

■ **GET-SYSTEM for geothermal heat extraction**

GEO THERMAL SYSTEM



Geothermal System: To produce heat without gas and oil

What means geothermal system?

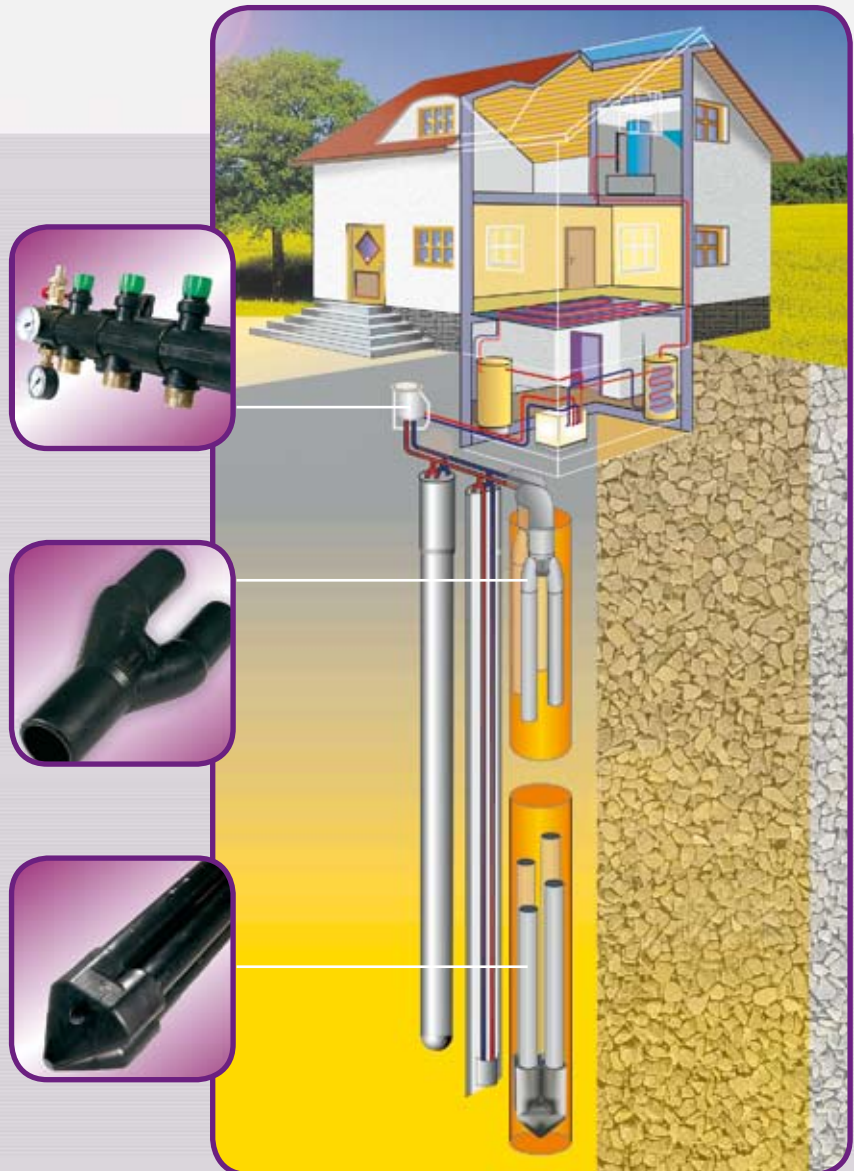
Geothermal heat (geothermal power) is hot energy which is stored in the ground. This energy is renewed constantly by solar radiation and heat of the earth's interior. Therefore, we have in our lines of latitude a steady temperature from 8 to 12°C – in 10m depth during the whole year.

How can you use this energy free of charge?

The permanent connection to the earthbound energy source will be guaranteed through the FRANK Geothermal System. Geothermal probes are installed vertically into the ground.

A heat transfer medium circulates through the probe, there it takes the geothermal power from the ground and dispenses the energy to the heat pump. This pump increases via a thermodynamic process the provided temperature and delivers it to the heating- and hot water system.

Heat pumps transform geothermal energy by using 1kWh of electricity into 4kWh (and more) heat, i.e. you can cover 100% heat requirement by 25% energy input.



FRANK Geothermal probes

Geothermal probes of FRANK will be delivered completely assembled. We weld the foot of the probe with special developed welding equipment and inspected personal. As a third party, a governmental institute for material testing [Staatliche Materialpruefanstalt Darmstadt] controls the production of probes acc. to the corresponding SKZ-guideline HR 3.26. Our probes meet all the current norms.

Dimension of pipe [mm]	Length of geothermal probe [m]	Remarks
32 x 2,9	50, 60, 70, 80, ... up to 150	standard
32 x 2,9	special lengths	on request
40 x 3,7	100, 150, 200, 250	standard
40 x 3,7	special lengths	on request



A 466

How deep do you have to drill?

The length of probe will be investigated by the calculation of heat requirement and the geologic earth conditions.

Example:

Living area:	190 m ²
Heat requirement:	8,5 kW
Heat pump:	9,0 kW
Power input:	2,1 kW
Cooling capacity:	6,9 kW
Achievable capacity of ground ¹⁾ :	50 W/m

$$\text{Length of probe} = \frac{\text{cooling capacity}}{\text{Achievable capacity of ground}} = \frac{6,9 \text{ kW}}{50 \text{ W/m}} = 138 \text{ m}$$

A probe with a length of 140 m will be required (alternatively 2 probes with a length of 70 m), to cover the heat requirement of a building incl. hot water supply.

¹⁾ depending on geologic earth conditions

FRANK prefabricated manhole

An optimised, complete prefabricated solution for the direct installation of the geothermal probe and the pipeline onto the heat pump. The manhole is made of PE. Thus, individual solutions will be prefabricated according to the demand of the client. It can be easily installed and transported without any problems by two people on the construction site.



FRANK brine manifold

Modular brine manifold, also available with flow meters, are specially designed for the use of geothermal probes. Probes OD 25, OD 32 and OD 40 can be easily connected with factory-assembled clamp connections.



Advantages

- Independent of oil- and gas prices, energy taxes.
- Well-priced: input of 1kW electric energy you receive approx. 4kW
- Subsidy: by government (depending on the countries) or power authorities
- Summertime: geothermal probes supply cooling without extra expenses
- Higher life expectancy than conventional heating systems
- No costs for chimney sweeper and maintenance of heating
- Space saving: no chimney, no room for heating or oil tank necessary. Only general utility room
- Geothermal heat is always at your disposal, independent of weather and season conditions
- Eco-friendly: no emissions, no waste and no traffic volume





Welding equipment and accessories



Electro fusion fittings

FRANK Complete welding equipment

We offer you premium pipes and fittings made of PE together with our welding machines and accessories. By use of all these components, from one supplier, we afford an installation of a long term reliable pipe system.

FRANK GmbH
Starkenburgerstraße 1
64546 Mörfelden-Walldorf (Germany)

Tel.: +49 6105 4085-143
Fax: +49 6105 4085-141

E-mail: export@frank-gmbh.de
Internet: www.frank-gmbh.de