**STR10**

**TWO-PINNED ARCH**

Experiment for the study of the characteristics of a two-pinned arch under various load conditions. Mounts on the Structures test frame and connects to the Structures automatic data acquisition unit and software.

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**KEY FEATURES**

- Allows safe and practical experiments into two-pinned arches
- 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 with 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

**LEARNING OUTCOMES**

- Demonstration of the characteristics of a two-pinned arch
- Examination of the relationship between applied loads and horizontal thrust produced from a redundant (in one degree) arched structure
- Comparison of behaviour to simplified theory based on the Secant assumption

**KEY SPECIFICATIONS**

- 9 weight hangers and 150 x 10 g masses
- Arch: 100 mm rise, 500 mm span
TWO-PINNED ARCH

DESCRIPTION
The experiment hardware fits onto the Structures Test Frame (STR1), available separately. Students use masses on weight hangers to apply various loads to the arch at set positions along its span.

One end of the arch is pivoted, the other end rolls against a load cell. When connected to a Digital Force Display (STR1a, available separately), the load cell measures the thrust reaction. The equipment includes a lead to connect the load cell to a Digital Force Display (STR1a).

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, TecQuipment can supply the optional TecQuipment 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, TecQuipment can supply the optional Automatic Data Acquisition Unit (STR2000). Supplied as standard with the STR2000 is TecQuipment’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
- ISO9001 certified manufacturer

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

DETAILED SPECIFICATIONS
TecQuipment is committed to a programme of continuous improvement; hence we reserve the right to alter the design and product specification without prior notice.

NETT DIMENSIONS AND WEIGHT:
700 x 310 x 70 mm, 4.5 kg

PACKED DIMENSIONS AND WEIGHT:
Approximately 0.078 m³, 6 kg

LOADS:
9 weight hangers and 150 x 10 g masses

ARCH:
100 mm rise, 500 mm span

ACCESSORIES:
Rule