

Air Source Heat Pumps Page 1 of 2

Your Home is heated by an air source heat pump.

This a very efficient, low carbon form of heating, it makes use of a refrigerant cycle (working sort of like a fridge in reverse), which means that for each unit of electricity it consumes, it can produce 3 units of heat.

How does an air source heat pump work?

1. The outdoor unit sucks in air, a heat exchanger extracts heat from the air and passes it to a refrigerant fluid
2. The refrigerant fluid boils and evaporates, turning into a vapour (refrigerant boils at a low temperature)
3. That vapour is then compressed, which increases the temperature
4. The heated vapour passes over a heat exchanger with the fluid in your radiator system

Due to the extremely low boiling point of refrigerants, this cycle will work effectively at very low outside temperatures, as low as -20C.



A heat pump will heat your home efficiently and comfortably, and it operates slightly differently than a gas or oil boiler.

- Your heat pump provides both hot water, and central heating
- The fluid inside the radiator system is a lower temperature when compared to a gas or oil boiler. You will notice the radiators are not scalding hot to touch – this doesn't mean they're not effective though!
- It may take a little more time to reach the desired temperature, and we recommend setting it up so it's not required to do big jumps in temperature. E.g. you may want to set it to 18C during the day, and 21C when you're sitting down in the evening.
- Do not set the temperature excessively high (e.g. above 23C) expecting the room to heat up faster – this will only make the heat pump work harder and cost you more. If you want to achieve 21C at 5pm for example, but you regularly find the system is not achieving this, try setting thermostat to 21C at 4pm, allowing the system time to increase in temperature.
- The system will work more efficiently (and cheaply) if it is allowed to keep the house a low level of heat all day (around 17-19C) and heat up to 21-22C when you need it. The heat pump will not run all day, it will just click on and off as needed to maintain the temperature.

Setting up your system

- Systems from different manufacturers will vary, but you will most likely have a thermostat located in your hall or living room to control the room temperature, and main controller in the cupboard next to your hot water tank
- If you want to set a heating schedule you will need to use the main controller to do this. You should have a copy of the user guide, and many manufacturers have really helpful youtube videos to guide you. If you are unsure, please contact us.



- The thermostatic radiator valves (or TRVs) control the temperature in each room, but the room stat overrides this, and will shut off the whole system once it's set temperature is reached. Heat pumps require sufficient flow to operate, and turning the TRVs too low can restrict the flow and may prevent your home from reaching the desired temperature set by the room stat. It is recommended that you keep your TRVs set high, unless any room regularly gets too warm.



- The hot water is stored in the tank at around 50C, and the system automatically brings it up to over 60C once per week to prevent legionella. The code of practice for safe water temperatures states that 41C is the safe temperature for showers and wash hand basins.
- In very cold winter temperatures the system may automatically defrost the outdoor unit, when this happens you will see a large plume of steam from the outdoor unit do not be alarmed if this happens, this is part of the process and the system will continue to work as normal.
- It's important to keep the area around the outdoor unit clear of any plants or debris to allow good air flow.

Why heat pumps are a sustainable choice

- Oil and gas are fossil fuels, burning these emits greenhouse gases, and contributes to climate change. We need to use alternatives to heat our homes.
- Air source heat pumps use electricity to run—In Scotland around 90% of electricity is generated from renewable sources (such as wind or hydro), this makes electricity a much more environmentally friendly option than it has been in the past. Heat pumps are more efficient than other forms of electric heating.