TESTMAK
MATERIAL TEST EQUIPMENTS

ELECTROMECHANICAL TENSILE TESTING MACHINE 100 KN

UNIVERSAL

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ELECTROMECHANICAL TENSILE TESTING MACHINE

PRODUCT MODEL

U6010	Electromechanical Tensile Testing Machine 100 kN, 220-240 V 50 /60 Hz
U6020	Electromechanical Tensile Testing Machine 200 kN, 220-240 V 50 /60 Hz
U6030	Electromechanical Tensile Testing Machine 300 kN, 220-240 V 50 /60 Hz

STANDARDS

Standards	BS EN 10002-1, ISO 7500-1, ASTM A370, ISO 6892, ASTM E4

INFORMATION

Manufacturer	TESTMAK INS.LAB.MAK.SAN.VE TİC. PAZ. ITH. IHR. LTD. STI
Country of Origin	TURKEY
Product Name	Electromechanical Tensile Testing 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.

ELECTROMECHANICAL TENSILE TESTING MACHINE

DESCRIPTION

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, maintence-free, for precise, quiet and smooth work.
The machine is a two-column and single-screw test system with capacities ranging 100,200 and 300 kN.
Optimized test space to perform any materials testing , using the right accessories. Automatic operation , servocontroled 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 certifi cate 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 weigth, 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 continously 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 syncronized with the manual

ELECTROMECHANICAL TENSILE TESTING MACHINE

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 re-viewed 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 predefi ned 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 defi ne 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.

ELECTROMECHANICAL TENSILE TESTING MACHINE

THE MACHINE IS SUPPLIED COMPLETE WITH;

- Wedge action mechanical jaw set (Set of 0-7mm flat grip)
- Wedge action mechanical jaw set (Set of 4-9 mm V grip)
- Digital quality control indicator on the LCD screen
- Software
- Computer (Hp 250 G8 11th Gen Core i5 1135G7-4Gb-256Gb Ssd-15.6inc-W10)
- Computer Desk
- Printer
- Load Cell
- Extensometer
- Limited Switch
- Servo drive servo motor and reductor

LOAD CELL

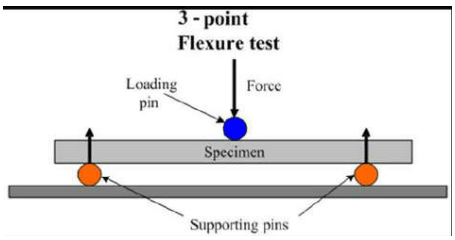
- High Precision Force Value Sensor.
- 0.4% to 100% Test Range of Full Capacity
- High Overloading Range Protection.
- Linearity Within 0.05%

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

- Used in All Windows O.S.
- Language is English and Turkish.
- MS Exel or PDF Test Report.
- Rp 0.2, Rt 0.5 Calculated Automatically.
- User Programmable and Parameter Settable for All Different Test Standard.
- Calibrating Automatically



Flexural test apparatus

Shear test apparatus

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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%

ELECTROMECHANICAL TENSILE TESTING MACHINE

Technical Specification for U6010

Capacity	100 kN
Force Measurement	Universal (Tensile-Flexural- Shear) extensometric-bands load cell
Accuracy	Class 1 (±0.5%) is recommended
Test Speed Range	0.01-500 mm/min
Load Resolution	1/100000
Vertical Clearance	700 mm
Horizontal Clearance	450 mm
Columns	2 grounded columns, chrome-plated steel
Ball screws	2 high precision ball screw, with scrapers
Mobile Crosshead	Driven by the ball screws, guided by the 2 columns End of stroke with proximity detectors Automatic return to start test position, defined via Testmak software
Motor Drive	Servomotor (Brushless) with direct drive to screws by reducers. Enables displacement (mm/min) and load (kN/s) closed loop control
Gear Transmission	Motor-pulley and reducer-pulley connecting via HTD precision teeth belt
Crosshead Position Measurement	Extensometer
Crosshead Position Resolution	0,001 mm
Power	220V 50/60 Hz 1000 W
Dimensions (mm)	1100x400x2000 mm
Approx. Weight	450 kg

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ELECTROMECHANICAL TENSILE TESTING MACHINE

Technical Specification for U6020

Capacity	200 kN
Force Measurement	Universal (tensile-compresion) extensometric-bands load cell
Measuring Range	From 1 % to 100 % of the load cell nominal capacity (500 - 200.000 N)
Force Resolution	0,1 N (1)
Columns	2 grounded columns, chrome-plated steel
Ball screws	2 high precision ball screw, with scrapers
Mobile Crosshead	Driven by the ball screws, guided by the 2 columns End of stroke with proximity detectors Automatic return to start test position, defined via Testmak software
Motor Drive	Servomotor (Brushless) with direct drive to screws by reducers. Enables displacement (mm/min) and load (kN/s) closed loop control
Gear Transmission	Motor-pulley and reducer-pulley connecting via HTD precision teeth belt
Movement Speed Range (mm/min)	0,5 a 500,00
Load speed range (kN/s)	Between 1% and 10% of maximum load capacity (0,005 a 5 kN/s)
Crosshead Position Measurement	Extensometer
Crosshead Position Resolution	0,001 mm
Power	220V 50/60 Hz 1000 W
Vertical free light with load cell without fixtures	900 mm
Horizontal free distance	600 mm
Dimensions (mm)	1200x500x2300 mm
Approx. weight without testing fixtures	950 kg

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ELECTROMECHANICAL TENSILE TESTING MACHINE

Technical Specification for U6030

Capacity	300 kN
Force Measurement	Universal (tensile-compresion) extensometric-bands load cell
Measuring Range	From 1 % to 100 % of the load cell nominal capacity (500 - 100.000 N)
Force Resolution	0,1 N (1)
Columns	2 grounded columns, chrome-plated steel
Ball screws	2 high precision ball screw, with scrapers
Mobile Crosshead	Driven by the ball screws, guided by the 2 columns End of stroke with proximity detectors Automatic return to start test position, defined via Testmak software
Motor Drive	Servomotor (Brushless) with direct drive to screws by reducers. Enables displacement (mm/min) and load (kN/s) closed loop control
Gear Transmission	Motor-pulley and reducer-pulley connecting via HTD precision teeth belt
Movement Speed Range (mm/min)	0,5 a 500,00
Load speed range (kN/s)	Between 1% and 10% of maximum load capacity (0,005 a 5 kN/s)
Crosshead Position Measurement	Extensometer
Crosshead Position Resolution	0,001 mm
Power	220V 50/60 Hz 1000 W
Vertical free light with load cell without fixtures	900 mm
Horizontal free distance	600 mm
Dimensions (mm)	1300x660x2300 mm
Approx. weight without testing fixtures	1100 kg

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