



Fluid Mechanics

H30

Pressure Measurement Bench

Enables a range of practical investigations into manometer and Bourdon gauge pressure measurement techniques



- Enables practical investigations into pressure measurement using inclined and U-tube manometers, and Bourdon-type vacuum and pressure gauges
- Enables instant comparison of measurement methods
- Pressure and vacuum are accurately and conveniently controlled by fine adjustment of a syringe assembly
- Also includes separate Bourdon gauge with dead-weight calibration apparatus, and Bourdon tube mechanism clearly visible
- Fully self-contained, bench-top apparatus
- Suitable for group demonstrations and individual student experiments

- TecEquipment Ltd, Bonsall Street, Long Eaton, Nottingham NG10 2AN, UK
- **T** +44 115 972 2611 • **F** +44 115 973 1520 • **E** info@tecequipment.com • **W** www.tecequipment.com
- An ISO 9001 certified company

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Pressure Measurement Bench

Description

Manometers and Bourdon gauges are fundamental pressure-measuring devices. They are intrinsic parts of more complex measuring instruments, such as pneumatic comparators and flow indicators. It is important therefore that students fully understand their operation, characteristics and principles of calibration.

TecEquipment's Pressure Measurement Bench enables students to fully investigate and compare the operation and characteristics of inclined and U-tube manometers, and Bourdon-type vacuum and pressure gauges. It also includes a separate Bourdon gauge with dead-weight calibration apparatus, enabling clear observation of the Bourdon tube mechanism.

The apparatus consists of two units:

- A manometers and gauges unit
- A Bourdon pressure gauge calibration unit

The manometers and gauges unit is a framed structure with a backboard, holding a:

- vertical U-tube manometer,
- U-tube manometer with an inclined limb,
- Bourdon gauge for measuring vacuums,
- Bourdon gauge for measuring positive pressure, and
- syringe assembly for pressurising and reducing pressure in the measurement devices.

Each gauge and manometer has a delivery point to connect to the syringe using plastic tubing (included). All connections are push-fit, and T-pieces are provided to enable two instruments to be connected to one point.

The Bourdon pressure gauge calibration unit consists of a piston, which is free to move vertically, in a close-fitting cylinder. A transparent, flexible hose connects the cylinder to the Bourdon pressure gauge. The gauge and cylinder are mounted on a common flat base.

The internal mechanism of the gauge is clearly visible through the transparent dial. During test, calibration weights are placed onto the loading platform, which is an integral part of the piston assembly. All air is expelled from the system through a purge hole in the upper part of the cylinder.

The apparatus is manufactured using materials and finishes carefully chosen to give the fullest protection against corrosion.

Standard Features

- Supplied with comprehensive user guide
- Five-year warranty
- Made in accordance with the latest European Union directives

Experiments

A range of investigations into common pressure measurement techniques, including:

- Comparison of pressure measurement by manometer and Bourdon gauge
- Calibration of a pressure gauge
- Determination of gauge errors as a function of true pressure

Operating Conditions

Operating environment:
Laboratory

Storage temperature range:
-25°C to +55°C (when packed for transport)

Operating temperature range:
+5°C to +40°C

Operating relative humidity range:
80% at temperatures < 31°C decreasing linearly to 50% at 40°C

Specification

Nett dimensions and weights:

- Manometer and gauge assembly: nett 700 x 600 x 650 mm and 14 kg
- Pressure gauge calibration assembly: nett 270 x 160 x 270mm and 10 kg

Approximate packed dimensions and weight:

- Complete apparatus packed: 0.82 m³ and 30 kg

Accessories (included):

- Selection of weights for Bourdon gauge dead weight calibration
- 'T' pieces
- Artery clamps
- Funnel
- Nylon tubes

Space required:

For satisfactory use of this equipment, TecEquipment recommends a bench area of approximately 2 m x 0.6 m.

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infoWERK Medien & Technik GmbH

Martinsbühel 6 / A-6170 Zirl / Austria

Phone: +43 (0) 5238 52099-0 / Fax: +43 (0) 5238 52099-40

E-Mail: info@infowerk.at / Website: infowerk.at

Otto-Dürr-Straße 25

D-70435 Stuttgart, Zuffenhausen/ Germany

Phone: +49 (0) 711 342471-0 / Fax: +49 (0) 711 342471-11

E-Mail: info@de.infowerk.at / Website: infowerk.at