

**Product Name :**  
Forces Overdeterminate Truss**Product Code :**  
ALABS-A165-011**Description :****Forces Overdeterminate Truss**

Overdeterminate trusses are employed where overdimensioning is purposely required because safety must be maintained in the event of failure of an element, such as in aircraft construction. With additionally inserted bars a statically determinate truss becomes internally statically indeterminate. In this case the truss is termed statically overdeterminate. The experimental set-up permits investigation and comparison of statically determinate and statically indeterminate trusses. Using the bars and node discs, a statically determinate, single plane truss is first constructed. On installation of a surplus bar the truss becomes overdeterminate. By way of a load application device, straight or inclined forces are applied to the truss, thereby simulating various load cases. The occurring tensile and compressive forces in the bars are recorded by means of strain gauges. Computerised evaluation is provided by measurement amplifier. The software is used to manage the measurement data and provide graphical representation of the bar forces. The software features a comprehensive help function. The various elements of the experiment are clearly laid-out and housed securely in a storage system. The complete experimental set-up is arranged in the frame Mounting Frame. The well-structured instructional material sets out the fundamentals and

provides a step-by-step guide through the experiments.

**Specification:**

1. Investigation of bar forces in statically overdeterminate trusses
2. Surplus bar, longitudinally adjustable
3. Straight and inclined loading possible
4. Strain gauge to measure force on each bar
5. Measurement amplifier FL 151 required
6. Software to evaluate measurement data
7. Storage system to house the components
8. Experimental set-up in Mounting Frame.

**Technical Data**

**Bars: 8**

- 5 bars, fixed 300mm
- 2 bars, fixed 424mm
- 1 bar, adjustable 400...450mm
- angle between bars: 30°, 45°, 60°, 90°
- maximum bar force: 500N
- strain gauge on each bar
- height of truss max. 270mm
- length of truss max. 500mm

**Load application device**

-500...+500N, graduations: 10N

Dial gauge: measurement range: 0...20mm



## Equipments Exporters

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