



#### Features:

- Visual demonstrations of convective, nucleate and film boiling.
- Includes series of safety devices for operator safety.
- Optional Data Acquisition System with sensors & software.

Tesca Pool Boiling Heat Transfer Apparatus has been designed for students' demonstrations on convective, nucleate and film boiling. The unit mainly consists of a thick walled glass cylinder fitted internally with a heating element and a coil type condenser. Instrumentations are provided for the measurement of temperature, pressure, flow rate and power. The unit helps students to understand better the heat transfer processes from a hot region to a colder one in countless industrial applications, e.g. thermal and nuclear power generation in steam plants, refrigeration, heat transmission, etc. locally warmed liquid expands and convection currents carry it to the liquid-vapour interface where evaporation takes place and thermal equilibrium is restored. Thus, in this mode, evaporation takes place at small temperature differences and with no bubble formation.

Detailed Operation & Maintenance Manual is provided along with the trainer.

#### Specifications

1. Visualization of boiling and evaporation in a transparent pressure vessel
2. Evaporation with heating element
3. Condensation with tube coil

Note: Specifications are subject to change.

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4. Safety valve protects against overpressure in the system
5. Pressure switch for additional protection of the pressure vessel, adjustable
6. Sensors for pressure, flow rate and temperature with digital display
7. Optional software for data acquisition via USB under Windows

#### Technical Specifications

##### Heater

- Power: 250W, continuously adjustable
- Safety valve: 2bar rel.
- Pressure vessel: 2850mL
- Condenser: coiled tube made of copper

##### Measuring ranges

- Tank Pressure: 0...4bar Abs.
- Power of Heater: 0...300W
- Flow Rate (cooling Water): 0,05...1,8l/min
- Temperature: 4x 0...100°C

#### Experiment Capabilities:

- Visualization of different forms of evaporation
- Free convection boiling
- Nucleate boiling
- Film boiling

##### Heat transfer

- Effect of temperature and pressure on the evaporation process

#### Services Required:

- Electric Supply 220 - 240 V AC, 16 A, Single Phase, Earthed.