

AIR SOURCE HEAT PUMP TECHNOLOGY: A USEFUL POCKET GUIDE



SAMSUNG Climate Solutions

1 ASHP OVERVIEW

ASHP's are a low carbon technology that supply heating and hot water to each house without using gas. An ASHP works by sitting outside of the home using a fan to extract warmth from the outdoor air. This renewable heat energy is then upgraded and transferred inside the home to provide energy efficient hot water and heating for radiators and / or underfloor heating.

The ASHP unit provides homes with a continuous supply of hot water via a dedicated hot water cylinder. The central heating system and hot water can be operated by the control panel, which will be attached to a wall in the house. This panel allows homeowners to customise settings to their requirements.



ASHP's need electricity to run, but because they are extracting renewable heat from the environment, the heat output is greater than the electricity input. This makes them an energy efficient method of heating the home.

2 OPERATIONAL DIFFERENCES

Whilst traditional Gas Boilers and ASHP share the same goal of heating the space and water within a house, the way in which they do it and are operated by the home owner are different.

Some of these key differences are:

- ASHP will ideally need to run continuously, generally at low levels to gently top up the heating to an even temperature whereas Gas Boilers are constantly switched on and off, burning fuel as and when required to quickly heat a cold house to higher temperatures.
- The location of the ASHP unit will need to be outside the individual home it serves to capture the external air and to ensure efficient pipe runs, compared to a boiler which is inside the home.
- Radiator temperatures will not get as hot when compared with Gas Boilers, this is because the ASHP maintains a constant lower temperature over much longer periods.
- Radiators are slightly larger in size, typically around a third, with an ASHP. This is because the ASHP operates at lower temperatures therefore needs more surface area in the radiators to heat up the space.

- ASHP will not need as much interaction as with Gas Boilers, once the desired temperature is set it can be left to run and gradually heat up and maintain the temperature in the house.

3 FAQ'S

Why do we need ASHP instead of Gas Boilers?

Gas Boilers produce carbon emissions that contribute to global warming, Government regulation is in the process of phasing them out of new build homes in order to provide low carbon heating solutions. ASHP are classified as a renewable energy source because they capture free energy from the air.

Will the ASHP be able to warm up the house as much as a Gas Boiler?

Yes, it will be able to heat up the space and water to same temperatures as a Boiler in the way outlined above.

Why aren't the radiators getting very hot?

Because the ASHP is continuously running, it can heat up the space to the required temperature using lower temperatures. Generally, the maximum temperatures the radiators will get to is 45/55°C.

Why does the Heat Pump come on at night?

The pump may start up and come on when not expected. This is normal as the pump will likely be doing a hot water cycle or legionella cycle.

Why is there steam coming off the unit?

During the colder winter months the ASHP unit may get a build-up of ice. The unit will circulate hot water around the unit in order to melt the ice to ensure it runs efficiently, this will result in steam and is perfectly normal.

Can I cover the outdoor unit or put objects in front of it?

Covering the unit is not recommended as this will reduce the amount of air drawn in and lower the unit's efficiency.

Will the ASHP unit be noisy?

The outdoor unit does have a fan which draws air in across internal components and will make a gentle whirring noise in operation, however the ASHP units are designed to be very quiet in operation.

Do I need to get ASHP serviced like a boiler? And how often?

Yes. The unit will need servicing annually by a qualified engineer. This will be arranged by your housing association or Samsung Approved Installers can be found on our website.

Why do radiators have to be larger than with Gas Boilers?

The ASHP run at lower flow temperatures so they need more surface area in the radiators in order to deliver the same heat as a gas boiler with smaller radiators.

If ASHP don't use gas then how are they powered?

The heat pump runs on electricity and will convert each kilowatt of electrical energy into 2,3,4 or more kilowatts of heat energy, so extremely efficient and considered a renewable energy system.