SV SERIES

Bridges, Beams, Arches, Cables

Suspended Centre Span Bridge – SV402

The experiment suspended centre span bridge allows the experimental investigation of different forces acting on a bridge with a central section suspended by the two outer cantilever sections of the bridge.

ALLOWS THE EXPERIMENTAL INVESTIGATION OF DIFFERENT FORCES ACTING ON A BRIDGE WITH A CENTRAL SECTION SUSPENDED BY THE TWO OUTER CANTILEVER SECTIONS OF THE BRIDGE.
SOFTWARE INCLUDED AS STANDARD

This experiment has the following properties:

- Ability to show mechanical principles of a centre span bridge
- Ability to show reaction forces at the supports via three load cells covering half of the bridges span
- Point loads, uniformly distributed loads (UDL) and rolling loads can be applied to the bridge

SV100 Bench mounted frame (sold separately)

armBUS software

Uniformly distributed load

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: 1
URL: http://www.armfield.co.uk/structures

Applications: ME CE IP

Description

The bridge consists of three sections, two of which act as cantilever supports for the third centre section. The two outer cantilever sections each rest on two supports. The centre span of the bridge rests between these two cantilever bridge sections, leaving it suspended and free from a mechanical ground. A load cell is located at one of the connection points between the outer and centre sections, this measures the force being transmitted between the two sections.

The inner and outer bridge supports/piers support the outer cantilever sections of the bridge, two per section. Two of the supports contain a load cell to read the individual reaction forces at the supports due to the loads applied to the bridge.

A recessed face on the side of each support aligns with the bridge. This allows the distance between the supporting points of the bridge to be measured using the measuring tape on the universal frame.

Loads can be applied to the bridge by placing the different varieties of masses along the top deck of the bridge. These consist of 3 x 250g weight hangers, 8 UDL masses and 1 rolling mass. Any combination of these can be used, within the safe working limits of the experiment.

Requirements

Scale

Electrical supply: 110/120V, 60Hz **or** 220/240V, 50Hz

- SV100: Bench Mounted Frame
- SV101: Structures Interface Unit
- PC with a USB port, running Windows 7 or above

Essential accessories/equipment

- **SV100: Bench Mounted Frame**
- **SV101: Structures Interface Unit**

Technical specification

- 1 x Bridge Centre Span
- Bridge Span: 800mm
- Centre Span: 200mm
- 2 x Outer Bridge Spans
- 2 x Inner Bridge Supports
- 2 x Outer Bridge Supports
- 3 x 250g Weight Hangers
- Weight Values Available: 5g, 10g and 20g
- 8 x UDL Masses
- UDL Mass: 310g (1% tolerance)
- UDL Mass Per Unit Length: 3.1g/mm
- 1 x Rolling Mass 810g
- Centre Span and Outer Support Force Range: 0–17.6N
- Lower Support Force Range: 0–54.0N

Overall dimensions

Length	1.176m
Width	0.392m
Height	0.922m
Packed and crated shipping specifications	
Volume	0.1m^3
Gross weight	25kg

Experimental content

- Demonstration of a suspended centre span bridge
- Reaction forces due to uniformly distributed loads and point loadings
- Influence line for the reaction force of a centre span bridge

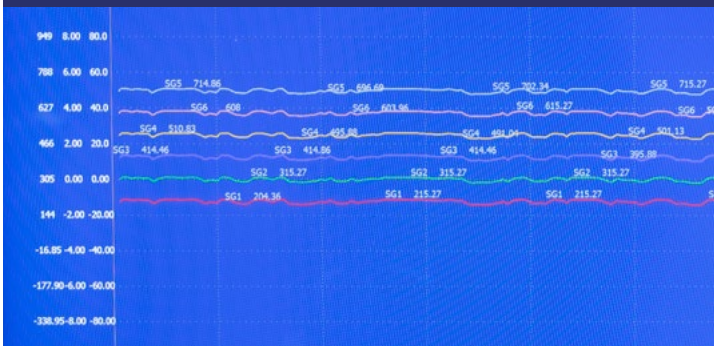
Features / benefits

- As the bridge is symmetrical, any combination of reactions can be measured from one side
- Supplied with 8 x Uniformly Distributed Load masses and 1 rolling Mass
- 3 x vertical load cells (1 x under cantilever span anchor point, 1 x under cantilever span and 1 x between cantilever span and the centre span)
- Supplied with Armfield structures software as standard

Related laws

- Reactions
- Reaction Influence Lines
- Rolling Loads

Graphing detail



Related products

Bridges, Beams, Arches, Cables

- SV400 Simple Suspension Bridge
- SV401 Deflection of a Frame
- SV403 Three-Pinned Arch
- SV404 Two-Pinned Arch
- SV405 Semi-Circular Arch

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

- **SV402:** Suspended Centre Span Bridge
- **SV100:** Bench Mounted Frame **(Sold separately)**
- **SV101:** Structures Interface Unit **(Sold separately)**

Armfield standard warranty applies with this product