

Thermal Response Test Equipment Data

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Country: Netherlands

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GENERAL TRT DATA

| | | |
|---|------------|--|
| Type: <i>Heat injection and heat extraction</i> | No TRTs: 2 | Size, weight: 3 + 2.4 + 2.6, 1250 kg |
| Aim: <i>Research/development/commercial</i> | | Pump: <i>Grundfos TPE 32-60</i> |
| Powered by: <i>Electricity</i> | | Heater: - |
| Built on/in: <i>container, portable</i> | | HP/Cooler: <i>Florida HP, 4 - 6 kW heat & cool</i> |
| <p> Temperature sensor Flow sensor Pump or compressor 3-way valve </p> | | Temperature measurements: - <i>Calibrated PT100 < 0.05K DT</i> |
| | | Flow rate measurements: - <i>Magflow < 0.2% (2.5% at low flow)</i> |
| | | Voltage stabilization: <i>Not needed¹⁾</i> |
| | | Supply Power Monitoring: <i>Not needed¹⁾</i> |
| | | GPS: <i>No</i> |
| | | Remote Control of Operation: <i>Yes</i> |
| | | Remote Data Collection: <i>Yes</i> |
| | | Logger: <i>Siemens PLC step 7</i> |
| <u>Principle outline</u> | | <i>1) Active thermal energy control</i> |

TRT EXPERIENCE

Years of operation: 13

Number of performed measurements: > 100 *Research/commercial*

Typical borehole depths: 20 - 200

Applications: *BHE, energy piles, UF systems, BHE resistance, general heat transfer application*

Typical collector type: *1U, 2U, coaxial pipe, (filling: sand, bentonite, cement)*

Typical fluid type: *water / ethylene glycol / monopropylene glycol*

Typical groundwater temperature: *7 - 15 (~20 or higher southern countries)*

Geographical area: *Netherlands, Belgium, UK, Ireland, Germany, Southern Europe*

Analysis Method: *Numerical / Line source /*

Remarks: *Continuous variable power output, TYPE III test, patented machine & analysis design*

