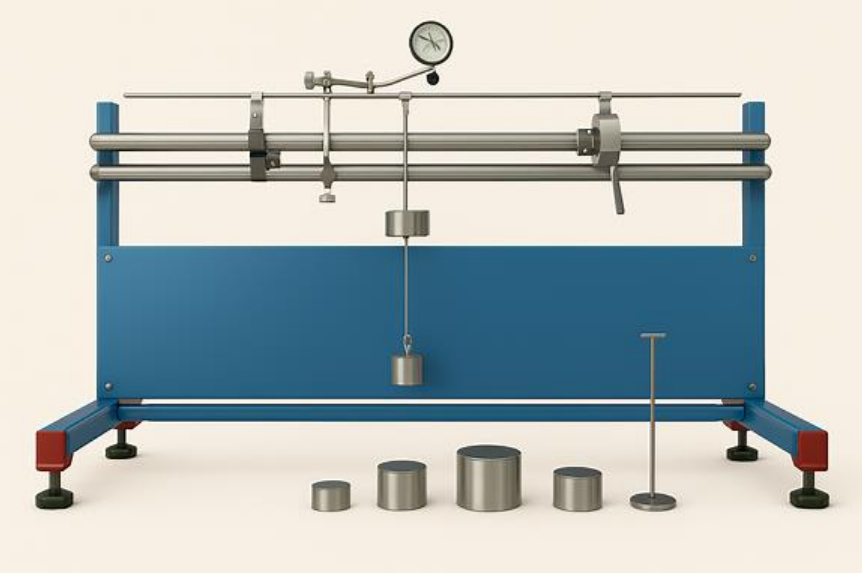
KSM-090

TWIST & BENDING MACHINE



The **Twist & Bending Machine – Model KSM-090** demonstrates the effects of torsion and bending on structural elements. Torsion occurs when a bar or element is subjected to a moment or force, causing its transverse sections to twist and develop tangential shear stresses. Bending occurs when loads are applied perpendicular to the longitudinal axis of a structural element, generating bending moments and deformation.

The KSM-090 unit is designed for laboratory use and complements theoretical studies on twist and bending. Its compact size and weight make it easily transportable and ideal for practical exercises. The apparatus features two transverse guides on which beam supports can slide. By adjusting the distance between supports, students can observe the effect of span length on deformations under flexion or torsion.

For bending experiments, students can calculate the Elasticity Modulus of different materials, demonstrating the load-deformation relationship. Stainless steel beams with different rectangular cross sections are provided, and circular section test pieces of various materials can also be used. For torsion experiments, circular section test pieces of various materials allow students to determine the Rigidity Modulus and compare material properties.

A dial gauge with assembly accessories is supplied to measure deformations in both bending and torsion experiments. A complete set of weights with appropriate hooks for each experiment is also included.

Specifications

- Twist & Bend Machine, allowing both bending and torsion experiments
- Bench-top unit with structure made of anodized aluminum profiles and painted steel panel
- Mounted on 4 adjustable-height rubber legs
- Two stainless steel guides (800 mm) allowing support displacement for beams of different lengths
- Test pieces:
    - 4 circular section bars, 8 mm diameter, made of steel, aluminum, brass, and bronze; marked every 50 mm for length measurement

Note: Specifications and Photos can be altered without prior notice in our constant efforts for improvement.

    - 7 rectangular cross-section bars made of stainless steel; marked every 50 mm for length measurement
- Dial gauge: 0–10 mm, 0.01 mm accuracy for deformation measurement
- Allen key (3 mm) supplied to assemble beams in supports
- Weight set adapted to the MTP unit with special hooks:
    - 2 weights of 10 N
    - 4 weights of 5 N
- Supplied manuals: Required Services, Assembly and Installation, Starting-up, Safety, Maintenance & Practices

Experiments

- Study of beam flexion for different sections and lengths
- Determination of Elasticity Modulus for stainless steel
- Study of the relation between torsional moment, beam length, and torsion angle of one shaft
- Determination of Rigidity Modulus for steel, bronze, and aluminum