Preliminary announcement!

Ver.1.01 (Sept. 2019 ～)

Thermal conductivity measurement device using "steady state method"
Prior to sales of device the next fiscal year, the commissioned measurement service starts shortly.

Steady-state Thermal conductivity measuring device SS-H40

Multifunctional and high-performance “steady-state method” thermal conductivity measuring device, handled by Bethel promotion for measuring thermophysical properties

The measurement method of thermal conductivity is roughly classified into “steady-state method and unsteady steady-method.” The “steady-state method” measures the thermal conductivity by giving a steady temperature gradient to the measurement sample. In contrast, the “unsteady state method” gives a transient temperature change to the measured sample, and the thermal conductivity is determined from the temperature response of the sample. It has features such as being able to measure in a short time and measuring even small samples, etc. We have so far developed a lineup of “unsteady-state method” equipment. To meet the increasing demand from customers, we have released a new “steady-state method” thermal conductivity measuring device. We have a multifunctional and high-performance device that exceeds the conventional “steady-state method” thermal conductivity measurement device.

Measurement target example

TIM (Thermal Interface Material), PCB, sealing resin, Heat insulating material, rubber, (adhesive), (Grease), other

Planned compliance ASTME1530
Performance equivalent to ASTMD5470

Fast measurement

A measurement that previously took several hours is now 10-20 minutes per measurement ! Measurement is as easy as placing a sample.

Selectable measurement mode

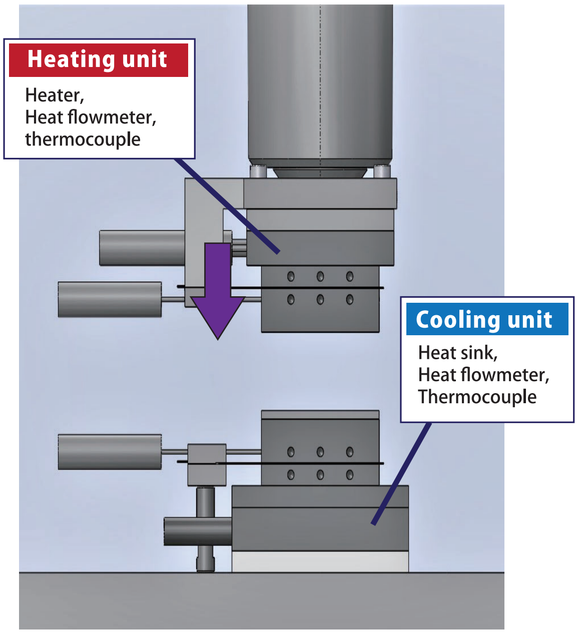
“Constant pressure mode” and “Constant thickness mode” 2 pattern measurement modes are available. Applicable to soft materials such as TIM.

Temperature control measurement

There is a temperature control function. The variable temperature range of the heating unit is 20 to 150 ℃

What is steady-state method?

A method of measuring thermal conductivity by applying a steady temperature gradient to a sample. The thermal conductivity is calculated from the temperature difference of the sample, the thickness, and the heat flow passing through the sample.

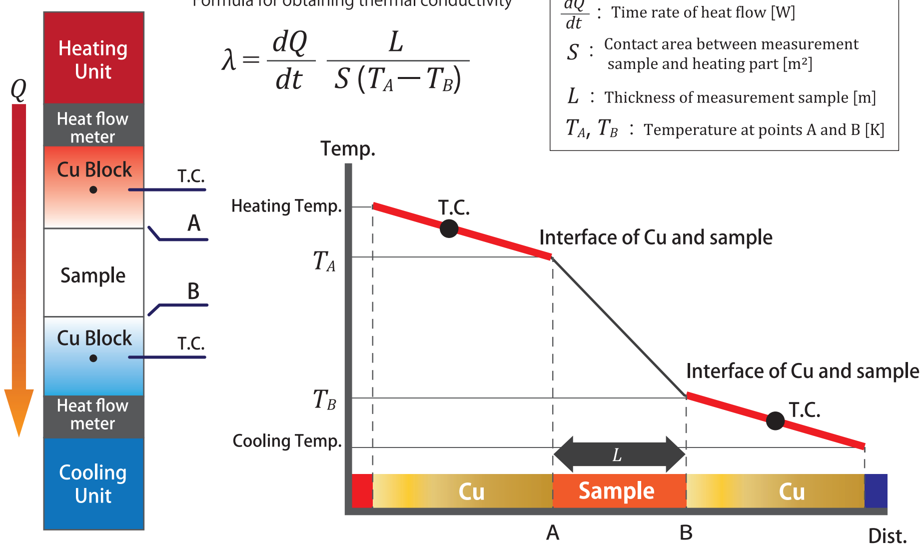


<Measurement Principle>

Formula for obtaining thermal conductivity

$$\lambda = \frac{dQ}{dt} \frac{L}{S\,(T_A - T_B)}$$

λ : Thermal conductivity [W/mK]
$\frac{dQ}{dt}$: Time rate of heat flow [W]
S : Contact area between measurement sample and heating part [m²]
L : Thickness of measurement sample [m]
T_A, T_B : Temperature at points A and B [K]



■ Specifications

※ Customization is possible according to customer requirements. ※ The following specifications are subject to change without notice for improvement.

Measurement direction	Out of plane direction		Temperature atmosphere	In the air, Room temperature, Atmospheric pressure
Measurement properties	Thermal diffusivity 0.05 ～ 40 [W/mK]		Load range	200 ～ 1600 [N]
Measurement accuracy	±10 [%]		Load resolution	0.01 [N]
Sample	Size	□ 40 [mm]	Output data	Thermal conductivity, temperature of measurement points, heat flux, load, thermal resistance.
	Thickness	0.1 ～ 20 [mm]		
Heater unit temp. range	20 ～ 150 [℃]			

Bethel Co., Ltd. Hudson Laboratory

https://hrd-thermal.jp/en/ Bethel thermal Search