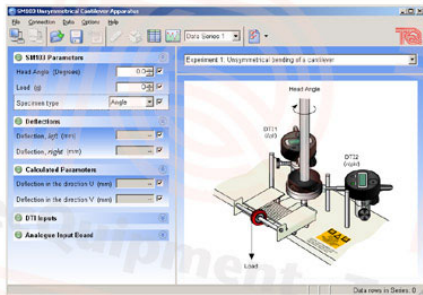


SM1003

Unsymmetrical Cantilever Apparatus

Examines and displays bending of unsymmetrical cantilevers

Works with **VDAS®**



Screenshot of the optional VDAS® software



- Ideal for student use and classroom demonstrations
- Bench-mounting apparatus
- Self-contained – needs no other parts
- Explains ‘shear centre’ and the use and construction of Mohr’s circle
- Supplied with structural and stress analysis textbook with full theory
- Supplied with set of different specimens
- Connects to TecEquipment’s Versatile Data Acquisition System (VDAS®)

- TecEquipment Ltd, Bonsall Street, Long Eaton, Nottingham NG10 2AN, UK
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- An ISO 9001 certified company
- VDAS is a registered trademark of TecEquipment Ltd



SM1003

Unsymmetrical Cantilever Apparatus

Description

The Unsymmetrical Cantilever Apparatus allows students to load a cantilever and accurately measure its deflection in any coplanar direction.

Students mount a test beam vertically in a frame. The top of the test beam fixes to a holding ring that can rotate through 360 degrees.

Students apply a horizontal load in set increments (weights included) to the bottom (free end) of the test beam.

Digital indicators measure the test beam deflections in two directions, at right-angles to each other. Each indicator has a socket for connection to TecQuipment's optional Versatile Data Acquisition System (VDAS®) and a suitable computer (computer not included).

Students apply loads to the beam in set increments and record its displacement. Students can then rotate the beam to another position and repeat the experiment. This allows students to use the Mohr's circle method to find the principal second moments of area of each section.

To find the shear centre of a test beam, students attach a cross-piece to the free end. The cross-piece allows students to apply loads at different positions across and outside the section of the cantilever.

The equipment includes a user guide which describes how to assemble and use the equipment, with practical theory, experiment procedures and typical results. The textbook, 'Structural and Stress Analysis' by T H G Megson, is included with the equipment.

For quick and reliable tests, TecQuipment's optional VDAS® gives accurate real-time data capture, monitoring and display, calculation and charting of all important readings on a computer (computer not included).

Experiments

Investigations into bending of unsymmetrical cantilevers, including:

- Vertical and horizontal displacement measurement for varying angles of applied load
- Demonstration that maximum and minimum vertical deflection occurs when horizontal deflection is zero
- Use of Mohr's circle
- Experimental and theoretical determination of the principal moments of area of test sections
- Location of shear centre of each section

Standard Features

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

Recommended Ancillaries

- Bench-mounted version of the Versatile Data Acquisition System (VDAS-B)
and
- Connectivity Kit (SM1003CK) for connection to VDAS®

Essential Services

Bench space needed:
1 m x 0.6 m

Operating Conditions

Operating environment:
Laboratory environment

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

Sound Levels

Less than 70 dB(A)

Specifications

Nett dimensions:
720 mm x 520 mm x 470 mm

Nett weight:
4.8 kg

Gross weight:
8.5 kg

Packed volume:
0.176 m³

Digital indicators:
Two, each with a digital display and sockets for connection to VDAS

Test beams:

- U-shape cross-section
- L-shape cross-section
- Solid Rectangular cross-section

Test weights:

- 5 weight hangers
- 150 weights, each of 10 g

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