



UNIVERSAL TENSILE AND COMPRESSION TESTER (UTM-001)

TENSILE TESTING

- Used to test the tensile strength of steel rebar.
- The grippers of the machine is hydraulically operated by 2 independent auxiliary cylinders controlled by separated hydraulic valves. Those grippers are designed to firmly hold the steel rebar and avoid any slipping that might happen during the test on the rebar.
- The upper mobile crosshead part of the machine is driven up/down by hydraulic piston. It is used to adjust the distance between upper and lower grippers to suite the length of the steel rebar.
- Designed with different capacities (upon user's request) such as: 300 kN (30 tons) / 600 kN (60 tons) / 1000 kN (100 tons) / 2000 kN (200 tons)
- Capable of testing specimen with diameters ranging from 8 mm to 42 mm depending on the capacity.
- Provides easier and faster reporting with the printing facility for the results and graphs.
- The height is only **200 - 210** cm (depending on the model/capacity).

COMPRESSION TESTING

- Used to test the compression strength of concrete cubes/cylinders of different sizes.
- Equipped with an LCD unit that displays the data graphically of each test with the ability to save and recall the results of the tested materials.
- The Data Acquisition Control provides a real-time graphical view for the sample.
- Automatically determines the load rate upon sample type and in accordance with the international standards.
- With the AUTO-STOP functionality, the machine will automatically stop upon finishing the test.
- Upon user requirements, the machine can be either work in fully automatic mode or manual mode at which the user gets the ability to adjust the load rate and period manually.
- The upper seating adjusts itself to apply homogeneous loading on the sample.
- For faster experience while testing, the daylight distance between the upper and lower platens can be adjusted using the hydraulic piston in accordance with the sample height; this will give the machine the ability to test all varieties of samples with a very wide range of sizes.



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TENSILE TESTING

- Fully Automatic - PC Controlled
- Hydraulically operated grippers by 2 independent auxiliary cylinders controlled by separated hydraulic valves
- Upper mobile crosshead driven up/down by a separated motor adjusting the distance between upper and lower grips with electronic distance meter
- Available models:
 - 300 kN (30 tons)
 - 600 kN (60 tons)
 - 1000 kN (100 tons)
 - 2000 kN (200 tons)
- Height: 210 cm only.
- Print of Stress/Strain Diagram and Test Results.



COMPRESSION TESTING

- Fully Automatic.
- Graphical - LCD Data Acquisition Control System.
- Automatic Load Rate upon Sample Type.
- Stops Automatically, when Test is completed.
- Real time graph indication.
- Total Load and also Per Area are given.
- Test results can be transferred to computer to be printed or from the thermal printer.
- Different units are available.
- Calibration done easily on 5 pts.
- Manual Control is available.
- If weight of sample entered, Unit Weight is determined.
- Rigid Frame.
- Upper and Lower Platens in accordance with international Specifications.
- Upper Seating for Homogeneous Loading.
- 220 - 240 V / 50 - 60 Hz (110 V / 60 Hz is also available)

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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 ALFA software provided with the machine.



CAPACITY vs SAMPLE

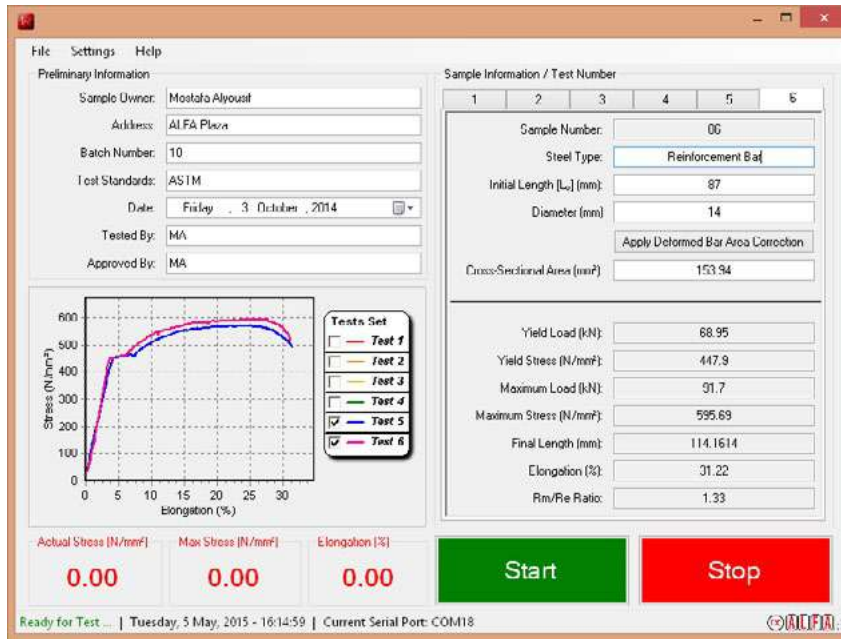
Code	UTM-001/LCD/030	UTM-001/LCD/060	UTM-001/LCD/100	UTM-001/LCD/200
Capacity	300 kN	600 kN	1000 kN	2000 kN
Sample Diameter Range	Ø 8 - 28 mm	Ø 8 - 32 mm	Ø 10 - 36 mm	Ø 12 - 42 mm

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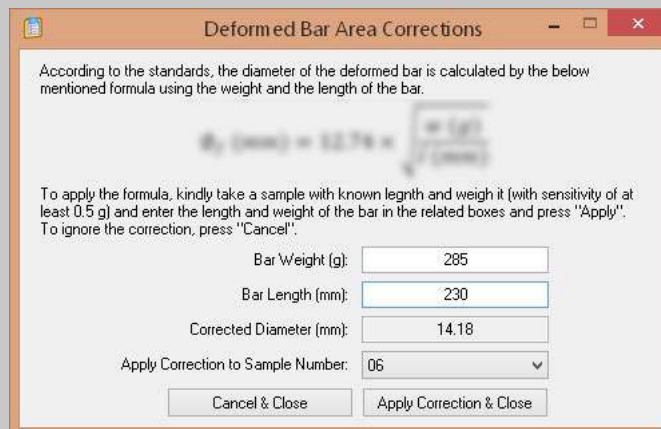
PERFORMING THE TEST

- 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.



APPLYING DIAMETER CORRECTION FACTOR

- When testing deformed reinforcement bars, it is usually difficult to measure the correct and effective diameter of the bar. To overcome this problem, ALFA 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.



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TEST REPORT



ALFA | Testing Equipment111

Tensile Test Report

Date: Friday, 3 October, 2014

Sample Owner: Mostafa Alyouf Batch Number: 10
 Address: ALFA Plaza 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 ₀] (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

Melih Gokcek Biv. ALFA Plaza No: 113 - Ivedik OSB - Ankara / TURKEY
www.alfalab.eu

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UNIVERSAL TENSILE AND COMPRESSION TESTER (UTM-001)**HAND-HELD POSITIONING UNIT**

- 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.

**SAMPLE GRIPPERS**

- The specially designed grippers are used to hold the sample hydraulically while testing. The grippers have 2 different groves to suite wide range of samples.

