UTM2 SOFTWARE 
(UNIVERSAL TESTING MACHINE 2)

Software developed by Matest allowing operators the management and a “User friendly” control of Matest’s digital testing machines.

Software available in different languages
(Italian, English, French, Spanish, German, Polish, Czech, Slovak, Turkish)

The optimal solution of laboratories for its characteristics of versatility with a wide range of customizations, for testing and research.

The ideal Software for the management of an extensive production. It contains preset profile tests according to the specifications of the EN Standards and the most common International Standards.

Flexibility, operating speed, precision and automatic storage are the fundamental characteristics of the Software conceived to facilitate the operator with few computer skills, for the management of the tests and the testing machines too.

By connecting the PC to the testing machine it is possible to perform the most complex tests just by pressing the start button. UTM2 requires a low expertise operators without any specific experience to use the software successfully (with low cost for the company).

It facilitates the printing of certificates suggesting a preset layout but changeable and customizable by the user with its own logo or others.

The software is developed on Windows platform and can be installed on old and new operative systems such as windows 2000, XP, Vista, Windows 7.
UTM2 Software – Licenses available:

Rocks

A150N  Uniaxial and Triaxial Elastic Modulus of the compression on rocks. Automatic system with pace rate control also when releasing the load.

Bitumen asphalt

B043-01(N)  Marshall compression test
B043-02(N)  Tensile splitting test
B043-03(N)  Leutner and Marshall tests.

Concrete

C109-10(N)  Compression test
C109-11(N)  Flexure test
C109-12(N)  Tensile splitting test on concrete specimens and concrete block pavers
C109-14(N)  Flexural strengths (first peak, ultimate and residual)
C109-15(N)  Energy absorption test on sprayed concrete Specimens EN 14488-3
C109-16(N)  Flexural test on clay blocks UNI 9730-3
C123(N)  “Servonet” for the remote control and management by PC of the testing machines.
C104-10N  “Servo-Strain” for the automatic servo-control and management of the load, displacement, deformation. Punching tests on plates, measurement of the deflection, crack opening, deformability, ductility etc.
C125N  Secant compression Elastic Modulus. Automatic system with pace rate control also when releasing the load.

Cement and mortar

E163(N)  Compression test
E164(N)  Flexure test
C123(N)  “Servonet” for the remote control and management by PC of the testing machines.
S205-08(N)  Tensile test on mortar briquettes.
E190N  Compression Elastic Modulus. Automatic system with pace rate control also when releasing the load.

Steel

H009N  Tensile tests on metals and other materials
C123-01N  Compression tests with H011-01N machine

Soil

S218(N)  CBR test
S218-01(N)  Unconfined Compression tests
S224-21N  Rock shear box apparatus

General features of the UTM2

1. Automatic identification of the appliance connected.

2. Easy setting of the sequence of operations concerning the test to be made settable by the operator. The realization of a personalized testing profile savable and reusable allowing to operate following his own needs setting data and cycle test, the analogical measuring channels and the speed charts.

3. Memorization of the test in the database with the possibility to process it again.

4. Remote and interactive control of the machine.

5. Visualization of the instant loads, instant definition of the load/deformation/stroke graph, remote control of the main functions of the machine. It can also visualize the emergencies, the alarms and the eventual errors, it calculates and saves all the parameters of the test made with the possibility to process again, and to manage the test files.

6. The data test can be commented by means of test titles to be reported on the certificate or on the graph desired.

7. The user can select the calculation algorithms and, using them, the SOFTWARE will process all the results required by the Standards.

8. The colors and the graph scales of the activated windows can be freely selected by the user as well as zooming on the main interested graphic points.

9. The test certificate can be personalized with the following variables: name of the company, kind of test, date, kind of graph and number of pages.

10. Possibility to visualize into one graph and register into the archive up to no. 5 test contemporaneously, in order to dispose of a complete and global information about the tests performed for the same production batch.
SOFTWARE UTM2

Software: **B043-01(N)** License for Marshall compression tests.

Software: **B043-02(N)** License for Tensile splitting test on bituminous Specimens.
Standards: EN 12697-23 / CNR N. 134 / ASTM D4123

Software: **B043-03(N)** License for Leutner e Marshall tests

Machines: **B043 KIT** (pag. 113) Marshall Digital 50 KN testing machine
**B044N SET** (pag. 122) Digital unit for Marshall tests, CBR tests.
**S214N KIT** (pag. 409) CBR/Marshall Digital 50 KN testing machine

**S215A** (pag. 410) Universal digital multi-speed load frame
**S205** (pag. 414) Unitronic™ 50 kN universal frame
**S206N** (pag. 420) Unitronic 200 kN universal frame

**B043-01(N)** Selection of the calculation algorithms
**B043-02(N)** Attribution of test data
**B043-02(N)** Test report
**B043-01(N)** Set of test samplings
**B043-01(N)** Load/Deformation graphic with marker selection
**B043-01(N)** Load/Deformation graphic
Material testing equipment

**SOFTWARE UTM2**

**Software:** C109-10(N) License for compression tests on concrete.
Standards: EN 12390-3, EN 679, UNI 6686, 6132, BS 1881, UNE 83304, DIN 51220, ASTM C39, NF P18-411

**Software:** C109-11(N) License for flexure tests on concrete.
Standards: EN 12390-5, EN 13404, UNI 6133, BS 1881, ASTM C78, C293, NF P18-407

**Software:** E163(N) License for compression tests on mortars.
Standards: EN 196,1 / ASTM C109

**Software:** E164(N) License for flexure tests on mortars.
Standards: EN 196,1 / ASTM C348

**Machines:** C109N (pag. 158) “Cyber-Plus” 8 Evolution Touch Screen, eight channels digital unit, applied to any compression or flexure testing machine for concrete or mortars.

**Machines:** C108N (pag. 155) Digitec, two channels digital unit, applied to any compression or flexure testing machine for concrete or mortars.

**Concrete compression test**

C109-10(N) Graphic of compression test execution

C109-10(N) Report of compression test

C109-11(N) Report of flexure test

C109-11(N) Graphic of flexure test execution

C109-11(N) Flexure: Outline of the Standard calculations

C109-11(N) Flexure: Outline of test data

**Concrete flexure test**
Compression/Flexure test on mortars

Software: C109-12(N) License for Tensile splitting tests on cylinders, cubes and concrete blocks. Standards: EN 12390-6, EN 1338, EN 1339, UNI 6135 ASTM C496

Software: **C123(N)** “Servonet” License for automatic servo-controlled and remote control of the machine through PC. The licenses for compression and flexure tests on concrete and mortar specimens are also included in this license. Standards: EN 12390-3, 12390-5, 679, 196-1, UNI 6686, 6132, BS I 881, ASTM C39, C78, C109, C293, C348, NF P18-411, PI 8-407, UNE 83304, DIN 51220

Software: **C125N** License for the determination of the secant compression elastic modulus on concrete. Servonet license is included. Standards: UNI 6556 - ASTM C469 - ISO 6784 - DIN 1048

Software: **A150N** License for the determination of the compression elastic modulus on rocks. Servonet license is included. Standards: EN 9724-8, ASTM D3148, D2938, D5407, D2664, ISRM.

Software: **E190N** License for the determination of the compression elastic modulus on mortars. Servonet license is included. Standard: EN 13412

Machines: **C104N** (pag. 158) “Servo-Plus” 8 Evolution Touch Screen, automatic servo-controlled system at 8 channels. It can be applied on any compression or flexure testing machine for concrete or mortars.

**C098N** (pag. 155) “Autotec”. Automatic Servo-Controlled System at two channels. It can be applied to any concrete compression and flexure machine, and on single-piston mortar machines. Not suitable for Elastic Modulus tests.

Software: **C125N** Selection of the test profile

Software: **C125N** Personalisation of the test profile

Software: **C125N** Test with two cycles confirmation

Software: **C125N** Screen during the test with marker at any variation
SOFTWARE UTM2

Servo-Strain applications:

Software: C104-10N (pag. 164, 165)
- Strain, ductility, post-breaking behaviour.
- Lightweight aggregates crushing resistance determination. Standard: EN 13055-1 method I

Machines: C104N Servo-Plus (pag. 158)
- Compression testing machines, servo-controlled, high stability (mod. C089-04N to C089-19N)

Software: C109-15N (pag. 164, 165)
- Deflection tests on fiber reinforced concrete beams.
- Punching test on sprayed concrete specimens with measurements of the energy absorption.
  Standards: EN 10834, 14488-3, 14488-05

Machines: C104N Servo-Plus (pag. 158)
- Flexure testing machines, servo-controlled, (mod. C090-07N, C091-03N plus C090-14, C090-15)

C090-14 + S336-14 + C109-15N
fixed on the flexural machine C090-07N

C090-15 + C109-15N
fixed on the flexural machine C090-07N

Load / Deformation graphics
SOFTWARE UTM2

A150N Selection of the test Standard with possibility to personalize the calculation algorithm

E190N Data attribution and personalization of the test profile

A150N Graphic display with possibility to personalize the ranges and the zooms to visualize

E190N Selection of the test Standard with possibility to personalize the calculation algorithm

A150N Personalisation and composition of the test profile

A150N Screen example during the test with display of the longitudinal and transversal deformations

A150N Data attribution and personalization of the test profile

E190N Screen during the test execution

E190N Personalisation and composition of the test profile
Practical example of saving a test graph where the user can select which traces have to be shown, modify the scales or personalise the colours and give a new name to the axis upgrading.

Selection of the test Standards with the possibility to select the dimensions for the personalisation of the calculation algorithm.

Tensile test on a steel specimen without extensometer; it visualises the starting of the specimen breaking with the possibility to increase the dimensions of the area of the graph by means of the zoom function.

Printing example of the personalised test certificate with the customer logo introduced in the file (JPG, BMP, TIFF etc).
Software: **S218(N)** License for CBR tests.
- Standards: EN 13286-47, CNR UNI 10009
- ASTM D1883, BS 1377-4, NF P97-078

Software: **S218-01(N)** License for Unconfined Compression tests.
- Standard: ASTM D2166

Machines:
- **S216 KIT** (pag. 409) CBR Digital 50 KN testing machine
- **S214N KIT** (pag. 409) CBR/Marshall Digital 50 KN testing machine
- **S215A** (pag. 410) Universal multi-speed frame
- **S205** (pag. 414) “Unitronic 50 kN”, universal frame
- **S206N** (pag. 420) “Unitronic 200 kN”, universal frame
- **B044N-SET** (pag. 122) Digital unit for CBR and Marshall tests.

Software: **S205-08** License for tensile tests on mortar briquettes.
- Standards: ASTM C190, C307
- AASHTO T132

Machines: **S205-05** (pag. 414)
- “Unitronic” universal frame

The above listed software are fully described and codified in the specific application fields of the catalogue.
The software is protected by a Hardware key that allows the use of the appliance only for the purchased licenses (relative to the activated Standards).
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<td>Rock shear box apparatus</td>
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<td>S334</td>
<td>Data acquisition system for tests with: oedometers, shear machines, triaxial systems.</td>
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**Technical specifications HARDWARE**

- Processor: 312 MHz upgradable till 806 MHz
- Display LCD, QVGA (320x240 pixels) Full-color Touch-screen
- Cross Keyboard. It can completely replace the touch-screen function (for an easy use with gloves, for example)

**Hardware – Connectivity**

- 1 x SD card
- 2 x USB hosts available for: mouse, keyboard, pen-drive, printer; USB Hub (to expand the number of ports), other peripherals from PC

**Hardware - I/O**

- 8 Channel ADC Converter (with 2 high resolution channels for use with load cells); Sampling frequency: up to 200 Hz (for all the 8 channels) Number of bits up to 24
- 8 digital inputs
- 8 digital outputs
- Motor ignition, Valves activation
- Expansion Connector

**Hardware – Control operation**

- 2 x stepper motor controllers
- 1 x standard controller, 1 x optional controller
- Brushless motor, through the Expansion Connector

**Software**

- Operating system: “Windows Embedded CE 6.0 R3”
- User-friendly interface
- Easy updating of software and operating system
- International setting configuration
  - Multilanguage interface
  - Date/time/numbers formatting system
  - Measurement systems (SI; US System)
- Software modularity
  - Reference standards and tests compiled through easy to install software modules
- Power calculation
  - Superior calculation capacity
  - Graphic representation of the test data
  - Independent use from the PC

**Hardware – Storage**

- Internal flash memory, dedicated to the software and to the configuration of profiles, machine, channels (including calibrations), etc.

**Software – Languages**

- Italian, English, French, German, Spanish, Russian, Polish. Additional languages on request

**Software – Licenses**

- Every machine has an unique specific serial number
- Compliance to specific standards through dedicated license files

**Software - Record and report**

- Test records: Date, Results, Chart
- Printing:
  - Through on board printer (Accessory C127N)
  - Though PCL printer connected to USB

**Software - “Maintenance”**

- Available updates: Operating System, Applications, Licenses (backup and restore), Configuration (backup and restore), Software log
- New “UTM”: machine control through Ethernet (intranet, internet)
- Internet connection for remote assistance

**C104-05**

**ONLINE REMOTE ASSISTANCE PACKAGE**

The machine features a connection to Internet through which Matest Customer Service provides real time support to analyze the problem, to find possible solution, and to carry out a proper test execution.