



Features

- Linear Heat Conduction in Metal Bars
- Simple and Clear layout of system
- Experiments are visible in a bell jar

In Tesca Advanced Conduction Apparatus 32374, a metal test bar is clamped between a heater and a Peltier element as the cooler. The complete arrangement is under an evacuated bell jar. In this way errors due to convection can be ignored and all the heat must flow through the test bar.

The thermal conductivity can be calculated from the temperature difference between the hot and cold end and the heating capacity.

The housing contains the vacuum pump and the digital displays. The measured values can be read on digital displays. At the same time, the measured values can also be transmitted directly to a PC via USB.

The data acquisition software is included.

Specifications

- Study of linear thermal conduction in metal test bars under vacuum
- Bell jar, diaphragm pump and manometer to generate a vacuum
- Test bar clamped between a heater and a Peltier element as the cooler
- Test bars made of stainless steel, brass, aluminum, copper
- 2 thermocouples to measure the temperature at

Note: Specifications are subject to change.

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- both ends of the test bar
- Measurement of current and voltage of the heater
- Measurement of current and voltage of the peltier element
- Digital displays for temperatures, current, voltage
- Optional LabVIEW software for data acquisition via USB under Windows XP or Windows Vista

Technical Specifications

- Diaphragm pump
 - Power consumption: 90W
 - Vacuum: max. 10mbar abs.
 - Suction capacity: 6L/min
- Heater
 - Power: 1.5W
- Peltier element
 - Power: 8.5W
 - Temperature difference: 70K
- Test bars
 - Diameter: 5mm
 - Length: 128mm
 - Measured length: 80mm
 - Material: stainless steel, brass, aluminium, copper
 - Measuring ranges
 - Temperature: 2x 0...200°C
 - Voltage: 2x 0...10VDC
 - Current: 1x 0...1A, 1x 0...5A
 - Manometer: -1...0bar

Experiments

- Determination of thermal conductivity for various materials
- Thermal energy balance of heat source and heat sink

Requirements

- Mains Power 220 – 240V @ 50Hz, 1Ph