Beams – EF-1.3a

The Engineering Fundamentals range is designed to enable students to gain an understanding of the fundamentals of engineering by the process of learning via hands-on experimentation.

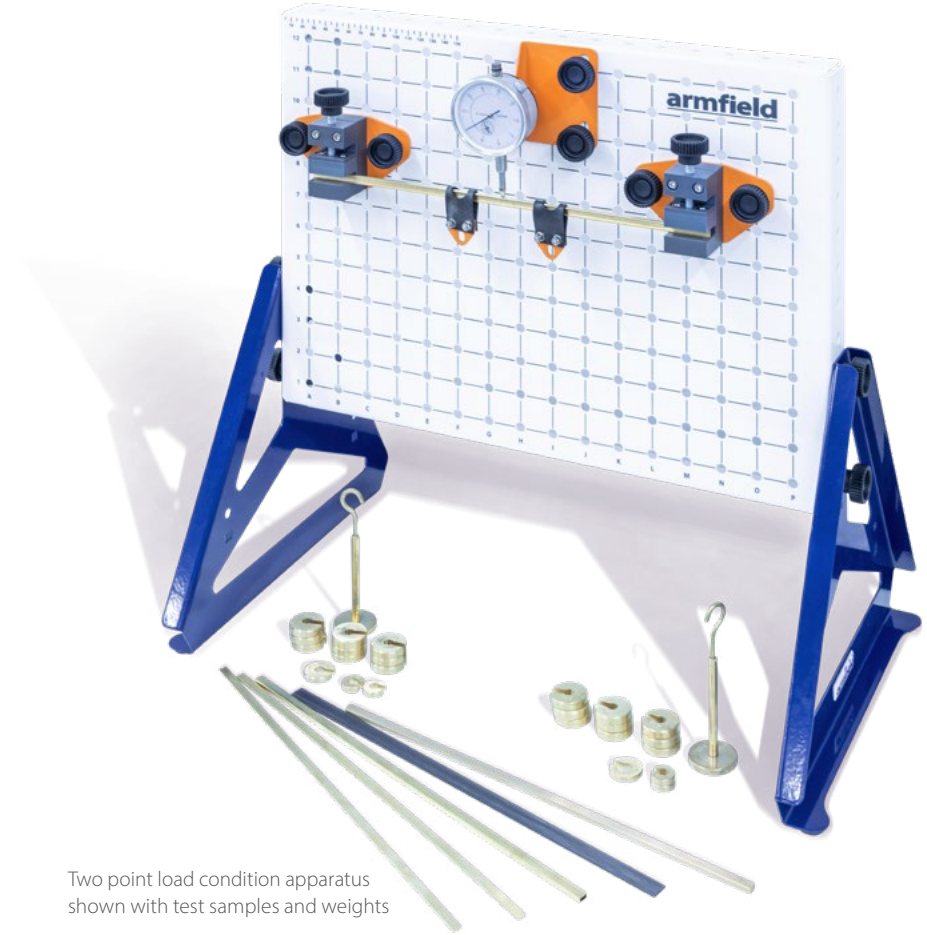
The modular hands-on tray based system is supplied in conjunction with a multifunctional Base Unit enabling the student to conduct their own experiments in subjects such as Statics, Dynamics, Mechanisms and Kinematics.

Each kit is supplied with a highly visual user friendly operational guide, enabling the student to understand the theory of the subject by the application of practical experimentation.

AN INNOVATIVE HANDS ON MODULAR SYSTEM DESIGNED TO ENABLE INVESTIGATION AND THE UNDERSTANDING OF ENGINEERING PRINCIPLES

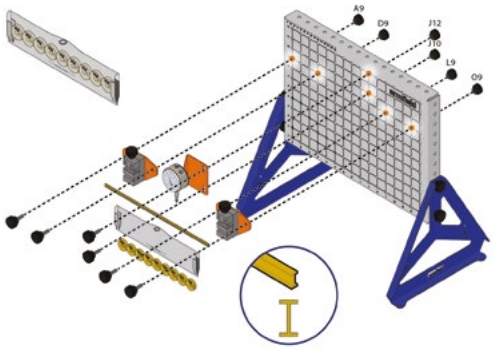
Description

The EF-1.3a Beams experiment kit enables students to analyse the behaviour of different types of beams under a variety of load conditions.



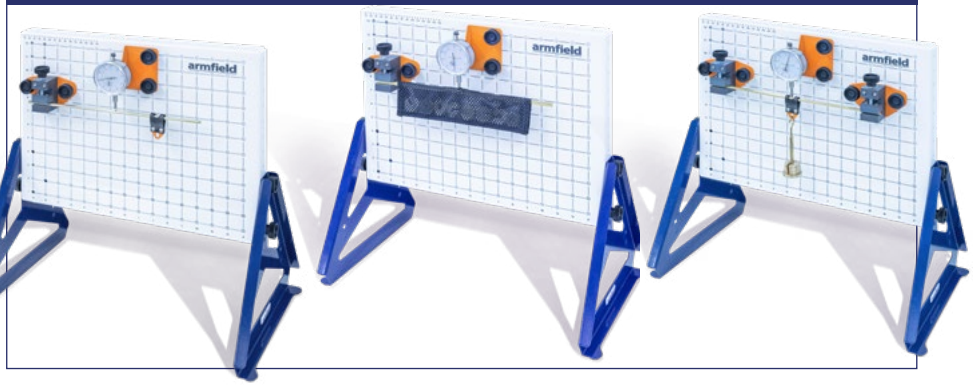
Two point load condition apparatus shown with test samples and weights

Easy to follow instructions



1 tray supplied with **EF-1.3a**

Experiments shown, Cantilever beam Single Point Load (SPL), Cantilever Beam, Cantilever Beam SPL



High quality materials

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: 3
URL: http://www.armfield.co.uk/ef

Applications: ME ChE CE IP

Features / benefits

Features

- Neatly presented in an easily identifiable and durable storage tray
- Trays have clear lids making it easy to see their contents
- Pictorial tray contents list to identify missing components easily
- Accompanied by a detailed manual with various practical exercises
- Clear and concise assembly instructions for each experiment
- Multiple experiments per kit
- Toolless assembly

Benefits

- Hands-on understanding from lessons
- Improve the student's dexterity by self-assembly with the instructions provided

Requirements Scale

EF-BU

Experiment tray scale EF-BU scale EF-WS scale

- EF-BU on which to build the experiment from the tray components
- Level and stable work surface to mount the EF-BU upon. The optional EF-WS is ideal for this if no suitable desk or bench is available.

Experimental content

- Analysis of beams under single point load conditions:
  - Simply supported beam
  - Fixed (encastre) beam
- Analysis of beams under two point load conditions:
  - Simply supported beam
  - Fixed (encastre) beam
- Analysis of beams under uniformly distributed load conditions:
  - Simply supported beam
  - Fixed (encastre) beam
- Analysis of cantilever Beams
  - Single point load conditions
  - Uniformly distributed load conditions
- Shearing

Overall dimensions

Tray	
Length	0.430m
Width	0.312m
Height	0.080m
Packed and crated shipping specifications	
Volume	0.02m^3
Gross weight	5Kg

Essential accessories / equipment

- **EF-BU** Base Unit

Related products

- **EF-BU** Base Unit

Statics Experiments

- **EF-1.1** Forces
- **EF-1.2** Moments
- **EF-1.3a** Beams
- **EF-1.3b** Trusses
- **EF-1.4** Springs
- **EF-1.5** Torsion

Dynamics Experiments

- **EF-2.1** Friction
- **EF-2.2** Simple Harmonic Motion
- **EF-2.3** Rotational Friction
- **EF-2.4** Potential and Kinetic Energy
- **EF-2.5** Centrifugal and Centripetal Force

Mechanisms Experiments

- **EF-3.1** Cam, Crank and Toggle
- **EF-3.2** Simple Mechanisms
- **EF-3.3** Additional Mechanisms
- **EF-3.4** Bar Linkages

Kinematics

- **EF-4.1** Pulleys
- **EF-4.2** Gears
- **EF-4.3** Drive Systems

Strength of Materials

- **EF-5.1** Tensile Tester

Options

- **EF-WS** Workstation

Ordering specification

- 2 x 250g brass weight-set consisting of: 9 x 20g, 1 x 10g, 2 x 5g mounted on 50g hanger
- 2 x sample mount
- 1 x dial gauge
- 1 x weight hanger sling
- 6 x 20mm thumbscrew
- 6 x securing nuts
- 1 x I-beam brass rod sample: Brass (CZ121), (B = 3mm, D = 6mm, b = 1.2mm, d = 4.8mm)
- 1 x solid brass rod sample: (b = 3.175mm, d = 6.35mm)
- 1 x rectangular hollow section sample: (B = 3.175mm, D = 6.35mm, b = 2.4638mm, d = 5.6388mm)
- 1 x carbon rod test sample (b = 2mm, d = 12mm)
- 2 x solid brass thin-section rod sample: Brass (b = 1.5875mm, d = 6.35mm)

Ordering codes

- **EF-1.3a** - Beams
- **EF-BU** - Base Unit
- **EF-WS** - Workstation (optional)

Armfield standard warranty applies with this product