TM 612
Kinetic model: flywheel

Learning objectives/experiments

- determine the mass moment of inertia by experiment
- dynamic fundamental law of rotational movement

Specification

[1] investigate the inertia of a flywheel
[2] generate a uniformly accelerated rotational motion of the flywheel
[3] driven by weights
[4] influence of weight on time taken to roll down
[5] measure the time and the acceleration distance
[6] determine the mass moment of inertia
[7] bracket for wall mounting

Technical data

Flywheel
- diameter: 300mm
- thickness: 40mm
- mass: 22,2kg

Shaft
- diameter: 22mm

Weight for the drive
- 1x 1N (hanger)
- 4x 1N
- 3x 5N

LxWxH: 250x350x1500mm
Weight: approx. 30kg

Description

- **investigation of uniformly accelerated rotational motion**

The resistance with which a rigid body opposes a change to its rotation is indicated by the mass moment of inertia. It is a measure of the inertia of a body in rotation. Using the TM 612 kinetic model, we can conduct basic experiments on uniformly accelerated rotational motion.

The experimental unit comprises a flywheel with shaft, a cable and a set of weights. The shaft forms the axis of rotation in the centre of gravity of the flywheel. It is mounted on two bearings. One end of the cable is attached to the shaft. A weight is attached to the other end. The attached weight sets the flywheel in a uniformly accelerated motion.

The time needed to roll down is measured and compared to the times for other weights.

The mass moment of inertia of the flywheel is calculated from the measured time, the mass of the flywheel and the acceleration distance.

The experimental unit is designed to be fixed to a wall.

Scope of delivery

1 experimental unit
1 set of weights
1 set of instructional material