



### Features

- Compact unit designed to demonstrate relationship between pressure & temperature of Perfect Gas.
- Microprocessor based temperature controller to maintain precise air temperature.
- Comprehensive Instrumentation Panel with all necessary safety instruments.

Tesca Perfect Gas Laws Apparatus consists of two interconnected rigid vessels, one equipped for operation under pressure and the second under vacuum. An electrically operated air vacuum pump & air compressor allows the appropriate vessel to be pressurized or evacuated as required to suit the teaching exercise. The vessels can be used independently or together to allow different thermodynamic processes to be evaluated. Each vessel is fitted with an electrical heater & temperature controller.

A pressure sensor connected to each vessel and a temperature sensor inside each vessel allows the changes in the properties of the air contained within the vessels to be monitored continuously. Both vessels are constructed from clear rigid plastic which affords light insulation between the air inside the

Note: Specifications are subject to change.

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vessel and the surroundings to reduce heating/cooling but allows each vessel and its contents to return to ambient temperature reasonably quickly.

The capacity of the pressurized vessel is approximately 12 liters. The capacity of the evacuated vessel is approximately 8 liters.

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

### Technical Specifications

- Plexi Glass clear vessel: Approximately 12 Litres
- Plexi Glass clear vessel: Approximately 8 Litres
- Fin Heater: 100 W – 2 Nos.
- Reciprocating Air Compressor with Filter Regulator
- ¼ hp oil less Vacuum Pump with stainless steel intake drying cell
- Temperature Sensor: 0-100 °C – 2 Nos.
- Temperature Controller: 30 to 100 °C
- Digital Temperature Indicator with selector Switch
- Pressure Transducer: -1 to 2.5 Bar(g) with min 1% Accuracy – 2 Nos.
- Digital Pressure Indicator: 5 Digit Display with min 1% Accuracy – 2 Nos.
- Bourdon Type Pressure Gauge: -1 to 2.0 Bar(g)
- Table Top control valve circuit with needle valves
- Note: System can be built for higher capacity (Temperature & Flow rate) to meet application requirements.

### Experiment Capabilities

- To study relationship between pressure & temperature of Perfect Gas.
- To verify Boyles Law for a perfect Gas.

### Required Services

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