HakaGerodur

Image source: www.rpbw.com

Project report

GEROtherm® FLUX geothermal probes

SNF general hospital
GR – Komotini


1

The Stavros Niarchos Foundation (SNF) engaged Renzo Piano's architectural firm to design three new healthcare facilities for the Greek National Health System. They include two general hospitals in Komotini and Sparta, as well as a new children's university hospital in Thessaloniki.

SNF is a philanthropic organisation that funds art, culture, education, health and social welfare projects. Thanks to a memorandum of understanding signed with the Greek government, this initiative will enable it to implement a healthcare institution comprising three state-of-the-art facilities built to very high standards of efficiency, sustainability and innovation.

The new facility will meet the needs of residents in Eastern Macedonia and Thrace and also allow the closure of the old hospital, one of the oldest in the country. The new building will provide 28,750 square metres of floor space and 180 beds. The aim is to open the hospital by the end of 2026.

The ground floor is made of concrete, while the first and second floors are constructed of wood, with glued-laminated timber columns and beams supporting the cross-laminated timber (CLT) floors.

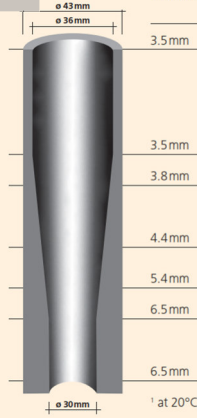
A concrete slab poured over the ceilings provides acoustic insulation, as well as protection in the event of an earthquake.


2

The photovoltaic canopy is made of steel and shades the roof and façades. In addition to the photovoltaic panels, 32,000 metres of geothermal probes have been installed to fully meet the building's heating and cooling requirements. HakaGerodur's GEROtherm® FLUX geothermal probes are used in combination with heat pumps.

Pressure loss in the conical, safety and pressure-optimised GEROtherm® FLUX geothermal probes is significantly reduced compared to a conventional PN20 geothermal probe, resulting in lower energy requirements for the circulation pump. Furthermore, resistance to internal pressure at depths of up to 320 metres provides enhanced safety.

3



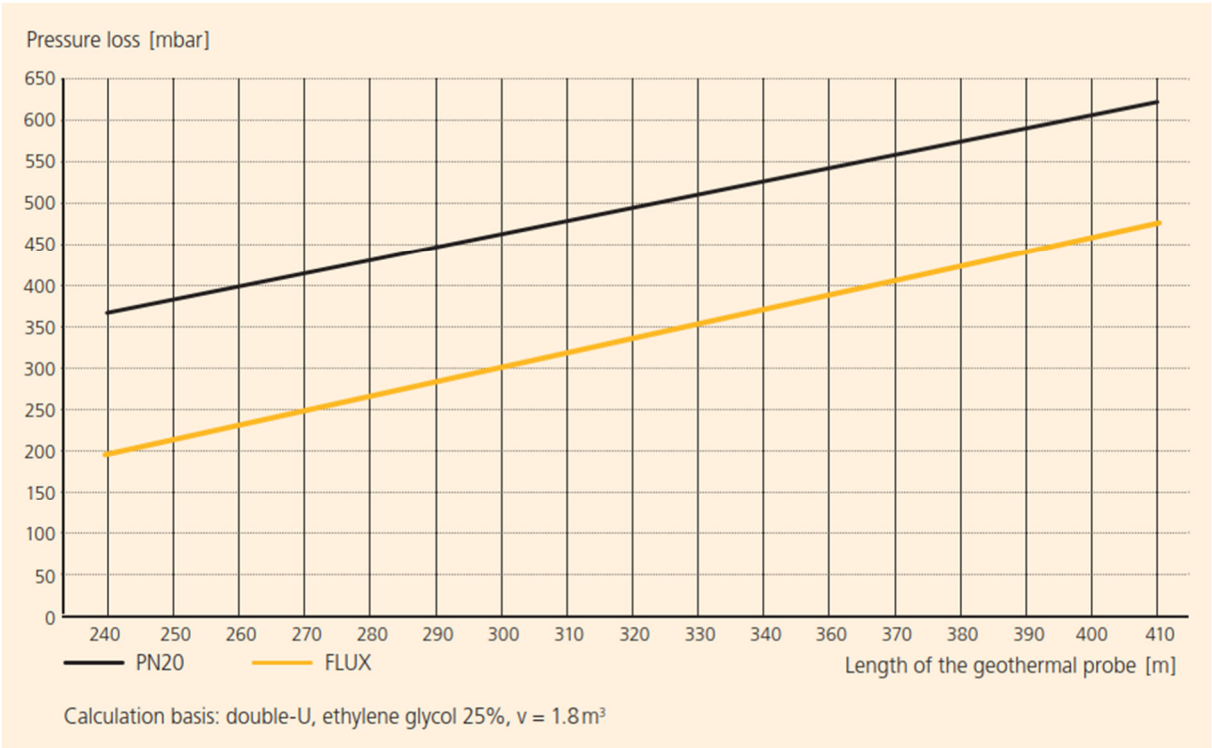
Wall thickness	Internal pressure resistance	Buckling pressure resistance[1]
3.5 mm	0 m: 14 bar	0 m: 6.3 bar
3.5 mm	-140 m: 14 bar	-140 m: 6.3 bar
3.8 mm	-160 m: 16 bar	-160 m: 7.8 bar
4.4 mm	-200 m: 20 bar	-200 m: 10.7 bar
5.4 mm	-260 m: 26 bar	-260 m: 15.9 bar
6.5 mm	-320 m: 32 bar	-320 m: 22.6 bar
6.5 mm	-410 m: 32 bar	-410 m: 22.6 bar

[1] at 20°C/60 h in accordance with SIA 384/6

1 Wall thickness variation and pressure resistance of a GEROtherm® FLUX de 43 mm geothermal probe

Drilling and installation work:
the geothermal probes were installed by Nikolaos Psarras Geothermal Engineering. The drilling company based in Kifisia also installed the connecting pipes and distributors.

4



Project details

Construction site
New general hospital
7th km Komotini – Iasmou Road
GR-69100 Komotini

Client
Stavros Niarchos Foundation (SNF)
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Renzo Piano Building Workshop
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Drilling company
Nikolaos Psarras Geothermal Engineering
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Products used
- 100 GEROtherm® FLUX geothermal probes, de 43 mm, PN14 to PN32, length 320 metres
- 100 GEROtherm® PUSH-FIX installation systems

1. Realistic visualisation (image source: www.ingegneriabarbieri.com)
2. Construction progress, October 2025 (image source: www.snfghi.org)
3. Wall thickness distribution and pressure resistance of a GEROtherm® FLUX de 43 mm geothermal probe
4. A drilling rig in use (image source: Nikolaos Psarras Geothermal Engineering)
5. Comparison of the pressure loss of a GEROtherm® FLUX conical geothermal probe with that of a cylindrical PN20 geothermal probe

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