

# Air Source Heat Pump FAQs

Huntersbrook House  
Hoggs Lane  
Purton  
Wiltshire SN5 4HQ

Tel: 01793 772277  
Fax: 01793 474715  
enquiries@RainWindSun.com  
www.RainWindSun.com

## What is an air source heat pump?

Air source heat pumps absorb heat from the outside air and deliver it inside to heat buildings. There are two types of air-source heating systems. Air-to-air systems which provide warm air that is circulated to heat the building, and air-to-water systems which heat water to provide hot water and heating to a building through radiators or an underfloor system.

## How efficient is it?

The efficiency of air source systems is measured by a coefficient of performance (CoP). CoPs for the most advanced air source systems, generally range up to 320%. This means that for every unit of electricity used to power the pump, up to 3 units of heat are produced. When installed in an electrically-heated home, based on figures from the Energy Saving Trust an air source heat pump could save around £870 a year on heating bills and almost 6 tonnes of carbon dioxide a year. Savings will vary depending on the type of fuel replaced.

## How does it work?

An air-source heat pump has three main parts:

- \* **The evaporator coil absorbs heat from the outside air;**
- \* **The compressor pumps the refrigerant through the heat pump and compresses the gaseous refrigerant to the temperature needed for the heat distribution circuit; and,**
- \* **The heat exchanger transfers the heat from the refrigerant to air or water.**

In an air-to-water system, the heat produced is used to heat water, which can be used to pre-heat water in a storage tank or circulate through underfloor heating or radiators. Heat pumps produce hot water that is at a lower temperature (typically 35-45 o C) than standard boiler systems, which makes underfloor heating the most effective option. In an air-to-air system, this heat is used to produce warm air, which is circulated by fans to heat a building.

## **Will an air source heat pump work in my home?**

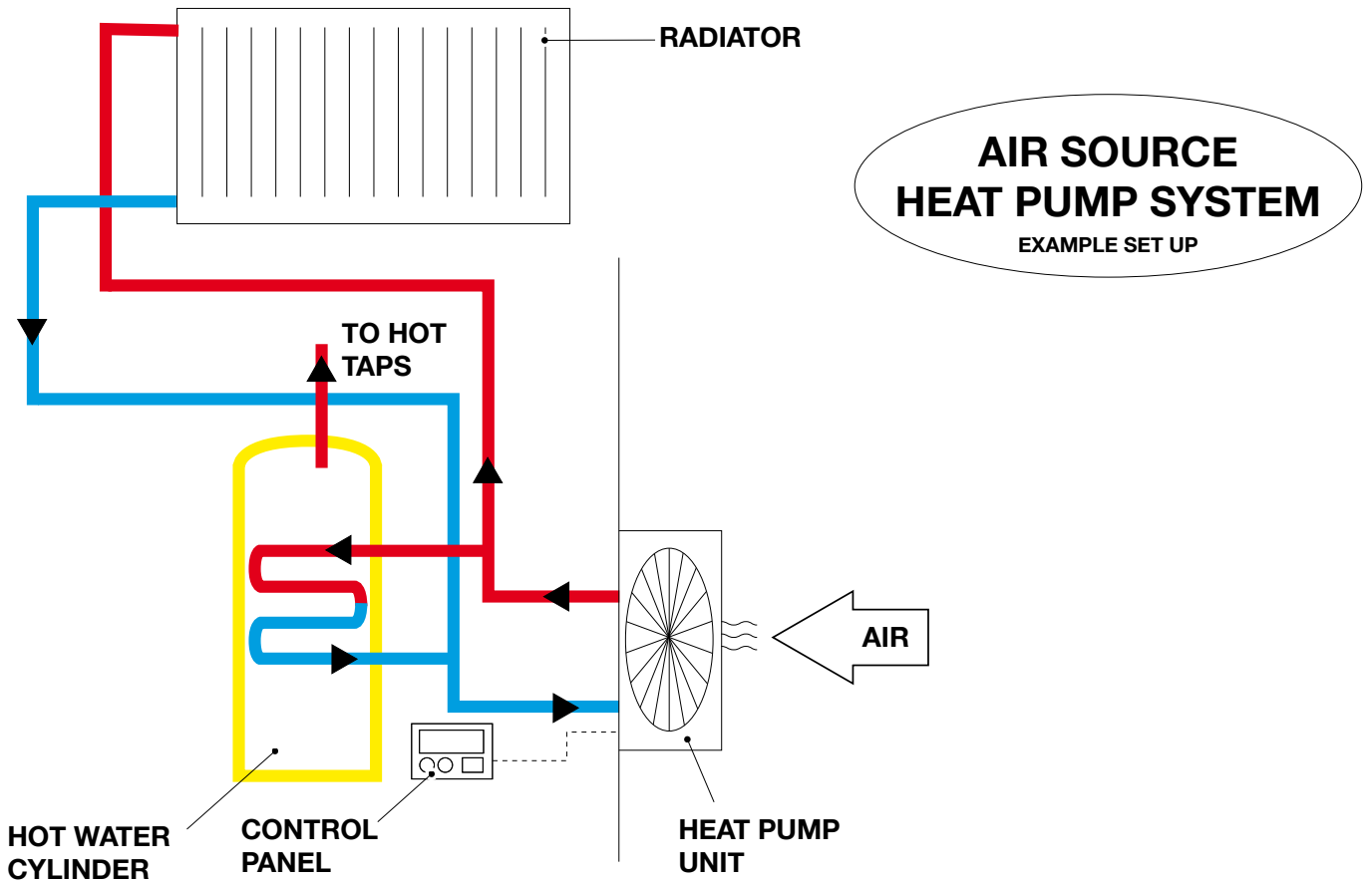
There are certain issues to consider before installing an air source heat pump:

- \* You will need space on an external wall outside your house to fit the evaporator coil;**
- \* Due to the lower temperature compared with traditional boilers, it is essential that your home is insulated and draught proofed. These measures will lower your heat demand and make the system more effective;**
- \* Consider what fuel is being replaced: if it is electricity, oil, Liquid Petroleum Gas (LPG) or coal, the payback will be more favourable than with gas. However, heat pumps are a good option where gas is unavailable;**
- \* Do you need a back-up heating system for additional space or water heating? This will depend on your overall heating needs, compared to the size of system that you install; and,**
- \* Is your home still being built? If so, it will be cheaper to install the air source heat pump and underfloor heating system at the construction stage rather than when construction is complete.**

## **How much will it cost to install an air source heat pump in my home and what are the running costs?**

Costs for installing a typical system suitable for a four bedroom detached house range from £5000 to £9000 including installation. Running costs will vary depending on both the size of your home and how well insulated it is.

# How It Works...



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