

# TM 115

## Forces in a crane jib



### Description

#### ■ vectoral handling of forces in a planar central force system

TM 115 represents a planar central force system in which multiple forces act on a single point of application. Based on the example of a crane jib, forces are determined graphically and experimentally: resultant cable force, tensile force, compressive force. The directions and magnitudes of the forces are determined graphically by way of a force parallelogram.

A bar of adjustable length and a chain make up the crane jib, which is attached by adjustable clamp elements to a retaining bar. Weights are applied to the crane jib. The occurring bar forces are indicated by integrated spring balances.

### Learning objectives/experiments

- graphical breakdown of forces by force parallelogram
- determination of the bar forces on various jib forms
- comparison of: measuring result – calculation – graphical method

### Specification

- [1] tensile and compressive forces in a planar central force system based on the example of a crane jib
- [2] integrated spring balances in the bars
- [3] max. load on crane jib 50N
- [4] stainless steel retaining bar
- [5] sturdy metal base plate
- [6] handles to aid transportation
- [7] storage system to house the components

### Technical data

Spring balance for tensile forces

- tensile force: 0...50N
- graduation: 0,5N

Spring balance for compressive forces

- pressure force: 0...50N
- graduation: 1N

Weights

- 1x 1N (hanger)
- 4x 1N
- 1x 5N
- 4x 10N

LxWxH: 600x200x620mm

Weight: approx. 10kg

LxWxH: 720x480x178mm (storage system)

Weight: approx. 10kg (storage system)

### Scope of delivery

- 1 experimental unit
- 2 spring balances
- 1 set of weights
- 1 storage system with foam inlay
- 1 set of instructional material

# TM 115

## Forces in a crane jib

Optional accessories

020.30009      WP 300.09      Laboratory trolley