STR5
BENDING STRESS IN A BEAM

Experiment for the study of stress distribution across the section of a beam. Mounts on the Structures test frame and connects to the Structures automatic data acquisition unit and software.

**KEY FEATURES**
- Allows safe and practical experiments into bending stress in a beam
- 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

**LEARNING OUTCOMES**
Study of:
- Second moment of area
- Converting strains to stresses
- Strain gauges
- The neutral axis
- The bending equation

**KEY SPECIFICATIONS**
- Adjustable 0 to 500 N load cell with electronic force sensor
- Aluminium T-section test beam
- Nine strain gauges (with nine dummy gauges) and a 16-way digital strain bridge
BENDING STRESS IN A BEAM

DESCRIPTION
The experiment hardware is a T-beam that fits onto a Structures Test Frame (STR1, available separately).

Students adjust a load cell that bends the beam and, when connected to the optional Digital Force Display (STR1a, available separately), it measures the bending force (load). Strain gauges and a digital strain bridge measure the strains in the beam. Dummy strain gauges compensate for temperature variation and balance the strain bridges. The equipment includes a lead for connection to the Digital Force Display (STR1a, available separately).

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 that you do with the hardware. They also extend the choice of tests than 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.

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

STANDARD FEATURES
• Supplied with lecturer guide and student guide
• Five-year warranty
• Made in accordance with the latest European Union directives
• ISO9001 certified manufacturer
BENDING STRESS IN A BEAM

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

ESSENTIAL SERVICES
ELECTRICAL SUPPLY:
100 VAC to 240 VAC, 1 A, 50/60 Hz, with earth

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:
880 x 210 x 100 mm, 6.5 kg

Packed dimensions and weight:
Approximately 0.075 m³, 8 kg

LOAD:
Adjustable 0 to 500 N load cell with electronic force sensor

TEST BEAM:
Aluminium T-section

STRAIN MEASUREMENT:
Nine strain gauges (with nine dummy gauges) and a 16-way digital strain bridge

ACCESSORIES:
Vernier