



An Air Source Heat Pump

WHAT IS A HEAT PUMP?

Heat pumps collect solar energy from the air or ground and concentrate it to heat the air and water in your house.

HOW DO HEAT PUMPS WORK?

Heat pumps use the same principal to transfer heat that fridges use. Fridges keep cool by pumping heat away from food and drink to the metal grid on the back; heat pumps extract heat from the renewable source and pump it into buildings. A refrigeration cycle uses the renewable heat that is extracted from the air, ground or water to boil a liquid refrigerant into a gas, which is then compressed to increase its temperature.

HOW EFFICIENT ARE HEAT PUMPS?

They are the most efficient way to heat a building. Each unit of electricity used to power the system generates around four units of heat i.e. 400% efficient!

HOW DO THE RUNNING COSTS COMPARE WITH A

CONVENTIONAL BOILER?

There are cost savings of up to 60% on Ground Source and 40% on Air Source (depending on heat loss and insulation levels).

WHAT IS THE DIFFERENCE BETWEEN AIR AND GROUND SOURCE HEAT PUMPS?

Ground Source Heat Pumps collect heat from the ground using a network of pipes buried either horizontally in trenches or vertically in boreholes.

Air source heat pumps collect heat from the air so there is no need to install an extensive ground loop (ground heat collector). This allows for a much simpler, quicker installation. Air source units can be sited within, close to, or a distance of up to 50m away from the building.

HOW LONG DOES IT TAKE TO INSTALL A HEAT PUMP?

Installing the heat pump, hot water cylinder and buffer tank usually takes just over a week. The system then needs to be filled and cleared of air and debris. As every building is different, optimising for the property it's in can take a couple of days or a couple of weeks.

Boreholes typically take 2 days per hole; horizontal pipe work depends on the size of system, the terrain, weather and the machinery available.

HOW IS THE HEATING CONTROLLED WHEN YOU HAVE A HEAT PUMP?

The heating is controlled automatically and this is set up when the heat pump is installed. If the weather gets colder, then the heating water gets warmer – this is called “weather compensation”. Rooms can be set up as zones and heated to specific temperatures.

WILL A HEAT PUMP HEAT HOT WATER AS WELL AS THE HOUSE?

Yes. Hot water takes priority so if you have a bath and drain the tank, the heat pump will automatically heat it up again.

HOW DO I KNOW WHICH SORT OF HEAT PUMP WILL BE BEST FOR MY HOUSE?

This usually depends on the age of the house, how much land or water you have available and what your priorities are.

ARE AIR SOURCE HEAT PUMPS NOISY?

Modern quality air source heat pumps are very quiet and if installed considerately, will not disturb anybody.

CAN I KEEP MY EXISTING RADIATORS IF I HAVE A HEAT PUMP?

This depends on how good your insulation is, and the output of your radiators at heat pump temperatures i.e. 45 degrees centigrade. As heat pumps tend to run at lower flow temperatures than conventional systems, radiators may need to be larger to achieve the same output. Alternatively, smaller fan assisted radiators can be specified.

DOES UNDERFLOOR HEATING WORK WITH A HEAT PUMP SYSTEM?

In fact underfloor heating systems work the most efficiently with heat pumps, as they are designed for lower flow temperatures. With a conventional boiler, the flow temperature has to be reduced before going into the underfloor pipework or the flooring could melt!

WHAT DOES CoP MEAN?

This is the ratio of electricity consumed powering the system to heat produced. The Co-efficient of Performance is a bench test of system efficiency under laboratory conditions. The higher the CoP, the more efficient the system. Generally we would expect the CoP to be around 3.6 – 4.8 for a heat pump running at a 35°C flow temperature.

WHAT MAINTENANCE WILL A HEAT PUMP NEED?

The heat pump system requires an annual service to make sure that the components, controls and liquids in the system are in the correct range.

WHAT IS THE LIFE SPAN OF A HEAT PUMP?

A good quality air source heat pump should last around 12 years. A ground source heat pump should last over 20 years. The ground loops generally have a design life of 50 years but should last a lot longer!

WILL ORANGEHOUSE RENEWABLES MAINTAIN MY SYSTEM AFTER INSTALLING IT?

We don't just install the technology and leave you to it, it is important that your system is maintained and that if you have a problem, you are properly supported.

