# Torsion of Bars (SMT-SM-09)

Torsion occurs primarily on axles and drive shafts in motor vehicles and machines. The torsion occurring in the shaft cause cross-sections of the shaft to be pushed together around the longitudinal axis. When a torque is applied to a shaft the cross-section remains flat and no warpage occurs. In the event of minor torsion the length and radius remain unchanged. The straight lines on the outer circumference of the shaft running parallel to the axis become helixes. Non-circular cross-sections mostly result in warpage. SMT-SM-09 investigates the torsion of a bar under a torque. The bar is clamped into two movable support blocks by a chuck. The torque is generated by a circular disk, a deflection roller and a weight.

## TECHNICAL SPECIFICATIONS

## Specifications:

- Elastic torsion of bars.
- 2 movable support blocks with clamping chuck for mounting of bars, 1 fixed and 1 movable support.
- 2 movable angle indicators clamp able to the bar.
- 4 bars: round bar with full cross-section, tube, longitudinally slotted tube, square tube.
- Application of load to the bar by a mass disk, a deflection roller and weights.

## Technical Data:

- 4 brass bars, L=695mm:
    - Round bar, Ø=6mm.
    - Tube, slotted tube Ø=6mm, wall thickness: 1mm, slot width: 0.3mm.
    - Square tube wxh: 6mm, wall thickness: 1mm.
- Disk to apply the load:
    - Effective radius: 110mm.
- Angle indicator:
    - Measuring range: ±90°.
    - Graduation: 1°.
- Weights:
    - 1x 1N (hanger).
    - 4x 1N.
    - 3x 5N.
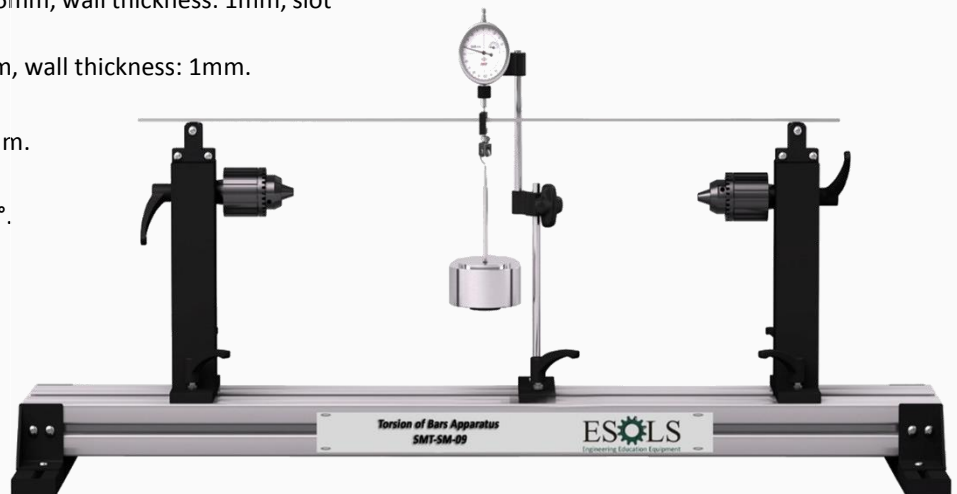
## Technical Data:

- LxWxH: 1170x480x178mm (storage system).
- Weight: approx. 27kg (total).