

# Thermal Response Test Equipment Data

Country: Finland

Contact Person: Jarmo Kallio

Organisation/Company: Geological Survey of Finland

Address:  
PL 97 (Vaasantie 6)  
67101 Kokkola

Phone: +358503493242

Email: jarmo.kallio@gtk.fi



## General TRT data

Type: Heat injection	No TRTs: 1	Size, weight: $L+W+H$ , kg
Aim: Commercial + research and development		Pump: Rotary
Powered by: Electricity		Heater: Electr. < 18 kW controlled
Built on/in: Trailer		HP/Cooler: -
<p style="text-align: center;">Principle outline</p>		Temperature measurements: Thermocouples
		Flow rate measurements: Mechanical and electronic
		Voltage stabilization: No
		Electricity measurement: Yes
		GPS: Yes
		Remote Control: Yes
		Remote Data Collection: Yes
	Logger: Campbell Scientific CR1000	

## TRT Experience

Years of operation: 2 years (2008 →)

Number of performed measurements: about 20 per year (commercial, research and development)

Typical borehole depths: 20–300 m

Applications: BHE, energy piles

Typical collector type: 1U, 2U, coaxial pipe / groundwater, thermal grout filling

Typical fluid type: ethanol-water

Typical groundwater temperature: 4–8 °C

Geographical area: Finland

Analysis Method: Line source