Low Carbon Technology Guide

Air source heat pump

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SP Energy Networks

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1. What is it?

An air source heat pump is a low carbon heating device that uses the same technology as your fridge, but in reverse. It absorbs heat from the outside air (even when the temperature outside is below zero), which increases the temperature of the liquid circulating inside the heat pump. The heat pump then raises the temperature of the liquid until it is warm enough to provide heating for your home.

There are two types of air source heat pumps:

- Air-to-water heat pumps – these use the heat extracted from the outside air to heat the radiators, underfloor heating and water stored in a hot water cylinder in your house. These perform the same function as the traditional boiler, but instead of burning gas to produce heat, they use electricity to move the heat from the outside air to your home. These are the most common type of domestic heat pumps installed in the UK.

- Air-to-air heat pumps – these use the heat extracted from the outside air to deliver warm air to your house through a series of fans (similar to air conditioning). These heat pumps can only be used to heat air in your house and cannot be used to heat water for your taps. Air-to-air heat pumps are often installed in smaller properties, such as flats, park homes or in properties without a 'wet' central heating system (where hot water circulates through radiators or underfloor heating in your house). Unlike air-to-water heat pumps, air-to-air heat pumps can also cool your home in warmer months.

2. What should be considered before installation?

2.1 HOME ENERGY EFFICIENCY

Heat pumps usually work most efficiently in well-insulated houses with underfloor heating because these require less heat to maintain a constant temperature. Therefore, it is advised that your house should have, at a minimum, loft and cavity wall insulation before you consider the installation of a heat pump. For the air-to-water heat pump, you may also need to change your radiators or install underfloor heating if you do not have it already.

2.2 TYPE OF AIR-TO-WATER HEAT PUMP

There are two types of air-to-water heat pumps: monobloc and split systems. A monobloc system has all the components in a single outdoor unit, while a split system separates the components between indoor and outdoor units. The choice of the system would depend on your budget and the space available inside the house. Generally, monobloc systems are cheaper and quicker to install and require less space inside the house, but they are usually less efficient than split systems.

2.3 OUTDOOR UNIT

The outdoor heat pump unit usually does not take up a lot of space and can be either mounted on a wall or on the ground near your house. The key requirement is that it must be positioned somewhere with adequate space to allow for sufficient airflow. The fan in the outdoor unit also produces low background noise, which tends to get louder in colder weather, so you need to consider your neighbours when choosing where to install the unit.

3. How much does it cost?

The cost of an air source heat pump installation varies, influenced by:

- Whether you live in a new building or an older property.
- The brand, model and size of the heat pump chosen.
- Whether it is an air-to-water or air-to-air system.
- The size and the heat requirements of the property.
- Whether you need to make any additional changes to your property for the air-to-water heat pump, such as replacing the radiators with the ones compatible with the heat pump or if you are installing underfloor heating.

According to GreenMatch, the typical cost of an air-to-water system is between £8,750 and £14,050, while air-to-air systems cost between £2,400 and £8,800 on average. It is generally recommended to get quotes from at least three installers to get a good idea of how much the installation would cost you.

4. What is the maintenance like?

Air source heat pumps generally require little maintenance (although annual inspections are recommended), and according to GreenMatch, most will operate for 10-15 years.

5. How can I get it?

Heat pumps require technical knowledge to be installed properly and should only be carried out by a qualified installer.

The Microgeneration Certification Scheme (MCS) is currently the standard and quality assurance organisation for renewable heat technologies. Their website provides the most up to date list of accredited installers in the UK.

6. What funding help is available?

6.1 BOILER UPGRADE SCHEME (BUS)

If you live in England or Wales and are considering an air source heat pump for your property, you could be eligible for a £7,500 grant under the Boiler Upgrade Scheme.

6.2 HOME ENERGY SCOTLAND LOAN AND GRANT

If you live in Scotland and are considering an air source heat pump for your property, you could be eligible for a Home Energy Scotland grant of £7,500 (£9,000 for households qualifying for the rural uplift) plus an optional interest-free loan of up to £7,500.

6.3 ADDITIONAL FUNDING INFORMATION

Depending on where you live, the organisations below can advise you on the funding options that could be available to you.

England and Wales: UK Government

Scotland: Home Energy Scotland

7. Useful websites

For more information on the air source heat pumps, please visit the following websites:

Energy Saving Trust – Air-to-water heat pumps

Energy Saving Trust – Air-to-air heat pumps

GreenMatch – Air source heat pumps

Please note that the information provided in this guide is subject to frequent changes. Readers are strongly advised to verify the information through the links provided above or consult other reliable sources before making any decisions.