



### Features

- Isothermal and isochoric change of state of air
- Software for acquisition, processing and display of measured data

Gas laws belong to the fundamentals of thermodynamics and are dealt with in every training course on thermodynamics.

Tesca Change of State of Gases Apparatus unit enables two changes of state to be studied experimentally: isothermal change of state, also known as the Boyle-Mariotte law, and isochoric change of state, which occurs at constant volume. Transparent tanks enable the change of state to be observed. Air is used as the test gas.

In the first tank, positioned on the left, the enclosed air volume is reduced or increased using a compressor and hydraulic oil. This results in an isothermal change of state. The compressor can also operate as a vacuum pump. If the changes occur slowly, the change of state takes place at an almost constant temperature. In the second tank, positioned on the right, the temperature of the test gas is increased by a controlled electric heater and the resulting pressure rise is measured. The volume of the enclosed gas remains constant. Temperatures, pressures and volumes are measured electronically, digitally displayed and transferred to a PC for processing. The well-structured instructional material sets out the

Note: Specifications are subject to change.

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fundamentals and provides a step-by-step guide through the experiments.

### Technical Specifications

- Experimental investigation of gas laws
- Transparent measuring tank 1 for investigation of isothermic change of state
- Hydraulic oil filling for changing volume of test gas
- Built-in compressor generates necessary pressure differences to move the oil volume
- Compressor can also be used as vacuum pump
- 5/2-way valve for switching between compression and expansion
- Transparent measuring tank 2 for investigation of isochoric change of state
- Electrical heater with temperature control in tank 2
- Sensors and digital displays for temperatures, pressures and volumes
- Software for data acquisition via USB under Windows Vista or Windows 7

### Experiment Capabilities

- Demonstrating the laws of state changes in gases experimentally
- Isothermal change of state, Boyle-Mariotte law
- Isochoric change of state, Gay-Lussac's 2nd law

### Required Services

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