

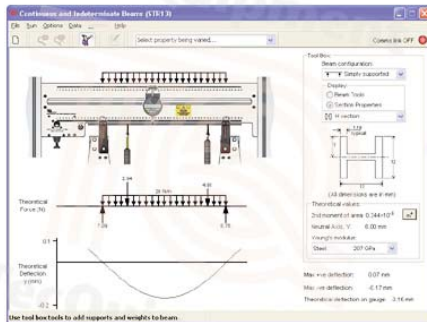


## Structures

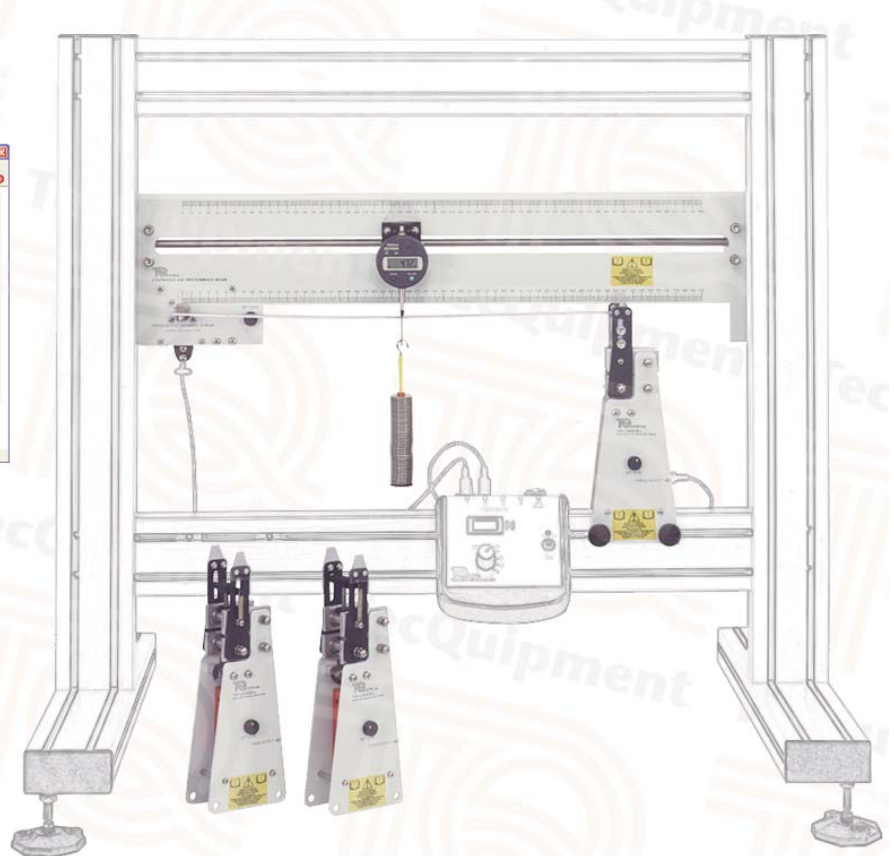
## STR13

## Continuous and Indeterminate Beams

*Versatile equipment for a wide variety of beam experiments, from simple cases to complex problems*



*Screenshot of the optional TecQuipment Structures Software*



- High-quality structures teaching module for students of mechanical, civil and structural engineering
- Allows safe and practical experiments into continuous and indeterminate beams
- Realistic and verifiable experiment results
- Optional TecQuipment's Structures Software package for extra 'virtual' experiments that simulate and confirm the results from your hardware and allow extended experiments
- Optional STR2000 unit including TecQuipment's Structures Software package for automatic data acquisition **and** virtual experiments
- One of many interchangeable experiment modules from TecQuipment'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

## STR13

## Continuous and Indeterminate Beams

**Description**

The experiment hardware fits onto a Structures Test Frame (STR1, available separately). Students rest a beam on up to three 'piers'. The piers are movable, so students can arrange them in many different positions under the beam. Students use masses on weight hangers to load the beam. They can also attach the flexible beam to a backboard to measure deflection or fixing moment.

The piers each contain a load cell to measure vertical reactions. These connect to a Digital Force Display (STR1a, available separately). Two of the load cells have knife-edge supports, which students can either fix or allow to sink by a set displacement. The third pier load cell allows students to either clamp the beam (encastré fixing) or rest the beam on a knife edge. The unique design of this equipment allows the load cell to resist the bending moment while accurately measuring the vertical reaction. To measure beam deflection, the backboard has a digital indicator which students move along the beam. The backboard also has a mechanism for measuring the fixing moment of a propped cantilever or a fixed beam.

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
- Five-year warranty
- Made in accordance with the latest European Union directives

**Experiments**

- Reactions of a simply supported beam
- Reactions of a two-span continuous beam
- Reactions and fixing moments of a fixed beam and a propped cantilever
- Reaction and fixing moment of a propped cantilever with a sinking support
- Relationship between load and deflection for beams and cantilevers

This equipment allows many possible experiment configurations, using a stiff (rigid) beam, or a significantly more flexible beam.

**Essential Base Unit**

- Structures Test Frame (STR1)

**Essential Ancillary**

- Digital Force Display (STR1a)

**Recommended Ancillary**

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

**Operating Conditions**

*Operating environment:* Laboratory

*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:* 880 x 180 x 150 mm, 8.5 kg

*Packed dimensions and weight:*

Approximately 0.12 m<sup>3</sup>, 10.5 kg

*Test beams:*

- One aluminium alloy 'rigid' beam with a scale
- One aluminium alloy 'flexible' beam

*Load cells:*

- Two 10 N electronic load cells with sinking knife edges
- One 10 N electronic load cell with a knife edge and clamped fixing

*Load application:*

- Five knife edges
- Five weight hangers
- 150 x 10 g masses

*Accessories:*

Rule, vernier, four leads to connect to a Digital Force Display (STR1a)

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*innovation.*

*integration.*

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**TecQuipment** is one of the global leaders in technical teaching equipment for engineering. If you are interested in one of TecQuipment's products feel free to contact us at:



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