

VDAS<sup>®</sup>  
ONBOARD STS14

## CURVED BARS AND DAVITS

Experiment for investigations into two common curved structures and two common davit structures. 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  
(STSI, 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
- An interesting application of Castigliano's theorem of elastic deflection
- Includes four different test structures for multiple experiments in deflection
- Industrial high-resolution indicators for accurate measurements
- Supplied with a storage tray to keep smaller items safe
- Includes Vernier caliper to allow measurement of cross-section
- Works with user-friendly software (VDAS<sup>®</sup>)

# CURVED BARS AND DAVITS

## DESCRIPTION

One of a range of experiment modules that fit to the Structures platform (STS1, available separately), this product helps students to understand the deflections in curved bars and davits when used as simple structures to support loads. Students fit the lower end of a choice of curved bars and davits to a fixing plate. The upper end supports a variable load. Two precision indicators measure the deflection due to the load.

The curved bars do not replicate popular, practical structures but they form a good basis for a fundamental analysis such as Castigliano's theorem. The two davits are good examples of popular real-life structures.

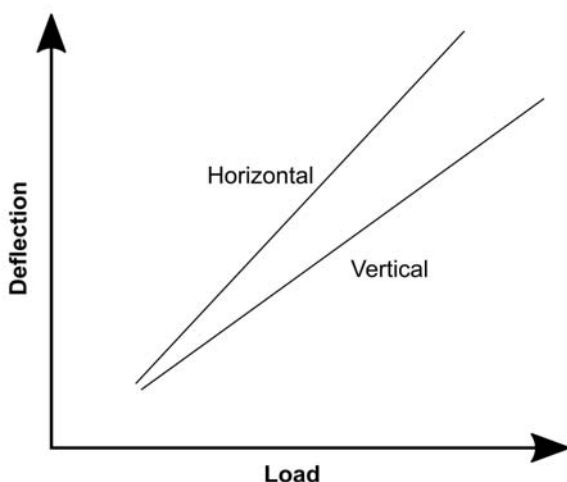
Students apply the load to the curved bars or davits, measuring the vertical and horizontal deflection. They compare results with the theoretical values found using elastic deflection theory.

This product includes a Vernier caliper for accurate measurements of the cross-section of the curved bars and davits.

The deflection indicators have their own displays, but they can 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



TYPICAL EXPERIMENT RESULTS COMPARING HORIZONTAL AND VERTICAL DEFLECTION FOR AN ANGLED DAVIT

## LEARNING OUTCOMES

- How loads affect the vertical and horizontal deflection of:
  - a quarter circle
  - a semicircle
  - a curved davit
  - an angled davit
- Elastic bending
- Comparison of elastic deflection analysis techniques

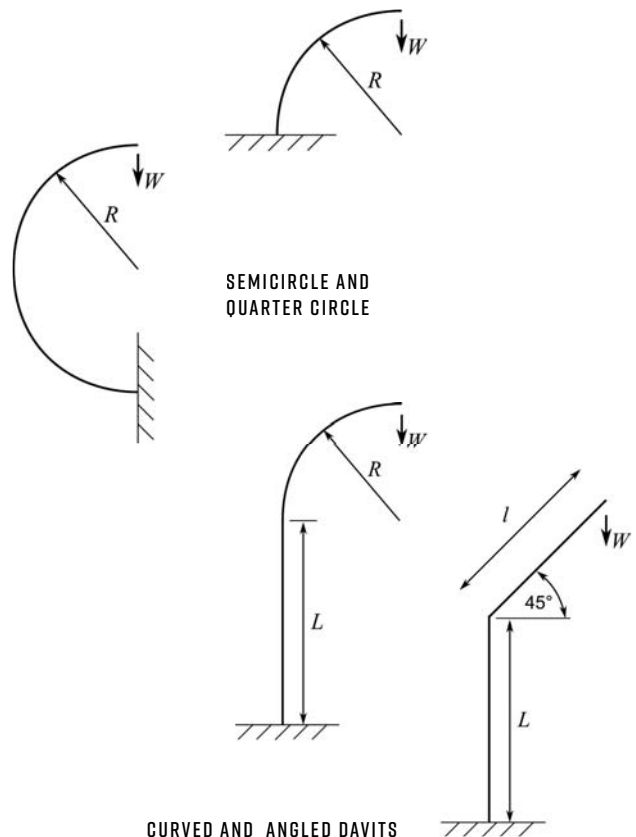
## ESSENTIAL ANCILLARY

- 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 bars and davits of different shape, cross-section and material, extending the learning experience beyond the practical laboratory session.



# CURVED BARS AND DAVITS

## 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): 280 mm long x 125 mm front to back and 480 mm high and 6 kg
- Approximate primary packed (with storage tray): 0.04 m<sup>3</sup> and 7 kg

### SPACE NEEDED:

- 1500 mm x 600 mm, level bench or desk

### ITEMS INCLUDED:

- Quarter circle
- Semicircle
- Curved davit
- Angled davit
- Plate holding two industrial deflection indicators, each of resolution 0.01 mm
- Back plate
- Fixing block and clamp plate
- Two cables
- Two mass hangers
- 25 x 20 g masses
- Vernier caliper
- Storage tray
- Comprehensive user guide