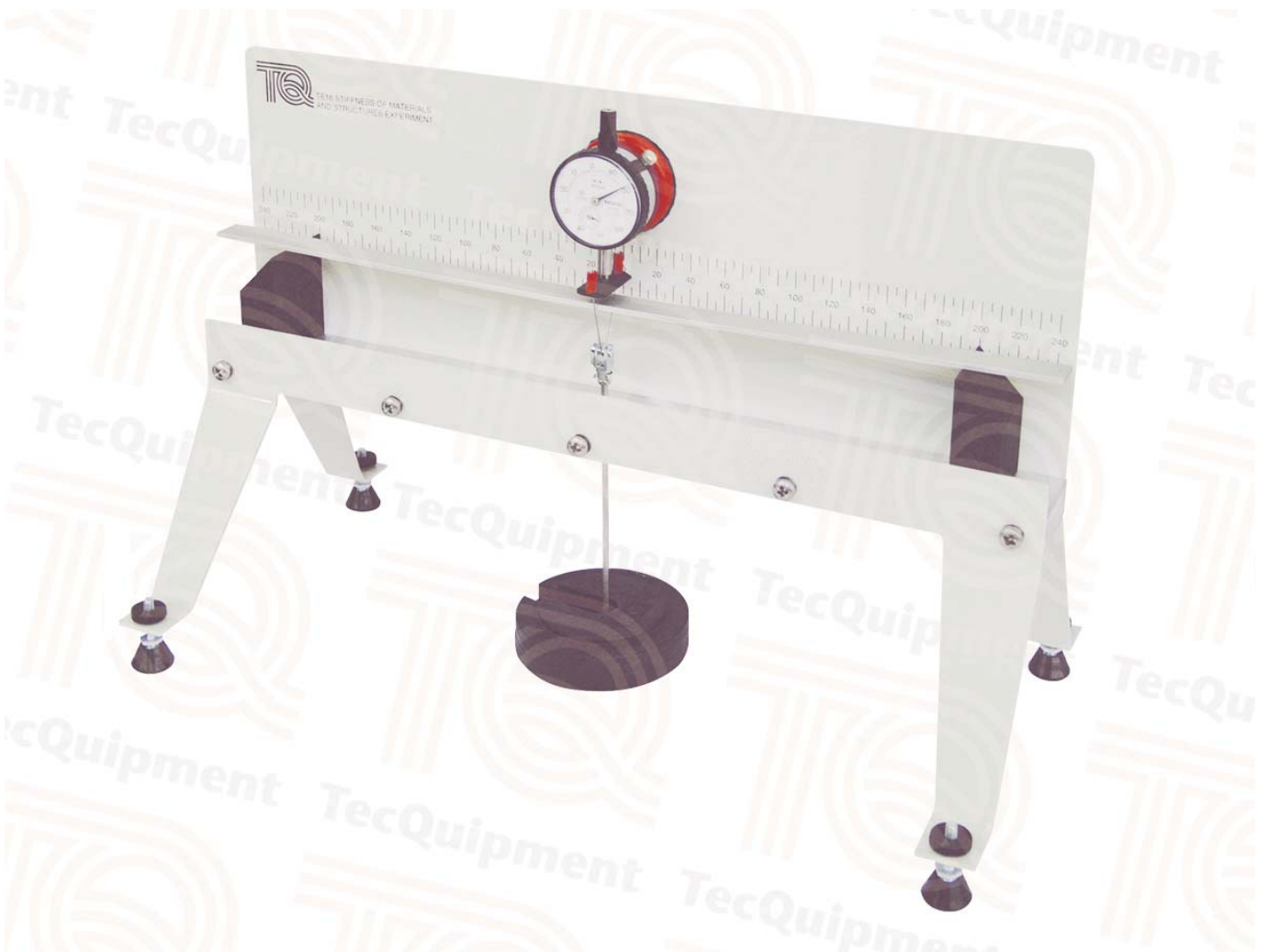


TE16

Stiffness of Materials and Structures

***Bench-mounting apparatus
enabling a variety of investigations
into material stiffness***



- Compact, bench-mounting frame that holds parts for different experiments in stiffness of materials
- Allows investigations into stiffness in bending of beams of different materials and cross-section
- Easy to use precision parts and instruments for accurate, repeatable and reliable results
- Simple, rugged, long-lasting and trouble-free parts
- Gives clear, straightforward and effective demonstrations of beam behaviour
- The standard TE16 kit includes test beams of different materials and cross-section
- Optional additional kits (TE16a and TE16b) available for experiments with different beam fixings (cantilever and encastre) and torsional stiffness experiments

- TecEquipment 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

TE16

Stiffness of Materials and Structures

Description

A compact, bench-mounting frame that holds different parts for investigations into stiffness of materials. The standard TE16 includes parts for tests in bending of beams of different materials and cross-section. Optional additional kits allow investigations into different beam fixings and torsional stiffness.

The main part is a rigid metal frame. Supplied as standard are two adjustable knife edges that work as simple supports for test beams. A linear scale on the back panel of the frame allows accurate positioning of the knife edges. The kit also includes weights, a magnetic dial gauge and a set of different beams. Also included in the standard TE16 kit is a vernier gauge for students to accurately measure dimensions of the specimens they test.

Students add different loads to the beams using weights on a hanger. The dial gauge indicator on the back panel accurately measures beam deflection.

The Additional Experimentation Kit (TE16a), available as an optional extra, enables further investigations into a simple cantilever, a propped cantilever and an encastre beam.

The Additional Torsion Testing Kit (TE16b) is also available as an optional extra. It allows torsion tests on solid rods of different materials and a tube.

Standard Features

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

Recommended Ancillaries

- Additional Experimentation Kit (TE16a)
- Additional Torsion Testing Kit (TE16b)

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

Experiments

Standard TE16 Kit

- Investigation of the stiffness in bending of different materials of the same cross-section (Young's modulus/stiffness)
- Investigation of the stiffness of a single material with different cross-section geometries (second moment of area, or I value)

When used with the optional TE16a:

- Experiments to find the deflected shape of a beam and bending of a beam clamped at one end (a cantilever).
- Comparison of a simply supported beam, a cantilever and an encastre beam.

When used with the optional TE16b:

- Experiments to find the relationship between angular deflection and the dimensional and material properties of rods and tubes (torsional stiffness).

Specification

TE16

Dimensions: 500 mm x 250 mm x 350 mm, packed volume 0.08 m³

Weight: Approximately: 12 kg (including weights and beams), packed: 16 kg

Bench space needed: Solid, level bench space of approximately 500 mm x 500 mm

Weights: 6 x 0.5 N

Test beams (common cross-section): Brass, steel, aluminium, wood, acrylic and polyethylene (PETG)

Aluminium test beam cross-sections: Square, rectangular and hollow

TE16a

Nett weight: 1.66 kg

Packed volume and weight: Less than 0.001 m³ and approximately 2.5 kg.

Parts:

- Two encastre fixings
- Two knife edge hangers
- Weight hanger

TE16b

Nett weight: 2.4 kg

Packed volume and weight: Less than 0.001 m³ and approximately 3.5 kg.

Parts:

- Two chuck assemblies
- Weight hanger and weights
- Three specimens – One brass tube and brass and steel rods

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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