

**Technical Description:**

Experimental water-cooling tower is a forced draft counter flow type cooling tower specially designed for the Engineering students to provide them insight about actual working of tower. In this system, air from a fan enters at the bottom of the tower and after passing through the mesh packing, discharges into the atmosphere via a duct. Airflow is controlled by a butterfly valve on the blower's delivery line. Water is evenly distributed over the packing by nozzles at top of the tower. Water flow and temperatures can be measured and controlled with suitable instrumentation provided. A water tank at the bottom fitted with level gauge enables to show the exact evaporation loss. Front side acrylic sheet provides actual visualization of cooling tower operation. Air and water flow rates as well as inlet water temperatures can be varied to have different sets of readings.

Learning Objectives/Experiments:

- Actual visualization of the cooling tower operation.
- To determine the mass transfer coefficient

Required for Operation:

- Water Supply & Drain.
- Electricity Supply : 1 Phase, 220 V AC, 3 kW.
- Floor area of 1.2 m x 1m

Technical Specifications:

- Tower: Material Stainless Steel Size-Cross-Section 250x 250mm,
- Height 1000mm
- Packing: Expanded wire mesh.
- Air Circulation : By forced draft fan, arrangement is
- done to vary the air flow rate.
- Air Flow Measurement: Orifice meter with U-tube manometer.
- Flow Measurement: Rotameter.
- Dry & Wet Bulb Temperature: Measured by Temperature Sensors insulated with ceramic fibre wool.
- Hot Water Tank: Material Stainless Steel, Double wall,
- Hot water circulation: Magnetic Pump

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



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- Heater: Nichrome wire heater
- Temperature sensors : RTD PT-100 type 6 Nos.
- The whole set-up is ingeniously designed and schematically arranged on a powder-coated rigid structure

Control Panel:

- Standard make On/Off switch, Mains Indicator etc.
- 0-2000C, for hot water tank.
- 0-199.90C, with multi-channel switch

Scope of Delivery:

- 1 Self-contained "REFRIGERANT CHARGING UNIT" Apparatus
- 1 Instruction Manual consisting of experimental procedures, block diagram etc.

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