



Torsional Vibrations Apparatus (SMT-TM-17)

In torsional vibrations, a restoring moment is produced by the twisting of a bar in the oscillating system. The restoring moment strives to return the rotating mass to the resting position. The SMT-TM-17 unit can be used to study torsional vibration on torsion bars with different diameters and different lengths. At the top end, the torsion bars are clamped in a quick-action chuck. A solid circular disk or a circular ring is fixed at the bottom end of the bar using a quick-action chuck. They have the same mass and the same diameter, but different moments of inertia due to their shape. The torsion bars can be quickly and easily exchanged and their length varied. The oscillation period is measured. The experimental unit is designed to be fixed to a wall.

TECHNICAL SPECIFICATIONS

Specification:

- Torsional vibrations on different torsion bars.
- 5 aluminium torsion bars with different diameters.
- Adjustable effective length of the torsion bars
- Quick-action chucks to swap components
- Generate torsional vibration via a circular disk or circular ring.
- Stopwatch to measure the oscillation period.
- Bracket for wall mounting.

Technical Data:

- Five torsion bars:
 - Aluminium, Length: 1100mm, Diameter: 2mm, 3mm, 4mm, 5mm, 6mm.
- Circular ring:
 - Outer diameter: 160mm, Inner diameter: 100mm.
 - Height: 31mm, Moment of inertia: 0.01335kgm².
- Circular disk:
 - Diameter: 160mm, Height: 19mm, Moment of inertia: 0.0096kgm².
- Stopwatch: 1/100s
- LxWxH: 700x200x200mm, Weight: approx. 12kg.

Experimental Data:

- Determine the oscillation period as a function of
- The length of the torsion bar
- The diameter of the torsion bar
- The rotating mass and its shape

