

HC-10

Quick λ Thermal Conductivity Tester

Pre-configured CALSTD
Calibration



Overview

The HC-10 Quick λ Thermal Conductivity Tester is super-fast, reliable, and portable, designed to measure the thermal conductivity of a wide range of homogeneous samples and vacuum insulator panels (VIP) in just 60 seconds.

It works by measuring heat loss at the surface layer against a standard reference sample with a known thermal conductivity value, or one measured by another thermal conductivity measuring device. By comparing the calibration curve based on the reference sample and the output value from the sensor, the HC-10 achieves unprecedented measurement results and repeatability.

With most thermal conductivity testers taking more than 1 hour to measure a sample, the HC-10 drastically shortens the testing and production time of VIP. It's a straightforward, but powerful tool in the lab, adding speed and accuracy to research and development.

Features



Compact, portable design
with integrated temperature
sensor & heater



Designed to measure a wide
range of homogeneous & VIP
materials



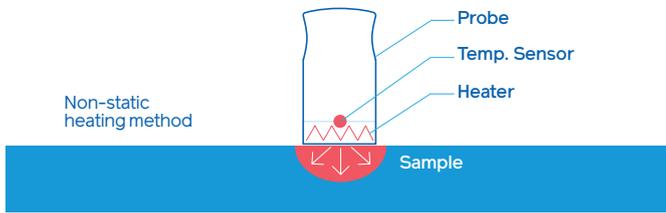
60s Super-fast
Thermal Conductivity
Measurements



PC software for
operation, calibration,
and data management

Principle

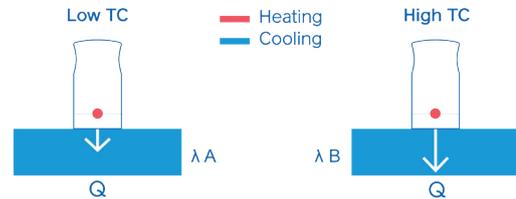
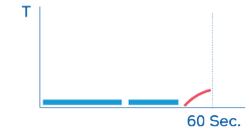
The HC-10 is a relative measurement instrument and calculates heat flow at the specimen surface layer using a rapid non-static heating method. Heat loss is measured with the sensor unit as a temperature gradient, inversely proportional to the material thermal conductivity; a complex operation made seamless through the sensor head's practical design.



When the amount of heat loss is small, the sample surface temperature is high



When there is a large heat loss, the sample surface temperature is low



Measurement Procedure

Step 1:

With the sensing probe in the cooling socket, select the reference sample calibration you wish to measure against and press the Start button. Allow the sensor to cool for 30 seconds.



Note: Please see the HC-10 User Manual for detailed instructions on the measurement procedure.

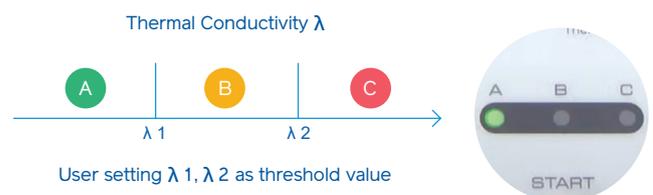
Step 2:

Once the display status changes to "Ready", place the probe on the sample, then press the Start button to begin measuring. After 30 seconds, the thermal conductivity will be displayed on the LCD screen.

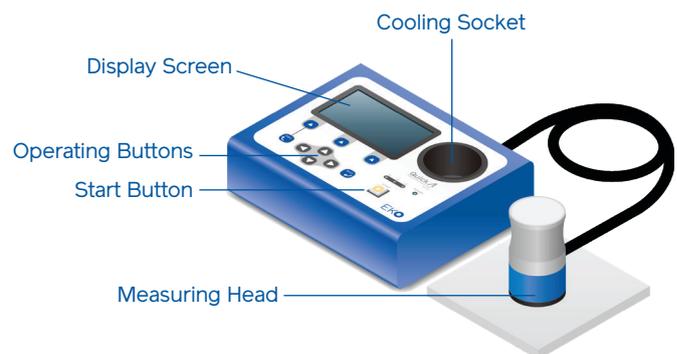


Evaluation

Three thermal conductivity thresholds can be pre-set for quick evaluation of a sample. The results are classified and displayed on both the screen and LED indicators, allowing for easy reference and high measurement repeatability.



Product Details



Sensor Specifications

Thermal Conductivity Range (VIP Sample)	0.001 to 0.015 W/m·K
Thermal Conductivity Range (Homogeneous sample)	0.03 to 5.00 W/m·K
Method	Non-static transient heating method
Calibration Requirements (VIP Sample)	3 or 4 reference samples of the same structure but different thermal conductivity
Calibration Requirements (Homogeneous sample)	3 or 4 different standard reference samples
Repeatability	± 5%
Evaluation	Thermal Conductivity of a sample can be classified (A, B or C) depending on the measurement result by setting TC thresholds (λ_1 & λ_2)
Operating Temperature Range	+10°C to +40°C

Applications



Dr. Ramya Nair, Lead Executive – Product Development, Henkel India

The HC-10 is designed to handle a wide range of thermal conductivity applications, including quality assurance, VIP production, material qualification, and R&D.

With its fast and intuitive measurement procedure, and high repeatability, the HC-10 is the go-to portable option for on-site thermal conductivity evaluation of VIP and homogeneous solid samples of various size, shape, and thickness.

Software

While the HC-10 can be used as a standalone device with the LCD display and internal data storage, PC Software is available to download on the EKO website and can be found in the 'Downloads' section of the Product Page.



Note: For more information on how to install and use the HC-10 software, please refer to the User Manual.

With this software, users can connect and operate their HC-10 with a PC via USB connection for unrestricted data storage, access to measurement controls, calibration, and data management, helping to make the HC-10 one of the most accessible thermal conductivity testers available.

General Specifications

Display	Black & White LCD with back light
Parameters	Thermal conductivity, Temperature, Sample class A,B,C
Internal Data Storage	99 Measurements and 20 Calibrations (including pre-configured CALSTD)
PC Connection	USB
CALSTD Sample Materials	TEMPAX Glass, Acrylic and EPS
Power Supply	AC adapter, AC 100V to 240V 50/60Hz
Power Consumption	DC 24V Approx. 30W
Size, Weight	W 250 x D 200 x H 85 mm, 4 kg (Incl. Main Unit, Sensor Unit, and PowerSupply)

Related Products

The HC-121 VIP Checker can connect up to 5 sensor units, each operating independently, allowing for even faster throughput during the production process; up to 100 VIP samples in just 20 minutes.

With the same rapid 60-second measurement method as the HC-10, its increased capacity makes the HC-121 perfect for large-scale material research and analysis applications.



QR

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