SV SERIES

Strength of Materials

Plastic Bending of Beams – SV501

The experiment plastic bending of beams allows the experimental investigation of how beams behave when placed under a vertical load that causes plastic bending.

ALLOWS THE EXPERIMENTAL INVESTIGATION OF HOW BEAMS BEHAVE WHEN PLACED UNDER A VERTICAL LOAD THAT CAUSES PLASTIC BENDING
SOFTWARE INCLUDED AS STANDARD

This experiment has the following properties:

- Assembly of a simply supported, propped cantilever or encastre beam set-up
- 3 different beam specimens with additional spare beam kits available
- Load cell assembly for applying vertical loading
- Linear scale to measure the deflection of the beam at the point of loading

SV100 Bench mounted frame (sold separately)

armBUS software

Support allows for movement of beam sample

UK office - email: sales@armfield.co.uk tel: +44 (0) 1425 478781 (for ROW)
USA office - email: info@armfield.inc tel: +1 (609) 208-2800 (USA only)

Issue: 1
URL: http://www.armfield.co.uk/structures

Applications
ME CE IP

Description

The beam specimens are made from steel and are 20mm wide with a thickness of 5mm.

The supports can be used in either a fixed configuration where the clamping plate holds the beam in place, simulating a fixed support. By removing the clamping plate, the support can be used to simulate a simple support

The external force is applied to the beam via the load cell assembly. The load cell assembly applies force by applying a deflection to the beam, the load cell measures the force applied to the beam to achieve that amount of deflection. An external force of up to 500N can be applied and measured by the load cell assembly.

Requirements

Scale

1Ph | PC | USB | SV 100 | SV 101

Electrical supply: 110/120V, 60Hz **or** 220/240V, 50Hz

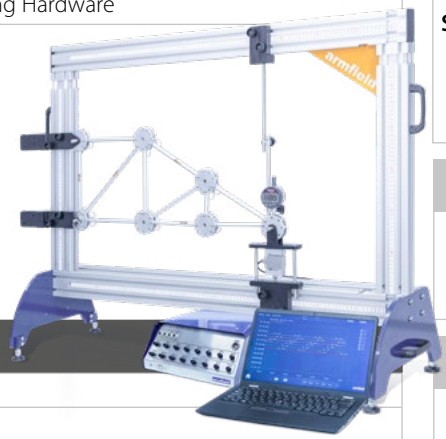
- **SV100:** Bench Mounted Frame
- **SV101:** Structures Interface Unit
- PC with a USB port, running Windows 7 or above

Technical specification

Beam Specimens

- Material: BS EN 10025-2 S275JR
- σy = 235 MPa
- E = 210 GPa
- 3 x Beam: 20mm x 5mm x 800mm
- 1 x Fixed Support
- 1 x Roller Support
- 1 x DTI Holder Assembly
- 1 x Linear Scale
- 1 x Load Cell Assembly
- Force Range: 0 – 500N
- Voltage Range: 0 – 5V
- Linear Scale Connecting Hardware
- Measurable Range: 100mm
- Resolution: 0.01mm
- Universal Frame Mounting Hardware

SV series is supplied with Armfield structures software as standard



Overall dimensions

Length	1.176m
Width	0.392m
Height	0.922m
Packed and crated shipping specifications	
Volume	0.1m³
Gross weight	25 kg

Experimental content

- Elastic bending to plastic deformation of a mild steel beam
- Formation of plastic 'Hinges'
- How beam fixings affect deformation of simply supported, encastre and propped cantilever beams
- Yield stress

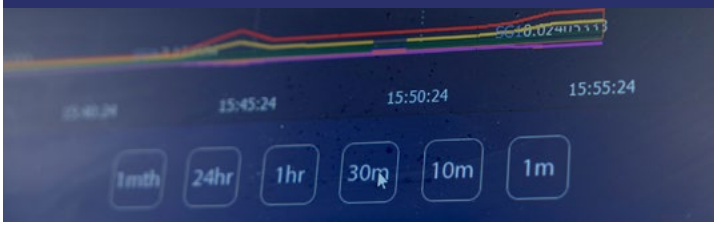
Features / benefits

- Assembly of a simply supported, propped cantilever or encastre beam set-up
- Supplied with 3 different beam specimens with additional spare beam kits available
- Supplied with Armfield structures software as standard

Related laws

- Plastic Modulus
- Plastic Moment
- Plastic Collapse
- Plastic Hinging of Beams
- Simply Supported Beam
- Propped Cantilever Beam
- Encastre Beam

Graphing detail



Essential accessories/equipment

- **SV100:** Bench Mounted Frame
- **SV101:** Structures Interface Unit

Related products

Strength of materials

- **SV500:** Continuous and Indeterminate Beams
- **SV502:** Plastic Bending of Portals
- **SV503:** Deflection of Curved Bars

Operational conditions

- **Storage temperature:** -10°C to +70°C
- **Operating temperature range:** +10°C to +50°C
- **Operating relative humidity range:** 0 to 95%, non-condensing

Ordering codes

- **SV501:** Plastic Bending of Beams
- **SV501-1:** Additional Beam Samples **(12PK)**
- **SV100:** Bench Mounted Frame **(Sold separately)**
- **SV101:** Structures Interface Unit **(Sold separately)**

Armfield standard warranty applies with this product

Knowledge base

> 28 years expertise in research & development technology
> 50 years providing engaging engineering teaching equipment

Benefit from our experience, just call or email to discuss your laboratory needs, latest project or application.

An ISO 9001:2015 Company

CE Products CE certified

armfield.co.uk

Aftercare

Installation
Commissioning
Training
Service and maintenance
Support: armfieldassist.com