

Product Name :
Deformation Of Straight Beams

Product Code :
TN184



Description :

Deformation Of Straight Beams

Technical Specification :

Deformation of Straight Beams

The unit is perform the following experiments and investigations:

Learning Objectives / Experiments

Investigation of the deflection for statically determinate and statically indeterminate straight beams

Cantilever beam

Single-span beam, dual- or triple-span beam

Formulation of the differential equation for the elastic line

Deflection on a cantilever beam

Measurement of deflection at the force application point

Deflection of a dual-span beam on three supports

Measurement of the support reactions

Measurement of the deformations

Influence of the material (modulus of elasticity) and the beam cross-section (geometry) on the elastic line

Maxwell-betti coefficients and law

Application of the principle of virtual work on statically determinate and indeterminate beams

Determination of lines of influence

Arithmetically

Qualitatively by way of force method.

Specifications:

Elastic lines of statically determinate and indeterminate beams under various clamping conditions

3 steel beams with different cross-sections

1 brass and 1 aluminium beam

3 articulated, height-adjustable supports with force gauge

1 support with clamp fixing

Force gauges can be zeroed

3 dial gauges to record deformations

Weights with adjustable hooks

Anodised aluminium section frame housing the experiment

Storage system to house the components

Technical Data:

Beam

- length: 1000mm

- cross-sections: 3x20mm (steel), 4x20mm (steel), 6x20mm (steel, brass, aluminium)

Frame opening: 1320x480mm

Weights

- 4x 2,5N (hanger)

- 4x 2,5N

- 16x 5N

Measuring ranges

- force: $\hat{A}\pm 50\text{N}$, graduation: 1N

- travel: 0...20mm, graduation: 0,01mm

Dimensions and Weight

Length x Width x Height: 1400x400x630mm

Weight: 37kg

Length x Width x Height: 1170x480x178mm (storage system)

Weight: 12kg (storage system)

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