

Ground Source Heat Pumps

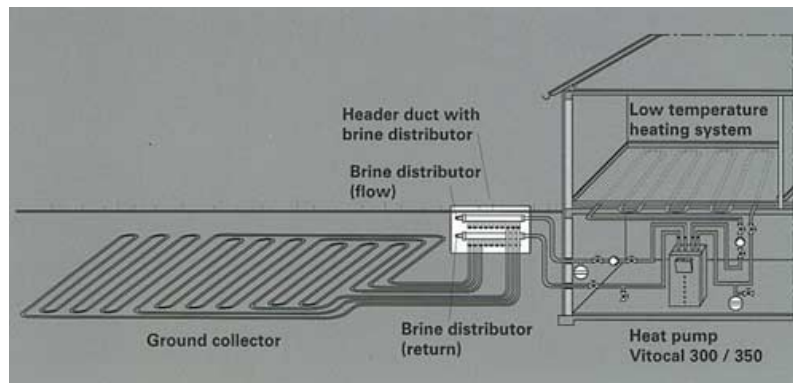
The surface of the Earth acts as a vast solar collector, constantly absorbing energy from the sun. Heat pumps utilise this solar energy stored in the ground or in groundwater by extracting it and transferring the heat into the home.

Contrary to renewables such as solar thermal or wind this energy is available all year round therefore in principle a heat pump can provide 100% of heating and DHW needs making them a real alternative to conventional heating systems.

How does it work?

Surprisingly the temperatures near the earth's surface remain constant all year round, for example at a depth of 2 metres the ground temperature ranges between 7 to 13°C making the ground a good energy store. The heat pump function is based on the extraction of energy from the environment (ground, groundwater and air) and to raise this energy to a higher level, enabling it to be utilised for central or DHW heating.

Solar energy stored in the ground can be collected by laying pipes into the ground either via large ground collectors (Buried in horizontal trenches at a depth of 1 to 2 metres) or ground probes (Borehole to depths upto 100m). The pipe is filled with a mixture of water and antifreeze which when circulated absorbs heat from the ground. A heat exchanger then transfers this heat via a compressor to the heating water.



System efficiency

The only power needed to operate the heat pump is a minimal electrical power requirement to control the pump.

The efficiency indicator for heat pumps is known as the Coefficient of Performance or CoP. This is simply a measure of the amount of heat energy output for each unit of electricity consumed in providing that heat. In real terms for an average heat pump you will get between 3 to 5 kW of heat output for every kW of electrical energy used. This factor will vary dependent on system design and the size of system. Heat pump applications work particularly well with under-floor heating systems due to the low operating temperatures involved.

With very few moving parts heat pump systems are low maintenance and have long life expectancies in excess of 40 years.

Application

Heat pumps are suitable for providing heat in any type of building, such as: Houses, apartment blocks, hotels, hospitals, schools and office buildings in both new build or modernisation projects. Whatever the application there is generally a heat pump to suite.

Call us for a Free Consultation on **01482 841225**

Enviowarm Services Limited
78A New Village Road
Cottingham
HULL
East Yorkshire
HU16 4NE

info@enviowarm.co.uk

www.enviowarm.co.uk