



GEROthem[®]-RT

Geothermal probe for higher
temperature and stress
crack resistance made from
PE100-RT-RC*

The GEROtherm[®]-RT geothermal probes combine the positive properties of the tried and tested GEROtherm[®] geothermal probe, while offering higher temperature and stress crack resistance.

Design

The optimised and patented GEROtherm[®]-RT geothermal probes are an evolution of the tried and tested **DUPLEX**, **VARIO** and **FLUX** probes and are made from the new material PE100-RT-RC*. This provides major advantages:

- + Made of PE100-RT-RC* material for higher temperature loads. RT (RT = raised temperature) stands for higher temperature resistance and RC (RC = resistance to crack) stands for greatly increased stress crack resistance.
- + Maximum operating temperature (short-term) = +95°C¹⁾
- + The probe pipes are made entirely of PE100-RT-RC*. The tried and tested geothermal probe foot is also made of PE100-RT-RC*. The **FLUX** geothermal probe feet are manufactured from the high-quality polyamide PA12 plastic.

Installation

The RT geothermal probes are supplied in the same way as the other probes. They can be installed using conventional equipment. The geothermal probes are compatible with all installation systems, such as GEROtherm[®] PUSH-FIX, UNI-FIX and weight systems.

Service life and patent

The GEROtherm[®]-RT geothermal probes are all-plastic solutions and therefore corrosion-resistant with a service life of over 50 years according to SIA 384/6)¹⁾.

The patent number for this geothermal probe is CH 717 800 A2.

Applications

For applications where the operating temperature or the temperature of the environment of the geothermal probe exceeds approx. 40°C^{1) 2)}.

Conclusion

The innovative and patented GEROtherm[®]-RT geothermal probes are resistant to stress cracking in addition to their proven **temperature resistance**. The combination of the two features addresses the current trends of regeneration and cooling using geothermal energy. The tried and tested quality products **DUPLEX**, **VARIO** and **FLUX** geothermal probes offer their product-specific advantages combined with the new **RT features**. The handling and installation of the products remain unchanged and are accordingly uncomplicated.

Advantages at a glance

- + Made of PE100-RT-RC* material for higher temperature loads. RT (RT = raised temperature) stands for higher temperature resistance and RC (RC = resistance to crack) stands for greatly increased stress crack resistance.
- + All GEROtherm[®] geothermal probes in the available pressure ratings can be manufactured with the material PE100-RT-RC* and are available as RT versions (DUPLEX-RT, VARIO-RT and FLUX-RT).
- + Coil dimensions and installation conditions match those of the corresponding types and designs of geothermal probes
- + Optimised heat transfer and performance identical to PE100-RC material
- + 100% synthetic solution, making it corrosion-resistant; sections can be recycled by grade of plastic
- + Each individual geothermal probe foot comes with a factory certificate and serial number in accordance with EN 10204 2.2
- + No need for welding on site as per SIA 384/6, VDI 4640
- + Fulfills the requirements of DIN EN 12201-2. Piping systems made of polyethylene (PE) and DIN EN ISO 22391. Piping systems made of polyethylene with increased temperature resistance (PE-RT)
- + Geothermal probes made from PE100-RT-RC constitute a protected technology. Patent No. CH 717 800 A2
- + Maximum operating temperature (short-term) = +95°C¹⁾
- + Extensive range of RT moulded parts available



* Geothermal probes made from PE100-RT-RC constitute a protected technology. Patent No. CH 717 800 A2

¹⁾ The expected durability of the material depends on the duration and temperature of use, along with the inside pressure. The load limits are calculated based on the cumulative damage rule (Miner's rule) in accordance with SN EN ISO 13760. (For an object-specific definition, the annual frequency-temperature profile and the internal pressure must be specified.)

²⁾ For the maximum ground inlet temperatures, please observe the locally applicable regulations.

The GEROtherm®-RT geothermal probe range

All GEROtherm® geothermal probes in the available pressure ratings are available as RT versions (DUPLEX-RT, VARIO-RT and FLUX-RT). For applications where complete **diffusion resistance** is required, all probes in the -RT and -REX versions can be combined as required. The core pipe of the GEROtherm® geothermal probe is manufactured from PE100-RT-RC* and available in the -REX version (DUPLEX-RT-REX, VARIO-RT-REX and FLUX-RT-REX).

GEROtherm®-RT accessories

HakaGerodur AG also offers a wide range of accessories made of RT material:



Regeneration of the ground

To optimise the operation of geothermal probes, it is advisable to use them not only for heating and thus for extracting heat from the ground, but also for cooling buildings or storing excess heat. The ground's natural regeneration is always dependent on the local geology and can be very slow in some regions, which means that the respective geothermal probe systems would need to be larger. Geothermal probe systems are usually designed in such a way that there is no significant change in the underground temperature after an operating period of 50 years. Thanks to regeneration, the geothermal probe system can be dimensioned smaller, which cuts costs and also means that the system runs more efficiently.

Ground regeneration can take place in a variety of ways. When cooling buildings, the fluid circulating in the pipes absorbs the heat, e.g. via the floor, and releases it back into the ground as it flows through the geothermal probe. In cases where process heat or surpluses from solar thermal energy etc. are used to regenerate the system, we often have fluid temperatures above 25°C²⁾, which makes it advisable to use PE100-RT-RC as the pipe material. Permanent fluid temperatures of more than 25°C²⁾ have a negative impact on the service life of pipes made of PE100-RC.

Geothermal probes and connecting pipes made of PE100-RT-RC have the same increased stress crack resistance as PE100-RC, but have an increased temperature resistance up to a short-term maximum fluid temperature of 95°C¹⁾.

The PE100-RT-RC material is a protected technology patent no. CH 717 800 A2.



Ingenious geothermal systems



Certified by



 **HakaGerodur**

HakaGerodur AG
Giessenstrasse 3
CH-8717 Benken

T +41 (0)55 293 25 25

verkauf-ews@hakagerodur.ch
www.hakagerodur.ch