



Fatigue Testing Machine (SMT-SM-04)

This Machine demonstrates the basic principles of fatigue strength testing and the creation of a Wöhler diagram. As we know moving components and machine parts are often exposed to periodically fluctuating loads. Even if the dynamic load is far below the static load capacity, this load can lead to fracture of the component after a long time because of material fatigue. The fatigue strength and design strength of components are determined in fatigue strength tests or endurance tests.

In the experiment, a cantilever-mounted and rotating cylindrical specimen is subjected to a single force. The load on the specimen corresponds to a cantilever bending beam. The specimen is subjected to a pure reverse bending stress and breaks after a certain number of load cycles because of material fatigue. The necessary force is generated in the load application device by means of a spring balance and a movable support. The load amplitude can be adjusted continuously using the preload of the spring balance by means of a threaded spindle. An electronic counter registers the number of load cycles and displays it on LCD. The counter can also be used to measure the speed.

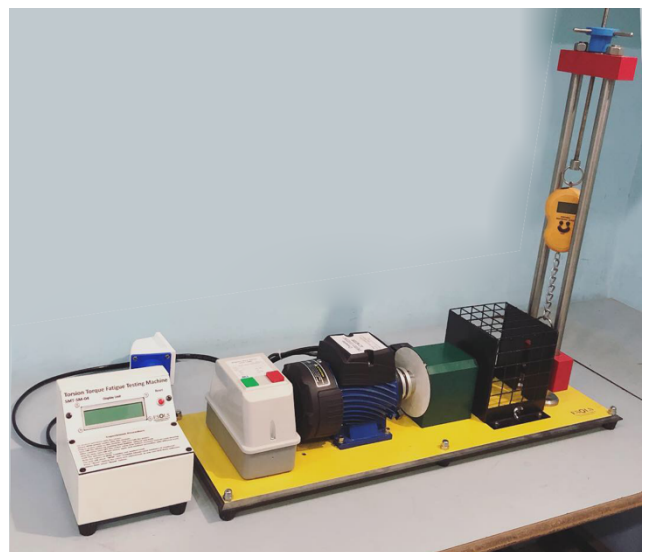
When the specimen breaks, the stop switch stops the electric motor automatically. A protective cover protects against flying fragments. Specimens with various fillet radii are included in the scope of delivery to demonstrate the notching effect and the influence of the surfaces.

This Apparatus has Touch LCD Display and control. The unit has Optional Software for computer connectivity, monitoring & display and data analysis on computer.

TECHNICAL SPECIFICATIONS

Specifications:

- Basic principles of fatigue strength testing.
- Driven by electric motor.
- Automatically shuts down when the specimen fractures.
- Load application device with sliding movable support, threaded spindle with hand wheel, spring balance.
- Steel cylindrical specimens, various fillet radii.
- Speed measured by contactless inductive speed sensor or electronic counter for load cycles.
- Protective cover for safe operation.
- Touch LCD Display and control



Technical Data:

- Electric motor:
 - Speed: 2800min⁻¹.
 - Power: 0.37kW.
- Load force:
 - 0 to 300N.
- Electronic load counter:
- This Apparatus has Touch LCD Display and control.
- The unit has Optional Software for computer connectivity, monitoring & display and data analysis on computer.
- Specimens:
 - Material: Steel Ck35.
 - 3 different fillet radii.
- 230V, 50Hz, 1 phase.
- UL/CSA optional.
- LxWxH: 840x410x600mm.
- Weight: approx. 30kg.

Experimental Data:

- Fatigue strength of bars under reverse bending stress
- Influence of different fillet radii and surface qualities on the fatigue strength
- Wöhler diagram