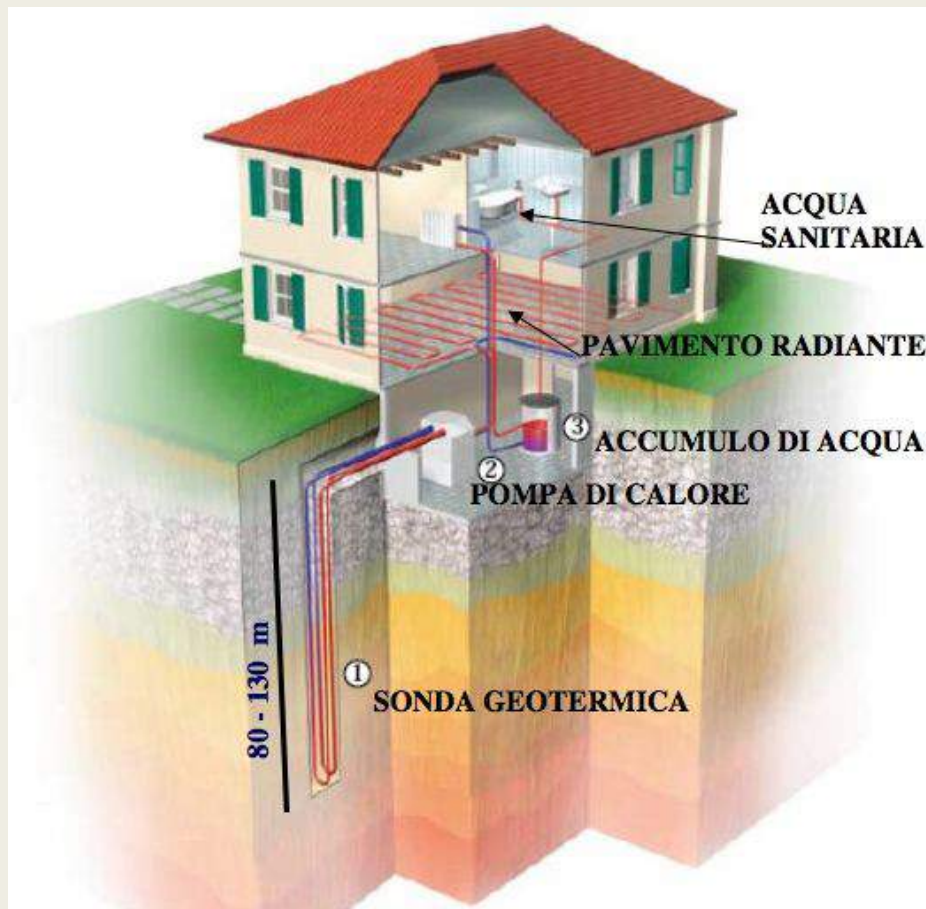


NIROFLEX[®] tubazioni in acciaio inox flessibili

GEO POWER PIPE

COSTRUZIONE IMPIANTI GEOTERMICI A BASSA ENTALPIA



GEOTHERMAL POWER ENERGY

THE GEOTHERMAL SYSTEM

Low-enthalpy geothermics is the new frontier of the heating and air conditioning of residential and industrial buildings, because it uses the ground as a thermal source to pump heat in or out. This can be done by means of a heat pump for winter heating but the heat pump can also work as a conventional air conditioner during summer. In this way, the same device can provide heating and cooling throughout the year.

In addition to the heat pump, the closed-loop geothermal system includes one or more vertical probes that are put into the ground with a drilling technique rather similar to the one used for artesian wells. Inside the probe a fluid heat carrier flows (water, mix of water and antifreeze agent) that provides for the heat exchange without pumping water from or into the ground.

The geothermal system described above is no breaking news; documents dating back to the '50s show several solutions for the heat exchange with the ground, both of closed-loop and open-loop type.

The proposal shown here includes a vertical probe – of coaxial complex type – called **GEO POWER PIPE**.

GEO POWER PIPE GEOTHERMAL PROBE

This probe results from a series of tests aiming at improving the efficiency of the heat exchange between the probe and the surrounding ground. The efficiency of the probe is important to design a system because the higher it is, the likelier it is to have small temperature differences between the fluid heat carrier flowing inside the system and the ground.

The **GEO POWER PIPE** has been conceived in several variants to cope with the different environmental conditions in which it will have to operate. For example, probes can be installed in highly corrosive grounds or where there are geothermal anomalies or where space is limited in height as well as in situations entirely conventional.

ADVANTAGES OF GEO POWER PIPE PROBES

Good heat exchange for linear metre with the possibility – in some applications – to reduce the number of probes to be used and/or the installation depth with respect to the conventional vertical double-**U** probes made in plastic.

Some probes are made up with 3-m long segments to allow the installation in low-ceiling rooms (for example in buildings in old city centres).

Some probes are available with anti-corrosion sheaths for installation in particular types of ground (for examples the bottom of lagoons and the sea).

All probes are provided with external pipes in stainless or galvanised steel and are therefore very resistant to the pressure exerted by the surrounding ground and consequently – in average – last longer than the plastic probes.

They can be combined with cooling units or heat pumps of different brands.

They can be used for heat disposal in production cycles.

They can be connected to innovative free-cooling systems.

MOUNTING GEOTHERMAL PROBE - GEO POWER PIPE



The staff of employees that under our guidance perform the perforations are a group of professionals of excellence with attrezzatura new generation certain to guarantee absolute quality of the work done.

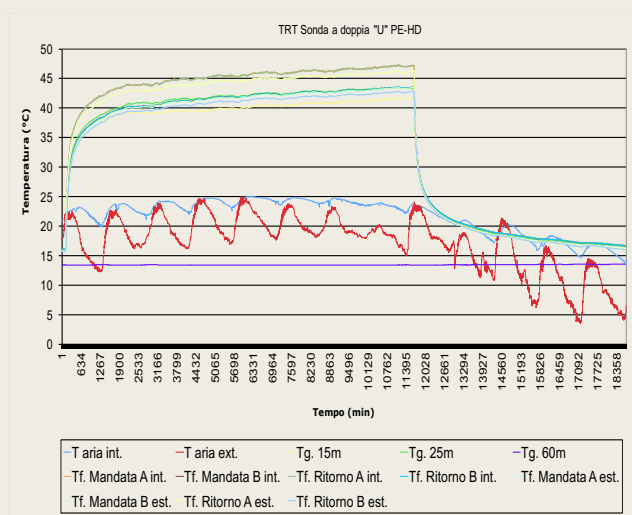
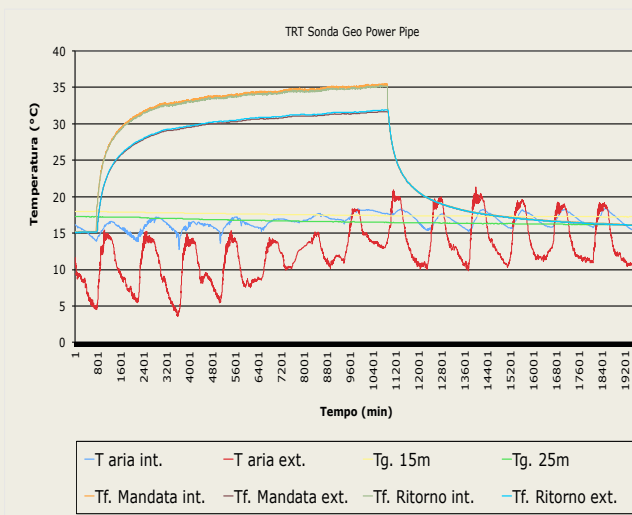
The installation of the geothermal probe GEO POWER PIPE is carried out by qualified technicians with experience gained to maneuver special machines specially designed and shaped for insertion into the borehole probes of our production

DATA COLLECTED DURING A THERMAL RESPONSE TEST

Hereafter two TRT tests are shown that were carried out by using the **GEO POWER PIPE ZI DN 150** probe and the conventional double-**U** probe installed in our factory. The probes are both 60 m long. In this case, heating elements are used to provide heat. In both cases the fluid thermal carrier has the same thermal power.

The tests were performed within the framework of a research co-operation agreement with the Technical Physics Department of the University of Padua.

As it can be observed, when using **GEO POWER PIPE DN 150** the temperature reached by the fluid is lower than that of the double-**U** probe; this is due exactly to the probe higher efficiency.



TYPES OF GEOTHERMAL PROBES PRODUCED

GEO POWER PIPE INOX



Characteristics;

The geothermal probe called **GEO POWER PIPE INOX DN 125** consists of a corrugated pipe in stainless steel AISI 316L CNW type. The main characteristic is the construction of this pipe: it is one single jointless element.

GEO POWER PIPE INOXGUM



Characteristics;

The geothermal probe called **GEO POWER PIPE INOXGUM DN 125** consists of a corrugated pipe in stainless steel AISI 304L with external sheath in extruded PE-LD, CNT type. The main characteristic, in addition to the construction in one single piece, is the anti-corrosion sheath with cathodic protection.

GEO POWER PIPE ZI



Charactristics;

The geothermal probe called **GEO POWER PIPE ZI DN 150** consists of a galvanized steel pipe. It is the fundamental element of this pipe available in segments of 3 or 6 metres that can be combined together by means of a screw and a coupling to be used in low-ceiling rooms.

SOME OF OUR RECENTLY INSTALLED SYSTEMS

Museum Vedova – Magazzini del sale in Venice



Drugstore in Carbonera – Treviso



Hotel Panoramic Caorle-Venice



Substation heating and cooling residential home Costa Azzurra - FR



mose operations center of Venice – Venice



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