Fact Sheet

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Purge Pump

Facts at a glance:

Ground Arrays
All ground arrays will need purging of air during commissioning, otherwise freezing within the heat pump can occur.

Purge Pump
Mains water has insufficient pressure and flow to do this, hence a specific pump is required.

Kensa Recommendation
Kensa recommend the Clarke SPE1200SS purge pump to purge ground arrays as it can produce the correct pressure and flowrates and has been used in installations without problems.

Installers
It is advised that installers purchase a Clarke purge pump to enable commissioning of future systems.

It is important for correct operation of the heat pump that all the air is removed from the ground arrays before the heat pump is turned on. Failure to do this correctly can cause the heat pump evaporator heat exchanger to freeze and the heat pump to stop working. If this happens then the only option is to allow the heat pump to defrost by leaving it for at least 24 hours and then re-purge the ground arrays.

Slinky ground arrays consist of a large number of 1 metre diameter loops of 32mm OD pipe and air can collect at the top of these loops. Even vertical (ie. drilled) arrays can have trapped air and should be purged.

To remove the air from ground arrays, a suitable pump will be required. For slinkies, the longest slinky trench is 50 metres, which will contain a total of approx. 300 metres of pipe. To achieve the minimum velocity required to remove the air, a minimum pump power in excess of 1 kW is required. In addition, the pump needs to have a flow of at least 60 litres per minute against a pressure of at least 1 bar. To achieve this, a multi-stage pump is required.

A normal rising cold water main in a building has insufficient flow to force out this air. Mains water is also “aerated”, so should not be used.

Kensa recommend the Clarke SPE1200SS (part no. 051012200). The pump is supplied ready to take a 1" BSP fitting. Two x 1" BSP male to 28 mm compression fittings are required to enable the pump to be connected to the slinky manifold using 28 mm "Speedfit" or similar pipe and elbows. These are readily available from plumbing merchants or can be supplied through Kensa.

The Clarke SPE1200SS can achieve as much as 5 bar pressure against a closed valve, so ensure the connections to the pump and manifold are robust.

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Heat Pumps