CURVED BAR APPARATUS
HSM10



Year 2
study

Features
- Bench top apparatus
- Very visual experiment
- Circular, semi-circular, quadrant specimens supplied
- Three dial gauges measure deflection
- Full set of weights and hanger supplied

Related Laws/Applications
- Castigliano's first theorem
- Strain Energy
- Structural Engineering
- Bridge Arch
- Simpson's Rule

Description
The theoretical deflections of curved shapes are most easily found by applying strain energy ideas, such as Castigliano's first theorem. The shapes chosen in this apparatus provide a relatively easy introduction to the use of such techniques. A bench mounted base supports a variety of curved bars in the form of a ring, semi-circle or quadrant/davit. Loads are applied by specially designed weight hangers so that the specimen bends. Horizontal and vertical deflections are measured by dial gauges rigidly attached to the base and surrounding pillars. The bars can be readily changed and the position of the dial gauges relocated to measure the deflections of the new configuration. All specimens, weight hangers and a set of calibrated weights are supplied.

Learning capabilities
- To experimentally determine the vertical and horizontal deflections of various curved bars whose cross sectional dimensions are small compared with the bar radius.
- To compare with theoretical estimates using strain energy theories such as Castigliano's first theorem or Simpson's Rule.

Technical Specification

- Base plate with levelling feet
- Three test specimens:
- - Solid ring Ø300mm outside diameter
- - Semi-circle Ø150mm radius to centreline of material
- - Quadrant Ø150mm radius to centreline of material
- Specimen material: 25mm wide x 1.5mm thick (nominal); steel
- Analogue dial gauges; 3 off, 0…10mm travel, 0.01mm resolution

What's in the Box?

- 1 x HSM10
- 3 x Dial gauge
- 3 x Specimens
- 1 x special hanger
- 1 x Hex wrench set
- 5 x 0.1N; 5 x 0.2N; 7 x 1N; 1 x 2N; 7 x 5N
- Instruction manual
- Packing list
- Test sheet

You might also like

- HST12

Weights & Dimensions

- Weight: 13 kg
- Length: 360mm
- Width: 330mm
- Height: 430mm

Essential Services

- Sturdy Bench top

Ordering information

To order this product, please call PA Hilton quoting the following code:
HSM10

All brand and/or product names are trademarks of their respective owners. Specifications and external appearance are subject to change without notice. The colour of the actual product may vary from the colour shown in the brochure.
Copyright © 2018 P.A. Hilton Limited. All rights reserved. This technical leaflet, its contents and/or layout may not be modified and/or adapted, copied in part or in whole and/or incorporated into other works without the prior written permission of P. A. Hilton Limited. Hi-Tech Education is a registered trade mark of P. A. Hilton Limited.
COUNTRY OF ORIGIN - UK WARRANTY PERIOD - 5 YEARS