



## Features

- Measurement of the bar forces in a single plane truss
- Construction of various truss forms
- Bars with strain gauge full bridges to measure bar force
- Computerized evaluation of experiments
- The object of the experiment is to measure the bar forces in a single-plane truss subjected to a single external force.

Tesca Forces in Various Single Plane Trusses Trainer set-up features bars with special snap-lock closures on their ends allowing them to be fixed easily into the node disc. The range of different bar lengths provided permits three forms of truss to be constructed.

The bars are hinged, joined together by node discs, and are subjected only to compressive or tensile stress. No moments are transmitted in the nodes; they can be regarded as frictionless. Consequently, our trusses can be considered ideal trusses. A load application device attached to a node disc generates an external force. All the forces on the truss bars are recorded by means of strain gauges.

Note: Specifications are subject to change.

## **Tesca Technologies Pvt. Ltd.**

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Computerized evaluation is provided by a measurement amplifier (16 input channels). If there are more than 16 measuring points, the measurement amplifier can be extended by a measuring point add-on unit to 32 input channels. The software is used to manage the measurement data and provide a graphical representation of the bar forces. The software features a comprehensive help function.

All the component elements of the experiment are clearly laid-out and housed securely in a storage system. The complete experimental set-up is arranged in the highly stable anodized aluminum frame.

The well-structured instructional material sets out the fundamentals and provides a step-by-step guide through the experiments.

## Specifications

- Investigation of bar forces in a statically determinate truss
- Construction of various trusses possible
- 2 supports with node discs
- Load application device with force gauge mountable on different node discs
- Strain gauge to measure the force on each bar
- Measurement amplifier required
- Software to evaluate measurement data
- Storage system to house the components
- Experimental set-up in frame

## Technical Specifications

- Bars: 19
  - 2 bars 150mm
  - 5 bars 259mm
  - 7 bars 300mm
  - 1 bar 397mm
  - 3 bars 424mm
  - 1 bar 520mm
- Angle between bars: 30°, 45°, 60°, 90°

- Maximum bar force: 500N
- Strain gauge on each bar
- Height of truss max. 450mm
- Length of truss max. 900mm
- Load application device
  - 500...+500N
  - Graduations: 10N

### **Experiments**

- Measurement of the bar forces in various single-plane trusses
- Dependency on the external force
  - Magnitude
  - Direction
  - Point of application
- Comparison of measurement results with mathematical methods
  - Method of joints
  - Ritter's method of sections
- Basic principle: measurement of forces using strain gauges

### **Scope of Delivery**

- 1 set of bars
- 5 node discs
- 2 supports with node disc
- 1 load application device
- 1 set of cables
- 1 storage system with foam inlay
- 1 software CD
- 1 set of instructional material

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