TM 125
Cable winch

Description

■ **structure and principle of a cable winch**

Cable or hoist winches are machine elements that are classified as transmission or conversion elements. In a cable winch, a supporting cable is wound on a cable drum by means of a gear transmission. This allows loads secured to the supporting cable to be moved.

The TM 125 experimental unit is used to study the hoisting velocity and force transmission of a cable winch. It also demonstrates the function of a return stop. By considering equilibrium states, it is possible to determine force transmission and efficiency. The two cable drums are mounted on ball bearings. The forces are generated by weights and can be varied quickly and easily.

Learning objectives/experiments

- determine
  - transmission ratio
  - unwinding rate
  - angular velocity
  - efficiency
- behaviour under load

Specification

[1] function and design of cable winches
[2] investigation of hoisting rate and force transmission
[3] demonstration of a return stop
[4] winding the supporting cable on a cable drum
[5] movement of loads on the supporting cable
[6] variation of loads and forces

Technical data

Cable drums
- aluminium
- driving wheel
  - diameter: 220mm
- driven wheel
  - diameter: 110mm

Gears
- POM
- small: 12 teeth
- large: 60 teeth
- module 2mm each

Total transmission ratio: 10

Weights on driving wheel
- 1x 5N
- 4x 2N
- 1x 1N
- 1x 0,5N
- 1x 0,5N

Weights on driven wheel
- 1x 50N
- 2x 20N
- 1x 10N

LxWxH: 270x200x250mm
Weight: approx. 19kg

Scope of delivery

1 experimental unit
2 cable drums
1 set of weights
1 set of instructional material