



AIR SOURCE HEAT PUMP SYSTEMS

A renewable technology

Air source heat pumps eliminate the need for a fossil fuel heating system and are highly efficient, with 1kW of electricity consumption generating 3kW to 5kW of renewable heat throughout the year.

The main advantage of a heat pump is that heat energy is extracted from the outside air (even down to -20°C) and brought inside to provide low cost heat. A heat pump is up to five times more energy efficient than traditional heating methods. **This leaflet explains why air source heat pumps are such an effective and sustainable way to heat and cool buildings.**

How do heat pumps work?

Have you ever felt the amount of heat that comes out the back of your kitchen fridge whilst it cools the inside? If you imagine a big fridge with the hot part inside the building and the cold part outside, this is how an air source heat pump works. By using heat pumps instead of traditional cooling systems, the cycle can be reversed allowing heating and cooling using the same system.

Essentially, air source heat pumps extract heat from the outside air using a refrigeration cycle. The refrigerant absorbs the heat energy from the air and moves it to where it is wanted, via copper piping.

Air conditioning is usually thought of as cooling a space. However made as a heat pump, they can also heat the internal space and even produce hot water.

A heat pump can extract energy from the outdoor air efficiently, even on very cold days with sub zero temperatures outside, some as low as -20°C.

While this is a very simple explanation, in reality heat pumps can deliver a wide range of system requirements, from space and hot water heating for domestic settings to fully integrated systems, delivering heating, cooling, hot water, ventilation and heat recovery for complex buildings.

Why choose a heat pump?

The latest energy saving and carbon reduction legislation means that there is now more onus than ever to reduce our reliance on fossil fuels and adopt more sustainable, renewable energy solutions.

The benefits of doing so are huge. Delivering around five times the energy efficiency of traditional fossil fuel systems, heat pump technology can make major cost savings, while avoiding thousands of tonnes of CO₂ emissions every year.

Many thousands of buildings operate very efficiently with heat pumps as their sole heating source. In commercial environments, heating and cooling with reverse cycle heat pumps mostly release less carbon into the atmosphere than just heating alone would do using a conventional boiler.

For the domestic heating market, an air-to-water heat pump solution such as the Daikin Altherma range for UK residential applications offers a high-efficiency, sustainable heating system to replace existing oil or gas boilers.

With over 50 years' experience in the production of heat pumps, Daikin is a world leader in this technology.

Air source heat pumps are classed as renewable

Heat pumps are highly energy efficient and recognised as a renewable heat technology by European Union and the UK Renewable Energy Strategy.

As a renewable technology, air source heat pumps allow opportunities for grant and tax benefits to be claimed. Below are a few examples of these.

5% VAT

Households are responsible for 25% of all emissions. As part of ongoing efforts to reduce emissions, the Government has reduced VAT on air source heat pumps for domestic heat pumps for domestic applications to 5%.

For more information, visit www.hmrc.gov.uk

MCS accredited

The Department of Energy and Climate Change's 'Microgeneration Certification Scheme' (MCS), recognises certain air source heat pumps as approved microgeneration technology. Approved products are eligible for grant aid under the Low Carbon Buildings Programme.

For more information, visit www.microgenerationcertification.org

ECA eligible

Highly energy efficient heat pumps which qualify for listing on the Energy Technology List (ETL) are eligible for the Government's Enhanced Capital Allowance (ECA) scheme. The ECA provides enhanced tax relief allowing an investment in energy saving technology to be written off against the taxable profits of the period.

For more information, visit www.eca.gov.uk/etl