

# SE 130.01

## Truss beam: Warren girder



### Description

- ready assembled Warren truss
- bars with strain gauge measurement to measure bar force

Warren truss beams are frequently used on steel constructions.

Experiments with the truss SE 130.01 are mounted on the frame of the SE 130 unit. The mechanical construction of the truss ensures that only tensile or compressive forces are active in the bars. The connection between the bars by means of node disks is "hinged". So this can be described as an ideal truss.

The force in the bars is measured using strain gauge measurement. Owing to the symmetrical construction, only half of the bars have measuring points on them. All strain gauge connections are housed together in the strain gauge box.

### Learning objectives/experiments

- calculation of tensile and compressive forces in bars in different load cases: straight and inclined forces
- comparison of measuring results with mathematical methods
  - ▶ method of joints
  - ▶ Ritter's method of sections
  - ▶ Cremona diagram

### Specification

- [1] investigation of bar forces in a single plane, statically determinate truss
- [2] ready assembled Warren truss beam
- [3] influence of dead-weight minimised by horizontal experiment layout
- [4] any straight and inclined load cases possible
- [5] pre-balanced strain gauge connection box
- [6] SE 130.01 is a supplementary set for the main unit SE 130

### Technical data

Truss beam: Warren type

- bar cross-section: 10x3mm, stainless steel
- bar lengths: 270mm, 186,5mm
- tensile force: max. 500N
- bars: 13, of which 7 with measuring points

Node disks: 8

LxWxH: 800x300x15mm

Weight: approx. 8kg

### Scope of delivery

- 1 truss beam: Warren type
- 1 strain gauge connection box
- 1 ribbon cable

# SE 130.01

## Truss beam: Warren girder

Required accessories

SE 130

Forces in a Howe truss