



Friction on the Inclined Plane Apparatus (SMT-MM-16)

Friction experiments on the inclined plane help students to understand the fundamentals of mechanical friction. The main elements of SMT-MM-16 are a sliding surface (the inclined plane), with an adjustable angle of inclination, and different samples. A sample is moved from the stationary state to the sliding state in two ways. In the first experiment, the plane is carefully tilted until the sample begins to slide downwards and the downward force is greater than the static friction force. In the second experiment, a load acts as a tensile force upon the sample. The load is gradually increased until the sample begins to slide in a uniform motion.

TECHNICAL SPECIFICATIONS

Specifications:

- Experiment relating to friction on the inclined plane.
- Inclined plane with plastic coating, drag link with angle scale and ball bearing-mounted deflection roller.
- Angle of plane adjustable.
- 4 samples.
- Graduated weight set.

Technical Data:

- Friction body:
 - LxWxH: each 80x60x44mm.
 - Dead-weight force: each 10N.
 - 1x steel, 1 polypropylene.
 - 1x aluminium, 1 brass.
- Inclined plane:
 - Length: 1000mm.
 - Adjustable angle range: $\pm 45^\circ$.
- Weights:
 - 1x 1N (hanger), 4x 0,1N, 1x 0,5N, 4x 1N, 1x 5N.



Experiments:

- Determination of the friction coefficients of various material pairings.
- Transition from static to dynamic.
- Static equilibrium of forces on the inclined plane.
- Determination of the angle of inclination as from which sliding occurs (calculation and verification by experiment).