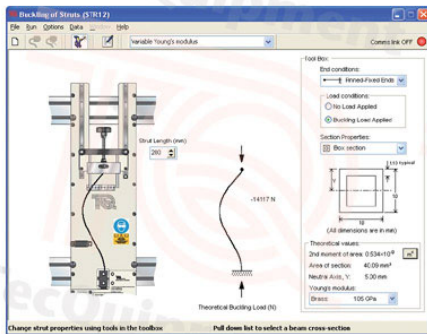


## STR12

## Buckling of Struts

**For studying buckling of slender columns and relationships between length, end fixing conditions and buckling load**



Screenshot of the optional TecEquipment Structures Software



Shown fitted to the Structures Test Frame and connected to a Digital Force Display (both supplied separately)

- High-quality structures teaching module for students of mechanical, civil and structural engineering
- Allows safe and practical experiments into buckling of struts
- Realistic and verifiable experiments results
- Optional TecEquipment's Structures Software package for extra 'virtual' experiments that simulate and confirm the results from your hardware and allow extended experiments
- Optional STR2000 unit with TecEquipment's Structures Software package for automatic data acquisition **and** virtual experiments
- One of many interchangeable experiment modules from TecEquipment's modern, flexible and cost-effective Structures teaching system
- Ideal for classroom demonstrations, or students working in pairs or small groups

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- An ISO 9001 certified company

# STR12

## Buckling of Struts

### Description

The experiment hardware fits onto a Structures Test Frame (STR1, available separately). Students compress aluminium columns (struts) using a screw mechanism. The equipment uses chucks to hold the struts and allows different end-fixing conditions. An integral load cell connected to a Digital Force Display (STR1a, available separately) displays the load on the strut as it is compressed. A magnetic deflection scale shows how much the strut buckles. Students continue compressing the strut until reaching the critical buckling load. They then repeat the experiment using different strut lengths or fixing conditions, analysing their results.

The equipment includes strut storage space and five different sizes of aluminium strut.

The lecturer guide provides details of the equipment including sample experiment results. The student guide describes how to use the equipment and gives experiment procedures.

For extra 'virtual' experiments, TecEquipment can supply the optional TecEquipment Structures Software (STRS), for use on a suitable computer. The virtual experiments simulate the tests you can perform with the hardware. They also extend the choice of tests beyond that available using only the hardware, for example: higher loads, uniform loads or different test specimens. This extends the student's learning experience.

For automatic data acquisition of your experiment results, TecEquipment can supply the optional Automatic Data Acquisition Unit (STR2000). Supplied as standard with the STR2000 is TecEquipment's Structures Software that displays and logs your experiment results and gives the extra virtual experiments.

### Standard Features

- Supplied with lecturer guide and student guide
- Two-year warranty
- Made in accordance with the latest European Union directives

### Experiments

- Euler buckling loads
- Relationship between strut length and collapse load
- Relationship between various end-fixing conditions and collapse load
- Nature of deflection and deflected shapes with various end-fixing conditions

### Essential Ancillaries

- Structures Test Frame (STR1)
- Digital Force Display (STR1a)

### Recommended Ancillaries

- Structures Software (STRS) for virtual experiments
- or**
- Automatic Data Acquisition Unit (STR2000) for automatic data acquisition **and** virtual experiments

### Operating Conditions

*Operating environment:*  
Laboratory environment

*Storage temperature range:*  
-25°C to +55°C (when packed for transport)

*Operating temperature range:*  
+5°C to +40°C

*Operating relative humidity range:*  
80% at temperatures < 31°C decreasing linearly to 50% at 40°C

### Specifications

*Nett dimensions and weight:*  
860 x 220 x 85 mm, 8 kg

*Packed dimensions and weight:*  
Approximately 0.12 m<sup>3</sup>, 10 kg

*Test struts:*

- 5 x aluminium alloy (section 2 mm x 20 mm)  
Lengths: 300 mm, 350 mm, 400 mm, 450 mm and 500 mm

*Fixing conditions:*

- Fixed both ends
- Pinned both ends
- or**
- Fixed one end and pinned at the other

*Load application and measurement:*

Hand-operated loading mechanism with 500 N load cell

*Accessories:*

- Set of different chucks
- Vernier
- Tools
- Lead to connect to Digital Force Display (STR1a)