ADVANCE RIKO

Power Generation Efficiency Characteristics Evaluation System

PEM-2

Characteristics evaluation for thermoelectric power generation module

◆ General Description

This system is designed to measure thermoelectric conversion efficiency η by giving maximum 500 ºC gradient to thermoelectric power generation module and calculating maximum thermal power P when one dimensional heat flow Q is provided.

◆ Features

1. Quick performance evaluation of module and endurance test can be done by adopting infrared gold image furnace with superior temperature controllability.
2. Capable of giving maximum 500 ºC gradient between upper and lower surface of module.
3. Capable of measuring a penetrating heat amount.
4. Capable of keeping the stability of thermal resistance on contact surface by air cylinder mechanism during heating.
5. Measurement can be done only by setting software by judgement of temperature stability, automatic variable of load against thermoelectric power generation module and automatic control of temperature measurement.

◆ Applications

Power generation efficiency measurement and thermal cycle test for thermoelectric power generation module

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◆ Specifications

1. Measurement value	Conversion efficiency, Power generation amount, Penetration heat amount
2. Measurement method	One dimensional heat flow input method
3. Module size	Square 30 mm × 5 to 30 mm t (negotiable)
4. Heating surface temperature	Max. 800 ℃
5. Sample temperature gradient	Approx. 300 ℃ in case of thermal conductivity of Stainless steel of 30 mm t
6. Pressure on contact surface	2MPa
7. Atmosphere	In inert gas

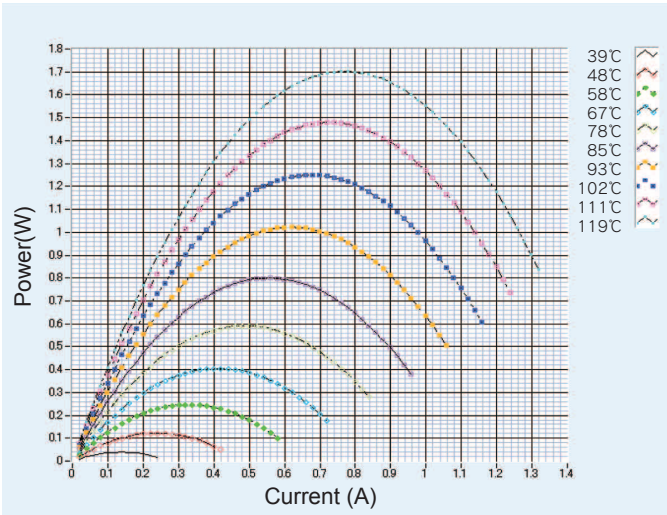
◆ Constitution

1. Sample heating assembly (including frame work)	1 set
2. Programmable temperature controller	1 set
3. Measurement circuit assembly	1 set
4. Vacuum evacuation assembly	1 set
5. Data processing unit	1 set
6. Constant temperature water circulator (for cooling lower part heat flow measurement block)	1 set

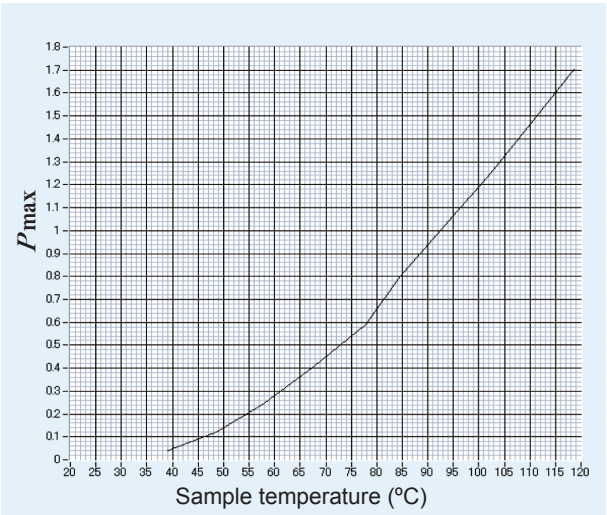
◆ Utility

1. Required floor space : Approx. W 3000 × D 1000 (mm)
2. Weight : Approx. 300 kg
3. Power source :
   Power : AC 200 V, 1 phase, 4 kVA, One location
   PC, Pump : AC 100 V, 1 phase, 1 kVA
   Outlet two locations
4. Grounding : Resistance 100 Ω max.
   one location

◆ Typical example of commercially available module



Power evaluation by temperature and load current



Evaluation of temperature and maximum conversion efficiency

※Specification and appearance are subject to change without notice for performance improvement.

Agent

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