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Product Name :

Two Pinned Arch

Product Code :

SLE/EG/13



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Description :

Two Pinned Arch (Product Code: SLE/EG/13) lets students load an arch held between two supports and measure the horizontal reaction that the arch develops at its base. One support is a pin that allows rotation only; the other is a roller that would slide sideways, but a load cellprevents that translation and reads the horizontal force instead. Manufactured by **Jain Scientific Equipments Pvt Ltd (ScienceLab)** in Ambala, it is a structures practical for civil engineering courses, polytechnics and other technical institutes.

Key Details

Parameter	Detail
Type	Two-pinned arch experiment
Supports	One pinned support (rotational movement only) and one roller support (translational movement)
Horizontal reaction	Measured by a load cell that prevents the roller support from translating
Loading	Loads applied on hangers suspended from the arch
Distributed load	Additional masses for applying a uniformly distributed load (UDL) across the span
Positioning	Pointers on each support work with the scale on the platform
Data connection	Load cell connects to the USB interface hub of the Structures Platform for computer display and data acquisition
Learning outcomes	Predicting reaction forces, drawing influence lines and bending moment diagrams

Typical Use

Students set the supports using the pointers against the platform scale, hang a load at one position and record the horizontal reaction from the load cell. Moving the same load step by step across the arch, and plotting the reaction for each position, builds the influence line for horizontal thrust — a curve students can check against the values given by textbook arch equations.

In a second run the extra masses are spread along the span as a uniformly distributed load, and the reaction is compared with the result for a single point load. From the measured reactions students then draw bending moment diagrams for the arch and see how the horizontal thrust reduces bending compared with a simply supported beam of the same span. Because a two-pinned arch is statically indeterminate, the experiment shows clearly why a measured reaction is so useful, making it a valued piece of mechanics lab equipment for structural analysis teaching.

Manufacturer

ScienceLab is the trading name of Jain Scientific Equipments Private Limited, a maker of engineering teaching apparatus based in Ambala, Haryana. The company profile describes our wider

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