Geothermal probe systems

Gerotherm®
The GEROtherm® geothermal probe system from HakaGerodur AG is designed to make use of the near-surface geothermal energy (soil heat or soil cold). Geothermal probes, earth collectors and energy piles are realised through closed and maintenance-free pipe systems made from polyethylene.

The heat is transported by a liquid heat carrier such as a water/glycol mix (brine).

The connected heat pump generates the required temperature levels for heating and cooling and for the supply of hot water.

1. The idea

The GEROtherm® geothermal probe system is a completely plastic system made from high quality polyethylene, which has the optimal characteristics for this application, such as:

- long lifetime (100 years)
- low hydraulic resistance
- no corrosion problems, as it is a completely plastic system
- resistant to cold and heat
- impact resistant
- modular system for easy assembly
- optimum safety with regard to pollution of the soil (drinking water)
- patented probe foot CH Pat. 687 268, EU Pat. 1 036 974

2. Raw material selection

Polythene has been used as a piping material in the drinking water sector for over 50 years. A high degree of experience is therefore available. According to the applicable ISO, EN und DIN standards, the PE 100 polythene that is used today permit the lifetime prediction of 100 years. The connection procedures, such as butt welding and heated coil welding, are well proven and require no external materials.

Seals or screw fittings in the soil can thereby be avoided.

The flexibility and impact resistance of the material make a problem-free installation of the components possible, even at extreme temperatures (down to -5°C).

3. Quality assurance

The quality assurance of the GEROtherm® geothermal probe systems is carried out by the Süddeutsche Kunststoff-Zentrum (SKZ – Plastic Centre of Southern Germany) in D-Würzburg, as the first system of its kind according to the HR 3.26 directive. This quality assurance ensures that all components and connections correspond to the currently valid standards and regulations, such as ISO, DIN, DVS etc. The requirements placed on geothermal probes and/or geothermal probe systems are defined in the guideline VDI No. 4640, pages 1 and 2.

4. Flexibility in the application

The modular system offers the highest flexibility in the application.

The individual components are coordinated with each other and there may be both small and large plants (over 100 borehole heat exchangers) to be realized. In addition to the individually closable circuits, we recommend for optimal control and performance improvement, the use of flow control devices.

5. Life Cycle Assessment (LCA)

Polyethylene has an optimal LCA compared to other pipe materials. In the production from synthetic crude oil to the finished polymer is only a fraction of the energy, the other pipe materials require consumes.

HakaGerodur AG
CH-8717 Benken
Phone +41 (0)55 293 25 25
Fax +41 (0)55 293 25 99
sekretariat@hakagerodur.ch
www.hakagerodur.ch