

S205N

UNITRONIC 50 KN

UNIVERSAL MULTIPURPOSE TOUCHSCREEN COMPRESSION/FLEXURAL AND TENSILE FRAME FOR:

- COMPRESSION / FLEXURAL TESTS, 50 kN MAX. CAPACITY LOAD
- TENSILE TESTS, 25 kN MAX. CAPACITY LOAD (option mod. S205-05N)

With automatic load or displacement/deformation control, for testing:

SOIL:

- CBR (California Bearing Ratio)
- UNCONFINED COMPRESSION
- QUICK TRIAXIAL

ASPHALT:

- MARSHALL
- SPLITTING TENSILE
- DIRECT SHEAR (Leutner) on the connection between bituminous strata
- AUTO SCB

CONCRETE:

- FLEXURE ON BEAMS AND TILES

CEMENT:

- FLEXURE on 40x40x160 mm specimens
- COMPRESSION on cubes 40, 50, 70 mm
- TENSILE on mortar briquettes (option mod. S205-05N)

METAL, PLASTIC, WIRES, ROPES, TEXTILES, PAPERS ETC.

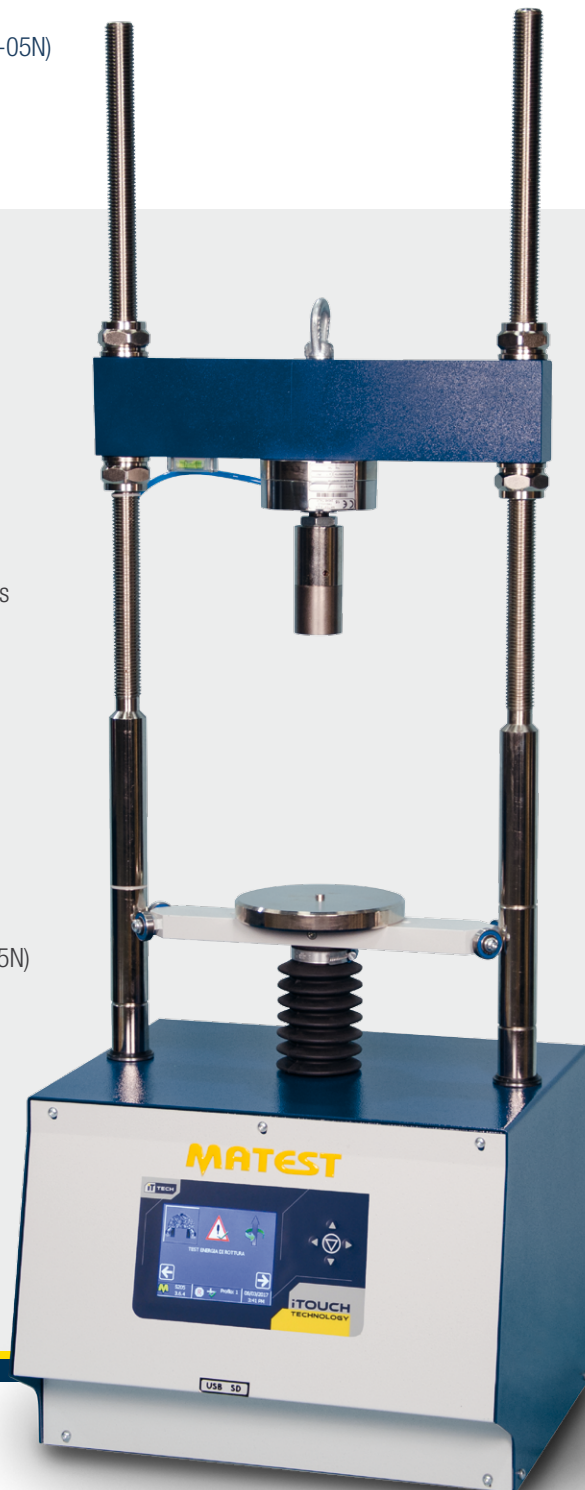
- TENSILE TESTS, 25kN max capacity load (option mod. S205-05N)

CLAY BLOCKS:

- PUNCHING

ROCK AND STONES:

- UNIAXIAL SPLITTING TENSILE


S205N / S205-05N with load cell
TECHNICAL FEATURES:

By using suitable devices, Unitronic tester, within the limits of its max. 50 kN capacity for compression/flexural and 25 kN for tensile (see model S205-05N), performs compression, flexural, splitting tensile and direct tensile tests, with automatic load or displacement/deformation control.

The load is applied by a mechanical jack that is driven by a motor **brushless with closed loop through optic encoder** and controlled by a microprocessor. Stroke electric end switches are applied to the load piston to save the machine from accidental handlings.

The two crossheads foresee couplings to fix the different test devices (see accessories). The stress is measured by an electric load cell; the measurement and the displacement control of the crosshead is achieved by the electronic device incorporated into the machine.

FIRMWARE

- Electronic control unit “Cyber-plus Evolution” with Touch-Screen colour display, that runs like a standard PC based on Windows operating system for the management and analysis of the data, test results, graphs.
- The Touch-Screen icon interface allows an easy set up of the parameters and immediate execution of the test.
- The machine can be connected to a PC for remote test execution through suitable Software; the machine can in any case perform the tests without any external PC, because of the “Cyber-Plus” grants performances like a PC.
- Direct connection to Intranet (connection to a LAN network) and Internet to establish a remote communication and receive an immediate diagnostic analysis from Matest technicians, or for updates of the software.
- Unlimited memory storage with: 2 USB ports, 1 SD card slot.
- RJ45 network connection
- Possibility to select different languages.
- Hardware technical details: see p. 18

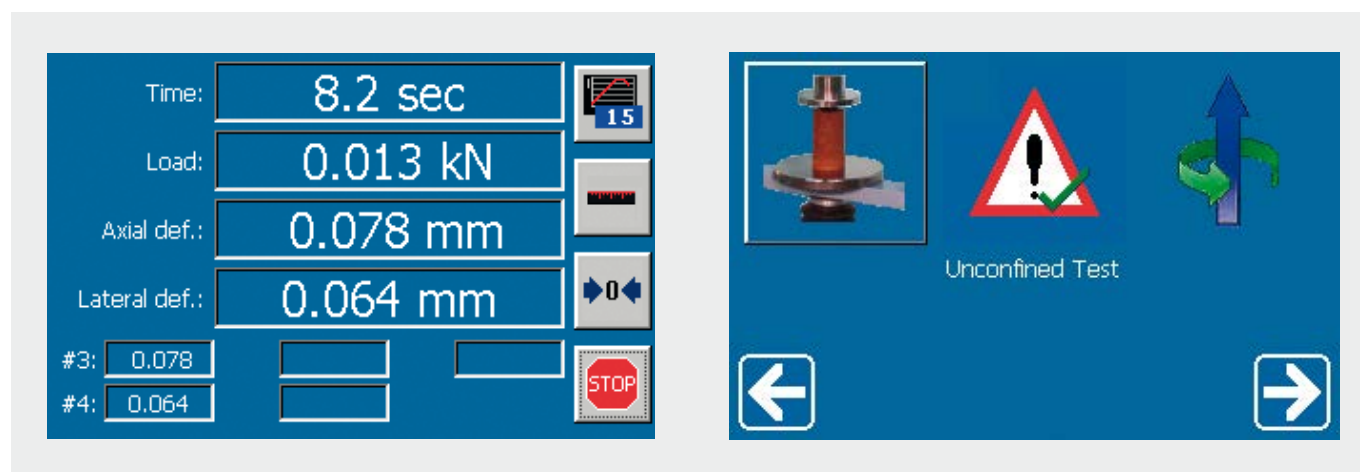
TECHNICAL SPECIFICATIONS

- Maximum compression capacity: 50kN
- Maximum tensile capacity: 25kN (model S205-05N)
- Adjustable testing speed from 0.01 to 51mm/minute
- Adjustable pace rate from 1 to 15000N/sec.
- Max. ram travel: 100 mm
- Daylight between columns: 380 mm
- Max. vertical daylight: 850 mm
- Unitronic 50 kN is supplied **without accessories and software** to perform the specific tests that must be ordered separately (see accessories at next pages)

Power supply: 230V 1ph 50-60Hz 1500W

Dimensions: 500x450x1450 mm

Weight: 130 Kg approx.



UNITRONIC screen examples: CBR test

UNITRONIC screen examples: main screen

S205-05N UNITRONIC COMPRESSION | TENSILE

The Unitronic frame S205N is modified and improved to perform also tensile tests with max. capacity of 25 kN.

 **Note:** this modification is possible only in MATEST factory.

S205N UNITRONIC 50 KN CAN PERFORM THE FOLLOWING TESTS:


CBR TEST



MARSHALL TEST



CEMENT COMPRESSION



CONCRETE FLEXURE



QUICK TRIAXIAL



SPLITTING TENSILE



CEMENT FLEXURE



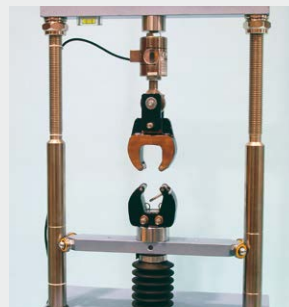
CLAY BLOCKS PUNCHING



UNCONFINED COMPRESSION



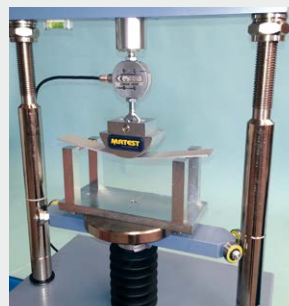
DIRECT SHEAR (LEUTNER)


 TENSILE TEST ON MORTAR
 BRIQUETTES


TILE FLEXURE


 UNIAXIAL ROCK SPLITTING
 TENSILE


AUTOMATIC SCB SYSTEM


 TRANSVERSE / DEFORMATION
 TEST ON ADHESIVE

 TENSILE TEST ON METALS,
 PLASTIC, WIRES, TEXTILES ETC.

S205N | S205-05N UNITRONIC, SPECIFIC APPLICATIONS

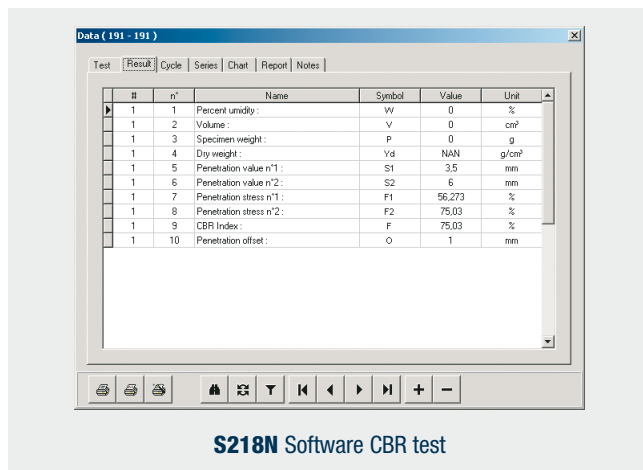
CBR: CALIFORNIA BEARING RATIO TEST



STANDARDS:
EN 13286 -47
ASTM D1883
BS 1377:4
AASHTO T193
NF P94-078
CNR UNI 10009

Test development with displacement control.

- S205N** Unitronic 50 kN
- S337-34** Strain gauge load cell, 50 kN capacity
- S337-51** Calibration process of load cell / Unitronic
- S212-01** Penetration piston
- S218N** Software for CBR test



S218N Software CBR test

QUICK TRIAXIAL TEST



STANDARDS:
ASTM D2850
BS 1377

Test development with displacement control.

Note:
Additional needed accessories see p. 555, 556.

- S205N** Unitronic 50 kN
- S337-31** Strain gauge load cell 2.5 kN capacity
- S337-51** Calibration process of load cell / Unitronic
- S205-11** Loading piston with ball
- S305** Triaxial cell with accessories (see p. 546)
- S218-02N** Software for QUICK TRIAXIAL test

UNCONFINED COMPRESSION TEST



STANDARDS:
ASTM D2166
BS 1377:7
AASHTO T208

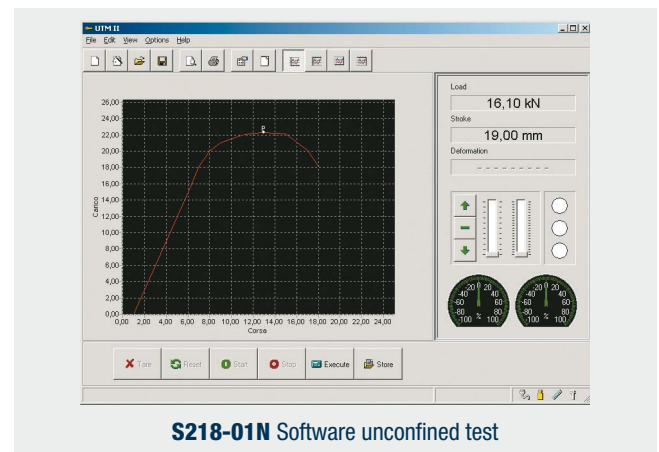
Test development with displacement control.

- S205N** Unitronic 50 kN
- S337-31** Strain gauge load cell 2.5 kN capacity.
- S337-51** Calibration process of load cell / Unitronic
- S212-08N** Upper and lower compression platens Ø 100 mm with accessories

As Alternative

- S212-09N** Upper + lower compression plates, Ø 165 mm with upper seat ball

- S218-01N** Software for Unconfined Compression test



S218-01N Software unconfined test

UNIAXIAL SPLITTING TENSILE TEST OF ROCK CORE SPECIMENS



STANDARD:
ASTM D3667

Test development with displacement control.

- S205N** Unitronic 50 kN
- S337-34** Strain gauge load cell 50 kN capacity
- S337-51** Calibration process of load cell / Unitronic
- S212-05** Loading piston
- E171** Compression device

MARSHALL STABILITY TEST



STANDARDS:
 EN 12697-34
 ASTM D1559
 D5581, D6927
 AASHTO T245
 BS 598 :107
 NF P98-251-2

Test development with displacement control.

- S205N** Unitronic 50 kN
- S337-34** Strain gauge load cell, 50 kN capacity
- S337-51** Calibration process of load cell / Unitronic
- S212-05** Loading piston
- B046N** Stability mould
- B043-01N** Software for Marshall test

SPLITTING TENSILE TEST



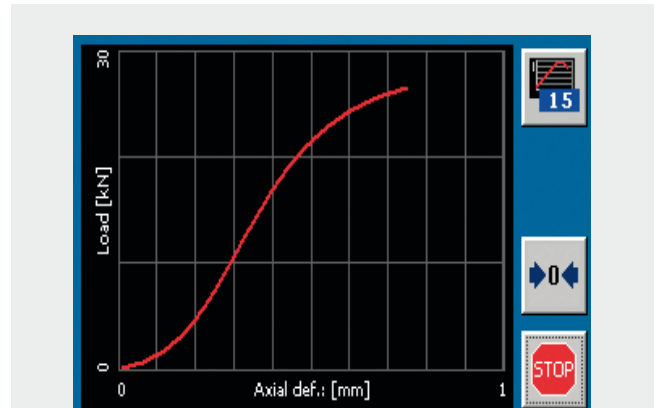
STANDARDS:
 EN 12697-23,12
 ASTM D6931
 AASHTO T283
 CNR 134

Test development with displacement control.

- S205N** Unitronic 50 kN
- S337-34** Strain gauge load cell, 50 kN capacity
- S337-51** Calibration process of load cell / Unitronic
- S212-05** Loading piston
- B047-02** Splitting tensile device for samples Ø 4" and 6"
- B047-04** Set of TWO displacement transducers with accessories
- B043-02N** Software for Splitting Tensile test



S043-02N Software splitting tensile test



File Marshall test



B043-01N Software Marshall test

DIRECT SHEAR (LEUTNER) BETWEEN BITUMINOUS STRATA



STANDARD:
 ALP A StB T4

Test development with displacement control.

- S205N** Unitronic 50 kN
- S337-34** Strain gauge load cell 50 kN capacity
- S337-51** Calibration process of load cell / Unitronic
- S212-05** Loading piston
- B047-10** LEUTNER testing head for specimens Ø 150 mm
- B047-11** Spacers for Ø 100 mm specimens with Leutner head
- B043-03N** Software for Marshall and Leutner tests

Direct shear test (LEUTNER) on the connection between bituminous strata, carried out on asphalt cylinder specimens Ø 150 mm or 100 mm obtained from road cores or on laboratory made specimens.

AUTO SCB SEMI-CIRCULAR BEND



STANDARDS:
EN 12697-44
AASHTO TP124
ASTM D8044

Test development with displacement control.

EN 12697-44

- B250-01** Basic indirect tensile (idt) jig, for 100-150 mm diameter
- B254-01** Scb jig (requires basic idt jig)
- B254-51** Pair of scb wear plates
- S337-34** Load cell 50 kn capacity

- B045-13** Loading piston
- S336-15** Transducer type "B" travel: 10 mm
- B045-14** Coupling hardware
- S335-15** Universal coupling pliers for transd./dial
- B043-05N** Software for auto-scb test

AASHTO TP124 | ASTM D8044

- B208** SCB frame
- B254-02** Springs
- B254-10** Roller support
- S337-31(*)** Load cell 2,5 kn capacity
- B045-13** Loading piston
- S336-15** Transducer type "b" travel: 10 mm
- B045-14** Coupling hardware
- S335-15** Universal coupling pliers for transd./dial
- B043-05N** Software for auto-scb test

 **Note:** for more details see p. 128.

COMPRESSION TEST ON MORTAR SPECIMENS (50KN MAX. LOAD)



STANDARDS:
EN 196-1
EN ISO 679
ASTM C109, C349
NF P15-451
BS 3892
DIN 1164

Test development with displacement control.

- S205N** Unitronic 50 kN
- S337-34** Strain gauge load cell 50 kN capacity
- S337-51** Calibration process of load cell / Unitronic
- S212-05** Loading piston
- E170** Compression device on portion of 40x40x160 mm specimens
- E163N** Software for compression tests

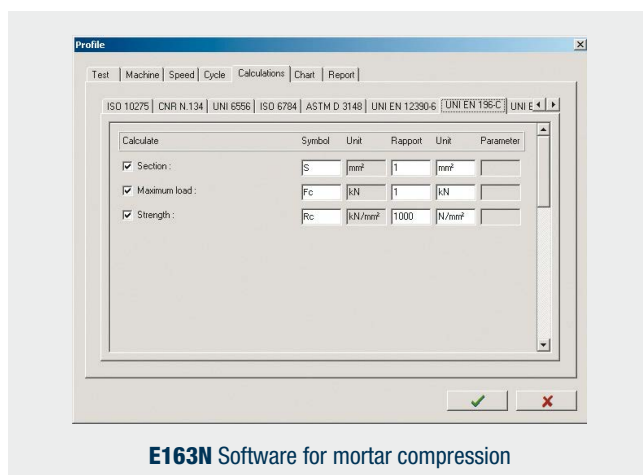
FLEXURAL TESTS ON MORTAR PRISM 40X40X160 MM



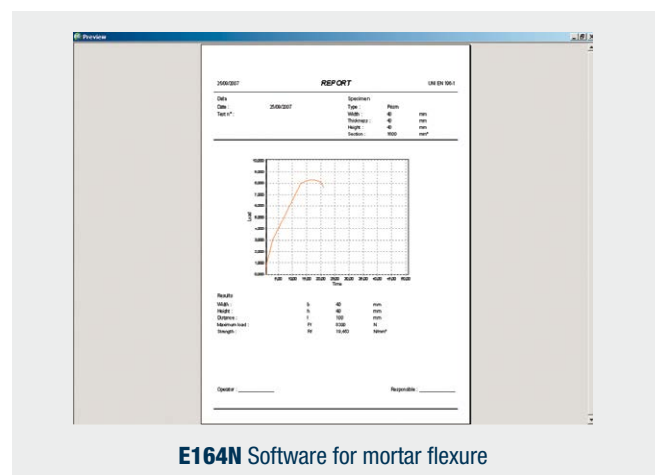
STANDARDS:
EN 196-1
ASTM C348
NF P15-451
DIN 1164
EN ISO 679

Test development with displacement control.

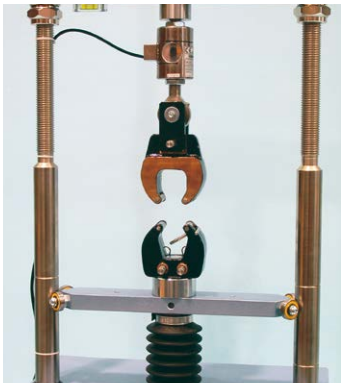
- S205N** Unitronic 50 kN
- S337-32** Strain gauge load cell 10 kN capacity
- S337-51** Calibration process of load cell / Unitronic
- S212-05** Loading piston
- E172-01** Flexure EN device for 40x40x160 mm specimens (available also to ASTM, see p. 428)
- E164N** Software for flexural tests



E163N Software for mortar compression



E164N Software for mortar flexure

TENSILE TEST ON MORTAR BRIQUETTES "8" SHAPED


STANDARDS:
 ASTM C190, C307
 AASHTO T132

Test development with load control.

- S205-05N** Unitronic Compression 50 kN / Tensile 25 kN
- S337-32** Tensile/Compression strain load cell 10kN capacity
- S337-51** Calibration process of load cell / Unitronic
- S205-07** Tensile jaws "8" shaped for mortar briquette
- S205-08N** Software for tensile test
- E111** Briquette mould (see p. 408)

TWO POINT FLEXURAL AND TRANSVERSE TESTS ON CONCRETE BEAMS AND BENDING TEST METHOD ON GLASS-FIBRE REINFORCED CONCRETE


STANDARDS:
 EN 12390-5
 EN 1170-4
 ASTM C78, C293

Test development with load control for concrete beams and displacement control for bending test on glass-fibre reinforce cement.

- S205N** Unitronic 50 kN
- S337-34** Strain gauge load cell 50 kN capacity
- S337-51** Calibration process of load cell / Unitronic
- S205-16** Two-point bending device to test glass-fibre reinforced cement. Rollers dimensions: \varnothing 40 by 310 mm long. Lower rollers adjustable from 110 to 310 mm. Upper rollers adjustable from 45 to 120 mm. Weight: 20 kg approx
- C109-11N** Software for flexure tests on concrete beams

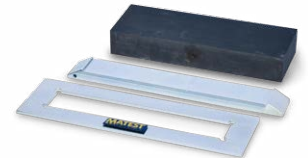
Dati		Provetta	
Data:	11/11/2003	Tipo:	Prisma
Richiesta n°:	2003	Larghezza:	400 mm
Certificato n°:	111103	Spessore:	100 mm
Commente:	Matest s.r.l. Treviso (BG)	Altezza:	100 mm
Impresa:	Matest s.r.l. Treviso (BG)		
Descrizione opera:	Matest s.r.l. Treviso (BG)		
Direzione lavori:	Matest s.r.l. Treviso (BG)		
Lugogo del prelievo:	Matest s.r.l. Treviso (BG)		
Campione:	Matest s.r.l. Treviso (BG)	Sezione:	40000 mm²

C109-11N Flexure: Outline of test data

TRANSVERSE/DEFORMATION TEST ON ADHESIVES FOR TILES


STANDARD:
 EN 12004-2

Test development with displacement control.


S205-13 A, B, C

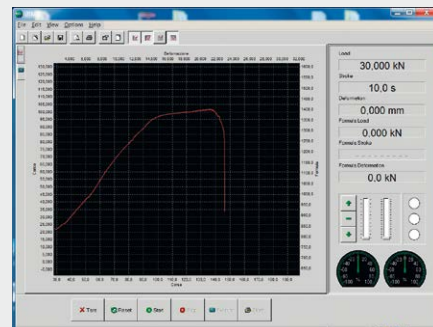
- S205N** Unitronic 50 kN
- S205-14** Strain gauge load cell 500 N capacity
- S337-51** Calibration process of load cell / Unitronic
- S205-13** Flexure device with lower bearers and upper loading piston
- S205-13A** Template A: rectangular frame for specimens to EN 12002, internal dimensions 280x45x5 mm
- S205-13B** Template B: mould for specimens to EN 12002, dimensions 300x45x3 mm
- S205-13C** Weight 100 N, cross sectional area of 290x45 mm, for preparation of specimens to EN 12002

PUNCHING TEST ON CLAY BLOCKS

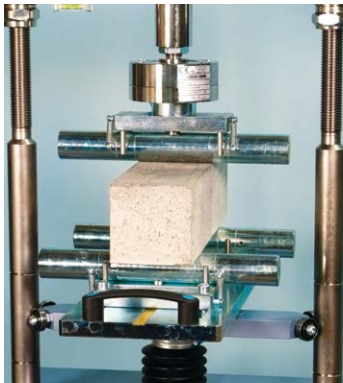

STANDARDS:
 EN 15037-2, -3
 UNI 9730-3

Test development with load control.

- S205N** Unitronic 50 kN
- S337-32** Strain gauge load cell 10 kN capacity
- S337-51** Calibration process of load cell / Unitronic
- C093-11** Flexural punching device
- S205-15** Holding beam for the punching device
- C109-16N** Software for punching test on clay blocks


C109-16N

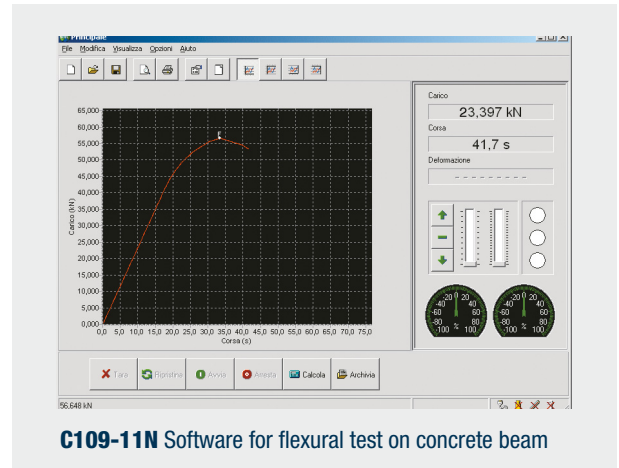
MARSHALL STABILITY TEST



STANDARDS:
EN 12390-5, 491, 538
ASTM C78, C293
BS 1881:118

Test development with
load control.

- S205N** Unitronic 50 kN
- S337-34** Strain gauge load cell, 50 kN capacity
- S337-51** Calibration process of load cell / Unitronic
- S205-18** Flexure device for centre point loading to test clay tiles and concrete beams dimensions 100x100x400(500) mm. Consisting of lower beam with two bearers (one articulated) adjustable from 110 to 310 mm, and upper central articulated bearer fixed to the load cell. Bearer dimensions: Ø 40 mm by 310mm long. Weight: 20 kg approx
- C109-11N** Software for flexure tests



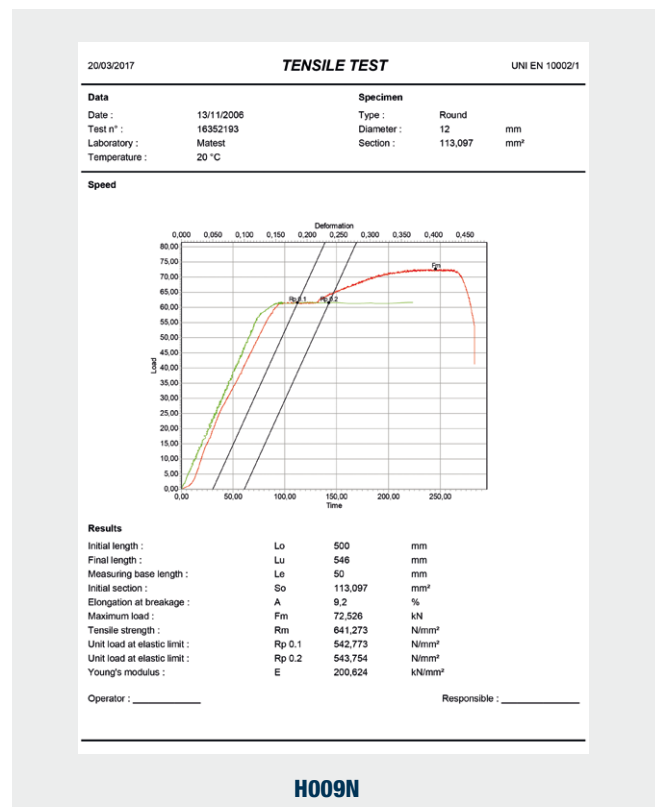
TENSILE TESTS ON METALS, PLASTICS, WIRES, TEXTILES ETC.



STANDARDS:
ASTM D2166
BS 1377:7
AASHTO T208

Test development with
load control.

- S205-05N** Unitronic Compression 50 kN / Tensile 25 kN
- S337-36** Tensile strain load cell 25 kN capacity
- S337-51** Calibration process of load cell / Unitronic
- H005-11** Tensile heads (upper and lower)
- S205-09** Coupling for tensile heads installation
- H005-21** Flat seizing grips for flat specimens 1 - 10 mm thickness by 25 mm max. width and round specimens Ø 3-5 mm
- H005-31** "V" shape seizing grips for round specimens Ø 5-12 mm
- H014-06 to H014-10** Extensometer, electronic, for tensile deformation strength tests. (See p. 445)
- H009N** Software for visualisation in real time of load/deformation, graphic, test certificate etc



At p. 444 you will find devices to test plastics, wires, ropes, flexural and bending tests and various models of extensometers. On request it is also possible to equip the Unitronic frame S205-05N with devices for tensile tests of different materials, within the 25kN max. capacity load.

Note: Needed accessories listed above, are common for different tests. We recommend to check them when ordering, to avoid duplications.