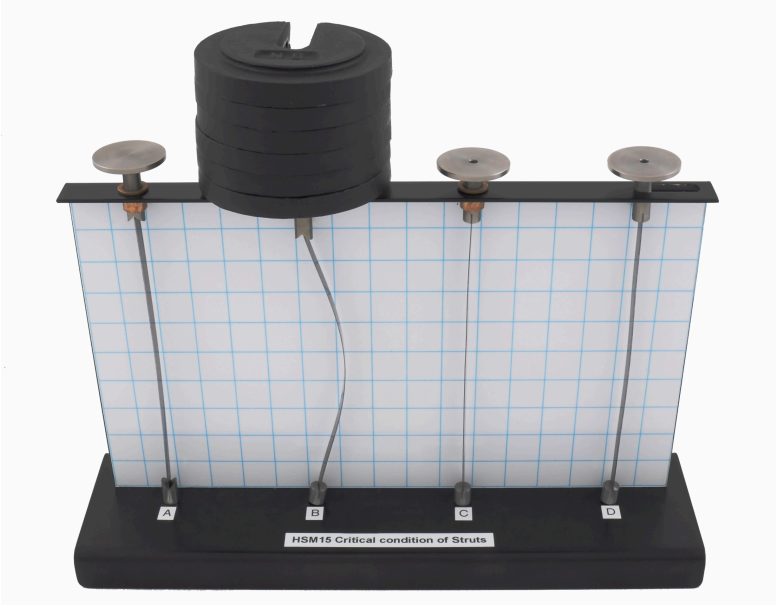
CRITICAL CONDITION of STRUTS

HSM15



Year 2
study

Features

- High Quality, compact bench unit.
- Visually demonstrates Euler's Critical Buckling Load.
- One specimen material, four load conditions.
- Panel for drawing shape of strut.
- Panel for improved visualisation.
- Struts can be loaded simultaneously.

Description

The apparatus shows how the buckling mechanism occurs, and the influence of the end restraint. It comprises a sheet metal frame which supports four slender spring steel struts having loading platforms at their top ends. Each strut has a different end restraint so that comparisons can be instantly made in a highly visible way. End restraints are as follows: a) Both ends pinned b) One end pinned, the other end fixed c) Both ends fixed d) Base fixed, top free (Flagpole) For the first three, the middle of the struts move inwards as the strut buckles. The loading platforms act through relatively friction free guide bushes. On the back of the frame is a wipe able grid, which can be used to measure and draw the deflected strut shape onto. It can be cleaned easily. A complete Instruction manual is provided describing the apparatus, its application, experimental procedure and typical test results.

Related Laws/Applications

- Euler's Theory
- Compression
- Strut
- Failure Mode
- Buckling
- Load
- End Conditions
- Critical Load

Learning capabilities

- To observe the behaviour of four struts of the same length but with different end constraints when subjected to buckling loads.
- To compare the result with theoretical predictions, such as Euler's formula.

Technical Specification

- 4 x struts
- Strut: 180(L) x 9.5(W) x 0.5(H) mm, spring steel
- End conditions: pinned, pinned/fixed, fixed flagpole
- 20mm square grid on back of frame
- Weights set

What's in the Box?

- 1 x HSM15
- 1 x Foam wipe
- 1 x Pen
- 10 x 0.1N; 10 x 0.2N; 3 x 1N; 4 x 2N; 6 x 5N
- Instruction manual
- Packing list
- Test sheet

You might also like

- HST45

Weights & Dimensions

- Weight: 10 kg
- Length: 370mm
- Width: 100mm
- Height: 255mm

Essential Services

- Sturdy Bench top

Ordering information

To order this product, please call PA Hilton quoting the following code: HSM15

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