Through our quality improvement of thermophysical property measurement, we support companies in their efforts to protect the global environment through quality improvement in thermophysical property measurement.

■ Specifications

Model Name	Steady-state thermal conductivity measuring device	
Measurement direction	Out of plane direction	
Measurement properties	Thermal conductivity 0.05 to 40 [W/ mK]	
Accuracy	Literature value ±10% against Reference sample (zirconia, thickness 3mm)	
Sample	Size	□40 [mm]
	Thickness	0.2 to 20 [mm] * The measurable thickness varies depending on the thermal conductivity of the measurement sample.
Temperature range (sample piece)	Room temperature ～ 80 [℃]	
Measurement atmosphere	In the air	
Load range	200 ～ 1600 [N]　(0.125 ～ 1 [MPa])	
Thickness accuracy	±0.02 [mm]	
Data output	Thermal conductivity, temperature at each measuring point, sample thickness, pressure, thermal resistance	
	file format	CSV file (comma delimited)
Device	size	W. 632 × D. 594 × H. 863 [mm]
	weight	90 [kg]
Ppower supply	Single phase 200V max 10A　50/60Hz 3-terminal grounded outlet　1outlet	
	Single phase 100V max 10A　50/60Hz 3-terminal grounded outlet　1outlet	
Standard	ASTMD5470　Performance equivalent to	

■ The performance figures shown in this brochure are the results of tests conducted in our laboratories, and we do not guarantee that the same results will be obtained in other environments.

■Performance and appearance are subject to change without notice for improvement.

Safety Precautions

For safe use, please read the instruction manual carefully before use and use it correctly.

Inquiry about products :　https://hrd-thermal.jp/en/contact/

<Manufactured and Distributed>

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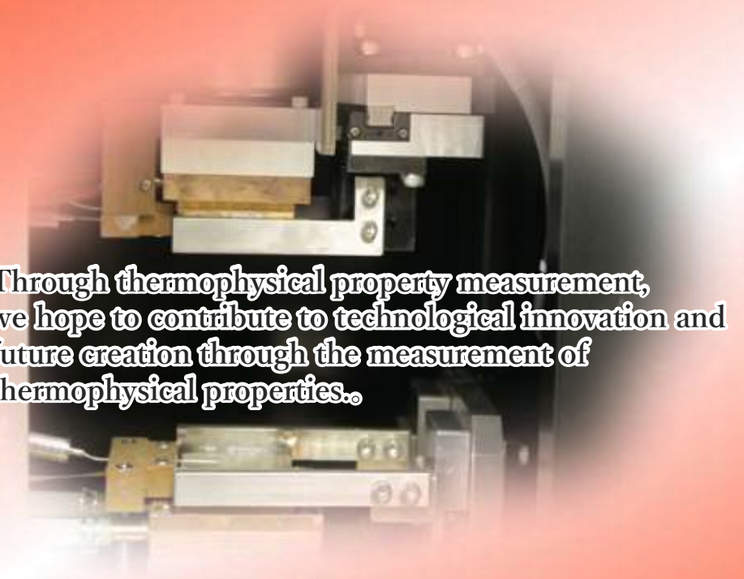
<Agent>



Through thermophysical property measurement, we hope to contribute to technological innovation and future creation through the measurement of thermophysical properties..

- ■ High-speed measurement: Measurement time is reduced from several hours to 10 to 20 minutes!
- ■ Easy sample placement by simply placing the sample.
- ■ Temperature control function: Variable temperature of the heating unit is 23°C to 110°C.
- ■ TIM (Thermal Interface Material) allows measurement of both soft and hard samples.
- ■ Two measurement modes are available: "Load Mode" and "Thickness Mode"!
- ■ Performance equivalent to ASTMD5470

Steady-state thermal conductivity measuring device　SS－H40

BETHEL THERMAL　Search

steady-state method

Multifunctional, high-performance "steady-state" thermal conductivity measurement system

SS-H40

Open Price

Bethel Co., Ltd.

THEORY
Measuring principle

The “steady state” thermal conductivity measurement system is a multifunctional, high-performance instrument developed by Bethel, a thermophysical property measurement company.

BETHEL

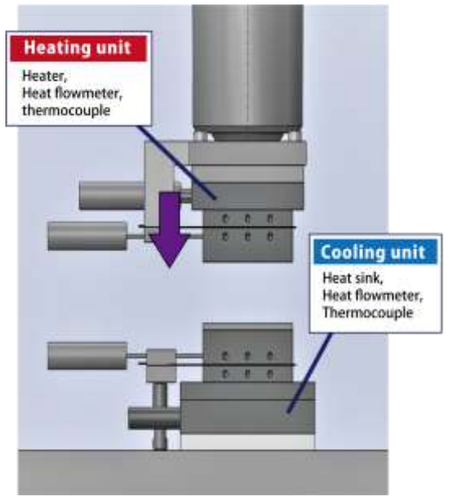
What is the Steady State Method?

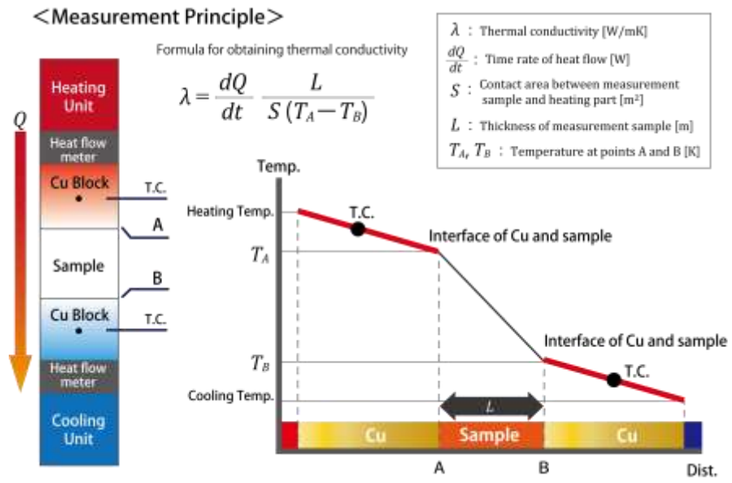
A method of measuring thermal conductivity by applying a steady temperature gradient. Thermal conductivity is calculated by measuring the temperature of a sample with one side at a high temperature and the other side at a low temperature.

Thermal conductivity measurement methods are broadly classified into the ″steady-state method” and the “non-steady-state method. The “steady-state method” measures thermal conductivity by applying a steady temperature gradient to the sample. This method is characterized by its ability to directly determine “thermal conductivity” and to measure even samples with low thermal conductivity.

In contrast, the “transient method” applies a transient temperature change to the sample and determines the thermal conductivity from the sample’s temperature response. This method is characterized by its short measurement time and ability to measure even small samples.

We will provide multifunctional and high-performance instruments (measurement) that exceed the conventional ″steady-state″ thermal conductivity measuring instruments.

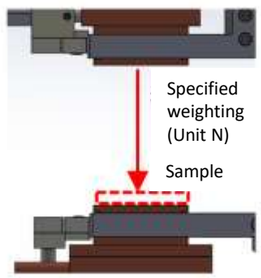




MODE
Measurement mode

Two modes are available
【load mode】and【thickness mode】

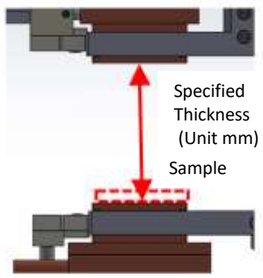
MODE 1 Load Mode



Measured with constant load

- ◆Measurement by setting arbitrary load
- ◆Assuming an actual operating environment, apply a load and measure
- ◆Evaluate the effect of different loads on thermal conductivity by changing the applied load.
- ◆Evaluate the relationship between load and thermal conductivity

MODE 2 Thickness Mode



Measured at constant thickness

- ◆Set and measure any thickness.
- ◆Assuming the actual usage environment, apply a load up to a certain thickness and measure
- ◆Evaluate the effect of different thicknesses on thermal conductivity by performing measurements with varying thicknesses
- ◆Evaluate the relationship between thickness and thermal conductivity

Fast measurement

Measurements that used to take several hours to complete are now taking 10 to 20 minutes! Sample placement is as simple as placing the sample on the table.

Selectable Measurement modes

Two measurement modes are available: “Load Mode” and "Thickness Mode.

Temperature measurement

Temperature control function.
Variable temperature range of heating unit: 23 to 110°C

SAMPLE
Measurement sample

Low thermal conductivity samples/soft samples are also acceptable!

- ◆ TIM(Thermal Interface Material) ◆ Printed circuit board
- ◆ Encapsulating resin◆ Thermal insulation rubber (adhesive)
- ◆ Grease ◆ Others

APPLICATION
Measurement Examples

Sample	Literature value (Reference value) Thermal conductivity [W/mK]	Measure -ment Mode	Actual measured value Thermal conductivity [W/mK]	Compared to literature values [%]
zirconia	3.0	load	2.92	▲2%
alumina	25	load	23.5	▲6%

※Data is being acquired (as of September 2023)