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PRODUCT DATA SHEET
Catalogue reference for product evaluation

Phone: +91 7015865225 **Email:** info@scienticoindia.com **Web:** scienticoindia.com **Address:** #71, Industrial Area, Ambala Cantt, Haryana, India

Thermal Conductivity of Building Materials | ThermoFlux - 7039

Category: Thermodynamics Lab Equipment · **Country of Origin:** India

Product Overview

The Thermal Conductivity of Building Materials Apparatus ThermoFlux - 7039 is a steady-state hot plate experimental unit for determining the thermal conductivity and thermal resistance of non-metallic building materials including polystyrene, PMMA, cork, plaster, Armaflex, grey cardboard, PS, and POM. Specimens measuring 300 × 300 mm and up to 50 mm thick are clamped between a 500 W electric heater plate and a water-cooled cold plate, with electronic controllers maintaining stable temperature boundary conditions. A heat flux sensor plate with digital readout measures heat flux density up to 5000 W/m², supported by four independent temperature channels each ranging from −100°C to 400°C. Series specimen configurations of up to 50 mm combined thickness can be evaluated, making this unit suitable for composite building material analysis. Optional ThermoFlux - 7039SW DAQ software, developed in National Instruments™ LabVIEW™, is available for automated data acquisition and result calculation.

View this product online: https://scienticoindia.com/product/thermal-conductivity-of-building-materials-apparatus-thermoflux-7039/



Request a model-specific quotation
Include quantity and delivery country.

Technical Specifications

Thermal Conductivity of Building Materials Apparatus ThermoFlux - 7039, Technical Specifications

Parameter	Details
Model	ThermoFlux - 7039
Method	Hot plate technique (steady-state heat conduction)
Specimen Size (L × W)	300 × 300 mm
Specimen Thickness	Up to 50 mm
Series Specimen Configuration	Up to 50 mm combined thickness
Specimen Materials	Armaflex, grey cardboard, PMMA, polystyrene, PS, POM, cork, plaster
Heat Flux Density Range	Up to 5000 W/m²
Temperature Measurement Range	4× sensors, −100°C to 400°C each
Temperature Limitation	60°C

Technical Data

Electric Heater Mat

Parameter	Value
Power	500 W
Maximum Temperature	200°C

Parameter	Value
Temperature Limitation	60°C

Measuring Ranges

Parameter	Range
Temperature	4× channels, −100°C to 400°C
Heat Flux Density	5000 W/m²

Specimen Dimensions

Parameter	Value
Size (L × W)	300 × 300 mm
Maximum Thickness	Up to 50 mm
Materials Supplied	Armaflex, grey cardboard, PMMA, polystyrene, PS, POM, cork, plaster

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Key Features

Key Features

- **Measurement purpose:** Determination of thermal conductivity and thermal resistance of building materials
- **Test method:** Hot plate technique for steady-state heat conduction in non-metallic materials
- **Clamping device:** Reproducible clamping pressure ensures consistent thermal contact between specimen and plates
- **Heater plate:** Hot plate fitted with 500 W electric heater mat; maximum temperature 200°C
- **Cooling plate:** Water-cooled cold plate with inlet and outlet temperature monitoring
- **Heat flux measurement:** Dedicated heat flux sensor plate with digital readout; range up to 5000 W/m²
- **Temperature sensors, hot plate:** 3 sensors monitoring heater plate temperature
- **Temperature sensors, cooling water:** 3 sensors for cooling water circuit; separate sensors at inlet and outlet
- **Temperature measurement range:** 4× channels, −100°C to 400°C per channel
- **Temperature control:** Electronic controllers maintain hot and cold plate temperatures within close limits
- **Series testing:** Multiple specimens can be connected in series up to a combined thickness of 50 mm, enabling **thermal conductivity** evaluation of composite assemblies
- **Specimen compatibility:** Accepts Armaflex, grey cardboard, PMMA, polystyrene, PS, POM, cork, and plaster sheets (300 × 300 mm)
- **Software:** Optional ThermoFlux - 7039SW DAQ software; developed in National Instruments™ LabVIEW™ environment; compatible with all Windows™ versions

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Experiments

- Determination of the thermal conductivity of different materials
- Determination of the thermal resistance
- Thermal conductivity of several specimens connected in series (up to a combined thickness of 50 mm)

Construction and Design

The **Thermal Conductivity of Building Materials Apparatus ThermoFlux - 7039** is constructed around a hot plate–cold plate assembly with a precision clamping mechanism. The hot plate incorporates a 500 W electric heater mat rated to a maximum of 200°C, with temperature limitation set at 60°C; electronic controllers regulate both the heater plate and the water-cooled cold plate to ensure stable, repeatable boundary conditions. The clamping device applies controlled, reproducible pressure to specimen sheets placed between the two plates, ensuring consistent **thermal conductivity**measurement across all test runs. A heat flux sensor plate with digital readout is integrated into the assembly, measuring heat flux density up to 5000 W/m². Temperature monitoring across the system is provided by three sensors on the hot plate, three sensors on the cooling water circuit, and dedicated sensors at the cooling water inlet and outlet, giving four independent measurement channels each covering −100°C to 400°C. The unit accepts flat specimen sheets of 300 × 300 mm in plan and up to 50 mm in thickness, individually or stacked in series.

Software

ThermoFlux - 7039 (Optional)

- DAQ software specifically developed for the ThermoFlux - 7039 apparatus
- Developed in the National Instruments™ LabVIEW™ environment
- Measures and calculates results directly from the apparatus sensors
- Compatible with all Windows™ operating environments
- When software option is selected, a set of electronic sensors is included
- Software controllers for temperature adjustment of hot plate included with software option

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Scope of Delivery

- 1× Experiment unit
- 1× Heat flux sensor plate with digital readout
- 1× Set of insulating materials
- 1× Instruction manual

Ordering & Delivery

- Send the product name, quantity, delivery country and destination with your enquiry.
- Production schedule, freight, payment terms and export documents are confirmed in the written quotation.

Frequently Asked Questions

Q1: What test method does the ThermoFlux - 7039 use to measure thermal conductivity?
The ThermoFlux - 7039 uses the hot plate technique for steady-state heat conduction measurement. Specimen sheets are placed between a heater plate and a water-cooled plate, and the heat flux through the specimen is measured directly using a dedicated heat flux sensor plate.

Q2: What specimen materials are compatible with the ThermoFlux - 7039?
The apparatus accepts non-metallic specimens of Armaflex, grey cardboard, PMMA, polystyrene, PS, POM, cork, and plaster, each in sheet form measuring 300 × 300 mm and up to 50 mm in thickness.

Q3: Can multiple specimens be tested simultaneously?
Yes. Multiple specimens can be placed in series between the hot and cold plates, up to a combined specimen thickness of 50 mm, enabling thermal conductivity determination of composite or layered material assemblies.

Q4: How is temperature controlled during experiments?
Electronic controllers independently regulate the heater plate and water-cooled plate temperatures. Three sensors monitor the hot plate, three sensors monitor the cooling water circuit, and dedicated sensors are placed at the cooling water inlet and outlet. All four temperature measurement channels cover −100°C to 400°C.

Q5: Is the data acquisition software included as standard?
No. The ThermoFlux - 7039SW DAQ software is an optional accessory. It is developed in the National Instruments™ LabVIEW™ environment and runs on any Windows™ operating system. When the software option is selected, a set of electronic sensors is included with the unit.