Figure 1 Universal Testing Machine-20kN

DESCRIPTION

The **SM-UTM-20** is specifically designed for educational purposes, allowing students to conduct various material strength tests in a practical setting. This machine provides hands-on experience in mechanical properties testing, reinforcing theoretical knowledge with real-world applications. It enables user to analyze material behavior under different stress conditions.

A solid understanding of the properties of materials is essential for technical and scientific professions. This knowledge helps select the suitable material, monitor production and processing and ensure the requirements in terms of a component. The materials test provides the necessary data in a reproducible and precisely quantified manner.

The experimental unit has been developed specifically for experiments in small groups and is characterized by a clear design, simple operation and accessories that are easy to exchange.

The tensile specimens are clamped between the upper cross member and the crosshead. The test force is generated by means of a servo-controlled system and displayed on screen. A load cell measures the elongation of the specimens.

The experimental unit can also be equipped with electronic force and displacement measurement.

TESTING AND MEASURING CAPABILITIES

- Tensile test
- Shear test
- Compression test

- Flexural test
- Brinell hardness

FEATURES

- **Versatile Testing Capabilities**: Perform tensile, shear, compression, flexural, and Brinell hardness tests on metallic materials.
- **Robust & Precise Measurement**: Equipped with high-precision transducers and indicators for accurate data collection.
- **Educational Focus**: Designed for material science students to gain hands-on experience with material testing methodologies.
- **User-Friendly Operation**: Simple interface with clear readouts ensures ease of use for students and instructors.
- **Compact & Durable Design**: Space-efficient construction, ideal for laboratory environments.

SPECIFICATION

UNIVERSAL TESTING MACHINE CAPACITY 20 KN

- **Displacement Measurement**: 50 mm full-scale analog dial indicator.
- **Pressure Transducer**: 250 bar capacity for precise force control.
- **Travel Displacement Transducer**: 50 mm range for accurate deformation measurement.
- **Digital Indicator**: 8-channel system for comprehensive data analysis.
- **Force Measurement**: 30 kN (160 bar) manometer for accurate load application.
- **Power Supply:** 230V, 1-phase, 50-60Hz, 70W.

APPLICATIONS

- **Material Science & Engineering Studies**: Enables students to validate theoretical principles through practical application.
- **Research & Development**: Suitable for laboratories conducting basic material strength analysis.
- **Mechanical & Civil Engineering Education**: A vital tool for testing the mechanical properties of materials used in various industries.

DIMENSIONS & WEIGHTS

L x W xH: (0.7 x 0.7 x 0.9) m

ACCESSORIES

- **Tensile specimens**
  - material: 2x Aluminium
- **Compression specimens**
  - material: 2x Aluminium