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Product Name :	**Product Code :**
Buckling Behaviour of Bars	TN499

Description :

Buckling Behaviour of Bars

Technical Specification :

The unit is perform the following experiments and investigations:
Learning Objectives / Experiments:
Investigation of buckling behaviour under the influence of different supports and clamps
Different bar lengths and cross-sections
Different materials
Additional lateral load
Testing euler's theory: buckling on elastic bars
Calculating the expected buckling force with euler's formula
Graphical analysis of the deflection and the force
Determine elastic modulus for an unknown material (gfrp)
Measure force and deflection
With the included expansion set investigation of buckling behaviour under the influence of different cross-section shapes eccentric application of force

Specifications:
[1] investigation of all relevant buckling cases
[2] verification of Euler's theory of buckling
[3] experiments in the horizontal or vertical position
[4] test bars with different lengths made of different materials
[5] test bars pinned or fixed

[6] spindle for applying forces
[7] lateral load mechanism generates shear forces
[8] force measurement using a hydraulic dynamometer
[9] measurement of lateral deflection with a dial gauge
[10] further experiments with included expansion set
[11] storage system for parts

Technical Data:
Test bars
Quantity: 11
Bar lengths: 350...700mm (max.)
Materials: aluminium, copper, brass, steel, gfrp
Cross-sections: 10x4mm, 25x6mm, 25x10mm
Load spindle
Force: max. 2000n
Stroke: max. 10mm
Lateral deflection: max. 20mm
Sample holder hole diameter: Ø 20mm
Weight for lateral load: max. 20N
1x 5N (hanger), 3x 5N
Measuring ranges
Force: 0...2500n, graduation: 50n
Deflection: 0...20mm, graduation: 0,01mm
Dimensions and Weight
Length x Width x Height: 620x450x1150mm
Weight: 63kg
Length x Width x Height: 1170x480x178mm (storage system)
Weight: 12kg (storage system)
Set of 10 test bars (expansion set)
Learning Objectives / Experiments:
With the Unit for investigation of buckling behaviour under the influence of
Different cross-section shapes
Eccentric application of force

Specification:
[1] test bars for investigation of all relevant buckling problems
[2] test bars with different lengths made of different materials
[3] test bars pinned

Technical Data:
3 flat bars, St
Cross-section: 25x6mm
Bar length: 500mm
Eccentricity: 0mm, 1mm, 3mm
1 flat bar, Al
Cross-section: 40x6mm
Bar length: 500mm
1 flat bar, GRP
Cross-section: 25x10mm
Bar length: 700mm
1 square tube, Al
Cross-section: 20x10x2mm

Bar length: 700mm
1 round tube, Al
Cross-section: Ø 15x2mm
Bar length: 700mm
2 round tubes, PVC
Cross-Section
Ø 16x2mm
Ø 20x1,5mm
Bar length: 700mm
1 round bar, Al
Cross-section: Ø 14mm
Bar length: 700mm.

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