

Heat Transfer Lab

KHT-12 Parallel Flow and Counter Flow Heat Exchanger

Specifications:

- Length of Heat Exchange 1.6 m
- Outer late material G. I.
- I. D. – 27.5mm O. D. – 33.8mm
- Inner tube material – Copper O.D, 12.7mm
- Thermometer 0° to 200°C–1nos.
- Geyser – Instantaneous type. 3kw capacity – 1 no.
- Measuring flask – 1000 with stop clock.

Range of Experiments:

- Determination of overall heat transfer coefficient for a tube –in – tube type heat transfer. To calculate
 - i) Rate of heat transfer
 - ii) Theoretical overall heat transfer co-efficient.
- To compare the performance of Parallel flow & Counter flow heat exchanger.



KHT-13 Thermal Conductivity by Guarded Hot Plate



Specifications:

- Central Heater – suitable capacity, with 100 mm dia. sandwiched between two copper plates
- 180 mm mica heater Sandwiched between two copper plates
- Cooling chamber with water circulation arrangement.
- Specimen –6 to 20 mm thick, 180 dia.
- Glass wool bag insulation around the set-up
- A Control Panel comprising of –
 - a) Voltmeter – 0 – 200 Volts
 - b) Ammeter – 0 – 2 Amp
 - c) Dimmer stat for central & guard heater 0 – 240 Volts

2 Amp – one

- d) Digital Temperature indicator 0 - 200°C with using Chromel – Allumel thermocouples, provided with cold junction compensation.

Range of Experiments:

- Determination of Thermal conductivity of insulating Material in the form of slab.
- Study of variation of Thermal Conductivity of the material with temperature.
- Comparison of Thermal conductivities of various insulating Materials.

KHT-14 Critical Heat Flux Apparatus

Specifications:

- Voltmeter 0 - 200 Volts
- Ammeter 0 - 5 Amp
- Cylindrical glass Vessel diameter 200mm approx.
- Cylindrical glass Vessel height 125mm approx.
- Bulk Heater - Nichrome Coil.
- Test Heater - Nichrome Wire.
- Thermometer - 10° to 100°C.

Range of Experiments:

- Two successive regions of pool boiling phenomenon namely:
 - Natural Convection Boiling and.
 - Nucleate Boiling. Can be visualized up to the critical heat flux point which is attained by slowly increasing the input to heater by the dimmerstat. At the critical heat flux point the wire melts indicating the maximum heat flux position. V and I to be recorded at Critical Heat Flux Point (max.)

