



## Cable Winch Apparatus (SMT-TM-09)

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 SMT-TM-09 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.

### TECHNICAL SPECIFICATIONS

#### Specifications:

- Function and design of cable winches.
- Investigation of hoisting rate and force transmission.
- Demonstration of a return stop.
- Winding the supporting cable on a cable drum.
- Movement of loads on the supporting cable.
- Variation of loads and forces.

#### Technical Data:

- Cable drums:
  - Aluminium.
- Driving wheel:
  - Diameter: 220mm.
- Driven wheel:
  - Diameter: 110mm.
- Gears:
  - 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, 1x 0.5N (hanger)



#### Experimental Data:

- Determine the transmission ratio, unwinding rate, angular velocity and efficiency
- Behaviour under load can be studied.