



Image source: www.aachener-zeitung.de

Project report

GERO^{therm}® FLUX 43 geothermal probes

Abiomed Europe GmbH
Expansion of the Aachen site

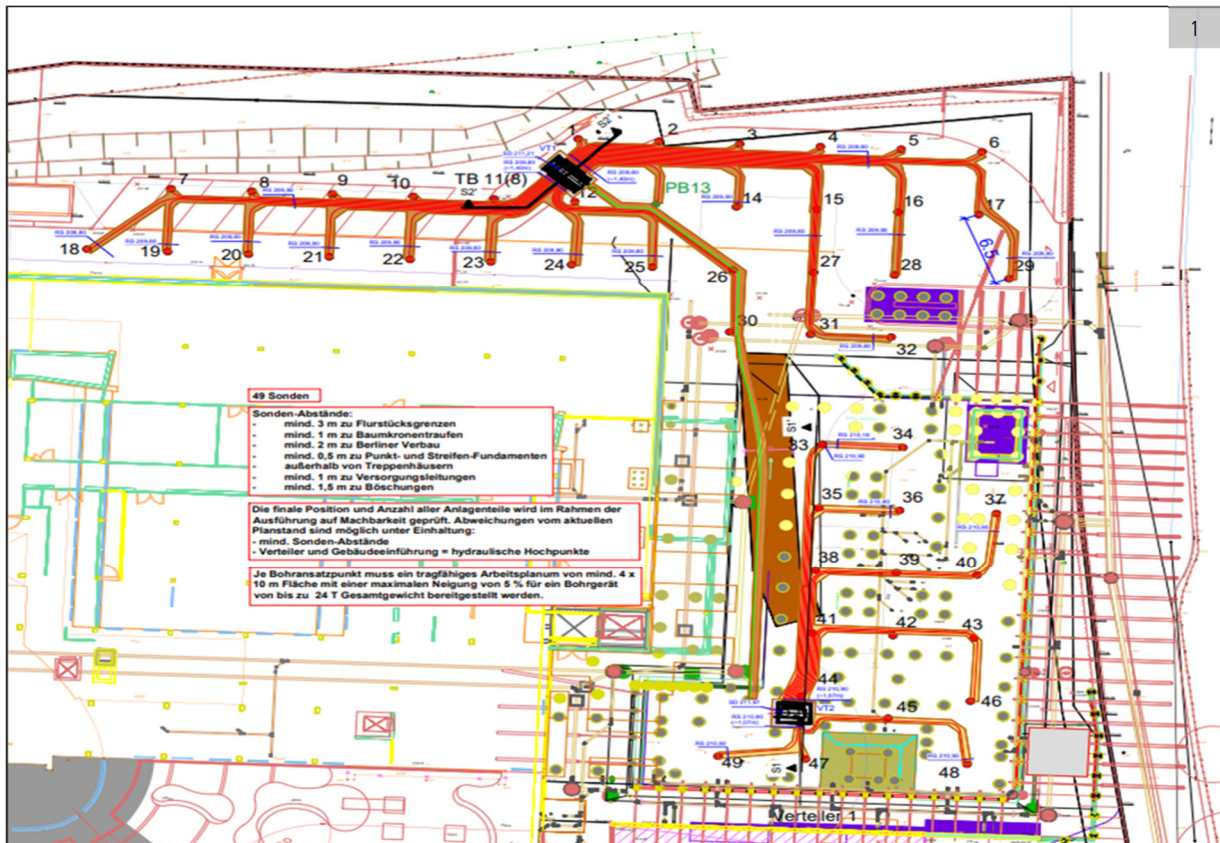


Image source: BauGrund Süd

Abiomed was founded in the USA in 1981 and is now a leading global medical technology company. Its Aachen-based European headquarters employs around 1,000 staff and is the primary hub for heart pump research and development. The expansion of the site to 7,700 m² necessitated a new heating system. To meet the demand for approximately 1,000 MWh/a of heating energy and approximately 800 MWh/a

of cooling capacity, the decision was made to use near-surface geothermal energy, despite the limited space available. No less than 51 GEROtherm® FLUX 43 geothermal probes, with a length of 370 m, were sunk into the ground. The borehole spacing was 6–7 metres, which presented a further technical challenge. The Aachen-based engineering firm of Graduate Geologist Dr Mathews laid the groundwork with its detailed

planning, whilst BauGrund Süd GmbH from Bad Wurzach was responsible for the implementation. At such drilling depths, vertical deviation from the plumb line is unavoidable and requires a high degree of technical expertise and experience to keep this deviation to a minimum. Ultimately, the vertical deviation amounted to just 8–10° or approximately 28 metres.



To ensure that such construction projects remain within budget, well-organised site management is essential. By using a separation system to split the drilling debris into liquid and solid components, fresh water consumption was minimised and the volume of

material requiring disposal was significantly reduced. This process is both cost-effective and environmentally friendly. Furthermore, the silos used for the backfill material not only help to reduce packaging, but in conjunction with the mixing

technology also ensure that backfill material of the required consistency is readily available at all times. The correct backfilling around each individual GEROtherm® FLUX geothermal probe was monitored and documented using the CemTrakker system.



The conical GEROtherm® FLUX geothermal probes, which are optimised for pressure loss, have been specially developed for these deep boreholes. Their higher internal pressure resistance of 32 bar and improved buckling pressure resistance of 22.6 bar ensure greater safety during both installation and operation. The all-plastic design eliminates the risk of corrosion-related damage. Patent No.: EP 2 706 308



1 Wandstärkenverteilung und Druckbeständigkeit einer GEROtherm® FLUX de 43 mm Erdwärmesonde

Project details

Construction site

Extension
Abiomed Europe GmbH
Neuenhofer Weg 3
52074 Aachen
www.abiomed.com

Planning:



Sachverständigenbüro
Dipl. Geol. Dr. Thomas Mathews
Jean-Bremen-Strasse 3
52080 Aachen
www.sv-mathews.de

Drilling company

baugrund süd
weishaupt gruppe

BauGrund Süd GmbH
Zeppelinstrasse 10
88410 Bad Wurzach
www.baugrundsued.de

Products used

- 51× GEROtherm® FLUX 43 geothermal probes up to PN32 made of PE 100RC de 43 mm, length 370 metres
- 51× grouting tubes PE-HD de 32 mm, length 202 metres
- 51× grouting tubes PE-HD de 32 mm, length 372 metres
- 51× PUSH FIX



Caption:

1. Layout of a geothermal probe system
(image source: BauGrund Süd)
2. A drilling rig in use
(image source: BauGrund Süd)
3. GEROtherm® FLUX geothermal probes ready for installation
(image source: HakaGerodur AG)
4. GEROtherm® FLUX geothermal probes, during installation
(Image source: BauGrund Süd)
5. Staff carrying out drilling work
(image source: BauGrund Süd)
6. Wall thickness distribution and pressure resistance of the GEROtherm® FLUX de (outer diameter) 43 mm geothermal probes

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