

Welcome to Jackson Geothermal

Thank you for requesting our information regarding heat pumps, this information is intended to assist you in understanding what heat pumps are, how they work and assist you in choosing the best option for your application.

At Jackson Geothermal we are able to tailor packages to your individual requirements utilising DX GSHP from American manufacturer ECR.

You can visit their web site at : www.ecrtech.com/content/

We are also Daikin D1 approved installers and can offer the option of the Altherma system which is air to water and much simpler to install without the need for drilling.

Also available are system from Mitsubishi Electric and Hitachi.

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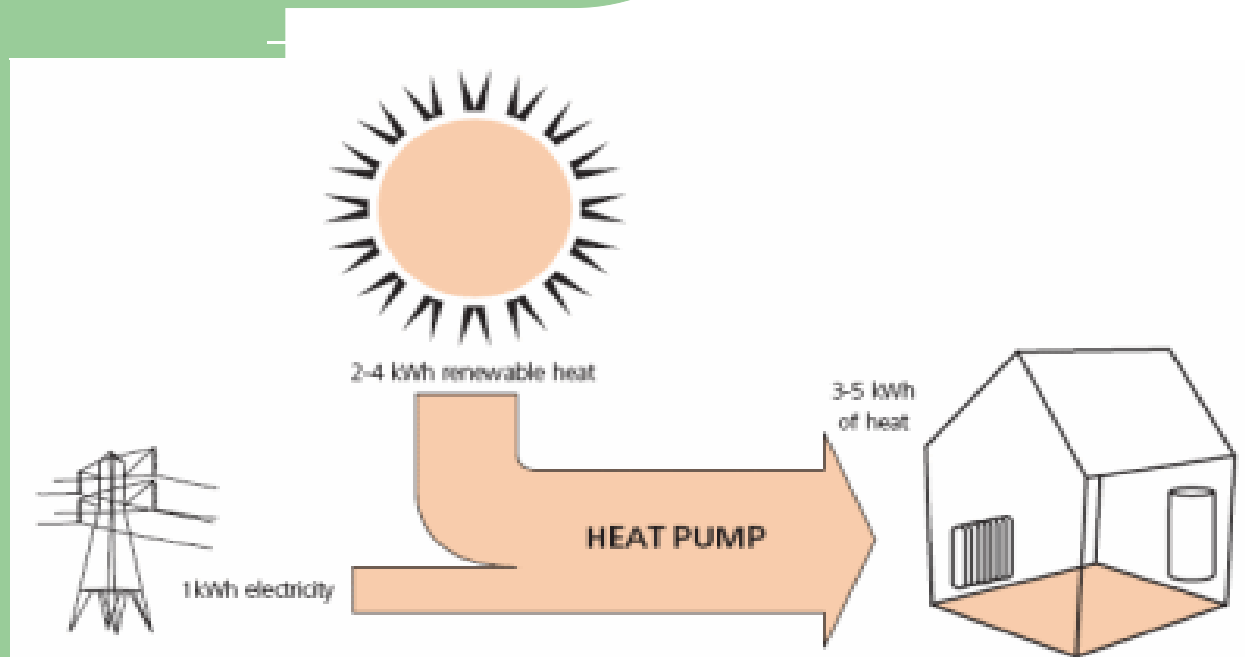
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What is a heat pump?

A **heat pump** extracts low temperature energy from the environment and increases its temperature for heating purposes. Heat pump efficiencies are normally quoted as the coefficient of performance of the system, these are typically in the range 3 to 5. In other words, extracting heat from renewable sources requires just 1kW of electrical input in order to generate 3kW to 5kW of heating output.

Heat pump systems therefore, are 3 to 5 times more efficient than fossil fuel boilers and are more than capable of warming a house completely, even during the lowest winter temperatures. The increasing popularity of these heating systems is reflected by their overwhelmingly successful application in the cold climates of Scandinavia.



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What is a air source heat pump and a ground source heat pump?



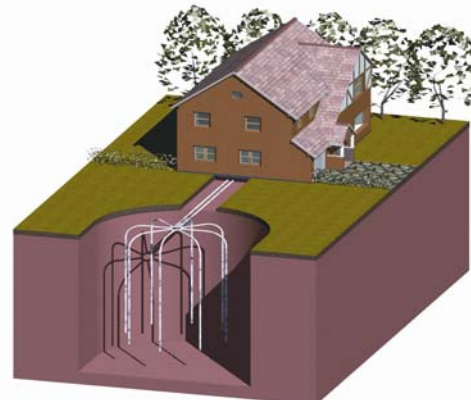
Air source heat pumps pass air over a coil, on at the rear and off at the front, extracting low level heat from the air. As the air temperature drops so does the efficiency.

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The ground source heat pump extracts low level heat from the earth via copper tubes in the ground.

The ground in the UK averages a temperature of between

8 and 13 Deg C all year which gives a more consistent temperature to draw upon all year.



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What sets EarthLinked® apart from air source heat pumps?

Answer:

By using the constant and favourable temperature of the earth as its heat source, 75% of the heat delivered to the building by EarthLinked® is renewable energy, therefore efficiency is greatly improved.

Mechanical simplicity and the constant earth temperature assure longer equipment life and less maintenance.

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Question:

What sets EarthLinked® apart from other geo systems?

Answer:

EarthLinked® systems use copper earth loops to directly exchange heat with the earth, thus eliminating the water circulating loop and intermediate heat exchanger, and increasing efficiency.

Installation, operating and maintenance costs are thereby reduced.

Because of its size, EarthLinked® can be installed in a smaller space

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What is a carbon footprint

Carbon footprint is a measure of carbon emissions based on energy consumption per kWhr and fuel type used i.e., direct electric/oil/lpg/gas or electric heat pump.



Altherma air source heat pump can save more than 46% of your average yearly CO₂ depending on the fuel you use. Direct Electric 46% , Gas 12%, Oil 31%, LPG 24.4% CO₂/kWhr. The emission of CO₂ relates to the type of fuel used:

Mains gas (natural) emits 0.234 kg CO₂/kWhr consumed
Oil emits 0.319 kg CO₂/kWhr consumed
LPG emits 0.282 kg CO₂/kWhr consumed

Electricity is generated in power stations that use gas, oil, nuclear and coal to drive the turbines hence it is calculated to be 0.422 kg CO₂/kWhr consumed.

Question: Why is EarthLinked[®] more efficient than other geothermal systems?



Answer: EarthLinked[®] eliminates the intermediate heat transfer required by water-based systems. Its direct heat transfer method does not require the circulating pump found in water-based systems. The system is also inherently more efficient because of ECR's modulating refrigerant flow controls.



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Question: How is the earth loop system installed?

Answer: DIRECT AXXESS[®] Earth Loops can be installed horizontally in pits or trenches using excavators or trenchers, as well as vertically or diagonally using small bore drilling equipment.

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What temperature should I supply my heating and hot water at?

Heating water according to the latest :
Part L1A and B (section 8 of Domestic Heating Compliance Guide 2006)

45 - 55oC for radiators

35 - 40oC for Underfloor

30 - 35oC for fan convectors/fan coils

50oC for Sanitary hot water

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WRAS (Water Regulation Advisory Scheme) guidelines state that hot water needs to be stored above 60oC and distributed at no less than 55oC to prevent microbial growth (legionella).

However, in recommendations it states that hot water should be distributed less than 50oC to avoid risk of scolding. Under G18.5 of the Water Regulations, terminal fittings or communal showers should be supplied through thermostatic mixing valves so water temperatures do not exceed 43oC.

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How can I reduce my running costs ?

By asking your electricity provider to supply you with an economy 7 or economy 10 meter. Economy 7 provides you with cheap rates at off peak times. (7hrs)

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Economy 10 provides you with 10 hours cheaper electricity.

With this you can re-organize your other electrical consumption
i.e.: your dishwasher, washing machine
and/or tumble dryer to take even further
advantage of running cost savings.

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