

# Thermal Response Test Equipment Data

Fill-in Date: 10-2010

Country: Japan

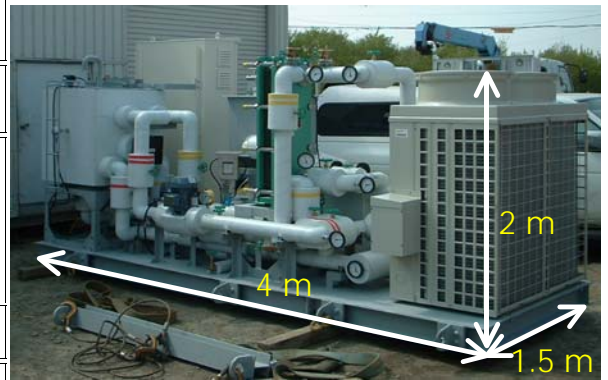
Contact Person: Takao KATSURA

Organisation/Company: The University of Kitakyushu

Address: Hibikino 1, Wakamatsu-ku, Kitakyushu, Japan

Phone: +81-93-695-3236

Email: [t-katsura@env.kitakyu-u.ac.jp](mailto:t-katsura@env.kitakyu-u.ac.jp)



## GENERAL TRT DATA

Type: <i>Heat injection and heat extraction</i>	No TRTs: 1	Size, weight: 1.5 m+4.0 m+2.0 m, 2000 kg
Aim: <i>Research</i>		Pump: <i>Flow rate 0 ~60 L/min</i>
Powered by: <i>Electricity</i>		Heater: <i>12 kW</i>
Built on/in: <i>stationary</i>		HP/Cooler: <i>Heat pump chillier of 28 kW</i>
<p style="text-align: center;"><u>Principle outline</u></p>		Temperature measurements: - <i>Pt-100 sensor (Proof read in ±0.01%)</i>
		Flow rate measurements: - <i>Electromagnetic flowmeter (Yamatake)</i>
		Voltage stabilization: <i>No</i>
		Supply Power Monitoring: <i>No</i>
		GPS: <i>No</i>
		Remote Control of Operation: <i>No</i>
	Remote Data Collection: <i>Yes</i>	
	Logger: <i>Yokogawa DX2000</i>	

## TRT EXPERIENCE

Years of operation: 2003

Number of performed measurements: 10 Research

Typical borehole depths: 25~38 m

Applications: *BHE, energy piles*

Typical collector type: *1U-6U, coaxial pipe, thermo siphon* Type of filling: *Water*

Typical fluid type: *Water or Antifreeze liquid*

Typical groundwater temperature: 10°C

Geographical area: *Hokkaido*

Analysis Method: *Numerical, Line source*