KHT-007 | **THERMAL CONDUCTIVITY OF METAL BAR APPARATUS**

The **Thermal Conductivity of Metal Bar Apparatus Model KHT-007** demonstrates the principle that thermal conductivity is a physical property of materials, indicating the ability of a substance to transmit thermal energy through molecular motion. This apparatus provides a clear and practical method for studying heat conduction in solids.

System Description

- Experimental setup consists of a copper bar as the test specimen.
- One end of the bar is electrically heated, while the other end is attached to a heat sink.
- The bar is thermally insulated along its length to minimize heat losses.
- Thermocouples are fitted at multiple points along the bar to record temperature distribution.
- Electrical heater input is monitored using a voltmeter and ammeter.
- A variable transformer is provided to control and vary the heat input.

Educational Value

This apparatus enables students to:

- Understand the concept of thermal conductivity of solids.
- Measure temperature gradients along the length of a heated bar.
- Determine thermal conductivity by experimental methods.
- Correlate results with theoretical heat conduction equations.

Note: Specifications and Photos can be altered without prior notice in our constant efforts for improvement.

The Thermal Conductivity of Metal Bar Apparatus (Model KHT-007) is an essential laboratory tool for teaching fundamentals of heat conduction and thermal sciences in engineering and technical institutions.

Specifications

- **Test Bar:** 25 mm diameter, adequate length, material: mild steel
- Thermocouples mounted along the length of the bar
- Band heater fitted at one end and heat sink at the other end
- Test portion well-insulated to minimize heat losses

Instrumentation & Control

- Digital voltmeter: 0 – 199.9 V
- Digital ammeter: 0 – 1.999 A
- Multi-channel digital temperature indicator
- Heater control unit
- Measuring flask and stop clock

Service Required

- Stabilized 220V / 230V / 240V AC supply with proper earth termination
- Floor space: 1 m × 1.5 m at working height
- Continuous water supply: 2 LPM at constant head

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