LAB ENGINEERING

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Product Name : Computerized Thermal Conductivity of Liquid	**Product Code :** HEMT0007

Description :

Computerized Thermal Conductivity of Liquid

Technical Specification :

The heat transfer trainer offers basic experiments for targeted teaching on the topic of heat conduction in fluids. Such teaching should discuss the fundamental differences between gases and liquids.
Two cylinders form the main component of the experimental unit: an electrically heated inner cylinder situated in a water-cooled outer cylinder.
There is a concentric annular gap between the two cylinders.
This annular gap is filled with the fluid being studied.
The heat conduction occurs from the inner cylinder, through the fluid to the outer cylinder.
The narrow annular gap prevents the formation of a convective heat flux and allows a relatively large pass-through area while at the same time providing a homogeneous temperature distribution.
Thermal conductivities for different fluids, e.g. water, oil, air or carbon dioxide can be determined in experiments.
The microprocessor-based instrumentation is well protected in the housing.
The experimental unit is equipped with temperature sensors inside and outside of the annular gap.
The software consists of a software for system operation and for data acquisition and an educational software.
FEATURES:
Steady heat conduction in gases and liquids:
Determine the thermal resistance of fluids
Determination of thermal conductivities k for different fluids at different temperatures
Transient heat conduction in fluids:
Interpret transient states during heating and cooling
Introduction to transient heat conduction with the block capacity model

Functions of the software: educational software, data acquisition, system operation
SPECIFICATION:
Concentric annular gap between 2 cylinders containing the fluid being studied
Inner cylinder, continuously electrically heated
Water-cooled outer cylinder
Specific heat capacity: 890J/kg*K
Heat transfer area: 0,007439m2
Heater :
Heating power: 350W
Temperature limitation: 95°C
Annular gap :
Height: 0,4mm
Average diameter: 29,6mm
Inner cylinder :
Mass: 0,11kg
Measuring ranges :
Temperature: 2x 0…325°C
Heating power: 0…450W
Required for Operation :
230V, 50Hz, 1 phase
230V, 60Hz, 1 phase; 120V, 60Hz, 1 phase