Euler Buckling of Struts (EDC-EBS-309)

EXPERIMENTAL DATA:

- Investigation of Buckling behavior under the influence of
  - Various bar lengths and cross sections
  - Various materials, supports and clamps
- Verification of Euler's Theory: Buckling on elastic bars
- Determination of applied force and deflection
- Determination of modulus of elasticity of unknown material

DESCRIPTION:

The apparatus is designed to study the buckling on different structs. In engineering mechanics, loss of stability under compressive load is known as buckling. Under the effects of compressive forces, and under increasing load, the axis of the bar deflects laterally until it suddenly and violently fails (collapses), even before the fracture point is reached. The stresses in the bar often remain within the elastic range during this process. This apparatus demonstrates the buckling behavior of bars under various influences.

For the purpose, one end of a bar is fixed or pinned, depending on the buckling case. A height-adjustable load-carrying cross-arm and a hand-operated spindle are used to apply compressive force to the bar. A bourdon type gauge measures the applied force. The lateral deflection of the bar is indicated on a dial gauge. Experiments demonstrate various influences, such as bar lengths, materials and methods of support. A transverse load application device can be used to generate additional shear forces on the test bar.

A PC data acquisition (EDSM-104S) is also available (Optional).

TECHNICAL DATA:

- Maximum bar length: 350 to 700mm
- Specimen material: Aluminium, Copper, Brass, Stainless Steel and Teflon
- Diameter of specimen: upto 13mm

SCOPE OF DELIVERY:

- 1 x EDC-SM-104
- 1 x Load hanger
- 6 x Specimen of different materials
- 1 x Weight sets
- 1 x Instructional Manual
- EDSM-104-S (Optional)

RELATED LAWS

- Materials
- Forces
- Deformation
- Buckling
- Euler's Theory

DIMENSIONS AND WEIGHT:

L x W x H (mm): 600 x 450 x 1100

Weight Approx.: 56 kg