

MECHANIC MOMENT OF INERTIA DEVICE

11564



For the study of the moment of inertia of different shape bodies. After measuring the period of oscillation of the torsion axle the moment of inertia of the body that is oscillating is calculated. Cases where there is rotational symmetry around the torsion axle are studied, and also a case in which there is no symmetry, verifying the theorem of Steiner. Results are obtained with precision and reproducibility.

COMPONENTS:

- **Torsion axle**. Coil spring mounted on a shaft with low friction ball bearings and fixed to a U frame with spirit level and support rod Ø10mm. At the top of the shaft can be fixed by tightening screw, different accessories with Ø8mm rod. It also has a hole to insert the Ø6mm rod with grooves horizontally. Overall height including support rod 198mm. Helical spring restoring torque 0.028 Nm/rad.
- **Rod with notches.** Distance between grooves 50mm. Length 620mm. Weight 135g.
- Sliding masses (2x). To slide along the rod with grooves and vary the mass distribution around the rotation axis (simulating two point masses). They have a ball and spring system that fit into the grooves of the rod, allowing easily vary the distance in steps of 50mm. A mass is red and one blue to facilitate the measurement of the oscillations. Diameter: 45mm. Weight of each mass: 260g.
- **Metallic disk with holes.** For the proof of the Steiner theorem. It has eight holes to move the disk to the axis of symmetry in steps of 20mm. With Ø8mm support rod to fix to the torsion axle. Diameter 320mm. Weight 465g.

Needed not included:

- Stopclock.
- Adjustable tripod stand.

11568 BODIES FOR MOMENT OF INERTIA

- **PE ball.** With Ø8mm rod to fix to the torsion axle. Diameter 146mm, weight 1570g approx. It has a moment of inertia similar to the PE disk.
- **PE disk.** With Ø8mm rod to fix to the torsion axle. Diameter 220mm, height 15mm, weight 550g approx.
- PE cylinder. Diameter 90mm, height 90mm, weight 550g approx.
- **Metallic hollow cylinder.** External diameter 90mm, height 90mm, weight 550g approx.
- **Supporting plate for cylinders.** With Ø8mm rod to fix to the torsion axle. External diameter 101mm, weight 120g.





