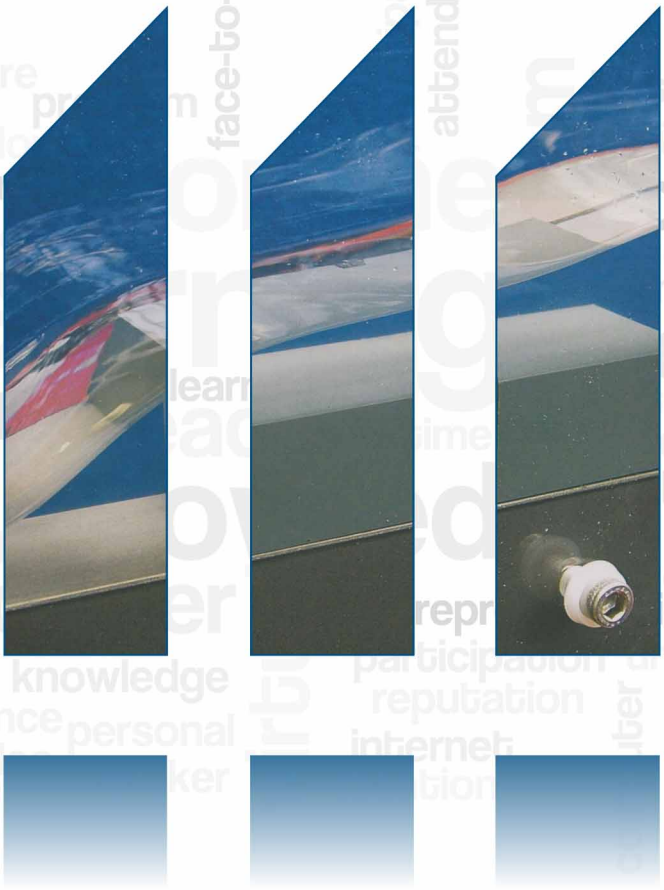

Fluid Mechanics

infoWERK
medien & technik

H3a Calibration of a Pressure Gauge

Shows students how a Bourdon tube pressure gauge works, and how to calibrate it

- Shows 'dead weight' calibration of a Bourdon gauge
- Bourdon gauge has transparent dial so students can see how it works
- Suitable for group demonstrations and student experiments
- Simple to operate
- Compact, bench-mounting unit
- Self-contained – needs no extra services

TecQuipment Ltd, Bonsall Street, Long Eaton, Nottingham NG10 2AN, UK

T +44 115 972 2611 • **F** +44 115 973 1520 • **E** info@tecquipment.com • **W** www.tecquipment.com

An ISO 9001 certified company

TecQuipment

H3a Calibration of a Pressure Gauge

Description

Many engineering applications use the Bourdon gauge. TecQuipment's Calibration of a Pressure Gauge experiment allows students to study Bourdon Tube theory. They see the working mechanism, calibrate the gauge and compare theoretical results to experiment results.

The apparatus is a Bourdon gauge connected to a dead weight tester. The Bourdon gauge has a transparent dial that allows students to see the working mechanism. The mechanism is a thin walled tube with an oval cross-section, bent into an arc. One end of the tube is held rigidly. This end admits pressure. The other end of the tube, connected to a dial and pointer mechanism, is free to move. When the pressure in the tube increases, it tries to straighten and so moves the pointer by an amount proportional to the pressure increase.

To calibrate the gauge, students add weights to a platform on a dead weight tester. The weights put a known force on to a piston. The piston has a known area, so students can calculate the pressure. A flexible tube containing water transfers the pressure on the piston to the Bourdon tube. Students add the weights in increments, recording pressure readings from the gauge at each increment. They then remove the weights and record gauge readings. By working out theoretical results they can work out gauge error and discuss possible causes.

Standard Features

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

Experiments

Function, operation and calibration of a Bourdon tube pressure gauge.

Essential Services

Bench space needed: 400 mm x 500 mm

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:
470 mm x 420 mm x 270 mm

Packed dimensions:
0.11 m^3 and 10 kg

Weights:
Four 1 kg weights, two 0.5 kg weights, one 0.2 kg weight

Bourdon gauge scale:
Graduated in 0 to 200 $kN.m^{-2}$ in 10 $kN.m^{-2}$ intervals.

Bourdon tube arc:
Approximately 270°

Maximum dead weight tester load:
5.2 kg

Typical gauge error:
1 $kN.m^{-2}$ over the entire range

Note: TecQuipment individually machines the cylinder and piston of each product to a high tolerance. Therefore they are not interchangeable between units.

TecQuipment Ltd, Bonsall Street, Long Eaton, Nottingham NG10 2AN, UK

T +44 115 972 2611 • **F** +44 115 973 1520 • **E** info@tecquipment.com • **W** www.tecquipment.com

An ISO 9001 certified company

TecQuipment

infoWERK is a leading expert in the development of eLearning courseware, learning system solutions, teaching and AV equipment.

Furthermore infoWERK is the representative and system integrator of "TecQuipment".

TecQuipment is one of the global leaders in technical teaching equipment for engineering. If you are interested in one of TecQuipment's products feel free to contact us at:

infoWERK medien & technik

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