# Repairing Ground Arrays V2

The ground arrays of any heat pump system provide an important role in the design of the system and as these are buried, it is important that they provide long and trouble free life. The ideal situation for any ground array is to have one continuous length of pipe without any joints in it, therefore the pipe's strength is not compromised and does not have any weak points. The only joint which is acceptable in a ground array which is to be buried is an 'electrofusion' joint.

Electrofusion is a rapid and simple way of permanent jointing. An electrofusion joint is made by placing an electrofusion socket over the two weld ends and passing a specific amount of energy through the heating wire contained in the electrofusion socket. This process is very suitable for joints made on site or in tight areas. During the fusion process the pipe/fitting expands and touches the inner coupler wall. The electrofusion joint is made with the pressure caused by the expanding HDPE and the heat from the resistance wires. Electrofusion joints can either used as field repairs, or in the original manufacture of the ground arrays.

All Kensa's Slinky horizontal ground arrays have no joints in them whatsoever. If damage occurs to the pipe during installation for example if a digger bucket catches a ground array, it is acceptable to make a field repair. Ideally this should be an electrofusion joint.

Alternatively it is possible to use 'O' seal connectors (such as Plasson or Philmac). If the repaired joint is above ground a compression fitting can also be used. It is important that the correct size of internal pipe support inserts are used. The procedure for repairing a ground array pipe is no different from repairing a water pipe. The edges of the pipe should be cut square, with no burr, and there should be no scratches in the pipe. After the joint is made, the entire ground array should be pressure-tested, preferably witnessed by the client or Main Contractor, before it is back-filled. It is also advisable that any repairs are marked on drawings so any weak spot can be identified in case of future problems.

## Facts at a glance:

**Ground Arrays**—should ideally have no joints in them as these can be weak points.

**Electrofusion**—is a rapid and simple way of permanent jointing and provides the strongest joint.

**Field Repairs**—In case of damage during installation it is acceptable to make a field repair. Ideally this should be an electrofusion joint, alternatively it is possible to use 'O' seal connectors. If the joint is above ground a compression fitting can also be
used.

**Pressure Testing**—After repair, the ground array should be pressure tested to the satisfaction of the client before backfilling and the position of any joints marked on drawings.