

Re Energy Engineering – Geothermal Heat Pump Systems in the Bulgarian Practice

- Georgi Petrov

- 8 years on the Bulgarian market
- Greatest geothermal drilling experience in Bulgaria
 - Over 70 000 meters of BHE
 - Which are about 3500 kW
 - In more than 100 buildings
- Qualified crew
 - Design engineers
 - Installation engineers
 - Technicians



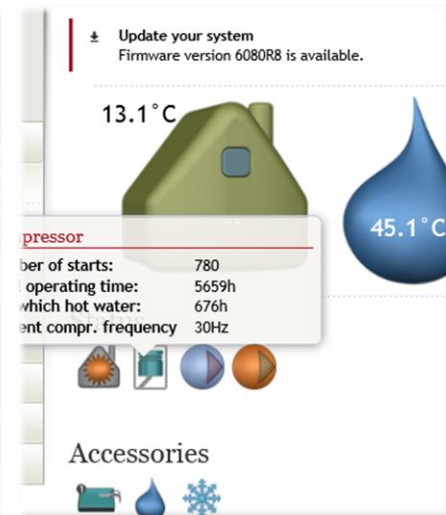
Design



Drill



Implement



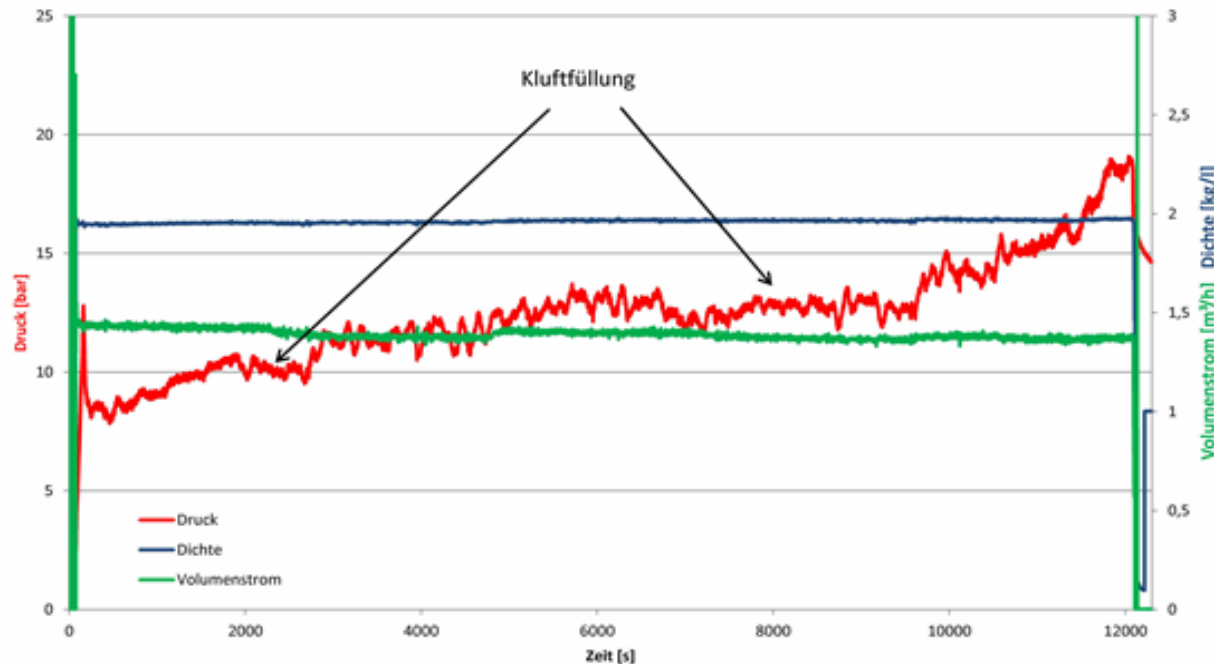
Maintain



- Grouting quality test
- Pressure test
- Circulation test
- Geothermal response test

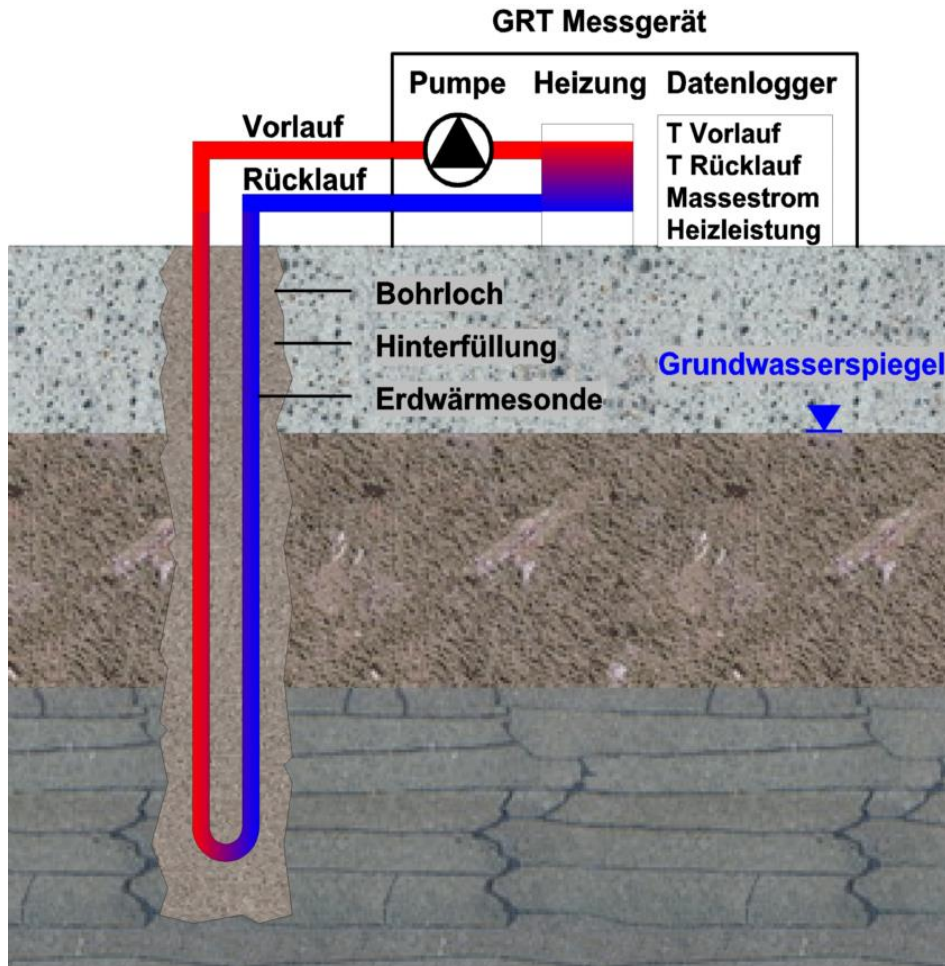


Messung von Druck, Dichte und Volumenstrom während des Hinterfüllvorgangs an einer Erdwärmesondenbohrung



Results from Tests:

- Pressure (contraction test)
- Flow (pressure difference)
- Density (Coriolis)

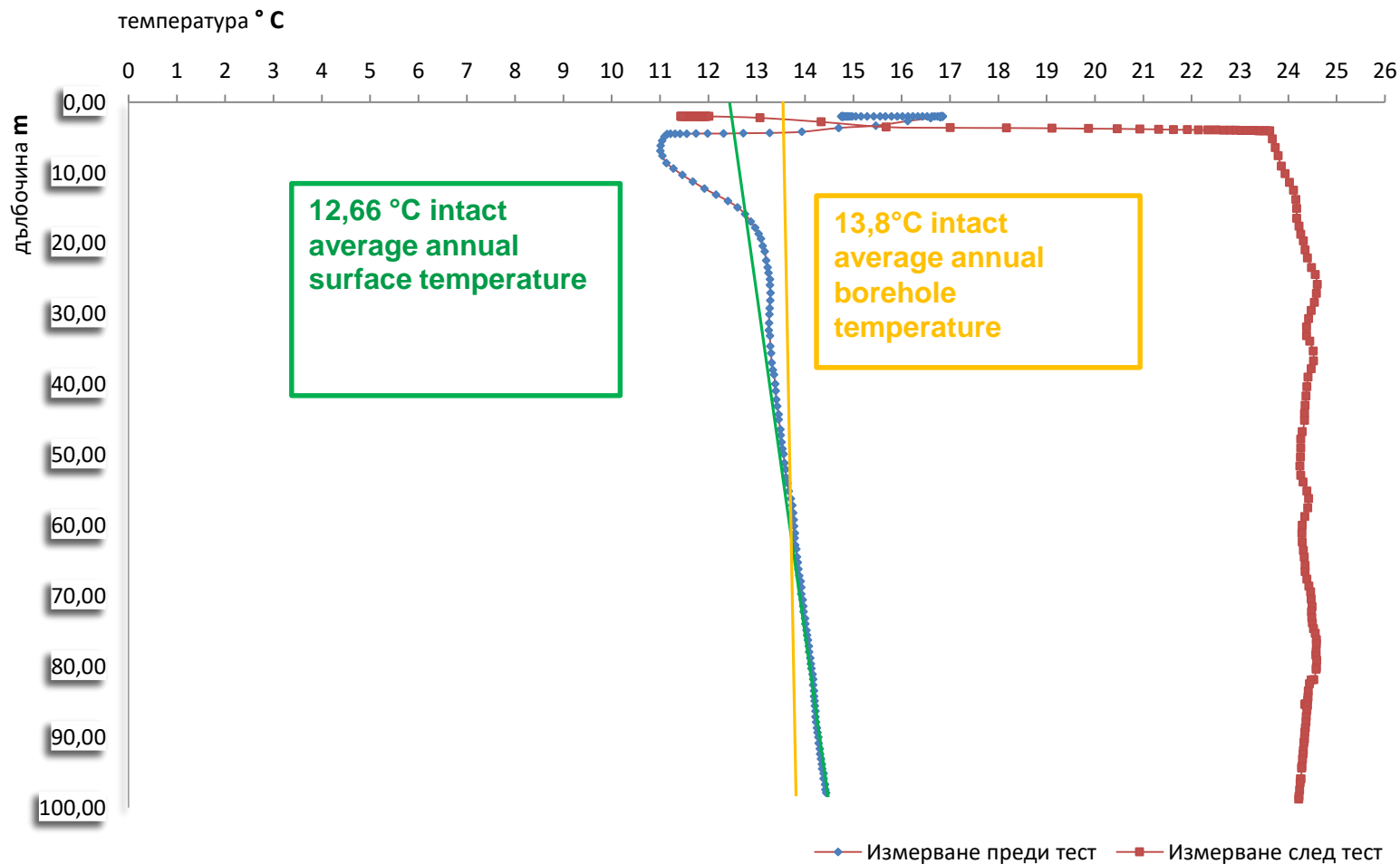


Results:

- thermal conductivity - λ
- Volume heat capacity of the ground
- thermal resistance of the ground R_B .



TEMPERATURE PROFILE BEFORE AND AFTER GRT PROJECT " DOMO ", PLEVEN



We are competitive with combining rich experience in three domains:



Architecture and
constructions



Building
installations



Geology and
drilling

Private school building St. George



- 84 BHE each 120 m
- 600 kW
- 20,000 m² total area
- Heating, Ventilation
- DHW, Pool heating

Office building in Sofia



- 9 BHE of 100 m
- Average T from BH to HP 8 °C
- Over sized BHE

- Tempering of concrete slab
- Inlet T from HP to Heating system 27 °C

- 40 kW_{th}
- 2300 m² total area
- Heating, Vent., DHW
- Under sized HP

Low energy house in Pleven



- 1 BHE of 100 m
- Artesian water



- Complete system solution
- 1,6-6 kW inverter HP
- Controlled ventilation



- 200 m² total area
- Heating, Vent., DHW
- 30 Euro average monthly cost

Goals:

- Presenting technology to people
- Educating citizens
- Supporting students
- Research and development
- Initiating competition networking
- Organizing events

- Promoting of Geothermal system
- Creating a standard for design of geothermal systems
- Creating a standard for implementation of geothermal systems
- Improving the normative system

The environment friendly geothermal museum for children ☺



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