

# TM 121

## Equilibrium of moments on pulleys



### Learning objectives/experiments

- fundamentals of the equilibrium of moments: acting forces, generated moments and equilibrium
- effect of forces as a function of pulley diameter

### Specification

- [1] investigation of the equilibrium of moments on two pulleys
- [2] anodised aluminium pulleys
- [3] ball bearing-mounted steel shaft
- [4] storage system for parts
- [5] bracket for wall mounting

### Technical data

#### Pulleys

- $\varnothing=75\text{mm}$
- $\varnothing=150\text{mm}$

#### Weights

- 2x 1N (hanger)
- 4x 0,5N
- 4x 1N
- 4x 2N
- 4x 5N

Base plate, WxH: 200x250mm

LxWxH: 250x200x250mm

Weight: approx. 13kg

LxWxH: 290x140x130mm (storage system)

### Scope of delivery

- 1 experimental unit
- 1 set of weights
- 2 cables
- 1 set of instructional material

### Description

#### ■ memorable demonstration of the equilibrium of moments

The TM 121 experimental unit illustrates the laws for forming the equilibrium of moments in static systems. The relations between wheel diameter, moment and circumferential force are demonstrated.

Two pulleys with different diameters are mounted on a steel shaft, which is itself mounted on ball bearings.

Weights can be hung on the cables, making it possible to represent different load cases acting on two pulleys with different diameters. The forces can be varied using weights until equilibrium is reached.

The experimental unit is designed to be fixed to a wall. The parts of the experiment are clearly laid out and securely housed in a storage system.