

NEXT GENERATION STRUCTURES

The next generation Structures range from TecQuipment is compact, robust and offers a clearer demonstration of experiments. It builds on the tried and tested modular technology but is easier to set up and use, taking performance to the next level.

The new platform-based mounting frame (STS1) is solid and stable, allowing easy viewing of experiments from all angles: perfect for use by groups of students and for longer range viewing in classroom demonstrations.

The 21 experiment modules teach basic structural principles relating to beams, bridges, cantilevers, arches, struts, davits, weight, reaction, moment, shear force and torsion.

The USB interface hub means this entire range has VDAS® Onboard, and directly connects to a computer running VDAS® software that is available to download free from the TecQuipment website.

 **YouTube** STRUCTURES PLAY LIST

STRUCTURES ONLINE DIGITAL COURSE BOOKS

Enhancing students' learning and understanding of basic structural principles focusing on beams, bridges and cantilevers, these course books provide real-life examples and theories and run through the experimental set-up, procedures and analysis.



FLEXIBLE AND MODULAR

- Easily removeable and changeable experiments fix easily to the test platform
- The modularity of the range allows for expansion as required

HIGH FUNCTIONALITY, AFFORDABLY PRICED

- One experiment can demonstrate several principles
- Extensive experiment capabilities mean our Structures range provides an unsurpassed teaching solution at an unbeatable price

AUTOMATIC DATA ACQUISITION

- ADA and digital instrumentation means students can get quick and accurate results
- No difficult-to-read instruments or abstract experiment set-ups to distract students

AUTHENTIC SOFTWARE SIMULATION

- The VDAS® software provides an effective method for students to quickly learn structures principles by performing virtual experiments on a computer
- Allows students the flexibility of working away from the laboratory
- Expands experiments beyond the limits of the hardware

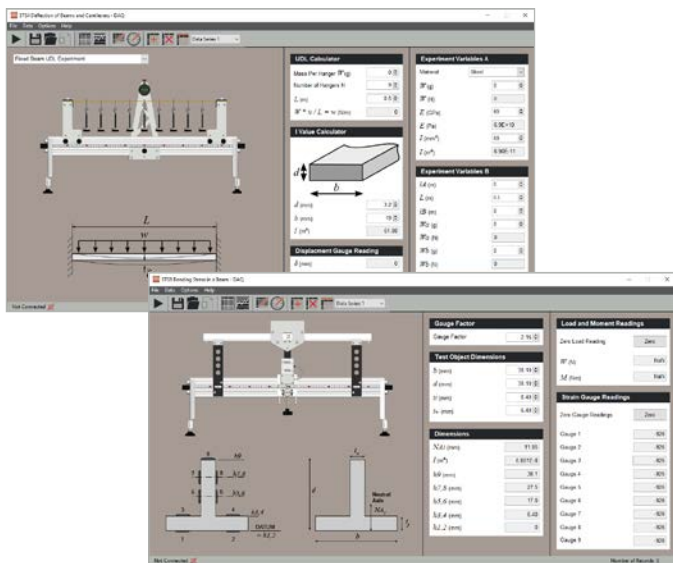
BASE UNIT

STRUCTURES PLATFORM

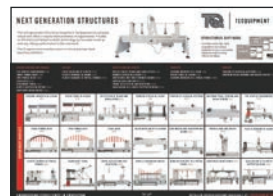


STSI

A benchtop platform that holds the experiments of the Structures range.

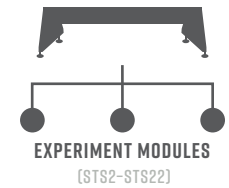


SCREENSHOTS OF THE VDAS® SOFTWARE



EXPERIMENT MODULES POSTER

ESSENTIAL BASE UNIT (STSI)



INCLUDES USB HUB WITH VDAS® ONBOARD

EXPERIMENT MODULES:

ARCHES, BRIDGES AND TRUSSES

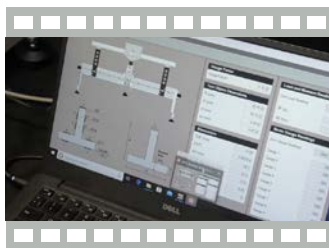
- Pin Jointed Frameworks STS8
- Three-Pinned Arch STS9
- Two-Pinned Arch STS10
- Fixed Arch STS11
- Redundant Truss STS17
- Simple Suspension Bridge STS19
- Suspended Beam Bridge STS21

FAILURE

- Euler Buckling of a Column STS12
- Plastic Bending of Beams STS15
- Plastic Bending of Portals STS16

DEFLECTIONS AND STRESS

- Deflection of Beams and Cantilevers STS4
- Bending Stress in a Beam STS5
- Continuous and Indeterminate Beams STS13
- Curved Bars and Davits STS14
- Frame Deflections and Reactions STS18



INTRODUCTION TO NEXT GENERATION STRUCTURES



SIMULATION CAPABILITIES OF THE STS RANGE USING VDAS® SOFTWARE

MOMENTS

- Bending Moments in a Beam STS2
- Shear Force in a Beam STS3
- Bending Moments in a Portal Frame STS20
- Equilibrium of a Simply Supported Beam STS22

TORSION

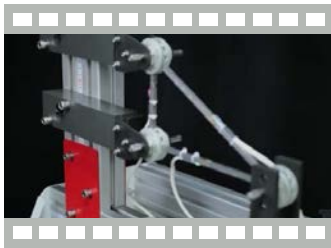
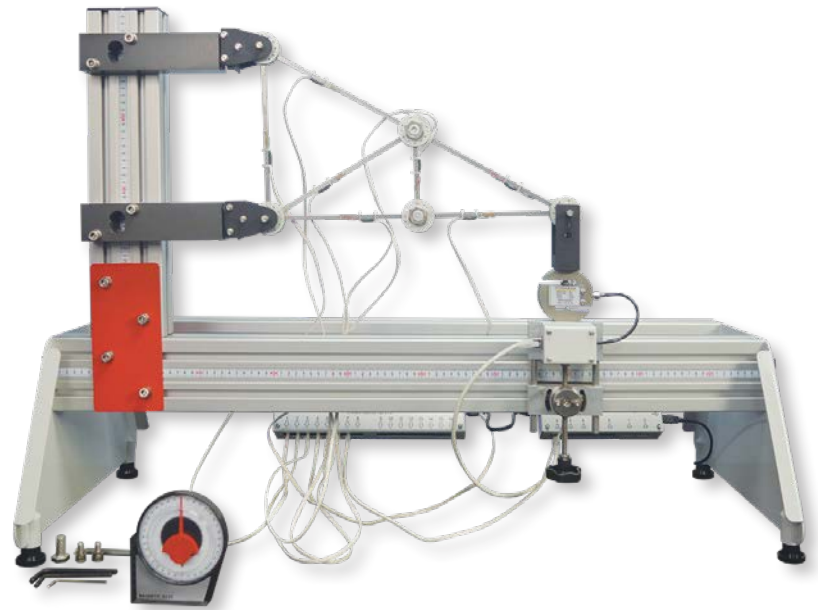
- Torsion of Circular Sections STS6
- Unsymmetrical Bending and Shear Centre STS7

PIN-JOINTED FRAMEWORKS



STS8

Experiment for the study of strains, stresses, forces and deflections in various pin jointed frameworks, and the study of Bow's notation.



THREE-PINNED ARCH

STS9

Experiment for the study of the characteristics of a three-pinned arch under various load conditions.



TWO-PINNED ARCH

STS10

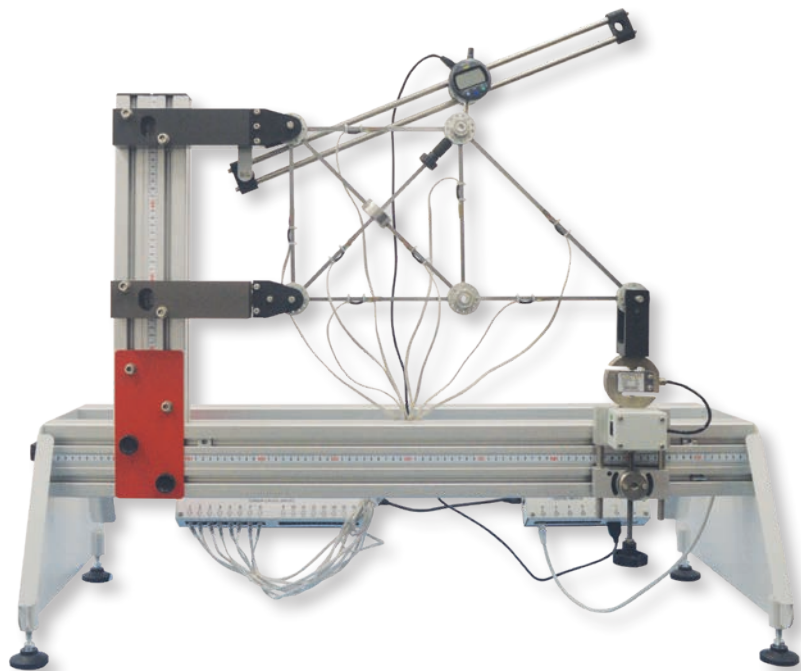
Experiment for the study of the characteristics of a two-pinned arch under various load conditions.



FIXED ARCH

STS11

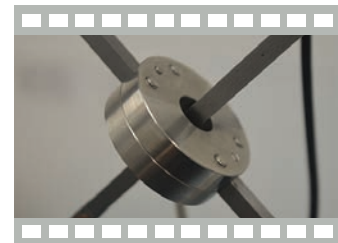
Experiment for the study of the characteristics of a fixed arch under various load conditions.



REDUNDANT TRUSS

STS17

Experiment for the study of determinate and indeterminate truss structures.



SIMPLE SUSPENSION BRIDGE

STS19

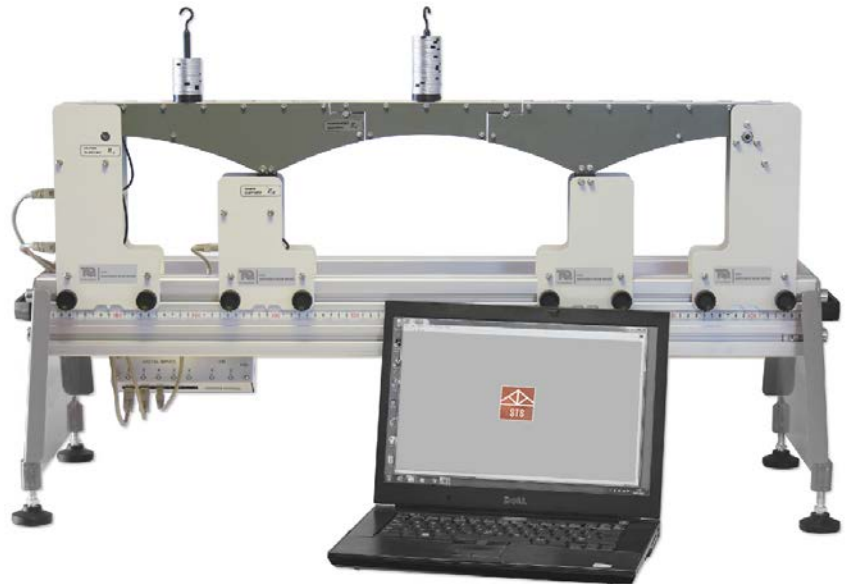
Experiment for the study of the characteristics of a simple suspension bridge.



SUSPENDED BEAM BRIDGE

STS21

Experiment for the study of the characteristics of a suspended beam bridge.



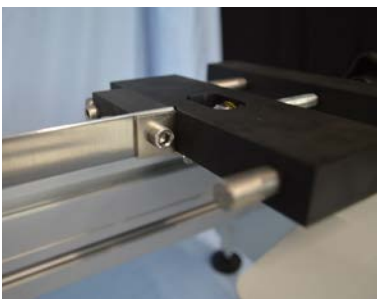
FAILURE

EULER BUCKLING OF A COLUMN



STS12

Experiment for the study of buckling of struts and the relationships between length, end fixing conditions and buckling load.



PLASTIC BENDING OF BEAMS

STS15

Experiment for the study of plastic theory and limit state design of beams.



TQ
EQUIPMENT

KT3 5
BENDING STRESS
IN A BEAM



PLASTIC BENDING OF PORTALS

STS16

Experiment for the study of plastic theory and limit state design in portal frames.

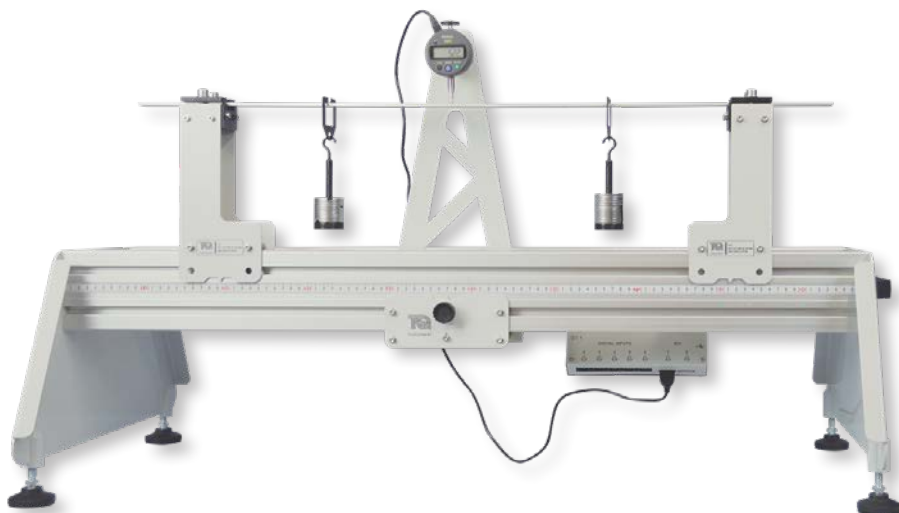


DEFLECTIONS AND STRESS

DEFLECTION OF BEAMS AND CANTILEVERS

STS4

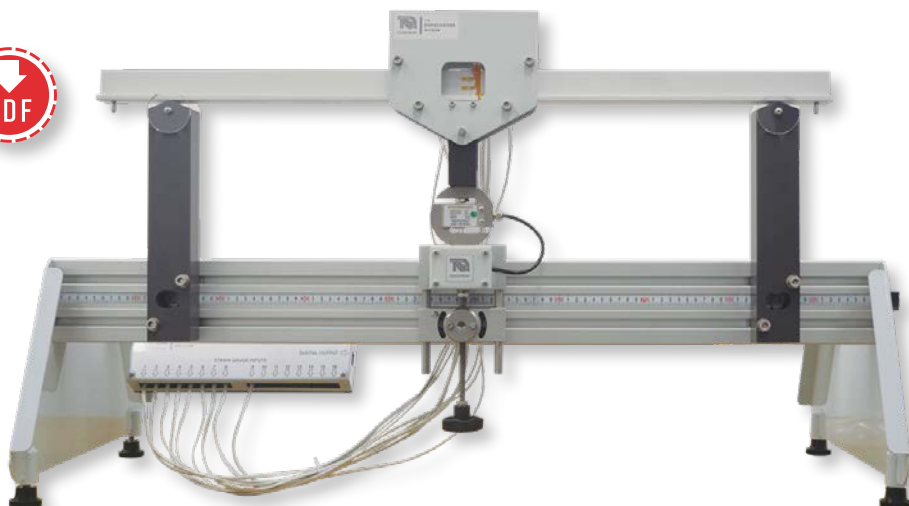
Experiment for the study of beam deflection under different loads and fixing conditions, and the demonstration of Young's modulus.



BENDING STRESS IN A BEAM

STS5

Experiment for the study of stress distribution across the section of a beam.



BENDING STRESS IN A BEAM EXPERIMENT



EXAMINING THE LOAD AND STRAIN GAUGE RELATIONSHIP

CONTINUOUS AND INDETERMINATE BEAMS

STS13

Experiment that can be used to perform a wide variety of beam experiments, from simple cases to complex problems.



CONTINUOUS AND INDETERMINATE BEAMS EXPERIMENT



EXAMINING THE CENTRAL LOAD POINT

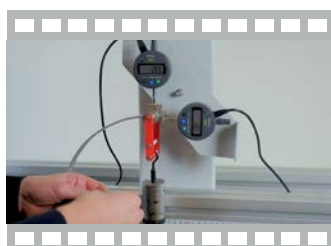
CURVED BARS AND DAVITS

STS14

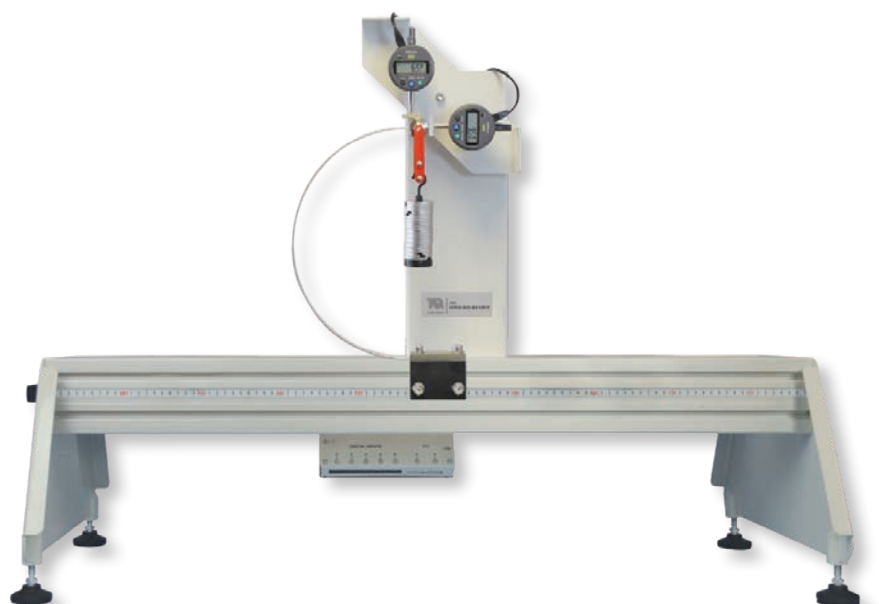
Experiment for investigations into two common curved structures and two common davit structures.



CURVED BARS AND DAVITS EXPERIMENT



DEFLECTION OF CURVED BARS AND DAVITS





FRAME DEFLECTIONS AND REACTIONS

STS18

Experiment for the study of rectangular portals subjected to vertical loads.

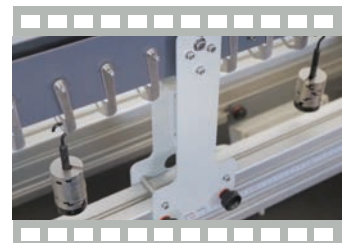


MOMENTS

BENDING MOMENTS IN A BEAM

STS2

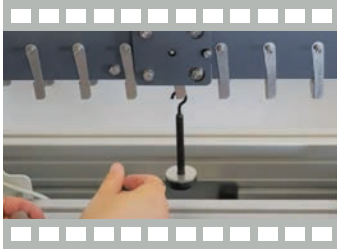
Experiment that illustrates and proves the basic theory of bending moments in a beam.



SHEAR FORCE IN A BEAM

STS3

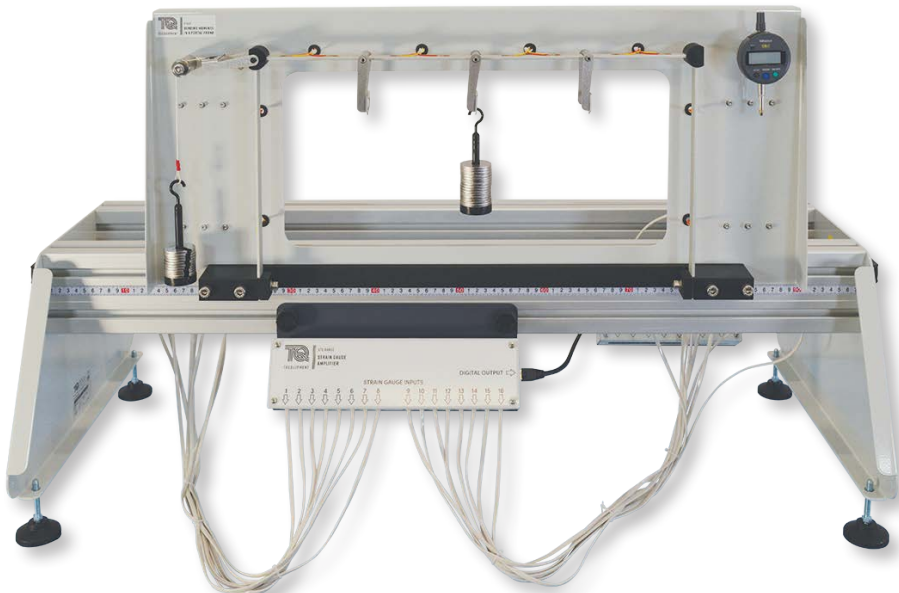
Experiment that illustrates and proves the basic theory of shear force in a beam.



BENDING MOMENTS IN A PORTAL FRAME

STS20

Experiment for the study of bending moments and sway in portal frames.



EQUILIBRIUM OF A SIMPLY SUPPORTED BEAM

STS22

Experiment for the study of the characteristics of a simply supported beam.

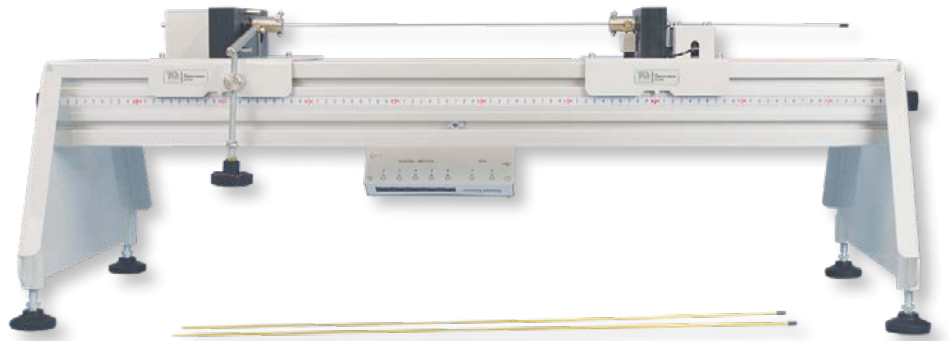


TORSION

TORSION OF CIRCULAR SECTIONS

STS6

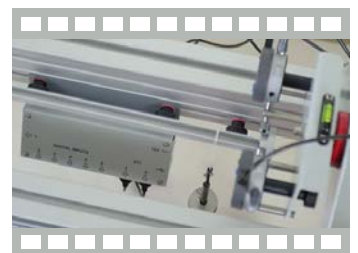
Experiment for the study of torque and deflection in different materials with circular section.



UNSYMMETRICAL BENDING AND SHEAR CENTRE

STS7

Experiment for the study of the vertical and horizontal deflection of different unsymmetrical sections.



UNSYMMETRICAL BENDING AND SHEAR CENTRE



UNSYMMETRICAL BENDING AND SHEAR CENTRE EXPERIMENT



