



**UNIVERSAL TEST  
SYSTEMS**

## **Single Column Electromechanical Universal Tensile Test Machines**

**U6000**



## PRODUCT MODEL

U6000/05	Single Column Electromechanical Universal Tensile Test Machine 0.5 kN Capacity, 220-240 V 50 /60 Hz
U6000/10	Single Column Electromechanical Universal Tensile Test Machine 1 kN Capacity, 220-240 V 50 /60 Hz
U6000/20	Single Column Electromechanical Universal Tensile Test Machine 2 kN Capacity, 220-240 V 50 /60 Hz
U6000/50	Single Column Electromechanical Universal Tensile Test Machine 5 kN Capacity, 220-240 V 50 /60 Hz



## STANDARDS

STANDARDS	EN 10002-1, EN1002-5   ASTM A370, ASTM D412, ASTM D695, ASTM E23, ASTM E290, ASTM E 139, ASTM E190, ASTM E 1012   ISO 6892, ISO 1608, BS EN ISO 7270   NADCAP GE- S400 , CREEP, NFA 03403
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## DESCRIPTION

The single column universal test machines are produced for testing plastic films, laminated materials, adhesive tapes, adhesive bandage (plaster), release paper, plastic films, leather, rubber & plastic, paper, fiber, wire, cable, steel etc materials.

The electromechanical universal test machines are desktop solution for low load material testing present the state of the art testing specifications combined with a modern look and ergonomic design. Electrical servomotor driven, maintenance-free, for precise, quiet and smooth work.

The machines are produce a single-column and single-screw test system with capacities ranging from 5 kN to 50 kN.

The Single column universal test machines is formed from mobile crosshead, powered by one prestressed ballscrew, guided by one chromed steel column. There are ability to equip it with several load cells to improve accuracy of measurement and control at very low loads. The machine is automatic recognize of cells and extansometer.

Optimized test space to perform any materials testing with using the right accessories. Devices are automatic operation, servocontrolled in force, displacement and strain.

Single column universal test machines of can perform many tests:

Tensile test according to ISO 6892 , EN 10002 – 1 and ASTM E23, ASTM E290 bending test , tests according to NADCAP GE- S400 , CREEP ASTM E 139 , ASTM E190 test on welds , testing shear , material testing at high temperature EN1002 -5 compression test ASTM D695 , ASTM E 1012 , ISO 1608 , fatigue tests with constant amplitude BS EN ISO 7270, fatigue tests at low frequency NFA 03403 , ASTM D412 .

Test can be performed on specimens of different sizes and shapes of preparation: standardized specimens with threaded head or machined flat, welded metal joints mechanical, adhesive bonding, etc. .

All materials for their test specimen dimensions fit in the maximum capacity of the machine, can be tested in the testing machine steel, elastomers, wood, rubber, aluminum, composites, titanium, plastics, biomaterials , cement , equipment medical prosthetic tooth.

The single column universal test machines can do tensile, peel, tear, heat seal, adhesive, compression, bend and open force test with suitable grip and accessories.

For low force applications, the single column universal test machines provides 5kN to 50 kN capacity available in



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standard and extra height options.

The Single column universal test machines are equipped with a single column different vertical test space ,the test space is tested at 0.001 mm/min~2540 mm/min (adjustable) test speed to reduce test time for the test materials which the test standard requested.

### Application Test

1. Tested sample: plastic films, laminated materials, adhesive tapes, adhesive bandage (plaster), release paper, plastic films, leather, rubber & plastic, paper, fiber, wire, cable, steel etc.
2. Different Test with Different Grips: tensile, peel, tear, heat seal, adhesive, compression, bend and open force etc.
3. Deformation Under Defined Load: Test deformation under defined load of tested sample.
4. Load Under Defined Deformation: Test load under defined deformation of tested sample.
5. Software can issue word/excel report with results for max. force, elongation, tensile strength, peel strength, tear strength, compression strength, etc.

The Universal Testing machine can be controlled (Start, Stop commands) by a computer with the software (given free of charge by TESTMAK). This software provides data acquisition and management for compression, tensile and splitting tensile test throughout the test execution. The advanced functions for data base management provide an easy navigation of all saved data. The test results certificate includes all descriptive information. Therefore, test parameters can be set and details about the test carried out such as client details, test type, specimen type, user info and other information required can be entered and printed out as well as test report and graph.

TCM304 Software is developed for testing tensile strength of Reinforcing Rubbed Steel Bars and Welded fabric for the Reinforcement and Prestressing of Concrete. The software includes control of machine, data acquisition, saving them and preparing reports. The user can prepare his own report and also can send the results to Microsoft Excel environment. The software accepts sample's weight, length, diameter and gauge length as input, and then the user can give start test command to the machine. The samples calculated diameter gives user a perspective about the density of rebar prior to the test.

The software continuously updates load, stress and elongation percentage till the break point. When the test is completed the yield point is calculated and indicated on the graph. Each report is a group of 42 samples where 14 different diameters had been entered. The software is prepared as making at least 3 samples for each diameter. This gives user a total report about all the batch. The report includes all standart limits and one can easily check whether the sample can be acceptable. These limits are minimum yield, minimum tensile, minimum break elongation value, Tensile per yield ratio etc. The user can zoom on the graph for further inspection Break elongation value can be synchronized with the manual measurement after the test has been completed for the users that do not use extensometer.

### • Foreign Language Support and Customizable User Interface

All contents of experimental data and additional information can be organized by user. Software can be performed in x different languages.

### • Capability to Save 24 test results of different specimens in one test folder

Test results, graphics and properties of 24 different specimens can be saved in one folder. Old test folders can be reviewed and be edited easily. Advanced Graphic User Interface Software.

### • Graphical data on the screen is refreshed simultaneously during test procedure

Load values can be monitored in high resolution graphics at every 100 milliseconds. User can highlight all 24 different specimen curves or preferred ones in different colors on the graphics. Zooming in-out and dragging can be done easily by mouse. Peak values of curves can be marked on the graphics and user can get load value of any point on the graph via high resolution.



- **Able to save frequently used texts in memory and recall them when necessary**

Frequently used information like name and location of the laboratory, type and dimensions of mostly used specimens are held in memory and can be written automatically by right clicking on information boxes and selecting frequently used text in menu.

- **Capable to Access and use previously done test data**

User can access any data of previously completed tests and use in his/ her new report since most of the tests have same structure and properties.





## Single Column Electromechanical Universal Tensile Test Machines

### Technical Specification

Product Code	U6000/05	U6000/10	U6000/20	U6000/50
Force Capacity	5 kN (1120 lbf)	10 kN (2250 lbf)	20 kN (4500 lbf)	50 kN (11250 lbf)
Vertical Test Space	740 mm (29.13 in)	1120 mm (44.09 in)	1120 mm (44.09 in)	1120 mm (44.09 in)
Horizontal Test Space	100 mm (3.9 in)	100 mm (3.9 in)	100 mm (3.9 in)	100 mm (3.9 in)
Crosshead Travel	510 mm (20.07 in)	870 mm (34.25 in)	870 mm (34.25 in)	870 mm (34.25 in)
Maximum Speed	2540 mm/min (100 in/min)	2540 mm/min (100 in/min)	2540 mm/min (100 in/min)	2540 mm/min (100 in/min)
Minumum Speed	0.001 mm/min (0.00004 in/min)	0.001 mm/min (0.00004 in/min)	0.001 mm/min (0.00004 in/min)	0.001 mm/min (0.00004 in/min)
Position Control Resolution	9.5 nm (0.38 µin)	9.5 nm (0.38 µin)	9.5 nm (0.38 µin)	9.5 nm (0.38 µin)
Frame Axial Stiffness	8.5 kN/mm (48500 lb/in)	8.5 kN/mm (48500 lb/in)	8.5 kN/mm (48500 lb/in)	8.5 kN/mm (48500 lb/in)
Encoder Accuracy	0.01 mm	0.01 mm	0.01 mm	0.01 mm
Power	220-240V 50/60 Hz 700 W	220-240V 50/60 Hz 700 W	220-240V 50/60 Hz 700 W	220-240V 50/60 Hz 700 W
Dimensions (wxdxh)	470×620×1025 mm (18×24×40 in)	470×620×1420 mm (18×24×56 in)	470×620×1420 mm (18×24×56 in)	470×620×1420 mm (18×24×56 in)
Weight (Approx)	60 kg	65 kg	75 kg	110 kg



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