

THERMAL CONDUCTIVITY OF INSULATING SLAB(EE-1563) (GUARDED HOT PLATE METHOD)

The set-up is designed to determine thermal conductivities of insulating materials in the form of slabs. The apparatus consists of main central heater and ring guard heater, sandwiched between the specimens. Cooling plates are provided on the either side of the specimen. Two identical specimens are clamped between heater ensures unidirectional heat flow through specimen. The whole assembly is kept in chamber and insulated by ceramic wool insulation around the set-up.

EXPERIMENTS:

-) Determination of Thermal conductivity of insulating Material in the form of slab
-) Study of variation of thermal conductivity of the material with temperature

UTILITIES REQUIRED:

-) Water supply 5 lit/min (approx.)
-) Drain.
-) Electricity Supply: I Phase, 220 V AC, 2 Amp.
-) Table for set-up support

TECHNICAL DETAILS:

-) Specimen
Dia : 180 mm (approx)
Thickness : 12 mm (approx).
-) Central Heater : Dia 100 mm, sandwiched between copper plates.
-) Ring Guard Heater : Width 35 mm, sandwiched between copper rings.
-) Cooling chamber : Made of Aluminum for water circulation. 2 Nos.
-) Insulation : Ceramic wool
-) Temperature Sensors : RTD PT-100 type (6 Nos.)
-) Control panel : Digital Voltmeter: 0-300 Volt., Digital Ammeter: 0-2 Amp, Variac: 0-230 V, 2 A, (2 Nos.) One each for central & ring guard heater, Digital Temperature Indicator : 0-199.9 C, with multi-channel switch, On off switch, Mains Indicator etc.
-) MS Cabinet to accommodate the slab assembly.
-) The whole setup is mounted on a base plate

