

VDAS<sup>®</sup> STS22  
ONBOARD

## EQUILIBRIUM OF A SIMPLY SUPPORTED BEAM

Experiment for the study of the characteristics of a simply supported beam. Mounts on the Structures platform and connects to the Structures automatic data acquisition unit and software (VDAS<sup>®</sup> Onboard).



SHOWN FITTED TO THE STRUCTURES  
PLATFORM (STS1, AVAILABLE  
SEPARATELY)

LAPTOP NOT INCLUDED

### KEY FEATURES

- One of a range of experiment modules that teach structures principles
- Fits to the Structures platform for ergonomic use and space-saving storage
- A simple beam structure to provide fundamental knowledge for the understanding of structures
- Supplied with a storage tray to keep smaller items safe
- Includes additional masses for experiments with a uniformly distributed load (UDL)
- Works with user-friendly software (VDAS<sup>®</sup>)

# EQUILIBRIUM OF A SIMPLY SUPPORTED BEAM

## DESCRIPTION

One of a range of experiment modules that fit to the Structures platform (STS1, available separately), this product helps students to understand the reaction forces due to loads on a simply supported beam 'bridge'. Students add loads to a rigid beam resting on two 'simple' supports. Load cells measure the vertical reactions at the supports. Each support includes pointers that work with the scale on the platform for accurate positioning.

Students apply loads to any position along the beam and measure the resulting reactions. They use textbook beam equations to predict the reaction for any given load and compare the calculated results with the measured results. This helps confirm the reliability of the textbook equations and the accuracy of the experiment results.

This product includes additional masses to allow students to create uniformly distributed loads (UDLs) on the beam.

The load cells connect to the USB interface hub of the Structures platform for computer display and data acquisition (VDAS<sup>®</sup> Onboard).

## STANDARD FEATURES

- Supplied with comprehensive user guide
- Five-year warranty
- Made in accordance with the latest European Union directives
- ISO9001 certified manufacturer

## LEARNING OUTCOMES

- Principle of Moments
- Influence lines
- Reactions for a point load along a beam
- Reactions for a uniformly distributed load (UDL) on a beam
- The Principle of Superposition

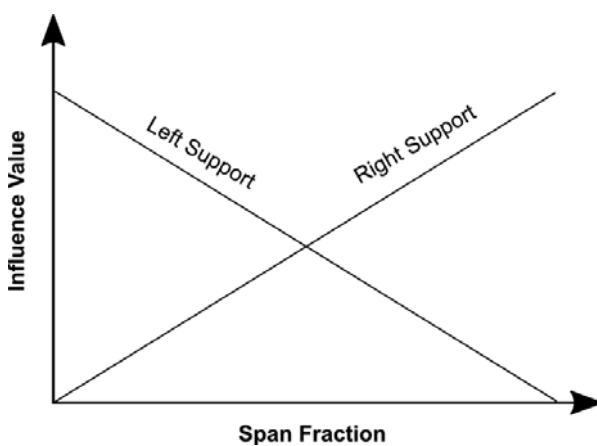
## ESSENTIAL ANCILLARY

- Structures Platform (STS1)

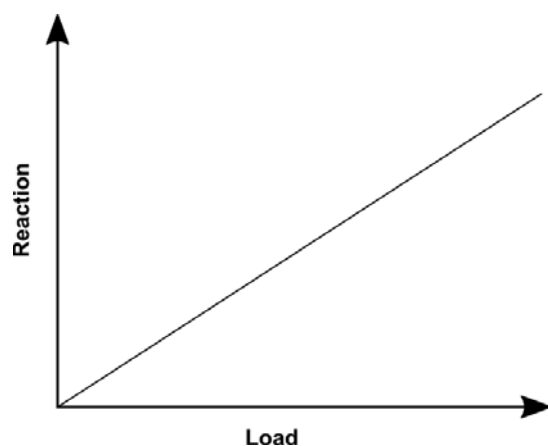
## SOFTWARE

TecEquipment has created data acquisition applications (VDAS<sup>®</sup> Onboard) for each experiment module, with additional simulated experiments.

The simulated experiments allow students to simulate the hands-on laboratory experiments, verifying their results. They also allow simulation of alternative set-ups, such as other loading conditions and portal properties, extending the learning experience beyond the practical laboratory session.



TYPICAL EXPERIMENT RESULTS SHOWING THE INFLUENCE LINES FOR THE BEAM REACTIONS



TYPICAL EXPERIMENT RESULTS COMPARING REACTION AGAINST AN INCREASING LOAD

# EQUILIBRIUM OF A SIMPLY SUPPORTED 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

## DETAILED SPECIFICATIONS

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

### DIMENSIONS AND WEIGHT:

- Nett (assembled): 850 mm long x 80 mm front to back and 240 mm high and 6 kg
- Approximate primary packed (with storage tray): 0.07 m<sup>3</sup> and 8 kg

### SPACE NEEDED:

- 1500 mm x 600 mm, level bench or desk

### ITEMS INCLUDED:

- Two beam supports, each with load cells
- A rigid beam of length 850 mm and 19 mm x 6.3 mm section
- Two cables
- Nine mass hangers
- 50 x 20 g masses
- Storage tray
- Comprehensive user guide