COMPRESSION AND FLEXURAL TESTING MACHINE HIGH PERFORMANCE WITH DUAL TESTING CHAMBER AND TWO INDEPENDENT MEASURING RANGES 300 KN AND 15 KN WITH LOAD CELLS

STANDARDS: EN 196-1, EN 13286-41, EN 933-5, EN 1015-11 | ISO 679 | ASTM C109, C348, C349, C1194 | DIN 1164 | BS 4550 | GOST 26798-1

INVERTER For a further improvement of energy efficiency and silent operation, (optional device code C099N). NEW
Technical details, p. 223

This testing machine of high performance, advanced solutions and top quality components is equipped with two load chambers with two independent measuring ranges. It is suitable to perform:

- Flexural tests on cement prisms 40.1x40x160 mm (with the range 0 - 15 kN)
- Compression tests on portions of prism 40.1x40x160 mm broken in flexure, cubes side 40, 50, 70, 100 mm 2", cores with max. height of 180 mm (with the range 0 - 300 kN) by using the suitable compression devices described in next pages (accessories E170 - E172-02)

The applied load is measured by two strain gage load cells (15kN and 300 kN) at high accuracy.
This solution eliminates the weights of the piston and lower compression platen, packing set frictions etc., granting very high accuracy (max. error within ± 0,5%). The load chamber 0 - 15 kN permits very accurate tests on specimens having low strength (both in compression and in flexure).

Equipped with an electric microswitch to stop the piston after the specimen breakage, in order to avoid damages to the compression or flexure device.

MAIN FEATURES FOR ALL MODELS

- Max. vertical daylight between platens: 189 mm
- Horizontal daylight between columns: 210 mm
- Platens diameter: 165 mm
- Ram travel: 35 mm approx.
- Accuracy: Class 1 starting from 10% of the scale for both the ranges.
- Safety guards to CE Directive, polycarbonate made, with hinges.
- Supplied complete with lower compression platens and coupling pieces to easily fix the compression devices (see accessories).
- Dimensions of the frame: 1300x400xh1500 mm approx.
- Power supply: 230V 1ph 50Hz 750W
- Weight: 400 kg

Note: range 0-15 kN can be increased on request up to 25 kN.

E183N + C127N with compression devices

BARCODE NEW Scanner for specimen file/identification, (optional device code C099-01).
Details, p. 223

COMPRESSION / FLEXURAL		LOAD MEASURIG SYSTEM	
MODEL	Dual range kN	Cyber-Plus Evolution mod. C109N (p. 224)	Servo-Plus Evolution mod. C104N (p. 224)
E181N	300/15	▼	
E183N	300/15		▼

ACCESSORIES FOR DUAL CHAMBER MACHINES

E172-01 FLEXURE DEVICE for 40.1x40x160 mm mortar specimens. EN 1015-11, EN 196-1, EN/ISO 679 See p. 428

E172-01

E172-02 FLEXURE DEVICE for 40x40x160 mm mortar specimens. ASTM C348. See p. 428

E170 COMPRESSION DEVICE for portions of prism 40.1x 40x160 mm broken in flexure. EN 196, EN/ISO 679, ASTM C349. See p. 428

E170

E171 COMPRESSION DEVICE for cubes 50 mm and 2" side. ASTM C109, C1194. See p. 428

E171

E171-01 COMPRESSION DEVICE for cubes 70.7 mm side. BS 4550. See p. 428

E171-01

Note: other models of flexure and compression devices with accessories are listed at p. 428

E161-05 DISTANCE PIECE, 50 mm high

E161-06 DISTANCE PIECE, 25 mm high

Note: the compression devices do not require any distance piece.

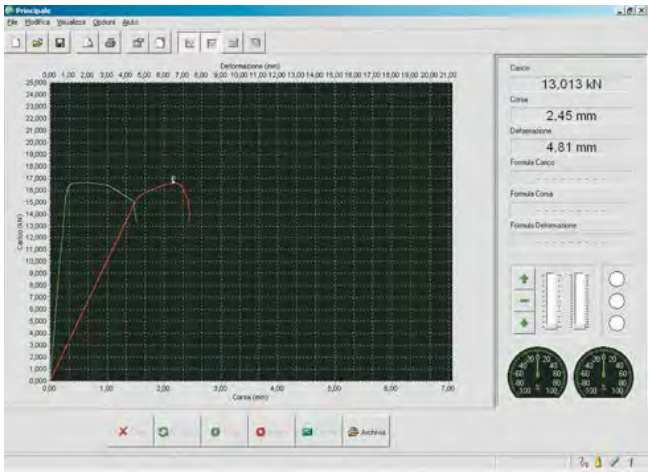
C127N GRAPHIC PRINTER on thermo-paper on board.

C127-11 THERMO-PAPER roll for printer (pack of 10 rolls)

E183-10 SAFETY GUARDS complete with stop switch.

C097-05 CLASS 1, starting from 1% of the full range. With a special calibration procedure it is possible to grant Class 1 practically on the full range of the machine.

H009-01 PERSONAL COMPUTER, LCD 22" monitor, keyboard, mouse, cables. The supply of the PC includes the installation of the software



C123N

C099N NEW INVERTER DEVICE granting a lot of improvements. Applicable only on Cyber-Plus and Servo-Plus Evolution machines. Technical details: see p. 223

C099N

SOFTWARE	
C123N	SOFTWARE **Servonet** for remote control through PC only for Servo-Plus
E163N	SOFTWARE for compression tests
E164N	SOFTWARE for flexural tests

Technical detail: see p. 18

COMPRESSION DEVICES

To be positioned between the compression platens of the machine; they fit perfectly without removing anything and without adding any distance piece.

Dimensions: 153x153x185 mm

MODELS

E170
COMPRESSION DEVICE FOR PORTIONS OF 40.1x40x160 MM PRISM BROKEN IN FLEXURE

STANDARDS: EN 196-1 | ASTM C349 | ISO 679

The compression platens have hardness 60 HRC and upper platen is seat ball assembled. The centering plug is distant 10 mm from the compression platen, as requested by the EN 196-1 Specification. Cadmium plated for rust protection.

Weight: 12 kg approx.

E170

ACCESSORY FOR MOD. E170

E170-11 CENTERING PLUG
STANDARD: EN 1015-11

Fixed on the E170 device in replacement of the standard centering plug, it modifies the distance from the compression platen to 16 mm, as requested by EN 1015-11 Specification.

E170-01
COMPRESSION DEVICE FOR PORTIONS OF 40.1x40x160 MM PRISM BROKEN IN FLEXURE

STANDARD: DIN 1164

Identical to mod. E170 but with compression platens having 40x62.5 mm size, as requested by DIN Standards.

Weight: 12 kg approx.

E170-01

E170-01G0
COMPRESSION DEVICE FOR PORTIONS OF 20x20x100 MM PRISM BROKEN IN FLEXURE

STANDARD: GOST 26798.1

Identical to mod. E170 but with compression platens as requested by Russian Standard.

E172-01G0 **E170-01G0**

E171
COMPRESSION DEVICE FOR CUBE 50 MM AND 2" SIDE

STANDARD: ASTM C109, C1194

Platens diameter: 72 mm and upper platen is seat ball assembled. This device can be used also to test cores max. 50 mm height.

Dimensions: 153x153x185 mm
Weight: 12 kg approx.

E171

E171-01
COMPRESSION DEVICE FOR CUBE 70.7 MM SIDE

STANDARD: BS 4550

It can be used also to test cores max. 70 mm height

Dimensions: 150x130x185
Weight: 9 kg approx.

E171-01

E172-01
FLEXURE DEVICE FOR 40.1x40x160 MM PRISMS

STANDARDS: EN 196-1 | EN 1015-11 | DIN 1164 | ISO 679

Upper bearer is seat ball assembled.
The distance between lower bearers is 100 mm and one of them has a spherical seat. Cadmium plated for rust protection.

Dimensions: 160x153x185 mm
Weight: 11 kg approx.

E172-01

E172-01G0
FLEXURE DEVICE FOR 20x20x100 MM PRISMS

STANDARD: GOST 26798.1

Identical to mod. E172-01 but with bearers as requested by Russian Standard.

E172-02
FLEXURE DEVICE FOR 40x40x160 MM PRISMS

STANDARD: ASTM C348

Identical to mod. E172-01 but lower bearers have distance of 119 mm as requested by ASTM Standard.

Weight: 11 kg approx.

COMBINED TWO FRAMES GROUP

UPGRADING OPTION:

- COMPRESSION AND FLEXURAL TEST ON MORTAR SPECIMENS
- COMPRESSION TESTS ON CONCRETE CUBE, CYLINDER AND BLOCKS SPECIMENS, BY CHOOSING THE STANDARD COMPRESSION MACHINE AMONG OUR DIFFERENT AVAILABLE MODELS FROM 1300 kN TO 5000 kN CAPACITY
  (see section Concrete from p. 230...280)

The composition of the combined group is obtained by:

C092-05
COMPRESSION FRAME ON MORTAR SPECIMENS

250 kN or 500 kN capacity, (mod. E159D, E159-01D, E159N, E159-01N, E161A, E161-02A, E161N, E161-02N; technical details and specific accessories at p. 418...421) complete with pressure transducer used in conjunction with a concrete digital compression machine (Digitec, Autotec, Cyber-Plus / Servo-Plus Evolution, see p. 230...280).

C055 example

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. E160N, E160-01N, E161-01N, E161-03N; technical details and specific accessories at p. 422...425) complete with two pressure transducers used in conjunction with a concrete digital compression machine (Cyber-Plus / Servo-Plus Evolution model only, see p. 230...280).

C056 example

C092-06

C092-07
DUAL TESTING CHAMBER FRAME

(E181N, E183N technical details at p. 426) 300 kN and 15 kN, complete with load cells, used in conjunction with a concrete digital compression machine / Cyber and Servo-Plus Evolution models only. See p. 230...280

C055 example

C092-07

In addition to the proposed groups, it is possible to compose many other alternative testing groups, with digital display measuring system; like for ex:

- Group formed by one concrete flexural frame and one mortar compression frame.

Group example

E190N
DETERMINATION OF MODULUS OF ELASTICITY IN COMPRESSION OF PRODUCTS AND SYSTEMS FOR THE PROTECTION AND REPAIR OF CONCRETE STRUCTURES (MORTARS).

AUTOMATIC WITH PACE RATE CONTROL ALSO WHEN RELEASING THE LOAD

STANDARD: EN 13412

It can be used with a MATEST testing machine to be selected among the Servo-Plus Evolution models (ref. C104N, see p. 224).

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 8 high resolution channels for the control of load cells or transducers with strain gages bridge.
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 following the most updated International Standards for this application.

C125-13

C134

DATA ACQUISITION AND PROCESSING SOFTWARE UTM2 LICENSE FOR ELASTIC MODULUS TO EN 13412

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 dates concerning the specimen that will be tested and the kind of test that he wants to make: shape of the specimen, 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 RJ (Network Connection) to a Personal Computer, that can be already by the end user or supplied separately (not included with the Software), all the dates of the test. These dates will be processed by the software and transformed in a graph load/deformation and load/time, following the International Standards.

The software gives the possibility to print on a standard printer a test certificate reporting all the dates concerning the test and the specimen and the graph of the test. The Software includes the license "Servonet" mod. C123N while the extensometers (two models are proposed: A and B) are not included in the standard supply, and must be ordered separately (see accessories).

Note: The Elastic Modulus on Mortars mod. E190N can be used together with:

A) EXTENSOMETERS (STRAIN GAGES), SINGLE USE, ELECTRIC, available in different sizes, mod. C125-10 to C125-13 (see accessories).

or:

B) EXTENSOMETERS /COMPRESSOMETERS, electronic, universal, mechanical frame, mod. C134 (see accessories)

ACCESSORIES

A) EXTENSOMETERS (STRAIN GAGES), SINGLE USE, ELECTRIC
Pack of 10 pieces

Available models:

C125-10 Base length 10 mm
C125-11 Base length 20 mm
C125-12 Base length 30 mm
C125-13 Base length 60 mm
C125-14 Base length 120 mm

C125-15

KIT for the application of single use extensometers composed by: glue, welder, solder, cleaning liquid, accessories, the whole in carrying case.

C125-09

INTERFACE MODULE, **needed accessory** to connect up to 4 electric single use extensometers. This module allows also the automatic calibration of the zero and of the measuring range after a special thermal compensation. This grants a five times better accuracy than the one requested by the Standards.

C125-09

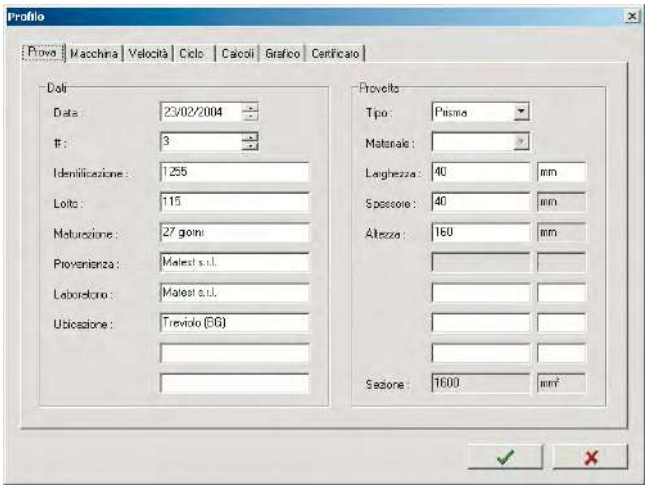
AS AN ALTERNATIVE:

B) **C134**
EXTENSOMETER / COMPRESSOMETER, ELECTRONIC, UNIVERSAL, MECHANICAL FRAME.
It can be used only with samples having minimum height of 130 mm
Technical details: see p. 286

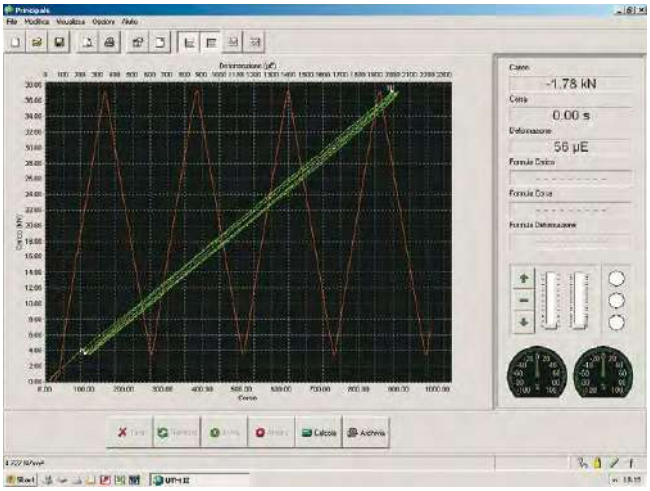
C134

C134-10

TEMPLATE, to regulate and calibrate the base length of the C134 extensometer.



Personalisation of the test certificate.



Screen during a test and marker indicating any change.