This type of loop design may be the most economical if your building is near a body of water such as a large pond or lake. The brine circulates underwater through polyethylene piping in a closed system. Because it's a closed system, there are no adverse impacts on the aquatic system.

Advantages

- No drilling needed
- Little impact on your plot

The lake pipe holds an even temperature throughout the year

There are other collection methods available in the market however we do not endorse them as they compromise efficiencies.



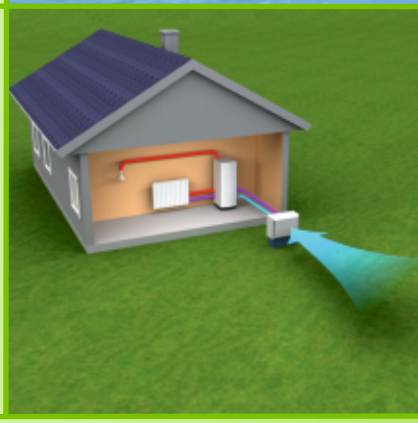
Air Source Heat Pump

With an air source heat pump you neither need to dig or drill, thus installation is quick and simple, ideal for urban sites with little ground space.

Retrieving the energy directly from the surrounding air using an air handling unit, the heat pump extracts heat, transferring it into a heating system. Like a bicycle pump, gas that is compressed gets hot, when it expands it cools.

Advantages

- Lower investment costs
- No impact on the ground
- No large plot required



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Thermasys are a fully qualified and accredited heat pump installer that covers the whole of England and Wales and we follow a strict quality policy and code of conduct. Please contact one of our highly trained members of staff to discuss your project and receive a no obligation quotation.