

**DESCRIPTION:**

The setup consists of a brass tube fitted in a rectangular duct in a vertical position. The duct is open at the top and bottom, and forms an enclosure that serves the purpose of undisturbed surrounding. One side of the duct is fitted with a transparent acrylic window for visualization. An electric heating element is kept in the vertical tube that in turns heats the tube surface. The heat is lost from the tube to the surrounding air by natural convection. The temperature of the vertical tube is measure by temperature sensors and displayed by a Digital Temperature Indicator with multi-channel switch. The heat input to the heater is measured by a Digital Ammeter and a Digital Voltmeter and is varied by a variac. The tube surface is polished to minimize the radiation losses.

**EXPERIMENTATION:**

To determine average heat transfer coefficient under natural convection.

**UTILITIES REQUIRED**

- Ø Electricity Supply: 1 Phase, 220 V AC, 2 Amp.
- Ø Table for set-up support.

**TECHNICAL DETAILS**

- Ø Test Section
  - Diameter: 38 mm (approx).
  - Length: 500 mm (approx).
  - Heater: Nichrome Wire.
- Ø Control panel comprising of :
  - Digital Voltmeter: 0-300 Volt.
  - Digital Ammeter: 0-2 Amp.
  - Variac: 0-230 V, 2 Amp.

*Note: Specifications are subject to change, Photos shown above are Indicative, Actual Product can Vary.*



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Digital Temp. Indicator: 0-200<sup>0</sup>C, with multi-channel switch

Temperature Sensors: RTD PT-100 type. With standard make On/Off switch, Mains Indicator etc.

Ø Instruction Manual : An ENGLISH instruction manual will be provided along with the Apparatus

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