TIF UK 0627-1
GROUND COLLECTOR
639220

Installation manual
GROUND COLLECTOR

Introduction

Thank you for making a wise choice to install a Nibe ground source heat pump. Your heat pump and ground collectors have been designed specifically for your project.

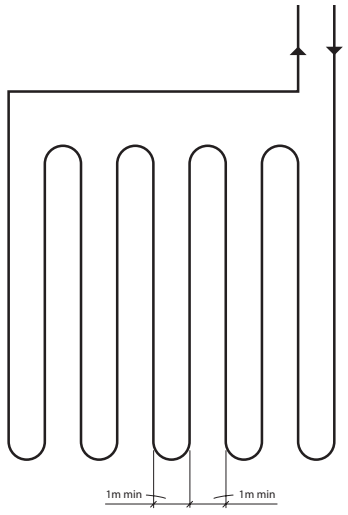
The collector supplied is 40mm x 2.4 PN 6.3 PEM pipe, specifically manufactured for geo-thermal ground collectors.

The length of the collector varies depending on the ground conditions and on the heating system, i.e. radiators or floor heating. Maximum length per collector must not exceed 400m. Where there is more than one collector, they must be connected in parallel, with means of adjusting the flow. The collector is supplied so no joints are required in the trenches, any joints must be accessible. If a manifold is supplied, this can be installed inside the building or in an inspection chamber outside the building.

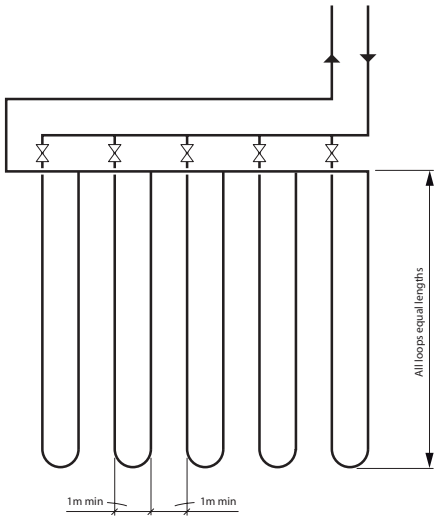
The collector should be buried a minimum depth of 1 metre and the distance between collectors, should be 1 metre.

Installation of ground loop in trenches

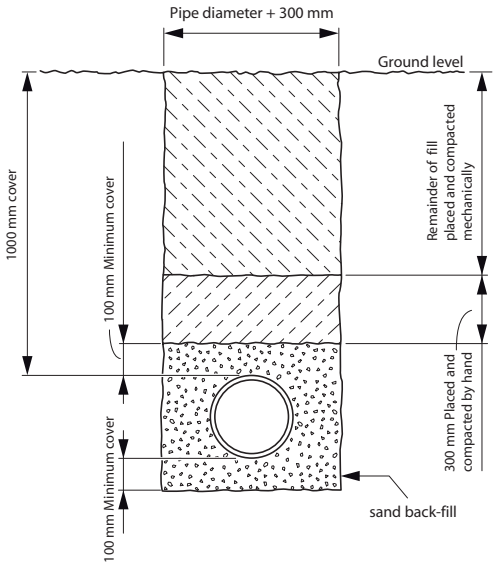
- Trenches are dug, or soil removed from the total area to allow the ground loop pipes to be laid within the trenches.
- Trenches can be laid in any direction and should be a minimum of 1 metre apart.
- Ensure the loop rises constantly towards the heat pump to avoid air pockets. If this is not possible, install high points to vent the air.
- The standard width of a trench is 600mm – 900mm. However, a 1200mm trench can be dug to accommodate the pipe either side with a 1m spacing.
- If land is not available for a single trench a double trench method can be used. A 2 metre trench is dug and the first ground loop is laid, this is then back filled by 800mm. The second collector is laid and then back filled to the required surface level
- We recommend 2 – 3 people are used to lay the ground collector
- A 100mm layer of sand must be laid below the collector and a further 100mm laid over the top after pressure testing the collector.
- When installing the ground loop, ensure the pipe ends are taped off to avoid dirt entering the pipe.
- Care must be taken when bending the collector not to kink the pipe, as this will need to be repaired.
- The collector must be laid a minimum of 1 metre from foundations, services and drainage pipes. If the collector needs to cross a service pipe or drain, the collector needs insulating 1 metre either side of the crossing point.
- The collector must be insulated a minimum of 1 metre from the entry point to the building.
- Entry points for the collector pipe must be insulated, sleeved and sealed against ingress. Ducts will be required to have a long radius bend to accommodate the minimum bending diameter of the pipe 0.5 metre
- After pressure testing the collector, the trench can be back filled. Care must be taken not to allow large or sharp stones or rocks to be laid on top of the sand.
- Deep rooted plants and trees should not be planted near to the ground collectors, other plants and grass can be planted over this area and will not affect growth.
- The surface above the collectors should not be built on.

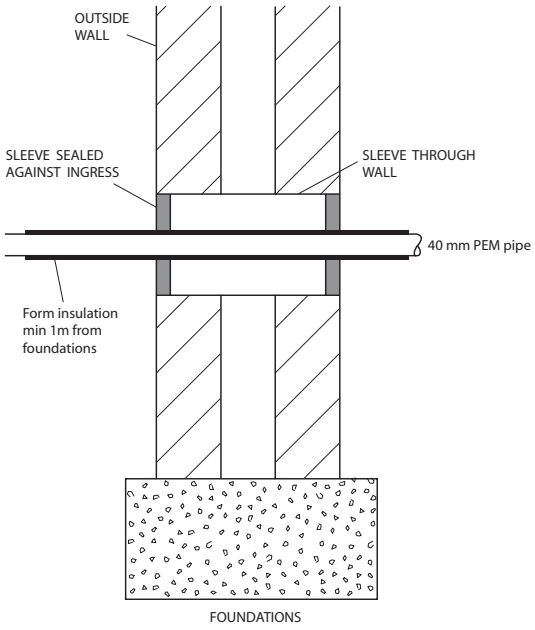


Single coil



Multiple coils





Cross section of pipe entry point to building

Pressure testing the ground collector

The ground collector needs to be pressure tested before back filling the trench. Fittings can be purchased to allow you to connect to a pressure test pump and hose pipe to fill the collector. Our testing procedure is carried out in line with BS 6700, please refer to this standard for further information if required.

- Fit the 40mm to ¾ male bsp connector to one end of collector. Connect hose pipe to ¾ male bsp.
- Fill the collector with water and let it run through for at least 5 minutes to flush system and purge any trapped air.
- Turn the water off and connect the 40mm cap end to the open end.
- Disconnect hose pipe and fill pressure test pump with water. Connect pressure test pump hose to ½ male bsp connector and make water tight.
- Pump up pressure test pump and increase pressure to 10 bar, check for any visible signs of leakage. Continue pumping if required for a period of 30 minutes to keep pressure at 10 bar. Continue test for a further 30 minutes without pumping and note the test pressure at the end of this period. If the pressure drop is less than 0.6 bar, the system is considered to have no leakage.
- If test fails, check all joints for water tightness and repeat test.

Equipment and parts you will need

Pressure test pump

40mm Armaflex 13mm thick insulation

Water supply

Fittings required for pressure testing (1no 40mm cap end and 1no 40mm to ¾ bsp connection for a hose pipe and pressure test pump.)

NOTE

When digging and working in trenches, current Health & Safety measures must be adhered to for safe working conditions. As excavation proceeds, all unstable trench walls need to be supported and this requirement is mandatory for trenches of 1.2 metres or deeper.

Guidance on excavation techniques may be found in:

- BS 6031 Code of Practice for Earthworks (general trenchworks)
- Report No.97 Trenching Practice (more specific advice)
- Report Um 1049 : 1990 (review of current practices)