



**HYDRAULIC UNIVERSAL  
TENSILE / COMPRESSION  
TESTING MACHINE**

**STEEL**

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## Hydraulic Universal Tensile Testing Machine



### PRODUCT MODEL

- U6240 | Hydraulic Universal Testing Machine 400 kN, 220-240V
- U6260 | Hydraulic Universal Testing Machine 600 kN, 220-240V
- U6270 | Hydraulic Universal Testing Machine 1000 kN, 220-240V

### STANDARDS

TS EN 10002-1 | ASTM A370

### INFORMATION

**Manufacturer :** TESTMAK INS.LAB.MAK.SAN.VE TİC. PAZ. İTH. İHR. LTD. STİ

**Country of Origin :** TURKEY

**Product name:** Hydraulic Universal Tensile Testing Machine 220-240V

**Code of product:** U6240, U6260, U6270

## Hydraulic Universal Tensile Testing Machine

### DESCRIPTION

Universal Hydraulic Tensile Test Machine is produced to test the ferrous materials for structural values such as yield strength and tensile strength. Universal Test

Machines can also be used for compression tests up to the capacity of the machine. Maximum capacity is 400 to 1000 kN. Can be test flat and round samples. 0-40 mm flat and 8-32 mm round samples can be tested with a hydraulic jaws that comply with standards.

Load cell is used for load measurements. Strain measurement is done by the electronic displacement transducer built in the machine if required external extensometer fitted to the specimen also can be used for strain measurement. Strain measurements can be done directly from the extensometer fitted to the specimen.

Tests can be done automatic by digital control unit or computer. Machine complete the test with the set pace rate and turns to start position automatically.

Hydraulic Universal Testing Machine, features two test spaces for tension tests and compression tests.

The distance between the grips can be set by motor driven hand set system. With open front hydraulic wedge grips user can load specimen easily.

### HYDRAULIC GRIPS

Hydraulic grips are very safe. Hydraulic grips come with grip sets for pulling 8 – 32 mm diameter cylinder samples. The hydraulic grips has an independent hydraulic power unit with a working pressure of 400 bars. Jaw faces for flat samples should be ordered separately.



### EXTENSOMETER

Different types of extensometers with accuracy of  $\pm 0.1\%$  of indicated value are available depending on requirements. Extensometer can directly measure deformation of specimens

## Hydraulic Universal Tensile Testing Machine

### 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 Ribbed 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.

## Hydraulic Universal Tensile Testing Machine

- **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.

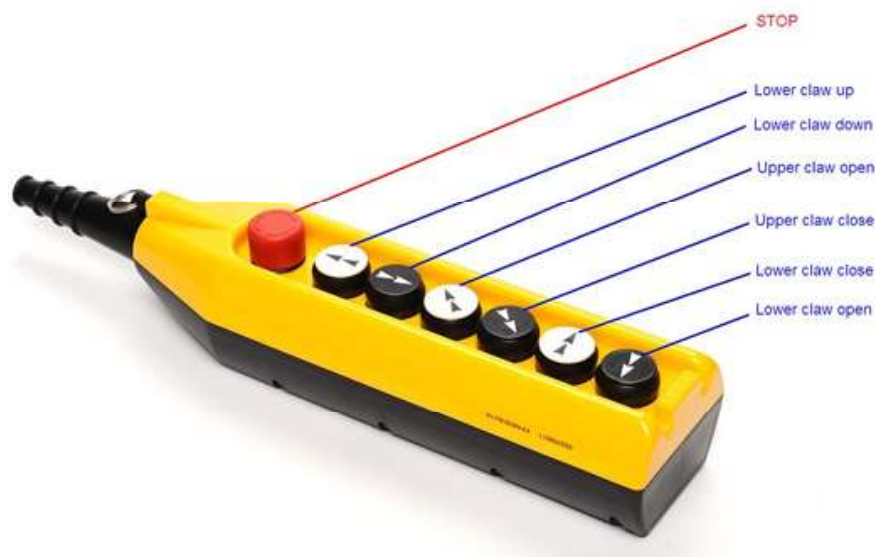
### Using the Machine

The LCD control unit provides an easy, user-friendly experience with the machine. With the LCD unit, the user can control and monitor the tests/adjust the settings/calibrate the machine.

Performing the tests are now the easiest ever. With the computer connected to the machine, all the tests/monitoring/calibrating can be done via computer using the state-of-the-art software provided with the machine.

### Hand Control

This hand-held unit is used for positioning the upper cross-head, to suite the sample height, and to tighten the grippers on the sample before testing.

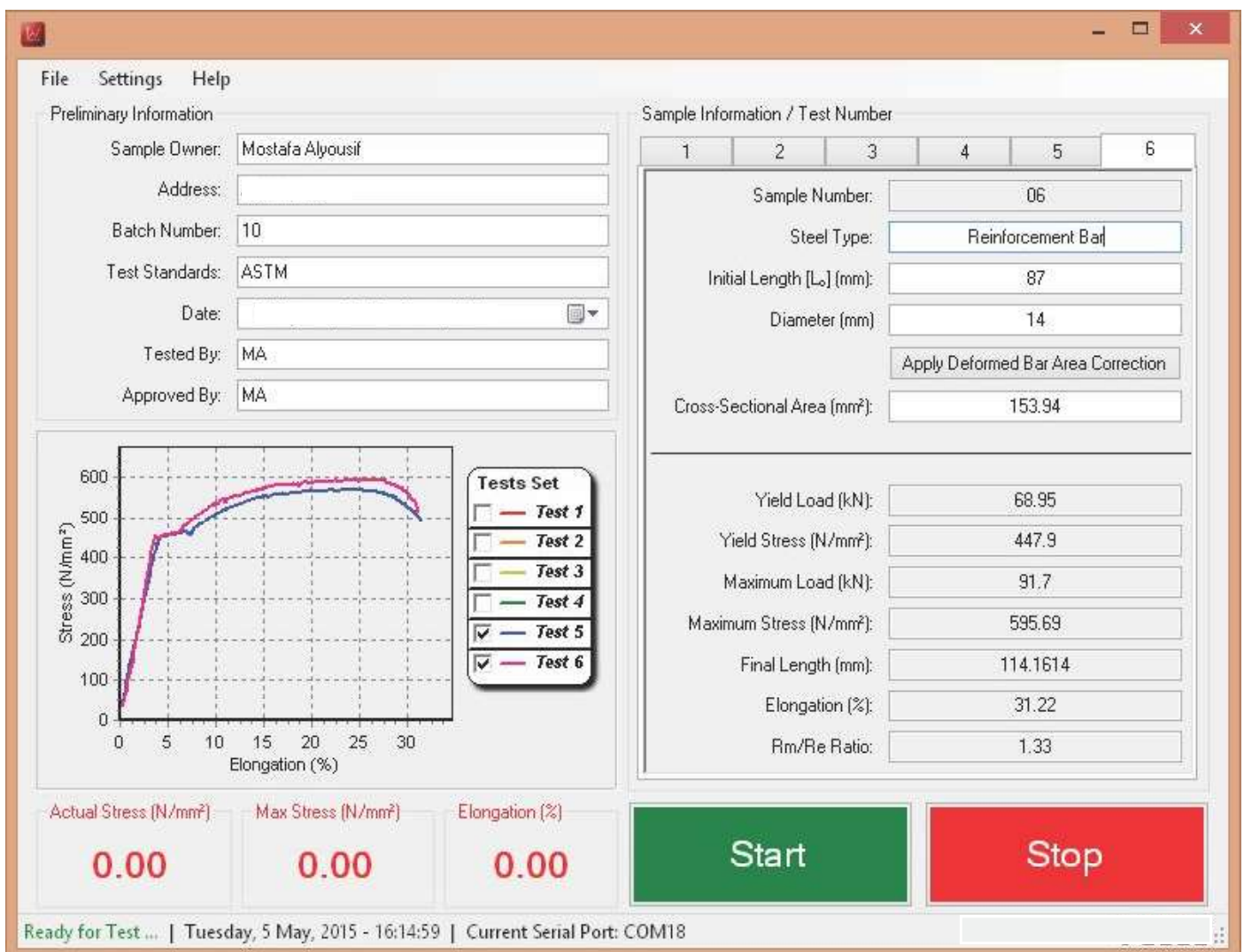


## Hydraulic Universal Tensile Testing Machine

### Performing the Test

The test is performed through the computer using ALFA's state-of-the-art software designed specially to ease the test and perform all the required calculations automatically.

When testing deformed reinforcement bars, it is usually difficult to measure the correct and effective diameter of the bar. To overcome this problem, TESTMAK is providing the diameter correction factor option within its software to automatically calculate the effective diameter by using the weight and the length of the tested bar.



## Hydraulic Universal Tensile Testing Machine

### Test Report



### Tensile Test Report

Date:

Sample Owner: Mostafa Alyousif      Batch Number: 10  
Address:       Test Standards: ASTM

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	Sample 6
Diameter (mm):	16	16	16	16	16	14
Yield Load (kN):	91.51	93.04	92.58	91.51	91.16	68.95
Yield Stress (N/mm²):	455.14	462.75	460.48	455.14	453.4	447.9
Maximum Load (kN):	117.63	115.75	115.47	114.41	114.57	91.7
Maximum Stress (N/mm²):	585.05	575.7	574.31	569.03	569.83	595.69
Initial Length [L <sub>0</sub> ] (mm):	100	105	104	104	105	87
Final Length (mm):	134.04	136.605	138.3304	137.696	138.0645	114.1614
Elongation (%):	34.04	30.1	33.01	32.4	31.49	31.22
Rm/Re Ratio:	1.29	1.24	3.69	1.29	1.26	1.33

Tested By: MA      Approved By: MA

## Hydraulic Universal Tensile Testing Machine

### Technical Specification

Product Code	U6240	U6260	U6270
Capacity	400 kN	600 kN	1000 kN
Test Speed	2mm/min - 25mm/min	2mm/min - 25mm/min	0.01 mm/min - 25mm/min
Load Measurement Accuracy	± %1	± %1	± %1
Motor	Hydraulic Motor	Hydraulic Motor	Servo Hydraulic Motor
Lower Columns Diameter	60 mm	70 mm	90 mm
Upper Columns Diameter	60 mm	70 mm	90 mm
Vertical Test Distance for Tension	Min.: 40 mm - Max.: 280 mm	Min.: 40 mm - Max.: 320 mm	Min.: 40 mm - Max.: 400 mm
Vertical Test Distance for Compression	Max. 110 mm	Max. 110 mm	Max. 110 mm
Distance Between Columns	450 mm	450 mm	450 mm
Piston Stroke	150 mm	150 mm	150 mm
Max Pressure for Grips	200 Bar	350 Bar	410 Bar
Max Pressure for Load	200 Bar	200 Bar	200 Bar
Oil Capacity	18 Liter	18 Liter	18 Liter
Power	220-240V 50/60 Hz 1ph	220-240V 50/60 Hz 1ph	220-240V 50/60 Hz 1ph
Dimensions	1500x1000x2600 mm	1500x1000x2750 mm	1800x1200x3000 mm
Weight	1750 kg	1850 kg	2500 kg





**TM TEST MAK**  
**MATERIAL TEST EQUIPMENTS**

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