

THERMAL CONSTANTS ANALYSER

TPS 500



Transforming the complex into the simple

TPS 500

The Hot Disk® TPS 500 Thermal Constants Analyzer quickly and accurately measures thermal conductivity, thermal diffusivity and specific heat capacity of a wide range of materials. The economical TPS 500 condenses the patented TPS technology with next-generation analysis software, resulting in the smartest, simplest-to-use thermal conductivity apparatus on the market.

The TPS 500 measures the thermal transport properties of solids, pastes, liquids and powders over a temperature range of $-100\text{ }^{\circ}\text{C}$ to $200\text{ }^{\circ}\text{C}$. The TPS 500 encompasses similar accuracy and sample size flexibility as the benchmark TPS 2500 S and workhorse TPS 1500 (the latter two instruments are designed according to ISO 22007-2).

Advantages of TPS technology as realized in the TPS 500:

- Porous, transparent samples are easy to measure.
- Surface roughness or surface color does not influence measurement results.
- Contact pressure of sensor to sample surface does not influence measurement results.
- The method is non-destructive.
- Minimum- or no sample preparation (single-sided QC-testing).
- Instant and fully consistent thermal conductivity results.
- Three thermal transport properties measured in a single transient.
- No calibration or reference sample verification required. (The technique is an absolute technique.)

Hot Disk users now number over 300 world-wide. They appreciate the TPS technique for its unmatched measurement capability, together with its ease-of-use and simple sample preparation. The operative simplicity of the TPS 500 and the performance achieved when using optimally designed Hot Disk sensors, makes the instrument uniquely suitable for QC testing.

The test & analysis software for the TPS 500 system incorporates tools for automated measurements as well as automatic temperature control of external devices. The software also incorporates tools for exporting results to third-party software (MS Excel), for additional processing or statistical analysis.

KEY FEATURES & BENEFITS

Simplicity: Next-generation analysis software further simplifies testing, making the learning curve very short. Also, no sample preparation is normally necessary. This makes the TPS 500 a smart, simple-to-use tool.

Rapidity: The TPS 500 will test most materials in less than 20 seconds. For multiple measurements on the same sample, a cooling time between tests is recommended.

Sensors: The TPS 500 includes two specially selected TPS sensors suitable for the specified range of materials and applications, with a respective radius of 3.2 mm and 6.4 mm.

Single-Sided Testing: When you do not have two pieces of a sample for optimized double-sided testing, the included single-sided testing insulation material can be used to measure single pieces of sample. This ability also lends itself very well to near-line or on-line applications.

Temperature Control: Using the TPS 500 test & measurement software automatic temperature series measurements (Isothermal Steps) are easy to perform using the liquid-temperature Bath (optional accessory).

Everything to get you started: The basic TPS 500 system includes everything to get you started making measurements. The instrumentation includes: Standard Measurement Module software, two Sensors, Stainless Steel verification sample for data verification & Room Temperature Sample Holder. Optional: PC with Windows VISTA or XP operating system, MS Office, Monitor, Keyboard and Mouse.

TPS 500 THERMAL CONDUCTIVITY METER SPECIFICATIONS

Materials	Solids, Liquids, Powders & Pastes
Thermal Conductivity	0.03 to 100 W/mK
Thermal Diffusivity	0.02 to 40 mm ² /s
Specific Heat Capacity	0.10 to 4.5 MJ/m ³ K
Measurement Time	2.5 s to 2560 s
Reproducibility	2 % (thermal conductivity) 10 % (thermal diffusivity, sensor radius 6.4 mm) 12 % (volumetric specific heat, sensor radius 6.4 mm)
Accuracy	Better than 5 % (thermal conductivity)
Temperature Range	-100 °C to 200 °C
Power Requirements	Adjusted to the line voltage in the country of use
Smallest Sample Dimensions	3 mm High, 13 mm Diameter or Square
Largest Sample Size	Unlimited
Sensor Types Available	Kapton insulated with or without cable (from cryogenic temperatures up to 200 °C)

As Hot Disk continually improves its instrumentation, specifications are subject to change without prior notice.



TPS 500 unit



Kapton insulated sensor



Room-temperature sample holder with reference sample (hood optional)

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