

# TM 400

## Hooke's law



The illustration shows two TM 400 units

### Description

#### ■ elastic behaviour of tension springs under load

Hooke's law describes the elastic behaviour of components where deformation is proportional to the load acting upon them. This behaviour is typical for metals under light loads.

TM 400 demonstrates the application of Hooke's law and shows the deformation of tension springs under load.

For this purpose, a spring is suspended from a stand and loaded. The elongation is read-off directly from a scale. As a linear relationship is shown between the active force and the elongation of the spring, Hooke's law can be applied.

### Learning objectives/experiments

- investigation of the proportionality of the active force and the spring deflection
- determination of the spring constant
- series configuration of two tension springs
- investigation of the influence of the spring constant on the frequency of a spring-mass system

### Specification

- [1] experiments relating to Hooke's law and oscillation experiments on a spring-mass system
- [2] metal stand with integral scale
- [3] 2 helical spring as tension springs
- [4] tension springs configured in series or singly
- [5] load applied to tension spring by weights
- [6] storage system to house the components

### Technical data

Helical spring short

- coils: 53
- $\varnothing=18,3\text{mm}$
- wire diameter:  $\varnothing=1,0\text{mm}$

Helical spring long

- coils: 109
- $\varnothing=18,3\text{mm}$
- wire diameter:  $\varnothing=1,0\text{mm}$

Scale, graduation: 1 mm

Weights

- 1x 1N (hanger)
- 10x 0,5N

LxWxH: 250x250x900mm

Weight: approx. 5kg

LxWxH: 1170x480x178mm (storage system)

Weight: approx. 12kg (storage system)

### Scope of delivery

- 1 stand
- 2 helical springs
- 1 set of weights
- 1 storage system with foam inlay
- 1 set of instructional material

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Optional accessories

020.30009      WP 300.09      Laboratory trolley