



TORONTECH



THERMAL CONDUCTIVITY TESTER - HEAT FLOW METER - TORONHFM™

Transient Plane Source (TPS) method is a fast and highly accurate technique for measuring the thermal conductivity of different materials. This method works by analyzing the transient temperature response produced by a disk-shaped heat source under stepwise heating in an infinite medium.

A planar probe made of thermoresistive material functions as both the heat source and the temperature sensor. During testing, the probe is placed between the sample layers. When an electric current flows through the probe, it generates heat that spreads into the sample on both sides.

The rate of heat transfer depends on the material's thermal conductivity. By tracking the temperature changes and the probe's response time, thermal conductivity is calculated directly using a mathematical model.

FEATURES

- Compliance: Meets ISO 22007-2:2008 standards.
- Performance: Broad measurement range with stable operation, setting a high standard in its class.
- Efficiency: Direct measurement with adjustable test durations (5–160 seconds) for quick and accurate results.
- Advantage over static methods: Eliminates errors caused by contact thermal resistance.
- Sample preparation: No special preparation needed; bulk solids only require relatively smooth surfaces at least twice the probe diameter.
- Probe design: Double-helix structure combined with proprietary algorithms and mathematical models for highly accurate data analysis.
- Sample stage design: Practical and user-friendly, accommodates samples of different thicknesses, and features a compact, streamlined build.
- Data acquisition: High-resolution chips deliver precise and reliable measurements.
- Control system: Powered by an ARM microprocessor for faster performance and higher analytical precision than conventional systems.
- Material compatibility: Designed for bulk solids, pastes, powders, granular materials, colloids, liquids, coatings, films, and insulation.

- User interface: Smart color LCD touchscreen for intuitive operation.
- Data processing: Robust data management with automated PC communication and report generation.

TECHNICAL SPECIFICATIONS

Model	ToronHFM™
Measurement Range	0.0001-300W(m*k)
Sample Temperature Range	-20°C-320°C (requires external temperature control equipment)
Probe Diameter	Probe 1: 7.5 mm; Probe 2: 15 mm; Probe 3: 30 mm
Accuracy	±3%
Repeatability Error	≤3%
Measurement Time	5-160 seconds
Voltage	AC220V (110V is also available)
Power Consumption	< 500w
Sample Temperature Rise	< 15°C
Probe Power (P)	Probe 1: 0 < P < 1 W Probe 2: 0 < P < 14 W Probe 3: 0 < P < 14 W
Sample Dimensions	Probe 1: 15×15×3.75 mm (single sample) Probe 2: 30×30×7.5 mm (single sample) Probe 3: 60×60×20 mm (single sample)



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