Features

- Demonstration of all buckling cases of Euler buckling
- Buckling length clearly visible with various methods of support
- Test bars made of spring steel
- Set of finely graduated weights

Instability theory, the four cases of Euler buckling represent the elastic flexural buckling of straight bars. Above a specific load - the buckling load - a loss of stability occurs and the bar increasingly changes shape. The axis of the bar is deflected laterally.
Euler describes four cases for the buckling of an elastic bar with the central application of compressive force and various methods of support.

Tesca Demonstration of Euler Buckling demonstrates the four cases of Euler buckling. Depending on the end conditions, different weight loads are required until the buckling load is reached and the axes of the bars are laterally deflected. The buckling length is clearly visible against the white backing wall with the grid patterning.

The test bars are made of stainless spring steel and remain within the elastic range during the experiment. The test bars are either fixed or pinned (free to rotate), depending on the chosen support method. This enables all buckling cases according to Euler to be set up with the various support conditions. Mounts are provided in the top supports to hold the weights.

Load is gradually applied to the test bars in small increments. This enables the sudden loss of stability - the buckling - to be clearly shown.
The various elements of the experiment are clearly laid-out and housed securely in a storage system. The well-structured instructional material sets out the fundamentals and provides a step-by-step guide through the experiments.

Specifications

- Demonstration of elastic buckling
- Representation of all cases of Euler buckling
- 4 steel test bars
- Loading of test bars with weights
- Test bars cannot be overloaded
- White backing wall with grid patterning
- Storage system to house the components

Technical Specifications

- Test bars
  - Quantity: 4
  - Bar length: 180mm
  - Bar cross-section: 0,5x12mm
  - Material: steel
  - Buckling loads: approx. 2...32N
- Weight set
  - 10x 5N
  - 5x 1N

Experiments

- Demonstration of various buckling problems
  - Euler case 1 - fixed-free bar
  - Euler case 2 - pinned-pinned bar
  - Euler case 3 - fixed-pinned bar
  - Euler case 4 - fixed-fixed bar
- Familiarization with the correlation between buckling length, buckling load, and various methods of support

Scope of Delivery

- 1 experimental unit
- 4 test bars
- 1 set of weights
- 1 storage system with foam inlay
- 1 set of instructional material

Note: Specifications are subject to change.

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