

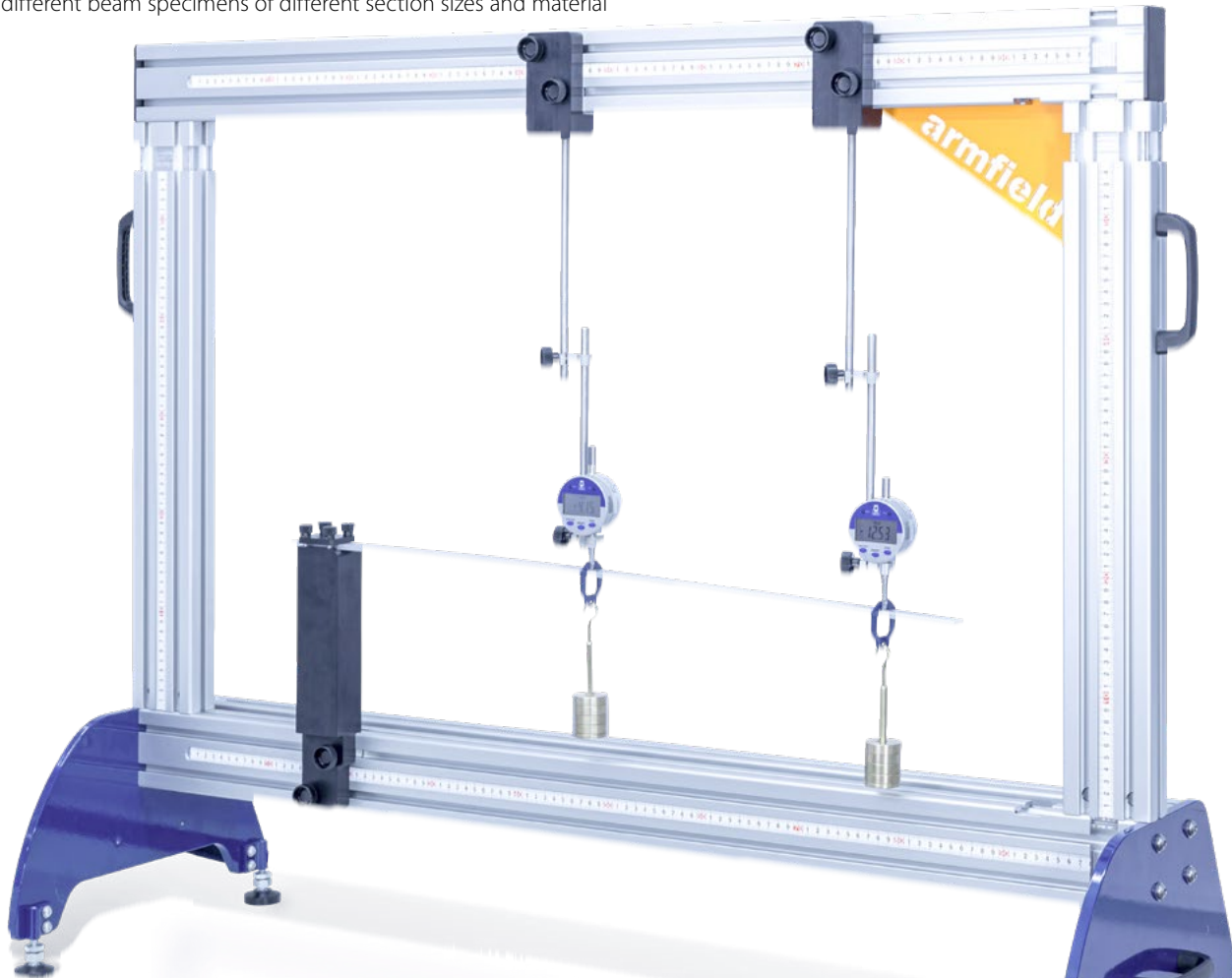
The experiment deflection of beams and cantilevers allows the experimental investigation of the deflection of beams of different section sizes under different loads and types of support.

This experiment has the following properties:

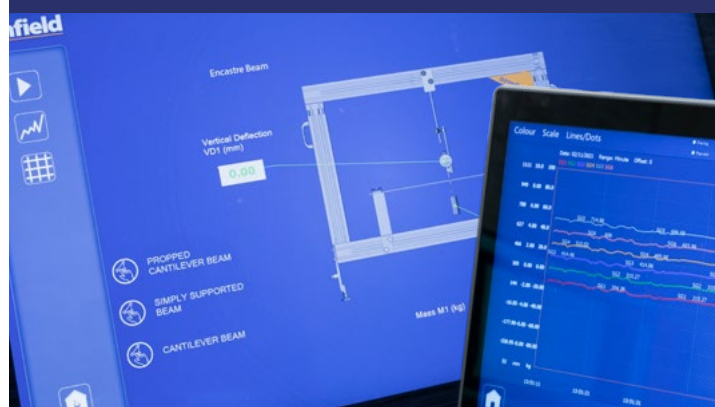
- ▶ Assembly of multiple different beam experiments via 2 adjustable supports, point load weight hangers and UDL weight sleeves
- ▶ 3 different beam specimens of different section sizes and material

**ALLOWS THE EXPERIMENTAL INVESTIGATION OF BEAM DEFLECTION UNDER DIFFERENT LOADS AND FIXING CONDITIONS**  
**SOFTWARE SUPPLIED AS STANDARD**

SV100 Bench mounted frame (sold separately)



armBUS software



Digital indicator measures beam deflection



## Description

The beam specimens are made from either aluminium or stainless steel and are 20mm wide with either a thickness of 3 or 5 mm.

The supports can be used in a fixed configuration where a clamping plate is used to hold the beam in place, simulating a fixed support.

By removing the clamping plate, the support can be used to simulate a simple support.

Loads can be applied to the beam through either two point load hangers or a UDL sleeve in combination with the two 500g slotted weight hangers. The point load hangers can be moved along the length of the beam allowing many different loading conditions to be explored.

The slotted weights supplied with the weight hangers can be used inside the UDL sleeve to simulate a UDL load applied to the beam.

The UDL sleeve has a central access point allowing the beam deflection to be accurately measured.

## Requirements

## Scale

SV  
100

PC

USB



PC with a USB port, running Windows 7 or above

## Essential accessories/equipment

- ▶ SV100: Bench Mounted Frame

## Technical specification

- ▶ Beam Specimen Length: 720mm
  - 1 x Aluminium Beam 20 x 3mm
  - 1 x Aluminium Beam 20 x 5mm
  - 1 x Stainless Steel Beam 20 x 3mm
- ▶ Young's Modulus of Aluminium: 70 Gpa
- ▶ Young's Modulus of Stainless Steel: 193 Gpa
- ▶ 2 x Fixed and Simple Supports
- ▶ 2 x DTI Holder Assemblies
- ▶ 2 x DTI Extension Bars
- ▶ 2 x Digital Indicators
- ▶ Measurable range of the digital indicator: 12.7mm
- ▶ Resolution: 0.01mm
- ▶ 2 x 500g Weight Hangers
- ▶ 2 x Point Load Hangers
- ▶ 2 x UDL Weight Sleeves
- ▶ DTI Connecting Hardware
- ▶ Universal Frame Mounting Hardware

## Overall dimensions

Length	1.176m
Width	0.392m
Height	0.922m

## Packed and crated shipping specifications

Volume	0.1m <sup>3</sup>
Gross weight	25kg

## Experimental content

- ▶ Measurement of beam deflection for point and uniformly distributed loads
- ▶ Measurement of slope and beam end rotations
- ▶ Differential equation for beam bending
- ▶ Calculating the Young's modulus of various beam material
- ▶ Cantilever, propped cantilever, encastre beam and simply supported beam

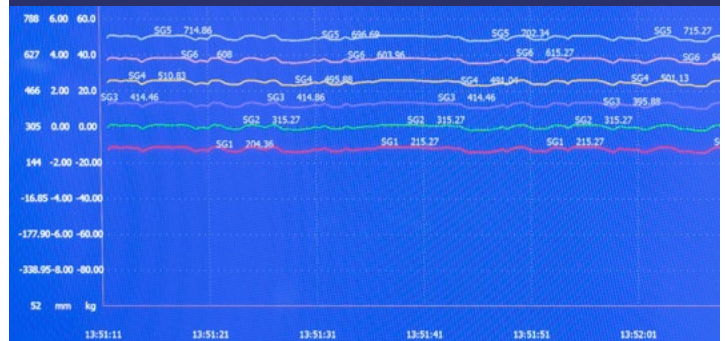
## Features / benefits

- ▶ Wide variety of beam conditions including simply supported, cantilever, propped cantilever and encastre
- ▶ Point loads and uniformly distributed loads
- ▶ Supplied with Armfield structures software as standard

## Related laws

- ▶ Differential equation for bending of a beam
- ▶ Young's modulus

## Graphing detail



## Related products

### Forces and Moments

- ▶ SV300: Combined Shear Force & Bending Moment
- ▶ SV301: Shear Force in a Beam
- ▶ SV302: Bending Moments in a Beam
- ▶ SV304: Equilibrium of Forces
- ▶ SV305: Suspension Cable
- ▶ SV306: Bending Stress in a Beam

## 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

- ▶ SV303: Deflection of Beams and Cantilevers
- ▶ SV100: Bench Mounted Frame (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



Products CE certified

armfield.co.uk

## Aftercare

Installation  
Commissioning  
Training  
Service and maintenance  
Support: [armfieldassist.com](http://armfieldassist.com)