



**UNIVERSAL TEST SYSTEMS
PRODUCT BROCHURE**

DOUBLE COLUMN ELECTROMECHANICAL UNIVERSAL TEST MACHINES

U6250



PRODUCT MODEL

U6250/100	Double Column Electromechanical Universal Test Machine 100 kN, 220-240 V 50 /60 Hz
U6250/150	Double Column Electromechanical Universal Test Machine 150 kN, 220-240 V 50 /60 Hz
U6250/200	Double Column Electromechanical Universal Test Machine 200 kN, 220-240 V 50 /60 Hz
U6250/300	Double Column Electromechanical Universal Test Machine 300 kN, 220-240 V 50 /60 Hz

PRODUCT STANDARDS

STANDARDS	EN 10002-4 ASTM D412, ASTM D638, ASTM D790, ASTM D1002, ASTM E4, ASTM A730 ISO 7500-1, ISO 37, ISO 6892, ISO 7438
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INFORMATION

Manufacturer	TESTMACLAB LABORATUVAR TEST CIHAZLARI PAZ. VE DIS TIC. LTD. STI
Country of Origin	TÜRKİYE
Product Name	Double Column Electromechanical Universal Test Machine

DESCRIPTION

Fully Automatic Electromechanical Tensile - Compression - Flexural - Shear Testing Machine are multi purpose versatile machines which satisfy the requirement for tensile, compression tests under load or displacement control for a wide range of materials. Electromechanical Testing Machine can be used for tensile test on any material i.e (steel, metal, plastic, textile, wood) by using suitable accessories. Those machines can also be used for general tensile, compression, flexural, shear test on steel, soil, concrete, cement, asphalt and similar materials, by using suitable accessories.

The electromechanical 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 machine is a two-column and single-screw test system with capacities ranging 100,150,200 and 300 kN.

Optimized test space to perform any materials testing , using the right accessories. Automatic operation , servocontrolled in force, displacement and strain.The machine 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.

This series of electromechanical machines can perform many tests:

Tensile test according to ISO 6892 , ASTM E4, 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 .

Data Acquisition & PC Software

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.

- **Able to edit test parameters of the testing equipment through Software**

All test parameters supported by testing equipment can be changed remotely via software. All test parameters specified by user are downloaded to the device before initialing the test procedure. By this way predefined device parameters will not cause errors in test results

- **Graphical outputs and reports can be saved as a MS Excel worksheet**

Test result parameters and graphics are transferred to MS Excel worksheet properly to give user a chance to edit any data and graph easily.

- **Maximum Flexibility to edit report and graph templates**

User can design his/her custom report template and graphic scheme in MS Excel. In software part, user will define which data will be screened in which cell on the worksheet. Therefore, he/she will be able to monitor test results in his/her specific design.

PC Software

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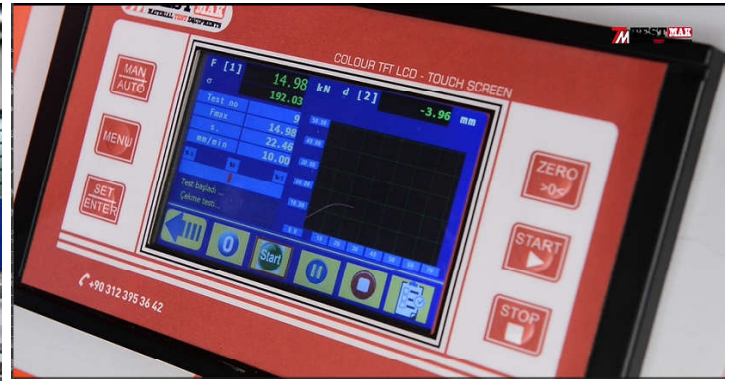
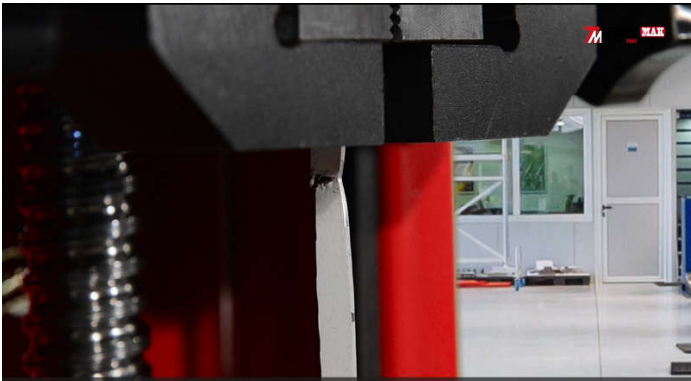
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Technical Features for TCM304 Touch Screen

- Color TFT touch display supports 16M colors and supports 800x480 pixel screen resolution
- 3 pcs universal analog input sockets (ADC)
- Each analog input with 18 bit precision (1/256000)
- 1 replacement analog input
- Total of 4 analog high-precision measuring capacities
- 2 analog output sockets (DAC)
- PULSE / DIR outputs (PULSE / DIR / ENA) to control the servo and stepper motor drives.
- Digital outputs for general purpose (can pull relays and control different electrical units)
- Digital inputs for general purpose (receives and evaluates input signals like limit contacts from the environment)
- Potentiometer input (reference signal input for calibration and remote control)
- USB communication signal output (communicates with computers)
- Connects to local networks and the Internet with Ethernet 10/100 network connection output (optional)
- Connects to portable devices via Bluetooth wireless connection (optional)
- 500 test results can be stored in internal memory
- Due to the SD (memory) card connection, a large number of test results can be stored in the device memory (40,000 test results).

- In addition, the results can be taken from the device memory and transferred to the computer as an Excel table. (Optional)
- Resistive touch screen allows easy operation of device functions by touching the screen
- Sensor modules are compatible with loadcell (load cell), pressure sensor (4-20 / 0-20 mA), potentiometric distance sensors, strain washers, thermocouples and all kinds of mV output sensors.
- Provides precise calibration with multi-point calibration (up to 10 points)
- Setting and calibration menus are password protected and prevent unauthorized use
- Allows testing with a computer, tablet, smartphone or on the touch screen panel.
- There are many test sample information screens and test methods in the device memory and tests can be performed easily
- Different menu languages can be selected via the device via language support (Turkish, English, French, Spanish and Russian)
- Speed control algorithm is closed loop PID control and all parameters can be adjusted on user side.
- The device can switch between one-touch load and deformation control modes.
- The graphical field that visualizes the test results on the screen has the ability to change the scale automatically and automatically adjusts the optimal scale as the values change
- Firmware updates can be made via USB input. In addition, via the computer allows remote or internet update.



EXTENSOMETER

- High Precision for Deformation Sensor.
- 0.4% to 100% Test Range of Full Capacity
- 5, 10, 25, 50, 100, 200, 250 mm Gauge Length Selectable.
- 1%, 5%, 10%, 25%, 50% Deformation Range of Gauge Length.
- Large Deformation Extensometer Optional Part for Plastic, Rubber and Leather

SOFTWARE and DIGITAL

- Display is all the details of graphs and selectable. Also data such as max force, tensile strength, yield strength and other specimen details visible on the screen.
- A compatible software be provided to run the machine effectively. With free license.

SERVO MOTOR

- AC Servo Motor Drive Ball Screw Loading.
- Low Noise.
- Accurate Loading Speed and Loading Position



LIMITED SWITCH

- Electronic Upper And Lower Crosshead Switch
- Emergency stop
- Software Indicating When Triggered.
- Overhead Protection

LOAD CELL

- High Precision Force Value Sensor.
- 0.4% to 100% Test Range of Full Capacity
- High Overloading Range Protection.
- Linearity Within 0.05%

Grip and Load Cell

Each test will require different test grips and accessories for the plastics, metal, biomedical, composite, elastomer, component, automotive, aerospace, textile and other applications industries.

- Load Cell (Supplied with the machine.)
- Extensometer (Supplied with the machine.)
- Tensile Grip (Supplied with the machine.)
- Compression Grip (Supplied with the machine.)
- Bending Grip (Supplied with the machine.)
- Peeling/Tearing Grip (Should be ordered separately)
- Film Friction Grip (Should be ordered separately)

Tensile Grip for Round Specimens

- It is produced for tensile tests, round metallic specimens with diameter between 4 and 14mm.

Tensile Grip for Flat Specimens

- It is produced for tensile tests, flat metallic specimens with thickness between 0 and 14mm.

Bending Apparatus

- It is produced for bending tests, metallic specimens with span range between 50-300 mm.

Compression Platens

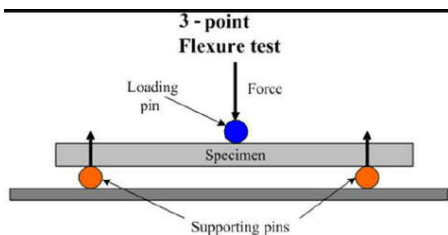
- It is produced for compression tests, metallic specimens with diameter max 150 mm.

Extensometer

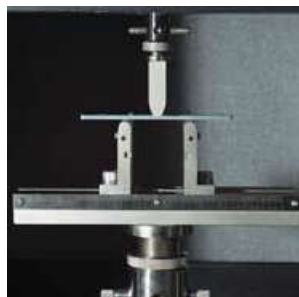
- Gauge Length: 50 mm, max straight measuring 10 mm

General Features

- Automatic reading of load cell feature information
- Automatic reading of extensometer feature information
- Force display, displacement display, time display, stress display and strain display
- External analog input (2-channel simultaneous reading of voltage or current)
- Test force automatically zero
- Test force self-defined calibration
- Break detection
- Force overload protection
- Automatic return



Flexural test apparatus



Shear test apparatus



DOUBLE COLUMN ELECTROMECHANICAL UNIVERSAL TEST MACHINES

TECHNICAL SPECIFICATIONS

Product Code	U6250/100	U6250/150	U6250/200	U6250/300
Capacity	100 kN	150 kN	200 kN	300 kN
Test Speed Range	0.0002 - 375mm/min adjustable			
Crosshead Moving Speed	0.0002 - 375mm/min adjustable			
Number of Columns	2 qty	2 qty	4 qty	4 qty
Column Diameter	40 mm	45 mm	50 mm	60 mm
Number of Spindles	2 qty	2 qty	2 qty	2 qty
Spindle Diameter	40 mm	50 mm	60 mm	60 mm
Max. Vertical Test Space (Without Accessories)	700 mm	700 mm	700 mm	700 mm
Distance Between Columns	550 mm(680mm, 800mm optional)	550 mm(680mm, 800mm optional)	550 mm(680mm, 800mm optional)	550 mm(680mm, 800mm optional)
Crosshead Moving Speed Accuracy	±0.1% of Set Speed			
Displacement Measuring Accuracy	±0.5%	±0.5%	±0.5%	±0.5%
Deformation Measuring Range	0.4% - 100%	0.4% - 100%	0.4% - 100%	0.4% - 100%
Tensile Grip for Round Specimen	Dia. 4- 14 mm	Dia. 4- 14 mm	Dia. 4- 14 mm	Dia. 4- 14 mm
Tensile Grip for Flat Specimen	0- 14 mm	0- 14 mm	0- 14 mm	0- 14 mm
Extensometer Measuring	Gauge Length: 50 mm, max straight measuring 10 mm	Gauge Length: 50 mm, max straight measuring 10 mm	Gauge Length: 50 mm, max straight measuring 10 mm	Gauge Length: 50 mm, max straight measuring 10 mm
PC-Port	USB	USB	USB	USB
Engine Type	Servomotor (Brushless) with direct drive to screws by reducers. Enables displacement (mm/min) and load (kN/s) closed loop control			
Safety Protection	Upper limit, Lower limit, Emergency stop button	Upper limit, Lower limit, Emergency stop button	Upper limit, Lower limit, Emergency stop button	Upper limit, Lower limit, Emergency stop button
Electrical Requirement	220-240V, 50-60Hz, 1 phase	220-240V, 50-60Hz, 1 phase	220-240V, 50-60Hz, 1 phase	220-240V, 50-60Hz, 1 phase
Dimensions (wxdxh)	1200×600×2200mm	1300×600×2250 mm	1400×660×2350mm	1400×660×2350 mm
Weight	700 kg	950 kg	1100 kg	1250 kg



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THANK YOU

FOR CHOOSE US

Dear business partners, thank you very much for believing in us and recommending our products to your customers; We sincerely believe that our company will grow even more in 2023 thanks to you, our esteemed business partners.

You can reach us than our phones or e mail address 24 hours a day.

CONTACT US



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