



THERMAL CONDUCTIVITY of BUILDING MATERIAL UNIT H112N



Year 1
study

Features

- Allows for the validation of thermal conductivity of numerous building materials (both solids and granules)
- Designed to work to ISO8301 (BS 874)
- Hot plate with heating mat
- Water cooled cold plate with heat flux sensor
- Three temperature sensors (1 x supply water, 1 x hot plate, 1 x cold plate)

Description

A bench top accessory designed to allow students to simply and easily investigate the relative thermal conductivities of typical building materials. The H112N utilises a relative method of thermal conductivity measurement based upon an international standard (ISO 8301). The H112N uses a PID controlled flat plate electrical heater and a water cooled flat plate with an integral and highly sensitive heat flowmeter. The specimen under test is sandwiched between the heated and cooled plates and contained in a thermally insulated enclosure to minimise heat losses. The loading system, ensures that the same clamping force is applied to all specimens. Calibrated silicon mats are included to enable the removal of air gaps, The heat flowmeter gives an output to a digital panel meter on the special control and instrumentation console. Special thermocouples are arranged to measure mean temperatures either side of the test specimen, allowing the temperature gradient across the sample and hence the thermal conductivity to be determined. The thickness of the test sample may be measured in situ using the micrometer dial indicator on the clamping mechanism. The unit allows the thermal resistance of samples to be determined and the measurement of samples connected in series (stacked). This allows the formula relating to individual thermal resistances and the overall thermal resistance of a stacked sample to be investigated.

Related Laws/Applications

- Mechanical Engineering
- Nuclear Engineering
- Chemical Engineering
- Control and Instrumentation
- Plant and Process Engineering
- Building Services
- Engineering Physics
- Refrigeration
- Marine Engineering

Learning capabilities

- Rapid measurement of Thermal Conductivity for materials with Thermal Resistance in the range 0.1 to 1.4 m² K/W.
- (Resistance=Thickness/Conductivity)
- Measurement of the Thermal Resistance of typical building materials.
- Measurement of the Thermal Resistance of thin stacked samples of building materials.
- Can accommodate both solid and granular samples

Technical Specification

- Specimen: 300 x 300mm (up to 75mm in thickness)
- Heater mat 500W
- Maximum hot plate temperature: 70°C
- Calibrated silicon mat

Essential Ancillaries

- H112/115/HC Heat Transfer Service Unit Computer Linked required for H112N/115/HC
- H112/230/HC Heat Transfer Service Unit Computer Linked required for H112N/230/HC,

Recommended Ancillaries

- H112N/A1 - Set of 8 test samples (1 Chipboard, 2 x Plasterboard, 1 x Perspex, 1 x Expanded Polystyrene, 1 x Armaflex, 1 x Cork)
- H112N/A2 - Granular Tray
- H112N/A3 - 1 x Polystyrene Specimen (NAMAS Calibrated)
- H112N/A4 - 1 x ACETYL Specimen (NAMAS Calibrated)

What's in the Box?

- 1 x H112N
- Calibrated silicon mats
- 1 x Control Console
- 1 x Power Cable
- Reinforced inlet/outlet hose
- Hose clamps
- Instruction manual
- Packing List
- Test Sheet

Weights & Dimensions

- Weight: 20 kg
- Dimensions - 500mm (L) x 450mm (W) x 450mm (H)

Essential Services

- H112/115/HC or H112/230/HC required for computer linked versions
- Water supply
- Drain
- Optional water chiller - H112Z

Ordering information

To order this product, please call PA Hilton quoting the following codes:
H112N/115 - Thermal Conductivity Of Building Material Unit
H112N/230 - Thermal Conductivity Of Building Material Unit
H112/115/HC - Thermal Conductivity Of Building Material Unit
Computer Linked
H112N/230/HC - Thermal Conductivity of Building Material Unit
Computer Linked

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COUNTRY OF ORIGIN - UK WARRANTY PERIOD - 5 YEARS