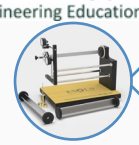
ESOLS
Engineering Education Equipment



Unsymmetrical Bending (SMT-SM-11)

The Unsymmetrical Bending Apparatus is designed to study the behaviour of beams under symmetrical and unsymmetrical bending conditions. It allows experiments with beams of different cross-sectional profiles (I, L, and U) to analyse bending behaviour when the direction of loading does not coincide with the principal axes of the section. The apparatus demonstrates both uniaxial and complex (biaxial) bending, as well as combined bending and torsion when the load is applied eccentrically. It features a versatile clamping system with a 360° angle scale for adjusting beam orientation, adjustable load application points, and precision dial gauges to measure horizontal and vertical deflections. This setup provides a clear understanding of the mechanical response of asymmetrical structures, making it ideal for engineering statics and strength of materials studies.

TECHNICAL SPECIFICATIONS

Specifications:

- General and unsymmetrical bending of beams.
- 3 beams of shape I, L and U profiles.
- Multidirectional clamping of beam flange.
- Clamping flange with angle scale to designate the pointed position of the beam.
- Peculiarity of load application points adjustable.
- 2 dial gauges with bracket to record the horizontal and vertical buckle of the beam under load.
- Table-top experiment for general and unsymmetrical bending of straight beams.
- Eccentricity of load application point adjustable

Technical Data:

- Aluminum Beam:
  - Length: 450.
- Dial gauge:
  - Range: 0-25mm
- Protractor:
  - Range: 0-360°
- Dimensions and mass:
  - L x W x H: 610 x 350 x 450mm (Approx.)
  - 30kg (Approx.)

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Experiments:

- To experiment with symmetrical and unsymmetrical bending of beams of different shapes (I, L, and U)
- Deflection of a beam at different angles, and at different loads.
- Combined bending and torsion loading by way of eccentric force application.

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