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Structures

DESCRIPTION

The STRUCTURES range enables clear and comprehensive learning of structural STATICS covering a variety of theories and topics within Architectural, Mechanical, Civil and Structural Engineering.

These Includes:

- ✓ Force
- ✓ Bending
- ✓ Shear
- ✓ Elasticity
- ✓ Beams
- ✓ Arched Bridges
- ✓ Suspension Bridges
- ✓ Trusses
- ✓ Frameworks
- ✓ Portals

PLASTIC BENDING OF BEAMS

The experiment hardware provides two end supports; one for completely rigid end fixings, whilst the other giving horizontal travel. Both supports create simple supports (knife edges) and have clamp plates which created fixed ends by restricting the end rotation of the test beam.

The test beams have a single point load applied using the fine screw jack mechanism with integral load cell supplied. The displacement of the test beam within its elastic and plastic regions is measured using a dial gauge and this along with the load cell output connect into the interface.

SHEAR FORCE IN A BEAM

Descriptions of this beam's work are :

- ✓ To observe the action of shear at a cut section in a simply supported beam
- ✓ To compare the measured and theoretical values of shear
- ✓ Visual demonstration of shear force at a 'cut' in a beam
- ✓ Creation and use of shear force diagrams
- ✓ Shear force variation with varying point loads, load positions and load arrangements.

SUSPENDED BRIDGE

The model three (3) span bridge has a flat deck and solid spandrels to the three spans. The bridge is supported on the two inner piers and is anchored to the two outer piers to provide a pair of cantilevers on which the suspended center span is carried. The four piers and the center span supports incorporate reaction measuring load cells that connect directly to the Interface to give readings in Newton's.