

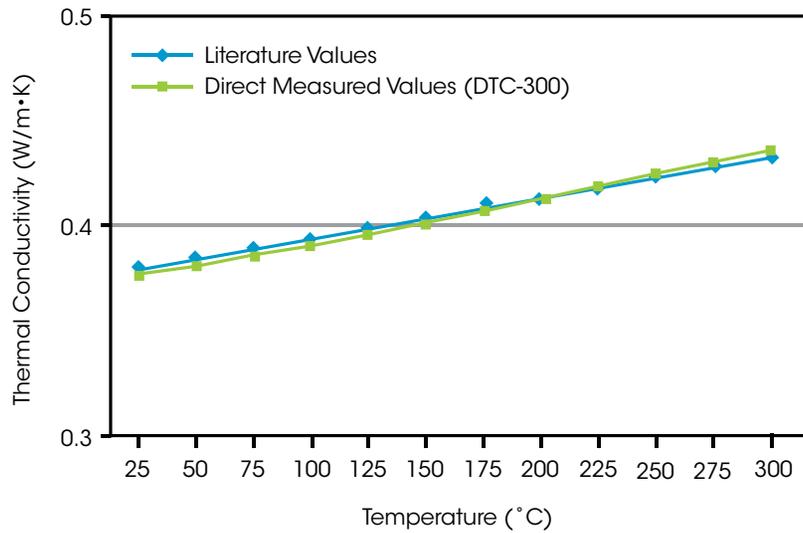
Method	Guarded Heat Flow Meter
Standard Test Method	ASTM E1530
Sample Compatibility	solids, pastes, liquids, thin films
Sample Size	
Thickness	25 mm maximum Thin films down to 0.1 mm with optional software
Diameter	50 mm diameter
Temperature Range	-20 °C to 300 °C
Thermal Conductivity Range	0.1 to 40 W/m.K
Thermal Resistance Range	[1] 0.0005 – 0.010 m ² K/W [2] 0.002 – 0.020 m ² K/W [3] 0.01 – 0.05 m ² K/W
Accuracy	±3%
Reproducibility	±1-2%

DTC-300

The DTC-300 is a guarded heat flow meter used to measure thermal conductivity of a variety of materials, including polymers, ceramics, composites, glasses, rubbers, some metals, and other materials of low to medium thermal conductivity. Only a relatively small test sample is required. Non-solids, such as pastes or liquids, can be tested using special containers. Thin films can also be tested accurately using a multi-layer technique. The tests are performed in accordance with the ASTM E1530 standard.

A water-cooled heat sink allows operation with a lowest sample temperature of about 50°C. To fully utilize the range of the instrument, an optional refrigerated circulator can be used to provide a heat sink temperature to -40°C. The instrument is provided with one of three operating range modules. Each module covers a different thermal resistance region. The various modules are easily interchangeable.





VespeL® Thermal Conductivity

The data contained in the figure and table demonstrate the impressive accuracy and precision of the DTC-300 Thermal Conductivity Meter on the standard material, VespeL. As shown in the table, the measured error is less than 1% across the entire temperature range from ambient to 300°C.

Thermal Conductivity (W/m·K)			
Temperature (°C)	Direct Measurement	Literature Values	Error (%)
25	0.377	0.379	0.53
50	0.381	0.384	0.78
75	0.386	0.389	0.77
100	0.391	0.394	0.76
125	0.396	0.399	0.75
150	0.402	0.404	0.50
175	0.407	0.409	0.49
200	0.413	0.414	0.24
225	0.419	0.419	0.00
250	0.425	0.424	0.24
275	0.430	0.429	0.23
300	0.436	0.434	0.46