



## Rolling Disc on Inclined Plane Apparatus (SMT-TM-14)

The mass moment of inertia is a proportionality constant, which depends on both the body and the position of the body's rotation axis. By measuring the rotary moment and the resulting angular acceleration, we can experimentally determine the mass moment of inertia. To do this, the SMT-TM-14 unit offers rolling experiments on an inclined plane and pendulum experiments with a physical pendulum to determine mass moments of inertia experimentally. In the rolling experiment, the inclination of the inclined plane is set through height adjustment and read on a goniometer. A disk rolls down the track. The time and the acceleration distance are measured, and the mass moment of inertia is calculated.

### TECHNICAL SPECIFICATIONS

#### Specifications:

- Investigation of inertia in rotational motion.
- Proof of the law of falling bodies.
- Experimentally determine the mass moments of inertia.
- Rolling experiments on an inclined plane with height adjustment and three-point support.
- Goniometer and spirit levels ensure precise alignment.
- Measure the time and the acceleration distance.

#### Technical Data:

- Roll track:
  - Length: max.1000mm. and Angle of inclination:  $0^\circ$  to  $7^\circ$ .
- Disks:
  - Mass: 320g and 620g. and Diameter: 70mm and 100mm.
- Rotary axis:
  - Diameter: 10mm. and Distance to centre of gravity: 10mm.
- LxWxH: 1200x480x210mm. and Weight: approx. 10kg.

#### Experimental Data:

- Proof of the law of falling bodies on the inclined plane
- influence of the mass of a body on its acceleration
- determine the mass moment of inertia by rolling experiment and pendulum experiment
- Steiner's theorem

