Section C CONCRETE

The accurate and satisfactory test of fresh and hardened concrete are essential elements for any type of building realization. The final quality of the concrete utilized in the structure depends from many variables like: workability, consistency, setting, time, volumic mass, air content, compressive strength, temperature, linear variations, corrosion etc.

Matest proposes a complete range of testing and research equipment on concrete to satisfy practically all the above quality variables, in compliance with the EN, ASTM and the most known International Standards.

Index section CONCRETE

C109

Cybertronic, digital computerised multi-channel instrument, for the acquisition, visualisation, processing and saving of the test dates.

To upgrade or complete your concrete or mortar compression and flexure testing machine (also from other manufacturers).

CYBERTRONIC CAN MANAGE AND PROCESS THE DATES IN COMPLIANCE WITH THE NEW EN STANDARDS AND THE DIFFERENT STANDARDS (BS, UNI, NF, DIN, ASTM, UNE) FOR THE FOLLOWING TESTS:

Compression on concrete specimens

C127 Printer on board

C109

NEW

Flexure on concrete specimens

Compression and flexure on mortar specimens

Tensile splitting on concrete cube and cylinders

External printer for graphs and certificates

Remote telephone servicing

Remote control by PC

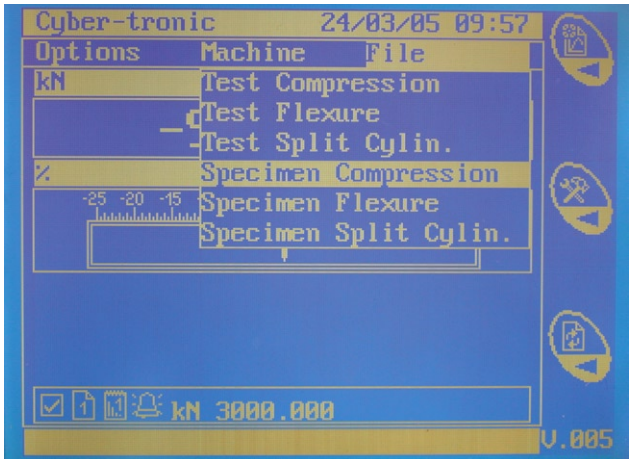
- **THREE CHANNELS** CONNECTABLE UP TO THREE DIFFERENT COMPRESSION AND/OR FLEXURE FRAMES.
- VERY HIGH RESOLUTION: UP TO **24 BIT**
- BIG PERMANENT FILE UP TO **600 COMPLETE TESTS**
- BIG DIMENSIONS GRAPHIC DISPLAY WITH HIGH RESOLUTION: 320 X 240 PIXELS
- TEST SOFTWARE IN CONFORMITY WITH THE NEW STANDARDS **EN, UNI, BS, ASTM**
- SELECTABLE MEASURING RANGES: kN, Kg, lb, t, Mpa, N/mm2, psi, lb/in2, kg/cm2
- PACE RATE DISPLAY: Mpa/s, N/mm2/s, psi/s, kN/s, kg/cm2/s, kN/s, lb/s, kg/s, t/s
- SELECTABLE LANGUAGES: ITALIAN, ENGLISH, FRENCH, GERMAN, SPANISH, POLISH.
- RS 232 FOR PC CONNECTION AND TWO CENTRONICS FOR PRINTER CONNECTIONS
- SIMPLIFIED FUNCTIONS FOR CALIBRATION THROUGH PC KEYBOARD
- AUTOMATIC LINEARITY GUIDED ALGORITHM WITH VERY HIGH PRECISION (**CLASS 0,5** STARTING FROM 10% OF THE MAXIMUM VALUE. ON DEMAND STARTING FROM 1% OF THE MAXIMUM VALUE).

NEW

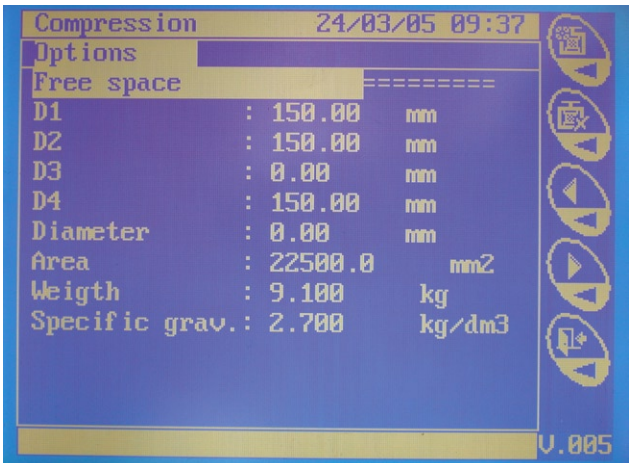
Technical structure

- Acquisition and data processing device piloted by a 32 bit core.
- High resolution Graphic display with big dimensions.
- Operator interface composed by five multi-functions pushbuttons interacting with the different function icons shown on the display near to the relative pushbutton and by one encoder that allows seeing and selecting the different window-menus.
- Big internal memory that can keep more than 600 complete tests.
- Big possibility of use with 3 analogical connection, made to accept sensors, transducers or load cells from 2 mV/V up to 4 mV/V. Cells/strain gages extensometers feeding at 5 V.
- High capacity to treat the analogical signal with A/D converters up to 24 Bits and in some versions up to 524.000 of real resolution points.
- Possibility to print on the incorporated thermal graphic printer (accessory model C127)
- Management of an eventual external laser or inkjet printer (accessory model C128) by means of a parallel port connection (centronics).
- Last generation test firmware in conformity with the last International Standards.
- Simplified calibration function from PC keyboard (with accessory Software UTM2 model C109-10)
- Automatic linearity guided algorithm with very high granted precision not reachable in other ways (Class 0,5) even starting from very low values; starting from 10% and on demand even from 1% of the maximum value.
- Both alphanumerical and graphic visualisation of the test data tracing on the display (picture 8).
- Different programmable safety devices for the machine or the specimen as the possibility to introduce a percentage of the maximum value reached during the text execution, that allows to find the end of the test itself without having to destroy completely the specimen; thermal protection of the motor and different other settable alarms.
- The firmware contains a memory of the mostly used specimens: area, weight, specific weight etc., but can add personalisation for specimens with irregular shapes.
- Expression of the Load Values totally personalised in the following areas:
  KN, lb, Kg, t
  Mpa, N/mm2, psi, lb/in2, Kg/cm2.
  Mpa/s, N/mm2/s, psi/s, lb/in2/s, Kg/cm2/s, kN/s, lb/s, kg/s, t/s.
- Specimen dimensions in the following measuring ranges:
  cm, mm, in
- RS232: it allows transferring the data to a PC (by means of MS Hyper-Terminal) or the remote control of Cybertronic digital unit with the complete management of the test data and the processing of graphs and reports by means of the software UTM2. (accessory model C109-10).

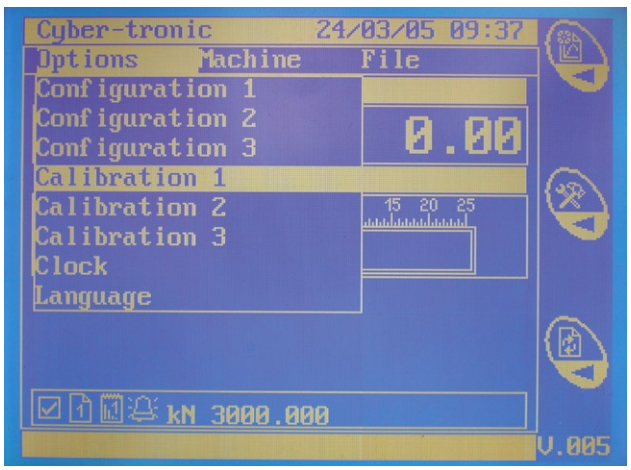
1 • Typical screen of the test with data, icons, function acronyms and indication of the proper application of the pace rate acting on the setting handle of the pressure valve.



2 • Example of the menu selecting the kind of test to be effected following the selected Standard.



3 • Test Data Input menu and rapid selections with function icons.



5 • Calibration menu up to 3 channels (3 testing frames) with its memorisation in the file.

MENU

Main Menu:

The display shows date and time, currently applied load and single load, latest effected test , controls for the pace rate, controls for rapid commands, status controls showing the configuration in use, analogical channel and eventually activated alarm (picture 1).

Test execution:

Local Mode : For the setting of a new test, use the controls for rapid commands. The test is effected manually after having entered the necessary parameters (specimen size : mm,in,cm), pace rate (Mpa/s,N/mm2/s,psi/s,lb/in2/s,kg/cm2/s,kN/s,lb/s,kg/s,t/s), test parameters (weight, specific weight, temperature, ageing). (Picture2,3). Once the test is over, the operator can start a new one, can display the graphic load/time (max. applied load and max. single load : Mpa,N/mm2,psi,lb/in2,kg/cm2) or return to the Main Menu.

Remote Mode : thanks to the program UTM2 (Accessory C109-10), the operator can activate from a remote PC, all the functions and controls available on the local unit also including the switching on and off of the machine, test acquisition, automatic data storing and other interesting functions.

Calibration / Configuration:

The transducer calibration can be carried out either in LOCAL or REMOTE mode :

- setting of the transducer data : min. values, measuring unit: kN, kg, lb, t,
- steps lining : 1/10 to 10/10 of the min. value, check date.
- Print out for machine setting
- Print out for calibration.

In the LOCAL calibration, the operator will check the ram by a direct control of the pump. The step saving operation is manual.

In the REMOTE calibration, the testing machine is controlled by the software UTM2 (accessory C109-10) (picture 5,6,9).

Transducer checking in LOCAL or REMOTE operating mode.

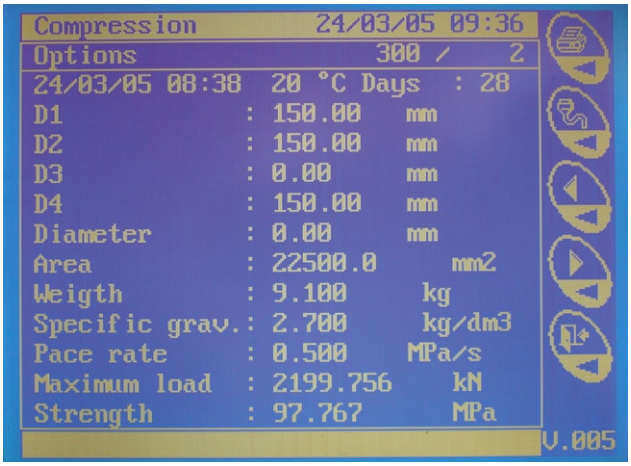
Setting of the measuring unit to be displayed (this unit may be different from the calibration one) ; setting of the alarm value, activation or deactivation of the alarm.

Complete setting of the machine configuration, starting value for load processing, starting automatic/semiautomatic, specimen touching the upper plate, test stop when reaching a given load value, setting of the dimension parameters. (picture 7).

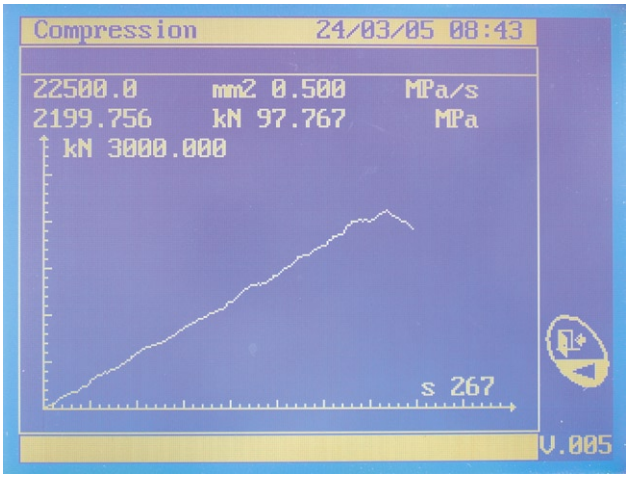
Test storing

The operator can store a max. of 600 tests; for every test it is possible to print out the results, to transfer the data by RS232 or to cancel it from the Archive. Furthermore it is also possible to transfer the entire memory or to print the whole content of the archive by RS232.

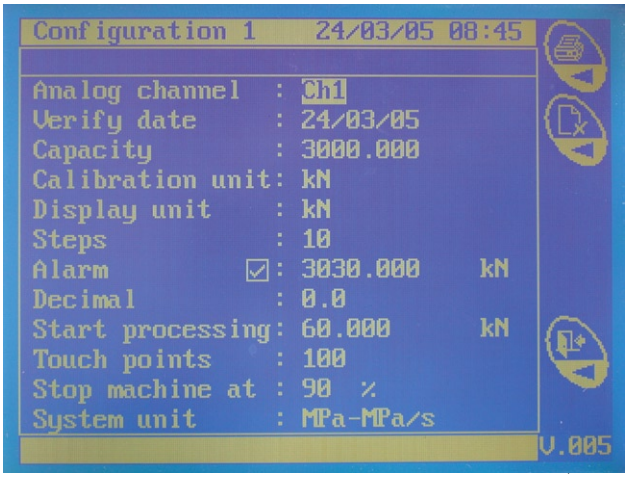
6 • Screen showing a calibration with confirmation of the reading lining points and file saving.



7 • Configuration of the test profile on channel 1 with calibration 1



8 • Graphic representation of the load/time behaviour on the test effected.



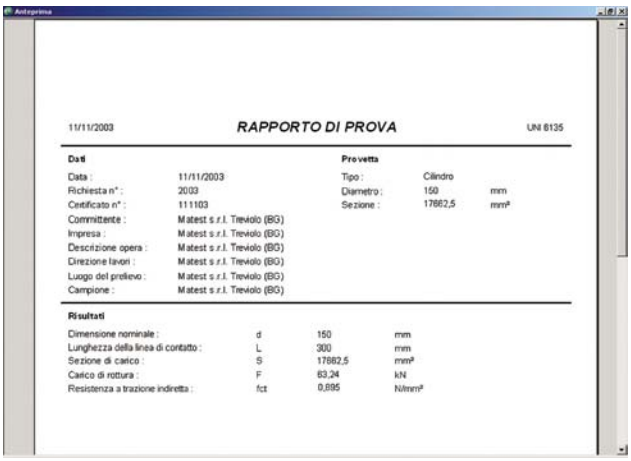
when the compression machine will automatically stop and release the oil pressure interrupting the test.

NEW

Serial communication

The serial port RS232 allows transferring of data at the end of every day, managing the file and the remote control from a PC thanks to the program UTM2 (accessory C109-10).

Power supply : 220-240V IF 50Hz 70W
Dimensions : 240x160x380 mm
Weight : 8 kg.



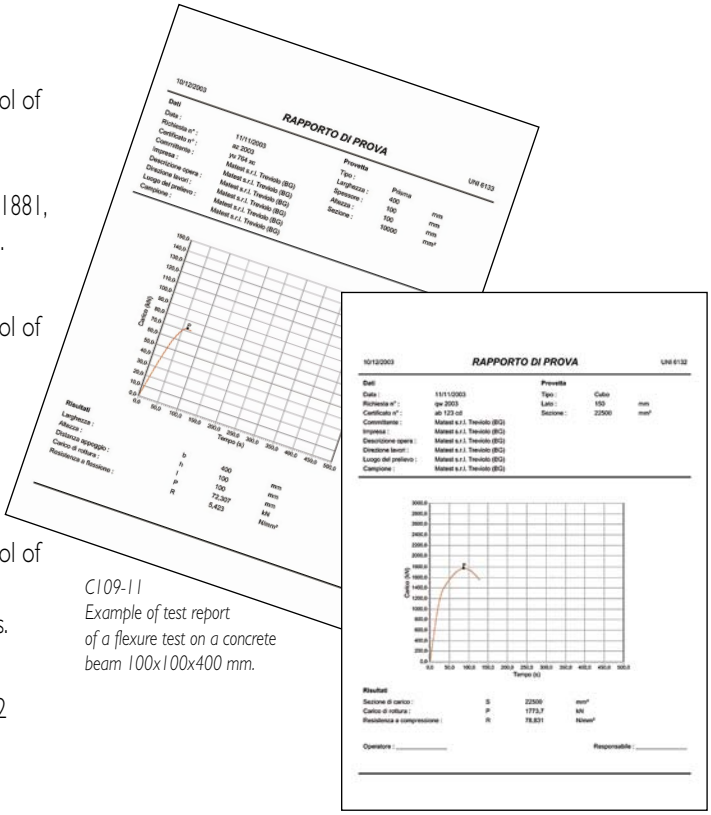
C109-12 Example of test report of a tensile splitting test on a concrete cylinder 150x300 mm.

ACCESSORIES:

C109-10 SOFTWARE UTM2 (Universal Testing Machine 2).
Developed for the managing and the remote control of the MATEST Testing machines from a PC .
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, etc.

C109-11 SOFTWARE UTM2 (Universal Testing Machine 2).
Developed for the managing and the remote control of the MATEST Testing machines from a PC.
License for FLEXURE tests on concrete.
Standards: EN 12390-5, UNI 6133, BS 1881, NF P18-407, ASTM C78, C293

C109-12 SOFTWARE UTM2 (Universal Testing Machine 2).
Developed for the managing and the remote control of the MATEST Testing machines from a PC .
License for TENSILE SPLITTING on cylinders and cubes.
Standards : EN 12390-6, EN 1338, UNI 6135.



C109-11 Example of test report of a flexure test on a concrete beam 100x100x400 mm.

C109-10 Example of a compression test report on a concrete cube specimen 150 mm. side.

For more info about features and general applications of UTM2 read page 14

C127 Graphic printer on thermo paper on board

C127-11 Thermo paper roll for C127 printer. Pack of10 rolls.

H009-01 Personal Computer complete of LCD 17" display, keyboard, mouse, connection cables.
The supply also including the installation of purchased Software.

H009-01

H009-02
Software for on line technical support . It allows the technical support to the customer without physical intervention of an After Sale specialist, and to use the machine on line for calibrations or other support activities.

C128

C128
Table printer- size A4.

PRESSURE TRANSDUCER
To be used with the Cybertronic mod. C 109, it is supplied complete of connection cable and calibration certificate.
Available models: see page 132

C116

C109-03

"HYDROTRONIC"

Stand alone control console. Connected to a load frame, it provides tests throughout all phases: data acquisition, display, processing, saving of the test dates, software for the print out of results and certificate.

To upgrade or complete your concrete or mortar compression and flexure testing machine (even not manufactured by Matest).

The "Hydrotronic" control console if formed by:

C109 Cybertronic, digital computerised multi-channel instrument (technical data: see pag. 90)

C114 Hydraulic motorized pumping unit with speed selector (technical data: see pag. 100 and 132)

Holding frame, complete with hydraulic flexible hose, connector, accessories.

C109-04

"HYDROTRONIC" for TWO FRAMES

Similar to mod. C109-03, but provided with an hydraulic valve, to control alternatively TWO FRAMES of testing machines.

C109-03 connected to E181 machine

C109-03

NEW

ACCESSORIES:

C127 Graphic printer on thermo paper, on board.

SOFTWARE UTM NET (Universal Testing Machine Network)

For the managing and the remote control through PC of the testing machine.

Models:

C109-10 License for Compression tests on concrete.
Standards: EN 12390-3, EN 679 / BS 1881 / ASTM C39
UNE 83304 / NF P18-411

C109-11 License for Flexure tests on concrete.
Standards: EN 12390-5 / ASTM C78, C293 / BS 1881
NF P18-407

C109-12 License for Tensile Splitting tests on cylinders, cubes and concrete blocks.
Standards: EN 12390-6, EN 1338 / UNI 6135

E163 License for Compression tests on mortar.
Standards: EN 196-1 / ASTM C109

E164 License for Flexure tests on mortar.
Standards: EN 196-1 / ASTM C348

C104

"Servotronic" Servo-controlled control unit to provide fully automatic tests throughout all phases : data acquisition, display, processing, included the pace rate adjustment and software for the print out of results and certificate.

To Upgrade or complete your Compression or Flexure Testing Machine (even not manufactured by **Matest**).

SERVOTRONIC CAN PERFORM AUTOMATICALLY AND IN ACCORDANCE WITH THE NEW EN STANDARDS AND WITH THE VARIOUS INTERNATIONAL STANDARDS (BS, ASTM, UNI, DIN, NF, UNE) THE FOLLOWING TESTS:

For each one of the above listed tests, the unit will automatically perform the complete test cycle :

- RAPID APPROACHING, TOUCHING ON AND BREAKING OF THE SPECIMEN UNDER DIRECT PUMP CONTROL.
- TARE
- CHECKING OF THE PACE RATE BY A CONTROLLING DEVICE THAT CAN BE PID PROGRAMMED ON THE STEP ACTUATOR. THE DEVICE ALSO ALLOWS TO EXECUTE THE TEST MANUALLY BY ACTING ON THE CONTROL BUTTON FOR THE DIRECT CONTROL OF THE STEP MOTOR
- CONTINUE LOAD DISPLAY
- BREAKING LOAD DETECTION
- ELABORATION OF THE SPECIFIC RESISTANCE VALUE.
- GRAPHIC ELABORATION DIRECTLY ON THE DISPLAY.

At the end of the test, the appliance gets ready for a new one.

NEW

SERVOTRONIC general features:

The control unit includes :
- motor
- hydraulic unit,
- multi-channel computerised digital device "CYBERTRONIC" (mod. C109 – technical info. : see previous pages).

Fully automatic test performance; the whole process is subdivided in various menu to grant an user friendly software.

Hydraulic Unit

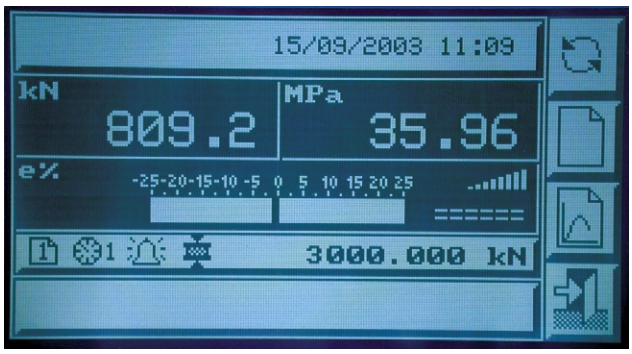
Composed of a multi-piston electric pump with variable output and controlled by a micro-processor.
A quiet and reliable system also for continuous and consistent testing.
All parts easily accessible for servicing.

Power supply : 220-240V IF50Hz 750W
Dimensions : 470x530x h 1260 mm
Weight 60 kg.

C104-01
« SERVOTRONIC FOR TWO FRAMES »
Servo-controlled control unit, similar to mod. C104, but provided with an hydraulic three ways valve, in order to control, alternatively, TWO FRAMES of testing machines.

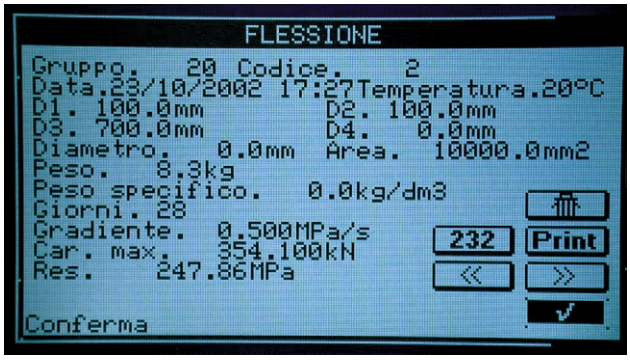
C104-01

C104-02
« SERVOTRONIC THREE FRAMES »
Servo-controlled control unit, similar to mod. C104, but provided with an hydraulic four ways valve, in order to control, alternatively, THREE FRAMES of testing machines.



Display during a test.

Personalisation of the working parameters of the machine in the advanced configuration menu protected by a password and restricted to the service engineers.



Screen showing the data of a flexure test.

Screen showing the data of a tensile splitting test following the Standards UNI 6135.

Menu of a test starting with automatic execution.

ACCESSORIES:

C123 SOFTWARE UTM2 (Universal Testing Machine 2). "SERVONET" license developed for the managing and the remote control of the Testing machines from a PC . The Software for COMPRESSION and FLEXURE tests on concrete and mortar specimens are also included in this license. Standards: EN 12390, EN 196, EN 679, UNI 6686,6132,6133,BS,ASTM, DIN, NF ,UNE, etc.

C109-12 SOFTWARE UTM2 (Universal Testing Machine 2). License for TENSILE SPLITTING tests on concrete cylinders and cubes. Standards: EN 12390-6, EN 1338, UNI 6135.

C125 SOFTWARE UTM2 (Universal Testing Machine 2). License for the SECANT COMPRESSION ELASTIC MODULUS ON CONCRETE complete with Hardware implementation. Standards : UNI 6556, ASTM C469, ISO 6784, DIN 1048.

For more info abt. features and general applications of UTM2 read page 14

C109-08 Expansion board 4 channels (total of 7 channels)

C127 Graphic printer on thermo paper on board

C127-11 Thermo paper roll for C127 printer. Pack of 10 rolls.

H009-01 Personal Computer complete of LCD 17" display, keyboard, mouse, connection cables. The supply also including the installation of purchased Software.

H009-02
Software for on line technical support . It allows the technical support to the customer without physical intervention of an After Sale specialist, and to use the machine on line for calibrations and other support activities.

C128 Table printer- size A4 for test graphic or certificate print out .

C128

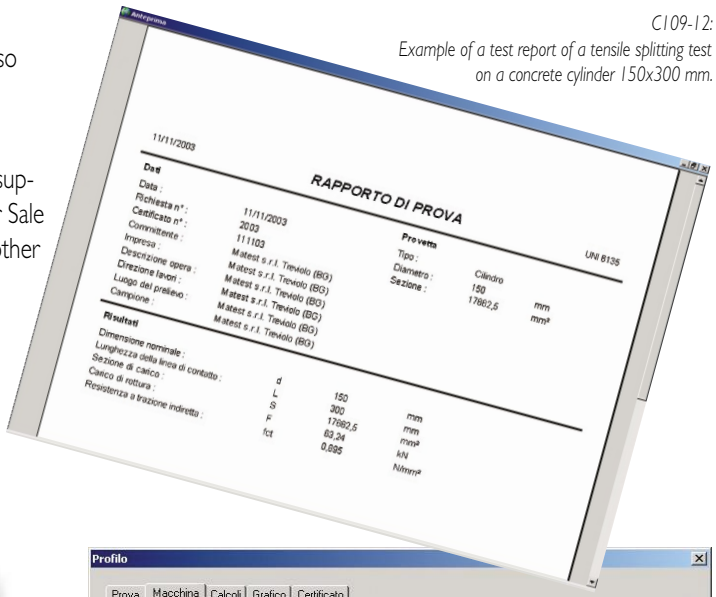
PRESSURE TRANSDUCER
To be used with the Servotronic mod. C 104, it is supplied complete of connection cable and calibration certificate.
Available models: see page 132

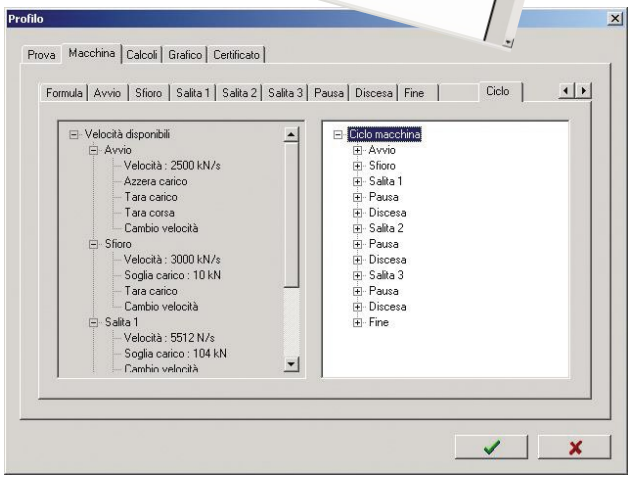
C116

NEW

Servotronic C104 connected to a PC H009-01 with "Servonet" Licence C123 for the managing and the remote control of the test throughout all the phases.

C109-12: Example of a test report of a tensile splitting test on a concrete cylinder 150x300 mm.





C125: Personalisation and composition of a test profile.

C125

Determination of the secant compression ELASTIC MODULUS on concrete System: Automatic with pace rate control also when releasing the load

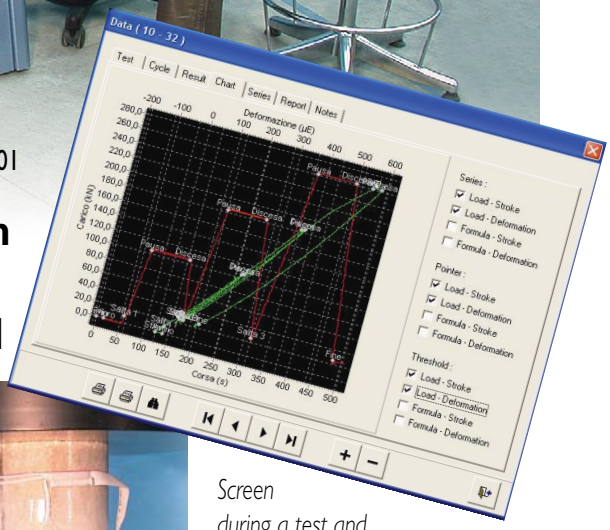
STANDARDS: UNI 6556 – ASTM C469 – ISO 6784 – DIN 1048

It can be used with a MATEST testing machine to be selected among the Servotronic models (ref. C104).

The appliance includes:

- **Hydraulic system**
  It is an hydraulic installation and has a high performance valve directly controlled by the digital unit that grants the automatic control of the pace rate increasing the load, keeps a certain load and than **controls the pace rate decreasing the load**.
  The setting of the pace rate is made by a very sensitive valve controlled by a step by step motor and it allows a micrometric action on the pace rate granting excellent results.
  A laser position detector allows a rapid positioning of the piston. This grants a touching sensitivity of test starting of about 0,1 per thousand of the maximum capacity.

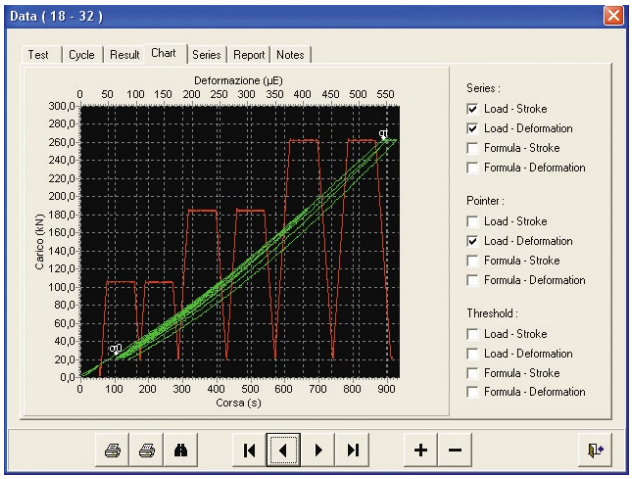
- **Electronic measuring system**
  The high performance control and data processing unit controlled by a 32 bit microprocessor, can manage up to 4 high resolution channels for the control of load cells or transducers with strain gages bridge and other 4 channels for the management of the signals coming from single use extensometers (strain gauges).
  The unit contains two Analogical/Digital last generation converters with 24 bits resolution. The system processes the signals coming from the load cells and from the extensometers giving all the results required for a further processing on the Personal Computer following the most updated International Standards for this application.
  The single use extensometers available in different dimensions must be interfaced using a specific module that makes the automatic calibration of the zero and of the measuring range after a special thermal compensation. This grants a five times better precision than the one required by the Standards.



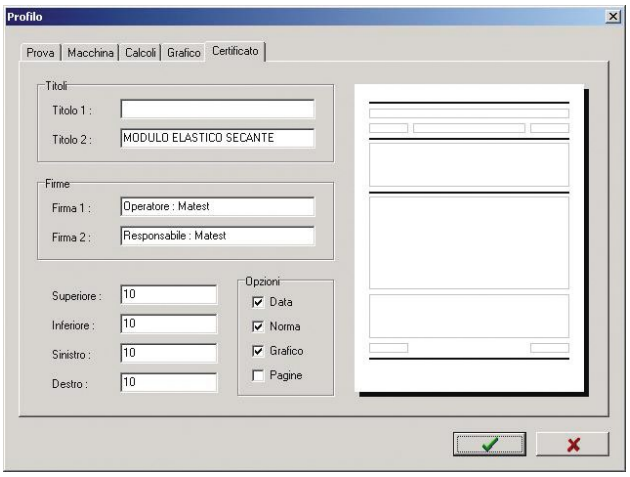
Screen during a test and marker indicating any change.

- **Data acquisition and processing software UTM2** (for feature and general applications of the UTM2 see page 14) with **License for Elastic Modulus on Concrete**.
  The software has been developed on the working line of the already known software UTM-2 (windows menu). It contains the profiles of the main Standards used, but the user can modify as he likes and personalise the test profile, that will be effected in a completely automatic way by the testing machine.

The user can introduce a list of data concerning the specimen that will be tested and the kind of test that he wants to make: shape of the specimen (cylinder-cube-block), dimensions, age of the specimen, average expected breaking value, etc… The appliance allows verifying the proper reading of the extensometers and, if everything is within the expected tolerances, it manages the average deformation value read by the transducers and processed by the digital unit, than it transmits by means of the serial communication port (RS232) to a Personal Computer, that can be already by the end user or supplied separately all the data of the test. These data will be processed by the software and transformed in a graph load/deformation and load/time, following the International Standards.



Test with two cycles as confirmation.



Personalisation of the test certificate.

The software gives the possibility to print on a standard printer a test certificate reporting all the data concerning the test and the specimen and the graph of the test.

- Extensometer-Digital unit kit, suitable to make tests on prisms and cylinders.
- Package of 10 extensometers (strain gages) single use (to be chosen among models from C125-10 to C125-13)
- Kit for the applications of extensometers composed by glue, welder, solder, cleaning liquid, accessories, everything in its transportable case.

ACCESSORIES:

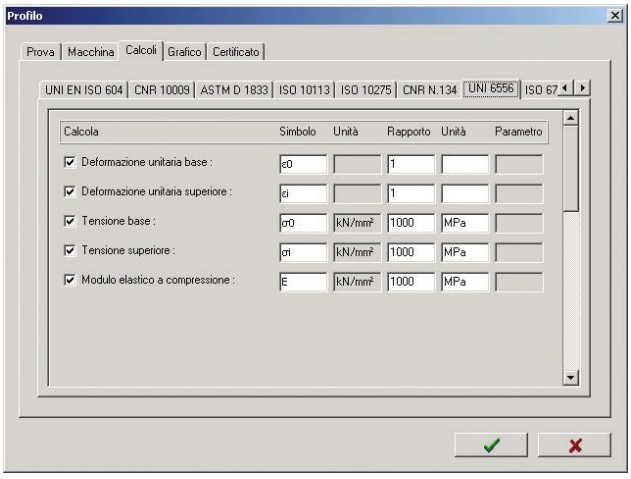
C125-01 Software to make Elastic Modulus tests on rocks. Standards: ASTM D3148, D2938, D5407, D2264, UNI 9724-8 – ISRM.

SPARE PARTS:

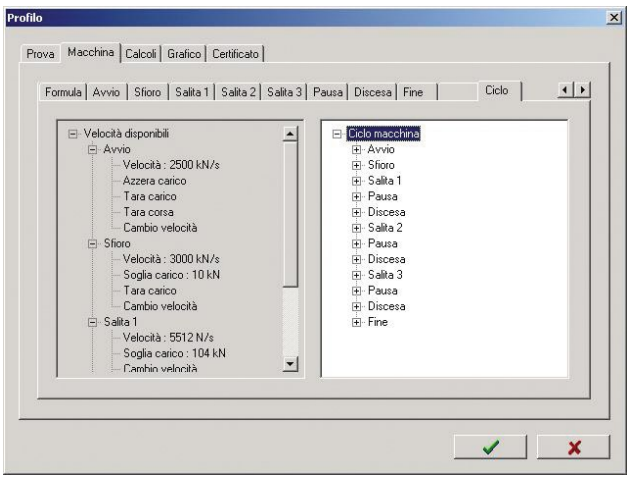
Electric single use extensometers, pack of 10 pieces.
Available models:

C125-10 Electric extensometer, base length 10 mm.
C125-11 Electric extensometer, base length 20 mm.
C125-12 Electric extensometer, base length 30 mm.
C125-13 Electric extensometer, base length 60 mm.

C125-16 Welder
C125-17 Glue
C125-18 Cleaning liquid
C125-19 Solder



Selection of a test profile (UNI 6556)



Personalisation and composition of a test profile.

COMPRESSION TESTING MACHINES

Two basic desing are available:

- MACHINES WITH FOUR COLUMNS PRESTRESSED FRAME
  STANDARDS: UNI 6686, 1, 2 - ASTM C39 - BS 1610
  NF P18-411
  Models described at pag. 102 ÷ 112

- MACHINES WITH FOUR COLUMNS HIGH STABILITY AND STIFFNESS FRAME
  STANDARDS: EN 12390 - BS 1881 - DIN 51220 - UNI 6686/3
  Models described at pag. 113 ÷ 119

GENERAL DESCRIPTION
The load frame is extremely strong and oversized to grant high rigidity and stability.
The upper head holds the precision lapped ball-seating and the compression platen.
Compression platens are surface hardened HRC 60 and ground.
Design emphasis has been placed on simplicity both of construction and operation so that our machines are rugged, easy to use and maintain, and designed for heavy continue use.
They are designed to conform to International Specifications as: EN, ASTM, AASHTO, BS, NF, DIN, UNI, UNE.
They are available in 1200 kN, 1500 kN, 2000 kN, 3000 kN, 5000 kN capacity, both hand-operated and motorized, at one or two gauges, with electronic digital display measuring system, and with automatic servocontrolled console with microprocessor.
The different versions give the possibility to test cubes, cylinders, blocks. All the machines can be equipped of safety guards.

Hydraulic system

Piston has large diameter: this allows the hydraulic circuit to work at low pressure with longer life of working components and higher precision in the results.
Piston is ground and lapped, and a packing high quality set of three elements is utilized.
Motorized models foresee a dial device to visualize, pre-select and control the flow allowing an uniform load rate as requested by Standards.
A fast approach ram action device is foreseen to avoid dead times during stroke of the ram.
The manual pump is two stage for fast approach ram action and automatic change for test pressure.
Power pump is multipiston, assuring continuity of delivery.
A movement indicator visualizes instant by instant the piston's excursion during the compression test.
A hopper is foreseen avoiding the powder of the broken specimen to enter into the cylinder of the press damaging the packing set.

E' prevista inoltre una tramoggia che evita alle scorie e alla polvere del provino rotto di infilarsi nel cilindro della pressa e causare danni alle guarnizioni.

LOAD MEASUREMENT SYSTEMS

A) GAUGES

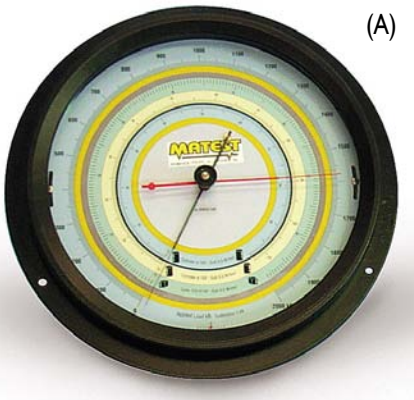
The gauges are Bourdon tube type. They are foreseen of max. load pointer, zero adjustment and mirror face to avoid parallax errors.
Low pressure gauge is fully protected from overload by a pressure control device.

(B)

* C) "CYBERTRONIC", MULTICHANNEL COMPUERIZED DIGITAL DISPLAY UNIT.
Large graphic display with high resolution, digital data acquisition and processing system with "core" 32 bit, over 500.000 points resolution, memory for more than 450 complete tests, Class 0,5.
(mod. C109 - technical details: see pag. 90)

(C)

(A)



B) "DIGITRONIC", 2 CHANNELS MICROPROCESSOR DIGITAL DISPLAY WITH PRINTER. Alphanumerical LCD display, analogical channels port, RS232 port, CPU card
(mod. C108 - technical details: see pag. 97)

(D)

* D) "SERVOTRONIC", AUTOMATIC SERVO-CONTROLLED SYSTEM, provides a fully automatic testing through all the phases, including control of load rate, printout results and certificates with software menus. Built in for the automatic Elastic Modulus of concrete to ASTM, ISO, UNI, DIN Standards
(mod. C104 - technical details: see pag. 94)

Calibration and precision

All the compression machines are calibrated with high accuracy electronic instruments and they are guaranted in GRADE "A" (max. error ≤ than ± 1%).
A Calibration Certificate is supplied along with the machine.

* NOTE:
Cybertronic and Servotronic systems can have PC remote control through Software UTM2 (Licences mod. C109-10, C109-11 and C123. Technical details: see pag. 14)

TECHNICAL FEATURES OF THE FOUR COLUMNS PRESTRESSED FRAME

(Models described at pag. 103÷112)

STANDARDS: UNI 6686, 1 2 - ASTM C39 - BS 1610 - NF P18-411

- Compression platens are hardened 60 HRC and rectified.
- Device to check piston's excursion during test.
- The columns are prestressed to provide a very high rigidity.
- Piston having 50 mm stroke and cylinder are coupled with high quality packing set.
- The tank is foreseen of oil level and oil discharge.
- Dial speed selector to visualize, pre-select and control the oil flow.
- Power pump is multipiston assuring continuity of delivery.
- Fast approach ram device to avoid dead times.
- Ball seating is accurately machined.

LOAD MEASURING SYSTEMS:

a) Dial Gauges dia. 250 mm have mirror face avoiding parallax errors
Gauges are fitted with max. load pointer, zero adjustment, damping system
Low pressure gauge is protected from overloads

b) "DIGITRONIC", two channels microprocessor digital display unit (see pag. 97)

c) "CYBERTRONIC", multichannel computerized digital display unit (see pag. 90)

d) "SERVOTRONIC", automatic servo-controlled system (see pag. 94)

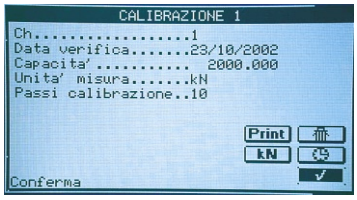
COMPRESSION TESTER 1200 kN CAPACITY

To test cylinders up to dia. 160x320 mm and cubes up to 100 mm side

STANDARDS: ASTM C39, C1231 - AASHTO T22 - NF P18-411 - UNE 83304, 7242

TECHNICAL SPECIFICATIONS:

- Max. vertical daylight: 336 mm
- Compression platens dia. 165 mm
- Gauges dia. 250 mm with specific resistance scales for cylinders dia. 100 - 150 - 160 mm
- Gauges divisions: 1200 kN div. 4 kN - 600 kN div. 2 kN
- Calibration accuracy: Grade 1.0
- Max. ram travel 55 mm approx.
- Power supply (motorized models): 220-240 V 1 ph 50 Hz 750 W
- Dimensions: 600x340x1150 mm
- Weight: 350÷400 Kg



Checking screen of channel one calibration status (available on Cybertronic and Servotronic models)

C015 + C127

C012 + C119

Model	Hand Operated	Motorized	1 Gauge	2 Gauge	Digitronic mod. C108	Cybertronic mod. C109	Servotronic mod. C104
C011	•		•				
C012	•			•			
C013		•	•				
C014		•		•			
C015		•				•	
C016		•					•
C017		•			•		

C013 + C111-02

C017 + C119

ACCESSORIES: (technical details at pag. 128÷133)

C111-02 Distance piece 226 mm high to test cubes 100 mm side
C111-03 Distance piece 100 mm high to test cylinders dia. 100x200 and 110x220 mm
C127 Graphic printer on thermal paper for Cybertronic and Servotronic models
C109-10 Compression tests Software for Cybertronic model (see pag. 14)
C123 "Servonet" Software for remote control through PC of Servotronic model (see pag. 14)
C125 Automatic Elastic Modulus for Servotronic model (see pag. 98)
C119 Fragment guard to CE Directive, polycarbonate sheet
C121 Safety guards to CE Directive, polycarbonate made, complete with hinges and lock

Additional accessories for specific tests listed at pag. 129÷133

COMPRESSION TESTER 1500 kN CAPACITY

To test cubes up to 150 mm side and cylinders up to dia. 160x320 mm

STANDARDS: ASTM C39 - AASHTO T22 - UNI 6686, 1, 2 - NF P18-411 - BS 1610 - UNE 83304, 7242

TECHNICAL SPECIFICATIONS:

- Max. vertical daylight: 336 mm
- Compression platens dia. 216 mm
- Gauges dia. 250 mm with specific resistance scales for cubes 150 mm and cylinders dia. 150 and 160 mm
- Gauges divisions: 1500 kN div. 5 kN - 600 kN div. 2 kN
- Hydraulic device to stop the piston's stroke at its max excursion
- Calibration accuracy: Grade 1.0
- Max. ram travel 55 mm approx.
- Power supply (motorized models): 220-240 V 1 ph 50 Hz 750 W
- Dimensions: 630x350x1260 mm
- Weight: 540÷580 Kg

C040 + C127 + C111

C042 + C111

ACCESSORIES: (technical details at pag. 128÷133)

C111 Distance piece 176 mm high for 150 mm cubes

C111-01 Distance pieces 176+50 mm high for 150+100 mm cubes

C111-03 Distance piece 100 mm high for cylinders dia. 100x200 and 110x220 mm

C111-21 Distance piece 50 mm high

C127 Graphic printer on thermal paper for Cybertronic and Servotronic models

C109-10 Compression tests Software for Cybertronic model (see pag. 14)

C123 "Servonet" Software for remote control through PC of Servotronic model (see pag. 14)

C125 Automatic Elastic Modulus for Servotronic model (see pag. 98)

C119 Fragment guard to CE Directive, polycarbonate sheet

C121 Safety guards to CE Directive, polycarbonate made, complete with hinges and lock

Additional accessories for specific tests listed at pag. 129÷133

C036 + C121

C039 + C111

Model	Hand Operated	Motorized	1 Gauge	2 Gauge	Digitronic mod. C108	Cybertronic mod. C109	Servotronic mod. C104
C036	•		•				
C037	•			•			
C038		•	•				
C039		•		•			
C040		•				•	
C041		•					•
C042		•			•		

COMPRESSION TESTER 2000 kN CAPACITY

To test cubes up to 200 mm side and cylinders up to 280 mm height

STANDARDS: ASTM C39 - AASHTO T22 - UNI 6686, 1, 2 - NF P18-411 - BS 1610 - UNE 83304, 7242

Model	Hand Operated	Motorized	1 Gauge	2 Gauge	Cybertronic mod. C109	Servotronic mod. C104
C058	•		•			
C058-01	•			•		
C058-02		•	•			
C058-03		•		•		
C058-04		•			•	
C058-05		•				•

TECHNICAL SPECIFICATIONS:

- Max. vertical daylight: 282 mm
- Compression platens dia. 283 mm
- Gauges dia. 250 mm with specific resistance scales for cubes 150 mm and cylinders dia. 150 and 160 mm
- Gauges divisions: 2000 kN div. 5 kN - 600 kN div. 2 kN
- Hydraulic device to stop the piston's stroke at its max excursion
- Calibration accuracy: Grade 1.0
- Max. ram travel 55 mm approx.
- Power supply (motor models): 220-240 V 1 ph 50 Hz 750 W
- Dimensions: 690x400x1320 mm
- Weight: 670÷720 Kg

ACCESSORIES: (technical details at pag. 128÷133)

C111-26 Distance piece 76 mm high for 200 mm cubes

C111-22 Distance pieces 50 mm high

NOTE:

For cubes 200 and 150 mm: C111-26 + C111-22

For cubes 200, 150 and 100 mm: C111-26 + two C111-22

C127 Graphic printer on thermal paper for Cybertronic and Servotronic models

C109-10 Compression tests Software for Cybertronic model (see pag. 14)

C123 "Servonet" Software for remote control through PC of Servotronic model (see pag. 14)

C119 Fragment guard to CE Directive, polycarbonate sheet

C121 Safety guards to CE Directive, polycarbonate made, complete with hinges and lock

Additional accessories for specific tests listed at pag. 129÷133

C058-05 + C111-26 + C111-22

C058-04 + C111-26 + C111-22

COMPRESSION TESTER 2000 kN CAPACITY

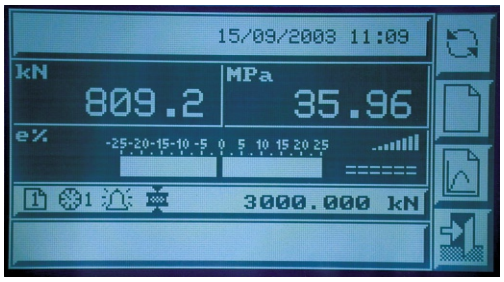
To test cubes up to 150 mm side and cylinders up to dia. 160x320 mm

STANDARDS: ASTM C39 - AASHTO T22 - UNI 6686, 1, 2 - NF P18-411 - BS 1610 - UNE 83304, 7242

Model	Hand Operated	Motorized	1 Gauge	2 Gauge	Digitronic mod. C108	Cybertronic mod. C109	Servotronic mod. C104
C051	•		•				
C052	•			•			
C053		•	•				
C054		•		•			
C055		•				•	
C056		•					•
C057		•			•		

TECHNICAL SPECIFICATIONS:

- Max. vertical daylight: 336 mm
- Compression platens dia. 216 mm
- Gauges dia. 250 mm with specific resistance scales for cubes 150 mm and cylinders dia. 150 and 160 mm
- Gauges divisions: 2000 kN div. 5 kN - 600 kN div. 2 kN
- Hydraulic device to stop the piston's stroke at its max excursion
- Calibration accuracy: Grade 1.0
- Max. ram travel 55 mm approx.
- Power supply (motor models): 220-240 V 1 ph 50 Hz 750 W
- Dimensions: 690x400x1320 mm
- Weight: 650÷700 Kg



Screen of the data during the test (available on Cybertronic and Servotronic models)

ACCESSORIES: (technical details at pag. 128÷133)

C111 Distance piece 176 mm high for 150 mm cubes

C111-01 Distance pieces 176+50 mm high for 150+100 mm cubes

C111-03 Distance piece 100 mm high for cylinders dia. 100x200 and 110x220 mm

C111-21 Distance piece 50 mm high

C112 Upper and lower compression platens 245x510 mm to test also blocks and cubes 200 mm side

C127 Graphic printer on thermal paper for Cybertronic and Servotronic models

C109-10 Compression tests Software for Cybertronic model (see pag. 14)

C123 "Servonet" Software for remote control through PC of Servotronic model (see pag. 14)

C125 Automatic Elastic Modulus for Servotronic model (see pag. 98)

C119 Fragment guard to CE Directive, polycarbonate sheet

C121 Safety guards to CE Directive, polycarbonate made, complete with hinges and lock

Additional accessories for specific tests listed at pag. 129÷133

C056 + C111

C055 + C127 + C121

C057+ C111

Screen of the data during the test on Cybertronic and Servotronic models

C109-10 Test report

C109-10 Outline of the test data

C055 + C127 + H009-01 + C109-10

C128

COMPRESSION TESTER 3000 kN CAPACITY

To test cubes up to 200 mm side and cylinders up to dia. 160x320 mm

STANDARDS: ASTM C39 - AASHTO T22 - UNI 6686, 1, 2 - NF P18-411 - BS 1610 - UNE 83304, 7242

TECHNICAL SPECIFICATIONS:

- Max. vertical daylight: 336 mm
- Compression platens dia. 287 mm
- Gauges dia. 250 mm with specific resistance scales for cubes 150 mm and cylinders dia. 150 and 160 mm
- Gauges divisions: 3000 kN div. 10 kN - 600 kN div. 2 kN
- Hydraulic device to stop the piston's stroke at its max excursion
- Calibration accuracy: Grade 1.0
- Max. ram travel 55 mm approx.
- Power supply (motorized models): 220-240 V 1 ph 50 Hz 750 W
- Dimensions: 860x470x1450 mm
- Weight: 1050÷1120 Kg

C070 + C111-05 + C127 + H009-01 + C109-10

ACCESSORIES: (technical details at pag. 128÷133)

C111-04 Distance piece 126 mm high for 200 mm cubes

C111-05 Distance pieces 126+50 mm high for 150+200 mm cubes

C111-06 Distance pieces 126+50+50 mm high for 100+150+200 mm cubes

C111-07 Distance pieces 50+50 mm high for cylinders dia. 100x200 and 110x220 mm

C111-22 Distance piece 50 mm high

C112 Upper and lower compression platens 245x510 mm to test also blocks

C127 Graphic printer on thermal paper for Cybertronic and Servotronic models

C109-10 Compression tests Software for Cybertronic model (see pag. 14)

C123 "Servonet" Software for remote control through PC of Servotronic model (see pag. 14)

C125 Automatic Elastic Modulus for Servotronic model (see pag. 98)

C119 Fragment guard to CE Directive, polycarbonate sheet

C121 Safety guards to CE Directive, polycarbonate made, complete with hinges and lock

Additional accessories for specific tests listed at pag. 129÷133

C068

C072 + C111-05

Model	Hand Operated	Motorized	1 Gauge	2 Gauge	Digitronic mod. C108	Cybertronic mod. C109	Servotronic mod. C104
C066	•		•				
C067	•			•			
C068		•	•				
C069		•		•			
C070		•				•	
C071		•					•
C072		•			•		

COMPRESSION TESTER 2000 kN CAPACITY

To test blocks max. 500x300 mm, cubes up to 300 mm side and cylinders up to dia. 160x320 mm

STANDARDS: ASTM C39, E447 - AASHTO T22 - UNI 6686, 1, 2 - NF P18-411 - BS 1610, 6073 - UNE 83304, 7242 - EN 771/3

TECHNICAL SPECIFICATIONS:

- Max. vertical daylight: 336 mm
- Compression platens 510x310x76 mm
- Gauges dia. 250 mm with specific resistance scales for cubes 150 mm and cylinders dia. 150 and 160 mm
- Gauges divisions: 2000 kN div. 5 kN - 600 kN div. 2 kN
- Hydraulic device to stop the piston's stroke at its max excursion
- Calibration accuracy: Grade 1.0
- Max. ram travel 55 mm approx.
- Power supply (motorized models): 220-240 V 1 ph 50 Hz 750 W
- Dimensions: 870x600x1400 mm
- Weight: 850÷900 Kg

ACCESSORIES: (technical details at pag. 128÷133)

C111-04 Distance piece 126 mm high for 200 mm cubes

C111-05 Distance pieces 126+50 mm high for 150+200 mm cubes

C111-06 Distance pieces 126+50+50 mm high for 100+150+200 mm cubes

C111-07 Distance pieces 50+50 mm high for cylinders dia. 100x200 and 110x220 mm

C111-22 Distance piece 50 mm high

C105 Device with central screw for adjusting the light between the compression platens (see pag. 128)

C127 Graphic printer on thermal paper for Cybertronic and Servotronic models

C109-10 Compression tests Software for Cybertronic model (see pag. 14)

C123 "Servonet" Software for remote control through PC of Servotronic model (see pag. 14)

C125 Automatic Elastic Modulus for Servotronic model (see pag. 98)

C121-01 Safety guards to CE Directive, polycarbonate made, complete with hinges and lock

Additional accessories for specific tests listed at pag. 129÷133

C077 + C127 + C105 + C111-09

C079 + C111-09

C078 + C105 + C111-09

Model	Hand Operated	Motorized	1 Gauge	2 Gauge	Digitronic mod. C108	Cybertronic mod. C109	Servotronic mod. C104
C073	•		•				
C074	•			•			
C075		•	•				
C076		•		•			
C077		•				•	
C078		•					•
C079		•			•		

COMPRESSION TESTER 3000 kN CAPACITY

To test blocks max. 500x300 mm, cubes up to 300 mm side and cylinders up to dia. 160x320 mm

STANDARDS: ASTM C39, E447 - AASHTO T22 - UNI 6686, 1, 2 - NF P18-411 - BS 1610, 6073 - UNE 83304, 7242 - EN 771/3

Model	Hand Operated	Motorized	1 Gauge	2 Gauge	Cybertronic mod. C109	Servotronic mod. C104
C079-01	•		•			
C079-02	•			•		
C079-03		•	•			
C079-04		•		•		
C079-05		•			•	
C079-06		•				•

TECHNICAL SPECIFICATIONS:

- Max. vertical daylight between platens: 336 mm
- Compression platens: 510 x 310 xh 76 mm
- Gauges dia. 250 mm with specific resistance scales for cubes 150 mm and cylinders dia. 150 and 160 mm
- Gauges divisions: 3000 kN div. 10 kN - 600 kN div. 2 kN
- Hydraulic device to stop the piston's stroke at its max excursion
- Calibration accuracy: Grade 1.0
- Max. ram travel 55 mm approx.
- Power supply (motor models): 220-240 V 1 ph 50 Hz 750 W
- Dimensions: 900x600x1500 mm
- Weight :1150÷1220 Kg

C079-06 + C111-22

C079-03

C079-05 + C105

ACCESSORIES: (technical details at pag. 128÷133)

C111-04 Distance piece 126 mm high for 200 mm cubes

C111-05 Distance pieces 126+50 mm high for 150+200 mm cubes

C111-06 Distance pieces 126+50+50 mm high for 100+150+200 mm cubes

C111-07 Distance pieces 50+50 mm high for cylinders dia. 100x200 and 110x220 mm

C111-22 Distance piece 50 mm high

C111-29 Distance piece 25 mm high

C110-13 Lower compression platen dia. 287 xh 51 mm for an easier test on cubes and cylinders

C105 Device with central screw for adjusting the light between the compression platens. It requieres slotted distance pieces (see pag. 128 and 133)

C127 Graphic printer on thermal paper for Cybertronic and Servotronic models

C109-10 Compression tests Software for Cybertronic model (see pag. 14)

C123 "Servonet" Software for remote control through PC of Servotronic model (see pag. 14)

C121-01 Safety guards to CE Directive, polycarbonate made, complete with hinges and lock

Additional accessories for specific tests listed at pag. 129÷133

Menu of a test starting with automatic execution

Screen on Cybertronic and Servotronic models

C078 + C105 + H009-01 + C123

C123 Outline of the Standard calculations

C123 Graphic of compression test execution

COMPRESSION TESTER 5000 kN CAPACITY

To test cubes up to 300 mm side and cylinders up to dia. 250x500 mm

STANDARDS: BS 1610, 6073 - UNI 6686, 1, 2 - NF P18-411 - ASTM C39, E447 - AASHTO T22 - UNE 83304, 7242

TECHNICAL SPECIFICATIONS:

- Max. vertical daylight: 530 mm
- Compression platens 310x310 mm
- Gauges dia. 250 mm with specific resistance scales for cubes 150 mm and cylinders dia. 150 and 160 mm
- Gauges divisions: 5000 kN div. 15 kN - 600 kN div. 2 kN
- Calibration accuracy: Grade 1.0
- Max. ram travel 60 mm approx.
- Power supply: 220-240 V 1 ph 50 Hz 750 W
- Dimensions: 1200x900X1900 mm
- Weight: 2800÷2900 Kg

C086-03

Personalisation of the working parameters of the machine in the advanced configuration menu, protected by a password and restricted to the service engineers (for Cybertronic and Servotronic models)

ACCESSORIES: (technical details at pag. 128÷133)

C086-10 Distance piece 50 mm high

C117 Sliding rail carriage for an easy removal of block platen

C112-01 Upper and lower compression platens 510x310x76 mm to test also blocks

C127 Graphic printer on thermal paper for Cybertronic and Servotronic models

C109-10 Compression tests Software for Cybertronic model (see pag. 14)

C123 "Servonet" Software for remote control through PC of Servotronic model (see pag. 14)

C125 Automatic Elastic Modulus for Servotronic model (see pag. 98)

C121-04 Safety guards to CE Directive, polycarbonate made, complete with hinges and lock

Additional accessories for specific tests listed at pag. 129÷133

C086-02 + C086-10

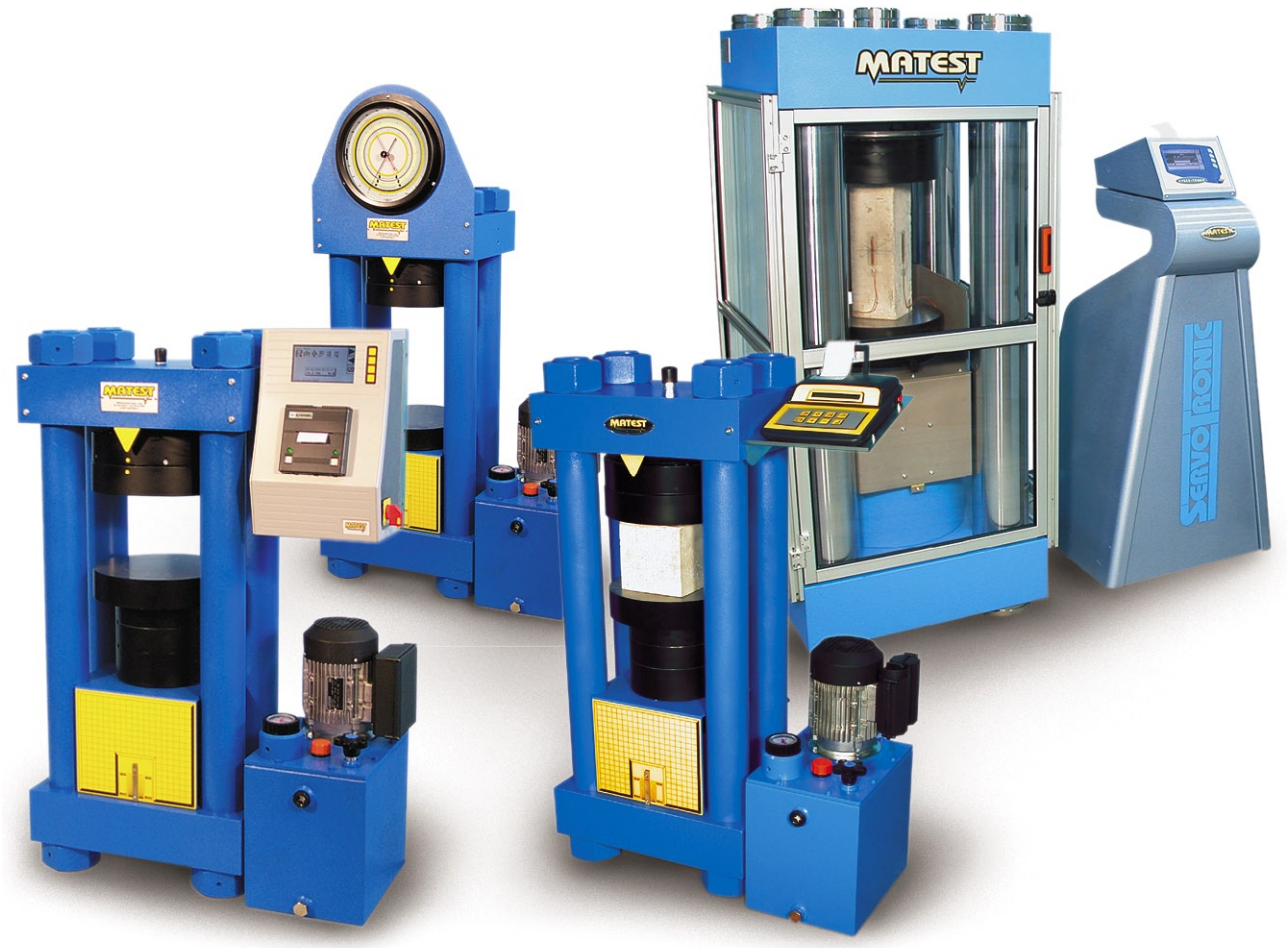
Model	Motorized	1 Gauge	2 Gauge	Cybertronic mod. C109	Servotronic mod. C104
C086	•	•			
C086-01	•		•		
C086-02	•			•	
C086-03	•				•

TECHNICAL FEATURES
OF THE FOUR COLUMNS HIGH STABILITY FRAMES

(Models described at pag. 114÷119)

STANDARDS: EN 12390/4, 12350/7 - BS 1881 - UNI 6686,1, 2, 3 - DIN 51220, 51302

- Compression platens are hardened 60 HRC and rectified.
- Device to check piston's excursion during test.
- Hydraulic device to stop automatically the piston's stroke at its max excursion.
- Piston and cylinder are coupled with high quality packing set.
- Dial speed selector to visualize, pre-select and control the oil flow.
- Power pump is multipiston assuring continuity of delivery.
- Fast approach ram device to avoid dead times.
- The ball seating, in oil bath with null end float, is studied and manufactured to grant, during the starting phase of the test, an accurate self-alignment without frictions of the upper compression platen to the specimen. By applying the load, the ball seating assembly locks and keeps the position until the specimen's failure.
- The four columns frame is prestressed on 8 ring nuts and the clamping is obtained and checked by a dynamometric spanner, allowing to get a very high stiffness and stability on all load range and to keep these features in the time.



LOAD MEASURING SYSTEMS:

a) Dial Gauges dia. 250 mm have mirror face avoiding parallax errors. Gauges are fitted with max. load pointer, zero adjustment, damping system.
Low pressure gauge is protected from overloads.

b) "DIGITRONIC", two channels microprocessor digital display unit (see pag. 97)

c) "CYBERTRONIC", multichannel computerized digital display unit (see pag. 90)

d) "SERVOTRONIC", automatic servo-controlled system (see pag. 94)

COMPRESSION TESTER 2000 kN CAPACITY HIGH STABILITY FRAME

To test cubes up to 200 mm side and cylinders up to dia. 160x320 mm

STANDARDS: EN 12390:4, 12350:7 - BS 1881:115, 1610 - UNI 6686, 1, 2, 3 - NF P18-411 - DIN 51220, 51302 - ASTM C39 AASHTO T22 - UNE 83304, 7242

TECHNICAL SPECIFICATIONS:

- Max. vertical daylight: 336 mm
- Compression platens dia. 287x60 mm
- Gauges dia. 250 mm with specific resistance scales for cubes 150 mm and cylinders dia. 150 and 160 mm
- Gauges divisions: 2000 kN div. 5 kN - 600 kN div. 2 kN
- Calibration accuracy: Grade 1.0
- Max. ram travel 60 mm approx.
- Power supply: 220-240 V 1 ph 50 Hz 750 W
- Dimensions: 690x400x1400 mm
- Weight: 850÷920 Kg

C089-04 + C111-13 + H009-01 + C123

C089-02 + C127 + C111-13

Model	Motorized	1 Gauge	2 Gauge	Digitronic mod. C108	Cybertronic mod. C109	Servotronic mod. C104
C089	•	•				
C089-01	•		•			
C089-02	•				•	
C089-03	•			•		
C089-04	•					•

ACCESSORIES: (technical details at pag. 128÷133)

C111-12 Distance pieces 76+50 mm high for 200 mm cubes

C111-13 Distance pieces 76+50+50 mm high for 150+200 mm cubes

C111-14 Distance pieces 76+3x50 mm high for 100+150+200 mm cubes

C111-24 Distance piece 50 mm high

C111-25 Distance piece 76 mm high

C110-20 Lower compression platen, hardened and rectified, dia. 165x50 mm to test cubes 100 mm (as an alternative to the distance piece 50 mm high)

C127 Graphic printer on thermal paper for Cybertronic and Servotronic models

C109-10 Compression tests Software for Cybertronic model (see pag. 14)

C123 "Servonet" Software for remote control through PC of Servotronic model (see pag. 14)

C125 Automatic Elastic Modulus for Servotronic model (see pag. 98)

C119 Fragment guard to CE Directive, polycarbonate sheet

C121 Safety guards to CE Directive, polycarbonate made, complete with hinges and lock

Additional accessories for specific tests listed at pag. 129÷133

C089-03 + C111-13

C089

COMPRESSION TESTING MACHINE 2000 kN CAPACITY
HIGH STIFFNESS/STABILITY FRAME "CHROMED COLUMNS"
To test cubes up to 200 mm side and cylinders up to dia. 160x320 mm

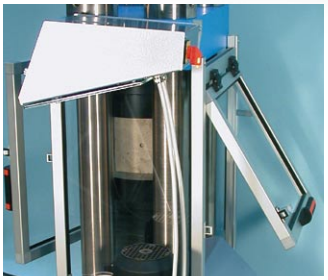
STANDARDS: EN 12390:4, 12350:7 - BS 1881:115, 1610 - UNI 6686, 1, 2, 3 - NF P18-411 - DIN 51220, 51302 - ASTM C39 AASHTO T22 - UNE 83304, 7242

TECHNICAL SPECIFICATIONS:

- Chromed columns with chromed nuts
- Max. vertical daylight: 336 mm
- Compression platens dia. 287x60 mm
- Gauges dia. 250 mm with specific resistance scales for cubes 150 mm and cylinders dia. 150 and 160 mm
- Gauges divisions: 2000 kN div. 5 kN - 600 kN div. 2 kN
- Calibration accuracy: Grade 1.0
- Max. ram travel 60 mm approx.
- Power supply: 220-240 V 1 ph 50 Hz 750 W
- Dimensions: 690x400x1400 mm
- Weight: 850÷920 Kg

C089-02 CR + C121-06 CR +C111-13

C089-04 CR + C127



C121-06 CR
DETAIL OF
SAFETY GUARDS

Model	Motorized	1 Gauge	2 Gauge	Digitronic mod. C108	Cybertronic mod. C109	Servotronic mod. C104
C089 CR	•	•				
C089-01 CR	•		•			
C089-02 CR	•				•	
C089-03 CR	•			•		
C089-04 CR	•					•

ACCESSORIES: (technical details at pag. 128÷133)

C111-12 Distance pieces 76+50 mm high for 200 mm cubes

C111-13 Distance pieces 76+50+50 mm high for 150+200 mm cubes

C111-14 Distance pieces 76+3x50 mm high for 100+150+200 mm cubes

C111-24 Distance piece 50 mm high

C111-25 Distance piece 76 mm high

C110-20 Lower compression platen, hardened and rectified, dia. 165x50 mm to test cubes 100 mm (as an alternative to the distance piece 50 mm high)

C127 Graphic printer on thermal paper for Cybertronic and Servotronic models

C109-10 Compression tests Software for Cybertronic model (see pag. 14)

C123 "Servonet" Software for remote control through PC of Servotronic model (see pag. 14)

C125 Automatic Elastic Modulus for Servotronic model (see pag. 98)

C119-04 Fragment guard to CE Directive, polycarbonate sheet

C121-06 CR Safety guards to CE Directive, polycarbonate made, aluminium frame, complete with hinges and lock

Additional accessories for specific tests listed at pag. 129÷133

COMPRESSION TESTER 3000 kN CAPACITY HIGH STABILITY FRAME

To test cubes up to 200 mm side and cylinders up to dia. 160x320 mm

STANDARDS: EN 12390:4, 12350:7 - BS 1881:115, 1610 - UNI 6686, 1, 2, 3 - NF P18-411 - DIN 51220, 51302 - ASTM C39 AASHTO T22 - UNE 83304, 7242

TECHNICAL SPECIFICATIONS:

- Max. vertical daylight 336 mm
- Compression platens dia. 287x60 mm
- Gauges dia. 250 mm with specific resistance scales for cubes 150 mm and cylinders dia. 150 and 160 mm
- Gauges divisions: 3000 kN div. 10 kN - 600 kN div. 2 kN
- Calibration accuracy: Grade 1.0
- Max. ram travel 60 mm approx.
- Power supply: 220-240 V 1 ph 50 Hz 750 W
- Dimensions: 750x450x1500 mm
- Weight: 1200÷1250 Kg

C089-10 + C111-13

Model	Motorized	1 Gauge	2 Gauge	Digitronic mod. C108	Cybertronic mod. C109	Servotronic mod. C104
C089-06	•	•				
C089-07	•		•			
C089-08	•				•	
C089-09	•			•		
C089-10	•					•

C089-08 + C121

ACCESSORIES: (technical details at pag. 128÷133)

C111-12 Distance pieces 76+50 mm high for 200 mm cubes

C111-13 Distance pieces 76+50+50 mm high for 150+200 mm cubes

C111-14 Distance pieces 76+3x50 mm high for 100+150+200 mm cubes

C111-24 Distance piece 50 mm high

C111-25 Distance piece 76 mm high

C110-20 Lower compression platen, hardened and rectified, dia. 165x50 mm to test cubes 100 mm (as an alternative to the distance piece 50 mm high)

C127 Graphic printer on thermal paper for Cybertronic and Servotronic models

C109-10 Compression tests Software for Cybertronic model (see pag. 14)

C123 "Servonet" Software for remote control through PC of Servotronic model (see pag. 14)

C125 Automatic Elastic Modulus for Servotronic model (see pag. 98)

C119 Fragment guard to CE Directive, polycarbonate sheet

C121 Safety guards to CE Directive, polycarbonate made, complete with hinges and lock

Additional accessories for specific tests listed at pag. 129÷133

COMPRESSION TESTING MACHINE 3000 kN CAPACITY
HIGH STIFFNESS/STABILITY FRAME "CHROMED COLUMNS"
To test cubes up to 200 mm side and cylinders up to dia. 160x320 mm

STANDARDS: EN 12390:4, 12350:7 - BS 1881:115, 1610 - UNI 6686, 1, 2, 3 - NF P18-411 - DIN 51220, 51302 - ASTM C39 AASHTO T22 - UNE 83304, 7242

TECHNICAL SPECIFICATIONS:

- Chromed columns with chromed nuts
- Max. vertical daylight 336 mm
- Compression platens dia. 287x60 mm
- Gauges dia. 250 mm with specific resistance scales for cubes 150 mm and cylinders dia. 150 and 160 mm
- Gauges divisions: 3000 kN div. 10 kN - 600 kN div. 2 kN
- Calibration accuracy: Grade 1.0
- Max. ram travel 60 mm approx.
- Power supply: 220-240 V 1 ph 50 Hz 750 W
- Dimensions: 750x450x1500 mm
- Weight: 1200÷1250 Kg

C089-10 CR + C111-13

Model	Motorized	1 Gauge	2 Gauge	Digitronic mod. C108	Cybertronic mod. C109	Servotronic mod. C104
C089-06 CR	•	•				
C089-07 CR	•		•			
C089-08 CR	•				•	
C089-09 CR	•			•		
C089-10 CR	•					•

C089-08 CR + C111-13 + H009-01 + C109-10

ACCESSORIES: (technical details at pag. 128÷133)

C111-12 Distance pieces 76+50 mm high for 200 mm cubes

C111-13 Distance pieces 76+50+50 mm high for 150+200 mm cubes

C111-14 Distance pieces 76+3x50 mm high for 100+150+200 mm cubes

C111-24 Distance piece 50 mm high

C111-25 Distance piece 76 mm high

C110-20 Lower compression platen, hardened and rectified, dia. 165x50 mm to test cubes 100 mm (as an alternative to the distance piece 50 mm high)

C127 Graphic printer on thermal paper for Cybertronic and Servotronic models

C109-10 Compression tests Software for Cybertronic model (see pag. 14)

C123 "Servonet" Software for remote control through PC of Servotronic model (see pag. 14)

C125 Automatic Elastic Modulus for Servotronic model (see pag. 98)

C119-05 Fragment guard to CE Directive, polycarbonate sheet

C121-07CR Safety guards to CE Directive, polycarbonate made, aluminium frame, complete with hinges and lock

Additional accessories for specific tests listed at pag. 129÷133

COMPRESSION TESTER 3000 kN CAPACITY HIGH STABILITY FRAME

To test blocks max. 500x300 mm, cubes up to 200 mm side and cylinders up to dia. 160x320 mm

STANDARDS: EN 12390:4, 12350:7, 771:3 - BS 1881:115, 1610, 6073 - UNI 6686, 1, 2, 3 - NF P18-411 - DIN 51220, 51302 ASTM C39, E447 - AASHTO T22 - UNE 83304, 7242

TECHNICAL SPECIFICATIONS:

- Max. vertical daylight to test blocks: 244 mm
- Compression platens for blocks: 510x310x76 mm
- Max. vertical daylight to test cubes and cylinders: 336 mm
- Compression platens to test cubes and cylinders: dia. 287x60 mm
- Gauges dia. 250 mm with specific resistance scales for cubes 150 mm and cylinders dia. 150 and 160 mm
- Gauges divisions: 3000 kN div. 10 kN - 600 kN div. 2 kN
- Calibration accuracy: Grade 1.0
- Max. ram travel 60 mm approx.
- Power supply: 220-240 V 1 ph 50 Hz 750 W
- Dimensions: 750x520x1500 mm
- Weight: 1350÷1400 Kg

C089-19

Start test menu with automatic processing

C117

C089-17

ACCESSORIES: (technical details at pag. 128÷133)

C117 Sliding rail carriage for an easy removal of block platen

C111-12 Distance pieces 76+50 mm high for 200 mm cubes

C111-13 Distance pieces 76+50+50 mm high for 150+200 mm cubes

C111-14 Distance pieces 76+3x50 mm high for 100+150+200 mm cubes

C111-24 Distance piece 50 mm high

C111-25 Distance piece 76 mm high

C127 Graphic printer on thermal paper for Cybertronic and Servotronic models

C109-10 Compression tests Software for Cybertronic model (see pag. 14)

C123 "Servonet" Software for remote control through PC of Servotronic model (see pag. 14)

C125 Automatic Elastic Modulus for Servotronic model (see pag. 98)

C121-01 Safety guards to CE Directive, polycarbonate made, complete with hinges and lock

Additional accessories for specific tests listed at pag. 129÷133

Model	Motorized	1 Gauge	2 Gauge	Digitronic mod. C108	Cybertronic mod. C109	Servotronic mod. C104
C089-15	•	•				
C089-16	•		•			
C089-17	•				•	
C089-18	•			•		
C089-19	•					•

News 4

COMPRESSION TESTING MACHINE 3000 kN CAPACITY
HIGH STIFFNESS/STABILITY FRAME "CHROMED COLUMNS"

To test blocks max. 500x300 mm, cubes up to 200 mm side and cylinders up to dia. 160x320 mm

STANDARDS: EN 12390:4, 12350:7, 771:3 - BS 1881:115, 1610, 6073 - UNI 6686, 1, 2, 3 - NF P18-411 - DIN 51220, 51302 ASTM C39, E447 - AASHTO T22 - UNE 83304, 7242

TECHNICAL SPECIFICATIONS:

- Chromed columns with chromed nuts
- Max. vertical daylight to test blocks: 244 mm
- Compression platens for blocks: 510x310x76 mm
- Max. vertical daylight to test cubes and cylinders: 336 mm
- Compression platens to test cubes and cylinders: dia. 287x60 mm
- Gauges dia. 250 mm with specific resistance scales for cubes 150 mm and cylinders dia. 150 and 160 mm
- Gauges divisions: 3000 kN div. 10 kN - 600 kN div. 2 kN
- Calibration accuracy: Grade 1.0
- Max. ram travel 60 mm approx.
- Power supply: 220-240 V 1 ph 50 Hz 750 W
- Dimensions: 750x520x1500 mm
- Weight: 1350÷1400 Kg

C089-19 CR

ACCESSORIES: (technical details at pag. 128÷133)

C117 Sliding rail carriage for an easy removal of block platen

C111-12 Distance pieces 76+50 mm high for 200 mm cubes

C111-13 Distance pieces 76+50+50 mm high for 150+200 mm cubes

C111-14 Distance pieces 76+3x50 mm high for 100+150+200 mm cubes

C111-24 Distance piece 50 mm high

C111-25 Distance piece 76 mm high

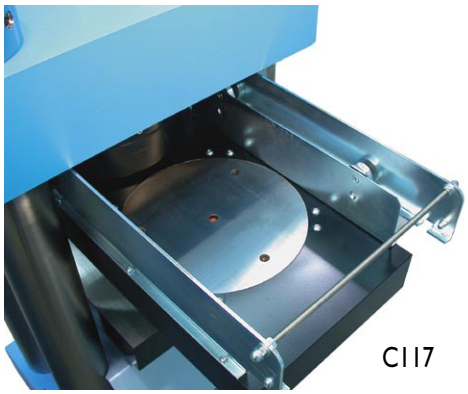
C127 Graphic printer on thermal paper for Cybertronic and Servotronic models

C109-10 Compression tests Software for Cybertronic model (see pag. 14)

C123 "Servonet" Software for remote control through PC of Servotronic model (see pag. 14)

C125 Automatic Elastic Modulus for Servotronic model (see pag. 98)

C121-09 CR Safety guards to CE Directive, polycarbonate made, aluminium frame, complete with hinges and lock



C117

Additional accessories for specific tests listed at pag. 129÷133

Model	Motorized	1 Gauge	2 Gauge	Digitronic mod. C108	Cybertronic mod. C109	Servotronic mod. C104
C089-15 CR	•	•				
C089-16 CR	•		•			
C089-17 CR	•				•	
C089-18 CR	•			•		
C089-19 CR	•					•

Screen on Cybertronic and Servotronic models

C125 Personalisation of the test certificate

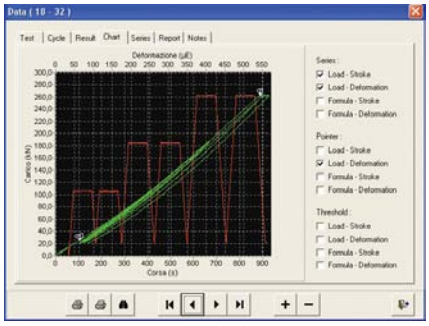
COMPRESSION TESTER 3000 kN AND 5000 kN CAPACITY

This oversized isostatic high stability stiffness frame grants extreme performances and is the ideal for central and research laboratories for tests on high strength specimens, explosive samples, rock and ceramic samples, etc.

STANDARDS: EN 12390, 12394 – BS 1881 – NF P18-411 – DIN 51220, 51223

TECHNICAL SPECIFICATIONS:

- High stiffness frame: 0,3mm at max. load
- Four chromed columns dia. 150 mm (dia. 180 mm for 5000 kN version)
- Compression platens dia. 316 x 60 mm
- Platens hardness : 60 HRC
- Max. vertical daylight: 411 mm
- Light between columns: 321 mm
- Max. ram travel: 100 mm
- Hydraulic pressure: 360Bar at 3000kN (or 5000 kN)
- Ball seating in oil bath with null end float and up to 3° inclination
- Safety guards to CE Directive polycarbonate and aluminium made
- Grade of accuracy "1"
- Frame size 3000 kN: 725 x 710 x h 1570 mm
- Frame size 5000 kN: 750 x 750 x h 1700 mm
- Power supply: 220/240V 1ph 50Hz 750W
- Weight frame 3000 kN: 2500 kg
- Weight frame 5000 kN: 4000 kg



C125: Test with two cycles as confirmation

C087-01 + C127 + C125

Model	Code	Motorized	Cybertronic mod. C109	Servotronic mod. C104
3000 kN	**C087**	•	•	
3000 kN	**C087-01**	•		•
5000 kN	**C088**	•	•	
5000 kN	**C088-01**	•		•

C087 + C127

ACCESSORIES: (technical details at pag. 128÷133)

C087-11 Distance piece 50 mm high

C127 Graphic printer on thermal paper for Cybertronic and Servotronic models

C109-10 Compression tests Software for Cybertronic model (see pag. 14)

C123 "Servonet" Software for remote control through PC of Servotronic model (see pag. 14)

C125 Automatic Elastic Modulus for Servotronic model (see pag. 98)

Additional accessories for specific tests listed at pag. 129÷133

Menu of a test starting with automatic execution

C109-10
Graphic with test report

C087-01 + H009-01 + C123 + C125

C125 Selection of a test profile (UNI 6556)

C125 Elastic Modulus: screen during the test and marker indicating any change

C125 Personalisation and composition of a test profile

FLEXURAL TESTING MACHINES 150 kN CAPACITY

Three basic design are available:

- **C090** Serie to perform flexural tests on concrete beam specimens having max. dimensions of 150x150x750 mm conforming to the Specifications: EN 12390/5 - UNI 6133 - ASTM C78, C293 AASHTO T97 - BS 1881:118 - UNE 83305 - NF P18-407

C090 SERIE

C091 SERIE

- **C091** Serie with "**open sided frame**" to perform flexural tests on concrete beam specimens having max. dimensions of 200x200x800 mm conforming to the a.m. Specifications, and in addition to perform tests on:
  - Flat blocks (max. width 500 mm) conforming to the BS 6073/1
  - Flagstones and Kerbs conforming to the BS 7263
  - Kerbs conforming to the NF P98-302
  - Any type of beam having max. size 550xh250 mm (lower rollers max. length 1325 mm)

- **C093** Serie to perform flexural tests on concrete beam specimens having max. dimensions 200x200x800 mm and to perform tests on any kind of other product with max. dimensions 550xh550 mm (adjustable distance between lower rollers up to max. 1325 mm)

C093 SERIE

All series are proposed in the models: Hand Operated, Motor Operated, Digitronic, Cybertronic, Servotronic.
It is also possible, by using suitable accessories, to perform the following tests:

- Compression test on portions of 40.1x40x160 mm mortar prisms broken in flexure conforming to EN 196, DIN 1164 Specifications (compression devices mod. E170, E170-01 - see pag. 130)
- Compression tests on 50 mm mortar cubes, conforming to ASTM C109 (Compression device mod. E171 - see pag. 130)
- Compression tests on 70 mm mortar cubes, conforming to BS 4550 (Compression device mod. E171-01 - see pag. 130)
- Splitting tensile test on cylindrical specimens dia. 100, 150, 160 mm conforming to EN 12390/6 - NF P18-408 - BS 1881:117 ASTM C496 - UNI 6135 (Device mod. C101-01 - see pag. 129)
- Splitting tensile test on concrete cubes and concrete block pavers, conforming to EN 12390/6, 1338 (Device mod. C103 - see pag. 129)

FLEXURAL TESTING MACHINE 150 kN CAPACITY

To perform flexural tests on concerte beam specimens max. dimensions 150x150x600 (750) mm

STANDARDS: EN 12390/5 - ASTM C78, C293 - AASHTO T97 - BS 1881:118 - NF P18-407 - UNE 83305 - UNI 6133

Model	Hand Operated	Motorized	Gauge	Digitronic mod. C108	Cybertronic mod. C109	Servotronic mod. C104
C090	•		•			
C090-01		•	•			
C090-02		•			•	
C090-03		•				•
C090-04		•		•		

C090-03 + H009-01 + C123

C090-04

C090

C090-01

TECHNICAL SPECIFICATIONS:

- Max. vertical daylight between upper/lower rollers: 160 mm
- Rollers dimensions: dia. 40x160 mm
- Complete with 4 adjustable and articulated rollers for two point loading
- Distance between lower rollers adjustable from 100 to 455 mm
- Distance between upper rollers adjustable from 40 to 155 mm
- Possibility to easily place in the centre one upper roller for centre point loading
- Rollers are hardened, casehardened and rectified
- Graduated scales are foreseen to get easy roller's adjustment
- Gauge diameter 250 mm and div. 0.5 kN
- Max. ram travel 50 mm approx.
- Power supply (motorized models): 220-240 V 1 ph 50 Hz 750 W
- Dimensions: 540x460x960 mm
- Weight: 180÷240 Kg.

ACCESSORIES: (technical details at pag. 128-133)

C111-16 Distance piece 50 mm high to test beams 100x100x400 (500) mm

C127 Graphic printer on thermal paper for Cybertronic and Servotronic models

C109-11 Flexure test Software for Cybertronic model (see pag. 14)

C123 "Servonet" Software for remote control through PC of Servotronic model (see pag. 14)

Additional accessories for specific tests listed at pag. 129÷133

Note: Digital models are available (upon request) with lower capacity range (for ex. 0-50 kN) to improve measurements accuracy, or they can be equipped with an additional low capacity range.

NEW

FLEXURAL TESTING MACHINE 150kN CAPACITY "OPEN SIDED FRAME"

To perform flexural tests on concrete beam specimens max. dimensions 200x200x800mm, flat blocks, flagstones, kerbs, tiles, slabs, masonry units, and any type of material having max. size 550x250 mm (lower rollers max. length 1325 mm)

STANDARDS: EN 12390-5, ASTM C78, C293, AASHTO T97, BS1881 :118, UNE 83305, NF P18-497, P98-302, UNI 6133

TECHNICAL SPECIFICATIONS :

- **"Open sided frame"** for an easy and fast positioning of the specimen between the rollers
- Max. vertical daylight between upper/lower rollers: 260 mm, with possibility to select intermediate daylights positions of 210 and 160 mm
- Rollers dimensions: dia. 30 x 550 mm
- Possibility to easily place in the centre one upper roller for centre point loading
- Graduated scales are foreseen to get easy roller's adjustment
- Gauge diameter 250 mm and div. 0,5 kN
- Ram travel 110mm approx.
- Simple action piston with counterweights to optimise frictions
- Power supply (motorized models): 220-240V 1ph 50Hz 750W
- Dimensions: 1400 x 1200 xh 1430 mm
- Weight: 350 kg

THE MACHINE IS SUPPLIED **"WITHOUT"** UPPER/LOWER ROLLERS GROUP,TO BE ORDERED SEPARATELY (Possibility to choose between two types of rollers-group. See accessories).

C091-02 + C127 + C091-12

C091-03 + C091-12 + H009-01 + C123

C093-11

ACCESSORIES (Technical details at pag 128 - 133)

C091-11 ROLLERS GROUP: lower adjustable from 75 to 525 mm and upper adjustable from 75 to 180 mm

C091-12 ROLLERS GROUP: lower adjustable from 75 to 1325 mm and upper adjustable from 75 to 575 mm

C093-11 Device for flexural tests on clay blocks for flooring. Standard: UNI 9730-3
It consists of two lower bearers dia. 20x300mm and upper square wooden pressure punch.

C127 Graphic printer on thermal paper for Cybertronic and Servotronic models

C109-11 Flexure tests Software for Cybertronic model (see pag. 14)

C123 "Servonet" software for PC remote control for Servotronic model (see pag. 14)

Additional accessories for specific tests listed at pag. 129 - 133

Note: Digital models are available (upon request) with lower capacity range (for ex. 0-50kN) to improve measurements accuracy, or they can be equipped with an additional low capacity range.

Model	Hand Operated	Motorized	Gauge	Digitronic mod. C108	Cybertronic mod. C109	Servotronic mod. C104
C091	•		•			
C091-01		•	•			
C091-02		•			•	
C091-03		•				•
C091-04		•		•		

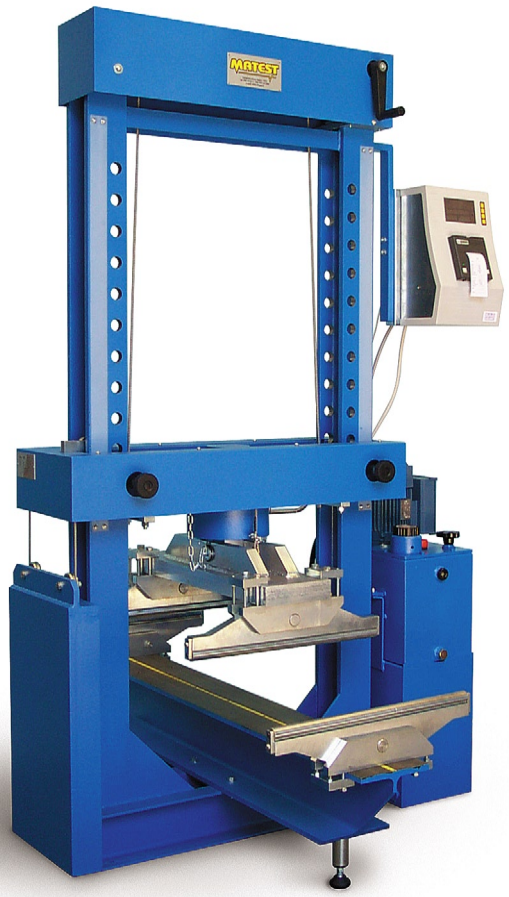
UNIVERSAL FLEXURAL AND TRANSVERSE MACHINE 150 kN CAPACITY

To perform flexural tests on concerte beam specimens max. size 200x200x800 mm, flat blocks, flagstones, kerbs, tiles, slabs, masonry units, pipes, and any type of material having max. size 550xh550 mm (lower rollers max. length 1300 mm)

STANDARDS: EN 12390/5 - ASTM C78, C293 - AASHTO T97
BS 1881:118, 6073/1, 7263 - NF P18-407, P98-302
UNE 83305 - UNI 6133

TECHNICAL SPECIFICATIONS:

- Vertical daylight between upper/lower rollers: max. 825 - min. 65 mm adjustable each 76 mm by hand winch with counterweights
- Rollers dimensions: dia. 30x550 mm
- Complete with 4 adjustable and articulated rollers for two point loading
- Distance between lower rollers adjustable from 75 to 1325 mm
- Distance between upper rollers adjustable from 75 to 575 mm
- Possibility to easily place in the centre one upper roller for centre point loading
- Graduated scales are foreseen to get easy roller's adjustment
- Gauge diameter 250 mm and div. 0.5 kN
- Ram travel 110 mm approx.
- Simple action piston with counterweights to optimize frictions
- Power supply (motorized models): 220-240 V 1 ph 50 Hz 750 W
- Dimensions: 970x1400x2000 mm
- Weight: 800÷850 Kg



C093-02 + C127

C093-03 + H009-01 + C123

ACCESSORIES (Technical details at pag 128 - 133)

C093-11 Device for flexural test on clay blocks for flooring. Standard: UNI 9730-3. It consists of two lower bearers dia. 20x300 mm and upper square wooden pressure punch

C127 Graphic printer on thermal paper for Cybertronic and Servotronic models

C109-11 Flexure tests Software for Cybertronic model (see pag. 14)

C123 "Servonet" software for PC remote control for Servotronic model (see pag. 14)

Additional accessories for specific tests listed at pag. 129 - 133

Model	Hand Operated	Motorized	Gauge	Digitronic mod. C108	Cybertronic mod. C109	Servotronic mod. C104
C093	•		•			
C093-01		•	•			
C093-02		•			•	
C093-03		•				•
C093-04		•		•		

C109-11 Flexure: outline of the Standard calculations

C109-11 Graphic of flexure test execution

C109-11 Outline of flexure test data

C091-03 + C127 + H009-01 + C123

C109-12 Graphic of the tensile splitting test execution

Menu of a test starting with automatic execution

C101-01

COMBINED TWO FRAMES GROUP FOR:

- COMPRESSION TESTS ON CONCRETE SPECIMENS AND BLOCKS
- FLEXURAL TESTS ON CONCRETE BEAMS
- COMPRESSION TESTS ON MORTAR SPECIMENS
- SLITTING CYLINDER TESTS

Supplied complete with a three-way hydraulic valve, pipes, connectors, accessories.
An hydraulic valve activates alternatively the compression or the flexural frame, by utilizing only one hydraulic pumping unit.
The group is combined according to the specific exigences (technical and economic) of the customer, by choosing the compression unit among our different available models from 1200 kN to 5000 kN capacity. (see pag. 103÷108)

C053 C092

The composition of the Universal Group is obtained by:

C092
Flexural frame 150 kN capacity, (technical details at pag. 121) complete with dial gauge, used in conjunction with an existing compression testing machine dial gauge reading.

C055 C092-01

C092-01
Flexural frame 150 kN capacity, (technical details at pag. 121) complete with pressure transducer, used in conjunction with an existing Digitronic (C108) or Cybertronic (C109) compression machine.

C092-02
Flexural frame 150 kN capacity, (technical details at pag. 121) used in conjunction with an existing automatic servocontrolled Servotronic (C104) compression machine.

C042 C092-01

C089-10 C092-02

This two frames Group offers the considerable advantage to perform compression tests on concrete cube, cylinder and block specimens; flexural tests on concrete beams, and by using suitable accessories, to perform also the following tests:
- Compression on portions of 40.1x40x160 mm mortar broken in flexure conforming to EN 196, DIN 1164 Specifications (Devices mod. E170, E170-01 - see pag. 130)
- Compression on 50 mm mortar cubes, conforming to ASTM C109 (Device mod. E171- see pag. 130)
- Compression on 70 mm mortar cubes, conforming to BS 4550 (Device mod. E171-01 - see pag. 130)
- Splitting tensile on cylindrical specimens dia. 100, 150, 160 mm conforming to EN 12390/6 - NF P18:408 - ASTM C496 - UNI 6135 BS 1881:117 (Device mod. C101-01 - see pag. 129)
- Splitting tensile on concrete cubes and concrete block pavers, conforming to EN 12390/6 , 1338 (Device mod. C103 - see pag. 129)

COMBINED TWO FRAMES GROUP FOR:

- COMPRESSION TESTS ON CONCRETE SPECIMENS AND BLOCKS
- COMPRESSION TEST ON MORTAR SPECIMENS

Supplied complete with a three-way hydraulic valve, pipes, connectors, accessories.
The group is combined according to the specific exigences (technical and economic) of the customer, by choosing the compression unit among our different available models from 1200 kN to 5000 kN capacity. (see pag. 103÷108)

The composition of this group is obtained by:

C092-05

Compression frame on mortar specimens, 250 kN or 500 kN capacity, (mod. E159 - technical details at pag. 202) complete with pressure transducer used in conjunction with the electronic digital display Digitronic (C108) or Cybertronic (C109) concrete compression machine.

C055

C092-05

C092-06

Compression/Flexural frame on mortar specimens, dual range:
0-250 kN (or 500 kN) for compression tests
0-15 kN for flexure tests (mod. E160 - technical details at pag. 203) complete with two pressure transducers used in conjunction with an electronic digital display Cybertronic (C109) concrete compression machine.

C092-07

Compression frame on mortar specimens, 250 kN or 500 kN capacity, (mod. E161 - technical details at pag. 203) used in conjunction with an automatic Servotronic (C104) concrete compression machine.

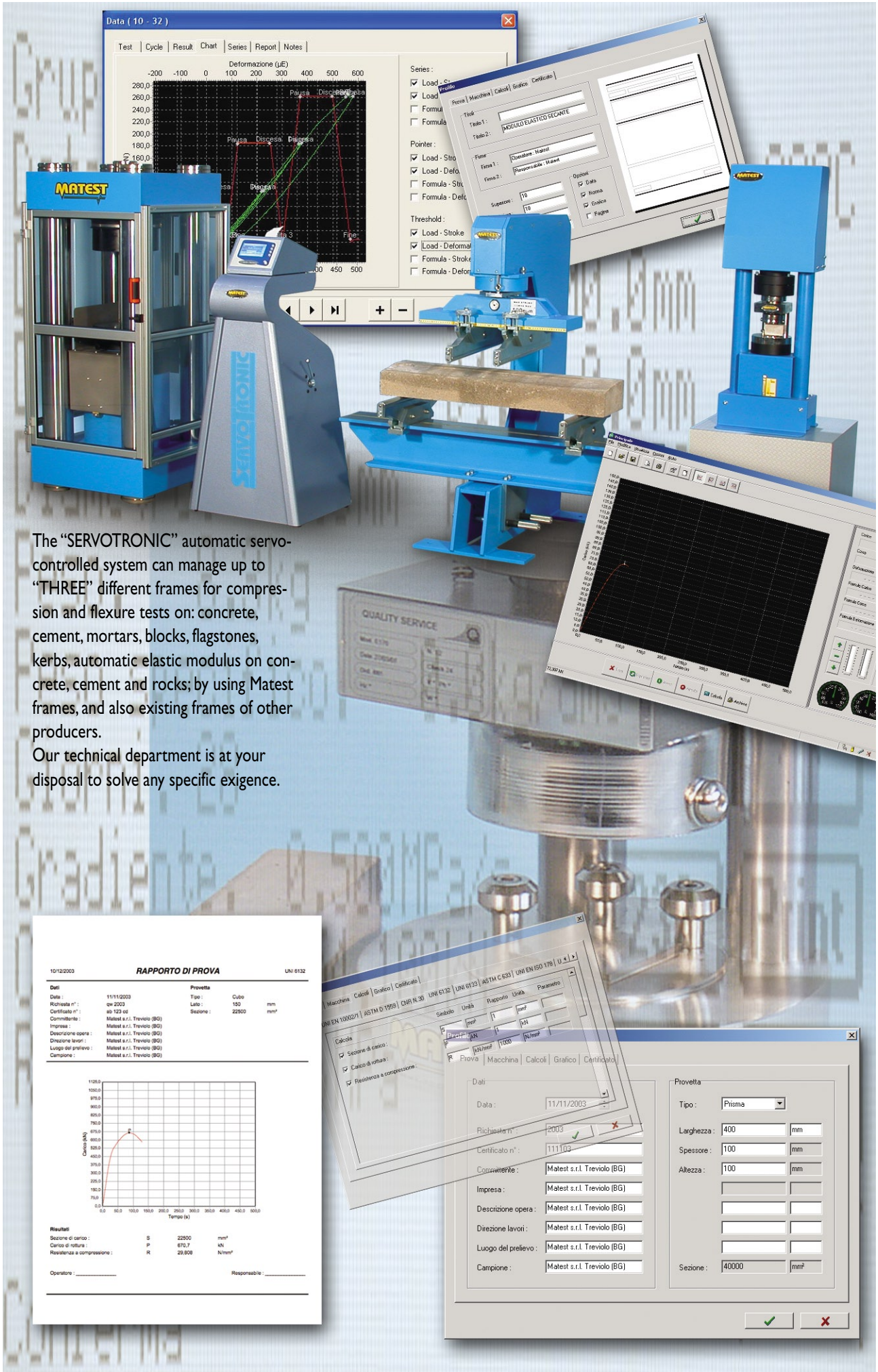
C056

C092-07

In addition to the proposed groups, it is possible to compose many other alternative testing groups, with Cybertronic (C109) digital display measuring system or with automatic Servotronic (C104) system; like for ex:

- Group formed by two concrete compression frames with Servotronic system (C104)

- Group formed by one concrete flexural frame and one mortar compression frame with Cybertronic system (C109)



The "SERVOTRONIC" automatic servo-controlled system can manage up to "THREE" different frames for compression and flexure tests on: concrete, cement, mortars, blocks, flagstones, kerbs, automatic elastic modulus on concrete, cement and rocks; by using Matest frames, and also existing frames of other producers.
Our technical department is at your disposal to solve any specific exigence.

ACCESSORIES AND SPARE PARTS TO COMPRESSION AND FLEXURAL TESTING MACHINES

C097*

Dual low capacity digital range (normally 1/3 of the nominal range), fitted on testing machines equipped with digital display measuring unit Digitronic (C104), Cybertronic (C109), or with automatic Servotronic (C104) system.
The operator, in addition to the nominal scale, will have available also a second low range scale, particularly suitable for accurate measurements on specimens of low strength.

C097-01*

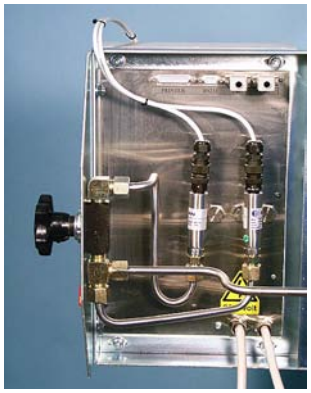
Dual low capacity digital range (recommended range 0-250 kN), complete with **"Appropriate pressure transducer"**, hydraulic installation and cock, fitted on testing machines equipped with digital display measuring unit Digitronic (C108), Cybertronic (C109), or with automatic Servotronic (C104) system.
This solution offers very high accuracy also for measurements of low strength, which is necessary to perform compresson tests on mortar specimens, flexural tests on concrete beams, split cylinder test on cylinder and cube specimens, by utilizing a concrete compression machine.

C097-02*

Dual low capacity digital range 0-300 kN, complete with **"strain gage load cell"**, distance piece, cables, fitted on concrete compression testing machines equipped with digital display measuring system Digitronic (C108), Cybertronic (C109), or with automatic Servotronic (C104) system.
This solution eliminates the weights of the piston and lower compression platen, paking set frictions etc., granting very high accuracy (Class 1; max. error within ± 0,5%) in the measuring range 30÷300 kN.

***** NOTE:
The machines with Cybertronic (C109) or Servotronic (C104) system can be equipped of a third measuring scale at the same cost of the second range.

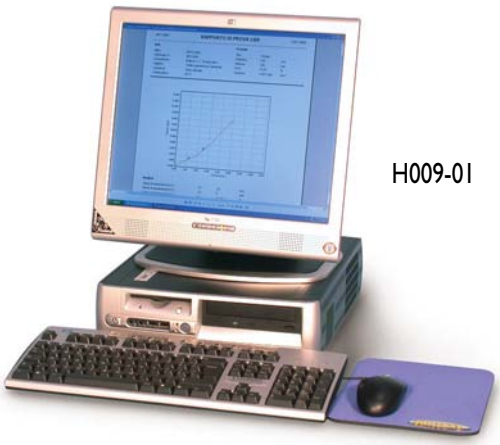
C105



C097-01

C097-02

H009-01 PERSONAL COMPUTER, complete with LCD monitor 17", keyboard, mouse, connection cables.
It is applicable with all the Matest testing machines with Cybertronic (C109) or Servotronic (C104) system. The PC supply includes the installation and the setting up of the purchased UTM2 Software (see pag. 14)



H009-01

C128

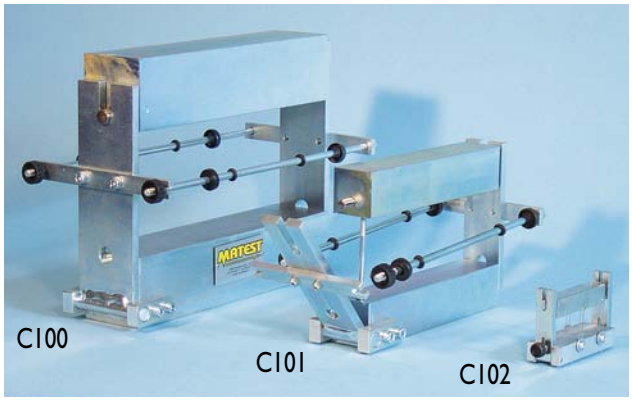
Bench printer, A4 format, for the graphic and test certificate printing, applicable on all Matest testing machines with Cybertronic (C109) or Servotronic (C104) system.

C128

C105

Device with central screw

Very practical to adjust the light between the compression platens of a machine, according to the height of the specimen to be tested. Recommended solution for machines equipped with big sized platens.
This device can be foreseen on all models of concrete compression machines.



C100*
Splitting tensile test device, for cylindrical specimens dia. 150x300 mm, 160x320 mm, 6" x 12"
STANDARDS: ASTM C496 - NF P18-408 - EN 12390/6
UNI 6135 - BS 1881:117
Weight: 30 Kg

C101*
Splitting tensile test device, same to mod. C100 but to perform tests on cylindrical specimens dia. 100x200 mm, 110x220 mm, 4" x 8"
Weight: 15 Kg

C101-01*
Splitting tensile test device, for cylindrical specimens from dia. 100x200 mm (4"x8") to dia. 160x320 mm (6"x12").
STANDARDS: ASTM C496 - NF P18-408 - EN 12390/6
UNI 6135 - BS 1881:117
The base is equipped with flat springs centering and keeping in position the specimen.
Two columns with adjustable height sustain the upper plate by two springs.
This item is an alternative solution to mod. C100 + C101
Weight: 26 Kg

C102*
Splitting tensile test device, to perform tests on cylindrical specimens dia. 40x80 mm
Weight: 1 Kg

C103* **Splitting tensile test device** to perform tests on concrete cube specimens 100 and 150 mm and on concrete block pavers.
STANDARDS: EN 12390/6 - EN 1338
Weight: 26 Kg

* NOTE: To perform the test, these devices have to be used with a concrete compression machine equipped with a low capacity measuring range (see dual low range, page 128), or with a flexural frame.

ACCESSORIES:

C100-01
STANDARD: EN 12390-6
Packing strips, hard board made, dimensions 4x10x350 mm to be used for splitting tensile tests with mod. C100, C101, C101-01, C103. Pack of 100 pieces.

C100-02
STANDARD: EN 1338 - BS 1881
Packing strips, hard board made, dimensions 4x15x350 mm to be used for splitting tensile tests with mod. C103. Pack of 100 pieces.

C109-12 SOFTWARE UTM2 (Universal Testing Machine 2)
Developed for the management and the remote control through PC of Matest testing machines.
Licence for TENSILE SPLITTING TESTS on cylinders, cubes and concrete blocks.
STANDARDS: EN 12390/6, EN 1338 – UNI 6135
Applicable with all the Matest testing machines with Cybertronic (C109) or Servotronic (C104) system.
General description and technical details:
see UTM2 page 14

C109-12 Graphic example on Tensile Splitting Test.

ACCESSORIES TO COMPRESSION AND FLEXURAL TESTING MACHINES

C091-13

Concrete kerbs units

Flexural strength measurements

STANDARD: EN 1340:2004

The equipment consists of a steel tamper mounted on a rotating coupling which is fixed to the upper part of the flexural testing machine (to be selected from serie mod. C091 and C093) to apply a flexural strength on three points on the concrete kerb, without any torsional stress.

C103-01

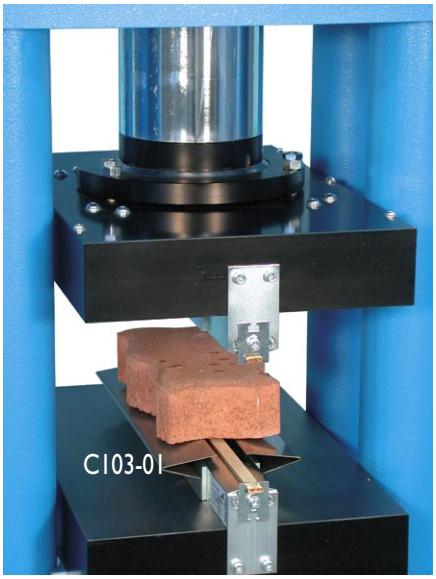
Splitting tensile test device, to perform tests on concrete blocks having max. dimensions 300 x 500 mm, and for tests on concrete cube specimens 100, 150, 200 mm, concrete block pavers and any type of block and prismatic specimens.

STANDARDS: EN 1338, 12390-6

This splitting device is directly fixed on the compression platens of the block testers having 2000kN or 3000kN capacity, as described at pag. 109, 110, 116 of the catalogue.

The compression machine has to be equipped with a dual low capacity measuring range (see dual low range, pag. 128).

Weight: 15 kg



ACCESSORIES:

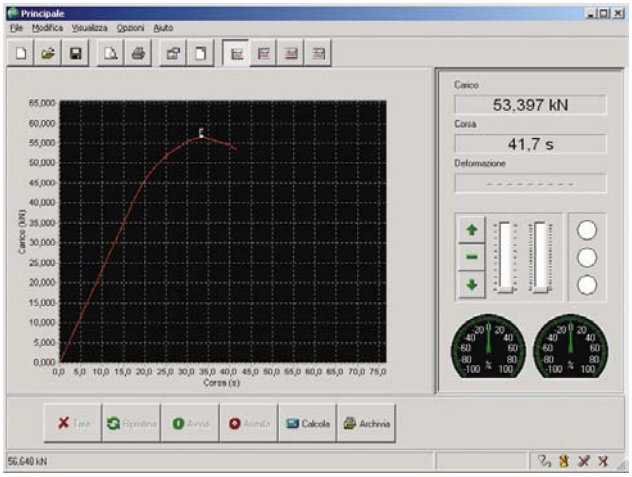
C100-03

PACKING STRIPS, hard board made, dimensions 4 x 15 x 540 mm, to be used for splitting tensile tests with the device mod. C103-01. Pack of 100 pieces

C109-12 SOFTWARE UTM2 (Universal Testing Machine 2)

Developed for the management and the remote control through PC of Matest testing machines.
Licence for TENSILE SPLITTING TESTS on cylinders, cubes and concrete blocks.
STANDARDS: EN 12390/6, EN 1338 – UNI 6135
Applicable with all the Matest testing machines with Cybertronic (C109) or Servotronic (C104) system.

General description and technical details: see UTM2 page 14



C109-12 Graphic example on Tensile Splitting Test.

C121-51

Door stop safety switch

This door locking electric switch if fixed on the front and rear doors of the compression machine as safety device. It cuts off mains and stops the machine when one of the two doors is open. This locking switch can be installed only on compression machines with Cybertronic or Servotronic and equipped with safety guards with hinges and lock to CE Directive (see accessories pag. 131)

C106

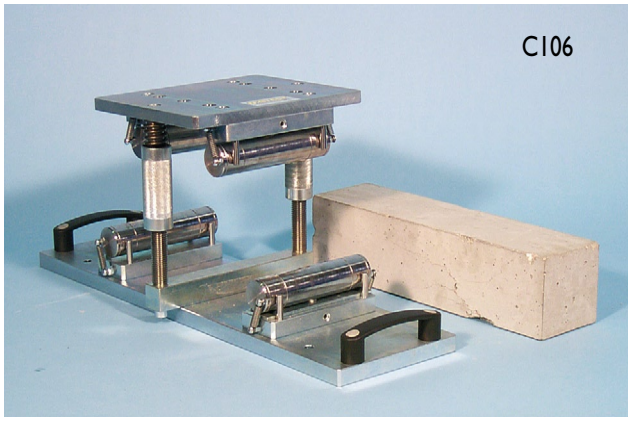
Flexural device for two point and centre point tests on concrete beams 100x100x400 (500) and 150x150x600 (750) mm

STANDARDS: EN 12390/5 - UNI 6133 - NF P18-407 - UNE 83305 ASTM C78, C293 - AASHTO T97 - BS 1881:118

Equipped with two lower rollers, one of them articulated, and two upper rollers for third point tests.

It is possible to place in the centre only one upper roller for centre point tests.

To perform the flexural test, this device has to be used with a concrete compression machine foreseen of low capacity measuring range (mod. C097-01 - suggested range 0-100 kN) Weight 27 Kg



E170

Compression device to test mortar prisms 40,1x40x160 mm broken in flexure

STANDARDS: EN 196/1- ASTM C349 - NF P15-451

To be used with a concrete compression machine foreseen of low capacity measuring range (mod. C097-01) or with a flexural frame.

Dimensions: dia. 153xh182 mm

Weight: Kg. 12

E171

Compression device to test mortar cube specimens 50 mm (2")

STANDARD: ASTM C109

It is possible to test also cylindrical specimens dia. 50xh50 mm.

To be used with a concrete compression machine foreseen of low capacity measuring range (mod. C097-01) or with a flexural frame.

Weight: 12 Kg

E170-01

Compression device to test mortar prisms 40,1x40x160 mm broken in flexure

STANDARD: DIN 1164

Identical to mod. E170, except the platens having 40x62,5 mm size (instead of 40x40 mm) as requested by DIN.

E171-01

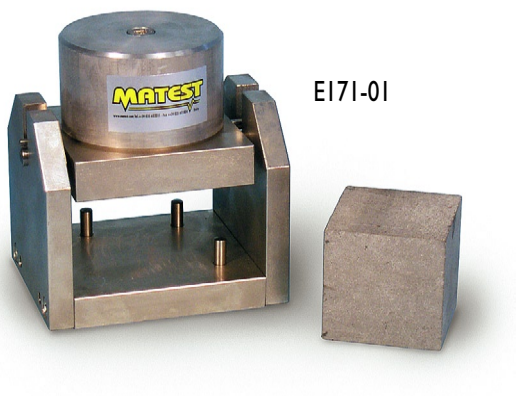
Compression device to test mortar cube specimens 70,7 mm

STANDARD: BS 4550

It is possible to test also cylindrical specimens dia. 70x70 mm.

To be used with a concrete compression machine foreseen of low capacity measuring range (mod. C097-01) or with a flexural frame.

Weight: 12 Kg



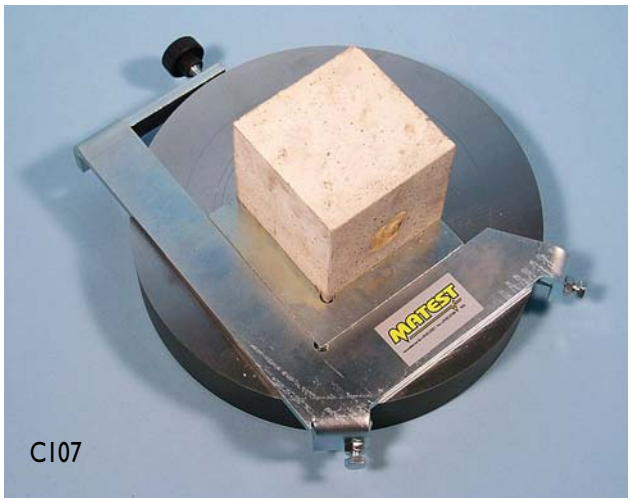
Auto-centering device

For cubes 100 and 150 mm side and cylinders dia. 100 and 150 mm. The lower compression platen of the testing machine is marked with a serie of concentric circles to facilitate the correct centering of the specimens. However to grant a rapid and accurate centering of concrete cube and cylinder specimens, this "Auto-Centering" device is recommended.

MODELS:

C107
Auto-Centering Device, to be used with compression machine having platen dia. 216 mm (1500 and 2000 kN)

C107-01
Auto-Centering Device, to be used with compression machine having platen dia. 287 mm (3000 kN and high stability machines)



C107

C126
Bench, used to hold the compression (or flexural) testing frame, to set the machine at a proper height for its utilization.
Alternative solution to a concrete holding base.
Made from heavy welded steel.
When ordering, please specify the model of testing machine the bench is to be designed.
Weight: 55 Kg. approx.

C126

Safety guards to CEE/89/392 Directive, manufactured from highly resistant transparent polycarbonate material, complete with hinges and lock.
The guards are both on front back and lateral side.

MODELS:

C121
For "four columns" machine

C121-01
For "four columns" machine equipped with large sized platens for blocks

C121-02
For "enbloc frame" machine 2000 kN


C121

C121-03 For "enbloc frame" machine 2000 kN equipped with large sized platens for blocks

C121-04 For the 5000 kN capacity machine

Fragment guards to 89/392/CEE Directive, manufactured from highly resistant transparent polycarbonate material. The guards are both on front, back and lateral side and are easily/quickly fixed to the machine with hooks.

MODELS:

C119
For "four columns" machine

C119-02
For "enbloc" machine

C119

Packing set, at three elements, for piston/cylinder coupling

MODELS:

C122 For compression machine 1200 kN capacity
C122-01 For compression machine 1500 kN capacity
C122-02 For compression machine 2000 kN capacity
C122-03 For compression machine 3000 kN capacity
C122-04 For flexure machine 150 kN capacity

C122-05 Packing set for the hand-operated pump of testing machines.


C122 ÷ C122-05

C115

C114-01

C114

C113

C113

Pumping unit, hand operated, complete with tank, accessories and connectors. Spare part for compression and flexure machines.
Weight: 20 Kg

C114

Pumping unit, motorized, complete with tank, speed selector, hydraulic cock, accessories and connectors.
Spare part for compression and flexure machines.
Hydraulic pressure: 0 ÷ 700 Bar
Oil supply from 0,05 to 0,7 litre/min.
Power supply: 220-240V 1ph 50 Hz 750 W
Weight: 40 Kg

C114-01

Pumping unit, motorized, identical to mod. C114, but equipped also of a three way hydraulic valve to activate, alternatively, two testing frames. Supplied complete.

C118

Gauge, dia. 250 mm foreseen for max. load pointer, zero adjustment and mirror face. Spare part for compression and flexure machines.
Supplied pre-calibrated with calibration certificate.
When ordering please specify machine type and gauge range.

C115

Three-way hydraulic valve to activate two testing frames by using the same pumping unit.

Pressure transducer

Used in conjunction with Digitronic (C108), or Cybertronic (C109) or Servotronic (C104).
Supplied pre-calibrated with calibration certificate.
Nominal sensitivity: 2 mV/V. Accuracy: ± 0,5%

AVAILABLE MODELS:

C116-01 Pressure Transducer range: 0 - 10 bar
C116-02 Pressure Transducer range: 0 - 20 bar
C116-03 Pressure Transducer range: 0 - 35 bar
C116-04 Pressure Transducer range: 0 - 50 bar
C116-05 Pressure Transducer range: 0 - 100 bar
C116-06 Pressure Transducer range: 0 - 200 bar
C116-07 Pressure Transducer range: 0 - 350 bar
C116-08 Pressure Transducer range: 0 - 500 bar
C116-09 Pressure Transducer range: 0 - 700 bar

C118

C116÷C116-09

Compression platens

Surface hardened HRC 60 and ground.

MODELS:

C110 Upper compression platen dia. 165 mm for 1200 kN machine

C110-11 Lower compression platen dia. 165 mm for 1200 kN machine

C110-01 Upper compression platen dia. 216 mm for 1500 kN and 2000 kN machine

C110-12 Lower compression platen dia. 216 mm for 1500 kN and 2000 kN machine

C110-02 Upper compression platen dia. 287 mm for 3000 kN machine

C110-13 Lower compression platen dia. 287 mm for 3000 kN machine

C110-03 Upper compression platen dia. 287x60 mm complete with ball seating for 2000 kN and 3000 kN high stability machines

C110-14 Lower compression platen dia. 287x60 mm for 2000 kN and 3000 kN high stability machines

C112 Set of upper and lower compression platens 245x510x55 mm for tests on blocks

C112-01 Set of upper and lower compression platens 310x510x76 mm for test on blocks

Distance pieces

Used to reduce the vertical clearance between the compression platens, according to the height of the specimen to be tested, so to avoid the ram to make its max. excursion (approx. 50-55 mm) without having compressed the specimen.
The distance pieces are placed between the ram and the lower compression platen.

MODELS:

Distance piece dia. 140 mm for 1200-1500-2000kN machines (mod. C011 to C065):

C111 176mm high for 150 mm cubes (only for 1500kN and 2000kN machines)

C111-02 226 mm high for 100 mm cubes

C111-03 100 mm high for cylinders dia. 100x200 and 110x220 mm

C111-20 126 mm high

C111-21 50 mm high

C111-01 Two 176+50 mm high (C111 + C111-21) for 100, 150 mm cubes

Distance piece dia. 200 mm for 2000kN blocks and 3000kN machines:

C111-04 126 mm high for 200 mm cubes

C111-22 50 mm high

C111-05 Two 126+50 mm high (C111-04 + C111-22) for 100, 150 mm cubes

C111-06 Three 126+50+50 mm high (C111-04 + 2xC111-22) for 100, 150, 200 mm cubes

C111-07 Two 50+50 mm high (2 x C111-22) for cyl. dia. 100x200 and 110x220 mm

Distance piece dia. 200mm, Slotted, for central screw machines:

C111-08 126 mm high for 200 mm cubes

C111-23 50 mm high

C111-09 Two 126+50 mm high (C111-08 + C111-23) for 150, 200 mm cubes

C111-10 Three 126+50+50 mm high (C111-08 + 2xC111-23) for 100, 150, 200 mm cubes

C111-11 Two 50+50 mm high (2 x C111-23) for cyl. dia. 100x200 and 110x220 mm

Distance piece dia. 210mm for high stability frames:

C111-24 50mm high

C111-25 76mm high

C111-12 Two 76+50mm high (C111-24+C111-25) for 200mm cubes

C111-13 Three 76+50+50mm high (C111-25 + 2xC111-24) for 150, 200mm cubes

C111-14 Four 76 + 3x50mm high (C111-25 + 3xC111-24) for 100, 150, 200mm cubes

C111-15 Two 50+50mm high (2 x C111-24) for cyl. dia. 100x200 and110x220mm

NOTE: to test cylinders dia. 150x300 mm and 160x320 mm no distance piece is necessary

C111-16 Distance piece 50 mm high for flexure machine mod. C090 ÷ C090-04 to test beams 100x100x400 (500) mm


C110...C110-14


C111...C111-25


C112-01

C094

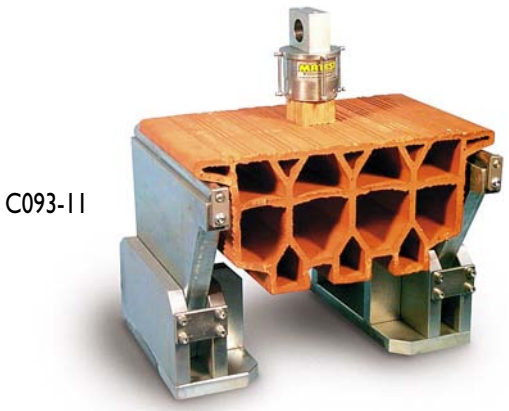
Portable digital press 56 kN capacity

Used for compression tests on small cylinder specimens and core samples up to dia. 60x100 mm.
The load is applied by a hand pump, and is measured by a precision digital display range 0-56 kN, accuracy ± 1%, resolution 65000 points.
The compression platens have dia. 65 mm., the upper one has a spherical seat and the vertical daylight is 110 mm.
Complete with wooden carrying case, accessories.
Dimensions 370x320x710 mm.
Weight 25 Kg

ACCESSORY:

A125-01

Set of two hardened conical points, to modify the press mod. C094 into the "Point load tester" (see section aggregates mod. A125), for the rock strength index test.



C093-11

C095

Flexural testing machine, 50 kN capacity designed to test: paving slabs, flat blocks, roof tiles, floor tiles, terrazzo tiles, ceramics, bricks, masonry units, etc.

STANDARDS: EN 538, 491 - UNI 9730/3, 2107 - BS 6073/1

The machine consists of steel frame, one upper bearer and two lower adjustable bearers, a mechanical hand-operated screw jack and a 10 kN capacity proving ring to measure the applied load.

C095

TECHNICAL DETAILS:

- Proving ring 10 kN capacity, complete with calibration certificate (proving rings with larger capacities up to 50 kN on request - see pag. 284)
- Vertical clearance between the bearers, adjustable from 50 to 300 mm.
- Distance between lower bearers, adjustable from 50 to 500 mm.
- Bearers dimensions: dia. 25x500 mm
- Accuracy: 1% of the applied load
- Dimensions: 710x610x1520 mm
- Weight: 120 Kg

ACCESSORY:

C093-11

DEVICE for flexural tests on clay blocks for flooring
STANDARD: UNI 9730-3

It consists of two lower bearers dia. 20x300 mm and upper square wooden pressure punch.

C096

Impact failure test on tiles and paving materials

STANDARD: Art. 3 n° 2234 - 1939

Utilized to verify the quality of paving materials like tiles, ceramics, bricks, floor tiles etc. by the impact method.
The specimen under test is placed on the base of the device which has been previously filled with sand. Then a spherical ball of approx. 1000 gr. is dropped on the tile from a known height, to measure the height under which the specimen will break.
Dimensions: 900x900x1300 mm
Weight: 70 Kg

Compressometer
Static modulus of elasticity

STANDARDS: ASTM C469 - UNI 6556

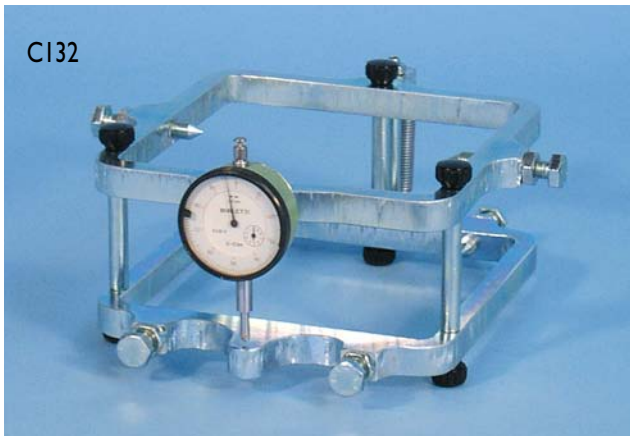
Used to determine the strain and deformation characteristics of concrete specimens. It comprises two steel rings for clamping to the specimen, two gauge length bars, dial gauge divisions 0,001 mm and spherically-seated lever unit.

MODELS:

C130 Compressometer for cylinders dia. 150x300, 160x320 mm. and 6"x12". Dial 0,001 mm sens.

C131 Compressometer for cylinders dia. 100x200, 110x220 mm and 4"x8". Dial 0,001 mm sens.

C132 Compressometer for cubes 150x150 mm side. Dial 0,001 mm sens.



C135

Simrup apparatus

Designed to measure the tensile strength of concrete beam specimens size70x70x280 mm by means of the costant moment bending test method.
Power supply: 220-240 V 1ph 50 Hz 100 W
Dimensions: 1050x250x510 mm
Weight: 45 Kg

ABRASION MEASURING BASED ON BÖHME

C129

Abrasion Test Böhme

STANDARDS: **EN 1338 :2004 / EN 1339, 1340, 13892-3 /** DIN 52108

C129

The instrument measures a volume loss in a specimen under abrasion test and it's used in tests such as:

- paving stones
- concrete slabs
- slabs made of natural rocks
- natural stone slabs

The test is performed by positioning a specimen to be verified in a abrasion tester Böhme apparatus on the test track on which has been spread normalized abrasive; the grinding wheel it's made rotate and the specimen submitted to the abrasive load of 294 N for a certain number of cycles.
Before doing a test, establish the specimen's bulk density by measuring weight and thickness.
Perform the test for 16 cycles composed of 22 turn each, calculating at the end a worn as a average loss in volume and weight.

The apparatus is basically composed of:

- cast iron horizontal disc with a speed of 30 rpm and a diameter of 750mm furnished of a 200mm test track to position a specimen.
- Separate control panel with digital revolutions counter with automatic stop after preset revolutions
- Specimen's holder
- Adjustable charger used to produce a force of 294 N ± 3 N on a specimen

Power supply: 230V 50Hz 1PH 800 W
Dimension: 1500 x 1000 xh 850 mm
Weight: 250 Kg

ACCESSORIES:

C129-01
Abrasive material composed of fused alumina (artificial corundum)
Pack of 25Kg.

C129-02
Measurer thicker reduction, composed of dial gauge with anular contact face with a diameter of 8-5 mm and measuring board.

C129-02

C138

UNIVERSAL DIGITAL TESTER WITH MICROPROCESSOR FOR LOAD CELLS

STANDARDS: EN 12390/4 - UNI 6326 - DIN 51220 – NF P18-411 ASTM E4 – BS 1610

This digital display connected to load cells (mod. C140 to C140-09 and mod. C142 to C142-07) allows to perform an accuracy's verification of the loads measured from machines under control and it allows to produce the relative certificate.
The instrument foresees three memorized cycle verification program composed of ten measurement each.

At the end of the test the unit automatically elaborates the stored value and displays:

- Effective applied load
- Measured load (over three verification cycles)
- Average measured load
- Accuracy in %
- Repeatability
- Relative readability
- Max error

The tester's accuracy is ± 0.1% of the indicated load.

TECHNICAL SPECIFICATIONS:

Wide hardware graphic display with high resolution: 320x240 Pixel
Computerized gauge with core Motorola 32 bit converter A/D burr/brown with very high resolution till 19 bits (525000 reading points).
Seven pin female military connector.
Excitation: 5V.
Standard signals: feed + feed - (0V) signal + signal – e shield.
Serial output RS232 for PC.

Remote push-button to facilitate the readings' confirmation during a calibration procedure.

FIRMWARE:

Administration of a maximum of ten cells. For each cell the user will be able to introduce the following data:

- cell's description and serial number
- unit measure kN, t, lb, Kg, etc.
- date of test and/or calibration
- number of decimal
- calibration' step from one to ten
- PGA profit input from 20 mV to ± 2,5 V
- Offset dac from 10 mV to 1,25 V
- High quality digital filter

Execution up to 30 verification tests. For each test the operator will be able to introduce:

- description
- date
- temperature
- verification code
- verification steps
- verification procedure according to the standard EN 12390-4 for example for compression machine…maximum three cycles
- calculation of the fundamental parameter required such as: repeatability, accuracy, relative resolution, etc.
- sending the report to the serial port

- administration of verification by "Matcal" software (accessory)
- large permanent memory of tests and relative certificates.

Main page:

- visualization of all data….. load and information of the selected cell
- time
- languages options: Italian, English, French, Spanish, German

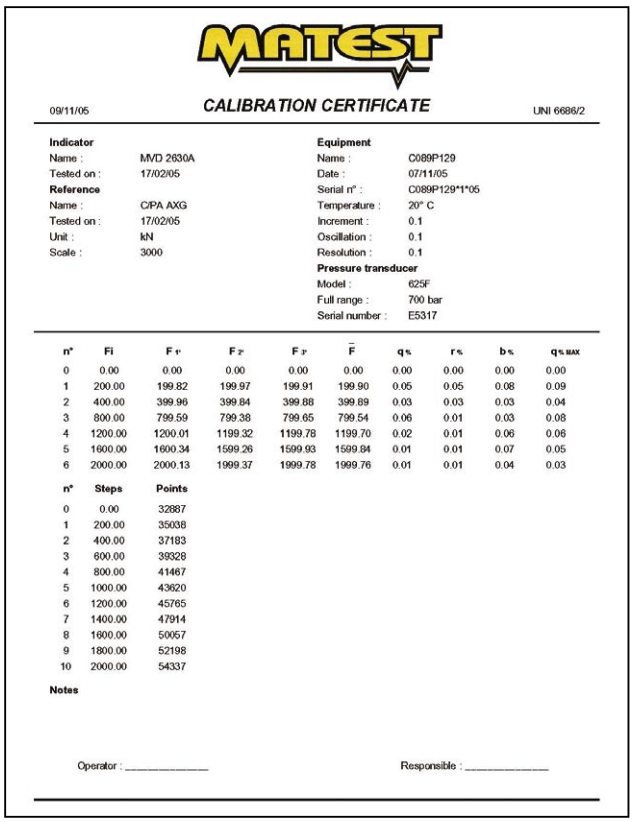
The user will be allowed to select only one cell at time

SOFTWARE:

Matcal compatible or by Hyper terminal excel or word compatible as well.

The apparatus, and all the accessories, is contained in a strong and practical suitcase, immersion resistant with a depressurisation valve.

Power supply: 230 V 1ph 50 Hz
Dimensions: 360x300x200 mm
Weight: 5 kg



MATEST

CALIBRATION CERTIFICATE

09/11/05 — UNI 6686/2

Indicator
Name : MVD 2630A
Tested on : 17/02/05
Reference
Name : C/PA AXG
Tested on : 17/02/05
Unit : kN
Scale : 3000

Equipment
Name : C089P129
Date : 07/11/05
Serial n° : C089P129*1*05
Temperature : 20° C
Increment : 0.1
Oscillation : 0.1
Resolution : 0.1
Pressure transducer
Model : 625F
Full range : 700 bar
Serial number : E5317

n°	Fi	F↑	F↓	F↕	F̄	q%	r%	b%	q% MAX
0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	200.00	199.82	199.97	199.91	199.90	0.05	0.05	0.08	0.09
2	400.00	399.96	399.84	399.88	399.89	0.03	0.03	0.03	0.04
3	800.00	799.59	799.38	799.65	799.54	0.06	0.01	0.03	0.08
4	1200.00	1200.01	1199.32	1199.78	1199.70	0.02	0.01	0.06	0.06
5	1600.00	1600.34	1599.26	1599.93	1599.84	0.01	0.01	0.07	0.05
6	2000.00	2000.13	1999.37	1999.78	1999.76	0.01	0.01	0.04	0.03

n°	Steps	Points
0	0.00	32887
1	200.00	35038
2	400.00	37183
3	600.00	39328
4	800.00	41467
5	1000.00	43620
6	1200.00	45765
7	1400.00	47914
8	1600.00	50057
9	1800.00	52198
10	2000.00	54337

Notes

Operator : _____ Responsible : _____

CERTIFICATE EXAMPLE WITH C138-01 SOFTWARE

ACCESSORIES:

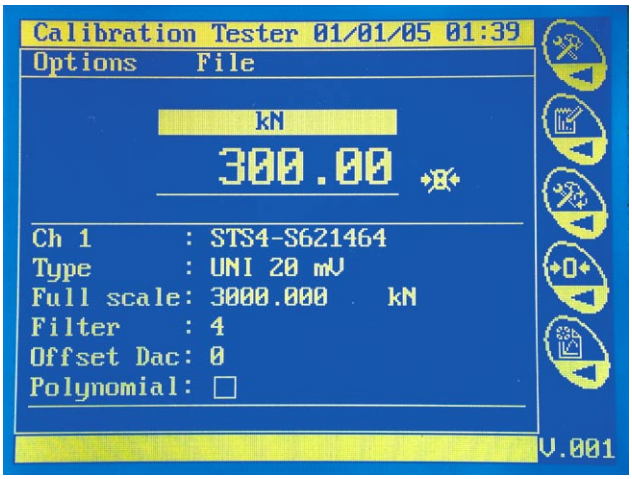
C138-01
"MATCAL" software
For data acquisition and processing of calibration values with certificate printing.
Supplied on CD Rom for PC installation

C033
RS232 serial connecting cable between instrument and PC, in order to:

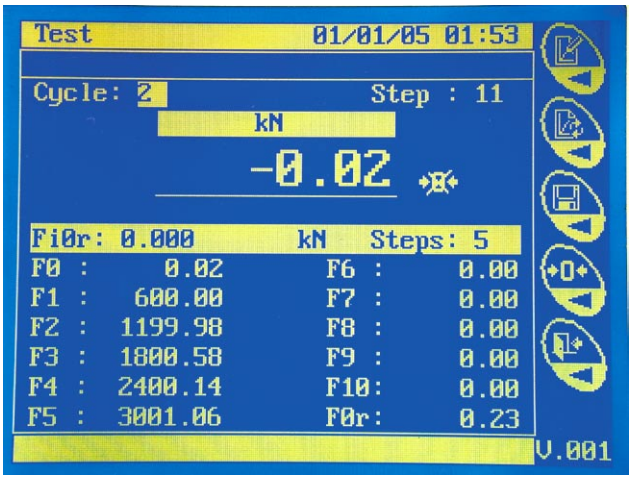
- Download on PC the test data stored for eventual further elaboration
- Communication between PC and instrument by software " Matcal"

C128
A4 size printer, to print automatically test's result, used as calibration certificate as well.

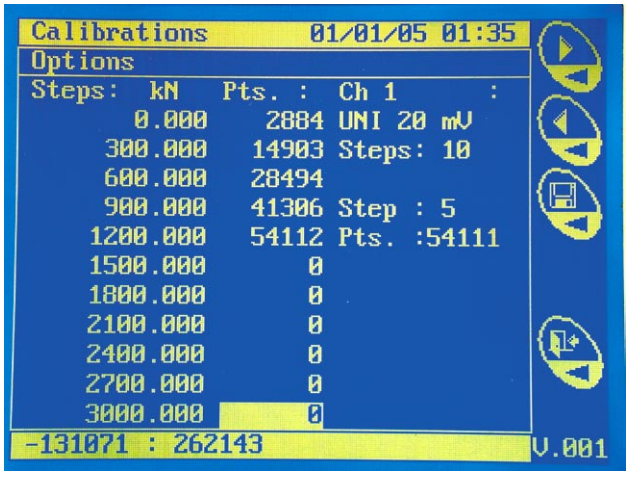
SCREEN EXAMPLES:



Main Window



Check test: cycle n° 2



Cell's calibration

Standard load cells to be used with the C138 digital indicator for calibration of testing machines

STANDARDS: EN 10002/3, Class 2 - ASTM E74, Class A

These load cells are suitable for the calibration of compression testing machines. They consist of a high quality steel block, named sensitive element, where some strains have been fitted: the whole is housed in a sheathing. While the load is applied, strains are transmitted to an amplifier (mod C138) which gives a load digital reading. Further advantages of these cells are thermal stability during the time, possibility to equip different load cells on the same measuring tester and therefore to check all load capacities.
Supplied complete with calibration certificate.

TECHNICAL SPECIFICATIONS

- Full Scale nominal output: 2 mV/V
- Linearity + Hysteresis: +/- 0,1% of full scale
- Repeatability: +/- 0,03% of full scale
- CLASS: A

Model	Capacity kN	Dimensions dia. x height mm.
C140	25	82x59
C140-01	50	82x59
C140-02	75	82x59
C140-03	100	82x59
C140-04	300	135x200
C140-05	600	135x200
C140-06	1000	135x200
C140-07	2000	135x200
C140-08	3000	135x200
C140-09	5000	180x200

Strain load cells "high performance" to be used with the C138 digital indicator for calibration of testing machines

STANDARDS: EN 10002-3, Class 1 - ASTM E74, Class AA

These electrical strain gauge load cells of high accuracy and stability, are proposed as an alternative to the standard load cells, for verification and calibrations of high precision, repeatability, and are recommended for a professional use, Metrologic Laboratories, SIT centres.
To be used with the Digital Indicator mod. C138.
Each cell is supplied complete with calibration certificate.

Model	Capacity kN	Dimensions dia. x height mm.
C142	30	100x127
C142-01	100	105x164
C142-02	300	140x160
C142-03	600	140x170
C142-04	1000	150x180
C142-05	2000	135x200
C142-06	3000	135x200
C142-07	5000	158x258

TECHNICAL SPECIFICATIONS

- Full Scale nominal output: 2 mV/V
- Linearity + Hysteresis: +/- 0,1% of full scale
- Repeatability: +/- 0,03% of full scale
- CLASS: AA

C142 ÷ C142-07

Compression load frames stability verification tester (Footemeter test)

STANDARDS: EN 12390/4 - UNI 6686/3 - BS 1881:115
DIN 51302

The equipment to carry out this test is composed by:

C154
Electric strain load cell 3000 kN capacity

Consisting of a strain steel cylinder where four balanced strain gauge bridges are centered to measure the deformation on 4 generatrix in relation with two diameters, orthogonal between them, so that both axial and circumferential deformations can be measured.
The cell incorporates a fifth strain gauge utilized for load measurement calibration tests.
Supplied complete with connectors, cables, calibration certificate.
Dimensions: dia. 140 by 200 mm high
Weight: 18 Kg

C154-01
Positioning device, manufactured with special steel, hardened and rectified.
It allows to correclty position the load cell on the lower platen of the compression frame, to carry out the footemeter test as described by the Standards.

C155
Digital measuring tester with microprocessor

This unit reads simultaneously the four values supplied by the electric strain load cell. The values are memorized, automatically elaborated, visualized and printed (by optional printer), to directly supply the various coefficients resulting by the calculations.
The unit, through the wide display, shows to the utilizer the different test procedures, as requested by previously selected specification (BS, EN, DIN, UNI).
At the end of the test, the display automatically visualizes the test results, by informing also if the frame under test is conforming to the requirements of the selected specification as regards the stability (axial transmission of the loads, self-alignment of the seat ball etc.).
The digital readout unit is also foreseen of a fifth digital reading channel allowing to carry out load calibration tests on compression machines up to 3000 kN capacity.
Supplied complete with accessories, carrying case.
Power supply:
220-240 V 1ph 50 Hz
Dimensions:
450x350x160 mm
Weight: 8 Kg

ACCESSORY:

C128
PRINTER, A4 format to automatically print the test results, utilized also as on official stability certificate.

MATEST

VERIFICA secondo norma BS 1881

Macchina	C 089/17	Footemeter	C155 Matest
N. di serie	1 ord.Exp.5.355	Verificato	05/01/01
Luogo / data	Brembate Sp. 10/04/01	Cella camp.	C/PA 3000 kN
Risoluzione	0.2 Classe 1	Verificata	09/02/01
Intervallo da	0 a 2000 kN	Temperatura	21.0 C

VERIFICA AUTO-ALLINEAMENTO PIASTRA SUPERIORE — Carico 200 kN

Incl	e1	R1	e2	R2	e3	R3	e4	R4	media
A	0.172	-0.078	0.200	0.071	0.185	-0.012	0.190	0.018	0.187
C	0.186	-0.008	0.188	0.003	0.188	0.004	0.188	0.001	0.187
B	0.173	-0.070	0.198	0.065	0.181	-0.031	0.193	0.036	0.186
D	0.181	-0.031	0.191	0.025	0.195	0.045	0.179	-0.039	0.187

Max-Min	0.0699 Ok		0.0683 Ok		0.0758 Ok		0.0752 Ok	
Media R	-0.0464 Ok		0.0408 Ok		0.0014 Ok		0.0042 Ok	

VERIFICA AUTOBLOCCAGGIO — Carico 200 kN

Incl.	e1	R1	e2	R2	e3	R3	e4	R4	avg
A	0.138	-0.261	0.235	0.259	0.187	---	0.188	---	0.187
C	0.241	0.289	0.133	-0.290	0.189	---	0.185	---	0.187
B	0.175	---	0.190	---	0.143	-0.225	0.232	0.256	0.185
D	0.188	---	0.184	---	0.237	0.270	0.138	-0.261	0.187

dAC 0.046 Ok dBD 0.042 Ok

VERIFICA AUTOBLOCCAGGIO — Carico 2000 kN

Incl.	e1	R1	e2	R2	e3	R3	e4	R4	avg
A	1.550	-0.170	2.182	0.168	1.903	---	1.837	---	1.868
C	2.170	0.162	1.564	-0.163	1.887	---	1.850	---	1.868
B	1.864	---	1.860	---	1.612	-0.136	2.127	0.140	1.866
D	1.861	---	1.872	---	2.145	0.148	1.595	-0.146	1.868

dAC 0.028 Ok dBD 0.024 Ok

CERTIFICATE EXAMPLE

CONCRETE MIXERS

STANDARD: EN 12390-2

MODELS:

C160

Drum type mixer

Suitable for field mixes of low/medium strength concrete.
Drum volume: 140 litres
Yield: 90 litres of concrete
Power supply: 220-240V 1ph 50 Hz - 0,3 HP
Dimensions: 720x1320x1280 mm
Weight: 84 Kg

C161

Drum type mixer, same as mod. C160 but having:
Drum volume 125 litres
Yield: 65 litres of concrete
Weight: 60 Kg

C161

C163

Pan type mixer 130 litres capacity

Pan volume of 200 litres with a mixing capacity of 130 litres of concrete.
It is provided of an opening at the bottom for the outcoming of the mixed concrete.
The mixing paddles and blades are made of special resistant steel.
Power supply: 400 V 3ph 50 Hz - 5 Hp
Weight: 250 Kg

C164

Pan type mixer 220 litres capacity

Basically similar to mod. C163, but having.
Pan volume 300 litres. Mixing capacity: 220 litres of concrete
Power supply: 400 V 3ph 50 Hz 7 Hp
Weight: 420 Kg

C165

Pan type mixer 100 litres capacity

Basically similar to mod. C163, but having:
Pan volume: 140 litres
Mixing capacity: 100 litres of concrete
Power supply: 220-240 V 1ph 50 Hz 2 Hp
Weight: 130 Kg

C162

Pan type mixer 56 litres capacity

This multiflow mixer absorbs fewer air during mixing, requires shorter mixing time and grants a perfect homogeneity in mixtures having a low water cement ratio.
The pan is easily removable by means of a trolley (accessory).
The blades are hardened against wear.
Mixing pan: 640 mm. dia. x 330 mm deep
Power supply: 220-240 V 1ph 50 Hz 2 Hp
Weight: 250 Kg

C162

C162-01

ACCESSORIES FOR MOD. C162:

C162-01

TROLLEY for fast and easy removal of the mixing pan of the multi-flow mixer

C162-02

Safety guards to 89/392/CEE Directives.

C163

CONCRETE MIXERS, PAN TYPE, FORCED SPEED

STANDARD: **EN 12390-2**

Used to prepare concrete specimens or mixtures, these pan type mixers ensure an uniform efficient fast mixture action.
They are of esay and practical utilisation; suitable for laboratory and field purposes.
The mixers are equipped with a manually controlled discharge opening situated on the bottom part of the pan, for direct unloading of the mixture into a wheelbarrow or suitable container.
The mixing blades and paddle can be adjusted in height; they are manufactured from special quality hardened steel to resist wear.
The pan and the mixing gears have big thickness ratio, the gears are from hardened and rectified steel , the motor reducer is in oil-bath with Gleason conical coupling.
Controls through magneto-thermic switch and release automatic coil contained in IP67 box.

MODELS:

C166

Pan type mixer 200 litres

Pan diameter: 960 mm
Pan volume: 350 litres
Mixing capacity: 200 litres of concrete
Power supply: 400V 3ph 50Hz 7,5Hp
Dimensions: 1400 x 1000 x 1500 mm
Net weight: 350 Kg

C166-01

Pan type mixer 110 litres

Pan diameter: 800 mm
Pan volume: 200 litres
Mixing capacity: 110 litres of concrete
Power supply: 400V 3ph 50Hz 4Hp
Dimensions: 1200 x 1000 x 1300 mm
Net weight: 260 Kg

C166-02

Pan type mixer 60 litres

Pan diameter : 550 mm
Pan volume : 100 litres
Mixing capacity : 60 litres of concrete
Supplied complete with two wheels and drawbar.
Power supply: 230V 1ph 50H2 2Hp
Dimensions: 900 x 700 x 900 mm
Net weight: 140 kg

C166-02

ACCESSORY:

C166-10

Set of two wheels with drawbar for the mixer 200 litres mod. C166 and 110 litres mod. C166-01

C166

C166-01

NEW

TESTING FRESH SELF COMPACTING CONCRETE

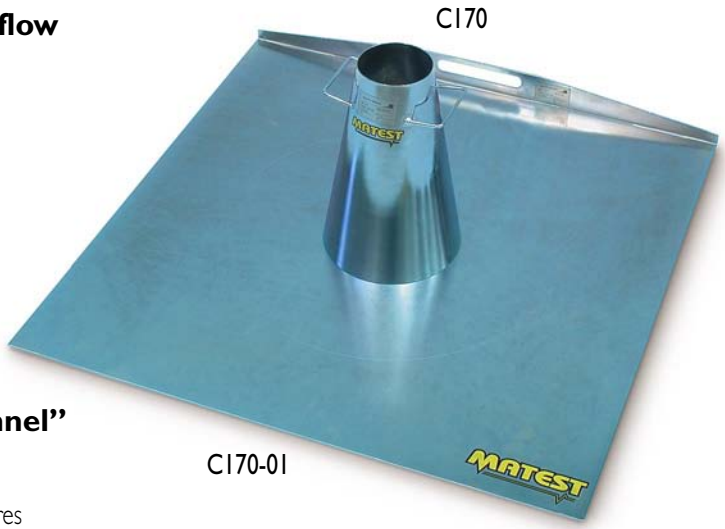
STANDARDS: EN 11040, 11041, 11042, 11043, 11044, 11045

Determination of free flow and time flow "Spray-Test"

STANDARD: EN 11041

C170 CONE MOULD, galvanized steel, conforming to EN 12350-2 Spec.

C170-01 Square base plate, galvanized steel, dimensions 800 x 800 mm, with engraved two circles having dia. 200 and 500 mm



C170

C170-01

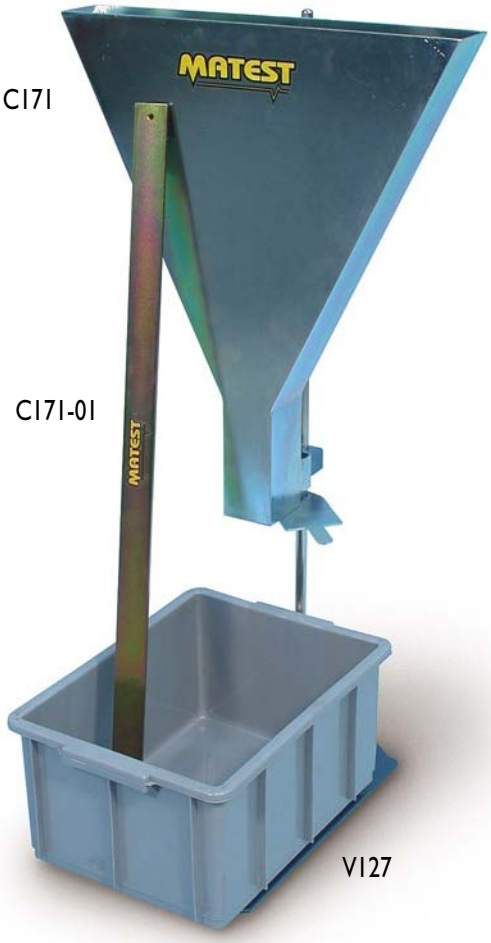
Determination of flow time in "V-Funnel"

STANDARD: EN 11042

C171 V-FUNNEL, "**stainless steel**" made, having 10 litres capacity, stand mounted. The upper edge of the funnel is smooth and reinforced, and the outflow orifice is equipped of an openable seal valve.
Dimensions: 510x400x1000 mm
Weight: 40 kg approx.

C171-01 Rectangular bar, 900 mm long, galvanized steel, to level the concrete after its filling into the funnel.

V127 Box, polythene made, to collect the concrete discharged from the funnel



C171

C171-01

V127

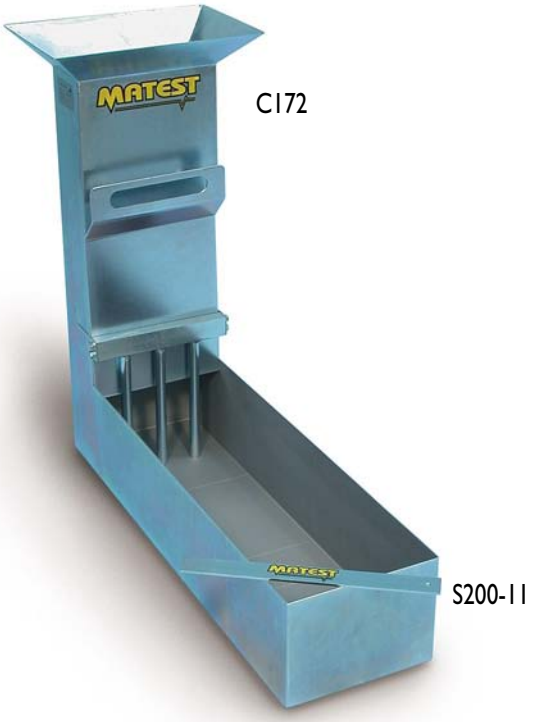
Determination of confined flowability in "L-Shape Box"

STANDARD: EN 11043

C172 L-BOX, "**stainless steel**" made, consisting of:
- container with inside rigid surfaces,
- obstacle formed by 3 vertical bars having 16 mm dia. with free light of 38 mm,
- gate in guillotine form.

Two marks far 200 and 400 mm are engraved on the horizontal bottom position.
Dimensions: 700 x 300 x 650 mm
Weight : 40 kg approx.

S200-11 Straight edge, galvanized steel, 300 mm long, to level the concrete.



C172

S200-11

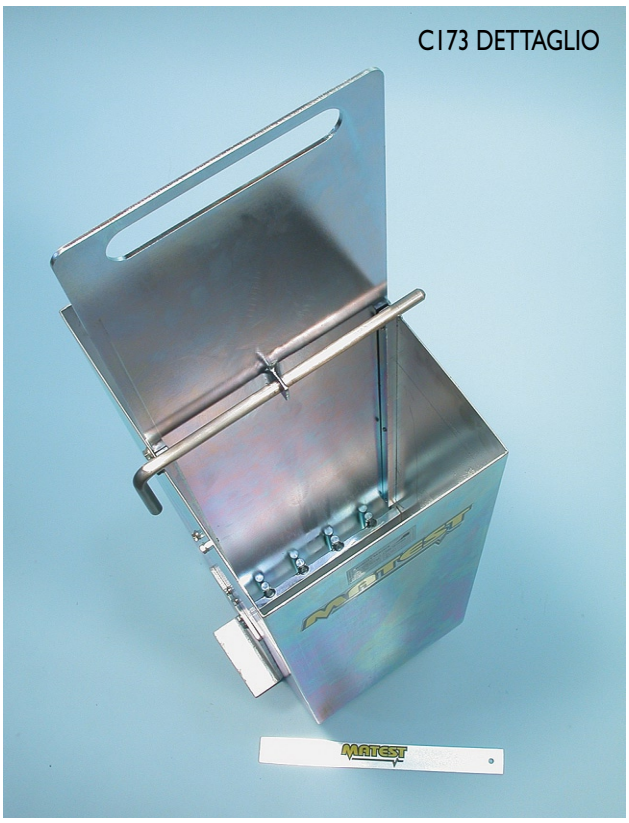
NEW

Determination of confined flowability in "U-Shape Box"

STANDARD: EN 11044

C173 U-BOX, "**stainless steel**" made, with inside smooth walls, foreseen of a flow obstacle, formed by vertical reinforcement bars. The bar's diameter and their distance can be modified as requested by Standards. A gate in guillotine form splits the vertical portion of the box from the horizontal one.
Dimensions: 280 x 200 x 680 mm
Weight : 20 kg approx.

S200-11 Straight edge, galvanized steel, 300 mm long, to level the concrete.



C173

S200-11

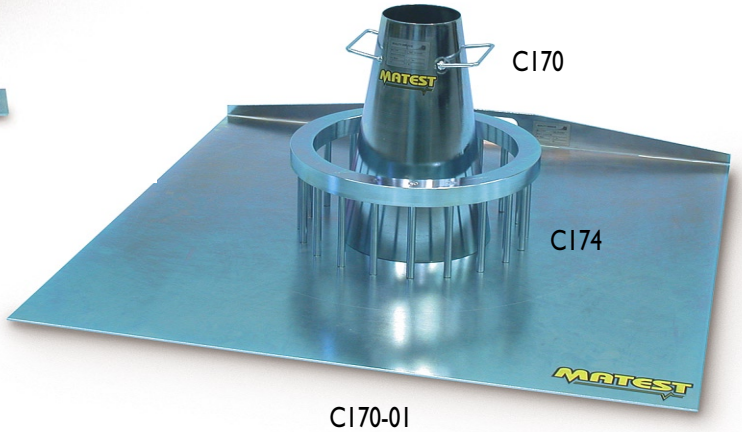
Determination of confined flowability in "J-Ring"

STANDARD: EN 11045

C174 J-RING, galvanized steel, having rectangular section 30 x 25 mm and median diameter of 300 mm. The medium circumference of the ring is drilled , and different cylindrical bars dia. 10 x 100 mm are fixed into the holes. The bars have distance of 48 mm between them.

C170 CONE MOULD, galvanized steel, conforming to EN 12350 Spec.

C170-01 Square base plate, galvanized steel, dimensions 800 x 800 mm, with engraved two circles to easily center the mould and the ring.



C170-01

SLUMP CONE TEST

STANDARDS: EN 12350/2 - BS 1881:102 - AASHTO T119
ASTM C143 - NF P18-305, P18-451
UNI 7163, 9418 - UNE 7103, 83313

For the determination of the consistency, the medium and high workability of fresh concrete.

C180

SLUMP CONE COMPLETE SET including: **"stainless steel cone"**, metal pan, tamping rod, slump scale with measuring device, cone funnel, all completely protected against corrosion, aluminium scoop.
Weight: 10 Kg

C182

SLUMP CONE SET, including: galvanized slump cone, base plate, tamping rod, aluminium scoop, steel rule 300 mm long.

SPARE PARTS:

C180-01 Slump cone only, **"stainless steel"**
C180-02 Tamping rod, galvanized dia. 16x600 mm
C180-03 Cone funnel, galvanized steel
C180-04 Base plate for C182 set
V176-01 Steel rule 300 mm long for C182 set
V184 Aluminium scoop, 500 cc capacity
C181 Slump cone only, galvanized steel

V185-03

Scoop, stainless steel

STANDARDS: EN 12350/1 - UNI 9416 - BS 1881:101
Used to sample fresh concrete
Capacity: 5 Kg of concrete
Dimensions: dia. 125x250 mm

V185-03

C183

Vebe' consistometer

STANDARDS: EN 12350/3 - BS 1881:104 - UNI 9419
The Vebè consistometer method is based on the same principle of the simple slump cone test method, for the determination of the workability of concrete, but it has the advantage of a mechanized action. After removing the slump cone, the concrete undergoes a vibration to determine its slump. Supplied complete.
Power supply: 220-240 V 1ph 50 Hz 250 W
Dimensions: 260x380x700 mm. Weight: 90 Kg

C184

Vibrating table

NEW

(Vebè consistometer)
STANDARD:
ASTM C1170-91
For determining the consistency and density of roller-compacted concrete.
Similar to mod. C183, but conforming to ASTM Spec.
Dimensions:
280x400x900mm
Weight: 110 kg

SLUMP CONE TEST SETS

STANDARDS: **EN 12350-2** / ASTM C143 / BS 1881:102 / AASHTO T119 / NF P18-305, P18-451 / UNE 7103, 83313 / UNI 9418

C180-01

Slump Cone only, manufactured from **"stainless steel"**, diameter 100/200mm, height 300mm, thickness 1,5 mm.
Weight: 2 kg approx.

C181

Slump Cone only, galvanized steel, diameter 100/200mm, height 300mm, thickness 1,5 mm.
Weight: 2 kg approx.

SLUMP CONE COMPLETE TEST SETS.
Matest proposes different versions:

C178-KIT Portable slump cone test set, including:

C181 Slump Cone, **"galvanized steel"**

C179-02 **"Graduated"** steel tamping rod, galvanized, dia. 16 x 600 mm

C179-01 Base, manufactured from heavy duty galvanized steel, complete with clamps and measuring bridge which is also used as carrying handle.

The slump is measured using the tamping rod having a graduated scale engraved in 1 cm increments.
The components of the set are fitted together for easy carrying.
Very practical, robust, ideal for site use.
Weight: 8 Kg approx.

C179-KIT Portable slump cone test set, including:

C180-01 Slump Cone, **"stainless steel"** made

C179-02 **"Graduated"** steel tamping rod, galvanized, dia. 16 x 600 mm

C179-01 Base, galvanized steel, complete with clamps and measuring bridge, as described above.

Weight: 8 Kg approx.

C180-KIT Slump Cone, complete set, including:
C180-01 Slump Cone, **"stainless steel"** made
C180-02 Tamping rod, galvanized steel, dia. 16 x 600 mm
C180-03 Slump Cone funnel, galvanized steel
C180-06 Graduated slump scale **"engraved in 0,5 cm"** increments with sliding measuring rod
C180-07 Base, galvanized steel, complete
V184 Aluminium scoop, 500 cc capacity
V178 Fine wire brush

The set is ideal for laboratory tests.
Weight: 10 Kg approx.

C182-KIT Slump Cone, complete set, including:
C181 Slump Cone, **"galvanized steel"**
C180-02 Tamping rod, galvanized steel, dia. 16 x 600 mm
C180-04 Base plate, galvanized steel
V176-01 Stainless steel rule, 300 mm long
V184 Aluminium scoop, 500 cc capacity
V178 Fine wire brush

Weight: 5 Kg approx.

NOTE:
Each component of the kits can be ordered separately.
The user can personalize the kit composition for the Slump Cone test.

C185

Compacting factor apparatus

STANDARDS: BS 1881:103
BS 5075

Designed to undertake a more precise and sensitive test procedure than the simple slump test.
The apparatus consists of two conical hoppers mounted on a cylinder.
Each hopper has a hinged flange with quick release mechanism and everything is mounted on a rigid steel stand.
The compacting factor is the ratio between the weight of the partially compacted concrete and the weight of the fully compacted concrete.
Supplied complete with tamping rod dia. mm 16x600 long.
Dimensions: mm 500x400x1510.
Weight: 55 Kg


C185

C192

Flow table

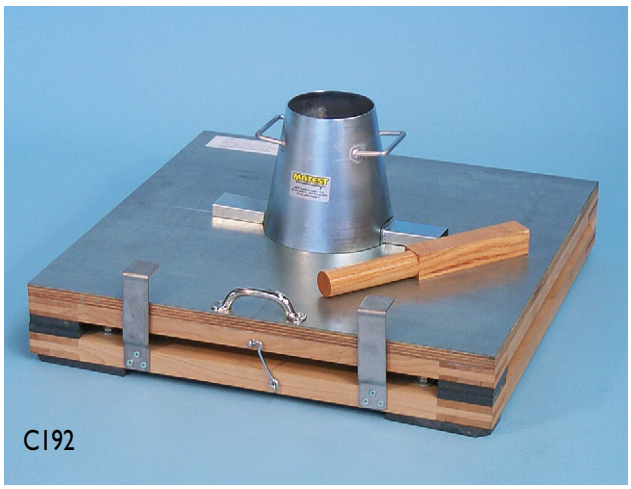
STANDARDS: EN 12350/5 - BS 1881:105 - DIN 1048 - UNI 8020

The apparatus comprises a galvanized steel conical mould, dia. 130/200 xh 200 mm, double wooden flow table with galvanized steel top plane, guide device, wooden tamper.
Used to determine the workability of concrete. The top table has a square surface of 700x700 mm, hinged on one side.
Weight: 30 Kg

SPARES:

C192-01 Conical mould, galvanized steel made, dia. 130/200 xh 200 mm

C192-02 Wooden tamper


C192

C187

K-slump tester

STANDARD: ASTM C1362

To determine the degree of compaction and the workability of fresh concrete. Used for in-situ measurements or inside test moulds. Test results can be correlated against the slump values.
Weight: 500 g

C187

C188

C188

Walz consistometer

STANDARDS: EN 12350/4 - DIN 1048 - UNI 9420

To measure the consistency of fresh concrete.
It consists of a metal box with handles 200x200 mm by height 400 mm, painted for rust protection.
Weight: 6 Kg

C186

Kelly ball apparatus

STANDARD: ASTM C360

Consisting of a hemispherically ended cylinder with guiding frame and a handle graduated in inch, it is used to determine the workability of fresh concrete. The ball is lowered into the concrete and the penetration measured.
It can be used on site or in laboratory.
Cadmium plated for rust protection.
Weight: 15 Kg


C186

C189

Concrete workability meter

STANDARD: NF P18-452

The concrete workability meter (also known as plastometer) is designed to test concrete for dynamic workability.
It is suitable for field and laboratory tests to check:
- concrete mix for consistency, expecially water content
- optimum proportioning of concrete constituents (sand, gravel, water, cement)
- possible improvment when admixing a plastifier
- comparing two concrete types

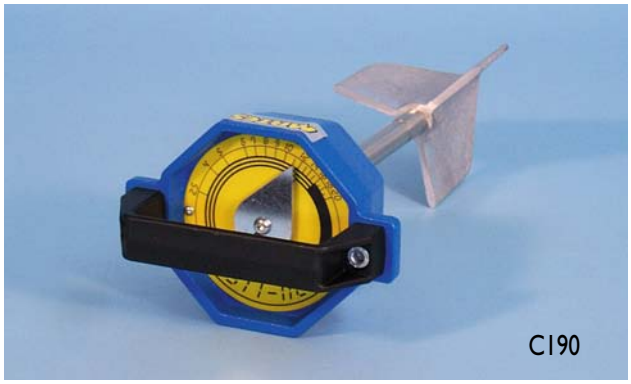
The unit consists of a prismatic receiver divided into two unequal volumes by a removable partition, and an electric vibrator.
The fresh concrete is poured into the large volume space, the separating partition is removed, and the vibrator starts automatically.
The test consists in measuring the time required for the concrete to reach an uniform distribution in the receivers
Power supply: 220-240 V 1ph 50 Hz 300 W
Dimensions: 820x420x410 mm
Weight: 80 Kg

C189

C190

Plasticity meter

Used for quick and easy measurements of the plasticity of mixtures, especially concrete, and so to detect rapidly any excess of water.
The measuring system is related to the shear strength applied by a three blade head to the mixture under test.
It is possible to measure the plasticity at several different points, and directly in the mixture, with multiple checking, and obtained values can be easily compared with the values got by the slump Abrams cone test.
Dimensions: dia. 130x180 mm
Weight: 2 Kg



C190

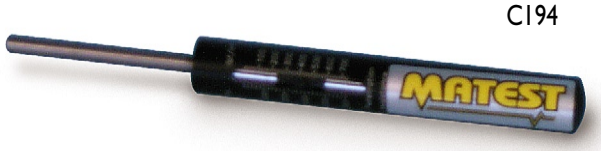
C194

Concrete pocket penetrometer

STANDARDS: UNI 7123 - ASTM C403 - AASHTO T197

Used for the evaluation of the initial set of the concrete mortar.
The penetration plunger has a tip area of 32 sq/mm. It is plunged into the mortar to a depth of 25,4 mm. indicated on the plunger.
The resistance expressed in Kpa and Lbf/sq.in. is shown on the marked direct-reading scale.
Dimensions: dia. 25x210 mm
Weight 400 g

C194



C213

Concrete penetrometer

STANDARDS: ASTM C 403 - AASHTO T197 - UNI 7123, 7927
Used to determine the setting time of the mortar fraction in concrete mixes with slump greater than zero, by testing mortar sieved from mix. The apparatus consists of a spring penetrometer (capacity 100 Kgf, precision 1 Kgf) and six interchangeable stainless steel needle pointers of 16-32-65-160-325-650 mm2 area. A sliding ring indicates the reached load on the handle of the penetrometer.
Supplied complete with carrying case.
Dimensions: 450x160x70 mm. Weight: 5 Kg

C213

C195

Air entrainment meter 5 litres capacity

STANDARDS: EN 12350/7 - BS 1881:106 - UNI 6395
ASTM C231 type A - NF P18-353 - UNE 7141

Made from cast aluminium alloy. It records directly the percentage of air enclosed in freshly mixed concrete by operating according to the air pressure principle.
The instrument is supplied complete with pressure gauge tamping rod and hand pump.
Air content range 0÷8% - div. 0,1%
Dimensions: dia. 250x700 mm.
Weight: 13 Kg

ACCESSORY:

C195-01 Calibration cylinder to check and calibrate the air meter mod. C195

Density of hardened concrete

STANDARDS:
EN 12390/7 - UNI 6394/2
BS 812, 1881:114
SPECIFIC GRAVITY
FRAME, mod.V084
See Section "V"
General Equipment.

C196

Air entrainment meter 8 litres capacity

STANDARD: DIN 1048 - ASTM C231 type B

It consists of an aluminium vessel with built in hand operated pressure pump, connected to the measuring gauge showing directly the air content in percentage.
Air content range:
0÷10% div. 0,1% up to 8% and 0,5% over
Dimensions:
dia. 250x450 mm

C197

Air entrainment meter 8 litres capacity

STANDARD: DIN 1048 - ASTM C231 type B

Identical to mod. C196 but with built in automatic electric air compressor giving air pressure, and keeping it constant all along the test.
Power supply: 220-240 V 1ph 50 Hz
Dimensions: dia. mm. 250x450
Weight: 14 Kg

ACCESSORY:

C197-01
Filling hopper for the air entrainment meters C196 and C197

C198

Air entrainment meter, 7 litres capacity, pressure gauge type

STANDARDS: **EN 12350-7** / ASTM C231 / AASHTO T152

It consists of an aluminium cylindrical vessel with airtight cover assembly incorporating an air pump, a precision pressure gauge 90 mm dia. and valves.
Capacity: 7 litres.
Air content range: 0 - 100%
Gauge graduations: 0,1% up to 6% of the scale; 0,2% from 6% to 10% of the scale.
Lightweight, compact and durable, this meter allows quick clamping system and testing with few pump strokes. It is not affected by change in atmospheric pressures. The container can be used also for unit weight measures of fresh concrete and aggregates.
Supplied complete with calibration kit, accessories, robust plastic carrying case.
Dimensions: dia. 250 by 500 mm approx.
Weight: 10 kg

C198

C199-10

C199-11

Admixtures for concrete, mortar and grout. Determination of bleeding of concrete

STANDARD: **EN 480-4**

C199-10

CONTANIER, having 250 mm dia. by 280 mm height, complete with cover.
Stainless steel manufactured, it is used for the determination of the relative bleeding of a fresh concrete sample, using aggregates having max. size of 50 mm.
Weight: 5 kg aprox.

ACCESSORY:

C199-11 Tamper, stainless steel made, dia. 100 mm

C281

Vibrating table, portable, lighweight, 12 V dc

STANDARD: **EN 12390-2**

Suitable for site use, where no electric supply is available.
Lightweight and small sized, it can be handled by one person and easily stored in the car trunk.
Table dimensions: 280 x 400 mm; height 360 mm
Voltage: 12 V DC
Supplied complete with On/Off switch and connector for the vehicle cigar lighter
Weight: 25 Kg approx.

C281

C199
Unit weight measure, 10 litres capacity


C199

STANDARDS: EN 12350/6
BS 1881:107 - EN 1097/3

Used to determine the weight per cubic metre of freshly mixed and compacted concrete.
Made from steel, 4 mm thick, protected against corrosion, with inside radius between wall and base of 20 mm, with machined rim and base.
Inside diameter 200 by height 320 mm
Weight 9 Kg

Unit weight measures

STANDARDS: ASTM C29, C138 - AASHTO T19 - UNI 6394
UNE 7286 - BS 812, 1881 - EN 1097/3

Made from heavy steel sheet, protected against corrosion, they are used to determine the weight per cubic metre of freshly mixed and compacted concrete, and as per ASTM Standards also the air content of fresh concrete.
Used also for the determination of loose bulk density and voids of aggregates.


C200 ÷ C205-01

Models	Capacity Litres	Inside diameter mm	Useful height mm	Sheet thick mm	Weight Kg
C200	1	108,3	108,6	3	2
C201	2	108,3	217,1	3	3
C201-01	3	160	149,2	3	3,5
C202	5	187,7	180,7	3	4
C202-01	7	187,7	253	3	5
C203	10	265	181,3	4	7
C204	14	265	253,8	4	9
C204-01	15	265	272	4	12
C205	28	345,6	298,5	5	14
C205-01	30	345,6	319,8	5	15

C211
Joisel apparatus

Diameter 140x220 mm high.
STANDARD: French LCPC method
Used to separate the various elements of the fresh concrete such as cement, sand, aggregates. All made from stainless steel.
Weight: 2 Kg


C211

C220
Water test set for concrete mixing

STANDARDS: DIN 4030 - EN 206, 1008
This kit, utilized to test the water mixing concrete, is composed by different dropping bottles, water-proof colors scales, test strips. It is suitable, to carry out more than 50 analysis of: total or momentaneous pH, magnesium, ammonium, chloride, odour, sulphate, lime dissolving CO2, carbonate hardness, total hardness.
Contained in carryng case.
Weight: 2 Kg


C220

CONCRETE FLOW TABLE

STANDARD: ASTM C124 - also conforming to UNI 8020 - AASHTO T120 - UNE 7102

Used to determine the flow of concrete. The apparatus consists of a flow table, stainless steel flow mould, tamping bar.

MODELS:

C208

FLOW TABLE

Hand-operated by crack handle.

Table diameter 762 mm. Weight: 100 Kg

C209

FLOW TABLE

Motorised, complete with automatic digital drops-counter.

Table diameter 762 mm

Power supply: 220-240 V 1ph 50 Hz 750 W

Weight : 115 Kg

ACCESSORY:

C210-02

Flow mould, cast bronze made to UNI 8020.

C215

RAM - rapid analysis machine

STANDARD: BS 1881:128

Used for the determination of cement content in fresh concrete, coarse and fine aggregate, fly ash and GGBF slag content can also be determined. Fully automatic procedure with quick and accurate test results (max. errors within 5 Kg./cubicmetre).

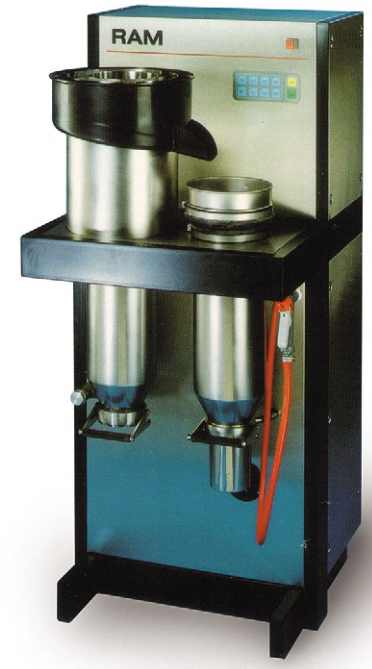
The complete test takes approx. 10 minutes. The connection to water net for approx. 80 litres each test is required. The weight of the test sample is 8 Kg.

Supplied complete.

Power supply: 220-240 V 1ph 50 Hz

Dimensions: 780x660x1500 mm

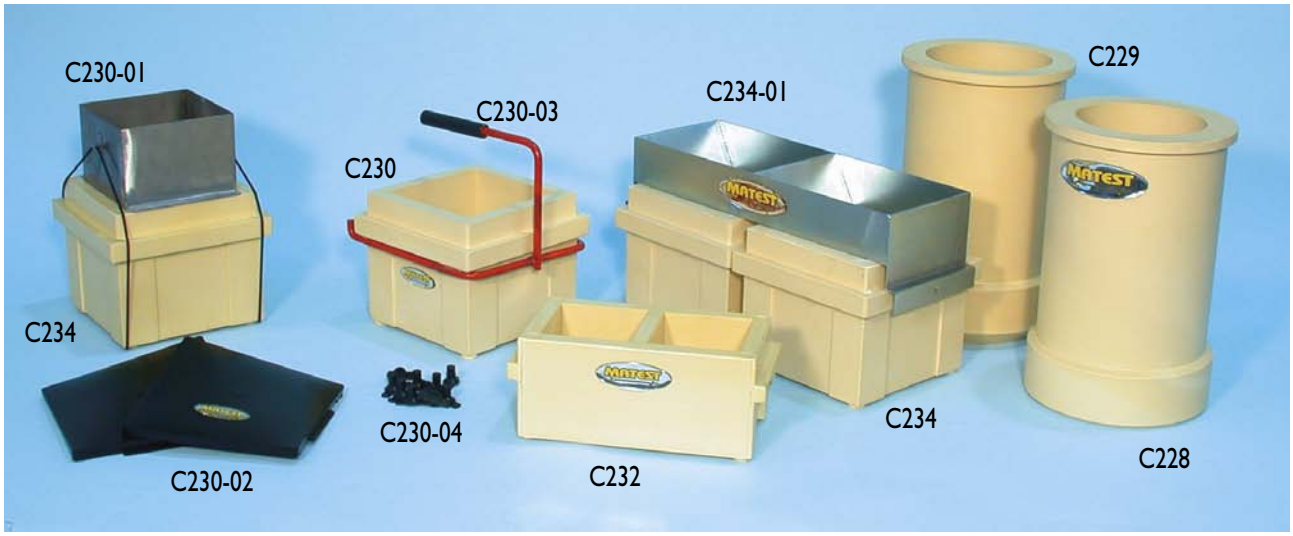
Weight: 150 Kg



C215

PLASTIC CUBE AND CYLINDER MOULDS

These one-piece moulds, made from hard plastic, strong, light, underformable; resistant to vibration shocks and wear, do not require mounting and dismounting operations, thus saving time and labour.
The specimen is expelled from the mould by compressed air or water. They just require a simple clean and demould oiling before being ready for use again for many times.
Nominal moulds dimensions meet to EN 12390/1, EN 12390/2 Standard requirements.



MODELS:

C228 Cylinder mould dia. 150x300 mm. Weight 2560 g

C229 Cylinder mould dia. 160x320 mm. Weight 2560 g

C232 Cube mould 100 mm. side, "two gangs" Weight 1040 g

C234 Cube mould 150 mm side, reinforced corners Weight 1300 g

C230 Cube mould 150 mm. side with reinforced corners and minimum flatness tolerances Weight 1300 g

C233 Cube mould 150 mm side, "high density" similar to mod. C230, but obtained from more dense and compact plastic material, and therefore more resistant to blows and to abrasion, so to grant low wear and longer life. Weight: 1550 g

ACCESSORIES:

C230-01 Funnel (filling hopper) for an easier filling of fresh concrete into mould mod. C230, C233, C234. Stainless steel sheet made.

C230-02 Plastic cover, for mod. C230, C233, C234 cube mould, useful for transportation. Pack of 10 pcs.

C230-03 Grasping pliers for mod. C230, C233, C234 to get easier the carriage

C230-04 Plastic stopper to plug the hole of the mould. Pack of 10 pcs.

C234-01 Funnel (filling hopper) "two gangs" for an easier filling of two moulds C230, C233, C234 simultaneously.

POLYSTYRENE CUBE MOULDS

This cube mould, polystyrene made, is utilized for only one test, because it must be broken when the specimen is demoulded.
It gives different advantages:
- it is provided of a top cover keeping inside heat and humidity constant and acting as a curing room
- it protects the specimen as a packing during trasnsport of the same
- it is extremely light
- any trouble concerning the cleaning, demoulding and maintenance of the mould are eliminated.

C231 Polystyrene cube mould, 150 mm side, one gang. Pack of 40 pieces.

C231-01 Polystyrene cube mould, 200 mm side, one gang. Pack of 20 pieces.

C231-02 Polystyrene cube mould, 100 mm side, four gang. Pack of 52 pieces.

STEEL CUBE, CYLINDER AND BEAM MOULDS

Nominal moulds dimensions meet to requirements of
STANDARDS: EN 12390/1, EN 12390/2 - BS 1881:108, 109, 110 - ASTM C192, C31 - AASHTO T23 - NF P18-400 - UNI 6130 - UNE 7240

Steel cube and beam moulds

These models of steel cube and beams moulds are extremely sturdy and the inside surfaces are accurately machined.

MODELS:

C247 Cube mould, 100 mm. side, one gang. Weight: 6 Kg
C247-01 Cube mould, 150 mm. side, one gang. Weight: 13 Kg
C247-02 Cube mould, 200 mm. side, one gang. Weight: 25 Kg
C247-03 Cube mould, 300 mm. side, one gang. Weight: 90 Kg
C248 Cube mould, 100 mm. side, two gang. Weight: 11 Kg
C248-01 Cube mould, 150 mm. side, two gang. Weight: 30 Kg
C248-02 Cube mould, 200 mm. side, two gang. Weight: 53 Kg
C248-03 Cube mould, 100 mm. side, three gang. Weight: 17 Kg
C248-04 Cube mould, 140 mm. side, three gang. Weight: 30 Kg
C248-05 Cube mould, 150 mm. side, three gang. Weight: 38 Kg
C249 Cube mould, 100 mm. side, four gang. Weight: 20 Kg
C249-01 Cube mould, 150 mm. side, four gang. Weight: 45 Kg

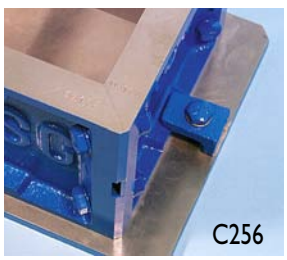
C254 Beam mould 100x100x400 mm. Weight: 20 Kg
C254-01 Beam mould 100x100x500 mm. Weight: 23 Kg
C254-02 Beam mould 150x150x600 mm. Weight: 44 Kg
C254-03 Beam mould 150x150x750 mm. Weight: 47 Kg
C254-04 Beam mould 200x200x800 mm. Weight: 86 Kg
C254-05 Beam mould 140x140x560 mm. Weight: 38 Kg

C255

Cast iron 150 mm side cube mould, one gang

STANDARDS: EN 12390-1 - BS 1881:108 - UNI 6127

Four part design plus baseplate, this mould has nominal dimensions as requested by Standards. Weight: 17 Kg


C256


C255

C256

Cast iron 150 mm side cube mould, one gang

STANDARDS: EN 12390-1 - BS 1881:108 - DIN 51229 - UNI 6127

Four part design plus baseplate, this mould has been checked in shape, dimensions and tolerances with SIT (NAMAS or equivalent) certified measuring instruments.
Each mould is numbered for identification and supplied with Certificate of Conformity to EN, BS Standards. Weight: 17 Kg

C230-01

Funnel (filling hopper) for an easier filling of fresh concrete into the cube moulds C247-01, C255, C256. Stainless steel sheet made.

Steel cylinder moulds

The internal finishing is accurately machined. Supplied complete with base.

Models	Dimensions Ø x height	Weight Kg
C258	100x200 mm	8
C258-01	112,8x220 mm	8
C258-02	150x300 mm	15
C258-03	6" x 12"	15
C258-04	160x320 mm	17
C258-05	250x500 mm	80
C258-06	150x150 mm	10

ACCESSORIES:

C180-02 Tamping rod, 16 mm dia. x 610 mm. long.
C261 Tamping bar, 25 mm. square area x 380 mm long.
C262 Straight edge, 460 mm long.
V178-01 Wire brush, used to clean moulds.
C265 Demoulding oil. Can of 30 Kg

POKER VIBRATORS

STANDARDS: EN 12390/2 - ASTM C31, C192
AASHTO T23, T126 - BS 1881:108 - UNI 6137

Suitable for the internal compaction of concrete specimens both in laboratory and in site.

The diameter of the needle must not exceed the 25% of the smallest dimension of the specimen.

MODELS:

C270
POKER VIBRATOR, HEAVY DUTY, portable, electric.
Tip dimensions: dia. 25 by 290 mm long.
Flexible shaft 2 metres long.
Frequency: 12000 vibr./minute.
Amplitude: 0,65 mm
Centrifugal force: 0,8 kN (80 kg)
Power supply: 230V 1ph 50/60Hz 2300W
Dimensions: 200 x 300 x 350 mm approx.
Weight : 10 kg approx.

C270

C271
POKER VIBRATOR, portable, petrol operated 0,75 HP
Tip dimensions: 22 mm dia. x 250 mm long
Flexible shaft 2 metres long
Frequency: 12000 vibrations/min.
Dimensions: 300x300x400 mm
Weight: 9 Kg approx.

C271

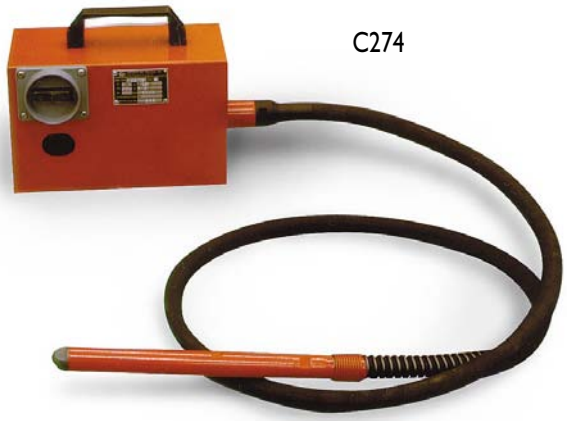
C273
POKER VIBRATOR, portable, electric
Tip dimensions: 22 mm dia. x 250 mm long
Flexible shaft 2 metres long
Frequency: 12000 vibrations/min.
Power supply: 230 V 1ph 50 Hz 500 W
Dimensions: 200x300x350 mm
Weight: 7 Kg approx.

C273

NEW

C274
POKER VIBRATOR, portable, 12 V DC battery operated
Complete with connector for car lighter.
Tip dimensions: 22 mm dia. x 250 mm long
Flexible shaft 2 metres long
Frequency: 12000 vibrations/min.
Weight: 10 Kg approx.

C274



VIBRATING TABLES

STANDARDS: EN 12390/2, EN 12350/4 -BS 1881:108 - UNI 6127

Used for the compaction of concrete specimens in laboratory, they are manufactured from rugged steel sheet.
Equipped with motor-vibrator having 3000 vibrations-minute, it is possible to vary the vibration intensity by acting on the excentric masses.
The height of the table is 410 mm.
Power supply: 220-240 V 1ph 50 Hz

Models	Table dimensions	Weight Kg	*Clamping device
C278	600x400 mm	60	**C281-01**
C278-01	800x400 mm	85	**C281-02**
C278-02	800x800 mm	115	**C281-03**
C279	1100x550 mm	145	**C281-04**

C278-02

C280
VIBRATING TABLE, expressly manufactured to compact the plastic cube moulds 150 mm mod. C230, C233, C234 and also steel cube moulds 150 mm one gang mod. C255, C256, C247-01
Complete with On/Off switch.
Power supply: 220-240V 1ph 50 Hz 300 W
Dimensions: 320x320x300 mm
Weight: 20 Kg

ACCESSORIES:

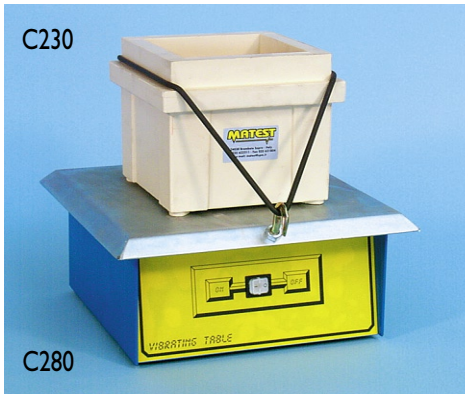
C279-01
Additional motor-vibrator (only for C279 model) so as to obtain an unidirectional vibration and a vibrating power of 300 Kg of mass.

C279-02
Separate control panel, complete with On/Off switch and timer, getting also the tables to CE Safety Directive.

C279-04
Pedal switch, water tight,

C306-03
Separate control panel, complete with switch and electric protections to get the tables to CE Safety Directive.

*The clamping device is used to fix the moulds to the table during the vibrating action.



CYLINDER CAPPING EQUIPMENT

Sulphur method

STANDARDS: EN 12390/2 - ASTM C617, C31, C192 - AASHTO T23, T126 - NF P18-416 - UNI 6132 - UNE 7240, 83303

The above mentioned Specifications require that the two faces of the concrete core or cylinder specimen must be made perfectly flat and parallel, by using sulphur capping equipment.

C290

A106

The equipment is composed by:
- Vertical cylinder capper to obtain plane end surfaces perpendicular to the axis of the cylinder
- Cylinder carrier for an easier handling of the specimens
- Electric pot, to melt the capping compound, capacity 3 litres, complete with thermostat.
  Power supply: 220-240 V 50/60 Hz 1ph 1200 W
- Capping compound of sulphur and mineral mixture, with minimum strength of 55 MPa. Pack of 25 Kg
- Stainless steel ladle
- Weight: 50 Kg

MODELS:

C290 Capping set for cylinders dia. 150x300 mm and 6"x12"
C291 Capping set for cylinders dia. 160x320 mm
C292 Capping set for cylinders dia. 100x200 mm
C293 Capping set for cylinders dia. 112,8x220 mm

SPARES:

C290-01 Vertical cylinder capper for dia. 150x300 mm and 6"x12"
C291-01 Vertical cylinder capper for dia. 160x320 mm
C292-01 Vertical cylinder capper for dia. 100x200 mm
C293-01 Vertical cylinder capper for dia. 112,8x220 mm

C290-02 Cylinder carrier for dia. 150x300 mm
C291-02 Cylinder carrier for dia. 160x320 mm
C292-02 Cylinder carrier for dia. 100x200 mm
C293-02 Cylinder carrier for dia. 112,8x220 mm

C290-03 Electric melting pot, 3 litres capacity.
220-240V 1ph 50-60 Hz 1200W

C290-05 Capping compound, pack of 25 kg.

V186-01 Stainless steel ladle

OTHER MODELS:

A106 Melting Pot, 5 litre capacity
Temp. range: +30 +150°C.
Alternative model to C290-03 one
220-240V 1ph 50/60Hz 1000W

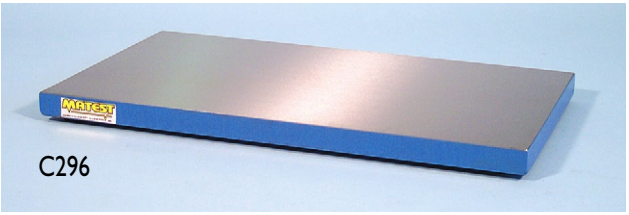
C294-01 Vertical cylinder capper for dia. 250x500 mm

C294-02 Cylinder carrier for dia. 250x500 mm

C294-05 Vertical cylinder capper for dia. 60x120 mm

C294-05

C296
Steel capping plate, used for capping concrete blocks up to 500x300 mm
The plate surface is accurately machined.
Dimensions: 500x300x20 mm. Weight: 30 Kg



C296

UNBONDED CAPPING PADS AND RETAINERS

STANDARD: ASTM C1231

Used for compression tests on concrete cylinder specimens, as an alternative method to the sulphur capping and grinding machine.
Two steel capping retainers are applied on the two flat surfaces of the cylinder.
Two neoprene pads are put between them, for a better load distribution.
The neoprene pads are available in two models:
- 60 shore hardness pads for expected strength from 10 to 48 MPa
- 70 shore hardness pads for expected strength over 48 MPa
The system is not applicable for expected strength lower than 10 Mpa

Models:

C107-10 Capping retainers (couple) for dia. 150x300mm and 6x12" cylinders.

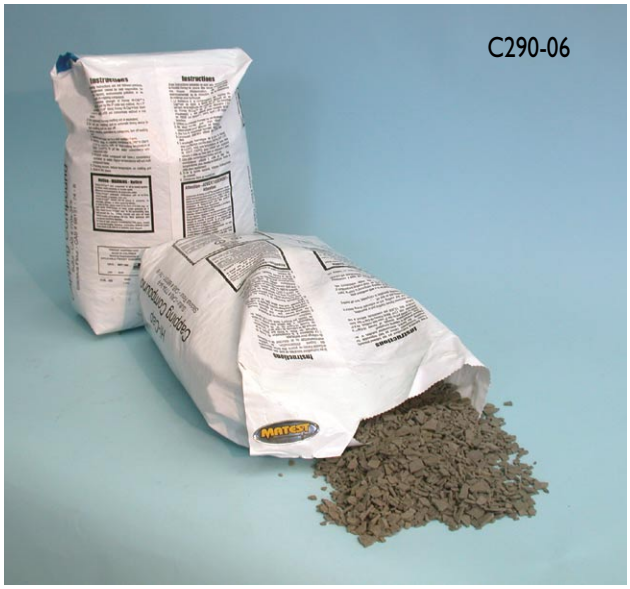
C107-12 Capping retainers (couple) for dia. 160x320 mm cylinders

C107-20 Neoprene pads (couple) 60 shore for dia. 150x300mm and 6"x12" cylinders

C107-21 Neoprene pads (couple) 70 shore for dia. 150x300mm and 6"x12" cylinders

C107-25 Neoprene pads (couple) 60 shore for dia. 160x320mm cylinders

C107-26 Neoprene pads (couple) 70 shore for dia. 160x320mm cylinders



C290-06

Ultra strong flake capping compound

This compound is a mixture of sulphur and mineral filler; the compressive strength of 8000 - 9000 Psi is granted (at two hours) on a 2" cube specimen, as requested by ASTM C617 Standards.
On a 150 mm dia. cylinder the compressive strength is 16000 Psi
Melting point is 115 to 143°C. (ideal: 130°C.)
Bag of 50 lbs (22,5 Kg)

C300-08

C300-08

Core face preparation device

Used in conjunction with the Grinding Machine mod. C300, it prepares parallel and flat core faces of rock samples. The device accepts up to 4 core samples from 20 to 55 mm dia. and can be mounted on most grinding machines.
Weight: 7 kg approx.

C300

SPECIMEN GRINDING MACHINE

STANDARDS: EN 12390/2 - UNI 6132

Designed to grind and polish cubic and cylindrical specimens of concrete, rocks, natural stones etc. having 370 mm. as max height. This machine can grind at a time:

3 cube specimens 100 mm. side, or
2 cube specimens 150 mm. side, or
2 cube specimens 200 mm. side, or
2 cylinder specimens dia. 100x200 mm, 110x220 mm, 150x300 mm, 160x320 mm.

The specimens are fixed to the table by proper bolts, ensuring perfect coupling and blocking. The two-speed revolving abrasive head moves in the two directions. The column is completely protected against the abrasive dust.
The vertical mouvement of the grinding head has an accuracy of 0,05 mm.
The machine base, from rugged plate, comprises a large room for the tools with key locking. The grinding machine is supplied complete with a collecting and water decantation tank (50 litres capacity), a motorpump, a large protection waterproof carter, eight abrasive charges, set of locking stirrups for cube specimens 100-110-150-200 mm side.

C300

- Working base surface: 680x300 mm
- Grinding wheel: 330 mm. dia.
- Vertical span width: min. 90 mm
  max. 370 mm
- Power supply: 400V 3ph 50 Hz 1500 W
- Dimensions: 1300x1040x1500 mm
- Weight: 430 Kg

ACCESSORIES:

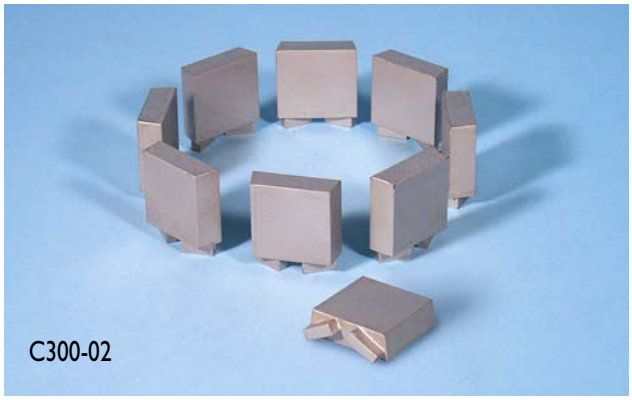
C300-01 Spare abrasive grinding sectors (set of 8 pieces)

C300-02 Diamond grinding sector (required quantity: 8 pieces), particularly suitable because of their long duration and good grinding action.

C300-03 Set of locking stirrups for cylinder specimens dia. 100, 110, 150 and 160 mm

C300-04 Set of special locking stirrups to grind at a time three cube specimens 150 mm. side.

C300-05 Device for the automatic radial mouvement in both directions of the grinding head, so to get the grinding machine fully automatic.



C300-02

CURING TANKS FOR CONCRETE SPECIMENS

STANDARDS: **EN 12390-2**, ASTM C31, C192, C511, AASHTO T23, UNE 7240, NF P18-404, UNI 6127, 6128, 6129, BS 1881:111

C302

Curing tank 650 litres capacity, heavy plastic

Made from extremely robust and stable polyethylene, complete with base rack.
Supplied "**without**" thermostat heating system, to be ordered separately (see accessories).
Inside dimensions: 1040x1040x605 mm
Weight: 60 kg

C302-10

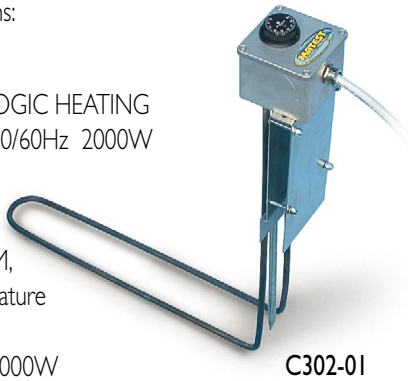
Curing tank, 550 litres capacity, heavy plastic

Same to mod C302 but having:
"Water discharge cock incorporated into the tank"
Inside dimensions: 1100 x 710 xh 690 mm
Overall dimensions: 1200 x 800 xh 850 mm
Weight: 55 Kg

"NEEDED" ACCESSORY for the C302 and C302-10 tanks
Available in two versions:

C302-01
THERMOSTAT ANALOGIC HEATING SYSTEM. 230V 1ph 50/60Hz 2000W

C304-2
THERMOSTAT DIGITAL HEATING SYSTEM, ensuring better temperature accuracy.
230V 1ph 50/60Hz 2000W



ACCESSORIES

C305-01 Plastic cover for the C302 tank
C302-11 Plastic cover for the C302-10 tank
C306-02 Submersible water circulating pump, also used for an easy water discharge from the tank. 230V 1ph 50/60Hz

C306-03
Separate control panel, complete with switch and electric protections, to get the tanks to CE safety Directive

C306-05

Analogic thermostat,

complete with heating element.
Used to thermostatise any type of tank from 300 to 1000 litres capacity.
Power supply:
220-240V 1ph 50/60Hz 2000W

WATER REFRIGERATOR
See Section "E" Cement, mod. E141

C307

Accelerated concrete curing tank

STANDARDS: ASTM C684 - BS 1881

This tank has been designed for accelerated concrete strength curing.
It comprises a fully insulated double wall tank with cover, inside all from stainless steel, outside from steel painted sheet with an intermediate layer of insulating mineral wool.
This tank can hold up to 16 cubic 150 mm. side specimens; or 16 cylindrical dia. 150 mm. specimens; or 8 cubic 200 mm. side specimens.
The test consists essentially in curing the concrete specimens with water heated by 3 electric elements of 1500W each.
Temperature range: from ambient to 100 °C.
The separate control panel is provided with a thermoregulator, timer, pilot lights, main switch.
Inside dimensions: 910x660x680 mm
Overall dimensions: 970x720x900 mm
Power supply: 220-240V 1ph 50/60 Hz 4500W
Weight: 130 Kg

C307

C308

Accelerated concrete curing tank with automatic curing cycles

The tank is identical to mod. C307, but equipped with digital control panel with microprocessor enabling the operator to program an accelerated curing test in a fully automatic system, where it is possible to adjust and program:
- the heating time
- the heating temperature
- the curing time
- the cooling time
- the cooling temperature by automatic calling of cold water.

Ideal for concrete precast industries, cement factories, research laboratories.
Supplied complete with strip printer, to automatically record the numeric values of time and temperature on paper with programmable printing time intervals.

C308

C303

Thermocouple printing thermometer four channels, for measuring and printing automatically temperatures of precast units and determining the maturity of the concrete. The thermometer can measure and record simultaneously up to 4 different points at selectable intervals of: 1, 2, 5, 10, 30, 60, 120, 180 minutes.

Range -200 +999,9 °C with resolution 0,1 °C.
Battery operated.
Supplied complete with 50 mt coil K-type thermocouple, 5 paper rolls, ink cartridge, carrying case.
Dimensions: 220x82x66 mm

SPARES:

C303-01 K-type thermocouple, 50 mt coil
C303-02 Paper rolls, pack of 10
C303-03 Ink cartridge, pack of 2

C303

THERMOMETER, FOUR CHANNEL LOGGING AND PRINTING

Used to automatically measure, store and print the temperature at different positions in precast units to determine the maturity of the concrete.
The thermometer can measure and store up to 4 simultaneous different points at selectable intervals of:
1, 2, 5, 10, 30, 60, 120, 180 minutes.
Possibility to store up to 16000 temperature readings.
Battery operated, 500 hours autonomy, power socket for 12V DC supply, auto shut-off.
Supplied complete with 5 paper rolls, ink cartridge, carrying case.
Dimensions: 220 x 82 x 66 mm
Weight : 600 g approx.

Available models:

C303-10

C303
Four Channel K-type Thermocouple Thermometer

Recommended when the distance between the concrete precast and the thermometer is few meters.
Measuring range: -200,0 to +999,9°C.
Resolution: 0,1°C.
Supplied complete with 50 meters coil K-type thermocouple, set of 4 male connectors

C303-10
Four Channel Thermistor Sensor Thermometer

Preferred when the distance between the concrete precast and the thermometer is longer.
Measuring range: -50,0 to +150°C.
Resolution: 0,1°C.
Supplied complete with Thermistor Sensor (5 pieces)

ACCESSORIES for mod. C303-10

C303-06 Infrared 9-pin transmitter for PC and printer connection
C303-05 Windows compatible software for PC connection
C303-07 Jack with cord to connect the instrument to the sensor or to the extension cord (4 pieces)
C303-08 Protective copper sleeve 1 m long must be introduced into the fresh concrete to house the sensor. (5 pieces)
C303-09 Convective paste between copper sleeve and thermistor

SPARE PARTS:

C303-01 K-type thermocouple, 50 mt coil, for mod. C303
C303-11 Set of 4 male connectors for mod. C303

C303-12 Thermistor sensor (5 pieces) for mod. C303-10

C303-02 Paper rolls, pack of 10
C303-03 Ink cartridge, pack of 2

CURING ROOM VAPORISERS

STANDARD: EN 12390-2

AVAILABLE MODELS:

C311

Curing room vaporiser up to 150 m³

Used to humidify curing rooms for concrete and mortar specimens.
Max. room capacity: 150 cubic/metre
Power supply: 220-240V 1ph 50 Hz
Dimensions: dia. 360x230 mm
Weight: 3,5 Kg

C312

Curing room vaporiser up to 500 m³

Same to mod. C311, but more powerful for rooms up to 500 cubic/metre capacity.
Power supply: 220-240V 1ph 50 Hz
Dimensions: dia. 420x350 mm
Weight: 8 Kg

ACCESSORIES FOR MOD. C311, C312:

C312-10
HUMIDISTAT to automatically control the room humidity, range 30 ÷ 100 %

C312-11
Level regulator; it allows the direct connection to the water net, for a continuous use of the vaporisers.
Supplied complete of antioverflow.

C313

Curing room vaporiser over 500 m³

For rooms over 500 cubic/metre
Vaporiser capacity: 9 l/h
Air circulating capacity: 800 cubic metre/hour
Supplied complete with humidistat controller, range: 30-100%
The unit is directly connected to the water net.
Power supply: 220-240 V 1ph 50 Hz 230 W
Weight: 25 kg

C310

Recording thermometer at six channels

This recording thermometer, automatically working, is utilized to measure and record on graphics the temperature inside a concrete mass under relevant curing, to know its reactions during the heat of hydration development.
The thermometer is suitable to record simultaneously up to six readings in different points or masses, through relevant thermo-couples.

- Measuring range: -10 to +110 °C
- Paper graphic width: 110 mm. with roll development of 15 metres at 60 mm/hour speed.
- Supplied complete with 50 metres of thermocouple cable, four rolls of graphic paper, accessories.
- Power supply: 220-240V 1ph 50 Hz
- Dimensions: 192x288x256 mm
- Weight: 8 Kg

SPARES:

C310-01
50 metres of thermo-couple cable

C310-02
Rolls of graphic paper.
Pack of 10 pcs.

C310-03
Writing ink tape.
Pack of 6 pcs.

C310

C314

Climatic chamber for freeze and thaw tests, for accelerated curing tests and for general laboratory hot and cold test.

STANDARDS: EN 196 - EN 1367/1

Designed for all the research and control laboratories where known cold and/or hot temperatures with controlled humidity values are required for any type for freeze / thaw tests, accelerated curing tests, hot and cold tests in general. Used also to check the behaviour of aggregates during freeze and thaw cycle tests according to: EN 1367/1 - ASTM C671 BS 812:124 - CNR N° 80 UNI 8520 STANDARDS
Temperature range: -20 °C +60 °C. Accuracy ± 0,5 °C.
Humidity range: 10÷90%, dew point limit +2 °C.
Inside and outside frame: totally in stainless steel
Digital display of actual and preset temperature
Internal ventilation: forced circulation.
Inside useful capacity: 520 litres.
Inside dimensions: 620x630x1390 mm
Overall dimensions: 730x860x2090 mm
Complete with 3 adjustable shelves, RS 485 interface
Power supply: 220-240 V 1ph 50 Hz 1000 W
Weight: 150 Kg

C314

C315

Climatic chamber, same as mod. C314 but having:
Inside useful capacity: 1200 litres
Double entrance door
Inside dimensions: 1240x730x1390 mm
Overall dimensions: 1460x860x2090 mm
Complete with 4 adjustable shelves
Weight: 230 Kg

ACCESSORIES:

C315-01 Two curves graphic recorder

C315-02 Microprocessor temperature programmer for the automatic execution of the set cycles

Climatic chamber

Basically similar to mod C314, C315 chambers, but without humidity setting and control.
Designed for general laboratory hot and cold tests.
Temperature range: -20°C to +60°C, with +/- 1°C accuracy
Inside and outside frame: totally in stainless steel with highly thermal insulation walls.
Internal ventilation: forced ventilation
Digital display of actual and preset temperature with 0,1°C accuracy
Complete with 3 adjustable shelves
Power supply: 220-240V 1ph 50Hz 1000W

AVAILABLE MODELS:

C316 CLIMATIC CHAMBER 520 LITRES CAPACITY
Overall dimensions: 730 x 860 xh 2090 mm
Weight: 130 kg

C316-01 CLIMATIC CHAMBER 1200 LITRES CAPACITY
Double entrance door
Overall dimensions: 1460 x 860 xh 2090 mm
Weight: 170 kg

C316-01

CORE DRILLING MACHINES

STANDARD: EN 12504-1

Matest proposes two ranges of machines:

CORE DRILLING MACHINES "LIGHTWEIGHT PORTABLE" range

CORE DRILLING MACHINES "HIGH PERFORMANCE" range

CORE DRILLING MACHINES "LIGHTWEIGHT, PORTABLE"

General description

These drilling machines are extremely practical, lightweight, easy to use.

The base if from aluminium alloy, the steel column can be tilted up to 60÷75°, the motor support is fixed on rollers and ball bearings.

The motor incorporates a water swivel to cool the diamond bit.

The machine is supplied complete except: diamond bit, expander coupling and spanner (see accessories at pag. 161) to be ordered separately.

C318
Core drilling machine, electric motor

Electric motor at three speeds: 670, 1140, 1580 rpm, with speed reducer, provided of friction device and switch to 89/392/CEE Safety Directive.

The machine accepts bits dia. 50 to 150 mm

Power supply: 220-240 V 1 ph 50 Hz 2200 W

Dimensions: 450x290x860 mm

Weight: 35 Kg

C318-01
Core drilling machine, petrol driven

Petrol engine power 2500 W

Speed: 390 to 920 rpm

The machine accepts bits dia. 50 to 200 mm

Dimensions: 450x290x1060 mm

Weight: 40 Kg

C318-02
Core drilling machine, air driven

Air motor with consumption of 50 litre/sec air.

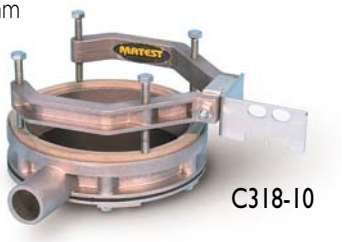
Air engine power: 3300 W

Speeds: 250 - 390 - 580 - 830 rpm

The machine accepts bits dia. 50 to 200 mm

Dimensions: 525x330x1350 mm

Weight: 68 Kg.



C318-10

ACCESSORIES:

C318-10

Water collecting ring, confining waste water on the surface, for the mod. C318. It requires a suitable vacuum pump connection (see accessory mod. V203)

C318-11

Water collecting ring, confining waste water on the surface, for the mod. C318-01 and C318-02. It requires a suitable vacuum pump connection (see accessory mod. V203)

C318-12

Kit attachment for vacuum base connection. It includes the base gasket and the vacuum gauge. It requires a suitable vacuum pump (see accessory mod. V203)

CORE DRILLING MACHINES "HIGH PERFORMANCE"

General description:
These drilling machines are extremely robust, heavy duty, compact and reliable.
The sliding group is rectified so as to assure a very soft and accurate drilling movement.
The drilling excursion is 550 mm and the machine can drill cores up to 200 mm dia.
The motor is advanced by a rack system with built in a water swivel to cool the diamond bit.
The robust steel base is equipped with wheels for easy site displacements, together with four levelling and stabilizing feet.
All working and moving parts are cadmium plated for rust protection.
The machine is supplied complete except: diamond bit, expander coupling and spanner (see accessories at pag. 161) which have to be ordered separately.

MODELS:

C319
Core drilling machine petrol driven, 5HP

This rugged, compact and portable machine with vertical screw feed, is used for pavement core sampling where it is not easy to get electrical power.
Petrol engine 5 HP power, 4-cycle Briggs & Stratton model.
Dimensions: 850x580x1230 mm
Weight: 135 Kg

C319

C319-01
Core drilling machine petrol driven 8,5 HP

Same to mod. C319, but activated by a petrol engine 8,5 HP power 4-cycle Briggs & Stratton model.
Weight: 145 Kg

C322

C322
Universal electric core drilling machine

Coring angle: 0 to 360°
Electric motor at three speeds: 670, 1140, 1580 rpm with speed reducer, provided of friction device and switch to 89/392/CEE Safety Directive.
The height of the vertical column is 1000 mm and it is pre-built for extension column connection (accessory mod. C322-01).
Power supply: 220-240 V 1ph 50 Hz 2200 W
Dimensions: 440x750x1300 mm
Weight: 85 Kg

C321

Universal core drilling machine, petrol driven

Coring angle: 0 to 360°
Petrol engine, 6 HP at two speeds: 300 and 600 rpm with speed reducer, complete with friction device.
The height of the vertical column is 1000 mm and it is pre-built for extension column connection (accessory mod. C322-01).
Dimensions: 750x440x1300 mm
Weight: 90 Kg

SPARE PARTS:

C330
ELECTRIC MOTOR, for C318, C322 and C324 machines
Power 2200 Watt, three speeds 670 - 1140 - 1580 rpm complete with friction device, with connection to coolant water supply.
Double extremely safe isolation and switch to 89/392/CEE Directive. Connection to hub 1 1/4".
Power supply: 220-240 V 1ph 50 Hz 2200 W
Weight: 9 Kg

C331
PETROL ENGINE, for C319 machine 5 HP power, 4 cycle Briggs & Stratton model.
Supplied complete with tank, accessories
Weight: 20 Kg

C331-01
PETROL ENGINE, for C319-01 machine 8,5 HP power, 4 cycle Brigss & Stratton model.
Supplied complete with tank, accessories.
Weight: 25 Kg

V203
VACUUM PUMP for mod. C324 - Power supply: 220-240V 1ph 50 Hz

C324

Electric core drilling machine, with vacuum facility

Coring angle: 0 to 360° under the condition that the surface is sufficiently flat to allow the vacuum attachment.
Electric motor at three speeds: 670, 1140, 1580 rpm with speed reducer, provided of friction device and switch to 89/392/CEE Safety Directive.
Supplied complete with vacuum pump.
Power supply: 220-240 V 1ph 50 Hz 2200 W
Dimensions: 870x290x1100 mm. Weight: 38 Kg

ACCESSORY:

C322-01
EXTENSION COLUMN, 1000 mm long, to connect to mod. C321 and C322 for drillings over 1 metre from the ground. Supplied complete with clamping devices.
Cadmium plated for rust protection.

C332

Bits to core bitumes	Bits to core concrete	Outside dia. mm	Inside dia. mm
C340-05	**C341-05**	57	50
C340-06	**C341-06**	83	75
C340-07	**C341-07**	108	100
C340-08	**C341-08**	160	152
C340-09	**C341-09**	210	200

C332
PORTABLE ELECTRIC GENERATOR
To use with electrically driven machines where electrical power is not available.
The generator is rated at 4000 Watt and it supplies: 230 V 1ph 50 Hz.
Complete with tank, accessories.
Weight: 60 Kg

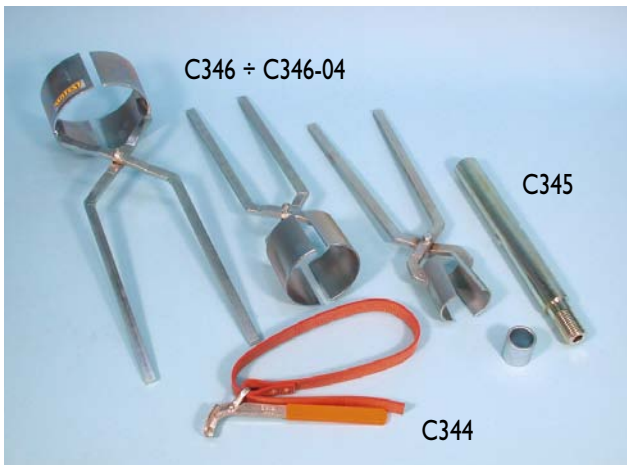
C340-05 ÷ C341-09

C343 ÷ C343-04

DIAMOND BITS AND ACCESSORIES

Diamond core drill bits are designed for making holes and to get cores from hard materials like concrete, reinforced concrete, rock, stones, bituminous.
The diamond utilized for these bits is quality impregnated sinterized type. All bits are 500 mm. long.
The coupling between the bit and the drilling machine requires a suitable expander coupling (see table).
Two basic models of diamond bits are available:
- to core concrete, rock, stones, hard materials
- to core bituminous materials.

The core extractor allows an easy removal of the core sample from the hole.



Expander coupling	Core extractor	Inside dia. mm
C343	**C346**	50
C343-01	**C346-01**	75
C343-02	**C346-02**	100
C343-03	**C346-03**	152
C343-04	**C346-04**	200

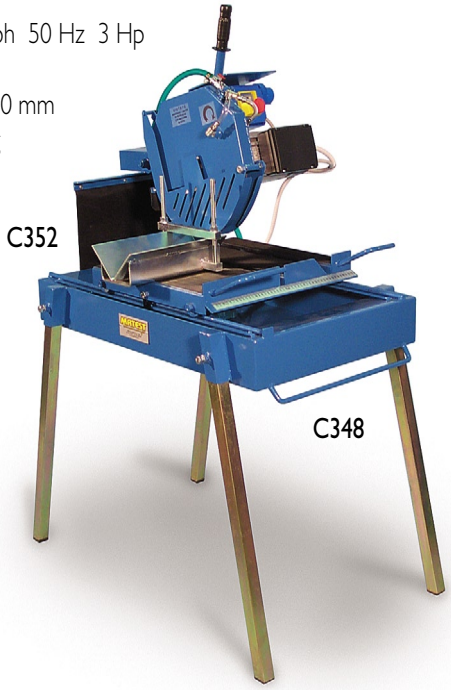
C344
Strap wrench useful for unblocking the bits

C345
Extension rod 300 mm. long (used for deep holes)

C348

Specimen cutting machine, sliding supports model

The machine accepts blades up to dia. 350 mm
Useful cutting height: 110 mm
The blade can be oriented for cuts at 45°
Dimensions of the sliding table: 500x450 mm
Blade rotation speed: 2800 rpm
Supplied **"without"** blade (see accessories)
Power supply:
220-240 V 1ph 50 Hz 3 Hp
Dimensions:
700x1100x680 mm
Weight: 80 Kg



C352

C348

C350

Specimen cutting machine

Used to cut concrete specimens and any type of construction material like blocks, tiles, pipes, rock cores etc. The machine is equipped of an electro-pump for water cooling, pedal guide for vertical cutting, safety device against breakage of blade.
The machine accepts blades up to dia. 450 mm
Supplied **"without"** blade (see accessories)
Power supply: 400 V 3F 50 Hz 3 Hp
Dimensions: 1220x700x1360 mm
Weight: 125 Kg

C352

C350

C350-01

Specimen cutting machine

Identical to mod. C350, but with:
Power supply: 220-240 V 1ph 50 Hz 3 Hp

C349

Specimen cutting machine.

Basically similar to mod. C350, but it can accept blade having max. dia. 500 mm. Power supply: 400 V 3ph 50 Hz 4 Hp

C351

Specimen cutting machine, bench type

The machine accepts blades up to dia. 350 mm.
Shear capacity: 120 mm.
Blade rotation speed: 3900 rpm
Supplied **"without"** blade (see accessories)
Power supply: 220-240 V 1ph 50 Hz 2000 W
Dimensions: 560x460x390 mm
Weight: 20 Kg

ACCESSORIES:

C350-10 ABRASIVE BLADE dia. 350 mm
C350-11 ABRASIVE BLADE dia. 400 mm
C350-12 DIAMOND BLADE dia. 450 mm., having long life for a faster and more precise cutting operation.
C350-13 DIAMOND BLADE, dia. 350 mm
C350-15 DIAMOND BLADE, dia. 500 mm

C351

C352

DEVICE FOR CYLINDERS AND CORES

To clamp and cut cylinders and cores. The device is fixed to the table of the cutting machines mod. C348, C350, C350-01, C349
Weight 10 Kg

C353

DEVICE FOR IRREGULAR SHAPES

To clamp and to cut irregular shaped specimens, like rocks, stones etc. The device is fixed to the table of the cutting machine mod. C348, C350, C350-01, C349.
Weight: 5 Kg

C353

MECHANICAL STRAIN GAUGES

STANDARDS: ASTM C426 - BS 1881:206

Used to determine the strain in concrete specimens and structures, rock strata etc. in remote areas and under adverse conditions using a single instrument. It consists of an extensometer with dial analogic gauge 0,001 mm. sens. calibration bar, 50 datum disks, special adhesive, carrying case.

MODELS:

C360 Strain gauge, 100 mm. measuring length

C360-01 Strain gauge, 200 mm. measuring length

C361 Strain gauge, 300 mm. measuring length

Strain gauges, identical to above (C360÷C361), but equipped with a **"digital gauge"**, battery feeded, with reading values in mm (sens. 0,001 mm) and in inch (sens. 0,0001").
Complete with battery and RS 232 connector to PC.

MODELS:

C363 Strain gauge 300 mm measuring length

C363-01 Strain gauge 100 mm measuring length

C363-02 Strain gauge 200 mm measuring length

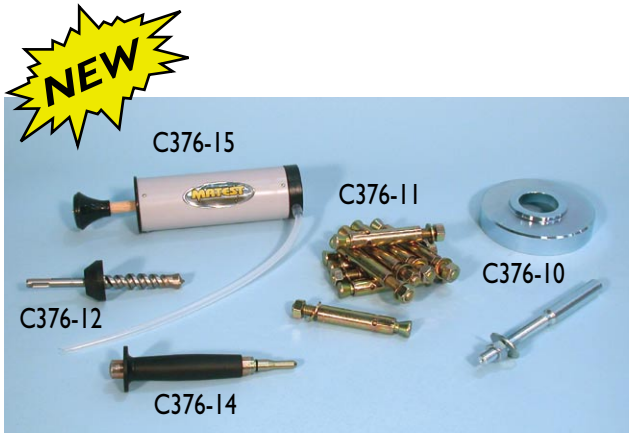
ACCESSORY:

S383-01 Cable to connect the digital strain gauge to PC

SPARE PARTS:

C362-01 Datum disks (pack of 50)

C362-02 Special adhesive tube



C376

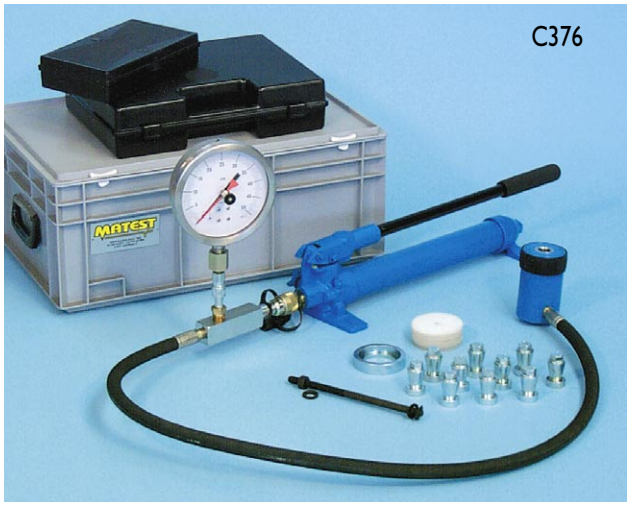
Pull-out test apparatus

STANDARDS: ASTM C900 - BS 1881 part 207 - UNI 9535
EN1542, 12504-3 - UNI 10157

Used to evaluate the concrete resistance as per the strength applied to extract an insert embedded in concrete.
Standard equipment comprises hydraulic extraction unit 50 kN capacity with pump, precision manometer, bearing ring, 10 steel inserts 30 mm. dia., carrying case.
Weight: 18 Kg

SPARE-PART:

C376-01 Pull-out inserts 30 mm. dia. Pack of 25 pieces.



ACCESSORIES FOR "PULL-OUT" mod. C376

DETERMINATION OF POWER EXTRACTION THROUGH INSERTS POST INTRODUCED, WITH FORCED AND GEOMETRICAL EXPANSION

STANDARD: UNI 10157

It's used to determine the needed power to extract from a concrete element a metallic insert that is introduced in the element by perforation.
This extraction power it's used:

a) To investigate on concrete mechanic proprieties in site
b) To estimate the in site concrete's compression resistance in a case of specific calibration curve

The equipment is composed of:

C376-10 Connecting rod furnished with bearing ring, to be used with the pull-out instrument to hook the C376-11 insert.

C376-11 Geometric expansion pull-out insert dia. 18x80 mm. Pack of 10 inserts.

C376-12 Hardened drill beat to perform a hole as required from UNI standard and to put in a insert.

C376-13 Drill with SDS mandrin

C376-14 Striker, to put a insert into the hole

C376-15 Aspirant pump to clean the hole from detritus and dust

Hydraulic shrinkage determination

STANDARDS: UNI 6555 - ASTM C426

This test covers the determination of the hydraulic axial shrinkage of concrete specimens having 100x100x500 mm, with aggregates up to 30 mm. max diameter. The specimen is prepared by a special mould and after housed in the measuring apparatus that determines the axial shrinkage.

The equipment consists of:

C365 SHRINKAGE MOULD, 100x100x500 mm complete with inserts. Weight 20 Kg

C364 MEASURING APPARATUS, for specimens 100x100x500 mm, complete with reference bar, but "**without**" dial gauge to be ordered separately (see accessories). Weight: 23 Kg

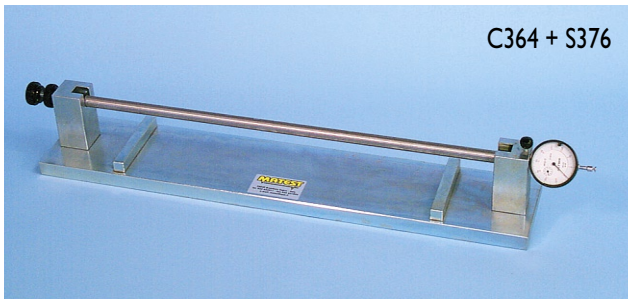
ACCESSORIES:

S376 Dial gauge 10 mm stroke x 0,01 mm sens.

S375 Dial gauge 5 mm stroke x 0,001 mm sens.

SPARE PART:

C366-11 Stainless steel inserts. Pack of 10



DETERMINATION OF RESTRAINED EXPANSION OF CONCRETE AND MORTAR CONTAINING THE EXPANSIVE AGENT

STANDARDS: UNI 8148, 8147 - EN 1367-4

E114

Triple mould 80x80x240 mm

E115

Triple mould 50x50x250 mm

E077

Length comparator

See section "E" Cement

C367

Hydraulic shrinkage determination for concrete made with over 30 mm size aggregates

STANDARD: UNI 7086/72

The specimen sized 200x200x800 mm. is prepared by a standard mould (see mod. C254-04) and measured by the apparatus on six points. Supplied complete with six dial gauges 0,01 mm. sens. and reference bar.

Weight: 35 Kg

C374

Moisture meter "Surveymaster"

Used to measure the dampness in concrete and other materials, both on surface and at depth with non-destructive method.

Measurement range: 0 - 100% +/- 0,1%

Digital reading of values, audible alarm, feeding by two 1,5V batteries.

Weight: 200 g

C375

Hygrometer for moisture tests

This portable tester records immediately the moisture percentage content of construction materials such as concrete, walls, plasters, gypsum etc.

The hammer electrode is inserted into the material to be tested and the instrument shows automatically and immediately the moisture percentage of the tested material. The tester is supplied complete with hammer probe, cable, casing and a numerical scale for comparative tests. Dimensions: 200x200x100 mm Weight: 2 Kg

Aquameter, universal moisture meter

This pocket electronic instrument measures the quantity of water in various solid materials such as: concrete, masonry, gypsum, brick, woods, mortars etc.
Using a high frequency capacitive sensor, a large volume of material (approx. 50x75x25mm) is sampled instantaneously.

Features and Benefits:
- Direct read-out of moisture content; no charts or tables required
- Resolution: +/- 0,1%
- Accuracy: +/- 0,2% at constant temperature
- Sensing field volume: approx. 90 cm3
- Separate modes for concrete, brick, wood and gypsum
- Measures moisture in most solid materials
- Specific material calibration available for maximum accuracy
- No prongs, probes or holes to be drilled

Typical Applications:
- Locate leaking pipes in walls and floors
- Locate seeping water in basements and masonry tanks
- Check moisture level of materials before applying coatings or adhesives
- Curing condition of wood, stucco and other construction materials

Powered by: battery 9 V
Dimensions: 110x70x50 mm
Weight: 250 g approx.

C374-05

Available Models:

C374-05 Moisture meter, basic model/program for concrete, masonry, gypsum, brick and most woods

C374-06 Moisture meter, advanced model for above materials as well as special user calibrated mode and averaging function.

C375-01

Chloride field test system

STANDARD: ASTM C114 (conforms to AASHTO T260)

The determination of the chloride ion concentration in concrete is essential in assessing the need for maintenance on, for example, bridge decks and parking structures. The test can also be used to ensure that materials used in new construction are free from potentially harmful chloride ion levels.
With this method, the concentration of acid soluble chlorides is measured. In most cases this is equivalent to total chloride concentration.

Features and Benefits:
- Fast results within minutes at the site
- Low cost per sample compared to laboratory testing
- Accurate results are comparable to laboratory testing
- Covers wide range from 0,002% to 2% chloride by weight
- Automatic compensation for changes in ambient temperature
- Digital display for direct reading of lbs./cu.yd. and percentage of chloride by weight

The test system includes:
- Electronic meter, high impedance with temperature compensation and microprocessor for direct conversion to percentage of chloride. Battery powered.
- Chloride combination electrode with temperature sensor
- 12 jars each with 20 ml of extraction liquid
- 5 jars of coloured calibration liquid
- Scale for 3 g samples weighing, accessories, carrying case

Weight: 5 kg approx.

C375-01

C375-02

Carbonation test

STANDARDS: **EN ISO 14630 :2005** / pr EN 14630 :1997

The test allows the measurement of the depth of carbonation through the surface of concrete.

The set consists of :

- two washing bottles capacity 500 cc. containing phenolphthalein solution and distilled water,
- depth measuring gauge.

The surface of the concrete specimen under test is sprayed with phenolphthalein solution to detect the loss of alkalinity associated with carbonation.

The risk of carbonation induced corrosion can be measured, if correlated with the concrete cover to reinforcement.

Weight: 1,5 kg

C386

Digital Concrete Rebound Hammer

STANDARDS: **EN 12504:Part 2** / ASTM C805 / BS 1881:202 / NF P18-417 / DIN 1048 / UNI 9189 / UNE 83307

This digital concrete test hammer, microprocessor operated, entirely designed and manufactured by Matest with advanced technology, performs basic concrete testing with continuous automatic recording of all parameters in accordance with EN 12504-2 Specifications, register and process data and then transfer them to a PC

During test performing:

- Shows index value
- Shows average index value
- Allows to select measuring system in MpA or Psi
- Shows numbers of performed rebounds
- Shows date and time
- Identifies tested element
- Identifies automatically and shows rebound angle
- Shows battery life

Main features:

- Possibility to store, display on graphic LCD 64x124 and download data to PC over 20000 tests
- Automatic statistical processing and readings
- Automatic conversion of rebound index to equivalent compression strength in psi, N/mm^2, kg/cm^2
- High accuracy and resolution

Technical specifications:

- Impact energy: 2,207 Joule
- Measuring range: 10 – 120 N/mm^2
- Interface: RS232
- Power source: 6 rechargeable batteries AA NiMh 2000mA
- Battery life: 60 hours with automatic shut down
- Operating temperature: -10°C +60°C

Supplied complete with data transfer software, data transfer cable RS232, battery charger, abrasive stone, carrying case

Weight: 2 kg

REBOUND CONCRETE TEST HAMMER

STANDARDS: EN 12504/2 - ASTM C805 - UNI 7997 - DIN 1048
BS 1881:202 - NF P18-417 - UNE 83307
ISO-DIN 8045

Designed to carry out non-destructive tests on concrete structures, it gives an immediate indication of the compressive strength of the concrete using the calibration curve supplied with.

MODELS:

C380

Concrete test hammer, Matest model

Spring impact energy 0,225 mkg. (2,207 Joule)
Suitable for finished concrete structures and buildings having strength resistances from 10 to 70 N/sq.mm. **This concrete test hammer, entirely produced by Matest, has aluminium frame, and thanks to its very accurate manufacture processing and selected components ensures high precision test results in the time. The top quality test hammer available on the market.**
Supplied complete with calibration curve chart in N/mm^2 (Mpa) values, abrasive stone, carrying case.
Dimensions: dia. 80x340 mm
Weight: 3 Kg

C380

C380-01

Concrete test hammer, Matest model

Exactly the same to mod. C380, but with calibration curve chart in Psi values as requested by ASTM Specifications.

C381

Concrete test hammer, Matest model

Similar to mod. C380, but with impact energy of 0,735 Joule. Ideal to test small sized, sensitive and thin walled materials. Suitable to test also rock core samples.

C381

C390

ANVIL for verification of calibration of concrete test hammers.
Dimensions: dia. 150x230 mm.
Weight: 16 Kg

C390

Original "Schmidt" test hammers

C382 Standard model "N" for normal concrete casting. Impact energy 2,207 joule

C383 "NR" model; same as C382 model, but having an automatic incorporated device recording on diagram the impact values

C383-01 Spare roll recording paper for C383 (pack of 5)

C384 "L" model similar in shape to the "N" model, but having an impact energy of 0,735 joule and ideal for testing small and impact-sensitive materials, and rock samples.

C384

C382

C383

C385

"DIGI-SCHMIDT 2" concrete test hammer, equipped with a sensor which measures the rebound value of a test impact with high resolution and reproducibility.
Basic settings, measured value, conversion and evaluations are shown on the display unit. Operation is menu guided. Weight 3 Kg

C385

All other models of original Schmidt test hammers (LR, LB, P, PT, M etc.) available on request.

ULTRASONIC PULSE VELOCITY TESTER

STANDARDS:: EN 12504 part. 4 - ASTM C597 - BS 1881:203 - UNI 7997, 9524 - NF P18-418 - UNE 83308 - EN/ISO 8047

Used to determine the presence of faults, voids, cracks etc., in in-situ or precast concrete and for longterm monitoring of structures subject to environmental conditions.

It gives data concerning the homogeneity of the concrete, by generating pulses of sound into the concrete and measuring the time the sound to travel from the transmitter probe to the receiver probe through the material. Furthermore it is possible to have indicative data about the modulus of dynamic elasticity, and strength of the concrete.

AVAILABLE MODELS:

C368

Ultrasonic pulse velocity tester with microprocessor

The instrument is controlled by a microprocessor, and the main characteristics are:

- Measure of the ultrasonic pulse velocity
- Measure of the distance between the two probes
- Measure of the time taken by the ultrasonic pulse to cross the material under test
- Measure of the young modulus
- Calibration of the "zero time value"
- Programmable transmission pulse frequency (1, 2, 3, 4 Hz)
- Programmable pulse amplitude (250, 400, 750, 1000 Volts)
- Memory file size of 200 values for each measurable quantity
- Link to personal computer through a serial port (RS 232). The personal computer program for the link management is supplied with the instrument
- Link to serial printers to print the stored measures
- Automatic store of the measured values
- Programmable time correction factor to keep into account environmental factors like humidity
- Measurable time: 0 to 9999,99 µs - res. 0,1 µs
- Feeding: rechargeable battery 12 V D.C.

The unit comprises:

- Electronic tester with microprocessor in a portable case
- 2 probes at 55 KHz with connection cables
- 2 outlets for connection to the oscilloscope
- Calibrating cylinder
- Battery charging device + grease coupling tube

Dimensions: 300x240x160 mm

Weight: 4 Kg

C368

C369

Ultrasonic pulse velocity tester

- Measuring range: 0 - 1999,9 µs - precision: ± 0,1 µs
- Ultrasonic pulse amplitude: 800 Peak Volt

The instrument is supplied complete with two piezoelectric probes 55 KHz, two cables, 2 outlets for connection to the oscilloscope, low battery condition alarm, ON/OFF switch, calibration facility with calibrating cylinder, grease coupling agent, n°4 batteries (rechargeable battery on request: see accessories), carrying case.

Dimensions: 170x90x50 mm

Weight: 900 g

C369 with oscilloscope

ACCESSORIES:

C369-01

Battery charger device + rechargeable battery for mod. C369

C370-08

Exponential couple of transmitting and receiving probes, 55 KHz

SPARE PARTS:

C370-02 Couple of transmitting and receiving probes, 55 KHz

C370-04 Couple of cables (each 3,5 mt. long) to connect the probes to mod. C368

C370-06 Couple of cables (each 3,5 mt. long) to connect the probes to mod. C369

C370-07 Tube of grease to better coupling the probes and the material under test

C370-02 C370-08

C373

ULTRASONIC TESTER, PALMER, "HIGH TECHNOLOGY"

STANDARDS : EN12504 part.4 / ASTM C597 / BS1881:203 / UNI9524 / NFP18-418 / UNE83308

NEW

C373

This is an instrument using the most modern technologies; it has a large sized blue negative display with high resolution: 320x240 pixels.
Motorola processor S12, extractable memory SDcard, RS232, RS485.

The appliance allows:

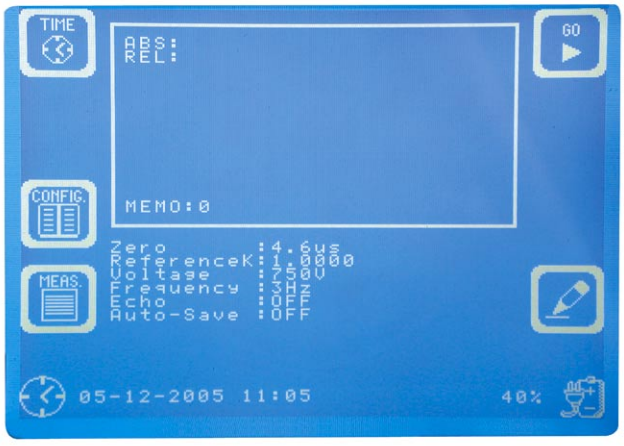
- To measure the ultrasonic impulse speed inside the material (by knowing the distance between the probes).
- To measure the distance between the probes (by knowing the speed of the ultrasonic impulse to go through the tested material).
- To measure the required time by the ultrasonic impulse to go through the tested material.
- Young's modulus is also measured (by knowing the distance between the probes and the density of the tested material).
- Zero calibration with depuration of the time for the impulse to go through the probes.
- Calibration of a defined time value.
- Selection of the transmission frequency of the impulse.
- Selection of the impulse amplitude.
- Infinite capacity of data acquisition, processing and filing of the test dates up to 100.000 readings, on SD card or Compact Flash extractable and expandable.
- RS232 or RS485 or USB interface for PC or printer connection.
- Time measuring from 0 to 9999,9 µS
- Resolution: 0,1 µS
- Possibility to use the instrument with two exponential probes, or with one standard probe and one exponential probe.
- The use of the appliance is made easy because it is based on the user friendly system.

The standard appliance includes:

- Instrument in basic configuration in a practical and elegant palmer container.
- Two 55 kHz probes with connecting cables.
- Calibrating cylinder and contact paste
- Strong anti shock case holding the instrument and the accessories.
- Battery pack NiMh 14,8V 2000m/A per hour
- External feeder 220V/24V and battery charger

Dimensions: 400x300x180 mm.
Weight : 3 kg.

SCREEN EXAMPLES



Main screen

ACCESSORIES:

C370-08 Exponential couple of transmitting and receiving probes, 55 KHz

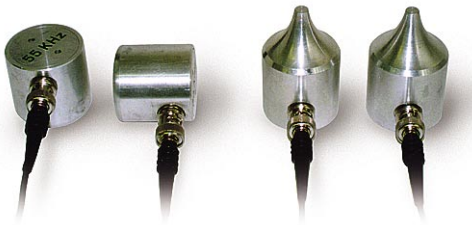
C033 RS232 connection cable to unload on PC the memorized test results for further elaborations.

SPARE PARTS:

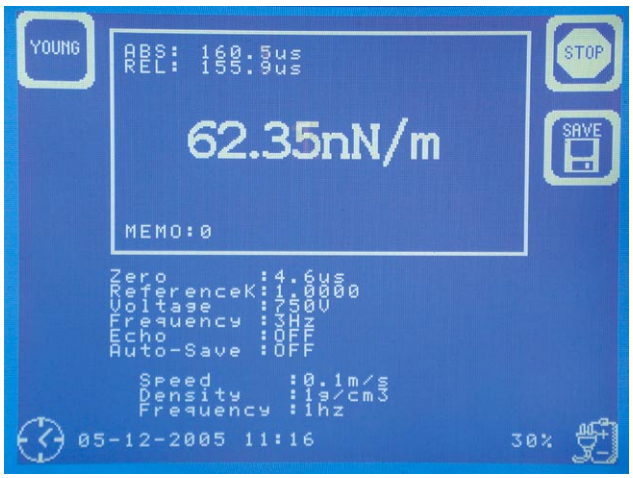
C370-02 Couple of transmitting and receiving probes, 55 KHz

C370-04 Couple of cables (each 3,5 mt. long) to connect the probes to the tester

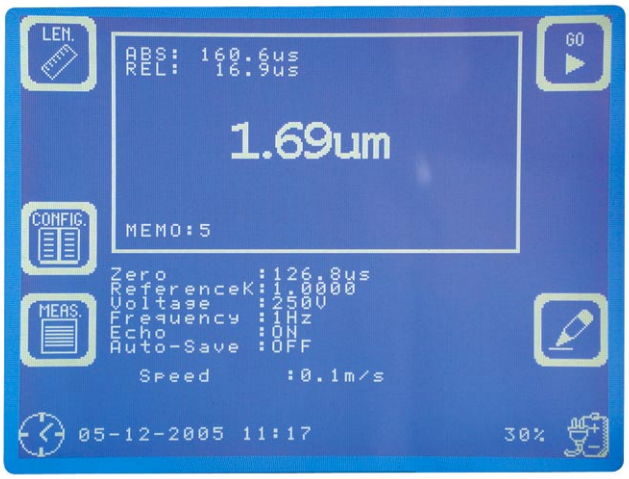
C370-07 Tube of grease to better coupling the probes and the material under test



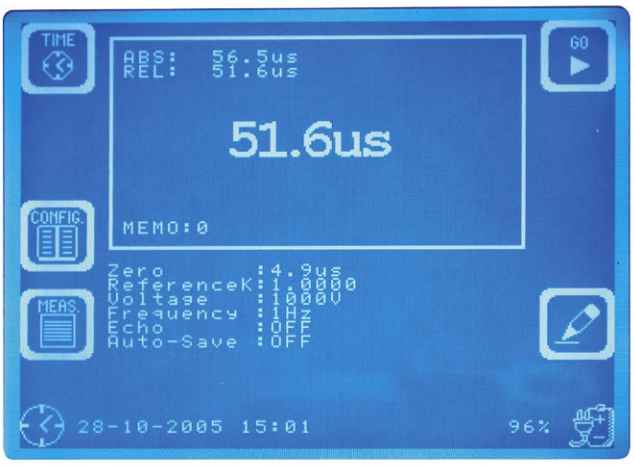
C370-02 C370-08



Young test screen



Test selection screen



Configurations

C373 with standard kit and case

C372
"HIGH PERFORMANCE" Ultrasonic tester

STANDARDS : EN12504 part.4- ASTM C597-BS1881:203-UNI9524-NFP18-418-UNE83308

This is an instrument using the most modern technologies; it has a ¼ VGA colour touch screen, Intel Xscale processor up to 400 MHz up to 64MB Flash Memory, up to 128 MB RAM, Compact Flash interface, SD card, USB, RS232, RS485, possibility of wifi connection, Blutooth,working system Windows CE with the possibility to manage, EXCEL, WORD, PPT files etc.

The appliance allows measuring the ultrasonic impulse speed inside the material (by knowing the distance between the probes).
It measures the distance between the probes (by knowing the speed of the ultrasonic impulse to go through the tested material).
It measures the required time by the ultrasonic impulse to go through the tested material.
Young's modulus is also measured (by knowing the distance between the probes and the density of the tested material).
Zero calibration with depuration of the time for the impulse to go through the probes.
Calibration of a defined time value.
Selection of the transmission frequency of the impulse.
Selection of the impulse amplitude.
Infinite filing capacity of the test dates and the graph tracing of the tests on SD card or Compact Flash extractable and expandable.
RS232 or RS485 or USB interface for PC or printer connection.
Time measuring from 0 to 9999,9 µS
Resolution: 0,1 µS
Possibility to use the instrument with two exponential probes, or with one standard probe and one exponential probe.
The use of the appliance is made easy because it is based on the Palmer PC and Windows CE way of working, it allows using the user knowledge of the classic personal computer and its softwares.
Possibility to visualise the shape of the transmitting wave by transforming the instrument into a real oscilloscope with the option "Scope" (Accessory model C372-01)

C372-01
Screen
Scope
expansion

C372

NEW

Screen palmer PC

Graphic of the impulse

The standard appliance includes:

- Instrument in basic configuration (x-scale 200MHz, 32MB Flash Memory, 64MB Ram) in a practical and elegant palmer container.
- Two 55 kHz probes with connecting cables.
- Calibrating cylinder and contact paste
- Strong anti shock case holding the instrument and the accessories.
- Battery pack NiMh 14,8V 1500m/per hour
- External feeder 220V/24V and battery charger

Dimensions: 400x300x180 mm. Weight : 3 kg.

Case with standard kit

ACCESSORIES:

C372-01
"SCOPE" expansion, it transforms the instrument in a real oscilloscope, to visualise the wave shape while it goes through the material checked.

C372-02 Wireless connection option: blutooth, wifi.

C372-03 Option X-SCALE 400MHz, 64MB Flash Memory, 128MB Ram

COVER TO REINFORCEMENT

For determining the presence, position, direction, depth and diameter of steel reinforcement bars in concrete structures.
STANDARDS: BS 1881:204 - DIN 1045

PROFOMETER 5 REBAR LOCATOR

The lightest instrument in its class, which for the first time displays reinforcing bars and concrete covers on a LCD monitor with an X/Y metre scale, even with close rebar interspacing.
An user-guiding menu technique and just 9 keys for all function ensure the simplest possible operation.
The easily readable display shows up to 240 concrete covers in grey shades.
Measure bar diameter to an accuracy of ± 1 mm.
Additional detailed technical informations available on request.

The Profometer 5 is available in two models:

C396

C396

Profometer 5, "model S" for high performances.
Measuring concrete covers. Storing data. Data processing via printer or PC. Diskette with instructions for data transfer.
Display device with non-volatile 1MB memory for 100.000 measured values and subdivisions into 72 objects. Display on 128x128 graphics LCD.
RS 232 C interface. Battery supply 60 hours, temperature range -10 to +60 °C.
Supplied complete with universal probe for spot, diameter and depth measurements, cable and carrying case.
Dimensions: 320x285x105 mm.
Weight: 2 Kg

C397

Profometer 5 "model Scanlog" for highest performance requirements. All the same features as model S, plus:
"CyberScan" function for showing the reinforcement on the display
"Measurement with grid" function for displaying the concrete coverage in the grey scale
ScanCar probe trolley with integrated distance-measuring device and cable
Transfer cable

C403

Cover meter

Designed for extreme ease of operation for basic cover to steel reinforcement cover detection and bar sizing facilities plus a range of invaluable roles for use in reinforced concrete condition surveys and check measurements.

C403

Main features:

On-screen menu driven operation
Pulse induction technique for stability and performance
Automatic zeroing
Embedded instrumentation computer
Automatic sizing of single bars
Settable "low cover" audible alarm to enable rapid scanning
Single handed operation
Protective nylon case with shoulder strap and search head holster
Simple 4-button operation
Large graphic LCD –large black 15mm x 8mm measurement characters
Switchable loud audible signal
Measuring range 5 mm up to 117 mm depth with single head (16mm dia. = 97mm depth)
Detects up to 150 mm (16mm dia. = 140mm)
Accuracy better than BS1881:204
Settable offset feature to allow irregular/profiled surfaces
Operates on four alkaline batteries, 50 hours use.

All the essential and useful functions rolled into one cover meter.
No pretentious expensive gimmicks or window dressing.
In its simplest setting, the instrument rapidly and accurately measures the depth of cover to reinforcement with values displayed in large black characters with LCD screen prompts to guide you through the functions
Dimensions: 220 x 110 x 175 mm
Weight : 2 Kg

C404

Cover / potential logging meter

STANDARDS: BS 1881:204 – ASTM C876 – UN 19535

The only Logging cover meter and Half cell potential meter available – anywhere

This instrument is a unique cover meter with inclusive additional facility to measure half-cell potential measurements. Both are essential for conducting condition surveys of reinforced concrete structures.

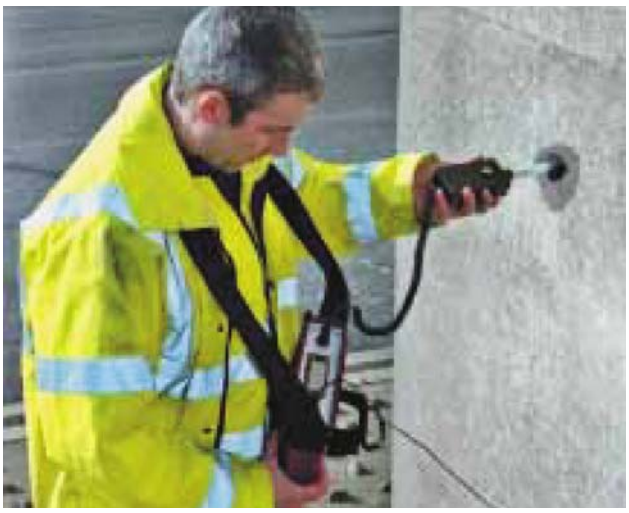
Main features:

On-screen menu driven operation
Pulse induction technique for stability and performance
Automatic zeroing
Embedded instrumentation computer
Automatic sizing of single bars
Settable "low cover" audible alarm to enable rapid scanning
Single handed operation
Protective nylon case with shoulder strap and search head holster

C404

Unique feature:

Dual capability: Cover meter and Digital Half-cell operating modes
Dual LCD displays - Exclusive display for measurement results
Separate graphic display for set-up and data viewing
Ultra large digit: Solid black 18mm x 10mm characters on measurement display
Dual inputs and controls for left or right hand operation
All logged results can be re-viewed in windows of 8 x 8 values on the graphic display



C404 - MEASURE OF POTENTIAL

Cover role features:

Logging non-volatile capacity 30,000 results within thirty pages, each 32 lines x 32 columns
Logged data date and time stamped. Results downloaded to PC or printer
Software and guidance provided for data presentation
Standard head measure and detects up to 150 mm
Optional deep seeking SX2 sensing head. Measures to over 250mm and detects to over 300mm subject to bar size
Accuracy better than BS1881:204
Settable offset feature to allow irregular/profiled surfaces

Half-cell potential role features:

Unique re-fillable Silver/silver chloride mapping electrode
Measurements automatically converted and displayed as equivalent Copper/copper sulfate potentials
Conforms to ASTM C876
Logging non-volatile capacity 30,000 results within thirty pages, each 32 lines x 32 columns
Results downloaded to PC or printer
Software and guidance provided for data presentation

Operates on four alkaline batteries, 50 hours use
Dimensions: 220 x 110 x 175 mm
Weight : 3 Kg

C404 - MEASURE OF COVER

C412

Half cell digital corrosion meter

STANDARDS: UNI 9535 - ASTM C876 - BS 1881:201

The digital half-cell enables rapid location of corroding reinforcement without disrupting the concrete cover.
The unit is a hand set with an integral (removable) Ag/AgC1/Sat. KC1 mapping electrode for maintenance free long term stability and the instrument automatically converts and displays the measurements as Cu/CuSO4 equivalent potentials.
The unit is battery powered giving typically 1000 hours use with low battery indicator.
The nylon carryng case also contains a 10 m reference lead, sponge head, protective nylon cover and an extension kit with fold-up extension rod to enable remote surveying and fatigue free testing of bridge decks etc.
- Detachable silver/silver chloride mapping electrode
- Range/resolution: + 1999 mV ± 1mV

Dimensions: 350x300x200 mm
Weight: 7 Kg

C412

C413

Digital resistivity 2-probe array meter

Used for assessing the probable rate of corrosion in reinforcing bars with the electric resistivity measurement method.
The test is simple to perform and requires only two 6.5 mm diameter holes drilled to a depth of 8mm. Inject a small amount of conductive gel into each hole and insert the probes. The resistivity is immediately displayed.
Low frequency alternating current technique used.
3 digit LCD display.
Less than 2 minutes per test.
Battery: single NM1604 giving approx. 100 hours operating time.
Dimensions: 410x260x140mm
Weight: 3 Kg

C413

C413-01

Digital resistivity 4-probe Wenner meter

Similar to mod. C413 except for the probe used by surface contact and no hole is required.

C413-01

C415

Scribe multirole data-logger

A unique multipurpose surveying system for measurements of reinforced concrete structures:
- Half cell potential
- Concrete resistivity
- Cover and estimated size of reinforcement
- Electrical continuity of reinforcement

The MultiRole Data-logger is at the heart of the system for which a number of add-on "heads" have been developed, which convert it to an instrument for the measurement and assessment of related characteristics. Select the role required on the data-logger, connect interface and appropriate "head" and commence survey.
The system comprises:
- Datalogger digital power pack. Non volatile memory storage for up to 100.000 mesurements paged X-Y co-ordinate. Rewiev and overwrite facility. Free stepping in any direction. 4-line display screen. Date stamping of each "page" of results. 7 positive action push button control with on-screen guidance. 5 data processing formats for half-cell potential results inc. ASTM C876 parameters. Computer data collection software provided. Output for printer or PC downloading of results.
- Half-cell potential Ag/AgCl mapping refillable electrode complete with 10m reference lead, sponge for mapping electrode. Potential measurement displayed in 1mV increments and logged to nearest 10mV as required by ASTM C876
- Resistivity meter, Wenner 4-probe array with spring loaded probes: Interface & holster. Rebar electrical continuity test assembly, reference leads.
- Digital Covermeter with search head, interface, holster, calibration block, interconnected head. Measuring range: 5 to 105 mm cover
  bar size estimation: dia. 4 to 45 mm
  Accuracy: to BS 1881:204 over range specified in BS8110

C415

ACCESSORY:

C415-01

Printer, 40 columns, complete with charger.

DEFLECTOMETERS

Used to determine the deflection on bridges, ceilings or any suspended structure. Possibility to use the deflectometer with pressure or with traction. Reading is direct with a precision of 0,01 mm. One set is composed of: articulated support, dial gauge sens. 0,01 mm. with arm, 20 m invar coil, lead, carrying case.

C406

MODELS:

C405 One set, dial gauge stroke mm. 10
C405-01 One set, dial gauge stroke mm. 25
C406 Three sets, dial gauges stroke mm. 10
C407 Three sets: 2 dial gauges stroke mm. 10; one stroke mm. 25
C407-01 Three sets, dial gauges stroke mm. 25

SPARE:

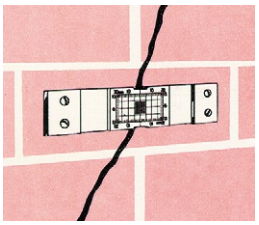
C407-02 Inextensible invar coil 20 metres long

CRACK WIDTH GAUGES

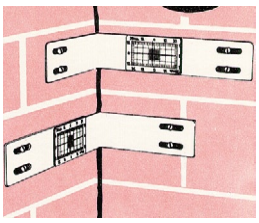
Used for monitoring, measuring and recording the crack width of a building structure.
Internal or external use, manufactured in vandal resistant polycarbonate, complete with crack record card each gauge to semplify monitoring, they are suitable for vertical and horizontal movement measurements.

MODELS:

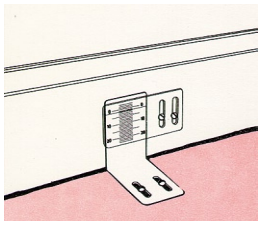
C408
Crack width gauge for walls
To monitor vertical and horizontal movements, also simultaneous, on a plane surface.
Pack of 5 pieces.


C408

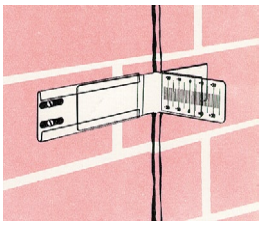
C408-01
Crack width gauge for corners
To monitor corner cracks with bidirectional movements, also simultaneous.
Pack of 5 pieces.

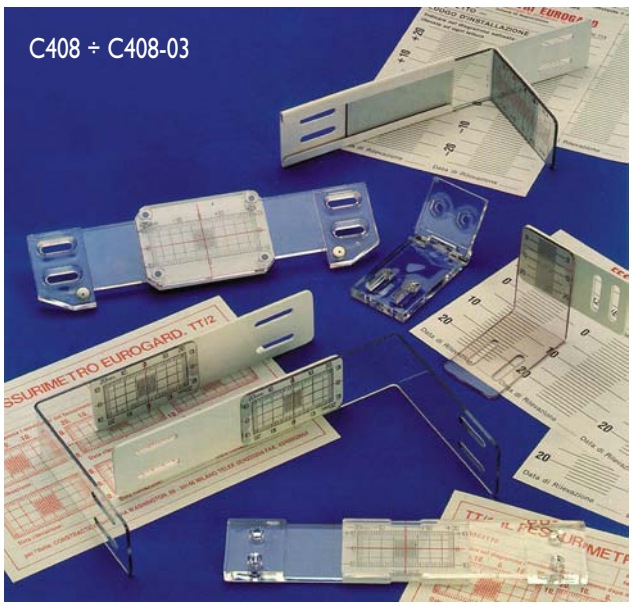

C408-01

C408-02
Crack width gauge for floors
To monitor floor settlements to a wall, column etc.
Pack of 5 pieces.


C408-02

C408-03
Crack width gauge for difference in levels
To monitor the loss of levelness of any cracked surface.
Pack of 5 pieces.


C408-03



C399

Crack detection microscope

Used to measure crack width in concrete structures, by operating via an adjustable light source.
High definition unit, provided by power batteries, carrying case.
Measuring range: 4 mm. and div. 0,02 mm.
Magnification: x35
Weight: 600 g

C399

C410

Windsor HP probe digital system

STANDARDS: ASTM C803 - BS 1881:207 - ACI 347

To evaluate the compressive strength of concrete in place with the penetration method. Non destructive test. It is fast, accurate and simple to perform. The five-minute test does not weaken the structure. Comparison between test results using this method and destructive tests shows a variance normally within 3% from each other. The method requires a pistol-like device which is loaded with a small explosive charge and metal probe. The charge is precisely measured to give a consistent firing force. By pulling the trigger the probe is fired into the concrete.
Standard equipment consist of:
- driven unit
- digital measuring unit with memory for data storage to PC unloading

C410

- accessories and carrying case.

Probes and power charges are not included and must be ordered separately. Dimensions: 500x400x200 mm Weight :16 Kg

ACCESSORIES:

C410-01

Probe kit silver coloured for natural aggregates with probes and power loads. The kit lasts for 75 tests.

C410-02

Probe kit gold coloured for lightweight aggregates, with probes and power loads. The kit lasts for 75 tests.

C411

Canin

CORROSION ANALYSING INSTRUMENT

STANDARDS: UNI 9535 - ASTM C876 - BS 1881:201

For the non-destructive detection of corrosion in the reinforcement bars of concrete building elements.
The large display, just 9 keys for simple operation using menu technique and intelligent memory render Canin a unique instrument worldwide.
120.000 measurements can be stored in the intelligent memory and called up with the cursor keys. A measuring surface of more than 4000 sq.mt. can be managed with the large memory. Standard supply includes one bar electrode, RS 232, integrated software for printer, cables, copper sulphate, carrying case.
Dimensions: 300x330x100 mm
Weight: 5 Kg

C411

C410

C411-02

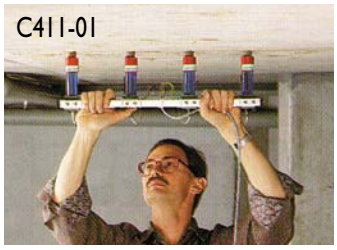
C411-02

Four wheels electrodes system,for horizontal operation, complete with accessories.

EXTENSIONS:

C411-01

Four bars electrodes system with divisions of 150 mm, for bottom view and vertical operation, complete with accessories.



C411-01

C430

Automatic concrete water permeability apparatus at four cells

This fully automatic apparatus is designed to carry out water permeability tests on cubic concrete specimens max. 150 mm side and cylinder specimens max. 160 mm diameter. The specimens are submitted to hydrostatic stress for a pre-set period. The water permeated through the test specimen is directly collected and measured into a graduated cylinder.
It is therefore possible to determine the permeability coefficient in cm/sec. (Darcy coefficient) by the following formula:

C430

$$K = \frac{c\,c \times h}{A \times t \times P}$$

where: cc = permeated water in cm3
h = height of the specimen (cm)
A = surface area of the specimen (sq. cm.)
t = time to permeate (sec.)
P = hydrostatic pressure in cm. of water column

The equipment consists of a strong metallic frame holding four cells which are hot-galvanized for anti-corrosion protection.
Each cell includes a pressure control manometer.
A re-chargeable compensation plenum chamber is included as part of the test.
The pressure is adjustable from 0 to 30 bar (0-20 bar for mod. C431), and it is supplied by an automatic pump of variable supply, to achieve the most suitable installation for the specimen under test.
Water feed is direct from water inlet.
Seal pressure obtained through special and practical seal devices which maintain and simplify the use of the machine.
It is possible to use one or more cells together.
The specimen's sealing system is achieved through a practical and speedy, user-friendly device.

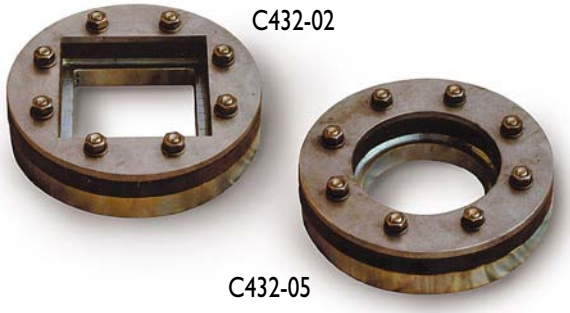
Supplied complete with four cells, four graduated cylinders, epoxy resin and accessories. The sealing devices are not included in the standard package and must be ordered separately.
Power supply: 220-240 V 1 ph 50 Hz
Dimensions: 2500x500x1300 mm
Weight: 240 Kg

ACCESSORIES for mod. C430 and C431:

SEALING DEVICE, complete with rubber latex packing which is between the two hot-galvanized steel collars. Complete with bolts.

MODELS:

C432-01 Sealing device for cubes 100 mm side
C432-02 Sealing device for cubes 150 mm side
C432-03 Sealing device for cubes 200 mm side
C432-04 Sealing device for cylinders dia. 100 mm
C432-05 Sealing device for cylinders dia. 150 mm
C432-06 Sealing device for cylinders dia. 160 mm
C432-07 Sealing device for cylinders dia. 300 mm



C432-02

C432-05

C433

EPOXY RESIN, to isolate the lateral surfaces of the concrete specimen. Can of 5 Kg

C431

Automatic concrete water permeability apparatus

apparatus, at two cells, similar to mod. C430, but suitable for carrying out tests on concrete cube specimens max. side 200 mm, and cylinder specimens max. dia. 300 mm. Supplied complete with two cells, two graduated cylinders, epoxy resin and accessories. The sealing devices are not included in the standard package and must be ordered separately. An original device allowing the cells to rotate up to 90° is included, for easier insertion of the specimen.
Power supply: 220-240 V 1 ph 50 Hz
Dimensions: 2200x700x1400 mm
Weight: 380 Kg

C431

C435

C435

Water impermeability tester

STANDARDS: DIN 1048 - EN 12364,
EN 12390/8 - ISO 7031
UNI 9533

Apparatus at 3 points to determine the depth of penetration of the water into the concrete (impermeability) under known time and pressure.
The unit accepts up to 3 concrete cubic, cylindrical or prismatic specimens having max. dimensions of 200x200x200 mm.
The specimen is put into the test chamber, clamped with suitable flanges and gaskets, and then a known water pressure is applied on the specimen's surface for a time as requested by Standard, by using a suitable air compressor (accessory) having at least 5 bar pressure capacity.
The water penetrated is measured by breaking the specimen, or by reading the water permeated through the graduated burette fixed on the front panel.
Dimensions: 1400x750x1700 mm
Weight 280 Kg

ACCESSORY:

V206
Laboratory air compressor.

MATEST manufactures a complete range of Mobile Laboratories as:

- Trailer-type mobile laboratory.
- Van-mounted mobile laboratory.
- Container mounted laboratory.

Both of small or large dimensions, by supplying also the mobile structure, benching, furniture, generators, air conditioning, electronic and plumbing installation etc; or by simply fixing the Testing Equipment on the mobile structure supplied by the customer.

Matest's technical staff is at complete disposal of the customer to study any specific requirement and to submit detailed proposals to satisfy the end-user's necessities.