

# Serie UTM-D

## Universal Testing Machines

Rev. 04-2024-EN



### Product Information

Universal, servocontrolled, electro actuated, computerized testing machines to perform load, displacement or strain-controlled tests in tension, compression, bending, and flexure with appropriate accessories, optional and/or customized on request. The machine is suitable for testing metal, rubber, wood, plastic, tissue, fiber, springs, ropes etc. in various areas of use such as quality control in industry, certification of materials by Accredited Testing Laboratories, research and development of new technologies in Universities and Research Centers, education in Technical Institutes.



### Characteristics

Single column frame (load capacity up to 5 kN) or double column frame (load capacity up to 20 kN) with double test space (tension and compression), movement driven by high precision ball screws, with external covering made by aluminum profile sealed with extendable bellows to ensure cleanliness of the mechanical transmission components. The lower base accommodates the mechanical transmission system and the fast and silent brushless motor unit.

Manual, pneumatic, hydraulically operated, or special jaws are available depending on the required configuration. Accessories for performing compression and flexural tests are, in addition, available.

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### Machine Control System – Testing XE

The Testing Computerized Control System consists of a state-of-the-art datalogger (user/machine interface) equipped with an electronic module with TCP/IP network interface, analog and digital inputs and outputs of IN and OUT signals, firmware and software.

All signals related to the physical quantities coming from the machine's electronic sensors (load cell and displacement transducer), as well as those of electronic strain gauges (optional) applied to the sample for direct measurements of material deformation, are captured in real time by means of an analog/digital converter with resolution up to 24bit and sampling rate up to 1 kHz.



When the testing machine is equipped with a video extensometer, the Testing system is also capable of synchronously acquiring up to 8 different measurements from the video extensometer itself (e.g. radial and axial deformation, elongation and stretching, etc.).

The testing machine is controlled by a closed-loop P.I.D. control with a frequency of 1 kHz; the machine can perform tests in load, displacement and strain control with the possibility of modifying the control parameters in real time. It is possible to perform load and unload ramps, maintain constant load or position and perform cyclic tests.

The Software Testing allows the introduction of the necessary test parameters, through input masks adaptable to the specific needs of the operator, then proceed to the execution and display in real time of each test parameter.

The results are automatically captured and stored in a database to ensure easy traceability for subsequent processing.

Thanks to the test modules fully customizable by the user, graphically accurate document and final printout are possible, which can be used both for certification and for any internal distribution.

The database can be shared over a network (intranet) and the software can be used simultaneously on different PCs allowing the visualization and processing of test data from different locations, with automatic and advanced functions of data loading and export of the results according to the requests related to the initiatives **Industry 4.0**.



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### Main reference standards

<b>ASTM A370</b>	Standard Test Methods and Definitions for Mechanical Testing of Steel Product
<b>ASTM E4</b>	Standard Practices for Force Verification of Testing Machines
<b>ASTM E8</b>	Standard Methods for Tension Testing of Metallic Materials
<b>ASTM E9</b>	Standard Methods of Compression Testing of Metallic Materials at Room Temperature
<b>ASTM E2658</b>	Standard Practices for Verification of Speed for Material Testing Machines
<b>UNI EN ISO 6892</b>	Metallic materials. Tensile testing at room temperature
<b>UNI EN ISO 7438</b>	Bend test
<b>UNI EN ISO 7500-1</b>	Calibration and verification of uniaxial static test machines

### Technical features

Models	UTM 01D – 1D – 5D	UTM 5D – 10D – 20D
Frame layout	Single column	Double column
Load capacity	0.1 – 1 – 5 kN	5 – 10 – 20 kN
Accuracy	Class 1 (or better) from 1 % of full scale ISO-7500	
Speed range	from 0.05 to 500 mm/min	
Maximum stroke	600 mm	1140 mm
Vertical test area space in tension	750 mm	800 mm
Vertical test area space in compression	750 mm	800 mm
Frame dimensions	550 x 380 x 1270 mm	740 x 420 x 1720 mm
Weight of the frame	120 kg	370 kg
Power supply	0.25 kW 230 VAC / 50 Hz / Single phase	0.75 kW 230 VAC / 50 Hz / Single phase
ADC converter	24 bit / 1 kHz	

### Optional accessories

Accessories are available for many test requirements: clamps, compression plates, manual extensometer, Automatic extensometer, video extensometer.

