

ASHP INSTALLATION TIPS

To help installers looking at fitting **AIR SOURCE HEAT PUMPS**, Paul Greengrass, Product Development Director from DiversiTech, provides some tips on installation.

DiversiTech International has been working in the UK heat pump sector for over 17 years - working with OEM's, wholesalers and training organisations to help provide the best installation solutions to deliver heat from the heat pump into the home.

We are a design and manufacturing business which has created a range of installation accessories to assist installers fitting heat pumps in a cost-effective and efficient way.

EFFICIENT HEATING SYSTEM

Air source heat pumps are extremely efficient electrically driven heating systems, with the main power being consumed by the compressor. The standard refrigeration cycle being applied has been used for many years with two key functions compression to produce heat and expansion and evaporation to provide cold.

Through the processes mentioned above, heating of the water within the system can be achieved in an economical manner to provide water to radiators, underfloor heating and for domestic hot water.

BASIS OF A HEAT PUMP

In its basic form, the heat pump acts in a similar way to a boiler – energy in and heating out. However, the key difference (besides that of operation) is that most boilers are typically fitted inside a home while the heat pump sits outside the home (either partly or as a whole).

The heat pump heating cycle provides a coefficient of performance between 3:1 and 4:1, so for every 1kw of electrical energy consumed by the unit the

home receives 3 to 4Kw of useable heat (or 300-400% efficiency), as opposed to a gas boiler only achieving around about 92% efficiency.

ARE YOU INSULATING?

In our previous article we discussed the key factors in ensuring optimum performance air flow and insulating the external pipework.

One way of protecting the external pipework, and more importantly, maintaining the integrity of the insulation around the pipe work is by using external grade trunking. This not only provides important protection to the insulation, but it also improves the aesthetics of the install.

Installing pipework incorrectly and correctly for your air source heat pumps is demonstrated below.

THE INSULATION SHOWN IS WRAPPED AND INCONSISTENT IN THICKNESS DUE TO THE TIE WRAPS - THUS REDUCING THE INSULATION QUALITY.



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THE PROBLEM OF CONDENSATE

Volumes of condensate are being produced by units during the day-to-day operation and defrost cycle. Units can produce up to 50 litres of condensate per day - an absolute maximum considering units do not run every day at full capacity. This equates to approximately 3,000 litres per year.

THIS INSTALLATION HAS PROTECTED THE PIPEWORK AND INSULATION IN EXTERNAL GRADE TRUNKING. NOT ONLY DOES THIS OFFER EXCELLENT LONG-TERM PROTECTION BUT LOOKS MORE AESTHETIC AND GIVES THE INSTALL A FINISHED LOOK.



These volumes are almost double that of a condensing boiler, and taking into account that the unit is installed outside - exposure to cold and freezing temperatures is even more prevalent.

Although not acidic like the condensate from a boiler, this condensate still needs to be routed into a drain or soak away to avoid the risk of ice forming on paths around the unit.

A soak away can be installed under the unit to provide quick draining from the heat pump. The soak away should be installed away from the building to avoid damp ingressing into the footings.

The capacity of the soak away should be similar to that of the boiler soak away as described in BS 6798 standards. BS 6798 calls for a 400mm deep hole, 300mm in diameter with a preformed plastic drain tube. If correctly installed the soak away should include around 25kg of chippings to provide adequate drainage. A Geotextile membrane is also recommended to prevent soil and root ingress into the soak away.

Some heat pumps also come with trace heating cables which can help prevent the pipework from freezing.

INSTALLING ADEQUATE SOAK AWAY

Pre bagged soak aways are available for quick and easy installation.

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FURTHER PROTECTION FOR YOUR INSTALL

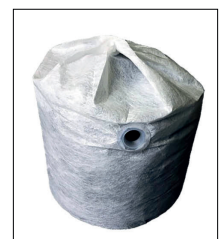
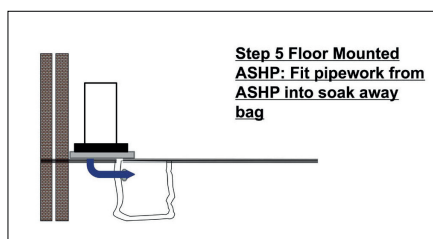
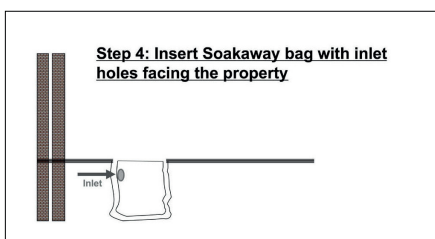
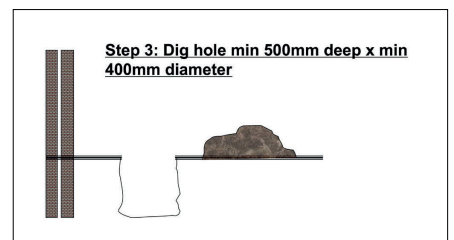
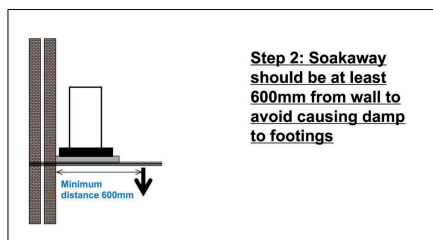
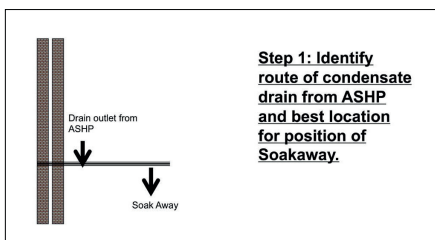
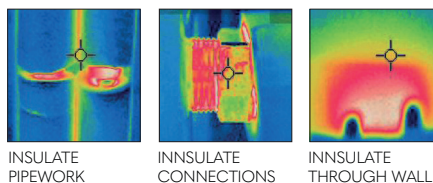
Further protection for your install ... If installing air source heat pumps in exposed areas, there is a risk that the outdoor unit can be damaged. In circumstances like these, the installation of protective cages or guards is recommended. These protective cages are designed to provide adequate air flow around the unit resulting in the correct manufacturers rear air space as well as protecting the unit from vandalism and accidental damage. Installation of a guard can also offer protection from possible personal injury.

Metal guards can be manufactured in various colours and there are also wooden guard options available.



THE HAZARDS WHEN YOUR INSTALL DOES NOT HAVE ADEQUATE CONDENSATE REMOVAL

Ensuring optimum performance air flow and insulating the external pipework



FOR FURTHER INFORMATION SEE OUR WEBSITE (DIVERSITECH.GLOBAL OR SPEAK TO ONE OF OUR KNOWLEDABLE SALES TEAM ON 0115 900 5858