# SHEAR FORCE in a BEAM

## HST9

**Year 1**
study

### Features

- Visually realistic, 'cut' beam
- Takes internal forces and shows them externally
- Shear Force output via load cell
- Unrestricted loading positons
- Load position at 'cut' in beam
- Experiment can be undertaken from both sides
- Quickly and easily interchangeable with HST10 and HST46
- Optional Influence line section
- Optional HSTS Software
- Dedicated e-book supplied

### Description

Each beam is simply supported on vertical supports which can be easily moved to create varying beam spans. At the ‘cut’ section, bearings in one beam straddle a vertical bearing track in the mating beam. This ensures free vertical movement for monitoring shear forces. Although beam bending is permitted, it is counteracted by the bearings and a tension spring supported horizontally from underneath the beams. The force transducer is supplied with a connection lead to connect its output directly into the HDA200 Interface (sold separately). Special Load hangers are provided that fit over the beams. The Load hangers can be positioned accurately along each beams length by using the graduated scales attached to the side of the beams.

### Related Laws/Applications

- Shear Force
- Strain
- Stress
- Young's' Modulus
- Shear Force Diagrams (SFD)
- Verification of Equilibrium of Vertical Forces and Moments

## Learning capabilities

- Visual demonstration of shear force at a 'cut' in a beam
- Comparison of experimental results with theory
- Creation and use of shear force diagrams
- Shear force variation with varying point loads, load positions and load arrangements
- Use of force transducer to monitor shear force

## Technical Specification

- Beam lengths of 650 and 350mm
- Beam cross section: 51 x 38mm
- 50mm graduations on beams
- Weights set: 1 x 2N, 1 x 5N, 2 x 10N

## Essential Ancillaries

- HST1 (or HST100)
- HDA200

## Recommended Ancillaries

- HST9A
- HSTS

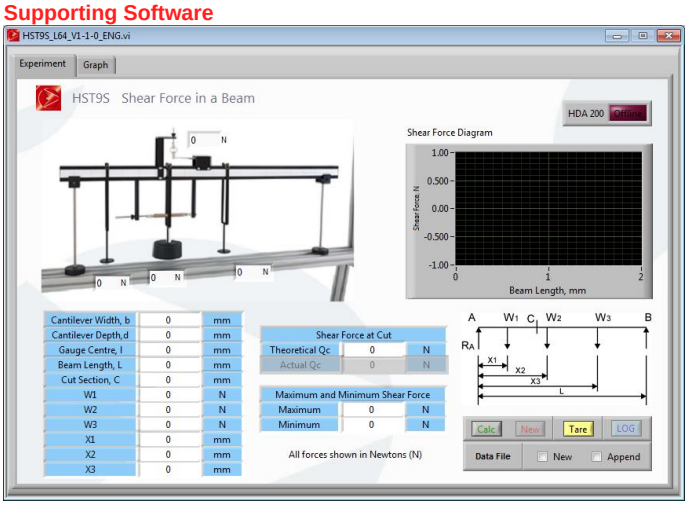
## What's in the Box?

- 1 x Short Beam
- 1 x Long Beam
- 2 x Support Rods
- 3 x Hangers
- 1 x 2N, 1 x 5N, 2 x 10N weight
- 1 x Tape measure
- Accessories container
- Hex wrench
- Instruction manual
- E-book
- Packing list
- Test sheet

## You might also like

- HST10
- HST46
- HFC31

## Supporting Software




- HSTS Structures Experimental Software Package
- The HST9S comes supplied as part of the HSTS Structures Experimental Software Package
- The HST9S software allows the student to see the differences between the theoretical and reality of the experimental set-up
- This software works both on and off line and can be used as part of a student lecture to help guide students through the learning process

## Minimum System Requirements

- See HSTS Specification

## Weights & Dimensions

- Weight: 6 kg
- Length: 1000mm
- Width: 600mm
- Height: 300mm

## Essential Services

- 110/120V, 60Hz or 220/240V, 50Hz, single phase, live neutral and earth for HDA200

## 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 information

To order this product, please call PA Hilton quoting the following code: HST9