



Features

- Designed to demonstrate Thermoelectric Refrigeration effect.
- Facility to simulate variable Heat load conditions & its effect on performance of Cycle.
- Comprehensive Instrumentation Panel with all necessary measuring instruments.

'Tesca' Cooling using Peltier Effect Apparatus is designed to demonstrate cooling using the Peltier effect (Thermoelectric Effect). The central component of the system is a Peltier element. When current flows through a Peltier element, one end of the element becomes hot and the other cold. The heating and refrigeration capacity of the Peltier element are dissipated via water flows. Heating & refrigeration capacities are calculated by measuring the respective flow rate and the inlet and outlet temperatures of water. The supplied electrical power is determined using a current and voltage measurement.

The well-structured instructional material sets out the fundamentals and provides a step-by-step guide through the experiments.

Instruments to measure Temperatures at different points, Power Consumption are fitted on Instrument panel. Flow of water in hot & cold circuit is measured using Rotameter fitted with calibrated scale.

The entire setup is mounted on sturdy steel frame made of Mild Steel Tubes & Sheets. The entire frame & panel are powder painted for durability. Detailed Operation & Maintenance Manual is provided along with the trainer.

Note: Specifications are subject to change.

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Specifications:

Peltier element

- Water Cooled Element
- Max. refrigeration capacity: 200 W
- Current Max: 13A
- Voltage Max: 24.1V
- Temperature Difference Max: 68°C

Pump

- 120 W

Water Tank

- 7 L

Ammeter

- 0-20A DC - Temperature: -30°-80° & 0°-100°C - Power consumption: 120W - Digital display for temperature, current and voltage - Water cooled Peltier element

Voltmeter

- 0-50 V DC

Temperature Sensor

- RTD PT-100 Sensors for temperature measurement

Temperature Indicator

- 8 Channel Digital Indicator, Range -20...200°C Resolution 0.1 C

Water Flow Meter

- 1x 2...27L/h, 1x 10...105L/h

Base Frame

- Made of M.S. Square Tubes & Sheets, welded & powder coated for long life.

Experimental Capabilities

- Function and operation of a Peltier element for cooling & as heat pump
- Determination of the cooling and heating capacity
- Recording typical characteristics, such as cooling capacity, via temperature differences
 - Energy balance
 - Calculating the coefficient of performance

Options:

- Data Acquisition System

Required Services:

- Electric Supply 230 V AC, 6 A, Single Phase, Earthed.
- Tap Water & Drainage