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Product Name :
Loading And Buckling Of Struts

Product Code :
LBNY-0005-13900029



Description :

The main part of the apparatus is a precision-engineered rigid aluminium base, with legs and levelling feet. At one end is a loading device which uses a screw to apply loads to the struts. The screw is in fixing blocks with bearings to give precise and easy load application. The Loading and Buckling of Struts allows tests on a full range of struts. They allow students to create any combination of pinned or clamped end conditions for the strut under test. Supplied is a set of special end fittings for tests with various eccentricities to show the effect of eccentric loading. It shows load and deflection characteristics and buckling loads for various strut lengths, Cross-section and end conditions. It also allows studies of the effect of eccentric loading. The equipment includes a lateral pull attachment for Students to apply light biasing loads, or larger side loads, as needed. Students can also set up the apparatus to examine flexural rigidity and general beam deflection theory. An optional set of extra specimens allows extra tests to show students some of the more complicated problems found in strut design. Holders are at both the loading and load measuring ends.

The two special struts show how buckling loads may be lower than the ideal values, because of two reasons:
Imperfect shearing connections between the parts of a compound strut
Flexure of the end fixings.

Technical Specification :

Experiments:

Determination of flexural rigidity and comparison with calculated values.

Deflections of a simply supported beam with a point load including the verification of general deflection formulae, and the deflected shape.

Flexural rigidity and buckling loads for struts of different materials.

The use of South wells method to estimate buckling loads and strut eccentricities from experimental results.

Demonstration of buckled (crippled) shape of struts with different end conditions.
Comparing experiment results with those using Eulers buckling theory
Investigation of the effects of side load and eccentric loading on strut buckling characteristics.
Determination of load/deflection curves and buckling loads for struts of different lengths and cross-sections, with any combination of pinned or clamped end fixings.



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