

Shear Force in a Beam (EDC-SFB-303)

SPECIFICATIONS:

- Fits onto the Structures platform for ergonomic and stable use.
- Unique beam "cut" and load cell system for accurate shear force measurement.
- Direct reading of shear force at the cut for quick and precise experiments.
- Includes multiple loads for different combinations, including uniformly distributed loads (UDLs).
- Users can apply loads to mass hangers suspended along the beam.
- A UDL bar is included for comparative analysis with single-point loads.
- Works with user-friendly EDAQ software for real-time data acquisition and analysis.
- Load cell connects to the USB Interface Hub of the Structures platform for display and data logging

DESCRIPTION:

This experimental module is designed to fit onto the Structures platform, offering a precise and efficient setup for studying shear forces in beams. It features a unique beam "cut" and integrated load cell system that provides direct and accurate measurement of shear force at the cut. The module allows users to apply different loading conditions, including single-point and uniformly distributed loads (UDLs), to analyze the impact of shear forces on structural elements. The experimental setup includes a pinned support, which allows rotational movement only, and a roller support, which permits translational movement. A load cell positioned at the center span of the beam captures shear force data in real-time, allowing for immediate analysis and comparison of results under different load conditions.

The system is fully compatible with the EDAQ software, which enables seamless data acquisition, visualization, and logging through a USB interface. It allows users to record, analyze, and export data in a user-friendly format. The package includes essential accessories, such as two beam supports, a shear force load cell, a 0.8m beam with a 0.5m span, four mass hangers, 50 x 20g masses, two UDL bars, and a comprehensive user guide. Additionally, a storage tray is provided for secure organization of small parts. This setup is ideal for engineering education and research, helping students and professionals understand the principles of shear force in beams.



TECHNICAL DATA:

- **Beam & Support System:**
 - **Beam length:** 0.8 m
 - **Beam span:** 0.5 m
 - **Two supports:**
 - **Pinned support:** Allows rotational movement only
 - **Roller support:** Allows translational movement
- **Load Measurement & Application:**
 - Shear force load cell built into the beam's center span
 - Load applied using mass hangers suspended along the beam
 - Multiple load combinations, including point loads and UDLs
 - UDL bars included for comparative analysis
- **Software & Connectivity:**
 - Compatible with EDAQ for real-time display and data acquisition
 - Load cell connects to USB Interface Hub of the Structures platform
- **Learning Outcomes:**
 - Shear force at the cut due to a varying single point load
 - Shear force at the cut due to a moving single point load
 - Shear force at the cut due to a uniformly distributed load
 - Influence lines and superposition analysis
- **Accessories Included:**
 - Two beam supports
 - Shear force load cell
 - 0.8 m beam (0.5 m span)
 - Four mass hangers
 - 50 x 20 g masses
 - Two UDL bars
 - Storage tray
 - Comprehensive user guide